Development Review Committee

August 14, 2025 at 2:00 PM
Howey-in the-Hills Town Hall
101 N. Palm Ave.,
Howey-in-the-Hills, FL 34737

Join Zoom Meeting: https://us06web.zoom.us/j/81712317209?pwd=dys0hV9JOARKki46wa2doNDgSQCawC.1
Meeting ID: 817 1231 7209 | **Passcode:** 828599

AGENDA

CALL TO ORDER
ATTENDANCE

NEW BUSINESS

1. Discussion: **Lake Hills Final Subdivision Plan - Phase 1**

2. Discussion: **Watermark - Final Subdivision Plan Submittal**

PUBLIC COMMENTS
Any person wishing to address the Development Review Committee and who is not on the agenda is asked to speak their name and address. Three (3) minutes is allocated per speaker. The general Public Question & Comment period will be limited to a maximum of thirty (30) minutes unless extended by the Presiding Officer.

ADJOURNMENT

To Comply with Title II of the Americans with Disabilities Act (ADA):

Qualified individuals may get assistance through the Florida Relay Service by dialing 7-1-1. Florida Relay is a service provided to residents in the State of Florida who are Deaf, Hard of Hearing, Deaf/Blind, or Speech Disabled that connects them to standard (voice) telephone users. They utilize a wide array of technologies, such as Text Telephone (TTYs) and ASCII, Voice Carry-Over (VCO), Speech to Speech (STS), Relay Conference Captioning (RCC), CapTel, Voice, Hearing Carry-Over (HCO), Video Assisted Speech to Speech (VA-STS) and Enhanced Speech to Speech.

Howey Town Hall is inviting you to a scheduled Zoom meeting.
Topic: **Development Review Committee**
Time: **Aug 14, 2025 02:00 PM Eastern Time** (US and Canada)
Join Zoom Meeting
https://us06web.zoom.us/j/81712317209?pwd=dys0hV9JOARKki46wa2doNDgSQCawC.1
Meeting ID: 817 1231 7209
Passcode: 828599

Dial by your location
+1 646 558 8656 US (New York)
+1 346 248 7799 US (Houston)
Meeting ID: 817 1231 7209
Passcode: 828599
Find your local number: https://us06web.zoom.us/u/kebhfi6FvE

Please Note: In accordance with F.S. 286.0105: Any person who desires to appeal any decision or recommendation at this meeting will need a record of the proceedings, and that for such purposes may need to ensure that a verbatim record of the proceedings is made, which includes the testimony and evidence upon which the appeal is based. The Town of Howey-in-the-Hills does not prepare or provide this verbatim record. Note: In accordance with the F.S. 286.26: Persons with disabilities needing assistance to participate in any of these proceedings should contact Town Hall, 101 N. Palm Avenue, Howey-in-the-Hills, FL 34737, (352) 324-2290 at least 48 business hours in advance of the meeting.

ZONING MEMORANDUM

July 3, 2025
Prepared for
Town of Howey-in-the-Hills
Attn: Sean O'Keefe, Town Manager

Lake Hills- Phase 1 Final Subdivision Plans Review

Applicant: Reader and Partners

Planning staff reviewed the proposed Lake Hills- Phase 1 Final Subdivision Plans. The following revisions and information will be needed before the plans can be scheduled for consideration by the Planning and Zoning Board and Town Council. Please provide a response to each item and revise the Plan Set accordingly.

Please provide the following information on the plans consistent with Land Development Code (LDC) Sec. 4.05.21 Final Subdivision Plan Drawings:

1. All lots shall show all dimensions and the building envelope.

2. The plans should show property lines with dimensions.

3. All setbacks from streets and highways shall be illustrated.

4. All setbacks on irregular shaped lots shall be illustrated.

5. The tree survey submitted at the Preliminary Subdivision Plan phase should again be overlaid on the Final Subdivision Plans to show trees in relation to proposed improvements. The plans should also include a table indicating which trees are proposed to be saved and which are proposed to be removed.

Additionally, please provide an update on the requirement from the Town Council April 14, 2025 approval of the mass grading permit, which requires the applicant to redesign the intersections of the Main Boulevard at both SR 19 and CR 48 to reflect the construction of traffic circles and, coordinate with the other property owners in the Lake Hills project (i.e. Publix, Mission Inn, FDOT and other applicants) to effectuate the traffic circle design on all parties' plans.

GRIFFEY ENGINEERING, INC.

August 12, 2025
Lake Hills, Phase 1 – Construction Plans
Engineering Review Comments
Page 1

General Comments

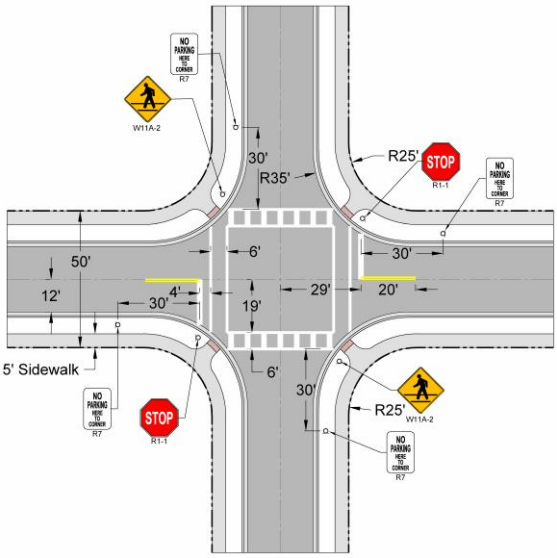
1. Additional comments may be added to these with the reviews of subsequent submittals.

2. Provide copies of SJRWMD and FDEP Water & Sewer permits before commencing work.

Roads

3. The road detail on Sheet C901 is the current town road standard: 60' r/w, 11' travel lanes & 8' on-street parking (38' pavement width). The plans show a 50' r/w, 11' travel lanes and no on-street parking. The detail in the plan is the current LDC requirement for local roads. That standard went into effect 8/26/2024. The PSP was approved on 04/22/2024 with the old road standard (50' r/w, 12' travel lanes). Revise the plans to comply with the old road standard. Also, the LDC requires a minimum EOP corner radius of 35'.

4. Lake Hills PUD is to be designed as a Complete Streets, pedestrian friendly community. The intersections of the residential streets need to provide full pedestrian accommodation. Pedestrians need to have clearly designated means (crosswalks & signage) to safely traverse an intersection from any corner to any other corner or side. Intersection design needs to meet that intent and comply as much as possible with the town's road detail R1A. The detail has been updated to comply with the recommendations from FHWA-SA-17-072 (Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations). Provide additional crosswalks at the locations shown on the attached markup. Include the signage as shown in R1A.



5. The Lake Hills Development Agreement states: "The sidewalk and buffer along CR 48 shall be completed on or before the date that construction of subdivision improvements is completed for the first pod to be located adjacent to CR 48". Also, the approved PSP shows a sidewalk along CR 48. The county has stated that the portion of the trail along the boulevard can be considered as part of the Central Lake Trail route. That means that a trail segment between the project's CR 48 entrance and SR 19 does not need to be constructed. However, it does not necessarily follow that a sidewalk is not needed along that section of CR 48. Waiving the requirement for the construction of that portion of sidewalk requires approval of town council.

6. For the side street sidewalks connecting to the boulevard trail/sidewalk provide a 5' inside corner radius.

7. The stop sign and stop bar on Starside at the Boulevard is on the wrong side of the street.

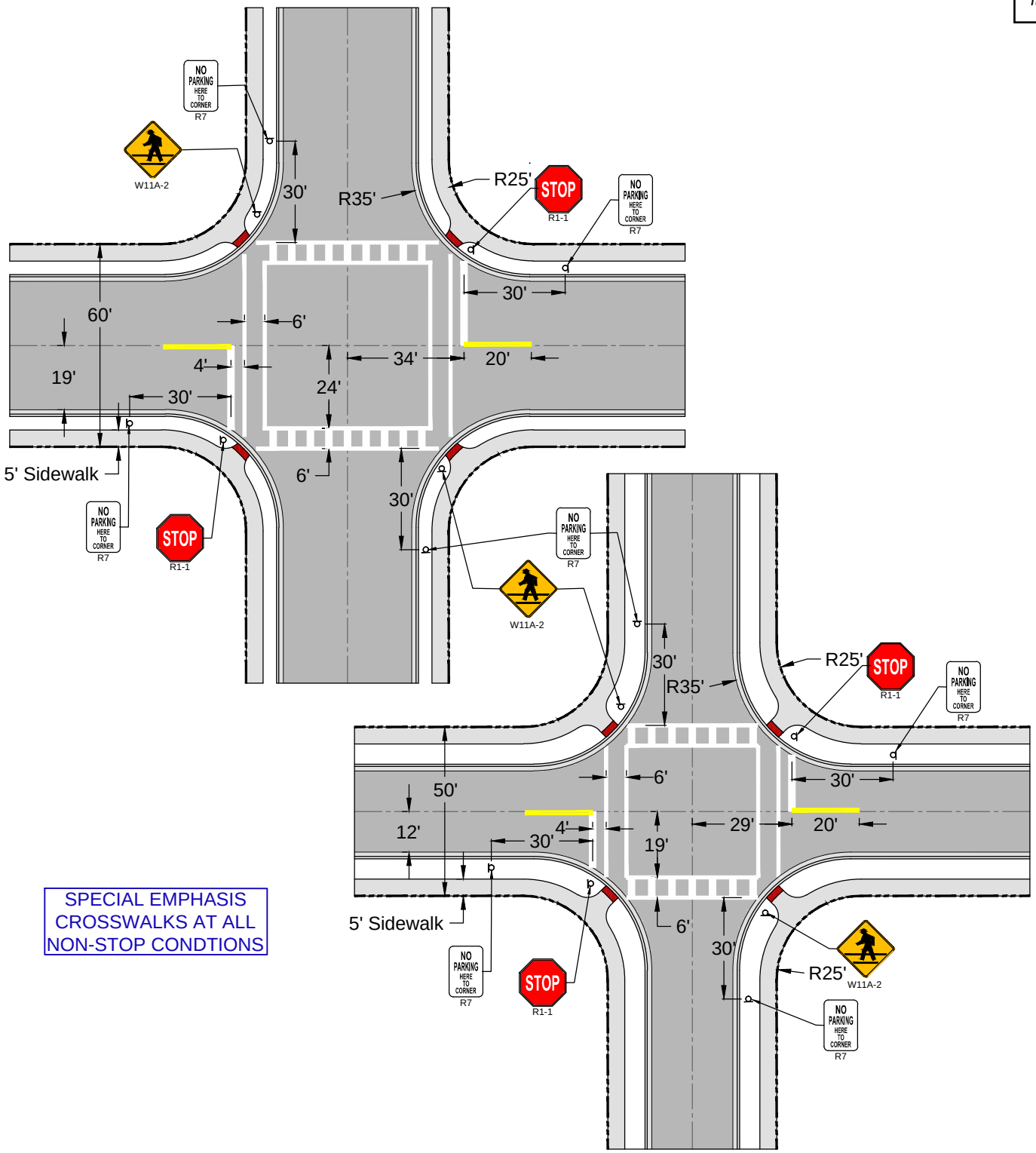
Potable & Irrigation Water

8. Show on the utility plans the proposed canopy trees from the landscape plan that are within the right-of-way. Call out in the plan that the trenches for the water and irrigation mains need to be lined with a root barrier for 30' adjacent to the proposed tree. Based on the landscaping proposed for the Boulevard, those pressure mains (water, irrigation & force main) will need to have their trenches lined along their full length.

9. The irrigation water supply system is subject to further review & comment.

Wastewater

10. Move SS31 out of the crosswalk. Move SS029 out of the valley gutter.



SPECIAL EMPHASIS CROSSWALKS AT ALL NON-STOP CONDTIONS

LOCAL ROAD INTERSECTION PEDESTRIAN & TRAFFIC CONTROL

Howey—in—the—Hills

Standard Details

DATE: AUG 2025

DETAIL R-1A

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS

July 25, 2025

Howey-in the-Hills Town Hall
Attn: John Brock
101 N. Palm Ave.,
Howey-in-the-Hills, FL 34737

RE: Lake Hills- Phase 1 Final Subdivision Plans Review

Dear John:

Below please find our responses to those comments.

Park Consulting Services

Comment 1: All lots shall show all dimensions and the building envelope.

Response 1: Dimensions for all lots are provided on sheet C101-C105. The building envelope is identified by the setbacks shown on C101-C105. Typical lot diagrams identifying the provided setback dimensions are shown on sheet C106.

Comment 2: The plans should show property lines with dimensions.

Response 2: Property lines that are shown on sheets C101, C102, C105 have been revised to identify the property and include dimensions.

Comment 3: All setbacks from streets and highways shall be illustrated.

Response 3: All setbacks are shown on lots for sheets C101-C105. Typical lot diagrams are provided on sheet C107.

Comment 4: All setbacks on irregular shaped lots shall be illustrated.

Response 4: All setbacks on irregular shaped lots are shown on sheets C101-C105.

Comment 5: The tree survey submitted at the Preliminary Subdivision Plan phase should again be overlaid on the Final Subdivision Plans to show trees in relation to proposed improvements. The plans should also include a table indicating which trees are proposed to be saved and which are proposed to be removed.

Response 5: ***A tree mitigation plan is included in the most recent submittal.***

Griffey Engineering, Inc.

General Comments:

Comment 1: Additional comments may be added to these with the reviews of subsequent submittals.

Response 1: ***Acknowledged.***

Comment 2: Provide copies of SJRWMD and FDEP Water & Sewer permits before commencing work.

Response 2: ***Acknowledged. A copy of the ERP and FDEP permits will be provided to the Town prior to construction commencing.***

Comment 3: When will the community park be developed? A site plan will need to be submitted for it.

Response 3: ***The community park will be provided with the first phase of the Subdivision plan. Landscape plans have been provided with the most recent submittal and sheet C106 has been updated to show the Public Park reflected within the submitted landscape plans.***

Comment 4: Optional Gate Plan: Change the intersection of CR 48 and the main boulevard to a roundabout and adjust the gate configuration accordingly.

Response 4: ***Optional Gate plan has been revised to show the proposed Roundabout at the intersection of CR 48 and subdivision entrance. Gates have been revised to their proposed location.***

Comment 5: The environmental consultant for the project has stated to the SJRWMD that the roads won't be gated and will be publicly maintained. This was pertaining to an access easement to wetland areas. This seems to be in conflict with the Optional Gate Plan

Response 5: ***The optional Gate plan is provided to move the conversation forward for gating the subdivision. Until such time Town Council approves gating the neighborhood this optional gate plan will not apply to construction.***

Comment 6: Retaining walls need to include safety railings, and will require structural permitting.

Response 6: ***Acknowledged, all retaining walls as it relates to height and location were permitted with the Mass Grading/Infrastructure. The structural permitting will be submitted under a separate cover to the town. Additional callouts have been added to sheets C401-C408 to identify the existing retaining walls with handrails.***

<u>Roads:</u>

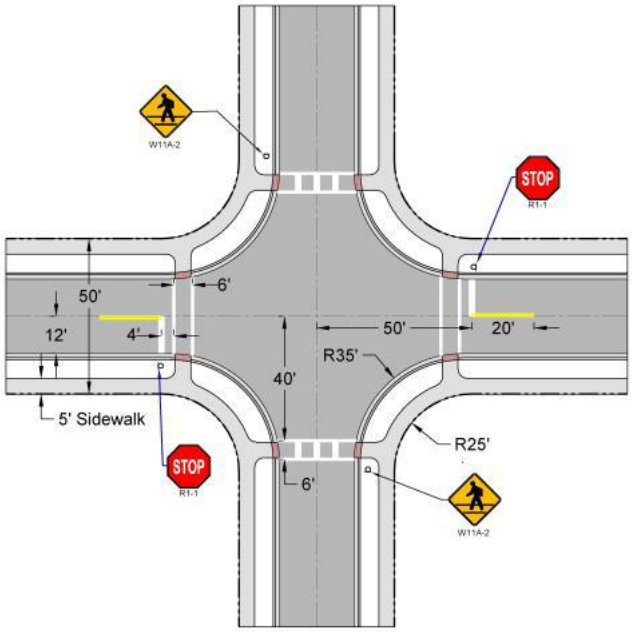
Comment 7: Remove soil cement as a road base option.

Response 7: ***Sheet C106 has been revised to remove the soil cement as a road base option.***

Comment 8: Remove the City of Leesburg reference in the pavement specifications

Response 8: ***Sheet C106 has been revised to remove the reference to City of Leesburg.***

Comment 9: Lake Hills PUD is to be designed as a Complete Streets, pedestrian friendly community. The intersections of the residential streets need to provide full pedestrian accommodation. Pedestrians need to have clearly designated means (crosswalks & signage) to safely traverse an intersection from any corner to any other corner or side. Intersection design needs to meet that intent and comply as much as possible with the town's road detail R1A. Curb ramps need to be perpendicular to the road and not placed at the center of the corner radius. The distance from the intersection of the nonstop crosswalks can vary to align with lot lines and not conflict with driveways.



Response 9: ***The towns detail conflicts with FDOT's standard for stop bars adjacent to travel ways. For safety purposes, a stop bar should be no further than 30' from a***

travel way, with a 35' radius, crosswalk, and separation to the stop bar this would not be feasible to maintain. Our proposed configuration supports a safe passage for both the pedestrian and motorist.

Comment 10: Identify on the plans the locations where sidewalks are to be constructed with the subdivision construction. Add a note that all curb ramps are to be constructed with the subdivision.

Response 10: Sidewalks being installed with the subdivision are identified on sheet C601-C605. A note has been added to sheet C601-C605 indicating all curb ramps will be installed with the subdivision.

Comment 11: Will there be a future extension of the road at Sta 350+00, to the community recreation park? If the road needs Type 6 inlets, then the end of road construction needs to go to the far end of the inlet.

Response 11: Sheet C301 identifies the extended road beyond the Type 6 inlet. There are no current plans to extend the road. Final amenity plans will be submitted under a separate cover.

Comment 12: Install barricades (Detail R-21) at the ends of all stubbed-out streets.

Response 12: Sheets C601-C603 have been revised to identify the location of barricade signs where roads are stubbed out. Additional City Detail R-21 has been added to sheet C904.

Comment 13: Install a 12" header (ribbon) curb across the ends of all stubbed-out streets (both temporary & permanent).

Response 13: Sheets C601-C603 have been revised to show ribbon curbing at all stubbed-out streets.

Potable & Irrigation Water:

Comment 14: Water mains and irrigation mains should be placed between the back of curb and edge of sidewalk. Valves should be located in grassed areas whenever possible.

Response 14: Sheets C201-C205 have been revised to show all valves be placed outside of curb lines and curb ramps.

Comment 15: Add a conspicuous note to the utility plans that valves are not to be placed in curb lines or in curb ramps. Adjust the depiction of the valves on the plans to show them outside of curbs and curb ramps.

Response 15: A note has been added to all Utility sheets C200-C205.

Comment 16: Per the LDC, minimum water main sizes are 6".

Response 16: Water mains in the cul-de-sac have been revised to show a 6" main. See revised sheets C203 and C205.

Comment 17: Provide plans & details of the irrigation water supply system.

Response 17: A 90% set has been provided with this submittal. These plans are not issued for construction, however, provided by Halff to allow the town to review progress of the final irrigation water supply system.

Wastewater:

Comment 18: The sewer service to Lot 1 is too long, move SS040 to Sta 390+75. The sewer service to Lot 102 is too long, move SS014 to Sta 360+50. The sewer service to Lot 119 is too long, move SS024 to Sta 350+25. . The sewer service to Lots 155 & 156 is too long, move SS045 to Sta 300+75.

Response 18: Sanitary services do not exceed a length over 100'. Additional sanitary laterals have been added to profile sheets C503, C505, C506, C510, and C511.

Comment 19: The town standard is for sanitary sewers to be at the road centerline. Move manholes SS031, SS029, SS061 to the center of the intersection.

Response 19: Surveyor nails are typically required to be placed at the centerline of intersections. To allow for survey nails our design does not place manholes at the center of intersections.

If you have any questions, please don't hesitate to contact our office.

Sincerely,

David A. Stokes

David A. Stokes, P.E.
President

DAS/ja
H:\Data\23MMS0190-Lake Hills PD(howeyin the Hills)\Cor\Comment & Response Letters\Howey-in-the-Hills Response - 6.doc

Submittal For Approval
Sanitary Utility Sewerage Piping
Force Main

Prepared by: Sandrema dba Eden Site Development

Project: Lake Hills

Date: 7/23/2025

Source Data: Off site Utility Plans Rev 3/2/25
8" DR18 for open cuts and 10" HDPE DR11 for directional drill runs

01-333100 Sanitary Utility Sewerage Piping Forcemain .pdf
Reviewed for General Acceptance only. We hereby certify that the material shown and marked in this submittal is that proposed to be incorporated in the work, is in compliance with the contract documents, can be installed in the allocated spaces and is submitted for review by the Designer.

Eden Site Development Inc.
By: Sean Bader
Date: 07/23/2025

XX ☐	Reviewed	☐	Revise and resubmit
☐	Rejected	☐	Furnish as corrected

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for continuing and correlating all quantities and dimension; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The contractor is responsible for providing copies of shop drawings to governing municipality and obtaining approval if necessary.

Date: 7/25/25 By: JAMES DOMBROWSKI
MADDEN, MOORHEAD & STOKES, LLC

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS

AWWA C900
MANUFACTURER'S CERTIFICATION

This is to certify the pipe manufactured by Sanderson Pipe meets or exceeds the applicable engineering standards listed below for 4" through 12" C900 pipe.

Materials
Comply with ASTM D1784 for PVC 1120 cell classification 12454. Materials used in the manufacture of our certified C900 pipe are NSF/ANSI 14 and 61 listed.

Dimensions/Testing
All pipe meets or exceeds the performance requirements listed in the current version of ANSI/AWWA C900, UL1285 and FM 1612. Each C900 pipe is hydrostatic tested to at least two times the pressure class per AWWA C900-16 standards. Testing records are maintained and available upon request.

Markings on the Pipe
Identification of nominal pipe size (CI diameter), PVC, dimension ratio, ANSI/AWWA pressure class, test pressure for hydrostatic tested pipe, AWWA designation number (ANSI/AWWA C900), manufacture's name and code. Additional certified seals printed on the pipe are: NSF-pw, NSF-61, UL1285, and Factory Mutual (FM 1612 Approved for DR18 at 185 PSI and DR14 at 250 PSI only).

Joints
Integral bell joint system complies with the requirements of ASTM D3139.

Gasket
All gaskets are NSF approved and comply with ASTM F477 standards.

Color
Standard C900 pressure pipe is blue. Purple (marked "Caution – Do Not Drink Reclaimed Water") and green (marked "Sewer Force Main") is available upon request. The purple and green C900 pipe will not carry the NSF-pw, NSF-61, UL1285, or Factory Mutual seals.

Length
Manufactured in 20 foot lay lengths with a 15 degree chamfer.

Tapping
It is extremely important to use the proper procedures and tools while tapping pipe. Sanderson Pipe Corporation recommends strict compliance with the requirements as specified in AWWA C605.

Installation
Sanderson Pipe Corporation recommends using installation procedures outlined in AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. The AWWA Manual M23, and Handbook of PVC Pipe Design and Construction (from Uni-Bell/PVC Pipe Association) are additional resource guides for design and installation.

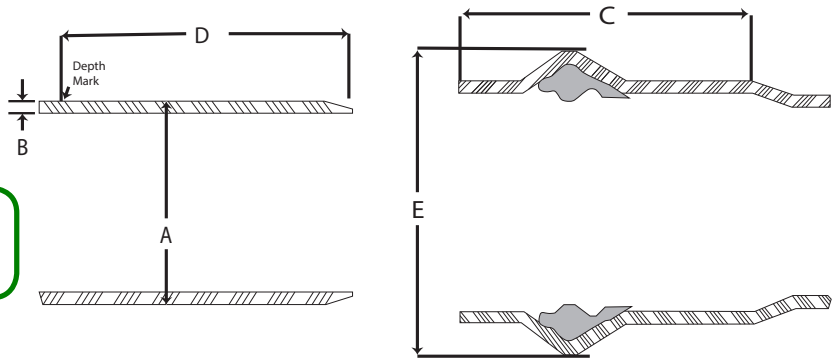


C900

SANDERSON PIPE CORPORATION

Pipe Size	Outside Diameter (A)	Minimum Wall (B)		
		DR-25 (165 PSI)	DR-18 (235 PSI)	DR-14 (305 PSI)
4”	4.800”	0.192”	0.267”	0.343”
6”	6.900”	0.276”	0.383”	0.493”
8”	9.050”	0.362”	0.503”	0.646”
10”	11.100”	0.444”	0.617”	0.793”
12”	13.200”	0.528”	0.733”	0.943”

GREEN



Pipe Size	Dimensions		
	*(C) Bell Length	*(D) Insertion / Reference Mark	(E) Approximate Bell OD Clearance
4”	5.50”	4.50”	6.50”
6”	6.25”	5.25”	9.25”
8”	7.50”	6.50”	11.875”
10”	8.75”	7.75”	14.500”
12”	9.25”	8.25”	16.875”

*May vary up to ± ½”

FM APPROVED

NSF®

ASTM INTERNATIONAL Standards Worldwide

MEMBER UniBell PVC PIPE ASSOCIATION



Made with Pride in the USA

HDPE Water/Sewer | DIPS

PRESSURE-RATED HDPE PIPE

ANSI/AWWA C906, ASTM F714, ASTM D3035
ASTM D3350 Cell Class 445574C/E, PPI (TR-4) PE 4710
ANSI/NSF 61/14

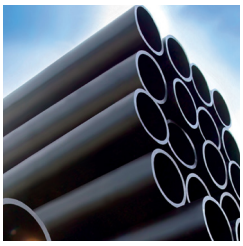
JM Eagle™
DELIVERING GOOD WATER TO YOU

MARKETS

Potable | Reclaim | **Sewer** | Drainage | Rehabilitation

DESCRIPTION

DIPS	PIPE SIZES:	ADDITIONAL OPTIONS:
Nominal Laying Length: 40/50 feet *(Laying length tolerances are in accordance with AWWA and ASTM standards)*	4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48"	**Perforated*:** 4", 6", 8" **Coil*:** 4", 6"
PIPE COLORS:	**BLACK W/COLOR STRIPES:**	**ADDITIONAL COLOR OPTIONS:**
Black	Blue, Green, Purple	Grey*



Standard HDPE



Coiled HDPE

AWWA C906	
DR 7	335 psi
DR 9	250 psi
DR 11	200 psi
DR 13.5	160 psi
DR 17	125 psi
DR 19	112 psi
DR 21	100 psi
DR 26	80 psi
DR 32.5	63 psi



BENEFITS



Lightweight, with long laying length, great for easy transportation and installation.

Pipe applicable for open-trench and slip-lining installation.



Extremely durable, corrosive, gouging and abrasion resistant.

Features 100 years design life per Florida DOT.

Great flexibility, and highly suitable for earthquake-prone areas.

Highest PE pressure rating, resistance to slow crack growth and rapid crack propagation.

Made in America

JM Eagle 50 YEAR WARRANTY* ON PLASTIC PIPE

*Please call regarding availability.

HDPE Water/Sewer | DIPS

PRESSURE-RATED HDPE PIPE

JM Eagle™

DELIVERING GOOD WATER TO YOU

SUBMITTAL AND DATA SHEET

HDPE DUCTILE IRON OUTSIDE DIAMETER PRESSURE PIPE

PIPE SIZE (IN)	AVG O.D. (IN)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)
		DR 7 (335 psi)			DR 9 (250 psi)			DR 11 (200 psi)		
4	4.800	0.686	3.346	3.87	0.533	3.670	3.13	0.436	3.876	2.62
6	6.900	0.986	4.868	7.99	0.767	5.274	6.46	0.627	5.571	5.41
8	9.050	1.293	6.309	13.75	1.006	6.917	11.12	0.823	7.305	9.32
10	11.100	1.586	7.738	20.68	1.233	8.486	16.72	1.009	8.961	14.01
12	13.200	1.886	9.202	29.25	1.467	10.090	23.65	1.200	10.656	19.82
14	15.300	2.186	10.666	39.29	1.700	11.696	31.77	1.391	12.351	26.63
16	17.400	2.486	12.130	50.82	1.933	13.302	41.08	1.582	14.046	34.44
18	19.500	2.786	13.594	63.82	2.167	14.906	51.61	1.773	15.741	43.25
20	21.600	3.086	15.058	78.31	2.400	16.512	63.32	1.964	17.436	53.07
24	25.800	N/A	N/A	N/A	2.867	19.722	90.35	2.345	20.829	75.69
30	32.000	N/A	N/A	N/A	N/A	N/A	N/A	2.909	25.833	116.46
36	38.300	N/A	N/A	N/A	N/A	N/A	N/A	3.482	30.918	166.84

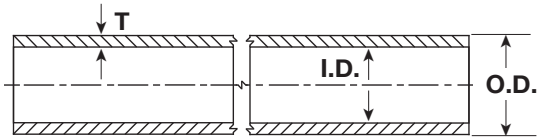
PIPE SIZE (IN)	AVG O.D. (IN)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)
		DR 13.5 (160 psi)			DR 17 (125 psi)			DR 19 (111 psi)		
4	4.800	0.356	4.045	2.18	0.282	4.202	1.76	0.253	4.264	1.59
6	6.900	0.511	5.817	4.50	0.406	6.039	3.64	0.363	6.130	3.27
8	9.050	0.670	7.630	7.74	0.532	7.922	6.25	0.476	8.041	5.63
10	11.100	0.822	9.375	11.64	0.653	9.761	9.41	0.584	9.862	8.47
12	13.200	0.978	11.127	16.47	0.776	11.555	13.30	0.695	11.727	11.99
14	15.300	1.133	12.898	22.12	0.900	13.392	17.88	0.805	13.593	16.10
16	17.400	1.289	14.667	28.61	1.024	15.229	23.13	0.916	15.458	20.84
18	19.500	1.444	16.439	35.92	1.147	17.068	29.04	1.026	17.325	26.15
20	21.600	1.600	18.208	44.09	1.271	18.905	35.64	1.137	19.190	32.10
24	25.800	1.911	21.749	62.90	1.518	22.582	50.84	1.358	22.921	45.80
30	32.000	2.370	26.976	96.76	1.882	28.123	78.18	1.684	28.430	70.45
36	38.300	2.837	32.286	138.62	2.253	33.524	112.02	2.016	34.026	100.94
42	44.500	N/A	N/A	N/A	2.618	38.950	151.24	2.342	39.535	136.24
48	50.800	N/A	N/A	N/A	2.988	44.465	197.05	2.674	45.131	177.57

PIPE SIZE (IN)	AVG O.D. (IN)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)	MIN. T. (IN)	AVG I.D. (IN)	WGT (LBS/FT)
		DR 21 (100 psi)			DR 26 (80 psi)			DR 32.5 (63 psi)		
4	4.800	0.229	4.315	1.44	0.185	4.408	1.18	0.148	4.486	0.95
6	6.900	0.329	6.203	2.98	0.265	6.338	2.43	0.212	6.451	1.96
8	9.050	0.431	8.136	5.13	0.348	8.312	4.18	0.278	8.461	3.37
10	11.100	0.529	9.979	7.72	0.427	10.195	6.29	0.342	10.375	5.08
12	13.200	0.629	11.867	10.91	0.508	12.123	8.91	0.406	12.339	7.18
14	15.300	0.729	13.755	14.66	0.588	14.053	11.95	0.471	14.301	9.65
16	17.400	0.829	15.643	18.96	0.669	15.982	15.46	0.535	16.429	12.49
18	19.500	0.929	17.531	23.81	0.750	17.910	19.95	0.600	18.228	15.67
20	21.600	1.029	19.419	29.22	0.831	19.838	23.84	0.665	20.190	19.24
24	25.800	1.229	23.195	41.68	0.992	23.697	33.99	0.794	24.117	27.44
30	32.000	1.524	28.769	64.11	1.231	23.390	52.31	0.985	29.912	42.22
36	38.300	1.824	34.433	91.84	1.473	35.177	74.92	1.178	35.873	60.43
42	44.500	2.119	40.008	123.96	1.712	40.871	101.17	1.369	41.480	81.59
48	50.800	2.419	45.672	161.55	1.954	46.658	131.83	1.563	47.486	106.34

Product Standard: ANSI/AWWA C906
ASTM F714, ASTM D3035
Pipe Compound: PPI TR-4 PE 4710,
ASTM D3350 Cell Class 445574 C/E
Certification: ANSI/NSF 61, ANSI/NSF 14*
Additional Option: Perforated (4" - 8")*
Nominal Laying Length: 40/50 feet
(Laying length tolerances are in accordance with AWWA and ASTM standards)
Coil option available upon request for size 6" and below.
Installation: JM Eagle™ HDPE Water/Sewer Installation Guide

Manning Coefficient (n) = 0.009
Hazen-Williams Coefficient (c) = 150

*Supply may vary based on plant location. Please call regarding availability.



T: (Wall Thickness)
I.D.: (Inside Diameter)
O.D.: (Outside Diameter)

CONSTRUCTION PLANS
FOR

LAKE HILLS IRRIGATION PUMP STATION

90% SUBMITTAL

SECTION 22/23 TOWNSHIP 20S RANGE 25E
HOWEY-IN-THE-HILLS, FLORIDA
JULY 2025

ENGINEER

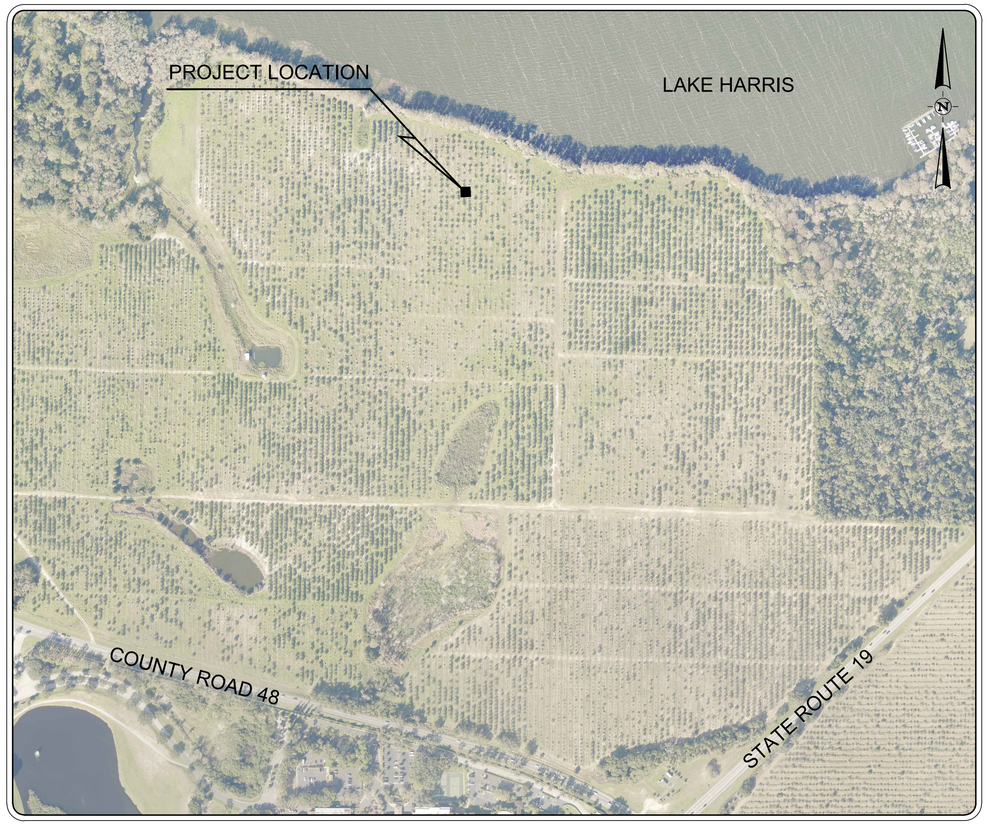
HALFF
902 N. SINCLAIR AVE.
TAVARES, FLORIDA 32778
CONTACT: ROBERT A. ERN
EMAIL: RERN@HALFF.COM
TEL: (352)343-8481
FIRM/ BUSINESS NO.: FLA CA 33380 & FL LC 2600045 STATE: FL

ARCHITECT

KP STUDIO ARCHITECT
537 NE 8TH AVE
OCALA, FL 34470
CONTACT: JOSPEH SMITH
EMAIL: JSMITH@KPSTUDIOARCHITECT.COM
TEL: (352)622-7163 EXT. 132

OWNER/DEVELOPER

READER COMMUNITIES
5850 T.G. LEE BOULEVARD
SUITE 200
ORLANDO, FL, 32822
CONTACT: DEAN A. BARBERREE
EMAIL: DEAN@READERCOMMUNITIES.COM
TEL: (407)856-4899



PROJECT MAP
SCALE: 1" = 300'

INDEX OF SHEETS	
SHEET NO.	SHEET TITLE
C-001	COVER
C-002	EROSION CONTROL PLAN
C-101	SITE PLAN
C-102	PLAN & PROFILE
C-103	PLAN & PROFILE (CONT.)
C-201	PUMP STATION PLAN VIEW
C-202	PUMP STATION SECTION VIEW
C-203	CHLORINE ROOM
C-301	DETAILS
C-302	DETAILS
A-101	INDEX & SPECIFICATIONS
A-201	FLOOR PLAN & ELEVATIONS
A-202	WALL SECTION& DETAILS
S-101	FOUNDATION & ROOF FRAMING PLANS & DETAILS
M-001	MECHANICAL NOTES
M-101	FLOOR PLAN MECHANICAL
E-01	ELECTRICAL SITE PLAN, NOTES, SYMBOLS & ABBREVIATIONS
E-02	SINGLE LINE DIAGRAM
E-03	ELEMENTARY DIAGRAMS
E-04	PUMP STATION POWER PLAN
E-05	PUMP STATION LIGHTING PLAN
E-06	PUMP STATION LIGHTNING PROTECTION & GROUNDING PLAN
E-07	ELECTRICAL DETAILS & SCHEDULES
I-01	INSTRUMENTATION NOTES, SYMBOLS, & ABBREVIATIONS
I-02	P&ID EFFLUENT
I-03	SODIUM HYPO SYSTEM P&ID
I-04	NETWORK DIAGRAM



OWNER/CLIENT:

READER COMMUNITIES

5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO, FL 32822
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PREPARED BY:

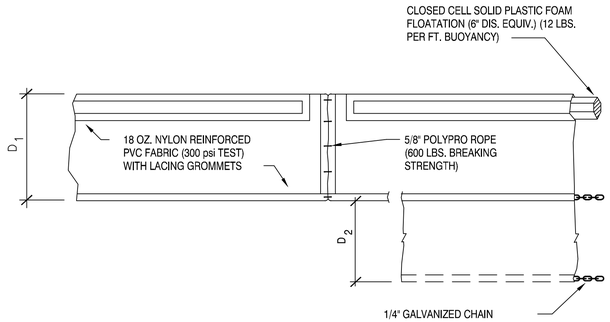
halff

902 N. SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL. (352)343-8481 FAX --
www.halff.com

AVO: 058312.001 DATE: JULY 2025

C-001

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-COVR-058312.001.dwg DATE: July 18, 2025, TIME: 2:51 PM, USER: ah4383



NOTES:

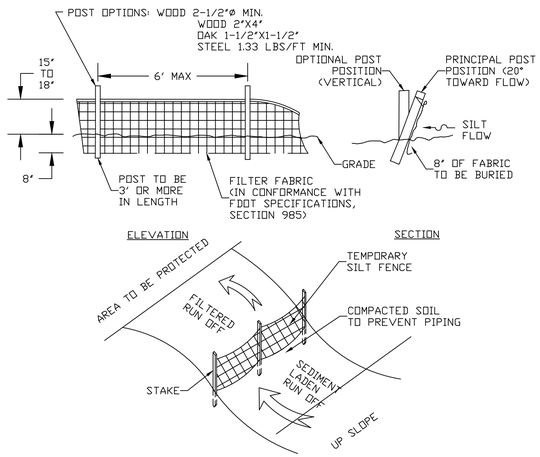
D 1= 5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS).

D 2= 5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5')

CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET. TWO (2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

FLOATING TURBIDITY BARRIER DETAIL

NOT TO SCALE



1. THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

2. TEMPORARY EROSION CONTROL TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY THE ENGINEER OR AREAS ON SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY THE OWNER.

3. PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PRACTICAL TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

4. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

5. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT.

6. NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

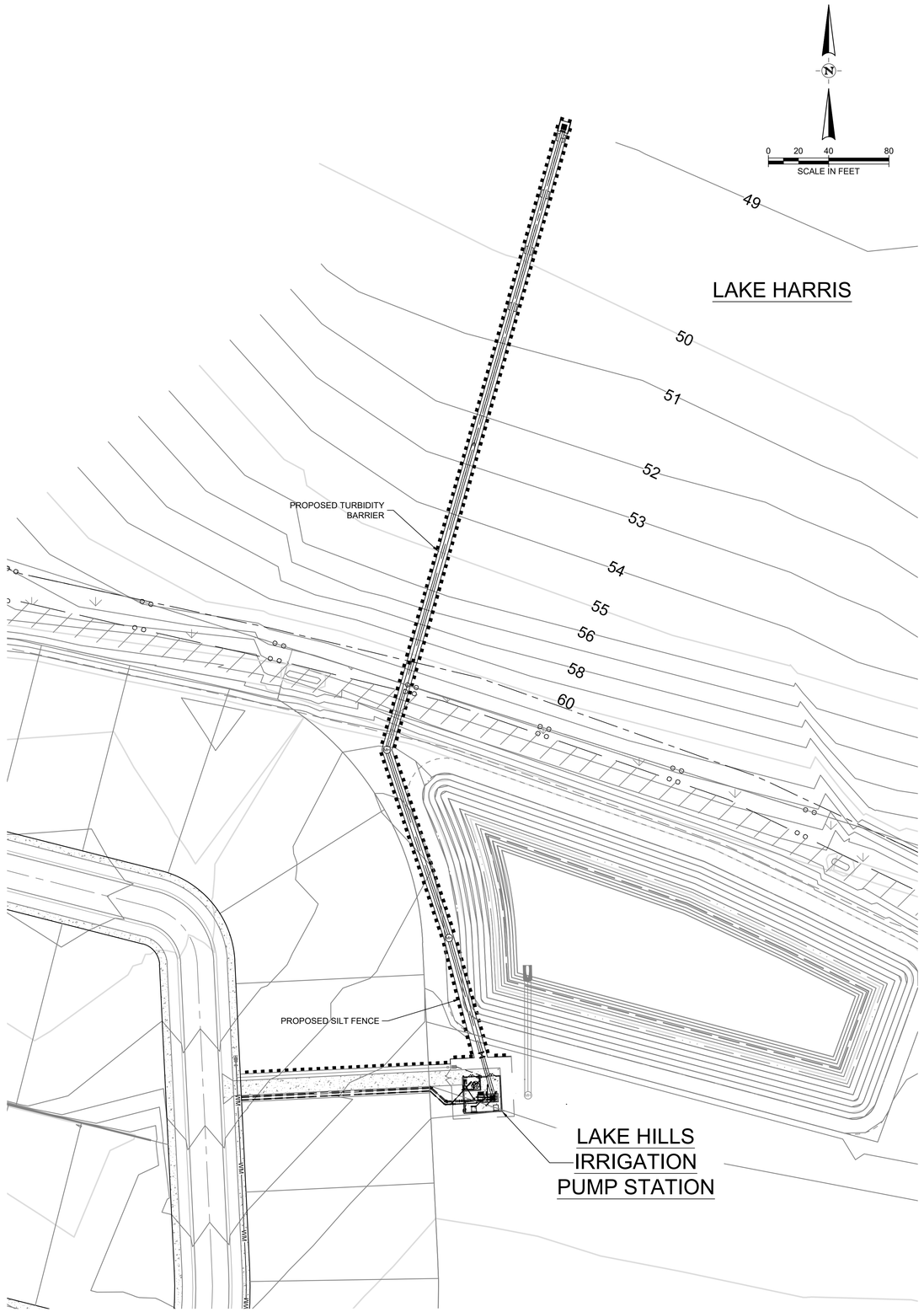
7. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.

8. MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCKPILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATERCOURSE BY RUNOFF OR HIGH WATER.

9. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

FLORIDA DOT TYPE III SILT FENCE AND EROSION CONTOL

NOT TO SCALE



LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

CFB | CLYMER FARNER BARLEY
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(352) 748-3120

halff
1201 NORTH BOWSER RD.
RICHARDSON, TX 75081
TEL: (214) 346-6200

REVISION NO.	DATE	DESCRIPTION

PRELIMINARY

FOR INTERIM REVIEW ONLY

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Rob A. Ern — 45013
NAME — P.E. LICENSE NO.
7/18/2025
DATE
FLA CA 33380 & FL LC 26000645 — FL
FIRM / BUSINESS NO. — STATE

PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	1" = 40'

SHEET TITLE:

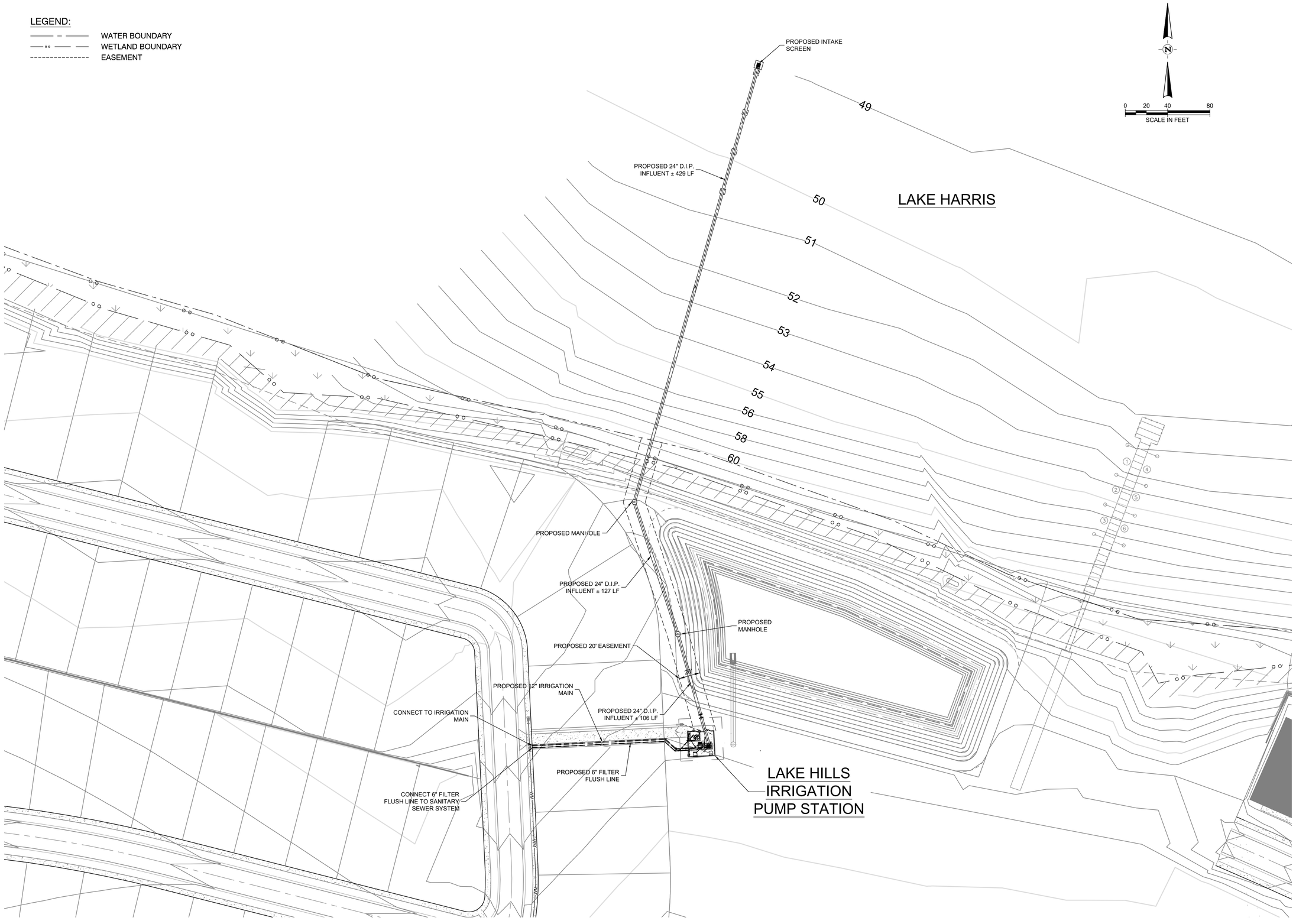
EROSION CONTROL PLAN

C-002

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-SITE-058312.001.dwg DATE: July 18, 2025, TIME: 2:17 PM, USER: ah4383

LEGEND:

WATER BOUNDARY
WETLAND BOUNDARY
EASEMENT



LAKE HILLS IRRIGATION
PUMP STATION
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ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	1" = 40'

SHEET TITLE:

SITE PLAN

C-101

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-SITE-058312.001.dwg DATE: July 18, 2025, TIME: 2:22 PM, USER: ah4383

LEGEND:

WATER BOUNDARY
WETLAND BOUNDARY
EASEMENT

LAKE HARRIS
T.O.B. = 62.10
WETLAND LINE = 62.43
WATER LINE = 60.16
LAKE BOTTOM = 49.00

49 50 51 52 53 54 55 56 58 60

N

0 15 30 60
SCALE IN FEET

PROPOSED INTAKE SCREEN

PROPOSED CONCRETE PIPE BOOT (TYP.)

PROP. 24" DIP INFLUENT ± 429 LF

PROP. 24" DIP INFLUENT± 106 LF

PROP. FENCE

PROPOSED 6' WET WELL (RIM EL. 74.00)
N.W. INV. EL. 51.50 (24" INFLUENT)
W. INV. EL. 69.50 (4" FLOOR DRAIN)
S. INV. EL. 69.50 (4" FLOOR DRAIN)
S.E. INV. EL. 69.50 (4" FLOOR DRAIN)

PROP. 6" DRAIN LINE

PROP. 12" 45° BENDS (2)

PROP. 6" 45° BENDS (2)

DS-55
MH
PER FDOT STANDARD PLANS
INDEX #425-001 &425-010
RIM: 71.73'
24" INV.: 51.50'

PROP. CONCRETE DRIVEWAY

PROP. 20' EASEMENT

PROP. WATER SERVICE

PROP. 24" DIP INFLUENT ±127 LF

PROPOSED 12" IRRIGATION MAIN

DS-56
PER FDOT STANDARD PLANS
INDEX #425-001 &425-010
RIM: 71.06'
24" INV.: 51.50'

PROPOSED 6" FILTER FLUSH LINE CONNECT TO SANITARY SEWER SYSTEM

WM

MATCHLINE AA

DS-55
MH
PER FDOT STANDARD PLANS
INDEX #425-001 &425-010
RIM: 71.73'
24" INV.: 51.50'

F.F. EL. 74.00

PROPOSED 12" IRRIGATION MAIN

EL. 59.00

29.5'

EL. 52.50

EL. 47.55
EL. 45.55

8.5'

2'

6'

PROPOSED 24" D.I.P. INFLUENT 127 LF

PROPOSED 24" D.I.P. INFLUENT ±106 LF

24" BUTTERFLY VALVE W/ BOX AND COLLAR

PROPOSED 6' WET WELL
N.W. INV. EL. 51.50 (24" INFLUENT)
W. INV. EL. 69.50 (4" FLOOR DRAIN)
S. INV. EL. 69.50 (4" FLOOR DRAIN)
S.E. INV. EL. 69.50 (4" FLOOR DRAIN)

95 90 85 80 75 70 65 60 55 50 45 40

25.8" OD ADAPTER

40 x 40 x 40 LAKE SCREEN

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

CFB | CLYMER FARNER BARLEY
CLYMER FARNER BARLEY, Inc.
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1201 NORTH BOWSER RD.
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FIRM / BUSINESS NO. — STATE

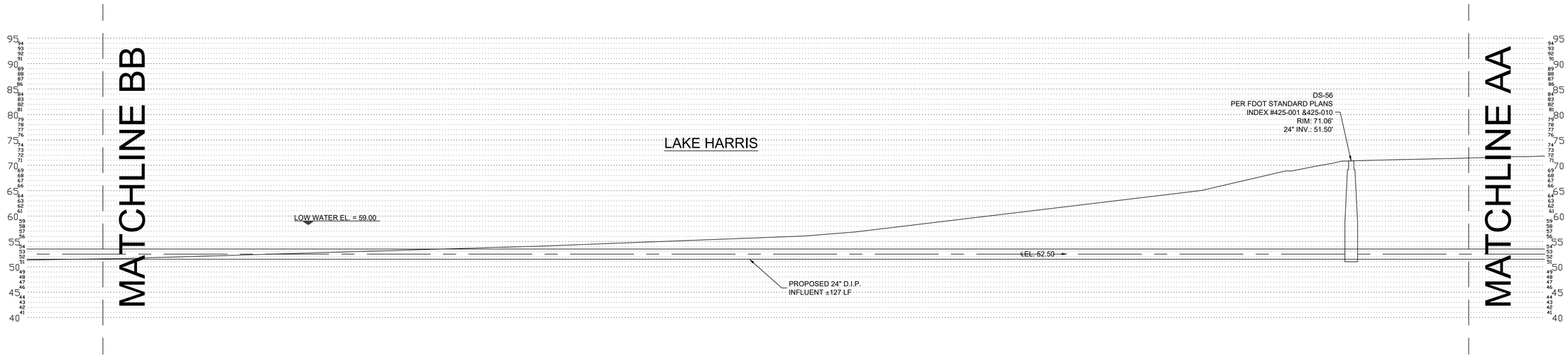
PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	1" = 30'

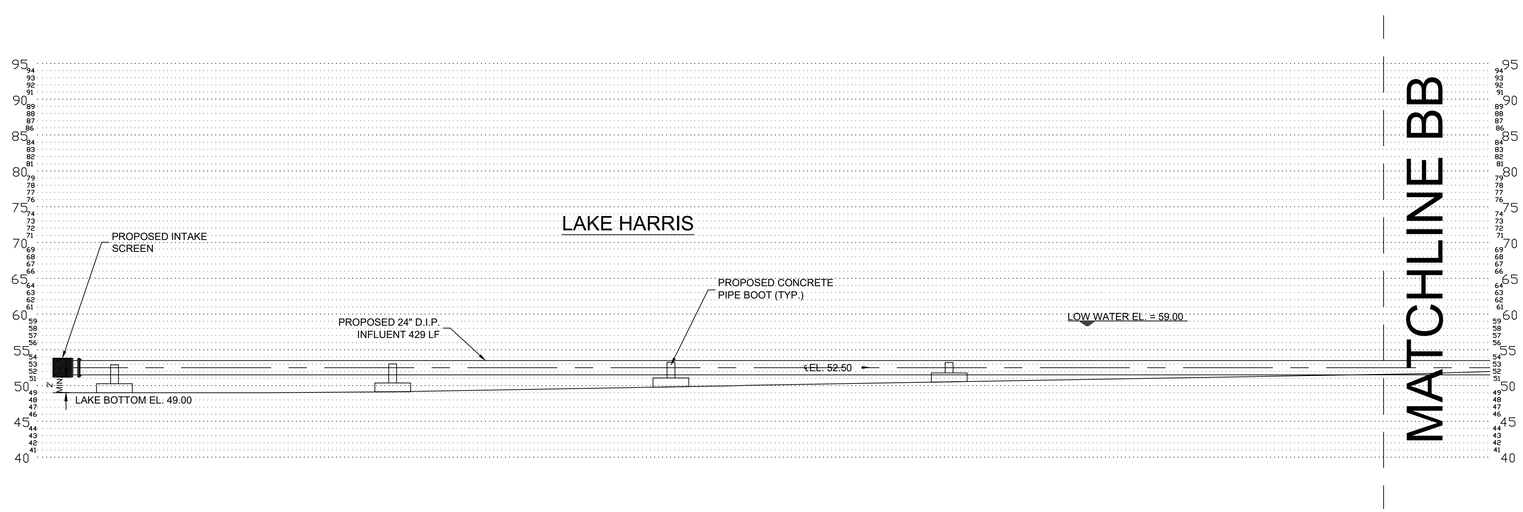
SHEET TITLE:

PLAN AND PROFILE

C-102

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-SITE-058312.001.dwg DATE: July 18, 2025, TIME: 2:57 PM, USER: ah4383





LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

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4450 NE 83RD RD, WILDWOOD, FL 34785
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TEL. (214) 346-6200

REVISION		
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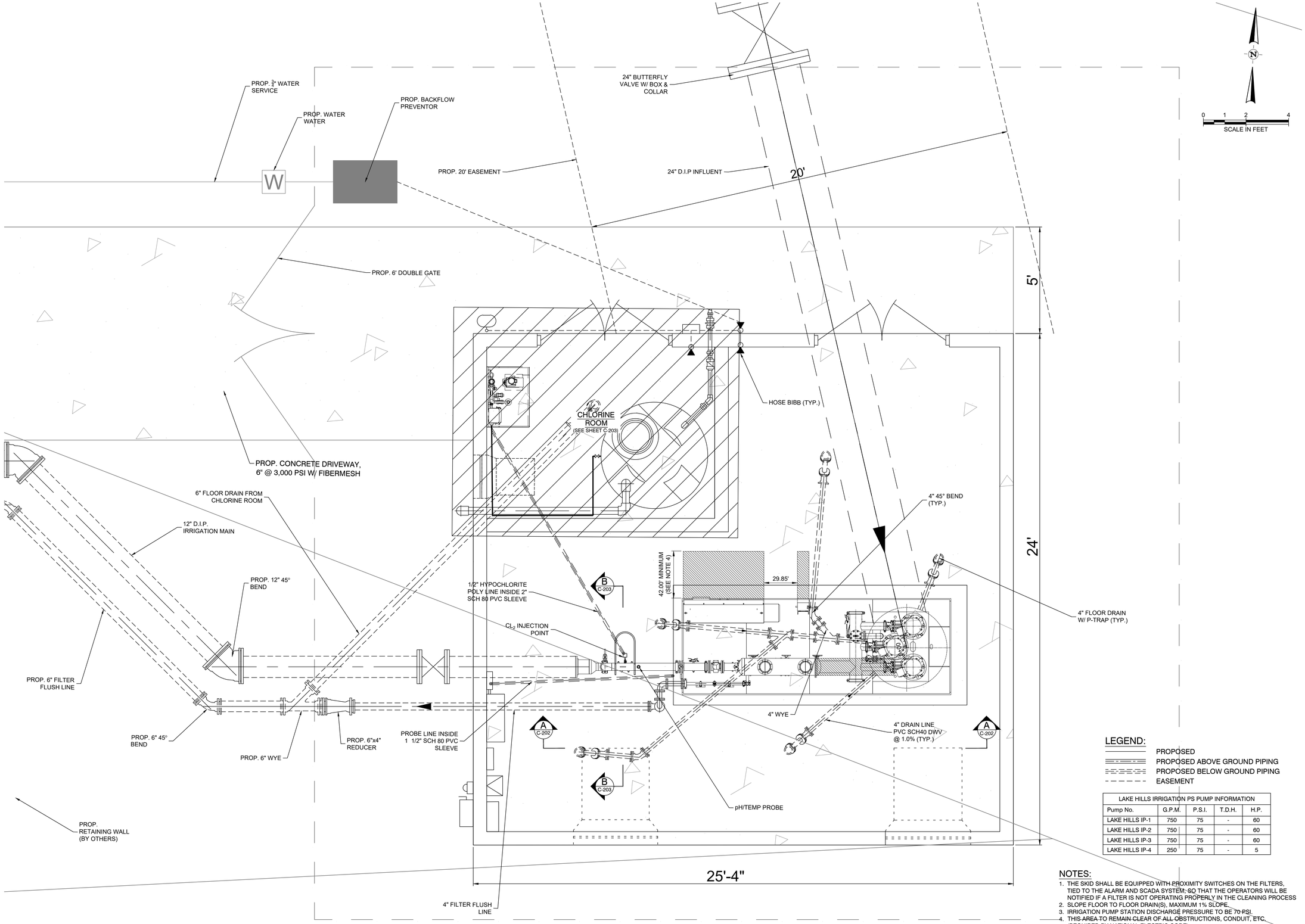
PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	1" = ##'

SHEET TITLE:
PLAN AND PROFILE (CONT.)

C-103

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-SITE-058312.001.dwg DATE: July 18, 2025, TIME: 2:36 PM, USER: ah4383



LEGEND:

- PROPOSED
- PROPOSED ABOVE GROUND PIPING
- PROPOSED BELOW GROUND PIPING
- EASEMENT

LAKE HILLS IRRIGATION PS PUMP INFORMATION				
Pump No.	G.P.M.	P.S.I.	T.D.H.	H.P.
LAKE HILLS IP-1	750	75	-	60
LAKE HILLS IP-2	750	75	-	60
LAKE HILLS IP-3	750	75	-	60
LAKE HILLS IP-4	250	75	-	5

NOTES:

1. THE SKID SHALL BE EQUIPPED WITH PROXIMITY SWITCHES ON THE FILTERS, TIED TO THE ALARM AND SCADA SYSTEM, SO THAT THE OPERATORS WILL BE NOTIFIED IF A FILTER IS NOT OPERATING PROPERLY IN THE CLEANING PROCESS
2. SLOPE FLOOR TO FLOOR DRAIN(S), MAXIMUM 1% SLOPE.
3. IRRIGATION PUMP STATION DISCHARGE PRESSURE TO BE 70 PSI.
4. THIS AREA TO REMAIN CLEAR OF ALL OBSTRUCTIONS, CONDUIT, ETC. (REQUIRED BY NATIONAL ELECTRIC CODE).

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

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CLYMER FARNER BARLEY, Inc.
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Rob A. Ern — NAME — 45013 P.E. LICENSE NO.
7/18/2025 — DATE
FLA CA 33380 & FL LC 26000645 — FIRM / BUSINESS NO. — FL STATE

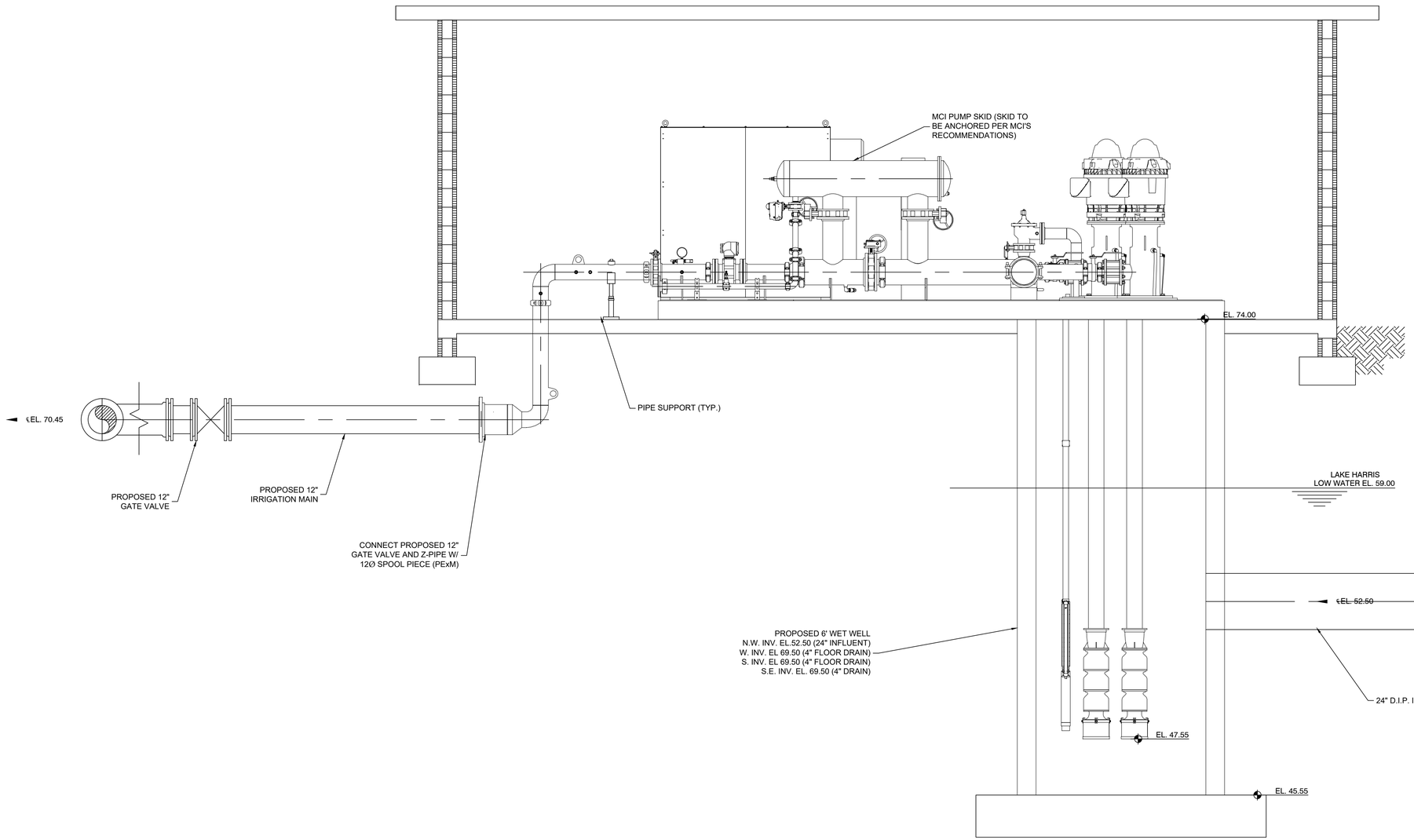
PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	1" = 2'

SHEET TITLE:

PUMP STATION PLAN VIEW

C-201

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-PS VIEWS-058312.001.dwg DATE: July 18, 2025, TIME: 2:45 PM, USER: ah4383



SECTION A

SCALE: 1/2" = 1'-0"

C-201

0 1 2 4 5 6

SCALE IN FEET (24x36)

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

CFB | CLYMER FARNER BARLEY

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Rob A. Ern — 45013
NAME — P.E. LICENSE NO.

7/17/2025
DATE

FLA CA 33380 & FL LC 26000645 — FL
FIRM / BUSINESS NO. — STATE

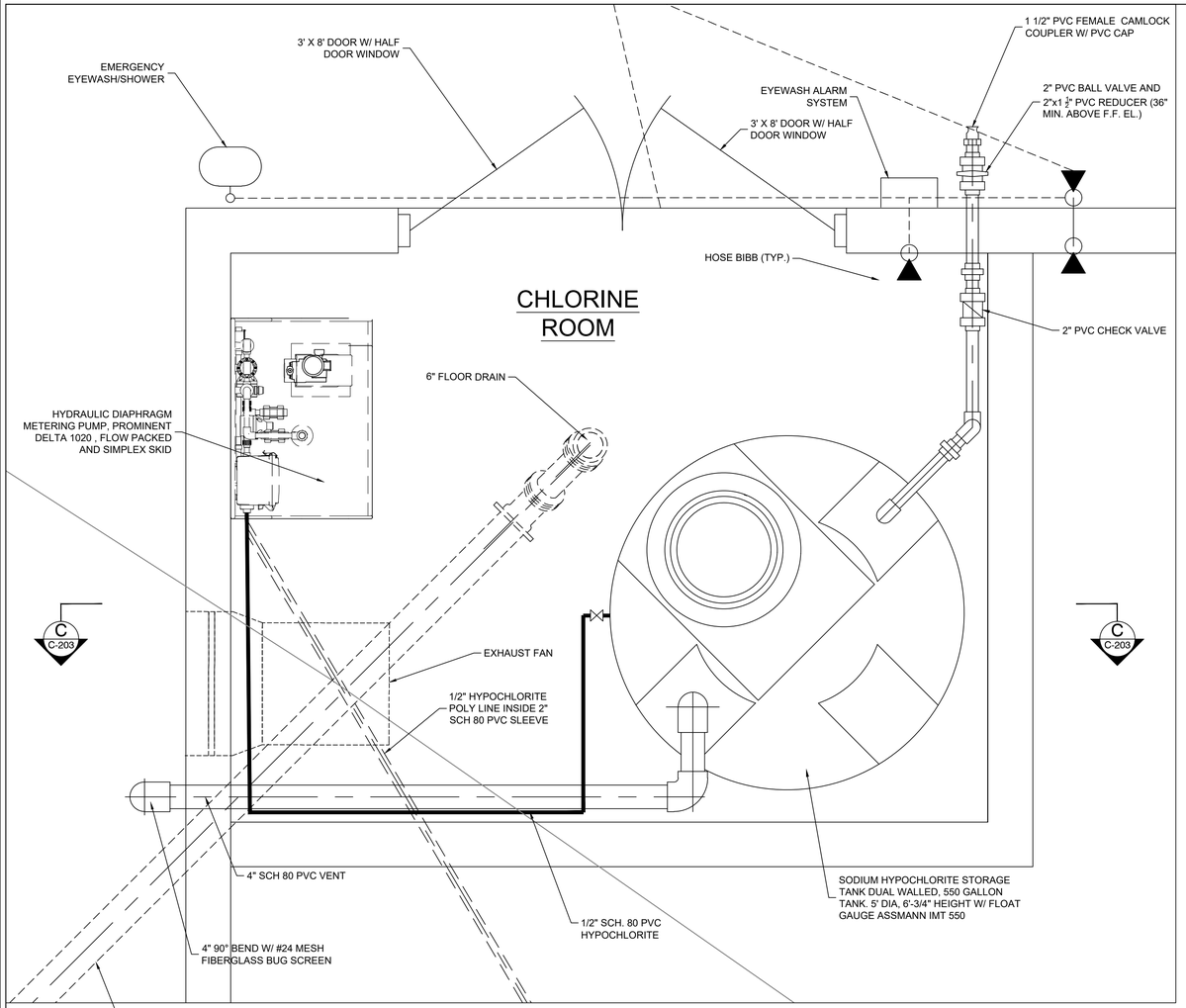
PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	1" = 24'

SHEET TITLE:

PUMP STATION SECTION VIEW

C-202

FILE NAME: A:\58000s\58312\001\WWWCADD\Sheets\C-PLAN-PS VIEWS-058312.001.dwg DATE: July 17, 2025, TIME: 9:02 AM, USER: ah4383

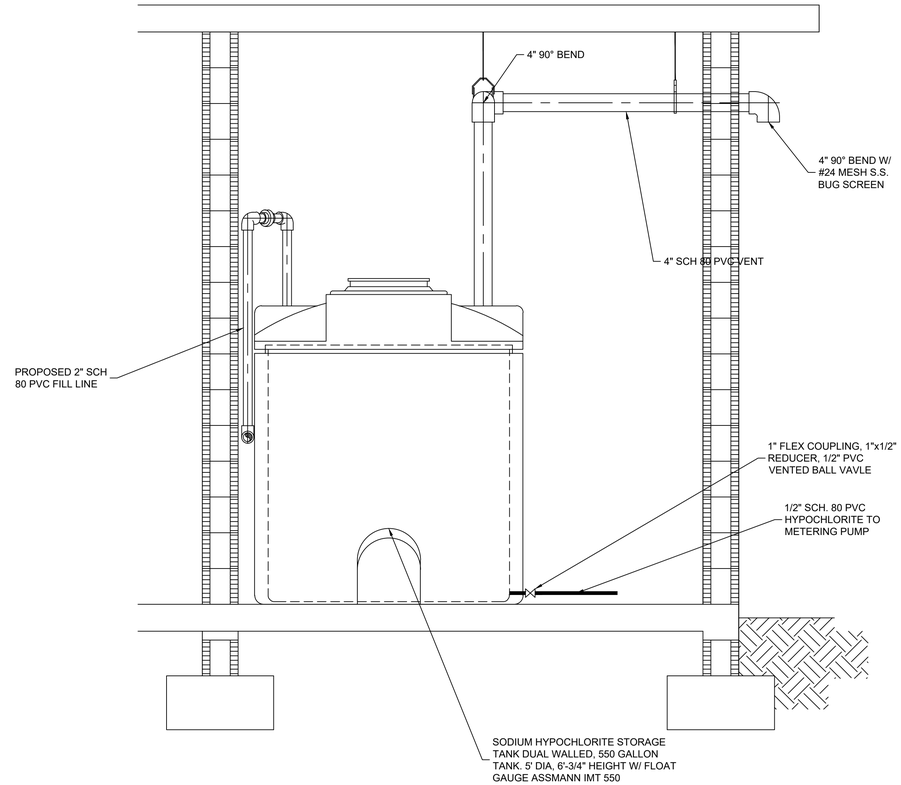


PLAN

SCALE: 1" = 1'-0"

0 1 2 4 5 6

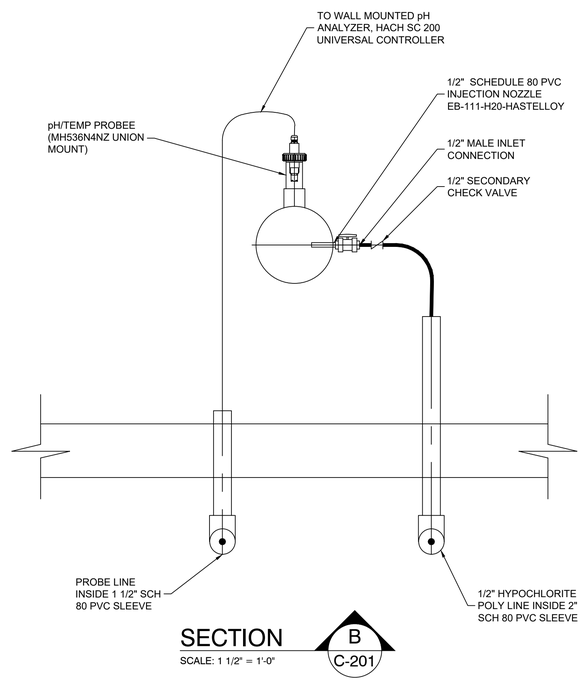
SCALE IN FEET (24x36)



SECTION

SCALE: 3/4 = 1'-0"

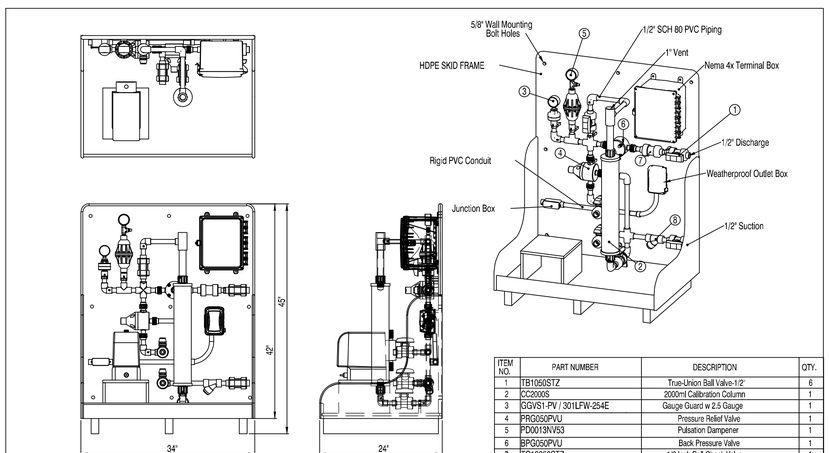
C C-203



SECTION

SCALE: 1 1/2" = 1'-0"

B C-201



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TB1050STZ	True-Union Ball Valve-1/2"	6
2	CC2000S	2000ml Calibration Column	1
3	GGVS1-PV / 301LFW-254E	Gauge Guard w 2.5 Gauge	1
4	PRG050PVU	Pressure Relief Valve	1
5	PD0013NV53	Pulsation Dampener	1
6	BPG050PVU	Back Pressure Valve	1
7	TC10050STZ	1/2 Inch Ball Check Valve	1
8	YS00050S	Y-STRAINER	1

Tech Equipment Inc

PROPRIETARY AND CONFIDENTIAL
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UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/16"
ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ± .010
THREE PLACE DECIMAL ± .005

SIZE B | DRAWING NO. Chemical: | REV
SCALE: 1:8 | SHEET 1 OF 1
SODIUM HYPOCHLORITE
JOB NAME AND SKID P/N:
LAKE HILLS IRRIGATION PS / TE1C138

Job Name and Skid Type
LAKE HILLS IRRIGATION PS SIMPLEX SKID
REV A

METERING PUMP AND SKID CONTACT:
GERALD MENDEZ, P.E.
TSC-JACOBS NORTH, INC.
24156 SR 54
SUITE 3
LUTZ, FL 33559
813-242-2660

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

CFB | CLYMER FARNER BARLEY
CLYMER FARNER BARLEY, Inc.
4450 NE 83RD RD. WILLDWOOD, FL 34785
(352) 748-1230

halff
1201 NORTH BOWSER RD.
RICHARDSON, TX 75081
TEL: (214) 346-6200

REVISION

NO.	DATE	DESCRIPTION

PRELIMINARY

FOR INTERIM REVIEW ONLY

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

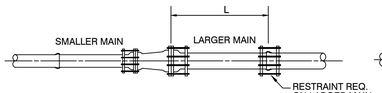
Rob A. Ern — 45013
NAME — P.E. LICENSE NO.
7/18/2025
DATE
FLA CA 33380 & FL LC 26000645 — FL
FIRM / BUSINESS NO. — STATE

PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	XOS
CHECKED BY:	RAE
SCALE:	-

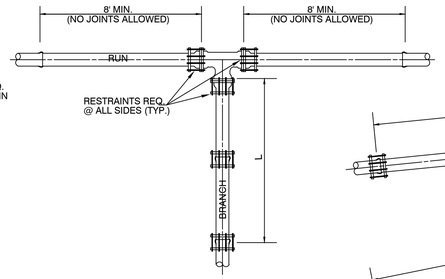
SHEET TITLE:
CHLORINE ROOM

C-203

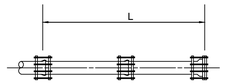
FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-PS VIEWS-058312.001.dwg DATE: July 18, 2025, TIME: 2:49 PM, USER: ah4383



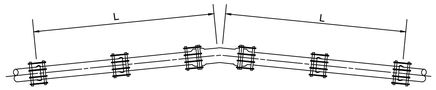
REDUCER



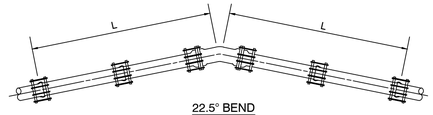
TEE



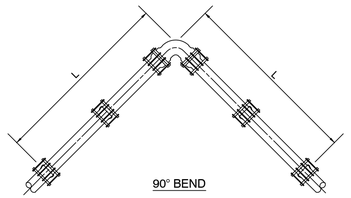
DEAD END/PLUG



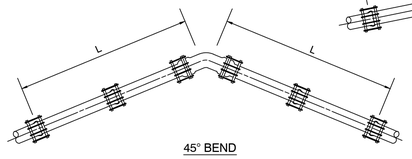
11.25° BEND



22.5° BEND



90° BEND



45° BEND

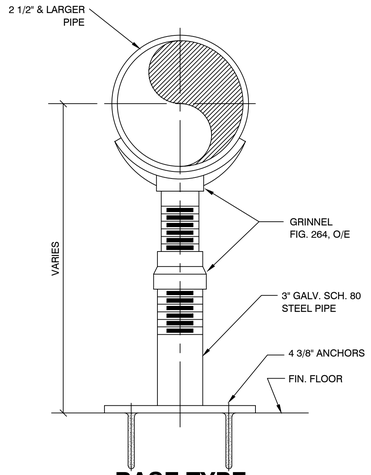
TABLE OF THRUST RESTRAINT LENGTHS															
PIPE SIZE (inches)	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEES		DEAD END & PLUG		REDUCER		
	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	PIPE SIZES	P.V.C. (L)	DUCTILE IRON (L)
4	20'	16'	8'	7'	4'	3'	2'	2'	15'	10'	45'	29'	6"x4"	33'	21'
6	28'	22'	12'	9'	6'	4'	3'	2'	33'	21'	63'	40'	8"x6"	34'	22'
8	36'	29'	15'	12'	7'	6'	4'	3'	52'	33'	82'	52'	10"x8"	33'	21'
10	43'	34'	18'	14'	9'	7'	4'	3'	68'	43'	98'	63'	12"x10"	34'	22'
12	50'	40'	21'	17'	10'	8'	5'	4'	84'	54'	116'	74'	16"x12"	63'	40'
16	63'	51'	26'	21'	13'	10'	6'	5'	116'	74'	148'	94'	18"x16"	33'	21'
18	70,	56'	29'	23'	14'	11'	7'	6'	131'	83'	163'	103'	20"x18"	33'	21'
20	75'	61'	31'	25'	15'	12'	7'	6'	145'	92'	178'	113'	20"x20"	62'	39'
24	86'	70'	36'	29'	17'	14'	9'	7'	173'	110'	207'	132'			

THRUST RESTRAINT DETAILS

NOT TO SCALE

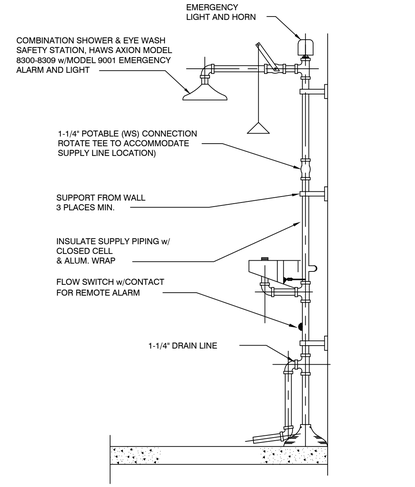
THRUST RESTRAINT DESIGN NOTES

1. RESTRAINT JOINTS, FITTINGS, & VALVE REQUIREMENTS CALCULATED BY THE THRUST RESTRAINT DESIGN PROGRAM PROVIDED BY UNI-FLANGE, THE FORD METER BOX COMPANY, INC.
2. DATA BASED ON MAX. PRESSURE OF 150 P.S.I., THE UNIFIED SOILS CLASSIFICATION SYSTEM (SOIL TYPE SP), THE PIPE BEDDED IN NATIVE SOIL W/A MINIMUM OF 2.5' COMPACTED FILL OVER THE PIPE, AND USING A SAFETY FACTOR OF 1.5 FOR THE DATA.
3. ALL FITTINGS & VALVES SHALL HAVE RESTRAINED JOINTS PER SPECIFICATIONS & ALL BELL & SPIGOT JOINTS TO BE RESTRAINED WITH A RESTRAINING HARNESS WITHIN THE REQUIRED LENGTH OF RESTRAINED PIPE (L).
4. THRUST BLOCKS SHALL BE USED ONLY AS SPECIFIED BY PROJECT ENGINEER.



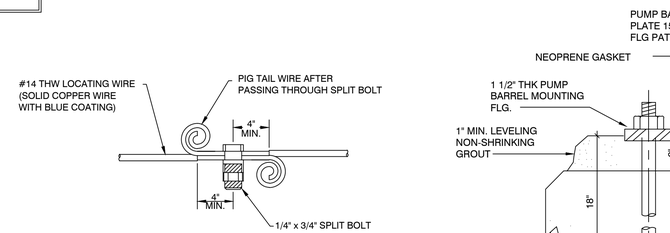
BASE TYPE PIPE SUPPORT

NOT TO SCALE



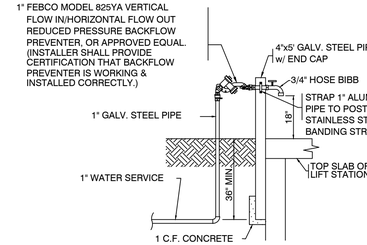
EMERGENCY EYE WASH AND SHOWER

NOT TO SCALE



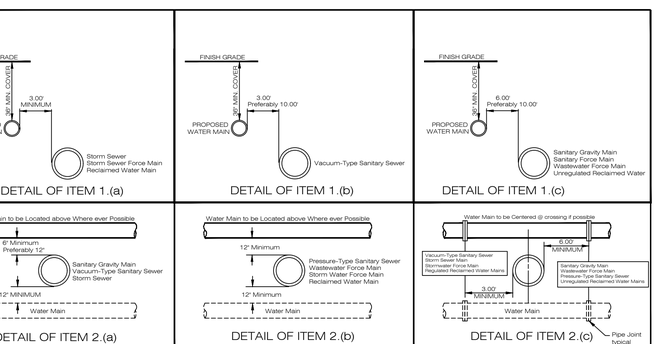
PUMP BASE ANCHOR

NOT TO SCALE



HOSE BIBB WITH BACKFLOW PREVENTER

NOT TO SCALE



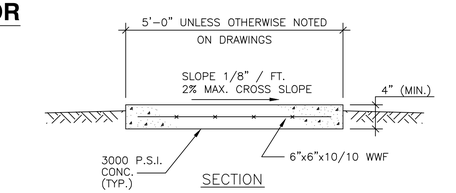
NOTES:

1. THE ENDS OF ALL LOCATING WIRES, WHETHER THEY ARE SPLICED, CONNECTED, OR TERMINATED, SHALL HAVE THE LAST THREE INCHES PIG TAILED AS DETAILED HEREON.
2. AFTER INSTALLATION OF THE LOCATING WIRE THE SYSTEM SHALL BE SUBJECTED TO TESTING, IN THE PRESENCE OF THE TOWN UTILITIES STAFF PRIOR TO BACKFILL, IN ORDER TO ENSURE THAT THE SYSTEM IS FUNCTIONAL.

LOCATING WIRE SPLICING

NOT TO SCALE

UTILITY SEPARATIONS



CONCRETE WALKWAY DETAIL

NOT TO SCALE

General Water Notes

1. WATER SYSTEM COMPONENTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS, CLEANED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND CHAPTER 62-555 FLORIDA ADMINISTRATIVE CODE.
2. ALL PIPING SHALL BEAR THE "NSF" SEAL FOR POTABLE WATER.
3. WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 25 FOR PIPE SIZES 4"-12". PIPES 14" OR LARGER SHALL BE AWWA C-905, DR 18. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION, FOR LAYING, SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS LATEST RECOMMENDATIONS.
4. DEPTH OF WATER LINES TO BE 36" MINIMUM COVER FROM FINISH GRADE.
5. WATER MAINS TO BE LOCATED 6.00' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. ALL SLEEVES UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE BACK OF CURB.
7. DISINFECTING. FOLLOWING THE PRESSURE TESTING, THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE WATER DISTRIBUTION SYSTEM. DISINFECTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF AWWA STANDARD C651 "DISINFECTING WATER MAINS", AND ALL APPROPRIATE AGENCY APPROVAL.
8. ALL HYDROSTATIC TEST SHALL BE IN ACCORDANCE WITH AWWA C600 FOR DUCTILE IRON PIPE AND C605/M23 FOR PVC PIPE.
9. ALL WATER MAINS SHALL BE INSTALLED, PRESSURE AND LEAK TESTED IN ACCORDANCE WITH AWWA C600, (62-555.320(21)(b)1 AND 62-555.330, F.A.C. ALL INSTALLATION, TESTING AND FIELD PROCEDURES MUST BE PROVIDED AND MUST CONFORM TO THE APPLICABLE AWWA STANDARDS.
10. ALL PIPING MATERIALS AND SPECIFICATIONS COVERING PIPES, JOINTS AND PACKING MATERIALS, INTERNAL COATING AND LININGS, FITTINGS, SPECIALS AND APPURTENANCES SHALL ALL BE IN ACCORDANCE WITH THE CORRESPONDING AWWA STANDARDS AND BE CONFORMING TO NSF REQUIREMENTS, AS MAY BE APPLICABLE, WITH EXCEPTIONS ALLOWED ONLY IF DOCUMENTATION AND ASSURANCES ARE PROVIDED IN COMPLIANCE WITH PARAGRAPHS 62-555.320(3) (d) 62-555.320 (3) (b), AND 62-555.320 (21) (c), F.A.C. THE LEAD USE PROHIBITION IN RULE 62-555.322, F.A.C. SHALL ALSO APPLY. POLYETHYLENE TUBING SHALL BE PER AWWA C901. UNDERGROUND SERVICE LINES, AND VALVES SHALL BE PER AWWA C800.

COLOR CODING

All water main pipe, including fittings, installed on or after August 28, 2003, except pipe installed under a construction permit for which the Department received a complete application before August 28, 2003, shall be color coded or marked using blue as a predominate color to differentiate drinking water from reclaimed or other water. Underground plastic pipe shall be solid-wall blue pipe; shall have a co-extruded blue external skin, or shall be white or black pipe with blue stripes incorporated into, or applied to, the pipe wall; and underground metal or concrete pipe shall have blue stripes applied to the pipe wall. Pipe striped during manufacturing of the pipe shall have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90° intervals around the pipe, and will remain intact during and after installation of the pipe. If tape or paint is used to stripe pipe during installation of the pipe, the tape or paint shall be applied in a continuous line that runs parallel to the axis of the pipe and that is located along the top of the pipe, for pipes with an internal diameter of 24 inches or greater, tape or paint shall be applied in continuous lines along each side of the pipe as well as along the top of the pipe. Aboveground pipe as drinking water treatment plants shall be color coded and labeled in accordance with subsection 62-555.320(10),F.A.C., and all other aboveground pipe shall be painted blue or shall be color coded or marked like underground pipe.

Utility Construction Notes (DEP)

62-555.314 Location of Public Water System Mains:
For the purpose of this section, the phrase "Water Mains" shall mean Mains, including treatment Plant process piping, conveying either raw, partially treated, or finished drinking water; Fire Hydrant leads; and service lines that are under the control of a Public Water System and that have an inside diameter of three (3") inches or greater.

(1) Horizontal Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Storm water Force Mains, Reclaimed Water Pipelines, and On-site Sewage Treatment and Disposal Systems:
(a) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (3) Three Feet between the outside of the WATER MAIN and the outside of any existing or proposed Storm Sewer, Storm water Force Main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(b) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (3) three feet, and preferably (10) Ten Feet, between the outside of the WATER MAIN and the outside of any existing or proposed vacuum-type Sanitary Sewer.
(c) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (6) Six Feet, and preferably (10) Ten Feet, between the outside of the WATER MAIN and the outside of any existing or proposed Gravity- or Pressure-type Sanitary Sewer, Wastewater Force Main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610 F.A.C. The Minimum Horizontal Separation distance between WATER MAINS and Gravity-type Sanitary Sewers shall be reduced to (3) Three Feet where the BOTTOM of the WATER MAIN is laid at least (6) Six Inches above the Top of the Sewer.
(d) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (10) Ten Feet between the outside of the WATER MAIN and all parts of any existing or proposed "On site Sewage Treatment and Disposal System" as defined in Section 381.0065(2). F.S. and Rule 64E-6.002. F.A.C.

(2) Vertical Separation Between Underground WATER MAINS and Sanitary or Storm Sewers, Wastewater or Storm water Force Mains, and Reclaimed Water Pipelines:
(a) New or relocated underground WATER MAINS crossing any existing or proposed gravity- or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the WATER MAIN is at least (6) Six inches, and preferably 12 inches above, or at least 12 Inches below the outside of the other pipeline. However, it is preferable to lay the WATER MAIN "ABOVE" the other pipeline.
(b) New or relocated, Underground WATER MAINS crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater Force Main, or Pipeline conveying reclaimed water shall be laid so the outside of the WATER MAIN is at least (12) inches ABOVE or BELOW the Outside of the other pipeline. However, it is preferable to lay the WATER MAIN above the other pipeline.
(c) At the Utility crossings described in paragraphs (a) & (b) Above, one full length of Water Main Pipe shall be centered above or below the other pipeline so the WATER MAIN Joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all WATER MAIN Joints are at least (3) Three feet from all joints in Vacuum-type Sanitary Sewers, Storm Sewers, Stormwater Force Mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least (6) Six Feet from all Joints in Gravity- or Pressure-type Sanitary Sewers, Wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

(3) Separation Between WATER MAINS and Sanitary or Storm Sewer Manholes:
(a) No WATER MAIN shall pass thru, or come into contact with any part of a Sanitary Manhole or a Storm Sewer Manhole.

(4) Separation Between Fire Hydrant Drains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems. New or relocated Fire Hydrants with underground Drains shall be located so that the drains are at least (3) Three Feet from any existing or proposed storm sewer, Stormwater force main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.; at least (3) Three Feet, and preferably (10) Ten Feet, from any existing or proposed gravity- or Pressure-type Sanitary Sewer, Wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.; and at least (10) Ten Feet from any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S. and Rule 64E-6.002, F.A.C.

(5) Exceptions/Mitigation:
Adherence to the above Constraints and Separations in Items 1 through 4 shall be Complied to, "WITHOUT EXCEPTION". If for some reason where it is not technically feasible or Economically Sensible that Items 1 through 4 cannot be complied with, Contractor will Stop Work and Notify the Engineer of record for the appropriate solution, which will be submitted to "The Department of Environmental Protection" for APPROVAL, prior to work commencement.

halff
1201 NORTH BOWSER RD.
RICHARDSON, TX 75081
TEL: (214) 346-6200

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

CFB | CLYMER FARNER BARLEY
CLYMER FARNER BARLEY, Inc.
4450 NE 83RD RD. WILDWOOD, FL 34785
(352) 748-0130

REVISION NO.	DATE	DESCRIPTION

PRELIMINARY
FOR INTERIM REVIEW ONLY

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL PERMIT, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

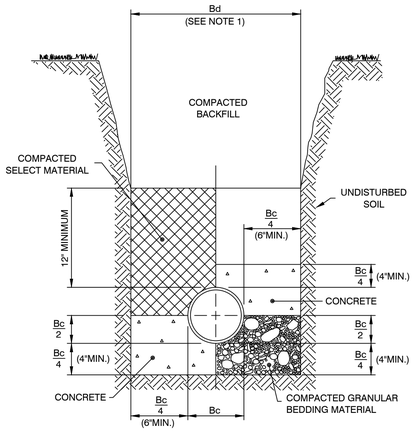
Rob A. Ern — 45013
NAME — P.E. LICENSE NO.
7/17/2025
DATE
FLA CA 33380 & FL LC 26000645 — FL
FIRM / BUSINESS NO. — STATE

PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	--
CHECKED BY:	--
SCALE:	1" = 1'
SHEET TITLE:	

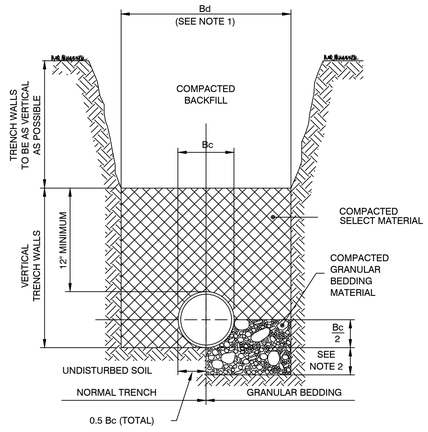
DETAILS

C-301

FILE NAME: A:\58000s\58312\00\WWW\CADD\Sheets\C-PLAN-DTLS-058312.001.dwg DATE: July 17, 2025, TIME: 11:12 AM, USER: ah4383



CLASS "A" BEDDING
SPECIAL CONDITIONS



CLASS "B" BEDDING
NORMAL CONDITIONS

NOTES: FOR BEDDING AND TRENCHING

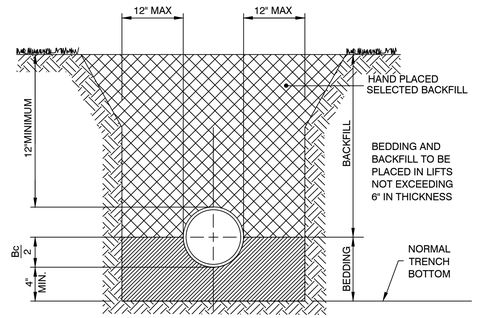
1. Dimension Bc = Pipe O.D.
   Dimension Bd = Trench Width at Top of Pipe
   Maximum Bd = Bc + 30"
   Minimum Bd = Maximum Dimension of Bell + 8" (Unsheeted Trench)

2. Depth for removal for unsuitable material shall be as required to reach suitable foundation. For rock or other non-cushioning material, depth shall be 6" below bottom of utility.

3. All backfill and select material under all roadways, drives (including dirt drives), and parking areas shall be compacted to 98% of the modified proctor maximum dry density. (AASHTO T-180). Backfill and select material under all other areas shall be compacted as follows: From bottom of trench to 12" above top of pipe - 95% of modified proctor maximum dry density (AASHTO T-180). From 12" above top of pipe to top of backfill - 90% of modified proctor maximum dry density (AASHTO T-180)

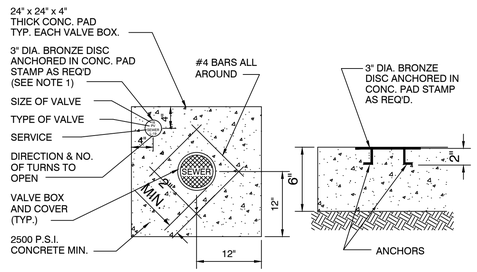
BEDDING AND TRENCHING DETAILS

NOT TO SCALE



BEDDING AND BACKFILL COMPACTION
DENSITY TO 95% MODIFIED PROCTOR
A.A.S.H.O. T-180 (ASTM D-1557)

SANITARY SEWER
PIPE BEDDING



NOTES:
1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES

NUMBER OF TURNS FOR MUELLER GATE VALVES (ASSUMING WITHOUT GEARING)			
VALVE SIZE	NO. OF TURNS	VALVE SIZE	NO. OF TURNS
6"	20.5	16"	49
8"	26.5	18"	228 (BEVEL GRING)
10"	33	20"	252 (BEVEL GRING)
12"	38.5	24"	300 (BEVEL GRING)

VALVE COLLAR

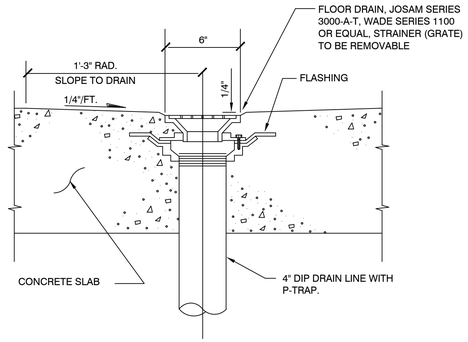
NOT TO SCALE

8
PV
RM
L-26.5

RECLAIM MAIN

BRONZE IDENTIFICATION DISC

NOT TO SCALE

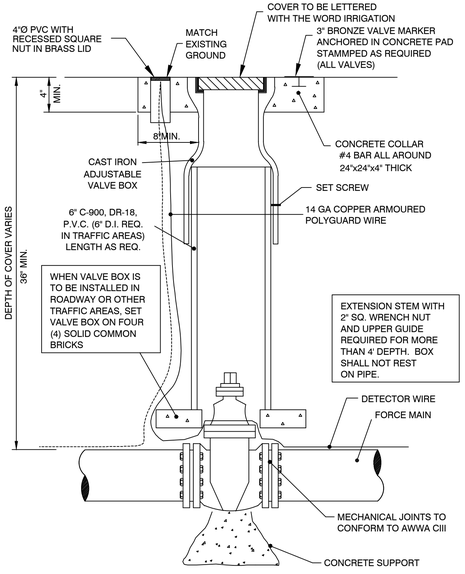


NOTES

1. P. TRAP IS NOT REQUIRED FOR DRAINS LOCATED ON CONC. PADS OR BLDGS. NOT ENCLOSED ON ALL SIDES.

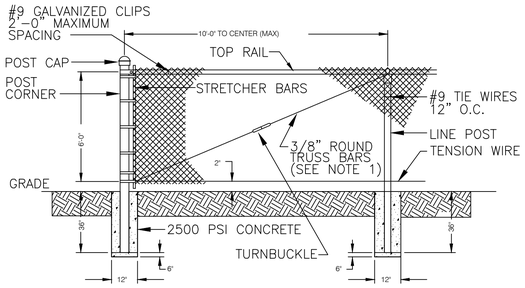
FLOOR DRAIN

NOT TO SCALE

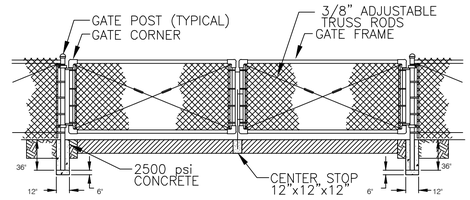


PLUG VALVE & BOX

NOT TO SCALE



FENCE DETAIL

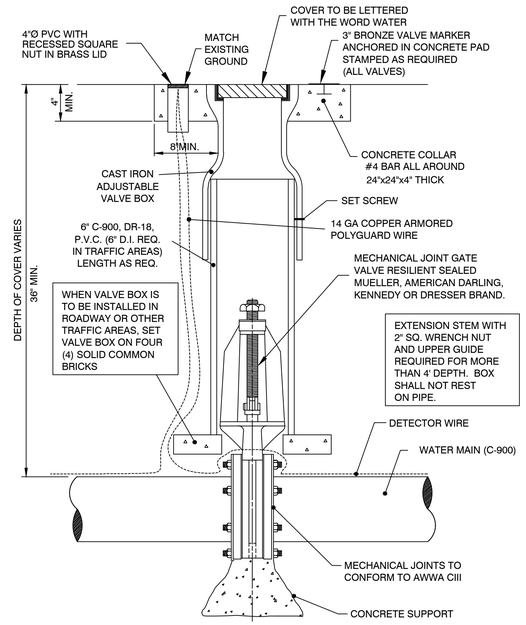


DOUBLE SWING GATE DETAIL

NOTES:
1. TRUSS BARS ARE REQUIRED FOR EACH GATE SECTION AND THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.
2. FENCING SHALL BE 6' HIGH VINYL COATED CHAIN LINK FENCE.
3. FENCE POSTS SHALL NOT BE IN CONFLICT WITH UNDERGROUND PIPING.

CHAIN LINK FENCE DETAIL

NOT TO SCALE



GATE VALVE & BOX

NOT TO SCALE

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY-IN-THE-HILLS, FLORIDA

CFB | CLYMER FARNER BARLEY
CLYMER FARNER BARLEY, Inc.
4450 NE 83RD RD. WILDWOOD, FL 34785
(352) 748-1330

halff
1201 NORTH BOWSER RD.
RICHARDSON, TX 75081
TEL: (214) 346-6200

REVISION NO.	DATE	DESCRIPTION

PRELIMINARY

FOR INTERIM REVIEW ONLY

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

Rob A. Ern — 45013
NAME — P.E. LICENSE NO.
7/17/2025
DATE
FLA CA 33380 & FL LC 26000645 — FL
FIRM / BUSINESS NO. — STATE

PROJECT NO.:	058312.001
ISSUED:	JULY 2025
DRAWN BY:	--
CHECKED BY:	--
SCALE:	1" = 1'

SHEET TITLE:

DETAILS

C-302

FILE NAME: A:\58000s\58312\001\WWW\CADD\Sheets\C-PLAN-DTLS-058312.001.dwg DATE: July 17, 2025, TIME: 11:14 AM, USER: ah4383

LAKE HILLS IRRIGATION PUMP STATION

HOWY-IN-THE-HILLS, LAKE COUNTY, FLORIDA

DIVISION 01 – GENERAL NOTES

1.1 ALL WORK SHALL CONFORM TO AT LEAST THE MINIMUM STANDARDS OF THE FLORIDA BUILDING CODE (FBC), EIGHTH EDITION (2023) AND ALL APPLICABLE LOCAL ORDINANCES.

1.2 EVERY REASONABLE EFFORT HAS BEEN MADE TO ENSURE COORDINATION BETWEEN THESE DRAWINGS AND THE BOUND SPECIFICATIONS. SHOULD THERE BE ANY DISCREPANCIES THE CONTRACTOR SHALL THEN REQUEST A CLARIFICATION IN WRITING.

1.3 DESIGN LOADINGS ARE INDICATED WITHIN THE STRUCTURAL DRAWINGS.

1.4 TO THE BEST OF THE ARCHITECT'S KNOWLEDGE, THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE BUILDING CODE.

1.5 THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW AND DETERMINE THAT DIMENSIONS ARE COORDINATED BETWEEN ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND STRUCTURAL DRAWINGS BEFORE FABRICATION OR CONSTRUCTION. THE ARCHITECT WILL MAKE AVAILABLE UPON REQUEST THE BASE FLOOR PLAN(S) & REFLECTED CEILING PLAN(S) IN AUTOCAD R2000 DWG FORMAT FOR SUB-CONTRACTOR USE IN PREPARATION OF SHOP DRAWINGS. FILES SHALL BE SENT ONLY UPON RECEIPT OF ARCHITECTS ELECTRONIC RELEASE FORM SIGNED BY INDIVIDUAL REQUESTING THE FILE(S) AND A $100 PER FILE TRANSFER FEE.

1.6 WHENEVER AMBIGUITY OR CONFLICT WITHIN THESE CONSTRUCTION DOCUMENTS MAY EXIST, THE MOST STRINGENT REQUIREMENT SHALL APPLY AS INTERPRETED BY THE ARCHITECT.

1.7 THE CONTRACTOR SHALL SUBMIT SUBSTITUTIONS OF PRODUCTS, MATERIALS, EQUIPMENT AND METHODS OF CONSTRUCTION FROM THOSE REQUIRED IN THE CONSTRUCTION DOCUMENTS IN WRITING TO THE ARCHITECT FOR REVIEW AND CONSIDERATION. THE CONTRACTOR SHALL STATE WHY SPECIFIED PRODUCTS OR FABRICATIONS CANNOT BE PROVIDED AND HOW PROPOSED SUBSTITUTIONS COORDINATE WITH OTHER PARTS OF THE WORK.

1.8 SUBMITTALS SHALL BE MADE TO THE ARCHITECT FOR ALL PRODUCTS CONSISTING OF WRITTEN AND GRAPHIC INFORMATION AND/OR PHYSICAL SAMPLES. SUBMITTALS SHALL BE CLEARLY IDENTIFIED AND HAVE BEEN REVIEWED BY THE GENERAL CONTRACTOR AND HAVE HIS REVIEW STAMP AFFIXED PRIOR TO REVIEW BY THE ARCHITECT OR HIS CONSULTANTS. SUBMITTALS MAY BE MADE IN ELECTRONIC (PDF) FORMAT OR SUPPLY (1) ONE HARD COPY FOR REVIEW. SUBMITTAL PACKAGES SHALL BE MADE IN SINGLE INDEXED FILES CLEARLY IDENTIFIED WITH THE PROJECT NAME, PRODUCT OR DIVISION, CONTRACTOR, PREPARER AND OTHER RELEVANT INFORMATION. THE ARCHITECT SHALL HAVE (10) TEN BUSINESS DAYS TO REVIEW SUBMITTALS AND RETURN THEM TO THE CONTRACTOR. SUBMITTALS RECEIVED WITHOUT PRIOR CONTRACTOR REVIEW WILL BE RETURNED WITHOUT ACTION.

1.9 IF COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED AND THE STANDARDS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

DIVISION 02 – SITEWORK (UNO BY STRUCTURAL ENGINEER)

2.1 SOIL COMPACTION: 95% MIN W/ 12" LIFTS MAXIMUM.

2.2 SOIL BEARING CAPACITY; ALL FOUNDATION DESIGN BASED ON MIN SOIL BEARING CAPACITY OF 2000psi AND ON RECOMMENDATIONS OF SOILS ENGINEER (IF APPLICABLE).

2.3 SOIL POISONING: TO THE SOIL AREAS TREATED, APPLY THE FOLLOWING CHEMICAL AT NO LESS THAN THE DESIGNATED CONCENTRATIONS; TERMIDOR 80 WG AT 0.06% APPLIED IN WATER EMULSION AS MANUFACTURED BY THE AVENTIS GROUP (1-201-307-9700). OTHER MATERIALS MAY BE USED PROVIDED THEY ARE ACCEPTABLE TO THE ARCHITECT AND PROVIDED THEY HAVE MET A FIVE YEAR TEST CONDUCTED BY THE U.S. FOREST SERVICES,

DIVISION 03 – CONCRETE (U.N.O. BY STRUCTURAL ENGINEER)

3.1 CONCRETE SLAB AND FOOTINGS STRENGTH SHALL BE MIN F'c=3000psi AT 28 DAYS, SLUMP 3" TO 5".

3.2 ALL REINFORCING STEEL SHALL BE GRADE 60 DEFORMED BARS. CONCRETE COVERAGE SHALL BE 3" MIN WHEN ADJACENT TO GRADE AND 1-1/2" AT ALL OTHER LOCATIONS. CORNER BARS SHALL BE LAPPED 48 BAR DIAMETERS MINIMUM. VERTICAL DOWELS SHALL HAVE A 10" STANDARD HOOK AND SHALL LAP VERTICAL BLOCK REINFORCING 48 BAR DIAMETERS MINIMUM. DOWEL HOOK EMBEDMENT SHALL BE 6" MINIMUM.

3.3 ALL SLABS SHALL BE REINFORCED WITH A MIN. 6 x 6 W2.9/W2.9 WWF.

3.4 PROVIDE A MINIMUM 10 MIL POLY VAPOR BARRIER UNDER ALL COVERED CONCRETE SLABS. JOINTS AND ALL PENETRATIONS TO BE TAPE AND/OR SEALED.

DIVISION 04 – MASONRY (U.N.O. BY STRUCTURAL ENGINEER)

4.1 CONCRETE BLOCK SHALL BE NOMINAL 8" x 8" x 16" STANDARD WEIGHT, RUNNING BOND AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-90 AND SHALL HAVE A MIN NET AREA COMPRESSIVE STRENGTH OF 1900 PSI.

4.2 UNLESS NOTED OTHERWISE ALL 8" PRECAST LINTELS SHALL HAVE (1) ONE #5 REBAR AND ALL 12" PRECAST LINTELS SHALL HAVE (2) #5 REBAR. FULLY GROUT ALL LINTELS WITH 3000 PSI PEA GRAVEL CONCRETE. PROVIDE 8" MINIMUM BEARING FOR ALL LINTELS. GENERAL CONTRACTOR TO SUPPLY FLORIDA PRODUCT APPROVALS AND MANUFACTURER'S SPAN CHARTS FOR LINTELS (MASONRY OR STEEL) TO BE USED.

4.3 MORTAR SHALL BE TYPE 'S' OR 'M' AND HAVE A MIN 2500 PSI IN 28 DAYS AND SHALL CONFORM TO ASTM-270.

4.4 REINFORCE MASONRY WALLS WITH TRUSS TYPE HORIZONTAL JOINT REINFORCEMENT EQUAL TO HOHMANN AND BARNARD #120 TRUSS MESH. 9 GA., GALVANIZED JOINT REINFORCEMENT IN BED JOINTS AT 16" OC VERTICALLY. LAP ALL HORIZONTAL JOINTS A MINIMUM OF 8". WIRE SHALL CONFORM TO ASTM A 82. CROSS WIRES SHALL BE SPACED AT 16".

4.6 MASONRY GROUT SHALL HAVE A MAXIMUM COARSE AGGREGATE SIZE OF 3/8" PLACED AT AN 8" TO 11" SLUMP AND SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 2000psi AT 28 DAYS AND BE IN ACCORDANCE WITH ASTM C-476. GROUT PLACEMENT STOPPED FOR ONE HOUR OR MORE SHALL BE STOPPED 1-1/2" BELOW THE TOP OF THE MASONRY UNIT TO PROVIDE A KEY FOR SUBSEQUENT GROUTING.

4.7 GROUT LIFTS SHALL BE LIMITED TO FIVE FEET (5 FT). EACH LIFT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.

DIVISION 06 – WOOD (U.N.O. BY STRUCTURAL ENGINEER)

6.1 UNLESS NOTED OTHERWISE, ALL LUMBER SHALL BE EQUAL TO SOUTHERN YELLOW PINE, GRADES AS FOLLOWS:
2x4's, 2x6's & 2x8's = No.2
2x10's & 2x12's = No.1
4x4's AND LARGER = No.1

6.2 ROOF SHEATHING OVER WOOD FRAMING SHALL BE 5/8" PLYWD ATTACHED WITH 10d COMMON OR RING SHANK NAILS AT 6" O.C. AT PANEL EDGES AND 6" O.C. IN FIELD UNLESS NOTED OTHERWISE.

6.3 PRESSURE TREATED LUMBER: PER AWPA, ALL PT LUMBER USED ABOVE GRADE SHALL BE GRADE "UC3A", COATED WITH RAPID WATER RUNOFF. WHEN USED IN CONTACT WITH GROUND US GRADE "UC4A". WHEN IN CONTACT WITH GALV METAL USE SODIUM BORATE (SBX/DOT) TREATED LUMBER.

6.4 WALL SHEATHING: MIN ½" PLYWOOD UNLESS NOTED OTHERWISE ON CONSTRUCTION DOCUMENTS ATTACHED WITH 8D NAILS @ 6"O.C. EDGE & 12"O.C. FIELD.

6.5 GABLE END VERTICAL SHEATHING: MIN ½" PLYWOOD ATTACHED WITH 8D NAILS @ 6" O.C. TOP & BOTTOM PLATE. 6" O.C. EDGE & 6" O.C. FIELD.

DIVISION 07 – THERMAL & MOISTURE

7.1 ALL SLOPED ROOFS SHALL HAVE ONE LAYER SELF ADHERING 60 MIL BORAL TILESEAL HT PRO UNDERLAYMENT BY BORAL TILE OR ARCHITECT APPROVED EQUAL.

7.2 SHINGLE NAILING PATTERN (WHERE APPLICABLE); (6) 1-1/4" NAILS PER SHINGLE. FOR VALLEYS AS APPLICABLE 90# ROLLED ROOFING. SHINGLES MEET ASTM03462 OR ASM0225.

7.3 DAMPROOFING: ALL EXTERIOR FACES OF CMU SHALL BE COATED WITH DAMPROOFING EQUAL TO KARNAK 83F FIBERED DAMPROOFING. OTHER ALTERNATES ACCEPTED: ARE HENRY HE789-FIB, LAMBERT WATERBAN 60SM OR SIKA SIKALASTIC 315. APPLY PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

7.4 SEALANT: ALL EXTERIOR SEALANT SHALL BE DOW 790 UNLESS NOTED OTHERWISE.

7.5 ALL EXTERIOR TRIM CAULKING TO BE OSI PROFESSIONAL GRADE QUAD VOC WINDOW, DOOR & SIDING SEALANT UNLESS NOT RECOMMENDED BY MANUFACTURER. APPLY PER MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.

DIVISION 08 – DOORS & WINDOWS

8.1 ALL HOLLOW METAL DOOR FRAMES SHALL BE 16 GA., GALV., FULLY WELDED, FULLY GROUTED, PLUGGED AND READY FOR PAINT.

8.2 ALL EXTERIOR FIBERGLASS DOORS SHALL BE 0.120 FIBERGLASS REINFORCED PLASTIC FACE SHEETS WITH 1-1/2" POLYURETHANE CORE (R-11) OR MINERAL CORE (FIRE RATED DOORS)

8.3 ALL HARDWARE LOCKS EQUAL TO SCHLAGE HD CYLINDRICAL ND SERIES, RHODES, 626 FINISH, STORAGE RM LOCK U.N.O.; HINGES 4.5"H FIVE KNUCKLE, HD FULL MORTISE TEMPLATE TYPE, PROVIDE MIN 3 HINGES/DR LEAF (FOUR 5"H HINGES FOR DOORS OVER 36"W) FINISH 652. PANIC DEVISE IN CHLORINE ROOM TO HAVE US32D STAINLESS STEEL (316) FINISH.

DIVISION 09 – FINISHES

9.1 FLOOR FINISHES SHALL HAVE A MINIMUM CRITICAL RADIANT FLUX. RATINGS TO BE CLASS II.

9.2 FLAME SPREAD RATINGS FOR WALL COVERINGS SHALL BE 'CLASS A' IN UNSPRINKLED BUILDINGS AND MIN. 'CLASS B' IN SPRINKLED BUILDINGS

9.3 PAINTS SHALL BE APPLIED WITH (1) ONE COAT OF PRIMER AND (2) FINISH COATS. FIRST FINISH COAT SHALL BE TINTED ONE SHADE LIGHTER THAN THE FINAL COAT.

9.4 ALL EXTERIOR TRIM SHALL BE EQUAL TO AZEK AND BE INSTALLED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS. USE ONLY THE MANUFACTURER'S RECOMMENDED GLUE FOR ALL BONDING APPLICATIONS.

9.5 ALL CEMENTITIOUS SIDING SHALL BE BY JAMES HARDIE OR ARCHITECT APPROVED EQUAL. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COMPLY WITH ALL INSTRUCTIONS FOR FASTENING, FLASHING, BUTT JOINT APPLICATIONS AND SEALANT APPLICATIONS.

9.6 ALL SOFFITS AND EXTERIOR CEILINGS SHALL BE ALUMINUM INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

9.7 PAINT SCHEDULE:

EXTERIOR FINISHES:
CONCRETE, STUCCO, CMU OR SPLIT FACE CMU
1 COAT LOXON MASONRY PRIMER (LOXON SURFACER)
2 COATS CON-FLEX WL HIGH BUILD SMOOTH
CEMENTITIOUS SIDING & CPVC TRIM:
1 COAT LOXON EXTERIOR ACRYLIC PRIMER
2 COATS 'SUPERPAINT' EXTERIOR LATEX SATIN
CPVC TRIM/PANEL: (PAINT COLOR EQUAL TO OR LESS THAN LRV VALUE OF 55)
1 COAT EXTREME BOND PRIMER B51W01150
2 COATS: EMERALD EXTERIOR LATEX KW-48W00051
GALVN METAL & ALUMINUM:
1 COAT GALVITE HS SOLVENT BASED ACRYLIC COATING.
2 COATS METAL LATEX SEMI GLOSS
FERROUS METALS:
1 COAT KEM KROMIK UNIVERSAL METAL PRIMER
2 COATS METAL LATEX SEMI GLOSS

INTERIOR FINISHES:
INTERIOR PAINT FINISHES SHALL BE AS FOLLOWS:
EXPOSED CONCRETE SLAB:
H&C "CLEARPROTECT" HP INDUSTRIAL CLEAR COAT CONCRETE SEALER
MASONRY EPOXY:
1 COAT HD BLOCK FILLER
2 COATS HI-BILD WB CATALIZED EPOXY
DRYWALL EPOXY:
1 COAT PREPRITE 200 LATEX PRIMER
2 CAOTS HI-BILD WB CATALIZED EPOXY
FERROUS METALS:
1 COAT KEM KROMIK UNIVERSAL METAL PRIMER
2 COATS PROMAR 200 ALKYD EG-SHELL
WOOD PAINTED:
1 COAT PREPRITE WOOD OIL PRIMER/UNDERCT
2 COATS PROMAR 400 LATEX EG-SHELL.

DIVISION 10 – SPECIALTIES

10.1 FIRE EXTINGUISHERS: (FE-1) SHALL BE MULTI PURPOSE DRY CHEMICAL, MINIMUM RATING OF 4A-80BC, 5 LBS. (FE-2) SHALL BE A WATER MIST, MIN RATING OF 2A-C 1.75 GAL. FE'S INSTALLED IN MECHANICAL SPACES SHALL HAVE WALL MOUNT BRACKET WITH STRAP TO SECURE FE.

10.2 SIX INCH NUMERICAL NUMBERS WITH CONTRASTING BACKGROUND IDENTIFYING THE BUILDING ADDRESS NUMBER SHALL BE DISPLAYED ON THE STREET SIDE OF THE BUILDING.

APPLICABLE CODES:

FLORIDA BUILDING CODE 8th ED 2023.
FLORIDA ACCESSIBILITY CODE 8th ED 2023.
FLORIDA MECHANICAL CODE 8th ED 2023.
FLORIDA PLUMBING CODE 8th ED 2023.
FLORIDA ENERGY CONSERVATION CODE 8th ED 2023.
FLORIDA FIRE PREVENTION CODE 8th ED 2023.
NFPA 70 NATIONAL ELECTRICAL CODE (NEC) 2020 ED.
NFPA 10 - STANDARD FOR PORTABLE FIRE EXTINGUISHERS 2018 ED.

BUILDING PLANNING

OCCUPANCY : UTILITY, U
MIXED OCCUPANCY? NO
REQUIRED FIRE SEPARATION: NA
TYPE OF CONSTRUCTION: CONSTRUCTION TYPE: V-B

GENERAL BUILDING DATA

TOTAL BUILDING AREA: 608 SF
ALLOWABLE AREA INCREASE: NO CODE REFERENCES: 506.3
ALLOWABLE FLOOR AREA: 5,500 SF CODE REFERENCE: TABLE 506.2
HEIGHT OF BUILDING: 13'-0"
ALLOWABLE HEIGHT OF BUILDING: 40'-0" CODE REFERENCE: 504.3
NUMBER OF STORIES: 1
ALLOWED NUMBER OF STORIES: 1 CODE REFERENCE: 504.4

FIRE PROTECTION SYSTEMS

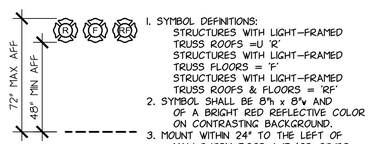
FIRE DISTRICT: NO
FIRE SPRINKLER SYSTEM: NO
STANDPIPE SYSTEM: NO
SMOKE CONTROL: NO

MEANS OF EGRESS

OCCUPANT LOAD: 3 OCCUPANTS
NUMBER OF PROVIDED EXITS: 2@ 140.0" TOTAL
REQUIRED EXIT WIDTH: 0.6"
TRAVEL DISTANCE PROVIDED: 32'-0"
MAXIMUM TRAVEL DISTANCE ALLOWED: 300'-0"

WIND LOADS:

ULTIMATE WIND SPEED: 140 mph
WIND EXPOSURE CATEGORY: C
SURFACE ROUGHNESS: C
STRUCTURE RISK CATEGORY: II
INTERNAL PRESSURE COEFF.: +0.18 & -0.18 (ENCLOSED)
COMPONENTS & CLADDING
WALLS: +48.6 psf & -65.1psf
ROOFS: -77.4 psf
OVERHANGS: -114.5 psf
PARAPETS: EDGE +111.5 psf, CORNERS +148.6 PSF



1. SYMBOL DEFINITIONS:
STRUCTURES WITH LIGHT-FRAMED TRUSS ROOFS =U 'R'
STRUCTURES WITH LIGHT-FRAMED TRUSS FLOORS = 'F'
STRUCTURES WITH LIGHT-FRAMED TRUSS ROOFS & FLOORS = 'RF'
2. SYMBOL SHALL BE 8"h x 8"w AND OF A BRIGHT RED REFLECTIVE COLOR ON CONTRASTING BACKGROUND.
3. MOUNT WITHIN 24" TO THE LEFT OF MAIN ENTRY DOOR AND/OR OTHER LOCATIONS LISTED IN CODE.

FLORIDA FIRE PREVENTION CODE 69A-60.0081
NOTICE REQUIRED FOR STRUCTURES WITH LIGHT-FRAME TRUSS-TYPE CONSTRUCTION

STRUCTURE IDENTIFICATION SIGN
NO SCALE

INDEX OF SHEETS

SHT. No.	ISSUE DATE	REVISION NO.	REVISION DATE	CONTENTS
A-101	00-00-00			INDEX, SPECIFICATIONS
A-201				FLOOR PLAN & ELEVATIONS
A-202				WALL SECTIONS, DETAINS & DOOR SCHEDULE
A-501				FOUNDATION PLAN AND ROOF FRAMING PLAN
M-001				MECHANICAL NOTES
M-101				FLOOT PLAN MECHANICAL

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CONSULTANT

PROJECT

LAKE HILLS IRRIGATION PUMP STATION
HOWEY IN THE HILLS FLORIDA

SEAL

REGISTRATION
LICENSE NUMBER AR97148
90% REVIEW SET
NOT FOR CONSTRUCTION
07-17-2025
EDWARD ROBERT PLASTER JR

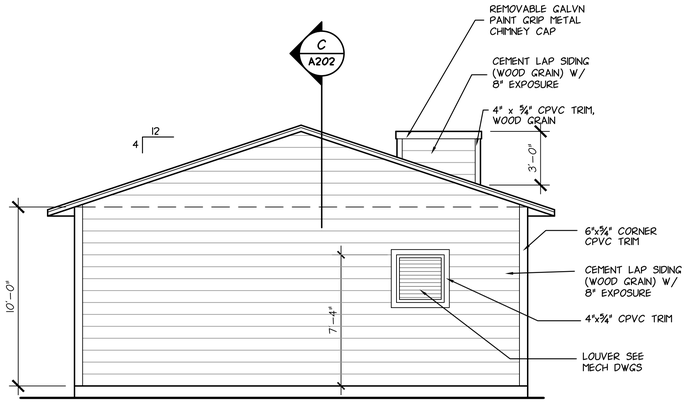
MARK	REVISIONS: DATE:	DESCRIPTION:	BY:
1			

DRAWN BY: JWS
CHECKED BY: ERP
DATE: --

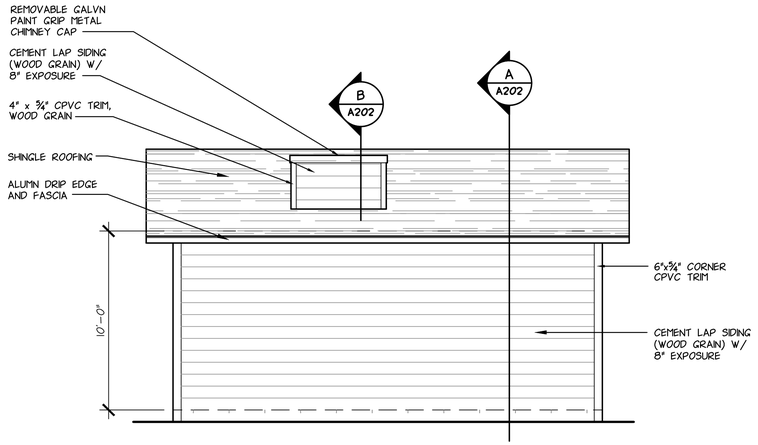
SHEET:
INDEX & SPECIFICATIONS
A-101
JOB No. 24038

Written dimensions on these drawings shall have precedence over scaled dimensions. Contractor shall verify and be responsible for all dimensions and conditions on this job. KP Studio Architect P.A. must be notified immediately in writing of any variation from the dimensions and conditions shown on these drawings. Field verify all conditions prior to laying out or fabricating associated work. Bring to the architect's attention any deviation from designed conditions and field conditions prior to ordering materials and installing work, and cooperate with architect to modify such conditions at no additional cost to the owner, architect or architect's consultants. Shop details must be submitted to the architect's office and reviewed by the architect prior to ordering materials, fabrication and delivery to the job site, unless otherwise provided for under the specific contractual agreement between the architect and client. KP Studio Architect P.A. expressly reserves its common law copyright and other property rights in these documents. These documents are not to be reproduced, changed, or copied in any form or manner whatsoever, nor are they to be assigned to a third party without first obtaining the written permission and written consent of KP Studio Architect P.A. In the event of unauthorized use of these documents by a third party, the third party shall hold KP Studio Architect P.A. harmless and agrees to remunerate KP Studio Architect P.A. for such use in an amount equal to the original fee for the original documents, plus legal fees, court costs, collection fees and other costs.

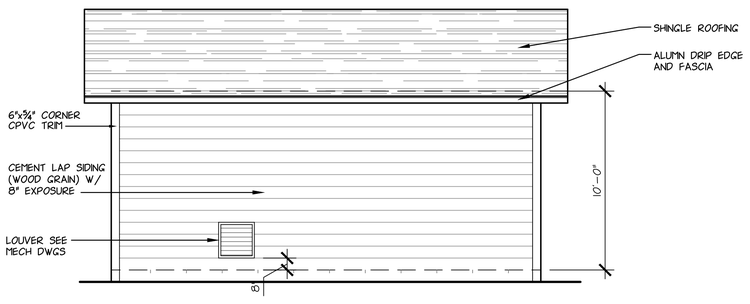
Written dimensions on these drawings shall have precedence over scaled dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job. KP Studio Architect P.A. must be notified immediately in writing of any variation from the dimensions and conditions shown on these drawings. Field verify all conditions prior to laying out or fabricating associated work. Bring to the architect's attention any deviation from designed conditions and field conditions prior to ordering materials and installing work, and cooperate with architect to modify such conditions at no additional cost to the owner, architect or architect's consultants. Shop details must be submitted to the architect's office and reviewed by the architect prior to ordering materials, fabrication and delivery to the job site, unless otherwise provided for under the specific contractual agreement between the architect and client. KP Studio Architect P.A. expressly reserves its common law copyright and other property rights in these documents. These documents are not to be reproduced, changed, or copied in any form or manner whatsoever, nor are they to be assigned to a third party without first obtaining the written permission and written consent of KP Studio Architect P.A. In the event of unauthorized use of these documents by a third party, the third party shall hold KP Studio Architect P.A. harmless and agrees to remunerate KP Studio Architect P.A. for such use in an amount equal to the original fee for the original documents.



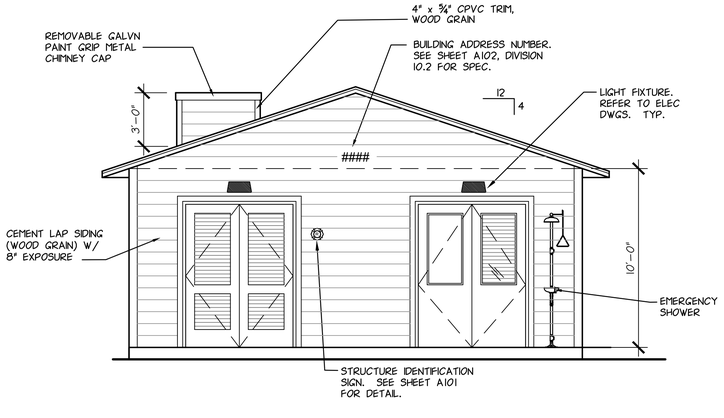
SOUTH ELEVATION
1/4" = 1'-0"



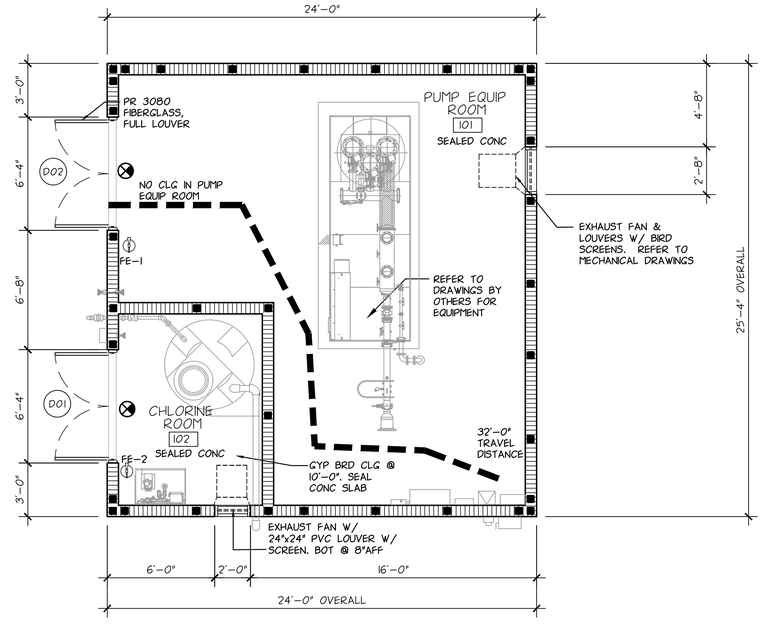
EAST ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"



NORTH ELEVATION
1/4" = 1'-0"



FLOOR PLAN
1/4" = 1'-0"

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PROJECT

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY IN THE HILLS
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SEAL

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MARK	DATE:	DESCRIPTION:	BY:
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DRAWN BY: JWS
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SHEET: FLOOR PLAN & ELEVATIONS
A-201
JOB No. 24038

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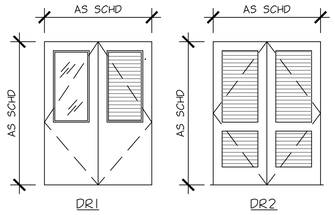
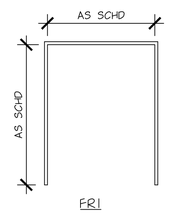
DOOR AND FRAME SCHEDULE

MARK	ROOM	DOOR SIZE	DOOR THICKNESS	DOOR ELEVATION	DOOR RATING	DOOR MATERIAL	DOOR CORE	DOOR FINISH	DOOR GLAZING	FRAME MATERIAL	FRAME FINISH	FRAME ELEVATION	FRAME DETAIL HEAD	FRAME DETAIL JAMB	FRAME DETAIL SILL	HARDWARE SET NO	NOTES	MARK
D01	CHLORINE RM 102	PR 3'-0" x 8'-0"	1 3/4"	DR1	--	FIBERGLASS	INSULATED	PAINT	TEMP CLEAR	METAL	PAINT	FR-1	--	--	--	STOR W/ PANIC DEV ISE 1 DR	1/2 LOUVER, 1/2" GLASS	D01
D02	PUMP EQUIP RM 101	PR 3'-0" x 8'-0"	1 3/4"	DR2	--	FIBERGLASS	INSULATED	PAINT	--	METAL	PAINT	FR-1	--	--	--	STOR	2 PANEL LOUVER	D02



DOOR ELEVATIONS
SCALE 1/4" = 1'-0"

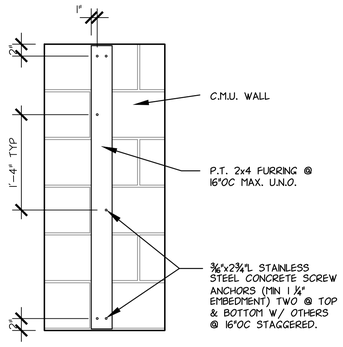


FRAME ELEVATIONS
SCALE 1/4" = 1'-0"

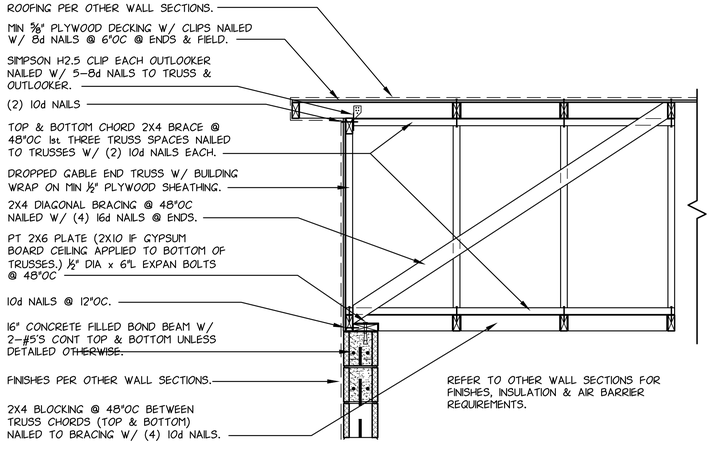
HARDWARE SETS

1) IT IS THE RESPONSIBILITY OF THE HARDWARE SUPPLIER TO DETERMINE COMPLETE HARDWARE REQUIREMENTS.

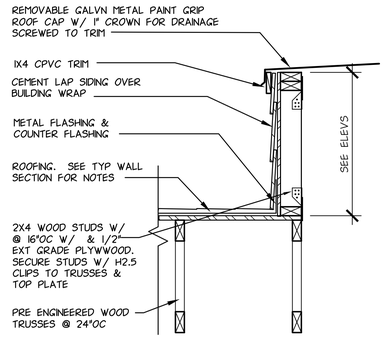
2) ALL EXTERIOR DOOR SILLS TO BE ADA COMPLIANT.



1 / A202 DETAIL
3/4" = 1'-0"



C / A202 SECTION
3/4" = 1'-0"



B / A202 SECTION
1" = 1'-0"

A / A202 SECTION
3/4" = 1'-0"

Item 1.

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CONSULTANT

PROJECT

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY IN THE HILLS
FLORIDA

SEAL

REGISTRATION
LICENSE NUMBER AR97148
EDWARD ROBERT PLASTER JR

90% REVIEW SET
NOT FOR CONSTRUCTION
07-17-2025

MARK	REVISIONS: DATE:	DESCRIPTION:	BY:
1	.		

DRAWN BY: JWS
CHECKED BY: ERP
DATE: --

SHEET:
WALL SECTIONS & DETAILS
A-202
JOB No. 24038

ENGINEERING DESIGNS & SHOP DRAWINGS

A. TRUSS DESIGNS SHALL CONTAIN THE FOLLOWING:

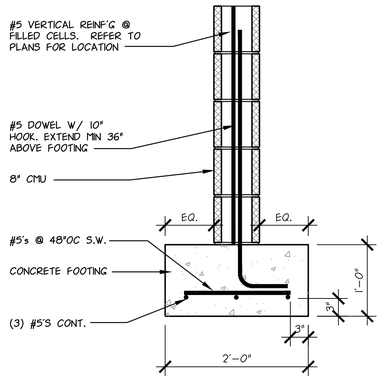
1. DESIGN AND FABRICATION DATA
2. METAL CONNECTORS– GAUGE, SIZES OF CONNECTORS, NAME OF MANUF.
3. LUMBER SPECIFICATIONS
4. PITCH, SPAN AND SPACING OF TRUSSES
5. DESIGN LOADINGS AND ALLOWABLE UNIT STRESS INCREASE, IF ANY.
6. FORCE ANALYSIS OR BAR FORCES IN EACH MEMBER
7. SIZE AND LOCATION OF ALL CONNECTOR PLATES
8. TRUSS SUPPORTS
9. CAMBER, IF ANY
10. TEMPORARY AND PERMANENT BRACING AND/OR BRIDGING
11. HANDLING AND ERECTION INSTRUCTIONS
12. 'X' BRACING AT ALL VERTICAL MEMBERS, BOTH SIDES
13. TRUSS MFR TO PROVIDE GALVN BEARING PLATE TO BOTTOM CHORD OF TRUSSES @ ALL MASONRY BEARING CONDITIONS
14. TRUSS MFR TO REFER TO MECH PLANS FOR LOCATION OF ANY MECHAN EQUIP BEARING ON TRUSSES AND DESIGN TRUSS ACCORDINGLY TO SUPPORT EQUIP

B. PROFESSIONAL ENGINEER

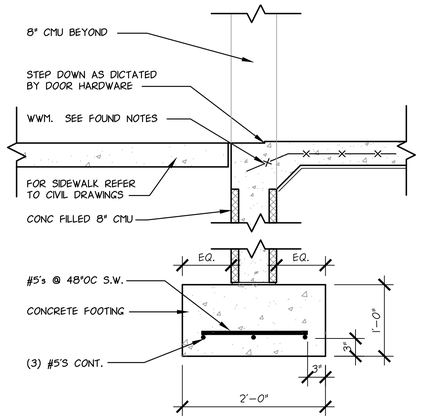
ALL TRUSS DESIGNS SHALL BEAR THE NAME, SEAL, AND/OR REGISTERED NUMBER OF A LICENSED PROFESSIONAL ENGINEER.

C. DESIGN LOADS

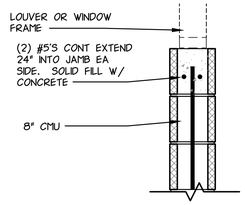
1. LIVE LOAD TOP CHORD=20 PSF
2. DEAD LOADS TOP CHORD= 17 PSF, BOTT CHORD 10 PSF
3. WIND SPEED 140 MPH



1 S101 DETAIL 1" = 1'-0"



2 S101 DETAIL 1" = 1'-0"



3 S101 DETAIL 1" = 1'-0"

ROOF FRAMING PLAN
1/4" = 1'-0"

FOUNDATION PLAN
1/4" = 1'-0"

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NOT FOR CONSTRUCTION
07-17-2025

MARK	DATE:	DESCRIPTION:	BY:
1	-	-	

REVISIONS:

DRAWN BY:	JWS
CHECKED BY:	ERP
DATE:	--

SHEET:
FOUNDATION & ROOF FRAMING PLANS & DETAILS
S-101
JOB No. 24038

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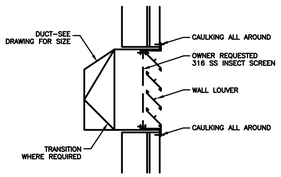

WALL LOUVER INTAKE WITH INSECT SCREEN

NOT TO SCALE

GENERAL MECHANICAL NOTES

GENERAL:
MECHANICAL CONTRACTOR SHALL COMPLETELY FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK INCLUDING VISIT TO THE SITE BEFORE PREPARING HIS PROPOSAL. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS ISSUED BY ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK. WHERE CONFLICT EXISTS BETWEEN THE APPLICABLE CODES AND STANDARDS OR THE PLANS AND SPECIFICATIONS, THE MOST STRINGENT AS DETERMINED BY THE ENGINEER WILL APPLY. CONTRACTOR SHALL NOTIFY ENGINEER OF CONFLICTING CONDITIONS AFFECTING HIS WORK AND ADVISE ENGINEER FOR CLARIFICATION. ALL CONSTRUCTIONS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL CODES IN EFFECT AND AS REQUIRED BY LOCAL, STATE, AND FEDERAL AUTHORITIES HAVING JURISDICTION OVER THE WORK, INCLUDING THE FOLLOWING CODES:

FLORIDA BUILDING CODE – BUILDING EIGHTH EDITION (2023)
FLORIDA BUILDING CODE – MECHANICAL EIGHTH EDITION (2023)
FLORIDA BUILDING CODE – PLUMBING EIGHTH EDITION (2023)
FLORIDA BUILDING CODE – FUEL GAS EIGHTH EDITION (2023)
FLORIDA BUILDING CODE – ENERGY CONSERVATION EIGHTH EDITION (2023)
NFPA 90A – 2015 EDITION

ALL MATERIALS TO BE MANUFACTURED INCORPORATED INTO THE WORK TO BE MANUFACTURED IN THE USA UNLESS OTHERWISE NOTED OR SCHEDULED ON THE DRAWINGS.

CONTRACTOR TO FAMILIARZE HIMSELF COMPLETELY WITH EXISTING CONDITIONS IN EXISTING CONSTRUCTIONS PRIOR TO PROVIDING ANY PROPOSAL FOR ANY WORK. CONTRACTOR TO INCLUDE IN HIS WORK ALL DEMOLITION, CUTTING, PATCHING, FIELD MEASUTRING, AND INTERCONNECTION TO EXISTING SYSTEMS. CONTRACTOR TO SCHEDULE REQUIRED SITE VISIT WITH OWNER'S DESIGNATED REPRESENTATIVE NOT LESS THAN 10 WORKING DAYS PRIOR TO SUBMISSION OF ANY PROPOSAL OR BIDDING FOR THE WORK DESCRIBED IN THE CONSTRUCTION DOCUMENTS. WITHIN TWO WORKING DAYS OF SITE VISIT, CONTRACTOR TO REQUEST ANY ADDITIONAL INFORMATION OR ACCESS HE MAY REQUIRE TO REASONABLY PERFORM THE WORK OF THE CONSTRUCTION DOCUMENTS.

MECHANICAL CONTRACTOR TO PROVIDE COMPLETE AND FUNCTIONING SYSTEMS. CONTRACTOR TO PROVIDE ALL REQUIRED MATERIALS AND LABOR AS NEEDED TO PROVIDE COMPLETE AND FUNCTIONING SYSTEM AS DESCRIBED IN THE CONSTRUCTION DOCUMENTS.

QUALITY ASSURANCE:
USE ADEQUATE NUMBERS OF SKILLED WORKMEN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK OF THIS SECTION.

WITHOUT ADDITIONAL COST TO THE OWNER, PROVIDE SUCH OTHER LABOR AND MATERIALS AS ARE REQUIRED TO COMPLETE THE WORK OF THIS SECTION IN ACCORDANCE WITH THE REQUIREMENTS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION, REGARDLESS OF WHETHER SUCH MATERIALS AND ASSOCIATED LABOR ARE CALLED FOR ELSEWHERE IN THESE CONTRACT DOCUMENTS.

SUBMITTALS AND SHOP DRAWINGS:
CONTRACTOR TO PREPARE SUBMITTALS AND SHOP DRAWINGS FOR ALL MECHANICAL WORK AS REQUIRED BY THE CONSTRUCTION DOCUMENTS INTO SINGLE COMPLETE PACKAGE FOR ENGINEERS REVIEW. PACKAGE TO BE IN THREE RING BINDER WITH ALL SHOP DRAWINGS ATTACHED. BINDER AND DRAWINGS TO CLEARLY STATE PROJECT NAME, PROJECT ARCHITECT, PROJECT ENGINEER, PROJECT OWNER, CONTRACTOR NAME, AND SITE ADDRESS. WHERE ALLOWED BY OWNER AND ARCHITECT ELECTRONIC SUBMITTALS MAY BE ACCEPTABLE TO ENGINEER WHEN PROVIDED FOR REVIEW NOT ONLY IN ELECTRONIC FORMAT BUT ALSO ACCOMPANIED BY ONE HARD COPY AS DESCRIBED ABOVE. INCOMPLETE SUBMITTAL PACKAGES WILL BE AVAILABLE AT THE ENGINEERS OFFICE FOR CONTRACTOR PICK–UP AND COMPLETION BEFORE ANY REVIEW BY THE ENGINEER OTHER THAN CURSORY REVIEW AS REQUIRED TO DETERMINE COMPLETENESS OF SUBMITTAL PACKAGE.

CONTRACTOR TO SUBMIT NAME AND QUALIFICATIONS OF TEST AND BALANCE COMPANY BEING PROPOSED BY CONTRACTOR FOR TEST AND BALANCE WORK. TEST AND BALANCE CONTRACTOR SUBMITTAL INFORMATION TO INCLUDE DOCUMENTATION OF EXPERIENCE AS WELL AS COPY OF TEST AND BALANCE CONTRACTORS ENGINEERING CORPORATION LICENSE SHOWING NAME OF QUALIFYING REGISTERED PROFESSIONAL ENGINEER AS WELL AS COPY OF QUALIFYING PROFESSIONAL ENGINEERS CURRENT LICENSE.

COORDINATION OF WORK:
ENGINEERS DRAWINGS AND CONSTRUCTION DOCUMENTS ARE DIAGRAMMATIC. CONTRACTOR OF WORK THIS TRADE TO COORDINATE WITH ALL WORK OF CONTRACTORS OF OTHER TRADES AND GENERAL CONTRACTOR. CONTRACTORS TO FIELD MEASURE PRIOR TO FABRICATION OF ANY WORK. CONTRACTOR OF WORK OF THIS TRADE TO COMMUNICATE WITH GENERAL CONTRACTOR AND CONTRACTORS OF OTHER TRADES AND PREPARE DRAWINGS, SKETCHES, AND PROVIDE INFORMATION AS NEEDED TO COMMUNICATE WITH OTHER TRADES FOR CONSTRUCTION OF COMPLETE AND OPERATING SYSTEM WITHOUT ADDITIONAL COST TO OWNER. PRIOR TO BEGINNING WORK OF THIS TRADE, CONTRACTOR OF THIS TRADE TO CONVENE COORDINATION MEETING WITH OTHER AFFECTED CONTRACTORS OF OTHER TRADES AND GENERAL CONTRACTOR FOR PURPOSES OF COORDINATION. CONTRACTORS' FAILURES TO COORDINATE WILL NOT BE CAUSE FOR RECOVERY OF ADDITIONAL COMPENSATION FOR CORRECTION OR MODIFICATION WORK WHICH IN THE SOLE OPINION OF THE ENGINEER IS NOT WELL COORDINATED.

MOTORS:
PROVIDE MOTORS DESIGNED FOR THE SUPPLY VOLTAGES MADE AVAILABLE FOR THIS PORTION OF THE WORK, AND WITH THE FOLLOWING ATTRIBUTES:

SIZED TO DEVELOP THE REQUIRED BRAKE HORSEPOWER AND TO OPERATE SATISFACTORILY WITH A VOLTAGE VARIATION OF PLUS OR MINUS 10 CONFORMING TO NEMA MOTOR STANDARDS; DYNAMICALLY BALANCED, AND HELD TO COMMERCIAL TOLERANCE; WHERE T–FRAME MOTORS ARE USED, OVERSIZED AT LEAST 10 SELECTED SO THAT, WHEN AMBIENT TEMPERATURE REACHES 120 DEGREES F FOR A PERIOD OF TWO HOURS OR MORE, THE MOTOR WILL OPERATE SATISFACTORILY WITHOUT FAILURE, AND WITH A MINIMUM SERVICE FACTOR OF 1.25; WITH SQUIRREL–CAGE TYPE DRIP–PROOF ENCLOSURE, UNLESS OTHERWISE INDICATED, CONSTANT SPEED, ACROSS–THE–LINE NORMAL STARTING TORQUE DESIGNED FOR QUIET OPERATION; EACH MOTOR OF AMPLE SIZE TO OPERATE ITS UNIT AT PROPER FULL LOAD AND SPEED CONTINUOUSLY, WITHOUT HEATING IN ANY PART MORE THAN 40 DEGREES C ABOVE THE TEMPERATURE OF THE SURROUNDING ATMOSPHERE.

WHERE MOTOR IS USED WITH V BELT DRIVE, EQUIP WITH A SLIDING BASE AND BELT GUARD, AND MOTOR SHEAVE.

CONTROLS:
CONTRACTOR TO PROVIDE COMPLETE SYSTEM OF THERMOSTATS, SENSORS, AND OTHER DEVICES AND COMPONENTS INCLUDING SOFTWARE, IF NEEDED, TO DELIVER SEQUENCES OF OPERATION REQUIRED BY THE CONSTRUCTION DOCUMENTS. CONTRACTOR TO PROVIDE CONTROLS SUBMITTALS AND SHOP DRAWINGS SHOWING RISER DIAGRAMS AND ALL SYSTEM COMPONENTS WITH COMPONENT CUTSHEETS AND COMPLETE PRODUCT INFORMATION. SUBMITTAL TO CLEARLY STATE THE SEQUENCE OF OPERATION FOR EACH SYSTEM.

OTHER MATERIALS:
PROVIDE OTHER MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ARCHITECT.

TEST AND BALANCE:
PRIOR TO CONTRACTORS REQUEST FOR SUBSTANTIAL COMPLETION INSPECTION, CONTRACTOR TO PROVIDE INDEPENDENT TEST AND BALANCE BY FIRM WITH NOT LESS THAN 10 YEARS DEMONSTRABLE EXPERIENCE SPECIALIZING IN TEST AND BALANCE WORK. ENGINEER WILL NOT PERFORM SUBSTANTIAL COMPLETION INSPECTION OF WORK BEFORE RECEIPT OF TEST AND BALANCE REPORT. TEST AND BALANCE TO BE PERFORMED IN ACCORDANCE WITH THE WRITTEN PROCEDURES OF SMACNA, AABC, OR NEBB AND COMPANY CERTIFIED BY AABC OR NEBB. CONTRACTOR TO PROVIDE NOT LESS THAN FOUR COPIES OF CERTIFIED TEST AND BALANCE REPORT TO ENGINEER. ALL TEST AND BALANCE WORK TO BE PERFORMED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER AND ALL REPORTS TO BEAR THE ORIGINAL SEAL AND SIGNATURE OF LICENSED PROFESSIONAL ENGINEER.

TEST AND ADJUST EACH PIECE OF EQUIPMENT AND EACH SYSTEM AS REQUIRED TO ASSURE PROPER BALANCE AND OPERATION. TEST AND REGULATE VENTILATION SYSTEMS TO CONFORM TO THE AIR VOLUMES SHOWN ON THE APPROVED DESIGN DRAWINGS. MAKE TESTS AND ADJUSTMENTS IN APPARATUS SECURING THE PROPER VOLUME OF AIR FOR EACH INLET OR OUTLET. WHERE REQUIRED, PROVIDE PULLEYS FOR FANS AT NO ADDITIONAL COST TO THE OWNER, AND SET TO DRIVE THE FANS AT THE SPEED NEEDED TO GIVE THE INDICATED VOLUME.

AIR SYSTEMS:
FOR EACH SYSTEM, TAKE THE FOLLOWING DATA IN TABULATED FORM:
AIR VOLUMES AT ALL EXHAUST OUTLETS;
MOTOR SPEED, FAN SPEED, AND INPUT AMPERE RATING FOR EACH FAN.

EXECUTION:
SURFACE CONDITIONS:
EXAMINE THE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION WILL BE PERFORMED. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

COORDINATION:
COORDINATE AS REQUIRED WITH OTHER TRADES TO ASSURE PROPER AND ADEQUATE PROVISION IN THE WORK OF THOSE TRADES FOR INTERFERENCE WITH THE WORK OF THIS SECTION.

PREPARATION:
HOLES IN CONCRETE: PROVIDE SLEEVES, ACCURATELY DIMENSIONED AND SHAPED TO PERMIT PASSAGE OF ITEMS OF THIS SECTION. DELIVER ALL SUCH SLEEVES, WITH ACCURATE SETTING DRAWINGS AND SETTING INFORMATION, TO THE TRADES PROVIDING SURFACES THROUGH WHICH SUCH ITEMS MUST PENETRATE AND IN A TIMELY MANNER TO ASSURE INCLUSION IN THE WORK.

FLASHING:
WHERE ITEMS OF THIS SECTION PENETRATE THE ROOF, OUTER WALLS, AT WATERPROOFING OF ANY KIND, PROVIDE UNDER THIS SECTION ALL BASE FLASHING AND COUNTERFLASHING REQUIRED AT SUCH PENETRATION. PROVIDE ON EACH PIPE PASSING THROUGH THE ROOF A 4 LB SEAMLESS LEAD FLASHING AND COUNTERFLASHING ASSEMBLY.

EQUIPMENT INTERFACE:
FOR ELECTRICALLY OPERATED EQUIPMENT, VERIFY THE ELECTRICAL CHARACTERISTICS ACTUALLY AVAILABLE FOR THE WORK OF THIS SECTION AND PROVIDE EQUIPMENT MEETING THOSE CHARACTERISTICS.

PAINTING:
PAINT INSIDE OF ALL AIR OUTLETS AND CONNECTING PLENUMS WITH ONE COAT OF BLACK PAINT, OR PROVIDE ALL SUCH ITEMS FACTORY PREPAINTED. FOR ROOF–MOUNTED EQUIPMENT, PROVIDE FACTORY PREFINISH ON ALL EXPOSED SURFACES. TOUCH–UP SCRATCHES AND ABRASIONS TO BE INVISIBLE TO THE UNAIDED EYE FROM A DISTANCE OF 5'0".

INSTRUCTIONS:
UPON COMPLETION OF THIS PORTION OF THE WORK, AND PRIOR TO ITS ACCEPTANCE BY THE OWNER, PROVIDE A QUALIFIED ENGINEER AND FULLY INSTRUCT THE OWNER'S MAINTENANCE PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF ITEMS PROVIDED UNDER THIS SECTION.

WARRANTY:
CONTRACTOR TO WARRANTY ALL MATERIALS, WORKMANSHIP, AND SYSTEM PERFORMANCE FOR A PERIOD OF NOT LESS THAN TWO YEARS FROM TIME OF SUBSTANTIAL COMPLETION. WHERE MANUFACTURERS STANDARD WRITTEN WARRANTIES OR WARRANTY REQUIREMENTS STATED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS ARE OF A PERIOD OF GREATER THAN TWO YEARS, CONTRACTOR OR MANUFACTURER ARE TO PROVIDE WARRANTY OF LONGER DURATION. WARRANTY TO INCLUDE AT A MINIMUM COMPLETE QUARTERLY MAINTENANCE INCLUDING, BUT NOT LIMITED TO, LUBRICATION, BELT REPLACEMENT, AND ALL RECOMMENDED OR SUGGESTED ROUTINE MAINTENANCE OF THE EQUIPMENT MANUFACTURER.

CONTRACTOR TO NOTIFY OWNER'S REPRESENTATIVE OF DATE OF SUBSTANTIAL COMPLETION AT TIME OF SUBSTANTIAL COMPLETION.

BUILDING MECHANICAL INDEX OF DRAWINGS

SHEET NUMBER	CONTENTS
M–001	MECHANICAL – NOTES
M–101	FLOOR PLAN – MECHANICAL

90% REVIEW SET NOT FOR CONSTRUCTION

MECHANICAL - NOTES

Revisions		
No.	Date	DESCRIPTION
1	07/17/2025	90% REVIEW SET
2	-	-
3	-	-
4	-	-

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P.O. BOX 2735, 1317 SE FORT KING STREET
OCALA, FL 34471
PH: (352)351–3941 FAX: (352)732–8244
REGISTERED ENGINEERING BUSINESS FL LIC. # 5061

PROJECT

LAKE HILLS IRRIGATION
PUMP STATION
HOWEY IN THE HILLS
FLORIDA

SEAL

REGISTRATION
90% REVIEW SET
NOT FOR
CONSTRUCTION
07/17/2025
JOHN S. ESBENSHADE, P.E.
STATE OF FLORIDA PROFESSIONAL ENGINEER
LICENSE # 39460

REVISIONS:			
MARK	DATE:	DESCRIPTION:	BY:
1			

DRAWN BY: ADS
CHECKED BY: JSE
DATE: ??/??/????

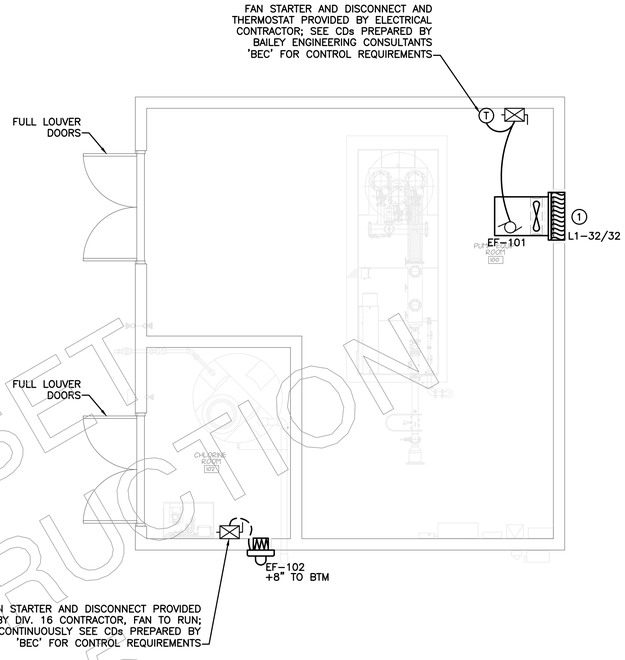
SHEET:
MECHANICAL NOTES
M-001
JOB No. 2401

Written dimensions on these drawings shall have precedence over scaled dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job. KP Studio Architect P.A. must be notified immediately in writing of any variation from the dimensions and conditions shown on these drawings. Field verify all conditions prior to laying out or fabricating associated work. Bring to the architect's attention any deviation from designed conditions and field conditions prior to ordering materials and installing work, and cooperate with architect to modify such conditions at no additional cost to the owner, architect or architect's consultants. Shop details must be submitted to the architect's office and reviewed by the architect prior to ordering materials, fabrication and delivery to the job site, unless otherwise provided for under the specific contractual agreement between the architect and client. KP Studio Architect P.A. expressly reserves its common law copyright and other property rights in these documents. These documents are not to be reproduced, changed, or copied in any form or manner whatsoever, nor are they to be assigned to a third party, the third party shall hold KP Studio Architect P.A. harmless and agrees to remunerate KP Studio Architect P.A. for such use in an amount equal to the original fee for the original documents. In the event of unauthorized use of these documents by a third party, the third party without first obtaining the written permission and written consent of KP Studio Architect P.A. In the event of any variation from the dimensions and conditions shown on these drawings, Contractor shall verify and be responsible for all dimensions and conditions on the job. KP Studio Architect P.A. must be notified immediately in writing of any variation from designed conditions and field conditions prior to ordering materials and installing work, and cooperate with architect to modify such conditions at no additional cost to the owner, architect or architect's consultants. Shop details must be submitted to the architect's office and reviewed by the architect prior to ordering materials, fabrication and delivery to the job site, unless otherwise provided for under the specific contractual agreement between the architect and client. KP Studio Architect P.A. expressly reserves its common law copyright and other property rights in these documents. These documents are not to be reproduced, changed, or copied in any form or manner whatsoever, nor are they to be assigned to a third party, the third party shall hold KP Studio Architect P.A. harmless and agrees to remunerate KP Studio Architect P.A. for such use in an amount equal to the original fee for the original documents. In the event of unauthorized use of these documents by a third party, the third party without first obtaining the written permission and written consent of KP Studio Architect P.A. plans legal fees, court costs, attorneys fees and other costs.

FAN SCHEDULE

FAN DESIGNATION	MOTOR HP	VOLTAGE/ PHASE	MATCHED PERFORMANCE				MANUFACTURER	MODEL NUMBER	NOTES
			CFM	RPM	BHP	ESP			
EF-101 (PUMP EQU. RM)	1/2 TEFC, 1.15SF	480/3	900	770	0.16	0.25	GREENHECK	SBE-2H20	PROVIDE WITH WALL WALL HOUSING, BACKDRAFT DAMPER
EF-102 (CHLORINE RM)	1/15 –	120/1	290	1550	0.03	0.125	AEROVENT	ASA-072	

ALL FANS TO BE OF LISTED MANUFACTURER OR EQUAL AS MANUFACTURED BY COOK, GREENHECK, OR TWIN CITY, AND APPROVED BY ENGINEER. ALL FANS TO BE FURNISHED WITH BELT GUARDS WHERE APPLICABLE.



PLAN NOTES (MECHANICAL)

1. HURRICANE RATED LOUVER WITH HURRICANE RATED INSTALLATION TO BE RUSKIN MODEL ELF6375DXD WITH AAMA 2605 PVDF COATING, COORDINATE COLOR SELECTION WITH ARCHITECT PRIOR TO SUBMITTAL; EQUAL BY GREENHECK; PROVIDE WITH OWNER REQUIRED 316SS INSECT SCREEN

1 FLOOR PLAN - MECHANICAL

4'-0" 0' 4'-0" 8'-0"

90% REVIEW SET NOT FOR CONSTRUCTION 07/17/2025

Revisions		
No.	Date	DESCRIPTION
1	07/17/2025	90% REVIEW SET
2	-	-
3	-	-
4	-	-

kp studio architect
KP STUDIO ARCHITECT P.A.
537 NE 8th Avenue
Ocala Florida 34470
Phone: 352.622.7163
Fax: 352.622.6556
mailbox@kpstudioarchitect.com
Web site: kpstudioarchitect.com
License No. #AA0002357
CONSULTANT

EBS INC
PREPARED BY:
ENGINEERED BUILDING SYSTEMS, INC.
P.O. BOX 2735, 1317 SE FORT KING STREET
OCALA, FL 34471
PH: (352)351-3941 FAX: (352)732-8244
REGISTERED ENGINEERING BUSINESS FL LIC. # 5061

PROJECT

LAKE HILLS IRRIGATION PUMP STATION
HOWEY IN THE HILLS FLORIDA

SEAL

REGISTRATION
90% REVIEW SET NOT FOR CONSTRUCTION 07/17/2025
JOHN S. ESBENSHADE, P.E.
STATE OF FLORIDA PROFESSIONAL ENGINEER
LICENSE # 39460

MARK	REVISIONS: DATE:	DESCRIPTION:	BY:
1			

DRAWN BY: ADS
CHECKED BY: JSE
DATE: ??/??/????

SHEET:
FLOOR PLAN MECHANICAL
M-101
JOB No. 240

EXISTING TREE LEGEND	
OAK	EXISTING OAK TREE
PINE	EXISTING PINE TREE
PALM	EXISTING PALM TREE
CAM	EXISTING CAMPHOR TREE
CHI	EXISTING CHINABERRY TREE
TREE	EXISTING TREE
CHE	EXISTING CHERRY TREE
GUM	EXISTING SWEET GUM TREE

EXISTING TREE TOTALS
TOTAL TREES REMOVED = 20
TOTAL DBH REMOVED = 213"
TOTAL TREES PRESERVED = 14
TOTAL DBH PRESERVED = 135"

SYMBOLS

TREES TO BE SAVED

TREES TO BE REMOVED

Existing Protected Trees to be Removed

TYPE	Count	SIZE	INCHES
CAM	1	10	10.0000
CHI	2	14	28.0000
CHI	1	6	6.0000
CHI	2	12	24.0000
CHI	3	10	30.0000
OAK	1	8	8.0000
OAK	1	12	12.0000
OAK	1	16	16.0000
OAK	2	6	12.0000
OAK	1	10	10.0000
PINE	1	13	13.0000
PALM	1	14	14.0000
PALM	1	13	13.0000
PALM	1	11	11.0000
TREE	1	6	6.0000
	20		213.0000

Existing Trees to be Saved

TYPE	Count	SIZE	INCHES
GUM	2	10	20.0000
GUM	1	7	7.0000
GUM	2	6	12.0000
OAK	1	6	6.0000
OAK	1	16	16.0000
OAK	2	8	16.0000
OAK	1	7	7.0000
PALM	1	11	11.0000
PALM	1	14	14.0000
PALM	2	13	26.0000
	14		135.0000

7.11.00 TREES

7.11.01 Tree Protection

A. No application for a building permit, land clearing permit, site development permit, subdivision development permit, or grading and filling permit may be issued by the Building Official until the site inspector has visited the site and determined that the tree protection measures are in place in accordance with this chapter and the approved site or subdivision plans. Tree protections shall meet the standards of ANSI Standard A300 Part 5.

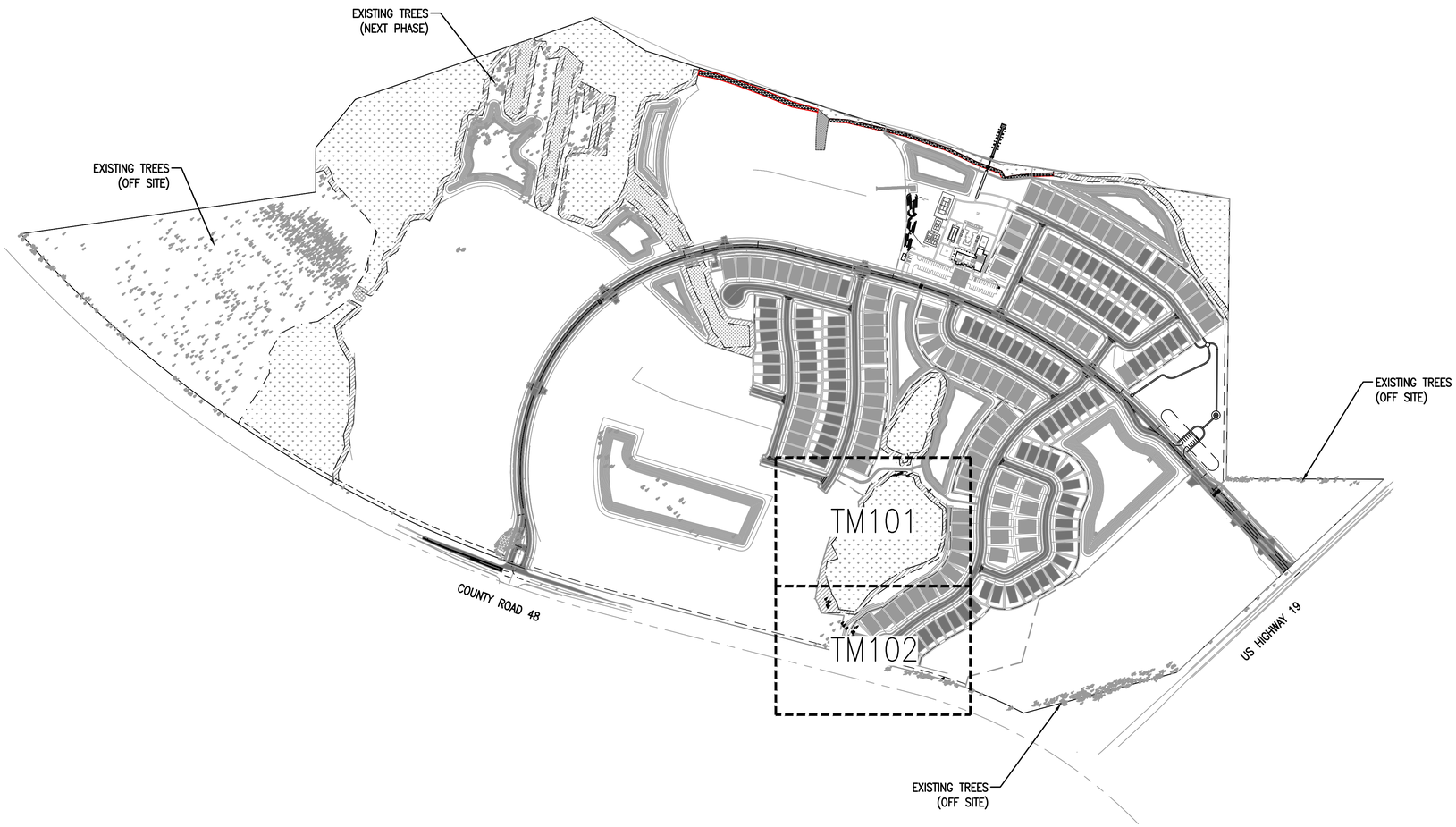
B. During construction, to ensure the health and survival of protected trees that are not to be removed, the developer shall avoid the following types of tree injuries during all development activities:

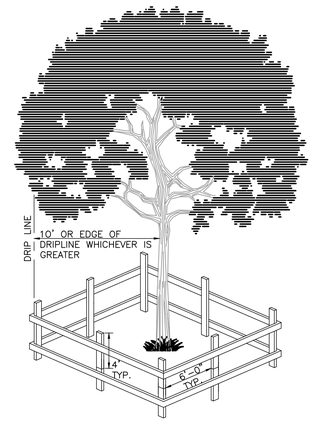
1. Mechanical injuries to roots, trunk, and branches. To protect against mechanical injuries to roots, trunk, and branches:

a. All existing trees that are to remain shall have barriers constructed around the tree at the drip line or around the combined drip line of any clumps of trees. Barriers are to be inspected by the Town prior to the start of any construction.

b. The minimum size of such wood barrier fencing shall be two inches (2") by four inches (4") and the top of the barrier shall be a minimum of four feet (4') high. Another acceptable means of barricading trees is the use of orange plastic construction fence, four feet (4') high, and supported every eight feet (8') by a No. 5 rebar, driven into the ground. Fencing shall be securely attached to rebar by the use of nylon zip ties or twisted wire. Barricades must be taut and perpendicular to the ground. No construction activity, cuts, fill, debris disposal or vehicular traffic is to take place within this area. Additionally, the storage or placement of material, machinery, or other construction equipment or substances is prohibited within the drip line area.

c. Any waiver or request to construct barriers within the drip line shall be reviewed by the Town. The request must be accompanied by a report from a qualified arborist. Where drip lines of existing trees overlap, the orange mesh fencing or the wood barriers shall be erected around the outer perimeter of the combined drip lines.





1 TM100 TYPICAL TREE PROTECTION DETAIL

SCALE= N.T.S.

N

GRAPHIC SCALE

300' 150' 0' 150' 300' 600'

1 inch = 300 ft.

IF LESS THAN 24"x36" SHEET HAS BEEN REDUCED. ADJUST THE SCALE TO THE DRAWING ACCORDINGLY.

LANDSCAPE ARCHITECT:
Robert R. Buchanan LA0000932

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Reader & Partners, LLC
5850 T.G. Lee Blvd.
Orlando, FL 32822

LANDSCAPE ARCHITECTS AND PLANNERS, LLC
Landscape Dynamics

P.O. BOX 2852 - Winter Park, Florida 32790-2852 - Phone 407-579-1811 - Email randylandscapedynamics.com

Overall Tree Mitigation Plan PH1
Lake Hills Subdivision
Howey-in-the-Hills, Florida

REVISIONS
1) 2) 3) 4) 5) 6) 7) 8)

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: Tree Mitigation
SCALE: 1:300

TM100



SYMBOLS

TREES TO BE SAVED

TREES TO BE REMOVED

N

GRAPHIC SCALE

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8)

Tree Mitigation Plan PH1

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: Tree Mitigation
SCALE: 1:30

TM101

MATCHLINE – SHEET TM101

MATCHLINE – SHEET LTM01

MATCHLINE – SHEET TM101

WETLAND SETBACK

WETLAND

RETAINING WALLS

PHASE II

PHASE I

COMMERCIAL TRACT
FUTURE PUBLIX

TREE SAVES IN R.O.W. TBD
(MITIGATION NOT REQUIRED FOR
TREES TO BE REMOVED)

TREE SAVES IN R.O.W. TBD
(MITIGATION NOT REQUIRED FOR
TREES TO BE REMOVED)

RETAINING WALL

SYMBOLS

TREES TO BE SAVED

TREES TO BE REMOVED

N

GRAPHIC SCALE

1 inch = 30 ft.

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REVISIONS
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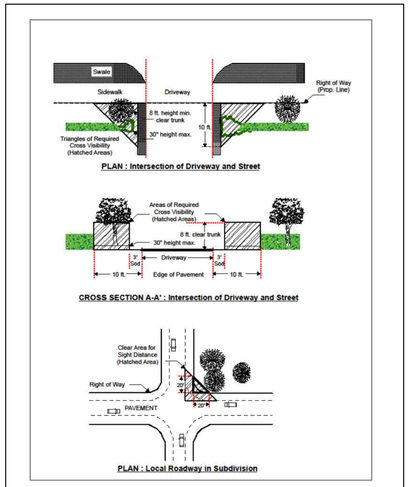
(8)

Tree Mitigation Plan PH1

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: Tree Mitigation
SCALE: 1:30

TM102



Ordinance #2011-009 12 Adopted on February 27, 2012
Rev'd. Ord. #2024-002 (8-26-2024)

PLANT LIST – FLORIDA GRADES AND STANDARDS

(436)	·	UNDERSTORY TREE NATCHEZ CRAPE MYRTLE CHICKASAW PLUM WEEPING BOTTLEBRUSH PURPLE LEAF PLUM	Lagerstroemia indica Prunus angustifolia Melaleuca viminalis Prunus cerasifera	8' ht. 4' spr., 2.5" cal.
(12)	⊙	PINE TREE SLASH PINE LONGLEAF PINE	Pinus elliottii Pinus palustris	10' ht. 3.5' spr., 2.5" cal.
(435)	□	MEDIUM CANOPY TREE SWEET BAY MAGNOLIA WINGED ELM	Magnolia virginiana Ulmus alata	10' ht. 3' spr., 2.5" cal.
(487)	+	LARGE CANOPY TREE LIVE OAK SOUTHERN MAGNOLIA WINGED ELM	Quercus virginiana Magnolia grandiflora Ulmus alata	12' ht. 6.5' spr., 4" cal.
(487)	○	HEDGE SHRUB SANDANKWA VIBURNUM SIMPSON'S STOPPER	Viburnum suspensum Myrcianthes fragrans	30" ht., 3 gal., 36" o.c.



NOTES:

1) Irrigation system to be permanent system. Based on Waterwise FL Water Star Program and FL Irrigation Society Standards.

2) The irrigation plan shall be designed and installed to conform to Section 7.06.00–7.07.03 of this Code.

3) All plant material shall be FL. Grade #1 and "Florida Friendly" and comply with 7.10.00 approved tree and plants list.

4) Hardscape plans to be finalized at the time of certificate of occupancy and elements of design and construction to be approved by the town council prior to installation.

7.10.00 APPROVED TREE AND PLANT LIST

Table 7.10.00 Approved Tree and Plant List

Canopy Trees	Understory Trees	Aquatic Plants	Shrubs	Ground Cover	Turf
Bald Cypress	American Holly	Arrowhead	American Beauty Berry	Aloe	Bahia
Sweet Bay Magnolia	Chickasaw Plum	Arrowroot	Cherry Laurel	Chinese Juniper	Bermuda
Live Oak *	Crape Myrtle	Bald Cypress	Fetterbrush	Coontie	St. Augustine
Longleaf Pine	Dahoon Holly	Blue Flag Iris	Firebush	Day Lily	Zoysia
Red Maple	Date Palm	Buttonbush	Florida Anise	Dwarf Yaupon Holly	
Shumard Oak	East Palatka Holly	Cinnamon Fern	Gallberry	English Ivy	
Slash Pine	Savannah Holly	Duck Potato	Indian Hawthorne	Florida Lantana	
Southern Magnolia *	Ligustrum	Fragrant White Water Lily	Ligustrum	Liriope	
Sweet Bay	Natchez Crepe Myrtle	Golden Canna	Ligustrum	Mondo Grass	
Sweetgum	Loquat	Maidencane	Native Azaleas	Society Garlic	
Sycamore	Sabal/Cabbage Palm	Pickerel Weed	Pampas Grass	Wandering Jew	
Drake Elm	Purple Leaf plum	Pond Cypress	Pink Muhly Grass	Perennial Peanut	
	Bamboo Palm	Sawtooth fern	Pittosporum	Beach Sunflower	
	Medjool Date Palm	Soft Rush	Podocarpus	Dwarf Asiatic Jasmine	
	Bottlebrush	Swamp Hibiscus	Sandankwa Viburnum		
	Winged Elm		Saw Palmetto		
	Yaupon Holly		Silverthorn		
			Simpson Stopper		
			St. Johns Wort		
			Star Anise		
			Sweet Viburnum		

IF LESS THAN 24"x36" SHEET HAS BEEN REDUCED, ADJUST THE SCALE TO THE DRAWING ACCORDINGLY:

N

GRAPHIC SCALE

200' 0' 100' 200' 400'

1 inch = 200 ft.

LANDSCAPE ARCHITECT:
Robert R. Buchanan LA0000932

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PH I Overall Landscape Plan
Lake Hills Subdivision
Howey-in-the-Hills, Florida

REVISIONS
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3)
4)
5)
6)
7)
8)

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1 : 200

L100

PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
LIVE OAK
SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

LITTLE LAKE HARRIS
RETENTION POND
WETLAND
25' WETLAND BUFFER
POND P12
PHASE II
PHASE I
LANDSCAPE BERM
LANDSCAPE BERM
TENNIS
PICKLEBALL
PICKLEBALL
PICKLEBALL
BOCCE
BOCCE
POOL
SPA
YOGA LAWN
EVENT LAWN
AMENITY AREA IS CONCEPTUAL AND FINAL DESIGN WILL BE PERMITTED SEPARATELY
OPEN SPACE TRACT
OPEN SPACE TRACT
60' MODEL UNIT
60' MODEL UNIT
MAIL KIOSK
MATCHLINE – SHEET L102
MATCHLINE – SHEET L102
MATCHLINE – SHEET L104
MATCHLINE – SHEET L104
MATCHLINE – SHEET L104

N
GRAPHIC SCALE
1 inch = 30 ft.

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PH I Landscape Plan

Lake Hills Subdivision
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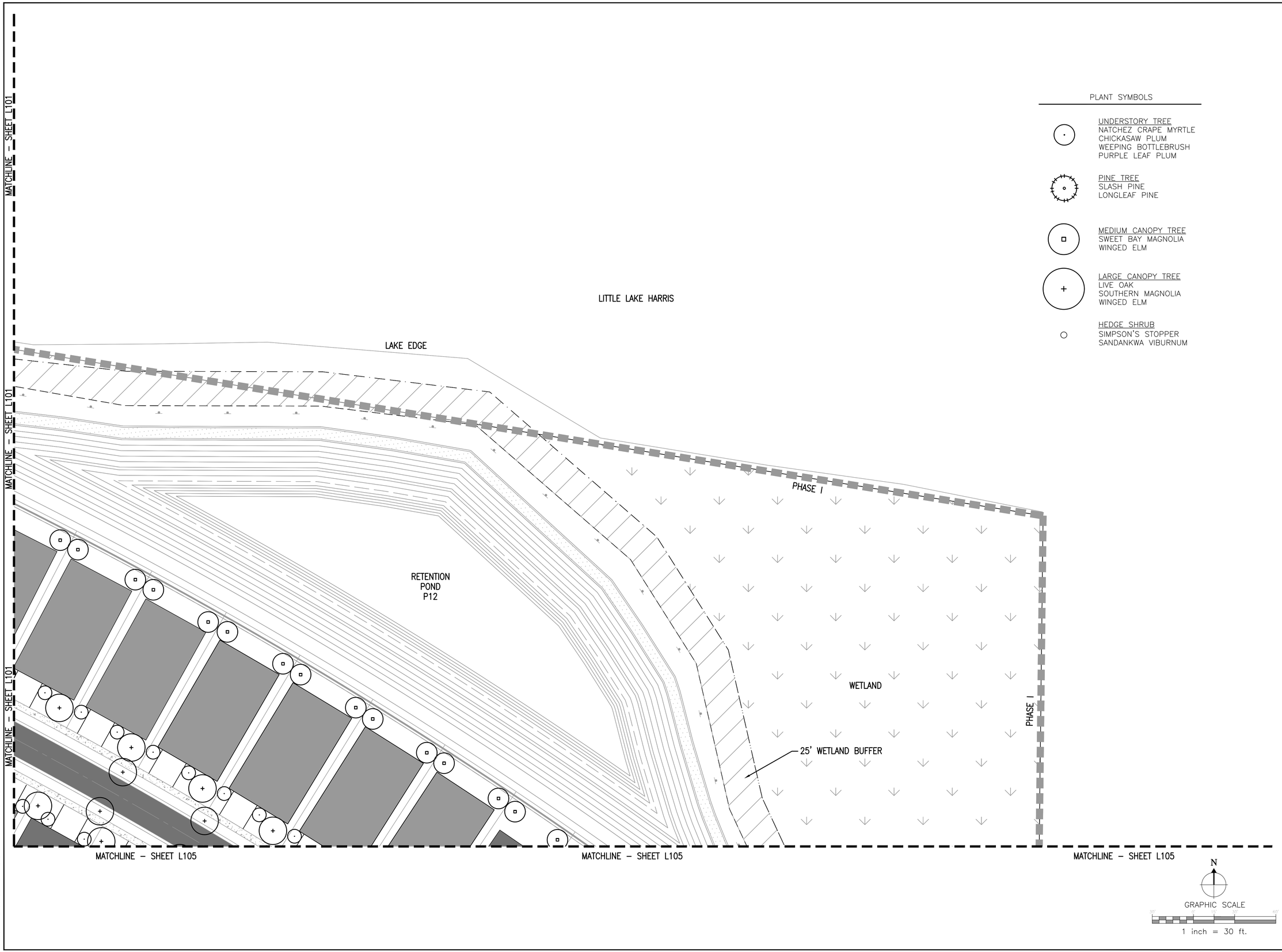
DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1: 30

L101



PLANT SYMBOLS

UNDERSTORY TREE
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CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
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SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

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PH I Landscape Plan

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1:30

L102

PHASE II
PHASE I
LIFT STATION
PHASE II
OPEN SPACE
TRACT
OPEN SPACE
TRACT
PHASE I
PHASE II
WETLAND
PHASE II
PHASE I
OPEN SPACE TRACT
OPEN SPACE TRACT
OPEN SPACE TRACT
OPEN SPACE TRACT
OPEN SPACE TRACT
DRAINAGE
EASEMENT
MATCHLINE – SHEET L104
MATCHLINE – SHEET L104
MATCHLINE – SHEET L104
MATCHLINE – SHEET L106
MATCHLINE – SHEET L106
MATCHLINE – SHEET L106

N

GRAPHIC SCALE

1 inch = 30 ft.

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(2) DAYS PRIOR TO EXCAVATION

CONTRACTOR MUST REVIEW ALL GENERAL LANDSCAPE NOTES PRIOR TO BIDDING AND CONSTRUCTION

Reader & Partners, LLC
5850 T.G. Lee Blvd.
Orlando, FL 32822

LANDSCAPE
Dynamics
LANDSCAPE ARCHITECTS AND PLANNERS, LLC

P.O. BOX 2852 - Winter Park, Florida 32790-2852 - Phone 407-579-1811 - Email randy@landscapedynamics.com

PH I Landscape Plan

Lake Hills Subdivision
Howey-in-the-Hills, Florida

REVISIONS
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1: 30

L103

MATCHLINE – SHEET L101

MATCHLINE – SHEET L101

MATCHLINE – SHEET L101

MATCHLINE – SHEET L103

MATCHLINE – SHEET L103

MATCHLINE – SHEET L105

MATCHLINE – SHEET L105

MATCHLINE – SHEET L107

MATCHLINE – SHEET L107

MATCHLINE – SHEET L107

MAIL KIOSK

LANDSCAPE BERM

CAME LAWN

SPA

CLUBHOUSE

PHASE II

PHASE I

AMENITY AREA IS CONCEPTUAL AND FINAL DESIGN WILL BE PERMITTED SEPARATELY

50' MODEL UNIT

40' MODEL UNIT (VILLA)

40' MODEL UNIT (VILLA)

3-PHASE TRANSFORMER

OPEN SPACE TRACT

OPEN SPACE TRACT

OPEN SPACE TRACT

OPEN SPACE TRACT

RETENTION POND

N

GRAPHIC SCALE

1 inch = 30 ft.

IF LESS THAN 24"x36" SHEET HAS BEEN REDUCED, ADJUST THE SCALE TO THE DRAWING ACCORDINGLY.

LANDSCAPE ARCHITECT:
Robert R. Buchanan LA0000932

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PH I Landscape Plan

Lake Hills Subdivision
Howey-in-the-Hills, Florida

REVISIONS
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6)
7)
8)

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1 : 30

L104

MATCHLINE – SHEET L102

MATCHLINE – SHEET L102

MATCHLINE – SHEET L102

MATCHLINE – SHEET L104

MATCHLINE – SHEET L104

MATCHLINE – SHEET L104

DRAINAGE EASEMENT

WETLAND

25' WETLAND BUFFER

OPEN SPACE TRACT

OPEN SPACE TRACT

OPEN SPACE TRACT

OPEN SPACE TRACT

SWALE

LANDSCAPE BUFFER

PUBLIC PARK

MATCHLINE – SHEET L108

MATCHLINE – SHEET L108

MATCHLINE – SHEET L108

PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
LIVE OAK
SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

GRAPHIC SCALE

1 inch = 30 ft.

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Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1:30

L105

MATCHLINE – SHEET L103

MATCHLINE – SHEET L103

MATCHLINE – SHEET L103

MATCHLINE – SHEET L107

MATCHLINE – SHEET L107

MATCHLINE – SHEET L107

OPEN SPACE TRACT

PHASE I

PHASE II

OPEN SPACE TRACT

PHASE I

PHASE II (N.I.C.)

WALKING TRAIL

RETAINING WALL

PHASE I

PHASE II (N.I.C.)

WETLAND

PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
LIVE OAK
SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

N

GRAPHIC SCALE

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Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1:30

L106

MATCHLINE – SHEET L104

MATCHLINE – SHEET L104

MATCHLINE – SHEET L104

MATCHLINE – SHEET L106

MATCHLINE – SHEET L106

MATCHLINE – SHEET L108

MATCHLINE – SHEET L108

WETLAND
1.17 AC

RETENTION
POND
P2

OPEN SPACE TRACT

OPEN SPACE TRACT

OPEN
SPACE
TRACT

WALKING TRAIL

GUM 10
GUM 7
GUM 6
GUM 10

WETLAND

PALM
13

MATCHLINE – SHEET L109

MATCHLINE – SHEET L109

MATCHLINE – SHEET L109

N

GRAPHIC SCALE

1 inch = 30 ft.

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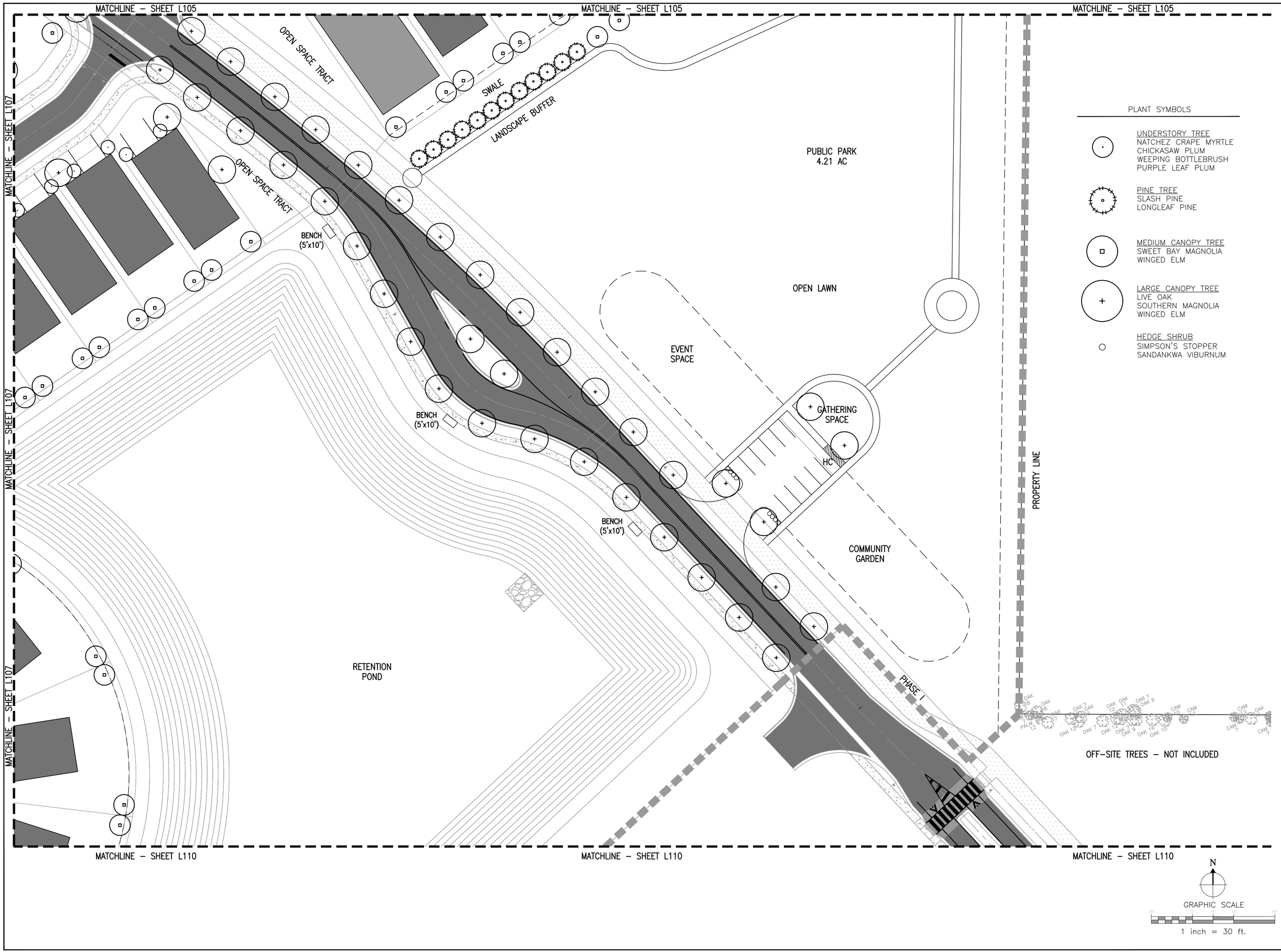
PH I Landscape Plan

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1: 30

L107



PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
LIVE OAK
SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

GRAPHIC SCALE
1 inch = 30 ft.

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Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1" = 30'

L108

MATCHLINE – SHEET L106

MATCHLINE – SHEET L107

MATCHLINE – SHEET L107

PHASE II

PHASE I

WETLAND

WALKING TRAIL

RETAINING WALLS

RETAINING WALLS

RETAINING WALLS

OPEN SPACE TRACT

MATCHLINE – SHEET L110

MATCHLINE – SHEET L110

MATCHLINE – SHEET L111

MATCHLINE – SHEET L111

MATCHLINE – SHEET L111

N

GRAPHIC SCALE

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PH I Landscape Plan

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1:30

L109

MATCHLINE – SHEET L107

MATCHLINE – SHEET L108

MATCHLINE – SHEET L108

MATCHLINE – SHEET L109

MATCHLINE – SHEET L109

MATCHLINE – SHEET L109

RETENTION POND P1

COMMERCIAL TRACT (FUTURE PUBLIX)

RETAINING WALL

OPEN SPACE TRACT

PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
LIVE OAK
SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

N

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PH I Landscape Plan

Lake Hills Subdivision
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DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1:30

L110

MATCHLINE – SHEET L109

MATCHLINE – SHEET L109

MATCHLINE – SHEET L109

(RESIDENTIAL PUD)
OPEN SPACE TRACT

COMMERCIAL
TRACT

RETAINING WALL

COUNTY ROAD 48

LANDSCAPE BUFFER PER SECTION 7.02.02 NON–RESIDENTIAL TO RESIDENTIAL PARCELS PER 50 LF.

(15) FT. MINIMUM WIDTH
(1) CANOPY TREE
(2) UNDERSTORY TREES
30" HT. HEDGE 3' O.C.

(BETWEEN EACH EXISTING TREE GROUPING AS SHOWN ALONG CR 48)

PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
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SOUTHERN MAGNOLIA
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N

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PERMIT #
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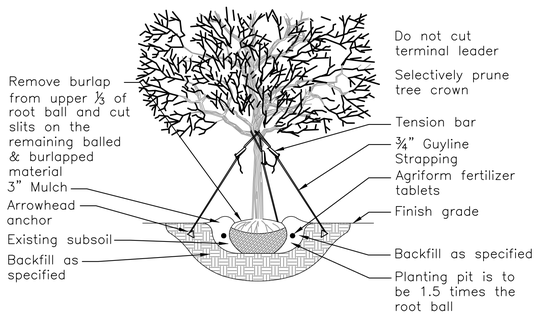
SCALE: 1:30

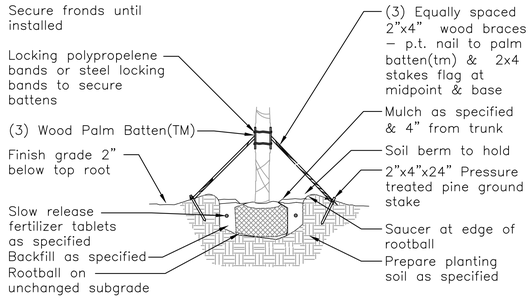
L111



PRO20:
For up to 2" Caliper Trees
(3) ARBORGUY™ Guylines 3/4" x 12' = 600 lb test Black or Green, UV resistant, polypropylene strapping
(3) "Tool–Free" Tension Bars™
(3) Arrowhead *Anchors (4" x 3–3/4")

PRO40:
For up to 4" Caliper Trees
(3) ARBORGUY™ Guylines 1"x12'= 600 lb test, Black or Green, UV resistant polypropylene strapping
(3) "Tool–Free" Tension Bars™
(3) Arrowhead Anchors (4–3/4"x3–3/4")

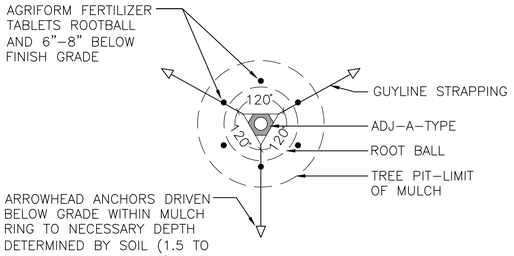
1 L200 ARBORGUY PRO20/PRO40 STAKING AND PLANTING DETAIL
SCALE= N.T.S.



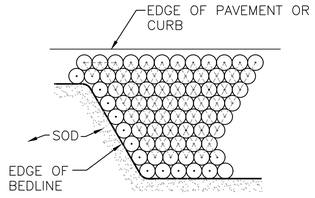
PBKM(Metal Bands)
(3) 1 1/2"x3 1/2"x12" (2x4 wood) battens with 5 layers of burlap backing and (4) staple guides for banding, pre–notched (to accept 2"x4"x8' support braces)
(2) 44" plated carbon steel bands with tensioning and locking screw / clamp

PBKC (Polypropelene Bands)
(3) 1 1/2"x3 1/2"x12" (2x4 wood) battens with 5 layers of burlap backing and (4) staple guides for banding, pre–notched (to accept 2"x4"x8' support braces)
(2) 8'x1", 600 lb test webbing bands with metal spring locking clamps

2 L200 ARBORGUY PALM BATTEN DETAIL
SCALE= N.T.S.

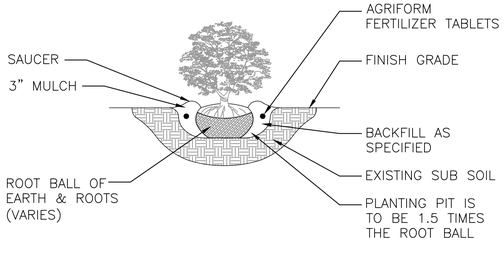


3 L200 TREE STAKING DETAIL
SCALE= N.T.S.

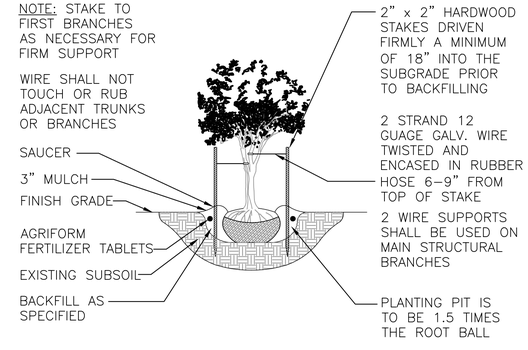


NOTE: FORM EDGE OF BED, THEN FILL IN BED AT TRIANGULAR SPACING AS SPECIFIED ON PLANT LIST.

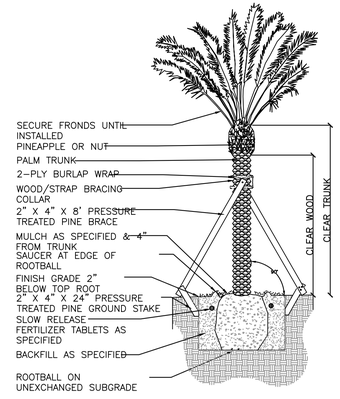
4 L200 TYPICAL SPACING DETAIL
SCALE= N.T.S.



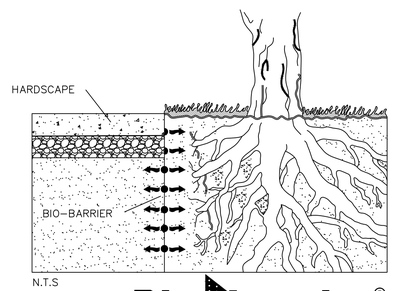
5 L200 TYPICAL SHRUB/GROUNDCOVER PLANTING DETAIL
SCALE= N.T.S.



6 L200 MULTI–TRUNK STAKING DETAIL
SCALE= N.T.S.



7 L200 FEATURE PALM DETAIL
SCALE= N.T.S.



Biobarrier®

Biobarrier Root Control System prevents tree roots from growing in a zone around the fabric. Placed between a tree root and the area to be protected, such as a sidewalk, road, building, golf course green or anywhere that roots can cause damage, Biobarrier creates a barrier that causes roots to grow in another direction. Unlike solid barriers, it does not need to protrude above ground where it could be a tripping hazard and costly liability. Because it is a flexible geotextile fabric, Biobarrier easily fits the contours of any job site and is simple to install.

8 L200 BIO BARRIER DETAIL
SCALE= N.T.S.

GENERAL LANDSCAPE NOTES:

Failure to notify Landscape Architect of plan, detail, or specification discrepancies prior to construction, makes contractor responsible for all costs incurred for construction charges, not the owner or his representative (Landscape Dynamics) The Owner must maintain the height of all plants within the "Line–Of–Site" triangle area to a height of no greater than 24" above grade for shrubs and groundcover, and tree branching no lower than 72" above finish grade, to ensure clear site line views toward traffic at road and driveway intersections. Landscape Dynamics is not responsible for continued maintenance of such plant material. The owner, leasing company and/or the landscape maintenance company accepts full responsibility for these maintenance requirements.

–Landscape contractor (LC) shall be responsible for all materials and work called for on the landscape plans and in the landscape notes and legend. Plant specifications are minimum acceptable sizes. Plans shall rule if there are any quantity discrepancies between the legend and plans. Final quantity takeoffs are the responsibility of the LC. Notify the Landscape Architect of any discrepancies.
–LC shall comply with all local codes and ordinances and obtain all permits and bonds necessary to construct the project.
–LC shall coordinate their work with other contractors to assure efficient and timely completion of the work.
–LC shall be responsible for supplying all materials, labor, and equipment for the performance of their portion of the work.
–LC to verify all existing grades, dimensions, adequate drainage, suitable planting soil and field conditions and notify owner of discrepancies before proceeding with work. Per FL Statutes, LC to call Sunshine State One (811) 72 hours prior to digging to have all utilities located.
–LC to protect existing utilities, structures, surfaces, and vegetation noted to be saved and be responsible for repair/replacement.
–Protect trees to be saved per detail. Vehicle parking, material storage, or soil removal/addition is not permitted within driplines.
–Round–Up shall be applied twice at ten day intervals onto all existing vegetation, sod, and groundcover areas that are to be replanted. Extreme care shall be taken to prevent overspray and/or drift onto existing plant material to be saved. Mfr's recommendations shall be followed. Remaining weeds and their roots shall be removed by hand prior to installation of plants. Resprouting weeds and plants are the responsibility of the LC through the one year warranty period.
–All plant materials shall be graded Florida No. 1 or better as outlined under current Grades and Standards for Nursery Plants, Division of Plant Industry, State of Florida, unless otherwise noted. All plants not listed shall conform to a Florida No. 1 or better as to: (1) health and vitality, (2) condition of foliage, (3) root system, (4) freedom from pest or mechanical damage, (5) heavily branched and densely foliated according to the accepted normal shape of the species. LC to obtain written certification from nurseries that plant materials are Florida No. 1 or better. Trees up to 4" caliper measured at 6" above soil line and over 4" caliper at 12" above soil line unless otherwise noted. All specifications to be met or exceeded unless otherwise noted. All rootballs and containers to be free of weeds and their roots.
–Planting soil of Fla. peat mixed 1/2 with clean topsoil for the backfilling of plant pits and beds shall be required only if existing soil is unsuitable for planting and/or contains lime rock or construction debris (to be removed).
–Trees and palms shall be installed so their top main root at the trunk is visible and 2" above finished grade. If root is buried, remove soil from the top of the rootball prior to installation. Do not apply the 1 ½" of mulch to the top of the rootball until after inspection of each tree or palm.
–Landscape Architect is not responsible for adverse soil or drainage conditions, determining sub–surface soil conditions, underground objects/utilities or the accuracy of property lines or information portrayed on surveys or on documents or plans provided by others. Owner or their agent is solely responsible for future maintenance of all plantings to maintain safe visibility within all visibility sight triangles and vehicular use and pedestrian areas within and immediately adjacent to the site.
–Finished grade prior to mulching or sodding to be 3" below top of adjacent surfaces such as walks, curbs and driveways extending perpendicularly from the surface edge for a minimum distance of 18". See detail.
–All palms, trees, shrubs, and groundcovers shall be fertilized with Agriform 20–10–5 or SierraTabs 16–8–12 planting tablets. One tablet/ 1 gal, 2 tablets/ 3 gal, 3 tablets/ 5 or 7 gal, 4 tablets/ 10 gal and one tablet/ each 1/2" of tree trunk diameter. Application shall be as per the details and mfr's recommendation.
–All planting beds (except for annuals) and trees to receive med. pine bark mulch. Due to environmental concerns, cypress mulch shall NOT be used. All tree rootballs (which require 4 foot wide mulch rings in turf areas) shall be mulched to a maximum 1 ½" depth (to aid water penetration) following inspection. All other planting beds to receive a 3" depth. Mulch shall not touch trunks or stems or be applied within the crowns of groundcovers or over their branches or foliage. Mulch is to be applied by hand and shall not be "blown in".
–LC to maintain all plant material in a plumb, upright and stable condition. All trees/palms to be guyed/staked as per details.
–LC to remove all bags (unless biodegradable), tags, ties, wires, ropes, stakes and nursery attachments from all plant material.
–LC shall be responsible to keep plant material in a healthy, hand watered, insect/pest free condition until owner's final acceptance.
–LC to provide a one–year warranty for trees/palms, shrubs, groundcovers, and vines and thirty days for sod. Warranty period shall start with final acceptance by owner. All plant material shall be alive and in satisfactory growth at the end of the warranty period. Replacement plant material shall be warranted for ninety days (sod for thirty days) from replacement date.
Warranty shall apply only to material that dies due to poor quality, improper handling, or installation practices. Generally, material transplanted on–site shall not be warranted. Adverse weather conditions shall not apply. Proper watering and maintenance are the owner's responsibility during the warranty period.
–Provide 100% coverage of all landscape areas using automatic underground irrigation system with rain sensor.

IF LESS THAN 24"X36" SHEET HAS BEEN REDUCED, ADJUST THE SCALE TO THE DRAWING ACCORDINGLY.

LANDSCAPE ARCHITECT:
Robert R. Buchanan LA0000932
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48 HOURS BEFORE YOU DIG CALL SUNSHINE 1-800-432-4770 or 811
IT'S THE LAW IN FLORIDA
FLORIDA LAW REQUIRES EXCAVATORS TO NOTIFY OWNERS OF UNDERGROUND FACILITIES BEFORE YOU DIG TWO (2) DAYS PRIOR TO EXCAVATION

CONTRACTOR MUST REVIEW ALL GENERAL LANDSCAPE NOTES PRIOR TO BIDDING AND CONSTRUCTION

Reader & Partners, LLC
5850 T.G. Lee Blvd.
Orlando, FL 32822

LANDSCAPE Dynamics
LANDSCAPE ARCHITECTS AND PLANNERS, LLC
P.O. BOX 2852 - Winter Park, Florida 32790-2852 - Phone 407-579-1811 - Email randy@landscapedynamics.com

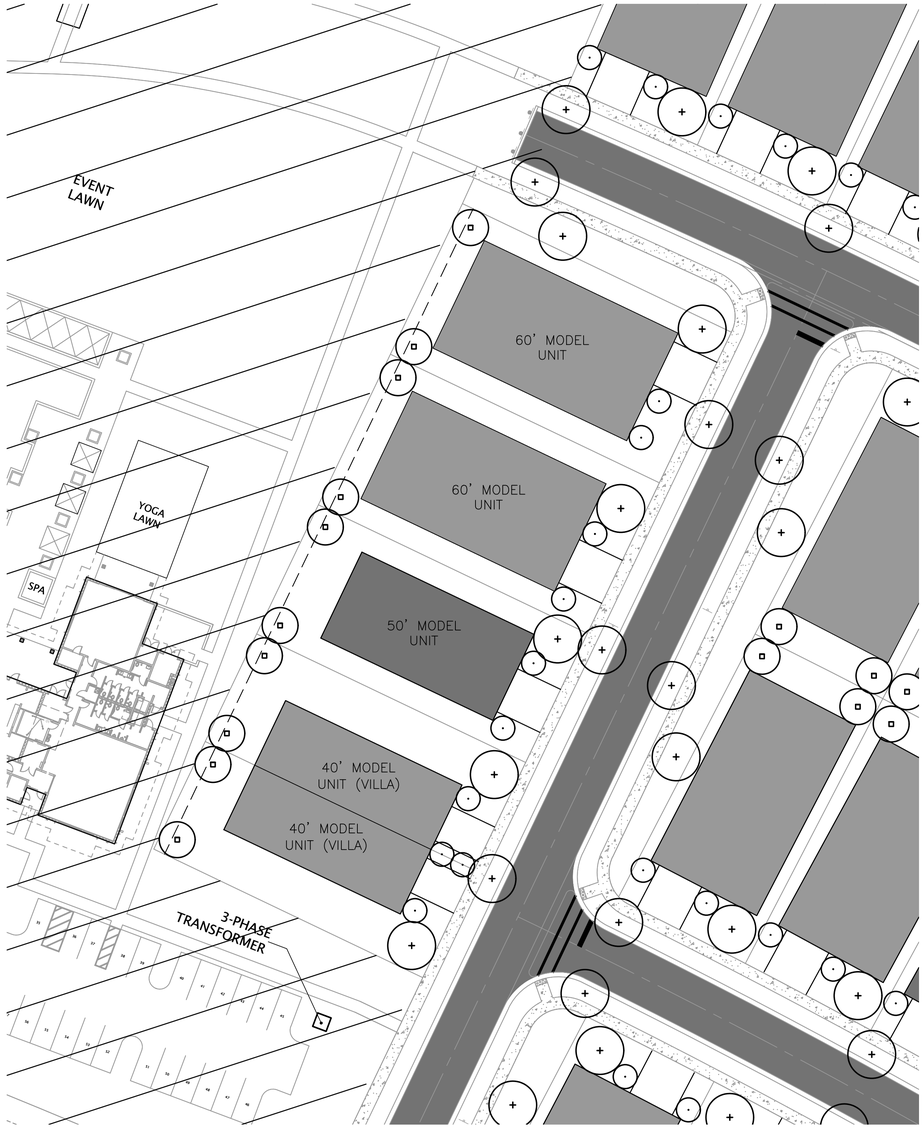
REVISIONS
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)

Landscape Details and Specs.

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: N.T.S.

L200



PLANT SYMBOLS

UNDERSTORY TREE
NATCHEZ CRAPE MYRTLE
CHICKASAW PLUM
WEEPING BOTTLEBRUSH
PURPLE LEAF PLUM

PINE TREE
SLASH PINE
LONGLEAF PINE

MEDIUM CANOPY TREE
SWEET BAY MAGNOLIA
WINGED ELM

LARGE CANOPY TREE
LIVE OAK
SOUTHERN MAGNOLIA
WINGED ELM

HEDGE SHRUB
SIMPSON'S STOPPER
SANDANKWA VIBURNUM

NOTES:

LANDSCAPING INDIVIDUAL RESIDENCES
SINGLE FAMILY LOT TREES

7.08.01(A) SF. LOT LESS THAN ½ ACRE

FRONT YARD: (1) CANOPY TREES MIN. 10' HT., 4" CAL.

REAR YARD: (2) CANOPY TREES MIN. 10' HT., 2.5" CAL.

PLANTING: (1) FRONT YARD (LARGE CANOPY TREE) 7.5–10 FT. FROM SIDEWALKS (INSTALL ROOT BARRIER – SHEET L200)

LARGE CANOPY TREE – FORM CANOPY OVER SIDEWALKS + STREET SIDES.

COORDINATE WITH STREET LIGHT LOCATION

CORNER LOTS (1) ADDITIONAL CANOPY TREE. (2) WHERE LOT LINE AT SIDEWALK 100' OR MORE

(B) (2) UNDERSTORY TREES – FRONT, SIDE OR REAR YARDS: 2½" CAL. STD. TRUNK OR 1½" CAL. 'CANES' WITH MULTI–TRUNK TREES

SEE SHEET L100 FOR APPROVED TREE AND PLANT LIST – CODE SECTION TABLE 7.10.00

STREET TREES: INSTALL ROOT BARRIER – SEE DETAIL SHEET L200 (BIO–BARRIER OR EQUAL)

N

GRAPHIC SCALE

1 inch = 30 ft.

IF LESS THAN 24"x36" SHEET HAS BEEN REDUCED. ADJUST THE SCALE TO THE DRAWING ACCORDINGLY.

LANDSCAPE ARCHITECT:
Robert R. Buchanan LA0000932

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CONTRACTOR MUST REVIEW ALL GENERAL LANDSCAPE NOTES PRIOR TO BIDDING AND CONSTRUCTION

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Orlando, FL 32822

LANDSCAPE Dynamics
LANDSCAPE ARCHITECTS AND PLANNERS, LLC
P.O. BOX 2852 - Winter Park, Florida 32790-2852 - Phone 407-579-1811 - Email randy@landscapedynamics.com

REVISIONS
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)

Single Family Lot Code Tree Plan

Lake Hills Subdivision
Howey-in-the-Hills, Florida

DATE: 12-11-24
JOB # 2024-033
PERMIT #
DRAWN BY: BRB
FILE NAME: LANDSCAPE
SCALE: 1: 30

L300

CONSTRUCTION PLANS

FOR:

LAKE HILLS PHASE # 1

HOWEY IN THE HILLS, LAKE COUNTY, FLORIDA 34737

SECTION 22, TOWNSHIP 20 SOUTH, RANGE 25 EAST
SECTION 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST

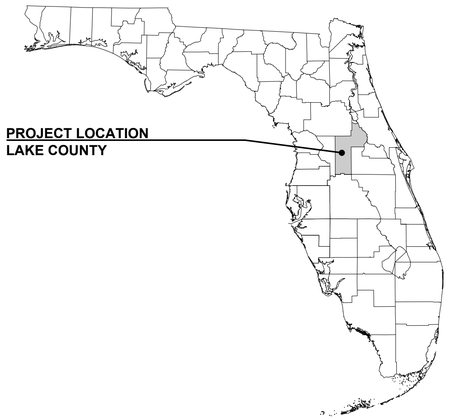
MAY 2025

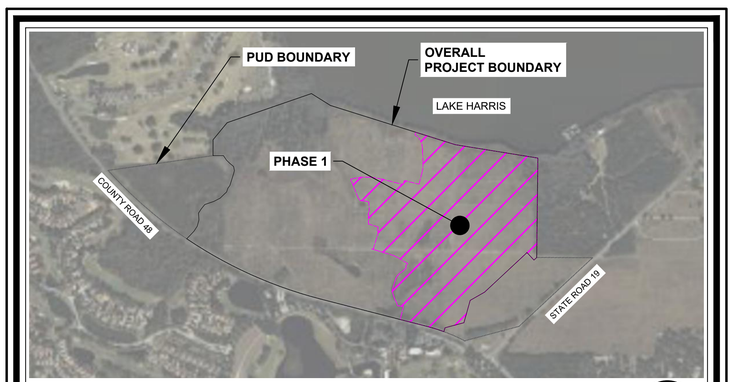
LEGAL DESCRIPTION

A REPLAT OF LOTS 31, 32, AND 33 AND A PARTIAL REPLAT OF LOTS 26, 28, 29, 30, AND 34 OF COLUMB, TRIST & BRINGER SUBDIVISION AS RECORDED IN PLAT BOOK 5, PAGE 65 OF THE PUBLIC RECORDS OF LAKE COUNTY, FLORIDA AND ALSO A REPLAT OF GOVERNMENT LOTS 2, 4, AND 5 AND A PARTIAL REPLAT OF GOVERNMENT LOTS 6, 7, 8, AND 9 LYING IN SECTIONS 22 AND 23, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA AND BEING MORE PARTICULARLY DESCRIBED AS:

COMMENCE AT THE SOUTHWEST CORNER OF THE SOUTHWEST 1/4 OF SECTION 23, TOWNSHIP 20 SOUTH RANGE 25 EAST; THENCE RUN ALONG THE WEST LINE OF THE SOUTHWEST 1/4 OF SECTION 23, NORTH 00°53'14" EAST, A DISTANCE OF 1171.08 FEET TO THE POINT OF BEGINNING BEING A POINT LYING ON THE NORTHERLY RIGHT-OF-WAY LINE OF COUNTRY ROAD 48 AS RECORDED IN THE FLORIDA DEPARTMENT OF TRANSPORTATION MAP PROJECT NUMBER 1093, AND BEING A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 5679.58 FEET AND A CHORD WHICH BEARS NORTH 52°49'27" WEST, A DISTANCE OF 2124.13 FEET; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT, A DISTANCE OF 2136.71 FEET; THENCE DEPARTING THE NORTHERLY RIGHT-OF-WAY OF SAID COUNTY ROAD 48, NORTH 81°57'35" EAST, A DISTANCE OF 1398.04 FEET; THENCE NORTH 00°12'03" EAST, A DISTANCE OF 209.83 FEET; THENCE NORTH 39°31'51" EAST, A DISTANCE OF 291.83 FEET; THENCE NORTH 70°57'18" EAST, A DISTANCE OF 1176.87 FEET TO A POINT ON THE MEANDER LINE OF LAKE HARRIS WITH THE PROPERTY BOUNDARY BEING THE ACTUAL WATER LINE; THENCE LONG SAID MEANDER LINE THE FOLLOWING THREE (3) COURSES: 1) SOUTH 57°54'36" EAST, A DISTANCE OF 295.07 FEET; 2) THENCE SOUTH 72°34'01" EAST, A DISTANCE OF 1730.05 FEET; 3) THENCE SOUTH 80°48'31" EAST, A DISTANCE OF 1102.10 FEET TO THE END OF SAID MEANDER LINE; THENCE SOUTH 00°40'13" WEST, A DISTANCE OF 1312.20 FEET; THENCE SOUTH 89°48'40" EAST, A DISTANCE OF 738.20 FEET TO A POINT LYING IN THE NORTHWESTERLY RIGHT-OF-WAY OF STATE ROAD 19 AS RECORDED IN THE FLORIDA DEPARTMENT OF TRANSPORTATION IN MAP SECTION NUMBER 1108-101; THENCE SOUTH 46°59'01" WEST, A DISTANCE OF 1328.28 FEET; THENCE DEPARTING THE NORTHWESTERLY RIGHT-OF-WAY OF SAID STATE ROAD 19, SOUTH 75°06'54" WEST, A DISTANCE OF 742.75 FEET TO A POINT LYING ON THE NORTHERLY RIGHT-OF-WAY OF SAID COUNTY ROAD 48 ALSO BEING A POINT OF CURVATURE OF A NON-TANGENT CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 2341.83 FEET, A CENTRAL ANGLE OF 12°47'48" AND A CHORD WHICH BEARS NORTH 68°56'00" WEST, A DISTANCE OF 521.94 FEET; THENCE ALONG SAID CURVE TO THE LEFT, A DISTANCE OF 523.03 FEET; THENCE NORTH 75°35'20" WEST, A DISTANCE OF 1460.31 FEET TO A POINT ON A CURVE CONCAVE NORTHEASTERLY, HAVING A RADIUS OF 5679.58 FEET AND A CHORD WHICH BEARS NORTH 69°35'43" WEST, A DISTANCE OF 1186.12 FEET; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT, A DISTANCE 1188.29 FEET TO THE POINT OF BEGINNING.

THE ABOVE CLOSURE PARCEL CONTAINING 264.35 ACRES, MORE OR LESS.





VICINITY MAP
SCALE: 1" = 1,000'

Sheet List Table	
Sheet Number	Sheet Title
C001	COVER SHEET
C002	STANDARD NOTES
C003	EROSION CONTROL AND DEMO PLAN
C004	EROSION CONTROL AND DEMO PLAN
C005	EROSION CONTROL DETAILS
C006	MASTER COMMUNITY PLAN
C007	PHASE 1 SITE PLAN
C008	AERIAL SITE PLAN
C009	OPTIONAL GATE PLAN
C101	GEOMETRY PLAN
C102	GEOMETRY PLAN
C103	GEOMETRY PLAN
C104	GEOMETRY PLAN
C105	GEOMETRY PLAN
C106	PARK PLAN
C107	TYPICAL SECTIONS
C200	OVERALL UTILITY PLAN
C201	UTILITY PLAN
C202	UTILITY PLAN
C203	UTILITY PLAN
C204	UTILITY PLAN
C205	UTILITY PLAN
C300	OVERALL DRAINAGE PLAN
C301	DRAINAGE PLAN
C302	DRAINAGE PLAN
C303	DRAINAGE PLAN
C304	DRAINAGE PLAN
C305	DRAINAGE PLAN
C306	DRAINAGE ASSET TABLE
C307	DRAINAGE ASSET TABLE
C400	OVERALL GRADING PLAN
C401	GRADING PLAN
C402	GRADING PLAN
C403	GRADING PLAN
C404	GRADING PLAN
C405	GRADING PLAN
C406	GRADING PLAN
C407	GRADING PLAN
C408	GRADING PLAN
C409	GRADING DETAILS

C500	ROADWAY PLAN AND PROFILES
C501	ROADWAY PLAN AND PROFILES
C502	ROADWAY PLAN AND PROFILES
C503	ROADWAY PLAN AND PROFILES
C504	ROADWAY PLAN AND PROFILES
C505	ROADWAY PLAN AND PROFILES
C506	ROADWAY PLAN AND PROFILES
C507	ROADWAY PLAN AND PROFILES
C508	ROADWAY PLAN AND PROFILES
C509	ROADWAY PLAN AND PROFILES
C510	ROADWAY PLAN AND PROFILES
C511	ROADWAY PLAN AND PROFILES
C512	ROADWAY PLAN AND PROFILES
C513	ROADWAY PLAN AND PROFILES
C514	ROADWAY PLAN AND PROFILES
C601	STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
C602	STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
C603	STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
C604	STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
C605	STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
C701	STORMWATER POLLUTION PREVENTION PLAN
C702	STORMWATER POLLUTION PREVENTION PLAN
C703	STORMWATER POLLUTION PREVENTION PLAN
C704	STORMWATER POLLUTION PREVENTION PLAN
C705	STORMWATER POLLUTION PREVENTION PLAN
C706	STORMWATER POLLUTION PREVENTION DETAILS
C800	VEHICULAR CIRCULATION PLAN
C801	VEHICULAR CIRCULATION PLAN
C802	VEHICULAR CIRCULATION PLAN
C901	CITY DETAILS
C902	CITY DETAILS
C903	CITY DETAILS
C904	CITY DETAILS
C930	CITY UTILITY DETAILS
C931	CITY UTILITY DETAILS
C932	CITY UTILITY DETAILS
C933	CITY UTILITY DETAILS
C934	CITY UTILITY DETAILS
C935	CITY UTILITY DETAILS
C936	CITY UTILITY DETAILS
C937	CITY UTILITY DETAILS

PARCEL ID
22-20-25-0004-000-01000
23-20-25-0004-000-01000

ZONING
PLANNED UNIT DEVELOPMENT (PUD)

FUTURE LAND USE
PLANNED UNIT DEVELOPMENT (PUD)

AGENCIES TO BE NOTIFIED / UTILITY PROVIDERS

HOWEY IN THE HILLS
101 N. PALM AVENUE
HOWEY-IN-THE-HILLS, FL 34737
P: (352) 324-2290

WATER & WASTE WATER
HOWEY- IN-THE-HILLS
101 N. PALM AVENUE
HOWEY-IN-THE-HILLS, FL 34737
P: (352) 540-4368

SJRWMD
2501 S. BINION ROAD
APOPKA, FL 32703
P: (407) 659-4821

ELECTRICITY
DUKE ENERGY
WILLIAM COPPINGER
150 PROGRESS ENERGY WAY
LONGWOOD, FL 32750
P: (800) 700-8744

PHONE
QUANTUM FIBER
JOSTIN BURBIDGE
P: (941) 815-6317

CABLE
COMCAST
SCOTT OSEBOLD
8130 CR 44 LEG A
LEESBURG, FL 34788
SCOTT_OSEBOLD@COMCAST.COM
P: (352) 315-8527

Sunshine811
Call 811 or visit sunshine811.com two full business days before digging to have buried facilities locared and marked.
Check positive response codes before you dig!

ENGINEER
MADDEN, MOORHEAD & STOKES, LLC
ATTN: DAVID A. STOKES, PE
431 E HORATIO AVE, STE 260
(407) 629-8330 X 130
DStokes@Madden-eng.com

LANDSCAPE ARCHITECT
LANDSCAPE DYNAMICS, CCI
ATTN: RANDY BUCHANAN, PRESIDENT
2236 WINTER WOODS BLVD.
WINTER PARK, FLORIDA 32792
P:(407) 579-1811
randy@landscapedynamics.com

CONSTRUCTION PLANS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue, Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723
PREPARED FOR:

OWNER/DEVELOPER
READER & PARTNERS, LLC
ATTN: DEAN BARBERREE, PRESIDENT
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO, FL 32822
P: (407) 856-4899
dean@readercommunities.com

APPLICANT
TOLL BROTHERS, LLC
ATTN: CHARLIE CRAWFORD,
DIRECTOR OF COMMUNITY PLANNING, CENTRAL FLORIDA
2966 COMMERCE PARK DR. SUITE100
ORLANDO, FL 32819
P: (610) 331-0476
ccrawford@tollbrothers.com

DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

DAVID ASHLEY STOKES LICENSE No. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by David Ashley Stokes, P.E. using a digital signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed by David A Stokes
Date: 2025.07.25 16:08:07 -04'00'

SUBMITTAL LOG		
DATE	SUBMITTAL	BY

H:\data\23MM\91P\Lake Hills P1\Howeyin the Hills\Eng\Final\Pod 1\SHEETS\2025\9.0291-COVER SHEET.dwg July 24, 2025 7:18 AM

LAKE HILLS PHASE #1 - CONSTRUCTION PLANS
JOB No. 23MM0919

GENERAL NOTES

1. ALL CONSTRUCTION WORK SHALL BE IN ACCORDANCE WITH THE LATEST LOCAL AGENCY DETAILS, THE FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" ADOPTED IN 1991 BY THE STATE OF FLORIDA, AND ALL SUPPLEMENTS THERETO, AND THE FDOT "STANDARD PLANS", WHICHEVER IS MORE STRINGENT.
2. ALL FDOT DESIGN INDICES ARE HEREBY INCORPORATED AS PLAN REFERENCES HEREIN. CONTRACTOR IS RESPONSIBLE FOR OBTAINING COMPLETE COPIES OF ALL APPLICABLE INDEX DRAWINGS AND CONSTRUCTING ALL WORKS IN CONFORMANCE WITH THE FDOT STANDARD PLANS, LATEST EDITION.
3. THE LOCATIONS OF EXISTING UTILITIES SUCH AS WATER MAINS, SEWER MAINS, GAS LINES, ETC., AS SHOWN ON THE PLANS, WITH THE EXCEPTION OF THE LOCATIONS OF EXISTING UTILITIES AT ALL POINTS OF CONNECTION TO AND AT ALL AREAS OF CONFLICT WITH UTILITY PROVIDER MAINS, WHICH HAVE BEEN FIELD VERIFIED, HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. HOWEVER, THE ENGINEER AND OWNER DO NOT ASSUME RESPONSIBILITY FOR THE SIZES AND LOCATIONS SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE SIZE AND LOCATION OF ALL EXISTING UTILITIES SHOWN AND NOT SHOWN ON THESE PLANS.
4. CONTRACTOR, INCLUDING ANY SUB-CONTRACTORS, IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND ARE IN HAND AT THE JOB SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL ABIDE BY ALL CONDITIONS CONTAINED THEREIN. PERMITS INCLUDED (BUT NOT NECESSARILY LIMITED TO) ARE:
   - ACOE NATIONWIDE OR INDIVIDUAL DREDGE AND FILL
   - FDEP WATER DISTRIBUTION
   - FDEP SANITARY SEWER COLLECTION AND TRANSMISSION
   - FDEP REUSE
   - FDEP DREDGE AND FILL
   - FDEP NPDES GENERIC PERMIT FOR STORM WATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES
   - FDOT DRIVEWAY CONNECTION
   - FDOT UTILITY
   - FDOT STORMWATER DISCHARGE CONNECTION
   - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION PERMIT FOR IMPACTS TO PROTECTED SPECIES
   - LOCAL RIGHT OF WAY USE
   - LOCAL UNDERGROUND UTILITIES
   - WATER MANAGEMENT DISTRICT CONSUMPTIVE USE FOR CONSTRUCTION DEWATERING (CUP)
   - WATER MANAGEMENT DISTRICT ENVIRONMENTAL RESOURCE PERMIT (ERP)
5. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SETBACKS AND EASEMENTS BEFORE BEGINNING CONSTRUCTION.
6. BENCHMARKS AND OTHER REFERENCE POINTS SHALL BE CAREFULLY MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. IF DISTURBED OR DESTROYED, THESE POINTS SHALL BE REPLACED BY A LICENSED FLORIDA PROFESSIONAL LAND SURVEYOR (P.L.S.) AT CONTRACTOR'S EXPENSE.
7. DIFFERING SITE CONDITIONS FROM THAT WHICH IS REPRESENTED HEREON, WHETHER ABOVE, ON, OR BELOW THE SURFACE OF THE GROUND, SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND OWNER IN WRITING. NO CLAIM FOR EXPENSES INCURRED BY THE CONTRACTOR DUE TO DIFFERING SITE CONDITIONS WILL BE ALLOWED IF CONTRACTOR FAILS TO PROVIDE THE REQUIRED WRITTEN NOTIFICATION OF SUCH CONDITIONS TO THE ENGINEER AND OWNER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING STRUCTURES, ETC., UNLESS OTHERWISE NOTED. ALL SOIL STRIPPINGS AND ANY UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER.
9. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES AND UTILITIES NOTED TO REMAIN FROM DAMAGE OR DISPLACEMENT DURING CONSTRUCTION. IN THE EVENT OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER AND THE UTILITY COMPANY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS INCURRED TO REPAIR DAMAGE OR CORRECT DISPLACEMENT.
10. CONTRACTOR SHALL BE EXTREMELY CAUTIOUS WHEN WORKING NEAR TREES WHICH ARE TO BE SAVED, WHETHER SHOWN IN THE PLANS OR DESIGNATED IN THE FIELD. CONTRACTOR SHALL BECOME FAMILIAR WITH AND CONFORM WITH ALL TREE PROTECTION/PRESERVATION PROVISIONS OF THE PRELIMINARY SUBDIVISION PLAN/DEVELOPMENT PLAN AND LOCAL GOVERNMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT AND MITIGATION COSTS FOR ANY TREES REMOVED THAT WERE DESIGNATED TO BE PRESERVED.
11. WHEN DETAILS ARE PROVIDED, CONTRACTOR SHALL CONSTRUCT JOB PER SPECIFIC DETAILS, AND NOT BY SCALING FROM THESE PLANS.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY REQUIRED TRAFFIC CONTROL PLANS. ALL WORK SHALL BE EXECUTED UNDER THE ESTABLISHED PLAN AND FDOT, AND LOCAL AGENCY APPROVED PROCEDURES.
13. THE CONTRACTOR SHALL RESTORE OFF SITE CONSTRUCTION AREAS TO EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
14. AS-BUILT DRAWINGS SHALL BE KEPT BY THE CONTRACTOR AND SUBMITTED TO THE PROJECT ENGINEER UPON PROJECT COMPLETION.
15. CONTRACTOR SHALL COMPLY WITH ALL LOCAL AGENCY REQUIREMENTS FOR INSPECTION AND TESTING.
16. ALL NEW UTILITIES AND UPGRADED UTILITIES PROVIDED TO OR ON THE SITE MUST BE INSTALLED UNDERGROUND.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ANY TRAFFIC SIGNAL EQUIPMENT INCLUDING BUT NOT LIMITED TO FIBER LOOP SENSORS PULL BOXES, CONDUIT TRAFFIC SIGNALS, AND CABINETS. ANY ITEMS DAMAGED BY THE CONTRACTOR WILL BE RESTORED TO THEIR ORIGINAL CONDITIONS UNLESS OTHERWISE AGREED UPON BY THE COUNTY TRAFFIC ENGINEER.
18. ALL CONSTRUCTION MUST BE IN ACCORDANCE WITH UTILITY PROVIDER'S STANDARDS AND CONSTRUCTION SPECIFICATIONS, LATEST EDITION.
19. CONTRACTOR SHALL NOTIFY ALL APPROPRIATE UTILITY COMPANIES OF PROPOSED START OF WORK IN ACCORDANCE WITH THEIR STANDARD REQUIREMENTS; INCLUDING BUT NOT LIMITED TO, WATER, RECLAIMED WATER, SEWER, POWER, TELEPHONE, GAS AND CABLE TV COMPANIES.
20. PRIOR TO COMMENCEMENT, CONTRACTOR SHALL PROVIDE ENGINEER WITH CONSTRUCTION SCHEDULE FOR VARIOUS SITE WORK ELEMENTS SO THAT PERIODIC SITE VISITS MAY BE COORDINATED TO ENSURE TIMELY CERTIFICATION OF COMPLETION TO AGENCIES AND AVOID DELAYS IN ISSUANCE OF CERTIFICATES OF OCCUPANCY/COMPLETION.
21. ALL RECOMMENDATIONS AND REQUIREMENTS OF INSPECTION PERSONNEL OTHER THAN OWNER/OWNER'S REPRESENTATIVE SHALL BE REPORTED TO ENGINEER/OWNER/OWNER'S REPRESENTATIVE PRIOR TO IMPLEMENTATION. COMPENSATION SHALL BE MADE FOR WORK THAT IS NOT AUTHORIZED BY ENGINEER/OWNER/OWNER'S REPRESENTATIVE.
22. CONTRACTOR SHALL CONFIRM COMPATIBILITY OF PIPE SLOPES AND INVERTS DURING SHOP DRAWING AND MATERIALS ORDERING PHASE OF PROJECT AND ADVISE ENGINEER OF ANY DISCREPANCIES.
23. NO EXISTING MATERIAL SHALL BE USED IN NEW CONSTRUCTION UNLESS APPROVED DURING THE SHOP DRAWING APPROVAL PROCESS BY ENGINEER/OWNER/OWNER'S REPRESENTATIVE IN WRITING.
24. CONTRACTOR SHALL STAKE ALL IMPROVEMENTS USING THE PLAT(S), ROAD CENTERLINE GEOMETRY, AND BUILDING COORDINATES PROVIDED IN THESE PLANS. CONTRACTOR SHALL CONFIRM WITH THE ENGINEER THAT THE PLAT IS CURRENT PRIOR TO CONSTRUCTION.
25. CONTRACTOR SHALL CONFIRM THE BUILDING DIMENSIONS SHOWN HEREIN WITH THOSE IN THE FINAL ARCHITECTURAL DRAWINGS PRIOR TO STAKEOUT. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COMPLETELY STAKE AND CHECK ALL IMPROVEMENTS TO ENSURE ADEQUATE POSITIONING, BOTH HORIZONTAL AND VERTICAL, INCLUDING MINIMUM BUILDING SETBACKS PRIOR TO THE INSTALLATION OF ANY IMPROVEMENT.

PAVING AND DRAINAGE

1. THE CONTRACTOR SHALL CONSTRUCT PAVEMENT IN ACCORDANCE WITH TYPICAL PAVEMENT SECTIONS AND LOCAL AGENCY SPECIFICATIONS. THE FINISHED PAVEMENT GRADES SHALL CONFORM TO THOSE SPECIFIED ON THE GRADING PLAN.
2. FLORIDA LAW (F.S. 553.851) PROTECTION OF UNDERGROUND PIPELINES MANDATES THAT "NO EXCAVATOR SHALL COMMENCE OR PERFORM ANY EXCAVATION IN ANY PUBLIC OR PRIVATE STREET, ALLEY, RIGHT-OF-WAY DEDICATED TO THE PUBLIC USE, OR GAS UTILITY EASEMENT WITHOUT FIRST OBTAINING INFORMATION CONCERNING THE POSSIBLE LOCATION OF GAS PIPELINES IN THE AREA OF THE PROPOSED EXCAVATION." THIS INCLUDES ANY OPERATION UTILIZING HAND TOOLS OR POWER TOOLS WHICH MOVES OR REMOVES ANY STRUCTURE, EARTH, ROCK, OR OTHER MASS OF MATERIAL BY SUCH METHODS AS DIGGING, BACKFILLING, DEMOLITION, GRADING, DITCHING, DRILLING, BORING AND CABLE PLOWING. THE EXCAVATOR MUST NOTIFY THE GAS UTILITY A MINIMUM OF 48 HOURS AND A MAXIMUM OF 5 DAYS PRIOR TO EXCAVATING (EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS).
3. EXCAVATION, PAVING, AND STORM SEWER WORK SHALL BE DONE IN ACCORDANCE WITH FDOT "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION", LATEST EDITION, AND LOCAL AGENCY SPECIFICATIONS.
4. UNLESS OTHERWISE NOTED, GRADE TO MEET EXISTING ELEVATIONS AT PROPERTY LINES. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE OF THE SITE TO THE RETENTION PONDS AS SHOWN BY PROPOSED GRADES AND FLOW ARROWS.
5. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE AND PROPER SOIL EROSION CONTROL MEASURES FOR PROTECTION OF ALL DRAINAGE AND SEWER STRUCTURES AND AT ALL ADJACENT LANDS AND ROADS.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL GEOTECHNICAL REPORTS PREPARED FOR THE SITE. GEOTECHNICAL RECOMMENDATIONS ARE NOT THE RESPONSIBILITY OF ENGINEER. ENGINEER HAS RELIED ON THE GEOTECHNICAL REPORT(S) IN PREPARATION OF THE DRAWINGS. ANY CONFLICT BETWEEN INFORMATION WITHIN THE REPORT AND THESE DRAWINGS SHALL BE REPORTED TO ENGINEER/OWNER/OWNER'S REPRESENTATIVE. ENGINEER ASSUMES NO RESPONSIBILITY FOR THE CORRECTNESS, COMPLETENESS, OR ACCURACY OF GEOTECHNICAL INFORMATION.
7. THE SITE SHALL BE CLEARED OF ALL TREES EXCEPT THOSE WHICH ARE DESIGNATED TO BE SAVED OR RELOCATED. BEFORE CONSTRUCTION, THE CONTRACTOR SHALL MEET AT THE SITE WITH THE OWNER. AT THIS TIME, ANY TREES TO BE SAVED SHALL BE POINTED OUT AND TAGGED. THESE TREES SHALL BE PROTECTED FROM DAMAGE.
8. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE SUPERVISING ENGINEER IF A PAVEMENT OR FOUNDATION STAKE IS DISTURBED.
9. THE CONTRACTOR SHALL INSTALL DROP CURBS AND HANDICAP RAMPS AT ALL INTERSECTIONS OF THE SIDEWALK WITH THE PROPOSED PAVEMENT, UNLESS OTHERWISE SPECIFIED.
10. FOR HORIZONTAL AND VERTICAL CLEARANCES BETWEEN STORM PIPES AND WATER MAINS/SERVICES, SEE WATER NOTES ON THIS SHEET AND FDEP SEPARATION TABLE ON UTILITY PLAN.
11. ALL PUBLIC STORM PIPE MATERIALS SHALL BE REINFORCED CONCRETE PIPE (RCP) ASTM C-76 CLASS III, UNLESS OTHERWISE SPECIFIED. LIFTING HOLES ARE PROHIBITED.
12. ALL PRIVATE STORM PIPE MATERIALS SHALL BE AS FOLLOWS:
    12.1. DIAMETERS LESS THAN OR EQUAL TO 12-INCH SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) PIPE
    12.2. DIAMETERS GREATER THAN OR EQUAL TO 15-INCH SHALL BE POLYPROPYLENE (PP) PIPE.
13. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.
14. ALL STORM SYSTEM MANHOLE AND INLET STRUCTURES SHALL BE PRECAST CONCRETE.
15. THE CONTRACTOR SHALL USE CONCRETE WITH A MINIMUM 28 DAY STRENGTH OF 3,000 P.S.I..
16. ALL SIDEWALK WIDTHS SHALL BE AS NOTED ON THE SITE PLAN AND SHALL HAVE 1-INCH DEEP CONTRACTION JOINTS EVERY 5-FEET AND AN EXPANSION JOINT EVERY 20-FEET (MINIMUM). MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2.00% AND MAXIMUM SIDEWALK RUNNING SLOPES SHALL BE 5.00% EXCEPT AT RAMP LOCATIONS. MAXIMUM RAMP SLOPES SHALL BE 8.33%.
17. PROVIDE FDOT TYPE III SILT FENCE ALONG THE PROPERTY LINES AND PHASE LINES AS WELL AS ANY CONSTRUCTION WITHIN THE OTHER PHASES THAT IS DEEMED NECESSARY.
18. ALL TEST REPORTS GENERATED BY A TESTING FIRM ARE TO HAVE COPIES SENT DIRECTLY TO THE LOCAL AGENCY AS SOON AS THEY ARE GENERATED. CLEARANCE FROM THE LOCAL AGENCY SHALL BE RECEIVED PRIOR TO PAVING.
19. THE BASE COURSE SHALL NOT BE CONSTRUCTED UNTIL AFTER SUBGRADE CONSTRUCTION HAS BEEN COMPLETED AND REQUIRED SUBGRADE TEST RESULTS HAVE BEEN SUBMITTED TO AND APPROVED BY THE LOCAL AGENCY'S ENGINEER.
20. THE FINISHED BASE COURSE SHALL BE PRIMED WITHOUT DELAY, PROTECTED FROM HEAVY TRAFFIC, AND CONTINUOUSLY MAINTAINED FREE OF DAMAGE UNTIL THE WEARING SURFACE IS APPLIED. ALL BAD AREAS SHALL BE CUT OUT AND REPLACED PRIOR TO APPLYING WEARING SURFACE.
21. ASSUMING ACCEPTABLE CURING, THE WEARING SURFACE SHALL BE APPLIED NO SOONER THAN SEVEN (7) DAYS AND NO LATER THAN THIRTY (30) DAYS AFTER BASE COMPLETION.
22. ALL CONCRETE PIPE JOINTS SHALL BE WRAPPED IN FILTER FABRIC.
23. ROADWAY MARKING, STRIPING, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (MUTCD), INCLUDING SUBSEQUENT REVISIONS AND ADDENDUMS, AS PUBLISHED BY THE USDOT FEDERAL HIGHWAY ADMINISTRATION AS WELL AS FDOT AND LOCAL AGENCY STANDARDS AND SPECIFICATIONS.
24. ALL OFFSITE ROADWAY MARKING/STRIPING MATERIAL SHALL BE THERMOPLASTIC UNLESS OTHERWISE SPECIFIED.
25. ALL ONSITE ROADWAY MARKING/STRIPING MATERIAL SHALL BE PAINT UNLESS OTHERWISE SPECIFIED.
26. REGULATORY SIGNS AND MARKINGS SHALL BE IN PLACE PRIOR TO FINAL INSPECTION OF PAVING AND DRAINAGE IMPROVEMENTS.
27. PAVEMENT RETURN RADII SHALL BE MEASURED TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
28. POND SLOPES AND BERMS SHALL BE SODDED TO TWO (2) FEET BELOW THE NORMAL WATER LINE (N.W.L.). IN THE CASE OF DRY BOTTOM PONDS, THE BOTTOM WILL BE SEEDED AND MULCHED UNLESS OTHERWISE SPECIFIED.
29. ALL PRECAST DRAINAGE STRUCTURES TO HAVE STEEL FRAME. ALL STRUCTURES IN PAVED AREAS TO HAVE STEEL RECTILINEAR GRATES WITH H-20 LOADING.
30. CONTRACTOR SHALL NOT COMPACT, STABILIZE, OR CONSTRUCT BASE COURSE WITHIN LANDSCAPE ISLANDS, TRACTS OR MEDIANS, WHERE SUCH TREATMENT DOES OCCUR, IT SHALL BE REMOVED AND REPLACED WITH SUITABLE PLANTING SOILS ACCEPTABLE TO LANDSCAPE ARCHITECT.
31. YARD DRAINS SHALL BE NYLOPLAST INLINE DRAINS AND DRAIN BASINS, OR APPROVED EQUAL, WITH CAST IRON GRATES AND WATERTIGHT ADAPTER CONNECTIONS. DOMED GRATES SHALL BE PROVIDED IN NON-SODDED AREAS.
32. ALL FIRE HYDRANT LOCATIONS SHALL BE MARKED BY PLACING BLUE REFLECTIVE PAVEMENT MARKERS IN THE CENTER OF THE NEAREST TRAVEL LANE.
33. MINIMUM LONGITUDINAL SLOPE OF CURB SHALL BE 0.30% UNLESS SPECIFIED OTHERWISE.

PAVING AND DRAINAGE (CONTINUED)

34. FINISHED FLOOR ELEVATION IS TYPICALLY 8" INCHES ABOVE DESIGN FINISHED GRADE AT OUTSIDE PERIMETER OF BUILDINGS EXCEPT AT ENTRIES AND WHERE OTHERWISE SHOWN.
35. CONTRACTOR SHALL REMOVE ALL MUCK DEPOSITS IN CONSTRUCTION AREAS AND AREAS TO BE FILLED. SEE GEOTECHNICAL REPORT.
36. DRAINAGE MANHOLES AND INLETS (NOT INCLUDING CONTROL STRUCTURES) IN THE PLANS ARE IDENTIFIED BY TOP TYPE ONLY. CONTRACTOR SHALL PROVIDE STANDARD BOTTOM INLET TOPS AND TYPE 'J' OR 'P' STRUCTURE BOTTOMS, SIZED AS REQUIRED TO ACCOMMODATE PIPE SIZES AND ORIENTATIONS SHOWN. SHOP DRAWINGS SHALL BE SUBMITTED WHICH CLEARLY REPRESENT SUCH DATA.
37. CONTRACTOR SHALL STABILIZE AND PROTECT ALL END WALL, MITERED END SECTION, FLARED END SECTION, ETC. STRUCTURES THROUGHOUT THE PROJECT UNTIL THE BANK SLOPES OF THE RECEIVING WATER BODY ARE STABILIZED AND ACCEPTED BY OWNER.

SANITARY SEWER

1. ROOF DRAINS, FOUNDATION DRAINS OR OTHER STORM WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
2. GRAVITY SEWER PIPE SHALL BE SDR35 PVC AND SHALL MEET ASTM D3034, UNLESS OTHERWISE SPECIFIED.
3. ALL SANITARY SERVICE LATERALS SHALL BE 6-INCH DIAMETER PVC AND SHALL END WITH A CLEAN OUT.
4. ALL SANITARY SEWER PIPE SHALL BE COLORED GREEN.
5. ALL SANITARY SEWER MANHOLES SHALL HAVE A MINIMUM DIAMETER OF 48-INCHES AND A MINIMUM ACCESS DIAMETER OF 22-INCHES.
6. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.
7. FOR HORIZONTAL AND VERTICAL CLEARANCES BETWEEN SANITARY SEWER MAINS/ LATERALS AND WATER MAINS/SERVICES, SEE WATER NOTES ON THIS SHEET AND FDEP SEPARATION TABLE ON UTILITY PLAN.
8. WHERE SOIL REPORT INDICATES THE POSSIBILITY OF UNSUITABLE MATERIAL IN THE VICINITY OF SANITARY LINES, THE CONTRACTOR SHALL DETERMINE THE NATURE AND EXTENT OF THIS UNSUITABLE MATERIAL, PREPARE TRENCH, AND INSTALL THE SEWER LINE IN ACCORDANCE WITH ASTM D-2321. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF THIS UNSUITABLE MATERIAL.
9. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM INFILTRATION OR EXFILTRATION TEST, WHICHEVER IS APPLICABLE. INFILTRATION SHALL NOT EXCEED 50 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF LENGTH, OR THE COMPUTED EQUIVALENT FOR SHORTER LENGTHS OF TIME. THE CONTRACTOR SHALL MEET ALL REQUIREMENTS, CODES, AND ORDINANCES OF THE WASTEWATER TRANSMISSION AUTHORITY INCLUDING ADVANCED NOTIFICATION PRIOR TO CONSTRUCTION AND TESTING.
10. MADDEN, MOORHEAD & STOKES, LLC SHALL BE NOTIFIED A MINIMUM OF FIVE (5) FULL WORKING DAYS PRIOR TO CONSTRUCTION AND TESTING OF THE SANITARY SEWER, PHONE (407)-629-8330.
11. THE CONTRACTOR SHALL SUPPLY COMPLETE "AS BUILT" INFORMATION RELATIVE TO INVERTS, RIM ELEVATIONS, LOCATION OF MANHOLES AND LENGTHS OF PIPE. LATERALS SHALL BE LOCATED FROM THE CENTERLINE OF THE NEAREST DOWNSTREAM MANHOLE. THE INFORMATION SHALL BE SUBMITTED ON LEGIBLY MARKED-UP PRINTS TO THE ENGINEER WITHIN TWO (2) WEEKS OF COMPLETION OF SEWER CONSTRUCTION.
12. CONTRACTOR SHALL RECEIVE SEWER CERTIFICATION PRIOR TO PLACEMENT OF BASE COURSE.
13. MINIMUM SLOPE ON ALL SANITARY SEWER GRAVITY MAINS SHALL BE IN ACCORDANCE WITH UTILITY PROVIDER'S STANDARDS AND CONSTRUCTION SPECIFICATIONS, LATEST EDITION.
14. ALL SANITARY SERVICE LOCATIONS SHALL BE MARKED BY CUTTING AN "S" INTO THE CURB.
15. MARK RESIDENTIAL LATERALS WITH 6-FOOT HIGH PIECE OF 2"x4" PLANK PAINTED GREEN WITH LOT NUMBER CLEARLY MARKED AND AN 'S' IMPRESSED IN THE CURB.
16. AIR RELEASE VALVES SHALL BE REQUIRED AT ALL HIGH POINTS ALONG THE FORCE MAIN.
17. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT AN EVEN TRANSITION IS MAINTAINED WHERE ASPHALT PAVING ABUTS MANHOLE/VALVE COVERS IN PAVED AREAS. AT EACH OF THESE LOCATIONS THE CONTRACTOR SHALL POUR AN 8-INCH THICK CONCRETE APRON AROUND THE MANHOLE/VALVE COVER A MINIMUM OF 4'x4' AT MANHOLES, AND 2'x2' AT VALVE COVERS LEVEL WITH THE FINAL LIFT OF ASPHALT.
18. PIPE LENGTHS SHOWN REPRESENT SCALED DISTANCES BETWEEN MANHOLE CENTERLINE.
19. INVERTS OF SANITARY SERVICE LATERALS AT THEIR CONNECTION TO SANITARY MANHOLES SHALL BE NO MORE THAN ONE (1) FOOT ABOVE THE MANHOLE INVERT.
20. PRIOR TO PAVING, CONTRACTOR SHALL VERIFY THE AS-BUILT SANITARY SEWER PIPE SLOPES. MINIMUM SLOPES SHALL BE IN ACCORDANCE WITH THE GREATER OF FDEP OR THE UTILITY PROVIDER'S MINIMUM CRITERIA. ANY LINE NOT MEETING MINIMUM SLOPES SHALL BE RELAYED BY CONTRACTOR TO MEET THE MINIMUM SLOPE REQUIREMENT AT NO ADDITIONAL COST.
21. MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SHALL BE SEALED WITH NON-SHRINKING MORTAR OR OTHER APPROPRIATE MATERIAL.
22. INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A GASKETED FLEXIBLE WATER-TIGHT CONNECTION OR ANOTHER WATER-TIGHT CONNECTION ARRANGEMENT THAT ALLOWS DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE WALL.
23. WATER-TIGHT MANHOLE COVERS SHALL BE USED WHEREVER THE MANHOLE TOPS MAY BE FLOODED BY STREET RUNOFF OF HIGH WATER.

WATER

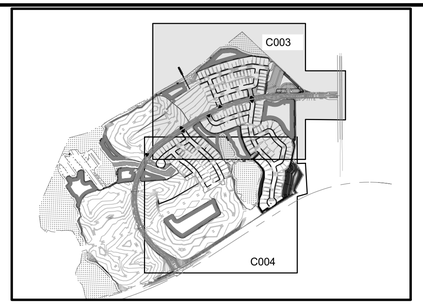
1. ALL MATERIALS AND CONSTRUCTION REQUIREMENTS FOR THE FIRE SERVICE, WATER LINES, CHECK VALVES, BACKFLOW PREVENTERS, GATE VALVES, ETC., SHALL BE IN ACCORDANCE WITH LOCAL AGENCY STANDARD DETAILS AND CONSTRUCTION SPECIFICATIONS.
2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN COMPLIANCE WITH AWWA STANDARDS AND IN ACCORDANCE WITH LOCAL AGENCY STANDARDS.
3. ALL PUBLIC WATER SYSTEM COMPONENTS, EXCLUDING FIRE HYDRANTS, THAT WILL BE INSTALLED UNDER THIS PROJECT AND THAT WILL COME INTO CONTACT WITH DRINKING WATER WILL CONFORM TO NSF INTERNATIONAL STANDARD 61 AND WILL BE MARKED WITH THE NSF SEAL OF APPROVAL.
4. CONTRACTOR SHALL VERIFY SIZE AND TYPE OF EXISTING MAIN PRIOR TO ORDERING TAPPING MATERIALS FOR TIE-INS.
5. SITE CONTRACTOR SHALL COORDINATE AND VERIFY ALL UTILITY SERVICES WITH FINAL ARCHITECTURAL DRAWINGS AND BUILDING CONTRACTOR.
6. SITE UTILITY WORK SHALL TERMINATE 5-FEET FROM BUILDINGS UNLESS OTHERWISE STATED.
7. MINIMUM COVER OVER ALL PIPE SHALL BE 36-INCHES FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE NOTED.
8. THE WATER MAIN SHALL BE LOCATED ABOVE THE STORMWATER AND SANITARY MAINS AT CONFLICTS, WHERE POSSIBLE.

WATER (CONTINUED)

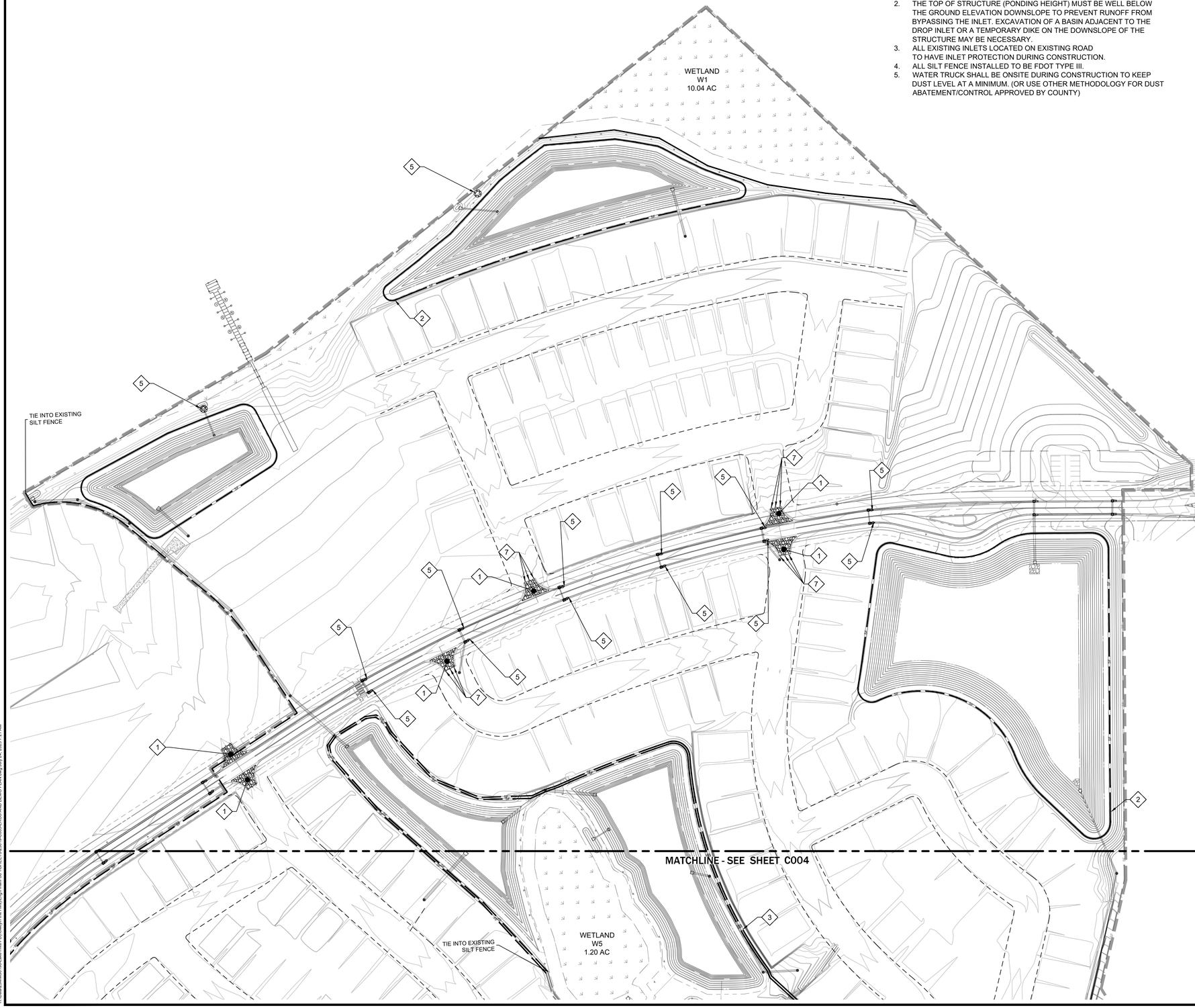
9. VERTICAL SEPARATION BETWEEN UNDERGROUND POTABLE WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER PIPELINES:
   9.1. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
   9.2. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
10. HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS:
   10.1. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
   10.2. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.
   10.3. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
   10.4. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.
11. AT THE UTILITY CROSSINGS DESCRIBED IN NOTES 8 AND 9 ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSING, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY-OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
12. WATER LINES 2-INCHES, OR LESS, IN DIAMETER SHALL BE POLYETHYLENE TUBING.
13. WATER LINES 4-INCH TO 12-INCH IN DIAMETER SHALL BE NSF LOGO PVC PIPE CONFORMING TO AWWA C-900 AND BE DR-18.
14. ALL FITTINGS SHALL BE DUCTILE IRON (D.I.) OR GRAY IRON MECHANICAL JOINTS WITH A MINIMUM PRESSURE RATING OF 250 P.S.I. CONFORMING TO ANSI A-21.10 / AWWA C-110, OR D.I. COMPACT FITTINGS FOR DIAMETERS 4-INCH TO 12-INCH CONFORMING TO ANSI A-21.53 / AWWA C-153.
15. FROM THE POINT OF SERVICE (P.O.S.) FORWARD AS DESIGNATED BY F.S. 633, FIRE SUPPLY PIPE SHALL BE DR-14 AND TESTED AT 200 PSI FOR TWO HOURS.
16. GATE VALVES SHALL CONFORM TO AWWA C-509-87, WITH WRENCH NUT EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED AND SHALL BE IRON BODY, FULL BRONZE MOUNTED, DOUBLE DISK, PARALLEL SEAT, NON-RISING STEM VALVES WITH O-RING SEALS AND END CONNECTIONS AS CALLED FOR ON THE PLANS. ALL TEES, CAPS, PLUGS, B

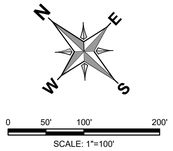
NOTES:

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. THE TOP OF STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. EXCAVATION OF A BASIN ADJACENT TO THE DROP INLET OR A TEMPORARY DIKE ON THE DOWNSLOPE OF THE STRUCTURE MAY BE NECESSARY.
3. ALL EXISTING INLETS LOCATED ON EXISTING ROAD TO HAVE INLET PROTECTION DURING CONSTRUCTION.
4. ALL SILT FENCE INSTALLED TO BE FDOT TYPE III.
5. WATER TRUCK SHALL BE ONSITE DURING CONSTRUCTION TO KEEP DUST LEVEL AT A MINIMUM. (OR USE OTHER METHODOLOGY FOR DUST ABATEMENT/CONTROL APPROVED BY COUNTY)



KEY MAP
NTS





LEGEND

SF	STAKED EROSION CONTROL FENCE
SF	EXISTING STAKED EROSION CONTROL FENCE
	PROPERTY BOUNDARY
85	CONTOUR
XXXXXXX	OBJECT TO BE REMOVED
	FLOOD HAZARD (ZONE) AREA
	INLET PROTECTION

 # DEMOLITION NOTES

1. TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL ON C005)
2. SINGLE STAKED SILT FENCE.
3. DOUBLE STAKED SILT FENCE
4. WETLAND TO BE IMPACTED.
5. TURBIDITY BARRIER.
6. FUEL TANK TO BE REMOVED.
7. SIGNS TO BE REMOVED.
8. REMOVE LIGHT

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Maitland, Florida 32751
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CA# 0007723

EROSION CONTROL AND DEMO PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C003

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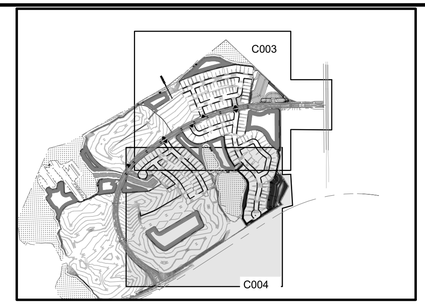

KEY MAP
NTS

N E S W

0 50' 100' 200'
SCALE: 1"=100'

LEGEND

- SF — STAKED EROSION CONTROL FENCE
- SF — EXISTING STAKED EROSION CONTROL FENCE
- PROPERTY BOUNDARY
- 85 — CONTOUR
- XXXXXXX — OBJECT TO BE REMOVED
- FLOOD HAZARD (ZONE) AREA
- INLET PROTECTION

DEMOLITION NOTES

1. TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL ON C005)
2. SINGLE STAKED SILT FENCE.
3. DOUBLE STAKED SILT FENCE
4. WETLAND TO BE IMPACTED.
5. TURBIDITY BARRIER.
6. FUEL TANK TO BE REMOVED.
7. SIGNS TO BE REMOVED.
8. REMOVE LIGHT

NOTES:

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. THE TOP OF STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. EXCAVATION OF A BASIN ADJACENT TO THE DROP INLET OR A TEMPORARY DIKE ON THE DOWNSLOPE OF THE STRUCTURE MAY BE NECESSARY.
3. ALL EXISTING INLETS LOCATED ON EXISTING ROAD TO HAVE INLET PROTECTION DURING CONSTRUCTION.
4. ALL SILT FENCE INSTALLED TO BE FDOT TYPE III.
5. WATER TRUCK SHALL BE ONSITE DURING CONSTRUCTION TO KEEP DUST LEVEL AT A MINIMUM. (OR USE OTHER METHODOLOGY FOR DUST ABATEMENT/CONTROL APPROVED BY COUNTY)

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
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CA# 0007723

EROSION CONTROL AND DEMO PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C004

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NOTES:

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. THE TOP OF STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. EXCAVATION OF A BASIN ADJACENT TO THE DROP INLET OR A TEMPORARY DIKE ON THE DOWNSLOPE OF THE STRUCTURE MAY BE NECESSARY.
3. ALL EXISTING INLETS LOCATED ON EXISTING ROAD TO HAVE INLET PROTECTION DURING CONSTRUCTION.
4. ALL SILT FENCE INSTALLED (SINGLE OR DOUBLE) TO BE FDOT TYPE III.
5. WATER TRUCK SHALL BE ONSITE DURING CONSTRUCTION TO KEEP DUST LEVEL AT A MINIMUM. (OR USE OTHER METHODOLOGY FOT DUST ABATEMENT/CONTROL APPROVED BY COUNTY)
6. IF CONTRACTOR PERFORMS ANY WORK 100 FT OF THE EXISTING WETLAND DOUBLE ROW SILT FENCE TO BE INSTALLED.

FODS TRACKOUT CONTROL SYSTEM INSTALLATION GUIDE

THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

KEY NOTES:

A. FODS TRACKOUT CONTROL SYSTEM MAT.
B. FODS SAFETY SIGN.
C. ANCHOR POINT.
D. SILT OR ORANGE CONSTRUCTION FENCE.

INSTALLATION:

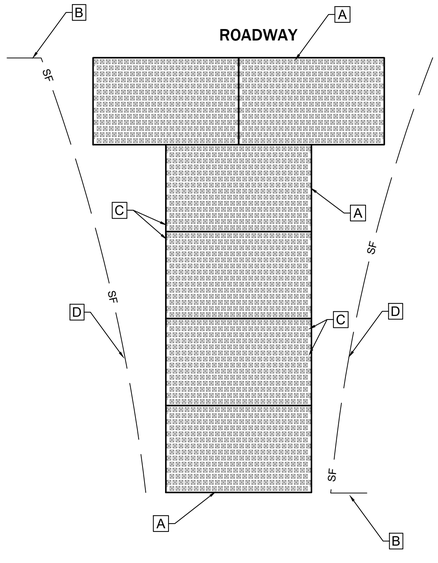
1. THE SITE WHERE THE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED SHOULD CORRESPOND TO BEST MANAGEMENT PRACTICES AS MUCH AS POSSIBLE. THE SITE WHERE FODS TRACKOUT CONTROL SYSTEM IS PLACED SHOULD ALSO MEET OR EXCEED THE LOCAL JURISDICTION OR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.
2. CALL FOR UTILITY LOCATES 3 BUSINESS DAYS IN ADVANCE OF THE OF FODS TRACKOUT CONTROL SYSTEM INSTALLATION FOR THE MARKING OF UNDERGROUND UTILITIES. CALL THE UTILITY NOTIFICATION CENTER AT 811.
3. ONCE THE SITE IS ESTABLISHED WHERE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED, ANY EXCESSIVE UNEVEN TERRAIN SHOULD BE LEVELED OUT OR REMOVED SUCH AS LARGE ROCKS, LANDSCAPING MATERIALS, OR SUDDEN ABRUPT CHANGES IN ELEVATION.
4. THE INDIVIDUAL MATS CAN START TO BE PLACED INTO POSITION. THE FIRST MAT SHOULD BE PLACED NEXT TO THE CLOSEST POINT OF EGRESS. THIS WILL ENSURE THAT THE VEHICLE WILL EXIT STRAIGHT FROM THE SITE ONTO THE PAVED SURFACE.
5. AFTER THE FIRST MAT IS PLACED DOWN IN THE PROPER LOCATION, MATS SHOULD BE ANCHORED TO PREVENT THE POTENTIAL MOVEMENT WHILE THE ADJOINING MATS ARE INSTALLED. ANCHORS SHOULD BE PLACED AT EVERY ANCHOR POINT (IF FEASIBLE) TO HELP MAINTAIN THE MAT IN ITS CURRENT POSITION.
6. AFTER THE FIRST MAT IS ANCHORED IN ITS PROPER PLACE, AN H BRACKET SHOULD BE PLACED AT THE END OF THE FIRST MAT BEFORE ANOTHER MAT IS PLACED ADJACENT TO THE FIRST MAT.
7. ONCE THE SECOND MAT IS PLACED ADJACENT TO THE FIRST MAT, MAKE SURE THE H BRACKET IS CORRECTLY SITUATED BETWEEN THE TWO MATS, AND SLIDE MATS TOGETHER.
8. NEXT THE CONNECTOR STRAPS SHOULD BE INSTALLED TO CONNECT THE TWO MATS TOGETHER.
9. UPON PLACEMENT OF EACH NEW MAT IN THE SYSTEM, THAT MAT SHOULD BE ANCHORED AT EVERY ANCHOR POINT TO HELP STABILIZE THE MAT AND ENSURE THE SYSTEM IS CONTINUOUS WITH NO GAPS IN BETWEEN THE MATS.
10. SUCCESSIVE MATS CAN THEN BE PLACED TO CREATE THE FODS TRACKOUT CONTROL SYSTEM REPEATING THE ABOVE STEPS.

USE AND MAINTENANCE

1. VEHICLES SHOULD TRAVEL DOWN THE LENGTH OF THE TRACKOUT CONTROL SYSTEM AND NOT CUT ACROSS THE MATS.
2. DRIVERS SHOULD TURN THE WHEEL OF THEIR VEHICLES SUCH THAT THE VEHICLE WILL MAKE A SHALLOW S-TURN ROUTE DOWN THE LENGTH OF THE FODS TRACKOUT CONTROL SYSTEM.
3. MATS SHOULD BE CLEANED ONCE THE VOIDS BETWEEN THE PYRAMIDS BECOME FULL OF SEDIMENT. TYPICALLY THIS WILL NEED TO BE PERFORMED WITHIN TWO WEEKS AFTER A STORM EVENT. BRUSHING IS THE PREFERRED METHOD OF CLEANING, EITHER MANUALLY OR MECHANICALLY.
4. THE USE OF ICE MELT, ROCK SALT, SNOW MELT, DE-ICER, ETC. SHOULD BE UTILIZED AS NECESSARY DURING THE WINTER MONTHS AND AFTER A SNOW EVENT TO PREVENT ICE BUILDUP.

REMOVAL

1. REMOVAL OF FODS TRACKOUT CONTROL SYSTEM IS REVERSE ORDER OF INSTALLATION.
2. STARTING WITH THE LAST MAT, THE MAT THAT IS PLACED AT THE INNERMOST POINT OF THE SITE OR THE MAT FURTHEST FROM THE EXIT OR PAVED SURFACE SHOULD BE REMOVED FIRST.
3. THE ANCHORS SHOULD BE REMOVED.
4. THE CONNECTOR STRAPS SHOULD BE UNBOLTED AT ALL LOCATIONS IN THE FODS TRACKOUT CONTROL SYSTEM.
5. STARTING WITH THE LAST MAT IN THE SYSTEM, EACH SUCCESSIVE MAT SHOULD THEN BE MOVED AND STACKED FOR LOADING BY FORKLIFT OR EXCAVATOR ONTO A TRUCK FOR REMOVAL FROM THE SITE.



TYPICAL FODS TRACKOUT CONTROL SYSTEM LAYOUT

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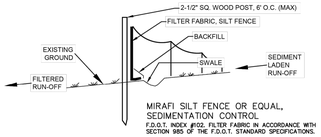


MIRAFI SILT FENCE OR EQUAL, SEDIMENTATION CONTROL
F.D.O.T. INDEX #102, FILTER FABRIC IN ACCORDANCE WITH SECTION 985 OF THE F.D.O.T. STANDARD SPECIFICATIONS.

NOTES:

1. TEMPORARY EROSION CONTROL STRUCTURE TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY ENGINEER OR AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURE MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY CONTRACTOR.
2. CONSTRUCT STORMWATER SYSTEMS BEFORE ANY BUILDING OR ROAD CONSTRUCTION IS STARTED.
   a.) PROTECT SYSTEM FROM SILTING AND DEBRIS BY METHODS PROVIDED IN DETAILS.
   b.) PROTECT SWALE BOTTOM FROM SEALING BY EXCAVATING ALL SILT DEPOSITS DURING CONSTRUCTION. THIS SHALL BE DONE BEFORE SOD & SEEDING & MULCHING IS FINISHED

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PRACTICAL TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT.

NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

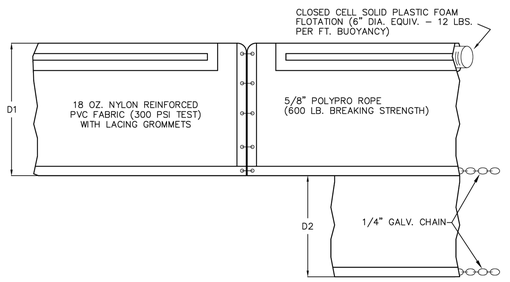
SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCKPILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATERCOURSE BY RUNOFF OR HIGH WATER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

EROSION & SEDIMENT CONTROL
(N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-1



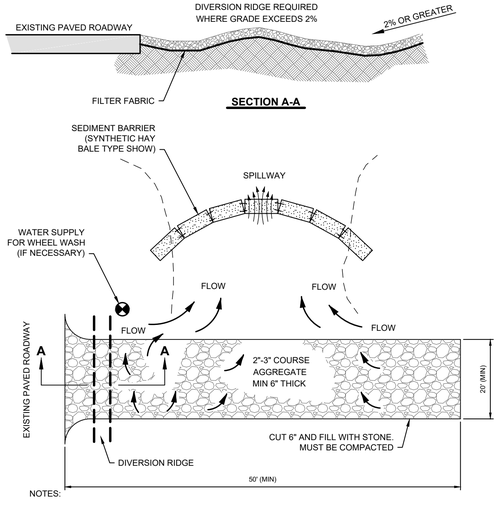
D1 - 5 FT. STANDARD, SINGLE PANEL FOR DEPTHS 5 FT. OR LESS

D2 - 5 FT. STANDARD, ADDITIONAL PANEL FOR DEPTHS GREATER THAN 5 FT.

CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FT. TWO PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FT., UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN PLANS OR DESIGNATED BY ENGINEER.

FLOATING TURBIDITY BARRIER (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-2



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF WAY OR STORM WATER SYSTEMS. THEY MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE INTO THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TEMPORARY CONSTRUCTION ENTRANCE (CE)

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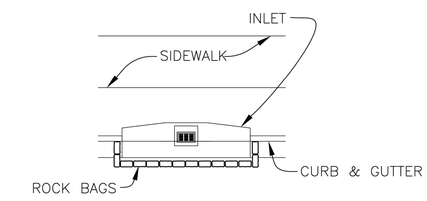
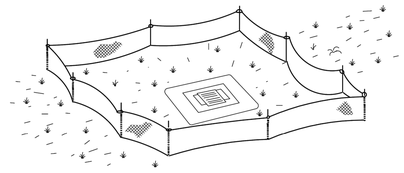


CURB INLET



TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

ALTERNATE DESIGNS MAY BE PROPOSED BY ENGINEER

INLET PROTECTION (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-3

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

EROSION CONTROL DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9880 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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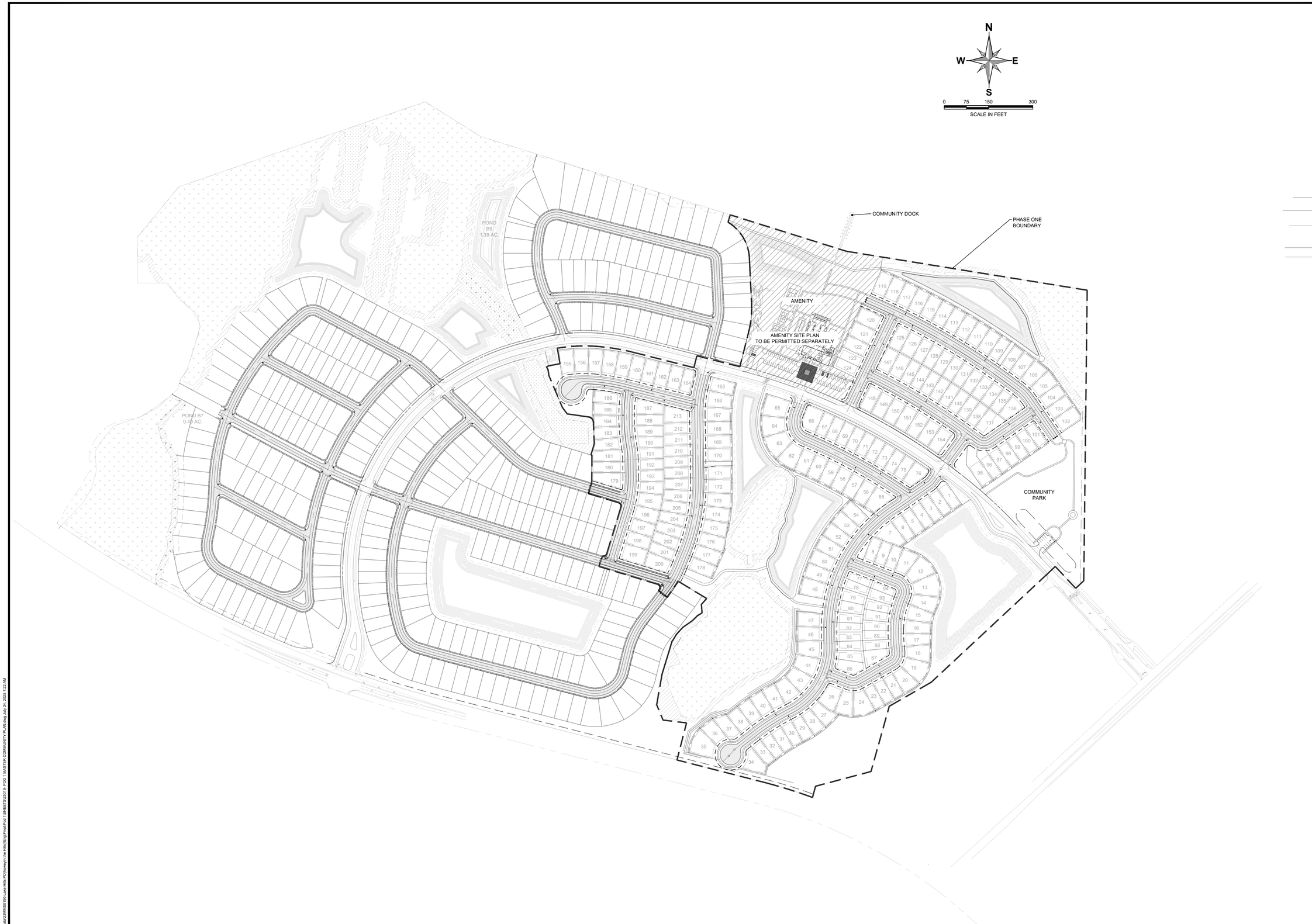

MADDEN
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(407) 629-8330
CA# 0007723

MASTER COMMUNITY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
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LICENSE
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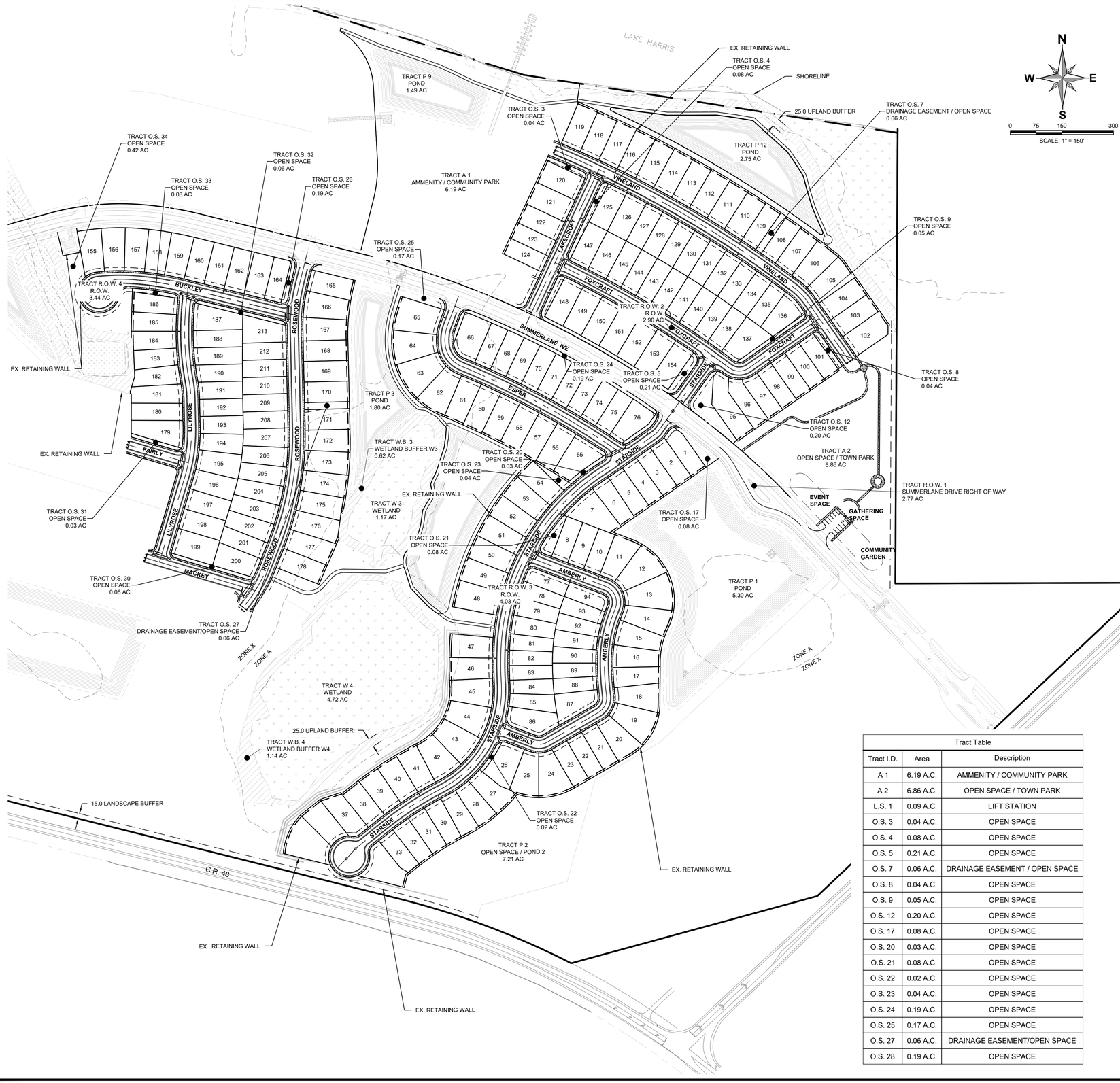

SITE DATA

1. **TOTAL PROJECT AREA:**
   91.00 AC.
2. **PROPOSED USE**
   SINGLE FAMILY RESIDENTIAL
3. **EXISTING USE**
   VACANT
4. **ZONING/FUTURE LAND USE:**
   CURRENT ZONING IS "PUD" (PLANNED UNIT DEVELOPMENT)
5. **BUILDING AREAS (TYPICAL):**
   50' COTTAGE HOME LOTS - 0.09 A.C.
   60' + COTTAGE HOME LOTS - 0.12 A.C.
   VILLAS (PAIRED HOME LOTS) - 0.16 A.C.
6. **MAX BUILDING HEIGHT:** 35' (2 STORIES)
7. **C.R. 48 LANDSCAPE BUFFER:**
   MIN. WIDTH 15'
8. **SETBACKS:**

VILLA LOTS (PAIRED HOME LOTS)	
-FRONT	20'
-SIDE	10'
-STREET SIDE	15'
ACCESSORY STRUCTURE (POOL)	
-REAR	10'
-SIDE	5'
SINGLE FAMILY (50' AND 60"+ COTTAGE HOME LOTS	
-FRONT	20'
-FRONT PORCH	15'
-SIDE	5'
-STREET SIDE	15'
ACCESSORY STRUCTURE (POOL)	
-REAR	10'
-SIDE	5'

9. ACCORDING TO FIRM MAP PANEL NO. 12069C0485E DATED 12/18/2012
10. WATER & SEWER WILL BE PROVIDED BY HOWEY-IN-THE-HILLS UTILITIES DEPARTMENT .
11. STORM RUNOFF GENERATED ON SITE SHALL BE TREATED USING ON SITE STORMWATER SYSTEMS UTILIZING BOTH WET DETENTION AND DRY RETENTION.
12. ALL CONSTRUCTION MATERIALS AND OTHER PROPOSED IMPROVEMENTS SHALL MEET THE APPLICABLE CODES OF THE TOWN HOWEY-IN-THE-HILLS.
13. A MANDATORY HOA SHALL BE CREATED TO PROVIDE FOR THE MANAGEMENT OF COMMON AREA AND FACILITIES
14. **PERVIOUS/IMPERVIOUS**

BUILDINGS	36.97 AC	41%
SIDEWALKS	2.95 AC	3%
PAVEMENT	11.87 AC	13%
STORMWATER MANAGEMENT	11.34 AC	12%
OPEN SPACE	20.28 AC	22%
WETLANDS	7.65 AC	8%
TOTAL PERVIOUS	27.93 AC	31%
TOTAL IMPERVIOUS	51.79 AC	57%
STORMWATER MANAGEMENT	11.34 AC	12%
TOTALS	91 AC	100%

Tract Table		
Tract I.D.	Area	Description
A 1	6.19 A.C.	AMMENITY / COMMUNITY PARK
A 2	6.86 A.C.	OPEN SPACE / TOWN PARK
L.S. 1	0.09 A.C.	LIFT STATION
O.S. 3	0.04 A.C.	OPEN SPACE
O.S. 4	0.08 A.C.	OPEN SPACE
O.S. 5	0.21 A.C.	OPEN SPACE
O.S. 7	0.06 A.C.	DRAINAGE EASEMENT / OPEN SPACE
O.S. 8	0.04 A.C.	OPEN SPACE
O.S. 9	0.05 A.C.	OPEN SPACE
O.S. 12	0.20 A.C.	OPEN SPACE
O.S. 17	0.08 A.C.	OPEN SPACE
O.S. 20	0.03 A.C.	OPEN SPACE
O.S. 21	0.08 A.C.	OPEN SPACE
O.S. 22	0.02 A.C.	OPEN SPACE
O.S. 23	0.04 A.C.	OPEN SPACE
O.S. 24	0.19 A.C.	OPEN SPACE
O.S. 25	0.17 A.C.	OPEN SPACE
O.S. 27	0.06 A.C.	DRAINAGE EASEMENT/OPEN SPACE
O.S. 28	0.19 A.C.	OPEN SPACE

Tract Table		
Tract I.D.	Area	Description
O.S. 30	0.06 A.C.	OPEN SPACE
O.S. 31	0.03 A.C.	OPEN SPACE
O.S. 32	0.06 A.C.	OPEN SPACE
O.S. 33	0.03 A.C.	OPEN SPACE
O.S. 34	0.42 A.C.	OPEN SPACE
P 1	5.30 A.C.	POND
P 2	7.21 A.C.	OPEN SPACE / POND 2
P 3	1.80 A.C.	POND
P 9	1.49 A.C.	POND
P 12	2.75 A.C.	POND
R.O.W. 1	2.77 A.C.	SUMMERLANE DRIVE RIGHT OF WAY
R.O.W. 2	2.90 A.C.	R.O.W.
R.O.W. 3	4.03 A.C.	R.O.W.
R.O.W. 4	3.44 A.C.	R.O.W.
W 3	1.17 A.C.	WETLAND
W 4	4.72 A.C.	WETLAND
W.B. 3	0.62 A.C.	WETLAND BUFFER W3
W.B. 4	1.14 A.C.	WETLAND BUFFER W4

MADDEN
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PHASE 1 SITE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
3850 TG LEE BOULEVARD, SUITE 200
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APPROVED BY: DAS

C007

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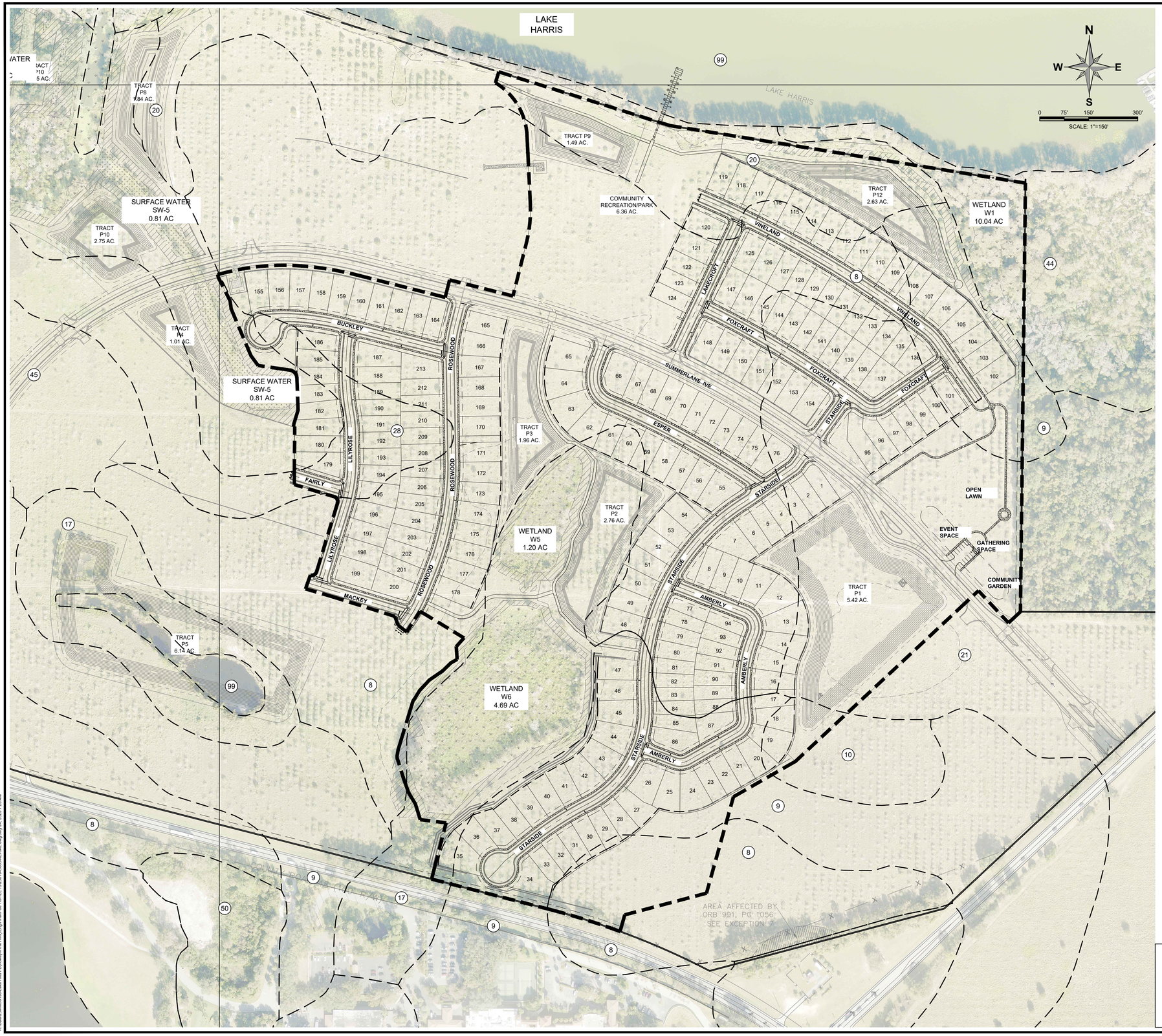

SOIL LEGEND

MAP UNIT SYMBOL	MAP UNIT NAME
1	SPARR SAND, 0 TO 5 % SLOPES
4	ANCLOTE AND MYAKKA SOILS
8	CANDLER SAND, 0 TO 5 % SLOPES
9	CANDLER SAND, 5 TO 12 % SLOPES
10	CANDLER SAND, 12 TO 40 % SLOPES
17	ARENTS
20	IMMOKALEE SAND
21	LAKE SAND, 0 TO 5 % SLOPES
28	MYAKKA-MYAKKA, WET, SANDS, 0 TO 2 % SLOPES
44	SWAMP
45	TAVARES SAND, 0 TO 5 % SLOPES
50	BORROW PITS
99	WATER

LEGEND

- SOIL TYPE LIMIT
- WETLAND LINE
- ZONE X / ZONE AE — FLOOD ZONE LINE
- PHASE 1 BOUNDARY
- WETLAND BUFFER
- WETLANDS
- WETLAND IMPACT

FLOOD ZONE:
ACCORDING TO FIRM MAP PANEL NOS. 12069C0485E DATED 12/18/2012, MAJORITY OF THIS PROPERTY LIES WITHIN FLOOD ZONE 'X' - AND IS NOT LOCATED WITHIN THE 100 YEAR FLOOD HAZARD AREA WITH A PORTION OF THE PROPERTY LYING WITHIN FLOOD ZONE "A" & "AE" AND IS IN A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD.

NOTE:
THIS EXHIBIT WAS PREPARED FOR ILLUSTRATIVE PURPOSES ONLY. THE LATEST AVAILABLE DIGITAL AERIAL FILES HAVE BEEN USED. HOWEVER, THIS MAY NOT ACCURATELY DEPICT CURRENT SITE CONDITIONS. ADDITIONAL ENGINEERING, ENVIRONMENTAL REVIEWS, FIELD SURVEYING AND DATA COLLECTION ARE NECESSARY TO CORRECTLY PORTRAY ACTUAL SITE CONDITIONS. THIS EXHIBIT IS SUBJECT TO CHANGE WITHOUT NOTICE BASED ON THE ABOVE.

DATE OF PHOTO: XX/20XX

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MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

AERIAL SITE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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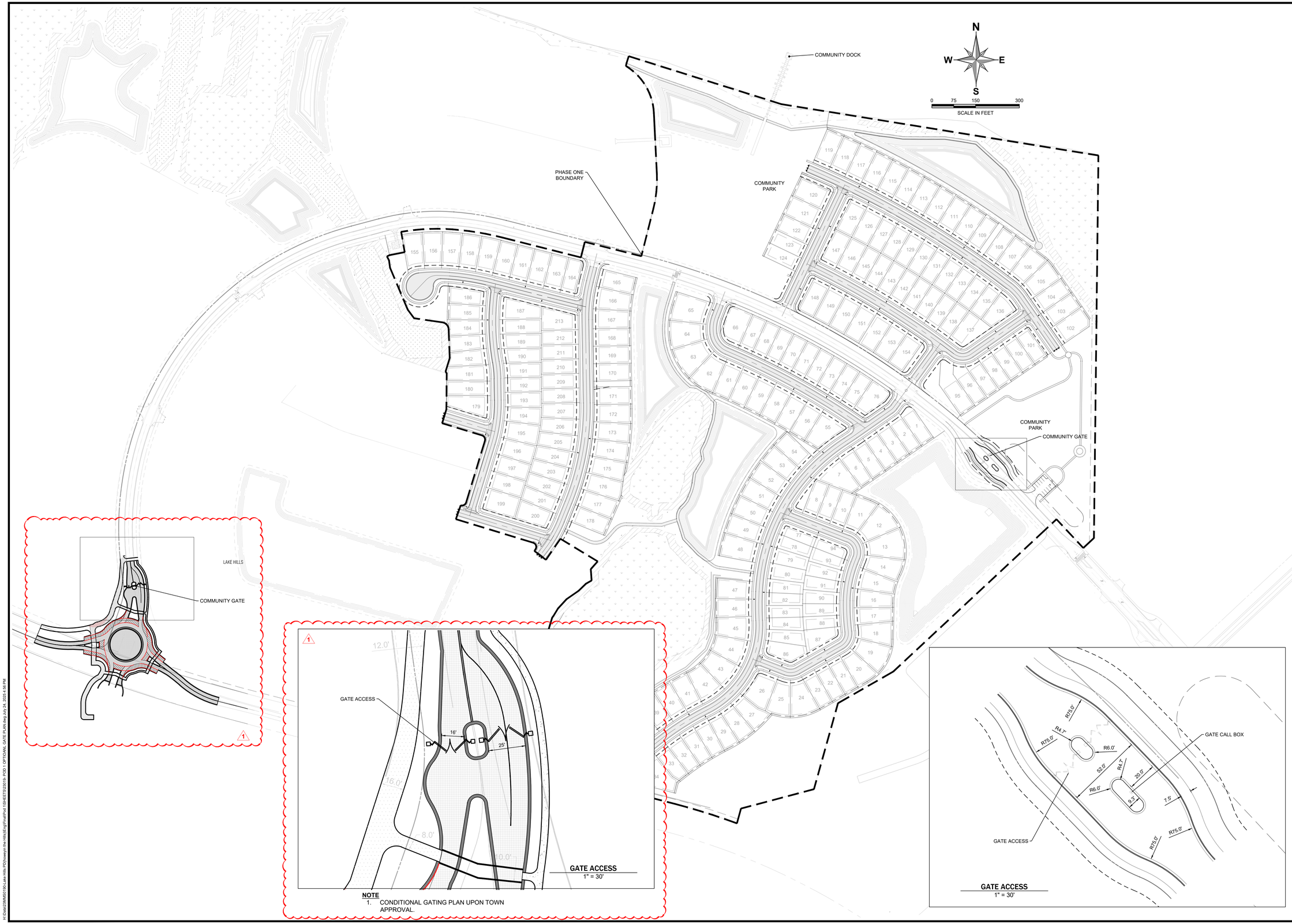
Item 1.



NOTE
1. CONDITIONAL GATING PLAN UPON TOWN APPROVAL.

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Suite 260
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CA# 0007723

OPTIONAL GATE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
1	07/24/25	REVISED PER TOWN COMMENTS
2		
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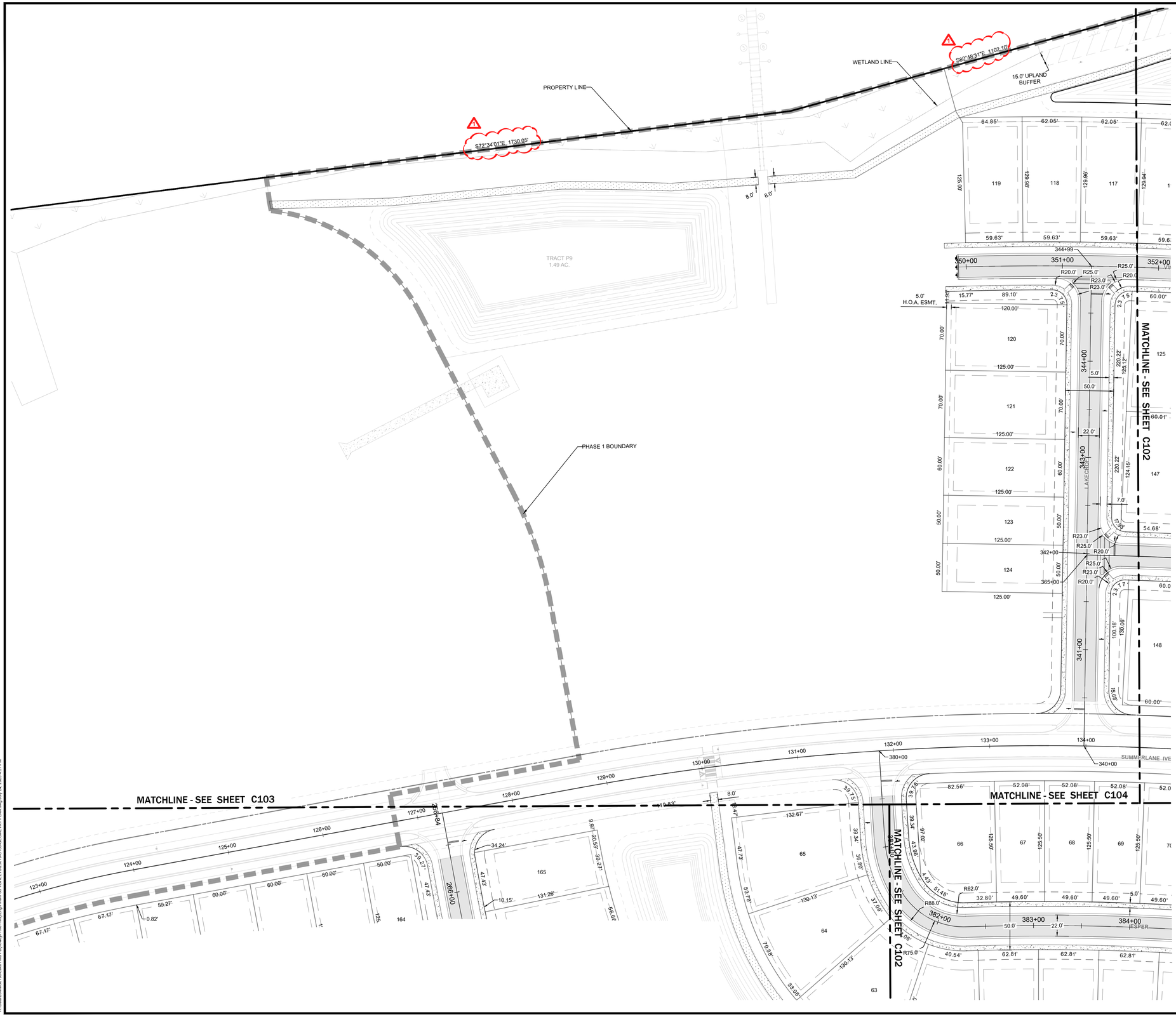
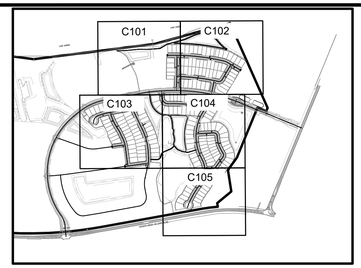
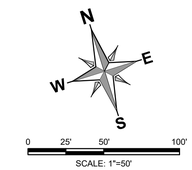




KEY MAP
NTS



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GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

1	7/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
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	DATE	REVISIONS

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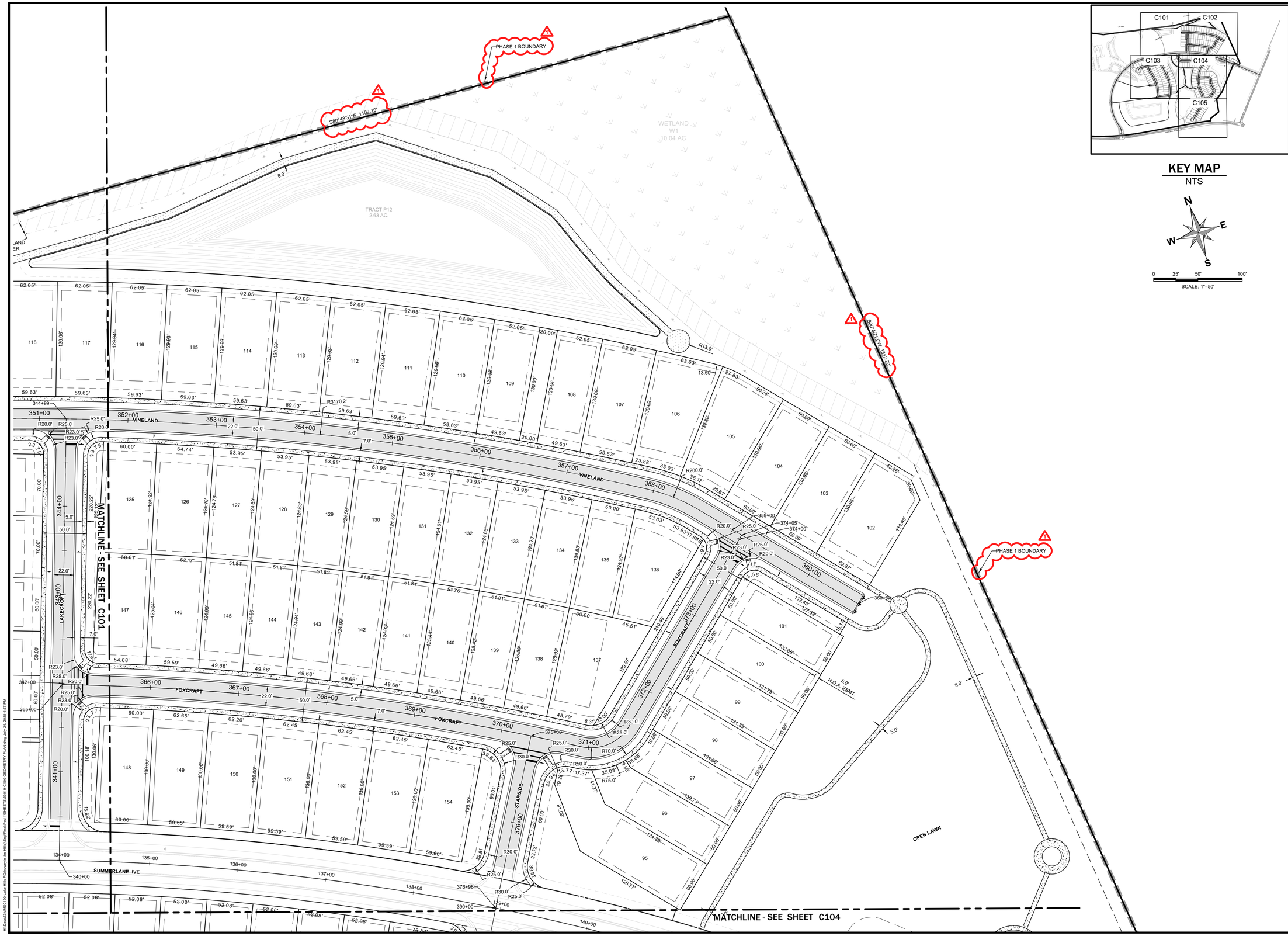

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GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
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ORLANDO FL. 32822
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1	7/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
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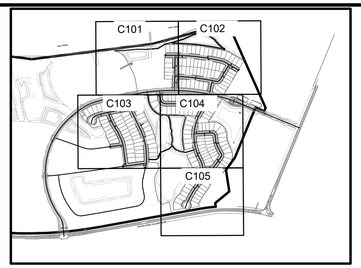
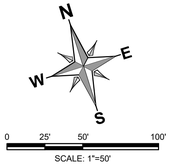


KEY MAP
NTS



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GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

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5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
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MATCHLINE - SEE SHEET C101

MATCHLINE - SEE SHEET C102

MATCHLINE - SEE SHEET C103

MATCHLINE - SEE SHEET C105

SUMMERLANE IVE

ESPER

STARSIDE

SERLY

AMBERLY

TRACT P3
1.96 AC.

TRACT P2
2.76 AC.

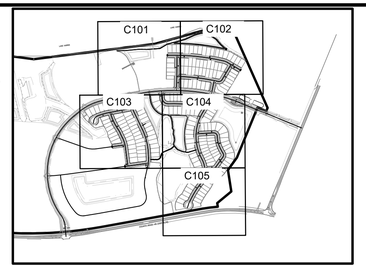
TRACT P1
5.42 AC.

WETLAND
W5
1.20 AC

5.0' H.O.A. ESMT.

8.0'

10.0'



KEY MAP
NTS

N
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0 25' 50' 100'
SCALE: 1"=50'

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Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

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ORLANDO FL, 32822
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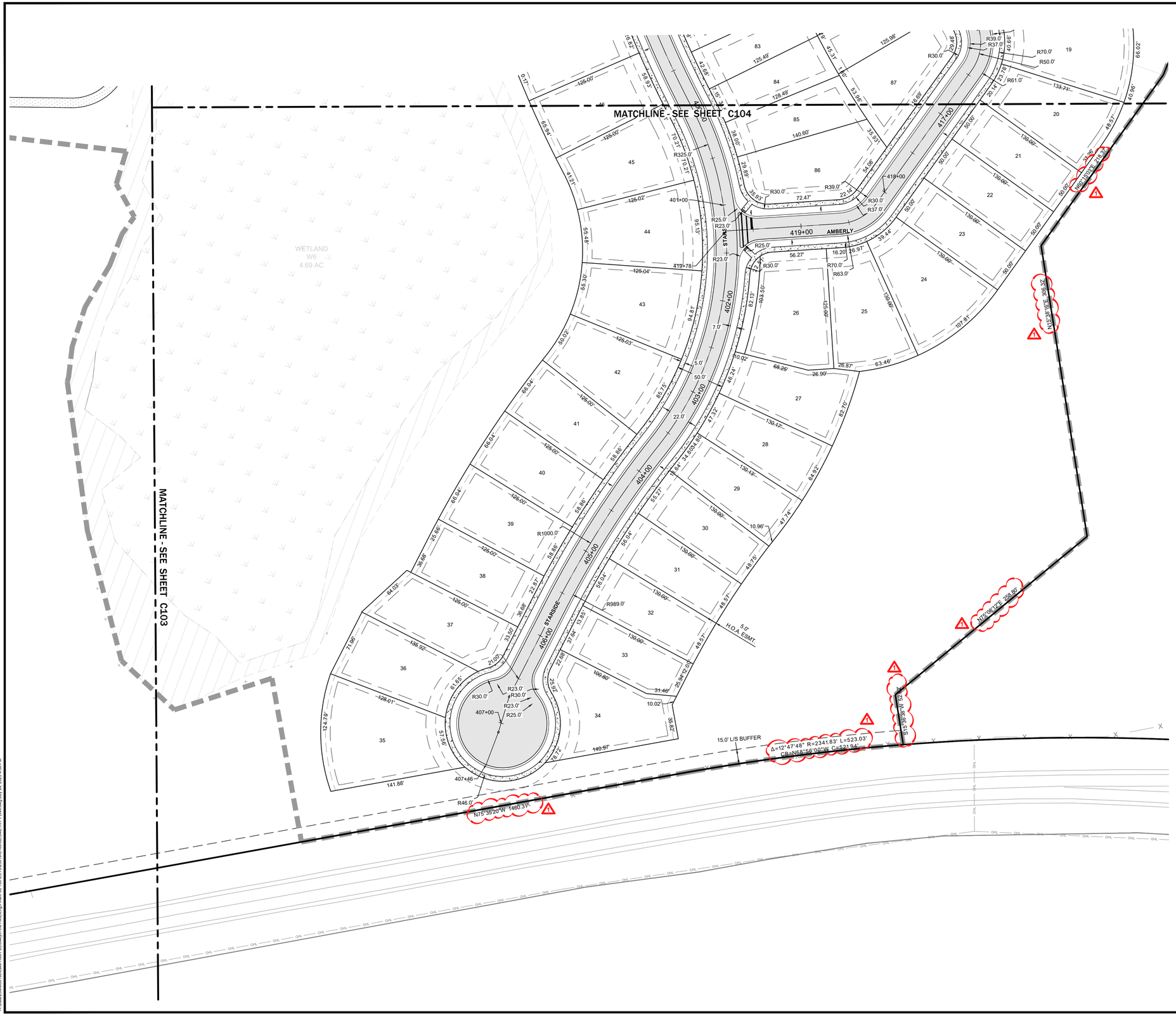

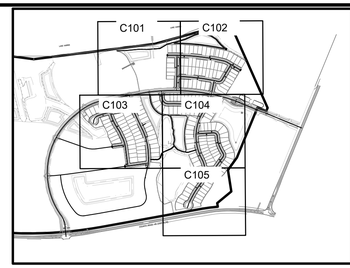

KEY MAP
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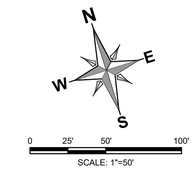

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Maitland, Florida 32751
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CA# 0007723

GEOMETRY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
1	07/17/25	REVISED PER HOWEY IN THE HILLS COMMENTS
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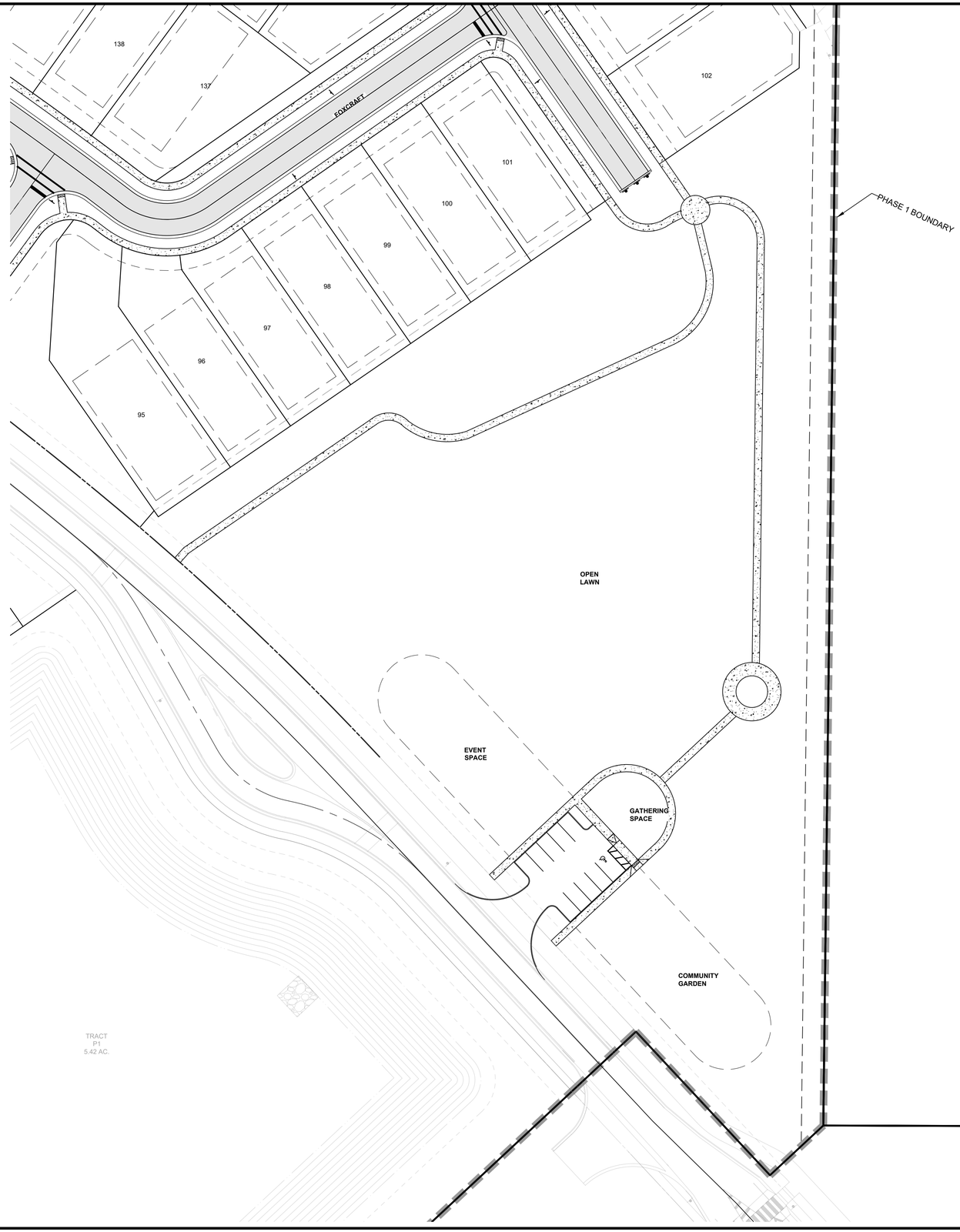

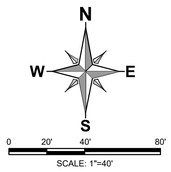

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CA# 0007723

PUBLIC PARK PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
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PAVEMENT SPECIFICATIONS

1. 1.5" FDOT SUPERPAVE (SP) ASPHALTIC CONCRETE. THE SURFACE COURSE SHOULD CONSIST OF FDOT SP-9.5 FINE MIX FOR LIGHT-DUTY AREAS.

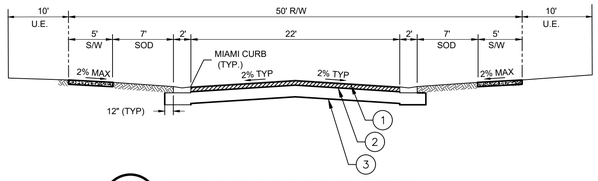
1. 2.5" FDOT SUPERPAVE (SP) ASPHALTIC CONCRETE. FDOT SP-12.5 TOPPED WITH SP-9.5 FINE MIX FOR HEAVY DUTY AREAS.

2. 6" LIMEROCK BASE, MINIMUM DENSITY OF 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY AND EXHIBIT A MINIMUM LBR OF 100.

OR

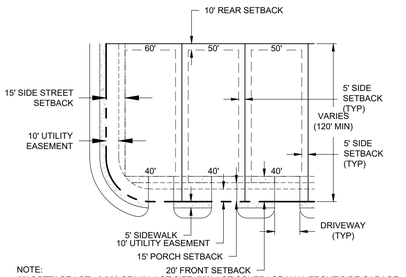
2. 6" RECYCLED CONCRETE AGGREGATE (RCA), MATERIAL SHOULD BE SOURCED FROM AN FDOT APPROVED SUPPLIER. THE BASE SHOULD BE COMPACTED TO A MINIMUM DENSITY OF 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY AND EXHIBIT A MINIMUM LBR OF 150. THE BASE MATERIAL SHOULD COMPLY WITH THE LATEST EDITION OF THE FDOT ROAD AND BRIDGE CONSTRUCTION SPECIFICATIONS.

3. 12" STABILIZED SUBGRADE, MINIMUM FBV=75 (OR MINIMUM LBR=40) AND COMPACTED TO A MINIMUM DENSITY EQUIVALENT TO 98 PERCENT OF THE SOIL'S MODIFIED PROCTOR DENSITY VALUE AS DETERMINED BY ASTM D 1557 TEST METHOD.



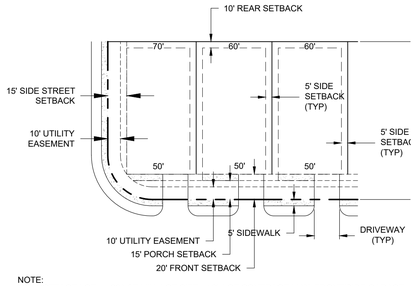
RW50 — **TYPICAL 50' RIGHT OF WAY SECTION**

N.T.S.



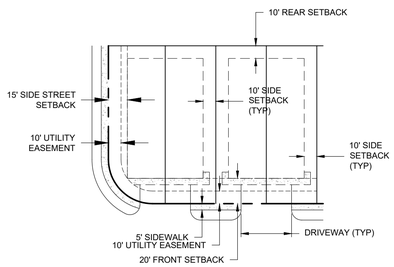
NOTE:
50' COTTAGE LOT - 6,000 SF MIN. LOT SIZE. 75% LOT COVERAGE MAX. FRONT/SIDE GARAGE.

50' COTTAGE HOME LOTS



NOTE:
60'+ COTTAGE LOT - 7,200 SF MIN. LOT SIZE. 75% LOT COVERAGE MAX. FRONT/SIDE GARAGE.

60'+ COTTAGE HOME LOTS



NOTE:
PAIRED HOME LOT - 4,800 SF MIN. LOT SIZE. 90% LOT COVERAGE MAX. FRONT GARAGE.

PAIRED HOME LOTS

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TYPICAL SECTIONS
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

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DRAWN BY: JSK
APPROVED BY: DAS

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LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
		WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
		TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
		RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
		SANITARY SEWER
		PHASE LINE

UTILITY NOTES

1. VALVES ARE NOT TO BE PLACED IN CURB LINES OR IN CURB RAMPS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

OVERALL UTILITY PLAN FOR LAKE HILLS PHASE 1

FLORIDA

LAKE COUNTY

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
1	07/24/25	REVISED PER TOWN COMMENTS
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C200

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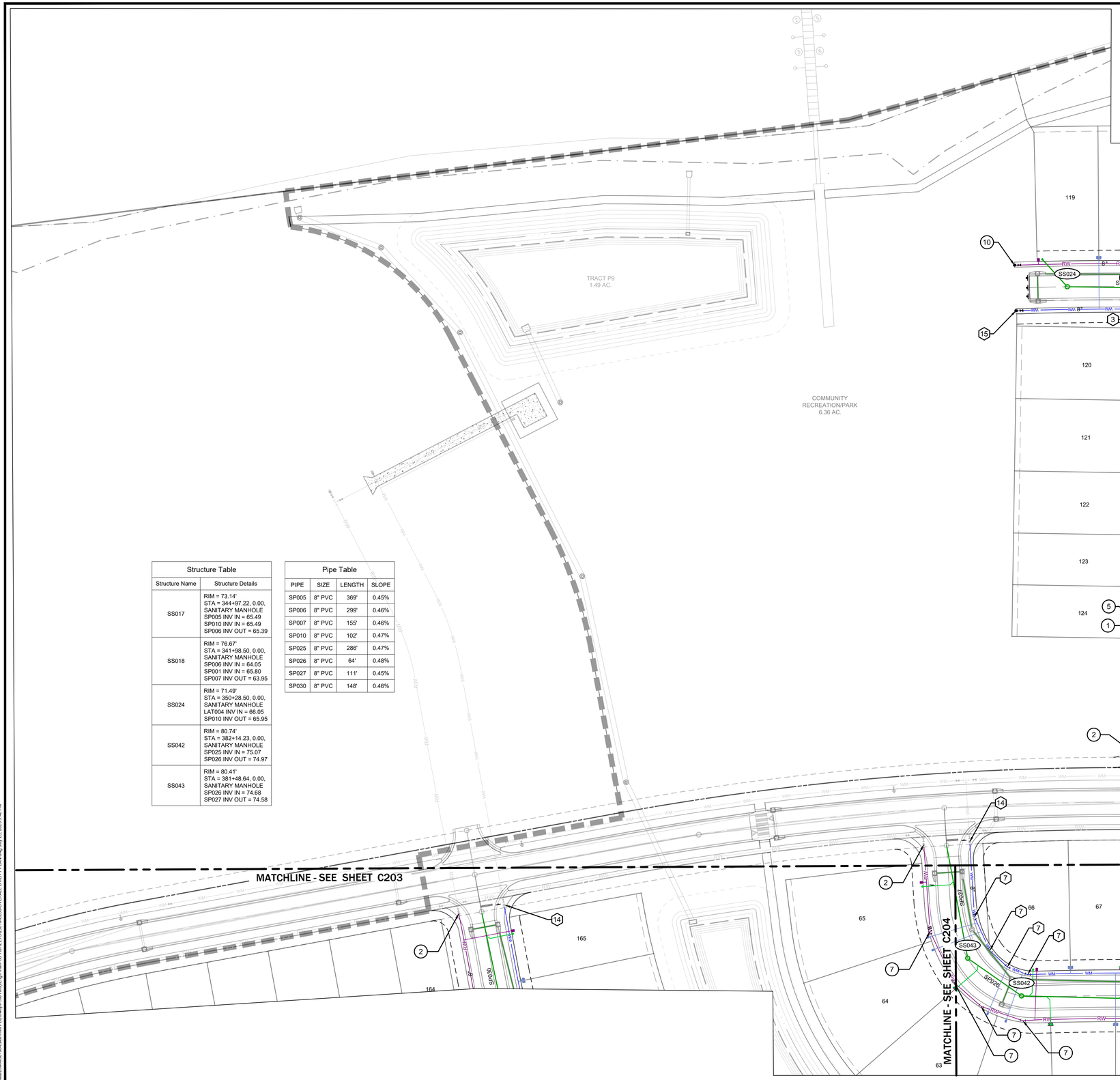
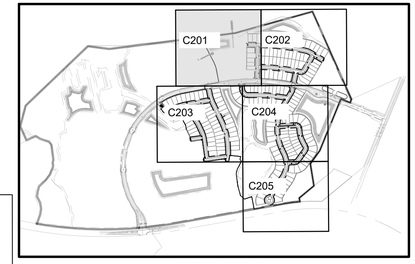


Structure Table	
Structure Name	Structure Details
SS017	RIM = 73.14' STA = 344+97.22, 0.00, SANITARY MANHOLE SP005 INV IN = 65.49 SP010 INV IN = 65.49 SP006 INV OUT = 65.39
SS018	RIM = 76.67' STA = 341+98.50, 0.00, SANITARY MANHOLE SP006 INV IN = 64.05 SP001 INV IN = 65.80 SP007 INV OUT = 63.95
SS024	RIM = 71.49' STA = 350+28.50, 0.00, SANITARY MANHOLE LAT004 INV IN = 66.05 SP010 INV OUT = 65.95
SS042	RIM = 80.74' STA = 382+14.23, 0.00, SANITARY MANHOLE SP025 INV IN = 75.07 SP026 INV OUT = 74.97
SS043	RIM = 80.41' STA = 381+48.64, 0.00, SANITARY MANHOLE SP026 INV IN = 74.68 SP027 INV OUT = 74.58

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP005	8" PVC	369'	0.45%
SP006	8" PVC	299'	0.46%
SP007	8" PVC	155'	0.46%
SP010	8" PVC	102'	0.47%
SP025	8" PVC	286'	0.47%
SP026	8" PVC	64'	0.48%
SP027	8" PVC	111'	0.45%
SP030	8" PVC	148'	0.46%



KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

UTILITY NOTES
1. VALVES ARE NOT TO BE PLACED IN CURB LINES OR IN CURB RAMPS

WATER NOTES
1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
2. POST INDICATOR VALVE
3. 6" FIRE HYDRANT ASSEMBLY PER P.C. DETAILS FIGURE XX-##
4. 8" TEE
5. 8" GATE VALVE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" CAP
11. 2" CAP
12. 4" DDCV
13. AUTOMATIC AIR RELEASE VALVE
14. CONNECT TO EXISTING 8" STUB OUT
15. 8" GATE VALVE AND 2" BLOW OFF
16. 8" X 6" REDUCER

RECLAIM NOTES
1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 8" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
5. 8" TEE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 6" REDUCER

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CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 836-4899

REVISIONS	DATE
REV. PER HOWEY IN THE HILLS COMMENTS	7/17/25
1 2 3 4 5 6 7 8 9 10 11	

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C201

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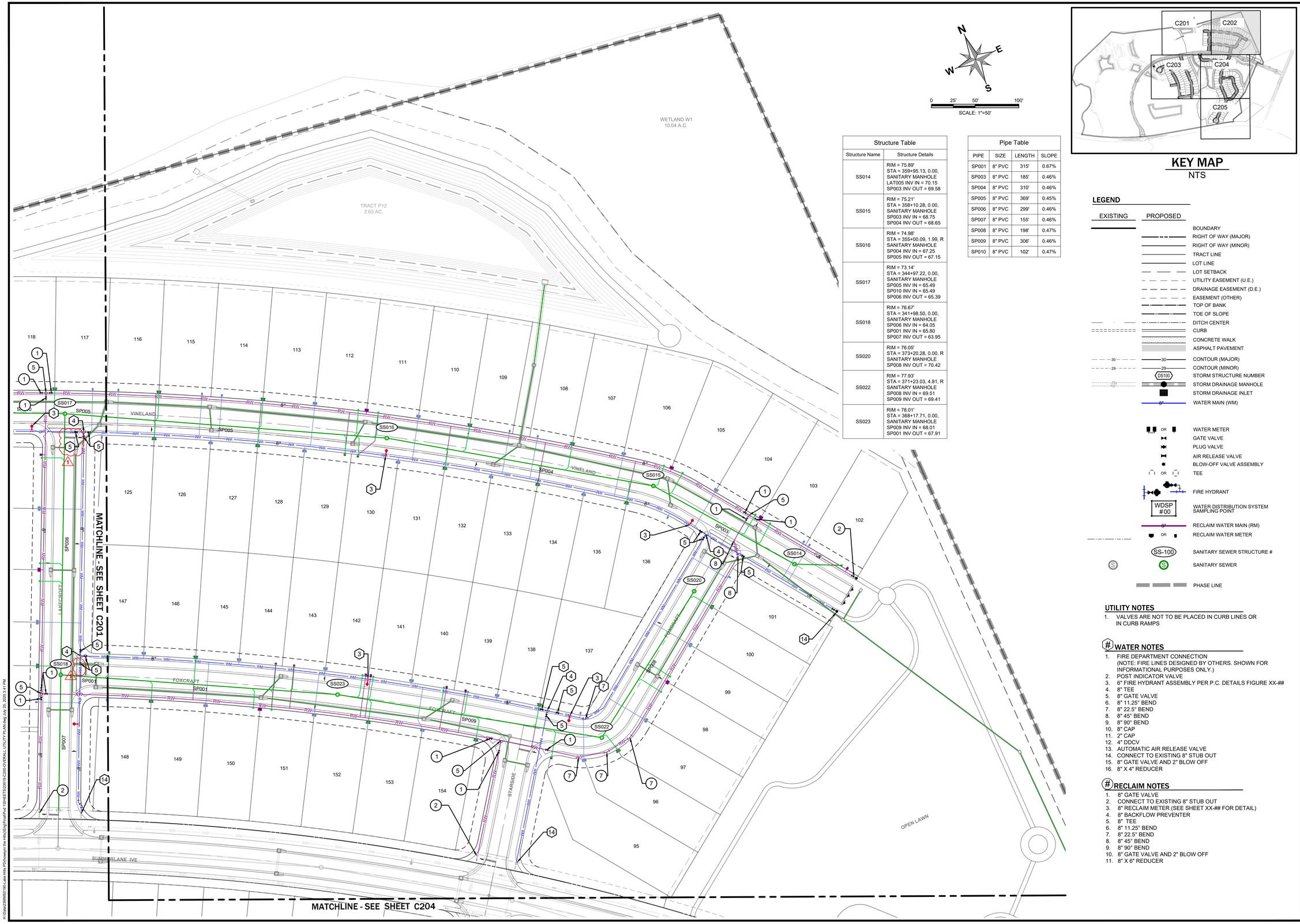

KEY MAP
NTS

Structure Table	
Structure Name	Structure Details
SS014	RIM = 75.89' STA = 359+95.13, 0.00, SANITARY MANHOLE LAT005 INV IN = 70.15 SP003 INV OUT = 69.58
SS015	RIM = 75.21' STA = 358+10.28, 0.00, SANITARY MANHOLE SP003 INV IN = 68.75 SP004 INV OUT = 68.65
SS016	RIM = 74.98' STA = 355+00.09, 1.99, R SANITARY MANHOLE SP004 INV IN = 67.25 SP005 INV OUT = 67.15
SS017	RIM = 73.14' STA = 344+97.22, 0.00, SANITARY MANHOLE SP005 INV IN = 65.49 SP010 INV IN = 65.49 SP006 INV OUT = 65.39
SS018	RIM = 76.67' STA = 341+98.50, 0.00, SANITARY MANHOLE SP006 INV IN = 64.05 SP001 INV IN = 65.80 SP007 INV OUT = 63.95
SS020	RIM = 76.05' STA = 373+20.28, 0.00, R SANITARY MANHOLE SP008 INV OUT = 70.42
SS022	RIM = 77.93' STA = 371+23.03, 4.81, R SANITARY MANHOLE SP008 INV IN = 69.51 SP009 INV OUT = 69.41
SS023	RIM = 78.01' STA = 368+17.71, 0.00, SANITARY MANHOLE SP009 INV IN = 68.01 SP001 INV OUT = 67.91

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP001	8" PVC	315'	0.67%
SP003	8" PVC	185'	0.46%
SP004	8" PVC	310'	0.46%
SP005	8" PVC	369'	0.45%
SP006	8" PVC	299'	0.46%
SP007	8" PVC	155'	0.46%
SP008	8" PVC	198'	0.47%
SP009	8" PVC	306'	0.46%
SP010	8" PVC	102'	0.47%

LEGEND

EXISTING / PROPOSED

- BOUNDARY
- RIGHT OF WAY (MAJOR)
- RIGHT OF WAY (MINOR)
- TRACT LINE
- LOT LINE
- LOT SETBACK
- UTILITY EASEMENT (U.E.)
- DRAINAGE EASEMENT (D.E.)
- EASEMENT (OTHER)
- TOP OF BANK
- TOE OF SLOPE
- DITCH CENTER
- CURB
- CONCRETE WALK
- ASPHALT PAVEMENT
- CONTOUR (MAJOR) 30
- CONTOUR (MINOR) 29
- STORM STRUCTURE NUMBER (DS100)
- STORM DRAINAGE MANHOLE
- STORM DRAINAGE INLET
- WATER MAIN (WM) 8"
- WATER METER (OR)
- GATE VALVE
- PLUG VALVE
- AIR RELEASE VALVE
- BLOW-OFF VALVE ASSEMBLY
- TEE (OR)
- FIRE HYDRANT
- WATER DISTRIBUTION SYSTEM SAMPLING POINT (WDSP #00)
- RECLAIM WATER MAIN (RM) 8"
- RECLAIM WATER METER (OR)
- SANITARY SEWER STRUCTURE # (SS-100)
- SANITARY SEWER (S)
- PHASE LINE

UTILITY NOTES

1. VALVES ARE NOT TO BE PLACED IN CURB LINES OR IN CURB RAMPS

WATER NOTES

1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
2. POST INDICATOR VALVE
3. 6" FIRE HYDRANT ASSEMBLY PER P.C. DETAILS FIGURE XX-##
4. 8" TEE
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6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" CAP
11. 2" CAP
12. 4" DDCV
13. AUTOMATIC AIR RELEASE VALVE
14. CONNECT TO EXISTING 8" STUB OUT
15. 8" GATE VALVE AND 2" BLOW OFF
16. 8" X 4" REDUCER

RECLAIM NOTES

1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 8" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
5. 8" TEE
6. 8" 11.25° BEND
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8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 6" REDUCER

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CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
1	7/17/25	REV. PER HOBEWEY IN THE HILLS COMMENTS
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11		

DAVID ASHLEY STOKES
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FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
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DATUM:	NAVD 88
DESIGNED BY:	PCR
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APPROVED BY:	DAS

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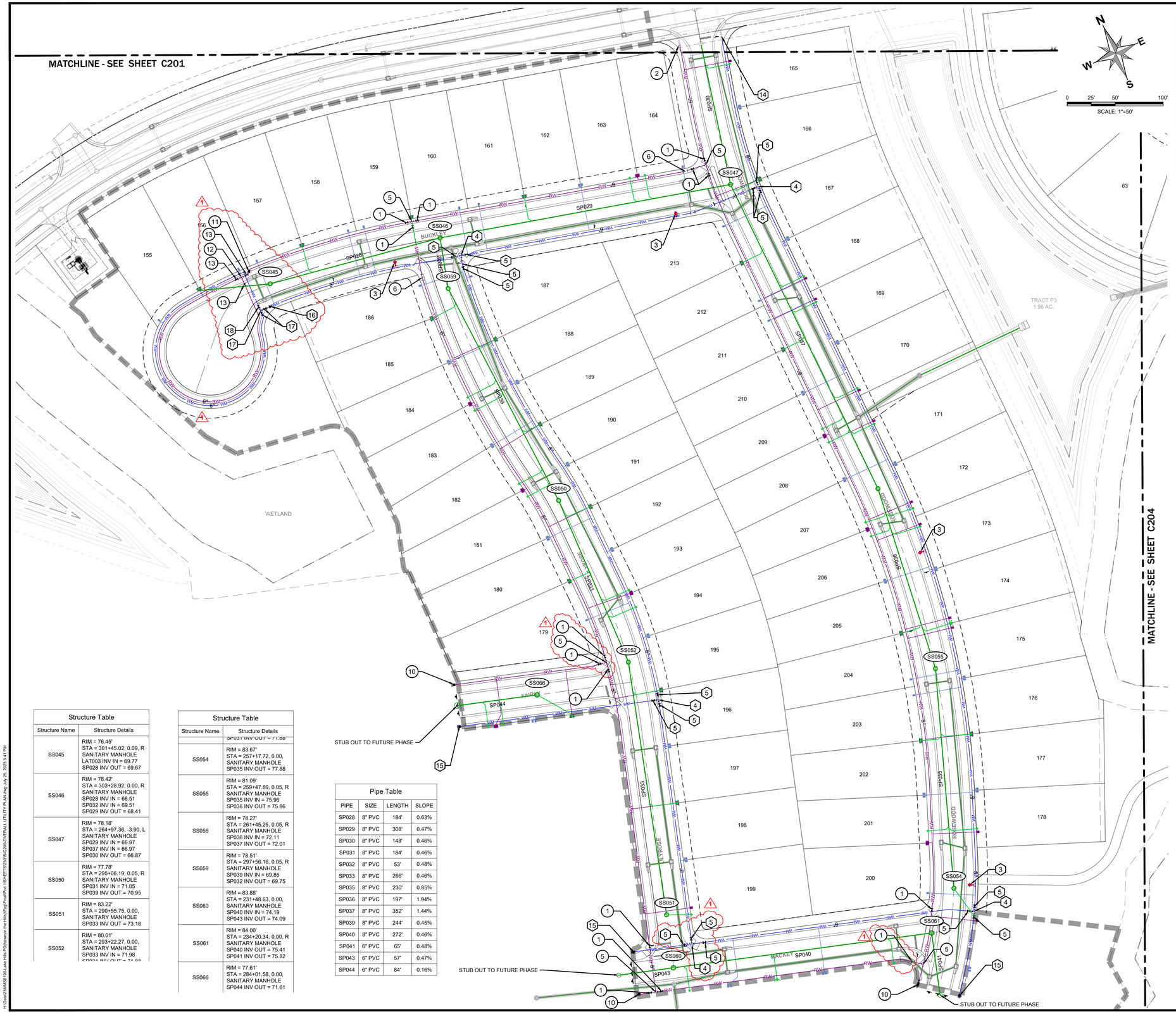
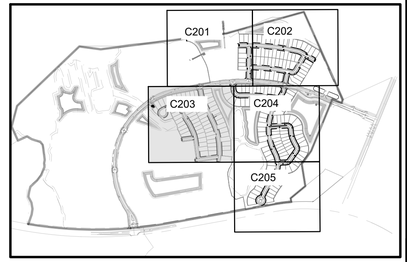
MATCHLINE - SEE SHEET C201

MATCHLINE - SEE SHEET C204





KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	6"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
OR	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

UTILITY NOTES
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WATER NOTES
1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
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10. 8" CAP
11. 2" CAP
12. 4" DDCV
13. AUTOMATIC AIR RELEASE VALVE
14. CONNECT TO EXISTING 8" STUB OUT
15. 8" GATE VALVE AND 2" BLOW OFF
16. 8" X 6" REDUCER
17. 6" TEE
18. 6: GATE VALVES

RECLAIM NOTES
1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 8" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
5. 8" TEE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 6" REDUCER
12. 6" TEE
13. 6" GATE VALVES

Structure Table	
Structure Name	Structure Details
SS045	RIM = 76.45' STA = 301+45.02, 0.09, R SANITARY MANHOLE LAT003 INV IN = 69.77 SP028 INV OUT = 69.67
SS046	RIM = 78.42' STA = 303+28.92, 0.00, R SANITARY MANHOLE SP028 INV IN = 68.51 SP032 INV IN = 69.51 SP029 INV OUT = 68.41
SS047	RIM = 78.18' STA = 264+97.36, -3.90, L SANITARY MANHOLE SP029 INV IN = 66.97' SP037 INV IN = 66.97' SP030 INV OUT = 66.87
SS050	RIM = 77.78' STA = 295+06.19, 0.05, R SANITARY MANHOLE SP031 INV IN = 71.05 SP039 INV OUT = 70.95
SS051	RIM = 83.22' STA = 290+55.75, 0.00, SANITARY MANHOLE SP033 INV OUT = 73.18
SS052	RIM = 80.01' STA = 293+22.27, 0.00, SANITARY MANHOLE SP033 INV IN = 71.98 SP034 INV OUT = 71.88

Structure Table	
Structure Name	Structure Details
	SP037 INV OUT = 71.88
SS054	RIM = 83.67' STA = 257+17.72, 0.00, SANITARY MANHOLE SP035 INV OUT = 77.88
SS055	RIM = 81.09' STA = 259+47.89, 0.05, R SANITARY MANHOLE SP035 INV IN = 75.96 SP036 INV OUT = 75.86
SS056	RIM = 78.27' STA = 261+45.25, 0.05, R SANITARY MANHOLE SP036 INV IN = 72.11 SP037 INV OUT = 72.01
SS059	RIM = 78.51' STA = 297+56.16, 0.05, R SANITARY MANHOLE SP039 INV IN = 69.85 SP032 INV OUT = 69.75
SS060	RIM = 83.88' STA = 231+48.63, 0.00, SANITARY MANHOLE SP040 INV IN = 74.19 SP043 INV OUT = 74.09
SS061	RIM = 84.00' STA = 234+20.34, 0.00, R SANITARY MANHOLE SP040 INV OUT = 75.41 SP041 INV OUT = 75.82
SS066	RIM = 77.61' STA = 284+01.58, 0.00, SANITARY MANHOLE SP044 INV OUT = 71.61

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP028	8" PVC	184'	0.63%
SP029	8" PVC	308'	0.47%
SP030	8" PVC	148'	0.46%
SP031	8" PVC	184'	0.46%
SP032	8" PVC	53'	0.48%
SP033	8" PVC	266'	0.46%
SP035	8" PVC	230'	0.85%
SP036	8" PVC	197'	1.94%
SP037	8" PVC	352'	1.44%
SP039	8" PVC	244'	0.45%
SP040	8" PVC	272'	0.46%
SP041	6" PVC	65'	0.48%
SP043	6" PVC	57'	0.47%
SP044	6" PVC	84'	0.16%

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FOR
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LAKE COUNTY

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(407) 855-4899

REVISIONS	DATE
1 REV. PER HOWEY IN THE HILLS COMMENTS	7/17/25
2	
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DRAWN BY:	JSK
APPROVED BY:	DAS

C203

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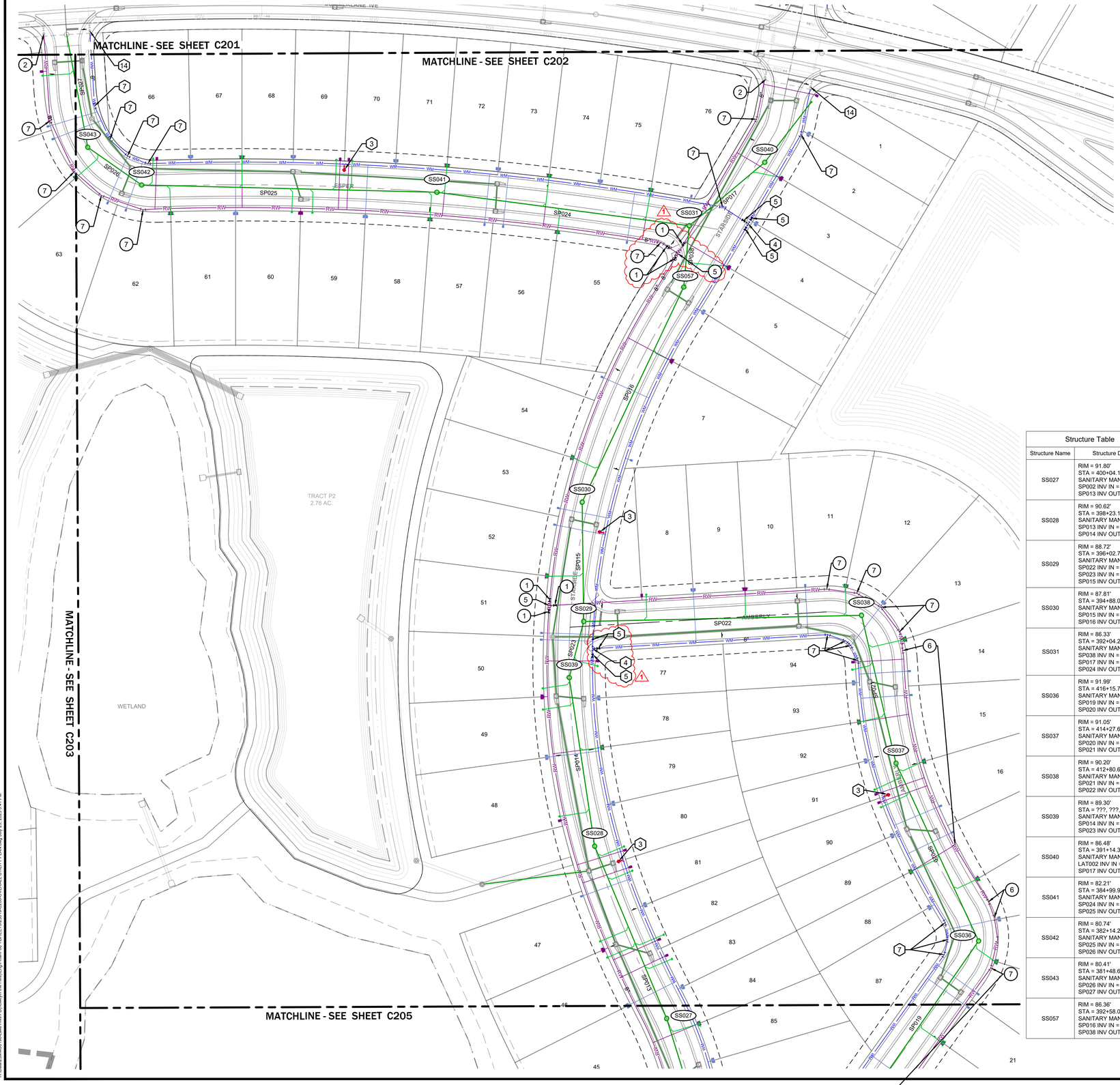

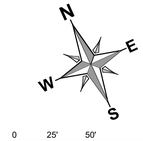

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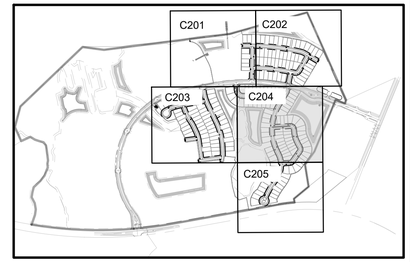

KEY MAP

NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
OR	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
OR	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

Structure Table	
Structure Name	Structure Details
SS027	RIM = 91.80' STA = 402+04.12, -0.05, L SANITARY MANHOLE SP002 INV IN = 84.26 SP013 INV OUT = 84.16
SS028	RIM = 90.62' STA = 398+23.18, -0.05, L SANITARY MANHOLE SP013 INV IN = 81.06 SP014 INV OUT = 80.96
SS029	RIM = 88.72' STA = 396+02.76, -12.92, L SANITARY MANHOLE SP022 INV IN = 79.87 SP023 INV IN = 79.87 SP015 INV OUT = 79.77
SS030	RIM = 87.81' STA = 394+88.08, 5.95, R SANITARY MANHOLE SP015 INV IN = 79.25 SP016 INV OUT = 79.15
SS031	RIM = 86.33' STA = 392+04.26, 25.78, R SANITARY MANHOLE SP038 INV IN = 77.75 SP017 INV IN = 77.75 SP024 INV OUT = 77.65
SS036	RIM = 91.99' STA = 416+15.70, -6.05, L SANITARY MANHOLE SP019 INV IN = 85.81 SP020 INV OUT = 85.71
SS037	RIM = 91.05' STA = 414+27.62, -0.05, L SANITARY MANHOLE SP020 INV IN = 84.85 SP021 INV OUT = 84.75
SS038	RIM = 90.20' STA = 412+80.69, -6.03, L SANITARY MANHOLE SP021 INV IN = 84.09 SP022 INV OUT = 83.99
SS039	RIM = 89.30' STA = ???, ???, ??? SANITARY MANHOLE SP014 INV IN = 80.22 SP023 INV OUT = 80.12
SS040	RIM = 86.48' STA = 391+14.32, -6.04, L SANITARY MANHOLE LAT002 INV IN = 78.28 SP017 INV OUT = 78.18
SS041	RIM = 82.21' STA = 384+99.99, 0.00, SANITARY MANHOLE SP024 INV IN = 76.50 SP025 INV OUT = 76.40
SS042	RIM = 80.74' STA = 382+14.23, 0.00, SANITARY MANHOLE SP025 INV IN = 75.07 SP026 INV OUT = 74.97
SS043	RIM = 80.41' STA = 381+48.64, 0.00, SANITARY MANHOLE SP026 INV IN = 74.68 SP027 INV OUT = 74.58
SS057	RIM = 86.36' STA = 392+58.07, -0.04, L SANITARY MANHOLE SP016 INV IN = 78.12 SP038 INV OUT = 78.02

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP002	8" PVC	123'	0.60%
SP013	8" PVC	181'	1.75%
SP014	8" PVC	165'	0.46%
SP015	8" PVC	115'	0.46%
SP016	8" PVC	230'	0.46%
SP017	8" PVC	95'	0.46%
SP019	8" PVC	201'	0.46%
SP020	8" PVC	189'	0.46%
SP021	8" PVC	147'	0.46%
SP022	8" PVC	269'	1.55%
SP023	8" PVC	56'	0.48%
SP024	8" PVC	246'	0.47%
SP025	8" PVC	286'	0.47%
SP026	8" PVC	64'	0.48%
SP027	8" PVC	111'	0.45%
SP038	8" PVC	59'	0.46%

UTILITY NOTES

1. VALVES ARE NOT TO BE PLACED IN CURB LINES OR IN CURB RAMPS

WATER NOTES

1. FIRE DEPARTMENT CONNECTION (NOTE: FIRE LINES DESIGNED BY OTHERS. SHOWN FOR INFORMATIONAL PURPOSES ONLY.)
2. POST INDICATOR VALVE
3. 6" FIRE HYDRANT ASSEMBLY PER P.C. DETAILS FIGURE XX-##
4. 8" TEE
5. 8" GATE VALVE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" CAP
11. 2" CAP
12. 4" DDCV
13. AUTOMATIC AIR RELEASE VALVE
14. CONNECT TO EXISTING 8" STUB OUT
15. 8" GATE VALVE AND 2" BLOW OFF
16. 8" X 6" REDUCER

RECLAIM NOTES

1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 8" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
5. 8" TEE
6. 8" 11.25° BEND
7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 6" REDUCER

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
3850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 895-8899

#	DATE	REVISIONS
1	7/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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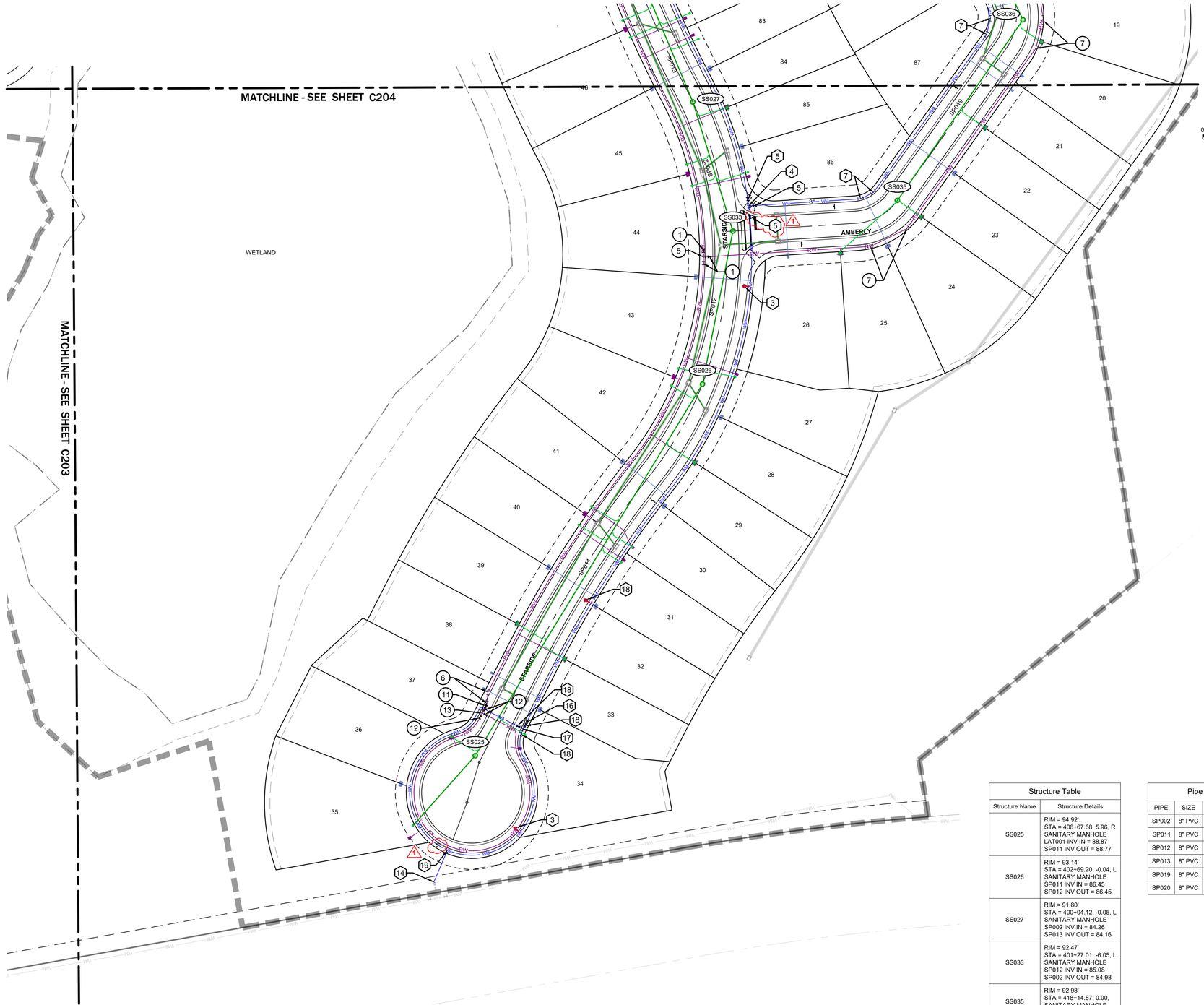

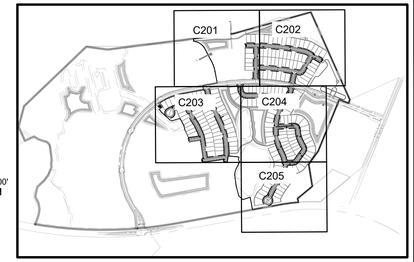

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		TOP OF BANK
		TOE OF SLOPE
		DITCH CENTER
		CURB
		CONCRETE WALK
		ASPHALT PAVEMENT
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	8"	WATER MAIN (WM)
	OR	WATER METER
		GATE VALVE
		PLUG VALVE
		AIR RELEASE VALVE
		BLOW-OFF VALVE ASSEMBLY
OR	OR	TEE
		FIRE HYDRANT
	WDSP #00	WATER DISTRIBUTION SYSTEM SAMPLING POINT
	8"	RECLAIM WATER MAIN (RM)
	OR	RECLAIM WATER METER
	SS-100	SANITARY SEWER STRUCTURE #
S	S	SANITARY SEWER
		PHASE LINE

Structure Table	
Structure Name	Structure Details
SS025	RIM = 94.92' STA = 406+67.68, 5.96, R SANITARY MANHOLE LAT001 INV IN = 88.87 SP011 INV OUT = 88.77
SS026	RIM = 93.14' STA = 402+69.20, -0.04, L SANITARY MANHOLE SP011 INV IN = 86.45 SP012 INV OUT = 86.45
SS027	RIM = 91.80' STA = 400+04.12, -0.05, L SANITARY MANHOLE SP002 INV IN = 84.26 SP013 INV OUT = 84.16
SS033	RIM = 92.47' STA = 401+27.01, -6.05, L SANITARY MANHOLE SP012 INV IN = 85.08 SP002 INV OUT = 84.98
SS035	RIM = 92.98' STA = 418+14.87, 0.00, SANITARY MANHOLE SP019 INV OUT = 86.71
SS036	RIM = 91.99' STA = 416+15.70, -6.05, L SANITARY MANHOLE SP019 INV IN = 85.81 SP020 INV OUT = 85.71

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
SP002	8" PVC	123'	0.60%
SP011	8" PVC	398'	0.59%
SP012	8" PVC	142'	0.98%
SP013	8" PVC	181'	1.75%
SP019	8" PVC	201'	0.46%
SP020	8" PVC	189'	0.46%

UTILITY NOTES
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WATER NOTES
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11. 2" CAP
12. 4" DDCV
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16. 8" X 6" REDUCER
17. 6" TEE
18. 6" GATE VALVE
19. 8" X 6" TEE

RECLAIM NOTES
1. 8" GATE VALVE
2. CONNECT TO EXISTING 8" STUB OUT
3. 6" RECLAIM METER (SEE SHEET XX-## FOR DETAIL)
4. 8" BACKFLOW PREVENTER
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7. 8" 22.5° BEND
8. 8" 45° BEND
9. 8" 90° BEND
10. 8" GATE VALVE AND 2" BLOW OFF
11. 8" X 6" REDUCER
12. 6" GATE VALVE
13. 6" TEE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

UTILITY PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

NO.	DATE	REVISIONS
1	07/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
2		
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STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

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DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
×XX.XX EX.	0.00 OR 0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
	OR OR	STORM DRAINAGE MANHOLE
	OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT
		PHASE LINE

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MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
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Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

OVERALL DRAINAGE PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
3850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
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APPROVED BY:	DAS

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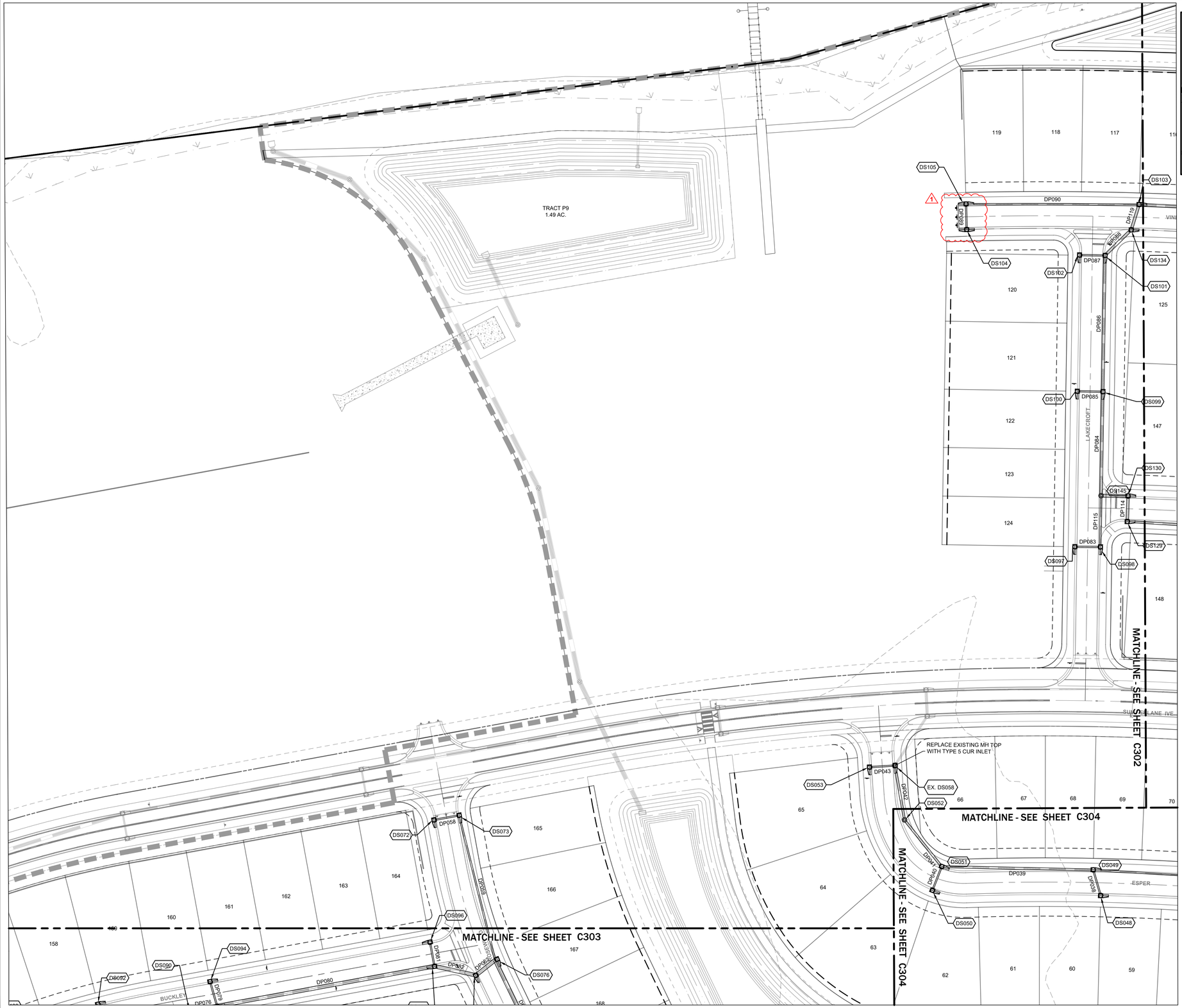

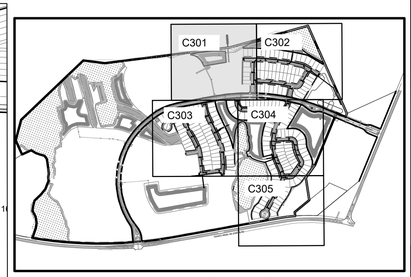

KEY MAP

NTS

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0 25' 50' 100'

SCALE: 1"=50'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
0.00 EX	0.00 OR 0.50 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT
		PHASE LINE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE PLAN FOR LAKE HILLS PHASE 1

LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
1	7/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
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DAVID ASHLEY STOKES
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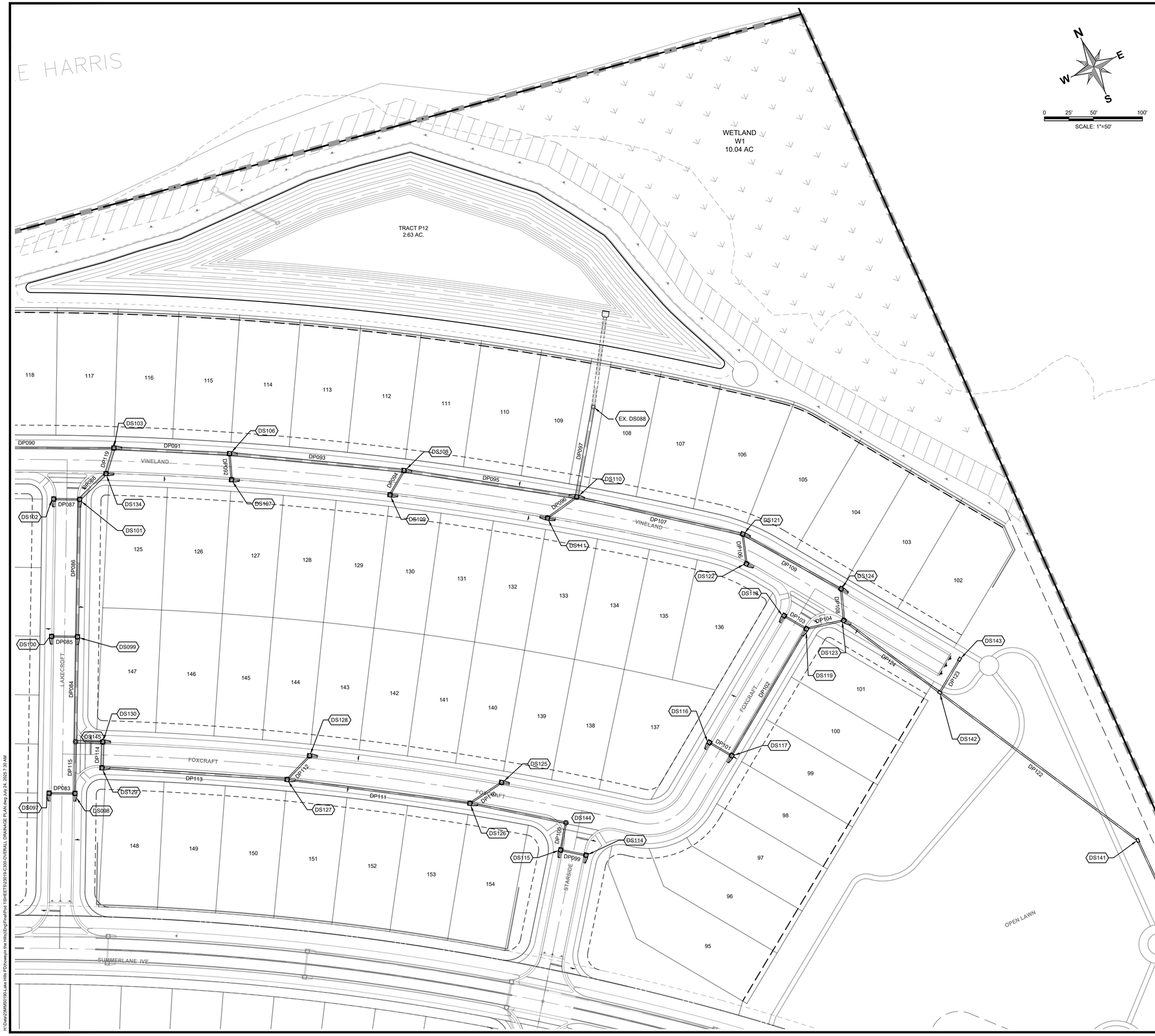

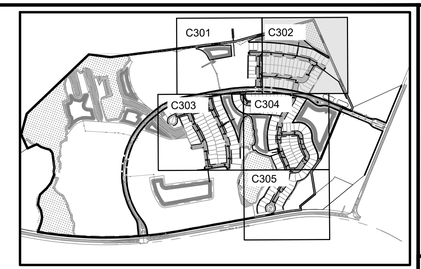

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+10.00 EX.	• 0.00 OR 0.50 TC 0.00 EP OR • 0.00 TW • 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
	OR OR	STORM DRAINAGE MANHOLE
	OR	STORM DRAINAGE INLET
	OR	CONTROL STRUCTURE
	OUT-1	OUTFALL STRUCTURE
B-1		PIPE END (OUTFALL)
R-1		SOIL BORING
P-1		SOIL BORING (ROADWAY)
		SOIL BORING (POND)
D.S.		DOWNSPOUT
		PHASE LINE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5800 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

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DAVID ASHLEY STOKES
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MATCHLINE - SEE SHEET C301

MATCHLINE - SEE SHEET C304

SURFACE WATER
SW-5
0.81 AC

TRACT P3
1.96 AC.

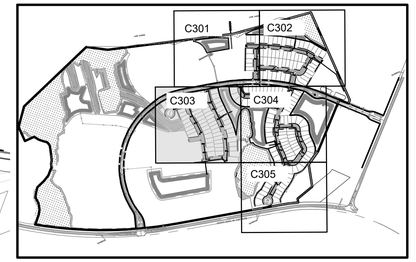
BUCKLEY

FAIRLY

MACKEY

LILYMOSE

ROSEWOOD



KEY MAP
NTS

N
E
S
W

0 25' 50' 100'
SCALE: 1"=50'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
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		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
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		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
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+0.00 EX	• 0.00 OR 0.50 TC 0.00 EP OR • 0.00 TW • 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
— 30 —	30	CONTOUR (MAJOR)
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		DIRECTION OF SURFACE FLOW
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P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT
		PHASE LINE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE PLAN
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
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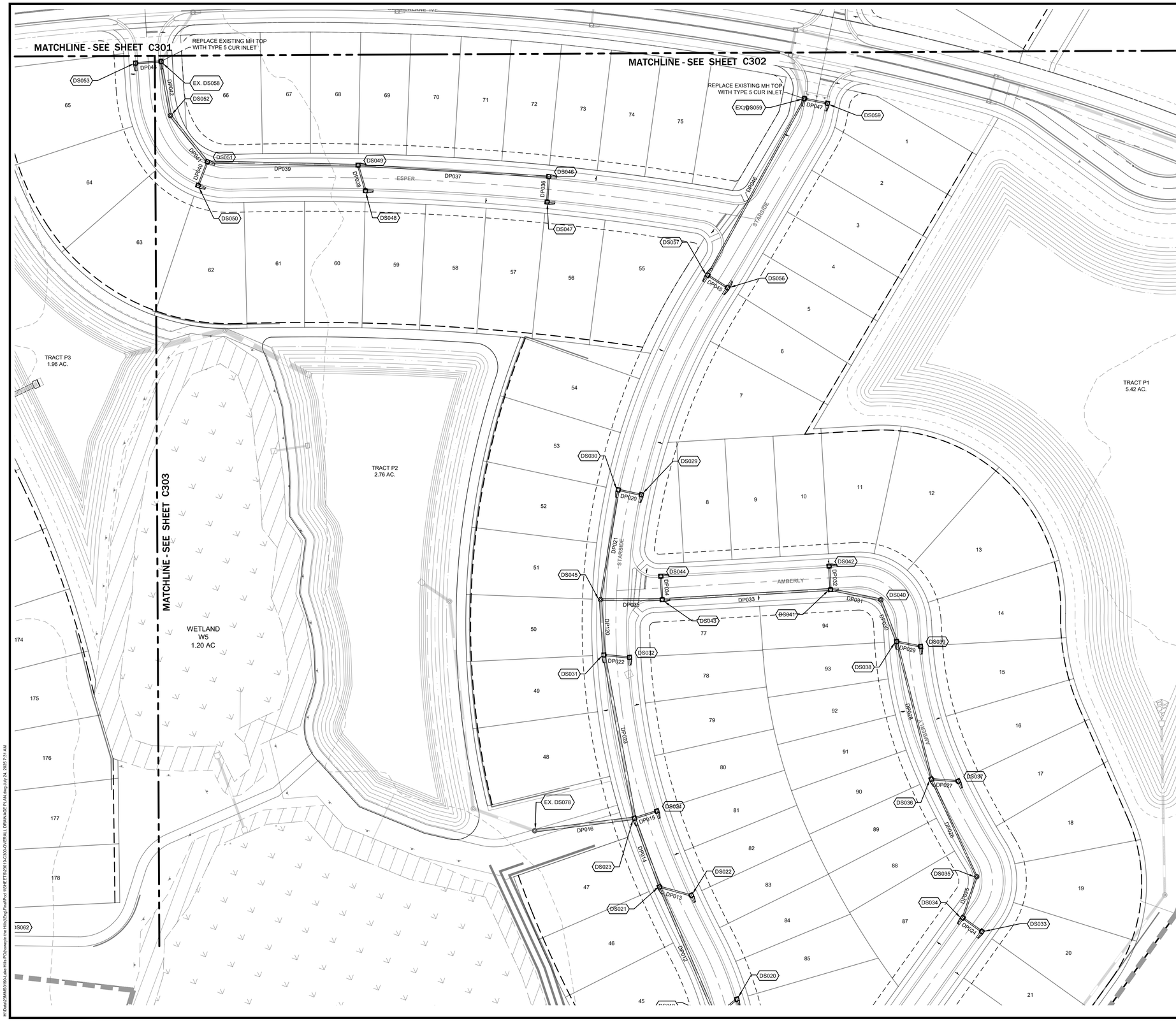
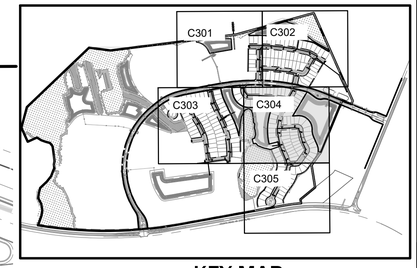
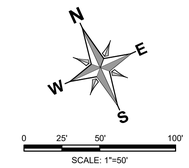




KEY MAP

NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	• 0.00 OR 0.50 TC / 0.00 EP OR • 0.00 TW / • 0.00 BW	SPOT ELEVATION
	• 0.00 LP / • 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT
		PHASE LINE

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE PLAN FOR LAKE HILLS PHASE 1

LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
1		
2		
3		
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9		
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11		

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C304

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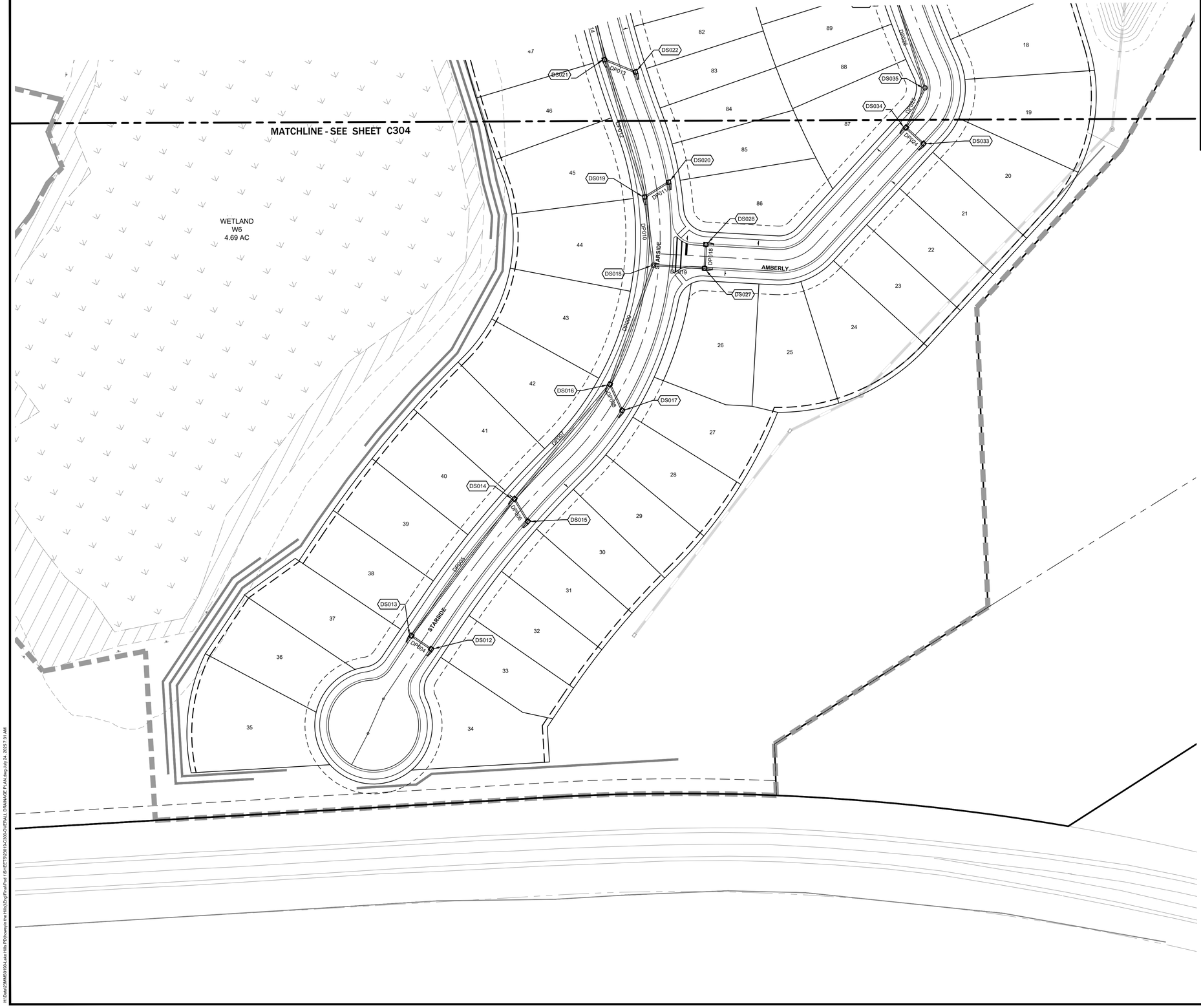
Item 1.


MATCHLINE - SEE SHEET C304
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4.69 AC
STARSIDE
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DP048
DP049
DP050
DP051

C301

Structure Table	
Structure Name	Structure Details
DS048	RIM = 81.74' STA = 383+68.64, 13.00, R TYPE 5 CURB INLET DP038 INV OUT = 77.52
DS049	RIM = 81.70' STA = 383+60.43, -13.00, L TYPE 5 CURB INLET DP038 INV IN = 77.42 DP037 INV IN = 77.42 DP039 INV OUT = 76.69
DS050	RIM = 80.90' STA = 381+99.29, 12.99, R TYPE 5 CURB INLET DP040 INV OUT = 76.36
DS051	RIM = 80.89' STA = 381+99.29, -13.00, L TYPE 5 CURB INLET DP040 INV IN = 76.26 DP039 INV IN = 75.86 DP041 INV OUT = 75.86
DS052	RIM = 80.19' STA = 381+23.59, -15.60, L FDOT TYPE 7 MANHOLE DP041 INV IN = 75.55 DP042 INV OUT = 75.55
DS053	RIM = 80.21' STA = 380+62.55, 13.00, R TYPE 5 CURB INLET DP043 INV OUT = 75.67
DS072	RIM = 77.34' STA = 266+32.18, -13.00, L TYPE 5 CURB INLET DP058 INV OUT = 72.80
DS073	RIM = 77.34' STA = 266+32.18, 13.00, R TYPE 5 CURB INLET DP058 INV IN = 72.70 DP059 INV OUT = 72.70
DS097	RIM = 77.92' STA = 341+58.23, -12.97, L TYPE 5 CURB INLET DP083 INV OUT = 72.90
DS098	RIM = 77.92' STA = 341+58.47, 12.97, R TYPE 5 CURB INLET DP083 INV IN = 71.98 DP115 INV OUT = 71.98
DS099	RIM = 75.34' STA = 343+18.24, 13.00, R TYPE 5 CURB INLET DP084 INV IN = 69.31 DP085 INV IN = 70.21 DP086 INV OUT = 69.31

Structure Table	
Structure Name	Structure Details
DS100	RIM = 75.34' STA = 343+18.24, -13.00, L TYPE 5 CURB INLET DP085 INV OUT = 70.31
DS101	RIM = 73.52' STA = 344+58.44, 12.97, R TYPE 5 CURB INLET DP086 INV IN = 66.16 DP087 INV IN = 67.06 DP088 INV OUT = 66.16
DS102	RIM = 73.52' STA = 344+58.45, -12.97, L TYPE 5 CURB INLET DP087 INV OUT = 67.16
DS103	RIM = 73.63' STA = 351+77.48, -12.96, L TYPE 5 CURB INLET DP113 INV IN = 70.63 DP114 INV OUT = 70.63
DS104	RIM = 71.25' STA = 350+00.00, 13.00, R TYPE 6 CURB INLET DP089 INV OUT = 67.01
DS105	RIM = 71.25' STA = 350+00.00, -13.00, L TYPE 6 CURB INLET DP089 INV IN = 66.91 DP090 INV OUT = 66.91
DS129	RIM = 77.07' STA = 365+40.57, 13.00, R TYPE 5 CURB INLET DP113 INV IN = 70.63 DP114 INV OUT = 70.63
DS130	RIM = 77.07' STA = 365+40.57, -13.00, L TYPE 5 CURB INLET DP114 INV IN = 70.39 DP126 INV OUT = 70.39
DS134	RIM = 73.60' STA = 351+70.19, 13.00, R TYPE 5 CURB INLET DP088 INV IN = 65.55 DP119 INV OUT = 65.55
EX. DS058	RIM = 80.21' STA = 380+62.55, -13.00, L TYPE 5 CURB INLET DP043 INV IN = 75.57 DP042 INV IN = 75.17

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP037	15" RCP	198'	0.58%
DP038	15" RCP	27'	0.43%
DP039	24" RCP	156'	0.55%
DP041	24" RCP	61'	0.54%
DP042	24" RCP	57'	0.72%
DP058	15" RCP	26'	0.45%
DP059	15" RCP	154'	0.33%
DP083	15" RCP	26'	4.17%
DP084	30" RCP	107'	0.79%
DP085	15" RCP	26'	0.45%
DP086	30" RCP	140'	2.31%
DP087	15" RCP	26'	0.46%
DP088	30" RCP	38'	1.79%
DP089	15" RCP	26'	0.45%
DP090	15" RCP	178'	0.35%
DP091	30" RCP	118'	0.39%
DP113	24" RCP	189'	0.93%
DP114	30" RCP	26'	1.07%
DP115	18" RCP	53'	3.82%
DP119	30" RCP	27'	0.44%

C302

Structure Table	
Structure Name	Structure Details
DS097	RIM = 77.92' STA = 341+58.23, -12.97, L TYPE 5 CURB INLET DP083 INV OUT = 72.90
DS098	RIM = 77.92' STA = 341+58.47, 12.97, R TYPE 5 CURB INLET DP083 INV IN = 71.98 DP115 INV OUT = 71.98
DS099	RIM = 75.34' STA = 343+18.24, 13.00, R TYPE 5 CURB INLET DP084 INV IN = 69.31 DP085 INV IN = 70.21 DP086 INV OUT = 69.31
DS100	RIM = 75.34' STA = 343+18.24, -13.00, L TYPE 5 CURB INLET DP085 INV OUT = 70.31
DS101	RIM = 73.52' STA = 344+58.44, 12.97, R TYPE 5 CURB INLET DP086 INV IN = 66.16 DP087 INV IN = 67.06 DP088 INV OUT = 66.16
DS102	RIM = 73.52' STA = 344+58.45, -12.97, L TYPE 5 CURB INLET DP087 INV OUT = 67.16
DS103	RIM = 73.63' STA = 351+77.48, -12.96, L TYPE 5 CURB INLET DP113 INV IN = 70.63 DP090 INV IN = 66.30 DP091 INV OUT = 65.45
DS106	RIM = 74.22' STA = 352+95.13, -13.00, L TYPE 5 CURB INLET DP091 INV IN = 65.00 DP092 INV IN = 67.25 DP093 INV OUT = 65.00
DS107	RIM = 74.24' STA = 352+99.03, 13.00, R TYPE 5 CURB INLET DP092 INV OUT = 67.35
DS108	RIM = 75.11' STA = 354+73.28, -12.95, L TYPE 5 CURB INLET DP093 INV IN = 64.40 DP094 INV IN = 68.22 DP095 INV OUT = 64.40
DS109	RIM = 75.06' STA = 354+62.15, 13.00, R TYPE 5 CURB INLET DP094 INV OUT = 68.32
DS110	RIM = 75.00' STA = 356+50.76, -13.00, L TYPE 6 CURB INLET DP107 INV IN = 67.70 DP095 INV IN = 63.80 DP096 INV IN = 70.01 DP097 INV OUT = 63.80

Structure Table	
Structure Name	Structure Details
DS111	RIM = 75.12' STA = 356+25.28, 13.00, R TYPE 6 CURB INLET DP096 INV OUT = 70.12
DS114	RIM = 80.62' STA = 375+43.63, -13.00, L TYPE 5 CURB INLET DP099 INV OUT = 75.32
DS115	RIM = 80.62' STA = 375+43.63, 13.00, R TYPE 5 CURB INLET DP099 INV IN = 75.08 DP100 INV OUT = 75.08
DS116	RIM = 77.34' STA = 372+15.06, -13.00, L TYPE 5 CURB INLET DP101 INV OUT = 74.16
DS117	RIM = 77.34' STA = 372+15.06, 13.00, R TYPE 5 CURB INLET DP101 INV IN = 74.06 DP102 INV OUT = 74.06
DS118	RIM = 75.83' STA = 373+65.23, -12.98, L TYPE 5 CURB INLET DP103 INV OUT = 72.20
DS119	RIM = 75.83' STA = 373+65.24, 12.97, R TYPE 5 CURB INLET DP102 INV IN = 72.10 DP103 INV IN = 72.10 DP104 INV OUT = 72.10
DS121	RIM = 75.48' STA = 358+22.14, -12.97, L TYPE 5 CURB INLET DP109 INV IN = 69.24 DP106 INV IN = 70.44 DP107 INV OUT = 68.83
DS122	RIM = 75.53' STA = 358+37.64, 13.00, R TYPE 5 CURB INLET DP106 INV OUT = 70.53
DS123	RIM = 75.96' STA = 359+53.68, 13.00, R TYPE 5 CURB INLET DP104 INV IN = 70.08 DP124 INV IN = 70.08 DP108 INV OUT = 70.08
DS124	RIM = 75.88' STA = 359+35.12, -12.95, L TYPE 5 CURB INLET DP108 INV IN = 70.00 DP109 INV OUT = 70.00
DS125	RIM = 78.80' STA = 369+48.09, -13.00, L TYPE 5 CURB INLET DP110 INV OUT = 75.17

Structure Table	
Structure Name	Structure Details
DS140	RIM = 86.00' TYPE C INLET DP121 INV OUT = 81.00
DS141	RIM = 86.00' TYPE C INLET DP121 INV IN = 75.71 DP122 INV OUT = 75.71
DS142	RIM = 76.00' TYPE C INLET DP122 INV IN = 70.51 DP123 INV IN = 70.51 DP124 INV OUT = 70.51
DS143	RIM = 76.76' TYPE C INLET DP123 INV OUT = 70.65

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP121	18" RCP	257'	2.08%
DP122	18" RCP	252'	2.09%
DP123	18" RCP	40'	0.37%
DP124	18" RCP	123'	0.36%

Structure Table	
Structure Name	Structure Details
DS126	RIM = 78.68' STA = 369+19.84, 13.00, R TYPE 5 CURB INLET DP110 INV IN = 75.07 DP125 INV IN = 74.05 DP111 INV OUT = 74.05
DS127	RIM = 77.88' STA = 367+30.84, 13.00, R TYPE 5 CURB INLET DP111 INV IN = 72.35 DP112 INV IN = 73.77 DP113 INV OUT = 72.35
DS128	RIM = 77.96' STA = 367+51.19, -13.00, L TYPE 5 CURB INLET DP112 INV OUT = 73.87
DS129	RIM = 77.07' STA = 365+40.57, 13.00, R TYPE 5 CURB INLET DP113 INV IN = 70.63 DP114 INV OUT = 70.63
DS130	RIM = 77.07' STA = 365+40.57, -13.00, L TYPE 5 CURB INLET DP114 INV IN = 70.39 DP126 INV OUT = 70.39
DS134	RIM = 73.60' STA = 351+70.19, 13.00, R TYPE 5 CURB INLET DP088 INV IN = 65.55 DP119 INV OUT = 65.55
DS144	RIM = 78.77' STA = 370+20.19, 15.22, R FDOT TYPE 7 MANHOLE DP100 INV IN = 74.81 DP125 INV OUT = 74.81
DS145	RIM = 76.55' STA = 342+11.22, 12.98, R FDOT TYPE 7 MANHOLE DP126 INV IN = 70.12 DP115 INV IN = 70.12 DP084 INV OUT = 70.12
EX. DS088	RIM = 65.82' STA = 356+50.94, -106.69, L FDOT TYPE 7 MANHOLE DP097 INV IN = 62.50 EX. DP063 INV OUT = 61.30
EX. DS089	RIM = 63.10' STA = 356+46.56, -201.20, L MES EX. DP063 INV IN = 60.00

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP063	36" RCP	95'	1.37%
DP083	15" RCP	26'	4.17%
DP084	30" RCP	107'	0.79%
DP085	15" RCP	26'	0.45%
DP086	30" RCP	140'	2.31%
DP087	15" RCP	26'	0.46%
DP088	30" RCP	38'	1.79%
DP090	15" RCP	178'	0.35%
DP091	30" RCP	118'	0.39%
DP092	15" RCP	26'	0.45%
DP093	36" RCP	179'	0.34%
DP094	15" RCP	28'	0.41%
DP095	36" RCP	178'	0.34%
DP096	15" RCP	36'	0.34%
DP097	36" RCP	94'	1.42%
DP099	15" RCP	26'	1.07%
DP100	15" RCP	28'	1.12%
DP101	15" RCP	26'	0.45%
DP102	15" RCP	150'	1.34%
DP103	15" RCP	26'	0.46%
DP104	18" RCP	39'	5.69%
DP107	24" RCP	174'	0.67%
DP108	18" RCP	32'	0.29%
DP109	18" RCP	115'	0.68%
DP110	15" RCP	38'	0.29%
DP111	15" RCP	188'	0.93%
DP112	15" RCP	33'	0.34%
DP113	24" RCP	189'	0.93%
DP115	18" RCP	53'	3.82%
DP119	30" RCP	27'	0.44%
DP124	18" RCP	123'	0.36%
EX. DP063	36" RCP	95'	1.41%

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Suite 260
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(407) 629-8330
CA# 0007723

DRAINAGE ASSET TABLE
FOR
LAKE HILLS PHASE 1
FLORIDA
LAKE COUNTY

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
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DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C306

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C303

Structure Table	
Structure Name	Structure Details
DS052	RIM = 80.19' STA = 381+23.59, -15.60, L FDOT TYPE 7 MANHOLE DP041 INV IN = 75.55 DP042 INV OUT = 75.55
DS061	RIM = 83.27' STA = 257+66.17, -12.00, L TYPE 5 CURB INLET DP049 INV OUT = 76.60
DS062	RIM = 83.35' STA = 257+58.96, 12.00, R TYPE 5 CURB INLET DP050 INV IN = 76.51 DP049 INV IN = 76.51 DP052 INV OUT = 76.51
DS063	RIM = 81.41' STA = 259+32.87, 12.00, R TYPE 5 CURB INLET DP051 INV IN = 76.86 DP050 INV OUT = 76.86
DS064	RIM = 81.40' STA = 259+33.59, -12.00, L TYPE 5 CURB INLET DP051 INV OUT = 76.91
DS065	RIM = 79.00' STA = 261+04.04, 12.00, R TYPE 5 CURB INLET DP053 INV IN = 75.32 DP054 INV OUT = 74.82
DS066	RIM = 78.91' STA = 261+09.77, -12.00, L TYPE 5 CURB INLET DP053 INV OUT = 75.42
DS067	RIM = 77.96' STA = 262+20.90, 13.00, R TYPE 6 CURB INLET DP054 INV IN = 72.86 DP065 INV IN = 68.40 DP057 INV IN = 73.30 DP055 INV OUT = 68.40
DS070	RIM = 77.96' STA = 262+18.82, -13.00, L TYPE 6 CURB INLET DP057 INV OUT = 73.38
DS072	RIM = 77.34' STA = 266+32.18, -13.00, L TYPE 5 CURB INLET DP058 INV OUT = 72.80
DS073	RIM = 77.34' STA = 266+32.18, 13.00, R TYPE 5 CURB INLET DP058 INV IN = 72.70 DP059 INV OUT = 72.70
DS076	RIM = 78.74' STA = 264+75.71, 12.97, R TYPE 5 CURB INLET DP062 INV IN = 69.80 DP059 INV IN = 72.20 DP063 INV OUT = 69.80
DS077	RIM = 78.61' STA = 264+69.17, -13.29, L TYPE 5 CURB INLET DP082 INV IN = 69.90 DP062 INV OUT = 69.90
DS078	RIM = 78.52' STA = 263+60.90, 12.00, R TYPE 5 CURB INLET DP063 INV IN = 68.90 DP064 INV IN = 74.01 DP065 INV OUT = 68.70
DS079	RIM = 78.56' STA = 263+68.83, -12.00, L TYPE 5 CURB INLET DP064 INV OUT = 74.11

Structure Table	
Structure Name	Structure Details
DS080	RIM = 82.70' STA = 291+09.84, -12.00, L TYPE 5 CURB INLET DP066 INV OUT = 76.16
DS081	RIM = 82.70' STA = 291+09.84, 12.00, R TYPE 5 CURB INLET DP067 INV IN = 76.10 DP066 INV IN = 76.10 DP069 INV OUT = 76.10
DS082	RIM = 81.26' STA = 292+29.84, 12.00, R TYPE 5 CURB INLET DP068 INV IN = 76.39 DP067 INV OUT = 76.39
DS083	RIM = 81.26' STA = 292+29.84, -12.00, L TYPE 5 CURB INLET DP068 INV OUT = 76.45
DS084	RIM = 79.42' STA = 304+44.68, 403.00, R TYPE 5 CURB INLET DP070 INV IN = 73.95 DP071 INV OUT = 73.95
DS085	RIM = 79.59' STA = 293+73.62, -13.00, L TYPE 5 CURB INLET DP070 INV OUT = 74.15
DS086	RIM = 77.90' STA = 295+32.78, 13.00, R TYPE 6 CURB INLET DP071 INV IN = 72.19 DP072 INV IN = 72.19 DP073 INV OUT = 72.19
DS087	RIM = 77.89' STA = 295+35.68, -13.00, L TYPE 6 CURB INLET DP072 INV OUT = 72.29
DS088	RIM = 78.30' STA = 296+36.43, 13.00, R TYPE 5 CURB INLET DP073 INV IN = 71.35 DP074 INV IN = 72.71 DP075 INV OUT = 71.35
DS089	RIM = 78.31' STA = 296+37.74, -13.00, L TYPE 5 CURB INLET DP074 INV OUT = 72.81
DS090	RIM = 78.51' STA = 303+38.18, 11.72, R FDOT TYPE 7 MANHOLE DP075 INV IN = 70.88 DP078 INV IN = 70.88 DP076 INV OUT = 70.88
DS091	RIM = 78.94' STA = 303+65.57, 13.00, R TYPE 5 CURB INLET DP076 INV IN = 70.78 DP079 INV IN = 73.71 DP080 INV OUT = 70.78
DS092	RIM = 78.19' STA = 302+46.14, -13.00, L TYPE 5 CURB INLET DP077 INV OUT = 72.95
DS093	RIM = 78.47' STA = 302+46.14, 13.00, R TYPE 5 CURB INLET DP118 INV IN = 71.10 DP077 INV IN = 72.85 DP078 INV OUT = 71.10
DS094	RIM = 78.93' STA = 303+63.04, -13.00, L TYPE 5 CURB INLET DP079 INV OUT = 73.81

Structure Table	
Structure Name	Structure Details
DS095	RIM = 79.86' STA = 305+93.04, 13.00, R TYPE 5 CURB INLET DP080 INV IN = 70.20 DP081 INV IN = 74.43 DP082 INV OUT = 70.20
DS096	RIM = 79.52' STA = 305+93.04, -12.00, L TYPE 5 CURB INLET DP081 INV OUT = 74.53
DS132	RIM = 76.95' STA = 301+32.79, 12.99, R TYPE 6 CURB INLET DP117 INV IN = 71.58 DP118 INV OUT = 71.38
DS133	RIM = 76.97' STA = 301+33.03, -12.94, L TYPE 6 CURB INLET DP117 INV OUT = 71.67
DS146	RIM = 83.72' STA = ???, ???, ??? FDOT TYPE 7 MANHOLE DP069 INV IN = 75.91 DP119 (1) INV OUT = 75.91
DS147	RIM = 84.31' STA = 232+03.99, -12.00, L TYPE 5 CURB INLET DP119 (1) INV IN = 75.81 DP119 (2) INV OUT = 75.81
DS148	RIM = 84.31' STA = 232+04.01, 12.00, R TYPE 5 CURB INLET DP119 (2) INV IN = 75.75 DP119 (7) INV IN = 75.75 DP119 (3) INV OUT = 75.75
DS149	RIM = 83.96' STA = 231+47.04, 16.95, R FDOT TYPE 7 MANHOLE DP119 (3) INV IN = 75.64 DP119 (9) INV IN = 75.64 DP119 (4) INV OUT = 75.64
DS150	RIM = 79.24' STA = ???, ???, ??? MES DP119 (4) INV IN = 75.50
DS151	RIM = 84.49' STA = ???, ???, ??? TYPE 5 CURB INLET DP052 INV IN = 76.26 DP119 (5) INV OUT = 76.26
DS152	RIM = 84.58' STA = ???, ???, ??? TYPE 5 CURB INLET DP119 (5) INV IN = 76.20 DP119 (6) INV OUT = 76.20
DS153	RIM = 84.31' STA = 233+84.32, 12.00, R TYPE 5 CURB INLET DP119 (6) INV IN = 76.11 DP119 (8) INV IN = 76.11 DP119 (7) INV OUT = 76.11
DS154	RIM = 84.31' STA = 233+84.32, -12.00, L TYPE 5 CURB INLET DP119 (8) INV OUT = 76.19
DS155	RIM = 82.92' STA = 230+03.07, 12.00, R FDOT TYPE 7 MANHOLE DP119 (9) INV OUT = 76.00
EX. DS076	RIM = 72.87' STA = 262+32.86, 89.62, R FDOT TYPE 7 MANHOLE DP055 INV IN = 68.00 EX. DP061 INV OUT = 68.00

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP041	24" RCP	61'	0.54%
DP042	24" RCP	57'	0.72%
DP049	15" RCP	25'	0.42%
DP050	15" RCP	175'	0.20%
DP051	15" RCP	24'	0.26%
DP052	15" RCP	124'	0.21%
DP053	15" RCP	25'	0.48%
DP054	18" RCP	118'	1.72%
DP055	54" RCP	78'	0.53%
DP057	15" RCP	26'	0.36%
DP058	15" RCP	26'	0.45%
DP059	15" RCP	154'	0.33%
DP062	42" RCP	25'	0.43%
DP063	42" RCP	114'	0.81%
DP064	15" RCP	25'	0.47%
DP065	54" RCP	140'	0.22%
DP066	15" RCP	24'	0.29%
DP067	15" RCP	120'	0.25%
DP068	15" RCP	24'	0.29%
DP069	15" RCP	98'	0.20%
DP070	15" RCP	30'	0.78%
DP071	18" RCP	147'	1.23%
DP072	15" RCP	26'	0.45%
DP073	24" RCP	102'	0.85%
DP074	15" RCP	26'	0.45%
DP075	36" RCP	157'	0.31%
DP076	42" RCP	27'	0.43%
DP077	15" RCP	26'	0.45%
DP078	36" RCP	91'	0.25%
DP079	15" RCP	26'	0.45%
DP080	42" RCP	227'	0.26%
DP081	15" RCP	25'	0.48%
DP082	42" RCP	44'	0.75%
DP117	24" RCP	26'	0.41%
DP118	36" RCP	111'	0.26%

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP119 (1)	18" RCP	43'	0.25%
DP119 (2)	18" RCP	24'	0.29%
DP119 (3)	36" RCP	57'	0.22%
DP119 (4)	42" RCP	172'	0.08%
DP119 (5)	24" RCP	29'	0.23%
DP119 (6)	30" RCP	43'	0.22%
DP119 (7)	30" RCP	180'	0.20%
DP119 (8)	15" RCP	24'	0.42%
DP119 (9)	30" RCP	144'	0.25%

C304

Structure Table	
Structure Name	Structure Details
DS020	RIM = 92.37' STA = 400+55.80, -13.00, L TYPE 5 CURB INLET DP011 INV OUT = 86.78
DS021	RIM = 91.48' STA = 399+18.76, 13.00, R TYPE 5 CURB INLET DP012 INV IN = 83.21 DP013 INV IN = 84.75 DP014 INV OUT = 83.21
DS022	RIM = 91.62' STA = 399+40.13, -13.05, L TYPE 5 CURB INLET DP013 INV OUT = 84.84
DS023	RIM = 90.90' STA = 398+44.32, 12.00, R TYPE 5 CURB INLET DP014 INV IN = 81.86 DP023 INV IN = 81.86 DP015 INV IN = 83.26 DP016 INV OUT = 79.00
DS024	RIM = 90.90' STA = 398+44.32, -12.00, L TYPE 5 CURB INLET DP015 INV OUT = 83.36
DS029	RIM = 88.22' STA = 395+06.34, -12.00, L TYPE 5 CURB INLET DP020 INV OUT = 83.81
DS030	RIM = 88.22' STA = 395+06.34, 12.00, R TYPE 5 CURB INLET DP020 INV IN = 83.71 DP021 INV OUT = 83.71
DS031	RIM = 89.68' STA = 396+75.16, 13.00, R TYPE 5 CURB INLET DP120 INV IN = 83.10 DP022 INV IN = 84.15 DP023 INV OUT = 82.75
DS032	RIM = 89.71' STA = 396+79.05, -13.00, L TYPE 5 CURB INLET DP022 INV OUT = 84.24
DS033	RIM = 92.57' STA = 416+64.24, -12.00, L TYPE 5 CURB INLET DP024 INV OUT = 88.13
DS034	RIM = 92.57' STA = 416+64.24, 12.00, R TYPE 5 CURB INLET DP024 INV IN = 88.05 DP025 INV OUT = 88.05
DS035	RIM = 91.97' STA = 416+06.72, 16.24, R FDOT TYPE 7 MANHOLE DP025 INV IN = 87.81 DP026 INV OUT = 87.81

Structure Table	
Structure Name	Structure Details
DS036	RIM = 91.50' STA = 414+90.21, 12.00, R TYPE 5 CURB INLET DP026 INV IN = 87.02 DP027 INV IN = 87.02 DP028 INV OUT = 87.02
DS037	RIM = 91.57' STA = 415+03.70, -12.00, L TYPE 5 CURB INLET DP027 INV OUT = 87.11
DS038	RIM = 90.79' STA = 413+46.89, 12.00, R TYPE 5 CURB INLET DP028 INV IN = 86.30 DP029 INV IN = 86.27 DP030 INV OUT = 85.85
DS039	RIM = 90.82' STA = 413+53.52, -12.00, L TYPE 5 CURB INLET DP029 INV OUT = 86.37
DS040	RIM = 90.27' STA = 412+87.42, 15.94, R FDOT TYPE 7 MANHOLE DP030 INV IN = 85.60 DP031 INV OUT = 85.60
DS041	RIM = 90.16' STA = 412+21.00, 12.00, R TYPE 5 CURB INLET DP031 INV IN = 85.21 DP032 INV IN = 85.62 DP033 INV OUT = 85.21
DS042	RIM = 90.16' STA = 412+21.00, -12.00, L TYPE 5 CURB INLET DP032 INV OUT = 85.71
DS043	RIM = 89.28' STA = 410+46.45, 12.00, R TYPE 5 CURB INLET DP033 INV IN = 84.34 DP034 INV IN = 84.75 DP035 INV OUT = 83.84
DS044	RIM = 89.28' STA = 410+46.45, -12.00, L TYPE 5 CURB INLET DP034 INV OUT = 84.84
DS045	RIM = 89.07' STA = 396+19.07, 16.36, R FDOT TYPE 7 MANHOLE DP035 INV IN = 83.30 DP021 INV IN = 83.30 DP120 INV OUT = 83.30
DS046	RIM = 83.14' STA = 385+57.25, -13.00, L TYPE 5 CURB INLET DP036 INV IN = 78.55 DP037 INV OUT = 78.55
DS047	RIM = 83.15' STA = 385+58.18, 13.00, R TYPE 5 CURB INLET DP036 INV OUT = 78.64

Structure Table	
Structure Name	Structure Details
DS048	RIM = 81.74' STA = 383+68.64, 13.00, R TYPE 5 CURB INLET DP038 INV OUT = 77.52
DS049	RIM = 81.70' STA = 383+60.43, -13.00, L TYPE 5 CURB INLET DP038 INV IN = 77.42 DP037 INV IN = 77.42 DP039 INV OUT = 76.69
DS050	RIM = 80.90' STA = 381+99.29, 12.99, R TYPE 5 CURB INLET DP040 INV OUT = 76.36
DS051	RIM = 80.89' STA = 381+99.29, -13.00, L TYPE 5 CURB INLET DP040 INV IN = 76.26 DP039 INV IN = 75.86 DP041 INV OUT = 75.86
DS052	RIM = 80.19' STA = 381+23.59, -15.60, L FDOT TYPE 7 MANHOLE DP041 INV IN = 75.55 DP042 INV OUT = 75.55
DS053	RIM = 80.21' STA = 380+62.55, 13.00, R TYPE 5 CURB INLET DP043 INV OUT = 75.67
DS056	RIM = 86.42' STA = 392+68.48, -12.00, L TYPE 6 CURB INLET DP045 INV OUT = 81.96
DS057	RIM = 86.42' STA = 392+68.55, 12.01, R TYPE 6 CURB INLET DP045 INV IN = 81.86 DP046 INV OUT = 81.86
DS059	RIM = 86.53' STA = 390+54.80, -12.00, L TYPE 5 CURB INLET DP047 INV OUT = 81.28
EX. DS058	RIM = 80.21' STA = 380+62.55, -13.00, L TYPE 5 CURB INLET DP043 INV IN = 75.57 DP042 INV IN = 75.17
EX. DS059	RIM = 86.53' STA = 390+54.80, 12.00, R TYPE 5 CURB INLET DP047 INV IN = 81.20 DP046 INV IN = 81.20
EX. DS078	RIM = 83.79' STA = 398+28.01, 114.79, R FDOT TYPE 7 MANHOLE DP016 INV IN = 76.00

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP012	24" RCP	146'	1.57%
DP013	15" RCP	34'	0.30%
DP014	24" RCP	76'	1.88%
DP015	15" RCP	24'	0.50%
DP016	30" RCP	104'	2.99%
DP020	15" RCP	24'	0.50%
DP021	15" RCP	115'	0.37%
DP022	15" RCP	26'	0.40%
DP023	30" RCP	172'	0.53%
DP024	15" RCP	24'	0.40%
DP025	15" RCP	45'	0.58%
DP026	15" RCP	111'	0.74%
DP027	15" RCP	28'	0.38%
DP028	18" RCP	147'	0.50%
DP029	15" RCP	25'	0.48%
DP030	24" RCP	46'	0.59%
DP031	24" RCP	53'	0.79%
DP032	15" RCP	24'	0.45%
DP033	24" RCP	175'	0.51%
DP034	15" RCP	24'	0.45%
DP035	24" RCP	64'	0.90%
DP036	15" RCP	26'	0.38%
DP037	15" RCP	198'	0.58%
DP038	15" RCP	27'	0.43%
DP039	24" RCP	156'	0.55%
DP040	15" RCP	26'	0.45%
DP041	24" RCP	61'	0.54%
DP042	24" RCP	57'	0.72%
DP043	15" RCP	26'	0.45%
DP045	15" RCP	24'	0.50%
DP046	18" RCP	208'	0.32%
DP047	15" RCP	24'	0.39%
DP120	30" RCP	57'	0.37%

C305

Structure Table	
Structure Name	Structure Details
DS012	RIM = 94.86' STA = 406+01.91, -12.00, L TYPE 5 CURB INLET DP004 INV OUT = 90.43
DS013	RIM = 94.86' STA = 406+01.91, 12.00, R TYPE 5 CURB INLET DP004 INV IN = 90.35 DP005 INV OUT = 90.35
DS014	RIM = 93.89' STA = 404+28.61, 12.00, R TYPE 5 CURB INLET DP005 INV IN = 89.30 DP006 INV IN = 89.30 DP007 INV OUT = 88.87
DS015	RIM = 94.02' STA = 404+36.61, -13.00, L TYPE 5 CURB INLET DP006 INV OUT = 89.39
DS016	RIM = 93.29' STA = 402+73.04, 12.00, R TYPE 5 CURB INLET DP007 INV IN = 88.06 DP008 INV IN = 88.40 DP009 INV OUT = 87.56
DS017	RIM = 93.35' STA = 402+89.68, -12.00, L TYPE 5 CURB INLET DP008 INV OUT = 88.49
DS018	RIM = 92.53' STA = 401+39.22, 5.50, R FDOT TYPE 7 MANHOLE DP009 INV IN = 87.17 DP019 INV IN = 87.17 DP010 INV OUT = 87.17
DS019	RIM = 92.44' STA = 400+67.27, 13.00, R TYPE 5 CURB INLET DP010 INV IN = 85.94 DP011 INV IN = 86.70 DP012 INV OUT = 85.44

Structure Table	
Structure Name	Structure Details
DS020	RIM = 92.37' STA = 400+55.80, -13.00, L TYPE 5 CURB INLET DP011 INV OUT = 86.78
DS021	RIM = 91.48' STA = 399+18.76, 13.00, R TYPE 5 CURB INLET DP012 INV IN = 83.21 DP013 INV IN = 84.75 DP014 INV OUT = 83.21
DS022	RIM = 91.62' STA = 399+40.13, -13.05, L TYPE 5 CURB INLET DP013 INV OUT = 84.84
DS027	RIM = 92.53' STA = 419+31.62, -12.00, L TYPE 5 CURB INLET DP018 INV IN = 88.00 DP019 INV OUT = 88.00
DS028	RIM = 92.53' STA = 419+31.62, 12.00, R TYPE 5 CURB INLET DP018 INV OUT = 88.09
DS033	RIM = 92.57' STA = 416+64.24, -12.00, L TYPE 5 CURB INLET DP024 INV OUT = 88.13
DS034	RIM = 92.57' STA = 416+64.24, 12.00, R TYPE 5 CURB INLET DP024 INV IN = 88.05 DP025 INV OUT = 88.05
DS035	RIM = 91.97' STA = 416+06.72, 16.24, R FDOT TYPE 7 MANHOLE DP025 INV IN = 87.81 DP026 INV OUT = 87.81

Pipe Table			
PIPE	SIZE	LENGTH	SLOPE
DP004	15" RCP	24'	0.39%
DP005	15" RCP	175'	0.61%
DP006	15" RCP	26'	0.40%
DP007	24" RCP	152'	0.55%
DP008	15" RCP	29'	0.36%
DP009	24" RCP	129'	0.31%
DP010	24" RCP	70'	1.86%
DP011	15" RCP	28'	0.33%
DP012	24" RCP	146'	1.57%
DP013	15" RCP	34'	0.30%
DP014	24" RCP	76'	1.88%
DP018	15" RCP	24'	0.45%
DP019	15" RCP	52'	1.71%
DP024	15" RCP	24'	0.40%
DP025	15" RCP	45'	0.58%
DP026	15" RCP	111'	0.74%

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MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
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Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

DRAINAGE ASSET TABLE
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

1	2	3	4	5	6	7	8	9	10	11	DATE	REVISIONS

DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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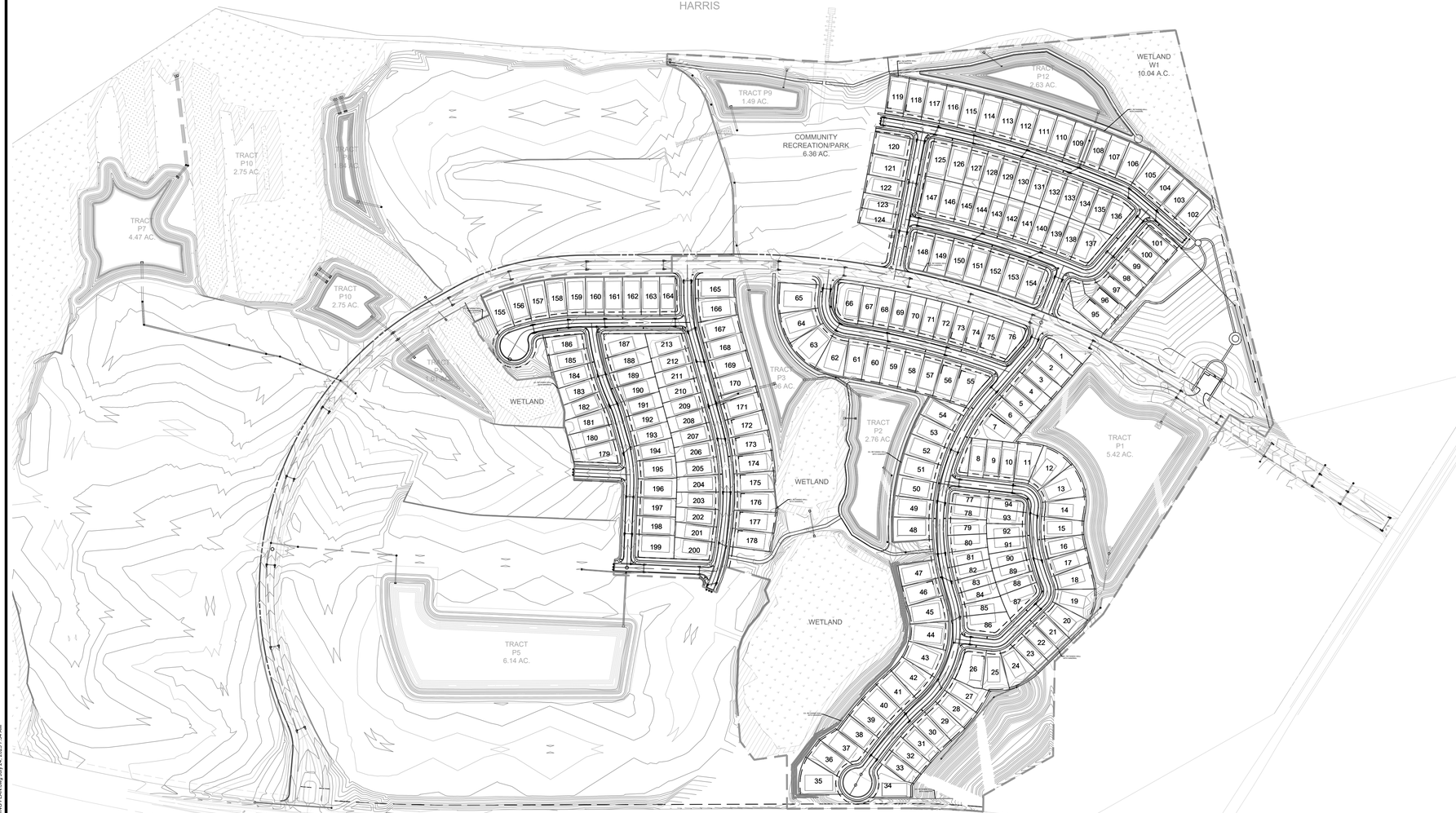



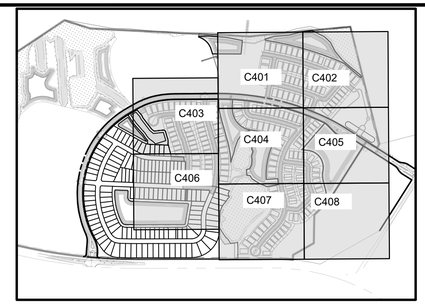

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	• 0.00 OR 0.00 TC 0.00 EP OR • 0.00 TW • 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

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(407) 629-8330
CA# 0007723

OVERALL GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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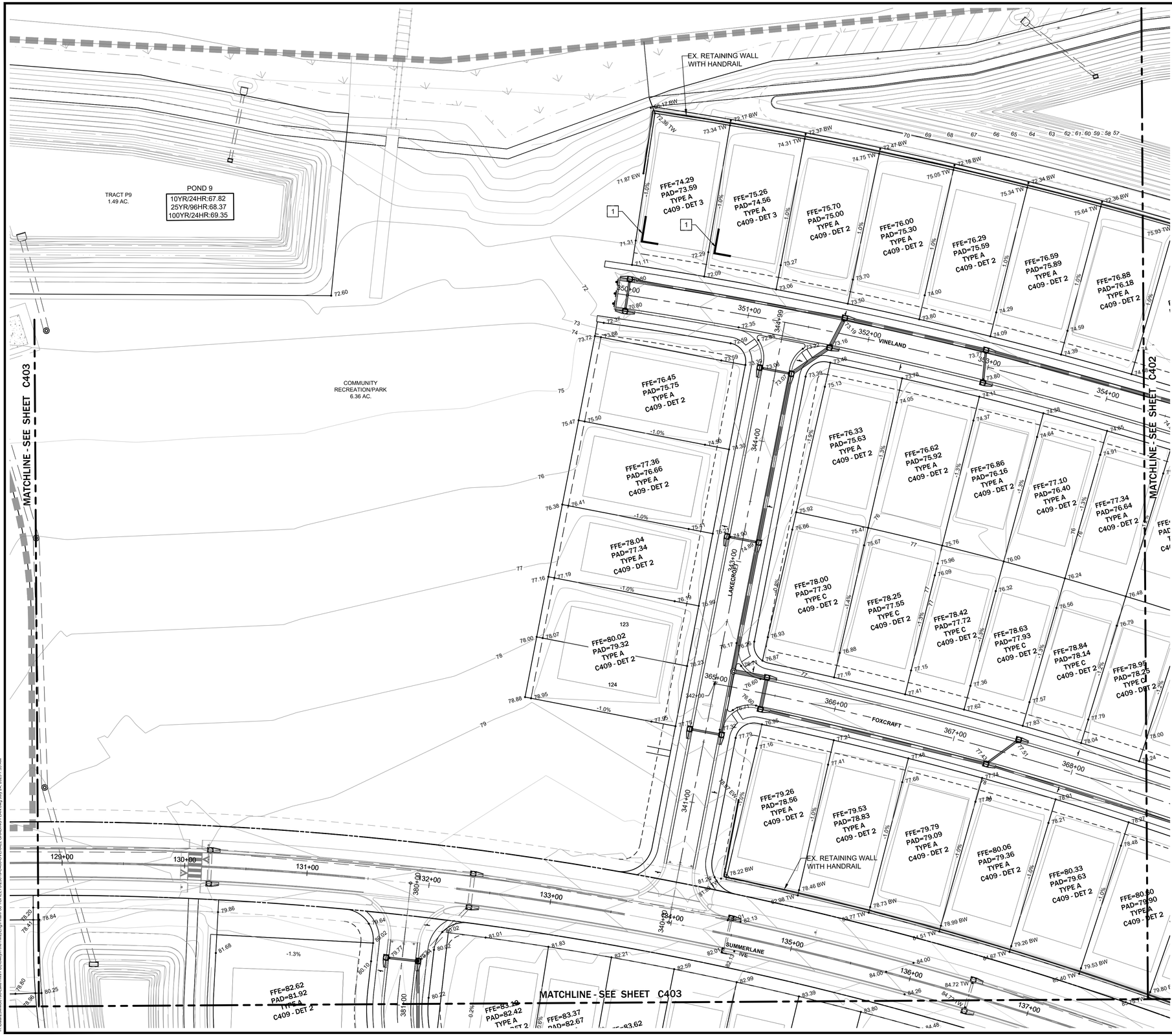

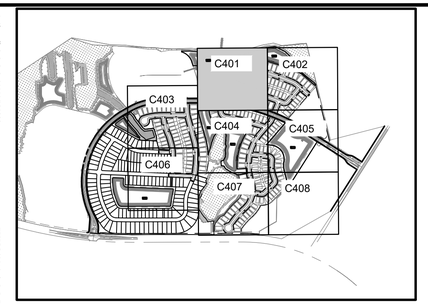

KEY MAP
NTS

N
W E
S
0 20' 40' 80'
SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX	0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
EX		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

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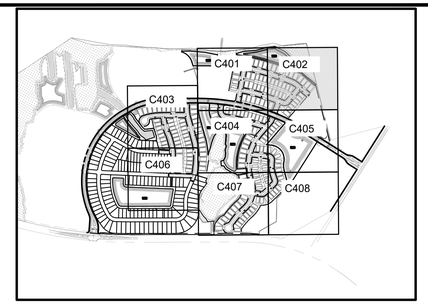

KEY MAP
NTS

N
W E
S
0 20' 40' 80'
SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+69.96 EX	0.00 OR 0.50 TC 0.00 EP OR • 0.00 TW • 0.00 BW	SPOT ELEVATION
	• 0.00 LP • 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100 151	DS-100	STORM STRUCTURE NUMBER
	OR ⊡ OR	STORM DRAINAGE MANHOLE
		STORM DRAINAGE INLET
	OR	CONTROL STRUCTURE
	OR OUT-1	OUTFALL STRUCTURE
		PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
1		
2		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C402

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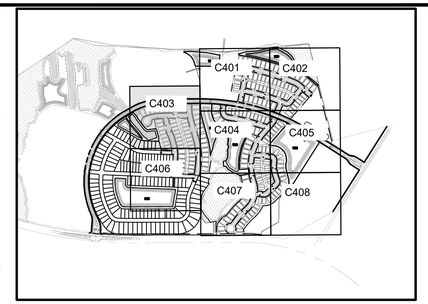
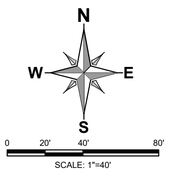


KEY MAP
NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+78.00 EX	0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
	OR	STORM DRAINAGE MANHOLE
	OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4999

#	DATE	REVISIONS
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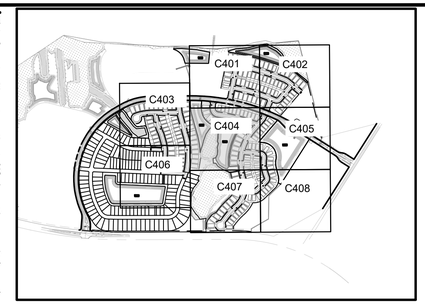

KEY MAP

NTS

N
W E
S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
0.00 EX	0.00 OR 0.50 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
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B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES

1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN

FOR

LAKE HILLS PHASE 1

LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
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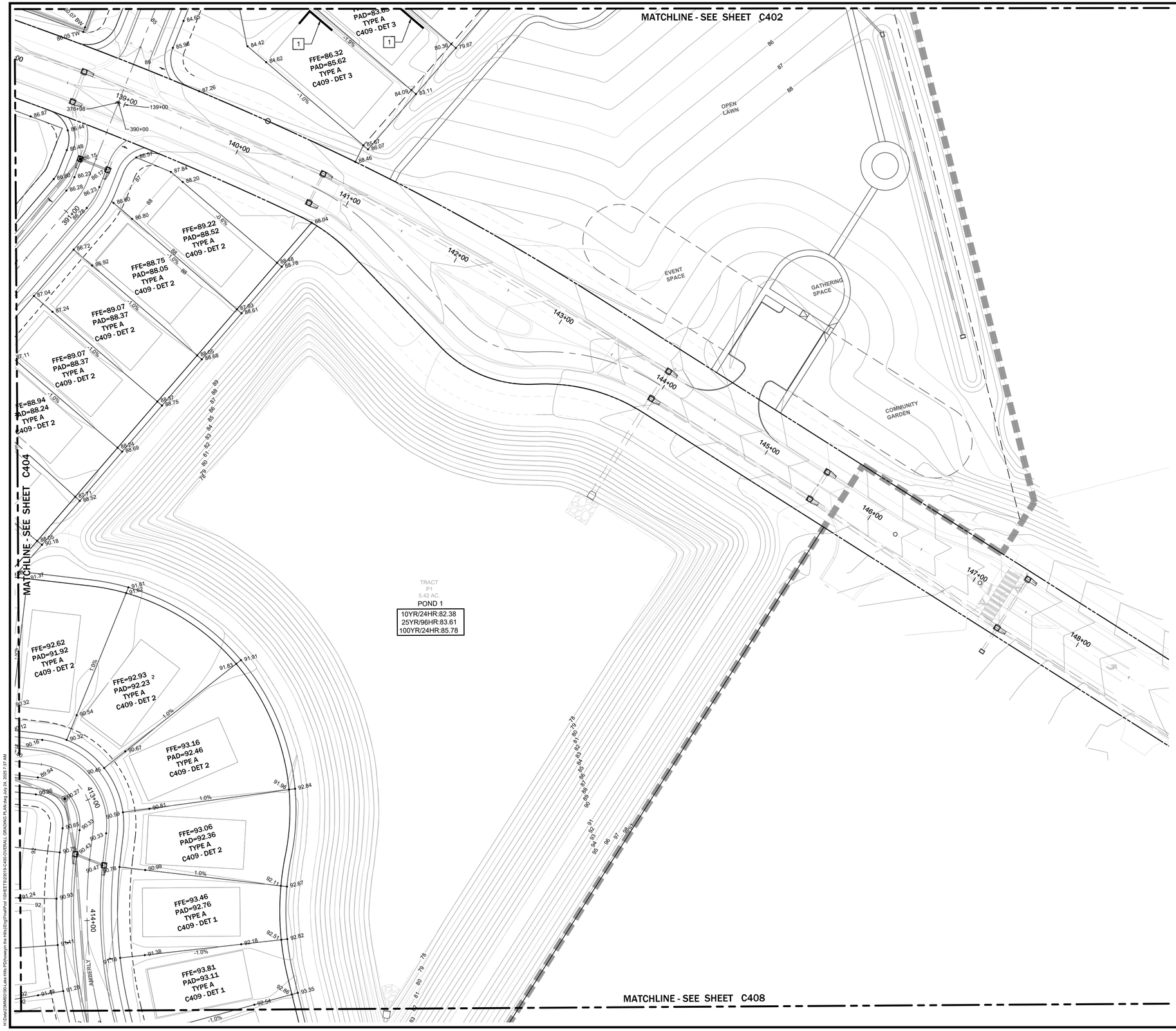
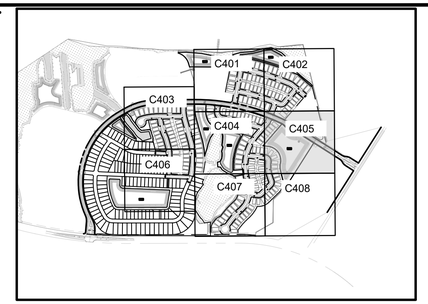
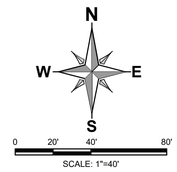




KEY MAP
NTS



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
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		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+93.56 EX	0.00 OR 0.50 TC, 0.00 EP OR 0.00 TW, 0.00 BW	SPOT ELEVATION
	0.00 LP, 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
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B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
3950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES
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PROFESSIONAL ENGINEER

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DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C405

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H:\Data\23MMS\19\Lake Hills PD\Design\Civil\Lake Hills Eng\FinalPlot 1\SHEETS\23019-C405-OVERALL GRADING PLAN.dwg July 24, 2025 7:37 AM

MATCHLINE - SEE SHEET C403

MATCHLINE - SEE SHEET C404

MATCHLINE - SEE SHEET C407

FAIRLY

MACKEY

LILTROSE

ROSEWOOD

FFE=80.92
PAD=80.22
TYPE A
C409 - DET 1

FFE=82.21
PAD=81.41
TYPE A
C409 - DET 2

FFE=81.94
PAD=81.24
TYPE A
C409 - DET 2

FFE=82.88
PAD=82.18
TYPE A
C409 - DET 2

FFE=82.81
PAD=82.11
TYPE A
C409 - DET 2

FFE=83.44
PAD=82.74
TYPE A
C409 - DET 2

FFE=83.64
PAD=82.94
TYPE A
C409 - DET 2

FFE=84.15
PAD=83.45
TYPE A
C409 - DET 2

FFE=84.30
PAD=83.60
TYPE A
C409 - DET 2

FFE=84.86
PAD=84.16
TYPE A
C409 - DET 2

FFE=84.92
PAD=84.22
TYPE A
C409 - DET 2

FFE=85.60
PAD=84.90
TYPE A
C409 - DET 2

FFE=85.44
PAD=84.74
TYPE A
C409 - DET 2

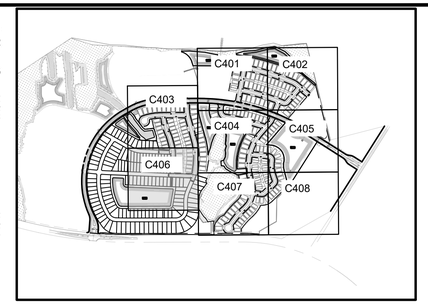
FFE=85.97
PAD=85.27
TYPE A
C409 - DET 2

226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00 234+00 234+41

291+00 292+00 293+00

TRACT
P5
6.14 AC.

POND 5
10YR/24HR:80.53
25YR/96HR:80.93
100YR/24HR:81.85



KEY MAP
NTS

N W E S

0 20' 40' 80'
SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
0.00 EX	0.00 CR 0.50 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
30	30	CONTOUR (MAJOR)
29	29	CONTOUR (MINOR)
		DIRECTION OF SURFACE FLOW
		NORMAL WATER LEVEL
		SEASON HIGH WATER LEVEL
		POND MAINTENANCE BERM
DS-100	DS-100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		CONTROL STRUCTURE
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)
D.S.		DOWNSPOUT

CONSTRUCTION NOTES
1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
1		
2		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C406

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MATCHLINE - SEE SHEET C404

MATCHLINE - SEE SHEET C406

MATCHLINE - SEE SHEET C408

WETLAND

EX. RETAINING WALL WITH HANDRAIL

EX. RETAINING WALL WITH HANDRAIL

AMBERLY

STARBIDE

FFE=94.31 PAD=93.61 TYPE A C409 - DET 3

FFE=93.62 PAD=92.92 TYPE A C409 - DET 2

FFE=94.61 PAD=93.91 TYPE A C409 - DET 1

FFE=95.15 PAD=94.45 TYPE A C409 - DET 1

FFE=95.54 PAD=94.84 TYPE A C409 - DET 1

FFE=94.93 PAD=94.23 TYPE A C409 - DET 1

FFE=96.15 PAD=95.45 TYPE A C409 - DET 2

FFE=96.36 PAD=95.66 TYPE A C409 - DET 2

FFE=96.71 PAD=96.01 TYPE A C409 - DET 2

FFE=97.09 PAD=96.39 TYPE A C409 - DET 2

FFE=96.99 PAD=96.29 TYPE A C409 - DET 2

FFE=98.11 PAD=97.41 TYPE A C409 - DET 2

FFE=98.59 PAD=97.89 TYPE A C409 - DET 2

FFE=97.80 PAD=97.10 TYPE A C409 - DET 2

FFE=96.92 PAD=96.22 TYPE A C409 - DET 2

FFE=96.52 PAD=95.82 TYPE A C409 - DET 2

FFE=96.15 PAD=95.45 TYPE A C409 - DET 2

FFE=95.93 PAD=95.23 TYPE A C409 - DET 2

FFE=95.72 PAD=95.02 TYPE A C409 - DET 2

FFE=95.80 PAD=95.10 TYPE A C409 - DET 2

FFE=95.54 PAD=94.84 TYPE A C409 - DET 2

FFE=94.65 PAD=93.95 TYPE A C409 - DET 3

FFE=94.84 PAD=94.14 TYPE A C409 - DET 2

FFE=95.38 PAD=94.68 TYPE A C409 - DET

FFE=93.74 PAD=93.04 TYPE A C409 - DET 1

FFE=93.54 PAD=92.84 TYPE A C409 - DET 1

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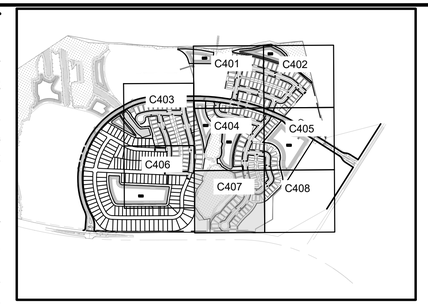
FFE=94.30 PAD=93.60 TYPE A C409 - DET 1



KEY MAP
NTS

N
W E
S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
+0.00 EX.	0.00 TC 0.00 EP OR 0.00 TW 0.00 BW	SPOT ELEVATION
	0.00 LP 0.00 HP	ROAD ℄ ELEVATION
-30-	-30-	CONTOUR (MAJOR)
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		DIRECTION OF SURFACE FLOW
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B-1		SOIL BORING
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P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES

1. STEM WALL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
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(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

#	DATE	REVISIONS
1	7/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
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DAVID ASHLEY STOKES
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C407

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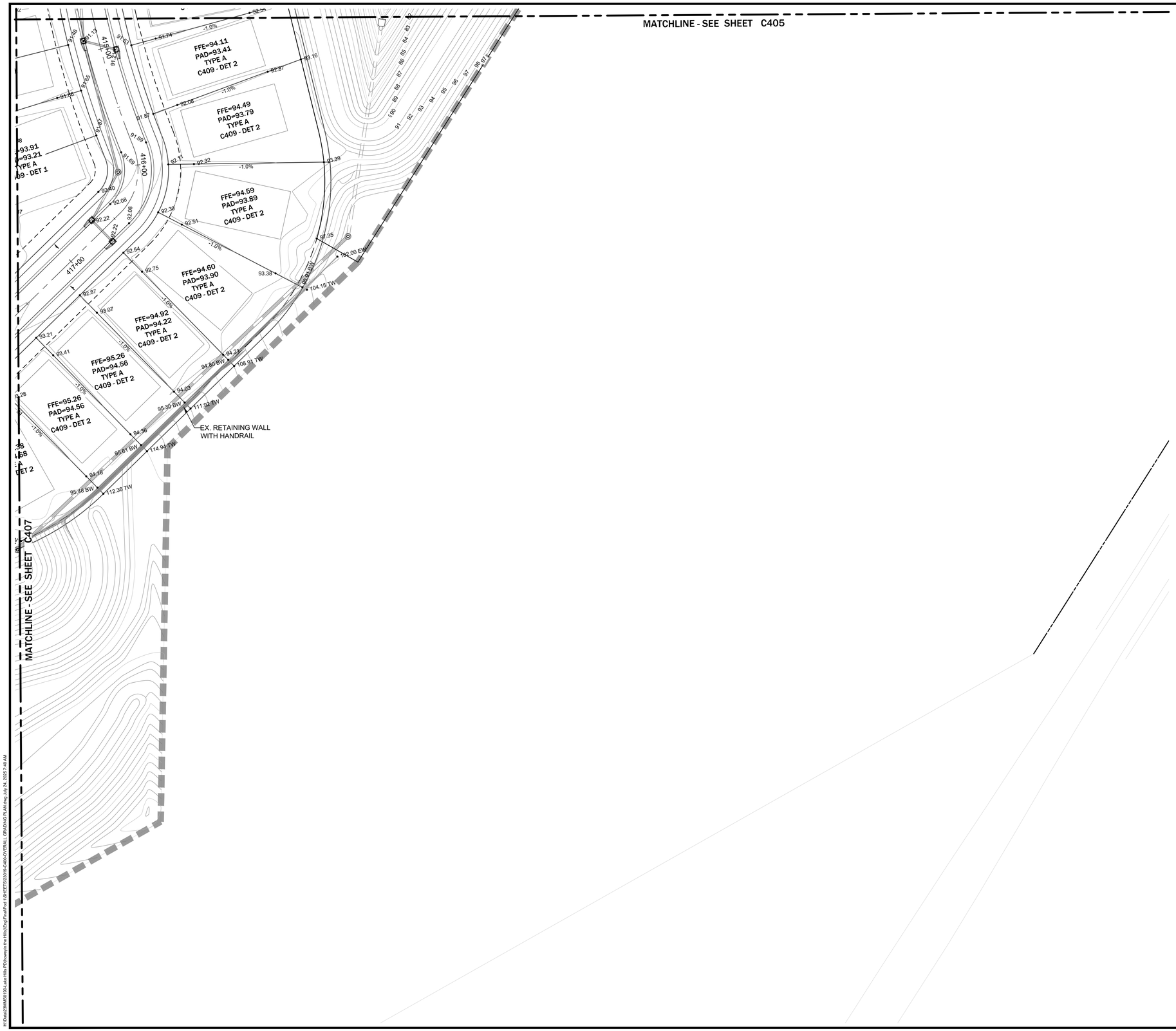

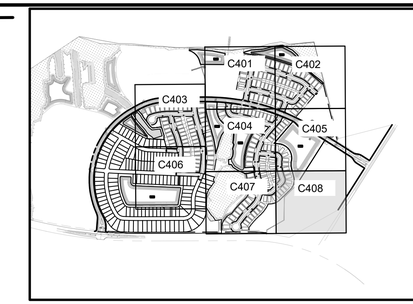

KEY MAP

NTS

N
W E
S

0 20' 40' 80'

SCALE: 1"=40'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
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		RIGHT OF WAY (MINOR)
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		LOT LINE
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P-1		SOIL BORING (POND)
	D.S.	DOWNSPOUT

CONSTRUCTION NOTES

1. MIAMI CURB
2. TYPE 'A' CURB PER FDOT INDEX NO. 520-001
3. TYPE 'F' CURB PER FDOT INDEX NO. 520-001
4. 6' CURB TRANSITION
5. 5' SIDEWALK
6. CURB RAMP DETECTABLE WARNING PER FDOT INDEX NO. 522-002
7. TYPE 'D' CURB PER FDOT INDEX NO. 520-001
8. THICKENED EDGE SIDEWALK
9. 6' SIDEWALK
10. 8' - 6" CONCRETE DRIVEWAY
11. 25' - 6" CONCRETE DRIVEWAY
12. 6' CONCRETE FLUME

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

GRADING PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

#	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C408

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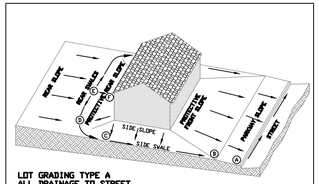
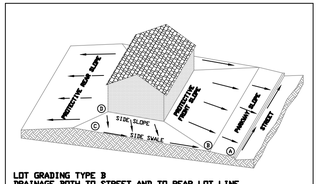


LOT GRADING TYPE A
ALL DRAINAGE TO STREET

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-F FOR A 60' LOT ON AN O.SX STREET, WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Swale turn with 10' radius, 16' grass at 1/4"/Ft. . . . 4" (0.3')	4" (0.3')
D-E Rear swale, 12' grass at 1/4"/Ft. (2%) . . . . . 3" (0.3')	3" (0.3')
E-F Protective rear slope up from high-point of swales . . . 42" (3.5')	42" (3.5')
Sub-total A-F From curb-top to ground at rear building wall. . 30" (2.5')	19" (1.6')
Minimum rise from curb-top to slab floor: 30" + 8" . . . . 38" (3.2')	27" (2.3')
Minimum rise for wood floor using 8" joists: 30" + 19" . . 49" (4.1')	38" (3.2')

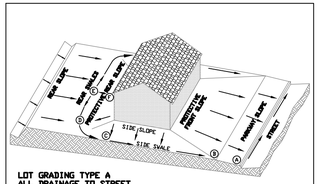
900A — FHA TYPE 'A' LOT GRADING
NOT TO SCALE



LOT GRADING TYPE B
DRAINAGE BOTH TO STREET AND TO REAR LOT LINE

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-D FOR A 60' LOT WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Protective side slope at extension of rear wall. . . . . 6" (0.5')	6" (0.5')
Sub-total A-D From curb-top to ground at rear building wall. . 23" (1.9')	16" (1.3')
Minimum rise from curb-top to slab floor: 23" + 8" . . . . 31" (2.6')	24" (2.0')
Minimum rise for wood floor using 8" joists: 23" + 19" . . 42" (3.5')	35" (2.9')

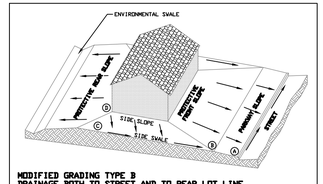
900B — FHA TYPE 'B' LOT GRADING
NOT TO SCALE



LOT GRADING TYPE A
ALL DRAINAGE TO STREET

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-F FOR A 60' LOT ON AN O.SX STREET, WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Swale turn with 10' radius, 16' grass at 1/4"/Ft. . . . 4" (0.3')	4" (0.3')
D-E Rear swale, 12' grass at 1/4"/Ft. (2%) . . . . . 3" (0.3')	3" (0.3')
E-F Protective rear slope up from high-point of swales . . . 42" (3.5')	42" (3.5')
Sub-total A-F From curb-top to ground at rear building wall. . 30" (2.5')	19" (1.6')
Minimum rise from curb-top to slab floor: 30" + 8" . . . . 38" (3.2')	27" (2.3')
Minimum rise for wood floor using 8" joists: 30" + 19" . . 49" (4.1')	38" (3.2')

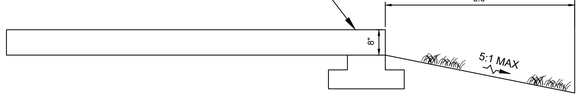
900AM — FHA TYPE 'A' MOD. LOT GRADING
NOT TO SCALE



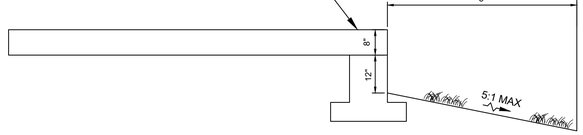
MODIFIED GRADING TYPE B
DRAINAGE BOTH TO STREET AND TO REAR LOT LINE

SAMPLE COMPUTATION OF GRADING CONTROL LINE A-D FOR A 60' LOT WITH 28' SETBACK, 28' BUILDING DEPTH AND 2% SWALES	RESULTS USING 1% SWALES
A Curb-top on lot-line extension at high lot corner	
A-B Parkway slope, 12' grass and walk at 1/4"/Ft. (2%) . . . 3" (0.3')	3" (0.3')
B-C Side swale, 56' grass at 1/4"/Ft. (2%) . . . . . 14" (1.2')	7" (0.6')
C-D Protective side slope at extension of rear wall. . . . . 6" (0.5')	6" (0.5')
Sub-total A-D From curb-top to ground at rear building wall. . 23" (1.9')	16" (1.3')
Minimum rise from curb-top to slab floor: 23" + 8" . . . . 31" (2.6')	24" (2.0')
Minimum rise for wood floor using 8" joists: 23" + 19" . . 42" (3.5')	35" (2.9')

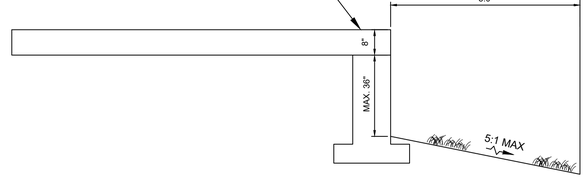
900BM — FHA TYPE 'B' MOD. LOT GRADING
NOT TO SCALE



DET 1 — STANDARD FOUNDATION
NOT TO SCALE



DET 2 — STANDARD FOUNDATION + 12" MAX. LEAVE DOWN
NOT TO SCALE



DET 3 — STANDARD FOUNDATION + STEM WALL
NOT TO SCALE

MADDEN
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CA# 0007723

GRADING DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9800 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C409

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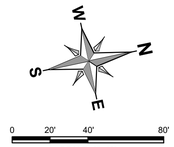
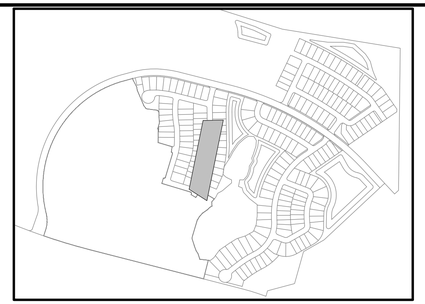
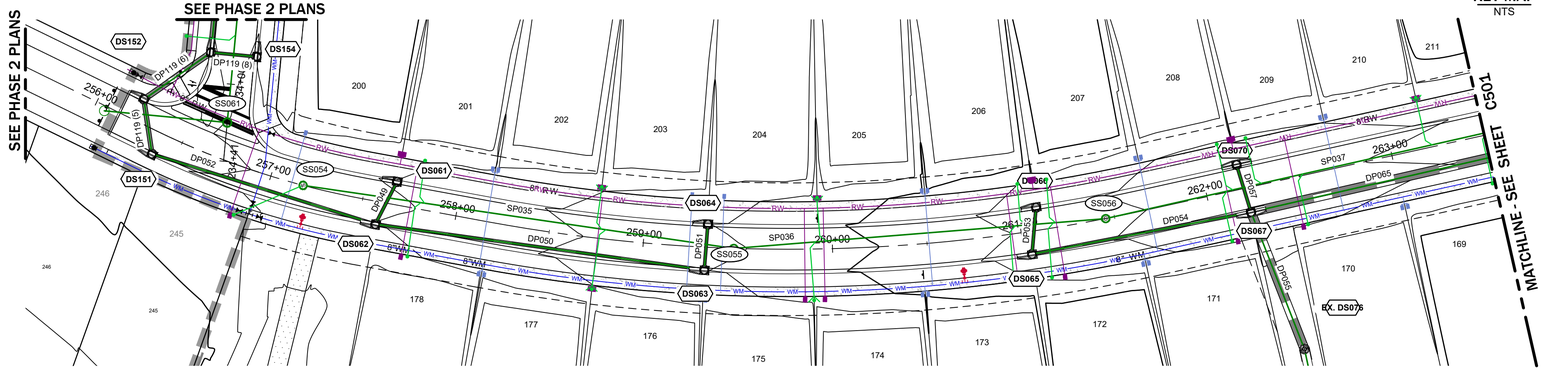
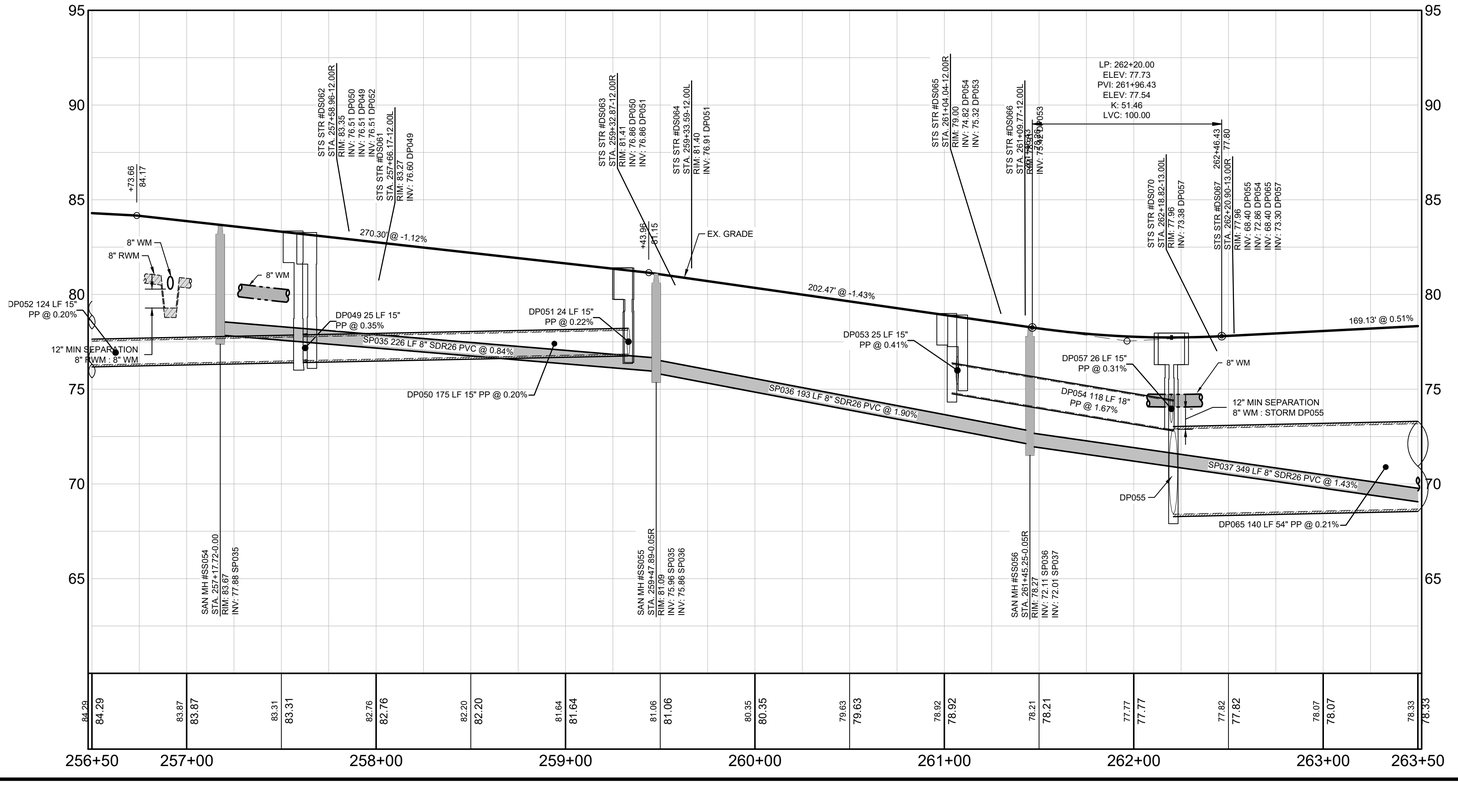




KEY MAP
NTS



STREET "I"



HORZ. SCALE: 1" = 40'

VERT. SCALE: 1" = 4'

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DCCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	RPP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES
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STATE OF FLORIDA
PROFESSIONAL ENGINEER

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DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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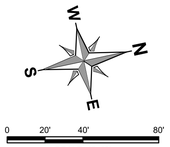

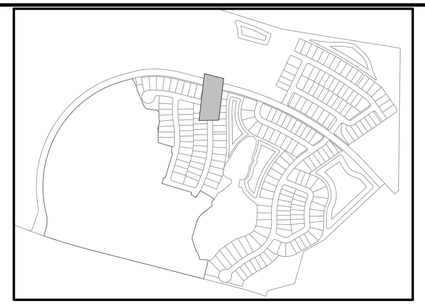

KEY MAP
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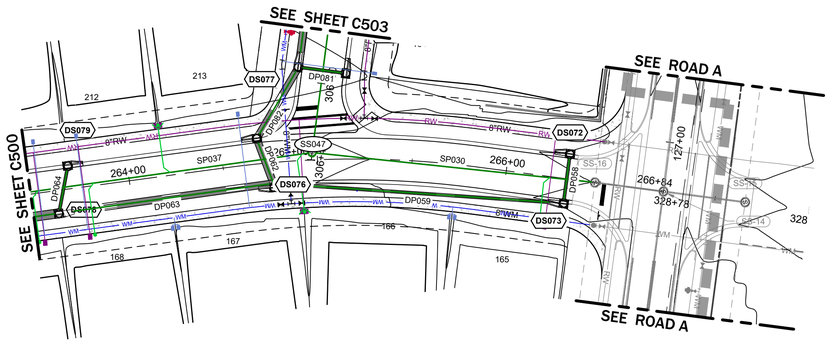
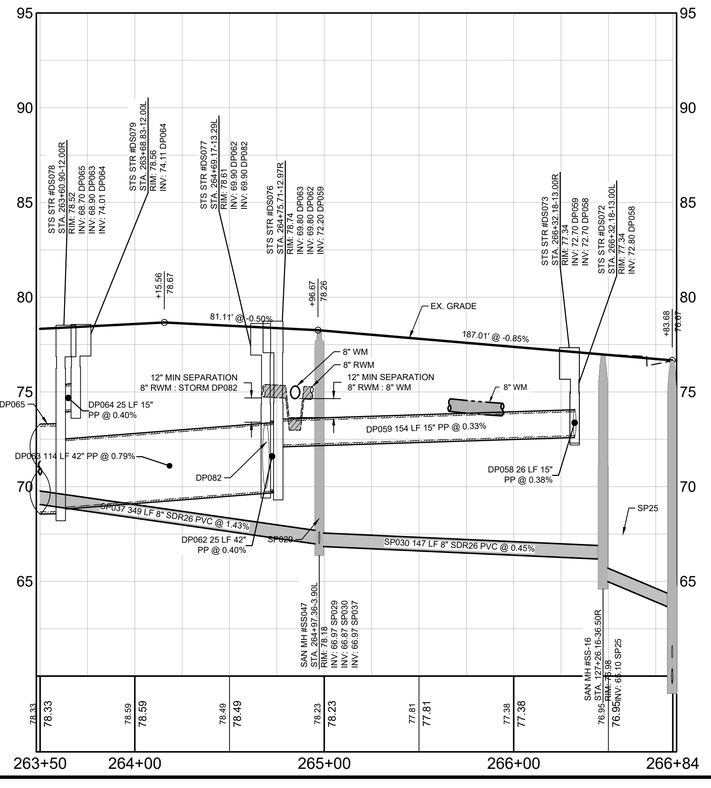


STREET "I"



LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

HORZ. SCALE: 1" = 40'

VERT. SCALE: 1" = 4'

ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES LLC, PROJECT NO. 0130.2200427.000)

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ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C501

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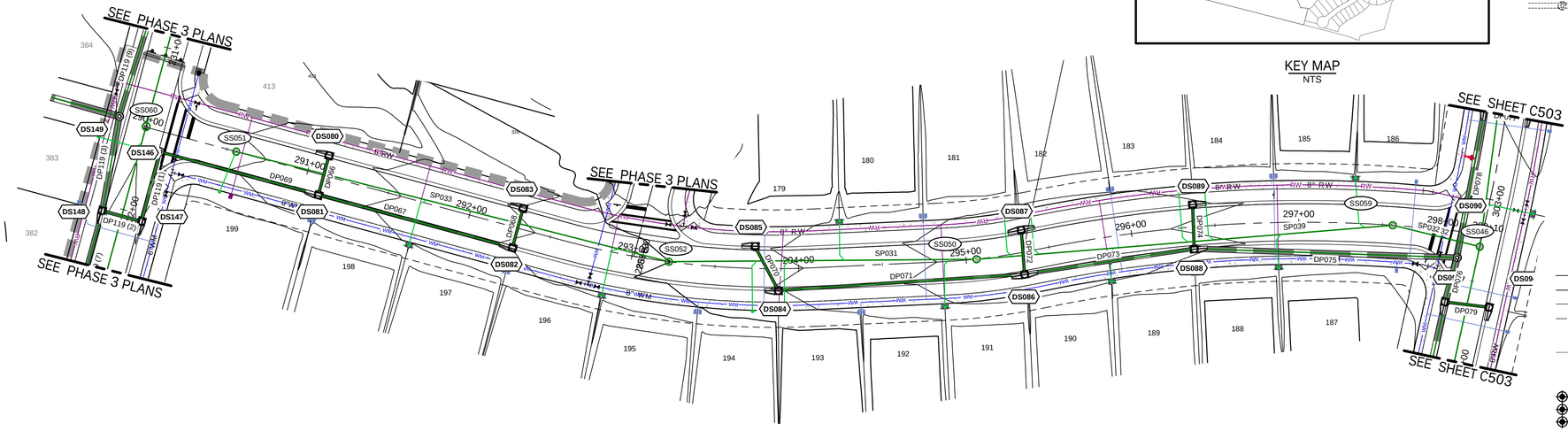
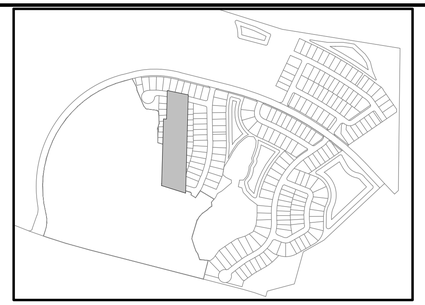


KEY MAP
NTS



N
W
E
S

0 20' 40' 80'

SCALE: 1"=40'

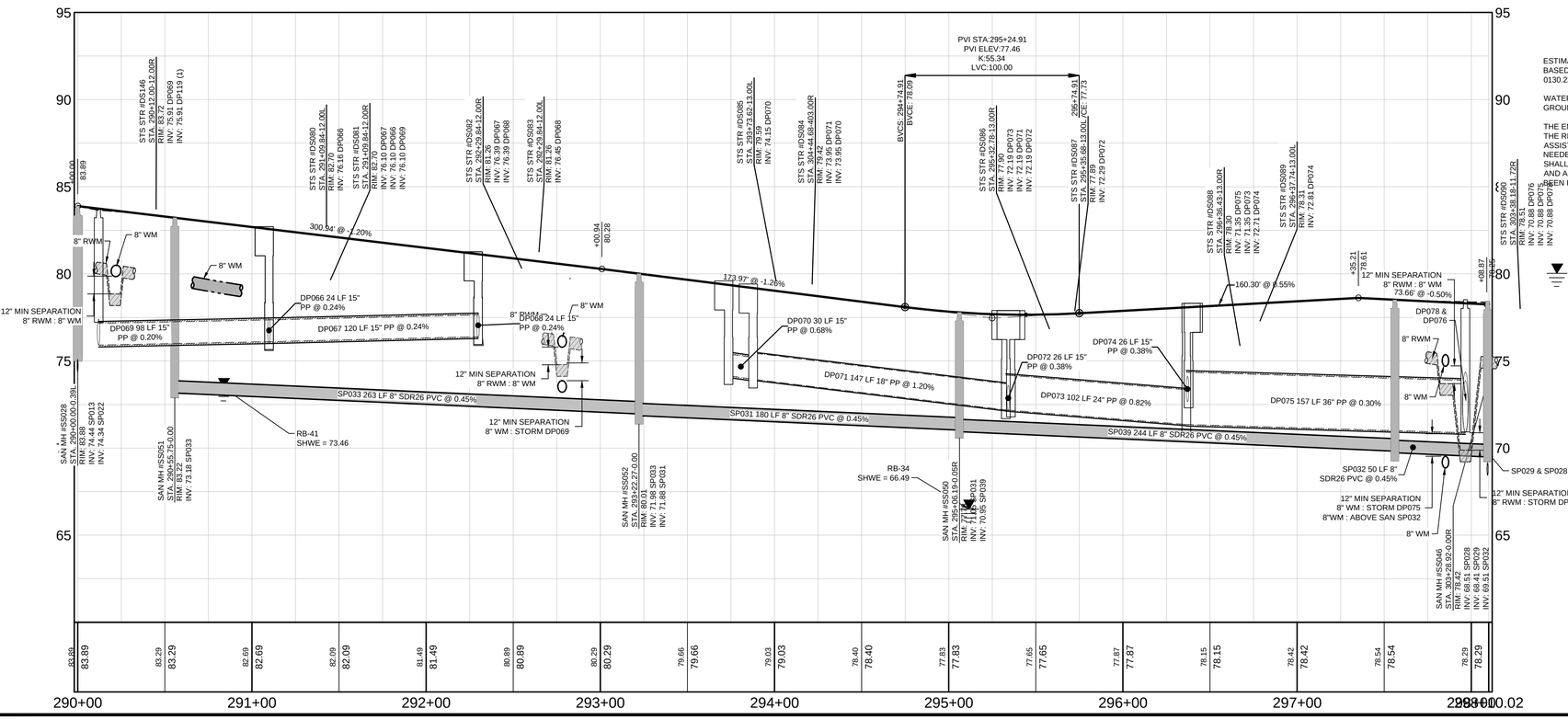
LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	RPP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

HORZ. SCALE: 1" = 40'

VERT. SCALE: 1" = 4'

STREET "L"



ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL 32822
(407) 856-4899

DATE	REVISIONS
	1
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C502

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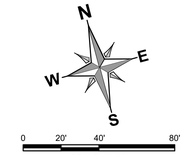

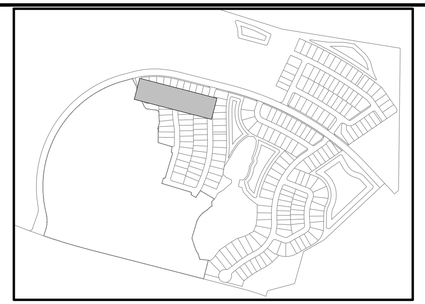

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.) EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
	DS100	STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
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	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
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	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
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	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
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B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
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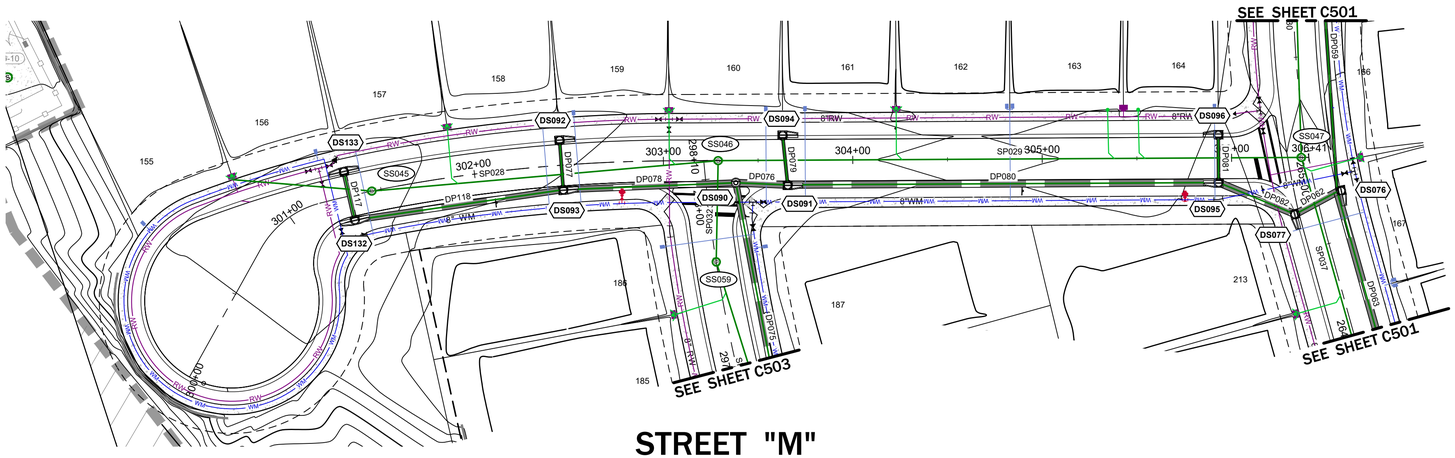
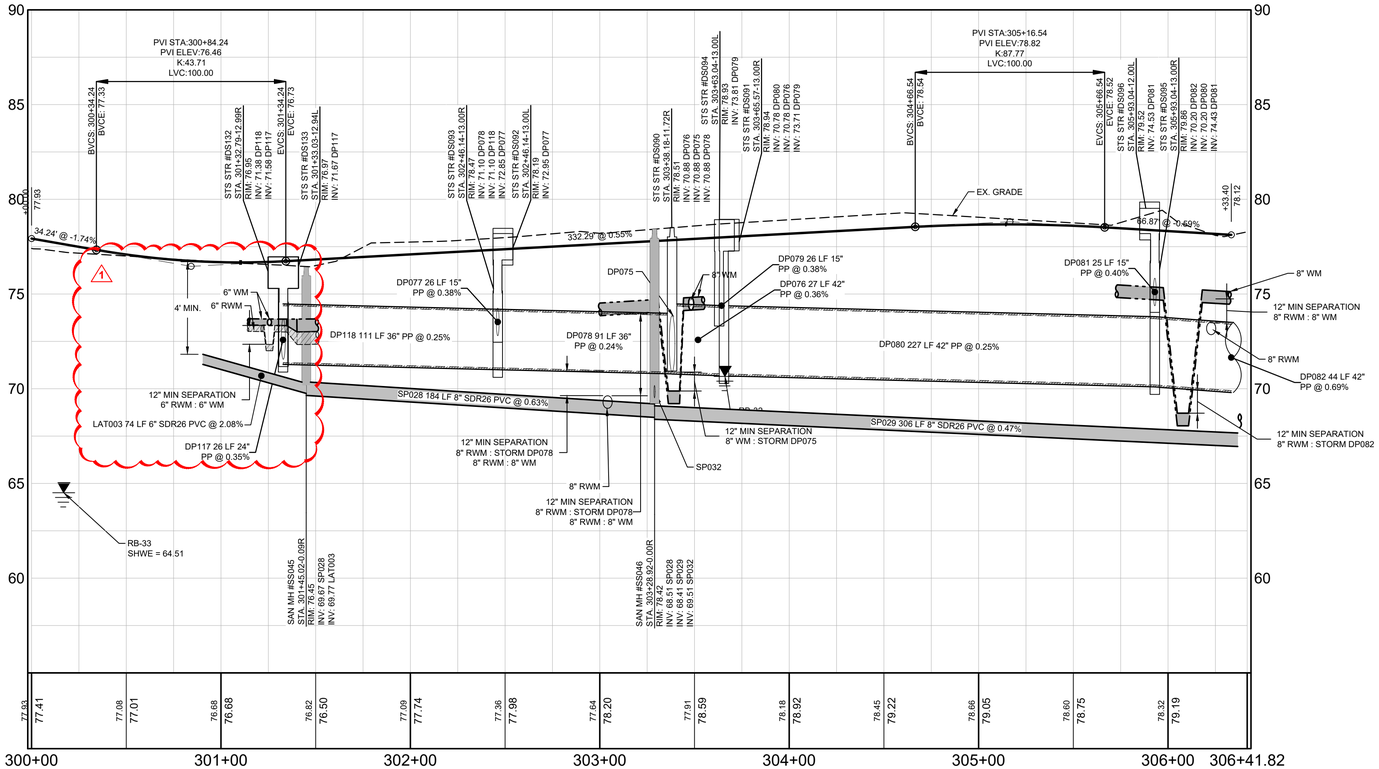


STREET "M"

HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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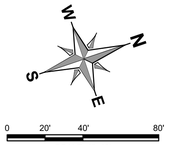
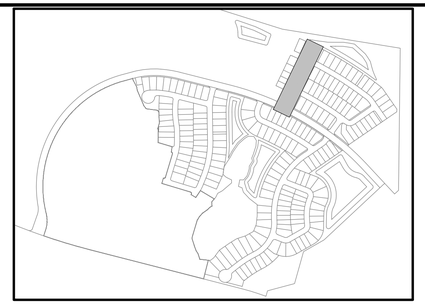
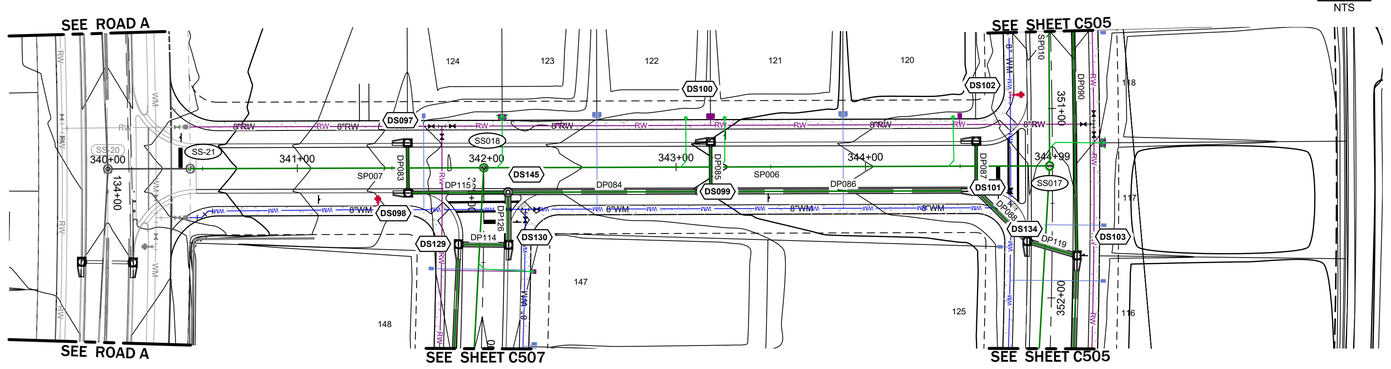




KEY MAP
NTS



LEGEND

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		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
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		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
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DS100	DS100	STORM STRUCTURE NUMBER
	DS100	STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

STREET "P"

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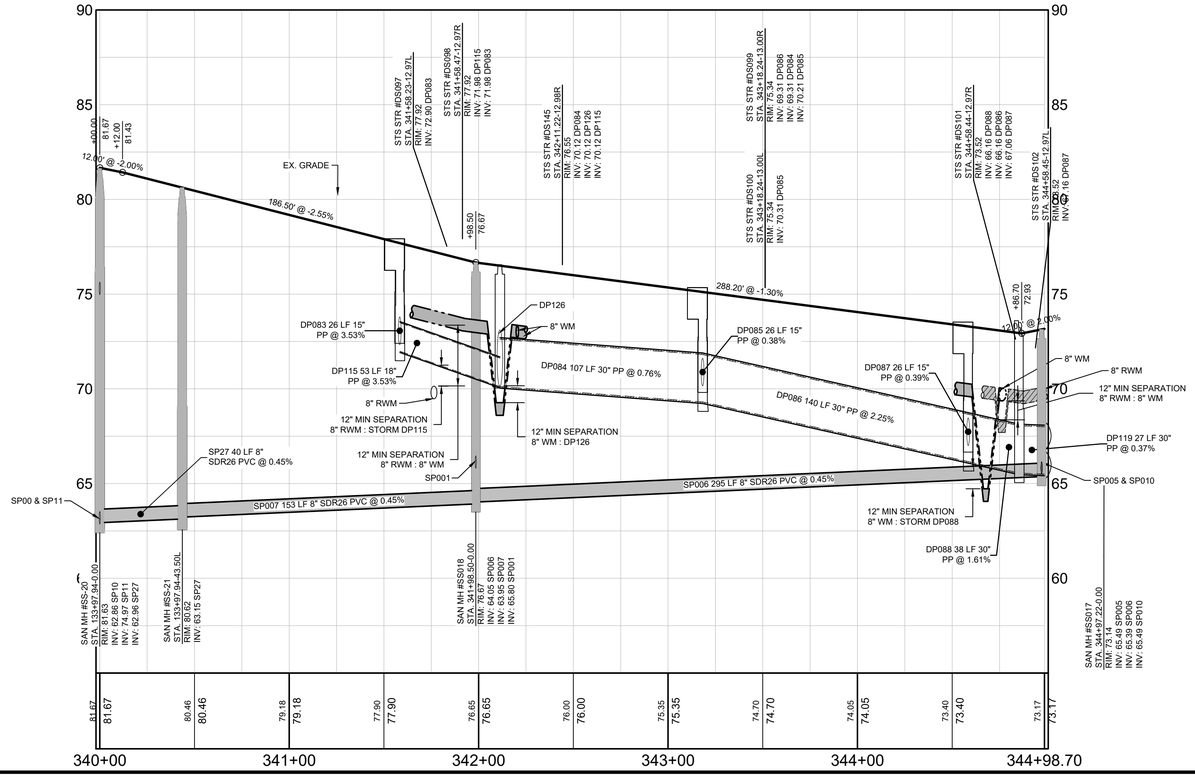

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ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
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CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
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ROADWAY PLAN AND PROFILES
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LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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DAVID ASHLEY STOKES
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PROFESSIONAL ENGINEER

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JOB # 23019
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APPROVED BY: DAS

C504

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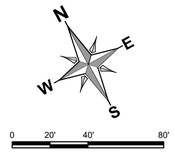
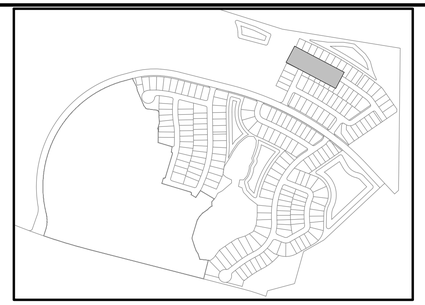
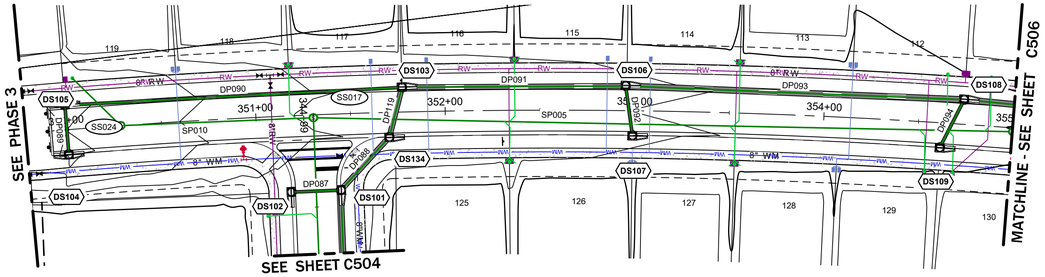
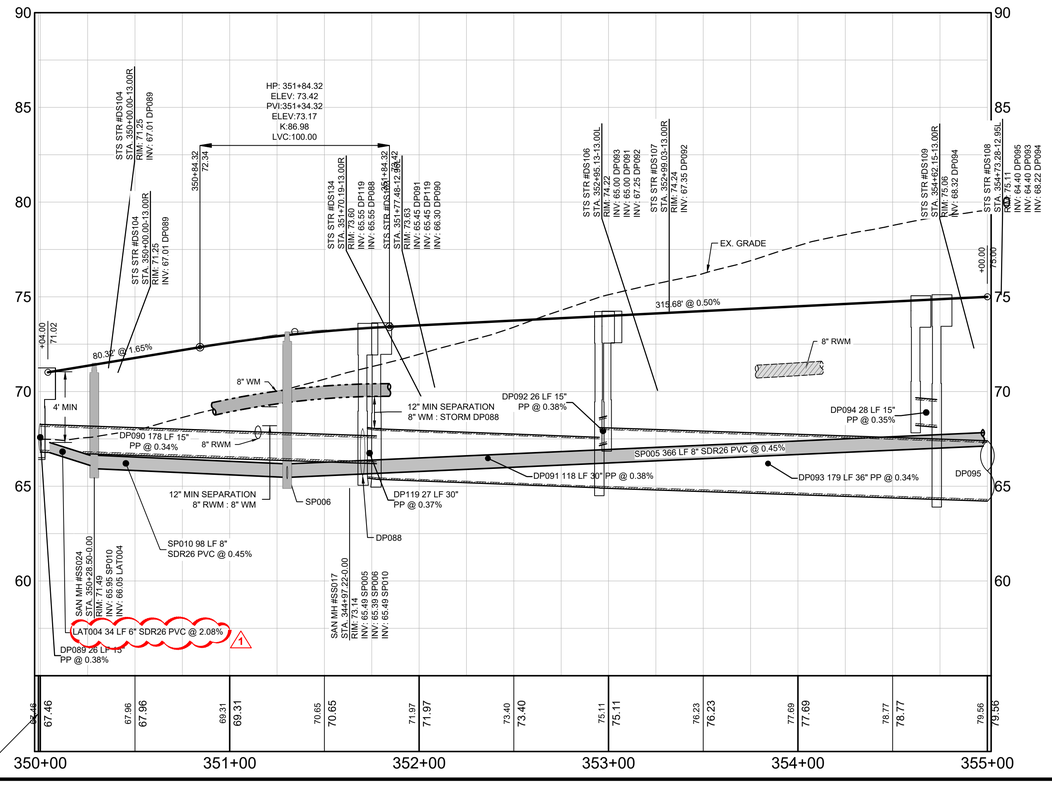




KEY MAP
NTS



STREET "Q"



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B-1		SOIL BORING
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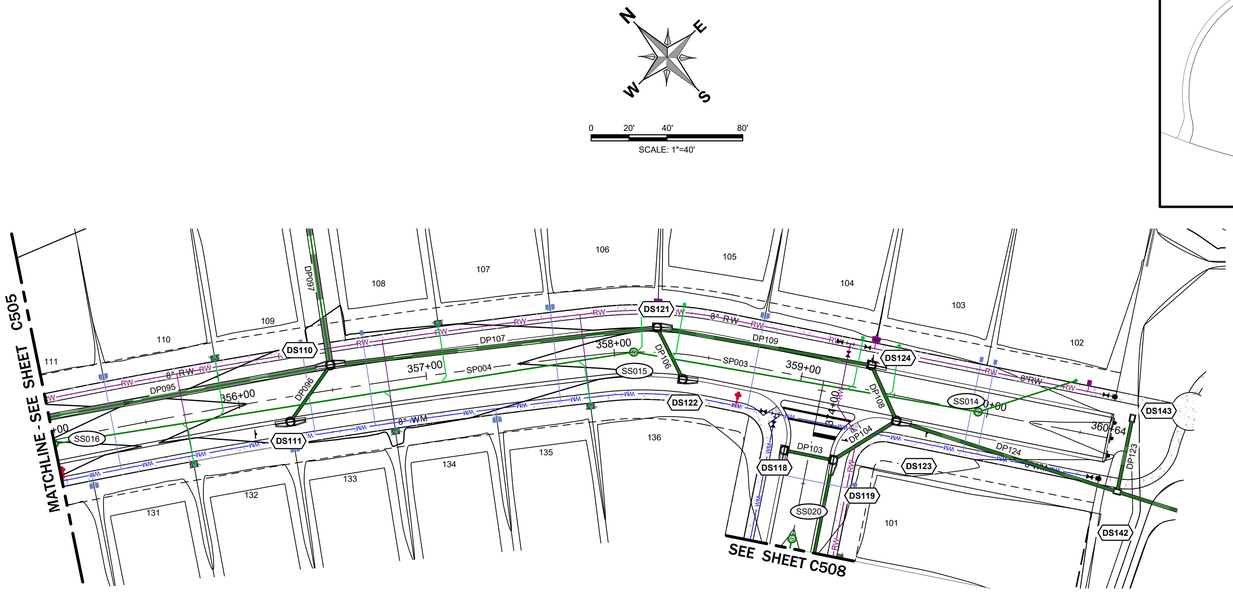
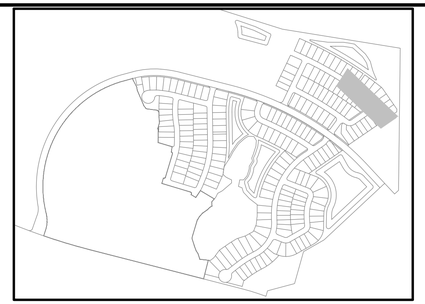


STREET "Q"



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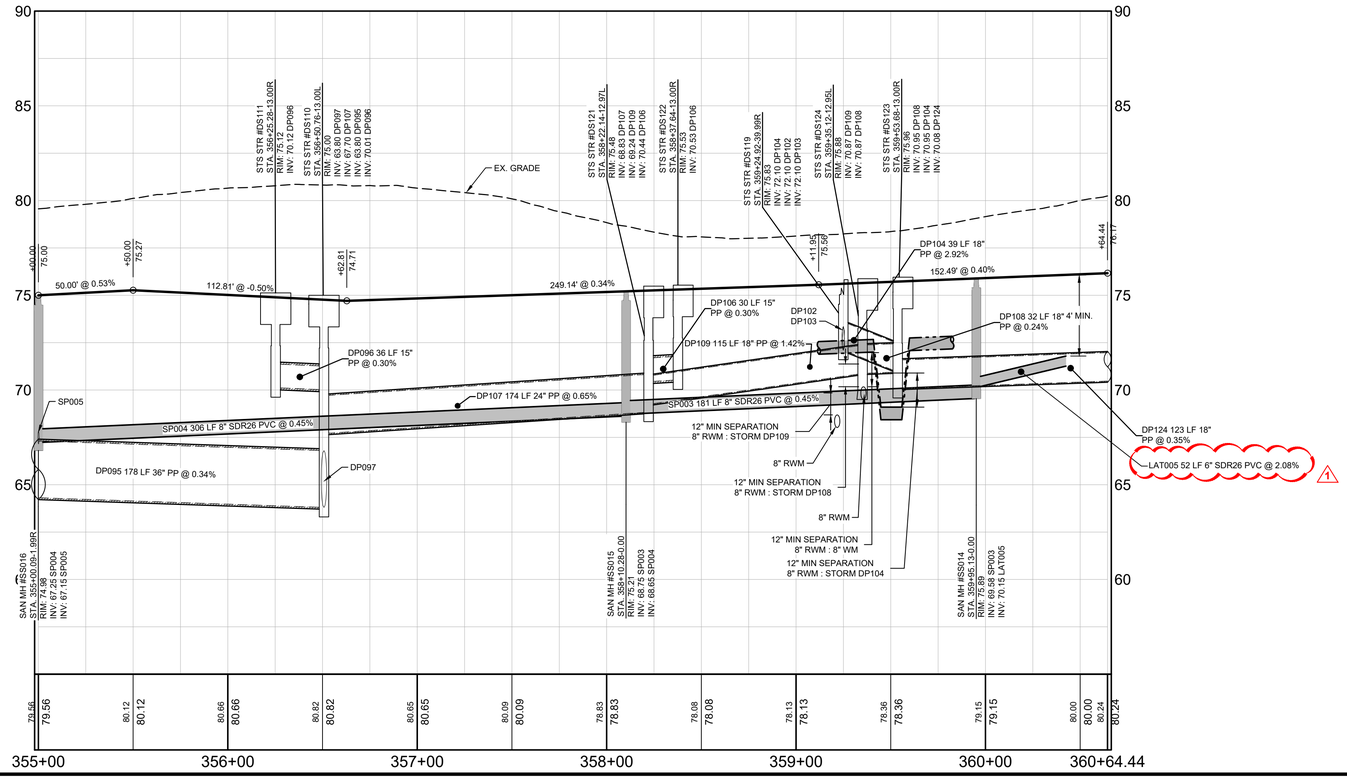

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APPROVED BY:	DAS

C506

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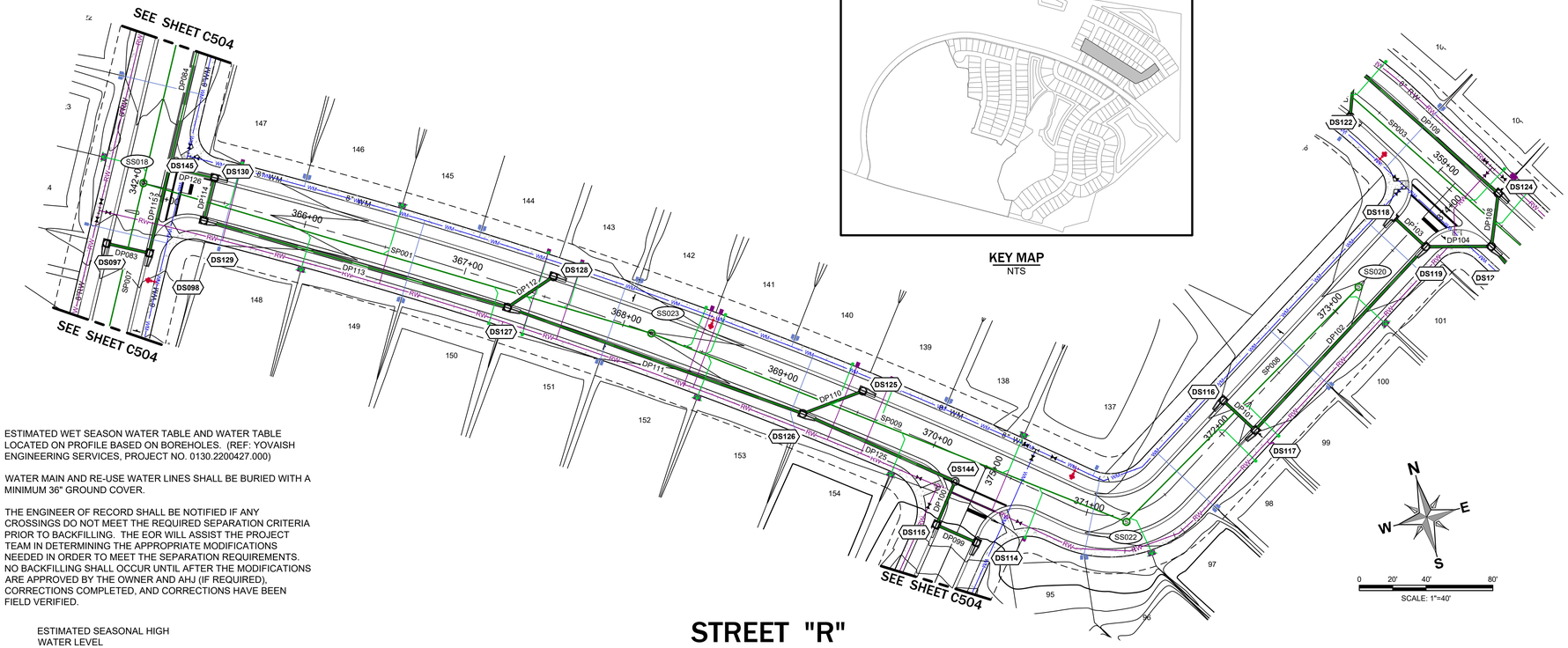


ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

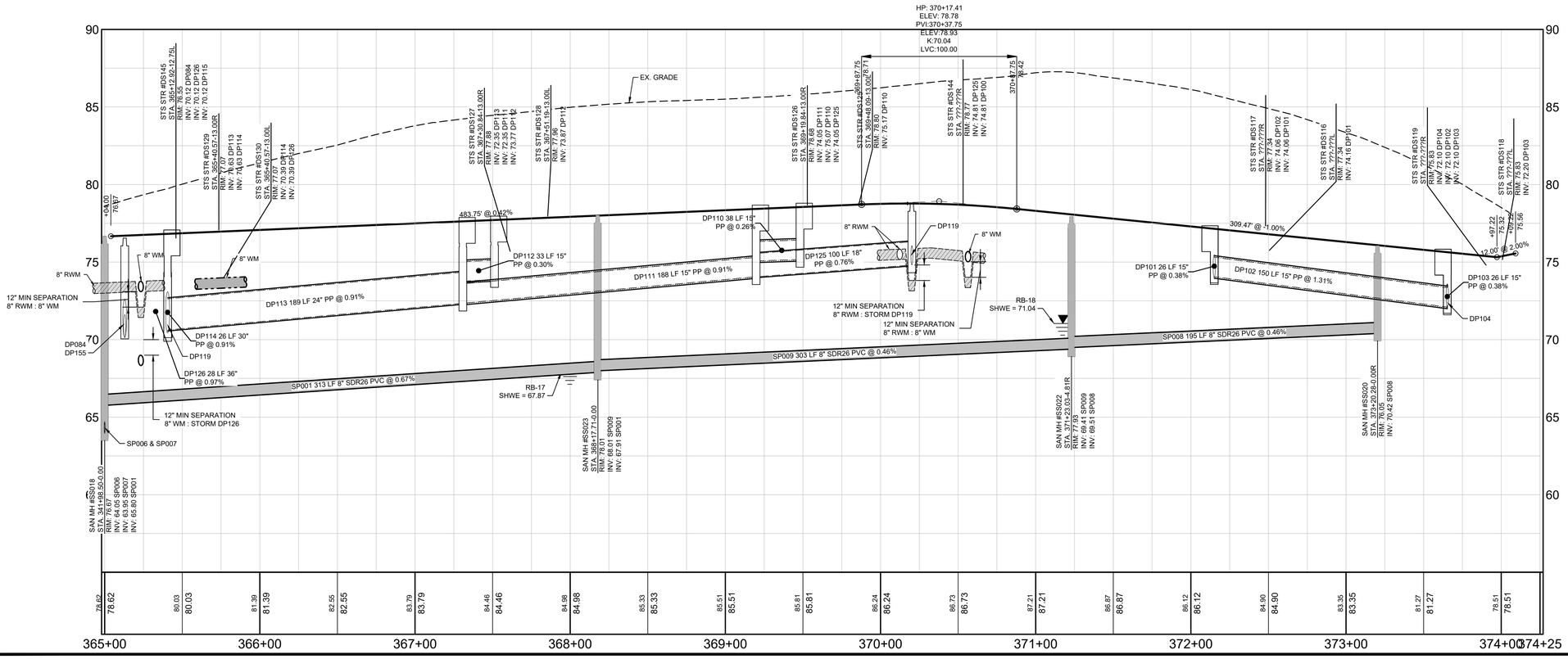
THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR	STORM DRAINAGE INLET
	OR	YARD DRAIN
	OUT-1	OUTFALL STRUCTURE
		PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
	OR	BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	RPP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



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CIVIL ENGINEERS
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Suite 260
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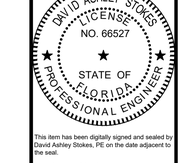
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

REVISIONS	DATE



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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C507

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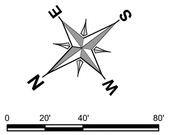
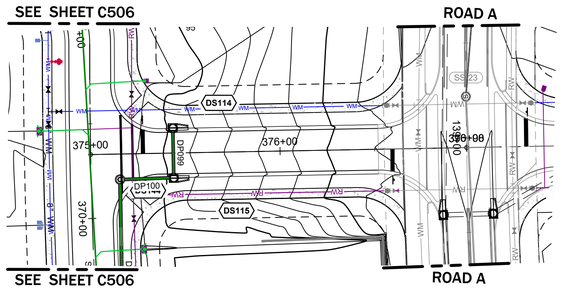
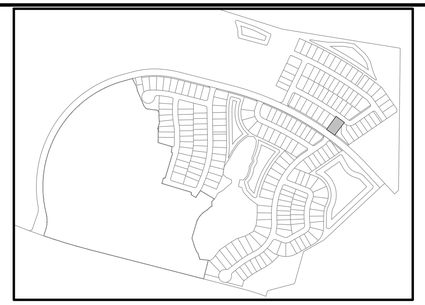




STREET "S"



KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
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	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
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HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'

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ESTIMATED SEASONAL HIGH WATER LEVEL

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ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
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ORLANDO FL, 32822
(407) 856-4899

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NO. 66527
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PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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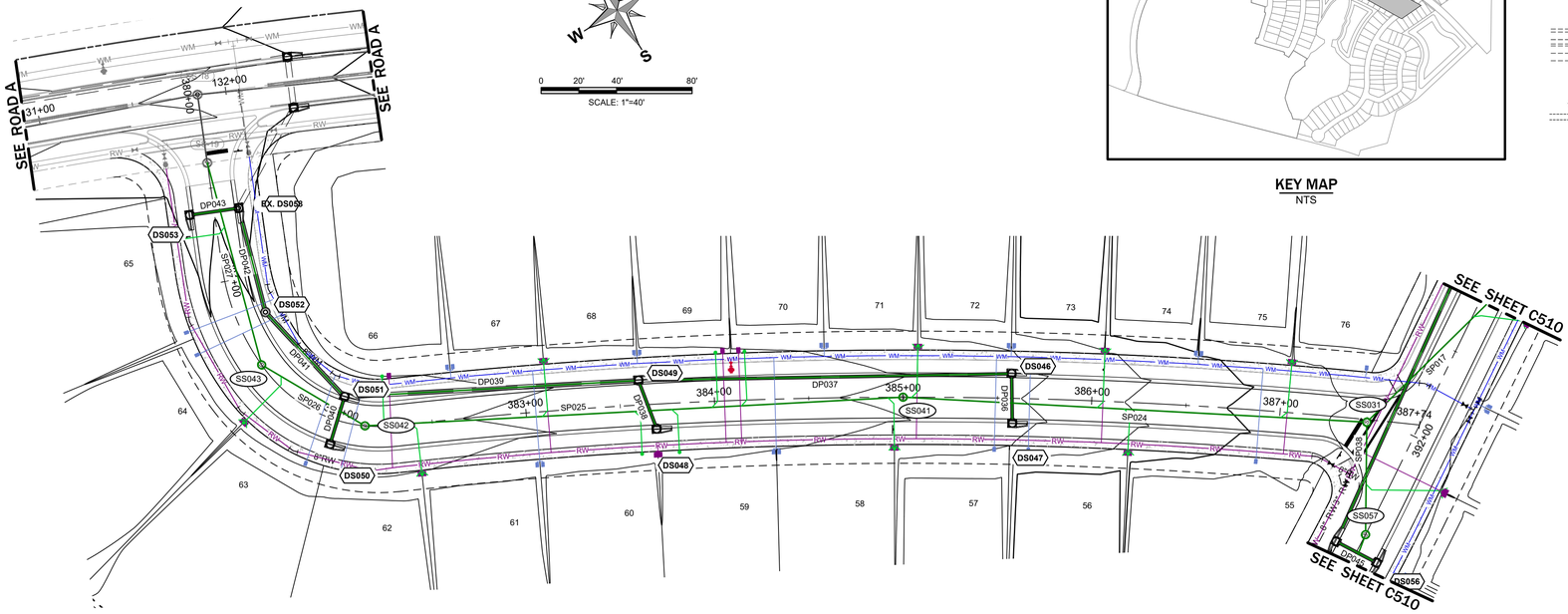

STREET "T"

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
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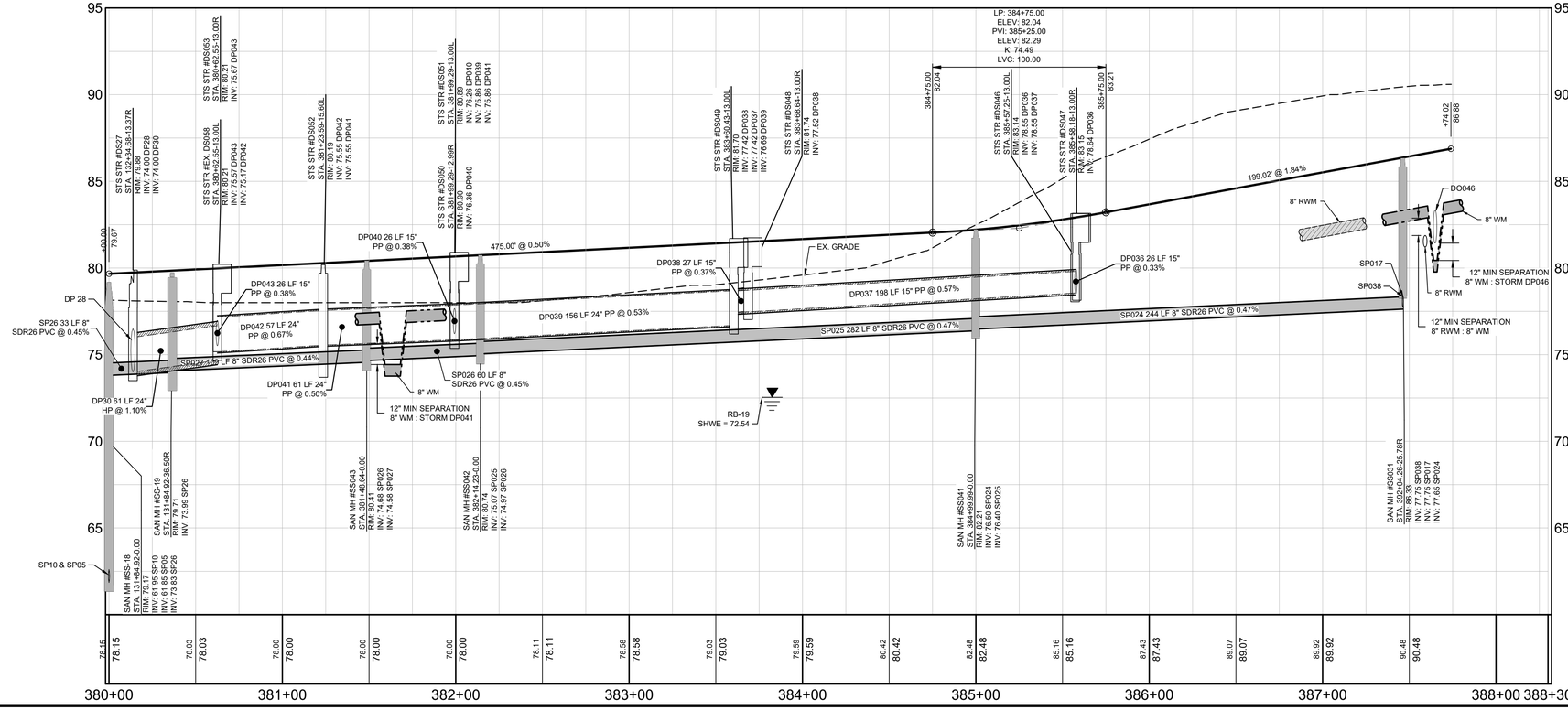

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▼ ESTIMATED SEASONAL HIGH WATER LEVEL

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DATE	REVISIONS
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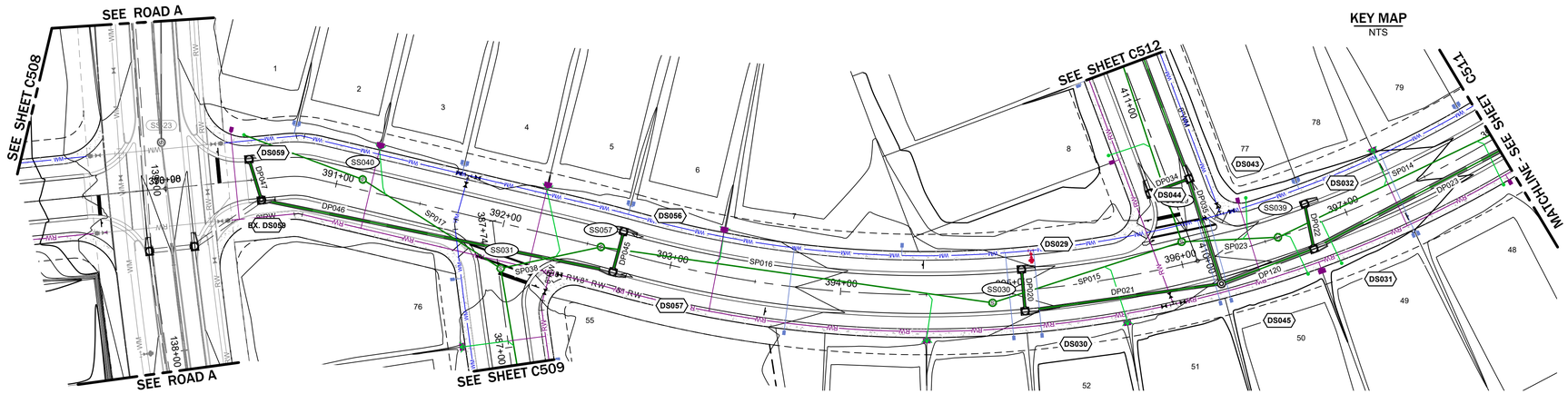
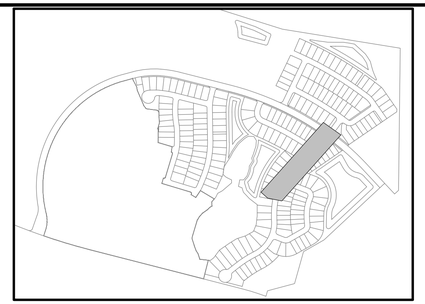
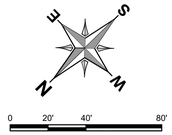


KEY MAP
NTS





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9-1		SOIL BORING
1		SOIL BORING (ROADWAY)
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STREET "U"

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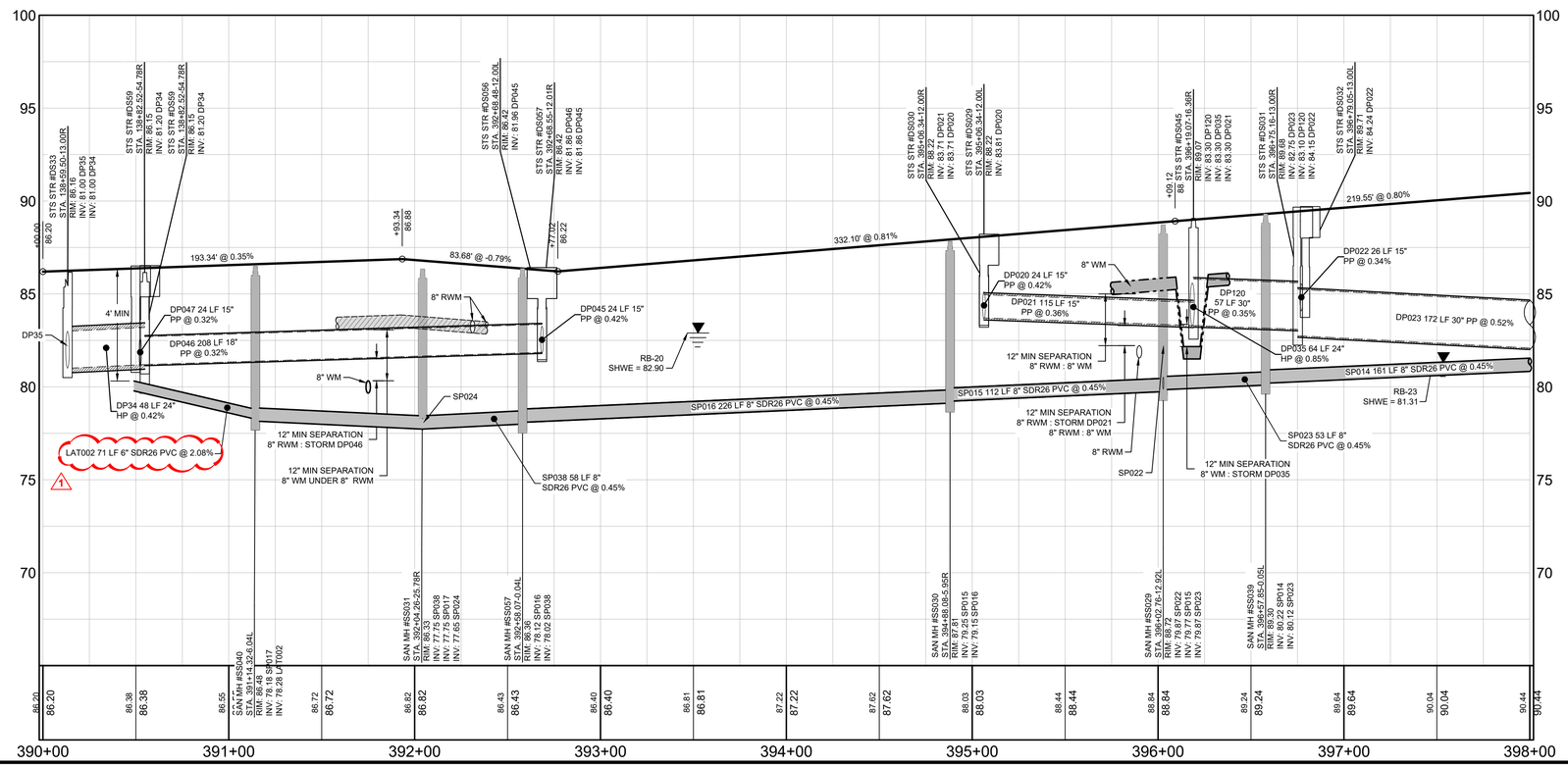

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LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
3880 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

DATE	REVISIONS
07/25/25	REVISED PER TOWN COMMENTS

DAVID ASHLEY STOKES
LICENSE NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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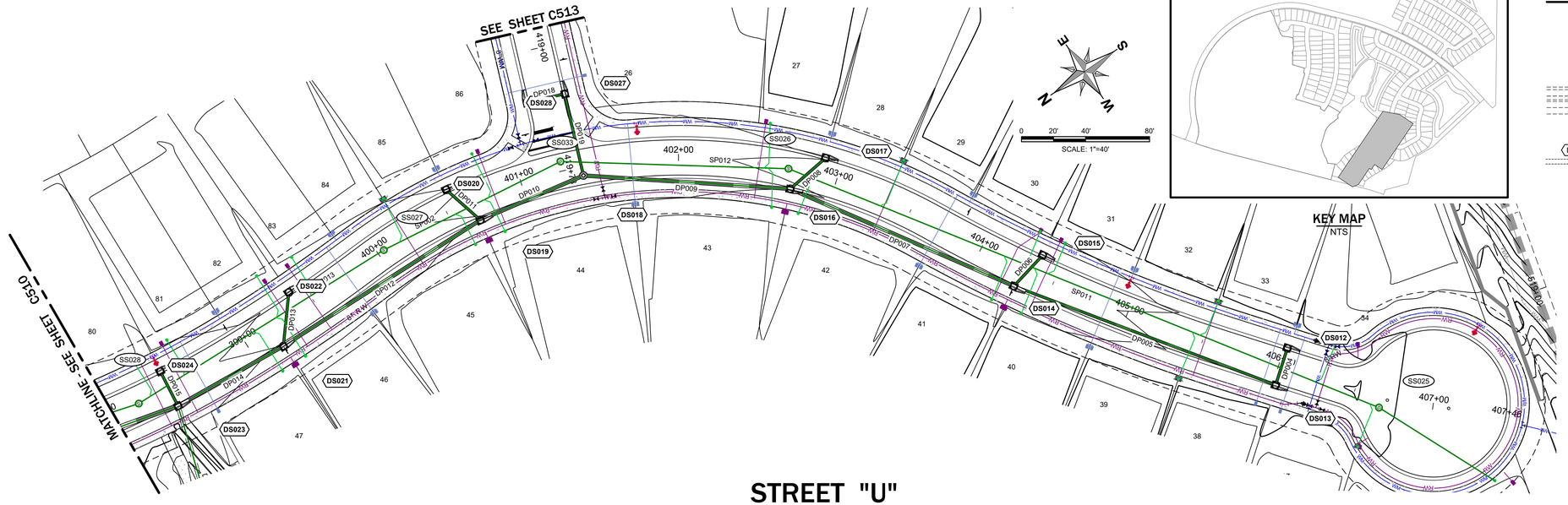

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
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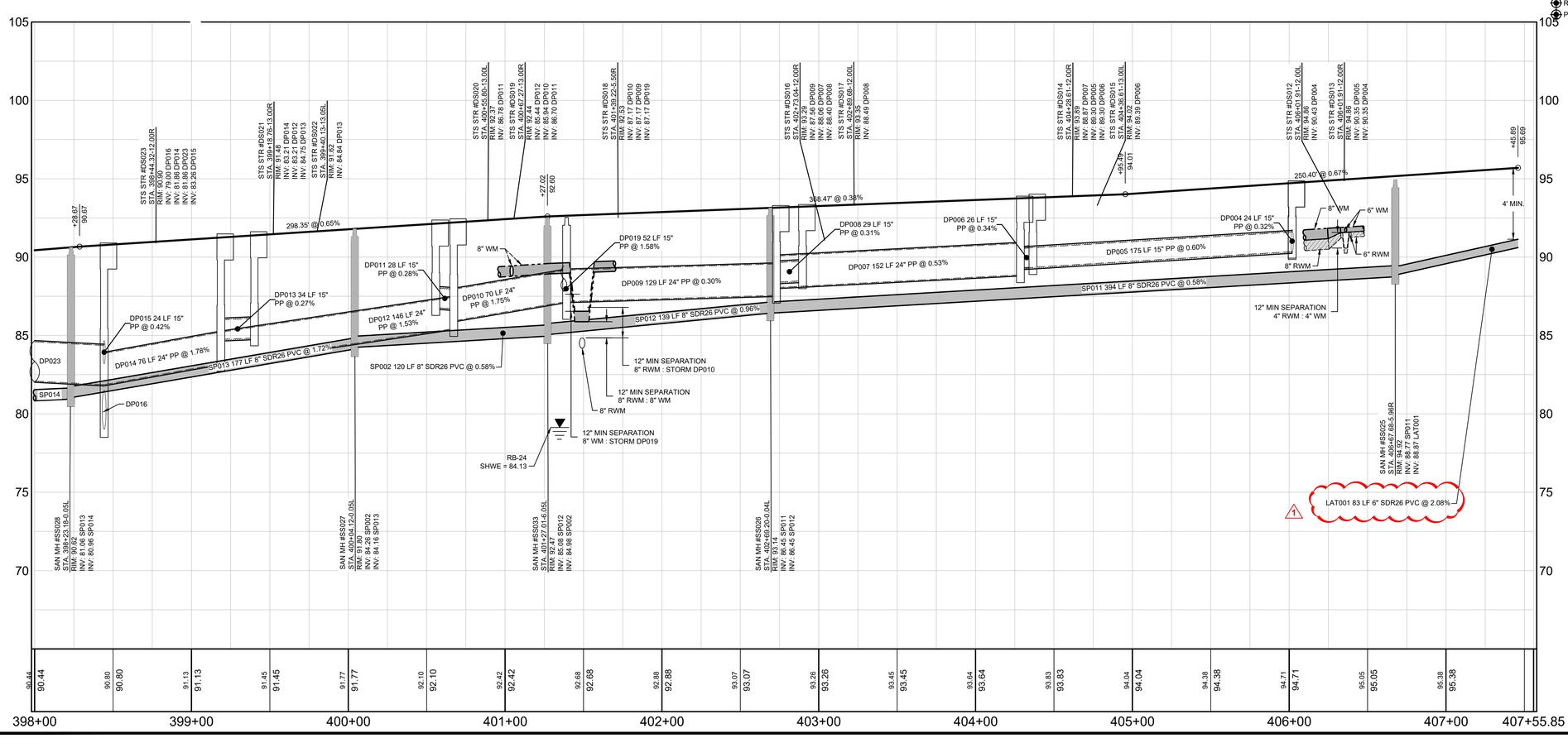

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PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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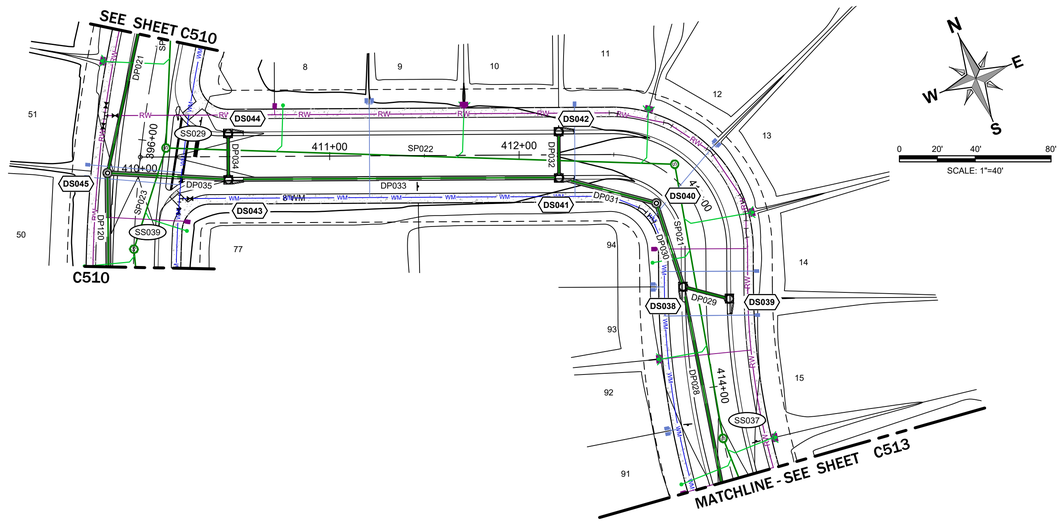
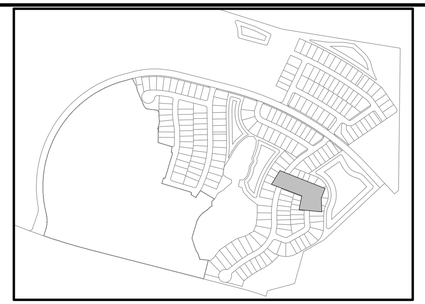




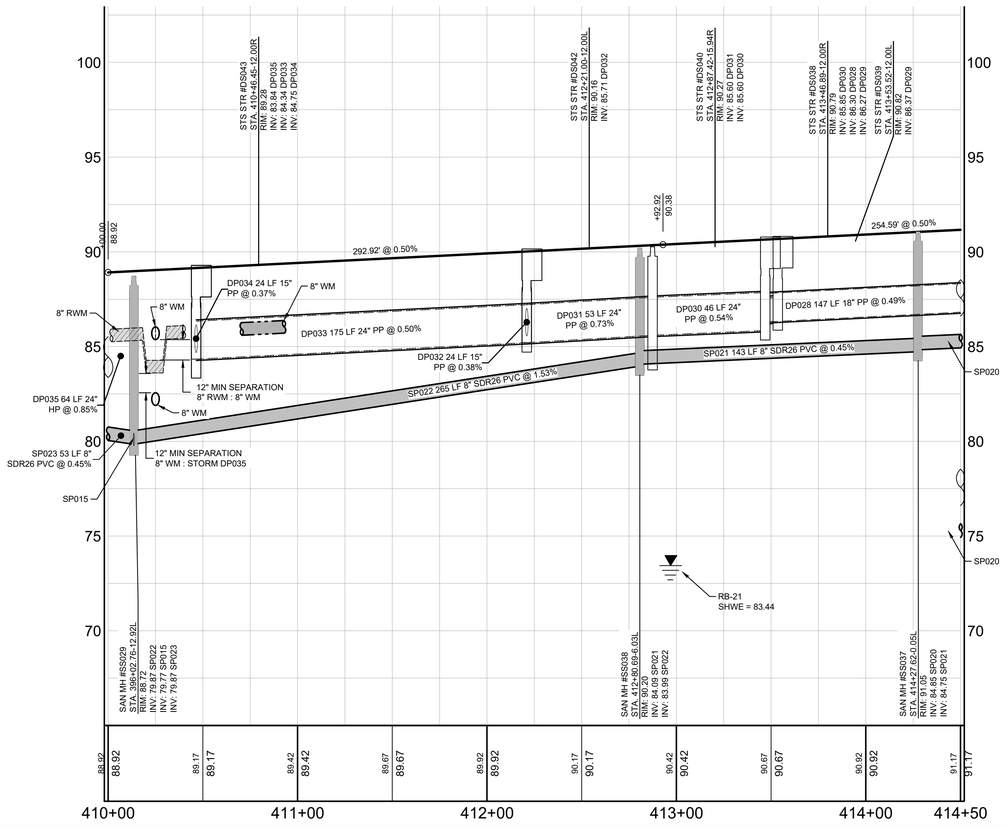
KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
		DOUBLE SANITARY SERVICE (6")
B-1		SOIL BORING
R-1		SOIL BORING (ROADWAY)
P-1		SOIL BORING (POND)

HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'

STREET "V"



ESTIMATED WET SEASON WATER TABLE AND WATER TABLE LOCATED ON PROFILE BASED ON BOREHOLES. (REF: YOVAISH ENGINEERING SERVICES, PROJECT NO. 0130.2200427.000)

WATER MAIN AND RE-USE WATER LINES SHALL BE BURIED WITH A MINIMUM 36" GROUND COVER.

THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY CROSSINGS DO NOT MEET THE REQUIRED SEPARATION CRITERIA PRIOR TO BACKFILLING. THE EOR WILL ASSIST THE PROJECT TEAM IN DETERMINING THE APPROPRIATE MODIFICATIONS NEEDED IN ORDER TO MEET THE SEPARATION REQUIREMENTS. NO BACKFILLING SHALL OCCUR UNTIL AFTER THE MODIFICATIONS ARE APPROVED BY THE OWNER AND AHJ (IF REQUIRED), CORRECTIONS COMPLETED, AND CORRECTIONS HAVE BEEN FIELD VERIFIED.

ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 858-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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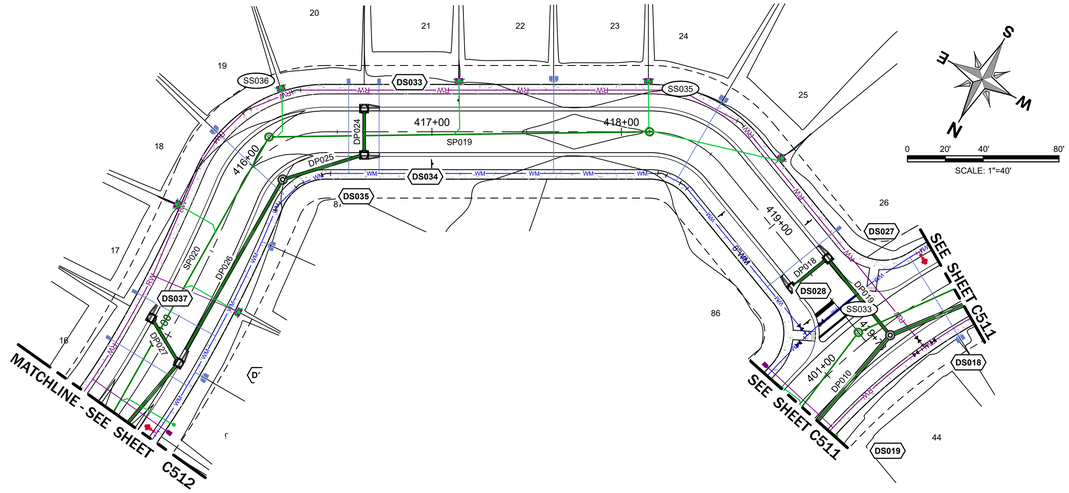

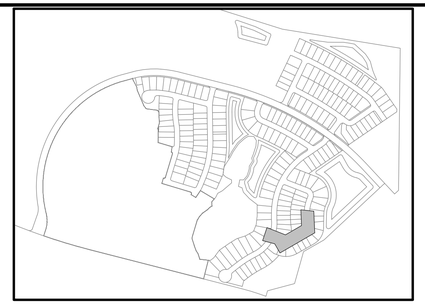

KEY MAP
NTS

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
		LOT SETBACK
		UTILITY EASEMENT (U.E.)
		DRAINAGE EASEMENT (D.E.)
		EASEMENT (OTHER)
		CURB
		CURB AND GUTTER
		MIAMI CURB
		CONCRETE WALK
		POND MAINTENANCE BERM
DS100	DS100	STORM STRUCTURE NUMBER
		STORM DRAINAGE MANHOLE
	OR OR	STORM DRAINAGE INLET
		YARD DRAIN
	OR	OUTFALL STRUCTURE
	OUT-1	PIPE END (OUTFALL)
		GATE VALVE & BOX
		PLUG VALVE & BOX
		BUTTERFLY VALVE & BOX
		CHECK VALVE
		BLOW-OFF VALVE ASSEMBLY
		BENDS
	OR	TEE
		REDUCER
	DDCV	DOUBLE DETECTOR CHECK VALVE
		JUMPER CONNECTION
	BFP	BACKFLOW PREVENTER
		FIRE HYDRANT
	WM	WATER MAIN (WM)
		WATER SERVICE
	RW	RECLAIM WATER MAIN (RM)
		FORCE MAIN (FM)
	SS100	SANITARY SEWER STRUCTURE #
	S	SANITARY SEWER
		SINGLE SANITARY SERVICE (6")
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B-1		SOIL BORING
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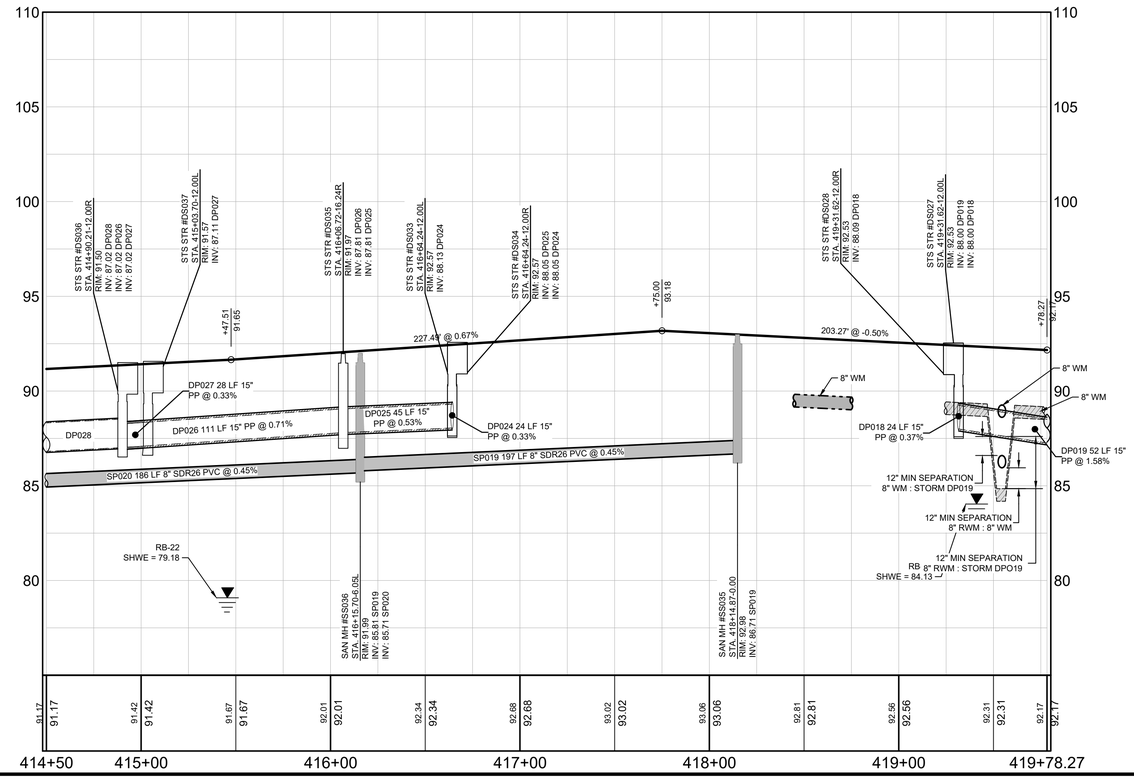
P-1		SOIL BORING (POND)

STREET "V"

HORZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



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ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
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Maitland, Florida 32751
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CA# 0007723

ROADWAY PLAN AND PROFILES
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

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5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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DAVID ASHLEY STOKES
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STATE OF FLORIDA
PROFESSIONAL ENGINEER

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JOB # 23019
DATE: 01/15/25
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DRAWN BY: JSK
APPROVED BY: DAS

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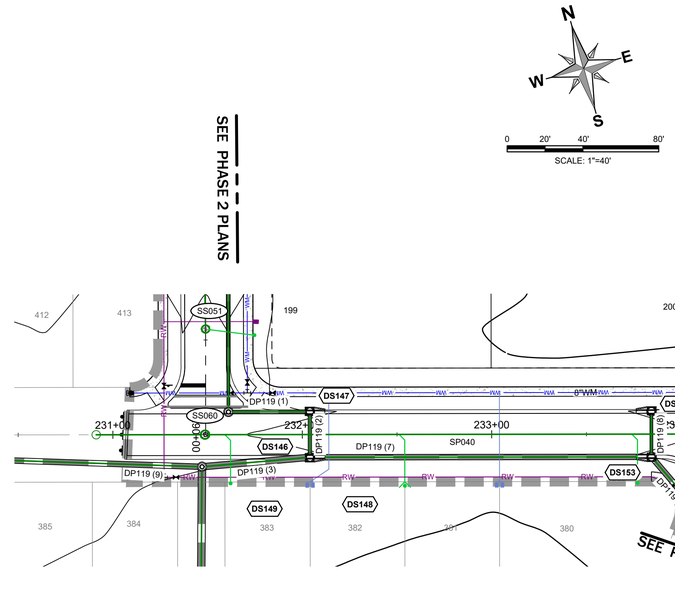
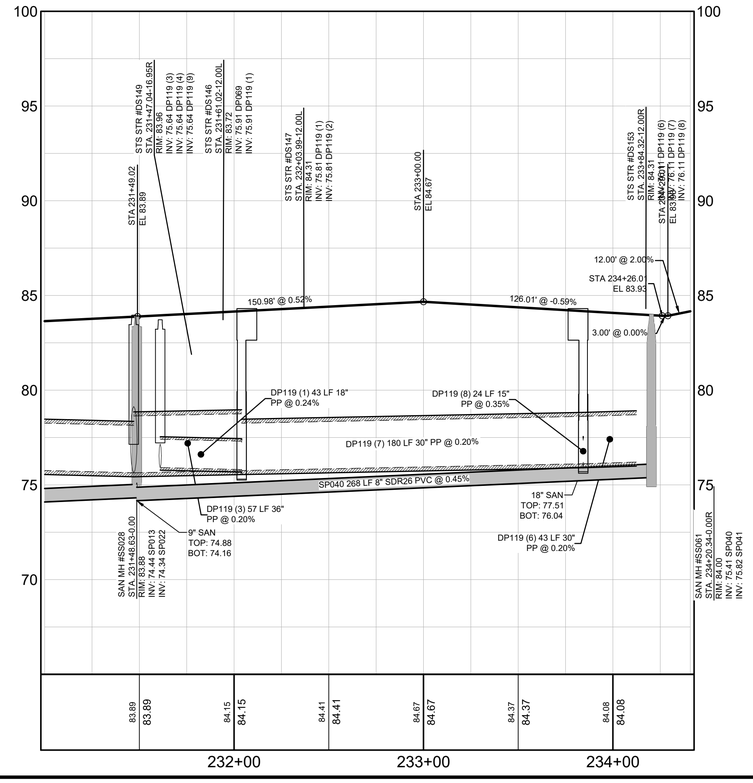
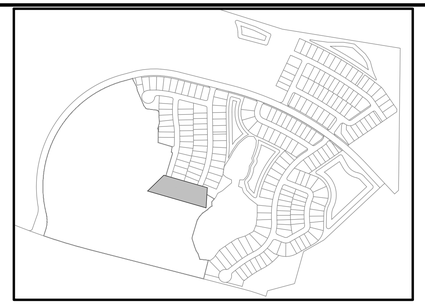


STREET "H"





KEY MAP
NTS

LEGEND

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		BOUNDARY
		RIGHT OF WAY (MAJOR)
		RIGHT OF WAY (MINOR)
		TRACT LINE
		LOT LINE
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DS100	DS100	STORM STRUCTURE NUMBER
	DS100	STORM DRAINAGE MANHOLE
	OR OR OR	STORM DRAINAGE INLET
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HORZ. SCALE: 1" = 40'

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ESTIMATED SEASONAL HIGH WATER LEVEL

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

ROADWAY PLAN AND PROFILES FOR LAKE HILLS PHASE 1

LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5860 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C514

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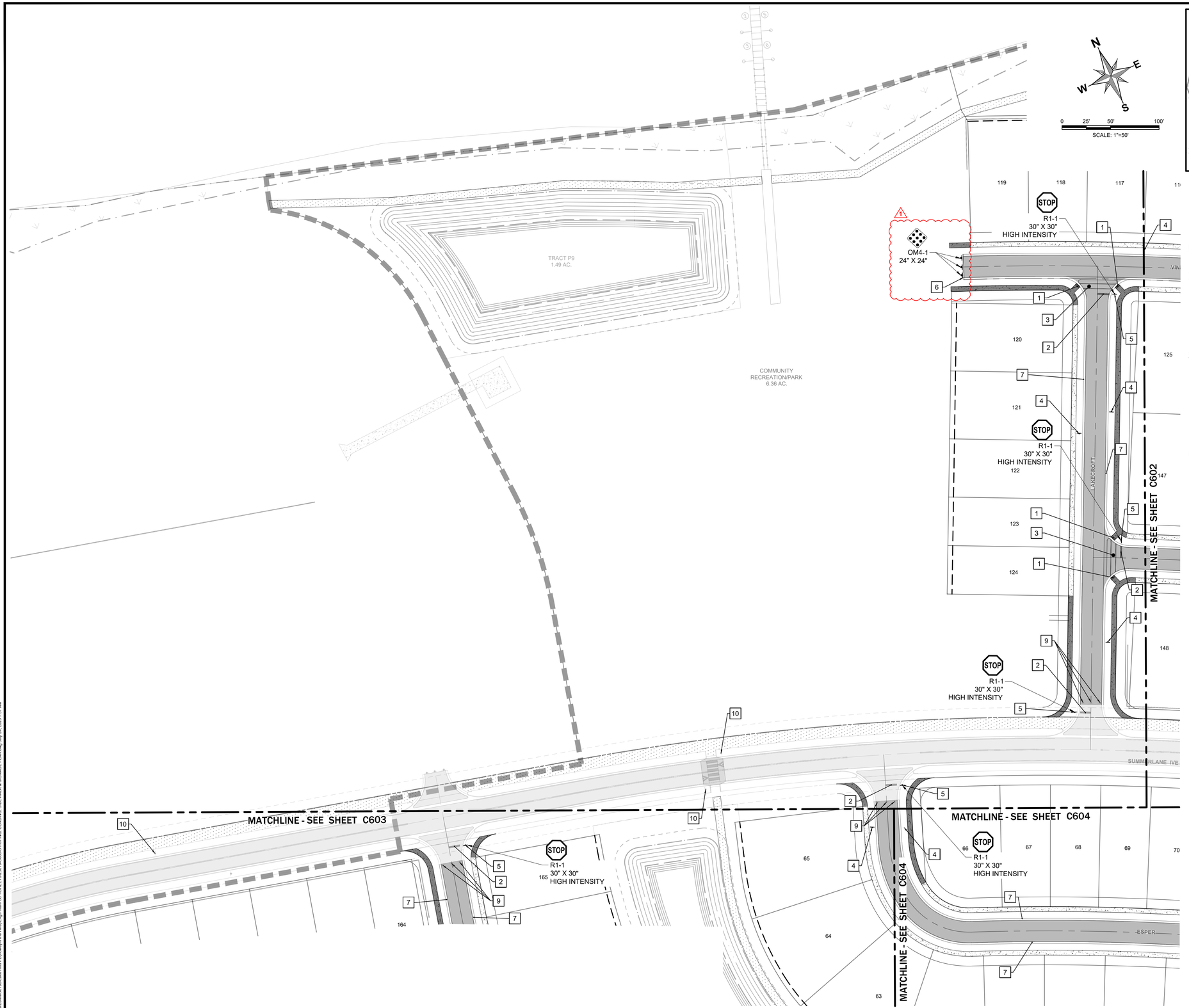

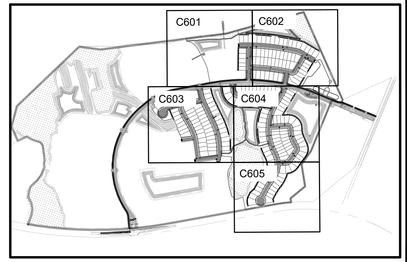

KEY MAP
NTS

SIGNAGE NOTES

1. ALL STREET NAME SIGNS ARE TO BE WHITE ON BLUE INDICATING PRIVATE ROADS (NON-COUNTY).
2. ALL STREET SIGNS TO BE DECORATIVE.
3. ALL TEMPORARY DEAD END (9) BUTTON SIGN ARE TO BE NON-DECORATIVE.
4. CONTRACTOR MUST SUBMIT SIGNAGE SHOP DRAWINGS FOR APPROVAL.
5. ALL STRIPING WITHIN RIGHT OF WAY TO BE THERMOPLASTIC.
6. ALL REFLECTIVE PAVEMENT MARKINGS SHALL BE INSTALL PER FDOT INDEX 17352.

SIGN LEGEND: (PER FDOT INDEX 17349)



1 OM4-1 24" x 24" SEE DETAIL R-21 SHEET C904



R1-1 30" x 30" HIGH INTENSITY



R2-1 18" x 24" HIGH INTENSITY

 # PAVEMENT, SIDEWALK, & CURBING NOTES

1. DETECTABLE WARNING AND SIDEWALK RAMPS (FDOT INDEX 522-002)
2. 24" WHITE THERMOPLASTIC STOP BAR PER FDOT INDEX 711-001
3. CROSSWALK PER FDOT INDEX 711-011
4. SPEED LIMIT SIGN PER FDOT INDEX
5. R1-1 STOP SIGN PER FDOT INDEX
6. RIBBON CURB
7. TYPE "V" CURB
8. HANDICAP RAMP
9. EXISTING SIGN TO BE REMOVED
10. EXISTING SIGN TO BE SAVED

HATCH LEGEND

- TYPICAL SIDEWALKS (1)
- TYPICAL SIDEWALKS BUILT WITH INFRASTRUCTURE (1)
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

(1) **NOTE:** ALL CURB RAMPS ARE TO BE BUILT WITH INFRASTRUCTURE.

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STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
9850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
1	07/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
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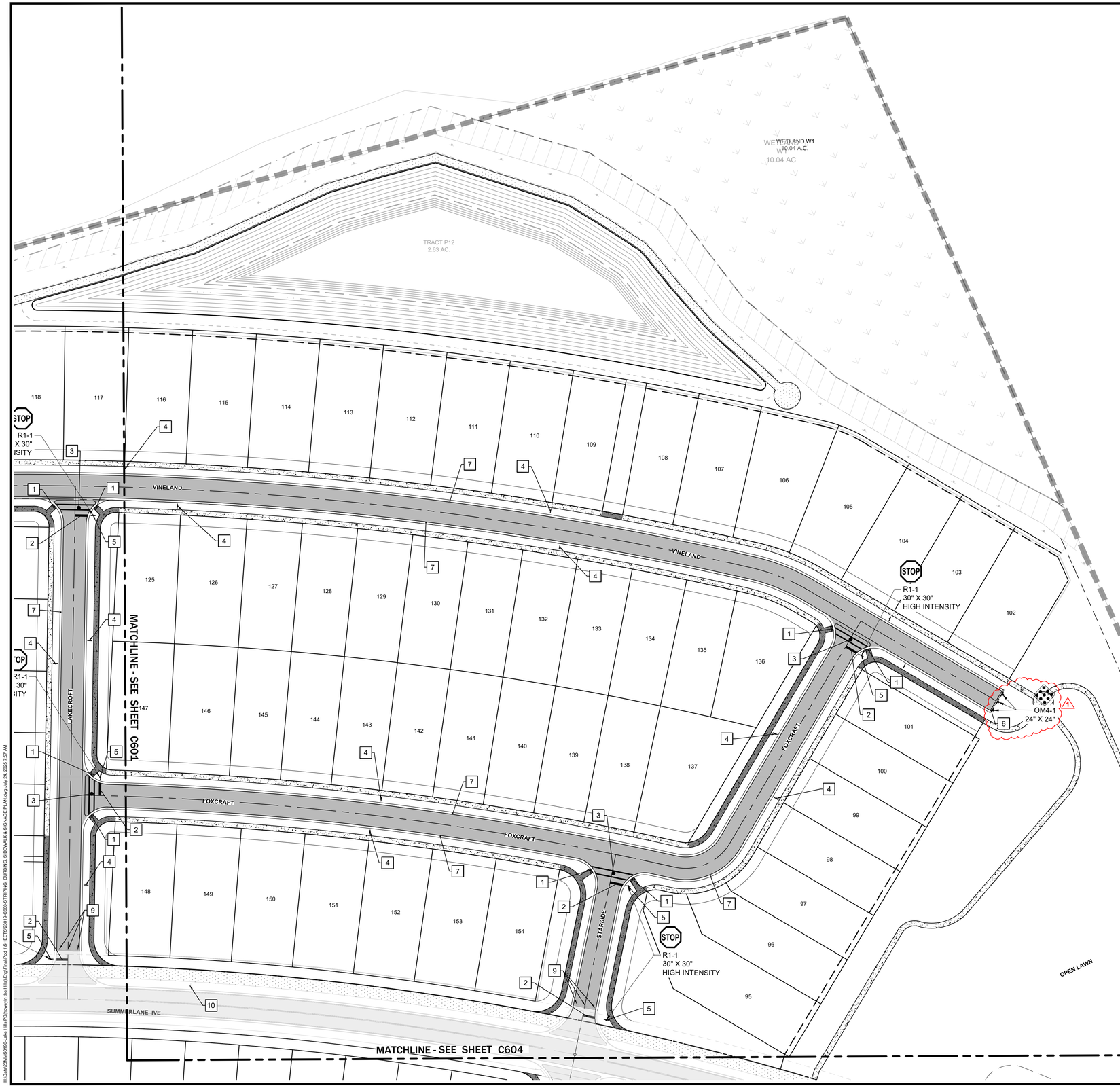

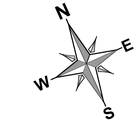

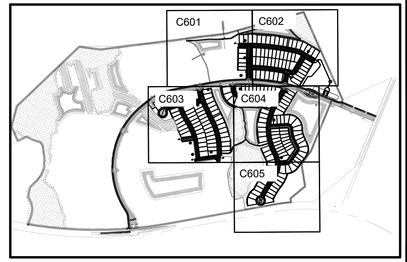

KEY MAP
NTS

SIGNAGE NOTES
1. ALL STREET NAME SIGNS ARE TO BE WHITE ON BLUE INDICATING PRIVATE ROADS (NON-COUNTY).
2. ALL STREET SIGNS TO BE DECORATIVE.
3. ALL TEMPORARY DEAD END (9) BUTTON SIGN ARE TO BE NON-DECORATIVE.
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SIGN LEGEND: (PER FDOT INDEX 17349)



1 OM4-1
24" x 24"
SEE DETAIL R-21
SHEET C904



R1-1
30" x 30"
HIGH INTENSITY



R2-1
18" x 24"
HIGH INTENSITY

PAVEMENT, SIDEWALK, & CURBING NOTES
1. DETECTABLE WARNING AND SIDEWALK RAMPS (FDOT INDEX 522-002)
2. 24" WHITE THERMOPLASTIC STOP BAR PER FDOT INDEX 711-001
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- TYPICAL SIDEWALKS BUILT WITH INFRASTRUCTURE (1)
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

NOTE:
(1) ALL CURB RAMPS ARE TO BE BUILT WITH INFRASTRUCTURE.

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C602

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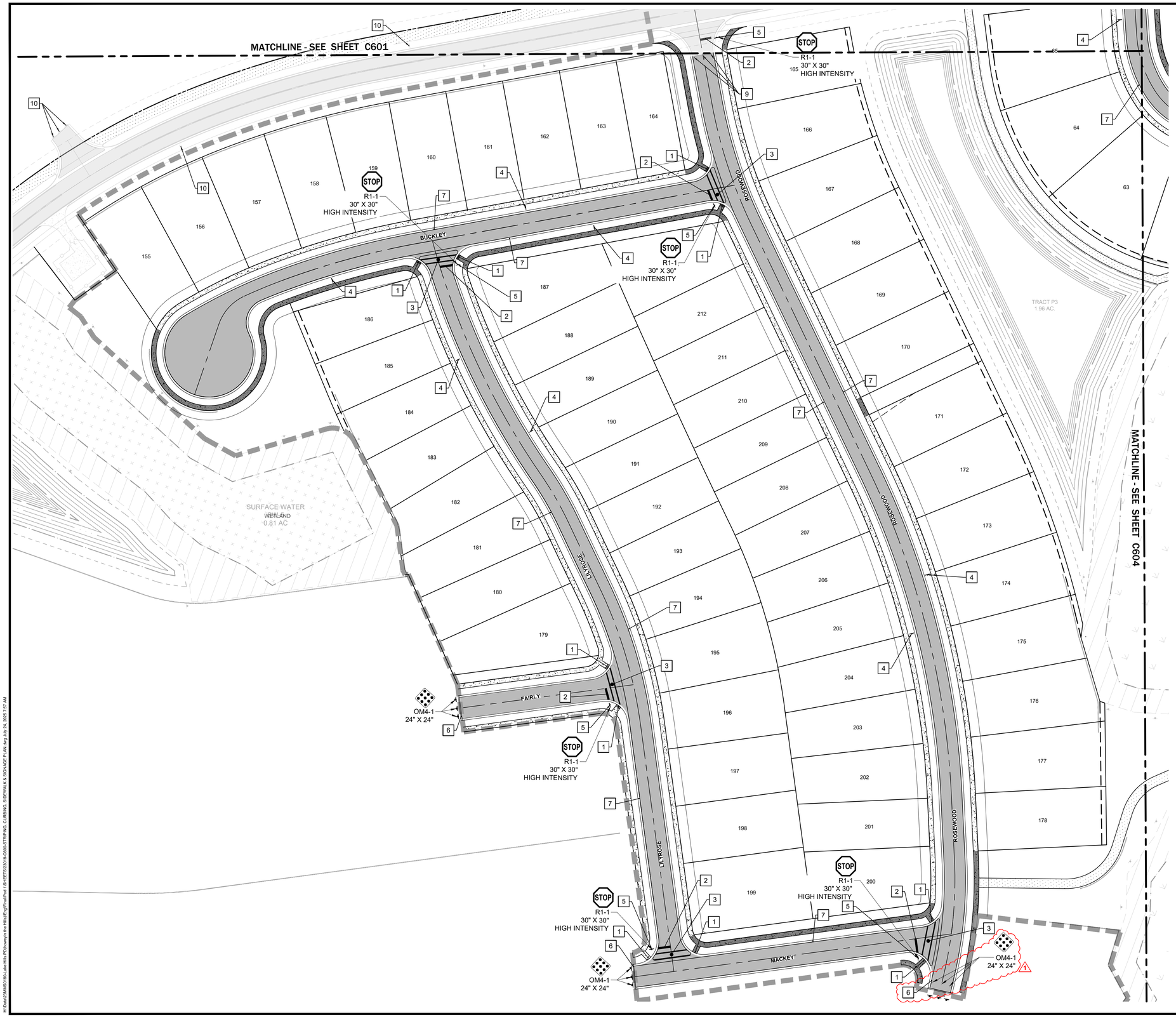

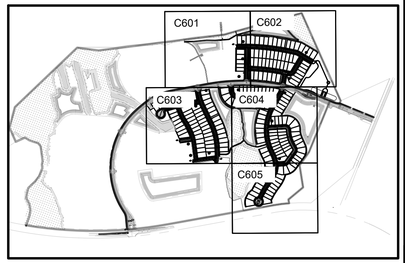

KEY MAP

NTS

N E S W

0 25' 50' 100'

SCALE: 1"=50'

SIGNAGE NOTES

1. ALL STREET NAME SIGNS ARE TO BE WHITE ON BLUE INDICATING PRIVATE ROADS (NON-COUNTY).
2. ALL STREET SIGNS TO BE DECORATIVE.
3. ALL TEMPORARY DEAD END (9) BUTTON SIGN ARE TO BE NON-DECORATIVE.
4. CONTRACTOR MUST SUBMIT SIGNAGE SHOP DRAWINGS FOR APPROVAL.
5. ALL STRIPING WITHIN RIGHT OF WAY TO BE THERMOPLASTIC.
6. ALL REFLECTIVE PAVEMENT MARKINGS SHALL BE INSTALL PER FDOT INDEX 17352.

SIGN LEGEND: (PER FDOT INDEX 17349)



OM4-1
24" x 24"
SEE DETAIL R-21
SHEET C904



R1-1
30" x 30"
HIGH INTENSITY



R2-1
18" x 24"
HIGH INTENSITY

PAVEMENT, SIDEWALK, & CURBING NOTES

1. DETECTABLE WARNING AND SIDEWALK RAMPS (FDOT INDEX 522-002)
2. 24" WHITE THERMOPLASTIC STOP BAR PER FDOT INDEX 711-001
3. CROSSWALK PER FDOT INDEX 711-011
4. SPEED LIMIT SIGN PER FDOT INDEX
5. R1-1 STOP SIGN PER FDOT INDEX
6. RIBBON CURB
7. TYPE "V" CURB
8. HANDICAP RAMP
9. EXISTING SIGN TO BE REMOVED
10. EXISTING SIGN TO BE SAVED

HATCH LEGEND

- TYPICAL SIDEWALKS
- TYPICAL SIDEWALKS BUILT WITH INFRASTRUCTURE
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

NOTE:
ALL CURB RAMPS ARE TO BE BUILT WITH INFRASTRUCTURE.

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
1	07/17/25	REV. PER HOWEY IN THE HILLS COMMENTS
2		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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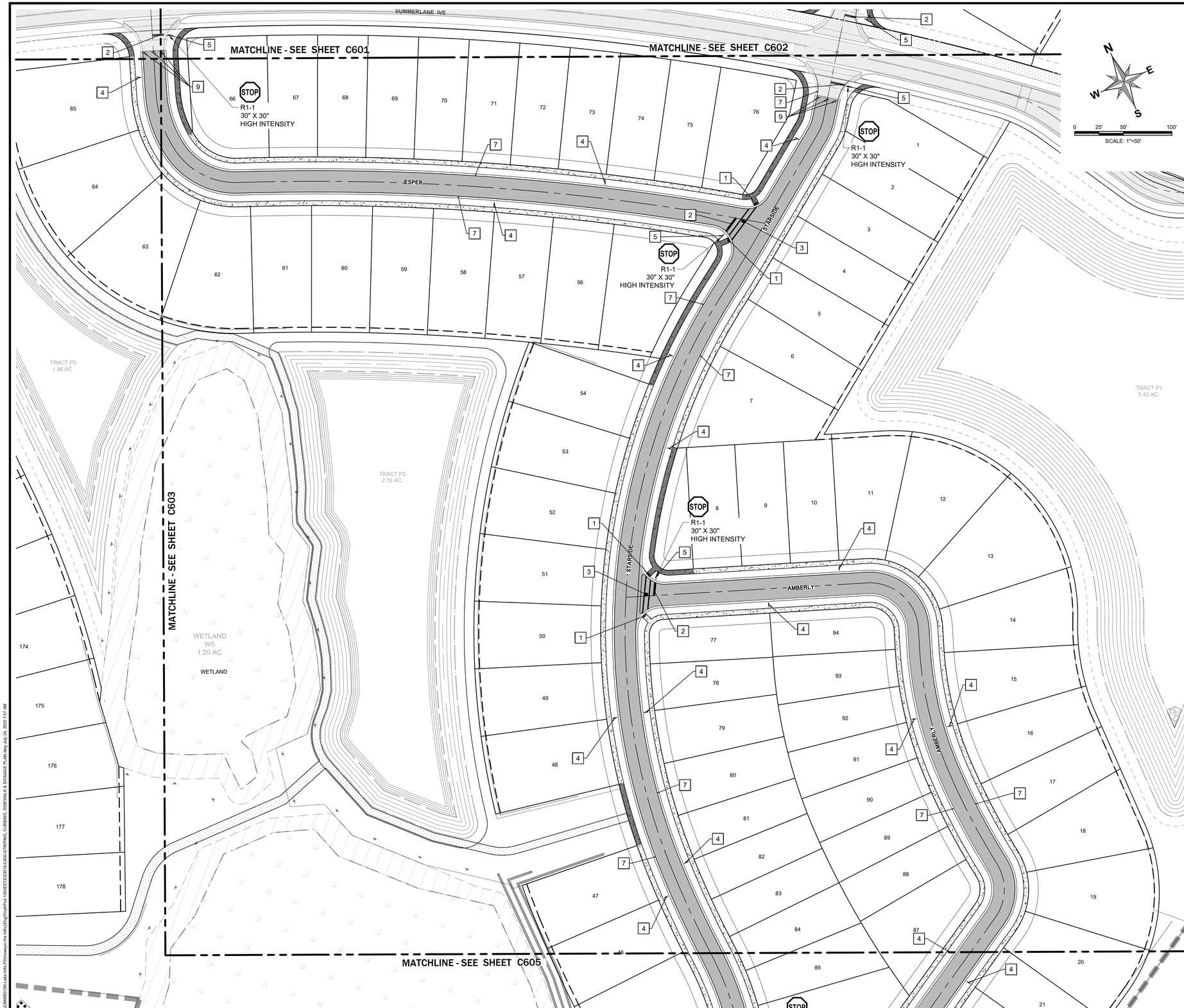
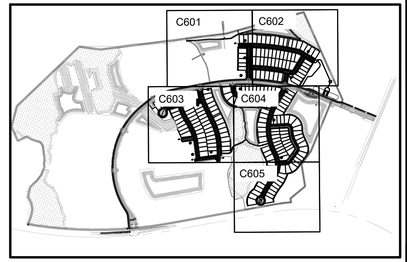
ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C603





KEY MAP
NTS

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SIGN LEGEND: (PER FDOT INDEX 17349)



1 OM4-1
24" x 24"
SEE DETAIL R-21
SHEET C904

R1-1
30" x 30"
HIGH INTENSITY

R2-1
18" x 24"
HIGH INTENSITY

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6. RIBBON CURB
7. TYPE "V" CURB
8. HANDICAP RAMP
9. EXISTING SIGN TO BE REMOVED
10. EXISTING SIGN TO BE SAVED

HATCH LEGEND
- TYPICAL SIDEWALKS
- TYPICAL SIDEWALKS BUILT WITH INFRASTRUCTURE 1
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK

NOTE:
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STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
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APPROVED BY:	DAS

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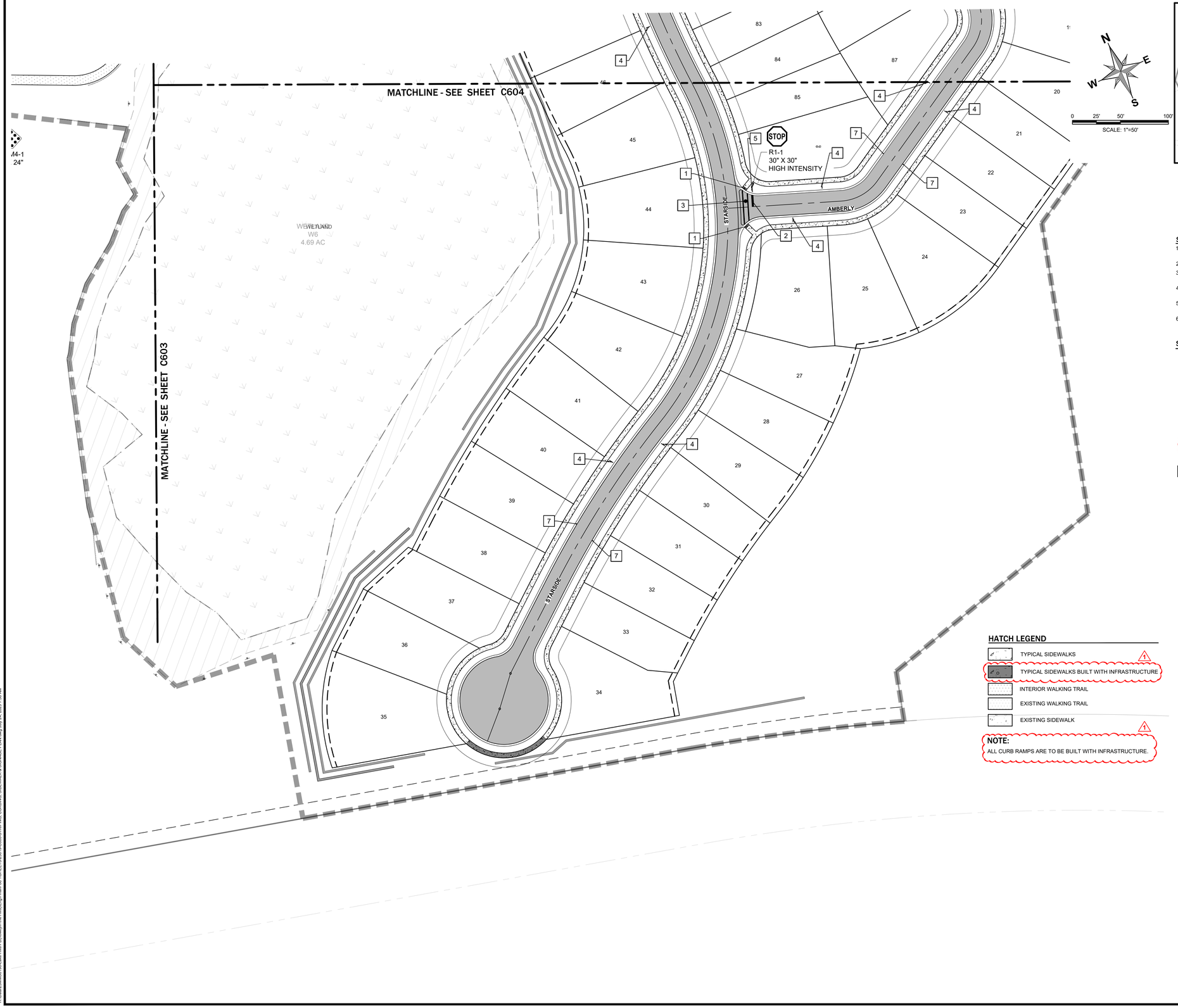
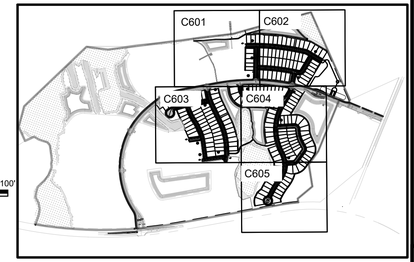
Item 1.





KEY MAP
NTS

SIGNAGE NOTES
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2. ALL STREET SIGNS TO BE DECORATIVE.
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24" x 24"
SEE DETAIL R-21
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R1-1
30" x 30"
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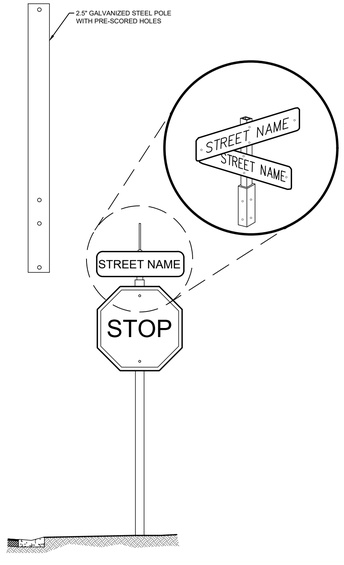
10. EXISTING SIGN TO BE SAVED

HATCH LEGEND
- TYPICAL SIDEWALKS
- TYPICAL SIDEWALKS BUILT WITH INFRASTRUCTURE (1)
- INTERIOR WALKING TRAIL
- EXISTING WALKING TRAIL
- EXISTING SIDEWALK (1)

NOTE:
ALL CURB RAMPS ARE TO BE BUILT WITH INFRASTRUCTURE.



SIGN MOUNTING DETAIL
NTS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STRIPING, CURBING, SIDEWALK & SIGNAGE PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
1	07/17/25	REV. PER HOWEY IJ THE HILLS COMMENTS
2		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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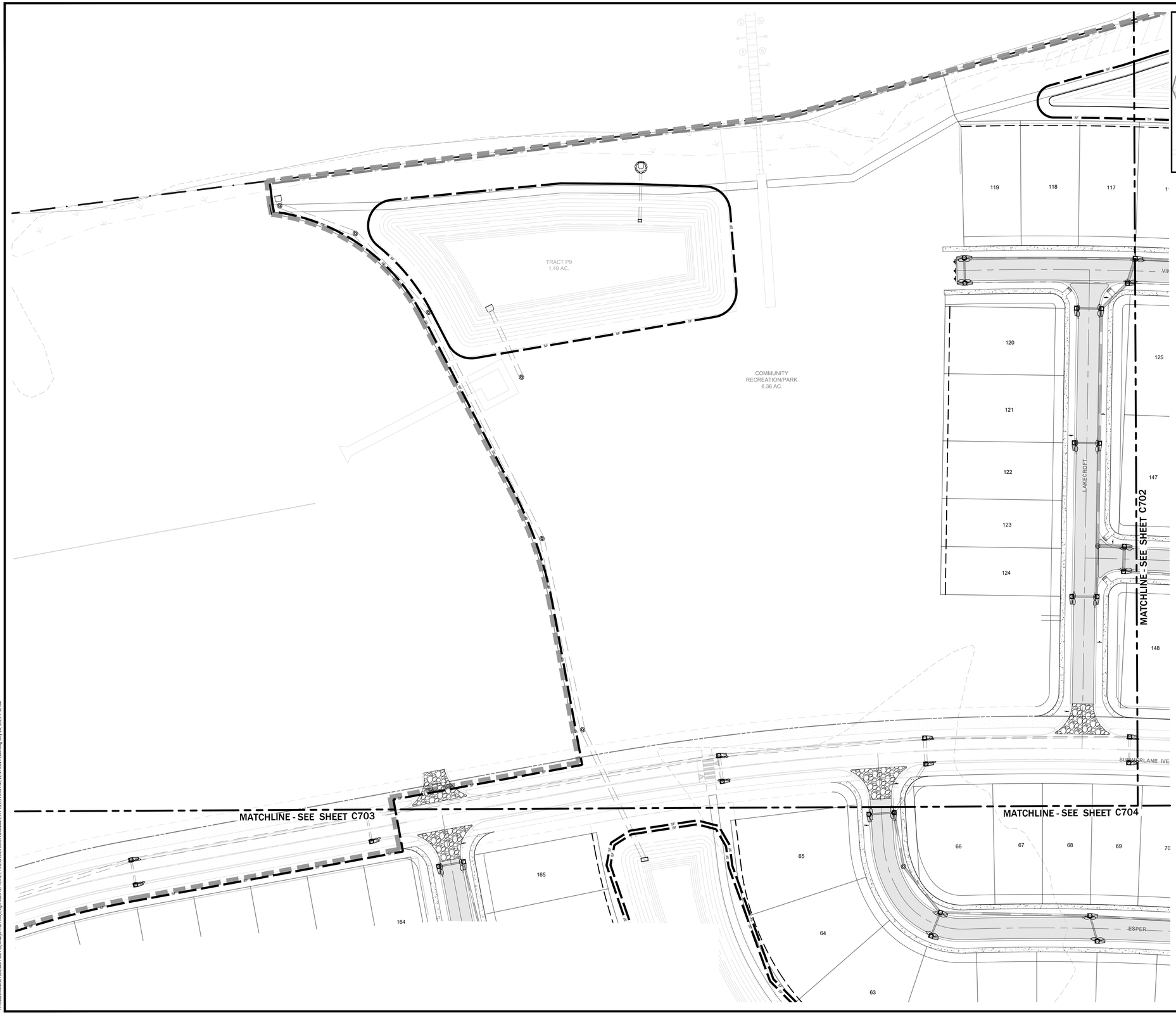

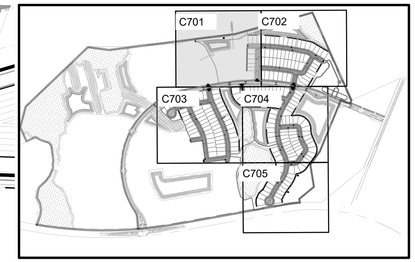

KEY MAP
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0 25' 50' 100'
SCALE: 1"=50'

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

	DATE	REVISIONS
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APPROVED BY:	DAS

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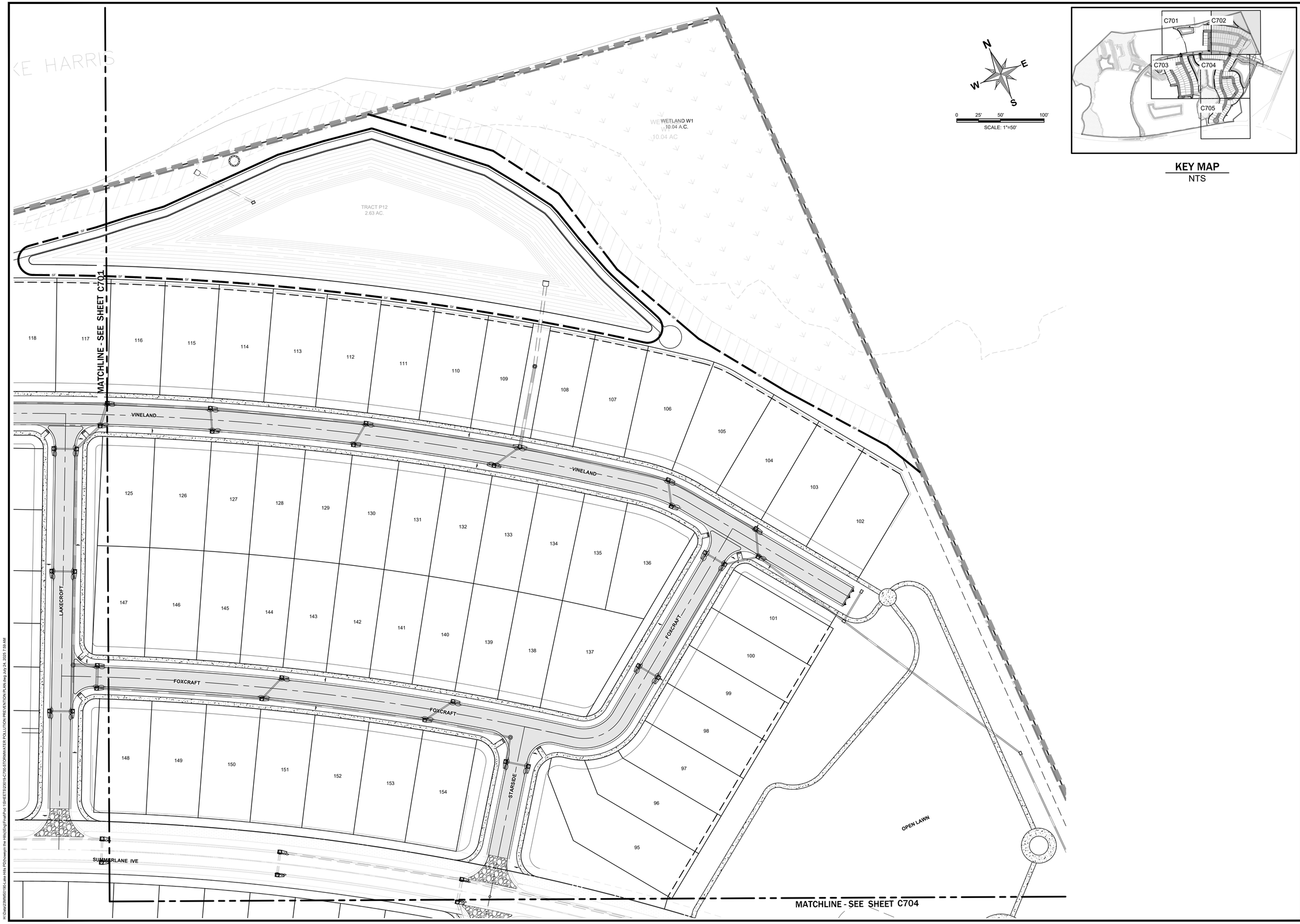

KEY MAP
NTS

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
3950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
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JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

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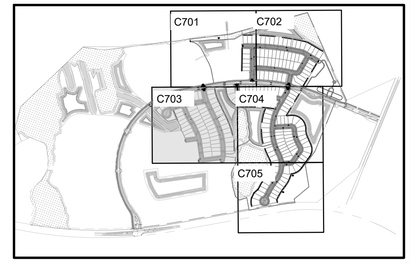

KEY MAP
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SCALE: 1"=50'

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
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CA# 0007723

STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
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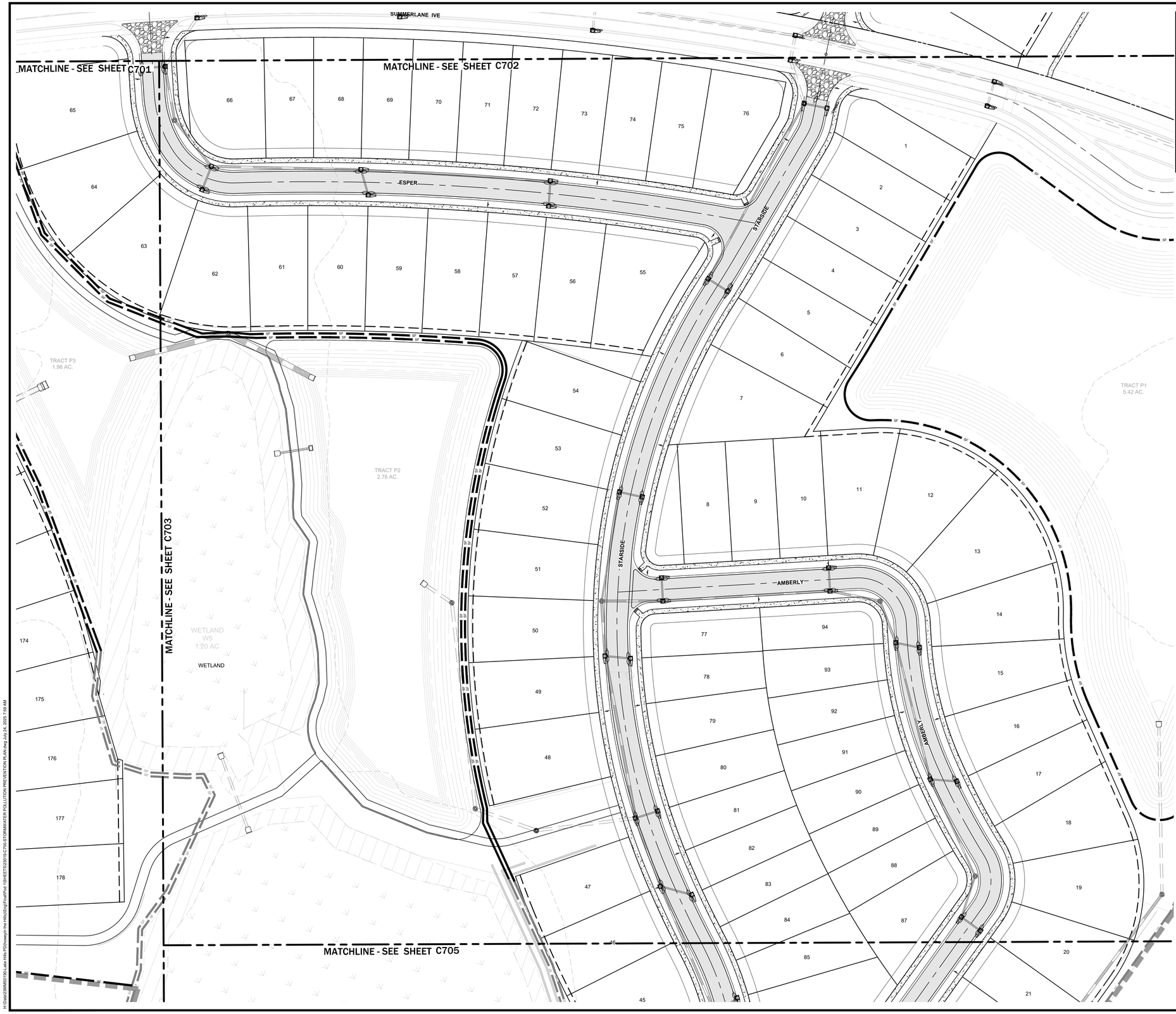
SUMMERLANE IVE
MATCHLINE - SEE SHEET C701
MATCHLINE - SEE SHEET C702
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STARSIDE
AMBERLY
TRACT P1
5.42 AC.
TRACT P2
2.76 AC.
TRACT P3
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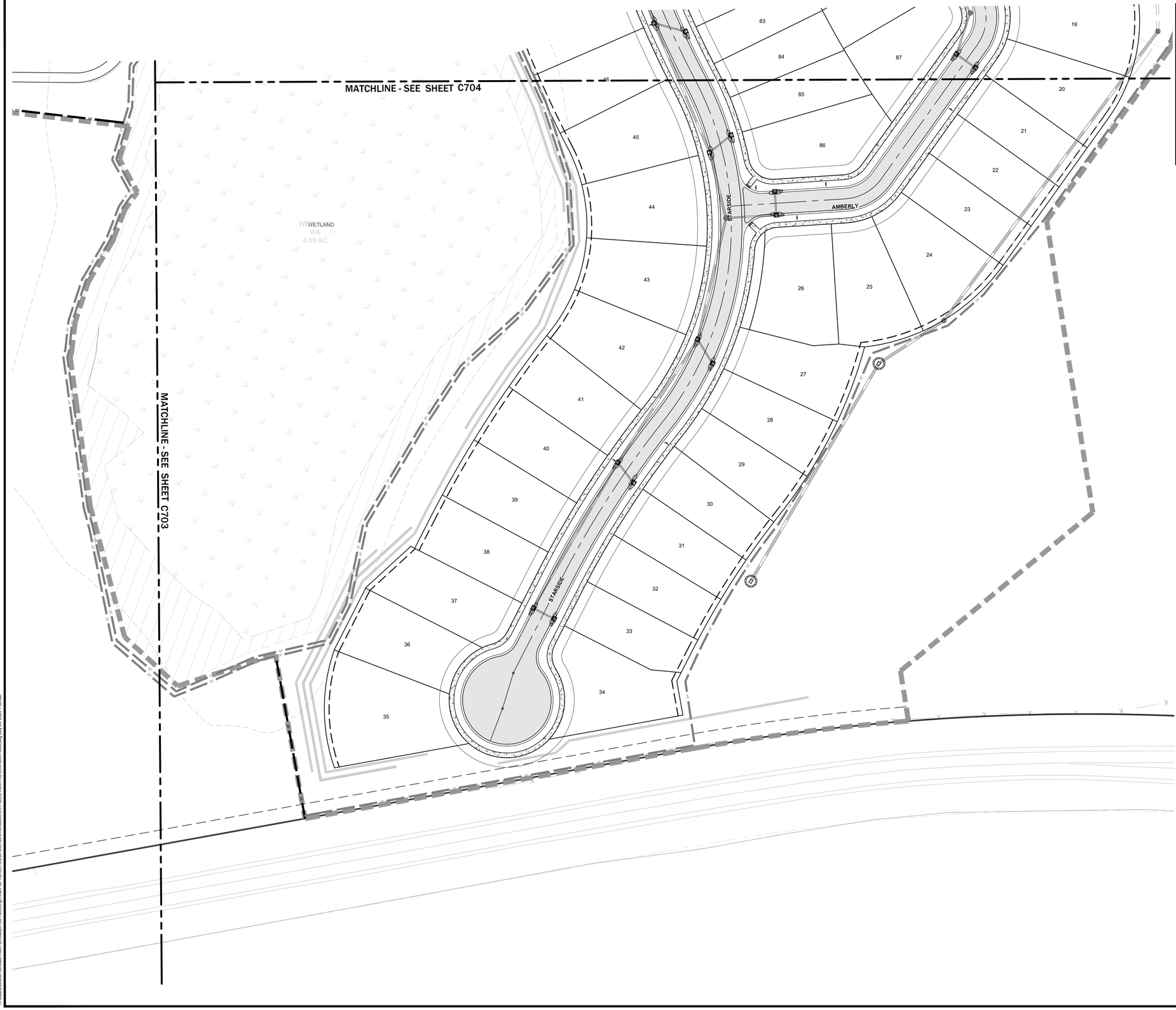

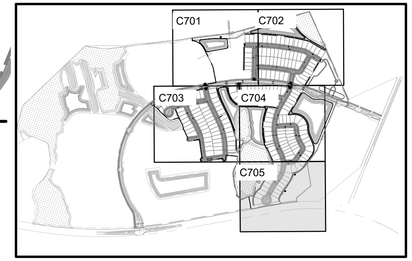

KEY MAP
NTS

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0 25' 50' 100'
SCALE: 1"=50'

SIDEWALK & CURBING NOTES

1. RIBBON CURB
2. TYPE "D" CURB
3. HANDICAP RAMP

LEGEND

- 5' WIDE SIDEWALK
- 7' WIDE SIDEWALK
- 7' THICKENED EDGE SIDEWALK
- 10' WIDE SIDEWALK

MADDEN
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CIVIL ENGINEERS
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STORMWATER POLLUTION PREVENTION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

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DESIGNED BY:	PCR
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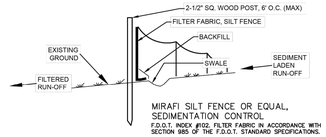
APPROVED BY:	DAS

C705



MIRAFI SILT FENCE OR EQUAL, SEDIMENTATION CONTROL

F.D.O.T. INDEX #102, FILTER FABRIC IN ACCORDANCE WITH SECTION 985 OF THE F.D.O.T. STANDARD SPECIFICATIONS.

NOTES:

1. TEMPORARY EROSION CONTROL STRUCTURE TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY ENGINEER OR AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURE MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY CONTRACTOR.
2. CONSTRUCT STORMWATER SYSTEMS BEFORE ANY BUILDING OR ROAD CONSTRUCTION IS STARTED.
   a.) PROTECT SYSTEM FROM SILTING AND DEBRIS BY METHODS PROVIDED IN DETAILS.
   b.) PROTECT SWALE BOTTOM FROM SEALING BY EXCAVATING ALL SILT DEPOSITS DURING CONSTRUCTION. THIS SHALL BE DONE BEFORE SOD & SEEDING & MULCHING IS FINISHED

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PRACTICAL TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT.

NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCKPILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATERCOURSE BY RUNOFF OR HIGH WATER.

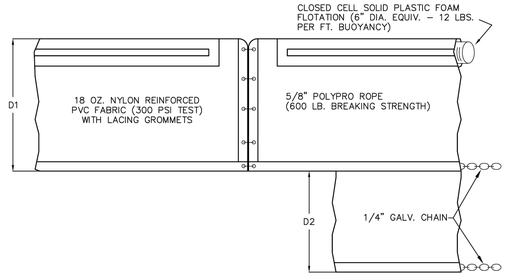
ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

EROSION & SEDIMENT CONTROL (N.T.S.)

Howey-in-the-Hills Standard Details

DATE: FEB 2022

DETAIL G-1



D1 - 5 FT. STANDARD, SINGLE PANEL FOR DEPTHS 5 FT. OR LESS

D2 - 5 FT. STANDARD, ADDITIONAL PANEL FOR DEPTHS GREATER THAN 5 FT.

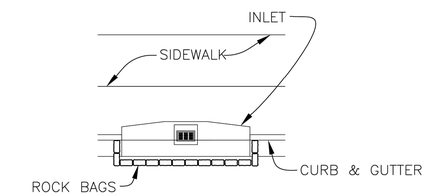
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FT. TWO PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FT., UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN PLANS OR DESIGNATED BY ENGINEER.

FLOATING TURBIDITY BARRIER (N.T.S.)

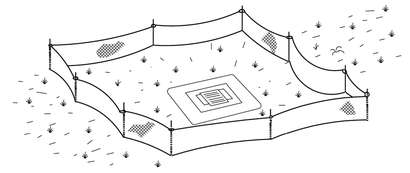
Howey-in-the-Hills Standard Details

DATE: FEB 2022

DETAIL G-2



CURB INLET



TYPE III SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

ALTERNATE DESIGNS MAY BE PROPOSED BY ENGINEER

INLET PROTECTION (N.T.S.)

Howey-in-the-Hills Standard Details

DATE: FEB 2022

DETAIL G-3

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

STORMWATER POLLUTION PREVENTION DETAILS FOR LAKE HILLS PHASE 1 LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C706

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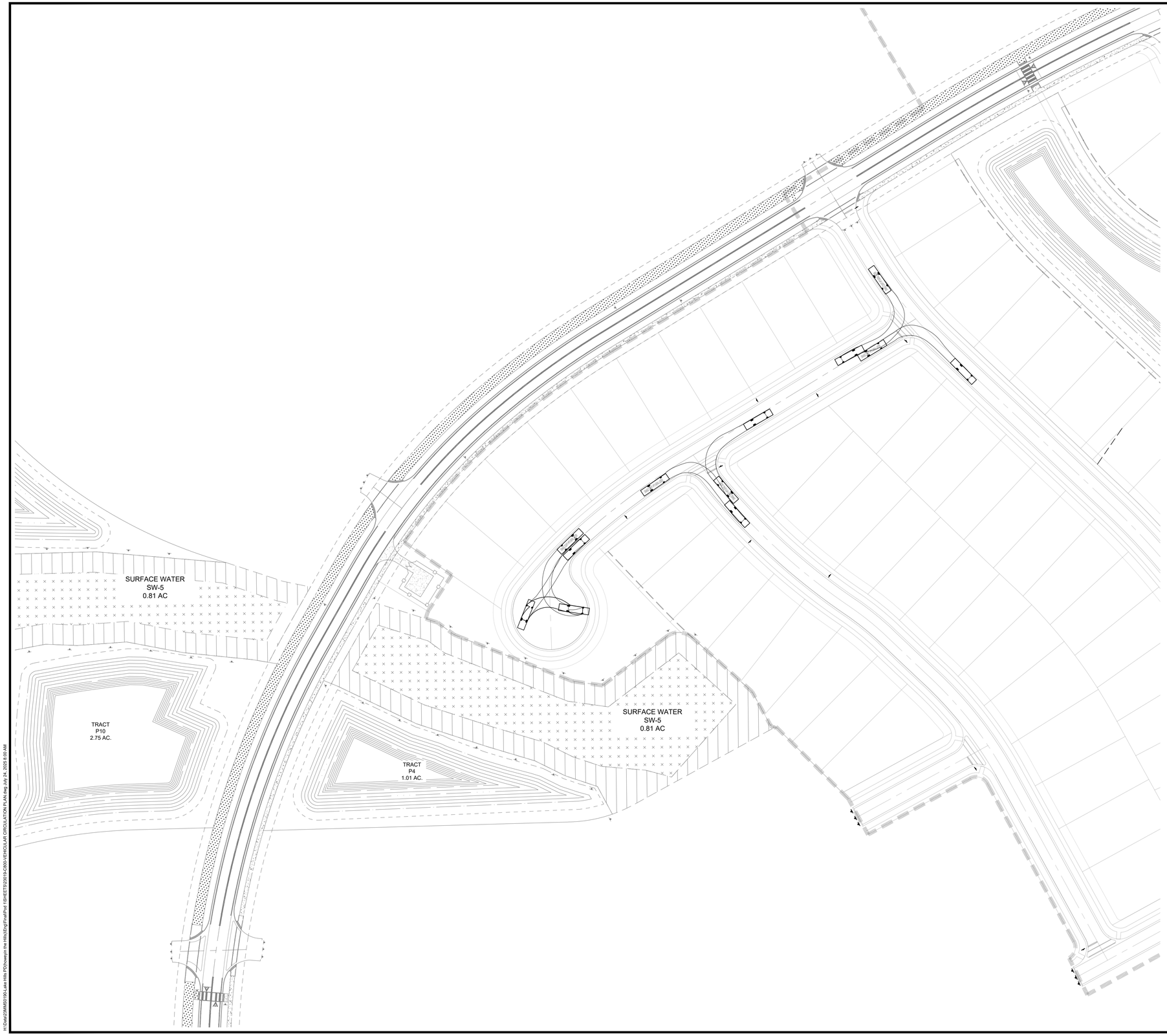
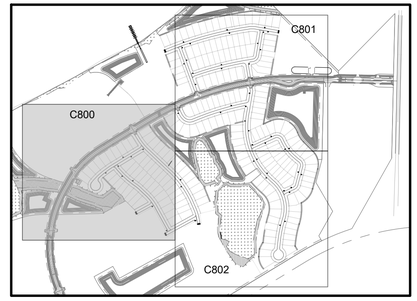
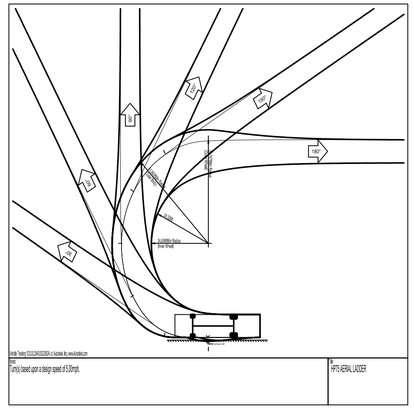
H:\Data\23XM\001\91-Lake Hills PD\Howey\In the Hills\Eng\Final\Pod 1\SHEETS\23019-C700-STORMWATER POLLUTION PREVENTION PLAN.dwg July 24, 2025 7:59 AM

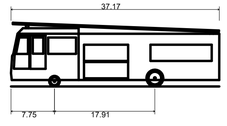






KEY MAP
NTS





LAKE COUNTY	
Overall Length	37.170ft
Overall Width	8.330ft
Overall Body Height	11.367ft
Min Body Ground Clearance	1.147ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	31.80°

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

VEHICULAR CIRCULATION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
3850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

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DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C800

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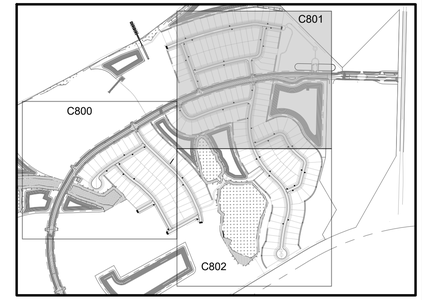
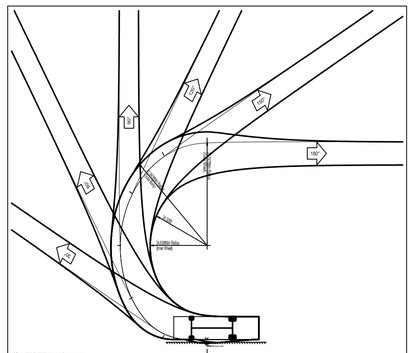
0 30' 60' 120'

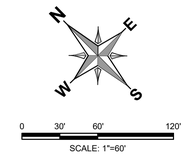
SCALE: 1"=60'

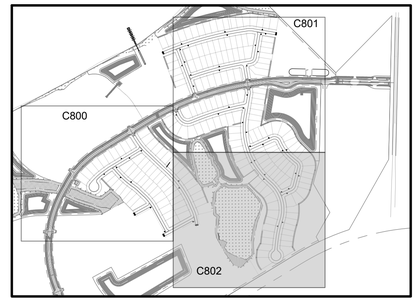


KEY MAP
NTS

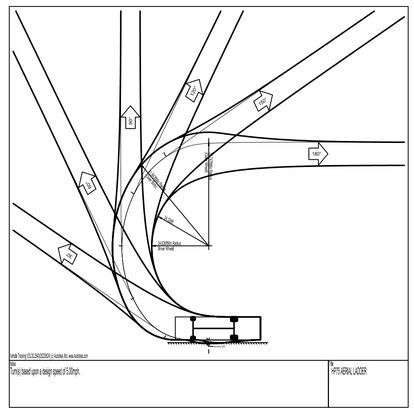

150'
150'
150'

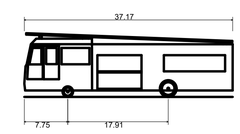






KEY MAP
NTS





LAKE COUNTY	
Overall Length	37.170ft
Overall Width	8.330ft
Overall Body Height	11.367ft
Min Body Ground Clearance	1.147ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	31.80°

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

VEHICULAR CIRCULATION PLAN
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
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DRAWN BY:	JSK
APPROVED BY:	DAS

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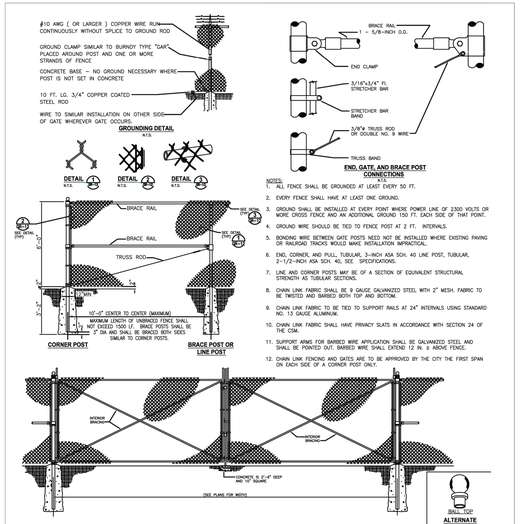
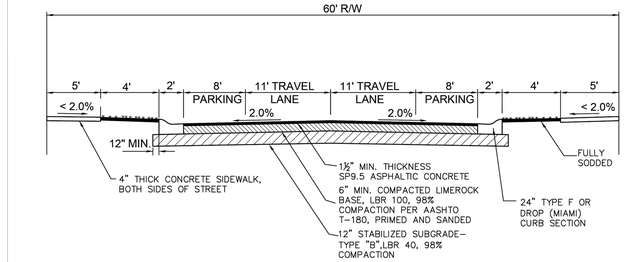


NOTES:
1. ALL FENCE SHALL BE GROUNDED AT LEAST EVERY 50 FT.
2. EVERY FENCE SHALL HAVE AT LEAST ONE GROUND.
3. GROUND SHALL BE INSTALLED AT EVERY POINT WHERE POWER LINE OF 2300 VOLTS OR MORE, CROSS FENCE AND AN ADDITIONAL GROUND 150 FT. EACH SIDE OF THAT POINT.
4. GROUND WIRE SHOULD BE TIED TO FENCE POST AT 2 FT. INTERVALS.
5. BONDING WIRE BETWEEN GATE POSTS NEED NOT BE INSTALLED WHERE EXISTING PAVING OR RAILROAD TRACKS WOULD MAKE INSTALLATION IMPRACTICAL.
6. END, CORNER, AND PULL, TUBULAR, 3–INCH ASA SCH. 40 LINE POST, TUBULAR, 2–1/2–INCH ASA SCH. 40, SEE SPECIFICATIONS.
7. LINE AND CORNER POSTS MAY BE OF A SECTION OF EQUIVALENT STRUCTURAL STRENGTH AS TUBULAR SECTIONS.
8. CHAIN LINK FABRIC SHALL BE 9 GAUGE GALVANIZED STEEL WITH 2" MESH. FABRIC TO BE TWISTED AND BARBED BOTH TOP AND BOTTOM.
9. CHAIN LINK FABRIC TO BE TIED TO SUPPORT RAILS AT 24" INTERVALS USING STANDARD NO. 13 GAUGE ALUMINUM.
10. CHAIN LINK FABRIC SHALL HAVE PRIVACY SLATS IN ACCORDANCE WITH SECTION 24 OF THE COA.
11. SUPPORT ARMS FOR BARBED WIRE APPLICATION SHALL BE GALVANIZED STEEL AND SHALL BE POINTED OUT. BARBED WIRE SHALL EXTEND 12 IN. ± ABOVE FENCE.
12. CHAIN LINK FENCING AND GATES ARE TO BE APPROVED BY THE CITY THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.

CHAIN LINK FENCE & GATE (N.T.S.)

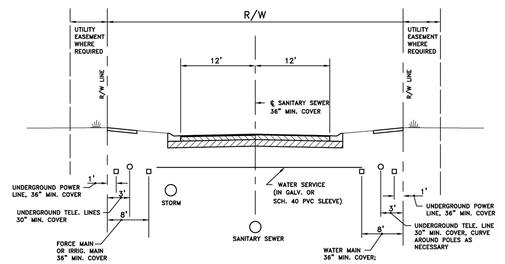
Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL G–6



HEAVY DUTY ROADS
BASE: 8" LIMEROCK CONSTRUCTED IN (2) LIFTS.
ASPHALT: 2" SP12.5 + 1" FRICTION COURSE

LOCAL ROAD CROSS SECTION (N.T.S.)

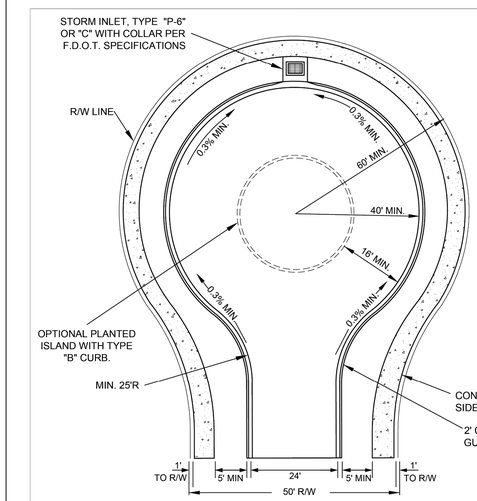
Howey–in–the–Hills	Standard Details	DATE: NOV 2024 DETAIL R–1



N O T E S:
1. REFER TO THE TOWN CONSTRUCTION SPECIFICATION MANUAL FOR DETAILS OF UTILITY DESIGN AND CONSTRUCTION.
2. FIRE HYDRANTS SHALL BE INSTALLED SUCH TO MINIMIZE THEIR VULNERABILITY TO TRAFFIC.

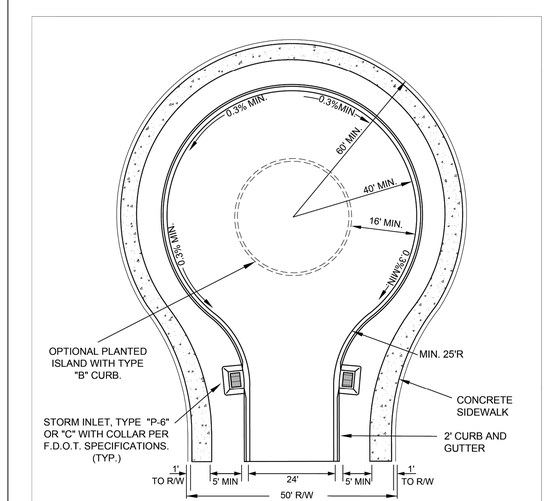
TYPICAL UTILITY LOCATIONS (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: JAN 2024 DETAIL R–2



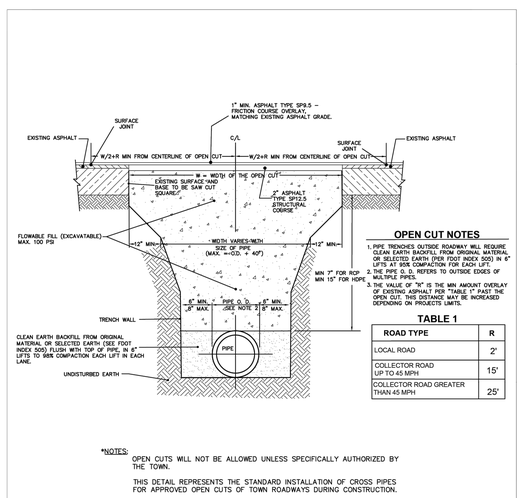
CUL-DE-SAC WITH SINGLE STORM INLET (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL R–3



CUL-DE-SAC WITH TWO STORM INLETS (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL R–4



OPEN CUT NOTES
1. PIPE TRENCHES OUTSIDE ROADWAY WILL REQUIRE CLEAN EARTH BACKFILL FROM ORIGINAL MATERIAL OR SELECTED EARTH (PER FDOT INDEX 505) IN 6" LIFTS AT 95R COMPACTION FOR EACH LIFT.
2. THE PIPE O. D. REFERS TO OUTSIDE EDGES OF MULTIPLE PIPES.
3. THE VALUE OF "X" IS THE MIN AMOUNT OVERLAY OF ASPHALT ALLOWED BEYOND TABLE 1' PAST THE OPEN CUT. THIS DISTANCE MAY BE INCREASED DEPENDING ON PROJECTS LIMITS.

TABLE 1

ROAD TYPE	R
LOCAL ROAD	2'
COLLECTOR ROAD UP TO 45 MPH	15'
COLLECTOR ROAD GREATER THAN 45 MPH	25'

*NOTES:
OPEN CUTS WILL NOT BE ALLOWED UNLESS SPECIFICALLY AUTHORIZED BY THE TOWN.

THIS DETAIL REPRESENTS THE STANDARD INSTALLATION OF CROSS PIPES FOR APPROVED OPEN CUTS OF TOWN ROADWAYS DURING CONSTRUCTION.

OPEN CUT & REPAIR (N.T.S.)

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL R–5

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY DETAILS FOR LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL. 32822
(407) 856-4899

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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

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APPROVED BY: DAS

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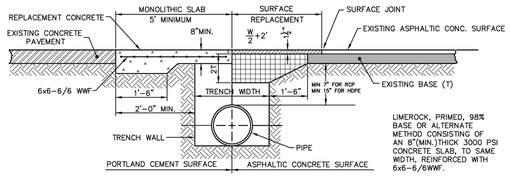
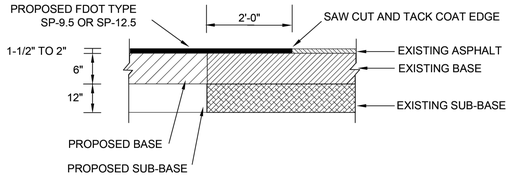


*NOTES:
OPEN CUTS WILL NOT BE ALLOWED UNLESS SPECIFICALLY AUTHORIZED BY THE TOWN.

THIS DETAIL REPRESENTS AN EXCEPTION TO THE STANDARD INSTALLATION OF CROSS PIPES FOR APPROVED OPEN CUTS OF ROADWAYS DURING CONSTRUCTION AND SHALL ONLY BE USED WITH THE PRIOR APPROVAL OF THE TOWN.

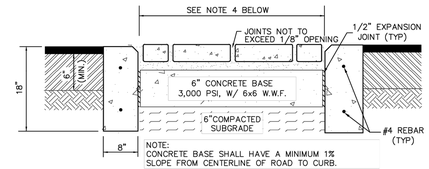
OPEN CUT & REPAIR ALTERNATE (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-6



PAVEMENT BUTT JOINT (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-7



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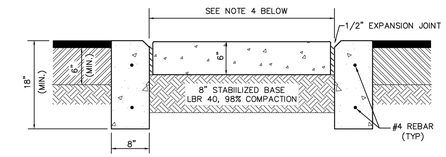


PATTERNED CONCRETE

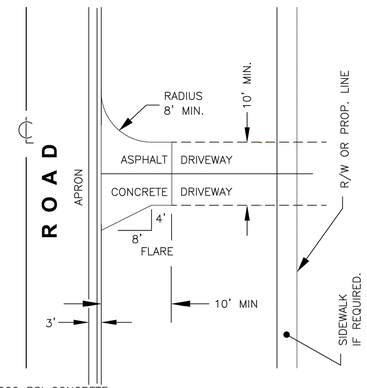
NOTES:

1. CURB RAMPS PER A.D.A. SPECIFICATIONS SHALL BE PROVIDED WHERE CROSSWALK MEETS SIDEWALKS AND CURBS.
2. PAVERS SHALL BE 3-1/8" MINIMUM THICKNESS BEDDED IN 1-1/2" MINIMUM OF SAND OR CRUSHED STONE SCREENINGS.
3. CONCRETE AND PAVER PATTERN AND COLOR SHALL BE DETERMINED BY THE TOWN.
4. MIN. WIDTH OF CROSSWALKS SHALL BE 5 FEET, CROSS SLOPE SHALL NOT EXCEED 1/4" PER LF.
5. SEE STREET SECTIONS FOR BASE AND SUB-BASE REQUIREMENTS OF ROADWAY.

CROSSWALK PAVER & DECORATIVE CONCRETE (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-8

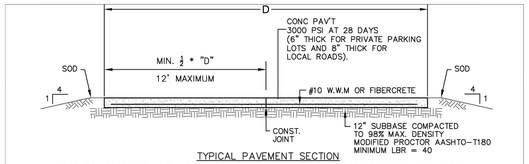
1. 1" ASPHALT W/6" COMPACTED LIMEROCK BASE.



2. 6" 3,000 PSI CONCRETE REINFORCED W/ 10-10x6"x6" MESH
3. 6" COMPACTED SUBGRADE

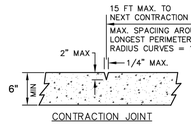
RESIDENTIAL DRIVEWAY WITH MIAMI CURB & GUTTER (Standard M)

Howey-in-the-Hills Standard Details | DATE: FEB 2024 | DETAIL R-9M

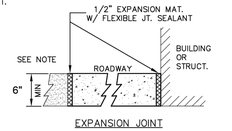


TYPICAL PAVEMENT SECTION

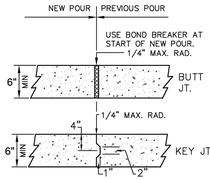
NOTE: FOR ROADWAYS, THE CROSSSLOPE SHALL BE 1/4" PER FOOT. FOR PRIVATE PARKING AREAS THE MINIMUM ALLOWABLE PAVEMENT SLOPE SHALL BE NO LESS THAN 0.50% MEASURED FROM THE RECEIVING INLET, GUTTER, OR FLUME TO ANY PAVEMENT.



CONTRACTION JOINT



EXPANSION JOINT



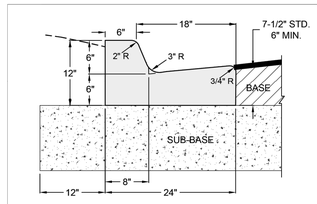
CONSTRUCTION JOINT

NOTES:

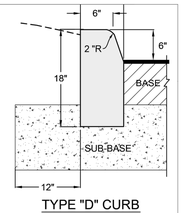
1. CONTRACTION JTS. MAY BE HAND FORMED, SAWED OR CONSTRUCTED W/ A 1/4" PREMOLDED FILLER JT. JOINTS MUST BE SAW CUT THE SAME DAY AS THE POUR.
2. EXPANSION JOINTS TO BE PLACED BETWEEN ROADWAY AND CURB. ALSO AT ANY PERMANENT STRUCTURE ABUTTING OR WITHIN THE PAVED AREA INCLUDING SIDEWALKS.
3. USE OF WOOD IS NOT AN ACCEPTABLE ALTERNATIVE TO FLEXIBLE JOINT SEALANTS.
4. FINAL DETERMINATION OF CONSTRUCTION JOINT SELECTION AND APPLICATION SHALL BE MADE BY THE ENGINEER OF RECORD BASED ON PROJECT REQUIREMENTS AND LOCATION.
5. CONSTRUCTION JOINTS WITHIN THE SLAB AREA SHOULD NOT CONTAIN PREMOLDED EXPANSION JOINT FILLER.

CONCRETE PAVEMENT (N.T.S.)

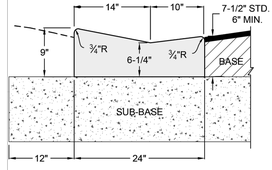
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-10



TYPE "F" CURB



TYPE "D" CURB



DROP CURB (MIAMI TYPE)

NOTES:

1. ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 3,000 P.S.I. CONCRETE.
2. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 500' CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
3. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
4. SUB-BASE TO BE COMPACTED AND TESTED TO 98% MINIMUM DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
5. EXPANSION JOINT MATERIAL MUST COVER THE ENTIRE CROSS SECTION OF CURB.

CONCRETE CURB (1) (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-11

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(407) 856-4899

DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C902

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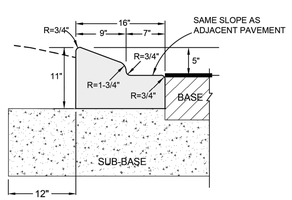
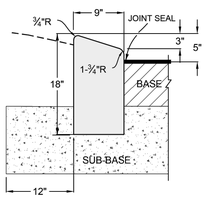
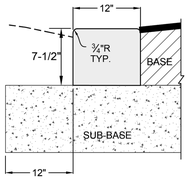


TYPE "A" CURB



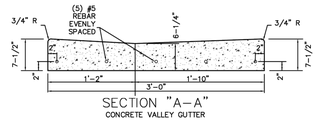
TYPE "B" CURB



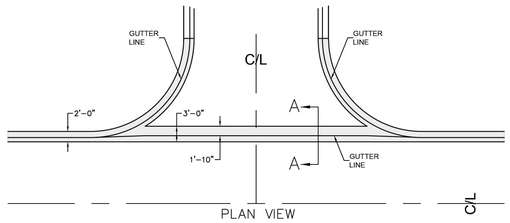
RIBBON CURB

CONCRETE CURB (2) (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—11A



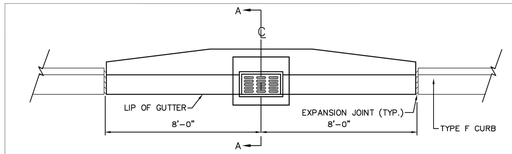
SECTION "A—A"
CONCRETE VALLEY GUTTER



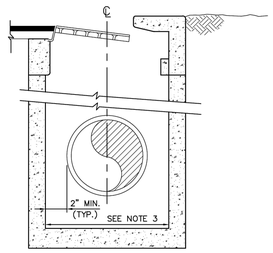
PLAN VIEW

CONCRETE VALLEY GUTTER (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—13



PLAN

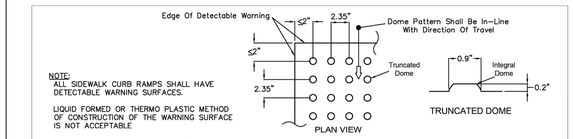


SECTION "A—A"

NOTES:
1. CURB INLET TOPS SHALL BE FDOT TYPE 5 OR TYPE 6. (TYPE 6 SHOWN). FRAME AND COVER SHALL BE STEEL MEETING ASTM A—36 OR CAST IRON, CLASS No. 30 IN ACCORDANCE WITH ASTM A—48.
2. PRECAST STRUCTURES SHALL BE FDOT TYPE P OR J AND MAY BE CIRCULAR, SQUARE OR RECTANGULAR, WALL THICKNESS AND REINFORCEMENT SHALL BE IN ACCORDANCE WITH ASTM C—478.
3. MINIMUM INSIDE DIMENSIONS SHALL BE 4' DIAMETER FOR CIRCULAR AND 3'—6" FOR SQUARE OR RECTANGULAR.
4. ALTERNATE DRAINAGE INLET DESIGNS MAY BE PROPOSED BY ENGINEER.

CURB INLET (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—14



PLAN VIEW

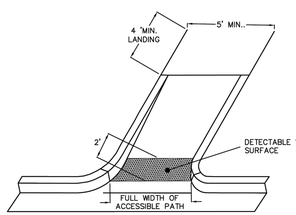
TRUNCATED DOME

NOTE:
ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES.

LIQUID FORMED OR THERMO PLASTIC METHOD OF CONSTRUCTION OF THE WARNING SURFACE IS NOT ACCEPTABLE

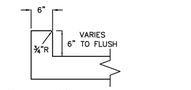
LENGTH OF SURFACE SHALL BE 2' IN THE DIRECTION OF TRAVEL WITH A WIDTH EQUAL TO THE WIDTH OF THE ACCESSIBLE WALKWAY.

CURB RAMP DETECTABLE WARNING SURFACE

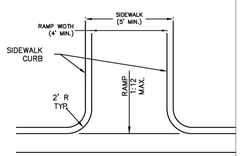


PICTORAL VIEW
CURB RAMP TYPE CR-E
FDOT INDEX 304

NOTE:
CURB RAMPS ON ACCESSIBLE ROUTES SHALL COMPLY WITH FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304.



SIDEWALK CURB DETAIL
NOT TO SCALE



PLAN VIEW
CURB RAMP TYPE CR-E
FDOT INDEX 304

SIDEWALK CURB RAMP (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—15

CURB RAMP — GENERAL NOTES

ALL REFERENCES TO FDOT AND ADA STANDARDS SHALL MEAN THE LATEST EDITION

1. Public sidewalk curb ramps shall be constructed in the public right of way at locations that will provide continuous unobstructed pedestrian circulation paths to pedestrian areas, elements and facilities in the public right of way and to accessible pedestrian routes on adjacent sites. Curbed facilities with sidewalks and those without sidewalks are to have curb ramps constructed at all street intersections and at turnouts that have curbed returns. Partial curb returns shall extend to the limit prescribed by FDOT Index No. 515 to accommodate curb ramps. Ramps constructed at locations without sidewalks shall have a 5' x 5' landing constructed at the top of each ramp.

2. The location of curb ramps shall be as shown in the plans, but shall conform to F.D.O.T. standard details. All ramps, landings and curbs shall be constructed with minimum 3000 psi, Class A concrete and shall have minimum thickness of 6 inches. All concrete for pedestrian areas shall have a medium broom finish and standard color, unless specifically required by the plans.

3. Curb ramp running slopes at unrestrained sites shall not be steeper than 1 : 12 and cross slope shall not be steeper than 2%. Transition slopes shall not be steeper than 1 : 12. When altering existing pedestrian facilities where existing site development precludes the accommodation of a ramp slope of 1 : 12, a running slope between 1 : 12 and 1 : 10 is permitted for a rise of 6" maximum and a running slope of between 1 : 10 and 1 : 8 is permitted for a rise of 3" maximum.

4. If a curb ramp is located where pedestrians must walk across the ramp, then the walk shall have transitions with a maximum longitudinal slope of 1 : 12. and a 2% cross—slope. Ramps with curb returns may be used to provide guidance, avoid an obstacle, or when R/W limitations prohibit flares. Improvements for directional guidance are required whenever necessary to guide or re—direct the pedestrian towards the receiving ramp.

5. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and 24" from the back of curb in the direction of travel. Detectable warning surfaces shall be constructed in conformance with A.D.A. Standards For Accessible Design, A.D.A. Accessibility Guidelines, Section 4.29.2, Transition slopes are not to have detectable warnings. Dome pattern shall be in—line with direction of travel.

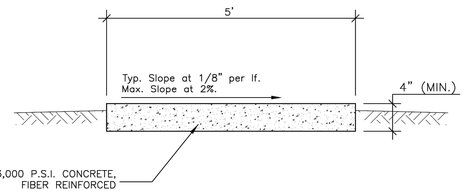
6. The color requirement for detectable warnings is to provide a dark—on—light visual contrast between the detectable warning surface and the adjacent walking surface. Where adjacent walking surfaces are dark colored and/or constructed with materials other than standard Class I Portland Cement Concrete in accordance with the Standard Specifications, the Contractor must provide a detectable warning surface color that provides the necessary contrast, with the adjacent concrete. The standard color is dark red brick or yellow colored detectable warning tile with standard concrete unless otherwise noted.

7. Where a curb ramp is constructed within existing curb, curb and gutter or sidewalk, the existing concrete shall be removed to the nearest joint beyond the transition slope so that no remaining section of concrete is less than 5' long. The existing sidewalk shall be removed to the nearest joint beyond the transition slope, if the ramp must extend into the sidewalk.

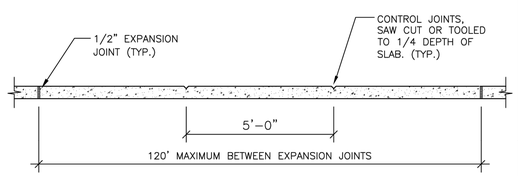
8. Expansion joints shall be placed at all perimeter edges abutting concrete, but no joints shall be made in the ramp itself.

SIDEWALK CURB RAMP GENERAL NOTES

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—15A



SECTION



PROFILE

SIDEWALK (N.T.S.)

Beautiful HOWEY-IN-THE-HILLS	Howey—in—the—Hills Standard Details	DATE: FEB 2022 DETAIL R—16

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CITY DETAILS
FOR
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LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
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ORLANDO FL. 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C903

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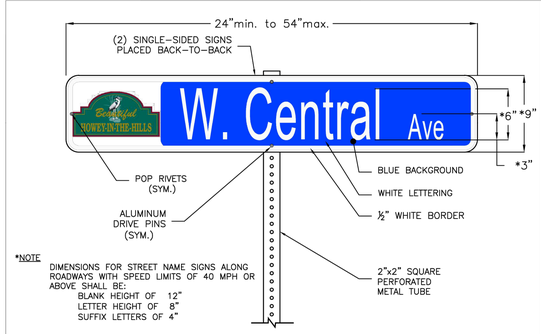
SIDEWALK CONSTRUCTION- GENERAL NOTES

1. SIDEWALKS, BIKE PATHS, RAMPS, AND DRIVEWAY APRONS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 3 INCHES, A MINIMUM DEVELOPED COMPRESSIVE STRENGTH OF 3,000 P.S.I. IN 28 DAYS, AND A MINIMUM UNIFORM THICKNESS OF 4 INCHES WHERE INTENDED SOLELY FOR PEDESTRIAN TRAFFIC, AND 6 INCHES THICK WHERE MOTOR VEHICLES ARE LIKELY TO CROSS.
2. SIDEWALKS AND BIKE PATHS SHALL BE PLACED PARALLEL TO, AND ONE FOOT WITHIN THE RIGHT-OF-WAY LINE EXCEPT THAT THE CITY MAY APPROVE DEVIATIONS TO SAVE SPECIMEN TREES PROVIDED THAT THE PAVEMENT REMAINS WITHIN THE RIGHT-OF-WAY, OR ADJACENT EASEMENT DEDICATED FOR SIDEWALK USE, IS NOT DIMINISHED IN WIDTH, AND REMAINS AT LEAST 3 FEET FROM THE EDGE OF THE STREET PAVEMENT, UNLESS OTHERWISE APPROVED BY THE CITY.
3. THE TOP OF THE CONCRETE SHALL BE AT AN ELEVATION NO LOWER THAN THE CROWN OF THE ADJACENT ROADWAY, AND NO HIGHER THAN 6 INCHES ABOVE THE CROWN UNLESS APPROVED BY THE CITY TO MAKE A MORE NATURAL TRANSITION WITH THE ADJACENT LAND. UNDER NO CIRCUMSTANCES WILL THE SIDEWALK EXCEED ADA MAXIMUM GRADES.
4. ISOLATION JOINTS (TYPE A JOINTS) SHALL BE PROVIDED BETWEEN EXISTING SLABS OR STRUCTURES AND FRESH CONCRETE, TO SEPARATE PEDESTRIAN SECTIONS FROM SECTIONS WHICH WILL ENCOUNTER VEHICLE TRAFFIC, TO SEPARATE FRESH PLACEMENT FROM CONCRETE WHICH HAS SET FOR MORE THAN 60 MINUTES, AND NO FARTHER APART THAN 120 FEET IN SIDEWALKS AND BIKE PATHS. JOINT MATERIAL SHALL BE AS SPECIFIED IN FDOT STANDARDS AND SPECIFICATIONS AND SHALL BE RUBBER, PLASTIC OR OTHER APPROVED NON-BIODEGRADABLE ELASTOMERIC MATERIAL. WOOD IS PROHIBITED.
5. CONTROL JOINTS (TYPE B JOINTS) SHALL BE TOOLED INTO THE FRESH CONCRETE, OR SAW-CUT WITHIN 24 HOURS OF PLACEMENT, TO A DEPTH EQUAL TO 1/4 THE SLAB THICKNESS AND SPACED APART A DISTANCE EQUAL TO THE WIDTH OF THE SLAB OR 5 FEET, WHICHEVER IS GREATEST.
6. THE SLAB SURFACE SHALL BE BROOM FINISHED TO BE SLIP RESISTANT, AND SHALL MATCH AS CLOSELY AS POSSIBLE THE FINISH OF EXISTING ADJACENT SLABS AND ALL EDGES SHALL BE TOOLED TO ELIMINATE SHARP CORNERS.
7. THE BEARING SUBSURFACE SHALL HAVE ALL ORGANIC, LOOSE, AND DELETERIOUS MATTER REMOVED, AND THE REMAINING CLEAN SOIL SHALL BE SMOOTH, SOUND, AND SOLID. ANY FILL MATERIAL SHALL BE COMPACTED WITH A VIBRATORY OR IMPACT COMPACTION MACHINE IN MAXIMUM 12 INCH LIFTS OR COMPACTED WITH A HAND TAMPER IN MAXIMUM 4 INCH LIFTS. THE CITY SHALL REQUIRE A COMPACTION TEST FOR EACH LIFT IF THE TOTAL FILLED SECTION IS MORE THEN 12 INCHES DEEP OR IF THE SUBSURFACE HAS BEEN DISTURBED MORE THAN 12 INCHES DEEP. WHERE SUCH TEST IS REQUIRED, THE RESULTS SHALL SHOW A MINIMUM PROCTOR FIELD DENSITY OF 95 PERCENT.
8. ALL CONCRETE WORK IN THE RIGHT-OF-WAY SHALL BE INSPECTED BY THE CITY AFTER THE SUBSOIL IS PREPARED AND THE FORMS ARE SET, BUT BEFORE THE CONCRETE PLACEMENT BEGINS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE FINISHED SLAB FROM ALL DAMAGE AND VANDALISM UNTIL THE CITY ACCEPTS OR APPROVES THE SLAB.
10. SIDEWALKS LOCATED WITHIN THE RIGHT-OF-WAY SHALL NOT BE TINTED, STAINED, COLORED, OR COATED, UNLESS APPROVED BY THE CITY ENGINEER.
11. ALL FORMS SHALL BE REMOVED PRIOR TO ACCEPTANCE OR APPROVAL AND THE DISTURBED GROUND SHALL BE BACK-FILLED, RE-GRADED, AND SODDED SO THAT THE WEAR SURFACE OF THE CONCRETE IS REASONABLY FLUSH WITH THE ADJACENT GRADE.
12. THE CITY MAY REQUIRE ADDITIONAL JOINTS AROUND UTILITY STRUCTURES LOCATED WITHIN THE SIDEWALK.

SIDEWALK - GENERAL NOTES

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-16A



*NOTE
DIMENSIONS FOR STREET NAME SIGNS ALONG ROADWAYS WITH SPEED LIMITS OF 40 MPH OR ABOVE SHALL BE:
BLANK HEIGHT OF 12"
LETTER HEIGHT OF 8"
SUFFIX LETTERS OF 4"

SIGN BLANKS:
- .063" ALUMINUM
- ALUMINUM CHEMICALLY TREATED TO MEET ATSM B449 STANDARD (PRE-TREATMENT FOR PAINT OR REFLECTIVE SHEETING)
- DIMENSIONS ARE TO BE 9" or 12" HEIGHT X 24" MINIMUM TO 54" MAXIMUM LENGTH. BLANK LENGTH TO BE DETERMINED BY ROAD NAME LENGTH AND BE ESTABLISHED IN 6" INCREMENTS, I.E. (24",30",36",42",48" OR 54")

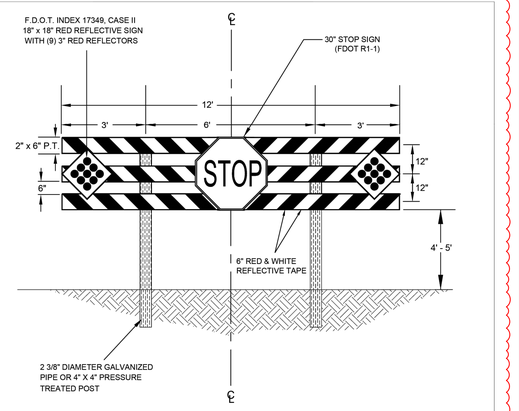
COLOR:
- THE BACKGROUND SHALL BE HIGH INTENSITY PRISMATIC GREATER WHITE SHEETING WITH BLUE TRANSPARENT FILM OVERLAY.

LEGEND/LETTERING:
- ONE-HALF INCH (1/2") WHITE BORDER, 1/2" FROM THE EDGE.
- STREET NAMES SHALL BE 6" or 8" SERIES B LETTERS.
- THE ABBREVIATED SUFFIX "Rd", "Ave", "Dr", ETC., SHALL BE 3" or 4" SERIES B.

MOUNTING:
- MOUNTING SHALL BE TWO SINGLE-SIDED SIGNS WITH ATTRIBUTES ABOVE, MOUNTED BACK TO BACK, WITH ENDS POP RIVETED TOGETHER ON 2"x2" METAL POST, ATTACHED WITH ALUMINUM DRIVE PINS. NO EDGE-CLAMPING STYLE MOUNTING BLOCKS ARE TO BE USED.

STREET SIGN (N.T.S.)

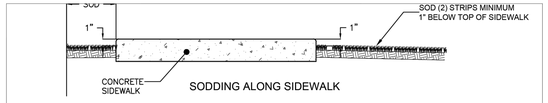
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-20



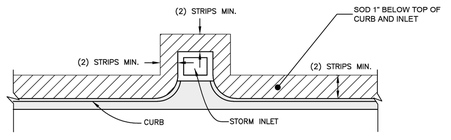
NOTES:
* BARRICADE TO BE USED FOR CITY AND PRIVATE STREETS, NOT APPLICABLE FOR MAJOR STREETS.
* A DEAD END SIGN (F.D.O.T. W14-1) SHALL BE POSTED AT A SUFFICIENT ADVANCE DISTANCE TO PERMIT VEHICLE OPERATOR TO TURN OFF, IF POSSIBLE AT THE NEAREST INTERSECTING STREET.
* BARRICADE SIGNS AND MARKERS SHALL BE IN ACCORDANCE WITH F.DO.T. DESIGN STANDARDS, LATEST EDITION, INDEX #17349.

ROAD BARRICADE (N.T.S.)

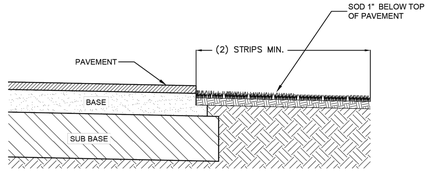
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-21



SODDING ALONG SIDEWALK



SODDING ALONG INLET AND CURB

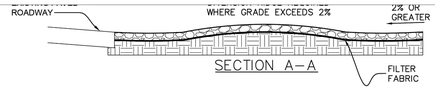


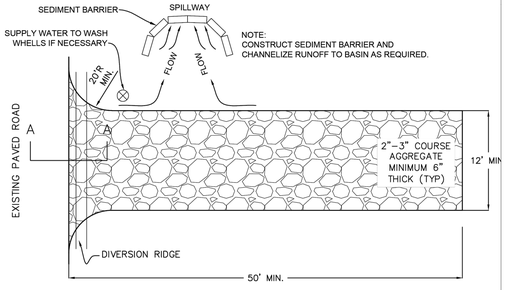
SODDING ALONG PAVED STREET

NOTE:
ANY EXISTING SODDED AREAS THAT ARE DISTURBED BY CONSTRUCTION SHALL BE RESODDED WITH LIKE SOD AND RESTORED TO ITS ORIGINAL STATE.

SOD PLANTING (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-22





NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OR-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. ALL MATERIALS SPILLED, DROPPED, OR TRACKED ONTO PUBLIC ROADS (INCLUDING AGGREGATE AND CONSTRUCTION MUD) SHALL BE REMOVED DAILY, OR MORE FREQUENTLY IF SO DIRECTED.

TEMPORARY CONSTRUCTION ENTRANCE (N.T.S.)

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL R-23

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY DETAILS FOR LAKE HILLS PHASE 1 LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
1	07/17/25	REV. PER HOEWY IN THE HILLS COMMENTS
2		
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C904

THESE DOCUMENTS AND THEIR CONTENTS ARE, AND SHALL REMAIN, THE PROPERTY OF MADDEN, MOORHEAD & STOKES, LLC AND SHALL NOT BE USED IN WHOLE OR IN PART FOR ANY PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY HAVE BEEN PREPARED, NOR SHALL THEY BE REPRODUCED, COPIED OR ASSIGNED TO ANY THIRD PARTY WITHOUT THE EXPRESS WRITTEN PERMISSION OF MADDEN, MOORHEAD & STOKES, LLC.

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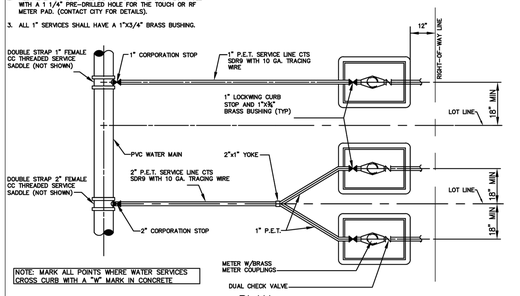
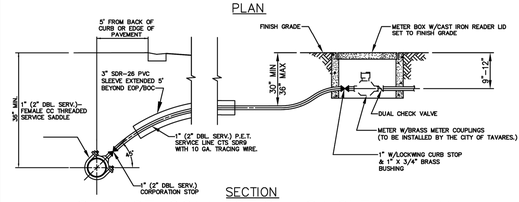
NOTES:

1. METERS TO BE INSTALLED BY THE CITY OF TAVARES.
2. ALL METER BOXES SHALL BE STANDARD PLASTIC RECTANGLE WITH A 1 1/4" PRE-DRILLED HOLE FOR THE TOUCH OR RF METER PAD. (CONTACT CITY FOR DETAILS).
3. ALL 1" SERVICES SHALL HAVE A 1"X3/4" BRASS BUSHING.



PLAN



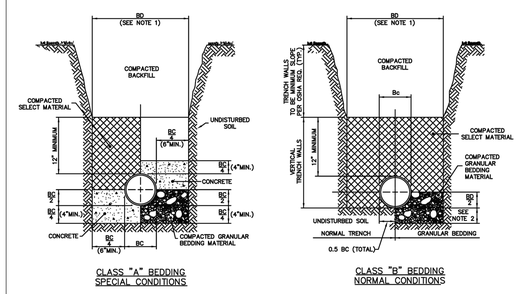
SECTION

SERVICE CONNECTION–SINGLE FAMILY

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–1



CLASS "A" BEDDING
SPECIAL CONDITIONS

CLASS "B" BEDDING
NORMAL CONDITIONS

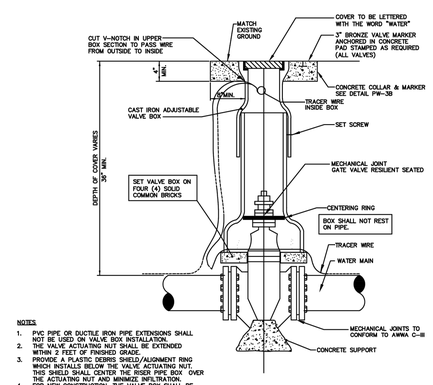
NOTES: FOR BEDDING AND TRENCHING

1. DIMENSION BC = PIPE O.D.
   DIMENSION BD = TRENCH WIDTH AT TOP OF PIPE
   MAXIMUM BD = BC + 30"
   MINIMUM BD = MAXIMUM DIMENSION OF BELL + 8" (UNSHEETED TRENCH)
2. DEPTH FOR REMOVAL FOR UNSUITABLE MATERIAL SHALL BE AS REQUIRED TO REACH SUITABLE FOUNDATION. FOR ROCK OR OTHER NON-CUSHIONING MATERIAL, DEPTH SHALL BE 6" BELOW BOTTOM OF UTILITY.
3. ALL BACKFILL AND SELECT MATERIAL UNDER ALL ROADWAYS, DRIVES (INCLUDING DIRT DRIVES), AND PARKING AREAS SHALL BE COMPACTED TO 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. (AASHTO T-180). BACKFILL AND SELECT MATERIAL UNDER ALL OTHER AREAS SHALL BE COMPACTED AS FOLLOWS: FROM BOTTOM OF TRENCH TO 12" ABOVE TOP OF PIPE – 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180). FROM 12" ABOVE TOP OF PIPE TO TOP OF BACKFILL – 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180)

TRENCHING AND BEDDING

NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–2



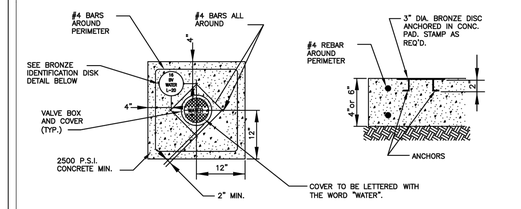
NOTES:

1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD/ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
5. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

GATE VALVE AND BOX

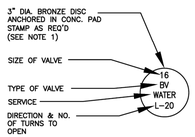
NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–3A



NOTE:

1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.
2. 6" THICK CONCRETE PAD IN ROADWAY OR PAVED AREAS, 4" THICK CONCRETE PAD IN OTHER AREAS.

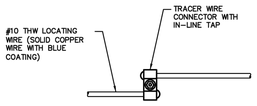


BRONZE IDENTIFICATION DISC DETAIL

VALVE COLLAR

NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–3B



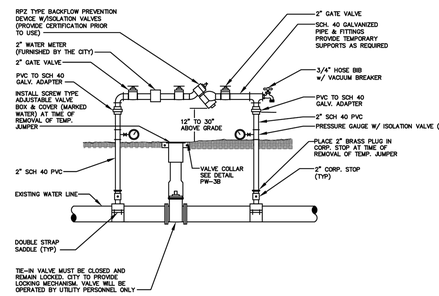
NOTES:

1. TRACER WIRE CONNECTOR SHALL BE DIRECT BURY, SELF-STRIPPING, LOCKING.
2. AFTER INSTALLATION OF THE LOCATING WIRE THE SYSTEM SHALL BE SUBJECTED TO TESTING, IN THE PRESENCE OF CITY UTILITY DIRECTOR OR HIS DESIGNEE PRIOR TO BACKFILL IN ORDER TO CONFIRM THAT THE SYSTEM IS FUNCTIONAL.

LOCATING WIRE SPLICING

NOT TO SCALE

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–5



TEMPORARY JUMPER CONNECTION

NOT TO SCALE

NOTE: LOCATION TO BE DETERMINED AT TIME OF PRECONSTRUCTION CONFERENCE W/ CITY.

Howey–in–the–Hills Standard Details — DATE: FEB 2022 — DETAIL PW–6A

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5950 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

NO.	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C930

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TEMPORARY JUMPER CONNECTION NOTES

1. A TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS.
2. THE DETAILS TO BE USED FOR FILLING ANY WATER MAIN OF ANY SIZE FROM EXISTING ACTIVE WATER MAINS AND FOR FLUSHING OF NEW MAINS UP TO 8" DIAMETER (2.5 FPS MINIMUM VELOCITY) AND FOR PULLING BACTERIOLOGICAL SAMPLES FROM ANY NEW WATER MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER FILLING, FLUSHING, TESTING AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AND OTHER PERTINENT AGENCIES HAS BEEN RECEIVED. THE JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI IN THE NEW MAINS ALL THE TIME AFTER DISINFECTION AND UNTIL THE FDEP CLEARANCE LETTER IS OBTAINED. ADEQUATE RESTRAINTS SHALL BE PROVIDED TEMPORARILY, AS REQUIRED. PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, LATEST EDITION. THIS TAPPING SLEEVE AND THE EXTERIOR OF THE MAIN TO BE TAPPED SHALL BE DISINFECTED BY SPRAYING OR SWABBING PER SECTION II OF AWWA C561, LATEST EDITION.
3. FLUSHING OF 10" DIAMETER AND LARGE WATER MAINS MAY BE DONE THROUGH THE TIE-IN VALVE, IN THE PRESENCE OF THE UTILITY DIRECTOR OR HIS DESIGNEE. THE UTILITY DEPARTMENT WILL NOTIFIED IN WRITING 48 HOURS PRIOR TO THE FLUSHING OF SAID MAINS.

   THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:

   A. THE TIE-IN VALVES SHALL BE OPERATED AND PRESSURE TESTED IN THE PRESENCE OF THE UTILITY COMPANY AND ENGINEER TO VERIFY WATER TIGHTNESS PRIOR TO THE TIE-IN. VALVES WHICH ARE NOT WATERTIGHT SHALL BE REPLACED OR A NEW VALVE INSTALLED IMMEDIATELY ADJACENT TO THE LEAKING VALVE.

   B. THE TEMPORARY JUMPER CONNECTION SHALL BE CONSTRUCTED AS DETAILED. THE JUMPER CONNECTION SHALL BE USED TO FILL THE NEW WATER MAIN AND FOR PROVIDING WATER FOR BACTERIOLOGICAL SAMPLING OF THE NEW MAIN AS REQUIRED BY THE FDEP PERMIT.

   – FLUSHING SHALL NOT BE ATTEMPTED DURING PEAK DEMAND HOURS OF THE EXISTING WATER MAIN.

   – ALL DOWNSTREAM VALVES IN THE NEW SYSTEM MUST BE OPEN PRIOR TO OPENING THE TIE-IN VALVE.

   – PROVIDE FOR AND MONITOR THE PRESSURE AT THE TIE-IN POINT, THE PRESSURE IN THE EXISTING MAIN MUST NOT DROP BELOW 35 psi.

   – TIE-IN VALVE SHALL BE OPENED A FEW TURNS ONLY, ENSURING A PRESSURE DROP ACROSS THE VALE IS ALWAYS GRATER THAN 10 psi.

   C. THE TIE-IN VALVE SHALL BE LOCKED CLOSED BY THE CITY UNTIL FLUSHING BEGINS.

   D. THE TIE-IN VALVE SHALL BE OPENED ONLY A FEW TURNS FOR FLUSHING OF THE NEW MAIN. THE PROCEDURE SHALL BE DIRECTED BY THE CITY AND OBSERVED BY THE ENGINEER.

   E. AFTER FLUSHING, THE TIE-IN VALVE SHALL BE CLOSED AND LOCKED IN THE CLOSED POSITION BY THE CITY.
4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION DEMONSTRATING THAT THE RPZ BACKFLOW PREVENTION DEVICE HAS BEEN TESTED WITHIN ONE YEAR AT THE TIME OF INSTALLATION AND IS IN GOOD WORKING ORDER AT THE TIME OF INSTALLATION. THE TEST SHALL BE PERFORMED BY A QUALIFIED BACKFLOW PREVENTION TECHNICIAN.
5. EXCEPT AS REQUIRED TO FLUSH LINES OF GREATER THAN 8" IN DIAMETER, THE TIE-IN VALVE SHALL REMAIN CLOSED AND SHALL BE LOCKED IN THE CLOSED POSITION BY THE CITY. THE TIE-IN VALVE SHALL REMAIN LOCKED CLOSED UNTIL THE NEW SYSTEM HAS BEEN CLEARED FOR USE BY FDEP AND ALL OTHER PERTINENT AGENCIES.
6. UPON RECEIPT OF CLEARANCE FOR USE FROM FDEP AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2" BRASS PLUGS.
7. ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION DEVICE FITTINGS, VALVE, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-6B

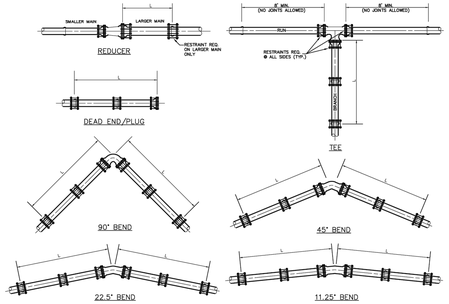


TABLE OF THRUST RESTRAINT LENGTHS

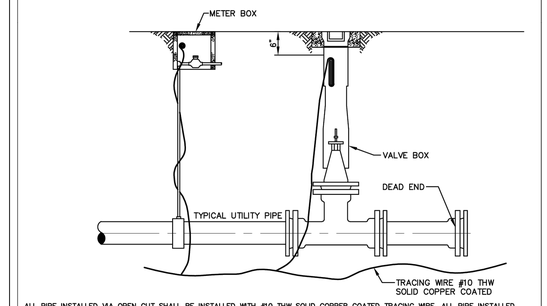
PIPE SIZE (NOMINAL)	90° BEND		45° BEND		22.50° BEND		11.25° BEND		TEES		DEAD END & PLUG		REDUCER		
	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	P.V.C. (L)	DUCTILE IRON (L)	PIPE SIZES	P.V.C. (L)	DUCTILE IRON (L)
4	20'	16'	8'	7'	4'	3'	2'	2'	15'	10'	45'	29'	6"x4"	33'	21'
6	28'	22'	12'	9'	6'	4'	3'	2'	33'	21'	63'	40'	8"x6"	34'	22'
8	36'	29'	15'	12'	7'	6'	4'	3'	50'	33'	82'	52'	10"x8"	33'	21'
10	43'	34'	18'	14'	9'	7'	4'	3'	68'	43'	98'	63'	12"x10"	34'	22'
12	50'	40'	21'	17'	10'	8'	5'	4'	84'	54'	116'	74'	16"x12"	63'	40'
16	63'	51'	26'	21'	13'	10'	6'	5'	116'	74'	148'	94'	18"x16"	33'	21'
18	70'	56'	29'	23'	14'	11'	7'	6'	131'	83'	163'	103'	20"x18"	33'	21'
20	75'	61'	31'	25'	15'	12'	7'	6'	145'	92'	178'	113'	20"x20"	82'	39'
24	86'	70'	36'	29'	17'	14'	9'	7'	173'	110'	207'	132'			

THRUST RESTRAINT DESIGN NOTES

1. RESTRAINT JOINTS, FITTINGS, & VALVE REQUIREMENTS CALCULATED BY THE THRUST RESTRAINT DESIGN PROGRAM PROVIDED BY EBBA IRON SALES, INC.
2. DATA BASED ON MAX. PRESSURE OF 150 p.s.i., THE UNIFIED SOILS CLASSIFICATION SYSTEM (SOIL TYPE: SP), THE PIPE BEDDED IN NATIVE SOIL w/ A MINIMUM OF 2.5' COMPACTED FILL OVER THE PIPE, AND USING A SAFETY FACTOR OF 1.5 FOR THE DATA.
3. ALL FITTINGS & VALVES SHALL HAVE RESTRAINED WITH "MEGA-LUG" RESTRAINTS, & ALL BELL & SPIGOT JOINTS TO BE RESTRAINED WITH A RESTRAINING HARNESS WITHIN THE REQUIRED LENGTH OF RESTRAINED PIPE (L).

THRUST RESTRAINT
NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-7



ALL PIPE INSTALLED VIA OPEN CUT SHALL BE INSTALLED WITH #10 THW SOLID COPPER COATED TRACING WIRE. ALL PIPE INSTALLED VIA HDD SHALL BE INSTALLED WITH TWO #10 COPPER CLAD STEEL WIRES.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT, LOCATE WIRE BOX, OR OTHER APPLICABLE STRUCTURE.

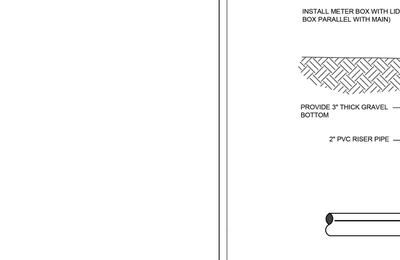
COLOR CODING:

POTABLE WATER SYSTEM: BLUE
REUSE WATER SYSTEM: PANTONE PURPLE
SANITARY SEWER, FORCE MAINS AND LOW PRESSURE SEWER SYSTEMS: GREEN

1. FOR LOW PRESSURE SEWER, POTABLE WATER AND REUSE WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL, CITY OF TAVARES APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.
6. UTILITY TRACING WIRE SHALL BE IN ACCORDANCE WITH CITY CSM AND PER CITY'S APPROVED MANUFACTURER LIST.

UTILITY PIPE LOCATION MATERIAL – WIRE
NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-8



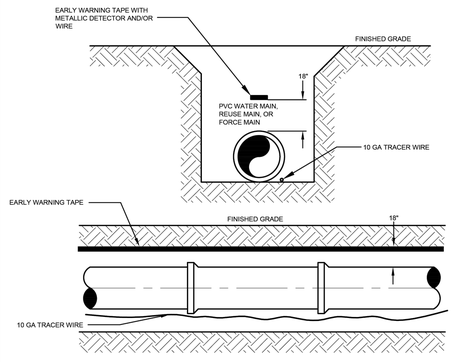
TRACER WIRE BOX UTILIZING METER BOX

NOTES:

1. TRACER WIRE STATION BOX TO BE INSTALLED WHERE THE WIRE CANNOT BE BROUGHT TO GRADE IN A VALVE BOX WITHIN THE MANDATORY 500 FOOT INTERVAL OR WHERE A SPLICE MUST BE MADE ON THE TRACER WIRING. NO UNDERGROUND SPLICES.
2. BOXES SHALL NOT BE LOCATED IN ROADWAYS OR DRIVEWAYS.
3. BOX AND LID PER DETAIL PW-19.
4. TRAFFIC RATED LID (STANDARD-NON BOLT DOWN)
5. LID COLOR SHALL BE PRE-MANUFACTURED OR PAINTED TO MATCH SERVICE (BLUE= POTABLE WATER, GREEN=WASTEWATER, PANTONE PURPLE=RECLAIMED WATER)

TRACER WIRE BOX

Howey-in-the-Hills NOT TO SCALE Standard Details — DATE: FEB 2022 — DETAIL PW-9

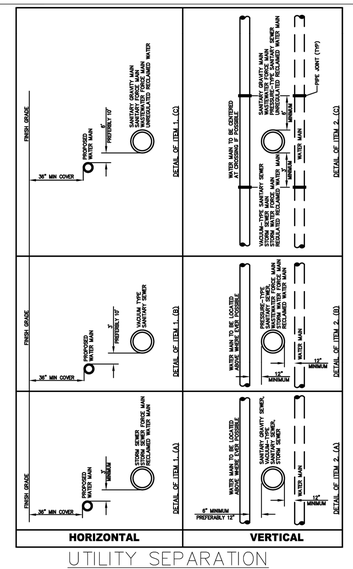


NOTES:

1. ALL MAINS INSTALLED BY OPEN CUT SHALL HAVE AN "EARLY WARNING" PROTECTION TAPE AND WIRE INSTALLED CONTINUOUSLY ALONG THE ALIGNMENT. THE PROTECTION TAPE SHALL BE PER THE CITY'S APPROVED MANUFACTURER LIST. TAPE SHALL BE INSTALLED DURING BACKFILLING 18" ABOVE THE PIPE AND SHALL BE CONTINUOUSLY MARKED FOR THE TYPE OF PIPE (EXAMPLE: CAUTION, WATER MAIN BURIED BELOW"). THE TAPE SHALL HAVE A METALLIC DETECTABLE STRIP INCLUDED AND COLOR CODED AS FOLLOWS:
   BLUE - POTABLE WATER
   GREEN - SANITARY FORCE MAIN, GRAVITY SEWER, LOW PRESSURE MAIN
   PANTONE PURPLE - RECLAIMED WATER
   RED - DEDICATED FIRE LINE
2. ALL PVC MAINS SHALL BE A SOLID COLOR AS DESCRIBED ABOVE.
   ALL DUCTILE IRON MAINS SHALL BE WRAPPED WITH COLOR CODED BAGS.
   ALL POTABLE WATER PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION (NSL) SEAL OF APPROVAL.

UTILITY PIPE LOCATION MATERIAL – TAPE
NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-10



UTILITY SEPARATION
NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-11A

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — FLORIDA — LAKE COUNTY

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C931

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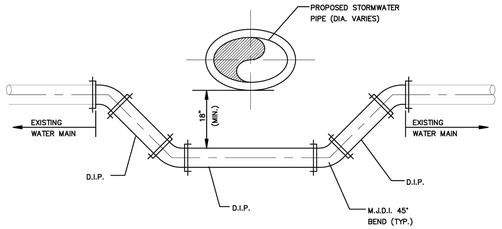

NOTES:

1. ALL PROPOSED JOINTS SHALL BE RESTRAINED.
2. ALL EXISTING JOINTS WITHIN SHALL BE RESTRAINED IN ACCORDANCE WITH GR-6.
3. ALL PIPING CLEARANCES SHALL BE IN ACCORDANCE WITH CHAPTER 62-555.314 F.A.C.

WATER LINE CROSSING

NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11B

GENERAL WATER NOTES

1. WATER SYSTEM COMPONENTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS, CLEANED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND CHAPTER 62-555 FLORIDA ADMINISTRATIVE CODE.
2. ALL PIPING SHALL BEAR THE "NSF" SEAL FOR POTABLE WATER.
3. WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 18 FOR PIPE SIZES 4"-12". PIPES 14" OR LARGER SHALL BE AWWA C-905, DR 18. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION, FOR LAYING, SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S LATEST RECOMMENDATIONS.
4. DEPTH OF WATER LINES TO BE 36" MINIMUM COVER FROM FINISH GRADE.
5. WATER MAINS TO BE LOCATED 5' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. ALL WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON.
7. ALL CASINGS UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE BACK OF CURB.
8. DISINFECTING: FOLLOWING THE PRESSURE TESTING, THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE NEW WATER DISTRIBUTION SYSTEM. DISINFECTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF AWWA STANDARD C651 "DISINFECTING WATER MAINS", AND ALL APPROPRIATE AGENCY APPROVAL.
9. ALL HYDROSTATIC TESTS SHALL BE IN ACCORDANCE WITH AWWA C600 FOR DUCTILE IRON PIPE AND C605/M23 FOR PVC PIPE.
10. ALL WATER MAINS SHALL BE INSTALLED, PRESSURE AND LEAK TESTED IN ACCORDANCE WITH AWWA C600, (62-555.320(21)(B)1 AND 62-555.330, F.A.C. ALL INSTALLATION, TESTING AND FIELD PROCEDURES MUST BE PROVIDED AND MUST CONFORM TO THE APPLICABLE AWWA STANDARDS.
11. ALL PIPING MATERIALS AND SPECIFICATIONS COVERING PIPES, JOINTS AND PACKING MATERIALS, INTERNAL COATING AND LININGS, FITTINGS, SPECIALS AND APPURTENANCES SHALL ALL BE IN ACCORDANCE WITH THE CORRESPONDING AWWA STANDARDS AND BE CONFORMING TO NSF REQUIREMENTS, AS MAY BE APPLICABLE, WITH EXCEPTIONS ALLOWED ONLY IF DOCUMENTATION AND ASSURANCES ARE PROVIDED IN COMPLIANCE WITH PARAGRAPHS 62-555.320(3) (D), 622-555.320 (3) (B), AND 62-555.320 (21) (C), F.A.C. THE LEAD USE PROHIBITION IN RULE 62-555.322, F.A.C. SHALL ALSO APPLY. POLYETHYLENE TUBING SHALL BE PER AWWA C901. UNDERGROUND SERVICE LINES AND VALVES SHALL BE PER AWWA C800.

COLOR CODING

ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320(21)(B)3, F.A.C., USING BLUE AS A PREDOMINANT COLOR. (UNDERGROUND PLASTIC PIPE WILL BE SOLID-WALL BLUE PIPE, WILL HAVE A CO-EXTRUDED BLUE EXTERNAL SKIN, OR WILL BE WHITE OR BLACK PIPE WITH BLUE STRIPES INCORPORATED INTO, OR APPLIED TO, THE PIPE WALL; AND UNDERGROUND METAL OR CONCRETE PIPE WILL HAVE BLUE STRIPES APPLIED TO THE PIPE WALL. PIPE STRIPED DURING MANUFACTURING OF THE PIPE WILL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE AXIS OF THE PIPE, THAT ARE LOCATED AT NO GREATER THAN 90-DEGREE INTERVALS AROUND THE PIPE, AND THAT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIPE PIPE DURING INSTALLATION OF THE PIPE, THE TAPE OR PAINT WILL BE APPLIED IN A CONTINUOUS LINE THAT RUNS PARALLEL TO THE AXIS OF THE PIPE AND THAT IS LOCATED ALONG THE TOP OF THE PIPE; FOR PIPE WITH AN INTERNAL DIAMETER OF 24 INCHES OR GREATER, TAPE OR PAINT WILL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE. ABOVEGROUND PIPE WILL BE PAINTED BLUE OR WILL BE COLOR CODED OR MARKED LIKE UNDERGROUND PIPE.) [FAC 62/CELL 555.320(21)(B)3]

UNLESS DESCRIBED IN THE CITY CSM ELSEWHERE, ALL WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH **CHAPTER 62-555.314, F.A.C.,** AND ANY UPDATES TO THE F.A.C., AND IN CONFORMANCE WITH ALL SEPARATION REQUIREMENTS AS FOUND THEREIN.

62-555.314 LOCATION OF PUBLIC WATER SYSTEM MAINS.

FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS, INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER; FIRE HYDRANT LEADS; AND SERVICE LINES THAT ARE UNDER THE CONTROL OF A PUBLIC WATER SYSTEM AND THAT HAVE AN INSIDE DIAMETER OF THREE INCHES OR GREATER.

(1) HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

(A) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C

(B) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.

(C) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11C

GENERAL WATER NOTES

(D) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

(2) VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS AND RECLAIMED WATER PIPELINES.

(A) NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.

(3) SEPARATION BETWEEN WATER MAINS AND SANITARY OR STORM SEWER MANHOLES:

(A) NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE.

(B) EFFECTIVE AUGUST 28, 2003, WATER MAINS SHALL NOT BE CONSTRUCTED OR ALTERED TO PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A STORM SEWER MANHOLE OR INLET STRUCTURE. WHERE IT IS NOT TECHNICALLY FEASIBLE OR ECONOMICALLY SENSIBLE TO COMPLY WITH THIS REQUIREMENT (I.E., WHERE THERE IS A CONFLICT IN THE ROUTING OF A WATER MAIN AND A STORM SEWER AND WHERE ALTERNATIVE ROUTING OF THE WATER MAIN OR THE STORM SEWER IS NOT TECHNICALLY FEASIBLE OR IS NOT ECONOMICALLY SENSIBLE), THE DEPARTMENT SHALL ALLOW EXCEPTIONS TO THIS REQUIREMENT (I.E., THE DEPARTMENT SHALL ALLOW CONSTRUCTION OF CONFLICT MANHOLES), BUT SUPPLIERS OF WATER OR PERSONS PROPOSING TO CONSTRUCT CONFLICT MANHOLES MUST FIRST OBTAIN A SPECIFIC PERMIT FROM THE DEPARTMENT AND MUST PROVIDE IN THE PRELIMINARY DESIGN REPORT OR DRAWINGS, SPECIFICATIONS, AND DESIGN DATA ACCOMPANYING THEIR PERMIT APPLICATION THE FOLLOWING INFORMATION:

1. TECHNICAL OR ECONOMIC JUSTIFICATION FOR EACH CONFLICT MANHOLE.
2. A STATEMENT IDENTIFYING THE PARTY RESPONSIBLE FOR MAINTAINING EACH CONFLICT MANHOLE.
3. ASSURANCE OF COMPLIANCE WITH THE DESIGN AND CONSTRUCTION REQUIREMENTS IN SUB-PARAGRAPHS A. THROUGH D. BELOW. - 361
   - A. EACH WATER MAIN PASSING THROUGH A CONFLICT MANHOLE SHALL HAVE A FLEXIBLE, WATERTIGHT JOINT ON EACH SIDE OF THE MANHOLE TO ACCOMMODATE DIFFERENTIAL SETTLING BETWEEN THE MAIN AND THE MANHOLE.
   - B. WITHIN EACH CONFLICT MANHOLE, THE WATER MAIN PASSING THROUGH THE MANHOLE SHALL BE INSTALLED IN A WATERTIGHT CASING PIPE HAVING HIGH IMPACT STRENGTH (I.E., HAVING IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE).
   - C. EACH CONFLICT MANHOLE SHALL HAVE AN ACCESS OPENING, AND SHALL BE SIZED, TO ALLOW FOR EASY CLEANING OF THE MANHOLE.
   - D. GRATINGS SHALL BE INSTALLED AT ALL STORM SEWER INLETS UPSTREAM OF EACH CONFLICT MANHOLE TO PREVENT LARGE OBJECTS FROM ENTERING THE MANHOLE.

(4) SEPARATION BETWEEN FIRE HYDRANT DRAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

(A) NEW OR RELOCATED FIRE HYDRANTS WITH UNDERGROUND DRAINS SHALL BE LOCATED SO THAT THE DRAINS ARE AT LEAST THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AT LEAST THREE FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER; AT LEAST SIX FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AND AT LEAST TEN FEET FROM ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-11D

GENERAL WATER NOTES

(5) EXCEPTIONS. WHERE IT IS NOT TECHNICALLY FEASIBLE OR ECONOMICALLY SENSIBLE TO COMPLY WITH THE REQUIREMENTS IN SUBSECTION (1) OR (2) ABOVE, THE DEPARTMENT SHALL ALLOW EXCEPTIONS TO THESE REQUIREMENTS IF SUPPLIERS OF WATER OR CONSTRUCTION PERMIT APPLICANTS PROVIDE TECHNICAL OR ECONOMIC JUSTIFICATION FOR EACH EXCEPTION AND PROVIDE ALTERNATIVE CONSTRUCTION FEATURES THAT AFFORD A SIMILAR LEVEL OF RELIABILITY AND PUBLIC HEALTH PROTECTION. ACCEPTABLE ALTERNATIVE CONSTRUCTION FEATURES INCLUDE THE FOLLOWING:

(A) WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND JOINTS IN THE WATER MAIN ARE BEING LOCATED LESS THAN THE REQUIRED MINIMUM DISTANCE FROM JOINTS IN THE OTHER PIPELINE:
1. USE OF PRESSURE-RATED PIPE CONFORMING TO THE AMERICAN WATER WORKS ASSOCIATION STANDARDS INCORPORATED INTO RULE 62-555.330, F.A.C., FOR THE OTHER PIPELINE IF IT IS A GRAVITY- OR VACUUM-TYPE PIPELINE;
2. USE OF WELDED, FUSED, OR OTHERWISE RESTRAINED JOINTS FOR EITHER THE WATER MAIN OR THE OTHER PIPELINE; OR
3. USE OF WATERTIGHT CASING PIPE OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR EITHER THE WATER MAIN OR THE OTHER PIPELINE.

(B) WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THREE FEET HORIZONTALLY FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND IS BEING LAID LESS THAN THE REQUIRED MINIMUM VERTICAL DISTANCE FROM THE OTHER PIPELINE:
1. USE OF PIPE, OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (I.E., HAVING AN IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE) OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR THE WATER MAIN; AND
2. USE OF PIPE, OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (I.E., HAVING AN IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE) OR CONCRETE ENCASEMENT AT LEAST FOUR INCHES THICK FOR THE OTHER PIPELINE IF IT IS NEW AND IS CONVEYING WASTEWATER OR RECLAIMED WATER.

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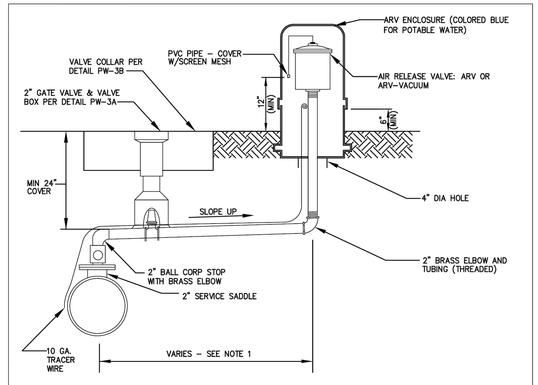


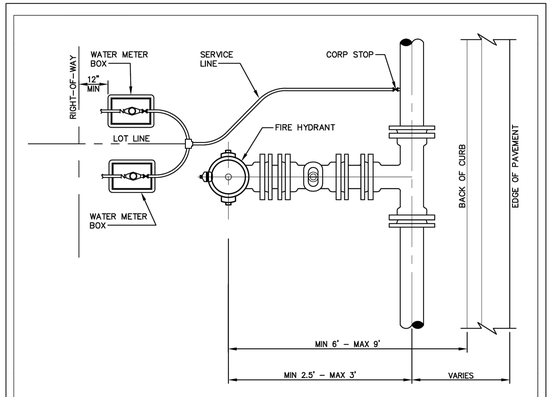
NOTES:

1. OFFSET DISTANCE SHOWN ON DRAWINGS.
2. ADJUST HORIZONTAL LOCATION OF ARV ENCLOSURE, AS REQUIRED TO AVOID SIDEWALK. LOCATE ARV ENCLOSURE WITHIN 1' OF R/W OR AS OTHERWISE DETERMINED BY THE CITY.

OFFSET AIR RELEASE VALVE VAULT

NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-13



NOTES:

1. ALL METER BOXES TO BE LOCATED INSIDE ROAD R/W LINE
2. DETAIL TO BE USED WHERE FIRE HYDRANTS AND WATER SERVICES ARE LOCATED ON PLANS AND CONFLICT APPEARS APPARENT.

TYPICAL WATER SERVICE AND HYDRANT LOCATION

NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-14

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CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

#	DATE	REVISIONS
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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C932

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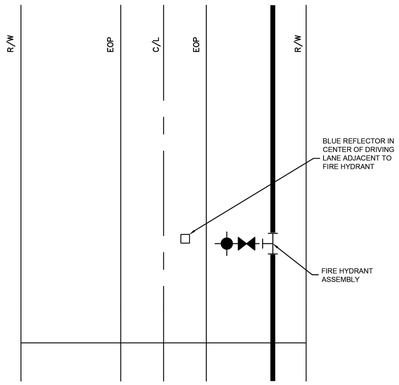
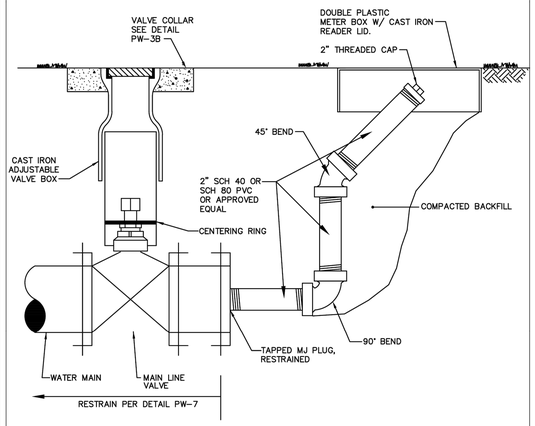


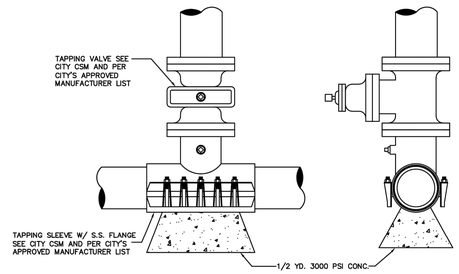
FIRE HYDRANT REFLECTOR
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-15



BLOWOFF VALVE
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-16



WET TAP SLEEVE AND TAPPING VALVE
NOT TO SCALE

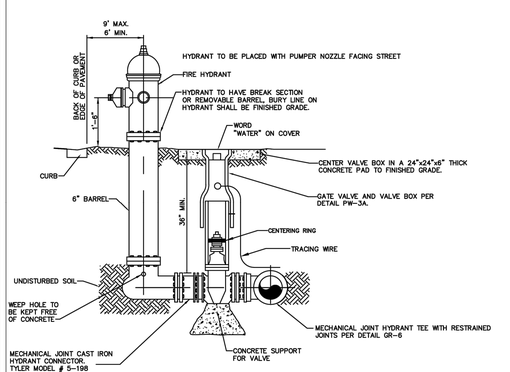
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-17

PAINTING

1. APPLY TWO COATS OF OSHA SAFETY INDUSTRIAL RED PAINT TO HYDRANT BARREL.
2. APPLY TWO COATS OF OSHA SAFETY INDUSTRIAL ENAMEL PAINT TO THE BONNET AND NOZZLE CAPS. THE UTILITY DEPARTMENT INSPECTOR WILL DETERMINE THE COLOR TO PAINT THE HYDRANT BONNET AND NOZZLE CAPS BY FLOW TESTING HYDRANT.
   - BLUE 1500 GPM OR MORE (SHERWIN WILLIAMS #SW4086)
   - GREEN 1000 GPM TO 1499 GPM (SHERWIN WILLIAMS #B54614)
   - ORANGE 500 GPM TO 999 GPM (SHERWIN WILLIAMS #B54E39)
   - RED 499 GPM OR LESS (SHERWIN WILLIAMS #B54R38)
   - RED HYDRANT BARREL (SHERWIN WILLIAMS #B54R36)

SPECIFICATIONS

1. AWWA SPECIFICATIONS C-502
2. TWO 2-1/2" HOSE NOZZLE DISCHARGE
3. ONE 4-1/2" PUMPER NOZZLE DISCHARGE
4. ONE 1-1/2" OPERATING NUT, LEFT
5. ALL HYDRANTS SHALL BE EQUIPPED WITH FITTINGS TO ALLOW FOR ELEVATION ADJUSTMENTS.
6. 5¼" MAIN VALVE OPENING
7. RESTRAINED JOINTS OR ALL THREADED ROD REQUIRED TO SECURE PIPE, RISER AND VALVE IN THE FIRE HYDRANT ASSEMBLY TO THE MAIN



FIRE HYDRANT WITH VALVE
NOT TO SCALE
(STANDARD FIRE HYDRANT ASSEMBLY)

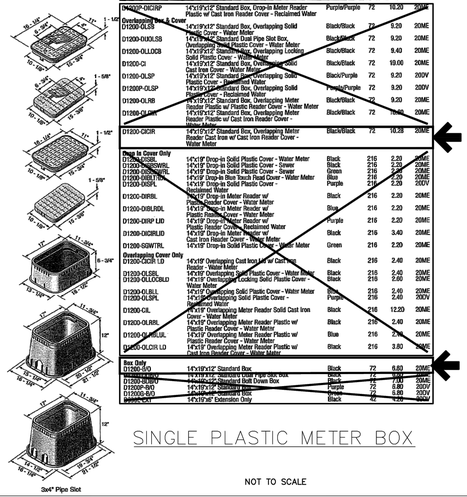
Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-18

NDS METER BOXES

STANDARD COMMERCIAL GRADE

NDS D1200 Meter Boxes (cont.)

Part Number	Description - Marking	Color (Box/Cover)	Pallet Qty	Weight (lb)	Product Class
D1200P-DICRP	14"x19"x12" Standard Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Reclaimed Water	Purple/Purple	72	10.20	20ME
Overlapping Box & Cover					
D1200-OLDS	14"x19"x15" Standard Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	72	9.50	20ME
D1200-DUOLSB	14"x19"x12" Standard Dual Pipe Slot Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-OLLDCB	14"x19"x15" Standard Box, Overlapping Locking Solid Plastic Cover - Water Meter	Black/Black	72	9.40	20ME
D1202-CI	14"x19"x12" Standard Box, Overlapping Solid Cast Iron Cover - Water Meter	Black/Black	72	19.00	20ME
D1200-OLSP	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Reclaimed Water	Black/Purple	72	9.20	20DV
D1200P-OLSP	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Reclaimed Water	Purple/Purple	72	9.20	20DV
D1200-OLRB	14"x19"x12" Standard Box, Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-OLRR	14"x19"x12" Standard Box, Overlapping Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	72	10.00	20ME
D1200-OICR	14"x19"x12" Standard Box, Overlapping Meter Reader Cast Iron w/ Cast Iron Reader Cover - Water Meter	Black/Black	72	10.28	20ME
Drop In Cover Only					
D1200-DSBL	14"x19" Drop-In Solid Plastic Cover - Water Meter	Black	216	2.20	20ME
D1200-DSGW	14"x19" Drop-In Solid Plastic Cover - Sewer	Black	216	2.20	20ME
D1200-DSGWRL	14"x19" Drop-In Solid Plastic Cover - Sewer	Green	216	2.20	20ME
D1200-DSBTRL	14"x19" Drop-In Blue Teeth Read Cover - Water Meter	Blue	216	2.20	20ME
D1200-DSPL	14"x19" Drop-In Solid Plastic Cover - Reclaimed Water	Purple	216	2.20	20DV
D1200-DIRRL	14"x19" Drop-In Meter Reader w/ Plastic Reader Cover - Water Meter	Black	216	2.20	20ME
D1200-DIRLRDL	14"x19" Drop-In Meter Reader w/ Plastic Reader Cover - Water Meter	Blue	216	2.20	20ME
D1200-DIRP LID	14"x19" Drop-In Meter Reader w/ Plastic Reader Cover - Reclaimed Water	Purple	216	2.20	20ME
D1200-DICRLID	14"x19" Drop-In Meter Reader w/ Cast Iron Reader Cover - Water Meter	Black	216	3.40	20ME
D1200-SGWTRL	14"x19" Drop-In Solid Plastic Cover - Water Meter	Green	216	2.20	20ME
Overlapping Cover Only					
D1200-DICR LID	14"x19" Overlapping Cast Iron Lid w/ Cast Iron Reader - Water Meter	Black	216	2.40	20ME
D1203-OLSBL	14"x19" Overlapping Solid Plastic Cover - Water Meter	Black	216	2.40	20ME
D1203-OLLOCBLD	14"x19" Overlapping Locking Solid Plastic Cover - Water Meter	Black	216	2.60	20ME
D1200-OLBLI	14"x19" Overlapping Solid Plastic Cover - Water Meter	Black	216	2.40	20ME
D1202-OLSPL	14"x19" Overlapping Solid Plastic Cover - Reclaimed Water	Purple	216	2.40	20DV
D1200-CIL	14"x19" Overlapping Meter Reader Solid Cast Iron Cover - Water Meter	Black	216	12.20	20ME
D1200-OLRRL	14"x19" Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black	216	2.40	20ME
D1200-OLRRLBL	14"x19" Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Blue	216	2.40	20ME
D1203-OLCR LD	14"x19" Overlapping Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black	216	3.80	20ME
Box Only					
D1202-BO	14"x19"x12" Standard Box	Black	72	6.80	20ME
D1202-DUBSLBO	14"x19"x12" Standard Dual Pipe Slot Box	Black	72	7.00	20ME
D1202-DUBBO	14"x19"x12" Standard Bolt Down Box	Black	72	7.00	20ME
D1202P-BO	14"x19"x12" Standard Box	Purple	72	6.80	20DV
D1202G-BO	14"x19"x12" Standard Box	Green	72	6.80	20DV
D1200-EXT	14"x19"x6" Extension Only	Black	60	3.20	20ME



SINGLE PLASTIC METER BOX
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-19

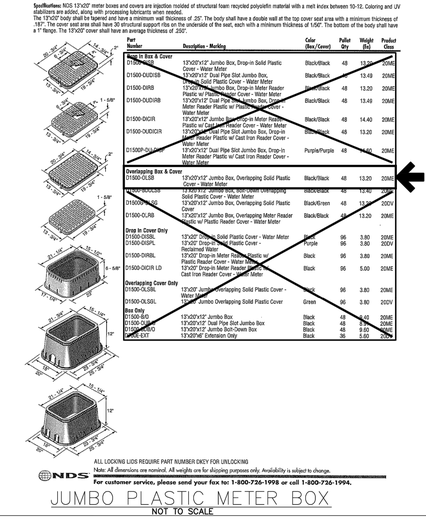
NDS METER BOXES

STANDARD COMMERCIAL GRADE

NDS D1500 Meter Boxes

Specifications: NDS 13"x20" meter boxes and covers are injection molded of structural foam recycled polyolefin material with a melt index between 10-12. Coloring and UV stabilizers are added, along with processing lubricants when needed.
The 13"x20" body shall be tapered and have a minimum wall thickness of .25". The body shall have a double wall at the top cover seat area with a minimum thickness of .187". The cover seat area shall have 30 structural support ribs on the underside of the seat, each with a minimum thickness of 1/32". The bottom of the body shall have a 1" flange. The 13"x20" cover shall have an average thickness of .250".

Part Number	Description - Marking	Color (Box/Cover)	Pallet Qty	Weight (lb)	Product Class
Drop In Box & Cover					
D1500-DLSB	13"x20"x12" Jumbo Box, Drop-In Solid Plastic Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUOLSB	13"x20"x12" Dual Pipe Slot Jumbo Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-DIRB	13"x20"x12" Jumbo Box, Drop-In Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUDIRB	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-DICR	13"x20"x12" Jumbo Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	48	14.40	20ME
D1500-DUICR	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	48	13.20	20ME
D1500P-DLSB	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-In Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Purple/Purple	48	14.60	20ME
Overlapping Box & Cover					
D1500-OLSB	13"x20"x12" Jumbo Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUOLSB	13"x20"x12" Jumbo Box, Dual Slot Cover Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-OLGS	13"x20"x12" Jumbo Box, Overlapping Solid Plastic Cover	Black/Green	48	13.20	20DV
D1500-OLRB	13"x20"x12" Jumbo Box, Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.20	20ME
Drop In Cover Only					
D1500-DSBL	13"x20" Drop-In Solid Plastic Cover - Water Meter	Black	96	3.80	20ME
D1500-DSPL	13"x20" Drop-In Solid Plastic Cover - Reclaimed Water	Purple	96	3.80	20DV
D1500-DIRBL	13"x20" Drop-In Meter Reader w/ Plastic Reader Cover - Water Meter	Black	96	3.80	20ME
D1500-DICR LD	13"x20" Drop-In Meter Reader Cast Iron Reader Cover - Water Meter	Black	96	5.00	20ME
Overlapping Cover Only					
D1500-OLSBL	13"x20" Jumbo Overlapping Solid Plastic Cover - Water Meter	Black	96	3.80	20ME
D1500-OLSGL	13"x20" Jumbo Overlapping Solid Plastic Cover	Green	96	3.80	20DV
Box Only					
D1500-BO	13"x20"x12" Jumbo Box	Black	48	9.40	20ME
D1500-DUBBO	13"x20"x12" Dual Pipe Slot Jumbo Box	Black	48	9.60	20ME
D1500-BOD	13"x20"x12" Jumbo Bolt-Down Box	Black	48	9.60	20ME
D1500-EXT	13"x20"x6" Extension Only	Black	36	5.60	20ME



ALL LOCKING LIDS REQUIRE PART NUMBER DIKEY FOR UNLOCKING
Note: All dimensions are nominal. All weights are for illustrative purposes only. Availability is subject to change.

NDS
For customer service, please send your fax to: 1-800-726-1998 or call 1-800-726-1994.

JUMBO PLASTIC METER BOX
NOT TO SCALE

Howey-in-the-Hills Standard Details | DATE: FEB 2022 | DETAIL PW-20

MADDEN
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CA# 0007723

CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T.G. LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

C933

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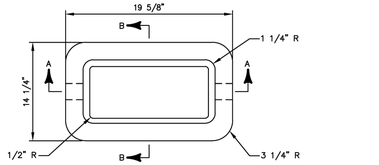
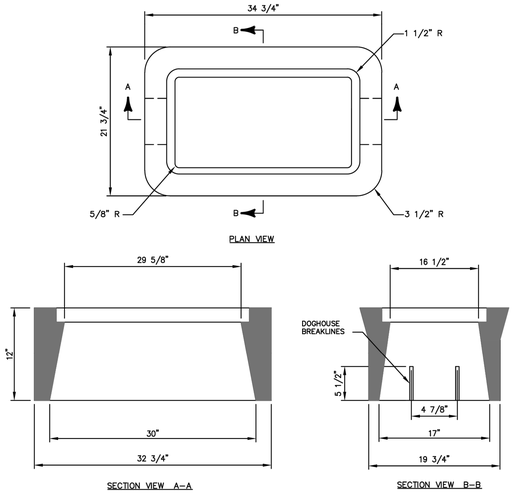


NOTE:
METER BOX SHALL BE COMPLETE WITH POLYMER COVER LID

SINGLE POLYMER METER BOX

NOT TO SCALE

Howey–in–the–Hills
Standard Details
DATE: FEB 2022
DETAIL PW–21

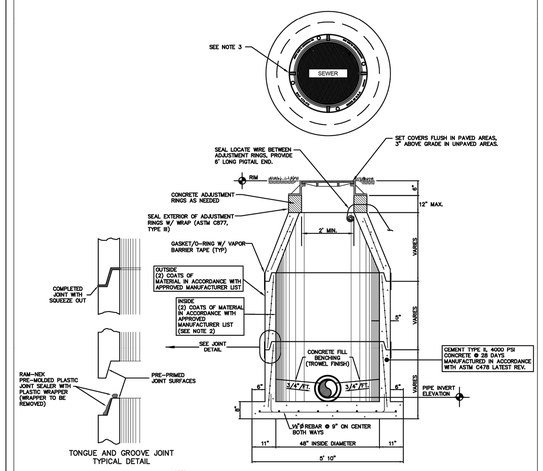


NOTE:
METER BOX SHALL BE COMPLETE WITH POLYMER COVER AND LID

JUMBO POLYMER METER BOX

NOT TO SCALE

Howey–in–the–Hills
Standard Details
DATE: FEB 2022
DETAIL PW–22

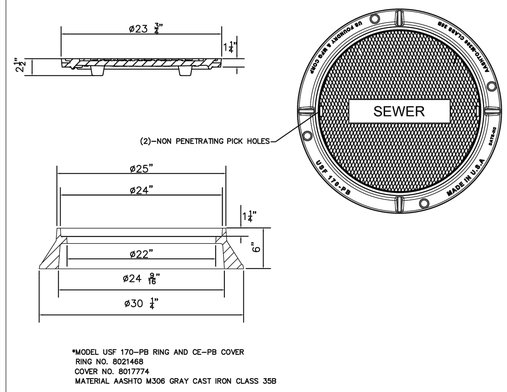


NOTES
1. ALTERNATE–PRECAST MANHOLE TOPS MUST BE APPROVED IN ADVANCE.
2. LINER (100 MILS DFT) SHALL BE USED WHERE SHOWN ON DRAWINGS AND/OR REQUIRED BY THE CITY.
3. MANHOLE LID TO BE CENTERED OVER EFFLUENT PIPE.
4. INSTALL ONE CONTINUOUS PIECE OF RAM–NEK AROUND ENTIRE MATING SURFACE BETWEEN ADJUSTMENT RINGS AND MANHOLE FRAME.

SANITARY PRECAST MANHOLE

NOT TO SCALE

Howey–in–the–Hills
Standard Details
DATE: FEB 2022
DETAIL WW–1

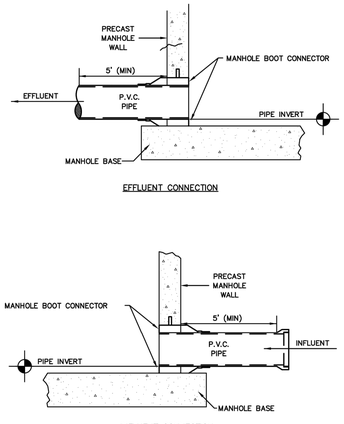


*MODEL USF 170–PB RING AND CE–PB COVER
RING NO. 8021468
COVER NO. 8017774
MATERIAL AASHTO M306 GRAY CAST IRON CLASS 35B

SANITARY MANHOLE COVER

NOT TO SCALE

Howey–in–the–Hills
Standard Details
DATE: FEB 2022
DETAIL WW–2



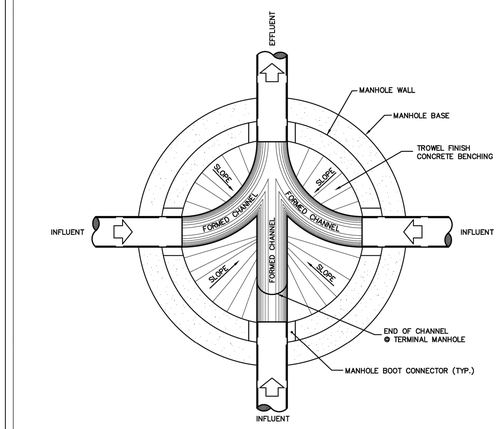
EFFLUENT CONNECTION

INFLUENT CONNECTION

PIPE CONNECTION TO PRECAST SANITARY MANHOLE

NOT TO SCALE

Howey–in–the–Hills
Standard Details
DATE: FEB 2022
DETAIL WW–3



FLOW PATTERNS FOR INVERT CHANNELS

NOTES:
1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS. HALF PIPE INVERT CHANNELS.
2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.
3. CHANNELS FOR FUTURE CONNECTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND AND COVERED WITH 1" OF MORTAR.

TYPICAL MANHOLE PLAN

NOT TO SCALE

Howey–in–the–Hills
Standard Details
DATE: FEB 2022
DETAIL WW–4

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

	DATE	REVISIONS
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C934

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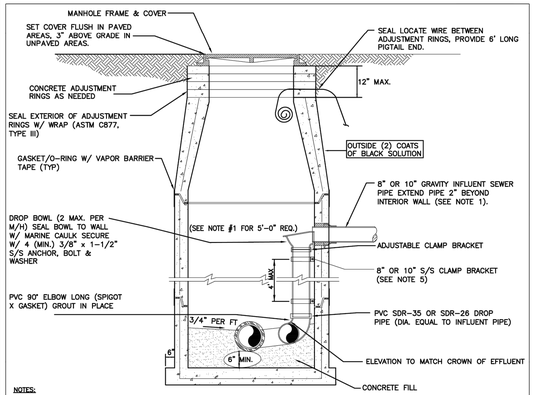


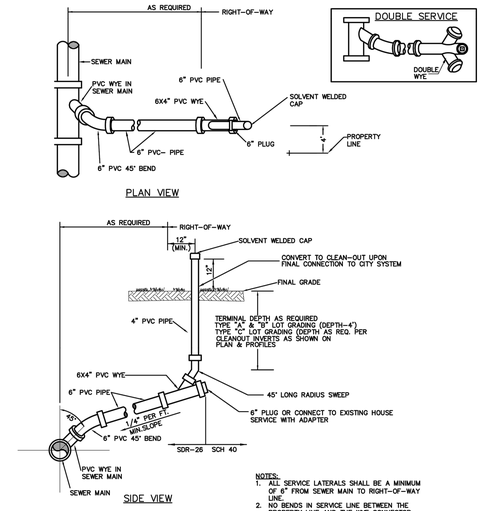
NOTES:

1. THIS ASSEMBLY IS FOR 8" OR 10" GRAVITY INFLUENT LINES ONLY. NO DROPS ALLOWED FOR FORCE MAINS. MAXIMUM OF 2 INSIDE DROP BOWLS PER MANHOLE. A 5'-0" DIA. MANHOLE (6" THICK WALLS) IS REQUIRED. THE INSIDE DROP FOR 8" HIGH-LINE SHALL BE CONSTRUCTED SIMILAR TO ABOVE.
2. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C-478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON-SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
3. THE INTERIOR OF MANHOLE AND THE INTERIOR OF ADJUSTMENT RINGS SHALL BE LINED (150 MILS DFT) AS INDICATED ON THE DRAWINGS AND/OR REQUIRED BY THE CITY.
4. THE DROP BOWL ASSEMBLY SHALL BE INSTALLED PRIOR TO APPLICATION OF SPECIALTY LINING MATERIAL.
5. ADJUSTABLE CLAMPING BRACKET (MIN. 2 PER DROP BOWL ASSY). 1-1/2" WIDE, 11 GA. W/ 3/8" DIA. 18-8 PINCH BOLTS AND NUTS. SECURE TO M/H WALL WITH (2) 3/8" X 1" BOLT, ANCHOR & WASHER PER BRACKET ASSY. ALL 316 STAINLESS STEEL MATERIALS.
6. INSTALL ONE CONTINUOUS PIECE OF RAM-NEK AROUND ENTIRE MATING SURFACE BETWEEN ADJUSTMENT RINGS AND MANHOLE FRAME.
7. MANHOLE LID SHALL BE CENTERED OVER DROP BOWL.

INSIDE DROP STANDARD PRECAST MANHOLE

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-5

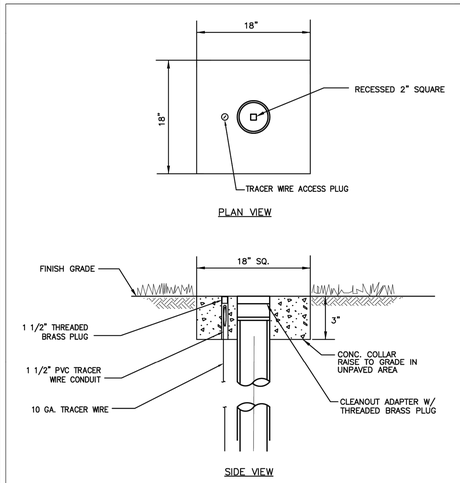


NOTES:
1. ALL SERVICE LATERALS SHALL BE A MINIMUM OF 6" FROM SEWER MAIN TO RIGHT-OF-WAY LINE.
2. NO BENDS IN SERVICE LINE BETWEEN THE PROPERTY LINE AND THE WYE CONNECTOR.

SANITARY SEWER SERVICE

PVC SEWER SERVICE - NOT TO SCALE

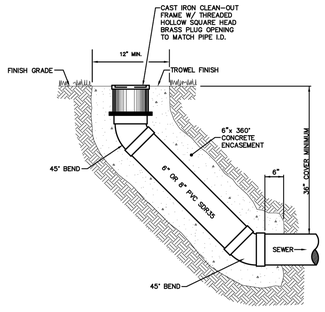
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-6



SERVICE CLEANOUT

NOT TO SCALE

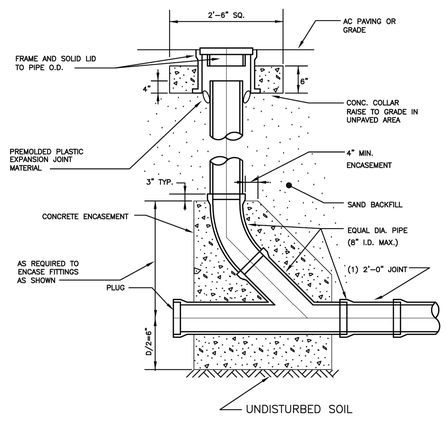
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-7



TRUNK LINE CLEAN-OUT

NOT TO SCALE

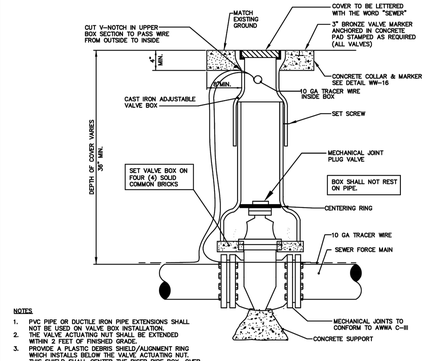
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-8



GRAVITY CLEAN-OUT

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-9



NOTES
1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD/ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED ITS MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
5. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

PLUG VALVE AND BOX

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-13

MADDEN
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CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — LAKE COUNTY, FLORIDA

READERS & PARTNERS, LLC
5850 T.G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 856-4899

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DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ENGINEER OF RECORD

JOB #	23019
DATE:	01/15/25
DATUM:	NAVD 88
DESIGNED BY:	PCR
DRAWN BY:	JSK
APPROVED BY:	DAS

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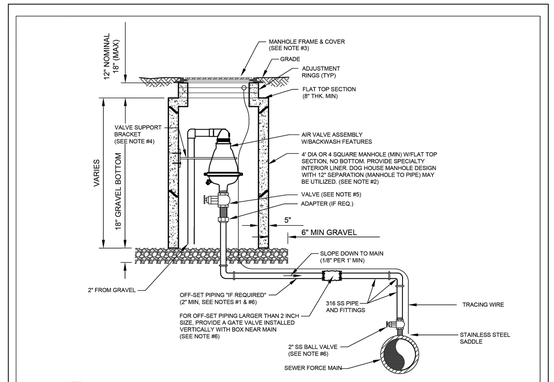


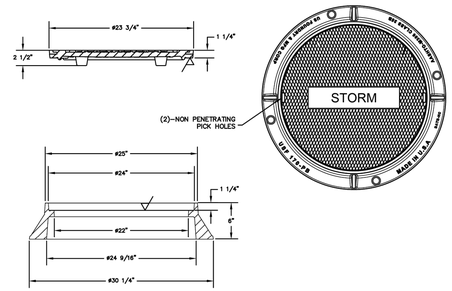
NOTES:

1. THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA. IF OFF-SET PIPING IS REQUIRED, THE PIPING SHALL BE 2 INCH MINIMUM, (SAME SIZE AS AIR VALVE INLET). FOR PIPE SIZES 3 INCH AND SMALLER, PIPING SHALL BE 316 STAINLESS STEEL, SCH 40, STD GRADE, THREADED. FOR PIPE SIZES 4 INCH AND LARGER, PIPING SHALL BE 316 STAINLESS STEEL, SCH 10 (MIN). WELDED.
2. THE CONCRETE MANHOLE SHALL INCLUDE A LINER TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
3. FRAME AND COVER SHALL BE CITY STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT (REMOVE GASKET IF NECESSARY FROM THE UNDERSIDE OF STANDARD COVER). THE COVER (WHEN FLIPPED OPEN) MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON TRAFFIC LOCATIONS ONLY).
4. A VALVE SUPPORT BRACKET IS ONLY REQUIRED FOR ASSEMBLIES WHICH INCLUDE OFF-SET PIPING. THE BRACKET SHALL BE WELDED AND FABRICATED FROM ALL 316 STAINLESS STEEL MATERIALS AND INCLUDE 4"x 4" x ¼" THICK END PLATES (CONTOURED TO MATCH ATTACHING SURFACES), 3" ANGLE IRON FOR SUPPORT ARM AND TWO U-BOLTS 30" DIA TO ATTACH AROUND AIR VALVE. SECURE TO CONCRETE MANHOLE WITH FOUR 3/8" DIA X 2" LONG SS ANCHOR (MIN). MODIFY THE ABOVE AS REQUIRED TO FIT SPECIFIC AIR VALVE AND TO ASSURE A SOLID SUPPORT BRACKET.
5. FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN). FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGED PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
6. FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING. ALSO, FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN WITH A GEAR ACTUATOR). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

AIR VALVE ASSEMBLY INSIDE MANHOLE

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL WW-14



*MODEL USF 170-PB RING AND CE-PB COVER
RING NO. 8021468
COVER NO. 8017533
MATERIAL AASHTO M306 GRAY IRON CLASS35B

STORMWATER MANHOLE COVER

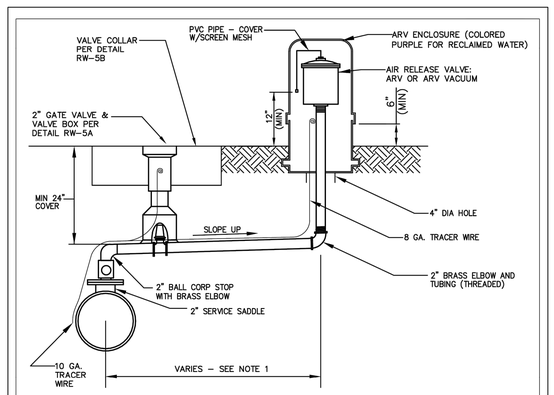
NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL SW-1

1. ALL RECLAIMED WATER PIPING TO BE OWNED AND MAINTAINED BY THE TOWN SHALL BE A SOLID PANTONE PURPLE COLOR.
2. RECLAIMED WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 18 FOR PIPE SIZES 4"-12". PIPES 14" & LARGER SHALL BE AWWA C-905, DR 25. PRESSURE CLASS 350 DIP IS AN ACCEPTABLE ALTERNATE. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION FOR LAYING SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS LATEST RECOMMENDATIONS.
3. DEPTH OF RECLAIMED WATER LINES TO BE 36" MIN. BELOW FINISHED GRADE.
4. RECLAIMED WATER MAINS TO BE LOCATED 5' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
5. ALL PIPING CLEARANCES SHALL BE IN ACCORDANCE WITH CHAPTER 62-555.314, F.A.C.
6. ALL RECLAIMED WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON PIPE AND SHALL EXTEND 5' BEYOND THE EDGE OF PAVEMENT OR BACK OF CURB, EXCEPT DIRECTIONAL BORES, WHICH SHALL BE SDR-11 HDPE.
7. ALL IRRIGATION SLEEVING UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE EDGE OF PAVEMENT OR BACK OF CURB.
8. ALL OTHER REQUIREMENTS OF THE TOWN WATER SYSTEM SHALL APPLY TO THE RECLAIMED WATER SYSTEM.
9. PROPER SIGNAGE FOR PUBLIC ACCESS IRRIGATION AREAS TO BE SUPPLIED BY THE DEVELOPER / CONTRACTOR, IN ACCORDANCE WITH CHAPTER 62-610.418, F.A.C.

GENERAL RECLAIMED WATER NOTES

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-1



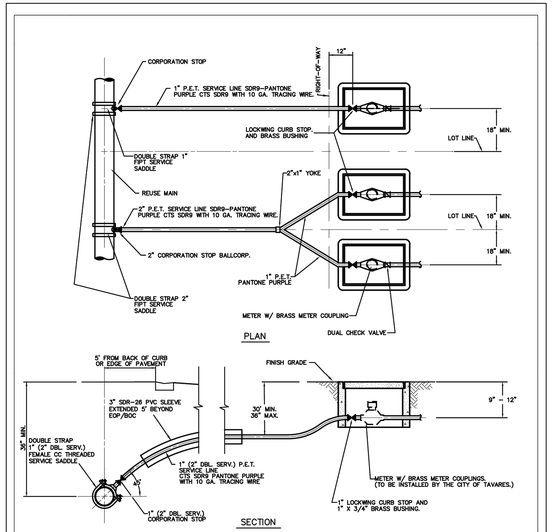
NOTES:

1. OFFSET DISTANCE SHOWN ON DRAWINGS.
2. ADJUST HORIZONTAL LOCATION OF ARV ENCLOSURE, AS REQUIRED TO AVOID SIDEWALK. LOCATE ARV ENCLOSURE WITHIN 1' OF R/W OR AS OTHERWISE DETERMINED BY THE CITY.

OFFSET AIR RELEASE VALVE VAULT

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-2

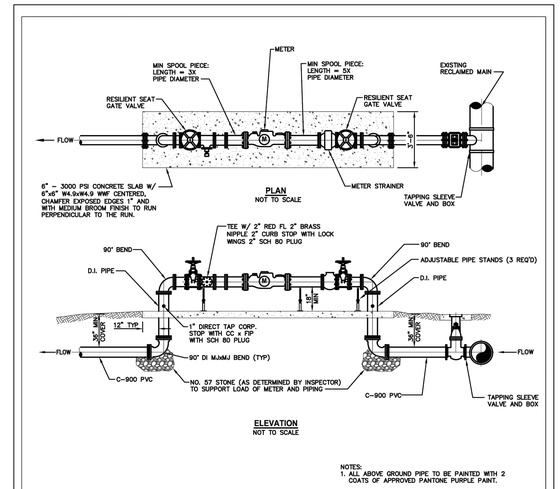


RECLAIMED WATER SERVICE CONNECTION

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-3



NOTES:
1. ALL ABOVE GROUND PIPE TO BE PAINTED WITH 2 COATS OF APPROVED PANTONE PURPLE PAINT.

RECLAIMED WATER METERING

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-4

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS FOR LAKE HILLS PHASE 1 — FLORIDA — LAKE COUNTY

READERS & PARTNERS, LLC
5850 T G LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

#	DATE	REVISIONS
1		
2		
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11		

DAVID ASHLEY STOKES LICENSE NO. 66527 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C936

THESE DOCUMENTS AND DESIGNS ARE, AND SHALL REMAIN, THE PROPERTY OF MADDEN, MOORHEAD & STOKES, LLC AND SHALL NOT BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF MADDEN, MOORHEAD & STOKES, LLC. © 2025 MADDEN, MOORHEAD & STOKES, LLC. ALL RIGHTS RESERVED.

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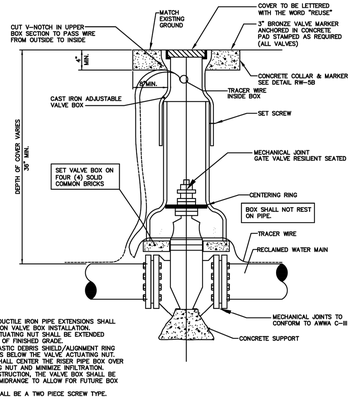


NOTES:
1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD/ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
5. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

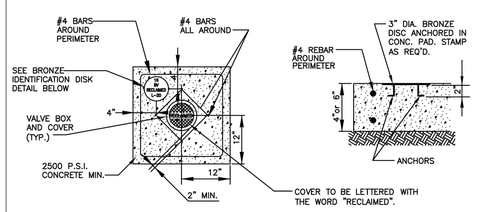
GATE VALVE AND BOX

NOT TO SCALE

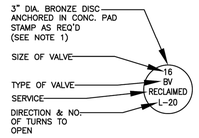
Howey-in-the-Hills
Standard Details

DATE: FEB 2022

DETAIL RW-5A



NOTE:
1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.
2. 6" THICK CONCRETE PAD IN ROADWAY OR PAVED AREAS, 4" THICK CONCRETE PAD IN OTHER AREAS.



BRONZE IDENTIFICATION DISC DETAIL

VALVE COLLAR

NOT TO SCALE

Howey-in-the-Hills
Standard Details

DATE: FEB 2022

DETAIL RW-5B

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS
431 E. Horatio Avenue
Suite 260
Maitland, Florida 32751
(407) 629-8330
CA# 0007723

CITY UTILITY DETAILS
FOR
LAKE HILLS PHASE 1
LAKE COUNTY FLORIDA

READERS & PARTNERS, LLC
5850 TG LEE BOULEVARD, SUITE 200
ORLANDO FL, 32822
(407) 855-4899

	DATE	REVISIONS
1		
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DAVID ASHLEY STOKES
LICENSE
NO. 66527
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by David Ashley Stokes, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

ENGINEER OF RECORD

JOB # 23019
DATE: 01/15/25
DATUM: NAVD 88
DESIGNED BY: PCR
DRAWN BY: JSK
APPROVED BY: DAS

C937

THESE DOCUMENTS AND DESIGNS CONTAINED HEREIN, AS INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF MADDEN, MOORHEAD & STOKES, LLC AND SHALL NOT BE REUSED, USED FOR OTHER PROJECTS, PUBLISHED, OR REPRODUCED, WITHOUT THE EXPRESSED WRITTEN PERMISSION OF MADDEN, MOORHEAD & STOKES, LLC. © PROTECTED UNDER COPYRIGHT LAWS.

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Submittal For Approval
Sanitary Utility Sewerage Structures Concrete

Prepared by: Sandrema dba Eden Site Development

Project: Lake Hills

Date: 7/22/2025

Source Data: 07/15/25 Sanitary Structure Tables

01-333900-01 Sanitary Utility Sewerage Structures Concrete.pdf

Reviewed for General Acceptance Only. We hereby certify that the material shown and marked in this submittal in that proposed to be incorporated in the work, in compliance with the contract documents, can be installed in the allocated spaces and is submitted for review by the Designer

Eden Site Development Inc
By: Javier Carulo
Date: 07/22/2025

APPROVED WITH NOTES

XX ☑	Reviewed	☐	Revise and resubmit
☐	Rejected	☐	Furnish as corrected

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for continuing and correlating all quantities and dimension; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The contractor is responsible for providing copies of shop drawings to governing municipality and obtaining approval if necessary.

Date: 7/24/25 By: JAMES DOMBROWSKI
MADDEN, MOORHEAD & STOKES, LLC

MADDEN
MOORHEAD & STOKES, LLC
CIVIL ENGINEERS

MACK CONCRETE INDUSTRIES

SHOP DRAWING SUBMITTAL

Project #CF30265**:**
Lake Hills Main Boulevard & Mass Grading

Prepared for:
Eden Site Development

Sales:
SCOTT NEMCEK
Phone: 800.482.6225 6705/76706
email: snemcek@mackconcrete.com

Engineering:
DON WHITFORD
Phone: 800.482.6225 6705/76307
email: dwhitford@mackconcrete.com

NOTE: PLEASE VERIFY COVER LETTERING PRIOR TO ORDERING OF CASTINGS

2025-07-15 09:52:09

MACK CONCRETE INDUSTRIES

To whom it may concern:

Enclosed is our submittal package for the precast structures on this project. Please review the shop drawings and provided information to verify that the products we are proposing comply with the current plans and specifications for this project. Please also be sure to respond to any questions or concerns noted on the drawings.

After you have reviewed our entire submittal package, please stamp all shop drawings, and return the approved submittal package via email to the engineer and salesperson noted on the shop drawings.

We appreciate your assistance in this approval process, which helps us to meet your needs and demands correctly and in a timely fashion.

Sincerely,

Don Whitford

Engineering Department

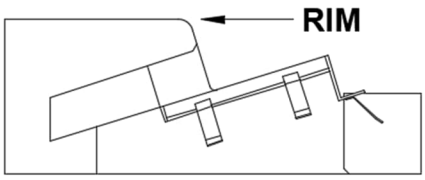
MACK CONCRETE INDUSTRIES

SHOP DRAWING NOTES

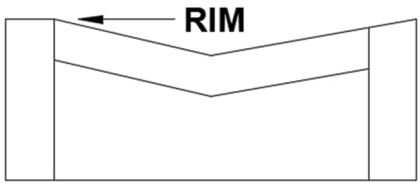
We generate our standard shop drawings using specialized software. Due to the way this software works, please keep in mind the following:

RIM is typically the highest point of the structure.

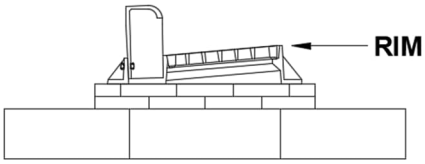
FDOT Type 1, 2, 3, 4, 5, & 6 curb inlets: RIM is the top of curb. If edge of pavement (EOP) is provided, we add 0.375' to get to RIM. If throat elevation is provided, we add 0.58' to get to RIM.



FDOT Type S, V, or J inlets, or other valley gutter inlets: RIM is not the gutter elevation. If gutter elevation is provided, for Type S we add 0.375' and for Type V or J we add 0.17'.



FDOT Type 9 & 10 curb inlets: RIM is equivalent to EOP, not top of curb. This is due to their adjustable hood.



Reducer elevation, if shown, can be disregarded.

For round structures, the outgoing (typically Invert 1) is always at zero degrees (0°). For rectangular structures, a short wall is always at zero degrees (0°). All other inverts are referenced from this.

Ext. (cw): The exterior horizontal measurement from a fixed point clockwise to the center of the hole. For round structures, the fixed point is 0°; for rectangular structures, the fixed point is the counterclockwise corner.

Int. (cw): Same as above but measured clockwise on the interior.

UP (_): The distance from the interior top of floor (or, if not in P1, exterior joint) to the bottom of the hole.

Pipes are assumed (and submitted as such) to be centered in their respective holes, unless noted otherwise.

Overall Height is measured from RIM to the bottom of the base slab.

Weight is the total weight of the structure including the casting.

If multiple colors of paint are used, they are listed from first coat to last (for example, R/G/B would be red, then gray, then black).

Standard Abbreviations:

FT = flat top
FB = flat bottom
CIP = cast-in-place
CTR = centered
OS = offset
TS = top slab
BP / BS = bottom pad/slab
WWM / WWF = welded wire mesh/fabric
OC = on center
OCEW = on center each way
HS = hole size

Cover Lettering Abbreviations:

C/O = City of
SASE = Sanitary Sewer
STSE = Storm Sewer
CS = Confined Space
PRCS = Permit Required Confined Space
ARV = Air Release Vault
DNW = Dump No Waste
DTWWY = Drains to Waterway

Mack Concrete Industries, Inc.
23902 COUNTY ROAD 561, ASTATULA, FL 34705 800.482.6225

To Who It May Concern,

This letter is to certify that any and all precast reinforced concrete manhole sections, inlets, catch basins, wetwells, endwalls, etc. manufactured by Mack Concrete Industries, Inc., meet and/or exceed the current Florida Department of Transportation and ASTM C-478 specifications and type I/II cement meets ASTM C-33 and AST C-150.

Sincerely,

Ron Blanton
General Manager
Mack Industries, Inc.
23902 County Road 561 Astatula, FL 34705
Phone: 800.482.6225 76802 I Fax: 352.642.8203
Email: rblanton@mackconcrete.com
Web: www.mackconcrete.com

Notary:

STATE OF FLORIDA

COUNTY OF LAKE

Sworn to (or affirmed) and subscribed before me this 10th day of March, 2025, by Ronald Blanton, who is personally known.

(SEAL) NOTARY PUBLIC STATE OF FLORIDA
CONNIE BEST
MY COMMISSION # HH 254325
EXPIRES: August 17, 2026

Notary Signature - _____

Printed Name of Notary - Connie Best

Quality and Service Since 1932

Brunswich, OH – Valley City, OH – Akron, OH – White Lake, MI – Bowling Green, OH – Vienna, OH – Sharpsburg, NC – Astatula, FL

www.mackconcrete.com

SOLMAX

TECHNICAL DATA SHEET

StudLiner

StudLiner is a high density polyethylene (HDPE) concrete protection product that protects against chemical and mechanical damage to concrete structures. StudLiner is manufactured with approximately 110 studs per square foot to guarantee high pullout strength and provide excellent stress distribution during temperature changes and pressure build-up. StudLiner can be installed over an exposed surface of a new or existing concrete structure, and it will provide a life expectancy that is five times greater than that of an unprotected structure. The product is also available in either a gray or black color, and in a variety of sizes to fit your specific application.

PRODUCT SPECIFICATIONS

TESTED PROPERTY	TEST METHOD	FREQUENCY	NOMINAL VALUE			
Thickness, mm Density, g/cm^3	ASTM D 5199 ASTM D 1505	Every 5th roll 1/100,000 ft^2	2.00 0.94	3.00 0.94	4.00 0.94	5.00 0.94
Tensile Properties (each direction) Strength at Yield, lb/in^2 Elongation at Break, %	ASTM D 6693, Type IV Dumbbell G.L. = 2.0 in	1/100,000 ft^2	 2,200 500	 2,200 500	 2,200 500	 2,200 500
Stud Pull-Out Strength[1], lb/ft^2		1/product	>14,000	>14,000	>14,000	>14,000
Carbon Black Content/Pigment Content, % Black (carbon) Gray (pigment)	ASTM D 1603*/4218 ASTM D 5630, Modified	1/100,000 ft^2	2-3 1.5-2.5	2-3 1.5-2.5	2-3 1.5-2.5	2-3 1.5-2.5
Carbon Black Dispersion[2]	ASTM D 5596	1/formulation	Note[2]	Note[2]	Note[2]	Note[2]
Notched Constant Tensile Load, hours	ASTM D 5397	1/product	400	400	400	400
Coefficient of Linear Thermal Expansion, per °C	ASTM D 696	1/product	1.20E-04	1.20E-04	1.20E-04	1.20E-04
Low Temperature Brittleness, °C	ASTM D 746	1/product	-77	-77	-77	-77
Dimensional Stability, % (each direction)	ASTM D 1204	1/product	±1.0	±1.0	±1.0	±1.0
Water Absorption, %	ASTM D 570	1/product	0.1	0.1	0.1	0.1
Water Vapor Transmission, (g/m^2/day)	ASTM E 96	1/product	<0.01	<0.01	<0.01	<0.01
TYPICAL ROLL DIMENSIONS						
Roll Width, ft			8	8	8	8
Roll Length, ft			246	213	196	196
Roll Area, ft^2			1,968	1,704	1,568	1,568

NOTES:

- [1] Note: Concrete must have compressive strength of at least 5,000 lb/in^2.
- [2] Note: Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from category 3.
- * Modified.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification. REV 01OCT2015

CONSEAL™ CONCRETE SEALANTS INC.

SEAL OF SECURITY. BOND OF TRUST.

ConSeal™ CS-1200

WATERBORNE WATERPROOF COATING



Low VOC, Waterborne Waterproof Coating

APPLICATIONS

Eco-friendly waterborne waterproof coating for most concrete structures. Safer alternative to coal-tar epoxy coatings.

COLORS

CS-1200 is available in Red, Gray, and Black. Custom colors are available upon request.

PERFORMANCE PROPERTIES

- Fast-drying, concrete waterproofing coating.
- High solids, tack-free surface in minutes.
- Freeze-thaw stable.
- Mildew resistant, bacterial stable.
- Polymer film protects against water intrusion.
- Indoor/outdoor application.
- Brush, roller, or spray applied.
- Flexible film with excellent impact resistance.
- Flexible film at low temperatures.
- Custom colors available upon request.

PHYSICAL PROPERTIES

Dry Time:	20-25 minutes
VOC content:	21 g/L
Viscosity:	15,000-21,000 CPS. (Brookfield Helipath)
% Solids	71.0-73.0
Coverage:	**100-150 square feet per gallon**
Thickness:	8-12 mils dry film thickness
Shelf Life:	One year min. Unopened can
Polymer:	Acrylic
Clean-up:	Warm soapy water while wet
ASTM G14 Impact Test:	Pass at 40˚F

DO NOT SUBJECT CONBLOCK CS-1200 TO FREEZING TEMPERATURES BEFORE USE.

DIRECTIONS FOR USE

Surface Preparation: The concrete must be clean and free from dust, dirt, grease, laitance, and debris before application of CS-1200. Inspect surface for soundness. Repair or remove any surface irregularities and loose concrete, using an approved crack filling method on static hairline cracks. When the surface is clean, sound and dry, proceed with coating application.

Note: When using CS-1200 for the first time it is advisable to coat a small test patch on a representative section of concrete and verify adhesion before proceeding to large scale coating projects.

Mixing: Stir thoroughly prior to use. **DO NOT THIN OR DILUTE CS-1200.**

Priming: For applications with continuous water immersion ConSeal recommends using a surface primer. ConSeal CS-80 and ConSeal CS-85 are specifically designed for ConSeal's elastomeric sealants.

Application: Apply CS-1200 to concrete structures between 40°-120° F. Do not apply CS-1200 to frozen concrete. Apply CS-1200 using a roller, brush or spray gun. If applying with airless spray gun, a spray tip of 0.015"-0.021" is recommended. In order to avoid "cracking" do not allow product to pool and do not apply the coats too thick during application. When applying multiple coats of CS-1200, apply at right angles to maximize film integrity. When spraying, hold spray gun 12"-24" away from the surface; spray an even, light coat over the entire surface. When the surface becomes dry to the touch, subsequent coats may be applied.

LIMITED WARRANTY
This information is presented in good faith, but we cannot anticipate all conditions under which this information and our products, or the products of other manufactures in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety and suitability of our products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product or product combinations for their own purposes. It is the **users' responsibility** to satisfy himself as to the suitability and completeness of such information for this own particular use. We sell this product without warranty, and buyers and users assume all responsibility and liability for loss or damage arising from the handling and use of this product, whether used alone or in combination with other products.

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SEAL OF SECURITY
BOND OF TRUST

ConSeal™
CONCRETE SEALANTS INC.

Don't Just Seal It. ConSeal It!

ConSeal™ CS-85

WATERBORNE CONCRETE PRIMER
FOR ELASTOMERIC SEALANTS

NSF
Certified to NSF/ANSI/CAN 61



Waterborne Concrete Surface Preparation Coating for Bonding Elastomeric Sealants

APPLICATIONS
For use on concrete surfaces for elastomeric sealants immersed in water or subgrade applications.

PERFORMANCE PROPERTIES
Dry Time @ 77° F (25° C) F: 10 minutes
Dry Time @ 40° F (4° C): 60 minutes
Coverage per Gallon: 250-300 square feet
Min. Storage Temperature: 40° F (4° C)
Min. Application Temperature: 40° F (4° C)

PHYSICAL PROPERTIES AND CHEMICAL COMPOSITION

Color:	Green
Solvent:	Water
Flash Point:	> 200° F
Dried Surface:	Green, non-tacky
Shelf Life:	12 months after manufacture date

DIRECTIONS FOR USE
Surface Preparation: The concrete must be clean and free from dust, dirt, grease and debris before application of CS-85. Inspect surface for soundness. Repair or remove any surface irregularities and loose concrete, using an approved crack filling method on static hairline cracks. When the surface is clean, sound and dry, proceed with sealant application.
Application: Apply an even coating of the primer to the desired concrete surface and allow it to dry. A second coat may be needed if there are any surface voids noticed or the concrete surface appears to have any sections that are uncoated. Once the surface is dry, apply the elastomeric sealant to the primed surface and allow the sealant to completely cure before putting into service. Replace the lid on the primer immediately after use if the container is not empty.

LIMITED WARRANTY
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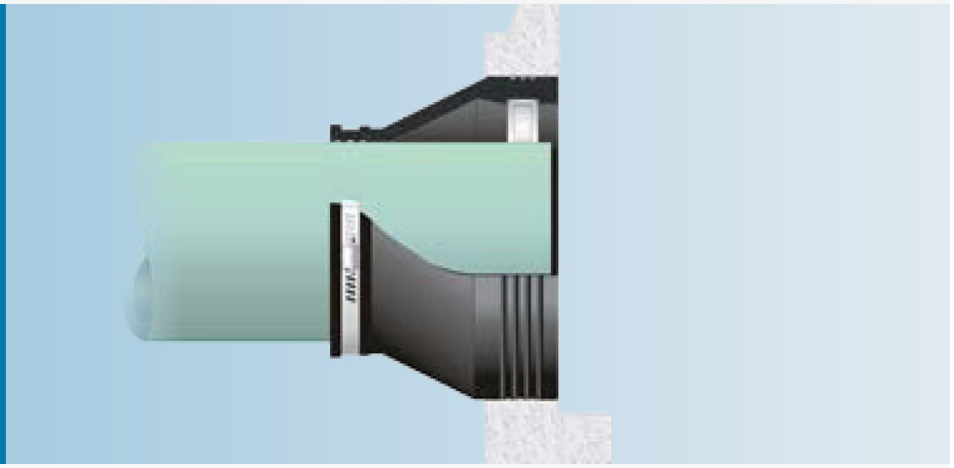
USA | CANADA +1.800.332.7325 INTERNATIONAL +1.937.845.8776
VERSION: 7-APR-2022

ISO 9001 SINCE 1997
CONCRETE SEALANTS, INC.
ISO 9001:2015 REGISTERED

01-333900-01 Sanitary Utility Sewerage Structures Concrete.pdf
Page 39 of 54

Kor-N-Seal® I

106/406 Series Pipe-to-Manhole Connector



Most widely used flexible connector in sanitary sewer applications throughout the world

Easy-to-Install

Meets the specifications of ASTM C923

PATENT

Patented Waveband technology creates a more effective seal by concentrating the compressive force of the expansion band. The rubber is "captured" between the band and the concrete.



ORDERING INFORMATION

Kor-N-Seal I: 106/406 Series Pipe-to-Manhole Connector.

The 106 Series connector is 8 inches long, the 406 Series connector is 6 inches long. The number following the hyphen in our model numbers is the required hole size.

RECOMMENDED TORQUE VALUES

Connectors with 8" hole size and smaller: Steel Wedge - 1/2" Socket Wrench - 8 ft. lbs.

Connectors with 10-20" hole sizes:
Ex Series - 1/2 "Socket Wrench - 12 - 20 ft. lbs.
Steel Wedge - 1/2" Socket Wrench - 12 ft.lbs.

Preset torque limiters are available. Contact Custumer Service at 1-800-626-2180 for more information.

FOR LARGER PIPE SIZES REFER TO KOR-N-SEAL II SERIES CONNECTORS

206 Series - For pipe sizes 15" - 51" in diameter. Larger sizes available- contact Customer Service.

306 Series - To fit larger pipe into smaller diameter manholes.

506 Series - Designed specifically for stormwater applications

USING CORRUGATED PIPE

Adapters are required when using Corrugated Pipe. Refer to the Corrugated Pipe Adapter Data Sheet for details.

WEDGE STYLE CONNECTORS EX SERIES PLASTIC OR STAINLESS STEEL

Installation requires a 1/2” socket wrench & preset torque limiter.



PIPE O.D. RANGE	MODEL NUMBER	NOMINAL HOLE SIZE
1.50-4.80	S106-7MWS	7”
3.50-4.50	S106-7WS	7”
4.20-6.40	S106-8SRWS	8”
1.50-4.80	S106-8MWP-EX	8”
5.10-5.90	S106-8WS	8”
*6.00-6.75	S406-10AW	10”
*7.50-8.20	S406-10W	10”
*6.00-6.75	S406-10.5AW	$10^{1/2}$”
*7.50-8.70	S406-10.5W	$10^{1/2}$”
*6.00-7.00	S406-11BW	11”
*7.50-9.00	S406-11AW	11”
*3.50-6.90	S106-12M	12”
*6.00-7.00	S406-12CW	12”
*6.25-7.50	S406-12BW	12”
*7.50-9.00	S406-12AW	12”
*9.00-10.20	S406-12W	12”
*5.75-7.00	S106-12BW	12”
*7.00-8.50	S106-12AW	12”
*8.25-9.75	S106-12W	12”
*9.50-11.25	S106-14AW	14”
*9.50-11.25	S106-16BW	16”
*11.25-13.00	S106-16AW	16”
*13.00-14.20	S106-16W	16”
*14.00-15.50	S106-20BW	20”
*15.50-17.00	S106-20AW	20”
*17.00-18.15	S106-20W	20”

Refer to Recommended Installation Instructions.

*These sizes available in Plastic “EX” Wedge or Steel Wedge.

Covered under U.S. Patent No. 5,738,359

TRELLEBORG

WWW.TRELLEBORG.COM/PIPE-SEALS

ConSeal™ CS-102

Butyl Rubber Sealant

CONCRETE SEALANTS INC.



Butyl Rubber Sealant for All Precast Concrete Structures - Meets ASTM C-990

Applications

For concrete joints in: Manholes, Concrete Pipe, Vaults, Box Culverts, Septic Tanks, and Vertical Panel Structures. **Not intended for use in expansion joints or joints that move.**

Sealing Properties

- Provides permanently flexible watertight joints.
- Low to high temperature workability: 30°F to 120°F (-1°C to +48°C)
- Rugged service temperature: -30°F to +200°F (-34°C to +93°C)
- Excellent chemical and mechanical adhesion to clean dry surfaces.
- Greater cohesive and adhesive strengths.
- Sealed joints will not shrink, harden or oxidize upon aging.
- Controlled flow resistance for application ease.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

Hydrostatic Strength

ConSeal CS-102 meets the hydrostatic performance requirement as set forth in ASTM C-990 section 10.1 (Performance requirement: 10psi for 10 minutes in straight alignment – in plant, quality control test for joint materials.)

Specifications

ConSeal CS-102 meets or exceeds all of the requirements of Federal Specification SS-S-210 (210-A), AASHTO M-198B, and ASTM C-990-91.

Physical Properties

Description

	Spec	Required	CS-102
Color			Black
Specific Gravity, 77°F	ASTM D71	1.15-1.50	1.25
Ductility, 77°F	ASTM D113	5.0 min.	10
Penetration, cone 77°F (25°C), 150 gm, 5 sec.	ASTM D217	50-100 mm	55-60 mm
Penetration, cone 32°F (0°C), 150 gm, 5 sec.	ASTM D217	40 mm min.	40-65 mm
Flash Point, C.O.C., °F	ASTM D92	350°F min.	450°F
Fire Point, C.O.C., °F	ASTM D92	375°F min.	475°F

Don't Just Seal It, ConSeal It!

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P. 937.845.8776 **F.** 937.845.3587 **Toll Free** 800.332.7325 ■ **www.conseal.com**

ISO 9001 Registe

ConSeal™ CS-102

Butyl Rubber Sealant

CONCRETE SEALANTS INC.



Butyl Rubber Sealant for All Precast Concrete Structures - Meets ASTM C-990

Chemical Composition

Description

	Spec	Required	CS-102
Hydrocarbon plastic content % by weight	ASTM D297	50% min.	51%
Inert mineral filler % by weight	AASHTO T111	30% min.	35%
Volatile Mater % by weight	ASTM D6	2% max.	1.2%
Non-extractable, carbon-based material			12.8%
Recycled Content, % by weight			
Post Consumer:			8.41%
Post Industrial:			10.85%

Immersion Testing

30-Day Immersion Testing: No visible deterioration when tested in 5% Caustic Potash, 5% Hydrochloric Acid, 5% Sulfuric Acid, and 5% saturated Hydrogen Sulfide.

One Year Immersion Testing: No visible deterioration when tested in 5% Formaldehyde, 5% Formic Acid, 5% Sulfuric Acid, 5% Hydrochloric Acid, 5% Sodium Hydroxide, 5% Hydrogen Sulfide, and 5% Potassium Hydroxide.

Limited Warranty

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ConSeal™ CS-212

Polyolefin Backed Exterior Joint Wrap

ConSeal Concrete Sealants Inc.



Membrane Waterproofing and Exterior Joint Wrap for Precast Concrete Joints

Applications

For joints in: Box Culverts, Underground Concrete Vaults, Segmented Bridge Structures, Wastewater Structures and Arched Bridge Structures, Manholes. **Not intended for use in expansion joints or joints that move.**

Sealing Properties

- Excellent resistance to puncture, tear and abrasions.
- Aggressively bonds to concrete and metal structures.
- Provides a permanent flexible water and soil barrier.
- Will not shrink, harden or oxide upon aging.
- Available in numerous standard sizes.
  - Standard thicknesses: 0.065” and 0.100”
  - Standard widths: 4”, 6”, 8”, 12”, 24”, 36” and 48”
- Custom widths and lengths available upon request.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

Specifications

ConSeal CS-212 meets ASTM E-1745, C-877, C-990 Specifications, and AASHTO M198 Type B.

Technical Data

ASTM E-1745: Standard specification for plastic water vapor retarders used in contact with soil or granular fill under concrete slabs.

Class C. Specification	Test Method	E-1745 Requirement	CS-212
Water Vapor Permeance	ASTM F-1249	0.30 perms, max.	0.045 perms, max.
Tensile Strength	ASTM E-154	13.6 lbs./ inch, min.	21.0 lbs./ inch, min.
Puncture Resistance	ASTM D-1709	475 grams, min.	864 grams, min.

ASTM C-877: Standard specification for external sealing bands for non-circular concrete sewer, storm drain and culvert pipe.

Type III, Specification	E-1745 Requirement	CS-212
Backing Bond Element	4 Mil, min. thickness	4 Mil
Butyl Rubber Adhesive	0.03 inch, min. thickness	0.065, min.

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ISO 9001 Registe

ConSeal™ CS-212

Polyolefin Backed Exterior Joint Wrap



Membrane Waterproofing and Exterior Joint Wrap for Precast Concrete Joints

Technical Data Continued

ASTM C-990: Standard specification for joints for concrete pipe, manholes and precast box sections using preformed flexible joint sealants.

Section 6, Specification	Test Method	C-990 Requirements	CS-212
Hydrocarbon blend content % by weight	ASTM D-4	50-70%	52, min.
Inert mineral filler % by weight	ASTM C-990	30% min.	45, min.
Volatile Matter % by weight	ASTM C-990	2.0 max.	1.20
Specific Gravity	ASTM C-990	1.15-1.50	1.20-1.25
Ductility, 7°F	ASTM D-113	5.0, min.	12, min.
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D-217	50-120 mm	70-80 mm
Softening point, °F	ASTM D-36	320°F, min.	335°F, min.

Limited Warranty

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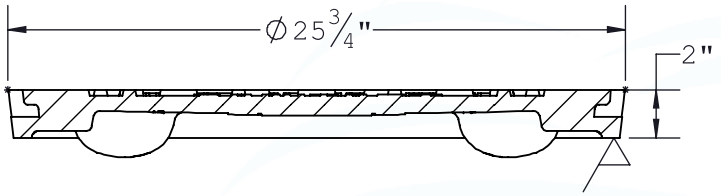

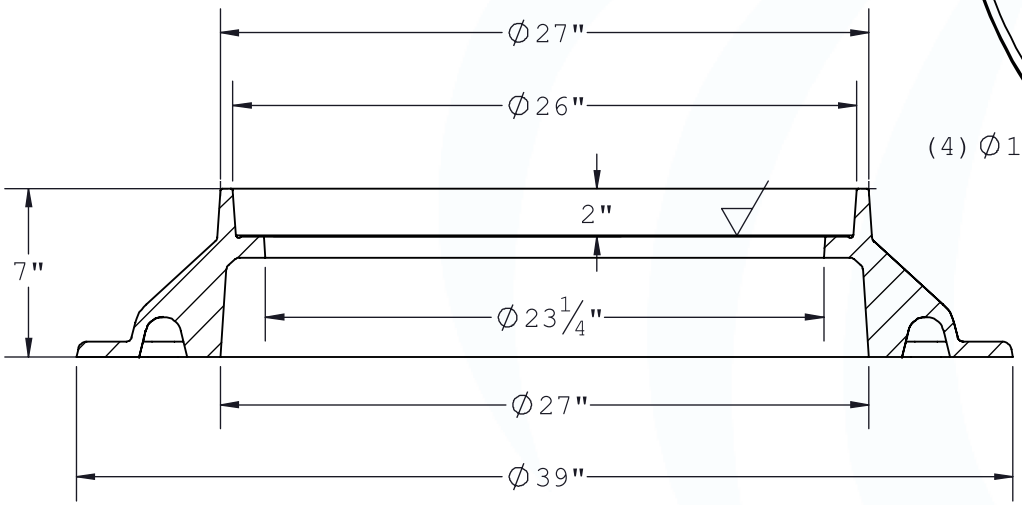

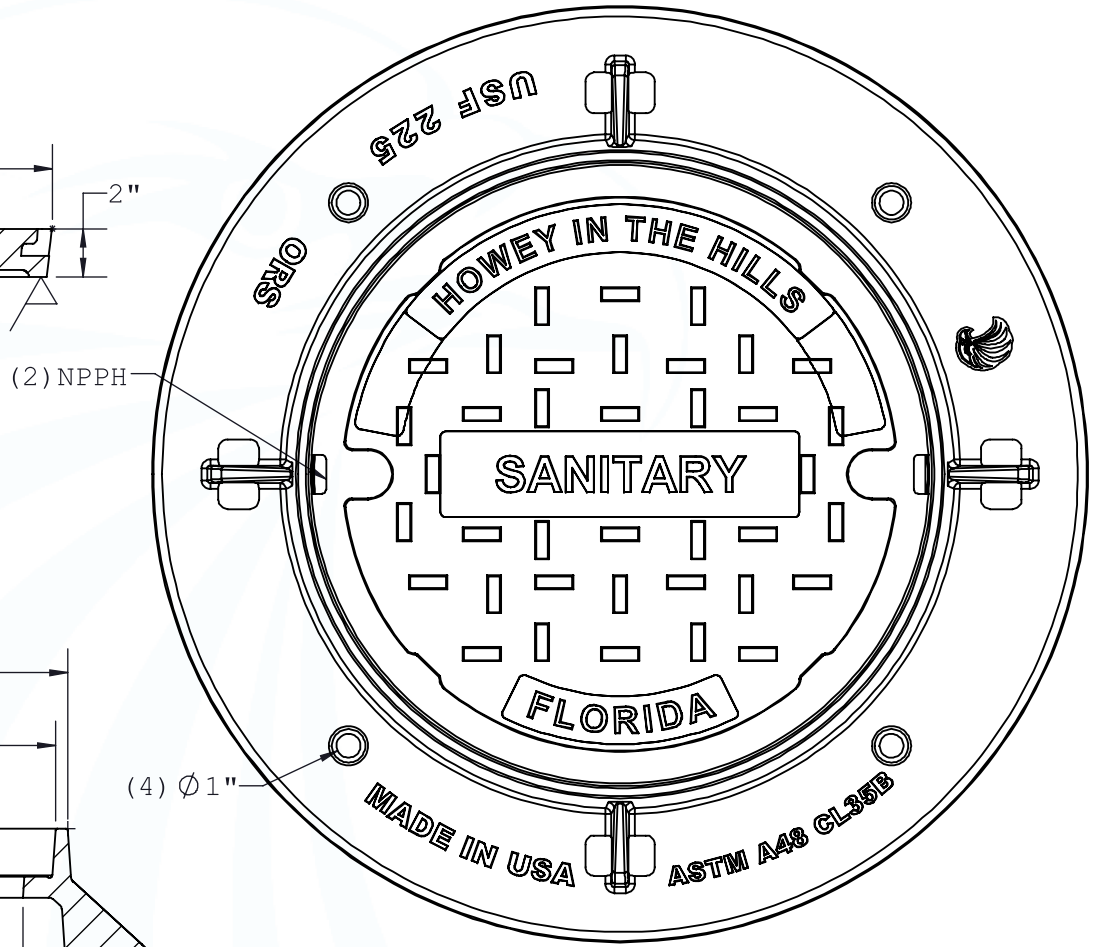

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fax: 305-887-9429
www.usfoundry.com

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USF 225 Ring & AS-1 Cover 2npph

ITEM	BAAN #
Ring	8021590
Cover	
Assembly	

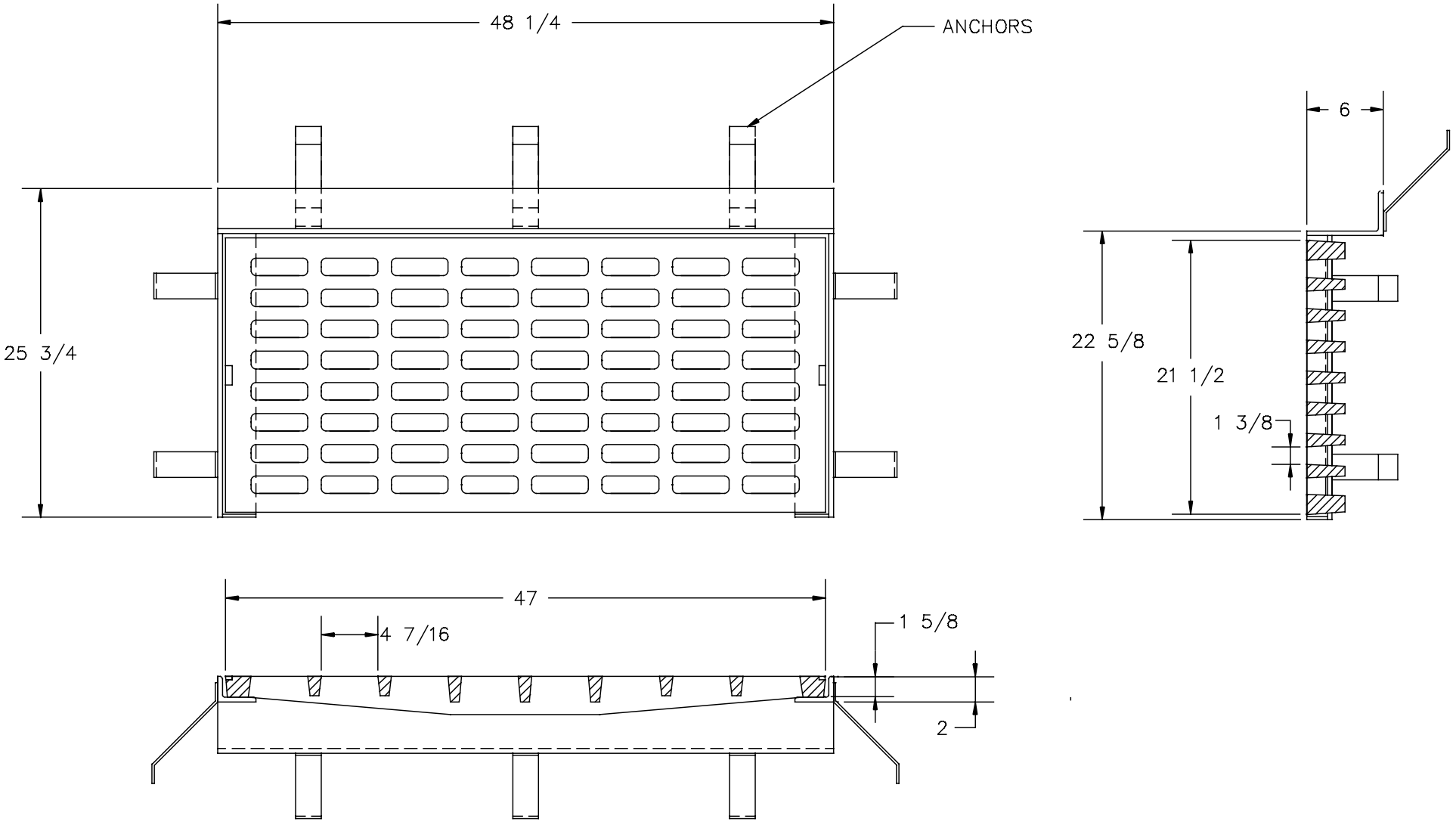
MATERIAL: Gray Cast Iron ASTM-A48 Class 35B

LOAD CLASSIFICATION: M306

REV	REV DATE	REV BY	DRAWN DATE	DRAWN BY
0			1/22/2020	IF

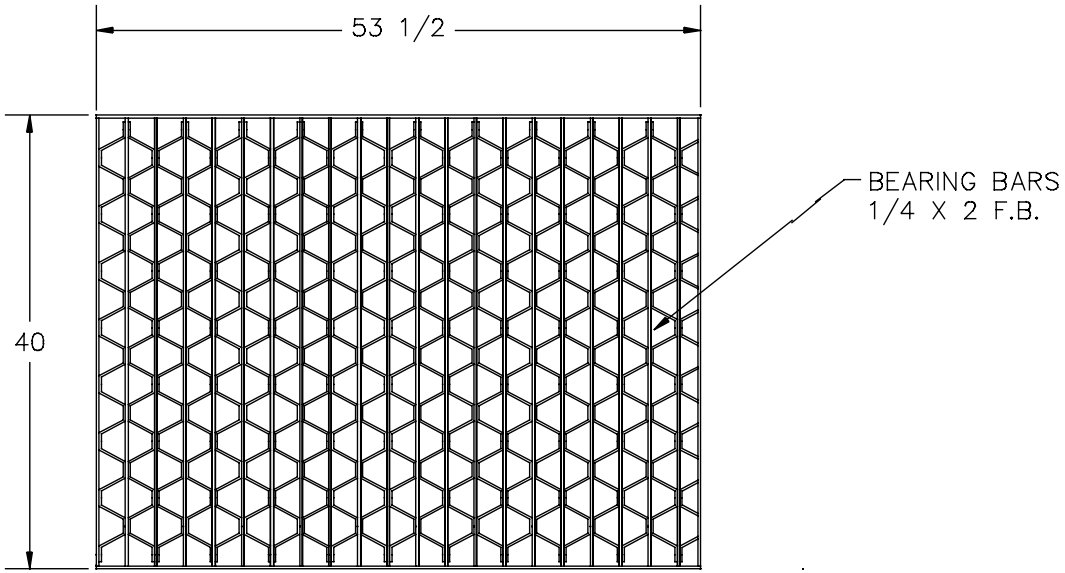
Customer Drawing

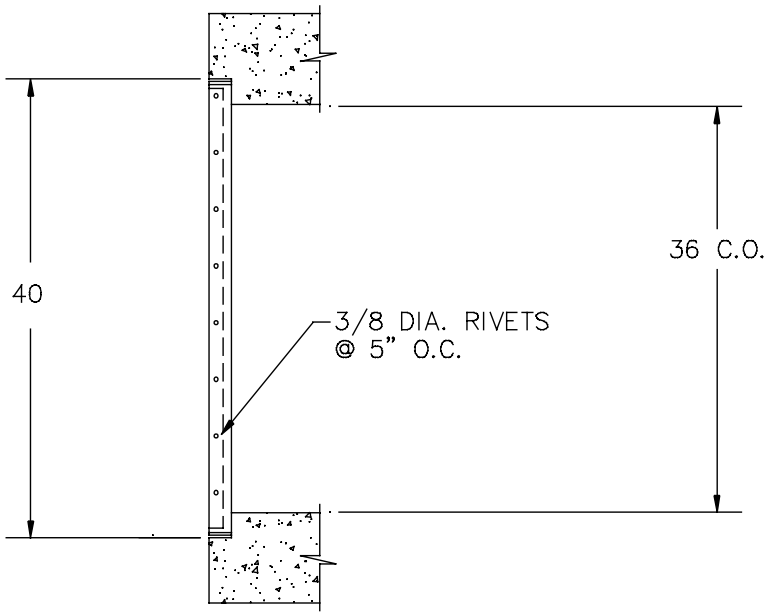
145

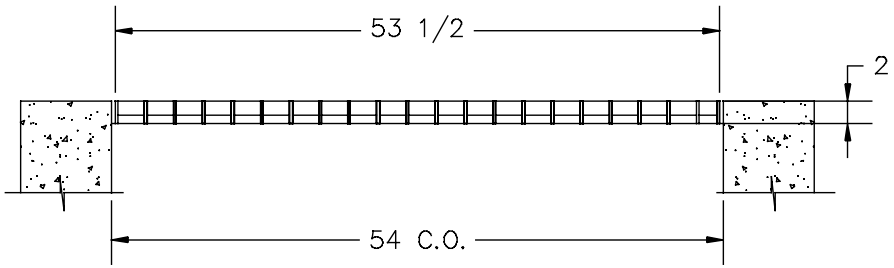


NOTES:
1– FRAME MATERIAL: STEEL, PAINTED TO F.DO.T. SPECIFICATIONS.
2– GRATE MATERIAL: ASTM–A48 CLASS 35B GRAY IRON.
3– FRAME WT: 75 LBS. APP.
4– GRATE WT: 315 LBS. APP.

U.S. FOUNDRY & MFG. CORP. MIAMI, FLORIDA	
USF 5160 FRAME & 6310 GRATE	
DWN. BY:	DATE: 10/19/90
CHK. BY:	DWG. NO: A2409







NOTES:
1– MATERIAL: STEEL, PAINTED TO F.D.O.T. SPECIFICATIONS.
~~2– GALVINIZED UPON REQUEST.~~
3– WEIGHT: 215 LBS. APP.
4– LOADING: NON–TRAFFIC.
5– F.D.O.T. INDEX 232 TYPE 'E' DITCH BOTTOM INLET.

U.S. FOUNDRY & MFG. CORP. MEDLEY, FLORIDA			
USF 6608 STEEL GRATE			
DWN. BY: D.B.	SCALE: 1"=12"	QUOTE#	DATE: 5/27/97
CHK. BY:	DWG. NO: 11103	SHEET	REV:

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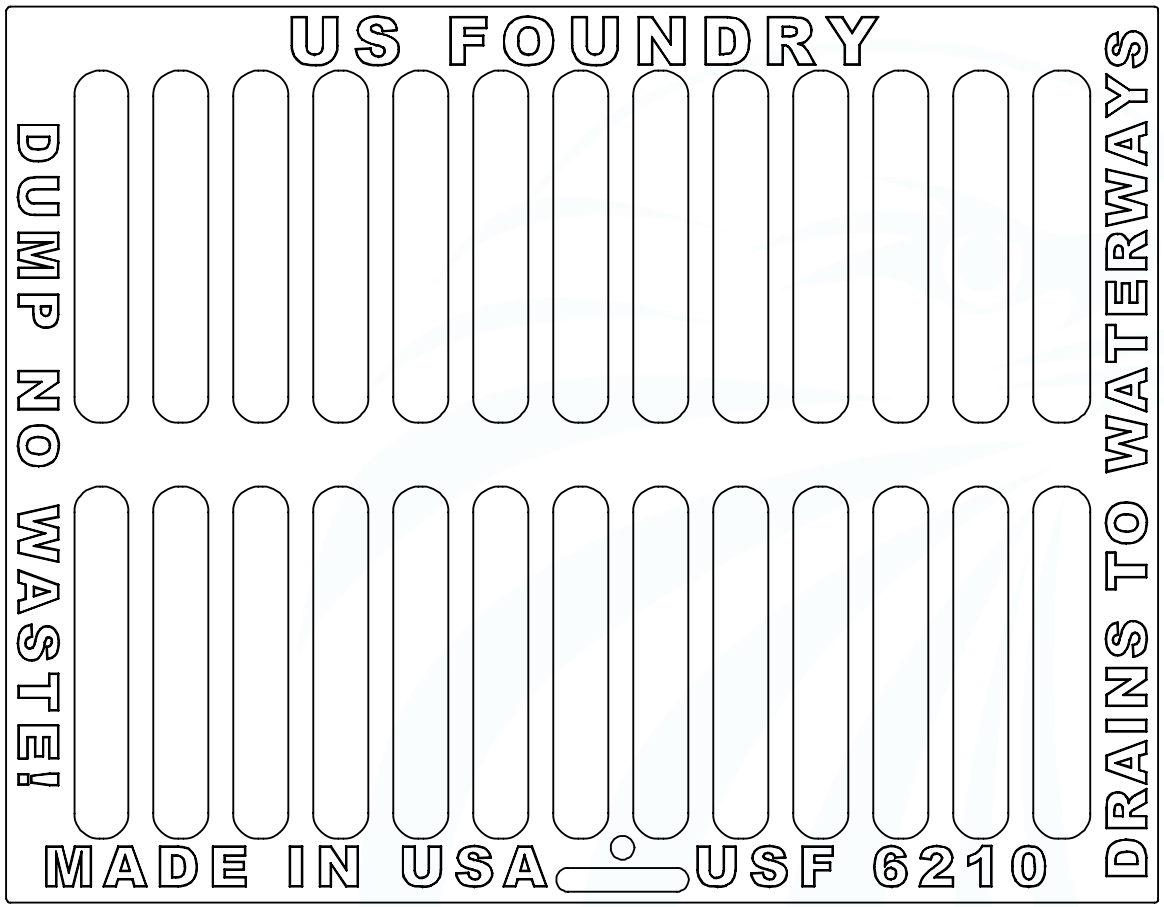

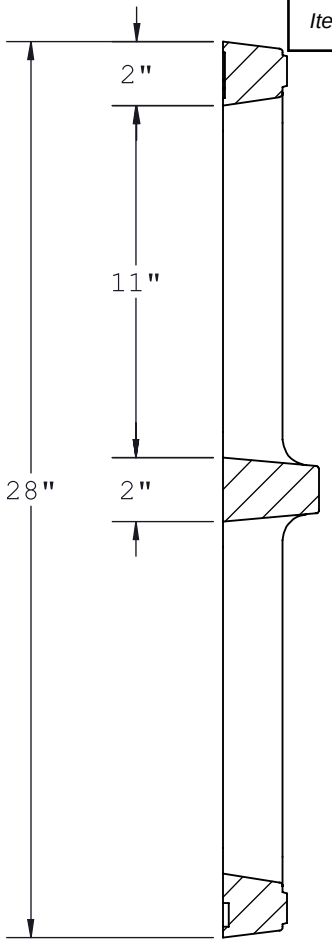

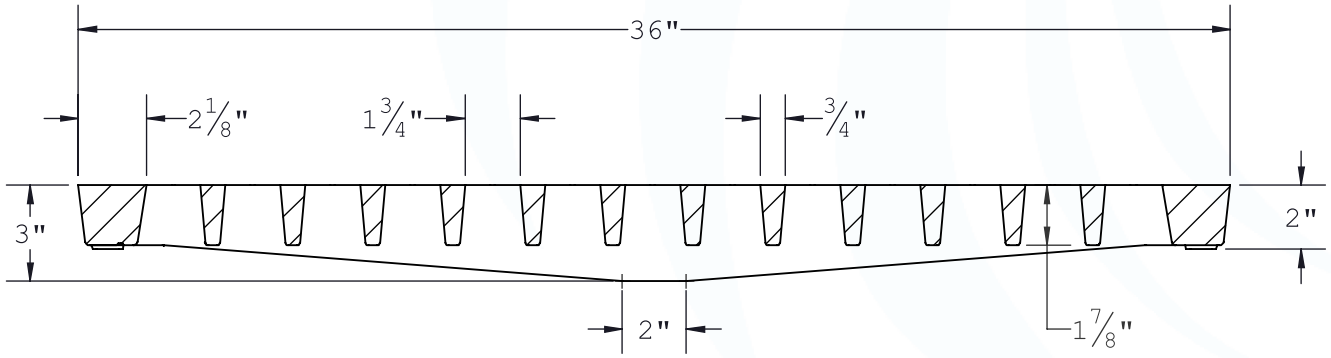

FDOT Design Standard, Index 425-052, Rev 11/01/17, Ditch Bottom Inlet Type C
Cast Iron Grate Not permitted on Inlet Type D
Non Traffic (2 Sided Bearing)

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USF 6210 Grate

ITEM	BAAN #
Grate	8070112

MATERIAL: Gray Cast Iron ASTM-A48 Class 35B
LOAD CLASSIFICATION: Heavy Duty
FLOW AREA: 4

REV	REV DATE	REV BY	DRAWN DATE	DRAWN BY
	4-14-15	OD	12/4/98	ULS

Customer Drawing

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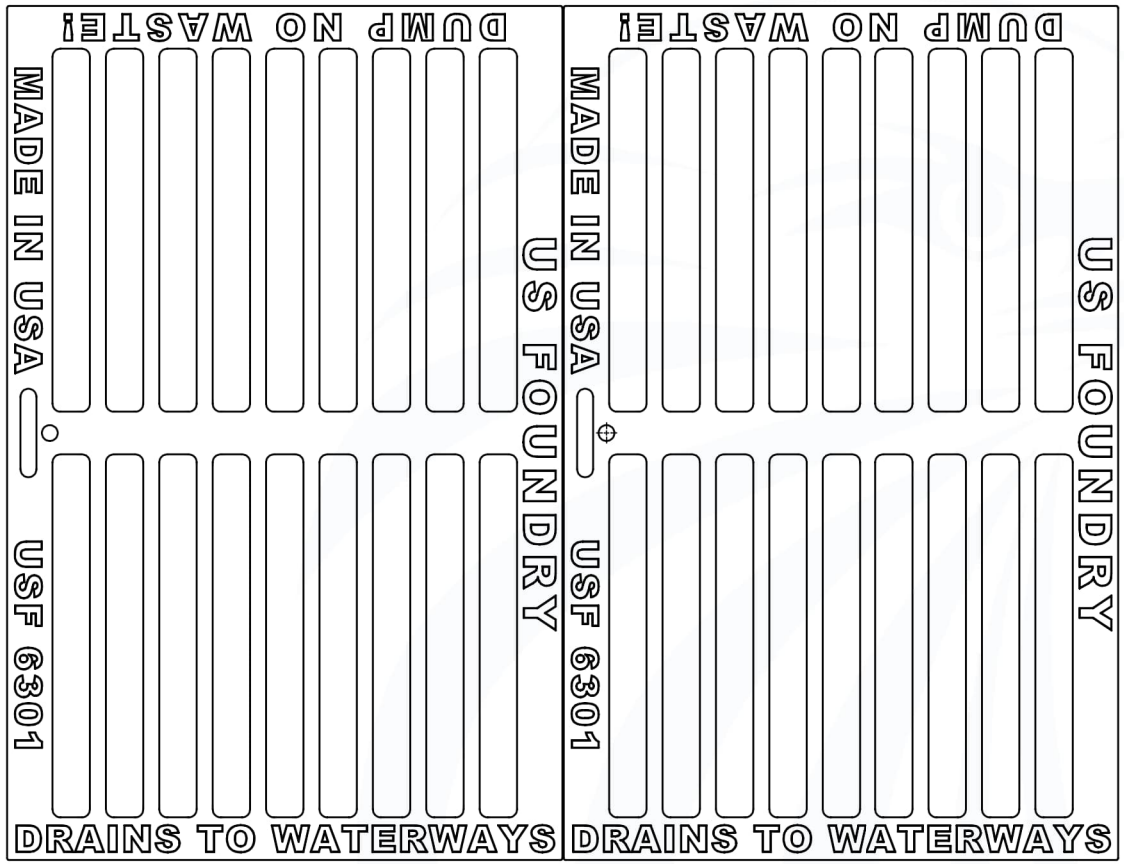

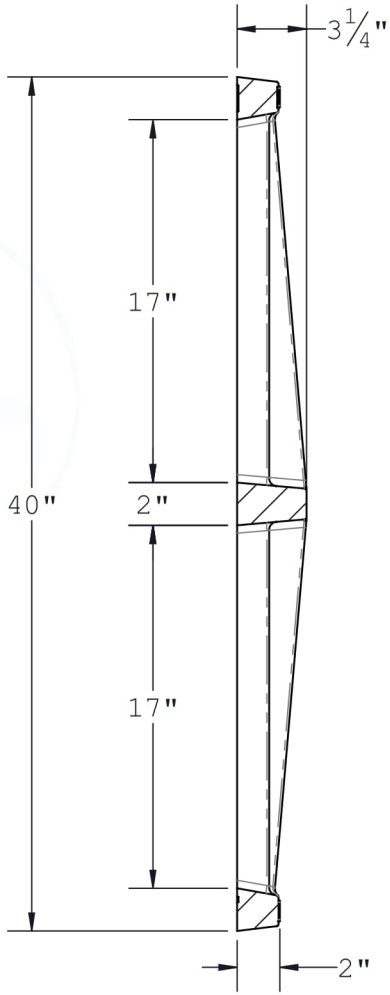

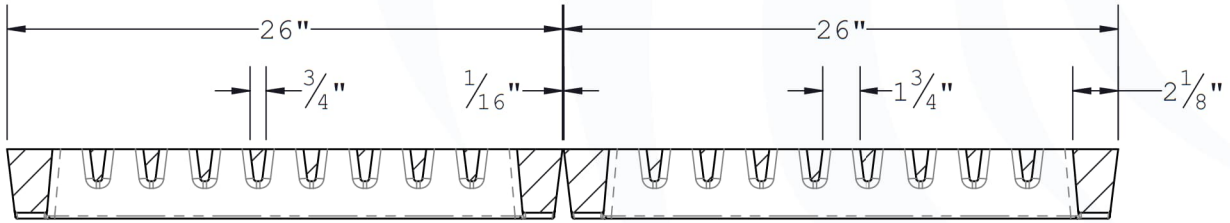

FDOT Design Standard, Index 425-052, Rev 11/01/17, Ditch Bottom Inlet Type E
Cast Iron Grate Not permitted on Inlet Type D
Non Traffic (2 Sided Bearing)

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USF 6300 Grate
[Two USF 6301 Grates]

ITEM	BAAN #	MATERIAL:
		Gray Cast Iron ASTM A48 Class 35B
Grate	8070266	LOAD CLASSIFICATION: Heavy Duty
		FLOW AREA: ft²

REV	REV DATE	REV BY	DRAWN DATE	DRAWN BY
0			3/11/1996	JWS

Customer Drawing

149

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MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:19 AM **2025050234** **Salesperson: Scott Nemcek**

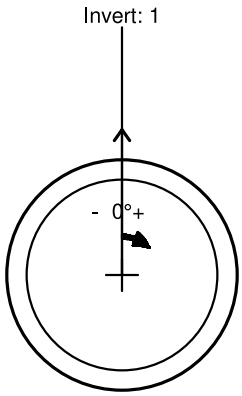
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 72"	5203 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
146.74 SqFt)	Paint,CS1200,Black [INT]	0 lb
175.81 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

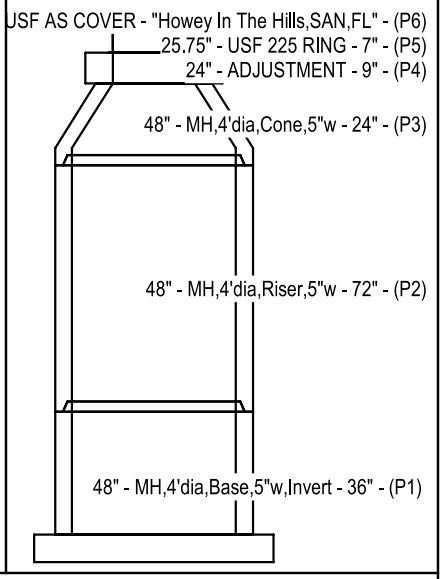
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	80.96'							
Reducer								
Invert 1	68.95'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS1**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 80.96'
Invert: 68.95'
Floor (Top): 68.617'

Rim to Invert: 12.01'
Overall Height: 156"
Weight: 12838 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:20 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROP

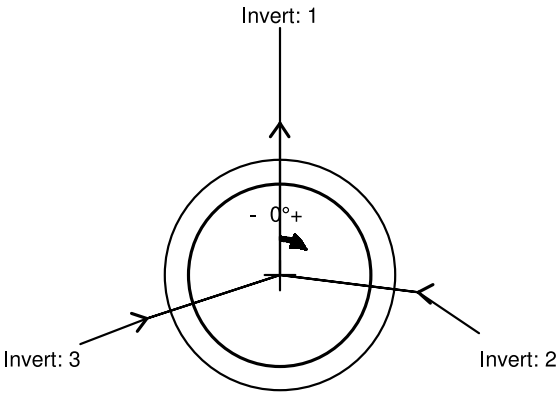
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 6"	419 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 27"	8229 lb
3)	60" - JOINT SEALANT - 238"/JOINT	0 lb
3)	HDPE Sleeve W/ S406-12AWP	-180 lb
280.35 SqFt)	Liner,Solmax,2mm [INT]	0 lb
349.82 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

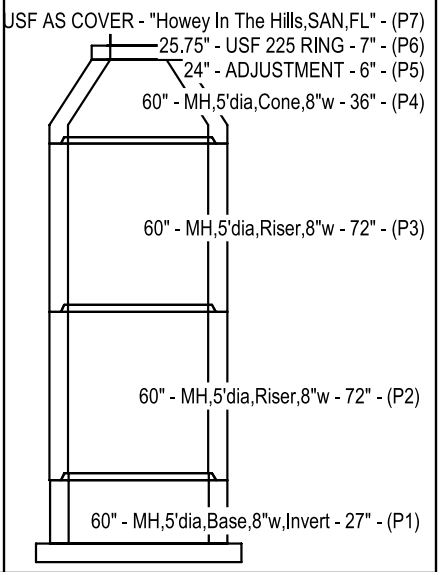
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	80.56'							
Reducer								
Invert 1	62.52'	0°	8" PVC	0"	0"	2"	HDPE Sleeve W/ S406-12AWP	P1
Invert 2	68'	97°	8" PVC	64"	51"	41"	HDPE Sleeve W/ S406-12AWP	P2
Invert 3	63.1'	252°	8" PVC	-72"	-57"	9"	HDPE Sleeve W/ S406-12AWP	P1
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS2**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 80.56'
Invert: 62.52'
Floor (Top): 62.187'

Rim to Invert: 18.04'
Overall Height: 228"
Weight: 34208 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:21 AM **2025050234** **Salesperson: Scott Nemcek**

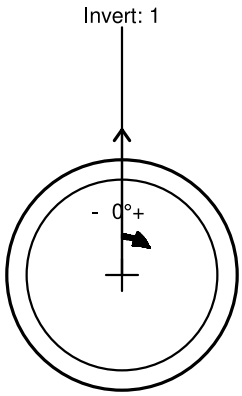
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
2)	48" - MH,4'dia,Riser,5"w - 72"	10407 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 24"	4407 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
209.57 SqFt)	Paint,CS1200,Black [INT]	0 lb
251.73 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

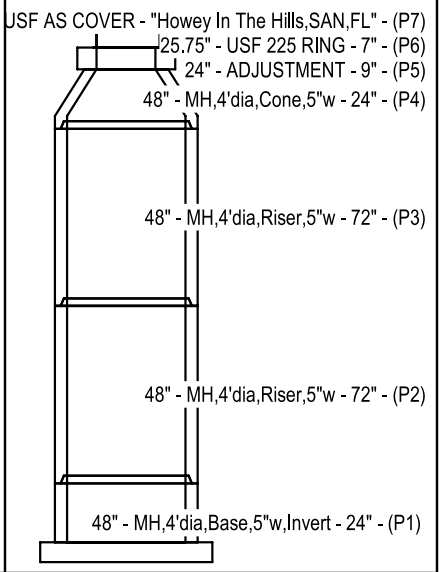
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	80.33' ✓							
Reducer								
Invert 1	63.3' ✓	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS3**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 80.33'
Invert: 63.3'
Floor (Top): 62.967'

Rim to Invert: 17.03'
Overall Height: 216"
Weight: 17175 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:21 AM **2025050234** **Salesperson: Scott Nemcek**

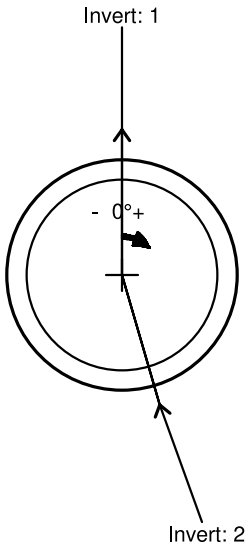
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Riser,5"w - 72"	5203 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S406-12AWP	-118 lb
197.	SqFt) Paint,CS1200,Black [INT]	0 lb
236.54	SqFt) Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

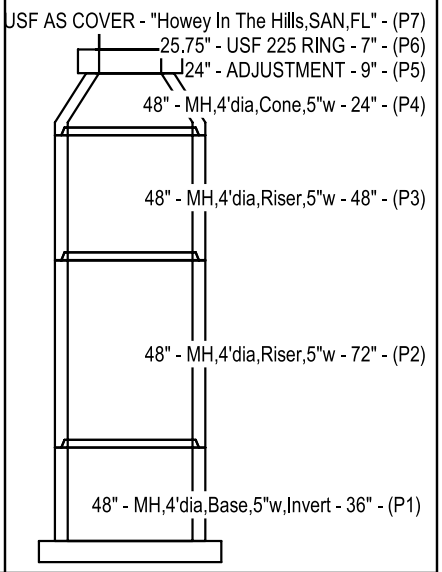
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	77.2'							
Reducer								
Invert 1	61.17'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	61.27'	164°	8" PVC	83"	69"	3"	S406-12AWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS4**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 77.2'
Invert: 61.17'
Floor (Top): 60.837'

Rim to Invert: 16.03'
Overall Height: 204"
Weight: 16248 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:22 AM **2025050234** **Salesperson: Scott Nemcek**

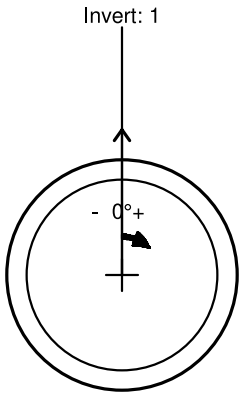
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 6"	419 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
121.61 SqFt)	Paint,CS1200,Black [INT]	0 lb
145.44 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

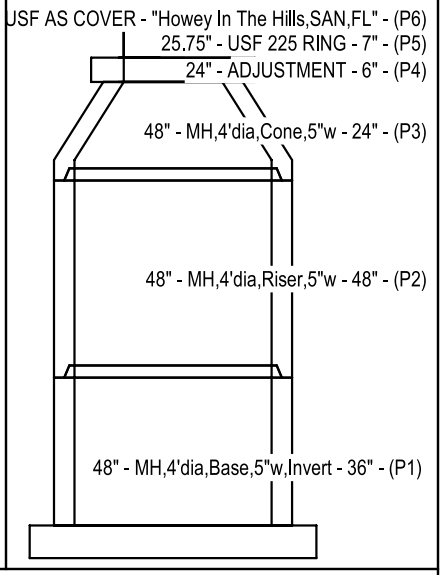
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	73.46'							
Reducer								
Invert 1	63.7'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS5**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 73.46'
Invert: 63.7'
Floor (Top): 63.367'

Rim to Invert: 9.76'
Overall Height: 129"
Weight: 10895 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:23 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROP

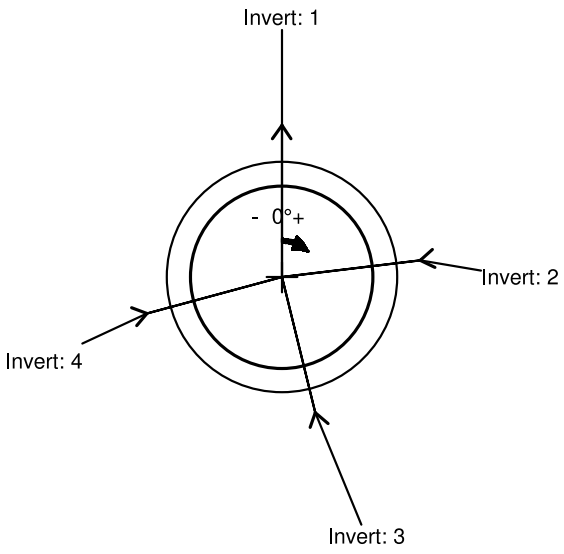
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 96"	14242 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 36"	9564 lb
2)	60" - JOINT SEALANT - 238"/JOINT	0 lb
4)	HDPE Sleeve W/ S406-12AWP	-240 lb
229.3	SqFt) Liner,Solmax,2mm [INT]	0 lb
285.15	SqFt) Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

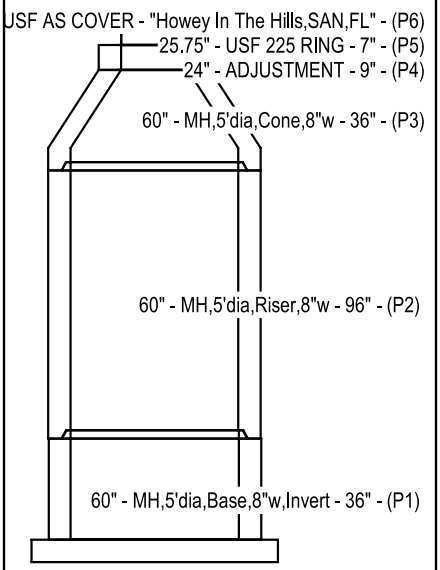
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	73.67'							
Reducer								
Invert 1	58.59'	0°	8" PVC	0"	0"	2"	HDPE Sleeve W/ S406-12AWP	P1
Invert 2	63'	83°	8" PVC	55"	43"	19"	HDPE Sleeve W/ S406-12AWP	P2
Invert 3	59.88'	166°	8" PVC	110"	87"	17"	HDPE Sleeve W/ S406-12AWP	P1
Invert 4	59.8'	255°	8" PVC	-70"	-55"	17"	HDPE Sleeve W/ S406-12AWP	P1
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS6**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 73.67'
Invert: 58.59'
Floor (Top): 58.257'

Rim to Invert: 15.08'
Overall Height: 192"
Weight: 28572 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:24 AM **2025050234** **Salesperson: Scott Nemcek**

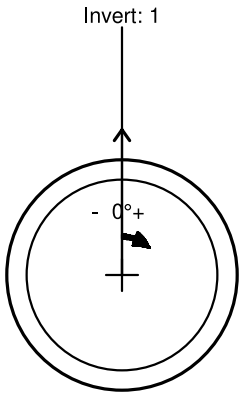
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 4"	279 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
2)	48" - MH,4'dia,Riser,5"w - 48"	6938 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
167.79 SqFt)	Paint,CS1200,Black [INT]	0 lb
200.96 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

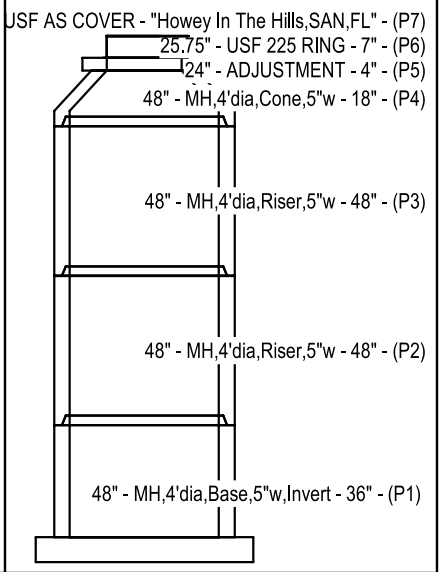
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	73.18'							
Reducer								
Invert 1	60.02'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) 70 K.S.I. Wire Mesh
2) Grade 60 Rebar
3) Type I/II Cement
4) 4000 P.S.I. @ 28 Days
5) Conforms To F.D.O.T.
6) Manufactured Per A.S.T.M. C-478 Latest Revision



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS7**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 73.18'
Invert: 60.02'
Floor (Top): 59.687'

Rim to Invert: 13.16'
Overall Height: 169"
Weight: 13888 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:25 AM **2025050234** **Salesperson: Scott Nemcek**

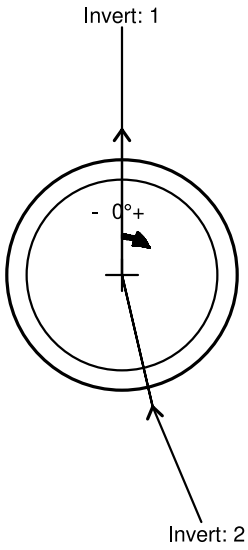
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
2)	48" - MH,4'dia,Riser,5"w - 48"	6938 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 24"	4407 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S406-12AWP	-118 lb
155.22 SqFt)	Paint,CS1200,Black [INT]	0 lb
185.77 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

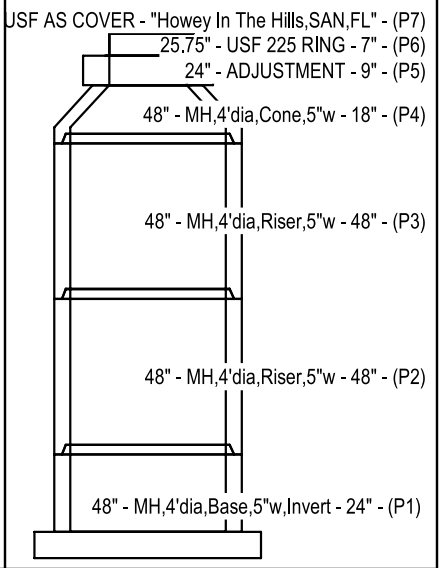
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	70.06'							
Reducer								
Invert 1	57.49'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	57.59'	167°	8" PVC	85"	70"	3"	S406-12AWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS8**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 70.06'
Invert: 57.49'
Floor (Top): 57.157'

Rim to Invert: 12.57'
Overall Height: 162"
Weight: 13311 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:26 AM **2025050234** **Salesperson: Scott Nemcek**

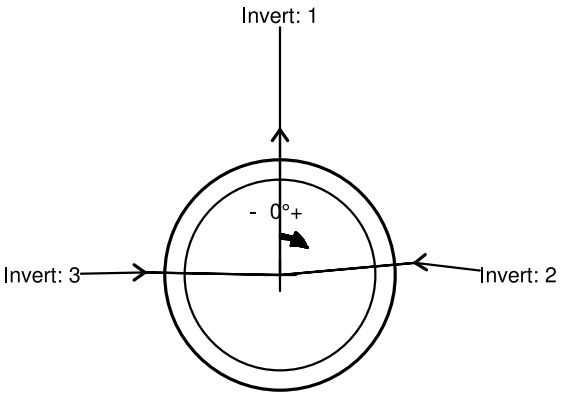
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 8"	559 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Riser,5"w - 72"	5203 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S106-16BWP	-276 lb
1)	S406-12AWP	-59 lb
192.92 SqFt)	Paint,CS1200,Black [INT]	0 lb
231.32 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

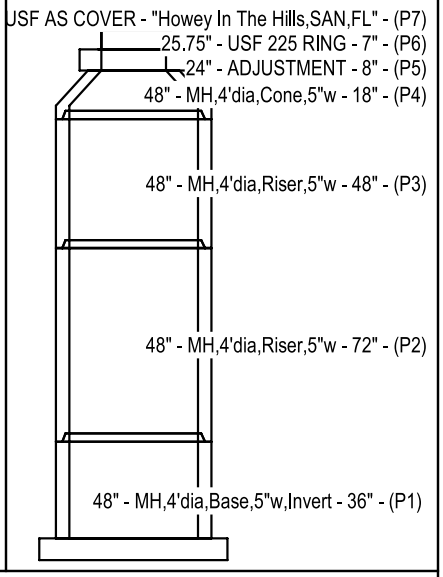
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	71.31'							
Reducer								
Invert 1	55.95'	0°	10" PVC	0"	0"	2"	S106-16BWP	P1
Invert 2	56.13'	85°	8" PVC	43"	36"	5"	S406-12AWP	P1
Invert 3	56.05'	271°	10" PVC	-45"	-37"	3"	S106-16BWP	P1
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS9**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 71.31'
Invert: 55.95'
Floor (Top): 55.533'

Rim to Invert: 15.36'
Overall Height: 197"
Weight: 15626 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 10:37:32 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=#6@12" OCEW (TOP & BOTTOM)
SOG JOINT HEIGHT = 5.25"

INVERT 1 & 2: FORCE MAINS
INVERT 3: VALVE BOX DRAIN
INVERT 4: BYPASS PUMP
INVERT 5: ELECTRICAL CONDUIT
INVERT 6: INCOMING PIPE

PLEASE VERIFY ALL PIPE SIZES, INVERTS, & DIRECTIONS
PLEASE CONFIRM STRUCTURE DIAMETER
PLEASE CONFIRM FLOOR ELEVATION

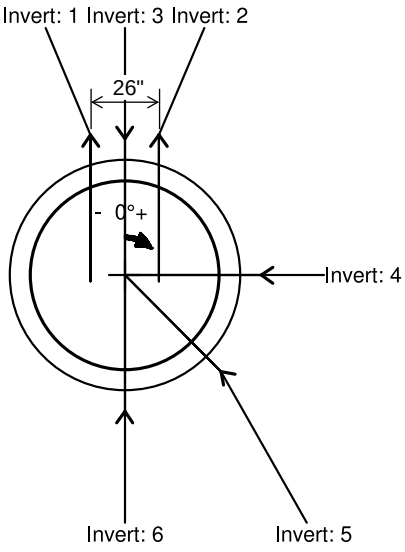
1)	24" - CUSTOMER HATCH - CAST-IN	0 lb
1)	72" - TS,88"dia,CAST-IN,LINED - 8"	3910 lb
1)	72" - MH,6'dia,Riser,8"w,SOG,FT - 62"	10821 lb
1)	72" - MH,6'dia,Riser,8"w,SOG - 96"	16755 lb
1)	72" - MH,6'dia,Riser,8"w,SOG - 96"	16755 lb
1)	72" - MH,6'dia,Base,8"w,SOG,124x12"BS - 22	16419 lb
3)	72" - Joint Sealant + 6" Conwrap - 276"/JOINT	0 lb
2)	HDPE Sleeve W/ PSX DD 8QRS	-120 lb
2)	CAST-IN w/ COUPLER	-12 lb
1)	HDPE Sleeve W/ S406-12CWP	-60 lb
1)	HDPE Sleeve W/ S106-16BWP	-60 lb
494.28 SqFt)	Liner,Solmax,2mm [INT]	0 lb
619.94 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

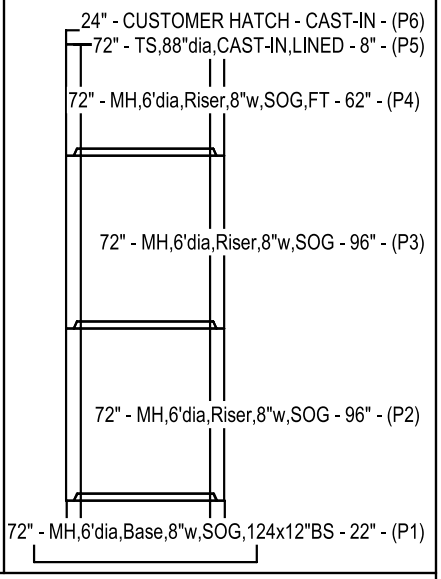
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	73.28'							
Reducer								
Invert 1	70.44'	0°	4" D.I.P.	-13"	-13"	34"	HDPE Sleeve W/ PSX DD 8QRS	P4
Invert 2	70.44'	0°	4" D.I.P.	13"	13"	34"	HDPE Sleeve W/ PSX DD 8QRS	P4
Invert 3	68.98'	0°	2" PVC	0"	0"	18"	CAST-IN w/ COUPLER	P4
Invert 4	71.28'	90°	6" PVC	69"	57"	43"	HDPE Sleeve W/ S406-12CWP	P4
Invert 5	71.28'	135°	2" PVC SCH 80 (3)	104"	85"	46"	CAST-IN w/ COUPLER	P4
Invert 6	55.6'	180°	10" PVC	138"	113"	47"	HDPE Sleeve W/ S106-16BWP	P2
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS10-LS**
Spec: FLORIDA
Type: WETWELL
Size: 72"

Rim: 73.28'
Invert: 55.6'
Floor (Top): 49.6'

Rim to Invert: 17.68'
Overall Height: 296"
Weight: 64408 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 10:37:34 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: BP MAT: 4X3 D6.9XD11.4 WWR
WALLS: DBL CAGE 4X4 D5.7XD5.7 WWR, ADD #5@8"OC HORZ
(2) #4 ABOVE HOLES (3" MIN SPACING; LENGTH=HS+12")
(1) #4 EACH SIDE OF HOLES (LENGTH=HS+6")
2" INNER/OUTER CAGE CLEARANCE
MAX DEPTH 20'

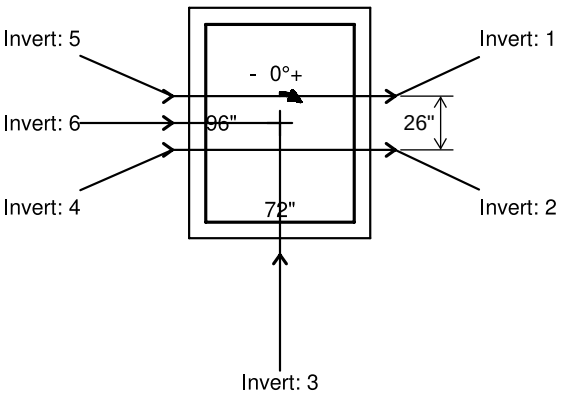
PLEASE VERIFY FORCE MAIN SIZE
PLEASE VERIFY INVERT 3 (BYPASS PUMP) PIPE SIZE, LOCATION, & INVERT

1)	24" - CUSTOMER HATCH - CAST-IN	0 lb
1)	72" x 96" - TS,88x112",CAST-IN - 8"	6530 lb
1)	72" x 96" - 6x8',Base,8"w,FT - 40"	17925 lb
5)	HOLE 12"	-295 lb
1)	HOLE 7"	-46 lb
192.01 SqFt)	Paint,CS1200,Black [INT]	0 lb
225.33 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

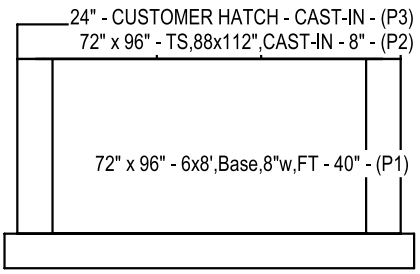
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	73.28'							
Reducer								
Invert 1	70.44'	90°	4" D.I.P.	43"	35"	10"	HOLE 12"	P1
Invert 2	70.44'	90°	4" D.I.P.	69"	61"	10"	HOLE 12"	P1
Invert 3	70.44'	180°	6" PVC	44"	36"	11"	HOLE 12"	P1
Invert 4	70.44'	270°	4" D.I.P.	43"	35"	10"	HOLE 12"	P1
Invert 5	70.44'	270°	4" D.I.P.	69"	61"	10"	HOLE 12"	P1
Invert 6	69.48'	270°	2" PVC	56"	48"	0"	HOLE 7"	P1
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS10-VB**
Spec: FLORIDA
Type: Valve Box
Size: 72" x 96"

Rim: 73.28'
Invert: 69.48'
Floor (Top): 69.272'

Rim to Invert: 3.8'
Overall Height: 56"
Weight: 24114 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:27 AM **2025050234** **Salesperson: Scott Nemcek**

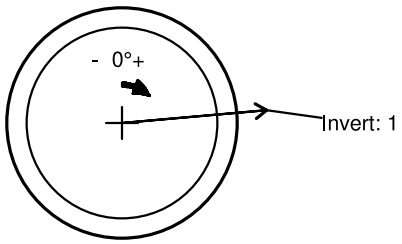
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 4"	279 lb
1)	48" - MH,4'dia,Cone,5"w - 36"	2013 lb
2)	48" - MH,4'dia,Riser,5"w - 48"	6938 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
180.6	SqFt) Paint,CS1200,Black [INT]	0 lb
217.33	SqFt) Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

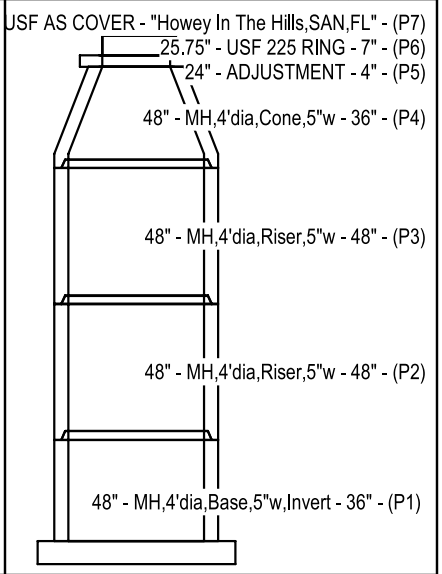
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	71.32'							
Reducer								
Invert 1	56.72'	85°	8" PVC	43"	36"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS11**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 71.32'
Invert: 56.72'
Floor (Top): 56.387'

Rim to Invert: 14.6'
Overall Height: 187"
Weight: 14895 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:28 AM **2025050234** **Salesperson: Scott Nemcek**

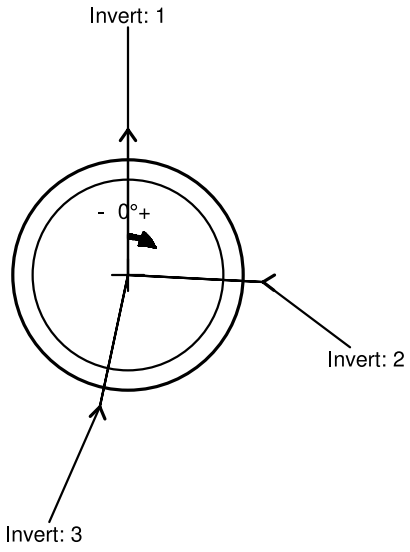
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 7"	489 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Riser,5"w - 72"	5203 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S106-16BWP	-276 lb
1)	S406-12AWP	-59 lb
192.92 SqFt)	Paint,CS1200,Black [INT]	0 lb
231.32 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

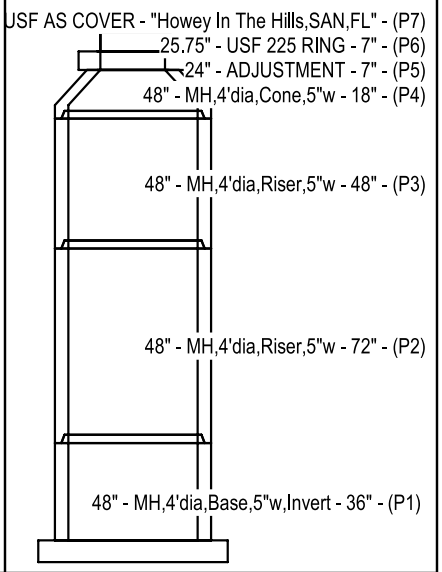
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	71.67'							
Reducer								
Invert 1	56.42'	0°	10" PVC	0"	0"	2"	S106-16BWP	P1
Invert 2	56.52'	93°	8" PVC	47"	39"	4"	S406-12AWP	P1
Invert 3	56.56'	192°	10" PVC	-85"	-70"	4"	S106-16BWP	P1
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS12**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 71.67'
Invert: 56.42'
Floor (Top): 56.003'

Rim to Invert: 15.25'
Overall Height: 196"
Weight: 15556 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:29 AM **2025050234** **Salesperson: Scott Nemcek**

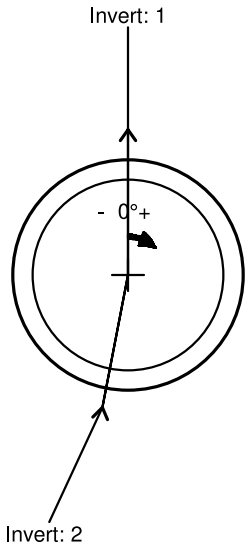
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 8"	559 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Riser,5"w - 72"	5203 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S106-16BWP	-276 lb
197.	SqFt) Paint,CS1200,Black [INT]	0 lb
236.54	SqFt) Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

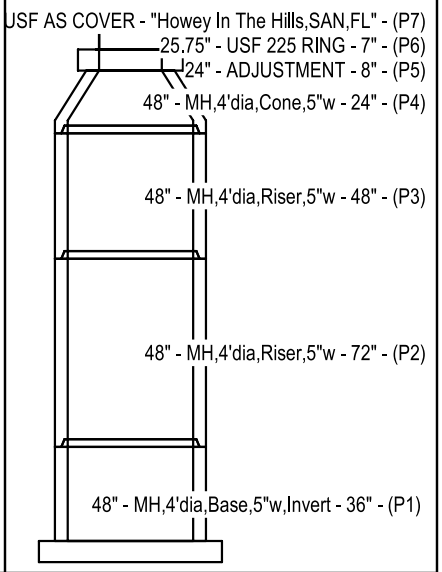
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	73.61							
Reducer								
Invert 1	57.7'	0°	10" PVC	0"	0"	2"	S106-16BWP	P1
Invert 2	57.8'	191°	10" PVC	-86"	-71"	3"	S106-16BWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS13**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 73.61'
Invert: 57.7'
Floor (Top): 57.283'

Rim to Invert: 15.91'
Overall Height: 203"
Weight: 16020 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:30 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROP

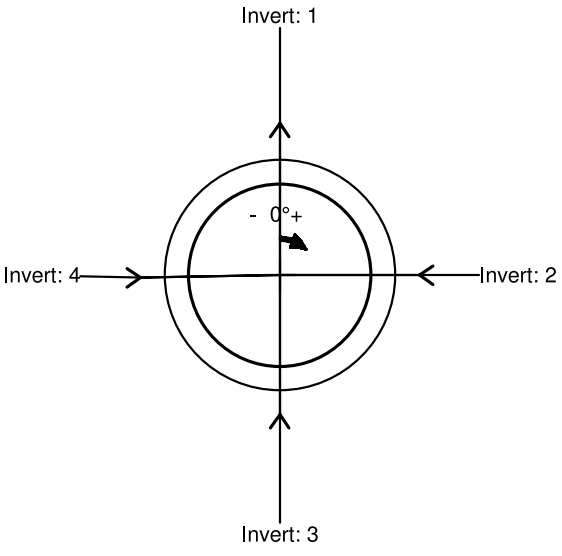
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 4"	279 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 54"	8011 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 36"	9564 lb
3)	60" - JOINT SEALANT - 238"/JOINT	0 lb
1)	HDPE Sleeve W/ S106-16BWP	-60 lb
3)	HDPE Sleeve W/ S406-12AWP	-180 lb
268.57 SqFt)	Liner,Solmax,2mm [INT]	0 lb
334.89 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

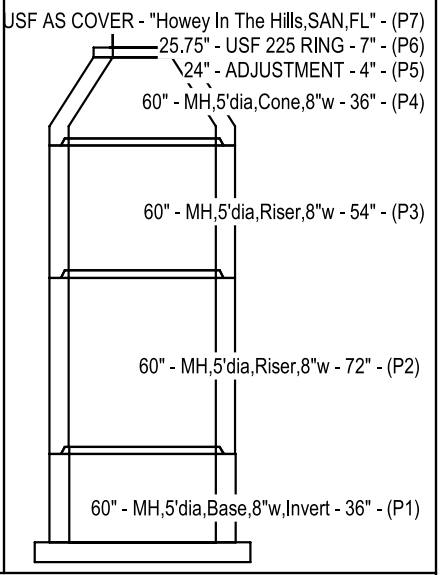
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	76.64'							
Reducer								
Invert 1	59.58'	0°	10" PVC	0"	0"	2"	HDPE Sleeve W/ S106-16BWP	P1
Invert 2	60.95'	90°	8" PVC	60"	47"	19"	HDPE Sleeve W/ S406-12AWP	P1
Invert 3	~~59.68'~~ 55.58	180°	8" PVC	119"	94"	4"	HDPE Sleeve W/ S406-12AWP	P1
Invert 4	66.9'	269°	8" PVC	-60"	-48"	55"	HDPE Sleeve W/ S406-12AWP	P2
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS14**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 76.64'
Invert: 59.58'
Floor (Top): 59.163'

Rim to Invert: 17.06'
Overall Height: 217"
Weight: 32673 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:31 AM **2025050234** **Salesperson: Scott Nemcek**

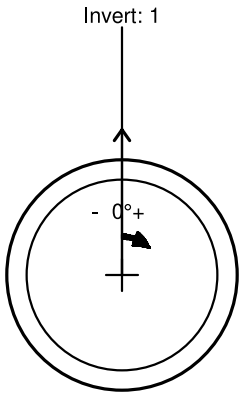
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 5"	349 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
2)	48" - MH,4'dia,Riser,5"w - 48"	6938 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
171.87 SqFt)	Paint,CS1200,Black [INT]	0 lb
206.17 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

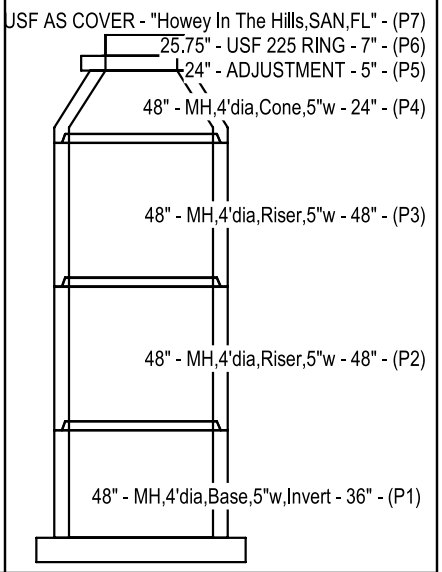
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	76.22'							
Reducer								
Invert 1	62.52'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) 70 K.S.I. Wire Mesh
2) Grade 60 Rebar
3) Type I/II Cement
4) 4000 P.S.I. @ 28 Days
5) Conforms To F.D.O.T.
6) Manufactured Per A.S.T.M. C-478 Latest Revision



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS15**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 76.22'
Invert: 62.52'
Floor (Top): 62.187'

Rim to Invert: 13.7'
Overall Height: 176"
Weight: 14294 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:33 AM **2025050234** **Salesperson: Scott Nemcek**

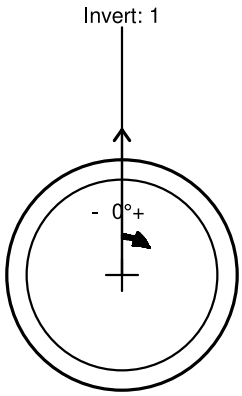
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 7"	489 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
121.61 SqFt)	Paint,CS1200,Black [INT]	0 lb
145.44 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

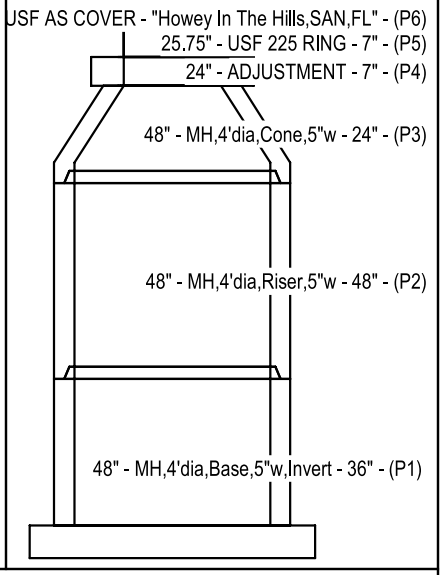
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	76.98'							
Reducer								
Invert 1	67.1'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS16**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 76.98'
Invert: 67.1'
Floor (Top): 66.767'

Rim to Invert: 9.88'
Overall Height: 130"
Weight: 10964 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:34 AM **2025050234** **Salesperson: Scott Nemcek**

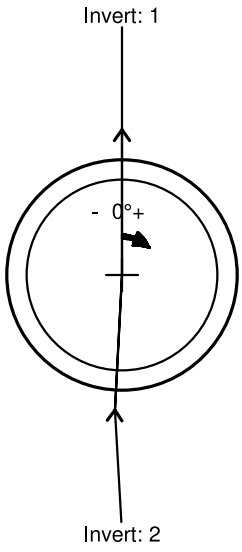
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 5"	349 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
2)	48" - MH,4'dia,Riser,5"w - 72"	10407 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S406-12AWP	-118 lb
218.05 SqFt)	Paint,CS1200,Black [INT]	0 lb
261.69 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

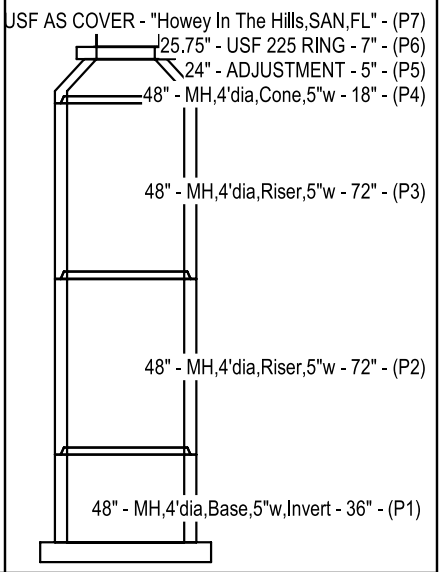
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	77.89'							
Reducer								
Invert 1	60.67'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	60.77'	183°	8" PVC	-90"	-74"	3"	S406-12AWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS17**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 77.89'
Invert: 60.67'
Floor (Top): 60.337'

Rim to Invert: 17.22'
Overall Height: 218"
Weight: 17368 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:35 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROP

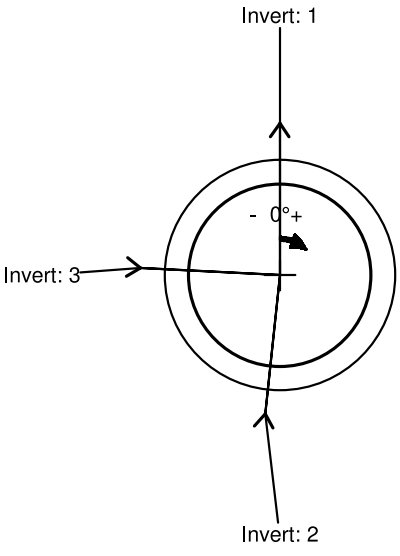
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 6"	419 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 60"	8901 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 30"	8674 lb
3)	60" - JOINT SEALANT - 238"/JOINT	0 lb
3)	HDPE Sleeve W/ S406-12AWP	-180 lb
268.57 SqFt)	Liner,Solmax,2mm [INT]	0 lb
334.89 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

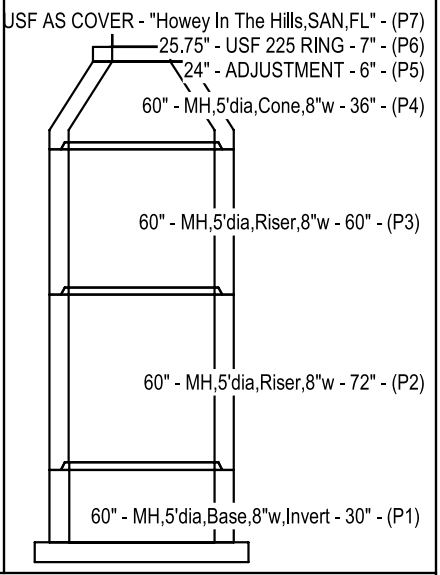
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	79.17'							
Reducer								
Invert 1	61.85'	0°	8" PVC	0"	0"	2"	HDPE Sleeve W/ S406-12AWP	P1
Invert 2	61.95'	186°	8" PVC	-115"	-91"	3"	HDPE Sleeve W/ S406-12AWP	P1
Invert 3	73.83'	273°	8" PVC	-58"	-46"	44"	HDPE Sleeve W/ S406-12AWP	P3
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS18**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 79.17'
Invert: 61.85'
Floor (Top): 61.517'

Rim to Invert: 17.32'
Overall Height: 219"
Weight: 32873 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:35 AM **2025050234** **Salesperson: Scott Nemcek**

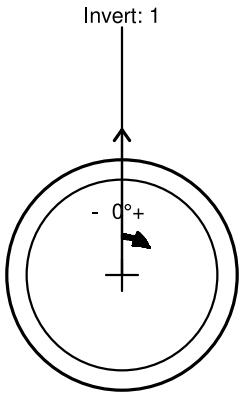
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 5"	349 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
1)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
71.34	SqFt) Paint,CS1200,Black [INT]	0 lb
84.7	SqFt) Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

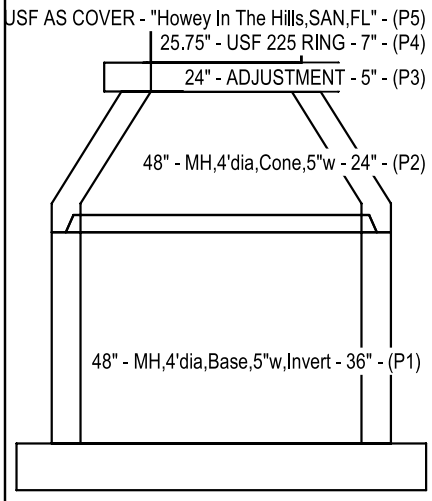
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	79.71'							
Reducer								
Invert 1	73.99'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS19**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 79.71'
Invert: 73.99'
Floor (Top): 73.657'

Rim to Invert: 5.72'
Overall Height: 80"
Weight: 7356 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:36 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROP

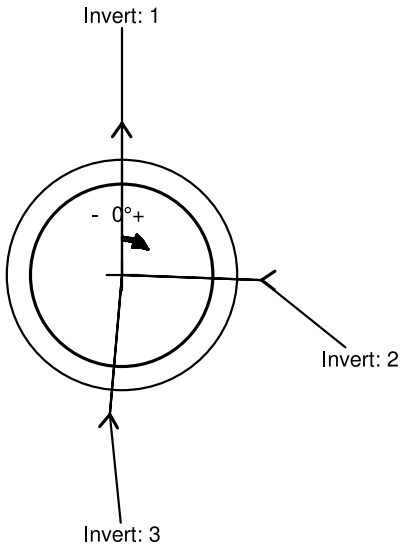
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 5"	349 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 36"	9564 lb
3)	60" - JOINT SEALANT - 238"/JOINT	0 lb
3)	HDPE Sleeve W/ S406-12AWP	-180 lb
292.13 SqFt)	Liner,Solmax,2mm [INT]	0 lb
364.74 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM ✓

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

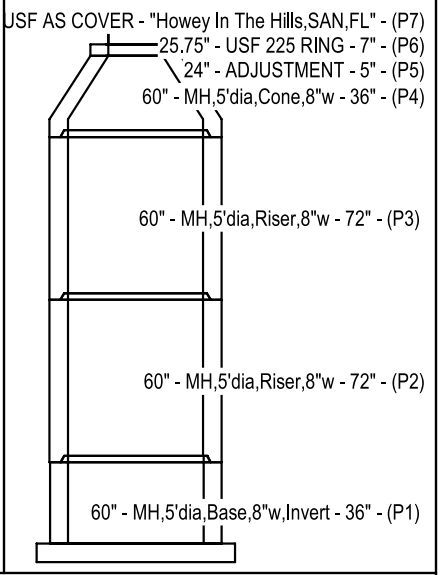
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	81.63' ✓							
Reducer								
Invert 1	62.91' ✓	0°	8" PVC	0"	0"	2"	HDPE Sleeve W/ S406-12AWP	P1
Invert 2	63.01' ✓	92°	8" PVC	61"	48"	3"	HDPE Sleeve W/ S406-12AWP	P1
Invert 3	74.97' ✓	185°	8" PVC	-116"	-92"	39"	HDPE Sleeve W/ S406-12AWP	P3
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS20**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 81.63'
Invert: 62.91'
Floor (Top): 62.577'

Rim to Invert: 18.72'
Overall Height: 236"
Weight: 35473 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:37 AM **2025050234** **Salesperson: Scott Nemcek**

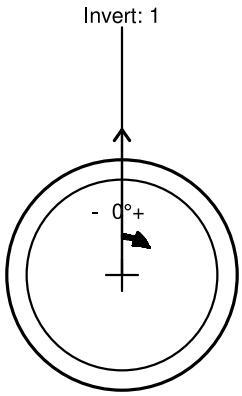
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 8"	559 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
2)	48" - MH,4'dia,Riser,5"w - 72"	10407 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
3)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
218.05 SqFt)	Paint,CS1200,Black [INT]	0 lb
261.69 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

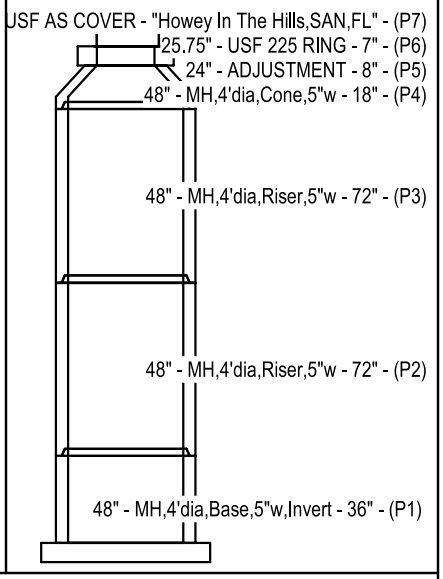
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	80.62'							
Reducer								
Invert 1	63.2'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS21**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 80.62'
Invert: 63.2'
Floor (Top): 62.867'

Rim to Invert: 17.42'
Overall Height: 221"
Weight: 17636 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:38 AM **2025050234** **Salesperson: Scott Nemcek**

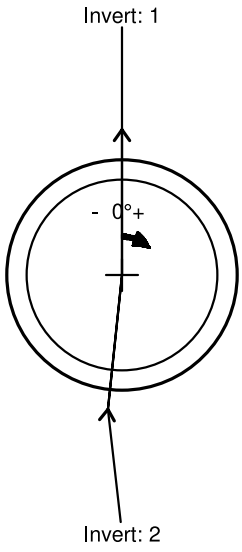
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 10"	698 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 32"	2313 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S406-12AWP	-118 lb
104.85 SqFt)	Paint,CS1200,Black [INT]	0 lb
125.19 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

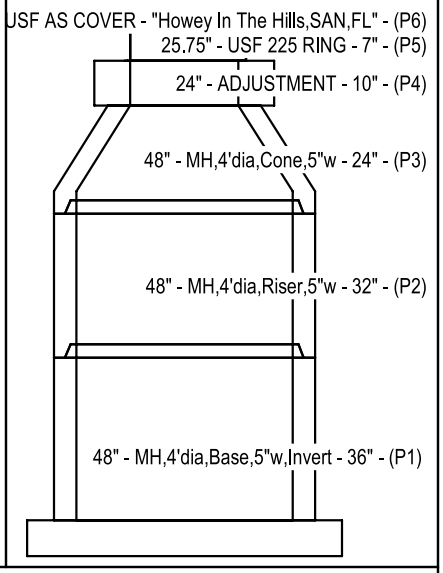
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	85.21'							
Reducer								
Invert 1	76.4'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	76.5'	186°	8" PVC	-88"	-73"	3"	S406-12AWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS22**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 85.21'
Invert: 76.4'
Floor (Top): 76.067'

Rim to Invert: 8.81'
Overall Height: 117"
Weight: 9959 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:39 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

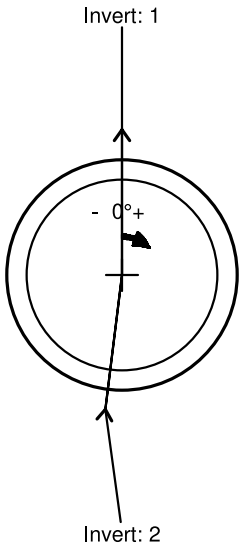
BASE HEIGHT TOO TALL TO ALLOW FLOWLINE/INVERT

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	48" - MH,4'dia,Cone,5"w - 30"	1677 lb
1)	48" - MH,4'dia,Base,5"w - 48"	6141 lb
1)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S406-12AWP	-118 lb
88.21	SqFt) Paint,CS1200,Black [INT]	0 lb
105.38	SqFt) Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

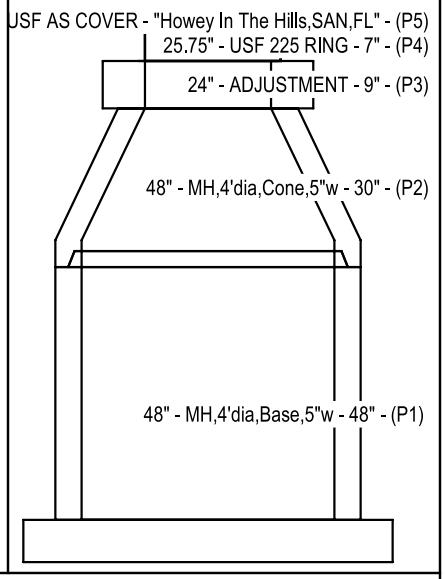
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	86.4'							
Reducer								
Invert 1	78.87'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	80.67'	187°	8" PVC	-88"	-72"	24"	S406-12AWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS23**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 86.4'
Invert: 78.87'
Floor (Top): 78.537'

Rim to Invert: 7.53'
Overall Height: 102"
Weight: 8779 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:40 AM **2025050234** **Salesperson: Scott Nemcek**

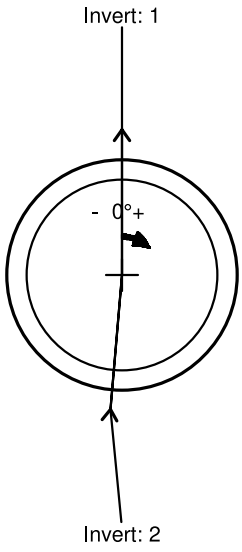
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 6"	419 lb
1)	48" - MH,4'dia,Cone,5"w - 30"	1677 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
1)	48" - JOINT SEALANT - 170"/JOINT	0 lb
2)	S406-12AWP	-118 lb
75.64 SqFt)	Paint,CS1200,Black [INT]	0 lb
90.2 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

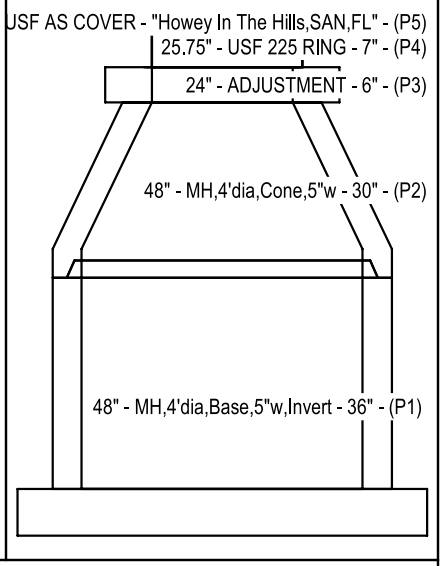
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	90.86'							
Reducer								
Invert 1	84.6'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	84.7'	185°	8" PVC	-89"	-73"	3"	S406-12AWP	P1
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS26**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 90.86'
Invert: 84.6'
Floor (Top): 84.267'

Rim to Invert: 6.26'
Overall Height: 87"
Weight: 7702 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:41 AM **2025050234** **Salesperson: Scott Nemcek**

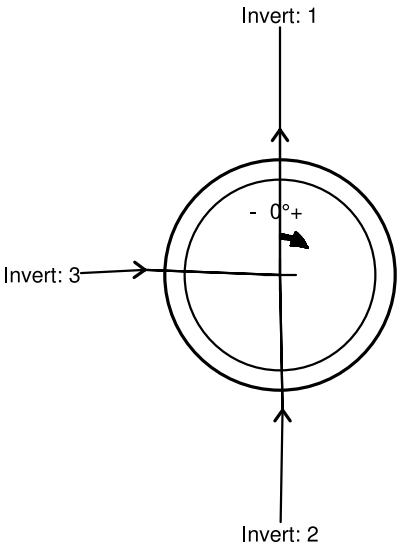
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 9"	628 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
3)	S406-12AWP	-177 lb
121.61 SqFt)	Paint,CS1200,Black [INT]	0 lb
145.44 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

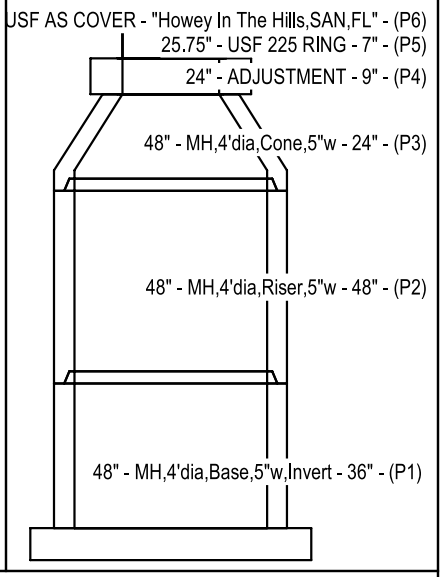
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	95.98'							
Reducer								
Invert 1	85.94'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2	86.04'	179°	8" PVC	91"	75"	3"	S406-12AWP	P1
Invert 3	86.04'	272°	8" PVC	-45"	-37"	3"	S406-12AWP	P1
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS27**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 95.98'
Invert: 85.94'
Floor (Top): 85.607'

Rim to Invert: 10.04'
Overall Height: 132"
Weight: 10986 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:42 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROPS

PLEASE CONFIRM STRUCTURE DIAMETER; HOWEY CONSTRUCTION SPECIFICATION MANUAL SAYS MANHOLES WITH DOUBLE INSIDE DROPS SHALL BE 72" DIAMETER

ACKNOWLEDGED

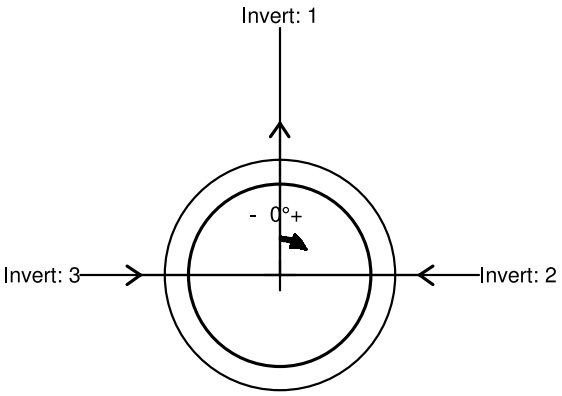
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 2"	140 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 96"	14242 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 24"	7784 lb
2)	60" - JOINT SEALANT - 238"/JOINT	0 lb
3)	HDPE Sleeve W/ S406-12AWP	-180 lb
213.59 SqFt)	Liner,Solmax,2mm [INT]	0 lb
265.26 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

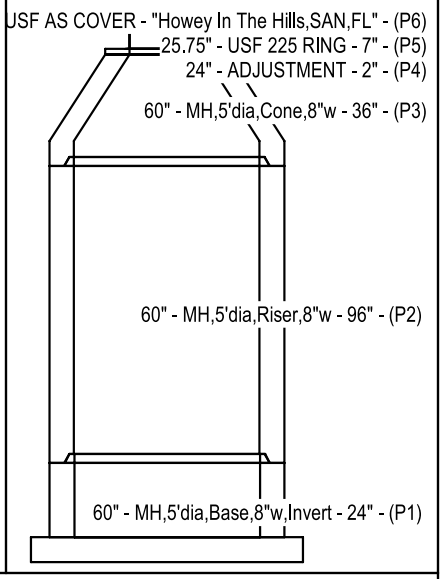
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	104.48'							
Reducer								
Invert 1	91'	0°	8" PVC	0"	0"	2"	HDPE Sleeve W/ S406-12AWP	P1
Invert 2	95.5'	90°	8" PVC	60"	47"	32"	HDPE Sleeve W/ S406-12AWP	P2
Invert 3	99.5'	270°	8" PVC	-60"	-47"	80"	HDPE Sleeve W/ S406-12AWP	P2
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) 70 K.S.I. Wire Mesh
2) Grade 60 Rebar
3) Type I/II Cement
4) 4000 P.S.I. @ 28 Days
5) Conforms To F.D.O.T.
6) Manufactured Per A.S.T.M. C-478 Latest Revision



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS28**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 104.48'
Invert: 91'
Floor (Top): 90.667'

Rim to Invert: 13.48'
Overall Height: 173"
Weight: 26363 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:43 AM **2025050234** **Salesperson: Scott Nemcek**

Structure Notes: WALLS=3"x8" W4.5/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

INSIDE DROPS

PLEASE CONFIRM STRUCTURE DIAMETER; HOWEY CONSTRUCTION SPECIFICATION MANUAL SAYS MANHOLES WITH DOUBLE INSIDE DROPS SHALL BE 72" DIAMETER

ACKNOWLEDGED

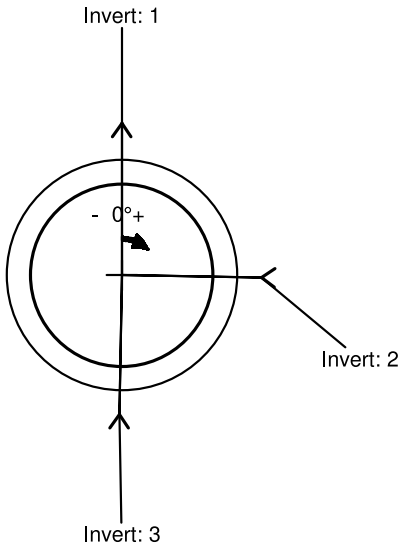
1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 8"	559 lb
1)	60" - MH,5'dia,Cone,8"w - 36"	3927 lb
1)	60" - MH,5'dia,Riser,8"w - 60"	8901 lb
1)	60" - MH,5'dia,Riser,8"w - 72"	10681 lb
1)	60" - MH,5'dia,Base,8"w,Invert - 24"	7784 lb
3)	60" - JOINT SEALANT - 238"/JOINT	0 lb
3)	HDPE Sleeve W/ S406-12AWP	-180 lb
260.72 SqFt)	Liner,Solmax,2mm [INT]	0 lb
324.95 SqFt)	Paint,CS1200,Black [EXT]	0 lb

SOLMAX
LINER 2MM

EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

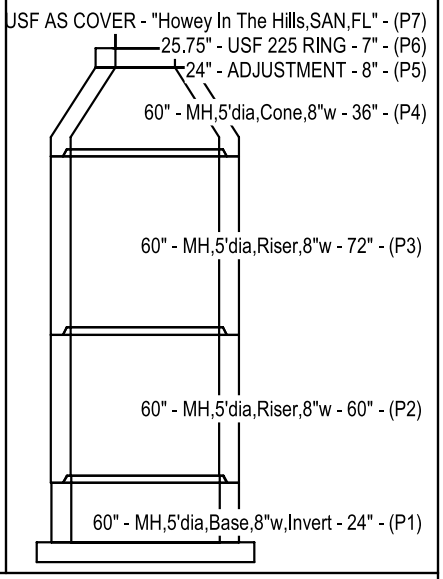
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	104.3'							
Reducer								
Invert 1	87.35'	0°	8" PVC	0"	0"	2"	HDPE Sleeve W/ S406-12AWP	P1
Invert 2	95.5'	91°	8" PVC	60"	48"	16"	HDPE Sleeve W/ S406-12AWP	P3
Invert 3	90'	181°	8" PVC	-119"	-94"	10"	HDPE Sleeve W/ S406-12AWP	P2
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS30**
Spec: FLORIDA
Type: SANITARY
Size: 60"

Rim: 104.3'
Invert: 87.35'
Floor (Top): 87.017'

Rim to Invert: 16.95'
Overall Height: 215"
Weight: 32122 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:43 AM **2025050234** **Salesperson: Scott Nemcek**

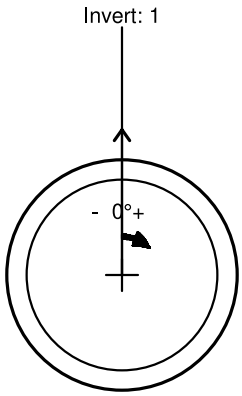
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 8"	559 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
1)	48" - MH,4'dia,Riser,5"w - 48"	3469 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
117.52 SqFt)	Paint,CS1200,Black [INT]	0 lb
140.22 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

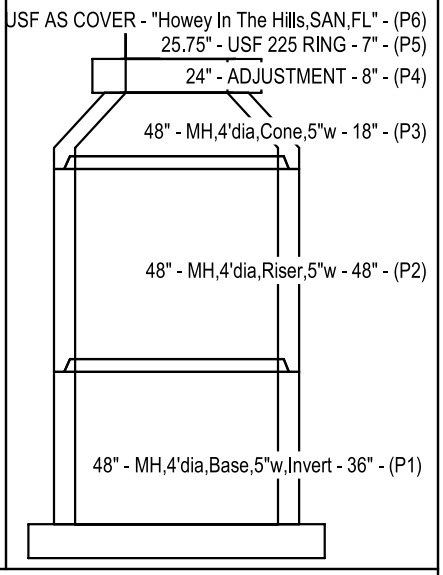
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	96.15'							
Reducer								
Invert 1	86.73'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS31**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 96.15'
Invert: 86.73'
Floor (Top): 86.397'

Rim to Invert: 9.42'
Overall Height: 125"
Weight: 10699 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:44 AM **2025050234** **Salesperson: Scott Nemcek**

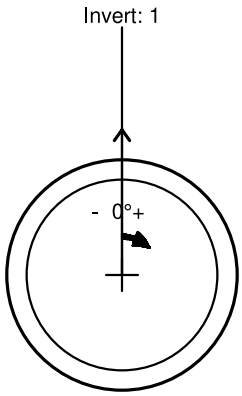
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 7"	489 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
1)	48" - MH,4'dia,Riser,5"w - 32"	2313 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
100.77 SqFt)	Paint,CS1200,Black [INT]	0 lb
119.97 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

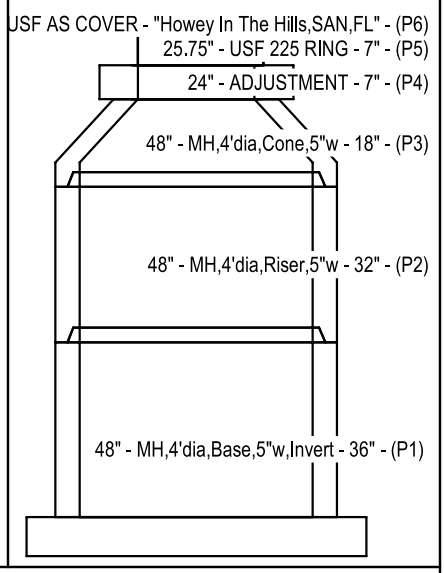
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	104'							
Reducer								
Invert 1	96'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS32**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 104'
Invert: 96'
Floor (Top): 95.667'

Rim to Invert: 8'
Overall Height: 108"
Weight: 9473 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:45 AM **2025050234** **Salesperson: Scott Nemcek**

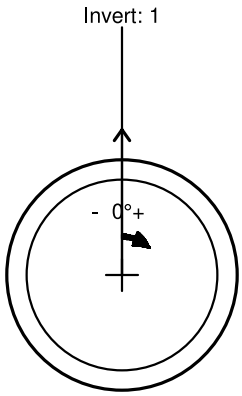
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 7"	489 lb
1)	48" - MH,4'dia,Cone,5"w - 18"	1006 lb
1)	48" - MH,4'dia,Riser,5"w - 32"	2313 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 36"	5274 lb
2)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
100.77 SqFt)	Paint,CS1200,Black [INT]	0 lb
119.97 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

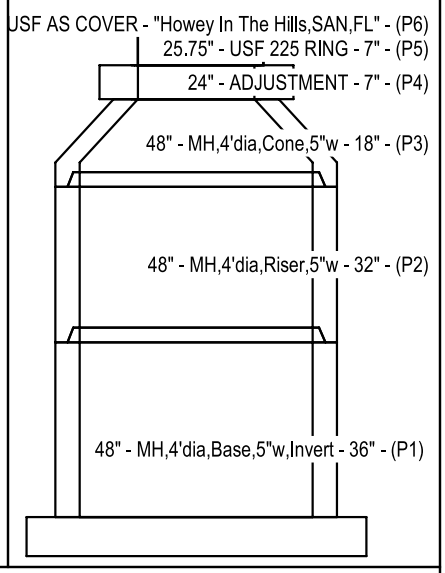
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	104'							
Reducer								
Invert 1	96'	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS33**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 104'
Invert: 96'
Floor (Top): 95.667'

Rim to Invert: 8'
Overall Height: 108"
Weight: 9473 lb

MACK CONCRETE INDUSTRIES, INC. **CF30265** **Engineer: Don Whitford**
2025-07-15 9:42:46 AM **2025050234** **Salesperson: Scott Nemcek**

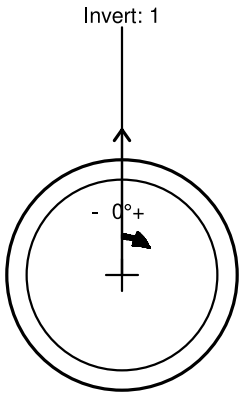
Structure Notes: WALLS=3"x8" W3.0/W2.1 WWM
BASE SLAB=8x8-D15/D15 WWM

1)	25.75" - USF AS COVER - "Howey In The Hills,SAN,FL"	190 lb
1)	25.75" - USF 225 RING - 7"	260 lb
1)	24" - ADJUSTMENT - 7"	489 lb
1)	48" - MH,4'dia,Cone,5"w - 24"	1342 lb
1)	48" - MH,4'dia,Base,5"w,Invert - 24"	4407 lb
1)	48" - JOINT SEALANT - 170"/JOINT	0 lb
1)	S406-12AWP	-59 lb
58.77 SqFt)	Paint,CS1200,Black [INT]	0 lb
69.51 SqFt)	Paint,CS1200,Black [EXT]	0 lb

INT: CS-1200 BLK
2 COATS
EXT: CS-1200 BLK
2 COATS
EXT/INT:16 MIL TOTAL

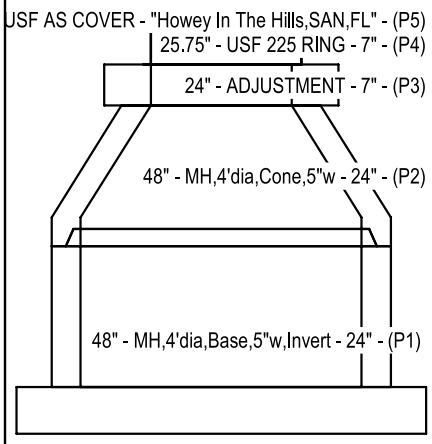
NEED CS-85 (PRIMER 1 COATS)

Position	Elev	Angle	Pipe	Ext. (cw)	Int. (cw)	Up (_)	Connector	Ref
Rim	104.88' ✓							
Reducer								
Invert 1	100' ✓	0°	8" PVC	0"	0"	2"	S406-12AWP	P1
Invert 2								
Invert 3								
Invert 4								
Invert 5								
Invert 6								
Invert 7								
Invert 8								



SPECIFICATIONS:

1) **70 K.S.I. Wire Mesh**
2) **Grade 60 Rebar**
3) **Type I/II Cement**
4) **4000 P.S.I. @ 28 Days**
5) **Conforms To F.D.O.T.**
6) **Manufactured Per A.S.T.M. C-478 Latest Revision**



CF30265

Eden Site Development
Lake Hills Main Boulevard & Mass Grading

Structure ID: **SS34**
Spec: FLORIDA
Type: SANITARY
Size: 48"

Rim: 104.88'
Invert: 100'
Floor (Top): 99.667'

Rim to Invert: 4.88'
Overall Height: 70"
Weight: 6628 lb

ZONING MEMORANDUM

August 13, 2025
Prepared for
Town of Howey-in-the-Hills
Attn: Sean O'Keefe, Town Manager

Watermark: Final Subdivision Plan Review

Applicant: Revels Road Investors, LLC

Planning staff reviewed the proposed Watermark Final Subdivision Plans for Development Review Committee (DRC). The following revisions and information will be needed before the subdivision plans can be scheduled for consideration by the Planning and Zoning Board and Town Council. Please provide a response to each item and revise the Plan Set accordingly.

1. All of the lots do not appear to meet the minimum lot width requirements. As examples Lot#2, 3, 26, and 27 are less than 70 feet wide at the front. Please ensure all lots meet the minimum requirements established in the PUD Development Agreement per lot type.
2. All areas to be counted as Open Space shall be clearly indicated on the plan and summarized in a table by tract, acreage, and use.
3. The location, dimensions, and materials of all signs, fencing, and walls shall be shown.
4. Please provide the applicable tree survey overlay and data for this section of the Hillside Groves (Reserve) development, indicating the number and type of trees being removed and provide replacement data consistent with LDC Chapter 7 requirements and identify how the proposed landscaping plan is consistent with that data.
5. Please provide landscaping and buffer plans consistent with the requirements of LDC Sec. 7.01.02, the PUD Development Agreement, and LDC Sec. 7.02.00.
6. All required landscaping and irrigation shall be installed and maintained to be consistent with the water-efficient landscaping requirements established herein. Landowners are additionally encouraged to follow Waterwise Florida Landscapes, Florida Water Star Program, and Florida Irrigation Society Standards. Please add a note to this effect on the plans.
7. Landscape plants shall be selected based on appropriateness to the site considering conditions such as soil type, moisture, and sunlight using the

principle of "right plant – right place," as described by the Florida Friendly Landscaping program. The plants shall be grouped and irrigated by hydrozone in accordance with their respective water needs. A list of appropriate plants and plant resources is contained in The Plant List for Lake County. Please add a note to this effect on the plans.

8. Synthetic Lawns and Plants: Synthetic or artificial turf, trees and plants shall be prohibited from use in lieu of required live plantings. Please add a note to this effect on the plans.
9. For each individual lot, irrigated turf grasses may be installed on a maximum of sixty (60) percent of the pervious (landscape) area of any lot or parcel and shall be placed so that it can be irrigated separately. Please add a note to this effect on the plans.
10. For single family lots that are one half acre or less in size, a minimum of three (3) canopy trees is required. Each such single family lot will be required to have one (1) tree with a caliper of at least four inches (4") and two (2) trees each with a caliper of at least two and one half inches (4 2½"). These trees shall have a minimum height of 10 feet at time of planting. These trees should be canopy trees as listed in this chapter.
11. One of the canopy trees on each such single-family lot shall be planted in the front yard, no less than 7.5 feet and no more than 10 feet from the sidewalk or lot line. Canopy trees planted within 10 feet of a sidewalk must have root barriers. These trees will help to form a canopy over the sidewalk and street sides. Corner lots are required to provide two such trees, one on the front and one on the side of the lot. Additionally, if the lot is more than 100 feet wide at the sidewalk, then the lot will be required to have two such trees.
12. A minimum of two (2) understory trees are required for single family lots of one half acre or less in size.
13. A maximum of fifty percent (50%) of the landscaped area may be covered with sod. Other ground covers should be used to the extent possible.
14. Shrubs and other plants shall be used as foundation plants along the outline of the house, except where doors or patios are located. Alternate plantings may be permitted if the architectural style of the house warrants it.
15. A minimum of two areas of the yard that have at least 400 square feet of non-turf plantings in a row or cluster, not including the foundation plantings, is required. For single family lots greater than one half acre in size, an additional 400 square feet of non-turf plantings in a row or cluster, not including the foundation plantings, is required for each additional eighth of an acre, or portion thereof.

16. At least 60% of the landscaped area for each single-family lot shall be drought tolerant or Florida Friendly plants. Florida Friendly plants require a minimum of irrigation and shall be grouped together on the lot in order to reduce the irrigation requirement for those zones. Turf area may exceed 40% if the turf area over 40% is unirrigated.
17. Please identify which trees are canopy, which are understory, and which are street trees. All canopy trees are required to be 10 feet in height at the time of planting. Understory trees are required to be a minimum caliper of 2.5 inches at time of planting. Canopy trees are required to be a minimum caliper of 4 inches at time of planting.
18. All trees shall be staked and guyed at the time of planting for a period of one growing season.
19. Live Oak, Sweet Bay Magnolia, and Southern Magnolia are the three approved Street Tree species. Drake Elm and Sweet Bay Magnolia may be used where planting space is at a premium. Winged Elm is not, and Crepe Myrtle is not.
20. Hardscape components that serve particular functions are required. Each site shall incorporate functional elements including, but not limited to, the following: a. Decorative benches for seating areas b. Arbors or trellises for additional shade in pedestrian or entrance areas c. Decorative trash receptacles d. Decorative lighting fixtures e. Decorative pavers to outline pedestrian walkways.

GRIFFEY ENGINEERING, INC.

August 13, 2025
Watermark Phase 1 & Master Gradin Plans
Engineering Review Comments
Page 1

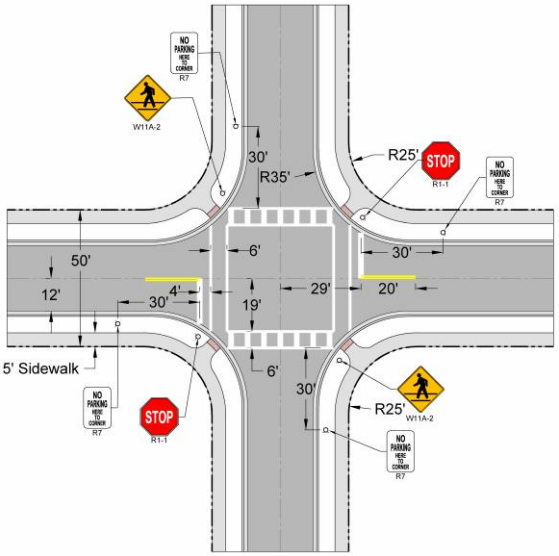
General Comments

1. Additional comments may be added to these with the reviews of subsequent submittals.

2. Provide copies of FFWCC, SJRWMD and FDEP Water & Sewer permits before commencing work.

Roads

3. As discussed in the recent meeting with the developer, the town and FDOT, the intersection of SR 19 and Revels Road will need to have turn lanes installed to manage the increased traffic. This will be an interim condition until a roundabout can be approved, designed, and constructed. Attached are concept plans showing the interim turn lane condition and the final roundabout condition. The project needs to incorporate the interim turn lane improvements into the construction plans.



4. Watermark is to be designed as a Complete Streets, pedestrian friendly community. The intersections of the residential streets need to provide full pedestrian accommodation. Pedestrians need to have clearly designated means (crosswalks & signage) to safely traverse an intersection from any corner to any other corner or side. Intersection design needs to meet that intent and comply as much as possible with the town's road detail R1A. Provide additional crosswalks at the locations shown on the attached striping markup. Include the signage as shown in R1A.

Potable & Irrigation Water

5. The attached utility markup shows needed adjustments to the water mains and force main.

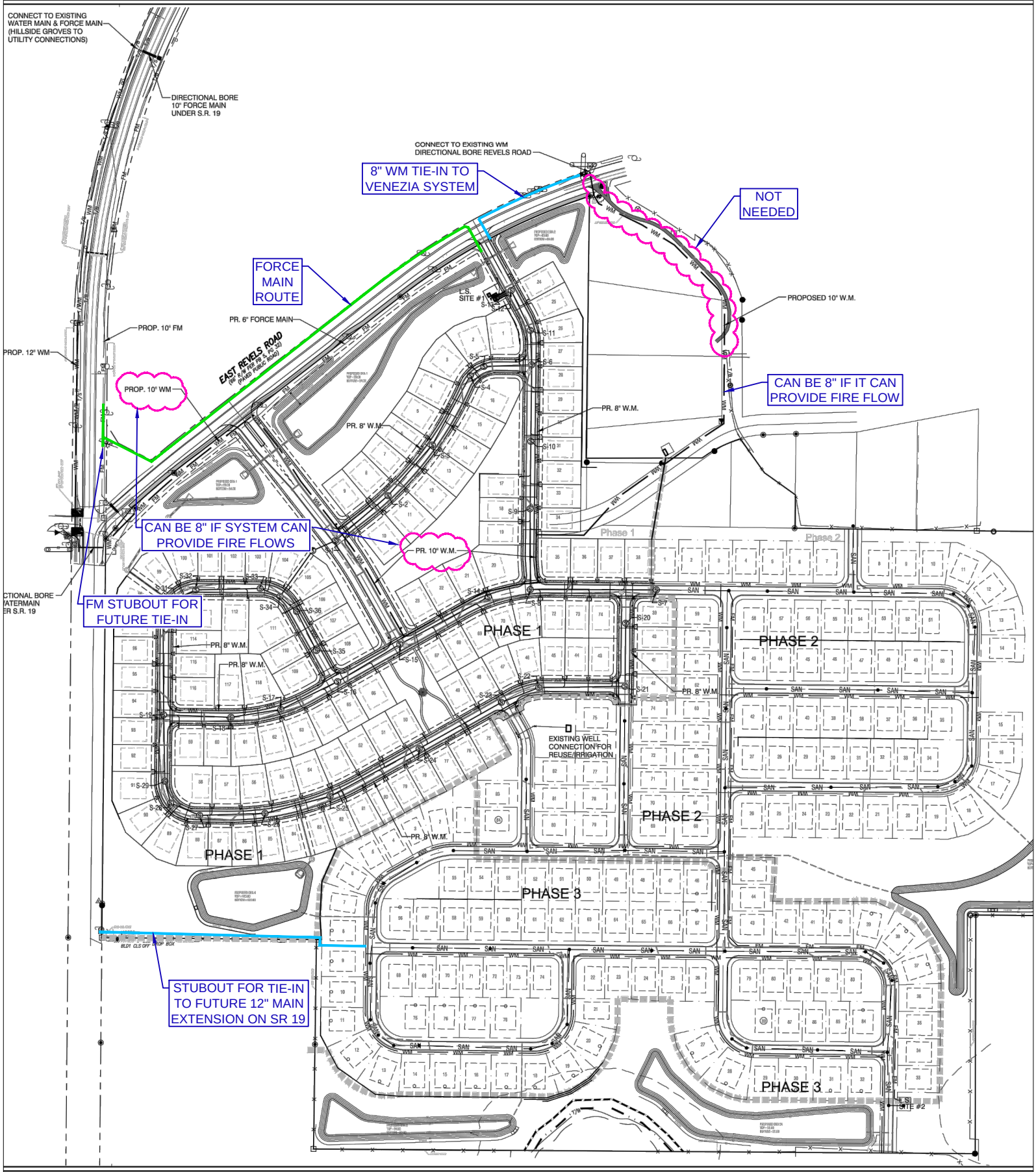
6. Show on the utility plans the proposed canopy trees from the landscape plan that are within the right-of-way. Call out in the plan that the trenches for the water and irrigation mains need to be lined with a root barrier for 30' adjacent to the proposed tree.

7. Provide a plan for the irrigation water supply system.

Wastewater

8. The town has recently updated its lift station details (attached). Adjust the LS site layout to follow the new details.

9. Adjust the force main route as shown in the utility markup.


CONNECT TO EXISTING WATER MAIN & FORCE MAIN (HILLSIDE GROVES TO UTILITY CONNECTIONS)
DIRECTIONAL BORE 10" FORCE MAIN UNDER S.R. 19
CONNECT TO EXISTING WM DIRECTIONAL BORE REVELS ROAD
8" WM TIE-IN TO VENEZIA SYSTEM
NOT NEEDED
FORCE MAIN ROUTE
PROPOSED 10" W.M.
PR. 6" FORCE MAIN
PROP. 10" FM
PROP. 12" WM
EAST REVELS ROAD
PROP. 10" WM
CAN BE 8" IF IT CAN PROVIDE FIRE FLOW
PR. 8" W.M.
CAN BE 8" IF SYSTEM CAN PROVIDE FIRE FLOWS
PR. 10" W.M.
FM STUBOUT FOR FUTURE TIE-IN
PHASE 1
PHASE 2
PHASE 3
EXISTING WELL CONNECTION FOR REUSE/IRRIGATION
STUBOUT FOR TIE-IN TO FUTURE 12" MAIN EXTENSION ON SR 19
L.S. SITE #1
L.S. SITE #2

VIA HAND DELIVERY

July 31, 2025

Town of Howey in the Hills
101 N. Palm Avenue
Howey in the Hills, FL 34737

RE: WATERMARK (HALFF AVO 045548.003)
FINAL SUBDIVISION SUBMITTAL

To Whom It May Concern:

Enclosed you will find the below listed items pertaining to the Final Subdivision submittal for the Watermark project.

1. One (1) copy of the executed General Land Development Application.
2. One (1) check made payable to the Town of Howey in the Hills in the amount of $3,000.00 for the review fee.
3. Ten (10) 24 x 36 sets of Construction Plans signed, sealed, and date stamped 7/30/25.
4. Two (2) copies of the Stormwater Management Report signed, sealed, and dated June, 2025.
5. Two (2) copies of the Lift Station Calculations signed, sealed, and dated July 22, 2025.
6. Two (2) copies of the Traffic Impact Analysis prepared by Traffic & Mobility Consultants dated July 2025.
7. Two (2) copies of the Stormcad Data signed, sealed, and dated July, 2025.
8. Two (2) copies of the Geotechnical Investigation prepared by Andreyev Engineering, Inc., for the Simpson Property dated April 28, 2023.
9. Two (2) copies of the Geotechnical Investigation prepared by Andreyev Engineering, Inc., for the Watermark Property dated March 14, 2025.
10. Two (2) copies of the Environmental Assessment prepared by Bio-Tech Consulting dated June 24, 2025.
11. One (1) cd containing the enclosed items in pdf format.

Please note, Landscaping and Irrigation Plans will be provided upon receipt. Should you have any questions, please feel free to contact our office at 352-343-8481.

Sincerely,
HALFF

Brett J. Tobias, P.E., Team Leader
btobias@halff.com

BJT:ab

cc: Craig Harris, Revels Road Investors, LLC, (via email charris@jtdlandco.com)

TOWN OF HOWEY-IN-THE-HILLS, FLORIDA

GENERAL LAND DEVELOPMENT APPLICATION

101 N. Palm Avenue, Howey-in-the-Hills, Florida 34737
Phone: (352) 324-2290 • Fax: (352) 324-2126

Date Received: Application ID: Received By:

REQUESTED ACTION

- ☐ Comp Plan Amendment
- ☐ PUD
- ☐ Conditional Use
- ☐ Land Development Code Text
- ☐ Variance
- ☐ Rezoning
- ☐ Subdivision Minor
- ☐ Other
- ☐ Site Plan (check one below)
  - ☐ Preliminary
  - ☐ Final
- ☐ Subdivision (check one below)
  - ☐ Preliminary Subdivision
  - ☒ Final Subdivision
  - ☐ Final Plat

Describe Request: Construct 290 single family lots within +/- 132.89 acres with stormwater conveyance system to proposed stormwater retention areas. No wetland impacts proposed within this project.

APPLICANT INFORMATION:

Name: Craig Harris, Revels Road Investors, LLC E-Mail: charris@jtdlandco.com

Address: 210 Hangar Road, Kissimmee, FL 34741 Phone: 407-591-0146 Fax:

☒ Owner ☐ Agent for Owner ☐ Attorney for Owner

OWNER INFORMATION:

Name: same as Applicant Information E-Mail:

Address: Phone:

Fax:

PROPERTY INFORMATION:

Address: Howey in the Hills

General Location: SE corner of SR 19 and E. Revels Road

Current Zoning: PUD Current Land Use: PUD

Parcel Size: 130.54 Tax Parcel #: see attached list

Legal Description Attached [X] Yes [ ] No Survey Attached [X] Yes [ ] No

Pre-Application Meeting Date: _____
(Attach Pre-Application Form)

Application Fee: $_____

Applicant's Signature: _____ 07/15/25
(Signature) *(Date)*

CRAIG HAGGIS
(Print)

Owner's Signature: _____ 07/15/25
(Provide letter of Authorization) *(Signature)* *(Date)*

CRAIG HAGGIS
(Print)

Applications must be complete to initiate the review process.

WATERMARK

PARCEL ID NUMBERS

35-20-25-0150-000-01200

02-21-25-0001-000-03700

35-20-25-0150-000-02600

35-20-25-0150-000-00100

02-21-25-0001-000-00100

02-21-25-0001-000-00200

VENDOR NO.	VENDOR NAME	CHECK NUMBER
10099	TOWN OF HOWIE-IN-THE-HILLS	6144

Trans Record	Reference	Date	Description	Gross Amount	Discount	Retainage	Previous	Balance	Net Amount
725 5	07.15.25	07/15/25	REVELS ROAD	3,000.00	0.00	0.00	0.00	0.00	3,000.00

RECEIVED
JUL 16 2025
By

Vendor No.		Gross Amount	Discount	Retainage	Previous	Balance	Net Amount
10099		3,000.00	0.00	0.00	0.00	0.00	3,000.00

HOLD TO LIGHT TO VIEW TRUE WATERMARK IN PAPER. HEAT SENSITIVE RED LOCK DISAPPEARS WHEN HEATED

FIRST HORIZON BANK 26-2/840

JTD LAND COMPANY, LLC
210 HANGAR ROAD
KISSIMMEE, FL 34741
(407) 870-0066

006144

DATE	CHECK NO.	AMOUNT
07/15/25	6144	$3,000.00

Three thousand and xx / 100 Dollars

PAY TO THE ORDER OF

TOWN OF HOWIE-IN-THE-HILLS
101 N PALM AVENUE
HOWEY-IN-THE-HILLS FL 34737

VOID AFTER 90 DAYS

AUTHORIZED SIGNATURE

Security features. Details on back

⑈006144⑈ ⑆084000026⑆ 10188003993 1⑈

CONSTRUCTION PLANS
FOR

WATERMARK PH. 1 & MASTER GRADING PLANS

SECTIONS 1 & 2 TOWNSHIP 21S RANGE 25E
SECTION 35 TOWNSHIP 20S RANGE 25E

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY, FLORIDA
JULY 2025

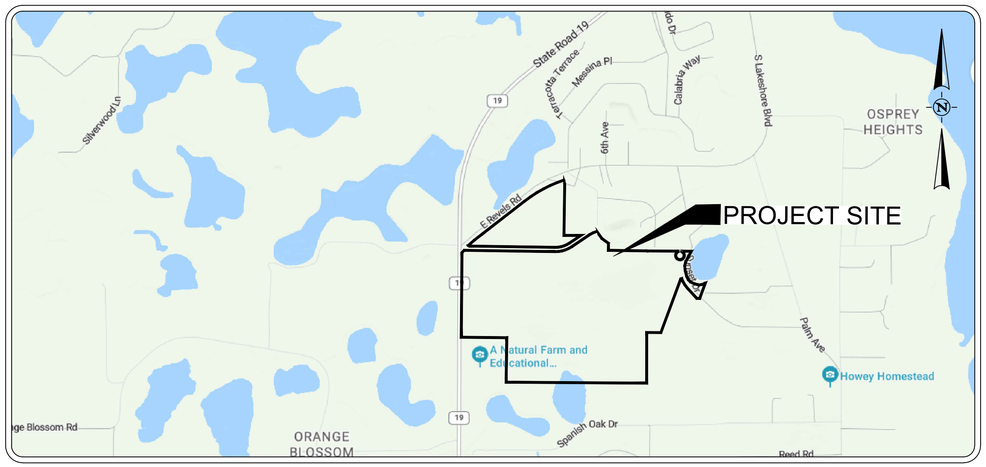
ENGINEER
HALFF
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
CONTACT: BRETT J. TOBIAS
EMAIL: BTOBIAS@HALFF.COM
TEL: (352) 343-8481
FIRM/ BUSINESS NO.: FLA CA 33380 &
FL LC 26000645 STATE: FL

OWNER/CLIENT
REVELS ROAD INVESTORS, LLC
210 HANGAR ROAD
KISSIMMEE, FL 34741
CONTACT: CRAIG HARRIS, MANAGER
EMAIL: CHARRIS@JTDLAND.COM
TEL: 407-590-0146

SURVEYOR
DEWBERRY
131 WEST KALEY STREET
ORLANDO, FL 32806
CONTACT: WILLIAM P. HINKLE, P.S.M.
EMAIL: whinkle@dewberry.com
TEL: 321-354-9826

ENVIRONMENTAL
BIO-TECH CONSULTING
3025 EAST SOUTH STREET
ORLANDO, FL 32803
CONTACT: STEPHEN BUTLER, V.P.
EMAIL: steve@bio-techconsulting.com
TEL: 877-894-5969

GEOTECH ENGINEER
ANDREYEV ENGINEERING, INC.
4055 ST. JOHN'S PARKWAY
SANFORD, FL 32771
CONTACT: FRANK MOSCHETTE, E.I.
EMAIL: fmoschette@andreyevengineering.com
TEL: 407-330-7763



VICINITY MAP
1" = 1,000'

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C-100	COVER SHEET
C-101	AERIAL PLAN
C-102	MASTER PLAN
C-103	EXISTING CONDITIONS & EROSION CONTROL PLAN
C-200 - C201	PRELIMINARY PLAT
C-300	MASTER UTILITY PLAN
C-400 - C-405	MASTER GRADING & DRAINAGE PLAN
C-500 - C508	PLAN & PROFILES
C-600 - C601	SIGNAGE & STRIPING PLAN
C-700	OFFSITE WM & FM DESIGN
C-800 - C-801	PAVING & DRAINAGE DETAILS
C-900 - C-902	WATER DETAILS
C-1000 - C-1001	SANITARY SEWER DETAILS
C-1100 - C-1102	LIFT STATION PLANS

LEGAL DESCRIPTION:

A PORTION OF LANDS LYING IN SECTIONS 1 & 2, TOWNSHIP 21 SOUTH, RANGE 25 EAST, AND SECTION 35, TOWNSHIP 20 SOUTH, RANGE 25 EAST, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
PART "A"
BEGIN AT NORTHWEST CORNER OF SECTION SAID SECTION 1, THENCE ALONG THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 1, S89°27'13"E, A DISTANCE OF 453.37 FEET TO A POINT ON A NON-TANGENT CURVE CONCAVE NORTHERLY HAVING A RADIUS OF 60.00 FEET, A CENTRAL ANGLE OF 343°29'58", A CHORD BEARING OF S89°27'13"E AND A CHORD DISTANCE OF 17.22 FEET; THENCE DEPARTING SAID NORTH LINE, RUN EASTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 359.71 FEET TO THE END OF SAID CURVE AND SAID NORTH LINE; THENCE S89°27'13"E, A DISTANCE OF 149.65 FEET TO THE APPROXIMATE EDGE OF WATER OF LAKE BERTHA; THENCE ALONG SAID EDGE OF WATER THE FOLLOWING 12 (TWELVE) COURSES AND DISTANCES, S28°22'26"W, A DISTANCE OF 161.76 FEET; THENCE S14°38'22"W, A DISTANCE OF 64.46 FEET; THENCE S07°13'51"E, A DISTANCE OF 74.26 FEET; THENCE S14°52'31"E, A DISTANCE OF 77.42 FEET; THENCE S45°24'06"E, A DISTANCE OF 52.03 FEET; THENCE S25°19'02"E, A DISTANCE OF 44.29 FEET; THENCE S67°44'07"E, A DISTANCE OF 61.25 FEET; THENCE S73°12'33"E, A DISTANCE OF 61.26 FEET; THENCE N78°24'47"E, A DISTANCE OF 51.82 FEET; THENCE N73°11'21"E, A DISTANCE OF 21.85 FEET; THENCE N48°09'46"E, A DISTANCE OF 14.01 FEET; THENCE N74°03'13"E, A DISTANCE OF 9.02 FEET; THENCE DEPARTING SAID EDGE OF WATER, S20°20'22"W, A DISTANCE OF 229.80 FEET TO THE SOUTHERLY EXTENSION OF LOT 4, 1ST SUBDIVSION OF HOWEY LAKE COUNTY-FLORIDA, AS RECORDED IN PLAT BOOK 5, PAGE 32, OF THE PUBLIC RECORDS OF LAKE COUNTY FLORIDA; THENCE ALONG SAID SOUTHERLY EXTENSION N89°27'06"W, A DISTANCE OF 40.90 FEET TO THE EAST LINE OF THE WESTERLY HALF OF VACATED SUNSET DRIVE, BEING A 60.00 FEET WIDE RIGHT OF WAY, PER AFOREMENTIONED PLAT; THENCE ALONG SAID EAST LINE THE FOLLOWING TWO (2) COURSES AND DISTANCES, N42°17'20"W, A DISTANCE OF 195.20 FEET TO A POINT ON A NON-TANGENT CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 381.97 FEET, A CENTRAL ANGLE OF 25°55'59", A CHORD BEARING OF N29°19'13"W AND A CHORD DISTANCE OF 171.42 FEET; THENCE RUN NORTHWESTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 172.89 FEET TO THE NORTHERLY EXTENSION OF LOT 2, OF SAID PLAT; THENCE DEPARTING SAID EAST LINE, RUN ALONG SAID NORTHERLY EXTENSION AND WEST LINE OF SAID LOT 2, S20°20'22"W, A DISTANCE OF 822.93 FEET TO THE SOUTH LINE OF LOT 1 OF SAID PLAT; THENCE DEPARTING SAID NORTHERLY EXTENSION, RUN ALONG SAID SOUTH LINE N89°20'05"W, A DISTANCE OF 197.81 FEET TO THE EAST LINE OF THE NORTHWEST 1/4 OF SECTION 2, TOWNSHIP 21 SOUTH, RANGE 25 EAST; THENCE ALONG SAID EAST LINE S00°08'47"W, A DISTANCE OF 708.36 FEET TO THE SOUTH LINE OF PARCEL 2 IN THE LANDS DESCRIBED IN OFFICIAL RECORDS BOOK 6350, PAGE 2174 OF THE PUBLIC RECORDS OF LAKE COUNTY, FLORIDA; THENCE ALONG SAID SOUTH LINE N89°35'48"W, A DISTANCE OF 1962.30 FEET TO THE WEST LINE OF SAID PARCEL 2; THENCE ALONG SAID WEST LINE N00°47'54"E, A DISTANCE OF 621.45 FEET TO THE SOUTH LINE OF PARCEL 1 IN THE LANDS DESCRIBED IN OFFICIAL RECORDS BOOK 6350, PAGE 2174 OF THE PUBLIC RECORDS OF LAKE COUNTY, FLORIDA; THENCE ALONG SAID SOUTH LINE N89°29'04"W, A DISTANCE OF 636.50 FEET TO THE EAST RIGHT OF WAY LINE OF SOUTH PALM AVENUE, BEING A 100.00 FOOT WIDE PUBLIC RIGHT OF WAY, PER FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP PROJECT NUMBER 1093; THENCE ALONG SAID EAST RIGHT OF WAY LINE N00°33'28"E, A DISTANCE OF 1183.80 FEET; THENCE DEPARTING SAID EAST RIGHT OF WAY LINE, N42°55'13"E, A DISTANCE OF 42.86 FEET TO THE SOUTH LINE OF A 60.00 FEET WIDE UNIMPROVED PLATTED RIGHT OF WAY, PER AFOREMENTIONED PLAT; THENCE ALONG SAID SOUTH RIGHT OF WAY LINE S89°08'55"E, A DISTANCE OF 1268.87 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE NORTHERLY HAVING A RADIUS OF 411.97 FEET, A CENTRAL ANGLE OF 34°40'00", A CHORD BEARING OF N73°31'05"E AND A CHORD DISTANCE OF 245.48 FEET; THENCE RUN EASTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 249.26 FEET TO THE END OF SAID CURVE; THENCE N56°11'05"E, A DISTANCE OF 301.36 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE SOUTHEASTERLY HAVING A RADIUS OF 351.97 FEET, A CENTRAL ANGLE OF 17°46'03", A CHORD BEARING OF N65°04'06"E AND A CHORD DISTANCE OF 108.71 FEET; THENCE RUN NORTHEASTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 109.15 FEET TO THE END OF SAID CURVE; THENCE S35°30'40"E, A DISTANCE OF 122.58 FEET; THENCE S54°30'56"E, A DISTANCE OF 113.57 FEET; THENCE S00°35'13"W, A DISTANCE OF 98.58 FEET TO THE NORTH LINE OF THE NORTHEAST 1/4 OF SECTION 2, TOWNSHIP 21 SOUTH, RANGE 25 EAST; THENCE ALONG SAID NORTH LINE S89°08'55"E, A DISTANCE OF 538.36 FEET TO THE POINT OF BEGINNING.
CONTAINING 4,956,856 SQUARE FEET OR 113.794 ACRES MORE OR LESS.
PART "B"
COMMENCE AT THE NORTHEAST CORNER OF SAID SECTION 2; THENCE RUN N89°08'55"W, A DISTANCE OF 1285.02 FEET; THENCE DEPARTING SAID NORTH LINE, N00°51'05"E, A DISTANCE OF 30.00 FEET TO THE NORTH LINE OF AN UNIMPROVED 60.00 FEET WIDE PLATTED RIGHT OF WAY PER AFOREMENTIONED PLAT ALSO BEING THE POINT OF BEGINNING; THENCE ALONG SAID NORTH RIGHT OF WAY LINE, N89°09'12"W, A DISTANCE OF 1221.80 FEET TO THE SOUTH RIGHT OF WAY LINE OF EAST REVELS ROAD TO A POINT ON A NON-TANGENT CURVE CONCAVE SOUTHEASTERLY HAVING A RADIUS OF 2235.35 FEET, A CENTRAL ANGLE OF 06°37'07", A CHORD BEARING OF N50°28'25"E AND A CHORD DISTANCE OF 258.07 FEET; THENCE RUN ALONG SAID SOUTH RIGHT OF WAY LINE THE FOLLOWING THREE (3) COURSES AND DISTANCES, RUN NORTHEASTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 258.22 FEET TO THE END OF SAID CURVE; THENCE N52°10'51"E, A DISTANCE OF 756.36 FEET TO A POINT ON A NON-TANGENT CURVE CONCAVE SOUTHEASTERLY HAVING A RADIUS OF 1850.43 FEET, A CENTRAL ANGLE OF 19°46'08", A CHORD BEARING OF N62°00'44"E AND A CHORD DISTANCE OF 635.30 FEET; THENCE RUN NORTHEASTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 638.46 FEET TO THE EAST LINE OF LOT 12 OF AFOREMENTIONED PLAT AND THE END OF SAID CURVE; THENCE ALONG SAID EAST LINE, S00°45'05"W, A DISTANCE OF 777.68 FEET; THENCE N89°52'33"E, A DISTANCE OF 236.06 FEET TO THE NORTH LINE OF SAID 60.00 FEET WIDE UNIMPROVED PLATTED RIGHT OF WAY, THENCE ALONG SAID NORTH RIGHT OF WAY LINE THE FOLLOWING TWO (2) COURSES AND DISTANCES, S56°11'05"W, A DISTANCE OF 193.37 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE NORTHERLY HAVING A RADIUS OF 351.97 FEET, A CENTRAL ANGLE OF 34°40'00", A CHORD BEARING OF S73°31'05"W AND A CHORD DISTANCE OF 209.73 FEET; THENCE RUN WESTERLY ALONG THE ARC OF SAID CURVE, A DISTANCE OF 212.96 FEET TO THE END OF SAID CURVE TO THE POINT OF BEGINNING.
CONTAINING 729,514 SQUARE FEET OR 16.747 ACRES MORE OR LESS.

PREPARED BY:

902 NORTH SINCLAIR AVE.
TAVARES, FL 34788
TEL. 352-343-8481
www.halff.com

SURVEYED DATE:
MARCH 31, 2025

BENCHMARK(S):
#1 DEWBERRY TRAV PT LB8011 (SET IRON ROD AND CAP)
N: 158216.98'
E: 406618.29'
ELEVATION: 127.26'

#2 DEWBERRY TRAV PT LB8011 (SET IRON ROD AND CAP)
N: 1585285.78'
E: 407988.28'
ELEVATION: 101.04'

NOTES
1. INTENDED PLAN SIZE IS 24" x 36"
2. VERTICAL DATUM IS NAVD 88

Know what's below. Call before you dig.

THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING SIZE, TYPE AND LOCATION OF UNDERGROUND, SURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE "SUNSHINE 811" SYSTEM AT 1-800-432-4770 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION FOR EXISTING UTILITY LOCATIONS. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY CONSTRUCTION FOR THIS PROJECT IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES TO THE UTILITY COMPANY'S APPROVAL AT THE EXPENSE OF THE CONTRACTOR.

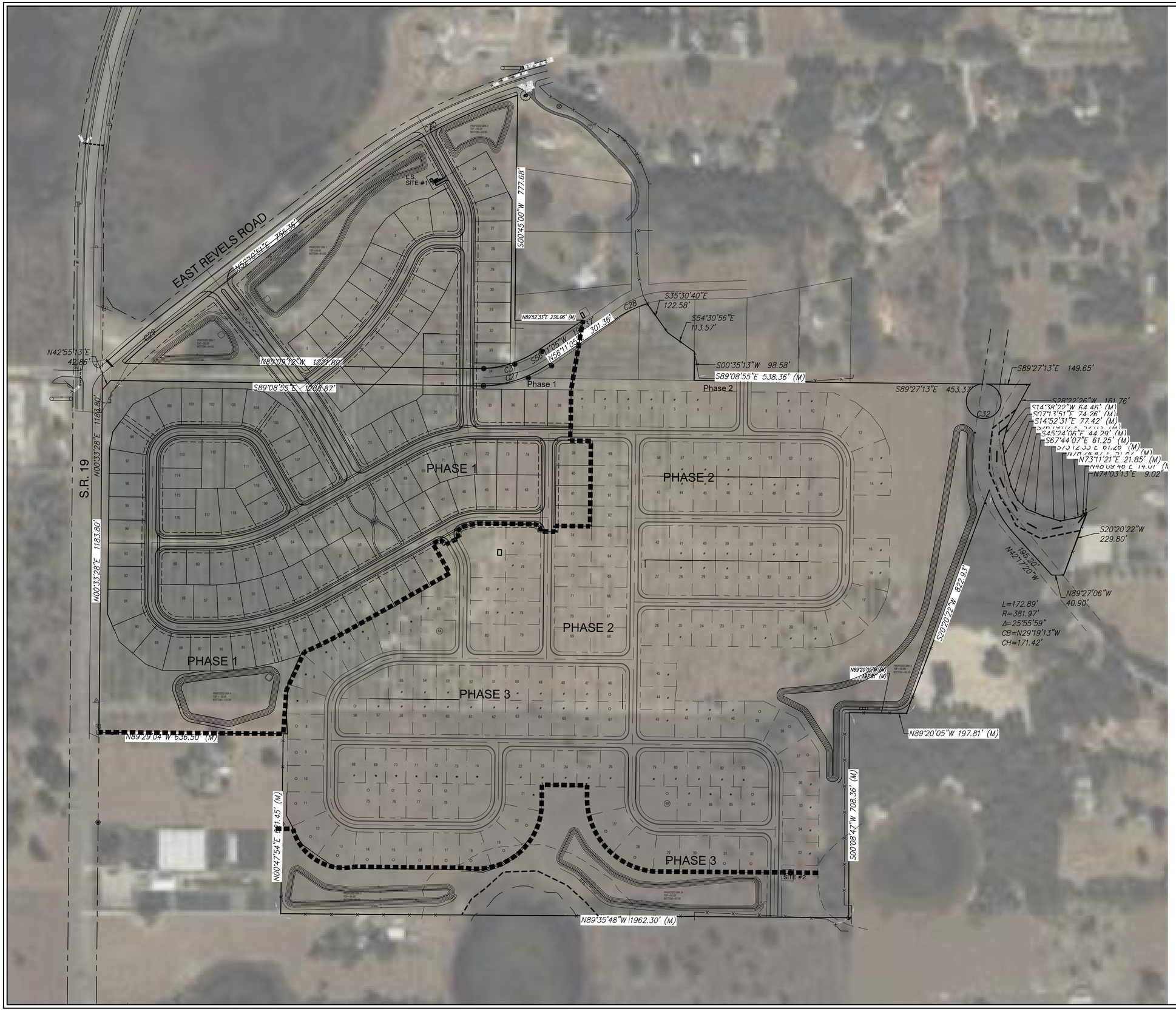
BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER
7/29/25

ORIGINAL DOCUMENT SIZE 24"x36"
0 1 2 3 4 5
(INCHES)

AVO: 45548.003 DATE: JULY 2025

C-100

FILE NAME: A:\45000s\45548\003\LDCADD\C100 WATERMARK COVER SHEET.dwg DATE: July 29, 2025, TIME: 8:26 AM, USER: ah5122



WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE
ANAHEIM, CA 92806
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION
NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

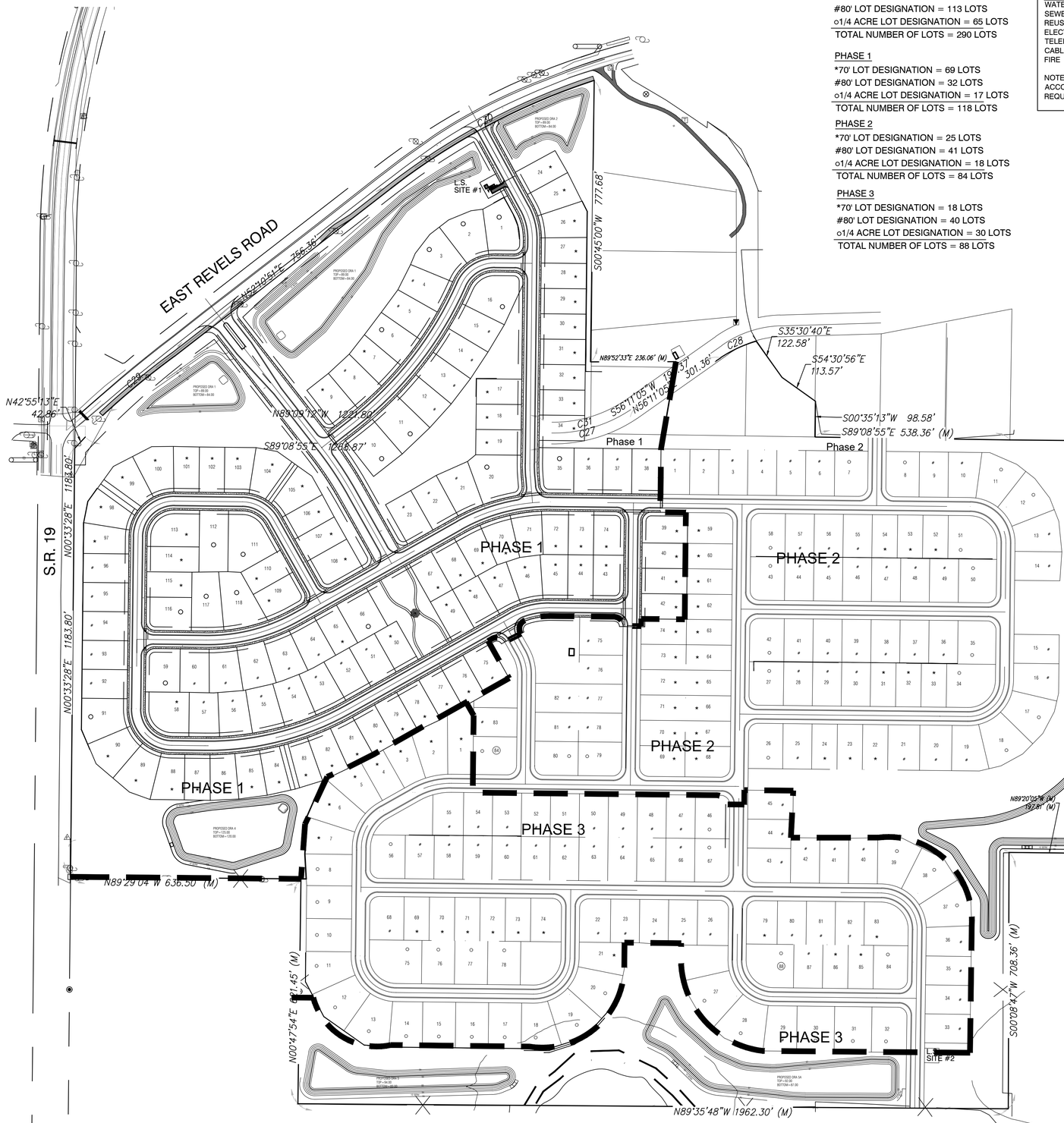
PROJECT NO.:	045548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 150'

SHEET TITLE:

AERIAL PLAN

C-101

FILE NAME: A:\45000s\45548\003\LDI\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 28, 2025, TIME: 4:11 PM, USER: ah5122



LEGEND
*70' LOT DESIGNATION = 112 LOTS
#80' LOT DESIGNATION = 113 LOTS
○1/4 ACRE LOT DESIGNATION = 65 LOTS
TOTAL NUMBER OF LOTS = 290 LOTS

PHASE 1
*70' LOT DESIGNATION = 69 LOTS
#80' LOT DESIGNATION = 32 LOTS
○1/4 ACRE LOT DESIGNATION = 17 LOTS
TOTAL NUMBER OF LOTS = 118 LOTS

PHASE 2
*70' LOT DESIGNATION = 25 LOTS
#80' LOT DESIGNATION = 41 LOTS
○1/4 ACRE LOT DESIGNATION = 18 LOTS
TOTAL NUMBER OF LOTS = 84 LOTS

PHASE 3
*70' LOT DESIGNATION = 18 LOTS
#80' LOT DESIGNATION = 40 LOTS
○1/4 ACRE LOT DESIGNATION = 30 LOTS
TOTAL NUMBER OF LOTS = 88 LOTS

UTILITIES	PROVIDER
WATER	TOWN OF HOWEY
SEWER	CENTRAL LAKE UTILITIES
REUSE	EXISTING WELL
ELECTRICAL	DUKE
TELEPHONE	CENTURY LINK
CABLE	XFINITY
FIRE	LAKE COUNTY

NOTE: STORMWATER MANAGEMENT TO BE IN ACCORDANCE WITH SJRWMD & TOWN OF HOWEY REQUIREMENTS.

0 70' 150' 150'
SCALE IN FEET

LEGEND:
MASTER PLAN PHASE LINE
100 YEAR FLOOD LINE
PROPOSED CONCRETE SIDEWALK

PROJECT SUMMARY

EXISTING ZONING	PUD
FUTURE LAND USE	MDR- MEDIUM DENSITY RESIDENTIAL
TOTAL PROJECT AREA	130.54 ± ACRES
TOTAL WETLAND AREA	1.16 ± ACRES
TOTAL UPLAND AREA	129.38 ± ACRES
TOTAL NUMBER OF LOTS	290
GROSS DENSITY	2.24 Units/Acre

NOTES:
1. ALL R.O.W. RADIUS ARE 25 FT., UNLESS OTHERWISE NOTED.
2. ALL R.O.W. WIDTHS ARE 50 FT., UNLESS OTHERWISE NOTED.
3. ALL E.O.P. CORNER RADIUS ARE 35 FT., UNLESS OTHERWISE NOTED.
4. ALL CUL-DE-SAC R.O.W. RADIUS ARE 70 FT., UNLESS OTHERWISE NOTED.
5. STORM-WATER MANAGEMENT SYSTEM IS TO BE OWNED AND MAINTAINED BY HOMEOWNER'S ASSOCIATION.
6. ALL STREETS AND RIGHT OF WAYS ARE TO BE DEDICATED TO THE TOWN OF HOWEY AND SHALL BE SHOWN ON THE FINAL PLATS.
7. ALL IMPROVEMENTS SHALL COMPLY WITH THE TOWN OF HOWEY LAND DEVELOPMENT CODE AND SPECIFICATIONS.
8. SIDEWALKS WITHIN COMMON AREA TO BE INSTALLED AT TIME OF SITE CONSTRUCTION.
9. ALL GRADING AND POND DESIGN NO GREATER THAN 4:1 SLOPE.
10. ANY FIELD CHANGES OR DEVIATIONS FROM DESIGN SHALL BE SUBMITTED TO THE TOWN OF HOWEY FOR REVIEW AND APPROVAL BY THE ENGINEER OF RECORD AND THE OWNER/DEVELOPER.

APPARENT ERRORS, DISCREPANCIES, OR OMISSIONS SHALL BE BROUGHT TO THE ENGINEER OF RECORD'S ATTENTION WITHIN A REASONABLE TIME FRAME, LESS THAN 48 HOURS AFTER DISCOVERED. ADVANTAGE WILL NOT BE TAKEN OF APPARENT ERROR OR OMISSION IN THE DRAWINGS OR SPECIFICATIONS, AND THE ENGINEER SHALL BE PERMITTED TO MAKE CORRECTIONS AND INTERPRETATIONS AS MAY BE DEEMED NECESSARY FOR FULFILLMENT OF THE INTENT OF THE DESIGN.

CONTRACTOR SHALL PROVIDE AND PERFORM A 2 WEEK LOOK AHEAD INTO THE UTILITY WORK TO BE PERFORMED. THIS SHALL INCLUDE THE VERIFICATION OF EXISTING UTILITIES, BOTH HORIZONTAL AND VERTICAL POSITIONING, MATCHES WHAT IS SHOWN IN THE CONTRACT DOCUMENTS AND ANY NEW UTILITIES THAT ARE DISCOVERED DURING THIS LOOK AHEAD. INFORMATION OF CONFLICTS OR DISCREPANCIES WITH THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE ENGINEER OF RECORD NO LESS THAN 1 WEEK PRIOR TO COMMENCEMENT OF WORK WITHIN SAID CONFLICT AREA. ENGINEER OF RECORD SHALL BE ALLOWED AMPLE TIME TO ADDRESS CONFLICTS/ISSUES AND PROVIDE ADJUSTMENTS TO THE DESIGN TO ADDRESS CONCERNS WITHOUT CONTRACTOR REQUESTING TIME DELAYS.

WATERMARK PH.1 & MASTER GRADING PLANS
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LAKE COUNTY

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WWW.HALFF.COM
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

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HALFF ASSOCIATES, INC.

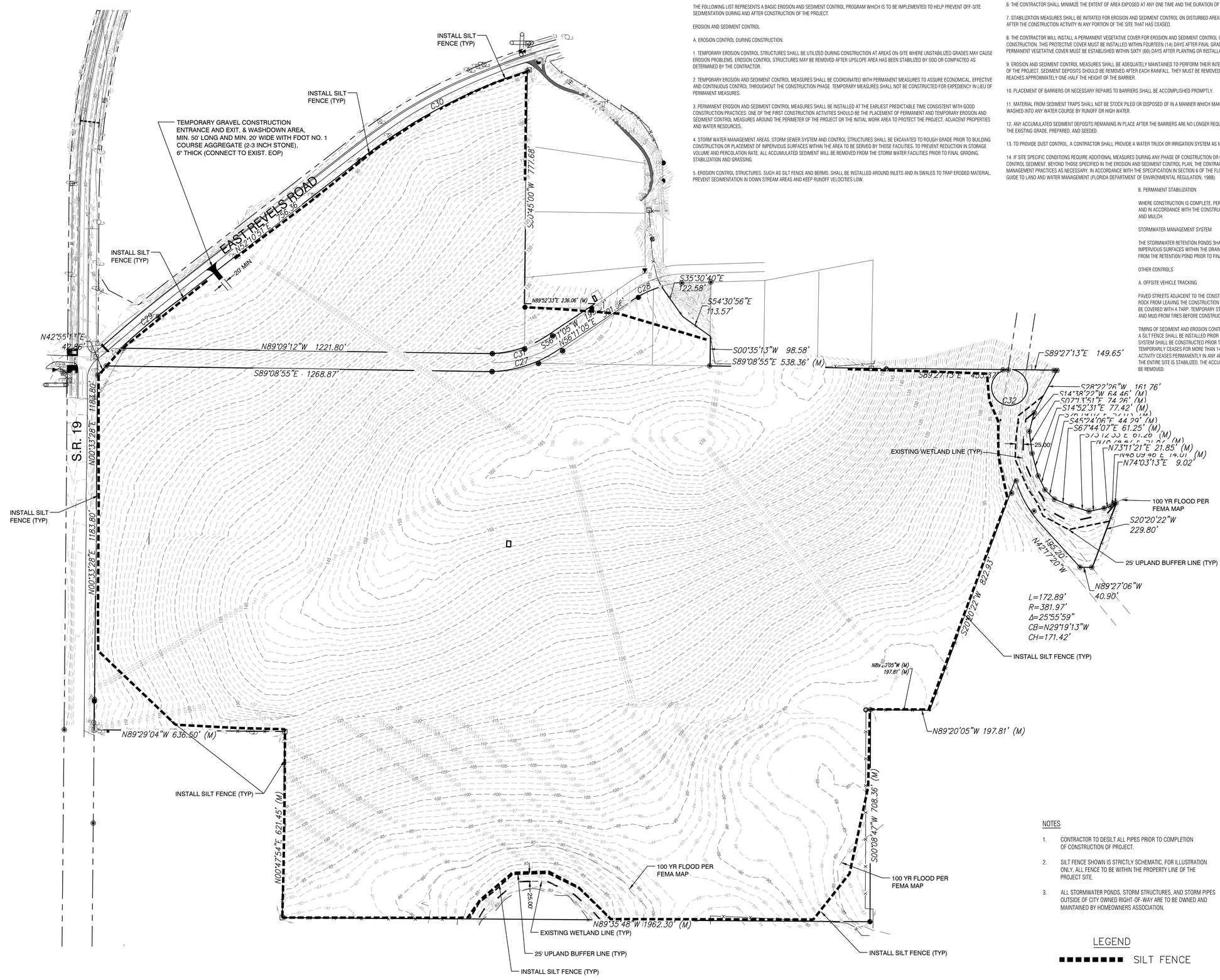
HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 150'

SHEET TITLE:
MASTER PLAN

C-102

FILE NAME: A:\45000s\45548\003\LDCADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 10:12 AM, USER: ah5122



EROSION AND SEDIMENT CONTROL NOTES:

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

EROSION AND SEDIMENT CONTROL

A. EROSION CONTROL DURING CONSTRUCTION.

1. TEMPORARY EROSION CONTROL STRUCTURES SHALL BE UTILIZED DURING CONSTRUCTION AT AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURES MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD OR COMPACTED AS DETERMINED BY THE CONTRACTOR.

2. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

3. PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PREDICTABLE TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

4. STORM WATER MANAGEMENT AREAS, STORM SEWER SYSTEM AND CONTROL STRUCTURES SHALL BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACES WITHIN THE AREA TO BE SERVED BY THOSE FACILITIES. TO PREVENT REDUCTION IN STORAGE VOLUME AND PERCOLATION RATE. ALL ACCUMULATED SEDIMENT WILL BE REMOVED FROM THE STORM WATER FACILITIES PRIOR TO FINAL GRADING, STABILIZATION AND GRASSING.

5. EROSION CONTROL STRUCTURES, SUCH AS SILT FENCE AND BERMS, SHALL BE INSTALLED AROUND INLETS AND IN SWALES TO TRAP ERODED MATERIAL, PREVENT SEDIMENTATION IN DOWN STREAM AREAS AND KEEP RUNOFF VELOCITIES LOW.

6. THE CONTRACTOR SHALL MINIMIZE THE EXTENT OF AREA EXPOSED AT ANY ONE TIME AND THE DURATION OF EXPOSURE.

7. STABILIZATION MEASURES SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS NO MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN ANY PORTION OF THE SITE THAT HAS CEASED.

8. THE CONTRACTOR WILL INSTALL A PERMANENT VEGETATIVE COVER FOR EROSION AND SEDIMENT CONTROL ON ALL LAND SURFACES DISTURBED BY CONSTRUCTION. THIS PROTECTIVE COVER MUST BE INSTALLED WITHIN FOURTEEN (14) DAYS AFTER FINAL GRADING OF THE EFFECTED LAND SURFACES. A PERMANENT VEGETATIVE COVER MUST BE ESTABLISHED WITHIN SIXTY (60) DAYS AFTER PLANTING OR INSTALLATION.

9. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

10. PLACEMENT OF BARRIERS OR NECESSARY REPAIRS TO BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

11. MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCK PILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATER COURSE BY RUNOFF OR HIGH WATER.

12. ANY ACCUMULATED SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED, AND SEEDED.

13. TO PROVIDE DUST CONTROL, A CONTRACTOR SHALL PROVIDE A WATER TRUCK OR IRRIGATION SYSTEM AS NEEDED, TO MAINTAIN SOIL MOISTURE.

14. IF SITE SPECIFIC CONDITIONS REQUIRE ADDITIONAL MEASURES DURING ANY PHASE OF CONSTRUCTION OR OPERATION TO PREVENT EROSION OR CONTROL SEDIMENT, BEYOND THOSE SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN, THE CONTRACTOR MUST IMPLEMENT ADDITIONAL BEST MANAGEMENT PRACTICES AS NECESSARY, IN ACCORDANCE WITH THE SPECIFICATION IN SECTION 6 OF THE FLORIDA LAND DEVELOPMENT MANUAL: A GUIDE TO LAND AND WATER MANAGEMENT (FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, 1988).

B. PERMANENT STABILIZATION

WHERE CONSTRUCTION IS COMPLETE, PERMANENT VEGETATION SHALL BE INSTALLED AS SPECIFIED ON THE CONSTRUCTION PLANS AND IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATION DOCUMENTS. PERMANENT VEGETATION WILL INCLUDE SOD OR SEED AND MULCH.

STORMWATER MANAGEMENT SYSTEM

THE STORMWATER RETENTION PONDS SHALL BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACES WITHIN THE DRAINAGE AREA SERVED BY THIS FACILITY. ALL ACCUMULATED SEDIMENT MUST BE REMVOED FROM THE RETENTION POND PRIOR TO FINAL GRADING, STABILIZING AND GRASSING.

OTHER CONTROLS

A. OFFSITE VEHICLE TRACKING

PAVED STREETS ADJACENT TO THE CONSTRUCTION SITE ENTRANCE WILL BE SWEPT AS NEEDED TO PREVENT EXCESS MUD, DIRT OR ROCK FROM LEAVING THE CONSTRUCTION SITE. ALL DUMP TRUCKS HAULING MATERIAL TO AND FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARP. TEMPORARY STABILIZED OR ROCK CONSTRUCTION ENTRANCE MAY BE REQUIRE TO REMOVE EXCESS DIRT AND MUD FROM TIRES BEFORE CONSTRUCTION VEHICLES ENTER ADJACENT PAVED STREETS.

TIMING OF SEDIMENT AND EROSION CONTROL MEASURES:
A SILT FENCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. A RETENTION POND AND STORM WATER CONVEYANCE SYSTEM SHALL BE CONSTRUCTED PRIOR TO THE PLACEMENT OF ANY IMPERVIOUS AREA. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN 14 DAYS SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN ANY AREA, THAT AREA WILL BE STABILIZED WITH PERMANENT SEED AND MULCH OR SOD. AFTER THE ENTIRE SITE IS STABILIZED, THE ACCUMULATED SEDIMENT WITHIN ANY CATCH BASIN, STORM PIPES, OR RETENTION PONDS WILL BE REMOVED.

0 70' 150' 150'
SCALE IN FEET

NOTES

1. CONTRACTOR TO DESILT ALL PIPES PRIOR TO COMPLETION OF CONSTRUCTION OF PROJECT.
2. SILT FENCE SHOWN IS STRICTLY SCHEMATIC, FOR ILLUSTRATION ONLY, ALL FENCE TO BE WITHIN THE PROPERTY LINE OF THE PROJECT SITE.
3. ALL STORMWATER PONDS, STORM STRUCTURES, AND STORM PIPES OUTSIDE OF CITY OWNED RIGHT-OF-WAY ARE TO BE OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION.

NOTE : THE CONTRACTOR SHALL APPLY WITH AND OBTAIN NPDES PERMIT FROM THE FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION (FDEP).

TEMPORARY CONSTRUCTION ENTRANCE

1. THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. A GEOTEXTILE SHOULD BE LAID DOWN TO IMPROVE STABILITY AND SIMPLIFY MAINTENANCE. THE GRAVEL SHALL THEN BE PLACED OVER THE GEOTEXTILE TO THE SPECIFIED DIMENSIONS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF MUD ONTO PUBLIC ROADS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, OR TRACKED FROM VEHICLES ONTO ROADWAYS MUST BE REMOVED IMMEDIATELY. LOOK FOR SIGNS OF TRUCKS AND TRAILERED EQUIPMENT 'CUTTING CORNERS' WHERE THE GRAVEL MEETS THE ROADWAY. SWEEP THE PAVED ROAD DAILY FOR SEDIMENTS.

LEGEND

SILT FENCE

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

REVISION

NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

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HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 150'

SHEET TITLE:
EX. CONDITIONS & EROSION CONTROL PLAN

C-103

FILE NAME: A:\45000s\45548\003\LDV\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:54 AM, USER: ah5122

TYPICAL CORNER LOT SCHEME
NTS

TYPICAL LOT SCHEME
NTS

COMMON AREA TRACTS

TRACT	AREA	PURPOSE
A	316,670 SF. (7.27 AC)	LANDSCAPE/UTILITY/RECREATION/ DRAINAGE/RETAINING WALL/SIGNAGE OWNED & MAINTAINED BY H.O.A.
B	2,500 SF. (0.06 AC)	LIFT STATION- CENTRAL LAKE UTILITIES MAINTANED BY HOA (OUTSIDE OF FENCE)
C	189,839 SF. (4.36 AC)	LANDSCAPE/UTILITY/RECREATION/ DRAINAGE/RETAINING WALL/SIGNAGE OWNED & MAINTAINED BY H.O.A.
D	116,237 SF. (2.67 AC)	
E	65,899 SF. (1.51 AC)	LANDSCAPE/UTILITY/ SIGNAGE & DRAINAGE OWNED & MAINTAINED BY H.O.A.
F	29,350 SF. (0.67 AC)	



WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
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CERTIFICATE OF AUTHORIZATION NUMBER: 33380

REVISION		
NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

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HALFF ASSOCIATES, INC. FL
FIRM OR BUSINESS NO. STATE

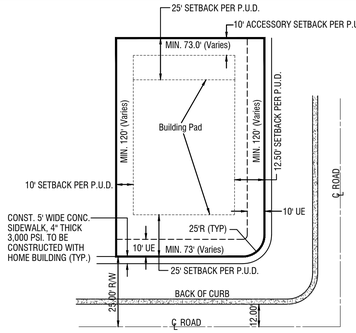
PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 60'
SHEET TITLE:	PRELIMINARY PLAT

C-200

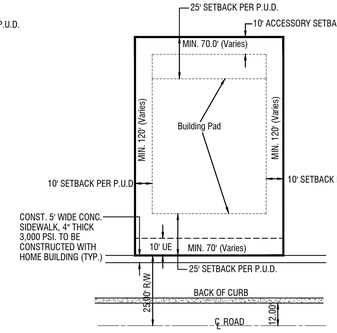
FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:54 AM, USER: ah5122

COMMON AREA TRACTS

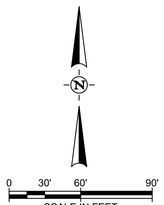
TRACT	AREA	PURPOSE
A	316,670 SF. (7.27 AC)	LANDSCAPE/UTILITY/RECREATION/ DRAINAGE/RETAINING WALL/SIGNAGE OWNED & MAINTAINED BY H.O.A.
B	2,500 SF. (0.06 AC)	LIFT STATION- CENTRAL LAKE UTILITIES MAINTANED BY HOA (OUTSIDE OF FENCE)
C	189,839 SF. (4.36 AC)	LANDSCAPE/UTILITY/RECREATION/ DRAINAGE/RETAINING WALL/SIGNAGE OWNED & MAINTAINED BY H.O.A.
D	116,237 SF. (2.67 AC)	
E	65,899 SF. (1.51 AC)	LANDSCAPE/UTILITY/PARK SIGNAGE & DRAINAGE OWNED & MAINTAINED BY H.O.A.
F	29,350 SF. (0.67 AC)	



TYPICAL CORNER LOT SCHEME
NTS



TYPICAL LOT SCHEME
NTS





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HALFF ASSOCIATES, INC.

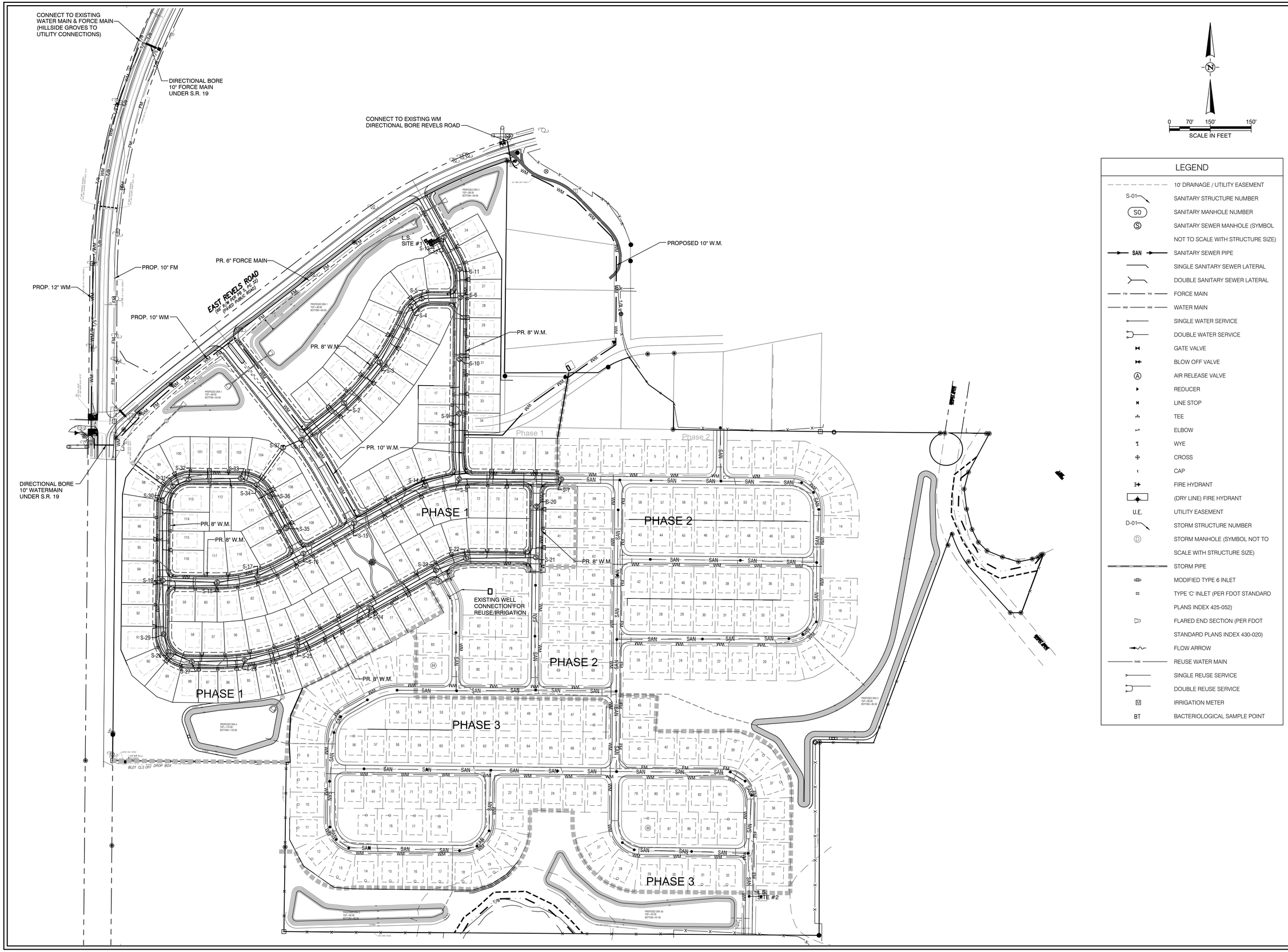
HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 60'

SHEET TITLE:
PRELIMINARY PLAT

C-201

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:54 AM, USER: ah5122



LEGEND

	10' DRAINAGE / UTILITY EASEMENT
S-01	SANITARY STRUCTURE NUMBER
SO	SANITARY MANHOLE NUMBER
S	SANITARY SEWER MANHOLE (SYMBOL NOT TO SCALE WITH STRUCTURE SIZE)
SAN	SANITARY SEWER PIPE
	SINGLE SANITARY SEWER LATERAL
	DOUBLE SANITARY SEWER LATERAL
FM	FORCE MAIN
WM	WATER MAIN
	SINGLE WATER SERVICE
	DOUBLE WATER SERVICE
	GATE VALVE
	BLOW OFF VALVE
A	AIR RELEASE VALVE
	REDUCER
	LINE STOP
	TEE
	ELBOW
	WYE
	CROSS
	CAP
	FIRE HYDRANT
	(DRY LINE) FIRE HYDRANT
U.E.	UTILITY EASEMENT
D-01	STORM STRUCTURE NUMBER
D	STORM MANHOLE (SYMBOL NOT TO SCALE WITH STRUCTURE SIZE)
	STORM PIPE
	MODIFIED TYPE 6 INLET
	TYPE 'C' INLET (PER FDOT STANDARD PLANS INDEX 425-052)
	FLARED END SECTION (PER FDOT STANDARD PLANS INDEX 430-020)
	FLOW ARROW
RWM	REUSE WATER MAIN
	SINGLE REUSE SERVICE
	DOUBLE REUSE SERVICE
M	IRRIGATION METER
BT	BACTERIOLOGICAL SAMPLE POINT

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL. (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33380

REVISION		
NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

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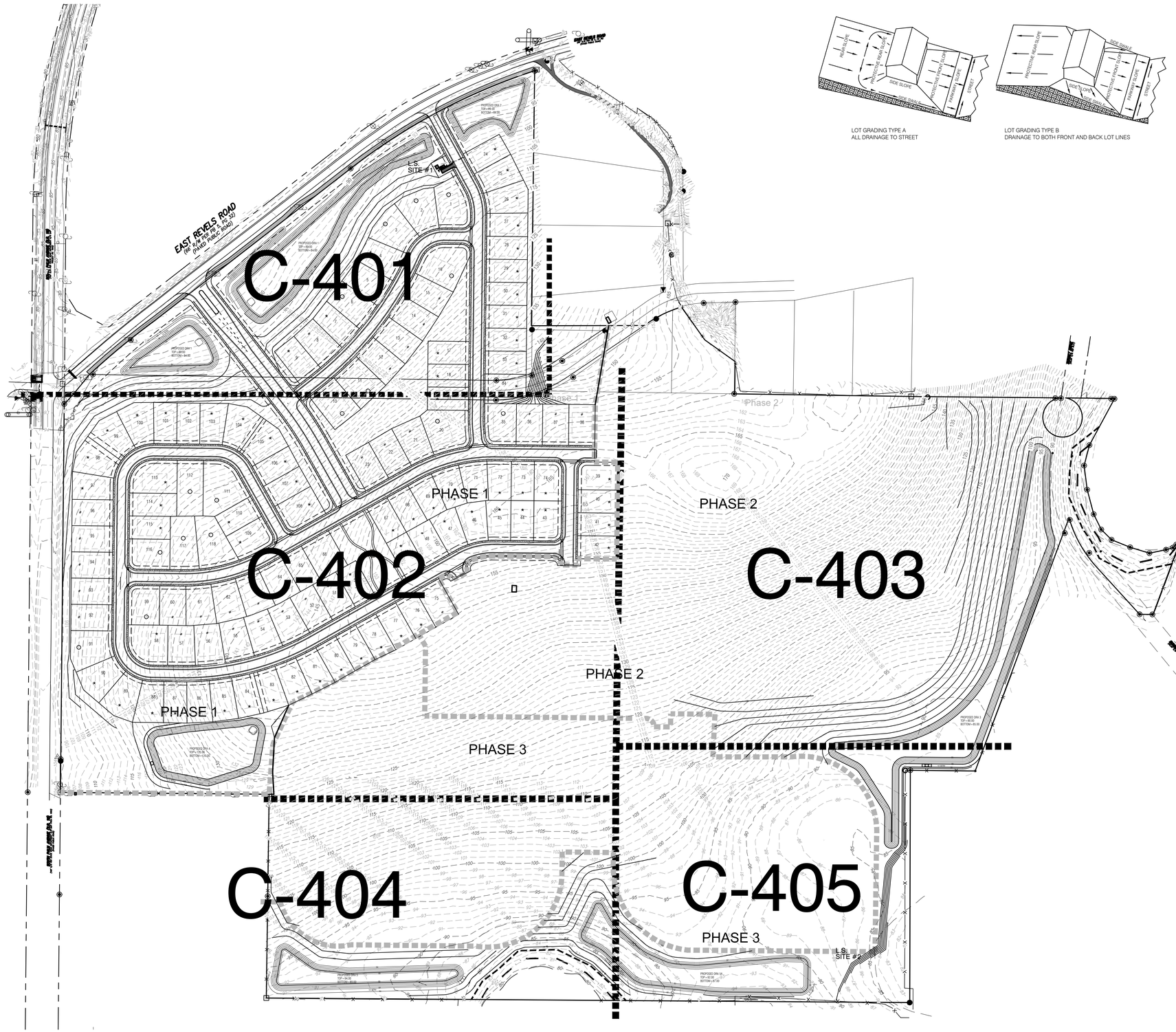
PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 150'
SHEET TITLE:	MASTER UTILITY PLAN

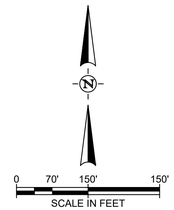
C-300

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:54 AM, USER: ah5122



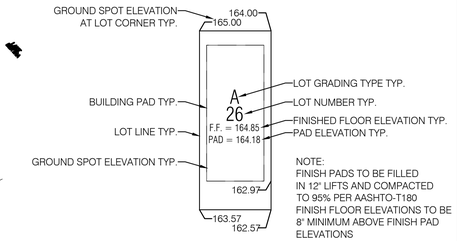
LOT GRADING TYPE A
ALL DRAINAGE TO STREET

LOT GRADING TYPE B
DRAINAGE TO BOTH FRONT AND BACK LOT LINES



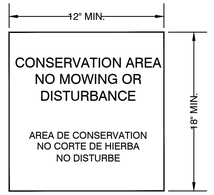
LEGEND

172.40	PROPOSED SPOT GRADE
150	EXISTING CONTOUR
165	PROPOSED CONTOUR
	RIGHT-OF-WAY LINE
	DRAINAGE/UTILITY EASEMENT
A	LOT GRADING TYPE
32	LOT NUMBER
F.F. = 170.70	FINISHED FLOOR ELEVATION
PAD = 170.03	BUILDING PAD ELEVATION



NOTE:
FINISH PADS TO BE FILLED IN 12" LIFTS AND COMPACTED TO 95% PER AASHTO-T180
FINISH FLOOR ELEVATIONS TO BE 8" MINIMUM ABOVE FINISH PAD ELEVATIONS

NOTE:
ALL SWALES TO BE STABILIZED WITH SOD.



CONSERVATION AREA SIGN DETAIL

●-DENOTES CONSERVATION SIGN LOCATION

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
Kissimmee, FL 34741

halff
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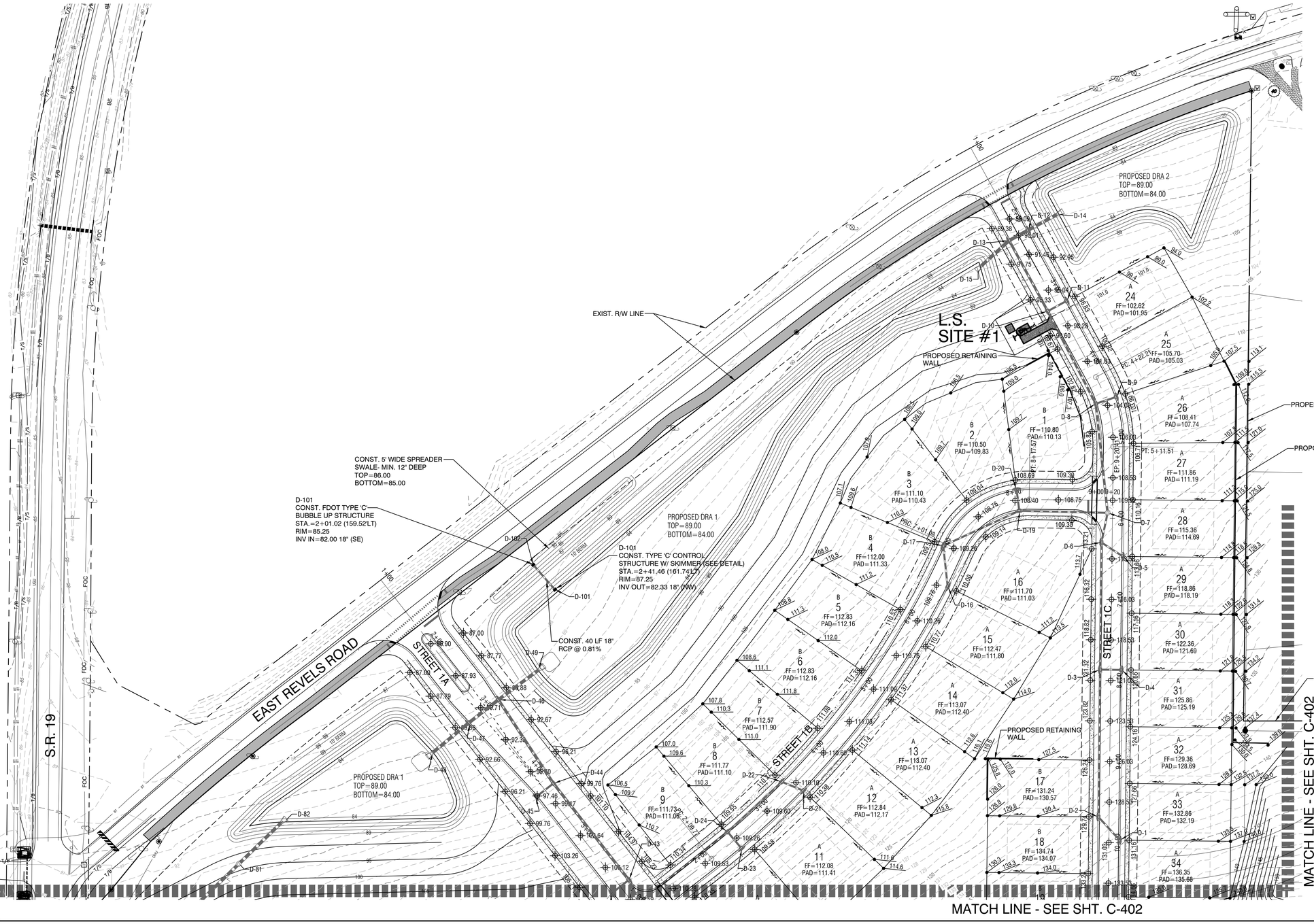
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 150'

SHEET TITLE:

MASTER GRADING PLAN KEY MAP

C-400

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:54 AM, USER: ab5122



WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
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PROJECT NO.:	045548
ISSUED:	JULY 2025
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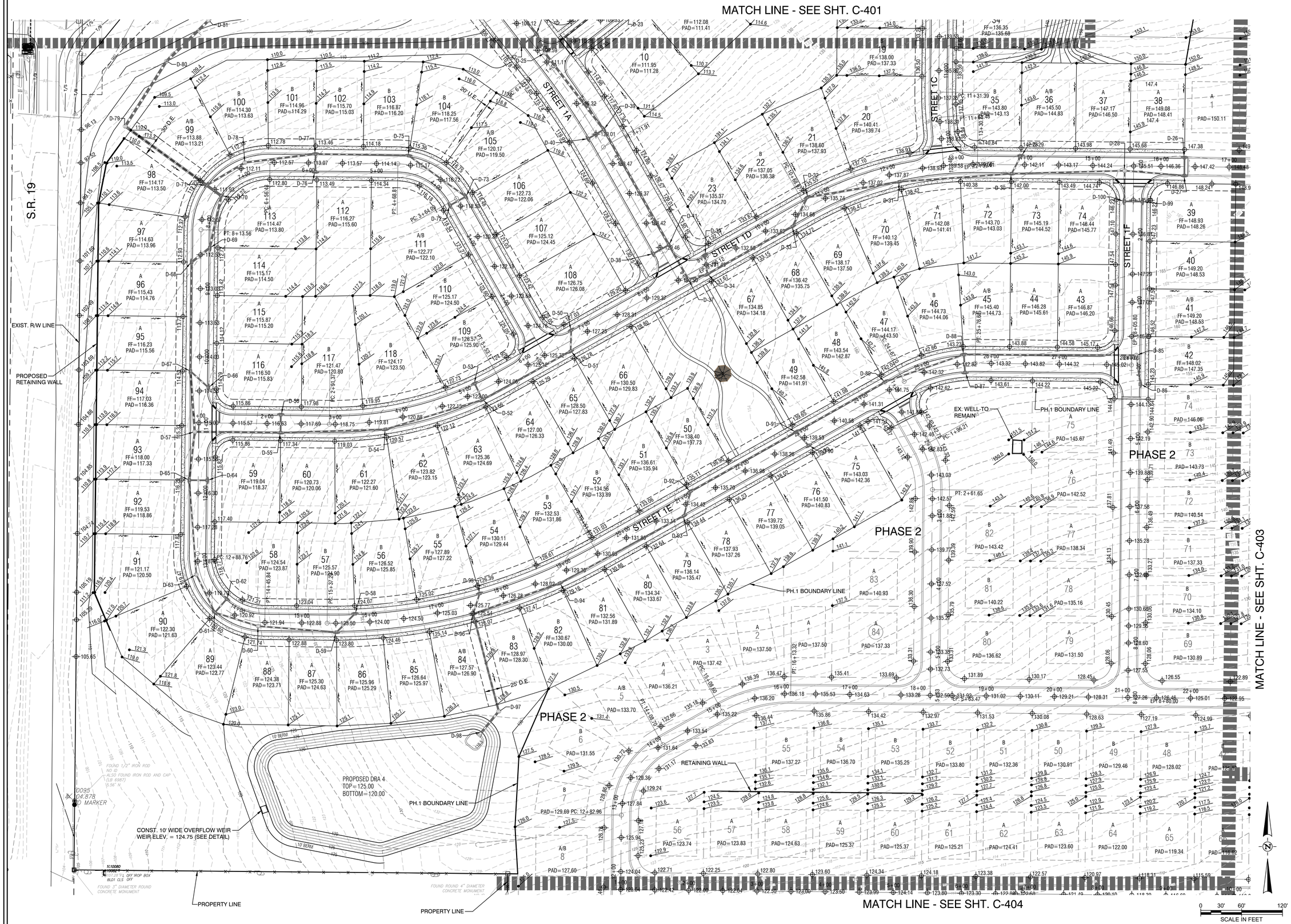
CHECKED BY:	BJT
SCALE:	1" = 60'

SHEET TITLE:

GRADING PLAN

C-401

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:55 AM, USER: ah5122



WATERMARK PH.1 & MASTER GRADING PLANS

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PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 60'
SHEET TITLE:	GRADING PLAN

C-402

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:55 AM, USER: ah5122

PHASE 2

PROPERTY LINE

RETAINING WALL

MATCH LINE - SEE SHT. C-402

MATCH LINE - SEE SHT. C-405

PROPOSED DRA 3
TOP=90.00
BOTTOM=85.00

10' BERM

INSTALL CONSERVATION EASEMENT SIGN (TYP) SEE SIGN DETAIL.

WETLAND LINE (TYP)

25' UPLAND BUFFER (TYP)

WETLAND W-1 LINE TABLE		
LINE	BEARING	LENGTH
L1	S39°51'29"W	49.26'
L2	S78°23'37"W	125.92'
L3	N61°51'05"W	79.22'
L4	N25°28'13"W	50.30'
L5	N33°50'55"W	47.65'
L6	N23°21'09"W	98.03'
L7	N01°53'59"E	63.59'
L8	N07°03'54"E	66.65'
L9	N51°34'21"E	35.50'

0 30' 60' 120'
SCALE IN FEET

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

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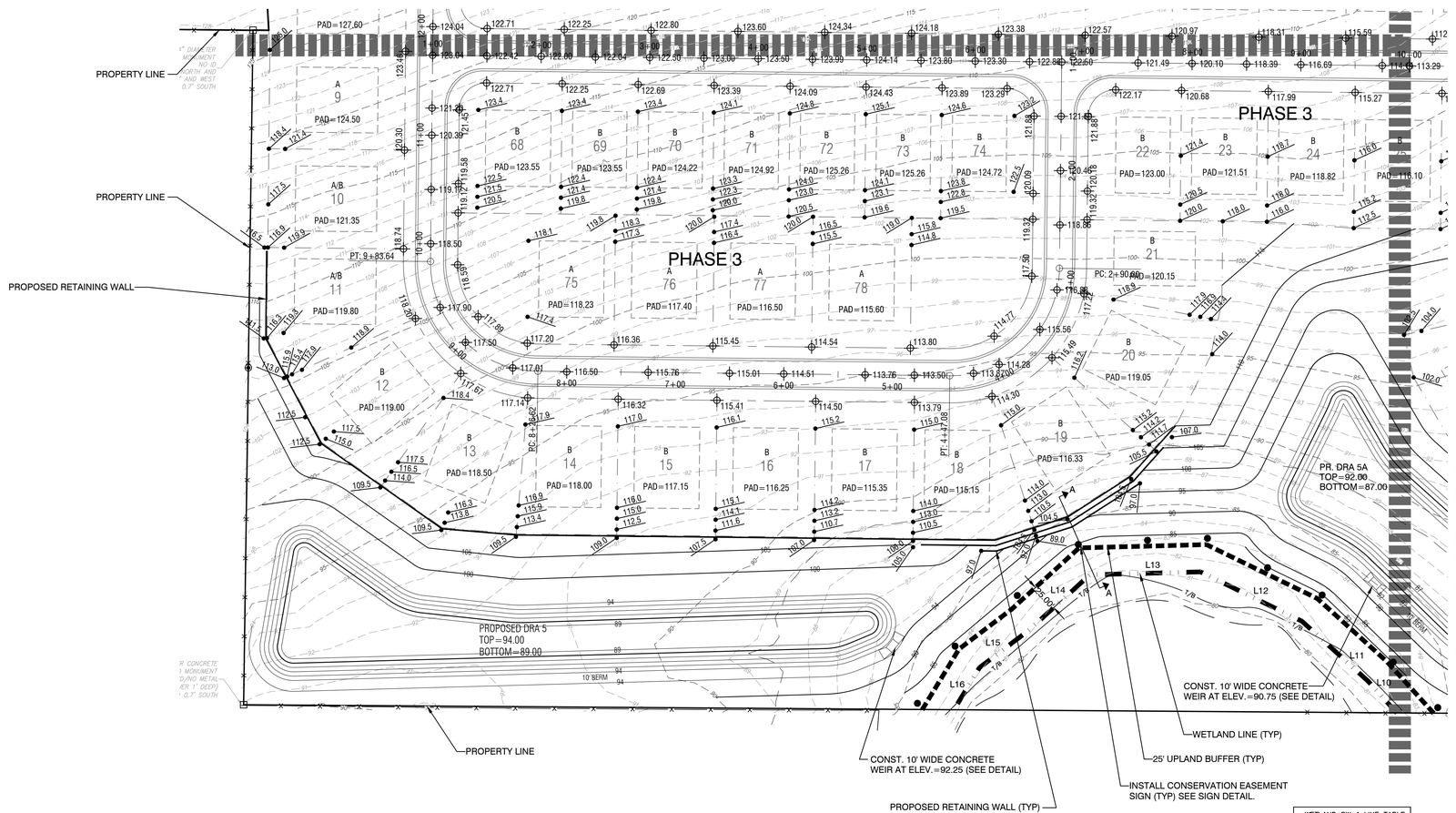
CHECKED BY:	BJT
SCALE:	1" = 60'

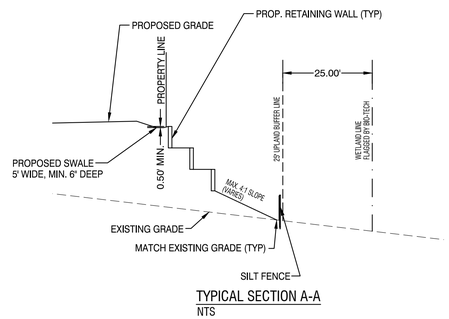
SHEET TITLE:

GRADING PLAN

C-403

FILE NAME: A:\45000s\45548\003\LDI\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:55 AM, USER: ahi5122





TYPICAL SECTION A-A
NTS

WETLAND SW-1 LINE TABLE		
LINE	BEARING	LENGTH
L10	N42°10'28"W	39.52'
L11	N47°49'32"W	82.08'
L12	N64°04'07"W	103.94'
L13	S88°29'24"W	101.97'
L14	S47°43'56"W	75.76'
L15	S52°52'52"W	57.16'
L16	S31°18'24"W	45.46'

0 30' 60' 120'
SCALE IN FEET

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

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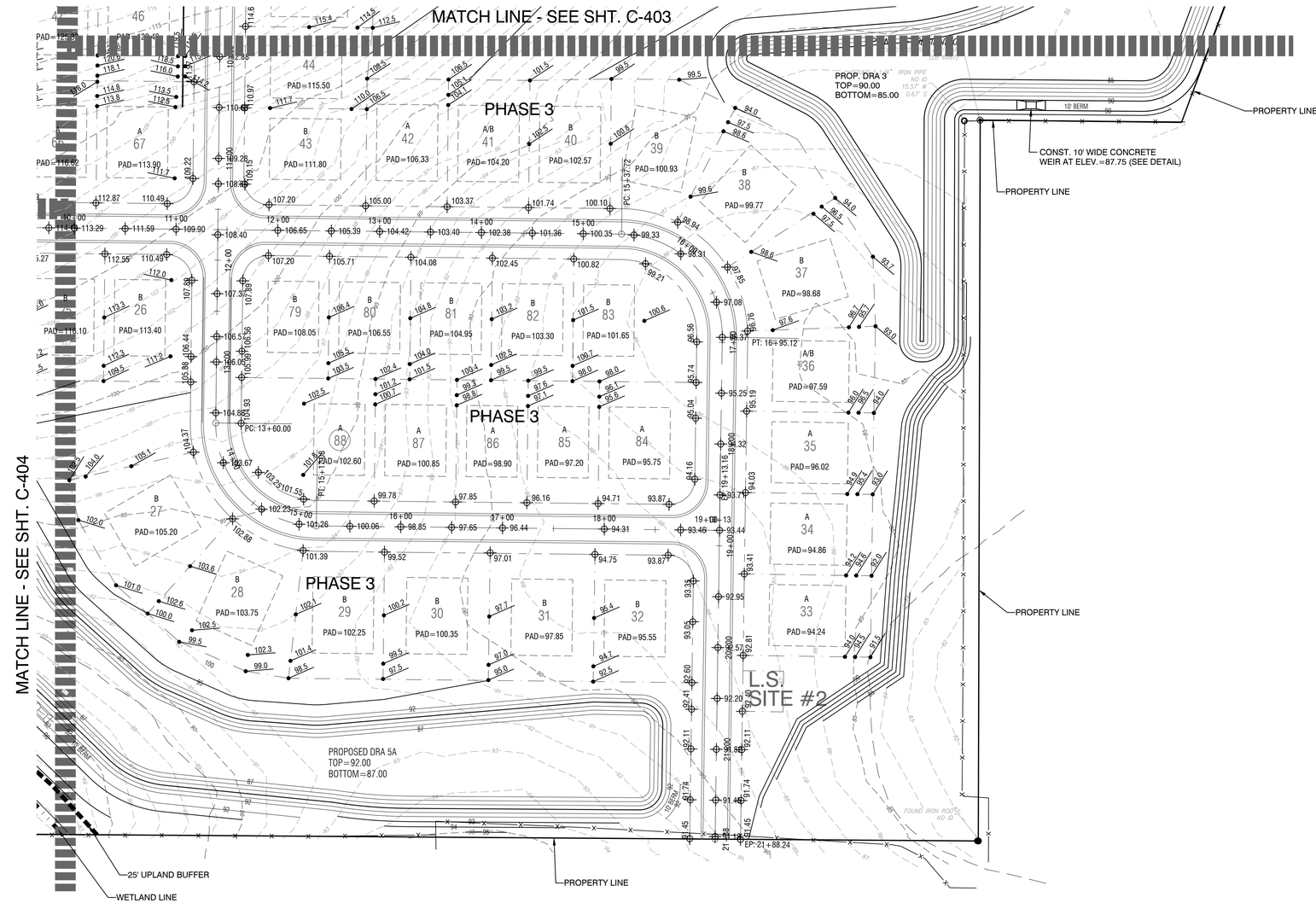
SCALE:	1" = 60'

SHEET TITLE:

GRADING PLAN

C-404

FILE NAME: A:\45000s\45548003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:55 AM, USER: ah5122



WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
ANAHEIM, CALIFORNIA 92806
TEL: (352) 343-8481
WWW.HALFF.COM
CERTIFICATE OF AUTHORIZATION
NUMBER: 33360

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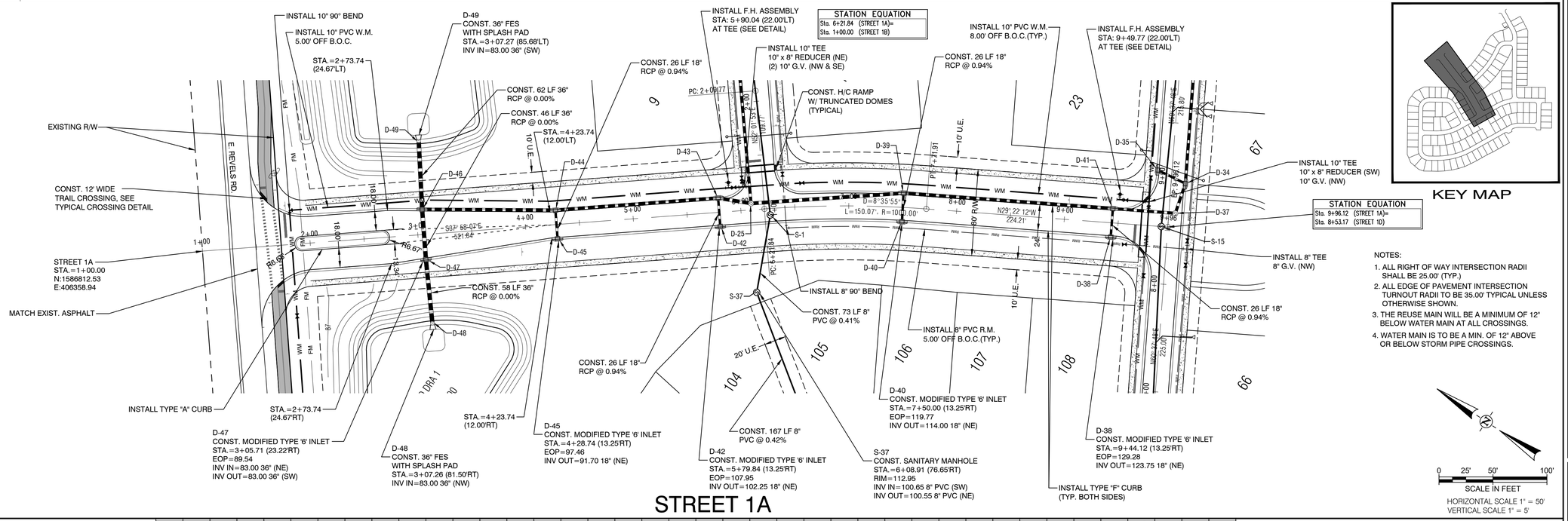
SCALE:	1" = 60'

SHEET TITLE:

GRADING PLAN

C-405

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:55 AM, USER: ah5122



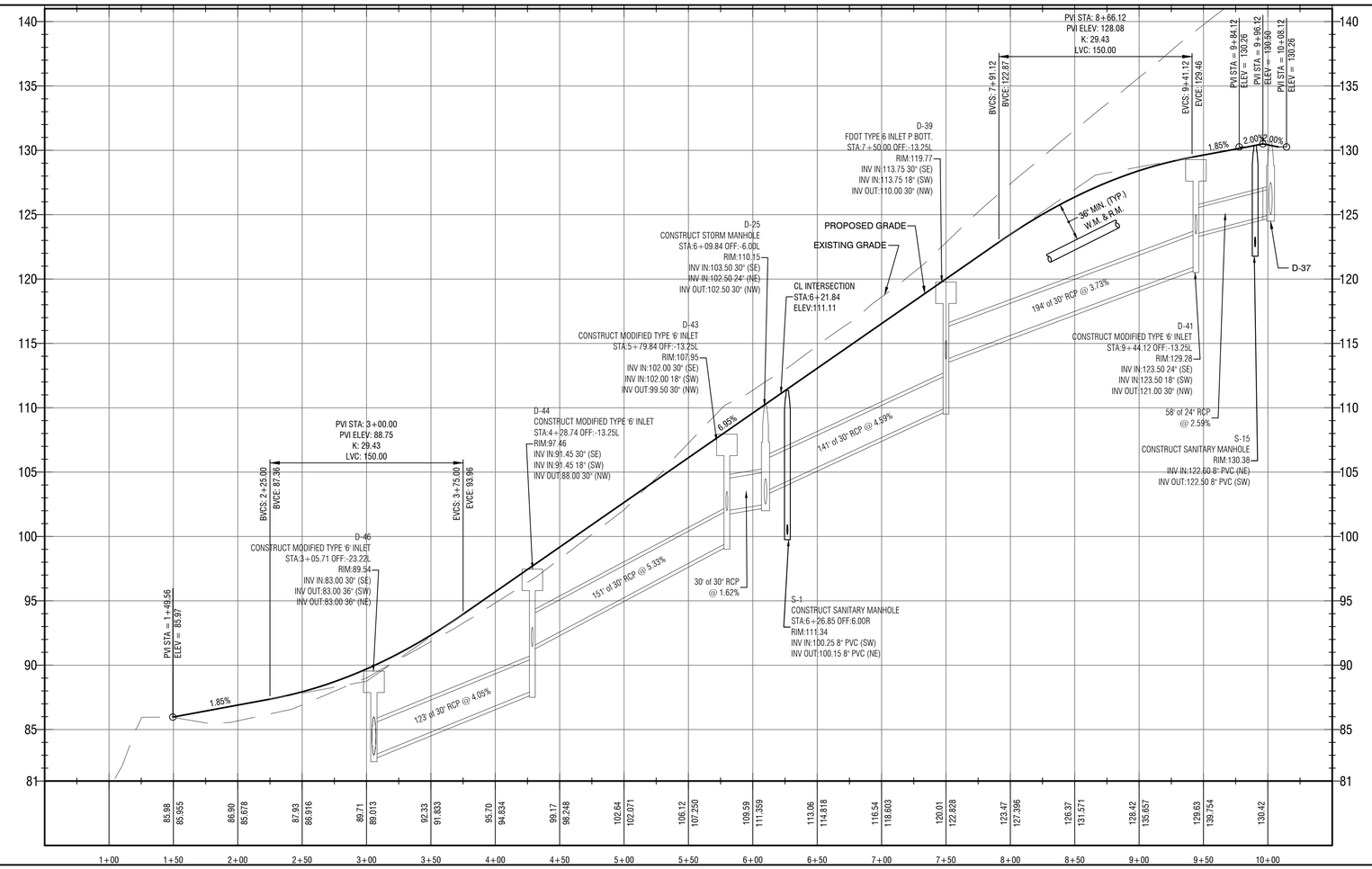
KEY MAP

NOTES:

1. ALL RIGHT OF WAY INTERSECTION RADII SHALL BE 25.00' (TYP.)
2. ALL EDGE OF PAVEMENT INTERSECTION TURNOUT RADII TO BE 35.00' TYPICAL UNLESS OTHERWISE SHOWN.
3. THE REUSE MAIN WILL BE A MINIMUM OF 12" BELOW WATER MAIN AT ALL CROSSINGS.
4. WATER MAIN IS TO BE A MIN. OF 12" ABOVE OR BELOW STORM PIPE CROSSINGS.

0 25' 50' 100'
SCALE IN FEET
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

STREET 1A



halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
FAX: (407) 423-0720
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

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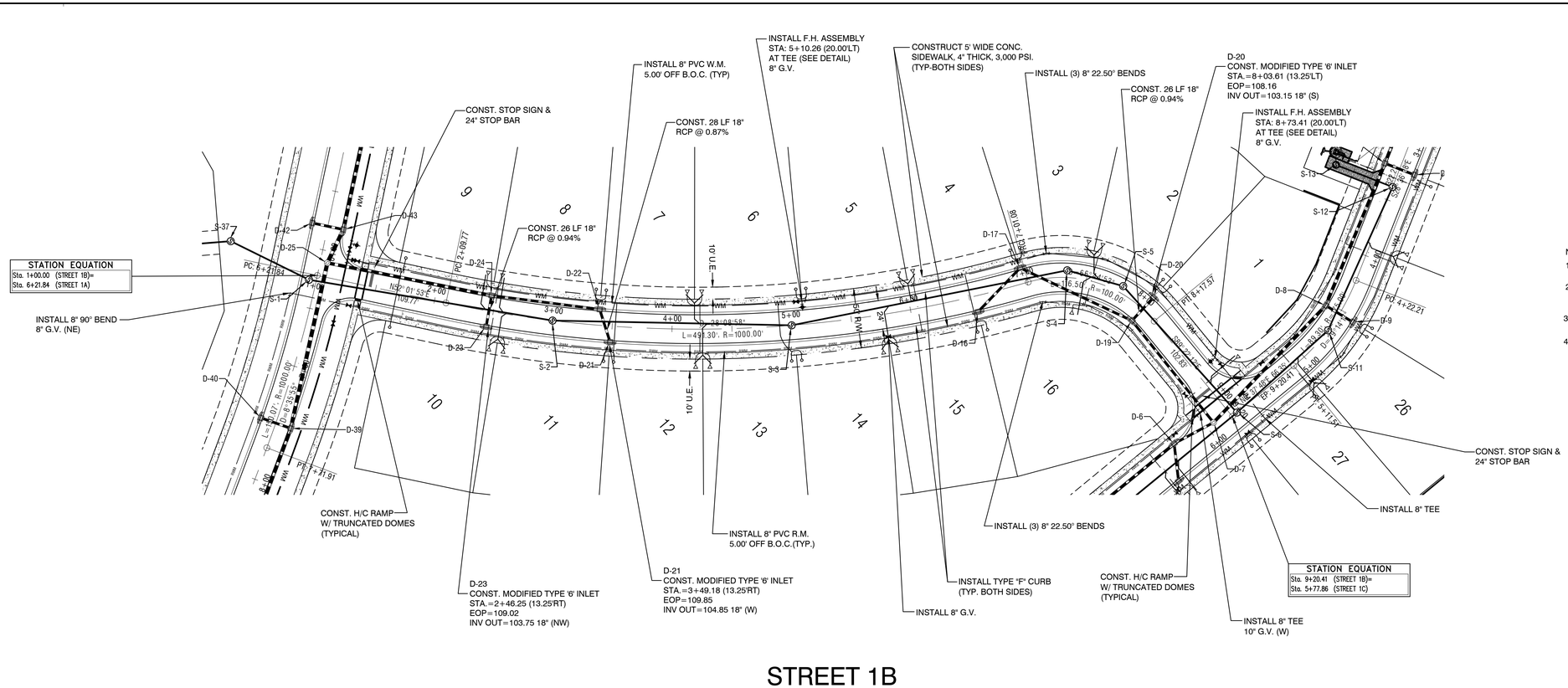
SCALE:	1" = 50'

SHEET TITLE:

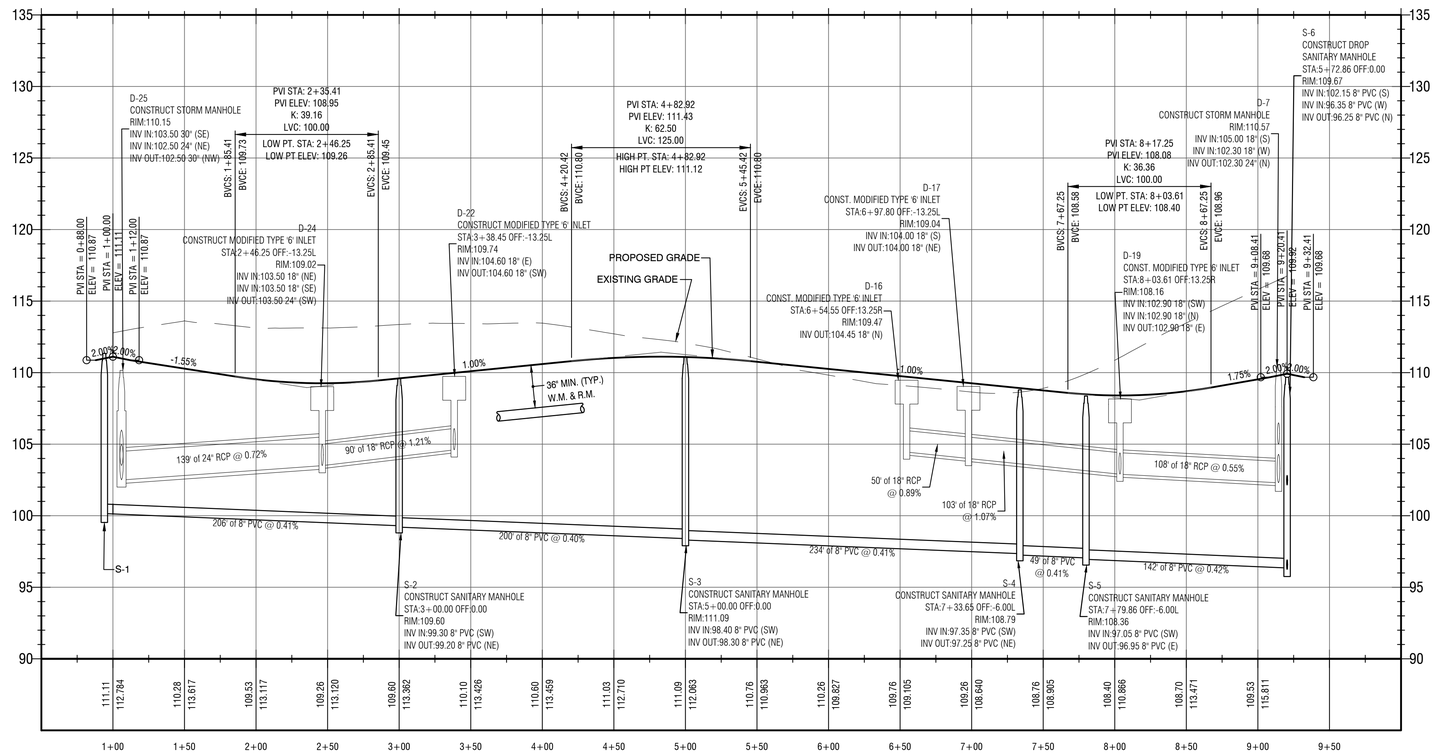
STREET 1A
PLAN & PROFILE

C-500

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:55 AM, USER: ah5122



STREET 1B



halff
502 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
FAX: (407) 423-0720
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WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

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PROJECT NO.:	045548
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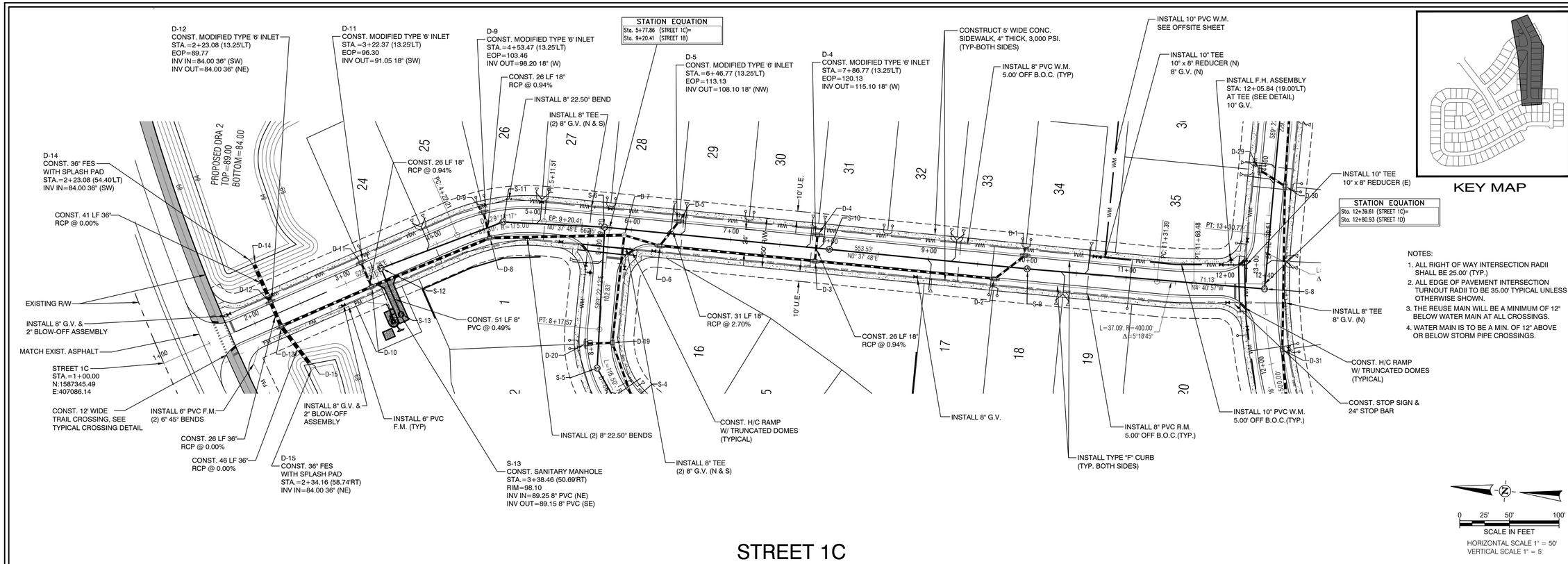
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 50'

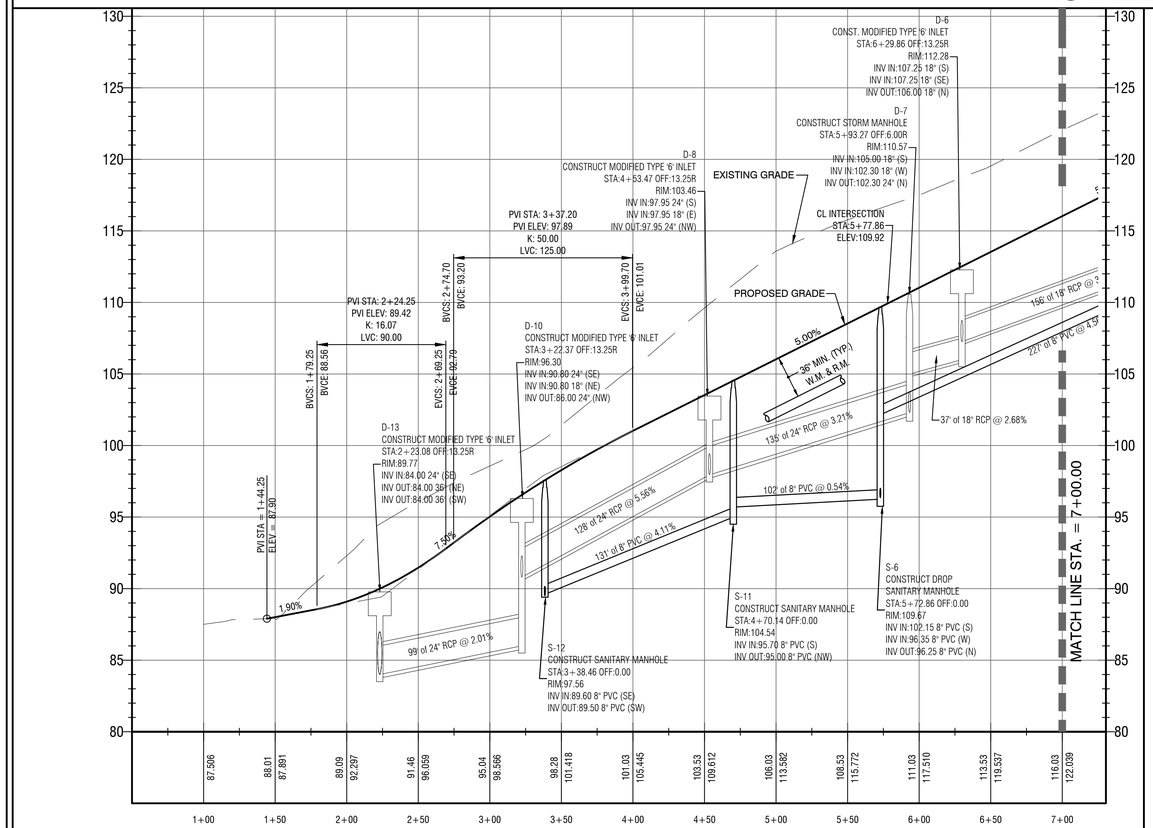
SHEET TITLE:
STREET 1B
PLAN & PROFILE

C-501

FILE NAME: A:\45000s\45548\003\LDICADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:56 AM, USER: ah5122



STREET 1C



WATERMARK PH.1 & MASTER GRADING PLANS
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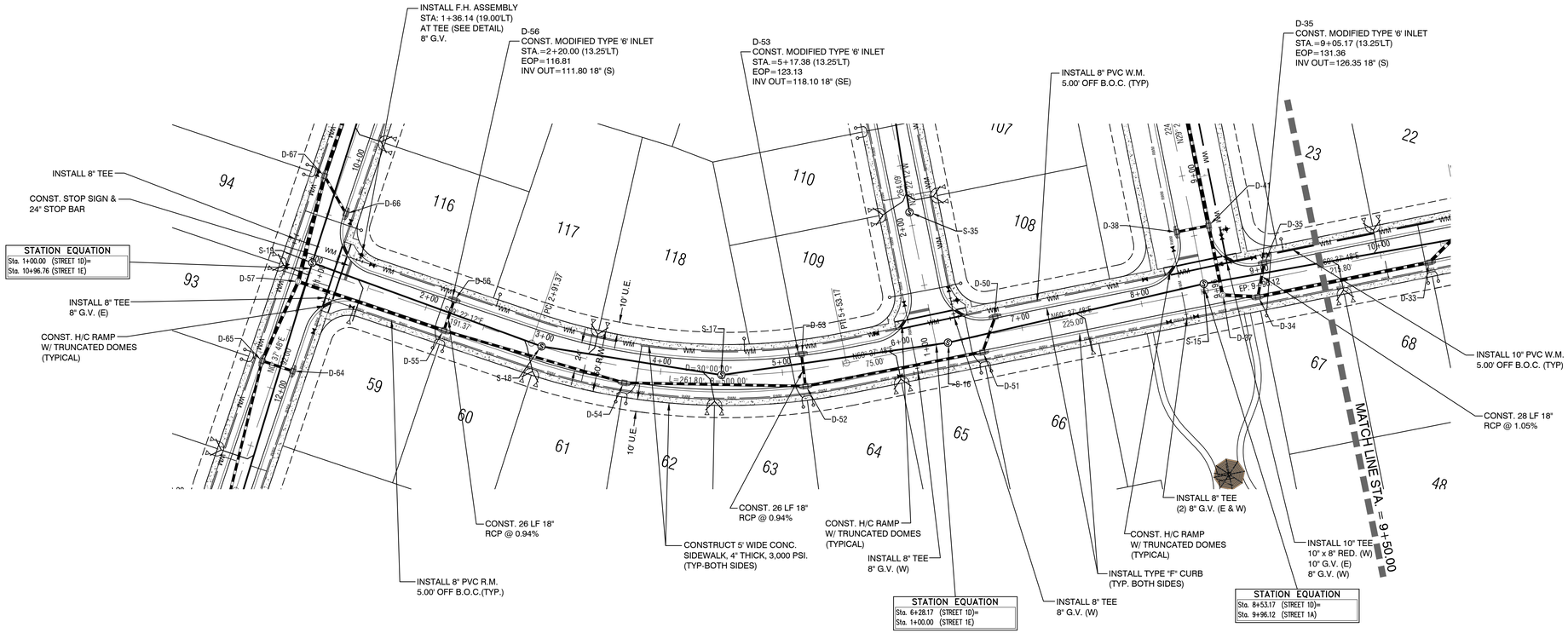
SCALE:	1" = 50'

SHEET TITLE:

STREET 1C
PLAN & PROFILE

C-502

FILE NAME: A:\45000s\45548\003\LDVCADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:56 AM, USER: ah5122



KEY MAP

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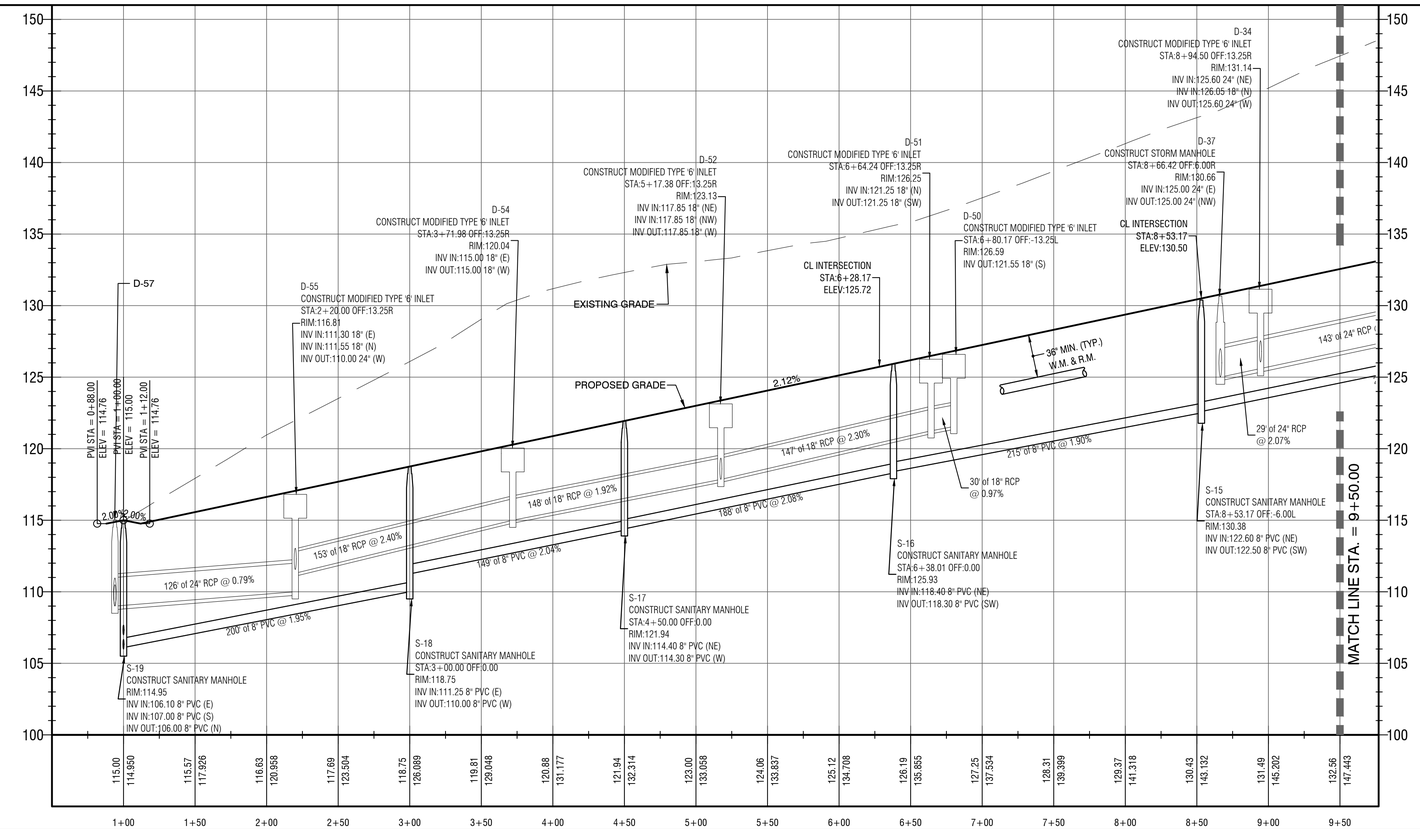
0 25' 50' 100'
SCALE IN FEET
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

STREET 1D



halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION
NUMBER: 33360

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

REVISION NO	DATE	DESCRIPTION

BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

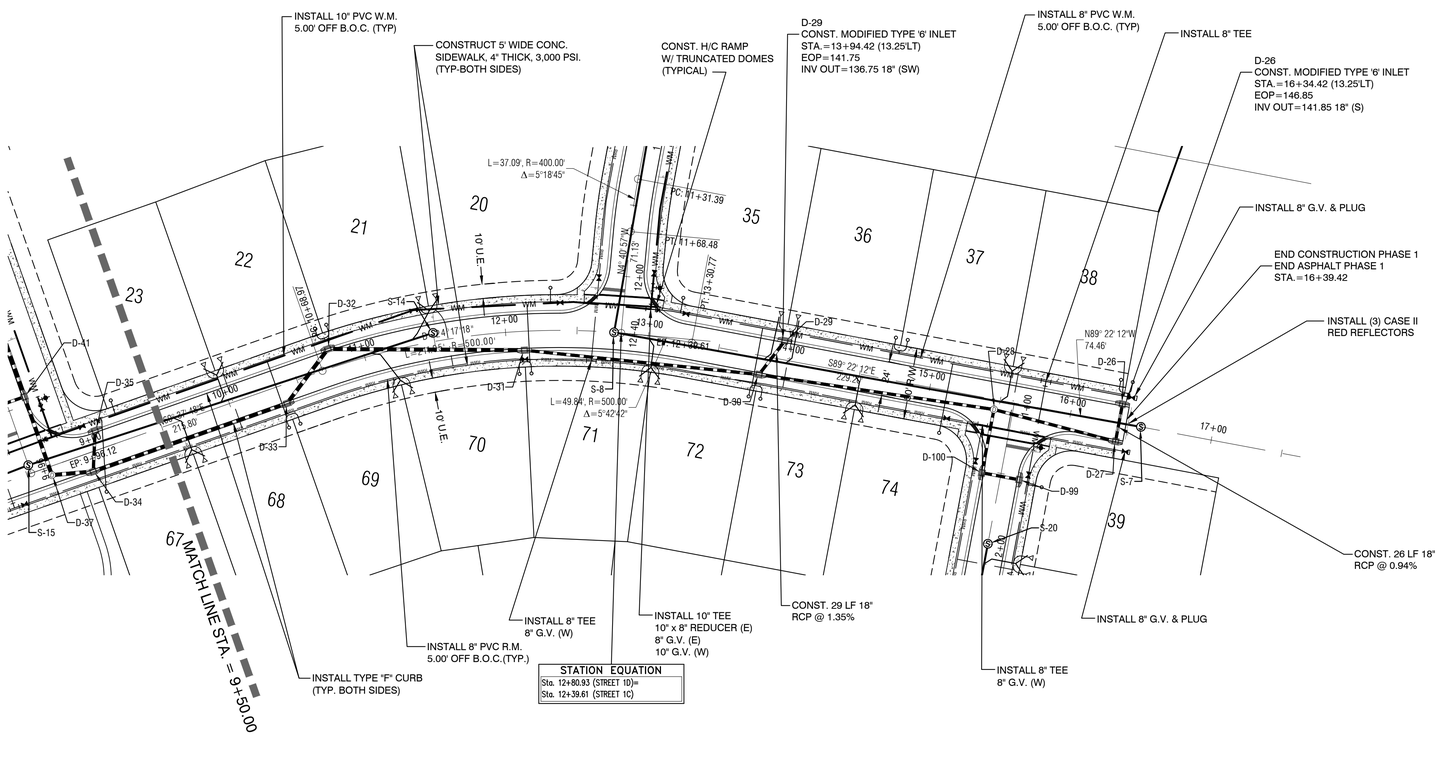
HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 50'

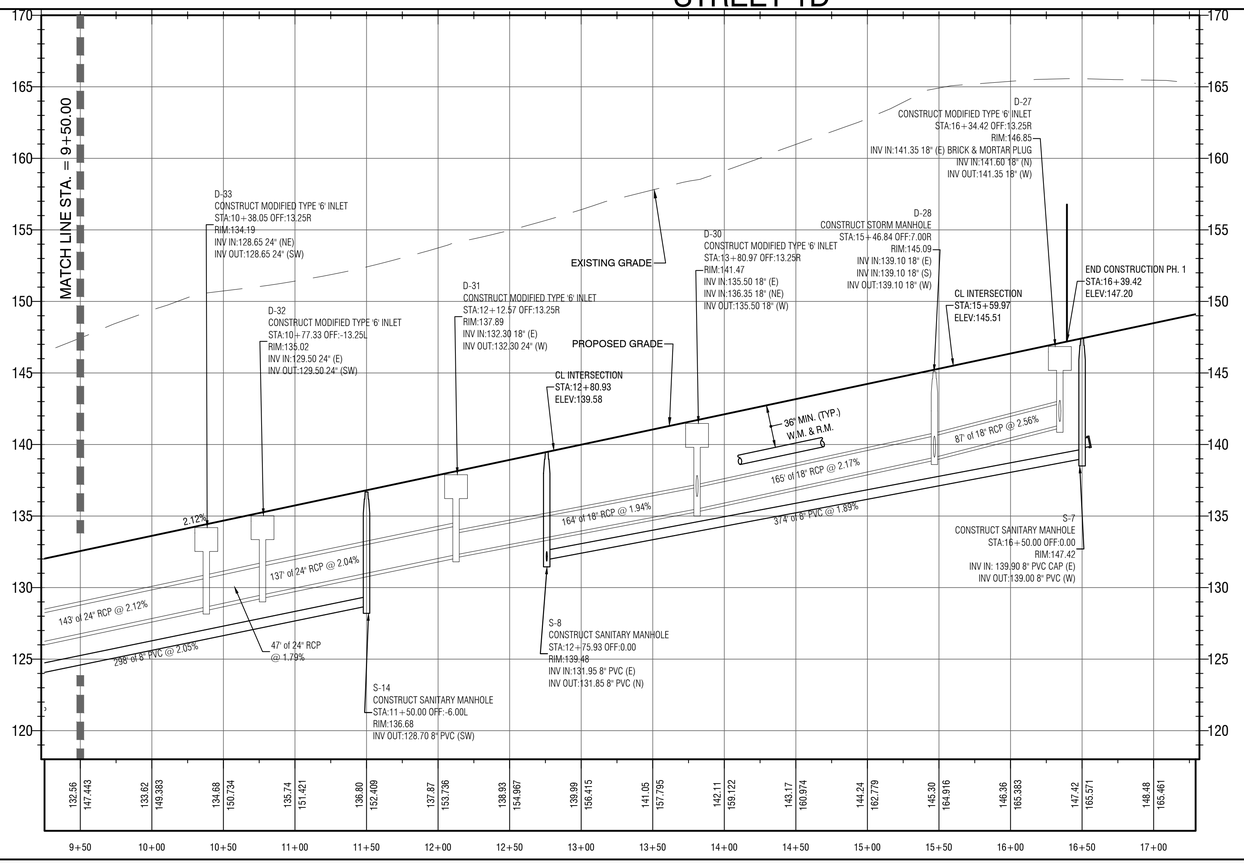
SHEET TITLE:
STREET 1D
PLAN & PROFILE

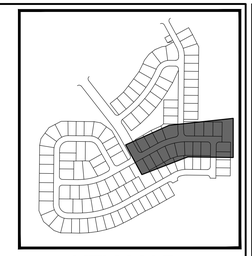
C-503

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:56 AM, USER: ab5122



STREET 1D





KEY MAP

NOTES:

1. ALL RIGHT OF WAY INTERSECTION RADII SHALL BE 25.00' (TYP.)
2. ALL EDGE OF PAVEMENT INTERSECTION TURNOUT RADII TO BE 35.00' TYPICAL UNLESS OTHERWISE SHOWN.
3. THE REUSE MAIN WILL BE A MINIMUM OF 12" BELOW WATER MAIN AT ALL CROSSINGS.
4. WATER MAIN IS TO BE A MIN. OF 12" ABOVE OR BELOW STORM PIPE CROSSINGS.

0 25' 50' 100'
SCALE IN FEET
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

WATERMARK PH.1 & MASTER GRADING PLANS

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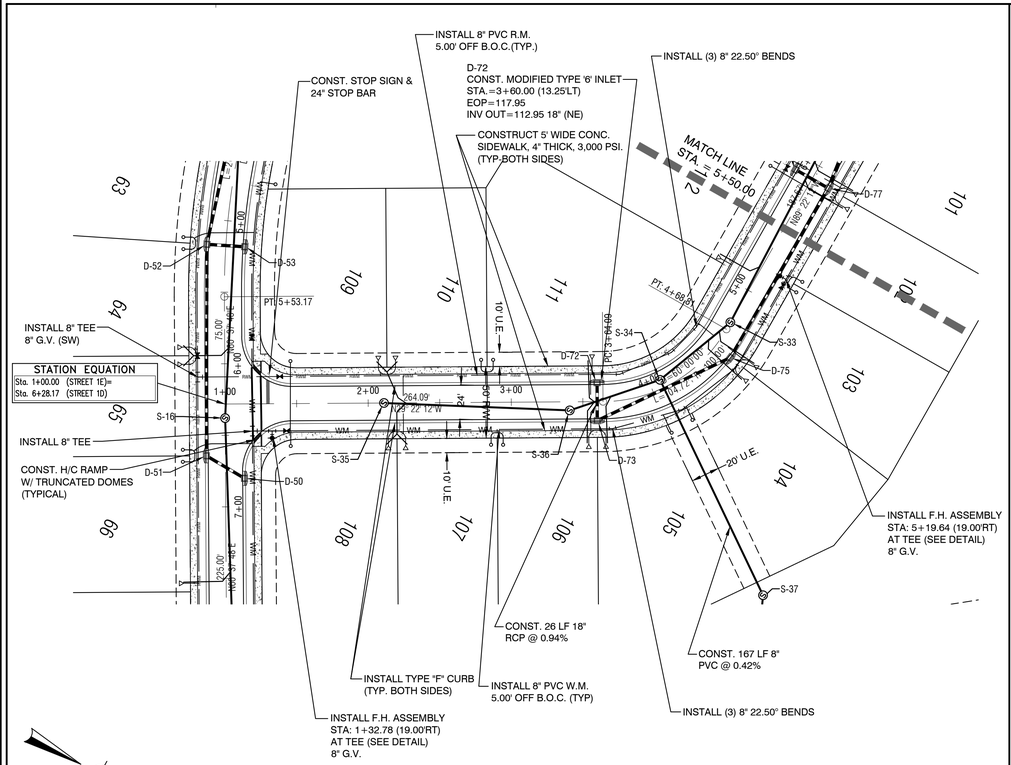
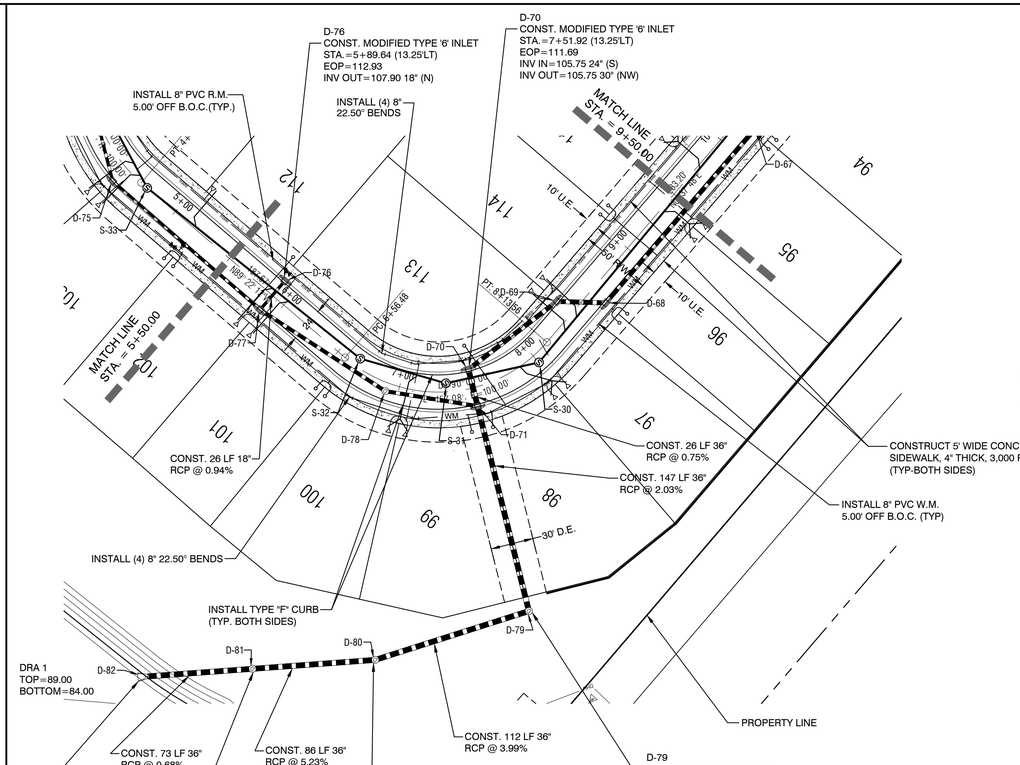
PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 50'

SHEET TITLE:
STREET 1D
PLAN & PROFILE

C-504

FILE NAME: A:\45000s\45548\003\LDCADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:56 AM, USER: ah5122





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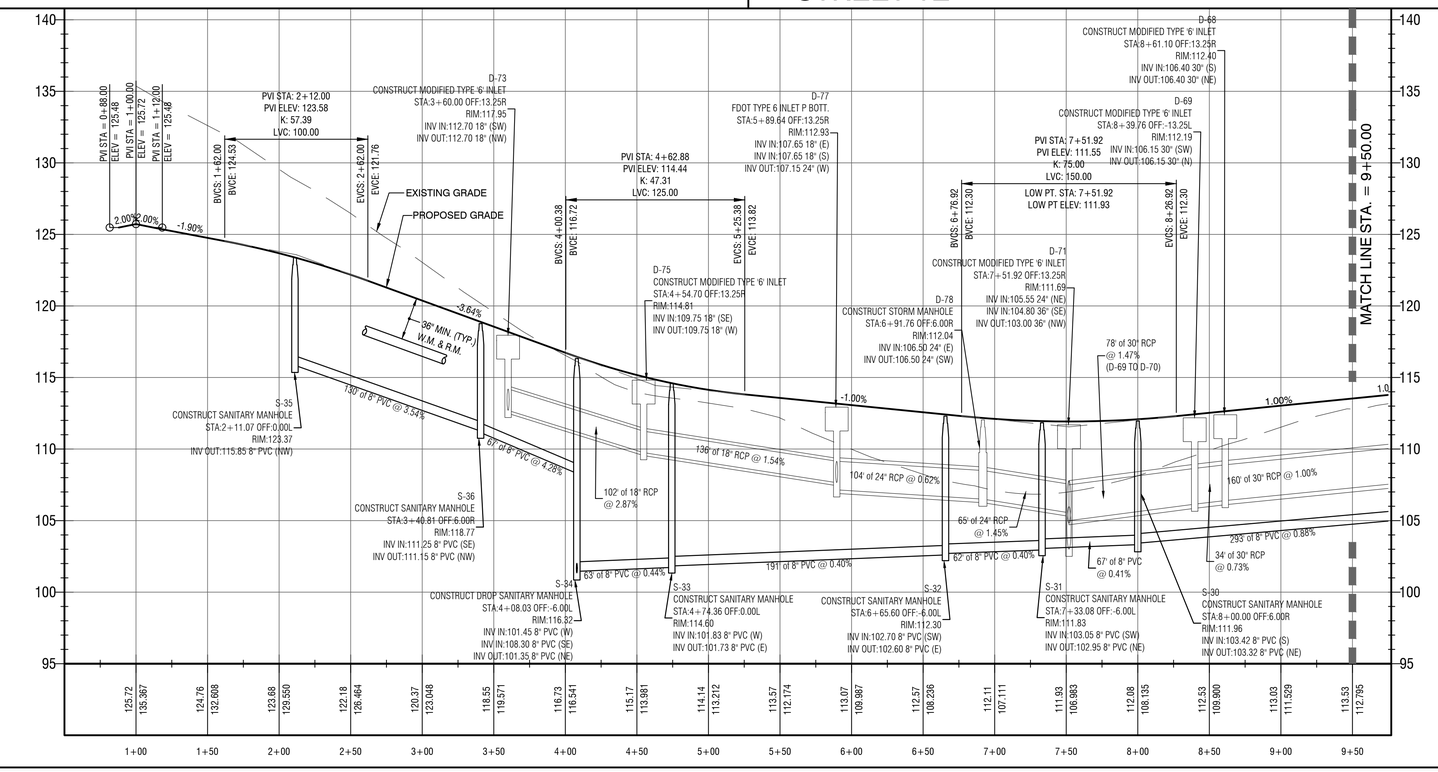

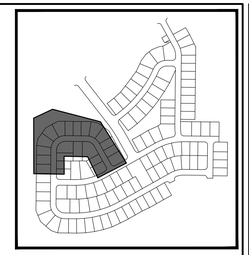

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WATERMARK PH.1 & MASTER GRADING PLANS

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Kissimmee, FL 34741

halff
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ANAHEIM, CA 92806
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION
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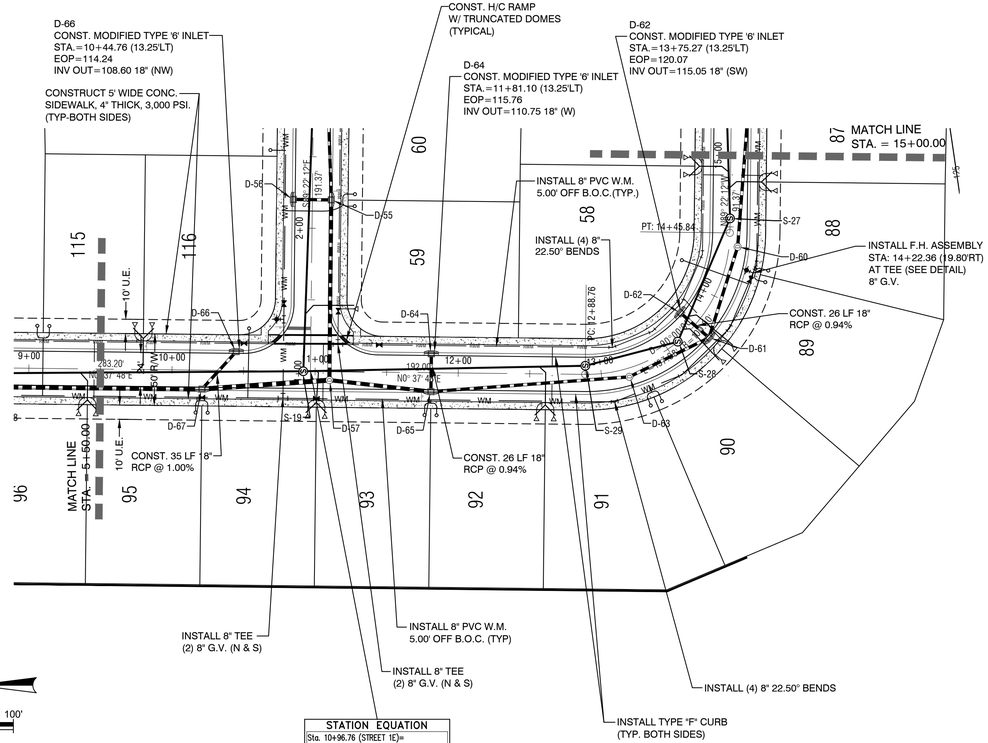
PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 50'

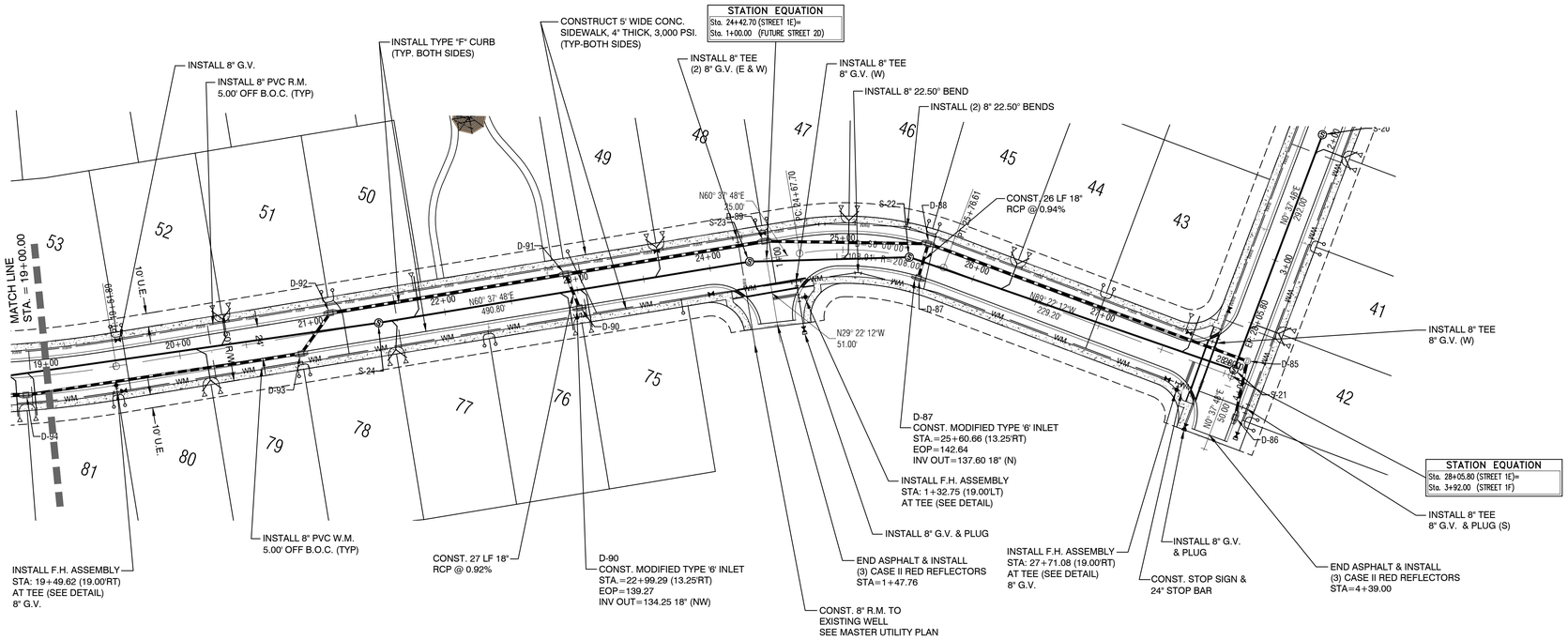
SHEET TITLE:

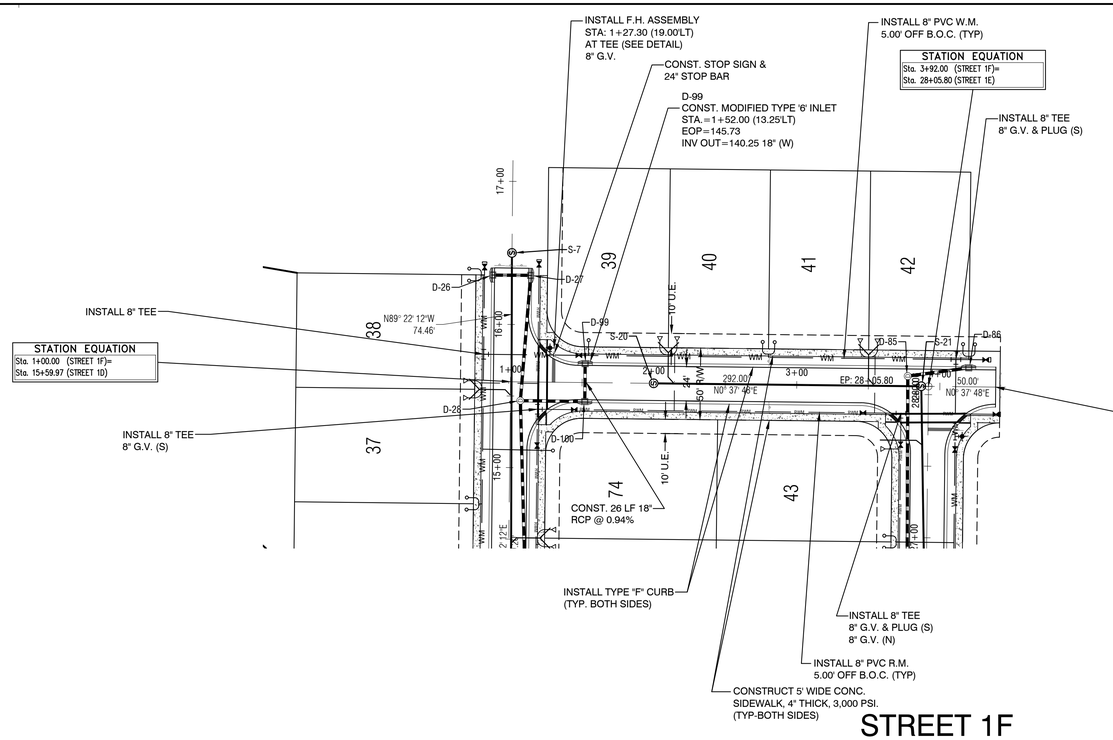
STREET 1E
PLAN & PROFILE

C-505

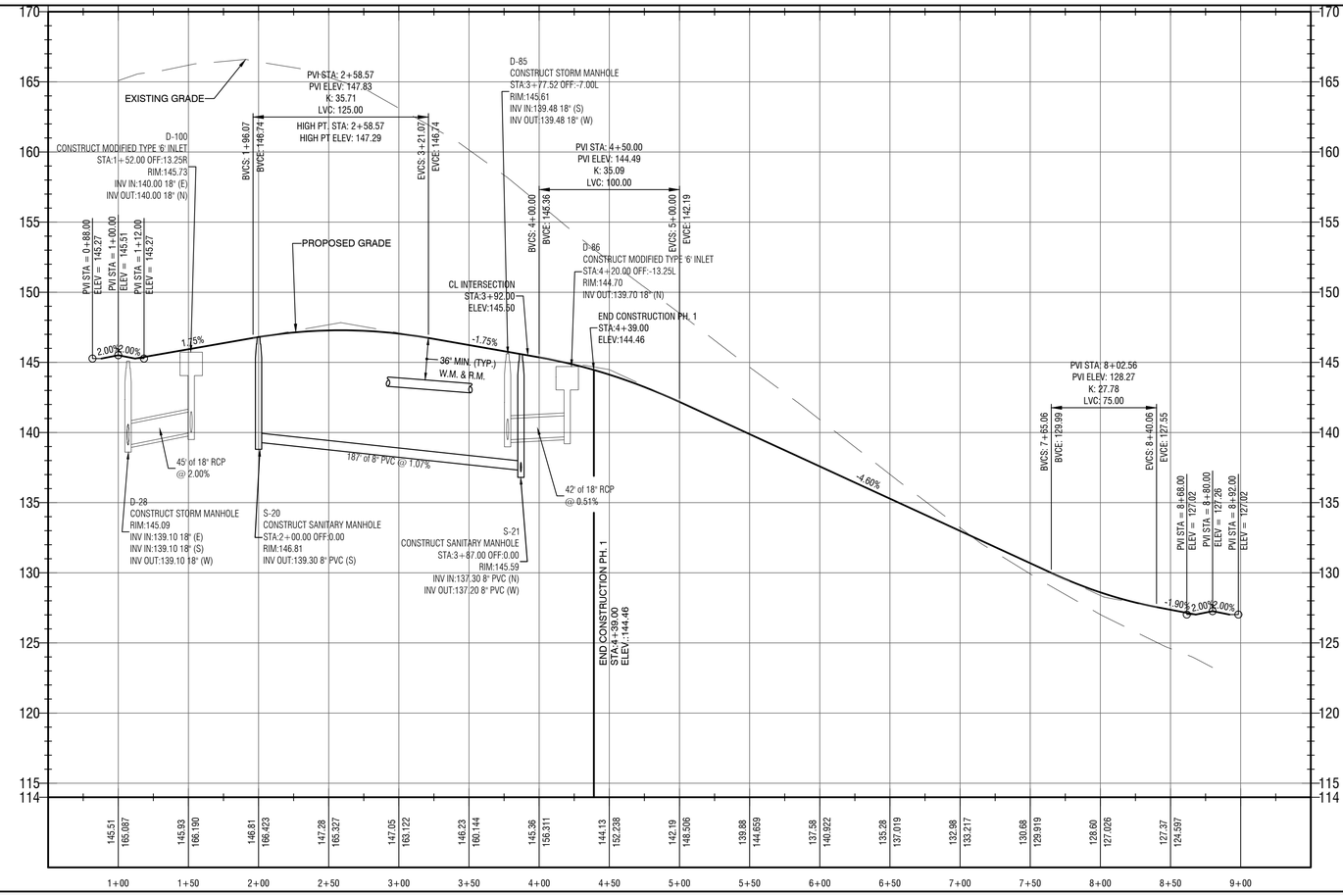
FILE NAME: A:\45000s\45548\003\LDCADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:56 AM, USER: ah5122

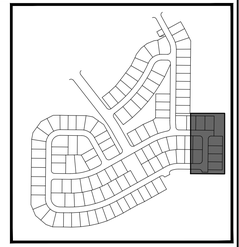

D-66
CONST. MODIFIED TYPE '6' INLET
STA.=10+44.76 (13.25'LT)
EOP=114.24
INV OUT=108.60 18" (NW)
CONSTRUCT 5' WIDE CONC. SIDEWALK, 4" THICK, 3,000 PSI. (TYP-BOTH SIDES)
CONST. H/C RAMP W/ TRUNCATED DOMES (TYPICAL)
D-64
CONST. MODIFIED TYPE '6' INLET
STA.=11+81.10 (13.25'LT)
EOP=115.76
INV OUT=110.75 18" (W)
D-62
CONST. MODIFIED TYPE '6' INLET
STA.=13+75.27 (13.25'LT)
EOP=120.07
INV OUT=115.05 18" (SW)
MATCH LINE STA. = 15+00.00
INSTALL 8" PVC W.M. 5.00' OFF B.O.C.(TYP.)
INSTALL (4) 8" 22.50° BENDS
INSTALL F.H. ASSEMBLY STA: 14+22.36 (19.80'RT) AT TEE (SEE DETAIL) 8" G.V.
CONST. 26 LF 18" RCP @ 0.94%
CONST. 35 LF 18" RCP @ 1.00%
CONST. 26 LF 18" RCP @ 0.94%
INSTALL 8" TEE (2) 8" G.V. (N & S)
INSTALL 8" PVC W.M. 5.00' OFF B.O.C. (TYP)
INSTALL 8" TEE (2) 8" G.V. (N & S)
INSTALL (4) 8" 22.50° BENDS
INSTALL TYPE "F" CURB (TYP. BOTH SIDES)
MATCH LINE STA. = 9+50.00
10' U.E.
D-55
D-56
D-57
D-58
D-59
D-60
D-61
D-62
D-63
D-64
D-65
D-66
D-67
S-19
S-27
S-28
S-29
PT: 14+45.84
PC: 12+86.76
PC: 15+37.26
283.20'
N0° 37' 48"E
N88° 22' 12"W
N1° 37' 48"E
192.00'
191.37'
2-1/2"
2-1/2"
2-1/2"


STATION EQUATION
Sta. 24+42.70 (STREET 1E)=
Sta. 1+00.00 (FUTURE STREET 20)
INSTALL 8" G.V.
INSTALL 8" PVC R.M.
5.00' OFF B.O.C. (TYP)
INSTALL TYPE "F" CURB
(TYP. BOTH SIDES)
CONSTRUCT 5' WIDE CONC.
SIDEWALK, 4" THICK, 3,000 PSI.
(TYP-BOTH SIDES)
INSTALL 8" TEE
(2) 8" G.V. (E & W)
INSTALL 8" TEE
8" G.V. (W)
INSTALL 8" 22.50° BEND
INSTALL (2) 8" 22.50° BENDS
CONST. 26 LF 18"
RCP @ 0.94%
MATCH LINE
STA. = 19+00.00
10' U.E.
INSTALL F.H. ASSEMBLY
STA: 19+49.62 (19.00'RT)
AT TEE (SEE DETAIL)
8" G.V.
INSTALL 8" PVC W.M.
5.00' OFF B.O.C. (TYP)
CONST. 27 LF 18"
RCP @ 0.92%
D-90
CONST. MODIFIED TYPE '6' INLET
STA.=22+99.29 (13.25'RT)
EOP=139.27
INV OUT=134.25 18" (NW)
CONST. 8" R.M. TO
EXISTING WELL
SEE MASTER UTILITY PLAN
D-87
CONST. MODIFIED TYPE '6' INLET
STA.=25+60.66 (13.25'RT)
EOP=142.64
INV OUT=137.60 18" (N)
INSTALL F.H. ASSEMBLY
STA: 1+32.75 (19.00'LT)
AT TEE (SEE DETAIL)
INSTALL 8" G.V. & PLUG
END ASPHALT & INSTALL
(3) CASE II RED REFLECTORS
STA=1+47.76
INSTALL F.H. ASSEMBLY
STA: 27+71.08 (19.00'RT)
AT TEE (SEE DETAIL)
8" G.V.
INSTALL 8" G.V.
& PLUG
CONST. STOP SIGN &
24" STOP BAR
INSTALL 8" TEE
8" G.V. (W)
STATION EQUATION
Sta. 28+05.80 (STREET 1E)=
Sta. 3+92.00 (STREET 1F)
INSTALL 8" TEE
8" G.V. & PLUG (S)
END ASPHALT & INSTALL
(3) CASE II RED REFLECTORS
STA=4+39.00
D-85
D-86
S-21
S-22
S-23
S-24
D-88
D-89
D-91
D-92
D-93
D-94
N60° 37' 48"E
490.80
N29° 22' 12"W
51.00
N60° 37' 48"E
25.00
N29° 22' 12"W
229.20
N29° 37' 48"E
50.00
N29° 37' 48"E
297.00
N29° 37' 48"E
215.80
R=20.00'
Δ=90° 00' 00"
L=31.42'
R=100.00'
Δ=14° 47' 10"
L=25.80'
R=100.00'
Δ=14° 47' 10"
L=25.80'



STREET 1F





KEY MAP

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HORIZONTAL SCALE 1" = 50'
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WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
WWW.HALFF.COM
CERTIFICATE OF AUTHORIZATION
NUMBER: 33360

REVISION

NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS
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No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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7/28/25
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HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

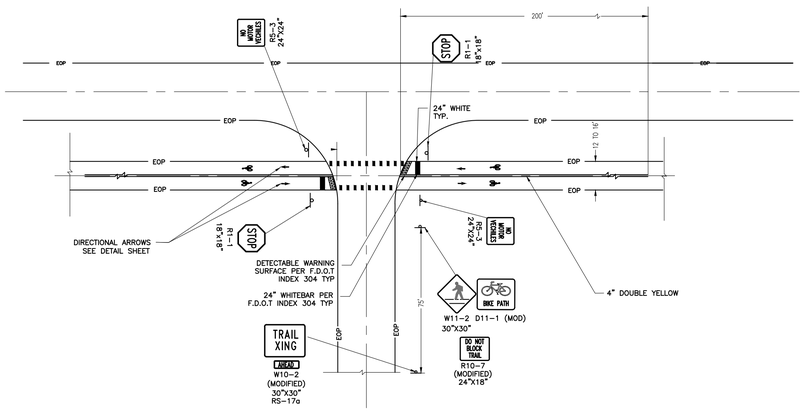
PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 50'

SHEET TITLE:

STREET 1F
PLAN & PROFILE

C-508

FILE NAME: A:\45000s\45548003\LDICADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:57 AM, USER: ah5122





R2-1



R1-1

SIGNAGE AND STRIPING NOTES:

1. ALL PAVEMENT MARKING AND TRAFFIC CONTROL SIGNS SHALL BE IN PLACE PRIOR TO FINAL INSPECTION.
2. ALL MATERIALS AND INSTALLATION SHALL CONFORM TO THE SPECIFICATIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
3. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC EXCEPT FOR ON BIKE PATHS AND BIKE LANES WHICH SHALL BE STANDARD PAINT FOR PAVEMENT MARKING.
4. ALL REGULATORY SIGNS SHALL HAVE "HIGH INTENSITY" FACINGS OR BETTER.
5. STOP SIGNS ON LOCAL STREETS SHALL BE 30" AND 36" ON ALL OTHERS AND SHALL BE PLACED ON 2" SQUARE METAL POSTS.
6. ROAD NAME SIGNS SHALL BE 9" HIGH WITH A LENGTH OF 24" MINIMUM TO 54" MAXIMUM.

ENTRANCE SIGN NOTE:

1. ENTRANCE SIGN SETBACKS PURSUANT TO LDR, SECTION 11.02.01(A)(1)(b)

FILE NAME: A:\45000s\45548\003\LDICADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:57 AM, USER: ah5122

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

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210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
FAX: (407) 647-7322
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

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PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 60'

SHEET TITLE:

SIGNAGE & STRIPING PLAN

C-600



WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

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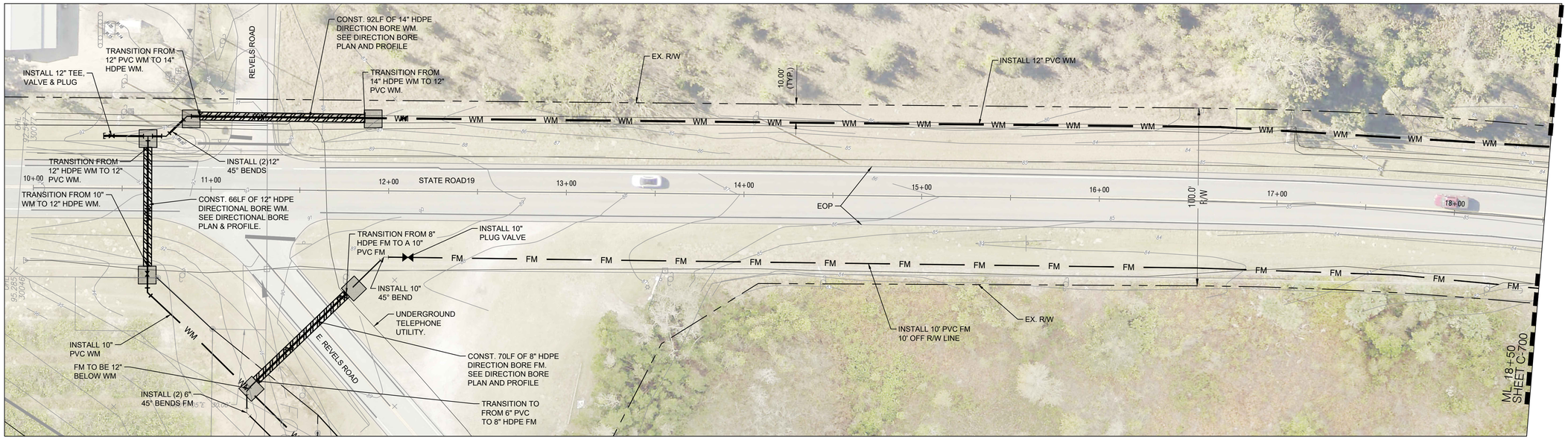
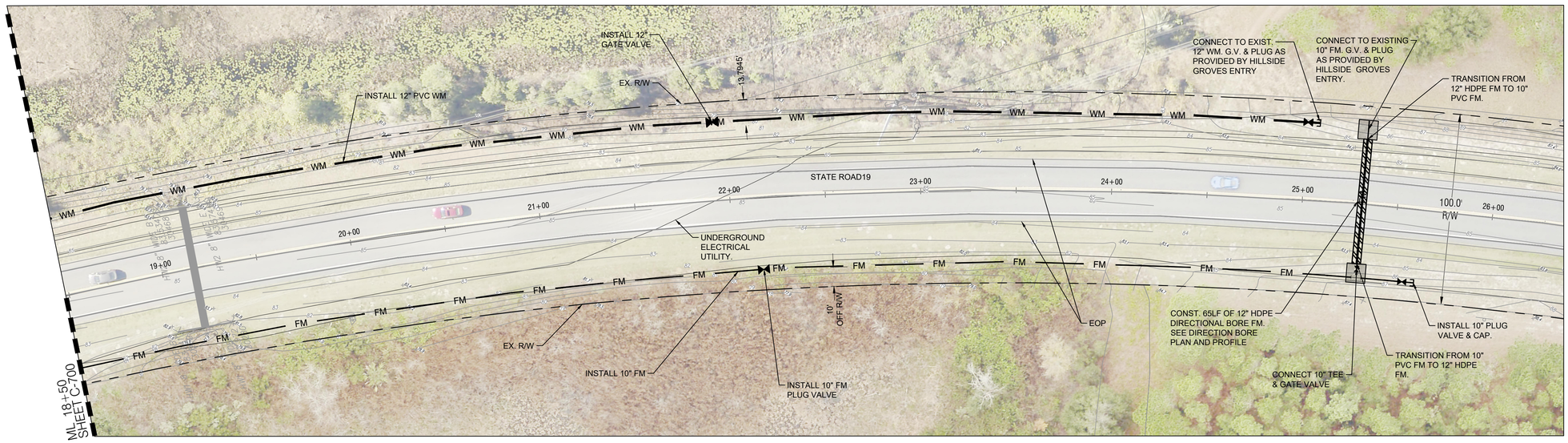
PROJECT NO.:	045548
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 60'

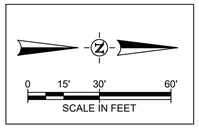
SHEET TITLE:
SIGNAGE & STRIPING PLAN

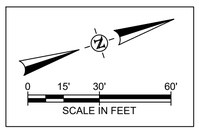
C-601

FILE NAME: A:\45000s\45548\003\LD\CADD\C101 - C600 Watermark Construction Plans.dwg DATE: July 29, 2025, TIME: 7:57 AM, USER: ah5122









CONTRACTOR SHALL PROVIDE AND PERFORM A 2 WEEK LOOK AHEAD INTO THE UTILITY WORK TO BE PERFORMED. THIS SHALL INCLUDE THE VERIFICATION OF EXISTING UTILITIES, BOTH HORIZONTAL AND VERTICAL POSITIONING, MATCHES WHAT IS SHOWN IN THE CONTRACT DOCUMENTS AND ANY NEW UTILITIES THAT ARE DISCOVERED DURING THIS LOOK AHEAD. INFORMATION OF CONFLICTS OR DISCREPANCIES WITH THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE ENGINEER OF RECORD NO LESS THAN 1 WEEK PRIOR TO COMMENCEMENT OF WORK WITHIN SAID CONFLICT AREA. ENGINEER OF RECORD SHALL BE ALLOWED AMPLE TIME TO ADDRESS CONFLICTS/ISSUES AND PROVIDE ADJUSTMENTS TO THE DESIGN TO ADDRESS CONCERNS WITHOUT CONTRACTOR REQUESTING TIME DELAYS.

WATERMARK CONSTRUCTION PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

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Kissimmee, FL 34741

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TAVARES, FLORIDA 32778
TEL: (352) 343-8481
WWW.HALFF.COM
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

REVISION		
NO.	DATE	DESCRIPTION

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HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

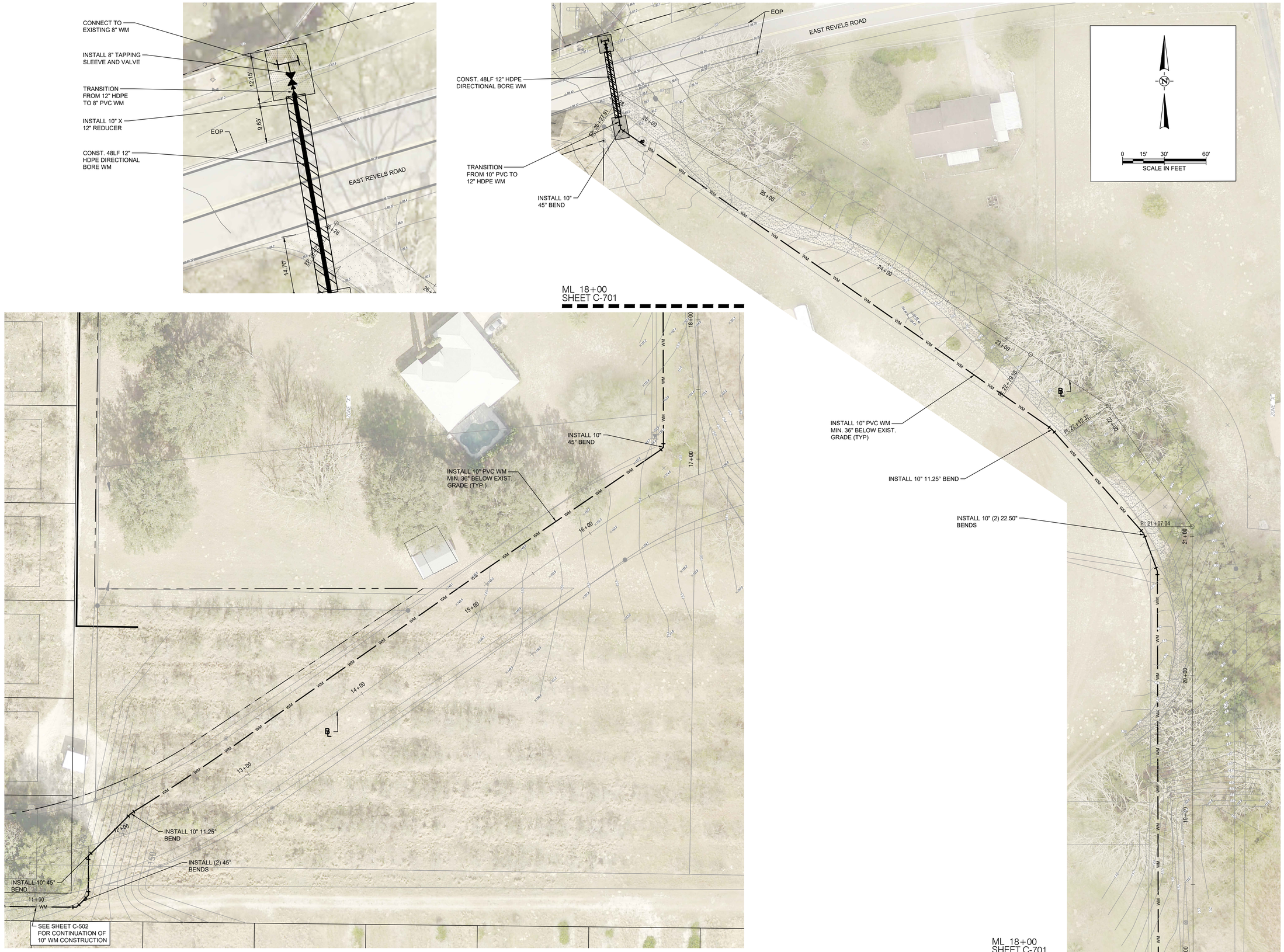
PROJECT NO.:	045548.003
ISSUED:	JULY 2025
DRAWN BY:	MC
CHECKED BY:	BJT
SCALE:	1" = 30'

SHEET TITLE:

OFFSITE UTILITIES

C-700

FILE NAME: A:\45000s\45548\003\LD\CADD\(00) Watermark Civil Base File Offsite Utilities.dwg DATE: July 30, 2025, TIME: 10:02 AM, USER: ah4672



WATERMARK CONSTRUCTION PLANS

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TAVARES, FLORIDA 32778
TEL. (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33380

REVISION		
NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS 69017
NAME PE LICENSE NO.

DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. FL
FIRM OR BUSINESS NO. STATE

PROJECT NO.:	045548.003
ISSUED:	JULY 2025
DRAWN BY:	MC
CHECKED BY:	BJT
SCALE:	1" = 30'

SHEET TITLE:

OFFSITE UTILITIES

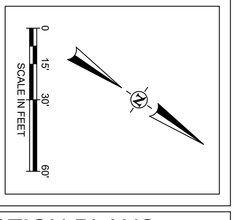
C-701

FILE NAME: A:\45000s\45548\003\LD\CADD\(00) Watermark Civil Base File Offsite Utilities.dwg DATE: July 30, 2025, TIME: 10:03 AM, USER: ah4672

Item 2.

FILE NAME: A:\45000s\45548\003\LD\CADD\(00) Watermark Civil Base File Offsite Utilities.dwg DATE: July 30, 2025, TIME: 10:03 AM, USER: ah4672





REVISION		
NO.	DATE	DESCRIPTION

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL. (352) 343-8481
CERTIFICATE OF AUTHORIZATION
NUMBER: 33360

WATERMARK CONSTRUCTION PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

C-702

OFFSITE UTILITIES

PROJECT NO.: 045548.003
ISSUED: JULY 2025
DRAWN BY: MC
CHECKED BY: BJT
SCALE: 1" = 30'
SHEET TITLE:

HALFF ASSOCIATES, INC.
FIRM OR BUSINESS NO. FL STATE

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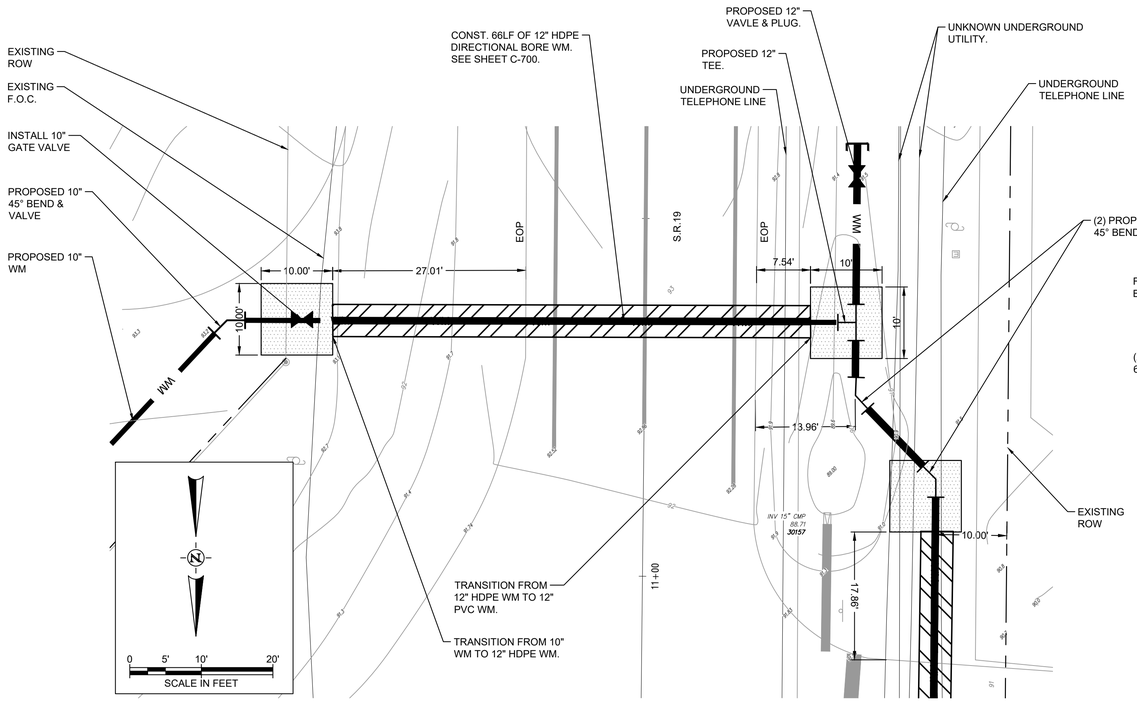
DATE:

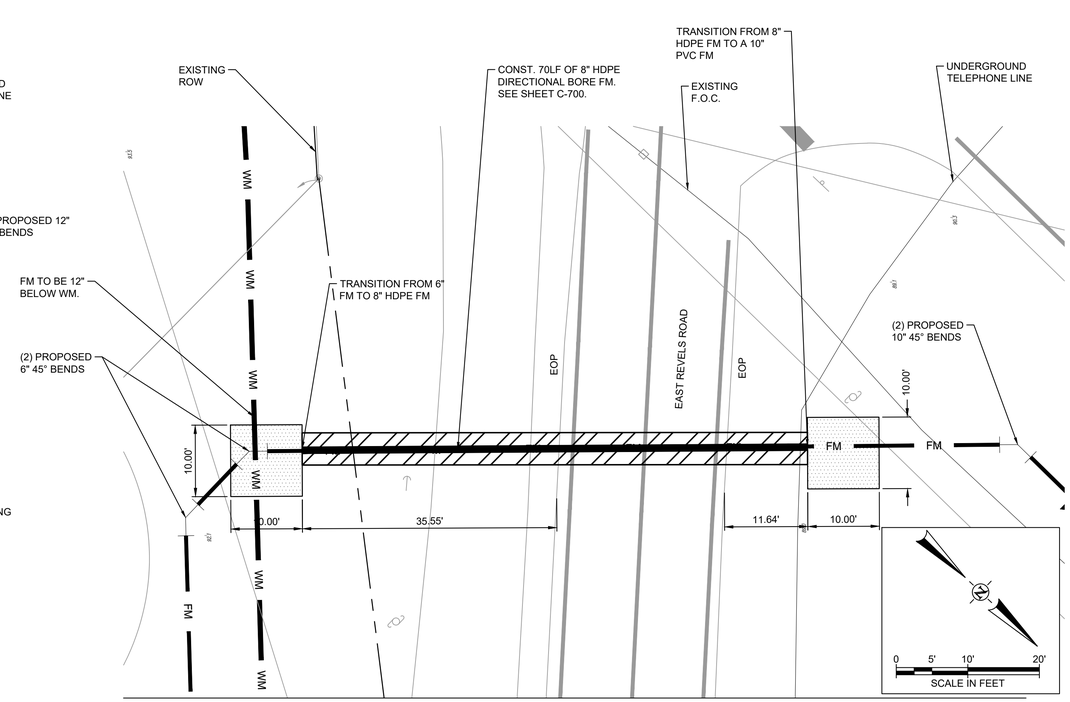
BRETT J. TOMAS 69317
NAME PE LICENSE NO.

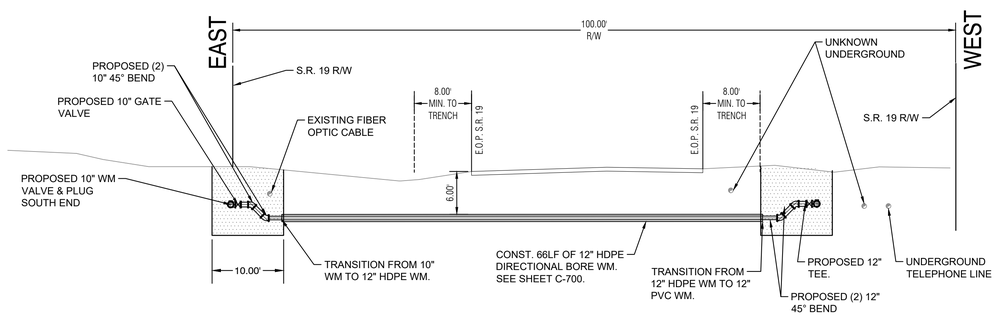
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY BRETT J. TOMAS ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

BRETT JAY TOMAS
No. 69317
STATE OF FLORIDA
PROFESSIONAL ENGINEER
LICENSED

Item 2.







STATE ROAD 19 DIRECTIONAL BORE PROFILE (12" HDPE WATER MAIN)

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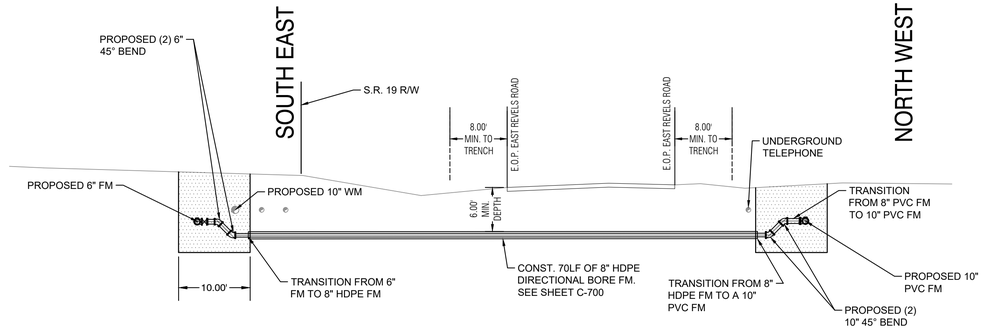

EAST REVELS ROAD DIRECTIONAL BORE PROFILE (8" HDPE FORCE MAIN)

SCALE: 1" = 10'-0"

WATERMARK CONSTRUCTION PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
901 NORTH BROAD AVENUE
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
WWW.HALFF.COM
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.

DATE

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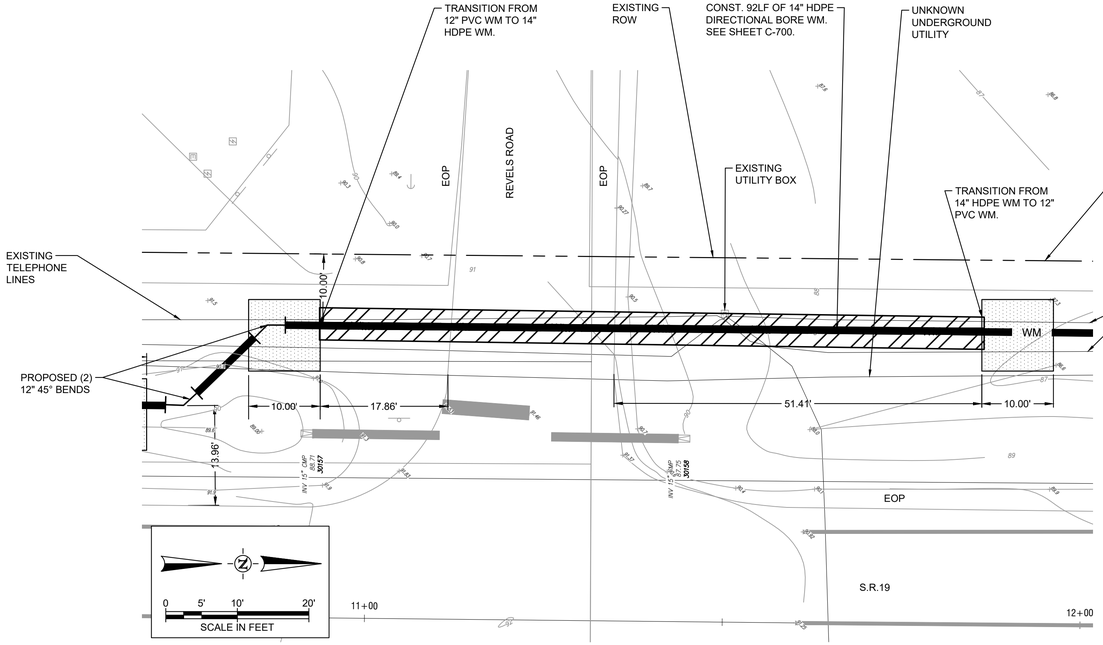
HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

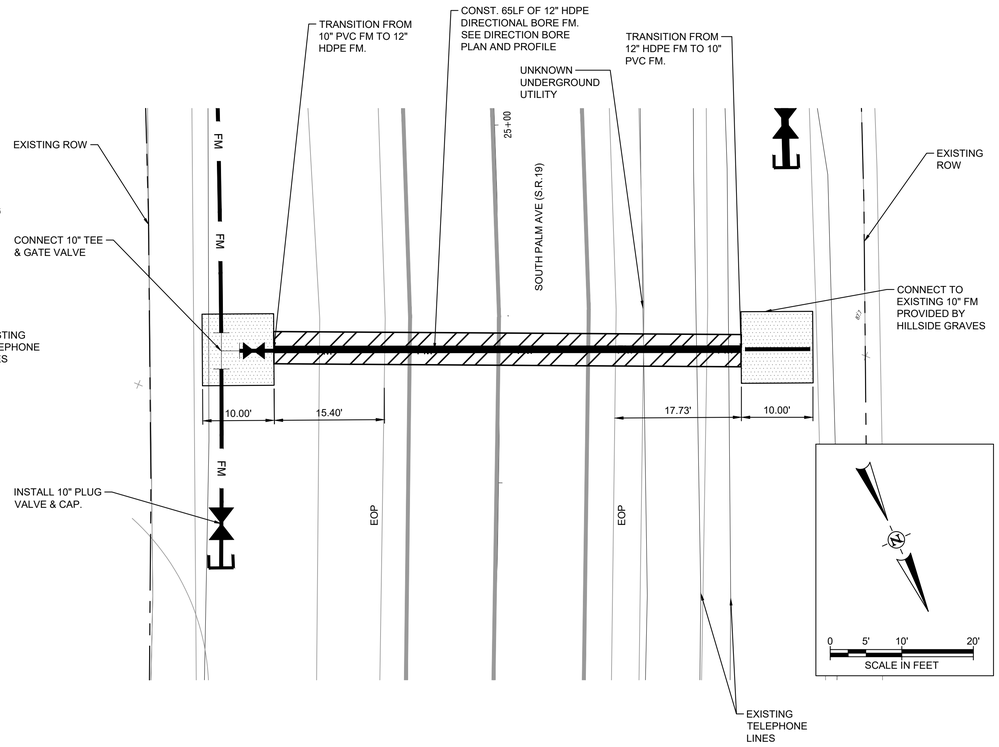
PROJECT NO.:	045548.003
ISSUED:	JULY 2025
DRAWN BY:	MC
CHECKED BY:	BJT
SCALE:	1" = 10'

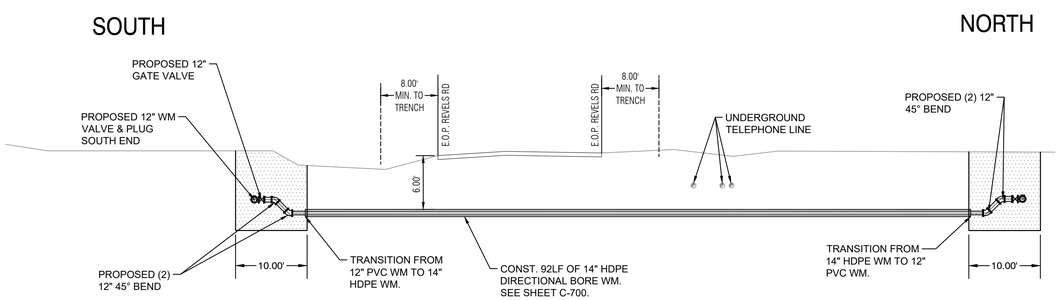
SHEET TITLE:
OFFSITE UTILITIES

C-703

FILE NAME: A:\45000s\45548\003\LD\CADD\(00) Watermark Civil Base File Offsite Utilities.dwg DATE: July 30, 2025, TIME: 10:03 AM, USER: ah4672

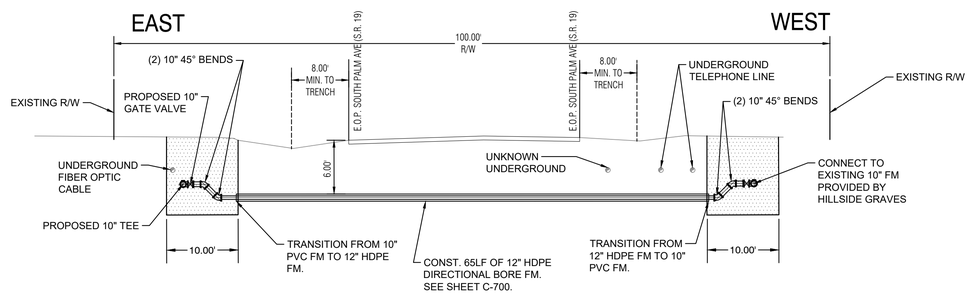






REVELS ROAD DIRECTIONAL BORE PROFILE (14" HDPE WATER MAIN)

SCALE: 1" = 10'-0"



SOUTH PALM AVE (S.R. 19) DIRECTIONAL BORE PROFILE (12" HDPE FORCE MAIN)

SCALE: 1" = 10'-0"

WATERMARK CONSTRUCTION PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL. (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33380

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BRETT JAY TOBIAS
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STATE OF FLORIDA
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HALFF ASSOCIATES, INC. FL
FIRM OR BUSINESS NO. STATE

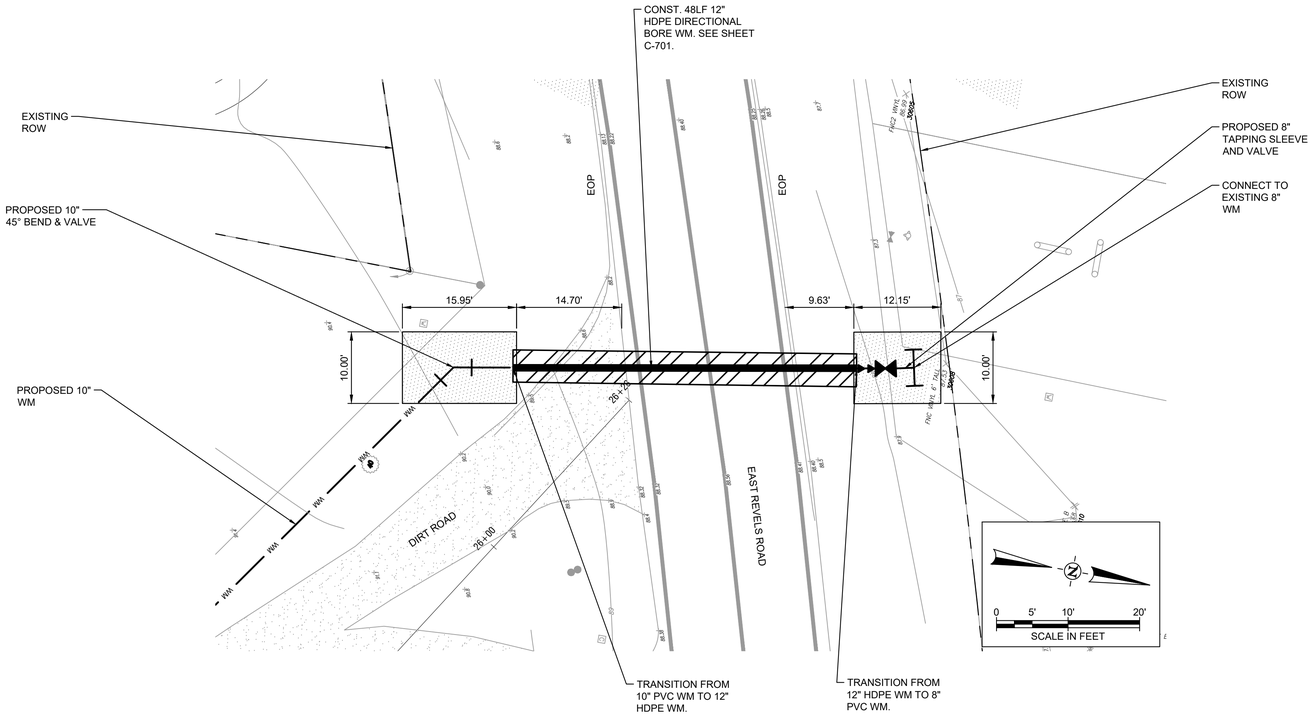
PROJECT NO.:	045548.003
ISSUED:	JULY 2025
DRAWN BY:	MC
CHECKED BY:	BJT
SCALE:	1" = 10'
SHEET TITLE:	OFFSITE UTILITIES

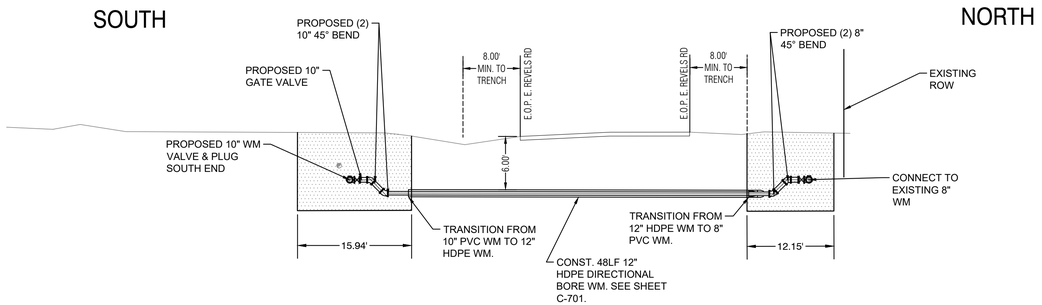
C-704

FILE NAME: A:\45000s\45548\003\LD\CADD\(00) Watermark Civil Base File Offsite Utilities.dwg DATE: July 30, 2025, TIME: 10:04 AM, USER: ah4672

Item 2.

220





EAST REVELS ROAD DIRECTIONAL BORE PROFILE (12" HDPE WATER MAIN)

SCALE: 1" = 10'-0"

WATERMARK CONSTRUCTION PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
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FIRM OR BUSINESS NO. STATE

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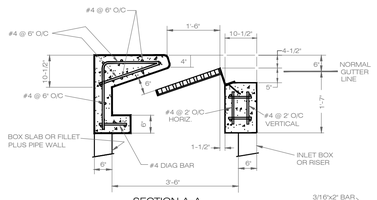
ISSUED:	JULY 2025
DRAWN BY:	MC
CHECKED BY:	BJT
SCALE:	1" = 30'
SHEET TITLE:	OFFSITE UTILITIES

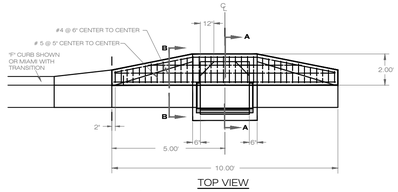
C-705

Item 2.

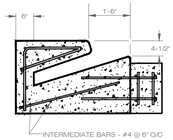
FILE NAME: A:\45000s\45548\003\LD\CADD\(00) Watermark Civil Base File Offsite Utilities.dwg DATE: July 30, 2025, TIME: 10:04 AM, USER: ah4672



SECTION A-A



TOP VIEW



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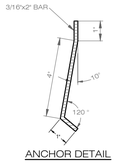
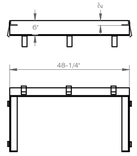
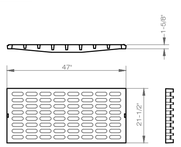


ANCHOR DETAIL



STEEL ANGLE FRAME



CAST IRON COVER

F.D.O.T. TYPE "6" (MODIFIED)

ALL STRUCTURAL SPECIFICATIONS SHALL MEET OR EXCEED

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO FDOT AND THE TOWN OF HOWEY STANDARDS.

2. PROJECT BASELINE STATIONING SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL LOCATE ALL PORTIONS OF THE WORK USING ALL INFORMATION PROVIDED HEREIN AND SHALL MAINTAIN RECORDS OF ALL LOCATIONS PER THE CONTRACT SPECIFICATIONS.

3. STATIONING IS PROVIDED FOR THE REFERENCE IN HORIZONTAL PLANE ONLY, AND DOES NOT REFLECT VERTICAL ALIGNMENT OF PIPE.

4. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN OBTAINED FROM RESPECTIVE UTILITY OWNER USING THE LATEST INFORMATION AVAILABLE. HOWEVER, THESE LOCATIONS, AS SHOWN ON THE PLANS, ARE NOT CONSIDERED TO BE ALL INCLUSIVE. THE ENGINEER HAS ATTEMPTED TO SHOW AS MUCH AS POSSIBLE ALL MAIN ELECTRICAL AND TELEPHONE UNDERGROUND CABLES AND DUCTS. THE ENGINEER HAS NOT SHOWN ELECTRICAL AND TELEPHONE SERVICE CONNECTIONS WHICH MAY EXIST WITHIN THE PRIVATE RIGHTS-OF-WAY WITHIN THIS PROJECT. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL UNDERGROUND FACILITIES WITH A FIELD REPRESENTATIVE OF EACH RESPECTIVE UTILITY.

5. THE CONTRACTOR PRIOR TO EXCAVATING IN THE VICINITY OF A GAS PIPELINE SHALL NOTIFY THE GAS UTILITY OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF FLORIDA STATUTES, PROTECTION OF UNDERGROUND PIPELINES, F.S. 553.851, CH. 77-143.

6. THE CONTRACTOR SHALL INSURE ALL NECESSARY PERMITS ARE IN HAND BEFORE COMMENCEMENT OF CONSTRUCTION.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SATISFYING ALL REQUIREMENTS OF REGULATORY AGENCY PERMITS WITH REGARDS TO CONSTRUCTION ACTIVITIES AND CONDITIONS STATED THEREIN. ALL WORK WITHIN THE TOWN OF HOWEY & F.D.O.T. RIGHT-OF-WAYS SHALL CONFORM WITH ALL REQUIREMENTS AND SPECIAL CONDITIONS OF THE APPROVED TOWN OF HOWEY AND F.D.O.T. UTILITY PERMITS.

8. D.I.P. LOCATED LESS THAN 10 FEET FROM A GAS MAIN SHALL BE WRAPPED IN POLYETHYLENE.

9. ALL PROPOSED MAINS SHALL HAVE A MINIMUM OF 36" COVER OVER TOP OF PIPE. COVER SHALL VARY TO PROVIDE UNIFORM GRADIENT OR SLOPE TO PIPE, UNLESS OTHERWISE NOTED.

10. WHERE A CONNECTION IS TO BE MADE IN THE FIELD TO AN EXISTING PIPE, THE CONTRACTOR WILL EXCAVATE THE AREA TO VERIFY THE TYPE OF PIPE AND THE PIPE SIZE, AND OBTAIN THE OWNER'S APPROVAL OF THE PROPOSED METHOD OF CONNECTION PRIOR TO ORDERING AND INSTALLING MATERIALS.

11. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AT ALL INTERSECTIONS OF PROPOSED WORK AND EXISTING UTILITIES. THE EXPLORATORY EXCAVATIONS SHALL BE MADE 48 HOURS OR 1,000 FEET IN ADVANCE OF THE WORK, WHICHEVER IS GREATER. IF THERE IS A POTENTIAL CONFLICT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. INFORMATION ON THE OBSTRUCTION TO BE FURNISHED BY THE CONTRACTOR SHALL INCLUDE: LOCATION, ELEVATION, UTILITY TYPE, MATERIAL AND SIZE.

12. ALL WATER OR SEWER SERVICE CONNECTIONS, INTERRUPTIONS OR RELOCATION'S SHALL BE COORDINATED IN ADVANCE WITH FIELD REPRESENTATIVES OF THE TOWN OF HOWEY.

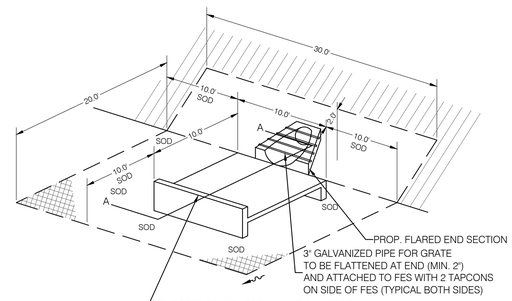
13. ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, OR SCREWED PIPING, SHALL BE PROVIDED WITH RESTRAINING DEVICES AT ALL DIRECTION CHANGES, UNLESS OTHERWISE NOTED. SEE THRUST RESTRAINT SPECIFICATION DETAILS AND NOTES.

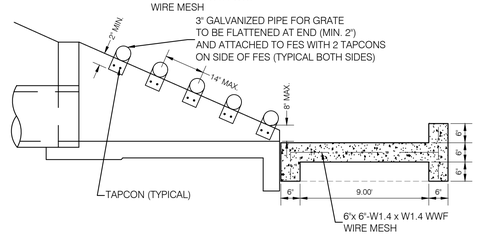
14. ALL AREAS WHERE LANDSCAPING, SOD, OR IRRIGATION HAS BEEN REMOVED OR DISTURBED BY CONTRACTOR'S OPERATIONS SHALL BE RESODDED, LANDSCAPED, OR REPAIRED WITH LIKE KIND.

15. ALL EXISTING PROPERTY, FENCING, DRIVEWAYS, PIPING, SIDEWALKS, SIGNS AND OTHER ITEMS SHALL BE RESTORED TO ORIGINAL LINE AND GRADE UNLESS APPROVED BY THE ENGINEER. ACCESS TO ADJOINING PROPERTY ALONG THE PROPOSED ROUTE SHALL BE MAINTAINED AT ALL TIMES.

16. IN THE EVENT THAT THE POTABLE WATER SYSTEM IS CONTAMINATED (I.E., WATER DOES NOT MEET FEDERAL AND STATE REQUIREMENTS) DUE TO CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE, UNDER THE DIRECTION OF THE OWNER, OR STATE AND LOCAL REGULATORY AGENCY FOR CORRECTING ANY SUCH CONTAMINATION PROBLEM INCLUDING DISINFECTION, TESTING AND OTHER CORRECTIVE ACTION.

17. WHEN CONSTRUCTION ACTIVITIES DISTURB AREAS WITHIN 10 FEET OF A TOP OF BANK FOR ANY WATERWAY OR WATER SURFACE, THE CONTRACTOR SHALL PROVIDE CROSSING AND SEDIMENTATION CONTROL MEASURES AS DETAILED, SPECIFIED OR AS REQUIRED BY THE JURISDICTIONAL REGULATORY AGENCIES; WHICHEVER REQUIREMENT IS MORE STRINGENT.





TYPICAL SPLASH PAD DETAIL

NOT TO SCALE

18. THE SHOWN LOCATIONS OF RIGHTS-OF-WAY AND UTILITIES ARE APPROXIMATE. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO EXACTLY LOCATE ALL RIGHTS-OF-WAY AND UTILITY LINES IN THE CONSTRUCTION AREA PRIOR TO EXCAVATION. ANY DAMAGE TO ANY EXISTING UTILITY, STRUCTURE OR SERVICE SHALL BE REPAIRED, AT THE CONTRACTOR'S EXPENSE, IN A MANNER APPROVED BY THE RESPECTIVE UTILITY OWNER.

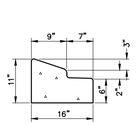
19. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES AS PER FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ROADWAY AND TRAFFIC DESIGN STANDARDS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS.

20. REMOVAL OF TREES GREATER THEN 4-INCH BASAL DIAMETER SHALL BE ONLY AS DIRECTED BY THE OWNER/ENGINEER. CONTRACTOR SHALL LIMIT TO A MINIMUM THE AMOUNT OF TREE REMOVAL, CLEARING AND GRUBBING REQUIRED BY TRIMMING TREES WHEREVER POSSIBLE.

21. CONTRACTOR SHALL NOTIFY AND COORDINATE WITH AFFECTED PROPERTY OWNERS AND OWNER/ENGINEER ONE WEEK IN ADVANCE OF TREE CLEARING AND GRUBBING. ALL DEBRIS FROM TREE CLEARING AND GRUBBING SHALL BE REMOVED. AT THE CONTRACTORS EXPENSE.

22. ALL ELEVATIONS SHOWN ON THESE DRAWINGS REFER TO NATIONAL GEODETIC VERTICAL DATUM (NGVD): 88 DATUM.

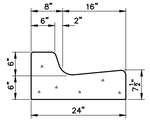
23. THE CONTRACTOR SHALL REPLACE ALL PAVING, SODDING, STABILIZED EARTH, LANDSCAPING, DRIVEWAYS, SIDEWALKS, IRRIGATION SYSTEMS, UNDERGROUND PIPING, ETC., DISTURBED OR DAMAGED BY THE CONSTRUCTION. THE CONTRACTOR SHALL REPLACE WITH EQUAL MATERIAL OR AS DIRECTED BY THE ENGINEER.



TYPE "A" CURB DETAIL

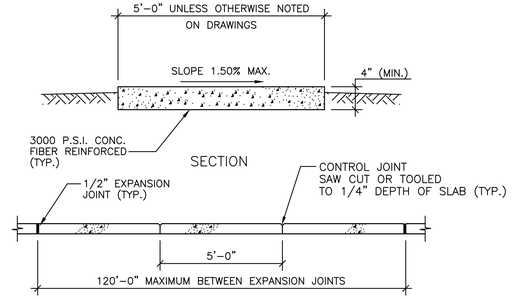
NOT TO SCALE

FOR CORNER RADII ON ALL CURBS SHOWN, SEE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS, INDEX 300 TO BE CONSTRUCTED WITH 3000 PSI CONCRETE WITH 1/8" TO 1/4" CONTROL JOINTS AT 10.00' CENTERS



TYPE "F" CURB DETAIL

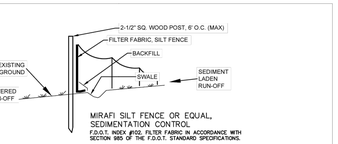
NOT TO SCALE



PROFILE

CONCRETE SIDEWALK DETAIL

NOT TO SCALE



MIRAFI SILT FENCE OR EQUAL, SEDIMENTATION CONTROL
F.D.O.T. INDEX #102. FILTER FABRIC IN ACCORDANCE WITH SECTION 985 OF THE F.D.O.T. STANDARD SPECIFICATIONS.

NOTES:
1. TEMPORARY EROSION CONTROL STRUCTURE TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY ENGINEER OR AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURE MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY CONTRACTOR.
2. CONSTRUCT STORMWATER SYSTEMS BEFORE ANY BUILDING OR ROAD CONSTRUCTION IS STARTED.
   a.) PROTECT SYSTEM FROM SILTING AND DEBRIS BY METHODS PROVIDED IN DETAILS.
   b.) PROTECT SWALE BOTTOM FROM SEALING BY EXCAVATING ALL SILT DEPOSITS DURING CONSTRUCTION. THIS SHALL BE DONE BEFORE SOD & SEEDING & MULCHING IS FINISHED

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PRACTICAL TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT.

NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

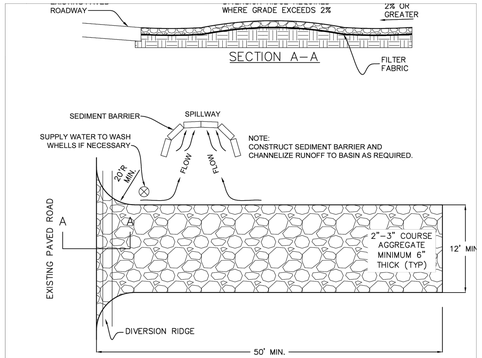
SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCKPILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATERCOURSE BY RUNOFF OR HIGH WATER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

EROSION & SEDIMENT CONTROL (N.T.S.)

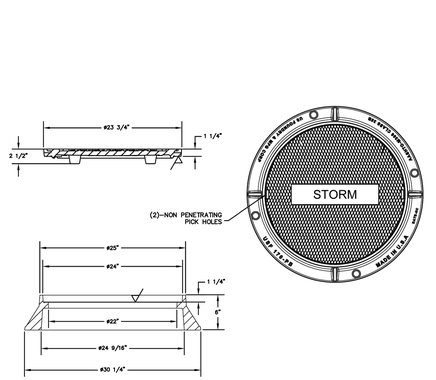
Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL G-1



NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OR-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. ALL MATERIALS SPILLED, DROPPED, OR TRACKED ONTO PUBLIC ROADS (INCLUDING AGGREGATE AND CONSTRUCTION MUD) SHALL BE REMOVED DAILY, OR MORE FREQUENTLY IF SO DIRECTED.

TEMPORARY CONSTRUCTION ENTRANCE (N.T.S.)

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL R-23

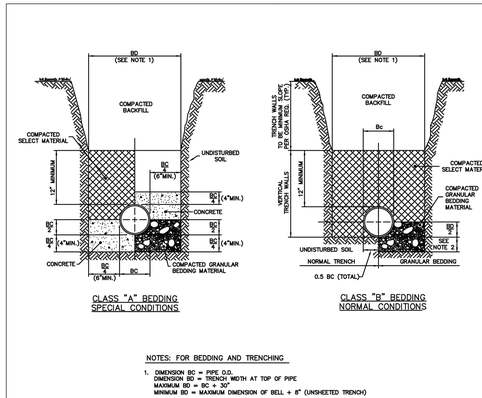


*MODEL USF 170-PB RING AND CE-PB COVER
RING NO. 8021468
COVER NO. 8017533
MATERIAL AASHTO M306 GRAY IRON CLASS35B

STORMWATER MANHOLE COVER

NOT TO SCALE

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL SW-1



NOTES: FOR BEDDING AND TRENCHING
1. DIMENSION BC = PIPE O.D.
   DIMENSION BD = TRENCH WIDTH AT TOP OF PIPE
   MAXIMUM BD = BC + 30"
   MINIMUM BD = MAXIMUM DIMENSION OF BELL + 8" (UNSHEETED TRENCH)
2. DEPTH FOR REMOVAL FOR UNSUITABLE MATERIAL SHALL BE AS REQUIRED TO REACH SUITABLE FOUNDATION. FOR ROCK OR OTHER NON-CUSHIONING MATERIAL, DEPTH SHALL BE 6" BELOW BOTTOM OF UTILITY.
3. ALL BACKFILL AND SELECT MATERIAL UNDER ALL ROADWAYS, DRIVES (INCLUDING DIRT DRIVES), AND PARKING AREAS SHALL BE COMPACTED TO 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180). BACKFILL AND SELECT MATERIAL UNDER ALL OTHER AREAS SHALL BE COMPACTED AS FOLLOWS: FROM BOTTOM OF TRENCH TO 12" ABOVE TOP OF PIPE - 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180). FROM 12" ABOVE TOP OF PIPE TO TOP OF BACKFILL - 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180)

TRENCHING AND BEDDING

NOT TO SCALE

Howey-in-the-Hills Standard Details	DATE: FEB 2022
	DETAIL PW-2

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
FAX: (352) 343-8488
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

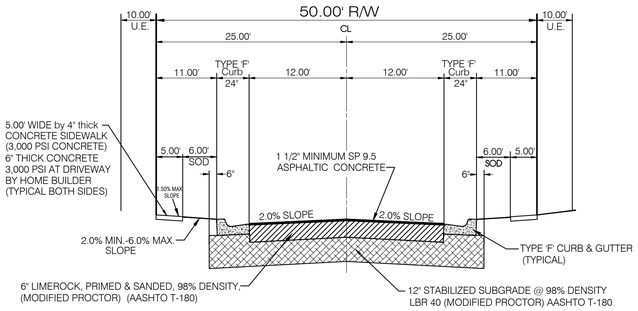
HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

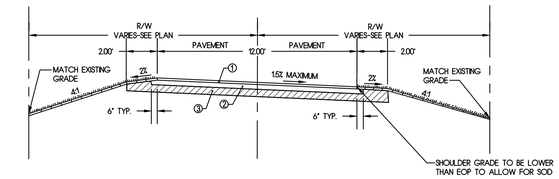
SHEET TITLE:
PAVING & DRAINAGE DETAILS

C-800

FILE NAME: A:\45000s\45548003\LD\CADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:05 AM, USER: ahs122



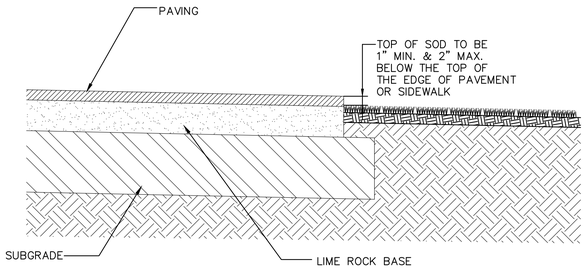
TYPICAL ROAD SECTION
N.T.S.



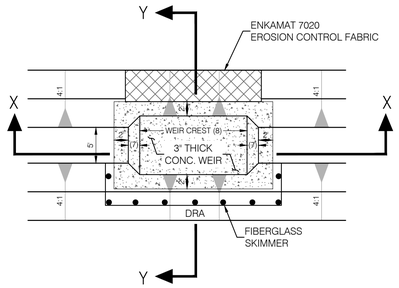
KEY	THICKNESS	SPECIFICATIONS
1	1.5"	STRUCTURAL ASPHALT, S.P. 9.5
2	6"	LIMEROCK-98% COMPACTION, AASHTO T-180, PRIME AND SAND
3	12"	TYPE B STABILIZATION, LBR 40, 98% COMPACTION, A.A.S.H.T.O. T-180

NOTES:
1. ALL STRIPES TO BE PAINT U.N.O.
2. SOD ALL DISTURBED AREAS.
3. CONTRACTOR SHALL USE A MINIMUM TRANSITION SLOPE OF 1:00 WHEN ROTATING CROSS SLOPE.

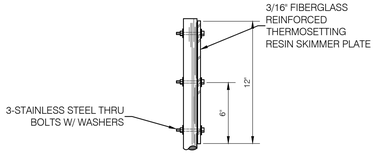
MULTI-USE TRAIL TYPICAL SECTION
N.T.S.



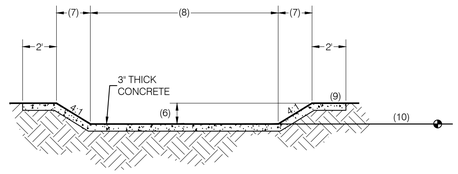
SOD PLANTING
N.T.S.



PLAN VIEW



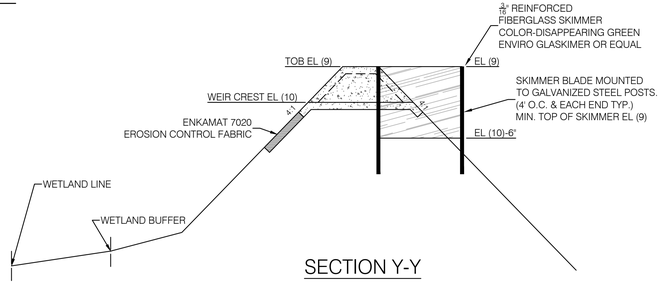
SKIMMER DETAIL



TYPICAL WEIR SECTION
NOT TO SCALE

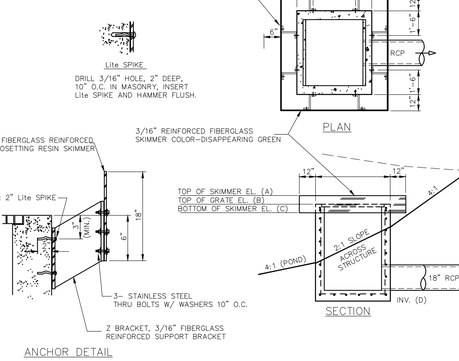
	WEIR SECTION DATA				
	(6) (F.T.)	(7) (F.T.)	(8) (F.T.)	(9) (ELEV.)	(10) (ELEV.)
DRA 3	2.25	9.00	10.00	90.00	87.75
DRA 5	1.75	7.00	10.00	94.00	92.25
DRA 5A	1.25	5.00	10.00	92.00	90.75

SECTION X-X



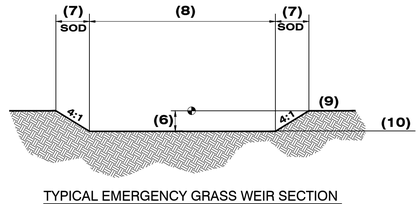
SECTION Y-Y

WEIR DETAIL
NOT TO SCALE



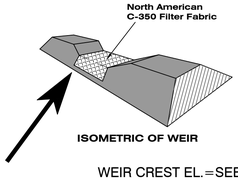
CONTROL STRUCTURE INLET
FDOT TYPE C-DBI
w/ SKIMMER DETAIL
F.D.O.T. INDEX #425-052

POND NO.	INLET TYPE	A	B	C	D	E	F
DS_PB-1	C	87.75	87.25	86.75	82.33	82.00	85.25



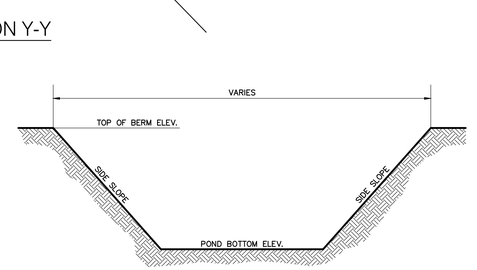
TYPICAL EMERGENCY GRASS WEIR SECTION

WEIR SECTION DATA					
WRA NUMBER	(6) (ft)	(7) (ft)	(8) (ft)	(9) (elev)	(10) (elev)
WR-PB-4	0.25'	1.00'	10.00'	125.00	124.75



ISOMETRIC OF WEIR

WEIR CREST EL.=SEE PLAN

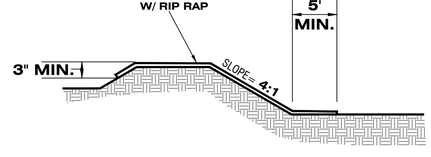


TYPICAL POND SECTION

POND NO.	TOP OF BERM	BTM. ELEV.	24YR-96HR ELEV.	SLOPE (MAX.)
DRA 1	89.00	84.00	88.17	4:1
DRA 2	89.00	84.00	88.20	4:1
DRA 3	90.00	85.00	88.38	4:1
DRA 4	125.00	120.00	123.47	4:1
DRA 5	94.00	89.00	92.49	4:1
DRA 5A	92.00	87.00	90.85	4:1

NOTE:
SOD ALL SIDE SLOPES
SEED AND MULCH BOTTOM

NOTES:
1. MAXIMUM SIDE SLOPES NOT TO EXCEED 4:1.



GRASS WEIR SECTION
NTS

FILE NAME: A:\45000s\45548\003\LD\CADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:05 AM, USER: ah5122

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

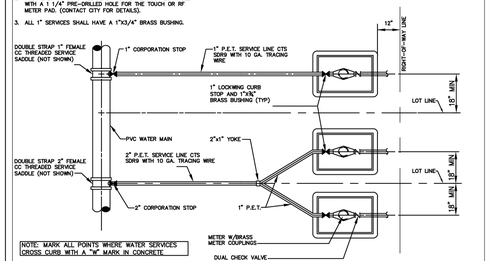
THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:
BRETT J. TOBIAS 69017
NAME PE LICENSE NO.
7/28/25
DATE
THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:
HALFF ASSOCIATES, INC.
HALFF ASSOCIATES, INC. FL
FIRM OR BUSINESS NO. STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

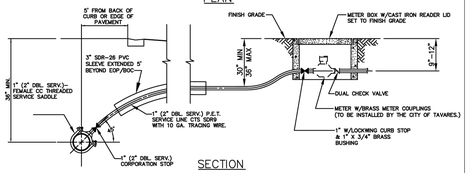
SHEET TITLE:
PAVING & DRAINAGE DETAILS

C-801

NOTES:
1. METERS TO BE INSTALLED BY THE CITY OF TAVARES.
2. ALL METER BOXES SHALL BE STANDARD PLASTIC RECTANGLE WITH A 1 1/4" PRE-DRILLED HOLE FOR THE TOUCH OR RF METER PAD. (CONTACT CITY FOR DETAILS).
3. ALL 1" SERVICES SHALL HAVE A 1"x3/4" BRASS BUSHING.



PLAN



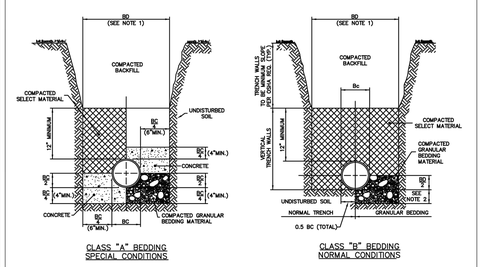
SECTION

SERVICE CONNECTION—SINGLE FAMILY

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-1



CLASS "A" BEDDING SPECIAL CONDITIONS

CLASS "B" BEDDING NORMAL CONDITIONS

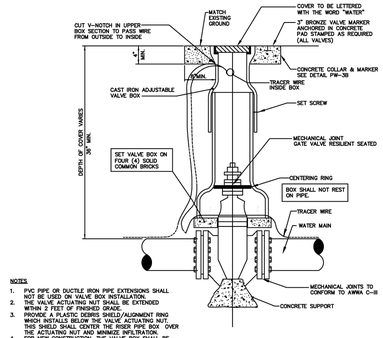
NOTES: FOR BEDDING AND TRENCHING

1. DIMENSION Bc = PIPE O.D.
   DIMENSION BD = TRENCH WIDTH AT TOP OF PIPE
   MAXIMUM BD = Bc + 30"
   MINIMUM BD = MAXIMUM DIMENSION OF BELL + 8" (UNSHEETED TRENCH)
2. DEPTH FOR REMOVAL FOR UNSUITABLE MATERIAL SHALL BE AS REQUIRED TO REACH SUITABLE BEARING STRATA OR TO OTHER NON-CUSHIONING MATERIAL. DEPTH SHALL BE 6" BELOW BOTTOM OF U/SUITY.
3. ALL BACKFILL AND SELECT MATERIAL UNDER ALL ROADWAYS, DRIVES (INCLUDING DIRT DRIVES), AND PARKING AREAS SHALL BE COMPACTED TO 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. (AASHTO T-180). BACKFILL AND SELECT MATERIAL UNDER ALL OTHER AREAS SHALL BE COMPACTED AS FOLLOWS: FROM BOTTOM OF TRENCH TO 12" ABOVE TOP OF PIPE — 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180). FROM 12" ABOVE TOP OF PIPE TO TOP OF BACKFILL — 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180)

TRENCHING AND BEDDING

NOT TO SCALE

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-2

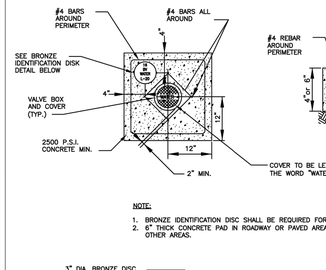


NOTES:
1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE A PLASTIC DEBRIS SHIELD/ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE VALVE ACTUATING NUT AND PREVENT DEBRIS FROM FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MISRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
4. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

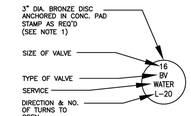
GATE VALVE AND BOX

NOT TO SCALE

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-3A



NOTE:
1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.
2. 6" THICK CONCRETE PAD IN ROADWAY OR PAVED AREAS, 4" THICK CONCRETE PAD IN OTHER AREAS.

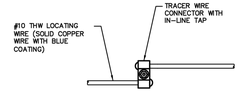


BRONZE IDENTIFICATION DISC DETAIL

VALVE COLLAR

NOT TO SCALE

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-3B

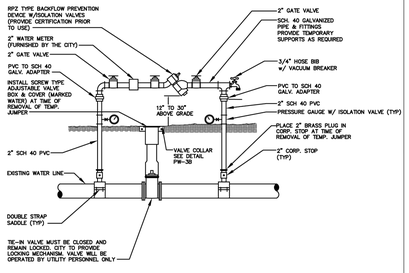


NOTES:
1. TRACER WIRE CONNECTOR SHALL BE DIRECT BURY, SELF-STRIPPING, LOCKING.
2. AFTER INSTALLATION OF THE LOCATING WIRE THE SYSTEM SHALL BE SUBJECTED TO TESTING, IN THE PRESENCE OF CITY UTILITY DIRECTOR OR HIS DESIGNEE PRIOR TO BACKFILL, IN ORDER TO CONFIRM THAT THE SYSTEM IS FUNCTIONAL.

LOCATING WIRE SPLICING

NOT TO SCALE

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-5



TEMPORARY JUMPER CONNECTION

NOT TO SCALE

NOTE: LOCATION TO BE DETERMINED AT TIME OF PRECONSTRUCTION CONFERENCE W/ CITY.

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-6A

TEMPORARY JUMPER CONNECTION NOTES

1. A TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS.
2. THE DETAILS TO BE USED FOR FILLING ANY WATER MAIN OF ANY SIZE FROM EXISTING ACTIVE WATER MAINS AND FOR FLUSHING OF NEW MAINS UP TO 8" DIAMETER (2.5 FPS MINIMUM VELOCITY) AND FOR PULLING BACTEROLOGICAL SAMPLES FROM ANY NEW WATER MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER FILLING, FLUSHING, TESTING AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AND OTHER PERTINENT AGENCIES HAS BEEN RECEIVED. THE JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI IN THE NEW MAINS ALL THE TIME. AFTER DISINFECTION AND UNTIL THE FDEP CLEARANCE LETTER IS OBTAINED. ADEQUATE RESTRAINTS SHALL BE PROVIDED TEMPORARILY, AS REQUIRED. PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, LATEST EDITION. THIS TAPPING SLEEVE AND THE EXTERIOR OF THE MAIN TO BE TAPPED SHALL BE DISINFECTED BY SPRAYING OR SWABBING PER SECTION II OF AWWA C561, LATEST EDITION.
3. FLUSHING OF 10" DIAMETER AND LARGE WATER MAINS MAY BE DONE THROUGH THE TIE-IN VALVE, IN THE PRESENCE OF THE UTILITY DIRECTOR OR HIS DESIGNEE. THE UTILITY DEPARTMENT WILL NOTIFIED IN WRITING 48 HOURS PRIOR TO THE FLUSHING OF SAID MAINS.

   THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:

   A. THE TIE-IN VALVES SHALL BE OPERATED AND PRESSURE TESTED IN THE PRESENCE OF THE UTILITY COMPANY AND ENGINEER TO VERIFY WATER TIGHTNESS PRIOR TO THE TIE-IN. VALVES WHICH ARE NOT WATERTIGHT SHALL BE REPLACED OR A NEW VALVE INSTALLED IMMEDIATELY ADJACENT TO THE LEAKING VALVE.

   B. THE TEMPORARY JUMPER CONNECTION SHALL BE CONSTRUCTED AS DETAILED. THE JUMPER CONNECTION SHALL BE USED TO FILL THE NEW WATER MAIN AND FOR PROVIDING WATER FOR BACTERIOLOGICAL SAMPLING OF THE NEW MAIN AS REQUIRED BY THE FDEP PERMIT.
      - FLUSHING SHALL NOT BE ATTEMPTED DURING PEAK DEMAND HOURS OF THE EXISTING WATER MAIN.
      - ALL DOWNSTREAM VALVES IN THE NEW SYSTEM MUST BE OPEN PRIOR TO OPENING THE TIE-IN VALVE.
      - PROVIDE FOR AND MONITOR THE PRESSURE AT THE TIE-IN POINT, THE PRESSURE IN THE EXISTING MAIN MUST NOT DROP BELOW 35 psi.
      - TIE-IN VALVE SHALL BE OPENED A FEW TURNS ONLY, ENSURING A PRESSURE DROP ACROSS THE VALE IS ALWAYS GRATER THAN 10 psi.

   C. THE TIE-IN VALVE SHALL BE LOCKED CLOSED BY THE CITY UNTIL FLUSHING BEGINS.

   D. THE TIE-IN VALVE SHALL BE OPENED ONLY A FEW TURNS FOR FLUSHING OF THE NEW MAIN. THE PROCEDURE SHALL BE DIRECTED BY THE CITY AND OBSERVED BY THE ENGINEER.

   E. AFTER FLUSHING, THE TIE-IN VALVE SHALL BE CLOSED AND LOCKED IN THE CLOSED POSITION BY THE CITY.
4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION DEMONSTRATING THAT THE RPZ BACKFLOW PREVENTION DEVICE HAS BEEN TESTED WITHIN ONE YEAR AT THE TIME OF INSTALLATION AND IS IN GOOD WORKING ORDER AT THE TIME OF INSTALLATION. THE TEST SHALL BE PERFORMED BY A QUALIFIED BACKFLOW PREVENTION TECHNICIAN.
5. EXCEPT AS REQUIRED TO FLUSH LINES OF GREATER THAN 8" IN DIAMETER, THE TIE-IN VALVE SHALL REMAIN CLOSED AND SHALL BE LOCKED IN THE CLOSED POSITION BY THE CITY. THE TIE-IN VALVE SHALL REMAIN LOCKED CLOSED UNTIL THE NEW SYSTEM HAS BEEN CLEARED FOR USE BY FDEP AND ALL OTHER PERTINENT AGENCIES.
6. UPON RECEIPT OF CLEARANCE FOR USE FROM FDEP AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2" BRASS PLUGS.
7. ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION DEVICE FITTINGS, VALVE, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL PW-6B

1. ALL RECLAIMED WATER PIPING TO BE OWNED AND MAINTAINED BY THE TOWN SHALL BE A SOLID PANTONE PURPLE COLOR.
2. RECLAIMED WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 18 FOR PIPE SIZES 4"–12". PIPES 14" & LARGER SHALL BE AWWA C-905, DR 25. PRESSURE CLASS 350 DIP IS AN ACCEPTABLE ALTERNATE. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION FOR LAYING SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS LATEST RECOMMENDATIONS.
3. DEPTH OF RECLAIMED WATER LINES TO BE 36" MIN. BELOW FINISHED GRADE.
4. RECLAIMED WATER MAINS TO BE LOCATED 5' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
5. ALL PIPING CLEARANCES SHALL BE IN ACCORDANCE WITH CHAPTER 62–555.314, F.A.C.
6. ALL RECLAIMED WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON PIPE AND SHALL EXTEND 5' BEYOND THE EDGE OF PAVEMENT OR BACK OF CURB, EXCEPT DIRECTIONAL BORES, WHICH SHALL BE SDR–11 HDPE.
7. ALL IRRIGATION SLEEVING UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE EDGE OF PAVEMENT OR BACK OF CURB.
8. ALL OTHER REQUIREMENTS OF THE TOWN WATER SYSTEM SHALL APPLY TO THE RECLAIMED WATER SYSTEM.
9. PROPER SIGNAGE FOR PUBLIC ACCESS IRRIGATION AREAS TO BE SUPPLIED BY THE DEVELOPER / CONTRACTOR, IN ACCORDANCE WITH CHAPTER 62–610.418, F.A.C.

GENERAL RECLAIMED WATER NOTES

Howey-in-the-Hills	DATE: FEB 2022
Standard Details	DETAIL RW-1

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS

LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS — LICENSE — No. 69017 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'
SHEET TITLE:	WATER DETAILS

C-900

FILE NAME: A:\45000s\45548003\LD\CADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:05 AM, USER: ahS122

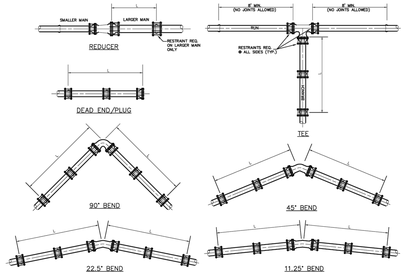


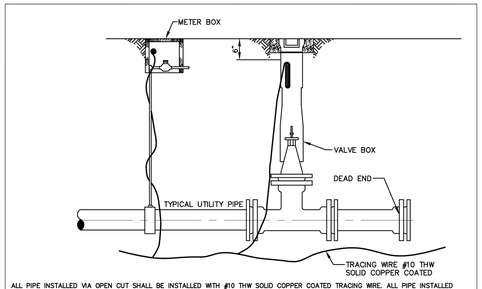
TABLE OF THRUST RESTRAINT LENGTHS																			
PIPE DIAMETER	90° BEND		45° BEND		22.5° BEND		11.25° BEND		TEES		DEAD END & PLUGS		REDUCER						
	P.V.C. SCH 40	DUCTILE IRON CL 52	P.V.C. SCH 40	DUCTILE IRON CL 52	P.V.C. SCH 40	DUCTILE IRON CL 52	P.V.C. SCH 40	DUCTILE IRON CL 52	P.V.C. SCH 40	DUCTILE IRON CL 52	P.V.C. SCH 40	DUCTILE IRON CL 52	PIPE SIZES	P.V.C. SCH 40	DUCTILE IRON CL 52				
4	20'	16'	8'	7'	4'	3'	2'	2'	15'	10'	45'	29'	6"x4"	33'	21'				
6	28'	22'	12'	9'	6'	4'	3'	2'	33'	21'	63'	40'	8"x6"	34'	22'				
8	36'	29'	15'	12'	7'	5'	4'	3'	52'	33'	82'	52'	10"x8"	33'	21'				
10	43'	34'	18'	14'	9'	7'	4'	3'	68'	43'	98'	63'	12"x10"	34'	22'				
12	50'	40'	21'	17'	10'	8'	5'	4'	84'	54'	116'	74'	16"x12"	83'	40'				
16	63'	51'	26'	21'	13'	10'	6'	5'	116'	74'	146'	94'	18"x16"	33'	21'				
18	70'	56'	29'	23'	14'	11'	7'	6'	131'	83'	163'	103'	20"x18"	33'	21'				
20	75'	61'	31'	25'	15'	12'	7'	6'	145'	92'	176'	113'	20"x20"	82'	39'				
24	86'	70'	36'	29'	17'	14'	9'	7'	173'	110'	207'	132'							

THRUST RESTRAINT DESIGN NOTES

1. RESTRAINT JOINTS, FITTINGS, & VALVE REQUIREMENTS CALCULATED BY THE THRUST RESTRAINT DESIGN PROGRAM PROVIDED BY EBBA IRON SALES, INC.
2. DATA BASED ON MAX. PRESSURE OF 150 p.s.i., THE UNIFIED SOILS CLASSIFICATION SYSTEM (SOIL TYPE SP), THE PIPE BEDDED IN NATIVE SOIL w/ A MINIMUM OF 2.5' COMPACTED FILL OVER THE PIPE, AND USING A SAFETY FACTOR OF 1.5 FOR THE DATA.
3. ALL FITTINGS & VALVES SHALL HAVE RESTRAINED WITH "MEGA-LUG" RESTRAINTS, & ALL BELL & SPIGOT JOINTS TO BE RESTRAINED WITH A RESTRAINING HARNESS WITHIN THE REQUIRED LENGTH OF RESTRAINED PIPE (L).

THRUST RESTRAINT
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-7



ALL PIPE INSTALLED VIA OPEN CUT SHALL BE INSTALLED WITH #10 THW SOLID COPPER COATED TRACING WIRE. ALL PIPE INSTALLED VIA HDD SHALL BE INSTALLED WITH TWO #10 COPPER CLAD STEEL WIRES.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT, LOCATE WIRE BOX, OR OTHER APPLICABLE STRUCTURE.

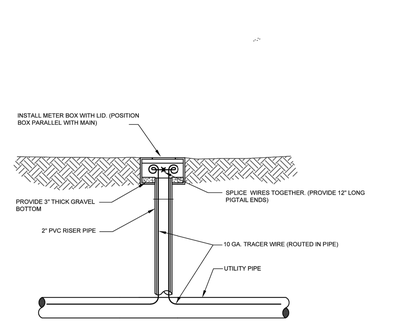
COLOR CODING:

POTABLE WATER SYSTEM: BLUE
REUSE WATER SYSTEM: PANTONE PURPLE
SANITARY SEWER, FORCE MAINS AND LOW PRESSURE SEWER SYSTEMS: GREEN

1. FOR LOW PRESSURE SEWER, POTABLE WATER AND REUSE WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL, CITY OF TAVARES APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.
6. UTILITY TRACING WIRE SHALL BE IN ACCORDANCE WITH CITY CSM AND PER CITY'S APPROVED MANUFACTURER LIST.

UTILITY PIPE LOCATION MATERIAL – WIRE
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-8



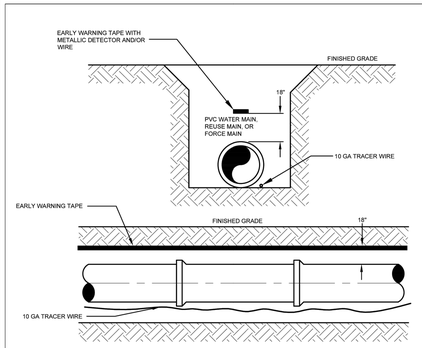
TRACER WIRE BOX UTILIZING METER BOX

NOTES:

1. TRACER WIRE STATION BOX TO BE INSTALLED WHERE THE WIRE CANNOT BE BROUGHT TO GRADE IN A VALVE BOX WITHIN THE MANDATORY 500 FOOT INTERVAL OR WHERE A SPLICE MUST BE MADE ON THE TRACER WIRING. NO UNDERGROUND SPLICES.
2. BOXES SHALL NOT BE LOCATED IN ROADWAYS OR DRIVEWAYS.
3. BOX AND LID PER DETAIL PW-19.
4. TRAFFIC RATED LID (STANDARD-NON BOLT DOWN)
5. LID COLOR SHALL BE PRE-MANUFACTURED OR PAINTED TO MATCH SERVICE (BLUE= POTABLE WATER, GREEN=WASTEWATER, PANTONE PURPLE=RECLAIMED WATER)

TRACER WIRE BOX
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-9

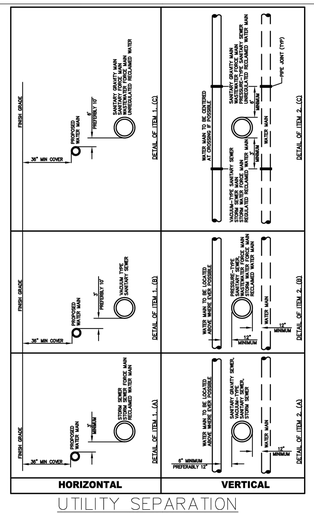


NOTES:

1. ALL MAINS INSTALLED BY OPEN CUT SHALL HAVE AN "EARLY WARNING" PROTECTION TAPE AND WIRE INSTALLED CONTINUOUSLY ALONG THE ALIGNMENT. THE PROTECTION TAPE SHALL BE PER THE CITY'S APPROVED MANUFACTURER LIST. TAPE SHALL BE INSTALLED DURING BACKFILLING 18" ABOVE THE PIPE AND SHALL BE CONTINUOUSLY MARKED FOR THE TYPE OF PIPE (EXAMPLE: CAUTION, WATER MAIN BURIED BELOW"). THE TAPE SHALL HAVE A METALLIC DETECTABLE STRIP INCLUDED AND COLOR CODED AS FOLLOWS:
   BLUE - POTABLE WATER
   GREEN - SANITARY FORCE MAIN, GRAVITY SEWER, LOW PRESSURE MAIN
   PANTONE PURPLE - RECLAIMED WATER
   RED - DEDICATED FIRE LINE
2. ALL PVC MAINS SHALL BE A SOLID COLOR AS DESCRIBED ABOVE.
   ALL DUCTILE IRON MAINS SHALL BE WRAPPED WITH COLOR CODED BAGS.
   ALL POTABLE WATER PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION (NSL) SEAL OF APPROVAL.

UTILITY PIPE LOCATION MATERIAL – TAPE
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-10



UTILITY SEPARATION
NOT TO SCALE

Howey-in-the-Hills
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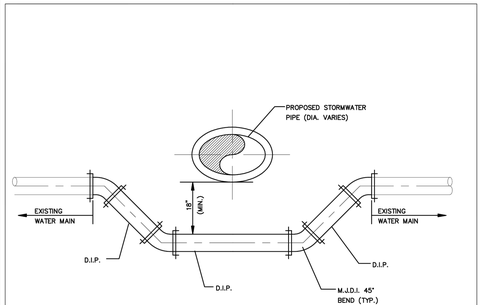
DETAIL PW-11A



NOTES:

1. ALL PROPOSED JOINTS SHALL BE RESTRAINED.
2. ALL EXISTING JOINTS WITHIN SHALL BE RESTRAINED IN ACCORDANCE WITH GR-6.
3. ALL PIPING CLEARANCES SHALL BE IN ACCORDANCE WITH CHAPTER 62-555.314 F.A.C.

WATER LINE CROSSING
NOT TO SCALE

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-11B

GENERAL WATER NOTES

1. WATER SYSTEM COMPONENTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS, CLEANED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND CHAPTER 62-555 FLORIDA ADMINISTRATIVE CODE.
2. ALL PIPING SHALL BEAR THE "NSF" SEAL FOR POTABLE WATER.
3. WATER MAINS SHALL BE PVC CONFORMING TO AWWA C-900, DR 18 FOR PIPE SIZES 4"-12". PIPES 14" OR LARGER SHALL BE AWWA C-905, DR 18. ALL COUPLINGS, CLEANING COMPOUNDS, SOLVENTS, LUBRICANTS, AND PIPE PREPARATION, FOR LAYING, SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S LATEST RECOMMENDATIONS.
4. DEPTH OF WATER LINES TO BE 36" MINIMUM COVER FROM FINISH GRADE.
5. WATER MAINS TO BE LOCATED 5' FROM BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. ALL WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON.
7. ALL CASINGS UNDER PAVEMENT SHALL EXTEND 5' BEYOND THE BACK OF CURB.
8. DISINFECTING: FOLLOWING THE PRESSURE TESTING, THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE NEW WATER DISTRIBUTION SYSTEM. DISINFECTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF AWWA STANDARD C651 "DISINFECTING WATER MAINS", AND ALL APPROPRIATE AGENCY APPROVAL.
9. ALL HYDROSTATIC TESTS SHALL BE IN ACCORDANCE WITH AWWA C600 FOR DUCTILE IRON PIPE AND C605/M23 FOR PVC PIPE
10. ALL WATER MAINS SHALL BE INSTALLED, PRESSURE AND LEAK TESTED IN ACCORDANCE WITH AWWA C600, (62-555.320(21)(B)1 AND 62-555.330, F.A.C. ALL INSTALLATION, TESTING AND FIELD PROCEDURES MUST BE PROVIDED AND MUST CONFORM TO THE APPLICABLE AWWA STANDARDS.
11. ALL PIPING MATERIALS AND SPECIFICATIONS COVERING PIPES, JOINTS AND PACKING MATERIALS, INTERNAL COATING AND LININGS, FITTINGS, SPECIALS AND APPURTENANCES SHALL ALL BE IN ACCORDANCE WITH THE CORRESPONDING AWWA STANDARDS AND BE CONFORMING TO NSF REQUIREMENTS, AS MAY BE APPLICABLE, WITH EXCEPTIONS ALLOWED ONLY IF DOCUMENTATION AND ASSURANCES ARE PROVIDED IN COMPLIANCE WITH PARAGRAPHS 62-555.320(3) (D), 622-555.320 (3) (B), AND 62-555.320 (21) (C), F.A.C. THE LEAD USE PROHIBITION IN RULE 62-555.322, F.A.C. SHALL ALSO APPLY. POLYETHYLENE TUBING SHALL BE PER AWWA C901. UNDERGROUND SERVICE LINES AND VALVES SHALL BE PER AWWA C800.

COLOR CODING:

ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320(21)(B)3, F.A.C., USING BLUE AS A PREDOMINANT COLOR. (UNDERGROUND PLASTIC PIPE WILL BE SOLID-WALL BLUE PIPE, WILL HAVE A CO-EXTRUDED BLUE EXTERNAL SKIN, OR WILL BE WHITE OR BLACK PIPE WITH BLUE STRIPES INCORPORATED INTO, OR APPLIED TO, THE PIPE WALL; AND UNDERGROUND METAL OR CONCRETE PIPE WILL HAVE BLUE STRIPES APPLIED TO THE PIPE WALL. PIPE STRIPED DURING MANUFACTURING OF THE PIPE WILL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE AXIS OF THE PIPE, THAT ARE LOCATED AT NO GREATER THAN 90-DEGREE INTERVALS AROUND THE PIPE, AND THAT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIPE PIPE DURING INSTALLATION OF THE PIPE, THE TAPE OR PAINT WILL BE APPLIED IN A CONTINUOUS LINE THAT RUNS PARALLEL TO THE AXIS OF THE PIPE AND THAT IS LOCATED ALONG THE TOP OF THE PIPE; FOR PIPE WITH AN INTERNAL DIAMETER OF 24 INCHES OR GREATER, TAPE OR PAINT WILL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE. ABOVEGROUND PIPE WILL BE PAINTED BLUE OR WILL BE COLOR CODED OR MARKED LIKE UNDERGROUND PIPE.) [FAC 62CELL 555.320(21)(B)3]

UNLESS DESCRIBED IN THE CITY CSM ELSEWHERE, ALL WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH **CHAPTER 62-555.314, F.A.C.,** AND ANY UPDATES TO THE F.A.C., AND IN CONFORMANCE WITH ALL SEPARATION REQUIREMENTS AS FOUND THEREIN.

62-555.314 LOCATION OF PUBLIC WATER SYSTEM MAINS.

FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS, INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER; FIRE HYDRANT LEADS; AND SERVICE LINES THAT ARE UNDER THE CONTROL OF A PUBLIC WATER SYSTEM AND THAT HAVE AN INSIDE DIAMETER OF THREE INCHES OR GREATER.

(1) HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

(A) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C

(B) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.

(C) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-11C

GENERAL WATER NOTES

(D) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

(2) VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS AND RECLAIMED WATER PIPELINES.

(A) NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.

(3) SEPARATION BETWEEN WATER MAINS AND SANITARY OR STORM SEWER MANHOLES:

(A) NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE.

(B) EFFECTIVE AUGUST 28, 2003, WATER MAINS SHALL NOT BE CONSTRUCTED OR ALTERED TO PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A STORM SEWER MANHOLE OR INLET STRUCTURE. WHERE IT IS NOT TECHNICALLY FEASIBLE OR ECONOMICALLY SENSIBLE TO COMPLY WITH THIS REQUIREMENT (I.E., WHERE THERE IS A CONFLICT IN THE ROUTING OF A WATER MAIN AND A STORM SEWER AND WHERE ALTERNATIVE ROUTING OF THE WATER MAIN OR THE STORM SEWER IS NOT TECHNICALLY FEASIBLE OR IS NOT ECONOMICALLY SENSIBLE), THE DEPARTMENT SHALL ALLOW EXCEPTIONS TO THIS REQUIREMENT (I.E., THE DEPARTMENT SHALL ALLOW CONSTRUCTION OF CONFLICT MANHOLES), BUT SUPPLIERS OF WATER OR PERSONS PROPOSING TO CONSTRUCT CONFLICT MANHOLES MUST FIRST OBTAIN A SPECIFIC PERMIT FROM THE DEPARTMENT AND MUST PROVIDE IN THE PRELIMINARY DESIGN REPORT OR DRAWINGS, SPECIFICATIONS, AND DESIGN DATA ACCOMPANYING THEIR PERMIT APPLICATION THE FOLLOWING INFORMATION:

1. TECHNICAL OR ECONOMIC JUSTIFICATION FOR EACH CONFLICT MANHOLE.
2. A STATEMENT IDENTIFYING THE PARTY RESPONSIBLE FOR MAINTAINING EACH CONFLICT MANHOLE.
3. ASSURANCE OF COMPLIANCE WITH THE DESIGN AND CONSTRUCTION REQUIREMENTS IN SUB-PARAGRAPHS A. THROUGH D. BELOW. - 361
   A. EACH WATER MAIN PASSING THROUGH A CONFLICT MANHOLE SHALL HAVE A FLEXIBLE, WATERTIGHT JOINT ON EACH SIDE OF THE MANHOLE TO ACCOMMODATE DIFFERENTIAL SETTLING BETWEEN THE MAIN AND THE MANHOLE.
   B. WITHIN EACH CONFLICT MANHOLE, THE WATER MAIN PASSING THROUGH THE MANHOLE SHALL BE INSTALLED IN A WATERTIGHT CASING PIPE HAVING HIGH IMPACT STRENGTH (I.E., HAVING IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE).
   C. EACH CONFLICT MANHOLE SHALL HAVE AN ACCESS OPENING, AND SHALL BE SIZED, TO ALLOW FOR EASY CLEANING OF THE MANHOLE.
   D. GRATINGS SHALL BE INSTALLED AT ALL STORM SEWER INLETS UPSTREAM OF EACH CONFLICT MANHOLE TO PREVENT LARGE OBJECTS FROM ENTERING THE MANHOLE.

(4) SEPARATION BETWEEN FIRE HYDRANT DRAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

(A) NEW OR RELOCATED FIRE HYDRANTS WITH UNDERGROUND DRAINS SHALL BE LOCATED SO THAT THE DRAINS ARE AT LEAST THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AT LEAST THREE FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER, AT LEAST SIX FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AND AT LEAST TEN FEET FROM ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.

Howey-in-the-Hills
Standard Details
DATE: FEB 2022
DETAIL PW-11D

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS
LICENSE
No. 69017
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'
SHEET TITLE:	WATER DETAILS

C-901

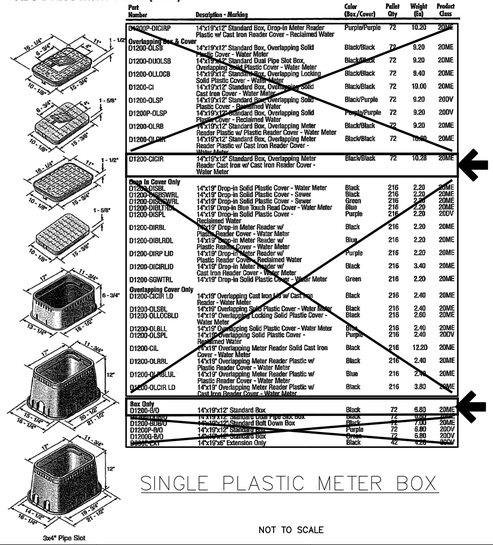
FILE NAME: A:\45000s\45548\003\LD\CADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:05 AM, USER: ahS122

NDS METER BOXES

STANDARD COMMERCIAL GRADE

NDS D1200 Meter Boxes (cont.)

Part Number	Description - Marking	Color (Box/Cover)	Pallet Qty	Weight (lbs)	Product Class
D1200P-DICIRP	14"x19"x12" Standard Box, Drop-in Meter Reader Plastic w/ Cast Iron Reader Cover - Reclaimed Water	Purple/Purple	72	10.20	20ME
Overlapping Box & Cover					
D1200-OLSB	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-DUOLSS	14"x19"x12" Standard Dual Pipe Slot Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-OLLOCB	14"x19"x12" Standard Box, Overlapping Locking Solid Plastic Cover - Water Meter	Black/Black	72	9.40	20ME
D1200-CI	14"x19"x12" Standard Box, Overlapping Solid Cast Iron Cover - Water Meter	Black/Black	72	19.00	20ME
D1200-OLSP	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Reclaimed Water	Black/Purple	72	9.20	200V
D1200P-OLSP	14"x19"x12" Standard Box, Overlapping Solid Plastic Cover - Reclaimed Water	Purple/Purple	72	9.20	200V
D1200-OLRB	14"x19"x12" Standard Box, Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	72	9.20	20ME
D1200-OLDIR	14"x19"x12" Standard Box, Overlapping Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	72	10.00	20ME
D1200-CICIR	14"x19"x12" Standard Box, Overlapping Meter Reader Cast Iron w/ Cast Iron Reader Cover - Water Meter	Black/Black	72	10.20	20ME
Drop In Cover Only					
D1200-DISBL	14"x19" Drop-in Solid Plastic Cover - Water Meter	Black	216	2.20	20ME
D1200-DISWL	14"x19" Drop-in Solid Plastic Cover - Sewer	Black	216	2.20	20ME
D1200-DISWWL	14"x19" Drop-in Solid Plastic Cover - Sewer	Green	216	2.20	20ME
D1200-DIRLTRD	14"x19" Drop-in Box Track Read Cover - Water Meter	Blue	216	2.20	20ME
D1200-DISPL	14"x19" Drop-in Solid Plastic Cover - Reclaimed Water	Purple	216	2.20	200V
D1200-DIRBL	14"x19" Drop-in Meter Reader w/ Plastic Reader Cover - Water Meter	Black	216	2.20	20ME
D1200-DIRLRDL	14"x19" Drop-in Meter Reader w/ Plastic Reader Cover - Water Meter	Blue	216	2.20	20ME
D1200-DIRP LID	14"x19" Drop-in Meter Reader w/ Plastic Reader Cover - Reclaimed Water	Purple	216	2.20	20ME
D1200-DICIRLID	14"x19" Drop-in Meter Reader w/ Cast Iron Reader Cover - Water Meter	Black	216	3.40	20ME
D1200-SGWTRL	14"x19" Drop-in Solid Plastic Cover - Water Meter	Green	216	2.20	20ME
Overlapping Cover Only					
D1200-CICIR LD	14"x19" Overlapping Cast Iron Lid w/ Cast Iron Reader - Water Meter	Black	216	2.40	20ME
D1200-OLSBL	14"x19" Overlapping Solid Plastic Cover - Water Meter	Black	216	2.40	20ME
D1200-OLLOCBLD	14"x19" Overlapping Locking Solid Plastic Cover - Water Meter	Black	216	2.60	20ME
D1200-OLSLL	14"x19" Overlapping Solid Plastic Cover - Water Meter	Blue	216	2.40	20ME
D1200-OLSPL	14"x19" Overlapping Solid Plastic Cover - Reclaimed Water	Purple	216	2.40	200V
D1200-CIL	14"x19" Overlapping Meter Reader Solid Cast Iron Cover - Water Meter	Black	216	12.00	20ME
D1200-OLRBL	14"x19" Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black	216	2.40	20ME
D1200-OLRBLDL	14"x19" Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Blue	216	2.40	20ME
D1200-OLCIR LD	14"x19" Overlapping Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black	216	3.80	20ME
Box Only					
D1200-BXD	14"x19"x12" Standard Box	Black	72	6.80	20ME
D1200-BXDV	14"x19"x12" Standard Box Dye Lot Mix	Black	72	7.00	20ME
D1200-BXDV	14"x19"x12" Standard Bolt Down Box	Black	72	7.00	20ME
D1200R-BXD	14"x19"x12" Standard Box	Purple	72	6.80	200V
D1200G-BXD	14"x19"x12" Standard Box	Green	72	6.80	200V
D1200-EXT	14"x19"x6" Extension Only	Black	42	4.20	20ME



SINGLE PLASTIC METER BOX

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-19

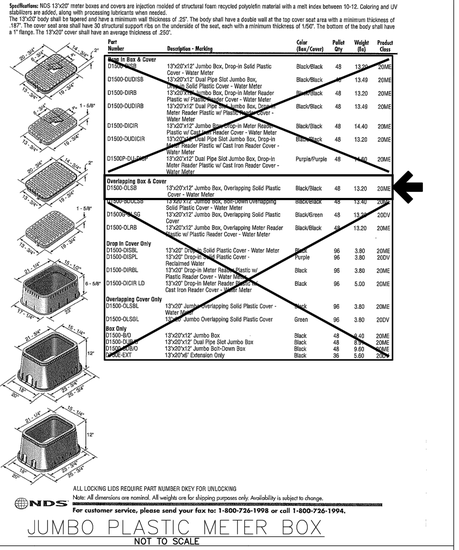
NDS METER BOXES

STANDARD COMMERCIAL GRADE

NDS D1500 Meter Boxes

Specifications: NDS 13"x20" meter boxes and covers are injection molded of structural foam recycled polyolefin material with a melt index between 10-12. Coloring and UV stabilizers are added, along with processing lubricants when needed.
The 13"x20" body shall be tapered and have a minimum wall thickness of .25". The body shall have a double wall at the top cover seat area with a minimum thickness of .18". The cover seat area shall have 30 structural support ribs on the underside of the seat, each with a minimum thickness of 1/50". The bottom of the body shall have a 1" flange. The 13"x20" cover shall have an average thickness of .250".

Part Number	Description - Marking	Color (Box/Cover)	Pallet Qty	Weight (lbs)	Product Class
Rings In Box & Cover					
D1500-RINGS	13"x20"x12" Jumbo Box, Drop-in Solid Plastic Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUDISB	13"x20"x12" Dual Pipe Slot Jumbo Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-DIRB	13"x20"x12" Jumbo Box, Drop-in Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUDIRB	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-in Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.40	20ME
D1500-DICIR	13"x20"x12" Jumbo Box, Drop-in Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	48	14.40	20ME
D1500-DUDICIR	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-in Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Black/Black	48	13.20	20ME
D1500P-DUCIRP	13"x20"x12" Dual Pipe Slot Jumbo Box, Drop-in Meter Reader Plastic w/ Cast Iron Reader Cover - Water Meter	Purple/Purple	48	14.00	20ME
Overlapping Box & Cover					
D1500-OLSB	13"x20"x12" Jumbo Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	13.20	20ME
D1500-DUOLSS	13"x20"x12" Dual Pipe Slot Jumbo Box, Overlapping Solid Plastic Cover - Water Meter	Black/Black	48	12.40	20ME
D1500P-OLSG	13"x20"x12" Jumbo Box, Overlapping Solid Plastic Cover	Black/Green	48	13.20	200V
D1500-OLRB	13"x20"x12" Jumbo Box, Overlapping Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black/Black	48	13.20	20ME
Drop In Cover Only					
D1500-DISBL	13"x20" Drop-in Solid Plastic Cover - Water Meter	Black	96	3.80	20ME
D1500-DISPL	13"x20" Drop-in Solid Plastic Cover - Reclaimed Water	Purple	96	3.80	200V
D1500-DIRBL	13"x20" Drop-in Meter Reader Plastic w/ Plastic Reader Cover - Water Meter	Black	96	3.80	20ME
D1500-DICIR LD	13"x20" Drop-in Meter Reader Cast Iron w/ Cast Iron Reader Cover - Water Meter	Black	96	5.00	20ME
Overlapping Cover Only					
D1500-OLSBL	13"x20" Jumbo Overlapping Solid Plastic Cover - Water Meter	Black	96	3.80	20ME
D1500-OLSGL	13"x20" Jumbo Overlapping Solid Plastic Cover	Green	96	3.80	200V
Box Only					
D1500-BXD	13"x20"x12" Jumbo Box	Black	48	9.40	20ME
D1500-DUBXD	13"x20"x12" Dual Pipe Slot Jumbo Box	Black	48	9.80	20ME
D1500-BXDO	13"x20"x12" Jumbo Bolt-Down Box	Black	48	9.60	20ME
D1500-EXT	13"x20"x6" Extension Only	Black	36	5.60	20ME



ALL LOCKING LIDS REQUIRE PART NUMBER ONLY FOR UNLOCKING
Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

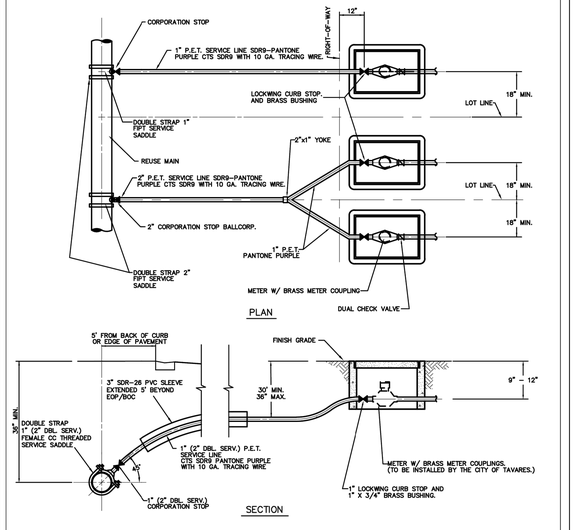
NDS

For customer service, please send your fax to: 1-800-726-1998 or call 1-800-726-1994.

JUMBO PLASTIC METER BOX

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-20



RECLAIMED WATER SERVICE CONNECTION

NOT TO SCALE

(NOTE: METERS TO BE INSTALLED BY CITY OF TAVARES.)

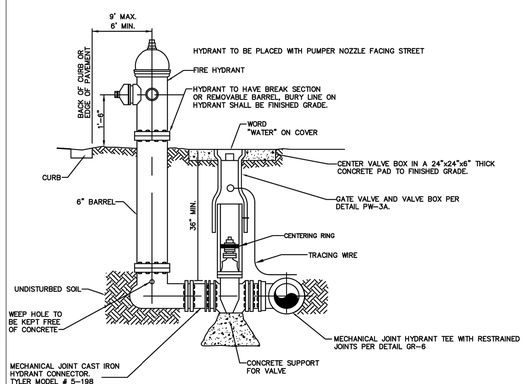
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL RW-3

PAINTING

1. APPLY TWO COATS OF OSHA SAFETY INDUSTRIAL RED PAINT TO HYDRANT BARREL.
2. APPLY TWO COATS OF OSHA SAFETY INDUSTRIAL ENAMEL PAINT TO THE BONNET AND NOZZLE CAPS. THE UTILITY DEPARTMENT INSPECTOR WILL DETERMINE THE COLOR TO PAINT THE HYDRANT BONNET AND NOZZLE CAPS BY FLOW TESTING HYDRANT.
   - BLUE 1500 GPM OR MORE (SHERWIN WILLIAMS #SW4086)
   - GREEN 1000 GPM TO 1499 GPM (SHERWIN WILLIAMS #B54614)
   - ORANGE 500 GPM TO 999 GPM (SHERWIN WILLIAMS #B54E39)
   - RED 499 GPM OR LESS (SHERWIN WILLIAMS #B54R38)
   - RED HYDRANT BARREL (SHERWIN WILLIAMS #B54R38)

SPECIFICATIONS

1. AWWA SPECIFICATIONS C-502
2. TWO 2-1/2" HOSE NOZZLE DISCHARGE
3. ONE 4-1/2" PUMPER NOZZLE DISCHARGE
4. ONE 1-1/2" OPERATING NUT, LEFT
5. ALL HYDRANTS SHALL BE EQUIPPED WITH FITTINGS TO ALLOW FOR ELEVATION ADJUSTMENTS.
6. 5¼" MAIN VALVE OPENING
7. RESTRAINED JOINTS OR ALL THREADED ROD REQUIRED TO SECURE PIPE, RISER AND VALVE IN THE FIRE HYDRANT ASSEMBLY TO THE MAIN

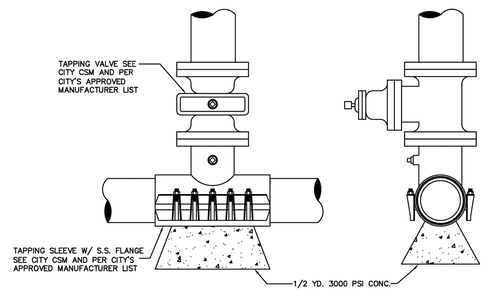


FIRE HYDRANT WITH VALVE

NOT TO SCALE

(STANDARD FIRE HYDRANT ASSEMBLY)

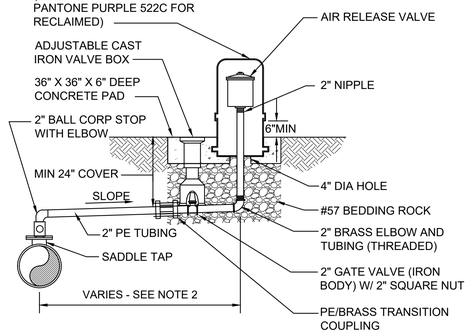
Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-18



WET TAP SLEEVE AND TAPPING VALVE

NOT TO SCALE

Howey-in-the-Hills Standard Details — DATE: FEB 2022 — DETAIL PW-17



NOTES:
1. FOR WATER OR RECLAIMED WATER USE ONLY.
2. OFFSET DISTANCE TO BE FIELD DETERMINED AND AS CLOSE TO THE R/W AS POSSIBLE.
3. ADJUST HORIZONTAL LOCATION OF SIDEWALK, AS REQUIRED TO AVOID ARV ENCLOSURE.
4. LOCATE ARV ENCLOSURE WITHINN 6" OF R/W.

TOWN OF HOWEY-IN-THE-HILLS — CONSTRUCTION STANDARD DETAILS

AIR OR COMBINATION AIR/VACUUM RELEASE WATER AND RECLAIMED WATER — FIGURE A115-1 — DATE: 4/15/2007

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATION OF AUTHORIZATION NUMBER: 33390

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017 (NAME — PE LICENSE NO.)
7/28/25 (DATE)

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

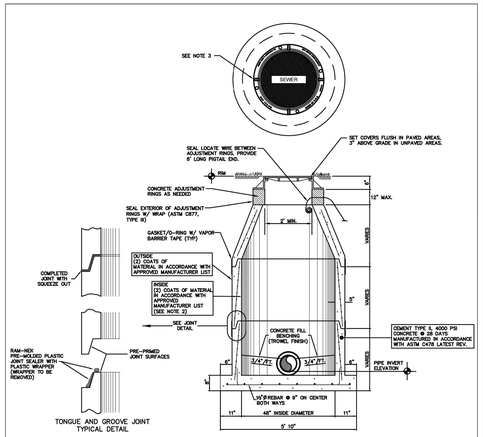
HALFF ASSOCIATES, INC. — FL (FIRM OR BUSINESS NO. — STATE)

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

SHEET TITLE: WATER DETAILS

C-902

FILE NAME: A:\45000s\45548\003\LDICADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:05 AM, USER: ah5122



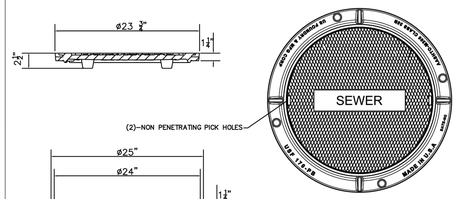
NOTES

1. ALTERNATE–PRECAST MANHOLE TOPS MUST BE APPROVED IN ADVANCE.
2. LINER (150 MILS DFT) SHALL BE USED WHERE SHOWN ON DRAWINGS AND/OR REQUIRED BY THE CITY.
3. MANHOLE LID TO BE CENTERED OVER EFFLUENT PIPE.
4. INSTALL ONE CONTINUOUS PIECE OF RAM–NEK AROUND ENTIRE MATING SURFACE BETWEEN ADJUSTMENT RINGS AND MANHOLE FRAME.

SANITARY PRECAST MANHOLE

NOT TO SCALE

Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–1

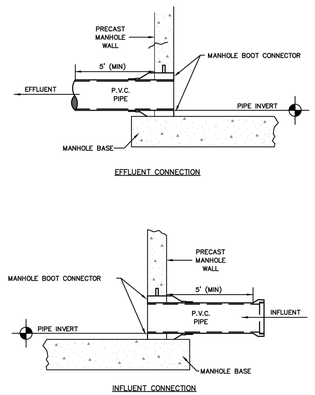


*MODEL USF 170–PB RING AND CE–PB COVER
RING NO. 8021468
COVER NO. 8017774
MATERIAL AASHTO M306 GRAY CAST IRON CLASS 35B

SANITARY MANHOLE COVER

NOT TO SCALE

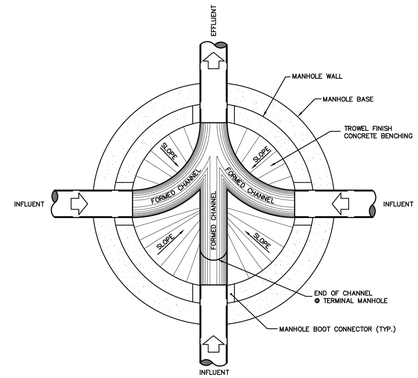
Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–2



PIPE CONNECTION TO PRECAST SANITARY MANHOLE

NOT TO SCALE

Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–3



FLOW PATTERNS FOR INVERT CHANNELS

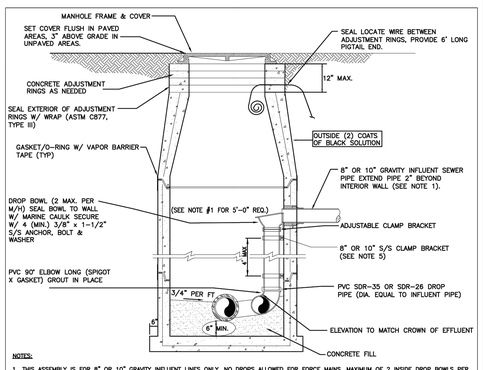
NOTES:

1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS. HALF PIPE INVERT CHANNELS.
2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.
3. CHANNELS FOR FUTURE CONNECTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND AND COVERED WITH 1" OF MORTAR.

TYPICAL MANHOLE PLAN

NOT TO SCALE

Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–4



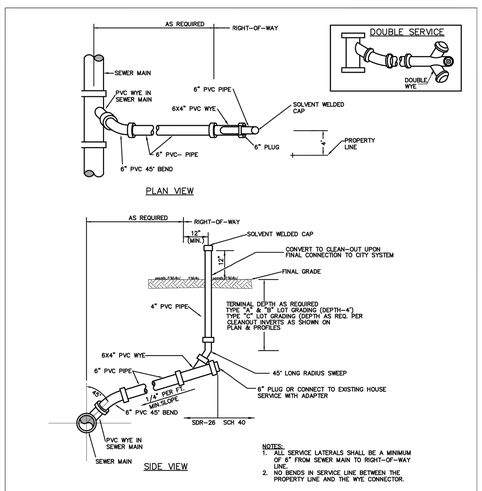
NOTES:

1. THIS ASSEMBLY IS FOR 8" OR 10" GRAVITY INFLUENT LINES ONLY. NO DROPS ALLOWED FOR FORCE MAINS. MAXIMUM OF 2 INSIDE DROP BOWLS PER MANHOLE. A 5'–0" DIA. MANHOLE (6" THICK WALLS) IS REQUIRED. THE INSIDE DROP FOR 8" HIGH–LINE SHALL BE CONSTRUCTED SIMILAR TO ABOVE.
2. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C–478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON–SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
3. THE INTERIOR OF MANHOLE AND THE INTERIOR OF ADJUSTMENT RINGS SHALL BE LINED (150 MILS DFT) AS INDICATED ON THE DRAWINGS AND/OR REQUIRED BY THE CITY.
4. THE DROP BOWL ASSEMBLY SHALL BE INSTALLED PRIOR TO APPLICATION OF SPECIALTY LINING MATERIAL.
5. ADJUSTABLE CLAMPING BRACKET (MIN. 2 PER DROP BOWL ASSY). 1–1/2" WIDE, 11 GA. W/ 3/8" DIA. 18–8 PINCH BOLTS AND NUTS. SECURE TO M/H WALL WITH (2) 3/8" x 1" BOLT, ANCHOR & WASHER PER BRACKET ASSY. ALL 316 STAINLESS STEEL MATERIALS.
6. INSTALL ONE CONTINUOUS PIECE OF RAM–NEK AROUND ENTIRE MATING SURFACE BETWEEN ADJUSTMENT RINGS AND MANHOLE FRAME.
7. MANHOLE LID SHALL BE CENTERED OVER DROP BOWL.

INSIDE DROP STANDARD PRECAST MANHOLE

NOT TO SCALE

Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–5



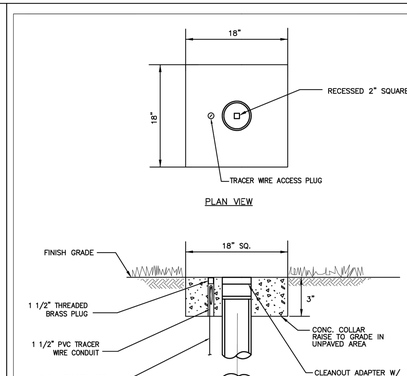
NOTES:

1. ALL SERVICE LATERALS SHALL BE A MINIMUM OF 6' FROM SEWER MAIN TO RIGHT–OF–WAY LINE.
2. NO BENDS IN SERVICE LINE BETWEEN THE PROPERTY LINE AND THE WYE CONNECTOR.

SANITARY SEWER SERVICE

PVC SEWER SERVICE – NOT TO SCALE

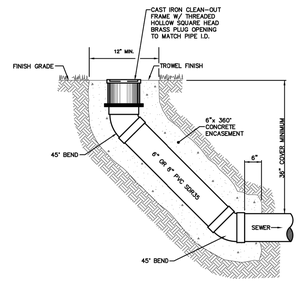
Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–6



SERVICE CLEANOUT

NOT TO SCALE

Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–7



TRUNK LINE CLEAN–OUT

NOT TO SCALE

Howey–in–the–Hills Standard Details	DATE: FEB 2022	DETAIL WW–8

WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
MAILING & SHIPPING ADDRESS
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS — LICENSE — No. 69017 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

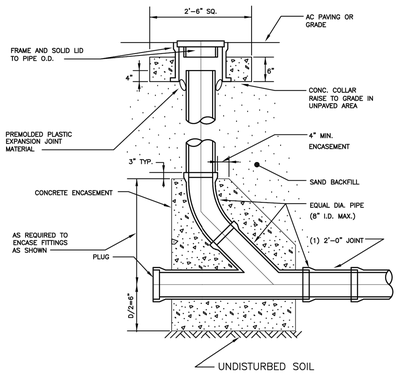
HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

SHEET TITLE:
SANITARY SEWER DETAILS

C-1000

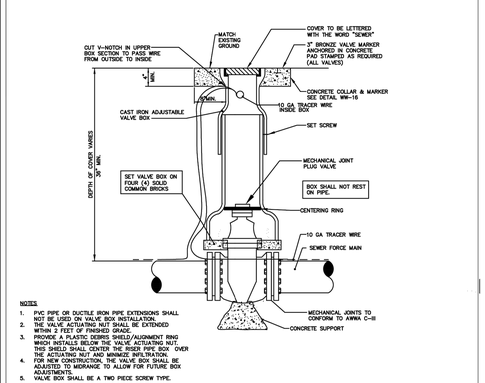
FILE NAME: A:\45000s\45548003\LD\CADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:05 AM, USER: ahs122



GRAVITY CLEAN–OUT

NOT TO SCALE

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL WW–9



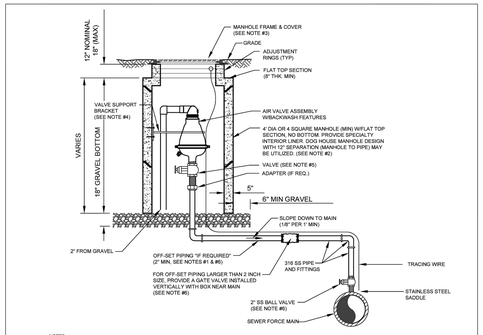
NOTES

1. PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE VALVE ACTUATING NUT SHALL BE EXTENDED WITHIN 2 FEET OF FINISHED GRADE.
3. PROVIDE PLUG VALVE BOX SHIELD ALIGNMENT RING AND SHIELD TO ALLOW FOR THE SHIELD ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
4. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MEDIANCE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
5. VALVE BOX SHALL BE A TWO PIECE SCREW TYPE.

PLUG VALVE AND BOX

NOT TO SCALE

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL WW–13



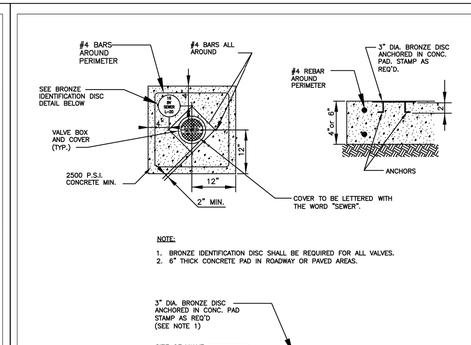
NOTES:

1. THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA. IF OFF-SET PIPING IS REQUIRED, THE PIPING SHALL BE 2 INCH MINIMUM, (SAME SIZE AS AIR VALVE INLET). FOR PIPE SIZES 3 INCH AND SMALLER, PIPING SHALL BE 316 STAINLESS STEEL SCH. 40, 316 GRADE, THREADED. FOR PIPE SIZES 4 INCH AND LARGER, PIPING SHALL BE 316 STAINLESS STEEL SCH. 10 (MIN), WELDED.
2. THE CONCRETE MANHOLE SHALL INCLUDE A LINER TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
3. FRAME AND COVER SHALL BE CITY STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT. (REMOVE GASKET IF NECESSARY FROM THE UNDERSIDE OF STANDARD COVER). THE COVER (INNER) FLIPPED OPEN MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON-TRAFFIC LOCATIONS ONLY).
4. A VALVE SUPPORT BRACKET IS ONLY REQUIRED FOR ASSEMBLIES WHICH INCLUDE OFF-SET PIPING. THE BRACKET SHALL BE WELDED AND FABRICATED FROM ALL 316 STAINLESS STEEL MATERIALS AND INCLUDE 8" x 6" x 3/ 8" THICK END PLATES (CONTOURED TO MATCH ATTACHING SURFACES), 3" ANGLE IRON FOR SUPPORT ARM AND TWO U-BOLTS 3/ 8" DIA TO ATTACH AROUND AIR VALVE. SECURE TO CONCRETE MANHOLE WITH FOUR 3/ DIA X 2" LONG S/S ANCHOR (MIN). MODIFY THE ABOVE AS REQUIRED TO FIT SPECIFIC AIR VALVE AND TO ASSURE A SOLID SUPPORT BRACKET.
5. FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN). FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGED PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
6. FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING ALSO. FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN WITH A GEAR ACTUATOR). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

AIR VALVE ASSEMBLY INSIDE MANHOLE

NOT TO SCALE

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL WW–14



NOTE:

1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.
2. 6" THICK CONCRETE PAD IN ROADWAY OR PAVED AREAS.

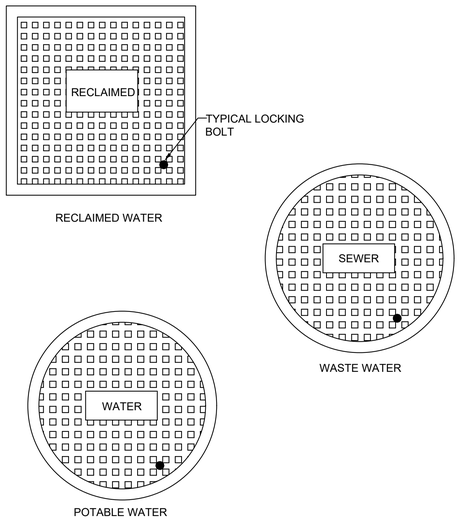


BRONZE IDENTIFICATION DISC DETAIL

VALVE COLLAR

NOT TO SCALE

Howey–in–the–Hills	Standard Details	DATE: FEB 2022 DETAIL WW–15



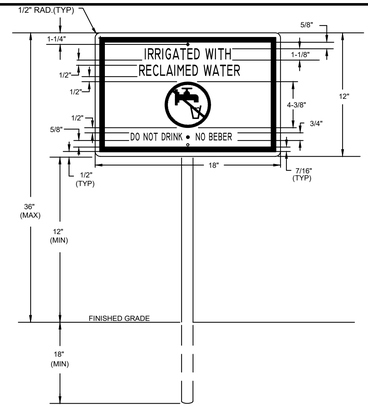
NOTE:
1. LOCKING LIDS ARE REQUIRED ON ALL VALVE BOXES.

TOWN OF HOWEY–IN–THE–HILLS	CONSTRUCTION STANDARD DETAILS	TYPICAL VALVE BOX COVER FIGURE A110

GENERAL NOTES:

1. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, GRAVITY MAINS AND RECLAIMED WATER MAINS. MAIN LOCATIONS SHOWN ON PLANS ARE NOT EXACT OR GUARANTEED. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
2. THE UTILITIES DISPATCH OPERATOR (407-836-2777) SHALL BE NOTIFIED BY THE CONTRACTOR FOR PIPE EMERGENCIES.
3. UTILITIES ENGINEERING AND CONSTRUCTION DIVISION: 407-254-9900.
4. ALL EXISTING WATER, FORCE, GRAVITY AND RECLAIMED WATER MAINS AND OTHER FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION.
5. CONTRACTOR SHALL ADJUST VALVE BOXES, AIR RELEASE VALVES, FIRE HYDRANTS, MANHOLE COVERS, ETC IN CONFLICT WITH ROADWAY.
6. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO UTILITIES' MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY UTILITIES, UTILITIES MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
7. UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION ACTIVIT YWITHIN PROXIMITY OF ANY UTILITIES.
8. ONLY UTILITIES SHALL OPERATE WATER, WASTEWATER, AND RECLAIMED WATER VALVES. COORDINATE VALVE OPERATION WITH APPROPRIATE UTILITIES INSPECTOR.
9. THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATION AND SHUT DOWN CONTROL WITH A UTILITIES INSPECTOR. THE CONTRACTOR SHALL PROVIDE FOR BYPASSING AND/OR HAULING OF WASTEWATER DURING THE INTERRUPTION OF FLOWS AND CONNECTIONS WITH EXISTING WASTEWATER SYSTEMS.
10. ALL NEW VALVES BEING INSTALLED SHALL REMAIN CLOSED DURING CONSTRUCTION. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT ANY PROPOSED WATER MAIN TO ANY EXISTING WATER MAIN UNLESS CLEARED BY FDEP AND UTILITIES.

TOWN OF HOWEY–IN–THE–HILLS	CONSTRUCTION STANDARD DETAILS	GENERAL NOTES FIGURE A122–1



NOTES:

1. HEIGHT OF SIGN WILL DEPEND ON LOCATION AND SURROUNDING LANDSCAPE PLANT TYPES. IN ALL CASES, THE SIGN SHALL BE VISIBLE TO THE PUBLIC.
2. BACKGROUND SHALL BE WHITE, LETTERS SHALL BE BLACK (HELVETICA, SWISS 721 COREL OR ACCEPTABLE EQUAL) AND BORDER SHALL BE PANTONE PURPLE 522C.
3. ENGINEERING GRADE REFLECTIVE MATERIALS SHALL BE USED.
4. SIGN MATERIAL SHALL BE OF 0.040 GAUGE METAL.
5. POST SHALL BE 2-3/8" OD ALUMINUM PIPE, HOT DIP GALVANIZED PER ASTM A-123. POST TO BE PROVIDED BY CUSTOMER.
6. MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
7. SIGNS SHALL BE PLACED BY THE CONTRACTOR IN ACCORDANCE WITH CHAPTER 62-610 "ACCESS CONTROL AND ADVISORY SIGNS", FAC, THE COUNTY APPROVED ENGINEERING PLANS AND/OR AS APPROVED BY THE UTILITIES.

TOWN OF HOWEY–IN–THE–HILLS	CONSTRUCTION STANDARD DETAILS	RECLAIMED WATER SIGNAGE "DO NOT DRINK WATER" FIGURE A501

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — NAME — 69017 — PE LICENSE NO.
7/28/25 — DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

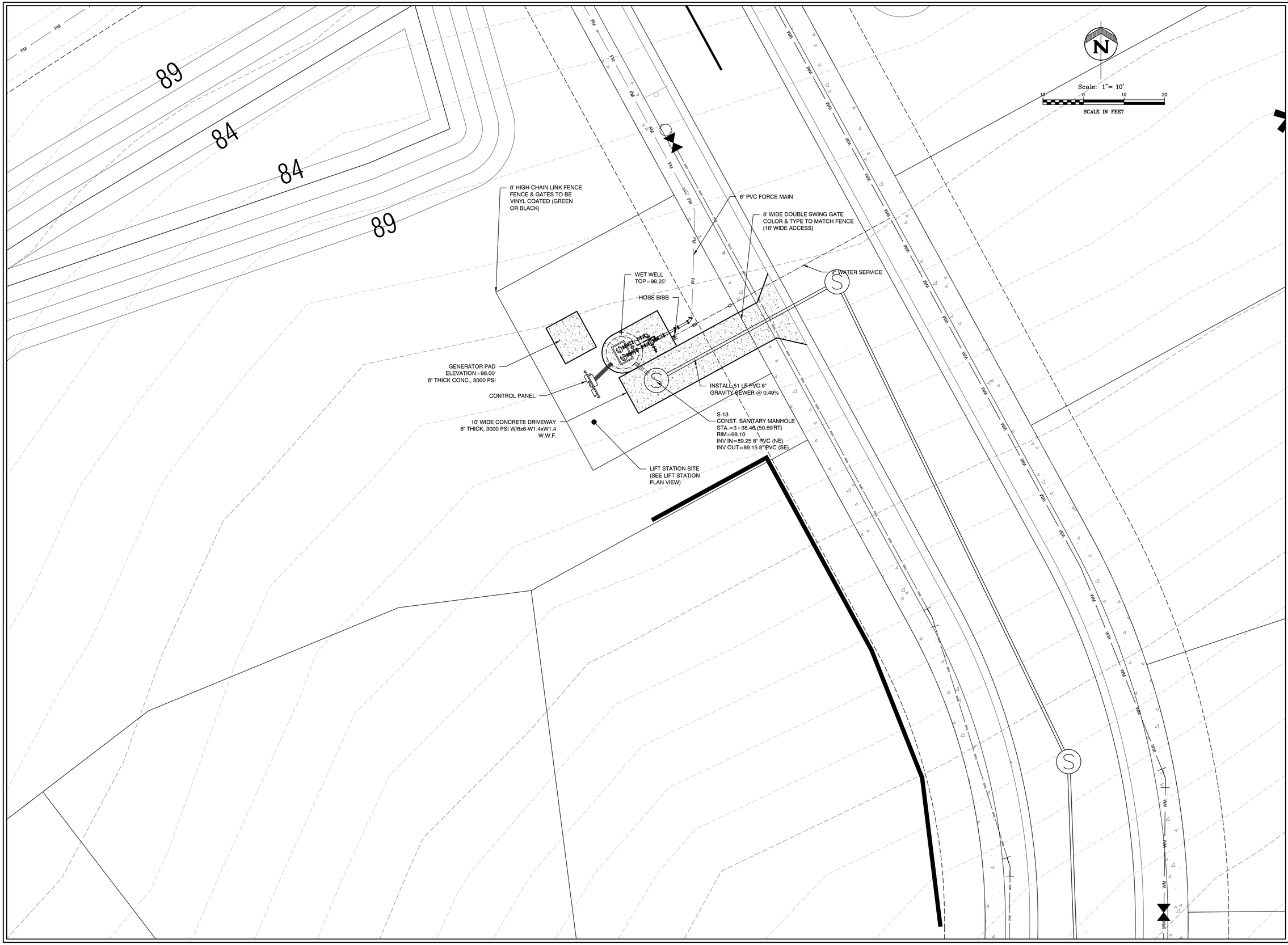
HALFF ASSOCIATES, INC. — FIRM OR BUSINESS NO. — FL — STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

SHEET TITLE:
SANITARY SEWER DETAILS

C-1001

FILE NAME: A:\4500s\45548\003\LDI\CADD\C900-1000 Detail Sheets.dwg DATE: July 29, 2025, TIME: 8:06 AM, USER: ah5122



WATERMARK PH.1 & MASTER GRADING PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
FAX: (407) 647-7275
CERTIFICATE OF AUTHORIZATION
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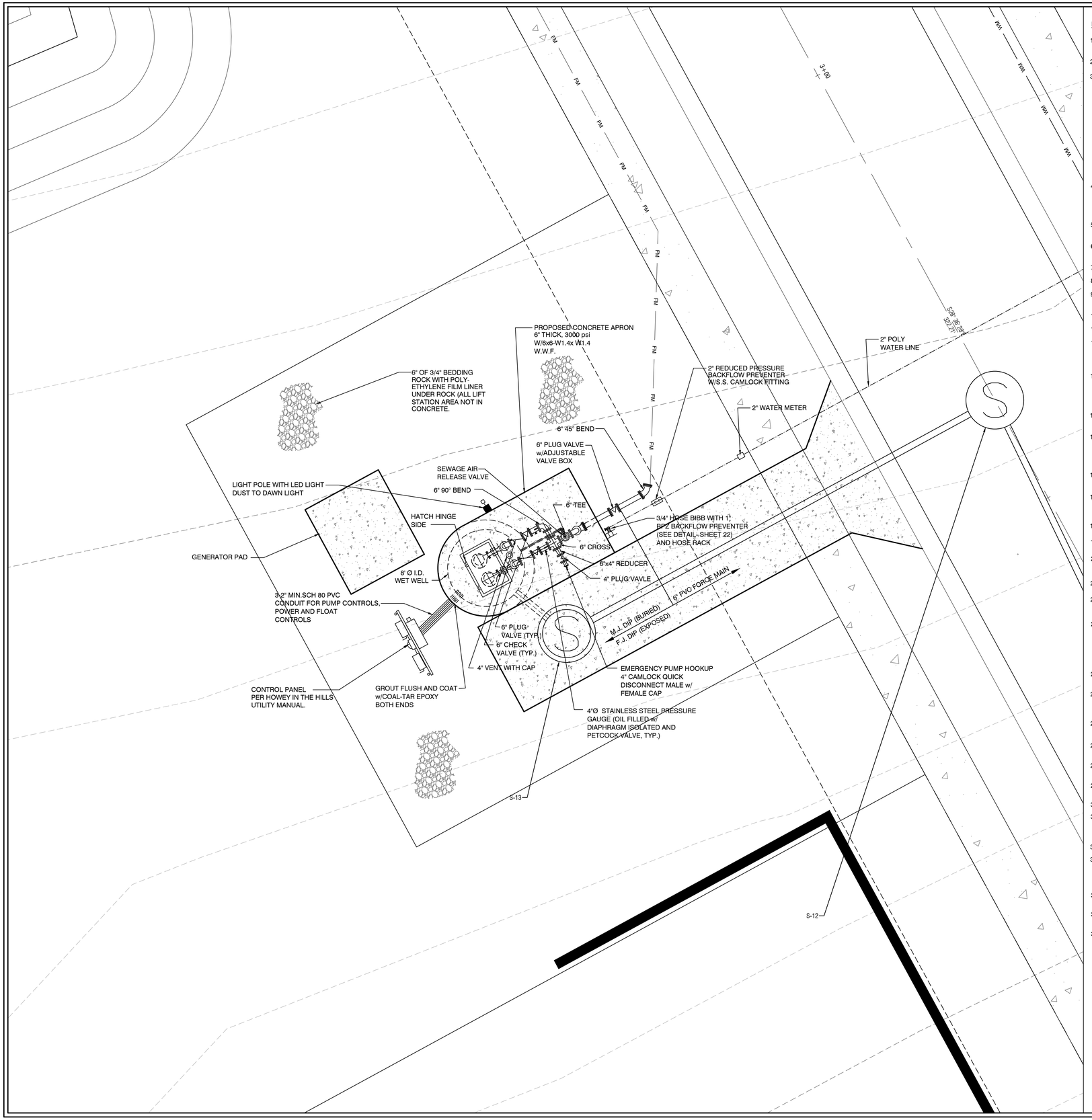
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

SHEET TITLE:

LIFT STATION
SITE PLAN

C-1100



PUMP STATION NOTES:

1. PUMPS: SHALL BE HYDROMATIC SUBMERSIBLE PUMPS.PUMPS SHALL HAVE 4" STAINLESS STEEL GUIDE RAILS PER PUMP AND A BPI FRONT DUPLEX SYSTEM.
2. LEVEL CONTROLS: SHALL BE IN ACCORDANCE WITH HOWEY IN THE HILL'S UTILITY MANUAL.
3. WET WELL ACCESS COVER: SHALL HAVE CLEAR OPENING OF 36"x60" AS MANUFAURED BY U.S.F.FABRICATION INC. PRODUCTS OR APPROVED EQUAL. ACCESS FRAME AND COVER SHALL HAVE A 1/4" THICK ONE-PIECE, MILL FINISH, EXTRUDED ALUMINUM FRAME, INCORPORATING A CONTINUOUS CONCRETE ANCHOR. DOOR PANEL(S) SHALL BE 1/4" ALUMINUM DIAMOND PLATE, REINFORCED TO WITHSTAND A LIVE LOAD OF 300 psf. DOOR(S) SHALL OPEN TO 90° AND AUTOMATICALLY LOCK WITH STAINLESS STEEL HOLD OPEN ARMS WITH ALUMINUM RELEASE HANDLES. DOOR(S) SHALL CLOSE FLUSH WITH THE FRAME. UNIT SHALL LOCK WITH A NONCORROSIVE LOCKING BAR. FRAME SHALL SUPPORT GUIDE RAILS AND CABLE HOLDER FOR ELECTRICAL WIRING. ALL ACCESS FRAME, COVER, AND HARDWARE SHALL BE CONSTRUCTED OF STAINLESS STEEL. ALL SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A SHOP COAT OF ZINC CHROMATIC PRIMER APPROVED ALKALI RESISTANT PAINT OR APPROVED PROTECTIVE COATING. DOUBLE DOOR ACCESS COVERS SHALL HAVE REMOVABLE CENTER BAR SUPPORT. COVER MUST BE COMPATIBLE WITH PUMP. PROVIDE WET WELL HATCH OPENING WITH PROTECTIVE GRATING PANEL.
4. ELECTRICAL SERVICE ENTRANCE: PROVIDE METER SOCKET AND MAIN DISCONNECT MEETING APPLICABLE ELECTRIC CODES AND REQUIREMENTS OF POWER COMPANY. LIGHTNING AND VOLTAGE SURGE PROTECTION TO BE PROVIDED.**COST FOR THE ELECTRICAL SERVICE AND COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. STEEL PLACED IN BOTTOM SLAB IS TO BE IDENTICAL TO THE TOP SLAB EXCEPT THAT DIAGONAL BARS AND OPENINGS ARE ELIMINATED, STEEL IS CONTINUOUS AND SLAB IS SOLID.
6. CONTRACTOR TO CONFIRM SERVICE ARRANGEMENTS WITH POWER COMPANY BEFORE COMMENCING WORK. CONTRACTOR TO RUN UNDERGROUND WIRING TO NEAREST TRANSFORMER OR HAND HOLE.
7. ALL FASTENERS ON FLANGES AND ETC. INSIDE WET WELL WILL BE 316 STAINLESS STEEL
8. DIMENSIONS BETWEEN CENTERLINE OF PIPES ARE STANDARD FOR PIPE SIZES SPECIFIED.
9. SHOP DRAWINGS OF ENTIRE INSTALLATION MUST BE APPROVED BY ENGINEER & CITY PRIOR TO PLACEMENT OF ORDER.
10. ALL EXPOSED AND EMBEDDED CONDUITS TO BE SCHEDULE 80 PVC.
11. ALL EXPOSED METAL SHALL BE PAINTED WITH TWO (2) COATS OF EXTERIOR BLACK ENAMEL PAINT.
12. ALL EXTERNAL PIPING SHALL BE DUCTILE IRON CLASS 50 (FLANGED JOINT FOR EXPOSED PIPE & MECHANICAL JOINT FOR BURIED PIPE). ALL INTERNAL WET WELL PIPING FROM THE PUMP DISCHARGE ELBOW TO THE H.D.P.E. TO D.I.P. COUPLING SHALL BE MINIMUM SDR-11 HDPE.
13. PLUG VALVES SHALL BE SERIES 100, AS MANUFAURED BY DEZURIK CORP., CLOW OR APPROVED EQUAL. VALVES SHALL BE CONSTRUCTED WITH RESILIENT FACED PLUGS. VALVES SHALL HAVE A 2" OPERATION NUT. ONE(1) 5' LONG VALVE WRENCH SHALL BE PROVIDED TO HOWEY IN THE HILLS.
14. CHECK VALVES SHALL BE MUELLER#2600-6-02, AMERICAN-DARLING #52SC, OR KENNEDY OR M&H EQUIVALENTS WITH OUTSIDE LEVER AND WEIGHT.
15. PRESSURE GAUGES SHALL BE STAINLESS STEEL WITH STAINLESS STEEL DIAPHRAM, LIQUID FILLED, 4 1/2" DIAMETER DIAL WITH 0-100 psi RANGE. GAUGES SHALL BE AS MANUFAURED BY WKA, LOWER MOUNT, TYPE 233.30 AND DIAPHRAGMS SHALL BE AS MANUFACTURED BY HYETT, MODEL 43MCR-01 OR APPROVED EQUALS.
16. PADLOCKS FOR ACCESS COVERS AND CONTROL PANEL SHALL BE MASTER NO. 4 BRASS PADLOCK, KEYED ALIKE, FURNISH TWO(2) KEYS PER LOCK. BOLTS IN LOCKING DEVICE SHALL BE ST. STEEL.
17. WET WELL TO BE H.D.P.E. LINED WITH AN AGRU SURE GRIP LINER OR APPROVED EQUAL, WITH A MINIMUM THICKNESS OF 2 MM, MECHANICALLY ANCHORED TO THE CONCRETE.ALL JOINTS SHALL BE EXTRUSION WELDED BY CERTIFIED WELDERS.
18. SOD ALL AREAS DISTURBED BY CONSTRUCTION.
19. BACKFILL AROUND WETWELL IN 12" LIFTS COMPACTING TO A MINIMUM OF 95%.
20. ALL LOCATIONS WHERE PIPES ENTER OF LEAVE THE WETWELL SHALL BE MADE WATERTIGHT WITH LINK SEAL CLOSURES SEALED FOR THE PROPER SEALING RANGE.
21. INSTALL PUMP BASE ELBOWS, GUIDE RAILS AND DISCHARGE PIPING PLUMB, LEVEL AND SQUARE.
22. INSTALL BENCH FOR PUMP BASE ELL IF NECESSARY, PER MANUFACTURER'S APPROVED SHOP DRAWINGS.
23. COAT ALL METALS THAT ARE NOT STAINLESS STEEL AND ARE LOCATED IN THE WETWELL WITH 10 MILS (DRY FILM THICKNESS) OF BLACK, HIGH GLOSS EPOXY, (TNEMEC SERIES 69 HI-BUILD EPOXYLINE II OR AN EQUIVALENT PRODUCT). COATING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION AND SHALL NOT BE IMMERSED UNTIL FULL CURE IS ACHIEVED.
24. COAT ALL ALUMINUM SURFACE IN CONTACT WITH CONCRETE WITH BITUMINOUS COATING PRIOR TO INSTALLATION.
25. PUMP BASE ELBOWS, PUMP ANCHOR BOLTS, UPPER AND INTERMEDIATE GUIDE RAIL BRACKETS, GUIDE RAILS, CABLE HANGER, PUMP LIFING CABLES, CONTROL PANEL AND FLOAT SWITCHES TO BE APPROVED BY PUMP SUPPLIER.
26. INSTALL INTERMEDIATE GUIDE RAIL BRACKETS AS REQUIRED BY PUMP MANUFACTURER OR, AT MINIMUM, WHEN GUIDE RAIL RAILS EXCEED 20'-0" IN LENGTH.
27. DUCTILE IRON PIPE SHALL COMPLY WITH AWWA C115 AND SHALL HAVE A PROTEO 401 INTERIOR LINING.
28. DUCTILE IRON FITTINGS SHALL COMPLY WITH AWWA C110 OR C153 WITH AN AWWA C116 OR PROTEO 401 INTERIOR LINING.
29. ORIENTATION OF PUMPS AND ACCESS HATCH SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS FOR PUMPS FURNISHED.
30. BASE AND FIRST RISER UNIT OF WETWELL TO BE CAST MONOLITHIC.
31. PAINT EXTERIOR PIPE, VALVES AND FITTINGS WITH AN ALIPHATIC, ACRYLIC POLYURETHANE SYSTEM, COLOR SAFETY GREEN, TNEMEC SERIES 74 OR AN EQUIVALENT PRODUCT. COMPLY WITH ALL MANUFACTURER'S RECOMMENDATIONS.
32. PROVIDE 1-INCH WATER SERVICE, REDUCED PRESSURE BACKFLOW PREVENTER AND HOSE BIBB.
33. FIELD TESTING: THE CONTRACTOR SHALL FURNISH THE SERVICES OF THE SYSTEM SUPPLIER'S SERVICEMAN, ALL SPECIAL TOOLS, CALIBRATION EQUIPMENT, AND LABOR TO PERFORM THE TESTS. CERTIFIED COPIES OF THE TESTS SHALL BE FURNISHED IN DUPLICATE TO THE CITY ENGINEER PRIOR TO FINAL APPROVAL.
34. CONTRACTOR AND/OR MANUFACTURER TO PROVIDE ELECTRICAL SCHEMATIC AND SHOP DRAWINGS TO HOWEY IN THE HILLS FOR APPROVAL PRIOR TO PLACEMENT OF ORDER.
35. CONTROL PANEL WITH AUTO TRANSFER SWITCH, SCADA SYSTEM, BYPASS PUMP, & LIFT STATION SHOP DRAWINGS TO BE SUBMITTED TO HOWEY IN THE HILLS FOR APPROVAL PRIOR TO PLACEMENT OF ORDER.
36. CONTRACTOR TO COORDINATE BYPASS PUMP SIZE & TYPE AND SUBMIT TO CITY PRIOR TO PLACEMENT OF ORDER.

NOTE: ACTUAL LOCATION OF CONTROL PANEL SHALL BE FIELD VERIFIED BY HOWEY IN THE HILLS UTILITY SUPERVISOR PRIOR TO CONSTRUCTION

PUMP DATA

WETWELL INSIDE DIA.	8'
HYDROMATIC SUBMERSIBLE PUMPS	
MODEL NUMBER	H4H
IMPELLER 8.75"	R.P.M. 1750
PUMP SIZE –	HORSE POWER 10
G.P.M. 330	T.D.H. 55'
ELECTRICAL REQUIREMENTS	460 Volts
3 PHASE *	

*NOTE: ELECTRICAL REQUIREMENT TO BE VERIFIED BY CONTRACTOR.

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
ANAHEIM, CALIFORNIA 92806
TEL: (352) 343-8481
CERTIFICATION/REGISTRY NUMBER
NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS LICENSE No. 69017 STATE OF FLORIDA PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — 69017
NAME — PE LICENSE NO.
7/28/25
DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FL
FIRM OR BUSINESS NO. — STATE

PROJECT NO.:	045548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

SHEET TITLE:
LIFT STATION PLAN

C-1101

FILE NAME: A:\45000s\45548\003\LD\CADD\C1100 Lift Station Details.dwg DATE: July 29, 2025, TIME: 9:15 AM, USER: ahs5122

COMPLETED JOINT WITH SQUEEZE OUT

RAM-NEK PRE-MOLDED PLASTIC JOINT SEALER WITH PLASTIC WRAPPER (WRAPPER TO BE REMOVED)

PRE-PRIMED JOINT SURFACES

TONGUE AND GROOVE JOINT TYPICAL DETAIL

1" FEBCO MODEL 825YA VERTICAL FLOW IN/HORIZONTAL FLOW OUT REDUCED PRESSURE BACKFLOW PREVENTER, OR APPROVED EQUAL (INSTALLER SHALL PROVIDE CERTIFICATION THAT BACKFLOW PREVENTER IS WORKING & INSTALLED CORRECTLY.)

4"x5' GALV. STEEL PIPE w/ END CAP

3/4" HOSE BIBB

STRAP 1" ALUMINUM PIPE TO POST w/ STAINLESS STEEL BANDING STRAP

1" GALV. STEEL PIPE

18"

TOP SLAB OF LIFT STATION

1" WATER SERVICE

36" MIN.

1 C.F. CONCRETE

HOSE BIBB

6' CHAIN LINK FENCE WITH SLATS COLOR TO BE EARTH TONE AND APPROVED BY HOWEY IN THE HILLS ALTERNATE FENCING TO BE APPROVED BY HOWEY IN THE HILLS

CONTROL PANEL (SEE DETAIL)

SINGLE DOOR ACCESS HATCH w/LOCKSET AND RECESSED HANDLE (36" x 60" CLEAR OPENING) (U.S.F. FABRICATION INC.)

STAINLESS STEEL FLOAT @ CABLE HANGER

1 - 1/4" THREAD x 2" SLIB SCH 80 PVC

316 STAINLESS SEWAGE AIR RELEASE VALVE VENT TO WET WELL w/2" SCH 80 PVC

2"x4" 316 STAINLESS STEEL NIPPLE

2" STAINLESS STEEL BALL VALVE

2"x4" 316 STAINLESS STEEL NIPPLE

6" FLANGE WITH 2" FLANGED BOSS

6" TEE (FLG.)

2" SCH 80 PVC UNION (TYP.)

2" SCH 80 PVC 90° BEND

2" SCH 80 PVC BALL VALVE

2" SCH 80 PVC

6" 90° BEND (FLG.)

PRESSURE GAUGE

6" PLUG VALVE

6" CHECK VALVE

6" 90° BEND (FLG.)

6" 90° BEND (FLG.)

H.D.P.E TO D.I.P. COUPLING

4" PVC VENT W/ VENT CAP

PIPE SUPPORT (TYP.)

CONCRETE APRON 6" THICK, 3000 psi W/6x6-W1.4x W1.4 W.W.F.

24"

EL. 98.25

SEAL CONDUIT END IN WETWELL

2" SCH 80 PVC

90° BEND

6" 90° BEND (M.J.)

6" PLUG VALVE w/ADJUSTABLE VALVE BOX

3'-0" MIN. COVER

CONDUIT FOR POWER SERVICE. (PVC WHEN BURIED, OTHERWISE GALV. STEEL)

STAINLESS STEEL PUMP GRIP-EYE CABLE

316 STAINLESS STEEL BRACING

3-2" MIN. PVC CONDUIT FOR PUMP CONTROLS, POWER & FLOAT CONTROLS CONDUIT FOR EMERGENCY DIESEL PUMP (SEE ELECTRICAL)

8' Ø I.D. WET WELL

H.D.P.E. LINER

STAINLESS STEEL SCH. 40 PUMP GUIDE RAILS (2) PER PUMP PER PUMP MANUFACTURER

6" 90° BEND (MJ)

M.J. DIP (BURIED) / F.J. DIP (EXPOSED) — 6" PVC FORCE MAIN

POWER CABLE FROM PANEL BOX

12 VOLT FLOAT LIQUID LEVEL CONTROLS OR APPROVED EQUAL

6" H.D.P.E.

6" RISER PIPE TO BE SDR-11 HDPE, WITH WELDED JOINTS. FLANGED AT ONE END WITH STAINLESS STEEL BACKING RINGS.

INV. EL. 89.00

8"

HIGH WATER ALARM EL. = 89.00

LAG PUMP NO. 1 EL. = 88.50

LEAD PUMP ON EL. = 87.50

8" P.V.C. SAN. SEWER

6" IPS FLANGE ADAPTER

PUMP

6"x4" ECENTRIC REDUCER

PUMPS OFF EL. =85.50

LOW LEVEL ALARM EL. = 85.00

4" BASE ELBOW

ELEV. = 82.50

12"

10"

GROUT

EL. 82.10

12"

12"

#57 STONE

MIN. 3/4" DIA. x 11" STAINLESS STEEL ANCHOR BOLTS TO EXTEND

8'

12'

2 1/2" & LARGER PIPE

GRINNEL FIG. 264, O/E

3" GALV. SCH. 80 STEEL PIPE

4 3/8" ANCHORS

FIN. FLOOR

VARIES

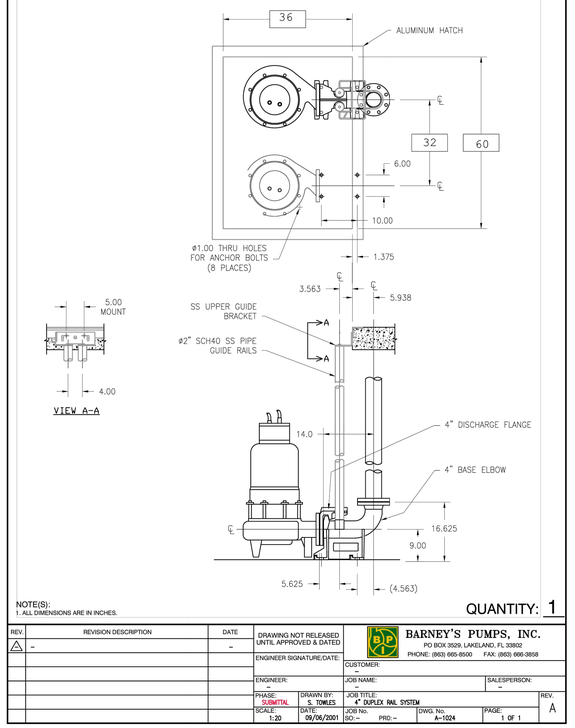
BASE TYPE PIPE SUPPORT

NOTE: ACTUAL LOCATION OF CONTROL PANEL SHALL BE FIELD VERIFIED BY THE CITY OF MINNEOLA UTILITY SUPERVISOR PRIOR TO CONSTRUION

SECTION

SCALE: 1/2" = 1'-0"

0 1 2 3 4 5 6



NOTE(S):
1. ALL DIMENSIONS ARE IN INCHES.

QUANTITY: 1

REV.	REVISION DESCRIPTION	DATE
1	-	-

DRAWING NOT RELEASED UNTIL APPROVED & DATED

ENGINEER SIGNATURE/DATE:

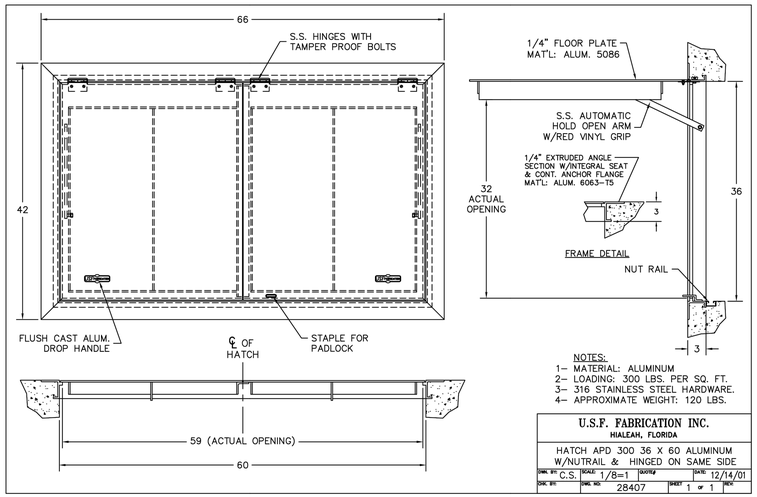
BARNEY'S PUMPS, INC.
PO BOX 3529, LAKELAND, FL 33802
PHONE: (863) 665-8500 FAX: (863) 666-3858

CUSTOMER: -

ENGINEER: - | JOB NAME: - | SALESPERSON: -

PHASE: SUBMITTAL | DRAWN BY: S. TOWLES | JOB TITLE: 4" DUPLEX RAIL SYSTEM | REV. A

SCALE: 1:20 | DATE: 09/06/2001 | JOB No: SO:- PRO:- | DWG. No. A-1024 | PAGE: 1 OF 1



NOTES:
1- MATERIAL: ALUMINUM
2- LOADING: 300 LBS. PER SQ. FT.
3- 316 STAINLESS STEEL HARDWARE.
4- APPROXIMATE WEIGHT: 120 LBS.

U.S.F. FABRICATION INC.
HIALEAH, FLORIDA

HATCH APD 300 36 X 60 ALUMINUM W/NUTRAIL & HINGED ON SAME SIDE

DWN. BY: C.S. | SCALE: 1/8=1 | SHEET 1 OF 1 | DATE: 12/14/01

CHK. BY: | DWG. NO.: 28407 | REV.:

WATERMARK PH.1 & MASTER GRADING PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATION OF AUTHORIZATION NUMBER: 33360

REVISION NO.	DATE	DESCRIPTION

BRETT JAY TOBIAS — LICENSE — No. 69017 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

THE SEAL ORIGINALLY APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:

BRETT J. TOBIAS — NAME — 69017 — PE LICENSE NO.

7/28/25 — DATE

THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF:

HALFF ASSOCIATES, INC.

HALFF ASSOCIATES, INC. — FIRM OR BUSINESS NO. — FL — STATE

PROJECT NO.:	45548.003
ISSUED:	JULY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 1'

SHEET TITLE:

LIFT STATION SECTION

C-1102

FILE NAME: A:\45500s\45548\003\LD\CADD\C1100 Lift Station Details.dwg DATE: July 29, 2025, TIME: 8:18 AM, USER: ah5122

STORMWATER MANAGEMENT REPORT

FOR

Watermark

SUBMITTED TO:

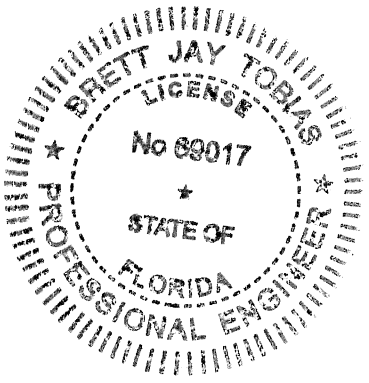
SJRWMD

PREPARED FOR:

Revels Road Investors, LLC

June 2025

902 North Sinclair Ave. • Tavares, FL. 32776
Phone: 352.343.8481 Fax: 352.343.8495 Web: www.halff.com



Halff Associates, Inc.
902 N. Sinclair Avenue
Tavares, FL 32778

Brett J. Tobias, P.E., Team Leader
#69017

TABLE OF CONTENTS

1. SCOPE OF PROJECT AND BASIS OF ANALYSIS

- **A.** BACKGROUND
- **B.** REGULATORY CRITERIA
- **C.** HYDROLOGIC ANALYSIS, LAND USE, AND RAINFALL DATA
- **D.** PRE-DEVELOPMENT ANALYSIS
- **E.** POST-DEVELOPMENT ANALYSIS

2. MAPS

- AERIAL MAP
- U.S.G.S QUAD MAP
- FEMA FLOOD MAP
- SCS SOIL MAP
- PERC RING EXHIBIT

3. SUMMARY SHEEETS

- POND SUMMARY
- DISCHARGE RATE SUMMARY
- DISCHARGE VOLUME SUMMARY

PRE-DEVELOPED BASINS

4. PRE BASIN PB-1

- PRE DEVELOPED CURVE NUMBER
- STAGE VS. STORAGE CALCULATION
- TC CALCULATION

5. PRE BASIN PB-2

- PRE DEVELOPED CURVE NUMBER
- TC CALCULATION

6. PRE BASIN PB-3

- PRE DEVELOPED CURVE NUMBER
- TC CALCULATION

7. PRE BASIN PB-4

- PRE DEVELOPED CURVE NUMBER
- TC CALCULATION

8. PRE BASIN PB-5

- PRE DEVELOPED CURVE NUMBER
- STAGE VS. STORAGE CALCULATION
- TC CALCULATION

9. ICPR PRE DEVELOPED MODELING

- INPUTS
- DISCHARGE RATE AND VOLUME RESULTS

POST-DEVELOPED BASINS

10. POST BASIN PB-1

- POST DEVELOPED CURVE NUMBER,
- TREATMENT VOLUME CALCULATION
- STAGE VS. STORAGE CALCULATION

11. POST BASIN PB-2

- POST DEVELOPED CURVE NUMBER,
- TREATMENT VOLUME CALCULATION
- STAGE VS. STORAGE CALCULATION

12. POST BASIN PB-3

- POST DEVELOPED CURVE NUMBER,
- TREATMENT VOLUME CALCULATION
- STAGE VS. STORAGE CALCULATION

13. POST BASIN PB-4

- POST DEVELOPED CURVE NUMBER,
- TREATMENT VOLUME CALCULATION
- STAGE VS. STORAGE CALCULATION

14. POST BASIN PB-5

- POST DEVELOPED CURVE NUMBER,
- TREATMENT VOLUME CALCULATION
- STAGE VS. STORAGE CALCULATION

15. POST BASIN PB-5A

- POST DEVELOPED CURVE NUMBER,
- TREATMENT VOLUME CALCULATION
- STAGE VS. STORAGE CALCULATION

16. POST BASIN DEPRESSION PB-5

- POST DEVELOPED CURVE NUMBER,
- STAGE VS. STORAGE CALCULATION
- TC CALCULATION

17. ICPR POST DEVELOPED MODELING

- INPUTS
- NODE MAX & DISCHARGE RATE
- DISCHARGE VOLUME
- TOTAL VOLUME RECOVERY
- 2ND 25YR-96HR STORM EVENT
- WATER QUALITY INPUTS & DRAWDOWN

18. PRE & POST DEVELOPED DRAINAGE BASIN MAPS

19. NOAA RAINFALL DATA

1. SCOPE OF PROJECT AND BASIS OF ANALYSIS

Watermark

Scope of Project:

The proposed Watermark project is a residential project in Lake County, Howey-in-the-Hills, Florida. The project is approximately 130 +/- acres and will consist of site grading and construction of a stormwater management system to serve the residential development.

Basis of Analysis:

A. BACKGROUND

The site is an old citrus grove, and it is in a closed basin with average basin slopes exceeding 0.5-percent, so a unit hydrograph 323 shape factory was chosen for all calculations. All elevations in this report are in the NAVD 88 datum.

There are two (2) partial FEMA floodplains located on-site per FEMA FIRM panel 12069C 0485E. They are listed as A zones.

B. REGULATORY CRITERIA

The Watermark project lies within the SJRWMD and the City of Howey-in-the-Hills, Florida. For dry retention, the basin must provide for the treatment of runoff for the greater of the following: 0.5-inches over the basin area or 1.25-inches of runoff over the impervious area, plus an additional 0.5-inches over the basin area. This treatment volume must be recovered within 72-hours after the storm event. The total volume of water retained within the proposed retention areas must be recovered within 14-days after the storm event.

C. HYDROLOGIC ANALYSIS METHODOLOGY, LAND USE, AND RAINFALL INTENSITY

The Soil Conservation Service (SCS) runoff Curve Numbers (CN) methodology was used and calculations considered both the land use and hydrologic soil types, for both the pre and post-developed conditions. A review of the NRCS Web Soil Survey for the project demonstrates that the site is hydrological soil group ‘A’ soils. Pre and post conditions included existing impervious, open space, and proposed impervious.

10-minute time of concentration (Tc) were used for post development analysis to remain conservative for stormwater design. All hydraulic and hydrologic modeling was done using ICPR 4 v. 4.07.06

Rainfall for each storm event was obtained from NOAA data.

D. PRE-DEVELOPMENT ANALYSIS

The pre development condition consists of 5 on-site basins with a ridge splitting the site. Each of the 5 basins drain off-site. Basin PB-1 drains north to a low adjacent to Revels Rd. before it spills over the road. Basin PB-2 drains to an off-site low to the northeast. Basin PB-3 drains to an off-site low in the southeast. Basin PB-4 drains toward SR-19. PB-5 drains to a depression in the south that is partially on-site.

E. POST-DEVELOPMENT ANALYSIS

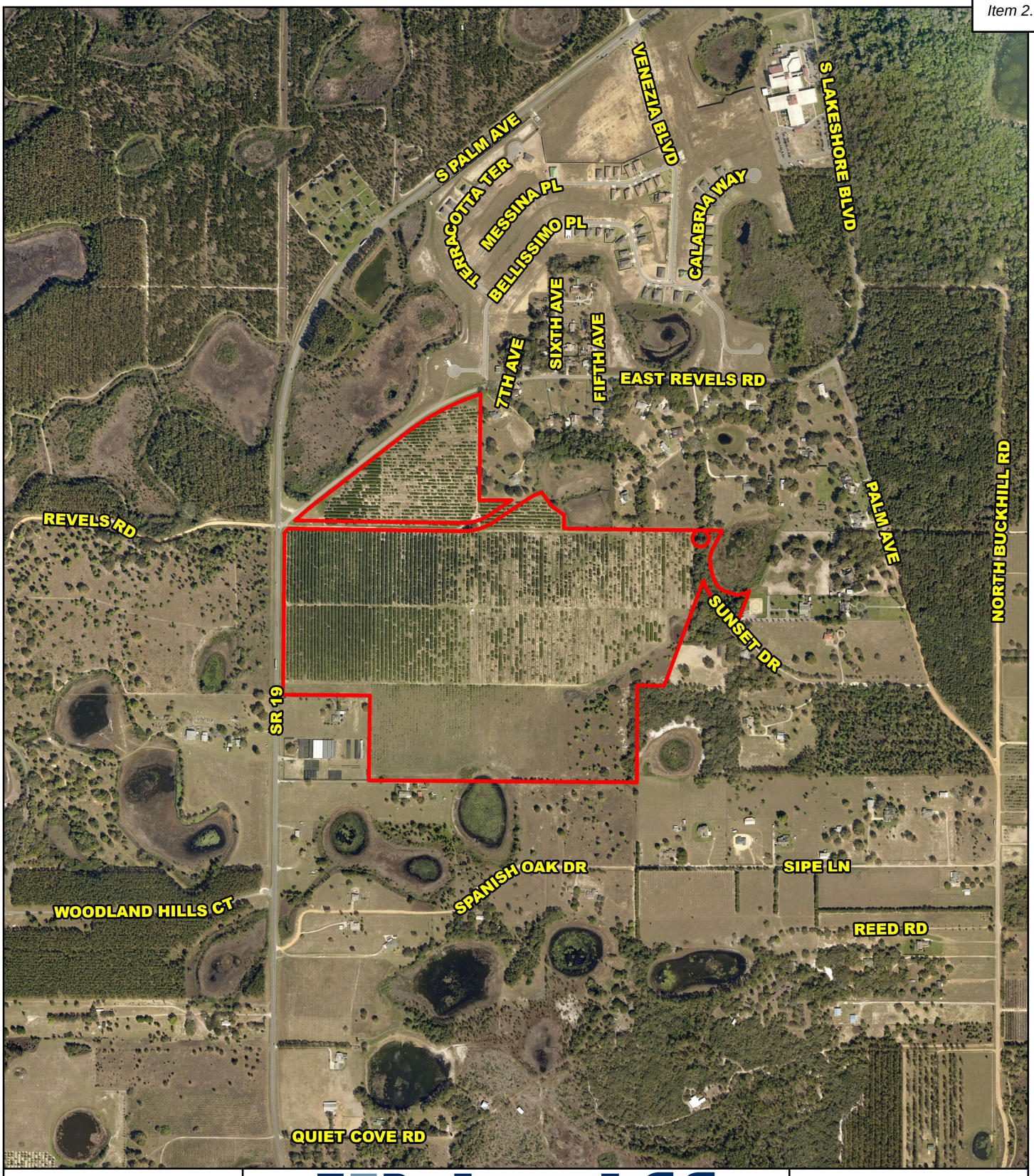
The post developed condition will include five (5) dry ponds to handle the runoff from the development. The ponds will meet both City of Howey-in-the-Hills and SJRWMD criteria.

PB-1 will discharge to a spreader swale before it is allowed to flow over Revels Rd as it does in the pre developed condition. PB-4 has reduced the basin and runoff to SR-19 and the proposed

pond PB-4 will hold 100% of it’s post developed runoff with no discharge.

The dry ponds do not recover total volume in 14 days so a second 25yr-96hr event was run using the 14 day elevation of the ponds as the starting elevation for the second event.

2. MAPS



Aerial Map

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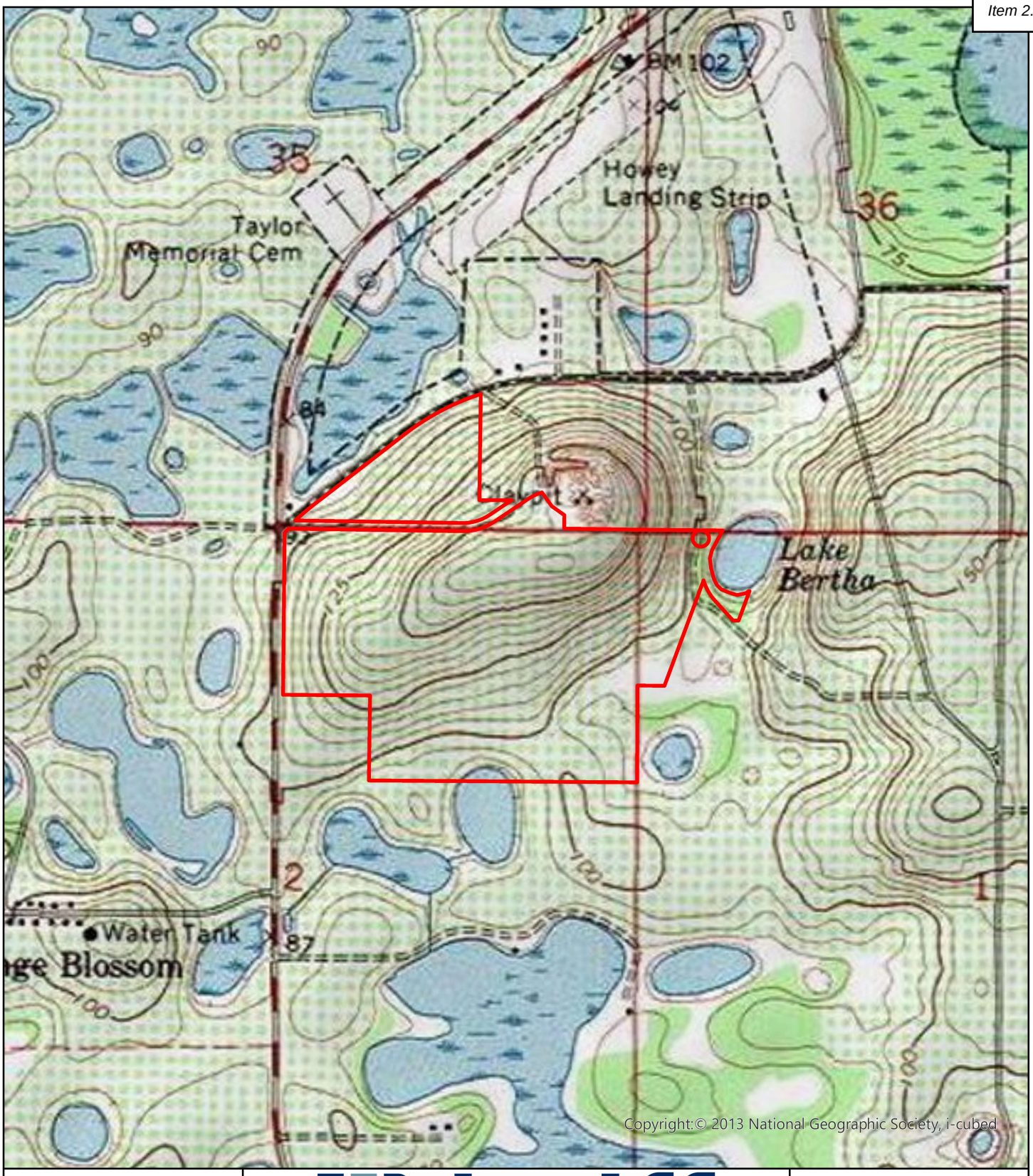
Watermark

2025

N

0 500 1,000 Feet



Quad Map

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Watermark

2025

N

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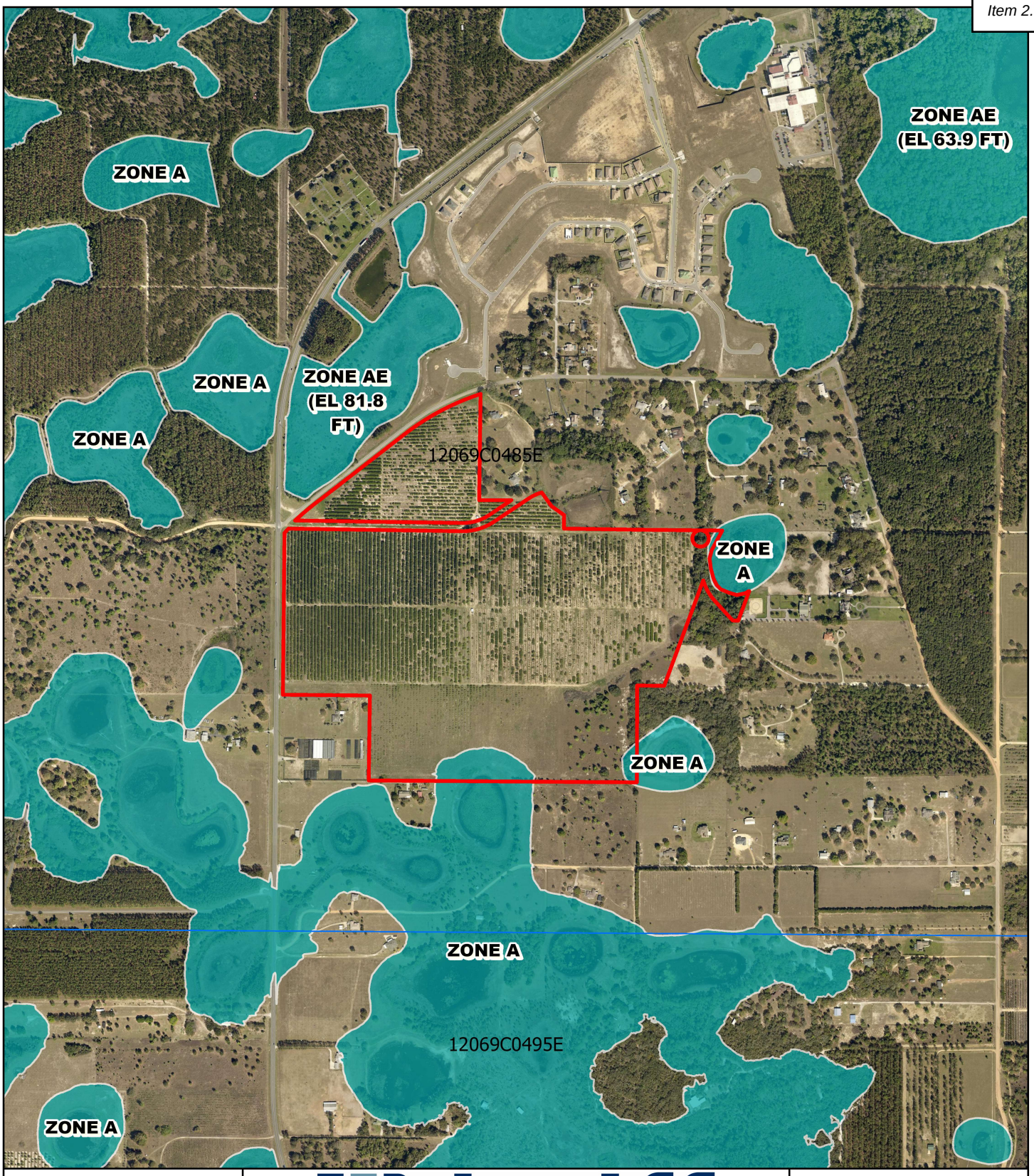

FEMA Map

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Watermark

2025

N

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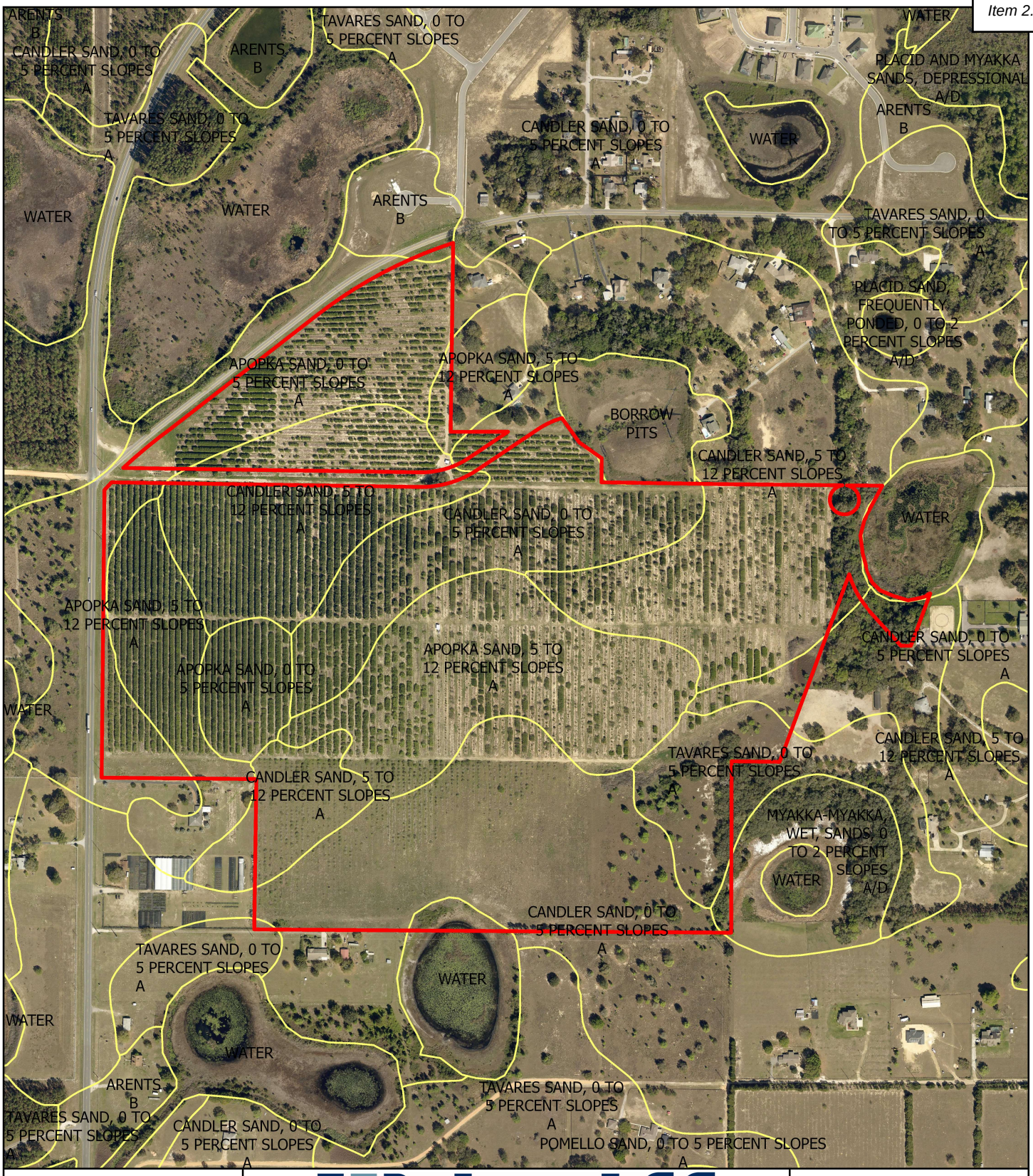

Soils Map

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Watermark

2025

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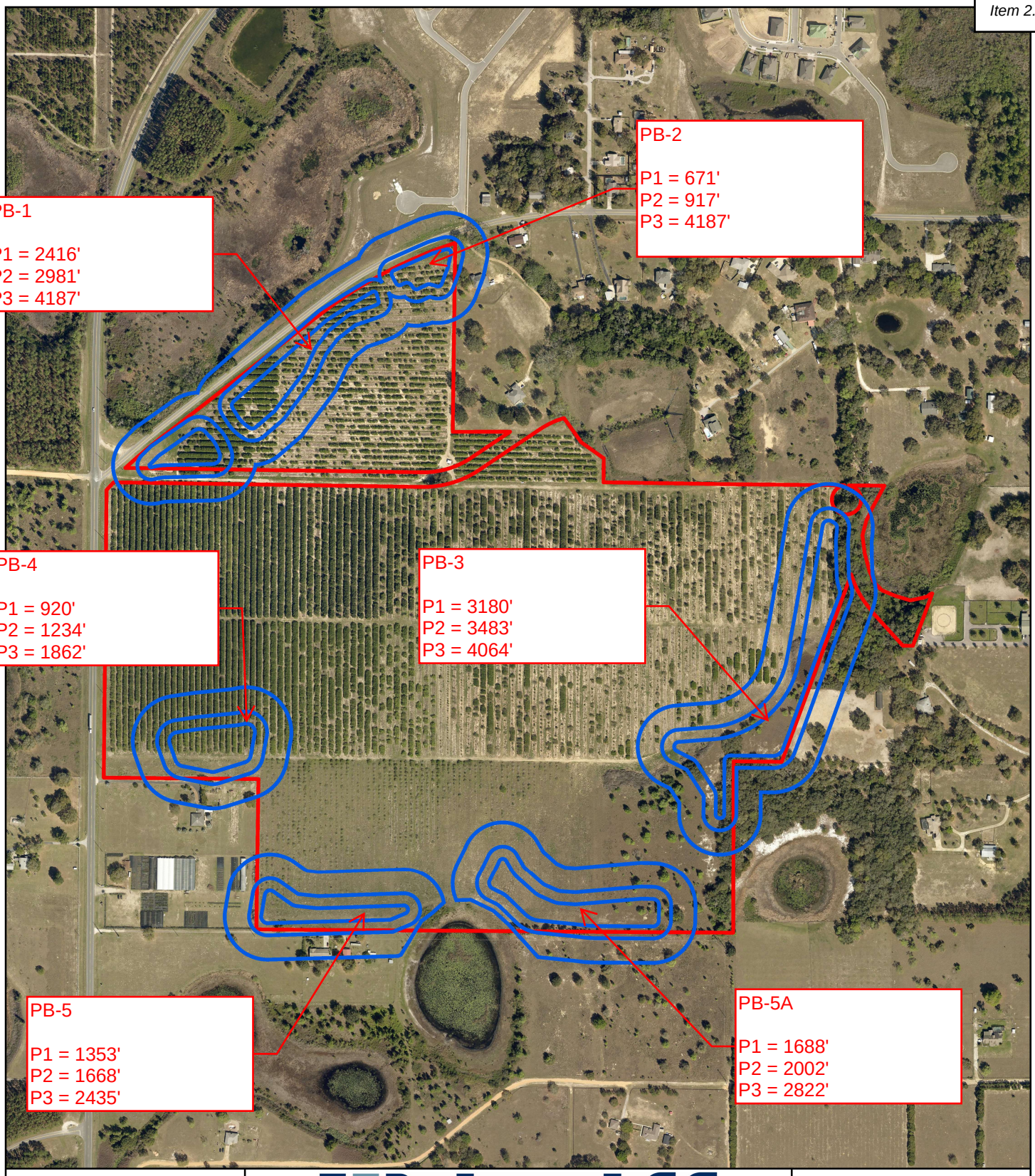

Perc Rings

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Watermark

2025

N

0 300 600 Feet

3. SUMMARY SHEETS

POND SUMMARY

Basin	Top of Bank (ft)	Bottom (ft)	Stage 25 yr - 96 hr (ft)
PB-1	89.00	84.00	88.17
PB-2	89.00	84.00	88.20
PB-3	90.00	85.00	88.38
PB-4	125.00	120.00	123.47
PB-5	94.00	89.00	92.49
PB-5A	92.00	87.00	90.85

*Elevations listed are based on NAVD datum.

Pre vs. Post Rate
Mean Annual Storm Event

Pre Node (Basins)	Post Node (Basins)	Mean Annual Pre Rate (cfs)	Mean Annual Post Rate (cfs)
DEPRESSION PB-5	DEPRESSION PB-5	4.51	0.55
OFF-SITE_NORTH	OFF-SITE_NORTH	10.86	0.00
OFF-SITE_NORTHEAST	OFF-SITE_NORTHEAST	2.76	0.00
OFF-SITE_SOUTHEAST	OFF-SITE_SOUTHEAST	7.17	0.00
OFF-SITE_ WEST	OFF-SITE_ WEST	1.51	0.00

Pre vs. Post Rate
10 Year 24 Hour Event

Pre Node (Basins)	Post Node (Basins)	10 Year 24 Hour Pre Rate (cfs)	10 Year 24 Hour Post Rate (cfs)
DEPRESSION PB-5	DEPRESSION PB-5	16.28	4.72
OFF-SITE_NORTH	OFF-SITE_NORTH	29.87	0.00
OFF-SITE_NORTHEAST	OFF-SITE_NORTHEAST	8.04	0.00
OFF-SITE_SOUTHEAST	OFF-SITE_SOUTHEAST	20.53	0.00
OFF-SITE_ WEST	OFF-SITE_ WEST	4.41	0.00

Pre vs. Post Rate
25 Year 24 Hour Event

Pre Node (Basins)	Post Basin	25 Year 24 Hour Pre Rate (cfs)	25 Year 24 Hour Post Rate (cfs)
DEPRESSION PB-5	DEPRESSION PB-5	29.91	10.91
OFF-SITE_NORTH	OFF-SITE_NORTH	49.47	4.54
OFF-SITE_NORTHEAST	OFF-SITE_NORTHEAST	13.54	0.00
OFF-SITE_SOUTHEAST	OFF-SITE_SOUTHEAST	34.48	2.72
OFF-SITE_ WEST	OFF-SITE_ WEST	7.42	0.00

Pre vs. Post Volume
25 Year - 96 Hour Event

Pre Node (Basins)	Post Node (Basins)	Pre Volume (ac-ft)	Post Volume (ac-ft)
DEPRESSION PB-5	DEPRESSION PB-5	19.26	7.47
OFF-SITE_NORTH	OFF-SITE_NORTH	22.97	9.71
OFF-SITE_NORTHEAST	OFF-SITE_NORTHEAST	3.67	0.00
OFF-SITE_SOUTHEAST	OFF-SITE_SOUTHEAST	14.44	6.81
OFF-SITE_ WEST	OFF-SITE_ WEST	2.01	0.00

4. PRE BASIN PB-1

PRE PB-1
PRE DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**55.20**	**AC**
Total DCIA Area:	**0.00**	**AC**
Percent (%) DCIA of Area:	**0.00%**	
Total Weighted CN Area:	**55.20**	**AC**
Weigthed Curve Number:	**55.14**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space/Orchard "On site"	44.66	AC	0%	0%	100%
Type "C" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"	9.11	AC	0%	0%	100%
Type "C" soil - Open Space "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Existing Onsite impervious	1.14	AC	0%	100%	0%
Existing Off-site Impervious	0.29	AC	0%	100%	0%
Pond at DLW or bottom		AC	100%	0%	0%
TOTAL AREA - - - - - - ->	**55.20**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Existing Onsite impervious	0%	0.00	98
Existing Off-site Impervious	0%	0.00	98
Pond at DLW or bottom	100%	0.00	98
TOTAL --->		**0.00**	

Percent (%) DCIA of Area = 0.00%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space/Orchard "On site"	100%	44.66	80.9%	57	46.12
Type "C" soil - Open Space "On site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	9.11	16.5%	39	6.44
Type "C" soil - Open Space "Off site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Existing Onsite impervious	100%	1.14	2.1%	100	2.07
Existing Off-site Impervious	100%	0.29	0.5%	100	0.53
TOTAL - - - - - - - - - - - - - - - - ->		**55.20**	**100%**		**55.14**

PRE PB-1
PRE DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 86.00 = 0.25 ac-ft

Stage (ft)	Area (ac)	Stor. Vol. (ac-ft)	
85.00	0.01	0.00	**BTM**
86.00	0.49	0.25	**TOB**

Time of Concentration Calculations

Watermark Pre PB-1

Based on travel time equations from TR-55, Chapter 3 and Appendix F as follows:

$$\text{Sheet Flow Tt} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}\, s^{0.4}}$$

$$\text{Unpaved Concentrated Flow V} = \frac{0.806725(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Paved Concentrated Flow V} = \frac{0.508205(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Open Channel Flow V} = \text{assumed value } 2.5 \text{ ft/sec} \quad ; \quad Tt = \frac{L}{V}$$

2-Year, 24 Hour Rainfall = 4.5 Inches

Basin ID	Flow Type	Travel Length (feet)	Manning Roughness Coef.	Land Slope (ft/ft)	Flow Velocity (ft/sec)	Travel Time (hours)	Travel Time (min.)
Pre PB-1	Sheet Flow	100	0.24	0.025	0.15	0.18	11
	UNPAVED	1872	0.24	0.040	0.67	0.77	46
	Open Channel Flow	0	n/a	n/a	2.5	0.00	0
				Time of Concentration =		**0.96**	**57**

5. PRE BASIN PB-2

PRE PB-2
PRE DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**8.98**	**AC**
Total DCIA Area:	**0.00**	**AC**
Percent (%) DCIA of Area:	**0.00%**	
Total Weighted CN Area:	**8.98**	**AC**
Weigthed Curve Number:	**57.00**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space/Orchard "On site"	8.98	AC	0%	0%	100%
Type "C" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "C" soil - Open Space "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Existing Onsite impervious		AC	100%	0%	0%
Existing Pond		AC	100%	0%	0%
Pond at DLW or bottom		AC	100%	0%	0%
TOTAL AREA - - - - - - ->	**8.98**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Existing Onsite impervious	100%	0.00	98
Existing Pond	100%	0.00	98
Pond at DLW or bottom	100%	0.00	98
TOTAL --->		**0.00**	

Percent (%) DCIA of Area = 0.00%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space/Orchard "On site"	100%	8.98	100.0%	57	57.00
Type "C" soil - Open Space "On site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "C" soil - Open Space "Off site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Existing Onsite impervious	0%	0.00	0.0%	100	0.00
Existing Pond	0%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - ->		**8.98**	**100%**		**57.00**

Time of Concentration Calculations

Watermark Pre PB-2

Based on travel time equations from TR-55, Chapter 3 and Appendix F as follows:

$$\text{Sheet Flow Tt} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}\, s^{0.4}}$$

$$\text{Unpaved Concentrated Flow V} = \frac{0.806725(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Paved Concentrated Flow V} = \frac{0.508205(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Open Channel Flow V} = \text{assumed value } 2.5 \text{ ft/sec} \quad ; \quad Tt = \frac{L}{V}$$

2-Year, 24 Hour Rainfall = 4.5 Inches

Basin ID	Flow Type	Travel Length (feet)	Manning Roughness Coef.	Land Slope (ft/ft)	Flow Velocity (ft/sec)	Travel Time (hours)	Travel Time (min.)
Pre PB-1	Sheet Flow	100	0.24	0.045	0.19	0.15	9
	UNPAVED	766	0.24	0.113	1.13	0.19	11
	Open Channel Flow	0	n/a	n/a	2.5	0.00	0
				Time of Concentration =		**0.33**	**20**

6. PRE BASIN PB-3

PRE PB-3
PRE DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**35.36**	**AC**
Total DCIA Area:	**0.00**	**AC**
Percent (%) DCIA of Area:	**0.00%**	
Total Weighted CN Area:	**35.36**	**AC**
Weigthed Curve Number:	**57.00**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space/Orchard "On site"	35.36	AC	0%	0%	100%
Type "C" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "C" soil - Open Space "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Existing Onsite impervious		AC	100%	0%	0%
Existing Pond		AC	100%	0%	0%
Pond at DLW or bottom		AC	100%	0%	0%
TOTAL AREA - - - - - - ->	**35.36**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Existing Onsite impervious	100%	0.00	98
Existing Pond	100%	0.00	98
Pond at DLW or bottom	100%	0.00	98
TOTAL --->		**0.00**	

Percent (%) DCIA of Area = 0.00%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space/Orchard "On site"	100%	35.36	100.0%	57	57.00
Type "C" soil - Open Space "On site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "C" soil - Open Space "Off site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Existing Onsite impervious	0%	0.00	0.0%	100	0.00
Existing Pond	0%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - ->		**35.36**	**100%**		**57.00**

Time of Concentration Calculations

Watermark Pre PB-3

Based on travel time equations from TR-55, Chapter 3 and Appendix F as follows:

$$\text{Sheet Flow Tt} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}\, s^{0.4}}$$

$$\text{Unpaved Concentrated Flow V} = \frac{0.806725(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Paved Concentrated Flow V} = \frac{0.508205(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Open Channel Flow V} = \text{assumed value } 2.5 \text{ ft/sec} \quad ; \quad Tt = \frac{L}{V}$$

2-Year, 24 Hour Rainfall = 4.5 Inches

Basin ID	Flow Type	Travel Length (feet)	Manning Roughness Coef.	Land Slope (ft/ft)	Flow Velocity (ft/sec)	Travel Time (hours)	Travel Time (min.)
Pre PB-1	Sheet Flow	100	0.24	0.030	0.16	0.17	10
	UNPAVED	1662	0.24	0.051	0.76	0.61	36
	Open Channel Flow	0	n/a	n/a	2.5	0.00	0
				Time of Concentration =		**0.78**	**46**

7. PRE BASIN PB-4

PRE PB-4
PRE DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**4.92**	**AC**
Total DCIA Area:	**0.00**	**AC**
Percent (%) DCIA of Area:	**0.00%**	
Total Weighted CN Area:	**4.92**	**AC**
Weigthed Curve Number:	**57.00**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space/Orchard "On site"	4.92	AC	0%	0%	100%
Type "C" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "C" soil - Open Space "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Existing Onsite impervious		AC	100%	0%	0%
Existing Pond		AC	100%	0%	0%
Pond at DLW or bottom		AC	100%	0%	0%
TOTAL AREA - - - - - - ->	**4.92**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Existing Onsite impervious	100%	0.00	98
Existing Pond	100%	0.00	98
Pond at DLW or bottom	100%	0.00	98
TOTAL --->		**0.00**	

Percent (%) DCIA of Area = 0.00%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space/Orchard "On site"	100%	4.92	100.0%	57	57.00
Type "C" soil - Open Space "On site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "C" soil - Open Space "Off site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Existing Onsite impervious	0%	0.00	0.0%	100	0.00
Existing Pond	0%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - ->		**4.92**	**100%**		**57.00**

Time of Concentration Calculations

Watermark Pre PB-4

Based on travel time equations from TR-55, Chapter 3 and Appendix F as follows:

$$\text{Sheet Flow Tt} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}\, s^{0.4}}$$

$$\text{Unpaved Concentrated Flow V} = \frac{0.806725(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Paved Concentrated Flow V} = \frac{0.508205(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Open Channel Flow V} = \text{assumed value } 2.5 \text{ ft/sec} \quad ; \quad Tt = \frac{L}{V}$$

2-Year, 24 Hour Rainfall = 4.5 Inches

Basin ID	Flow Type	Travel Length (feet)	Manning Roughness Coef.	Land Slope (ft/ft)	Flow Velocity (ft/sec)	Travel Time (hours)	Travel Time (min.)
Pre PB-1	Sheet Flow	100	0.24	0.040	0.18	0.15	9
	UNPAVED	551	0.24	0.065	0.86	0.18	11
	Open Channel Flow	0	n/a	n/a	2.5	0.00	0
				Time of Concentration =		**0.33**	**20**

8. PRE BASIN PB-5

PRE DEPRESSION PB-5
PRE DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**55.38**	**AC**
Total DCIA Area:	**0.00**	**AC**
Percent (%) DCIA of Area:	**0.00%**	
Total Weighted CN Area:	**55.38**	**AC**
Weigthed Curve Number:	**51.82**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space/Orchard "On site"	34.95	AC	0%	0%	100%
Type "C" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"	19.10	AC	0%	0%	100%
Type "C" soil - Open Space "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Existing Onsite impervious	0.67	AC	0%	100%	0%
Existing Off-site impervious	0.66	AC	0%	100%	0%
Pond at DLW or bottom		AC	100%	0%	0%
TOTAL AREA - - - - - - ->	**55.38**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Existing Onsite impervious	0%	0.00	98
Existing Off-site impervious	0%	0.00	98
Pond at DLW or bottom	100%	0.00	98
TOTAL --->		**0.00**	

Percent (%) DCIA of Area = 0.00%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space/Orchard "On site"	100%	34.95	63.1%	57	35.97
Type "C" soil - Open Space "On site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	19.10	34.5%	39	13.45
Type "C" soil - Open Space "Off site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Existing Onsite impervious	100%	0.67	1.2%	100	1.21
Existing Off-site impervious	100%	0.66	1.2%	100	1.19
TOTAL - - - - - - - - - - - - - - - - ->		**55.38**	**100%**		**51.82**

PRE DEPRESSION PB-5
PRE DEVELOPED
DEPRESSION
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 83.50 = 26.61 ac-ft

Stage (ft)	Area (ac)	Stor. Vol. (ac-ft)	
78.00	4.41	0.00	**BTM**
81.00	6.37	5.39	
82.00	6.83	11.99	
83.00	7.31	19.06	
83.50	7.79	26.61	**TOB**

Time of Concentration Calculations

Watermark Pre PB-5

Based on travel time equations from TR-55, Chapter 3 and Appendix F as follows:

$$\text{Sheet Flow Tt} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}\, s^{0.4}}$$

$$\text{Unpaved Concentrated Flow V} = \frac{0.806725(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Paved Concentrated Flow V} = \frac{0.508205(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Open Channel Flow V} = \text{assumed value } 2.5 \text{ ft/sec} \quad ; \quad Tt = \frac{L}{V}$$

2-Year, 24 Hour Rainfall = 4.5 Inches

Basin ID	Flow Type	Travel Length (feet)	Manning Roughness Coef.	Land Slope (ft/ft)	Flow Velocity (ft/sec)	Travel Time (hours)	Travel Time (min.)
Pre PB-1	Sheet Flow	100	0.24	0.025	0.15	0.18	11
	UNPAVED	1519	0.24	0.014	0.40	1.06	64
	Open Channel Flow	0.057	n/a	n/a	2.5	0.00	0
				Time of Concentration =		**1.24**	**75**

9. ICPR PRE DEVELOPED MODELING

Simple Basin: PRE_DEPRESSION_PB-5

Scenario:	Pre
Node:	DEPRESSION_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	75.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	55.3800 ac
Curve Number:	51.8
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PRE_PB-1

Scenario:	Pre
Node:	DEPRESSION_PB-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	57.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	55.2000 ac
Curve Number:	58.1
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PRE_PB-2

Scenario:	Pre
Node:	OFF-SITE_NORTHEAST
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	20.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	8.9800 ac
Curve Number:	57.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PRE_PB-3

Scenario:	Pre
Node:	OFF-SITE_SOUTHEAST
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	46.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	35.3600 ac
Curve Number:	57.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PRE_PB-4

Scenario:	Pre
Node:	OFF-SITE_WEST
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	20.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	4.9200 ac
Curve Number:	57.0
% Impervious:	0.00
% DCIA:	0.00

% Direct: 0.00
Rainfall Name:

Comment:

Node: DEPRESSION_PB-1

Scenario: Pre
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 85.00 ft
Warning Stage: 86.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	0.0100	436
86.00	0.4900	21344

Comment:

Node: DEPRESSION_PB-5

Scenario: Pre
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 78.00 ft
Warning Stage: 84.00 ft

Stage [ft]	Area [ac]	Area [ft2]
78.00	4.4100	192100
81.00	6.3700	277477
82.00	6.8300	297515
83.00	7.3100	318424
83.50	7.7900	339332

Comment:

Node: OFF-SITE_NORTH

Scenario: Pre
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 81.80 ft
Warning Stage: 81.80 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	81.80
0	0	0	999.0000	81.80

Comment: AE Zone listed elevation

Node: OFF-SITE_NORTHEAST

Scenario: Pre
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 72.00 ft
Warning Stage: 72.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	72.00
0	0	0	999.0000	72.00

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTH

Scenario: Pre
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 79.00 ft
Warning Stage: 79.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	79.00
0	0	0	999.0000	79.00

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTHEAST

Scenario: Pre
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 75.00 ft
Warning Stage: 75.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	75.00
0	0	0	999.0000	75.00

Comment: A zone approx. water el.

Node: OFF-SITE_WEST

Scenario: Pre
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 78.00 ft
Warning Stage: 78.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	78.00
0	0	0	999.0000	78.00

Comment: to SR 19 roadside swale, south to wetland

Weir Link: E_REVELS_RD

Scenario: Pre
From Node: DEPRESSION_PB-1
To Node: OFF-SITE_NORTH
Link Count: 1
Flow Direction: Both
Damping: 0.0000 ft
Weir Type: Paved Road Vertical
Geometry Type: Rectangular
Invert: 86.00 ft
Control Elevation: 86.00 ft
Max Depth: 999.00 ft
Max Width: 339.00 ft
Fillet: 0.00 ft

Bottom Clip
Default: 0.00 ft
Op Table:
Ref Node:

Top Clip
Default: 0.00 ft
Op Table:
Ref Node:

Discharge Coefficients
Weir Default: 2.800
Weir Table:
Orifice Default: 0.600
Orifice Table:

Comment:

Weir Link: WR_NATURAL_PB-5

Scenario: Pre
From Node: DEPRESSION_PB-5
To Node: OFF-SITE_SOUTH
Link Count: 1
Flow Direction: Both

Bottom Clip
Default: 0.00 ft
Op Table:
Ref Node:

Top Clip

Damping:	0.0000 ft		
Weir Type:	Broad Crested Vertical	Default:	0.00 ft
Geometry Type:	Trapezoidal	Op Table:	
Invert:	83.50 ft	Ref Node:	
Control Elevation:	83.50 ft	**Discharge Coefficients**	
Max Depth:	999.00 ft	Weir Default:	2.800
Extrapolation Method:	Normal Projection	Weir Table:	
Bottom Width:	60.00 ft	Orifice Default:	0.600
Left Slope:	10.000 (h:v)	Orifice Table:	
Right Slope:	10.000 (h:v)		

Comment:

Simulation: 00_MeanAnnual

Scenario: Pre
Run Date/Time: 6/25/2025 9:53:18 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:	
Reference ET Folder:	
Unit Hydrograph Folder:	

Lookup Tables

Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	
Roughness Set:	
Crop Coef Set:	
Fillable Porosity Set:	
Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	4.22 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 010yr024hr

Scenario:	Pre
Run Date/Time:	6/25/2025 9:53:26 AM
Program Version:	ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000

Max Calculation Time: 30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

Edge Length Option: Automatic

Dflt Damping (2D): 0.0050 ft
Min Node Srf Area (2D): 100 ft2

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 6.03 in
Storm Duration: 24.0000 hr

Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2

Energy Switch (2D): Energy Energy Switch (1D): Energy

Comment:

Simulation: 025yr024hr

Scenario: Pre
Run Date/Time: 6/25/2025 9:53:36 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:

Vertical Layers Set:	
Impervious Set:	
Roughness Set:	
Crop Coef Set:	
Fillable Porosity Set:	
Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.54 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 025yr096hr

Scenario:	Pre
Run Date/Time:	6/25/2025 9:53:45 AM
Program Version:	ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	432.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SJRWMD-96
		Rainfall Amount:	10.50 in
Edge Length Option:	Automatic	Storm Duration:	96.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 100yr024hr

Scenario: Pre
Run Date/Time: 6/25/2025 9:55:01 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	48.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	10.40 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 100yr096hr

Scenario: Pre
Run Date/Time: 6/25/2025 9:55:07 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SJRWMD-96
		Rainfall Amount:	14.60 in
Edge Length Option:	Automatic	Storm Duration:	96.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Scenario	Sim	Node Name	Relative Time [hrs]	Warning Stage [ft]	Maximum Stage [ft]	Time to Maximum Stage [hrs]	Maximum Total Inflow Rate [cfs]	Time to Maximum Total Inflow Rate	Maximum Total Outflow Rate [cfs]	Time to Maximum Total Outflow Rate
Pre	00_MeanAnnual	DEPRESSION_PB-5	24.0043	84.00	78.46	24.0043	4.51	13.1506	0.00	0.0000
Pre	00_MeanAnnual	OFF-SITE_NORTH	24.0043	81.80	81.80	0.0000	10.86	12.7874	0.00	0.0000
Pre	00_MeanAnnual	OFF-SITE_NORTHEAST	24.0043	72.00	72.00	0.0000	2.76	12.3001	0.00	0.0000
Pre	00_MeanAnnual	OFF-SITE_SOUTHEAST	24.0043	75.00	75.00	0.0000	7.17	12.6333	0.00	0.0000
Pre	00_MeanAnnual	OFF-SITE_WEST	24.0043	78.00	78.00	0.0000	1.51	12.3001	0.00	0.0000
Pre	010yr024hr	DEPRESSION_PB-5	24.0044	84.00	79.19	24.0044	16.28	12.9814	0.00	0.0000
Pre	010yr024hr	OFF-SITE_NORTH	24.0044	81.80	81.80	0.0000	29.87	12.7019	0.00	0.0000
Pre	010yr024hr	OFF-SITE_NORTHEAST	24.0044	72.00	72.00	0.0000	8.04	12.1834	0.00	0.0000
Pre	010yr024hr	OFF-SITE_SOUTHEAST	24.0044	75.00	75.00	0.0000	20.53	12.5523	0.00	0.0000
Pre	010yr024hr	OFF-SITE_WEST	24.0044	78.00	78.00	0.0000	4.41	12.1834	0.00	0.0000
Pre	025yr024hr	DEPRESSION_PB-5	24.0013	84.00	79.90	24.0013	29.91	12.9170	0.00	0.0000
Pre	025yr024hr	OFF-SITE_NORTH	24.0013	81.80	81.80	0.0000	49.47	12.6732	0.00	0.0000
Pre	025yr024hr	OFF-SITE_NORTHEAST	24.0013	72.00	72.00	0.0000	13.54	12.1664	0.00	0.0000
Pre	025yr024hr	OFF-SITE_SOUTHEAST	24.0013	75.00	75.00	0.0000	34.48	12.5321	0.00	0.0000
Pre	025yr024hr	OFF-SITE_WEST	24.0013	78.00	78.00	0.0000	7.42	12.1664	0.00	0.0000
Pre	025yr096hr	DEPRESSION_PB-5	432.0029	84.00	81.48	102.6529	52.84	60.7162	0.00	0.0000
Pre	025yr096hr	OFF-SITE_NORTH	432.0029	81.80	81.80	0.0000	77.79	60.4900	0.00	0.0000
Pre	025yr096hr	OFF-SITE_NORTHEAST	432.0029	72.00	72.00	0.0000	22.49	60.0998	0.00	0.0000
Pre	025yr096hr	OFF-SITE_SOUTHEAST	432.0029	75.00	75.00	0.0000	55.73	60.3660	0.00	0.0000
Pre	025yr096hr	OFF-SITE_WEST	432.0029	78.00	78.00	0.0000	12.32	60.0998	0.00	0.0000
Pre	100yr024hr	DEPRESSION_PB-5	48.0030	84.00	81.43	30.6530	61.39	12.8668	0.00	0.0000
Pre	100yr024hr	OFF-SITE_NORTH	48.0030	81.80	81.80	0.0000	91.70	12.6404	0.00	0.0000
Pre	100yr024hr	OFF-SITE_NORTHEAST	48.0030	72.00	72.00	0.0000	25.35	12.1517	0.00	0.0000
Pre	100yr024hr	OFF-SITE_SOUTHEAST	48.0030	75.00	75.00	0.0000	64.73	12.5001	0.00	0.0000
Pre	100yr024hr	OFF-SITE_WEST	48.0030	78.00	78.00	0.0000	13.89	12.1517	0.00	0.0000
Pre	100yr096hr	DEPRESSION_PB-5	120.0053	84.00	83.53	97.7053	94.54	60.6838	1.03	97.7053
Pre	100yr096hr	OFF-SITE_NORTH	120.0053	81.80	81.80	0.0000	130.70	60.4839	0.00	0.0000
Pre	100yr096hr	OFF-SITE_NORTHEAST	120.0053	72.00	72.00	0.0000	37.76	60.1003	0.00	0.0000
Pre	100yr096hr	OFF-SITE_SOUTHEAST	120.0053	75.00	75.00	0.0000	94.38	60.3502	0.00	0.0000
Pre	100yr096hr	OFF-SITE_WEST	120.0053	78.00	78.00	0.0000	20.69	60.1003	0.00	0.0000

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Inflow Volume [ac_ft]
Post	025yr096hr	DEPRESSION_PB-5	432.0051	79.52	7.47
Post	025yr096hr	OFF-SITE_NORTH	432.0051	81.80	9.71
Post	025yr096hr	OFF-SITE_NORTHEAST	432.0051	72.00	0.00
Post	025yr096hr	OFF-SITE_SOUTHEAST	432.0051	75.00	6.81
Post	025yr096hr	OFF-SITE_WEST	432.0051	78.00	0.00
Pre	025yr096hr	DEPRESSION_PB-5	432.0029	81.48	19.26
Pre	025yr096hr	OFF-SITE_NORTH	432.0029	81.80	22.97
Pre	025yr096hr	OFF-SITE_NORTHEAST	432.0029	72.00	3.67
Pre	025yr096hr	OFF-SITE_SOUTHEAST	432.0029	75.00	14.44
Pre	025yr096hr	OFF-SITE_WEST	432.0029	78.00	2.01

10. POST BASIN PB-1

POST PB-1
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**38.58**	**AC**
Total DCIA Area:	**10.63**	**AC**
Percent (%) DCIA of Area:	**27.55%**	
Total Weighted CN Area:	**27.95**	**AC**
Weigthed Curve Number:	**47.22**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space "On site"	12.46	AC	0%	0%	100%
Type "A" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Woods "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Residential	19.47	AC	35%	20%	45%
Type "C" soil - Residential		AC	35%	30%	35%
Type "D" soil - Residential		AC	35%	30%	35%
Type "A" soil - Commercial		AC	85%	0%	15%
Type "A" soil - Road	5.45	AC	48%	0%	52%
Type "D" soil - Commercial		AC	85%	0%	15%
Pond at DLW or bottom	1.20	AC	100%	0%	0%
TOTAL AREA - - - - - - - ->	**38.58**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Type "A" soil - Open Space "On site"	0%	0.00	98
Type "A" soil - Residential	35%	6.81	98
Type "C" soil - Residential	35%	0.00	98
Type "D" soil - Residential	35%	0.00	98
Type "A" soil - Commercial	85%	0.00	98
Type "A" soil - Road	48%	2.62	98
Type "D" soil - Commercial	85%	0.00	98
Pond at DLW or bottom	100%	1.20	98
TOTAL --->		**10.63**	

Percent (%) DCIA of Area =	**27.55%**

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space "On site"	100%	12.46	44.6%	39	17.39
Type "A" soil - Open Space "On site"	100%	0.00	0.0%	39	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "A" soil - Woods "Off site"	100%	0.00	0.0%	30	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Residential	45%	8.76	31.3%	39	12.23
Type "A" soil - Residential	20%	3.89	13.9%	98	13.65
Type "C" soil - Residential	35%	0.00	0.0%	74	0.00
Type "C" soil - Residential	30%	0.00	0.0%	98	0.00
Type "D" soil - Residential	35%	0.00	0.0%	80	0.00
Type "D" soil - Residential	30%	0.00	0.0%	98	0.00
Type "A" soil - Commercial	15%	0.00	0.0%	39	0.00
Type "A" soil - Road	52%	2.83	10.1%	39	3.95
Type "D" soil - Commercial	15%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - - ->		**27.95**	**100%**		**47.22**

POST PB-1
POST DEVELOPED
SJRWMD WATER QUALITY VOLUME

TOTAL DRAINAGE AREA	=	38.58	ACRES
IMPERVIOUS AREA	=	13.32	ACRES
OPEN SPACE	=	25.26	ACRES

TOTAL DRAINAGE AREA OPTION

TOTAL DRAINAGE AREA	=	38.58	ACRES
1" RUNOFF	=	1	INCHES
WATER QUALITY VOLUME	=	140,045	CU-FT

IMPERVIOUS AREA OPTION

TOTAL DRAINAGE AREA	=	38.58	ACRES
0.5" RUNOFF	=	70,023	CU-FT
IMPERVIOUS AREA	=	13.32	ACRES
1.25" OF RUNOFF	=	60,460	CU-FT
TOTAL WATER QUALITY VOLUME	=	130,483	CU-FT

USE MAXIMUM WATER QUALITY VOLUME	**=**	**140,045**	**CU-FT**
USE MAXIMUM WATER QUALITY VOLUME	**=**	**3.22**	**AC-FT**
WATER QUALITY STARTING ELEVATION	**=**	**86.47**	**FT**

POST PB-1
POST DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 89.00 = 8.63 ac-ft

Stage (ft)	Area (ac)		Stor. Vol. (ac-ft)	
84.00	1.20	52272	0.00	**BTM**
85.00	1.40	61151	1.30	
86.00	1.61	70257	2.81	
87.00	1.83	79617	4.53	
88.00	2.05	89181	6.47	
89.00	2.27	98945	8.63	**TOB**

11. POST BASIN PB-2

POST PB-2
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**14.75**	**AC**
Total DCIA Area:	**1.71**	**AC**
Percent (%) DCIA of Area:	**11.57%**	
Total Weighted CN Area:	**13.04**	**AC**
Weigthed Curve Number:	**42.39**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space "On site"	1.52	AC	0%	0%	100%
Type "A" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"	9.11	AC	0%	0%	100%
Type "A" soil - Woods "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Residential	2.30	AC	35%	20%	45%
Type "C" soil - Residential		AC	35%	30%	35%
Type "D" soil - Residential		AC	35%	30%	35%
Type "A" soil - Commercial		AC	85%	0%	15%
Type "A" soil - Road	1.20	AC	48%	0%	52%
Off-site impervious	0.29	AC	0%	100%	0%
Pond at DLW or bottom	0.33	AC	100%	0%	0%
TOTAL AREA - - - - - - - ->	**14.75**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Type "A" soil - Open Space "On site"	0%	0.00	98
Type "A" soil - Residential	35%	0.81	98
Type "C" soil - Residential	35%	0.00	98
Type "D" soil - Residential	35%	0.00	98
Type "A" soil - Commercial	85%	0.00	98
Type "A" soil - Road	48%	0.58	98
Off-site impervious	0%	0.00	98
Pond at DLW or bottom	100%	0.33	98
TOTAL --->		**1.71**	

Percent (%) DCIA of Area =	**11.57%**

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space "On site"	100%	1.52	11.7%	39	4.56
Type "A" soil - Open Space "On site"	100%	0.00	0.0%	39	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	9.11	69.8%	39	27.24
Type "A" soil - Woods "Off site"	100%	0.00	0.0%	30	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Residential	45%	1.04	7.9%	39	3.09
Type "A" soil - Residential	20%	0.46	3.5%	98	3.46
Type "C" soil - Residential	35%	0.00	0.0%	74	0.00
Type "C" soil - Residential	30%	0.00	0.0%	98	0.00
Type "D" soil - Residential	35%	0.00	0.0%	80	0.00
Type "D" soil - Residential	30%	0.00	0.0%	98	0.00
Type "A" soil - Commercial	15%	0.00	0.0%	39	0.00
Type "A" soil - Road	52%	0.62	4.8%	39	1.87
Off-site impervious	100%	0.29	2.2%	98	2.18
TOTAL - - - - - - - - - - - - - - - - ->		**13.04**	**100%**		**42.39**

POST PB-2
POST DEVELOPED
SJRWMD WATER QUALITY VOLUME

TOTAL DRAINAGE AREA	=	14.75	ACRES
IMPERVIOUS AREA	=	2.13	ACRES
OPEN SPACE	=	12.62	ACRES

TOTAL DRAINAGE AREA OPTION

TOTAL DRAINAGE AREA	=	14.75	ACRES
1" RUNOFF	=	1	INCHES
WATER QUALITY VOLUME	=	53,543	CU-FT

IMPERVIOUS AREA OPTION

TOTAL DRAINAGE AREA	=	14.75	ACRES
0.5" RUNOFF	=	26,771	CU-FT
IMPERVIOUS AREA	=	2.13	ACRES
1.25" OF RUNOFF	=	9,669	CU-FT
TOTAL WATER QUALITY VOLUME	=	36,441	CU-FT

USE MAXIMUM WATER QUALITY VOLUME	**=**	**53,543**	**CU-FT**
USE MAXIMUM WATER QUALITY VOLUME	**=**	**1.23**	**AC-FT**
WATER QUALITY STARTING ELEVATION	**=**	**87.49**	**FT**

POST PB-2
POST DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 89.00 = 2.33 ac-ft

Stage (ft)	Area (ac)		Stor. Vol. (ac-ft)	
84.00	0.33	14172	0.00	**BTM**
85.00	0.38	16503	0.35	
86.00	0.43	18934	0.76	
87.00	0.49	21467	1.22	
88.00	0.55	24099	1.75	
89.00	0.62	26832	2.33	**TOB**

12. POST BASIN PB-3

POST PB-3
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**37.96**	**AC**
Total DCIA Area:	**10.89**	**AC**
Percent (%) DCIA of Area:	**28.70%**	
Total Weighted CN Area:	**27.07**	**AC**
Weigthed Curve Number:	**47.25**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space "On site"	12.08	AC	0%	0%	100%
Type "A" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Woods "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Residential	18.92	AC	35%	20%	45%
Type "C" soil - Residential		AC	35%	30%	35%
Type "D" soil - Residential		AC	35%	30%	35%
Type "A" soil - Commercial		AC	85%	0%	15%
Type "A" soil - Road	5.17	AC	48%	0%	52%
Type "D" soil - Commercial		AC	85%	0%	15%
Pond at DLW or bottom	1.79	AC	100%	0%	0%
TOTAL AREA - - - - - - - ->	**37.96**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Type "A" soil - Open Space "On site"	0%	0.00	98
Type "A" soil - Residential	35%	6.62	98
Type "C" soil - Residential	35%	0.00	98
Type "D" soil - Residential	35%	0.00	98
Type "A" soil - Commercial	85%	0.00	98
Type "A" soil - Road	48%	2.48	98
Type "D" soil - Commercial	85%	0.00	98
Pond at DLW or bottom	100%	1.79	98
TOTAL --->		**10.89**	

Percent (%) DCIA of Area = 28.70%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space "On site"	100%	12.08	44.6%	39	17.41
Type "A" soil - Open Space "On site"	100%	0.00	0.0%	39	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "A" soil - Woods "Off site"	100%	0.00	0.0%	30	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Residential	45%	8.51	31.5%	39	12.27
Type "A" soil - Residential	20%	3.78	14.0%	98	13.70
Type "C" soil - Residential	35%	0.00	0.0%	74	0.00
Type "C" soil - Residential	30%	0.00	0.0%	98	0.00
Type "D" soil - Residential	35%	0.00	0.0%	80	0.00
Type "D" soil - Residential	30%	0.00	0.0%	98	0.00
Type "A" soil - Commercial	15%	0.00	0.0%	39	0.00
Type "A" soil - Road	52%	2.69	9.9%	39	3.87
Type "D" soil - Commercial	15%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - - ->		**27.07**	**100%**		**47.25**

POST PB-3
POST DEVELOPED
SJRWMD WATER QUALITY VOLUME

TOTAL DRAINAGE AREA	=	37.96	ACRES
IMPERVIOUS AREA	=	12.89	ACRES
OPEN SPACE	=	25.07	ACRES

TOTAL DRAINAGE AREA OPTION

TOTAL DRAINAGE AREA	=	37.96	ACRES
1" RUNOFF	=	1	INCHES
WATER QUALITY VOLUME	=	137,795	CU-FT

IMPERVIOUS AREA OPTION

TOTAL DRAINAGE AREA	=	37.96	ACRES
0.5" RUNOFF	=	68,897	CU-FT
IMPERVIOUS AREA	=	12.89	ACRES
1.25" OF RUNOFF	=	58,477	CU-FT
TOTAL WATER QUALITY VOLUME	=	127,375	CU-FT

USE MAXIMUM WATER QUALITY VOLUME	**=**	**137,795**	**CU-FT**
USE MAXIMUM WATER QUALITY VOLUME	**=**	**3.16**	**AC-FT**
WATER QUALITY STARTING ELEVATION	**=**	**86.64**	**FT**

POST PB-3
POST DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 90.00 = 12.53 ac-ft

Stage (ft)	Area (ac)		Stor. Vol. (ac-ft)	
85.00	1.79	77937	0.00	**BTM**
86.00	2.07	90305	1.93	
87.00	2.36	102773	4.15	
88.00	2.65	115352	6.65	
89.00	2.94	128011	9.44	
90.00	3.23	140781	12.53	**TOB**

13. POST BASIN PB-4

POST PB-4
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**9.49**	**AC**
Total DCIA Area:	**4.03**	**AC**
Percent (%) DCIA of Area:	**42.42%**	
Total Weighted CN Area:	**5.46**	**AC**
Weigthed Curve Number:	**51.09**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space "On site"	0.57	AC	0%	0%	100%
Type "A" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Woods "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Residential	5.60	AC	35%	20%	45%
Type "C" soil - Residential		AC	35%	30%	35%
Type "D" soil - Residential		AC	35%	30%	35%
Type "A" soil - Commercial		AC	85%	0%	15%
Type "A" soil - Road	2.42	AC	48%	0%	52%
Type "D" soil - Commercial		AC	85%	0%	15%
Pond at DLW or bottom	0.90	AC	100%	0%	0%
TOTAL AREA - - - - - - - ->	**9.49**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Type "A" soil - Open Space "On site"	0%	0.00	98
Type "A" soil - Residential	35%	1.96	98
Type "C" soil - Residential	35%	0.00	98
Type "D" soil - Residential	35%	0.00	98
Type "A" soil - Commercial	85%	0.00	98
Type "A" soil - Road	48%	1.16	98
Type "D" soil - Commercial	85%	0.00	98
Pond at DLW or bottom	100%	0.90	98
TOTAL --->		**4.03**	

Percent (%) DCIA of Area =	**42.42%**

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space "On site"	100%	0.57	10.4%	39	4.04
Type "A" soil - Open Space "On site"	100%	0.00	0.0%	39	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "A" soil - Woods "Off site"	100%	0.00	0.0%	30	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Residential	45%	2.52	46.1%	39	17.98
Type "A" soil - Residential	20%	1.12	20.5%	98	20.09
Type "C" soil - Residential	35%	0.00	0.0%	74	0.00
Type "C" soil - Residential	30%	0.00	0.0%	98	0.00
Type "D" soil - Residential	35%	0.00	0.0%	80	0.00
Type "D" soil - Residential	30%	0.00	0.0%	98	0.00
Type "A" soil - Commercial	15%	0.00	0.0%	39	0.00
Type "A" soil - Road	52%	1.26	23.0%	39	8.98
Type "D" soil - Commercial	15%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - ->		**5.46**	**100%**		**51.09**

POST PB-4
POST DEVELOPED
SJRWMD WATER QUALITY VOLUME

TOTAL DRAINAGE AREA	=	9.49	ACRES
IMPERVIOUS AREA	=	4.24	ACRES
OPEN SPACE	=	5.25	ACRES

TOTAL DRAINAGE AREA OPTION

TOTAL DRAINAGE AREA	=	9.49	ACRES
1" RUNOFF	=	1	INCHES
WATER QUALITY VOLUME	=	34,449	CU-FT

IMPERVIOUS AREA OPTION

TOTAL DRAINAGE AREA	=	9.49	ACRES
0.5" RUNOFF	=	17,224	CU-FT
IMPERVIOUS AREA	=	4.24	ACRES
1.25" OF RUNOFF	=	19,246	CU-FT
TOTAL WATER QUALITY VOLUME	=	36,471	CU-FT

USE MAXIMUM WATER QUALITY VOLUME	**=**	**36,471**	**CU-FT**
USE MAXIMUM WATER QUALITY VOLUME	**=**	**0.84**	**AC-FT**
WATER QUALITY STARTING ELEVATION	**=**	**120.89**	**FT**

POST PB-4
POST DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 125.00 = 5.51 ac-ft

Stage (ft)	Area (ac)		Stor. Vol. (ac-ft)	
120.00	0.90	39366	0.00	**BTM**
121.00	0.98	42694	0.94	
122.00	1.06	46122	1.96	
123.00	1.14	49652	3.06	
124.00	1.22	53281	4.24	
125.00	1.31	57011	5.51	**TOB**

14. POST BASIN PB-5

POST PB-5
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**11.56**	**AC**
Total DCIA Area:	**3.28**	**AC**
Percent (%) DCIA of Area:	**28.38%**	
Total Weighted CN Area:	**8.28**	**AC**
Weigthed Curve Number:	**47.55**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space "On site"	3.57	AC	0%	0%	100%
Type "A" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Woods "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Residential	6.00	AC	35%	20%	45%
Type "C" soil - Residential		AC	35%	30%	35%
Type "D" soil - Residential		AC	35%	30%	35%
Type "A" soil - Commercial		AC	85%	0%	15%
Type "A" soil - Road	1.55	AC	48%	0%	52%
Type "D" soil - Commercial		AC	85%	0%	15%
Pond at DLW or bottom	0.44	AC	100%	0%	0%
TOTAL AREA - - - - - - - ->	**11.56**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Type "A" soil - Open Space "On site"	0%	0.00	98
Type "A" soil - Residential	35%	2.10	98
Type "C" soil - Residential	35%	0.00	98
Type "D" soil - Residential	35%	0.00	98
Type "A" soil - Commercial	85%	0.00	98
Type "A" soil - Road	48%	0.74	98
Type "D" soil - Commercial	85%	0.00	98
Pond at DLW or bottom	100%	0.44	98
TOTAL --->		**3.28**	

Percent (%) DCIA of Area =	**28.38%**

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space "On site"	100%	3.57	43.2%	39	16.83
Type "A" soil - Open Space "On site"	100%	0.00	0.0%	39	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "A" soil - Woods "Off site"	100%	0.00	0.0%	30	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Residential	45%	2.70	32.6%	39	12.72
Type "A" soil - Residential	20%	1.20	14.5%	98	14.20
Type "C" soil - Residential	35%	0.00	0.0%	74	0.00
Type "C" soil - Residential	30%	0.00	0.0%	98	0.00
Type "D" soil - Residential	35%	0.00	0.0%	80	0.00
Type "D" soil - Residential	30%	0.00	0.0%	98	0.00
Type "A" soil - Commercial	15%	0.00	0.0%	39	0.00
Type "A" soil - Road	52%	0.81	9.7%	39	3.80
Type "D" soil - Commercial	15%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - - ->		**8.28**	**100%**		**47.55**

POST PB-5
POST DEVELOPED
SJRWMD WATER QUALITY VOLUME

TOTAL DRAINAGE AREA	=	11.56	ACRES
IMPERVIOUS AREA	=	4.04	ACRES
OPEN SPACE	=	7.52	ACRES

TOTAL DRAINAGE AREA OPTION

TOTAL DRAINAGE AREA	=	11.56	ACRES
1" RUNOFF	=	1	INCHES
WATER QUALITY VOLUME	=	41,963	CU-FT

IMPERVIOUS AREA OPTION

TOTAL DRAINAGE AREA	=	11.56	ACRES
0.5" RUNOFF	=	20,981	CU-FT
IMPERVIOUS AREA	=	4.04	ACRES
1.25" OF RUNOFF	=	18,350	CU-FT
TOTAL WATER QUALITY VOLUME	=	39,331	CU-FT

USE MAXIMUM WATER QUALITY VOLUME	**=**	**41,963**	**CU-FT**
USE MAXIMUM WATER QUALITY VOLUME	**=**	**0.96**	**AC-FT**
WATER QUALITY STARTING ELEVATION	**=**	**90.95**	**FT**

POST PB-5
POST DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 94.00 = 3.67 ac-ft

Stage (ft)	Area (ac)		Stor. Vol. (ac-ft)	
89.00	0.44	19010	0.00	**BTM**
90.00	0.55	24071	0.49	
91.00	0.67	29234	1.11	
92.00	0.79	34497	1.84	
93.00	0.92	39860	2.69	
94.00	1.04	45324	3.67	**TOB**

15. POST BASIN PB-5A

POST PB-5A
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**20.33**	**AC**
Total DCIA Area:	**5.70**	**AC**
Percent (%) DCIA of Area:	**28.03%**	
Total Weighted CN Area:	**14.63**	**AC**
Weigthed Curve Number:	**46.69**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space "On site"	7.01	AC	0%	0%	100%
Type "A" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Woods "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Type "A" soil - Residential	9.54	AC	35%	20%	45%
Type "C" soil - Residential		AC	35%	30%	35%
Type "D" soil - Residential		AC	35%	30%	35%
Type "A" soil - Commercial		AC	85%	0%	15%
Type "A" soil - Road	2.74	AC	48%	0%	52%
Type "D" soil - Commercial		AC	85%	0%	15%
Pond at DLW or bottom	1.04	AC	100%	0%	0%
TOTAL AREA - - - - - - - ->	**20.33**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Type "A" soil - Open Space "On site"	0%	0.00	98
Type "A" soil - Residential	35%	3.34	98
Type "C" soil - Residential	35%	0.00	98
Type "D" soil - Residential	35%	0.00	98
Type "A" soil - Commercial	85%	0.00	98
Type "A" soil - Road	48%	1.32	98
Type "D" soil - Commercial	85%	0.00	98
Pond at DLW or bottom	100%	1.04	98
TOTAL --->		**5.70**	

Percent (%) DCIA of Area = 28.03%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space "On site"	100%	7.01	47.9%	39	18.67
Type "A" soil - Open Space "On site"	100%	0.00	0.0%	39	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	0.00	0.0%	39	0.00
Type "A" soil - Woods "Off site"	100%	0.00	0.0%	30	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Residential	45%	4.29	29.3%	39	11.44
Type "A" soil - Residential	20%	1.91	13.0%	98	12.78
Type "C" soil - Residential	35%	0.00	0.0%	74	0.00
Type "C" soil - Residential	30%	0.00	0.0%	98	0.00
Type "D" soil - Residential	35%	0.00	0.0%	80	0.00
Type "D" soil - Residential	30%	0.00	0.0%	98	0.00
Type "A" soil - Commercial	15%	0.00	0.0%	39	0.00
Type "A" soil - Road	52%	1.42	9.7%	39	3.80
Type "D" soil - Commercial	15%	0.00	0.0%	80	0.00
TOTAL - - - - - - - - - - - - - - - ->		**14.63**	**100%**		**46.69**

POST PB-5A
POST DEVELOPED
SJRWMD WATER QUALITY VOLUME

TOTAL DRAINAGE AREA	=	20.33	ACRES
IMPERVIOUS AREA	=	6.56	ACRES
OPEN SPACE	=	13.77	ACRES

TOTAL DRAINAGE AREA OPTION

TOTAL DRAINAGE AREA	=	20.33	ACRES
1" RUNOFF	=	1	INCHES
WATER QUALITY VOLUME	=	73,798	CU-FT

IMPERVIOUS AREA OPTION

TOTAL DRAINAGE AREA	=	20.33	ACRES
0.5" RUNOFF	=	36,899	CU-FT
IMPERVIOUS AREA	=	6.56	ACRES
1.25" OF RUNOFF	=	29,776	CU-FT
TOTAL WATER QUALITY VOLUME	=	66,675	CU-FT

USE MAXIMUM WATER QUALITY VOLUME	**=**	**73,798**	**CU-FT**
USE MAXIMUM WATER QUALITY VOLUME	**=**	**1.69**	**AC-FT**
WATER QUALITY STARTING ELEVATION	**=**	**88.52**	**FT**

POST PB-5A
POST DEVELOPED
DRY RETENTION POND
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 92.00 = 7.09 ac-ft

Stage (ft)	Area (ac)		Stor. Vol. (ac-ft)	
87.00	1.04	45479	0.00	**BTM**
88.00	1.19	51880	1.12	
89.00	1.34	58382	2.38	
90.00	1.49	64984	3.80	
91.00	1.65	71686	5.37	
92.00	1.80	78490	7.09	**TOB**

16. POST BASIN DEPRESSION PB-5

POST DEPRESSION PB-5
POST DEVELOPED
DRAINAGE BASIN
CURVE NUMBER CALCULATIONS

Total Area:	**22.08**	**AC**
Total DCIA Area:	**0.00**	**AC**
Percent (%) DCIA of Area:	**0.00%**	
Total Weighted CN Area:	**22.08**	**AC**
Weigthed Curve Number:	**44.02**	

Land Use Description	Area		%DCIA	%IMPVS	%PERVIOUS
Type "A" soil - Open Space/Orchard "On site"	1.65	AC	0%	0%	100%
Type "C" soil - Open Space "On site"		AC	0%	0%	100%
Type "D" soil - Open Space "On site"		AC	0%	0%	100%
Type "A" soil - Open Space "Off site"	19.10	AC	0%	0%	100%
Type "C" soil - Open Space "Off site"		AC	0%	0%	100%
Type "D" soil - Open Space "Off site"		AC	0%	0%	100%
Existing Onsite impervious	0.67	AC	0%	100%	0%
Existing Off-site impervious	0.66	AC	0%	100%	0%
Pond at DLW or bottom		AC	100%	0%	0%
TOTAL AREA - - - - - - ->	**22.08**	**AC**			

	% LAND USED	DCIA AREA (AC)	C.N.
Existing Onsite impervious	0%	0.00	98
Existing Off-site impervious	0%	0.00	98
Pond at DLW or bottom	100%	0.00	98
TOTAL --->		**0.00**	

Percent (%) DCIA of Area = 0.00%

WEIGHTED C.N.

	% LAND USED	AREA (AC)	% AREA	C.N.	%XC.N.
Type "A" soil - Open Space/Orchard "On site"	100%	1.65	7.5%	57	4.26
Type "C" soil - Open Space "On site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "On site"	100%	0.00	0.0%	80	0.00
Type "A" soil - Open Space "Off site"	100%	19.10	86.5%	39	33.74
Type "C" soil - Open Space "Off site"	100%	0.00	0.0%	74	0.00
Type "D" soil - Open Space "Off site"	100%	0.00	0.0%	80	0.00
Existing Onsite impervious	100%	0.67	3.0%	100	3.03
Existing Off-site impervious	100%	0.66	3.0%	100	2.99
TOTAL - - - - - - - - - - - - - - - - ->		**22.08**	**100%**		**44.02**

POST DEPRESSION PB-5
POST DEVELOPED
DEPRESSION
AREA & STAGE-STORAGE VOLUME

Stage-Storage Volume @ T.O.B. 83.50 = 26.61 ac-ft

Stage (ft)	Area (ac)	Stor. Vol. (ac-ft)	
78.00	4.41	0.00	**BTM**
81.00	6.37	5.39	
82.00	6.83	11.99	
83.00	7.31	19.06	
83.50	7.79	26.61	**TOB**

Time of Concentration Calculations

Watermark Post Depression PB-5

Based on travel time equations from TR-55, Chapter 3 and Appendix F as follows:

$$\text{Sheet Flow Tt} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}\, s^{0.4}}$$

$$\text{Unpaved Concentrated Flow V} = \frac{0.806725(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

$$\text{Paved Concentrated Flow V} = \frac{0.508205(s)^{0.5}}{n} \quad ; \quad Tt = \frac{L}{V}$$

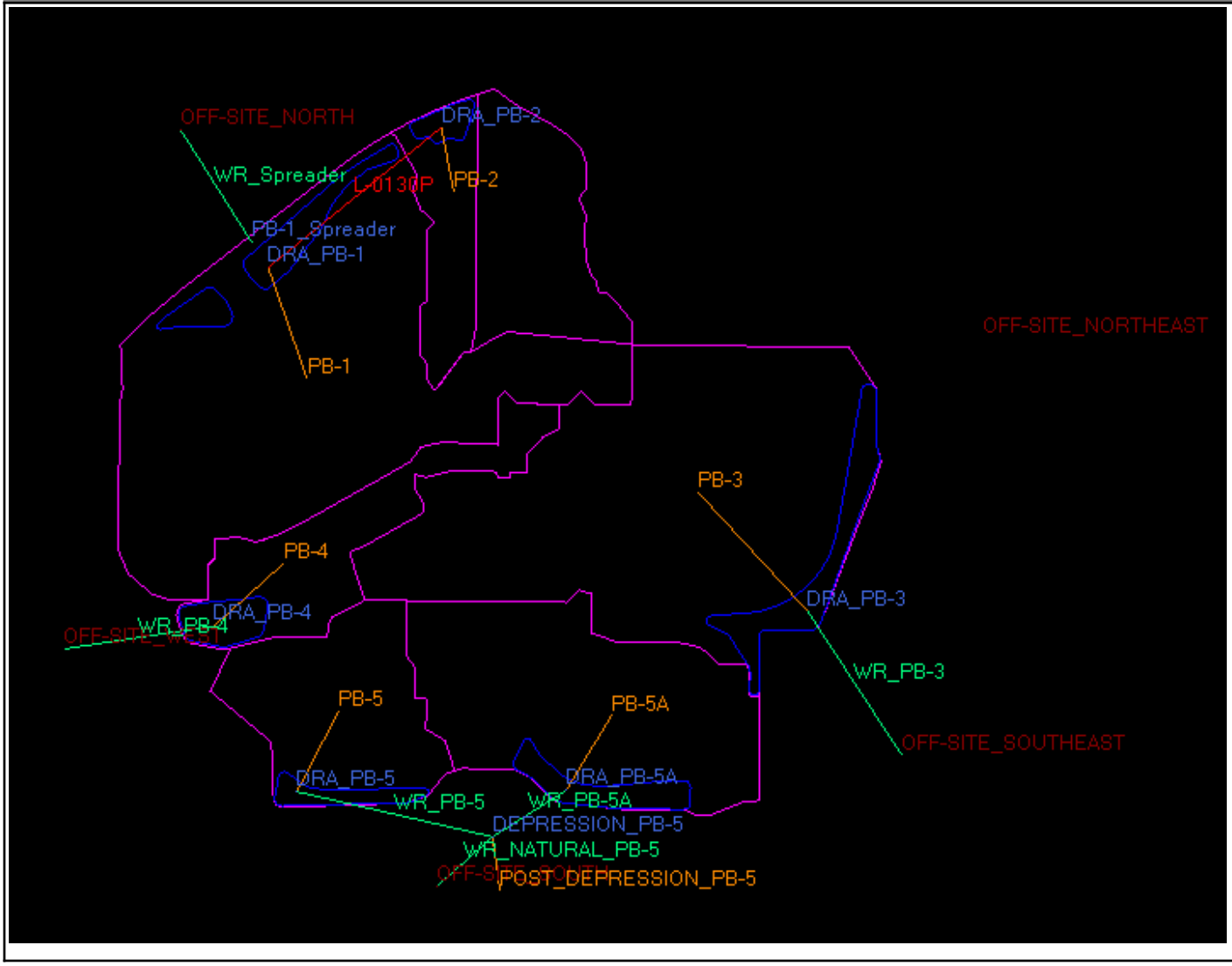
$$\text{Open Channel Flow V} = \text{assumed value } 2.5 \text{ ft/sec} \quad ; \quad Tt = \frac{L}{V}$$

2-Year, 24 Hour Rainfall = 4.5 Inches

Basin ID	Flow Type	Travel Length (feet)	Manning Roughness Coef.	Land Slope (ft/ft)	Flow Velocity (ft/sec)	Travel Time (hours)	Travel Time (min.)
Pre PB-1	Sheet Flow	100	0.24	0.025	0.15	0.18	11
	UNPAVED	662	0.24	0.020	0.48	0.39	23
	Open Channel Flow	0.057	n/a	0.024	2.5	0.00	0
				Time of Concentration =		**0.57**	**34**

17. ICPR POST DEVELOPED MODELING

Background Image: node_schematic



Simple Basin: PB-1

Scenario:	Post
Node:	DRA_PB-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	38.5800 ac

Curve Number:	47.2
% Impervious:	27.55
% DCIA:	27.55
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-2

Scenario:	Post
Node:	DRA_PB-2
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	14.7500 ac
Curve Number:	42.4
% Impervious:	11.57
% DCIA:	11.57
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-3

Scenario:	Post
Node:	DRA_PB-3
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	37.9600 ac
Curve Number:	47.3
% Impervious:	28.70
% DCIA:	28.70
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-4

Scenario:	Post
Node:	DRA_PB-4
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	9.4900 ac
Curve Number:	51.1
% Impervious:	42.42
% DCIA:	42.42
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-5

Scenario:	Post
Node:	DRA_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	11.5600 ac
Curve Number:	47.6
% Impervious:	28.38
% DCIA:	28.38
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-5A

Scenario:	Post
Node:	DRA_PB-5A
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	20.3300 ac
Curve Number:	46.7
% Impervious:	28.03
% DCIA:	28.03
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: POST_DEPRESSION_PB-5

Scenario:	Post
Node:	DEPRESSION_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	34.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	22.0800 ac
Curve Number:	44.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: DEPRESSION_PB-5

Scenario:	Post
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	78.00 ft
Warning Stage:	84.00 ft

Stage [ft]	Area [ac]	Area [ft2]
78.00	4.4100	192100
81.00	6.3700	277477
82.00	6.8300	297515
83.00	7.3100	318424
83.50	7.7900	339332

Comment:

Node: DRA_PB-1

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 84.00 ft
Warning Stage: 89.00 ft

Stage [ft]	Area [ac]	Area [ft2]
84.00	1.2000	52272
85.00	1.4000	60984
86.00	1.6100	70132
87.00	1.8300	79715
88.00	2.0500	89298
89.00	2.2700	98881

Comment:

Node: DRA_PB-2

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 84.00 ft
Warning Stage: 89.00 ft

Stage [ft]	Area [ac]	Area [ft2]
84.00	0.3300	14375
85.00	0.3800	16553
86.00	0.4300	18731
87.00	0.4900	21344
88.00	0.5500	23958
89.00	0.6200	27007

Comment:

Node: DRA_PB-3

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 85.00 ft
Warning Stage: 90.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	1.7900	77972
86.00	2.0700	90169
87.00	2.3600	102802
88.00	2.6500	115434
89.00	2.9400	128066
90.00	3.2300	140699

Comment:

Node: DRA_PB-4

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 120.00 ft
Warning Stage: 125.00 ft

Stage [ft]	Area [ac]	Area [ft2]
120.00	0.9000	39204
121.00	0.9800	42689
122.00	1.0600	46174
123.00	1.1400	49658
124.00	1.2200	53143
125.00	1.3100	57064

Comment:

Node: DRA_PB-5

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 89.00 ft
Warning Stage: 94.00 ft

Stage [ft]	Area [ac]	Area [ft2]
89.00	0.4400	19166
90.00	0.5500	23958
91.00	0.6700	29185
92.00	0.7900	34412
93.00	0.9200	40075
94.00	1.0400	45302

Comment:

Node: DRA_PB-5A

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 87.00 ft
Warning Stage: 92.00 ft

Stage [ft]	Area [ac]	Area [ft2]
87.00	1.0400	45302
88.00	1.1900	51836
89.00	1.3400	58370
90.00	1.4900	64904
91.00	1.6500	71874
92.00	1.8000	78408

Comment:

Node: GW

Scenario: Post
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.00
0	0	0	999.0000	0.00

Comment:

Node: OFF-SITE_NORTH

Scenario: Post
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 81.80 ft
Warning Stage: 81.80 ft
Boundary Stage:

Comment: AE Zone listed elevation

Node: OFF-SITE_NORTHEAST

Scenario: Post
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 72.00 ft
Warning Stage: 72.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTH

Scenario: Post
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 79.00 ft
Warning Stage: 79.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTHEAST

Scenario: Post
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 75.00 ft
Warning Stage: 75.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_WEST

Scenario: Post
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 78.00 ft
Warning Stage: 78.00 ft
Boundary Stage:

Comment: to SR 19 roadside swale, south to wetland

Node: PB-1_Spreader

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 85.00 ft
Warning Stage: 86.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	0.0300	1307
86.00	0.0700	3049

Comment:

Node: Spreader_bubble_up

Scenario: Post
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 82.00 ft
Warning Stage: 87.00 ft

Stage [ft]	Area [ac]	Area [ft2]
82.00	0.0010	44
85.00	0.0010	44

Comment:

Drop Structure Link: DS_PB-1

Scenario: Post
From Node: DRA_PB-1
To Node: Spreader_bubble_up
Link Count: 1
Flow Direction: Both
Solution: Combine
Increments: 0
Pipe Count: 1
Damping: 0.0000 ft
Length: 25.00 ft
FHWA Code: 0
Entr Loss Coef: 0.00
Exit Loss Coef: 1.00

Upstream Pipe		Downstream Pipe	
Invert:	82.33 ft	Invert:	82.00 ft
Manning's N:	0.0120	Manning's N:	0.0120
Geometry: Circular		Geometry: Circular	
Max Depth:	18.00 ft	Max Depth:	18.00 ft
Bottom Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000
Top Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	

Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	**Top Clip**	
Weir Type:	Horizontal	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	87.25 ft	Ref Node:	
Control Elevation:	87.25 ft	**Discharge Coefficients**	
Max Depth:	3.08 ft	Weir Default:	3.200
Max Width:	2.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Drop Structure Comment:

Pipe Link: L-0130P		Upstream		Downstream	
Scenario:	Post	Invert:	84.00 ft	Invert:	84.00 ft
From Node:	DRA_PB-2	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	DRA_PB-1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	3.00 ft	Max Depth:	3.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	127.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.50	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Percolation Link: PERC_PB-1			
Scenario:	Post	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-1	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	2416.00 ft
Link Count:	1	Perimeter 2:	2981.00 ft

Flow Direction:	Both		
Aquifer Base Elevation:	68.50 ft	Perimeter 3:	4187.00 ft
Water Table Elevation:	80.60 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	100.00 ft
Horizontal Conductivity:	13.900 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.300 fpd	# of Cells P2 to P3:	10
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-2

Scenario:	Post	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-2	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	671.00 ft
Link Count:	1	Perimeter 2:	917.00 ft
Flow Direction:	Both	Perimeter 3:	4187.00 ft
Aquifer Base Elevation:	62.50 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	81.00 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	12.200 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.000 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-3

Scenario:	Post	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-3	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	3180.00 ft
Link Count:	1	Perimeter 2:	3483.00 ft
Flow Direction:	Both	Perimeter 3:	4064.00 ft
Aquifer Base Elevation:	74.00 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	80.50 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.900 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.700 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-4

Scenario:	Post	Surface Area Option:	Vary Based on Stage/Area Table

From Node:	DRA_PB-4		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	920.00 ft
Flow Direction:	Both	Perimeter 2:	1234.00 ft
Aquifer Base Elevation:	109.10 ft	Perimeter 3:	1862.00 ft
Water Table Elevation:	116.80 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	100.00 ft
Horizontal Conductivity:	13.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.100 fpd	# of Cells P2 to P3:	10
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-5

Scenario:	Post	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-5	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	1353.00 ft
Link Count:	1	Perimeter 2:	1668.00 ft
Flow Direction:	Both	Perimeter 3:	2435.00 ft
Aquifer Base Elevation:	77.36 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	85.30 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.300 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.100 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-5A

Scenario:	Post	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-5A	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	1688.00 ft
Link Count:	1	Perimeter 2:	2002.00 ft
Flow Direction:	Both	Perimeter 3:	2822.00 ft
Aquifer Base Elevation:	71.60 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	83.80 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.900 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.300 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: WR_Bubble_up

Scenario:	Post	**Bottom Clip**	
From Node:	Spreader_bubble_up	Default:	0.00 ft
To Node:	PB-1_Spreader	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Horizontal	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	85.00 ft	**Discharge Coefficients**	
Control Elevation:	85.00 ft	Weir Default:	2.800
Max Depth:	3.08 ft	Weir Table:	
Max Width:	2.00 ft	Orifice Default:	0.600
Fillet:	0.00 ft	Orifice Table:	

Comment:

Weir Link: WR_NATURAL_PB-5

Scenario:	Post	**Bottom Clip**	
From Node:	DEPRESSION_PB-5	Default:	0.00 ft
To Node:	OFF-SITE_SOUTH	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	83.50 ft	**Discharge Coefficients**	
Control Elevation:	83.50 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	60.00 ft	Orifice Table:	
Left Slope:	10.000 (h:v)		
Right Slope:	10.000 (h:v)		

Comment:

Weir Link: WR_PB-3

Scenario:	Post	**Bottom Clip**	
From Node:	DRA_PB-3	Default:	0.00 ft
To Node:	OFF-SITE_SOUTHEAST	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	87.75 ft	**Discharge Coefficients**	
Control Elevation:	87.75 ft	Weir Default:	2.800

Max Depth:	999.00 ft		
Extrapolation Method:	Normal Projection	Weir Table:	
Bottom Width:	10.00 ft	Orifice Default:	0.600
Left Slope:	4.000 (h:v)	Orifice Table:	
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-4

Scenario:	Post	**Bottom Clip**	
From Node:	DRA_PB-4	Default:	0.00 ft
To Node:	OFF-SITE_WEST	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	123.75 ft	**Discharge Coefficients**	
Control Elevation:	123.75 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	5.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-5

Scenario:	Post	**Bottom Clip**	
From Node:	DRA_PB-5	Default:	0.00 ft
To Node:	DEPRESSION_PB-5	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	92.25 ft	**Discharge Coefficients**	
Control Elevation:	92.25 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	10.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-5A

Scenario:	Post
From Node:	DRA_PB-5A
To Node:	DEPRESSION_PB-5
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Trapezoidal
Invert:	90.75 ft
Control Elevation:	90.75 ft
Max Depth:	999.00 ft
Extrapolation Method:	Normal Projection
Bottom Width:	10.00 ft
Left Slope:	4.000 (h:v)
Right Slope:	4.000 (h:v)

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Weir Link: WR_Spreader

Scenario:	Post
From Node:	PB-1_Spreader
To Node:	OFF-SITE_NORTH
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Trapezoidal
Invert:	86.00 ft
Control Elevation:	86.00 ft
Max Depth:	999.00 ft
Extrapolation Method:	Normal Projection
Bottom Width:	233.00 ft
Left Slope:	4.000 (h:v)
Right Slope:	4.000 (h:v)

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Simulation: 00_MeanAnnual

Scenario:	Post
Run Date/Time:	6/27/2025 7:36:15 AM
Program Version:	ICPR4 4.07.06

General

Run Mode:	Normal

Year	Month	Day	Hour [hr]

Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD

		Rainfall Amount:	4.22 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 010yr024hr

Scenario: Post
Run Date/Time: 6/27/2025 7:36:24 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	6.03 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 025yr024hr

Scenario: Post
Run Date/Time: 6/27/2025 7:36:35 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.54 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 025yr096hr

Scenario: Post
Run Date/Time: 6/27/2025 7:36:49 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	432.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SJRWMD-96
		Rainfall Amount:	10.50 in
Edge Length Option:	Automatic	Storm Duration:	96.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 100yr024hr

Scenario: Post
Run Date/Time: 6/27/2025 7:38:22 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	48.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	10.40 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 100yr096hr

Scenario: Post
Run Date/Time: 6/27/2025 7:38:33 AM
Program Version: ICPR4 4.07.06

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global

Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SJRWMD-96
		Rainfall Amount:	14.60 in
Edge Length Option:	Automatic	Storm Duration:	96.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Scenario	Sim	Node Name	Relative Time [hrs]	Warning Stage [ft]	Maximum Stage [ft]	Time to Maximum Stage [hrs]	Maximum Total Inflow Rate [cfs]	Time to Maximum Total Inflow Rate	Maximum Total Outflow Rate [cfs]	Time to Maximum Total Outflow Rate
Post	00_MeanAnnual	DEPRESSION_PB-5	24.0062	84.00	78.08	24.0062	0.55	13.1982	0.00	0.0000
Post	00_MeanAnnual	DRA_PB-1	24.0062	89.00	85.41	24.0062	30.37	12.0498	6.04	12.5213
Post	00_MeanAnnual	DRA_PB-2	24.0062	89.00	85.41	24.0062	5.81	12.0664	1.16	13.0383
Post	00_MeanAnnual	DRA_PB-3	24.0062	90.00	86.36	24.0062	31.08	12.0498	1.70	12.3738
Post	00_MeanAnnual	DRA_PB-4	24.0062	125.00	121.11	24.0062	11.95	12.0498	0.52	12.3855
Post	00_MeanAnnual	DRA_PB-5	24.0062	94.00	90.25	18.6312	9.42	12.0498	0.86	12.3669
Post	00_MeanAnnual	DRA_PB-5A	24.0062	92.00	88.14	23.5728	16.10	12.0498	1.10	12.3507
Post	00_MeanAnnual	OFF-SITE_NORTH	24.0062	81.80	81.80	0.0000	0.00	0.0000	0.00	0.0000
Post	00_MeanAnnual	OFF-SITE_NORTHEAST	24.0062	72.00	72.00	0.0000	0.00	0.0000	0.00	0.0000
Post	00_MeanAnnual	OFF-SITE_SOUTHEAST	24.0062	75.00	75.00	0.0000	0.00	0.0000	0.00	0.0000
Post	00_MeanAnnual	OFF-SITE_WEST	24.0062	78.00	78.00	0.0000	0.00	0.0000	0.00	0.0000
Post	010yr024hr	DEPRESSION_PB-5	24.0078	84.00	78.30	24.0078	4.72	12.5334	0.00	0.0000
Post	010yr024hr	DRA_PB-1	24.0078	89.00	87.01	24.0078	56.61	12.0500	11.09	12.2451
Post	010yr024hr	DRA_PB-2	24.0078	89.00	87.01	24.0078	16.35	12.2271	1.00	11.6025
Post	010yr024hr	DRA_PB-3	24.0078	90.00	87.47	24.0078	57.24	12.0500	2.44	12.3899
Post	010yr024hr	DRA_PB-4	24.0078	125.00	121.91	24.0078	20.17	12.0500	0.73	12.3899
Post	010yr024hr	DRA_PB-5	24.0078	94.00	91.31	23.6494	17.47	12.0500	1.26	12.3726
Post	010yr024hr	DRA_PB-5A	24.0078	92.00	89.14	24.0078	29.65	12.0500	1.61	12.3652
Post	010yr024hr	OFF-SITE_NORTH	24.0078	81.80	81.80	0.0000	0.00	0.0000	0.00	0.0000
Post	010yr024hr	OFF-SITE_NORTHEAST	24.0078	72.00	72.00	0.0000	0.00	0.0000	0.00	0.0000
Post	010yr024hr	OFF-SITE_SOUTHEAST	24.0078	75.00	75.00	0.0000	0.00	0.0000	0.00	0.0000
Post	010yr024hr	OFF-SITE_WEST	24.0078	78.00	78.00	0.0000	0.00	0.0000	0.00	0.0000
Post	025yr024hr	DEPRESSION_PB-5	24.0002	84.00	78.55	24.0002	10.91	12.4664	0.00	0.0000
Post	025yr024hr	DRA_PB-1	24.0002	89.00	87.52	15.6400	84.26	12.0500	13.04	12.0922
Post	025yr024hr	DRA_PB-2	24.0002	89.00	87.52	15.6384	27.67	12.0667	1.46	15.7280
Post	025yr024hr	DRA_PB-3	24.0002	90.00	87.95	16.6088	84.63	12.0500	4.34	16.1278
Post	025yr024hr	DRA_PB-4	24.0002	125.00	122.61	24.0002	27.96	12.0500	0.93	12.3860
Post	025yr024hr	DRA_PB-5	24.0002	94.00	92.24	24.0002	25.86	12.0500	1.64	12.3645
Post	025yr024hr	DRA_PB-5A	24.0002	92.00	90.05	24.0002	44.08	12.0500	2.14	12.3594
Post	025yr024hr	OFF-SITE_NORTH	24.0002	81.80	81.80	0.0000	4.54	15.6226	0.00	0.0000
Post	025yr024hr	OFF-SITE_NORTHEAST	24.0002	72.00	72.00	0.0000	0.00	0.0000	0.00	0.0000
Post	025yr024hr	OFF-SITE_SOUTHEAST	24.0002	75.00	75.00	0.0000	2.72	16.6091	0.00	0.0000
Post	025yr024hr	OFF-SITE_WEST	24.0002	78.00	78.00	0.0000	0.00	0.0000	0.00	0.0000
Post	025yr096hr	DEPRESSION_PB-5	432.0051	84.00	79.52	99.0172	25.25	60.2500	0.00	0.0000
Post	025yr096hr	DRA_PB-1	432.0051	89.00	88.17	60.6274	122.04	60.0227	31.46	60.5776
Post	025yr096hr	DRA_PB-2	432.0051	89.00	88.20	60.6259	33.23	60.0333	7.28	60.5966
Post	025yr096hr	DRA_PB-3	432.0051	90.00	88.38	60.7090	120.85	60.0167	19.75	60.6766
Post	025yr096hr	DRA_PB-4	432.0051	125.00	123.47	96.1140	36.11	60.0167	1.03	60.2119
Post	025yr096hr	DRA_PB-5	432.0051	94.00	92.49	60.8560	36.93	60.0167	4.95	60.7724
Post	025yr096hr	DRA_PB-5A	432.0051	92.00	90.85	68.0974	63.53	60.0167	2.60	60.1725
Post	025yr096hr	OFF-SITE_NORTH	432.0051	81.80	81.80	0.0000	28.46	60.6289	0.00	0.0000
Post	025yr096hr	OFF-SITE_NORTHEAST	432.0051	72.00	72.00	0.0000	0.00	0.0000	0.00	0.0000

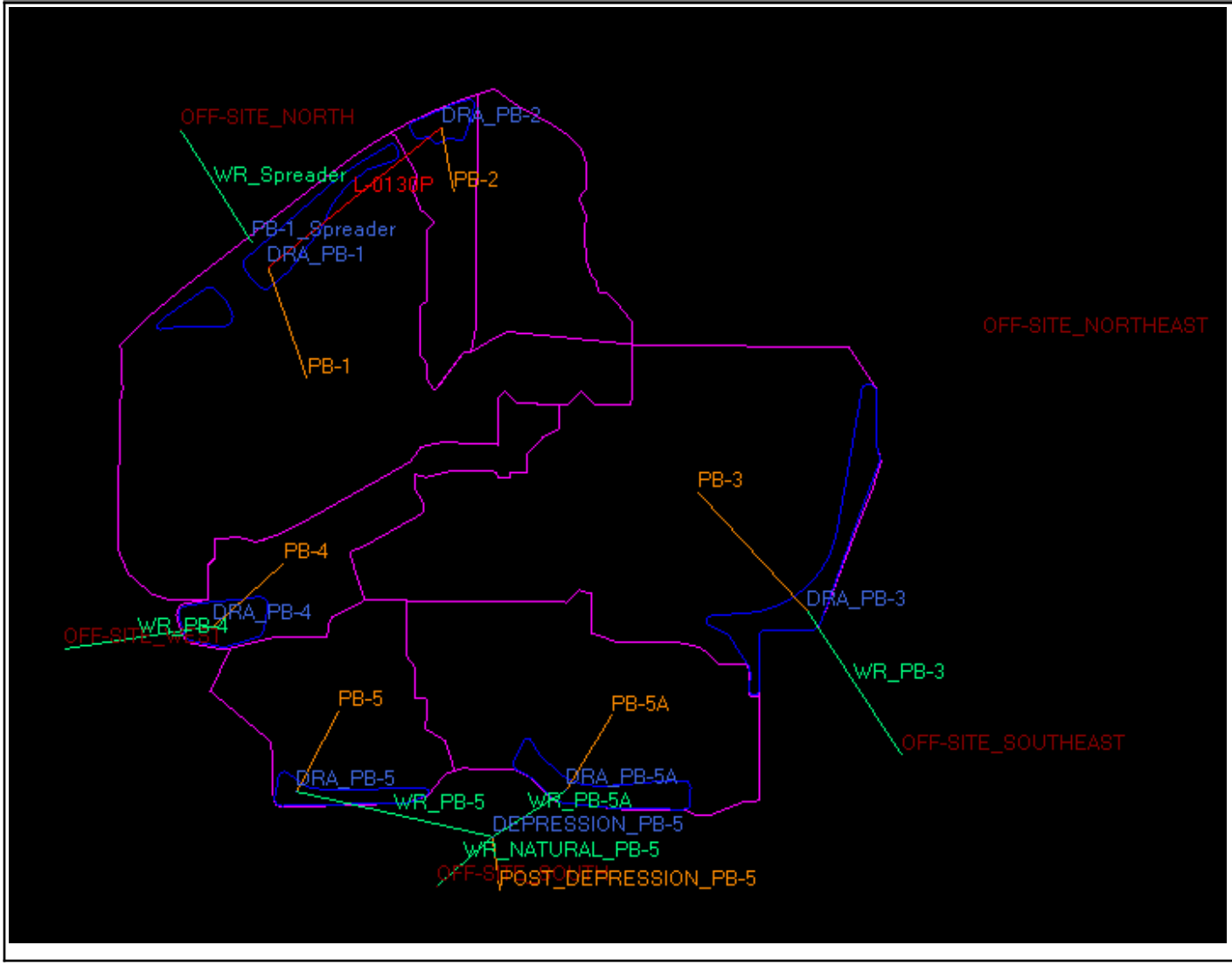
Scenario	Sim	Node Name	Relative Time [hrs]	Warning Stage [ft]	Maximum Stage [ft]	Time to Maximum Stage [hrs]	Maximum Total Inflow Rate [cfs]	Time to Maximum Total Inflow Rate	Maximum Total Outflow Rate [cfs]	Time to Maximum Total Outflow Rate
Post	025yr096hr	OFF-SITE_SOUTHEAST	432.0051	75.00	75.00	0.0000	16.99	60.7090	0.00	0.0000
Post	025yr096hr	OFF-SITE_WEST	432.0051	78.00	78.00	0.0000	0.00	0.0000	0.00	0.0000
Post	100yr024hr	DEPRESSION_PB-5	48.0013	84.00	79.84	27.0167	33.03	12.5406	0.00	0.0000
Post	100yr024hr	DRA_PB-1	48.0013	89.00	88.46	12.7948	144.15	12.0500	35.84	12.6254
Post	100yr024hr	DRA_PB-2	48.0013	89.00	88.49	12.7919	38.23	12.0500	8.41	12.6235
Post	100yr024hr	DRA_PB-3	48.0013	90.00	88.58	12.7354	143.77	12.0500	30.72	12.7061
Post	100yr024hr	DRA_PB-4	48.0013	125.00	123.86	22.8697	43.99	12.0335	1.35	12.3736
Post	100yr024hr	DRA_PB-5	48.0013	94.00	92.66	12.6892	43.94	12.0500	10.34	12.6678
Post	100yr024hr	DRA_PB-5A	48.0013	92.00	90.98	14.8792	75.41	12.0500	4.97	14.6628
Post	100yr024hr	OFF-SITE_NORTH	48.0013	81.80	81.80	0.0000	31.92	12.7948	0.00	0.0000
Post	100yr024hr	OFF-SITE_NORTHEAST	48.0013	72.00	72.00	0.0000	0.00	0.0000	0.00	0.0000
Post	100yr024hr	OFF-SITE_SOUTHEAST	48.0013	75.00	75.00	0.0000	27.00	12.7354	0.00	0.0000
Post	100yr024hr	OFF-SITE_WEST	48.0013	78.00	78.00	0.0000	0.52	22.8703	0.00	0.0000
Post	100yr096hr	DEPRESSION_PB-5	120.0036	84.00	81.74	99.0172	101.54	60.2669	0.00	0.0000
Post	100yr096hr	DRA_PB-1	120.0036	89.00	90.36	60.6576	209.45	60.0167	47.17	60.5049
Post	100yr096hr	DRA_PB-2	120.0036	89.00	90.42	60.6457	60.41	60.0333	13.76	60.1366
Post	100yr096hr	DRA_PB-3	120.0036	90.00	89.35	60.2546	196.41	60.0167	90.03	60.2474
Post	100yr096hr	DRA_PB-4	120.0036	125.00	124.12	61.1998	55.63	60.0167	4.88	61.1475
Post	100yr096hr	DRA_PB-5	120.0036	94.00	93.19	60.1825	59.99	60.0167	35.11	60.1786
Post	100yr096hr	DRA_PB-5A	120.0036	92.00	91.55	60.5015	103.77	60.0167	28.03	60.4741
Post	100yr096hr	OFF-SITE_NORTH	120.0036	81.80	81.80	0.0000	42.90	60.6668	0.00	0.0000
Post	100yr096hr	OFF-SITE_NORTHEAST	120.0036	72.00	72.00	0.0000	0.00	0.0000	0.00	0.0000
Post	100yr096hr	OFF-SITE_SOUTHEAST	120.0036	75.00	75.00	0.0000	85.83	60.2546	0.00	0.0000
Post	100yr096hr	OFF-SITE_WEST	120.0036	78.00	78.00	0.0000	3.89	61.1998	0.00	0.0000

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Inflow Volume [ac_ft]
Post	025yr096hr	DEPRESSION_PB-5	432.0051	79.52	7.47
Post	025yr096hr	OFF-SITE_NORTH	432.0051	81.80	9.71
Post	025yr096hr	OFF-SITE_NORTHEAST	432.0051	72.00	0.00
Post	025yr096hr	OFF-SITE_SOUTHEAST	432.0051	75.00	6.81
Post	025yr096hr	OFF-SITE_WEST	432.0051	78.00	0.00
Pre	025yr096hr	DEPRESSION_PB-5	432.0029	81.48	19.26
Pre	025yr096hr	OFF-SITE_NORTH	432.0029	81.80	22.97
Pre	025yr096hr	OFF-SITE_NORTHEAST	432.0029	72.00	3.67
Pre	025yr096hr	OFF-SITE_SOUTHEAST	432.0029	75.00	14.44
Pre	025yr096hr	OFF-SITE_WEST	432.0029	78.00	2.01

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Post	025yr096hr	DRA_PB-1	432.0051	84.20	0.10
Post	025yr096hr	DRA_PB-2	432.0051	84.20	0.03
Post	025yr096hr	DRA_PB-3	432.0051	85.48	0.11
Post	025yr096hr	DRA_PB-4	432.0051	121.24	0.05
Post	025yr096hr	DRA_PB-5	432.0051	89.00	0.00
Post	025yr096hr	DRA_PB-5A	432.0051	87.70	0.09

2nd STORM EVENT

Background Image: node_schematic



Simple Basin: PB-1

Scenario:	Post_2nd_Storm
Node:	DRA_PB-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	38.5800 ac

Curve Number:	47.2
% Impervious:	27.55
% DCIA:	27.55
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-2

Scenario:	Post_2nd_Storm
Node:	DRA_PB-2
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	14.7500 ac
Curve Number:	42.4
% Impervious:	11.57
% DCIA:	11.57
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-3

Scenario:	Post_2nd_Storm
Node:	DRA_PB-3
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	37.9600 ac
Curve Number:	47.3
% Impervious:	28.70
% DCIA:	28.70
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-4

Scenario:	Post_2nd_Storm
Node:	DRA_PB-4
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	9.4900 ac
Curve Number:	51.1
% Impervious:	42.42
% DCIA:	42.42
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-5

Scenario:	Post_2nd_Storm
Node:	DRA_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	11.5600 ac
Curve Number:	47.6
% Impervious:	28.38
% DCIA:	28.38
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-5A

Scenario:	Post_2nd_Storm
Node:	DRA_PB-5A
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	20.3300 ac
Curve Number:	46.7
% Impervious:	28.03
% DCIA:	28.03
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: POST_DEPRESSION_PB-5

Scenario:	Post_2nd_Storm
Node:	DEPRESSION_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	34.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	22.0800 ac
Curve Number:	44.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: DEPRESSION_PB-5

Scenario:	Post_2nd_Storm
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	78.00 ft
Warning Stage:	84.00 ft

Stage [ft]	Area [ac]	Area [ft2]
78.00	4.4100	192100
81.00	6.3700	277477
82.00	6.8300	297515
83.00	7.3100	318424
83.50	7.7900	339332

Comment:

Node: DRA_PB-1

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 84.20 ft
Warning Stage: 89.00 ft

Stage [ft]	Area [ac]	Area [ft2]
84.00	1.2000	52272
85.00	1.4000	60984
86.00	1.6100	70132
87.00	1.8300	79715
88.00	2.0500	89298
89.00	2.2700	98881

Comment:

Node: DRA_PB-2

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 84.20 ft
Warning Stage: 89.00 ft

Stage [ft]	Area [ac]	Area [ft2]
84.00	0.3300	14375
85.00	0.3800	16553
86.00	0.4300	18731
87.00	0.4900	21344
88.00	0.5500	23958
89.00	0.6200	27007

Comment:

Node: DRA_PB-3

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 85.48 ft
Warning Stage: 90.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	1.7900	77972
86.00	2.0700	90169
87.00	2.3600	102802
88.00	2.6500	115434
89.00	2.9400	128066
90.00	3.2300	140699

Comment:

Node: DRA_PB-4

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 121.24 ft
Warning Stage: 125.00 ft

Stage [ft]	Area [ac]	Area [ft2]
120.00	0.9000	39204
121.00	0.9800	42689
122.00	1.0600	46174
123.00	1.1400	49658
124.00	1.2200	53143
125.00	1.3100	57064

Comment:

Node: DRA_PB-5

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 89.00 ft
Warning Stage: 94.00 ft

Stage [ft]	Area [ac]	Area [ft2]
89.00	0.4400	19166
90.00	0.5500	23958
91.00	0.6700	29185
92.00	0.7900	34412
93.00	0.9200	40075
94.00	1.0400	45302

Comment:

Node: DRA_PB-5A

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 87.70 ft
Warning Stage: 92.00 ft

Stage [ft]	Area [ac]	Area [ft2]
87.00	1.0400	45302
88.00	1.1900	51836
89.00	1.3400	58370
90.00	1.4900	64904
91.00	1.6500	71874
92.00	1.8000	78408

Comment:

Node: GW

Scenario: Post_2nd_Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.00
0	0	0	999.0000	0.00

Comment:

Node: OFF-SITE_NORTH

Scenario: Post_2nd_Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 81.80 ft
Warning Stage: 81.80 ft
Boundary Stage:

Comment: AE Zone listed elevation

Node: OFF-SITE_NORTHEAST

Scenario: Post_2nd_Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 72.00 ft
Warning Stage: 72.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTH

Scenario: Post_2nd_Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 79.00 ft
Warning Stage: 79.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTHEAST

Scenario: Post_2nd_Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 75.00 ft
Warning Stage: 75.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_WEST

Scenario: Post_2nd_Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 78.00 ft
Warning Stage: 78.00 ft
Boundary Stage:

Comment: to SR 19 roadside swale, south to wetland

Node: PB-1_Spreader

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 85.00 ft
Warning Stage: 86.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	0.0300	1307
86.00	0.0700	3049

Comment:

Node: Spreader_bubble_up

Scenario: Post_2nd_Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 82.00 ft
Warning Stage: 87.00 ft

Stage [ft]	Area [ac]	Area [ft2]
82.00	0.0010	44
85.00	0.0010	44

Comment:

Drop Structure Link: DS_PB-1

Scenario: Post_2nd_Storm
From Node: DRA_PB-1
To Node: Spreader_bubble_up
Link Count: 1
Flow Direction: Both
Solution: Combine
Increments: 0
Pipe Count: 1
Damping: 0.0000 ft
Length: 25.00 ft
FHWA Code: 0
Entr Loss Coef: 0.00
Exit Loss Coef: 1.00

Upstream Pipe		Downstream Pipe	
Invert:	82.33 ft	Invert:	82.00 ft
Manning's N:	0.0120	Manning's N:	0.0120
Geometry: Circular		Geometry: Circular	
Max Depth:	18.00 ft	Max Depth:	18.00 ft
Bottom Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000
Top Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	

Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	**Top Clip**	
Weir Type:	Horizontal	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	87.25 ft	Ref Node:	
Control Elevation:	87.25 ft	**Discharge Coefficients**	
Max Depth:	3.08 ft	Weir Default:	3.200
Max Width:	2.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Drop Structure Comment:

Pipe Link: L-0130P		Upstream		Downstream	
Scenario:	Post_2nd_Storm	Invert:	84.00 ft	Invert:	84.00 ft
From Node:	DRA_PB-2	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	DRA_PB-1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	3.00 ft	Max Depth:	3.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	127.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.50	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Percolation Link: PERC_PB-1			
Scenario:	Post_2nd_Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-1	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	2416.00 ft
Link Count:	1	Perimeter 2:	2981.00 ft

Flow Direction:	Both		
Aquifer Base Elevation:	68.50 ft	Perimeter 3:	4187.00 ft
Water Table Elevation:	80.60 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	100.00 ft
Horizontal Conductivity:	13.900 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.300 fpd	# of Cells P2 to P3:	10
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-2

Scenario:	Post_2nd_Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-2	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	671.00 ft
Link Count:	1	Perimeter 2:	917.00 ft
Flow Direction:	Both	Perimeter 3:	4187.00 ft
Aquifer Base Elevation:	62.50 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	81.00 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	12.200 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.000 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-3

Scenario:	Post_2nd_Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-3	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	3180.00 ft
Link Count:	1	Perimeter 2:	3483.00 ft
Flow Direction:	Both	Perimeter 3:	4064.00 ft
Aquifer Base Elevation:	74.00 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	80.50 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.900 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.700 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-4

Scenario:	Post_2nd_Storm	Surface Area Option:	Vary Based on Stage/Area Table

From Node:	DRA_PB-4		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	920.00 ft
Flow Direction:	Both	Perimeter 2:	1234.00 ft
Aquifer Base Elevation:	109.10 ft	Perimeter 3:	1862.00 ft
Water Table Elevation:	116.80 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	100.00 ft
Horizontal Conductivity:	13.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.100 fpd	# of Cells P2 to P3:	10
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-5

Scenario:	Post_2nd_Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-5	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	1353.00 ft
Link Count:	1	Perimeter 2:	1668.00 ft
Flow Direction:	Both	Perimeter 3:	2435.00 ft
Aquifer Base Elevation:	77.36 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	85.30 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.300 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.100 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-5A

Scenario:	Post_2nd_Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-5A	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	1688.00 ft
Link Count:	1	Perimeter 2:	2002.00 ft
Flow Direction:	Both	Perimeter 3:	2822.00 ft
Aquifer Base Elevation:	71.60 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	83.80 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.900 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.300 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: WR_Bubble_up			
Scenario:	Post_2nd_Storm	Bottom Clip	
From Node:	Spreader_bubble_up	Default:	0.00 ft
To Node:	PB-1_Spreader	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Horizontal	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	85.00 ft	Discharge Coefficients	
Control Elevation:	85.00 ft	Weir Default:	2.800
Max Depth:	3.08 ft	Weir Table:	
Max Width:	2.00 ft	Orifice Default:	0.600
Fillet:	0.00 ft	Orifice Table:	
Comment:			

Weir Link: WR_NATURAL_PB-5			
Scenario:	Post_2nd_Storm	Bottom Clip	
From Node:	DEPRESSION_PB-5	Default:	0.00 ft
To Node:	OFF-SITE_SOUTH	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	83.50 ft	Discharge Coefficients	
Control Elevation:	83.50 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	60.00 ft	Orifice Table:	
Left Slope:	10.000 (h:v)		
Right Slope:	10.000 (h:v)		
Comment:			

Weir Link: WR_PB-3			
Scenario:	Post_2nd_Storm	Bottom Clip	
From Node:	DRA_PB-3	Default:	0.00 ft
To Node:	OFF-SITE_SOUTHEAST	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	87.75 ft	Discharge Coefficients	
Control Elevation:	87.75 ft	Weir Default:	2.800

Max Depth:	999.00 ft		
Extrapolation Method:	Normal Projection	Weir Table:	
Bottom Width:	10.00 ft	Orifice Default:	0.600
Left Slope:	4.000 (h:v)	Orifice Table:	
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-4

Scenario:	Post_2nd_Storm	**Bottom Clip**	
From Node:	DRA_PB-4	Default:	0.00 ft
To Node:	OFF-SITE_WEST	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	123.75 ft	**Discharge Coefficients**	
Control Elevation:	123.75 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	5.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-5

Scenario:	Post_2nd_Storm	**Bottom Clip**	
From Node:	DRA_PB-5	Default:	0.00 ft
To Node:	DEPRESSION_PB-5	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	92.25 ft	**Discharge Coefficients**	
Control Elevation:	92.25 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	10.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-5A

Scenario:	Post_2nd_Storm
From Node:	DRA_PB-5A
To Node:	DEPRESSION_PB-5
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Trapezoidal
Invert:	90.75 ft
Control Elevation:	90.75 ft
Max Depth:	999.00 ft
Extrapolation Method:	Normal Projection
Bottom Width:	10.00 ft
Left Slope:	4.000 (h:v)
Right Slope:	4.000 (h:v)

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Weir Link: WR_Spreader

Scenario:	Post_2nd_Storm
From Node:	PB-1_Spreader
To Node:	OFF-SITE_NORTH
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Trapezoidal
Invert:	86.00 ft
Control Elevation:	86.00 ft
Max Depth:	999.00 ft
Extrapolation Method:	Normal Projection
Bottom Width:	233.00 ft
Left Slope:	4.000 (h:v)
Right Slope:	4.000 (h:v)

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Simulation: 025yr096hr

Scenario:	Post_2nd_Storm
Run Date/Time:	6/27/2025 10:43:40 AM
Program Version:	ICPR4 4.07.06

General

Run Mode:	Normal

Year	Month	Day	Hour [hr]

Start Time:	0	0	0	0.0000
End Time:	0	0	0	144.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SJRWMD-96

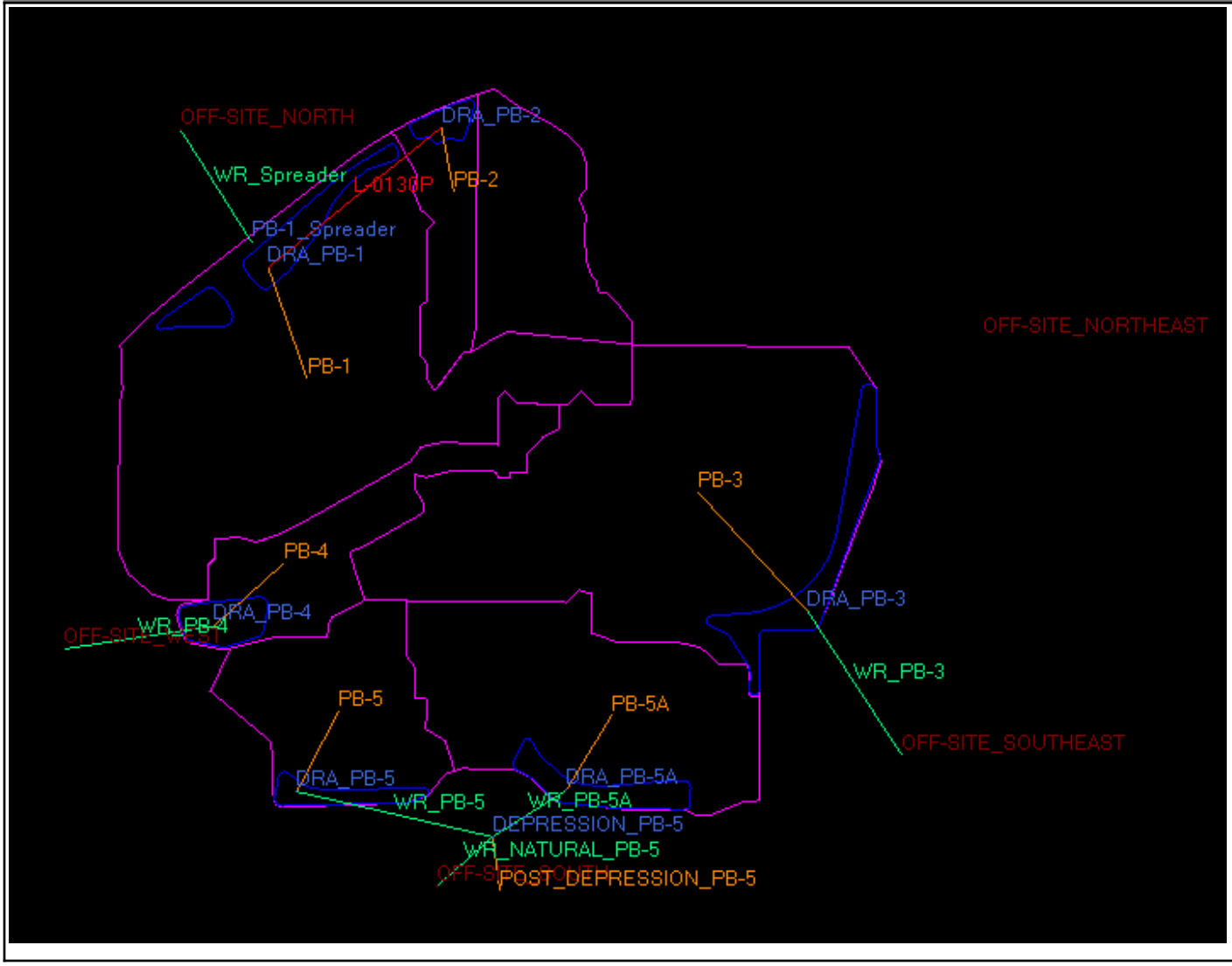
		Rainfall Amount:	10.50 in
Edge Length Option:	Automatic	Storm Duration:	96.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Scenario	Sim	Node Name	Relative Time [hrs]	Warning Stage [ft]	Maximum Stage [ft]	Time to Maximum Stage [hrs]	Maximum Total Inflow Rate [cfs]	Time to Maximum Total Inflow Rate	Maximum Total Outflow Rate [cfs]	Time to Maximum Total Outflow Rate
Post_2nd_Storm	025yr096hr	DRA_PB-1	144.0052	89.00	88.20	60.6231	122.05	60.0333	31.79	60.5752
Post_2nd_Storm	025yr096hr	DRA_PB-2	144.0052	89.00	88.22	60.6217	33.23	60.0333	7.37	60.5740
Post_2nd_Storm	025yr096hr	DRA_PB-3	144.0052	90.00	88.38	60.7086	120.85	60.0167	19.78	60.6754
Post_2nd_Storm	025yr096hr	DRA_PB-4	144.0052	125.00	123.80	72.1363	36.11	60.0167	3.07	0.0000
Post_2nd_Storm	025yr096hr	DRA_PB-5	144.0052	94.00	92.49	60.8564	36.93	60.0167	4.95	60.7726
Post_2nd_Storm	025yr096hr	DRA_PB-5A	144.0052	92.00	90.85	68.0951	63.52	60.0167	3.64	0.0000

WATER QUALITY

Background Image: node_schematic



Simple Basin: PB-1

Scenario:	Water Quality
Node:	DRA_PB-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	38.5800 ac

Curve Number:	47.2
% Impervious:	27.55
% DCIA:	27.55
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-2

Scenario:	Water Quality
Node:	DRA_PB-2
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	14.7500 ac
Curve Number:	42.4
% Impervious:	11.57
% DCIA:	11.57
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-3

Scenario:	Water Quality
Node:	DRA_PB-3
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	37.9600 ac
Curve Number:	47.3
% Impervious:	28.70
% DCIA:	28.70
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-4

Scenario:	Water Quality
Node:	DRA_PB-4
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	9.4900 ac
Curve Number:	51.1
% Impervious:	42.42
% DCIA:	42.42
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-5

Scenario:	Water Quality
Node:	DRA_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	11.5600 ac
Curve Number:	47.6
% Impervious:	28.38
% DCIA:	28.38
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: PB-5A

Scenario:	Water Quality
Node:	DRA_PB-5A
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	20.3300 ac
Curve Number:	46.7
% Impervious:	28.03
% DCIA:	28.03
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: POST_DEPRESSION_PB-5

Scenario:	Water Quality
Node:	DEPRESSION_PB-5
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	34.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	22.0800 ac
Curve Number:	44.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: DEPRESSION_PB-5

Scenario:	Water Quality
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	78.00 ft
Warning Stage:	84.00 ft

Stage [ft]	Area [ac]	Area [ft2]
78.00	4.4100	192100
81.00	6.3700	277477
82.00	6.8300	297515
83.00	7.3100	318424
83.50	7.7900	339332

Comment:

Node: DRA_PB-1

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 86.69 ft
Warning Stage: 89.00 ft

Stage [ft]	Area [ac]	Area [ft2]
84.00	1.2000	52272
85.00	1.4000	60984
86.00	1.6100	70132
87.00	1.8300	79715
88.00	2.0500	89298
89.00	2.2700	98881

Comment:

Node: DRA_PB-2

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 86.69 ft
Warning Stage: 89.00 ft

Stage [ft]	Area [ac]	Area [ft2]
84.00	0.3300	14375
85.00	0.3800	16553
86.00	0.4300	18731
87.00	0.4900	21344
88.00	0.5500	23958
89.00	0.6200	27007

Comment:

Node: DRA_PB-3

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 86.64 ft
Warning Stage: 90.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	1.7900	77972
86.00	2.0700	90169
87.00	2.3600	102802
88.00	2.6500	115434
89.00	2.9400	128066
90.00	3.2300	140699

Comment:

Node: DRA_PB-4

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 120.89 ft
Warning Stage: 125.00 ft

Stage [ft]	Area [ac]	Area [ft2]
120.00	0.9000	39204
121.00	0.9800	42689
122.00	1.0600	46174
123.00	1.1400	49658
124.00	1.2200	53143
125.00	1.3100	57064

Comment:

Node: DRA_PB-5

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 90.95 ft
Warning Stage: 94.00 ft

Stage [ft]	Area [ac]	Area [ft2]
89.00	0.4400	19166
90.00	0.5500	23958
91.00	0.6700	29185
92.00	0.7900	34412
93.00	0.9200	40075
94.00	1.0400	45302

Comment:

Node: DRA_PB-5A

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 88.52 ft
Warning Stage: 92.00 ft

Stage [ft]	Area [ac]	Area [ft2]
87.00	1.0400	45302
88.00	1.1900	51836
89.00	1.3400	58370
90.00	1.4900	64904
91.00	1.6500	71874
92.00	1.8000	78408

Comment:

Node: GW

Scenario: Water Quality
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.00
0	0	0	999.0000	0.00

Comment:

Node: OFF-SITE_NORTH

Scenario: Water Quality
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 81.80 ft
Warning Stage: 81.80 ft
Boundary Stage:

Comment: AE Zone listed elevation

Node: OFF-SITE_NORTHEAST

Scenario: Water Quality
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 72.00 ft
Warning Stage: 72.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTH

Scenario: Water Quality
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 79.00 ft
Warning Stage: 79.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_SOUTHEAST

Scenario: Water Quality
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 75.00 ft
Warning Stage: 75.00 ft
Boundary Stage:

Comment: A zone approx. water el.

Node: OFF-SITE_WEST

Scenario: Water Quality
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 78.00 ft
Warning Stage: 78.00 ft
Boundary Stage:

Comment: to SR 19 roadside swale, south to wetland

Node: PB-1_Spreader

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 85.00 ft
Warning Stage: 86.00 ft

Stage [ft]	Area [ac]	Area [ft2]
85.00	0.0300	1307
86.00	0.0700	3049

Comment:

Node: Spreader_bubble_up

Scenario: Water Quality
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 82.00 ft
Warning Stage: 87.00 ft

Stage [ft]	Area [ac]	Area [ft2]
82.00	0.0010	44
85.00	0.0010	44

Comment:

Drop Structure Link: DS_PB-1

Scenario: Water Quality
From Node: DRA_PB-1
To Node: Spreader_bubble_up
Link Count: 1
Flow Direction: Both
Solution: Combine
Increments: 0
Pipe Count: 1
Damping: 0.0000 ft
Length: 25.00 ft
FHWA Code: 0
Entr Loss Coef: 0.00
Exit Loss Coef: 1.00

Upstream Pipe		Downstream Pipe	
Invert:	82.33 ft	Invert:	82.00 ft
Manning's N:	0.0120	Manning's N:	0.0120
Geometry: Circular		Geometry: Circular	
Max Depth:	18.00 ft	Max Depth:	18.00 ft
Bottom Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000
Top Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	

Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component

Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	87.25 ft
Control Elevation:	87.25 ft
Max Depth:	3.08 ft
Max Width:	2.00 ft
Fillet:	0.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment:

Drop Structure Comment:

Pipe Link: L-0130P

Scenario:	Water Quality
From Node:	DRA_PB-2
To Node:	DRA_PB-1
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Length:	127.00 ft
FHWA Code:	0
Entr Loss Coef:	0.50
Exit Loss Coef:	0.50
Bend Loss Coef:	0.00
Bend Location:	0.00 dec
Energy Switch:	Energy

Upstream

Invert:	84.00 ft
Manning's N:	0.0120

Geometry: Circular

Max Depth:	3.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Downstream

Invert:	84.00 ft
Manning's N:	0.0120

Geometry: Circular

Max Depth:	3.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Comment:

Percolation Link: PERC_PB-1

Scenario:	Water Quality	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-1	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	2416.00 ft
Link Count:	1	Perimeter 2:	2981.00 ft

Flow Direction:	Both		
Aquifer Base Elevation:	68.50 ft	Perimeter 3:	4187.00 ft
Water Table Elevation:	80.60 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	100.00 ft
Horizontal Conductivity:	13.900 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.300 fpd	# of Cells P2 to P3:	10
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-2

Scenario:	Water Quality	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-2	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	671.00 ft
Link Count:	1	Perimeter 2:	917.00 ft
Flow Direction:	Both	Perimeter 3:	4187.00 ft
Aquifer Base Elevation:	62.50 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	81.00 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	12.200 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.000 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-3

Scenario:	Water Quality	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-3	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	3180.00 ft
Link Count:	1	Perimeter 2:	3483.00 ft
Flow Direction:	Both	Perimeter 3:	4064.00 ft
Aquifer Base Elevation:	74.00 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	80.50 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.900 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.700 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-4

Scenario:	Water Quality	Surface Area Option:	Vary Based on Stage/Area Table

From Node:	DRA_PB-4		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	920.00 ft
Flow Direction:	Both	Perimeter 2:	1234.00 ft
Aquifer Base Elevation:	109.10 ft	Perimeter 3:	1862.00 ft
Water Table Elevation:	116.80 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	100.00 ft
Horizontal Conductivity:	13.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.100 fpd	# of Cells P2 to P3:	10
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-5

Scenario:	Water Quality	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-5	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	1353.00 ft
Link Count:	1	Perimeter 2:	1668.00 ft
Flow Direction:	Both	Perimeter 3:	2435.00 ft
Aquifer Base Elevation:	77.36 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	85.30 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.300 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.100 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PERC_PB-5A

Scenario:	Water Quality	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	DRA_PB-5A	Vertical Flow Termination:	Horizontal Flow Algorithm
To Node:	GW	Perimeter 1:	1688.00 ft
Link Count:	1	Perimeter 2:	2002.00 ft
Flow Direction:	Both	Perimeter 3:	2822.00 ft
Aquifer Base Elevation:	71.60 ft	Distance P1 to P2:	50.00 ft
Water Table Elevation:	83.80 ft	Distance P2 to P3:	100.00 ft
Annual Recharge Rate:	0 ipy	# of Cells P1 to P2:	10
Horizontal Conductivity:	13.900 fpd	# of Cells P2 to P3:	10
Vertical Conductivity:	6.300 fpd		
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: WR_Bubble_up

Scenario:	Water Quality	**Bottom Clip**	
From Node:	Spreader_bubble_up	Default:	0.00 ft
To Node:	PB-1_Spreader	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Horizontal	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	85.00 ft	**Discharge Coefficients**	
Control Elevation:	85.00 ft	Weir Default:	2.800
Max Depth:	3.08 ft	Weir Table:	
Max Width:	2.00 ft	Orifice Default:	0.600
Fillet:	0.00 ft	Orifice Table:	

Comment:

Weir Link: WR_NATURAL_PB-5

Scenario:	Water Quality	**Bottom Clip**	
From Node:	DEPRESSION_PB-5	Default:	0.00 ft
To Node:	OFF-SITE_SOUTH	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	83.50 ft	**Discharge Coefficients**	
Control Elevation:	83.50 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	60.00 ft	Orifice Table:	
Left Slope:	10.000 (h:v)		
Right Slope:	10.000 (h:v)		

Comment:

Weir Link: WR_PB-3

Scenario:	Water Quality	**Bottom Clip**	
From Node:	DRA_PB-3	Default:	0.00 ft
To Node:	OFF-SITE_SOUTHEAST	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	87.75 ft	**Discharge Coefficients**	
Control Elevation:	87.75 ft	Weir Default:	2.800

Max Depth:	999.00 ft		
Extrapolation Method:	Normal Projection	Weir Table:	
Bottom Width:	10.00 ft	Orifice Default:	0.600
Left Slope:	4.000 (h:v)	Orifice Table:	
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-4

Scenario:	Water Quality	**Bottom Clip**	
From Node:	DRA_PB-4	Default:	0.00 ft
To Node:	OFF-SITE_WEST	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	123.75 ft	**Discharge Coefficients**	
Control Elevation:	123.75 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	5.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-5

Scenario:	Water Quality	**Bottom Clip**	
From Node:	DRA_PB-5	Default:	0.00 ft
To Node:	DEPRESSION_PB-5	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	92.25 ft	**Discharge Coefficients**	
Control Elevation:	92.25 ft	Weir Default:	2.800
Max Depth:	999.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	10.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: WR_PB-5A

Scenario:	Water Quality
From Node:	DRA_PB-5A
To Node:	DEPRESSION_PB-5
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Trapezoidal
Invert:	90.75 ft
Control Elevation:	90.75 ft
Max Depth:	999.00 ft
Extrapolation Method:	Normal Projection
Bottom Width:	10.00 ft
Left Slope:	4.000 (h:v)
Right Slope:	4.000 (h:v)

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Weir Link: WR_Spreader

Scenario:	Water Quality
From Node:	PB-1_Spreader
To Node:	OFF-SITE_NORTH
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Trapezoidal
Invert:	86.00 ft
Control Elevation:	86.00 ft
Max Depth:	999.00 ft
Extrapolation Method:	Normal Projection
Bottom Width:	233.00 ft
Left Slope:	4.000 (h:v)
Right Slope:	4.000 (h:v)

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Simulation: 025yr096hr

Scenario:	Water Quality
Run Date/Time:	6/27/2025 10:47:31 AM
Program Version:	ICPR4 4.07.06

General

Run Mode:	Normal

Year	Month	Day	Hour [hr]

Start Time:	0	0	0	0.0000
End Time:	0	0	0	73.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

Smp/Man Basin Rain Opt: No Rainfall
OF Region Rain Opt: No Rainfall

Edge Length Option: Automatic

Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	0.0000	86.69	0.00
Water Quality	025yr096hr	DRA_PB-1	0.0834	86.67	5.58
Water Quality	025yr096hr	DRA_PB-1	0.1675	86.65	5.57
Water Quality	025yr096hr	DRA_PB-1	0.2511	86.62	5.55
Water Quality	025yr096hr	DRA_PB-1	0.3355	86.60	5.54
Water Quality	025yr096hr	DRA_PB-1	0.4193	86.58	5.52
Water Quality	025yr096hr	DRA_PB-1	0.5016	86.56	5.51
Water Quality	025yr096hr	DRA_PB-1	0.5847	86.54	5.49
Water Quality	025yr096hr	DRA_PB-1	0.6679	86.52	5.48
Water Quality	025yr096hr	DRA_PB-1	0.7523	86.49	5.46
Water Quality	025yr096hr	DRA_PB-1	0.8353	86.47	5.44
Water Quality	025yr096hr	DRA_PB-1	0.9192	86.45	5.43
Water Quality	025yr096hr	DRA_PB-1	1.0017	86.43	5.41
Water Quality	025yr096hr	DRA_PB-1	1.0833	86.41	5.40
Water Quality	025yr096hr	DRA_PB-1	1.1698	86.39	5.38
Water Quality	025yr096hr	DRA_PB-1	1.2525	86.37	5.37
Water Quality	025yr096hr	DRA_PB-1	1.3364	86.34	5.35
Water Quality	025yr096hr	DRA_PB-1	1.4185	86.32	5.34
Water Quality	025yr096hr	DRA_PB-1	1.5026	86.30	5.32
Water Quality	025yr096hr	DRA_PB-1	1.5841	86.28	5.31
Water Quality	025yr096hr	DRA_PB-1	1.6688	86.26	5.29
Water Quality	025yr096hr	DRA_PB-1	1.7512	86.24	5.28
Water Quality	025yr096hr	DRA_PB-1	1.8337	86.21	5.26
Water Quality	025yr096hr	DRA_PB-1	1.9170	86.19	5.25
Water Quality	025yr096hr	DRA_PB-1	2.0019	86.17	5.23
Water Quality	025yr096hr	DRA_PB-1	2.0855	86.15	5.22
Water Quality	025yr096hr	DRA_PB-1	2.1704	86.13	5.21
Water Quality	025yr096hr	DRA_PB-1	2.2524	86.11	5.19
Water Quality	025yr096hr	DRA_PB-1	2.3352	86.09	5.18
Water Quality	025yr096hr	DRA_PB-1	2.4188	86.07	5.16
Water Quality	025yr096hr	DRA_PB-1	2.5034	86.05	5.15
Water Quality	025yr096hr	DRA_PB-1	2.5855	86.03	4.74
Water Quality	025yr096hr	DRA_PB-1	2.6706	86.02	4.27
Water Quality	025yr096hr	DRA_PB-1	2.7509	86.00	3.96
Water Quality	025yr096hr	DRA_PB-1	2.8381	85.99	3.71
Water Quality	025yr096hr	DRA_PB-1	2.9196	85.97	3.53
Water Quality	025yr096hr	DRA_PB-1	3.0013	85.96	3.37
Water Quality	025yr096hr	DRA_PB-1	3.0894	85.94	3.22
Water Quality	025yr096hr	DRA_PB-1	3.1700	85.93	3.11
Water Quality	025yr096hr	DRA_PB-1	3.2540	85.92	3.00
Water Quality	025yr096hr	DRA_PB-1	3.3337	85.91	2.91
Water Quality	025yr096hr	DRA_PB-1	3.4178	85.90	2.82

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	3.5046	85.89	2.73
Water Quality	025yr096hr	DRA_PB-1	3.5870	85.88	2.66
Water Quality	025yr096hr	DRA_PB-1	3.6715	85.86	2.59
Water Quality	025yr096hr	DRA_PB-1	3.7521	85.85	2.53
Water Quality	025yr096hr	DRA_PB-1	3.8345	85.84	2.47
Water Quality	025yr096hr	DRA_PB-1	3.9178	85.83	2.42
Water Quality	025yr096hr	DRA_PB-1	4.0012	85.83	2.36
Water Quality	025yr096hr	DRA_PB-1	4.0845	85.82	2.31
Water Quality	025yr096hr	DRA_PB-1	4.1678	85.81	2.27
Water Quality	025yr096hr	DRA_PB-1	4.2512	85.80	2.22
Water Quality	025yr096hr	DRA_PB-1	4.3345	85.79	2.18
Water Quality	025yr096hr	DRA_PB-1	4.4178	85.78	2.14
Water Quality	025yr096hr	DRA_PB-1	4.5012	85.77	2.10
Water Quality	025yr096hr	DRA_PB-1	4.5845	85.76	2.07
Water Quality	025yr096hr	DRA_PB-1	4.6678	85.75	2.03
Water Quality	025yr096hr	DRA_PB-1	4.7512	85.75	2.00
Water Quality	025yr096hr	DRA_PB-1	4.8345	85.74	1.97
Water Quality	025yr096hr	DRA_PB-1	4.9178	85.73	1.94
Water Quality	025yr096hr	DRA_PB-1	5.0012	85.72	1.91
Water Quality	025yr096hr	DRA_PB-1	5.0845	85.71	1.88
Water Quality	025yr096hr	DRA_PB-1	5.1678	85.71	1.86
Water Quality	025yr096hr	DRA_PB-1	5.2512	85.70	1.83
Water Quality	025yr096hr	DRA_PB-1	5.3345	85.69	1.80
Water Quality	025yr096hr	DRA_PB-1	5.4178	85.68	1.78
Water Quality	025yr096hr	DRA_PB-1	5.5012	85.68	1.76
Water Quality	025yr096hr	DRA_PB-1	5.5845	85.67	1.73
Water Quality	025yr096hr	DRA_PB-1	5.6678	85.66	1.71
Water Quality	025yr096hr	DRA_PB-1	5.7512	85.65	1.69
Water Quality	025yr096hr	DRA_PB-1	5.8345	85.65	1.67
Water Quality	025yr096hr	DRA_PB-1	5.9178	85.64	1.65
Water Quality	025yr096hr	DRA_PB-1	6.0012	85.63	1.63
Water Quality	025yr096hr	DRA_PB-1	6.0845	85.63	1.61
Water Quality	025yr096hr	DRA_PB-1	6.1678	85.62	1.60
Water Quality	025yr096hr	DRA_PB-1	6.2512	85.61	1.58
Water Quality	025yr096hr	DRA_PB-1	6.3345	85.61	1.56
Water Quality	025yr096hr	DRA_PB-1	6.4178	85.60	1.55
Water Quality	025yr096hr	DRA_PB-1	6.5012	85.59	1.53
Water Quality	025yr096hr	DRA_PB-1	6.5845	85.59	1.51
Water Quality	025yr096hr	DRA_PB-1	6.6678	85.58	1.50
Water Quality	025yr096hr	DRA_PB-1	6.7512	85.57	1.48
Water Quality	025yr096hr	DRA_PB-1	6.8345	85.57	1.47
Water Quality	025yr096hr	DRA_PB-1	6.9178	85.56	1.45

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	7.0012	85.56	1.44
Water Quality	025yr096hr	DRA_PB-1	7.0845	85.55	1.43
Water Quality	025yr096hr	DRA_PB-1	7.1678	85.54	1.41
Water Quality	025yr096hr	DRA_PB-1	7.2512	85.54	1.40
Water Quality	025yr096hr	DRA_PB-1	7.3345	85.53	1.39
Water Quality	025yr096hr	DRA_PB-1	7.4178	85.53	1.38
Water Quality	025yr096hr	DRA_PB-1	7.5012	85.52	1.36
Water Quality	025yr096hr	DRA_PB-1	7.5845	85.51	1.35
Water Quality	025yr096hr	DRA_PB-1	7.6678	85.51	1.34
Water Quality	025yr096hr	DRA_PB-1	7.7512	85.50	1.33
Water Quality	025yr096hr	DRA_PB-1	7.8345	85.50	1.32
Water Quality	025yr096hr	DRA_PB-1	7.9178	85.49	1.31
Water Quality	025yr096hr	DRA_PB-1	8.0012	85.49	1.30
Water Quality	025yr096hr	DRA_PB-1	8.0845	85.48	1.29
Water Quality	025yr096hr	DRA_PB-1	8.1678	85.47	1.28
Water Quality	025yr096hr	DRA_PB-1	8.2512	85.47	1.27
Water Quality	025yr096hr	DRA_PB-1	8.3345	85.46	1.26
Water Quality	025yr096hr	DRA_PB-1	8.4178	85.46	1.25
Water Quality	025yr096hr	DRA_PB-1	8.5012	85.45	1.24
Water Quality	025yr096hr	DRA_PB-1	8.5845	85.45	1.23
Water Quality	025yr096hr	DRA_PB-1	8.6678	85.44	1.22
Water Quality	025yr096hr	DRA_PB-1	8.7512	85.44	1.21
Water Quality	025yr096hr	DRA_PB-1	8.8345	85.43	1.20
Water Quality	025yr096hr	DRA_PB-1	8.9178	85.43	1.19
Water Quality	025yr096hr	DRA_PB-1	9.0012	85.42	1.18
Water Quality	025yr096hr	DRA_PB-1	9.0845	85.42	1.18
Water Quality	025yr096hr	DRA_PB-1	9.1678	85.41	1.17
Water Quality	025yr096hr	DRA_PB-1	9.2512	85.41	1.16
Water Quality	025yr096hr	DRA_PB-1	9.3345	85.40	1.15
Water Quality	025yr096hr	DRA_PB-1	9.4178	85.40	1.14
Water Quality	025yr096hr	DRA_PB-1	9.5012	85.39	1.14
Water Quality	025yr096hr	DRA_PB-1	9.5845	85.39	1.13
Water Quality	025yr096hr	DRA_PB-1	9.6678	85.38	1.12
Water Quality	025yr096hr	DRA_PB-1	9.7512	85.38	1.11
Water Quality	025yr096hr	DRA_PB-1	9.8345	85.37	1.11
Water Quality	025yr096hr	DRA_PB-1	9.9178	85.37	1.10
Water Quality	025yr096hr	DRA_PB-1	10.0012	85.36	1.09
Water Quality	025yr096hr	DRA_PB-1	10.0845	85.36	1.09
Water Quality	025yr096hr	DRA_PB-1	10.1678	85.35	1.08
Water Quality	025yr096hr	DRA_PB-1	10.2512	85.35	1.07
Water Quality	025yr096hr	DRA_PB-1	10.3345	85.34	1.07
Water Quality	025yr096hr	DRA_PB-1	10.4178	85.34	1.06

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	10.5012	85.33	1.05
Water Quality	025yr096hr	DRA_PB-1	10.5845	85.33	1.05
Water Quality	025yr096hr	DRA_PB-1	10.6678	85.32	1.04
Water Quality	025yr096hr	DRA_PB-1	10.7512	85.32	1.03
Water Quality	025yr096hr	DRA_PB-1	10.8345	85.31	1.03
Water Quality	025yr096hr	DRA_PB-1	10.9178	85.31	1.02
Water Quality	025yr096hr	DRA_PB-1	11.0012	85.31	1.02
Water Quality	025yr096hr	DRA_PB-1	11.0845	85.30	1.01
Water Quality	025yr096hr	DRA_PB-1	11.1678	85.30	1.00
Water Quality	025yr096hr	DRA_PB-1	11.2512	85.29	1.00
Water Quality	025yr096hr	DRA_PB-1	11.3345	85.29	0.99
Water Quality	025yr096hr	DRA_PB-1	11.4178	85.28	0.99
Water Quality	025yr096hr	DRA_PB-1	11.5012	85.28	0.98
Water Quality	025yr096hr	DRA_PB-1	11.5845	85.27	0.98
Water Quality	025yr096hr	DRA_PB-1	11.6678	85.27	0.97
Water Quality	025yr096hr	DRA_PB-1	11.7512	85.27	0.97
Water Quality	025yr096hr	DRA_PB-1	11.8345	85.26	0.96
Water Quality	025yr096hr	DRA_PB-1	11.9178	85.26	0.96
Water Quality	025yr096hr	DRA_PB-1	12.0012	85.25	0.95
Water Quality	025yr096hr	DRA_PB-1	12.0845	85.25	0.95
Water Quality	025yr096hr	DRA_PB-1	12.1678	85.24	0.94
Water Quality	025yr096hr	DRA_PB-1	12.2512	85.24	0.94
Water Quality	025yr096hr	DRA_PB-1	12.3345	85.24	0.93
Water Quality	025yr096hr	DRA_PB-1	12.4178	85.23	0.93
Water Quality	025yr096hr	DRA_PB-1	12.5012	85.23	0.92
Water Quality	025yr096hr	DRA_PB-1	12.5845	85.22	0.92
Water Quality	025yr096hr	DRA_PB-1	12.6678	85.22	0.91
Water Quality	025yr096hr	DRA_PB-1	12.7512	85.22	0.91
Water Quality	025yr096hr	DRA_PB-1	12.8345	85.21	0.90
Water Quality	025yr096hr	DRA_PB-1	12.9178	85.21	0.90
Water Quality	025yr096hr	DRA_PB-1	13.0012	85.20	0.89
Water Quality	025yr096hr	DRA_PB-1	13.0845	85.20	0.89
Water Quality	025yr096hr	DRA_PB-1	13.1678	85.20	0.89
Water Quality	025yr096hr	DRA_PB-1	13.2512	85.19	0.88
Water Quality	025yr096hr	DRA_PB-1	13.3345	85.19	0.88
Water Quality	025yr096hr	DRA_PB-1	13.4178	85.18	0.87
Water Quality	025yr096hr	DRA_PB-1	13.5012	85.18	0.87
Water Quality	025yr096hr	DRA_PB-1	13.5845	85.18	0.86
Water Quality	025yr096hr	DRA_PB-1	13.6678	85.17	0.86
Water Quality	025yr096hr	DRA_PB-1	13.7512	85.17	0.86
Water Quality	025yr096hr	DRA_PB-1	13.8345	85.16	0.85
Water Quality	025yr096hr	DRA_PB-1	13.9178	85.16	0.85

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	14.0012	85.16	0.84
Water Quality	025yr096hr	DRA_PB-1	14.0845	85.15	0.84
Water Quality	025yr096hr	DRA_PB-1	14.1678	85.15	0.84
Water Quality	025yr096hr	DRA_PB-1	14.2512	85.14	0.83
Water Quality	025yr096hr	DRA_PB-1	14.3345	85.14	0.83
Water Quality	025yr096hr	DRA_PB-1	14.4178	85.14	0.83
Water Quality	025yr096hr	DRA_PB-1	14.5012	85.13	0.82
Water Quality	025yr096hr	DRA_PB-1	14.5845	85.13	0.82
Water Quality	025yr096hr	DRA_PB-1	14.6678	85.13	0.81
Water Quality	025yr096hr	DRA_PB-1	14.7512	85.12	0.81
Water Quality	025yr096hr	DRA_PB-1	14.8345	85.12	0.81
Water Quality	025yr096hr	DRA_PB-1	14.9178	85.11	0.80
Water Quality	025yr096hr	DRA_PB-1	15.0012	85.11	0.80
Water Quality	025yr096hr	DRA_PB-1	15.0845	85.11	0.80
Water Quality	025yr096hr	DRA_PB-1	15.1678	85.10	0.79
Water Quality	025yr096hr	DRA_PB-1	15.2512	85.10	0.79
Water Quality	025yr096hr	DRA_PB-1	15.3345	85.10	0.79
Water Quality	025yr096hr	DRA_PB-1	15.4178	85.09	0.78
Water Quality	025yr096hr	DRA_PB-1	15.5012	85.09	0.78
Water Quality	025yr096hr	DRA_PB-1	15.5845	85.09	0.78
Water Quality	025yr096hr	DRA_PB-1	15.6678	85.08	0.77
Water Quality	025yr096hr	DRA_PB-1	15.7512	85.08	0.77
Water Quality	025yr096hr	DRA_PB-1	15.8345	85.07	0.77
Water Quality	025yr096hr	DRA_PB-1	15.9178	85.07	0.76
Water Quality	025yr096hr	DRA_PB-1	16.0012	85.07	0.76
Water Quality	025yr096hr	DRA_PB-1	16.0845	85.06	0.76
Water Quality	025yr096hr	DRA_PB-1	16.1678	85.06	0.75
Water Quality	025yr096hr	DRA_PB-1	16.2512	85.06	0.75
Water Quality	025yr096hr	DRA_PB-1	16.3345	85.05	0.75
Water Quality	025yr096hr	DRA_PB-1	16.4178	85.05	0.75
Water Quality	025yr096hr	DRA_PB-1	16.5012	85.05	0.74
Water Quality	025yr096hr	DRA_PB-1	16.5845	85.04	0.74
Water Quality	025yr096hr	DRA_PB-1	16.6678	85.04	0.74
Water Quality	025yr096hr	DRA_PB-1	16.7512	85.04	0.73
Water Quality	025yr096hr	DRA_PB-1	16.8345	85.03	0.73
Water Quality	025yr096hr	DRA_PB-1	16.9178	85.03	0.73
Water Quality	025yr096hr	DRA_PB-1	17.0012	85.03	0.72
Water Quality	025yr096hr	DRA_PB-1	17.0845	85.02	0.72
Water Quality	025yr096hr	DRA_PB-1	17.1678	85.02	0.72
Water Quality	025yr096hr	DRA_PB-1	17.2512	85.02	0.72
Water Quality	025yr096hr	DRA_PB-1	17.3345	85.01	0.71
Water Quality	025yr096hr	DRA_PB-1	17.4178	85.01	0.71

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	17.5012	85.01	0.71
Water Quality	025yr096hr	DRA_PB-1	17.5845	85.00	0.70
Water Quality	025yr096hr	DRA_PB-1	17.6678	85.00	0.70
Water Quality	025yr096hr	DRA_PB-1	17.7512	85.00	0.70
Water Quality	025yr096hr	DRA_PB-1	17.8345	84.99	0.70
Water Quality	025yr096hr	DRA_PB-1	17.9178	84.99	0.69
Water Quality	025yr096hr	DRA_PB-1	18.0012	84.99	0.69
Water Quality	025yr096hr	DRA_PB-1	18.0845	84.98	0.69
Water Quality	025yr096hr	DRA_PB-1	18.1678	84.98	0.69
Water Quality	025yr096hr	DRA_PB-1	18.2512	84.98	0.68
Water Quality	025yr096hr	DRA_PB-1	18.3345	84.97	0.68
Water Quality	025yr096hr	DRA_PB-1	18.4178	84.97	0.68
Water Quality	025yr096hr	DRA_PB-1	18.5012	84.97	0.68
Water Quality	025yr096hr	DRA_PB-1	18.5845	84.96	0.67
Water Quality	025yr096hr	DRA_PB-1	18.6678	84.96	0.67
Water Quality	025yr096hr	DRA_PB-1	18.7512	84.96	0.67
Water Quality	025yr096hr	DRA_PB-1	18.8345	84.95	0.67
Water Quality	025yr096hr	DRA_PB-1	18.9178	84.95	0.66
Water Quality	025yr096hr	DRA_PB-1	19.0012	84.95	0.66
Water Quality	025yr096hr	DRA_PB-1	19.0845	84.95	0.66
Water Quality	025yr096hr	DRA_PB-1	19.1678	84.94	0.66
Water Quality	025yr096hr	DRA_PB-1	19.2512	84.94	0.65
Water Quality	025yr096hr	DRA_PB-1	19.3345	84.94	0.65
Water Quality	025yr096hr	DRA_PB-1	19.4178	84.93	0.65
Water Quality	025yr096hr	DRA_PB-1	19.5012	84.93	0.65
Water Quality	025yr096hr	DRA_PB-1	19.5845	84.93	0.64
Water Quality	025yr096hr	DRA_PB-1	19.6678	84.92	0.64
Water Quality	025yr096hr	DRA_PB-1	19.7512	84.92	0.64
Water Quality	025yr096hr	DRA_PB-1	19.8345	84.92	0.64
Water Quality	025yr096hr	DRA_PB-1	19.9178	84.91	0.64
Water Quality	025yr096hr	DRA_PB-1	20.0012	84.91	0.63
Water Quality	025yr096hr	DRA_PB-1	20.0845	84.91	0.63
Water Quality	025yr096hr	DRA_PB-1	20.1678	84.91	0.63
Water Quality	025yr096hr	DRA_PB-1	20.2512	84.90	0.63
Water Quality	025yr096hr	DRA_PB-1	20.3345	84.90	0.62
Water Quality	025yr096hr	DRA_PB-1	20.4178	84.90	0.62
Water Quality	025yr096hr	DRA_PB-1	20.5012	84.89	0.62
Water Quality	025yr096hr	DRA_PB-1	20.5845	84.89	0.62
Water Quality	025yr096hr	DRA_PB-1	20.6678	84.89	0.62
Water Quality	025yr096hr	DRA_PB-1	20.7512	84.88	0.61
Water Quality	025yr096hr	DRA_PB-1	20.8345	84.88	0.61
Water Quality	025yr096hr	DRA_PB-1	20.9178	84.88	0.61

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	21.0012	84.88	0.61
Water Quality	025yr096hr	DRA_PB-1	21.0845	84.87	0.61
Water Quality	025yr096hr	DRA_PB-1	21.1678	84.87	0.60
Water Quality	025yr096hr	DRA_PB-1	21.2512	84.87	0.60
Water Quality	025yr096hr	DRA_PB-1	21.3345	84.86	0.60
Water Quality	025yr096hr	DRA_PB-1	21.4178	84.86	0.60
Water Quality	025yr096hr	DRA_PB-1	21.5012	84.86	0.60
Water Quality	025yr096hr	DRA_PB-1	21.5845	84.86	0.59
Water Quality	025yr096hr	DRA_PB-1	21.6678	84.85	0.59
Water Quality	025yr096hr	DRA_PB-1	21.7512	84.85	0.59
Water Quality	025yr096hr	DRA_PB-1	21.8345	84.85	0.59
Water Quality	025yr096hr	DRA_PB-1	21.9178	84.84	0.59
Water Quality	025yr096hr	DRA_PB-1	22.0012	84.84	0.58
Water Quality	025yr096hr	DRA_PB-1	22.0845	84.84	0.58
Water Quality	025yr096hr	DRA_PB-1	22.1678	84.84	0.58
Water Quality	025yr096hr	DRA_PB-1	22.2512	84.83	0.58
Water Quality	025yr096hr	DRA_PB-1	22.3345	84.83	0.58
Water Quality	025yr096hr	DRA_PB-1	22.4178	84.83	0.57
Water Quality	025yr096hr	DRA_PB-1	22.5012	84.82	0.57
Water Quality	025yr096hr	DRA_PB-1	22.5845	84.82	0.57
Water Quality	025yr096hr	DRA_PB-1	22.6678	84.82	0.57
Water Quality	025yr096hr	DRA_PB-1	22.7512	84.82	0.57
Water Quality	025yr096hr	DRA_PB-1	22.8345	84.81	0.57
Water Quality	025yr096hr	DRA_PB-1	22.9178	84.81	0.56
Water Quality	025yr096hr	DRA_PB-1	23.0012	84.81	0.56
Water Quality	025yr096hr	DRA_PB-1	23.0845	84.81	0.56
Water Quality	025yr096hr	DRA_PB-1	23.1678	84.80	0.56
Water Quality	025yr096hr	DRA_PB-1	23.2512	84.80	0.56
Water Quality	025yr096hr	DRA_PB-1	23.3345	84.80	0.55
Water Quality	025yr096hr	DRA_PB-1	23.4178	84.79	0.55
Water Quality	025yr096hr	DRA_PB-1	23.5012	84.79	0.55
Water Quality	025yr096hr	DRA_PB-1	23.5845	84.79	0.55
Water Quality	025yr096hr	DRA_PB-1	23.6678	84.79	0.55
Water Quality	025yr096hr	DRA_PB-1	23.7512	84.78	0.55
Water Quality	025yr096hr	DRA_PB-1	23.8345	84.78	0.54
Water Quality	025yr096hr	DRA_PB-1	23.9178	84.78	0.54
Water Quality	025yr096hr	DRA_PB-1	24.0012	84.78	0.54
Water Quality	025yr096hr	DRA_PB-1	24.0845	84.77	0.54
Water Quality	025yr096hr	DRA_PB-1	24.1678	84.77	0.54
Water Quality	025yr096hr	DRA_PB-1	24.2512	84.77	0.54
Water Quality	025yr096hr	DRA_PB-1	24.3345	84.77	0.53
Water Quality	025yr096hr	DRA_PB-1	24.4178	84.76	0.53

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	24.5012	84.76	0.53
Water Quality	025yr096hr	DRA_PB-1	24.5845	84.76	0.53
Water Quality	025yr096hr	DRA_PB-1	24.6678	84.76	0.53
Water Quality	025yr096hr	DRA_PB-1	24.7512	84.75	0.53
Water Quality	025yr096hr	DRA_PB-1	24.8345	84.75	0.52
Water Quality	025yr096hr	DRA_PB-1	24.9178	84.75	0.52
Water Quality	025yr096hr	DRA_PB-1	25.0012	84.75	0.52
Water Quality	025yr096hr	DRA_PB-1	25.0845	84.74	0.52
Water Quality	025yr096hr	DRA_PB-1	25.1678	84.74	0.52
Water Quality	025yr096hr	DRA_PB-1	25.2512	84.74	0.52
Water Quality	025yr096hr	DRA_PB-1	25.3345	84.73	0.52
Water Quality	025yr096hr	DRA_PB-1	25.4178	84.73	0.51
Water Quality	025yr096hr	DRA_PB-1	25.5012	84.73	0.51
Water Quality	025yr096hr	DRA_PB-1	25.5845	84.73	0.51
Water Quality	025yr096hr	DRA_PB-1	25.6678	84.72	0.51
Water Quality	025yr096hr	DRA_PB-1	25.7512	84.72	0.51
Water Quality	025yr096hr	DRA_PB-1	25.8345	84.72	0.51
Water Quality	025yr096hr	DRA_PB-1	25.9178	84.72	0.50
Water Quality	025yr096hr	DRA_PB-1	26.0012	84.71	0.50
Water Quality	025yr096hr	DRA_PB-1	26.0845	84.71	0.50
Water Quality	025yr096hr	DRA_PB-1	26.1678	84.71	0.50
Water Quality	025yr096hr	DRA_PB-1	26.2512	84.71	0.50
Water Quality	025yr096hr	DRA_PB-1	26.3345	84.70	0.50
Water Quality	025yr096hr	DRA_PB-1	26.4178	84.70	0.50
Water Quality	025yr096hr	DRA_PB-1	26.5012	84.70	0.49
Water Quality	025yr096hr	DRA_PB-1	26.5845	84.70	0.49
Water Quality	025yr096hr	DRA_PB-1	26.6678	84.70	0.49
Water Quality	025yr096hr	DRA_PB-1	26.7512	84.69	0.49
Water Quality	025yr096hr	DRA_PB-1	26.8345	84.69	0.49
Water Quality	025yr096hr	DRA_PB-1	26.9178	84.69	0.49
Water Quality	025yr096hr	DRA_PB-1	27.0012	84.69	0.49
Water Quality	025yr096hr	DRA_PB-1	27.0845	84.68	0.48
Water Quality	025yr096hr	DRA_PB-1	27.1678	84.68	0.48
Water Quality	025yr096hr	DRA_PB-1	27.2512	84.68	0.48
Water Quality	025yr096hr	DRA_PB-1	27.3345	84.68	0.48
Water Quality	025yr096hr	DRA_PB-1	27.4178	84.67	0.48
Water Quality	025yr096hr	DRA_PB-1	27.5012	84.67	0.48
Water Quality	025yr096hr	DRA_PB-1	27.5845	84.67	0.48
Water Quality	025yr096hr	DRA_PB-1	27.6678	84.67	0.48
Water Quality	025yr096hr	DRA_PB-1	27.7512	84.66	0.47
Water Quality	025yr096hr	DRA_PB-1	27.8345	84.66	0.47
Water Quality	025yr096hr	DRA_PB-1	27.9178	84.66	0.47

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	28.0012	84.66	0.47
Water Quality	025yr096hr	DRA_PB-1	28.0845	84.65	0.47
Water Quality	025yr096hr	DRA_PB-1	28.1678	84.65	0.47
Water Quality	025yr096hr	DRA_PB-1	28.2512	84.65	0.47
Water Quality	025yr096hr	DRA_PB-1	28.3345	84.65	0.46
Water Quality	025yr096hr	DRA_PB-1	28.4178	84.65	0.46
Water Quality	025yr096hr	DRA_PB-1	28.5012	84.64	0.46
Water Quality	025yr096hr	DRA_PB-1	28.5845	84.64	0.46
Water Quality	025yr096hr	DRA_PB-1	28.6678	84.64	0.46
Water Quality	025yr096hr	DRA_PB-1	28.7512	84.64	0.46
Water Quality	025yr096hr	DRA_PB-1	28.8345	84.63	0.46
Water Quality	025yr096hr	DRA_PB-1	28.9178	84.63	0.46
Water Quality	025yr096hr	DRA_PB-1	29.0012	84.63	0.45
Water Quality	025yr096hr	DRA_PB-1	29.0845	84.63	0.45
Water Quality	025yr096hr	DRA_PB-1	29.1678	84.62	0.45
Water Quality	025yr096hr	DRA_PB-1	29.2512	84.62	0.45
Water Quality	025yr096hr	DRA_PB-1	29.3345	84.62	0.45
Water Quality	025yr096hr	DRA_PB-1	29.4178	84.62	0.45
Water Quality	025yr096hr	DRA_PB-1	29.5012	84.62	0.45
Water Quality	025yr096hr	DRA_PB-1	29.5845	84.61	0.45
Water Quality	025yr096hr	DRA_PB-1	29.6678	84.61	0.45
Water Quality	025yr096hr	DRA_PB-1	29.7512	84.61	0.44
Water Quality	025yr096hr	DRA_PB-1	29.8345	84.61	0.44
Water Quality	025yr096hr	DRA_PB-1	29.9178	84.60	0.44
Water Quality	025yr096hr	DRA_PB-1	30.0012	84.60	0.44
Water Quality	025yr096hr	DRA_PB-1	30.0845	84.60	0.44
Water Quality	025yr096hr	DRA_PB-1	30.1678	84.60	0.44
Water Quality	025yr096hr	DRA_PB-1	30.2512	84.60	0.44
Water Quality	025yr096hr	DRA_PB-1	30.3345	84.59	0.44
Water Quality	025yr096hr	DRA_PB-1	30.4178	84.59	0.43
Water Quality	025yr096hr	DRA_PB-1	30.5012	84.59	0.43
Water Quality	025yr096hr	DRA_PB-1	30.5845	84.59	0.43
Water Quality	025yr096hr	DRA_PB-1	30.6678	84.58	0.43
Water Quality	025yr096hr	DRA_PB-1	30.7512	84.58	0.43
Water Quality	025yr096hr	DRA_PB-1	30.8345	84.58	0.43
Water Quality	025yr096hr	DRA_PB-1	30.9178	84.58	0.43
Water Quality	025yr096hr	DRA_PB-1	31.0012	84.58	0.43
Water Quality	025yr096hr	DRA_PB-1	31.0845	84.57	0.43
Water Quality	025yr096hr	DRA_PB-1	31.1678	84.57	0.42
Water Quality	025yr096hr	DRA_PB-1	31.2512	84.57	0.42
Water Quality	025yr096hr	DRA_PB-1	31.3345	84.57	0.42
Water Quality	025yr096hr	DRA_PB-1	31.4178	84.57	0.42

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	31.5012	84.56	0.42
Water Quality	025yr096hr	DRA_PB-1	31.5845	84.56	0.42
Water Quality	025yr096hr	DRA_PB-1	31.6678	84.56	0.42
Water Quality	025yr096hr	DRA_PB-1	31.7512	84.56	0.42
Water Quality	025yr096hr	DRA_PB-1	31.8345	84.55	0.42
Water Quality	025yr096hr	DRA_PB-1	31.9178	84.55	0.42
Water Quality	025yr096hr	DRA_PB-1	32.0012	84.55	0.41
Water Quality	025yr096hr	DRA_PB-1	32.0845	84.55	0.41
Water Quality	025yr096hr	DRA_PB-1	32.1678	84.55	0.41
Water Quality	025yr096hr	DRA_PB-1	32.2512	84.54	0.41
Water Quality	025yr096hr	DRA_PB-1	32.3345	84.54	0.41
Water Quality	025yr096hr	DRA_PB-1	32.4178	84.54	0.41
Water Quality	025yr096hr	DRA_PB-1	32.5012	84.54	0.41
Water Quality	025yr096hr	DRA_PB-1	32.5845	84.54	0.41
Water Quality	025yr096hr	DRA_PB-1	32.6678	84.53	0.41
Water Quality	025yr096hr	DRA_PB-1	32.7512	84.53	0.40
Water Quality	025yr096hr	DRA_PB-1	32.8345	84.53	0.40
Water Quality	025yr096hr	DRA_PB-1	32.9178	84.53	0.40
Water Quality	025yr096hr	DRA_PB-1	33.0012	84.53	0.40
Water Quality	025yr096hr	DRA_PB-1	33.0845	84.52	0.40
Water Quality	025yr096hr	DRA_PB-1	33.1678	84.52	0.40
Water Quality	025yr096hr	DRA_PB-1	33.2512	84.52	0.40
Water Quality	025yr096hr	DRA_PB-1	33.3345	84.52	0.40
Water Quality	025yr096hr	DRA_PB-1	33.4178	84.52	0.40
Water Quality	025yr096hr	DRA_PB-1	33.5012	84.51	0.40
Water Quality	025yr096hr	DRA_PB-1	33.5845	84.51	0.39
Water Quality	025yr096hr	DRA_PB-1	33.6678	84.51	0.39
Water Quality	025yr096hr	DRA_PB-1	33.7512	84.51	0.39
Water Quality	025yr096hr	DRA_PB-1	33.8345	84.50	0.39
Water Quality	025yr096hr	DRA_PB-1	33.9178	84.50	0.39
Water Quality	025yr096hr	DRA_PB-1	34.0012	84.50	0.39
Water Quality	025yr096hr	DRA_PB-1	34.0845	84.50	0.39
Water Quality	025yr096hr	DRA_PB-1	34.1678	84.50	0.39
Water Quality	025yr096hr	DRA_PB-1	34.2512	84.49	0.39
Water Quality	025yr096hr	DRA_PB-1	34.3345	84.49	0.39
Water Quality	025yr096hr	DRA_PB-1	34.4178	84.49	0.39
Water Quality	025yr096hr	DRA_PB-1	34.5012	84.49	0.38
Water Quality	025yr096hr	DRA_PB-1	34.5845	84.49	0.38
Water Quality	025yr096hr	DRA_PB-1	34.6678	84.48	0.38
Water Quality	025yr096hr	DRA_PB-1	34.7512	84.48	0.38
Water Quality	025yr096hr	DRA_PB-1	34.8345	84.48	0.38
Water Quality	025yr096hr	DRA_PB-1	34.9178	84.48	0.38

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	35.0012	84.48	0.38
Water Quality	025yr096hr	DRA_PB-1	35.0845	84.48	0.38
Water Quality	025yr096hr	DRA_PB-1	35.1678	84.47	0.38
Water Quality	025yr096hr	DRA_PB-1	35.2512	84.47	0.38
Water Quality	025yr096hr	DRA_PB-1	35.3345	84.47	0.38
Water Quality	025yr096hr	DRA_PB-1	35.4178	84.47	0.37
Water Quality	025yr096hr	DRA_PB-1	35.5012	84.47	0.37
Water Quality	025yr096hr	DRA_PB-1	35.5845	84.46	0.37
Water Quality	025yr096hr	DRA_PB-1	35.6678	84.46	0.37
Water Quality	025yr096hr	DRA_PB-1	35.7512	84.46	0.37
Water Quality	025yr096hr	DRA_PB-1	35.8345	84.46	0.37
Water Quality	025yr096hr	DRA_PB-1	35.9178	84.46	0.37
Water Quality	025yr096hr	DRA_PB-1	36.0012	84.45	0.37
Water Quality	025yr096hr	DRA_PB-1	36.0845	84.45	0.37
Water Quality	025yr096hr	DRA_PB-1	36.1678	84.45	0.37
Water Quality	025yr096hr	DRA_PB-1	36.2512	84.45	0.37
Water Quality	025yr096hr	DRA_PB-1	36.3345	84.45	0.37
Water Quality	025yr096hr	DRA_PB-1	36.4178	84.44	0.36
Water Quality	025yr096hr	DRA_PB-1	36.5012	84.44	0.36
Water Quality	025yr096hr	DRA_PB-1	36.5845	84.44	0.36
Water Quality	025yr096hr	DRA_PB-1	36.6678	84.44	0.36
Water Quality	025yr096hr	DRA_PB-1	36.7512	84.44	0.36
Water Quality	025yr096hr	DRA_PB-1	36.8345	84.43	0.36
Water Quality	025yr096hr	DRA_PB-1	36.9178	84.43	0.36
Water Quality	025yr096hr	DRA_PB-1	37.0012	84.43	0.36
Water Quality	025yr096hr	DRA_PB-1	37.0845	84.43	0.36
Water Quality	025yr096hr	DRA_PB-1	37.1678	84.43	0.36
Water Quality	025yr096hr	DRA_PB-1	37.2512	84.43	0.36
Water Quality	025yr096hr	DRA_PB-1	37.3345	84.42	0.36
Water Quality	025yr096hr	DRA_PB-1	37.4178	84.42	0.35
Water Quality	025yr096hr	DRA_PB-1	37.5012	84.42	0.35
Water Quality	025yr096hr	DRA_PB-1	37.5845	84.42	0.35
Water Quality	025yr096hr	DRA_PB-1	37.6678	84.42	0.35
Water Quality	025yr096hr	DRA_PB-1	37.7512	84.41	0.35
Water Quality	025yr096hr	DRA_PB-1	37.8345	84.41	0.35
Water Quality	025yr096hr	DRA_PB-1	37.9178	84.41	0.35
Water Quality	025yr096hr	DRA_PB-1	38.0012	84.41	0.35
Water Quality	025yr096hr	DRA_PB-1	38.0845	84.41	0.35
Water Quality	025yr096hr	DRA_PB-1	38.1678	84.41	0.35
Water Quality	025yr096hr	DRA_PB-1	38.2512	84.40	0.35
Water Quality	025yr096hr	DRA_PB-1	38.3345	84.40	0.35
Water Quality	025yr096hr	DRA_PB-1	38.4178	84.40	0.35

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	38.5012	84.40	0.34
Water Quality	025yr096hr	DRA_PB-1	38.5845	84.40	0.34
Water Quality	025yr096hr	DRA_PB-1	38.6678	84.39	0.34
Water Quality	025yr096hr	DRA_PB-1	38.7512	84.39	0.34
Water Quality	025yr096hr	DRA_PB-1	38.8345	84.39	0.34
Water Quality	025yr096hr	DRA_PB-1	38.9178	84.39	0.34
Water Quality	025yr096hr	DRA_PB-1	39.0012	84.39	0.34
Water Quality	025yr096hr	DRA_PB-1	39.0845	84.39	0.34
Water Quality	025yr096hr	DRA_PB-1	39.1678	84.38	0.34
Water Quality	025yr096hr	DRA_PB-1	39.2512	84.38	0.34
Water Quality	025yr096hr	DRA_PB-1	39.3345	84.38	0.34
Water Quality	025yr096hr	DRA_PB-1	39.4178	84.38	0.34
Water Quality	025yr096hr	DRA_PB-1	39.5012	84.38	0.34
Water Quality	025yr096hr	DRA_PB-1	39.5845	84.37	0.34
Water Quality	025yr096hr	DRA_PB-1	39.6678	84.37	0.33
Water Quality	025yr096hr	DRA_PB-1	39.7512	84.37	0.33
Water Quality	025yr096hr	DRA_PB-1	39.8345	84.37	0.33
Water Quality	025yr096hr	DRA_PB-1	39.9178	84.37	0.33
Water Quality	025yr096hr	DRA_PB-1	40.0012	84.37	0.33
Water Quality	025yr096hr	DRA_PB-1	40.0845	84.36	0.33
Water Quality	025yr096hr	DRA_PB-1	40.1678	84.36	0.33
Water Quality	025yr096hr	DRA_PB-1	40.2512	84.36	0.33
Water Quality	025yr096hr	DRA_PB-1	40.3345	84.36	0.33
Water Quality	025yr096hr	DRA_PB-1	40.4178	84.36	0.33
Water Quality	025yr096hr	DRA_PB-1	40.5012	84.36	0.33
Water Quality	025yr096hr	DRA_PB-1	40.5845	84.35	0.33
Water Quality	025yr096hr	DRA_PB-1	40.6678	84.35	0.33
Water Quality	025yr096hr	DRA_PB-1	40.7512	84.35	0.33
Water Quality	025yr096hr	DRA_PB-1	40.8345	84.35	0.32
Water Quality	025yr096hr	DRA_PB-1	40.9178	84.35	0.32
Water Quality	025yr096hr	DRA_PB-1	41.0012	84.34	0.32
Water Quality	025yr096hr	DRA_PB-1	41.0845	84.34	0.32
Water Quality	025yr096hr	DRA_PB-1	41.1678	84.34	0.32
Water Quality	025yr096hr	DRA_PB-1	41.2512	84.34	0.32
Water Quality	025yr096hr	DRA_PB-1	41.3345	84.34	0.32
Water Quality	025yr096hr	DRA_PB-1	41.4178	84.34	0.32
Water Quality	025yr096hr	DRA_PB-1	41.5012	84.33	0.32
Water Quality	025yr096hr	DRA_PB-1	41.5845	84.33	0.32
Water Quality	025yr096hr	DRA_PB-1	41.6678	84.33	0.32
Water Quality	025yr096hr	DRA_PB-1	41.7512	84.33	0.32
Water Quality	025yr096hr	DRA_PB-1	41.8345	84.33	0.32
Water Quality	025yr096hr	DRA_PB-1	41.9178	84.33	0.32

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	42.0012	84.32	0.32
Water Quality	025yr096hr	DRA_PB-1	42.0845	84.32	0.32
Water Quality	025yr096hr	DRA_PB-1	42.1678	84.32	0.31
Water Quality	025yr096hr	DRA_PB-1	42.2512	84.32	0.31
Water Quality	025yr096hr	DRA_PB-1	42.3345	84.32	0.31
Water Quality	025yr096hr	DRA_PB-1	42.4178	84.32	0.31
Water Quality	025yr096hr	DRA_PB-1	42.5012	84.31	0.31
Water Quality	025yr096hr	DRA_PB-1	42.5845	84.31	0.31
Water Quality	025yr096hr	DRA_PB-1	42.6678	84.31	0.31
Water Quality	025yr096hr	DRA_PB-1	42.7512	84.31	0.31
Water Quality	025yr096hr	DRA_PB-1	42.8345	84.31	0.31
Water Quality	025yr096hr	DRA_PB-1	42.9178	84.31	0.31
Water Quality	025yr096hr	DRA_PB-1	43.0012	84.30	0.31
Water Quality	025yr096hr	DRA_PB-1	43.0845	84.30	0.31
Water Quality	025yr096hr	DRA_PB-1	43.1678	84.30	0.31
Water Quality	025yr096hr	DRA_PB-1	43.2512	84.30	0.31
Water Quality	025yr096hr	DRA_PB-1	43.3345	84.30	0.31
Water Quality	025yr096hr	DRA_PB-1	43.4178	84.30	0.31
Water Quality	025yr096hr	DRA_PB-1	43.5012	84.29	0.30
Water Quality	025yr096hr	DRA_PB-1	43.5845	84.29	0.30
Water Quality	025yr096hr	DRA_PB-1	43.6678	84.29	0.30
Water Quality	025yr096hr	DRA_PB-1	43.7512	84.29	0.30
Water Quality	025yr096hr	DRA_PB-1	43.8345	84.29	0.30
Water Quality	025yr096hr	DRA_PB-1	43.9178	84.29	0.30
Water Quality	025yr096hr	DRA_PB-1	44.0012	84.28	0.30
Water Quality	025yr096hr	DRA_PB-1	44.0845	84.28	0.30
Water Quality	025yr096hr	DRA_PB-1	44.1678	84.28	0.30
Water Quality	025yr096hr	DRA_PB-1	44.2512	84.28	0.30
Water Quality	025yr096hr	DRA_PB-1	44.3345	84.28	0.30
Water Quality	025yr096hr	DRA_PB-1	44.4178	84.28	0.30
Water Quality	025yr096hr	DRA_PB-1	44.5012	84.27	0.30
Water Quality	025yr096hr	DRA_PB-1	44.5845	84.27	0.30
Water Quality	025yr096hr	DRA_PB-1	44.6678	84.27	0.30
Water Quality	025yr096hr	DRA_PB-1	44.7512	84.27	0.30
Water Quality	025yr096hr	DRA_PB-1	44.8345	84.27	0.30
Water Quality	025yr096hr	DRA_PB-1	44.9178	84.27	0.29
Water Quality	025yr096hr	DRA_PB-1	45.0012	84.27	0.29
Water Quality	025yr096hr	DRA_PB-1	45.0845	84.26	0.29
Water Quality	025yr096hr	DRA_PB-1	45.1678	84.26	0.29
Water Quality	025yr096hr	DRA_PB-1	45.2512	84.26	0.29
Water Quality	025yr096hr	DRA_PB-1	45.3345	84.26	0.29
Water Quality	025yr096hr	DRA_PB-1	45.4178	84.26	0.29

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	45.5012	84.26	0.29
Water Quality	025yr096hr	DRA_PB-1	45.5845	84.25	0.29
Water Quality	025yr096hr	DRA_PB-1	45.6678	84.25	0.29
Water Quality	025yr096hr	DRA_PB-1	45.7512	84.25	0.29
Water Quality	025yr096hr	DRA_PB-1	45.8345	84.25	0.29
Water Quality	025yr096hr	DRA_PB-1	45.9178	84.25	0.29
Water Quality	025yr096hr	DRA_PB-1	46.0012	84.25	0.29
Water Quality	025yr096hr	DRA_PB-1	46.0845	84.24	0.29
Water Quality	025yr096hr	DRA_PB-1	46.1678	84.24	0.29
Water Quality	025yr096hr	DRA_PB-1	46.2512	84.24	0.29
Water Quality	025yr096hr	DRA_PB-1	46.3345	84.24	0.29
Water Quality	025yr096hr	DRA_PB-1	46.4178	84.24	0.29
Water Quality	025yr096hr	DRA_PB-1	46.5012	84.24	0.28
Water Quality	025yr096hr	DRA_PB-1	46.5845	84.24	0.28
Water Quality	025yr096hr	DRA_PB-1	46.6678	84.23	0.28
Water Quality	025yr096hr	DRA_PB-1	46.7512	84.23	0.28
Water Quality	025yr096hr	DRA_PB-1	46.8345	84.23	0.28
Water Quality	025yr096hr	DRA_PB-1	46.9178	84.23	0.28
Water Quality	025yr096hr	DRA_PB-1	47.0012	84.23	0.28
Water Quality	025yr096hr	DRA_PB-1	47.0845	84.23	0.28
Water Quality	025yr096hr	DRA_PB-1	47.1678	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.2512	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.3345	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.4178	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.5012	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.5845	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.6678	84.22	0.28
Water Quality	025yr096hr	DRA_PB-1	47.7512	84.21	0.28
Water Quality	025yr096hr	DRA_PB-1	47.8345	84.21	0.28
Water Quality	025yr096hr	DRA_PB-1	47.9178	84.21	0.28
Water Quality	025yr096hr	DRA_PB-1	48.0012	84.21	0.28
Water Quality	025yr096hr	DRA_PB-1	48.0845	84.21	0.27
Water Quality	025yr096hr	DRA_PB-1	48.1678	84.21	0.27
Water Quality	025yr096hr	DRA_PB-1	48.2512	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.3345	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.4178	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.5012	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.5845	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.6678	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.7512	84.20	0.27
Water Quality	025yr096hr	DRA_PB-1	48.8345	84.19	0.27
Water Quality	025yr096hr	DRA_PB-1	48.9178	84.19	0.27

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	49.0012	84.19	0.27
Water Quality	025yr096hr	DRA_PB-1	49.0845	84.19	0.27
Water Quality	025yr096hr	DRA_PB-1	49.1678	84.19	0.27
Water Quality	025yr096hr	DRA_PB-1	49.2512	84.19	0.27
Water Quality	025yr096hr	DRA_PB-1	49.3345	84.19	0.27
Water Quality	025yr096hr	DRA_PB-1	49.4178	84.18	0.27
Water Quality	025yr096hr	DRA_PB-1	49.5012	84.18	0.27
Water Quality	025yr096hr	DRA_PB-1	49.5845	84.18	0.27
Water Quality	025yr096hr	DRA_PB-1	49.6678	84.18	0.27
Water Quality	025yr096hr	DRA_PB-1	49.7512	84.18	0.27
Water Quality	025yr096hr	DRA_PB-1	49.8345	84.18	0.27
Water Quality	025yr096hr	DRA_PB-1	49.9178	84.18	0.26
Water Quality	025yr096hr	DRA_PB-1	50.0012	84.17	0.26
Water Quality	025yr096hr	DRA_PB-1	50.0845	84.17	0.26
Water Quality	025yr096hr	DRA_PB-1	50.1678	84.17	0.26
Water Quality	025yr096hr	DRA_PB-1	50.2512	84.17	0.26
Water Quality	025yr096hr	DRA_PB-1	50.3345	84.17	0.26
Water Quality	025yr096hr	DRA_PB-1	50.4178	84.17	0.26
Water Quality	025yr096hr	DRA_PB-1	50.5012	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	50.5845	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	50.6678	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	50.7512	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	50.8345	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	50.9178	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	51.0012	84.16	0.26
Water Quality	025yr096hr	DRA_PB-1	51.0845	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.1678	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.2512	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.3345	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.4178	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.5012	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.5845	84.15	0.26
Water Quality	025yr096hr	DRA_PB-1	51.6678	84.14	0.26
Water Quality	025yr096hr	DRA_PB-1	51.7512	84.14	0.26
Water Quality	025yr096hr	DRA_PB-1	51.8345	84.14	0.25
Water Quality	025yr096hr	DRA_PB-1	51.9178	84.14	0.25
Water Quality	025yr096hr	DRA_PB-1	52.0012	84.14	0.25
Water Quality	025yr096hr	DRA_PB-1	52.0845	84.14	0.25
Water Quality	025yr096hr	DRA_PB-1	52.1678	84.14	0.25
Water Quality	025yr096hr	DRA_PB-1	52.2512	84.13	0.25
Water Quality	025yr096hr	DRA_PB-1	52.3345	84.13	0.25
Water Quality	025yr096hr	DRA_PB-1	52.4178	84.13	0.25

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	52.5012	84.13	0.25
Water Quality	025yr096hr	DRA_PB-1	52.5845	84.13	0.25
Water Quality	025yr096hr	DRA_PB-1	52.6678	84.13	0.25
Water Quality	025yr096hr	DRA_PB-1	52.7512	84.13	0.25
Water Quality	025yr096hr	DRA_PB-1	52.8345	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	52.9178	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.0012	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.0845	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.1678	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.2512	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.3345	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.4178	84.12	0.25
Water Quality	025yr096hr	DRA_PB-1	53.5012	84.11	0.25
Water Quality	025yr096hr	DRA_PB-1	53.5845	84.11	0.25
Water Quality	025yr096hr	DRA_PB-1	53.6678	84.11	0.25
Water Quality	025yr096hr	DRA_PB-1	53.7512	84.11	0.25
Water Quality	025yr096hr	DRA_PB-1	53.8345	84.11	0.25
Water Quality	025yr096hr	DRA_PB-1	53.9178	84.11	0.24
Water Quality	025yr096hr	DRA_PB-1	54.0012	84.11	0.24
Water Quality	025yr096hr	DRA_PB-1	54.0845	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.1678	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.2512	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.3345	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.4178	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.5012	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.5845	84.10	0.24
Water Quality	025yr096hr	DRA_PB-1	54.6678	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	54.7512	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	54.8345	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	54.9178	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	55.0012	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	55.0845	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	55.1678	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	55.2512	84.09	0.24
Water Quality	025yr096hr	DRA_PB-1	55.3345	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.4178	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.5012	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.5845	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.6678	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.7512	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.8345	84.08	0.24
Water Quality	025yr096hr	DRA_PB-1	55.9178	84.07	0.24

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	56.0012	84.07	0.24
Water Quality	025yr096hr	DRA_PB-1	56.0845	84.07	0.24
Water Quality	025yr096hr	DRA_PB-1	56.1678	84.07	0.24
Water Quality	025yr096hr	DRA_PB-1	56.2512	84.07	0.23
Water Quality	025yr096hr	DRA_PB-1	56.3345	84.07	0.23
Water Quality	025yr096hr	DRA_PB-1	56.4178	84.07	0.23
Water Quality	025yr096hr	DRA_PB-1	56.5012	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	56.5845	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	56.6678	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	56.7512	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	56.8345	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	56.9178	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	57.0012	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	57.0845	84.06	0.23
Water Quality	025yr096hr	DRA_PB-1	57.1678	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.2512	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.3345	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.4178	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.5012	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.5845	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.6678	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.7512	84.05	0.23
Water Quality	025yr096hr	DRA_PB-1	57.8345	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	57.9178	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	58.0012	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	58.0845	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	58.1678	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	58.2512	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	58.3345	84.04	0.23
Water Quality	025yr096hr	DRA_PB-1	58.4178	84.03	0.23
Water Quality	025yr096hr	DRA_PB-1	58.5012	84.03	0.23
Water Quality	025yr096hr	DRA_PB-1	58.5845	84.03	0.23
Water Quality	025yr096hr	DRA_PB-1	58.6678	84.03	0.23
Water Quality	025yr096hr	DRA_PB-1	58.7512	84.03	0.23
Water Quality	025yr096hr	DRA_PB-1	58.8345	84.03	0.22
Water Quality	025yr096hr	DRA_PB-1	58.9178	84.03	0.22
Water Quality	025yr096hr	DRA_PB-1	59.0012	84.03	0.22
Water Quality	025yr096hr	DRA_PB-1	59.0845	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.1678	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.2512	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.3345	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.4178	84.02	0.22

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	59.5012	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.5845	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.6678	84.02	0.22
Water Quality	025yr096hr	DRA_PB-1	59.7512	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	59.8345	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	59.9178	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	60.0012	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	60.0845	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	60.1678	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	60.2512	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	60.3345	84.01	0.22
Water Quality	025yr096hr	DRA_PB-1	60.4178	84.00	0.22
Water Quality	025yr096hr	DRA_PB-1	60.5012	84.00	0.22
Water Quality	025yr096hr	DRA_PB-1	60.5845	84.00	0.22
Water Quality	025yr096hr	DRA_PB-1	60.6678	84.00	0.22
Water Quality	025yr096hr	DRA_PB-1	60.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	60.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	60.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	61.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	62.9178	84.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	63.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	63.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	64.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	65.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.4178	84.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	66.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	66.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	67.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	68.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	69.9178	84.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-1	70.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	70.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	71.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	72.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-1	73.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	0.0000	86.69	0.00
Water Quality	025yr096hr	DRA_PB-2	0.0834	86.67	1.47
Water Quality	025yr096hr	DRA_PB-2	0.1675	86.65	1.48
Water Quality	025yr096hr	DRA_PB-2	0.2511	86.63	1.48
Water Quality	025yr096hr	DRA_PB-2	0.3355	86.60	1.47

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	0.4193	86.58	1.47
Water Quality	025yr096hr	DRA_PB-2	0.5016	86.56	1.46
Water Quality	025yr096hr	DRA_PB-2	0.5847	86.54	1.46
Water Quality	025yr096hr	DRA_PB-2	0.6679	86.52	1.46
Water Quality	025yr096hr	DRA_PB-2	0.7523	86.50	1.45
Water Quality	025yr096hr	DRA_PB-2	0.8353	86.47	1.45
Water Quality	025yr096hr	DRA_PB-2	0.9192	86.45	1.44
Water Quality	025yr096hr	DRA_PB-2	1.0017	86.43	1.44
Water Quality	025yr096hr	DRA_PB-2	1.0833	86.41	1.44
Water Quality	025yr096hr	DRA_PB-2	1.1698	86.39	1.43
Water Quality	025yr096hr	DRA_PB-2	1.2525	86.37	1.43
Water Quality	025yr096hr	DRA_PB-2	1.3364	86.34	1.42
Water Quality	025yr096hr	DRA_PB-2	1.4185	86.32	1.42
Water Quality	025yr096hr	DRA_PB-2	1.5026	86.30	1.42
Water Quality	025yr096hr	DRA_PB-2	1.5841	86.28	1.41
Water Quality	025yr096hr	DRA_PB-2	1.6688	86.26	1.41
Water Quality	025yr096hr	DRA_PB-2	1.7512	86.24	1.40
Water Quality	025yr096hr	DRA_PB-2	1.8337	86.22	1.40
Water Quality	025yr096hr	DRA_PB-2	1.9170	86.19	1.33
Water Quality	025yr096hr	DRA_PB-2	2.0019	86.17	1.32
Water Quality	025yr096hr	DRA_PB-2	2.0855	86.15	1.30
Water Quality	025yr096hr	DRA_PB-2	2.1704	86.13	1.28
Water Quality	025yr096hr	DRA_PB-2	2.2524	86.11	1.27
Water Quality	025yr096hr	DRA_PB-2	2.3352	86.09	1.25
Water Quality	025yr096hr	DRA_PB-2	2.4188	86.07	1.24
Water Quality	025yr096hr	DRA_PB-2	2.5034	86.05	1.23
Water Quality	025yr096hr	DRA_PB-2	2.5855	86.04	1.15
Water Quality	025yr096hr	DRA_PB-2	2.6706	86.02	1.04
Water Quality	025yr096hr	DRA_PB-2	2.7509	86.00	0.97
Water Quality	025yr096hr	DRA_PB-2	2.8381	85.99	0.91
Water Quality	025yr096hr	DRA_PB-2	2.9196	85.97	0.87
Water Quality	025yr096hr	DRA_PB-2	3.0013	85.96	0.83
Water Quality	025yr096hr	DRA_PB-2	3.0894	85.95	0.80
Water Quality	025yr096hr	DRA_PB-2	3.1700	85.93	0.77
Water Quality	025yr096hr	DRA_PB-2	3.2540	85.92	0.74
Water Quality	025yr096hr	DRA_PB-2	3.3337	85.91	0.72
Water Quality	025yr096hr	DRA_PB-2	3.4178	85.90	0.70
Water Quality	025yr096hr	DRA_PB-2	3.5046	85.89	0.68
Water Quality	025yr096hr	DRA_PB-2	3.5870	85.88	0.66
Water Quality	025yr096hr	DRA_PB-2	3.6715	85.87	0.65
Water Quality	025yr096hr	DRA_PB-2	3.7521	85.86	0.63
Water Quality	025yr096hr	DRA_PB-2	3.8345	85.85	0.62

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	3.9178	85.84	0.60
Water Quality	025yr096hr	DRA_PB-2	4.0012	85.83	0.59
Water Quality	025yr096hr	DRA_PB-2	4.0845	85.82	0.58
Water Quality	025yr096hr	DRA_PB-2	4.1678	85.81	0.57
Water Quality	025yr096hr	DRA_PB-2	4.2512	85.80	0.56
Water Quality	025yr096hr	DRA_PB-2	4.3345	85.79	0.55
Water Quality	025yr096hr	DRA_PB-2	4.4178	85.78	0.54
Water Quality	025yr096hr	DRA_PB-2	4.5012	85.77	0.53
Water Quality	025yr096hr	DRA_PB-2	4.5845	85.76	0.52
Water Quality	025yr096hr	DRA_PB-2	4.6678	85.76	0.51
Water Quality	025yr096hr	DRA_PB-2	4.7512	85.75	0.50
Water Quality	025yr096hr	DRA_PB-2	4.8345	85.74	0.50
Water Quality	025yr096hr	DRA_PB-2	4.9178	85.73	0.49
Water Quality	025yr096hr	DRA_PB-2	5.0012	85.72	0.48
Water Quality	025yr096hr	DRA_PB-2	5.0845	85.72	0.47
Water Quality	025yr096hr	DRA_PB-2	5.1678	85.71	0.47
Water Quality	025yr096hr	DRA_PB-2	5.2512	85.70	0.46
Water Quality	025yr096hr	DRA_PB-2	5.3345	85.69	0.46
Water Quality	025yr096hr	DRA_PB-2	5.4178	85.68	0.45
Water Quality	025yr096hr	DRA_PB-2	5.5012	85.68	0.44
Water Quality	025yr096hr	DRA_PB-2	5.5845	85.67	0.44
Water Quality	025yr096hr	DRA_PB-2	5.6678	85.66	0.43
Water Quality	025yr096hr	DRA_PB-2	5.7512	85.66	0.43
Water Quality	025yr096hr	DRA_PB-2	5.8345	85.65	0.42
Water Quality	025yr096hr	DRA_PB-2	5.9178	85.64	0.42
Water Quality	025yr096hr	DRA_PB-2	6.0012	85.63	0.41
Water Quality	025yr096hr	DRA_PB-2	6.0845	85.63	0.41
Water Quality	025yr096hr	DRA_PB-2	6.1678	85.62	0.41
Water Quality	025yr096hr	DRA_PB-2	6.2512	85.61	0.40
Water Quality	025yr096hr	DRA_PB-2	6.3345	85.61	0.40
Water Quality	025yr096hr	DRA_PB-2	6.4178	85.60	0.39
Water Quality	025yr096hr	DRA_PB-2	6.5012	85.59	0.39
Water Quality	025yr096hr	DRA_PB-2	6.5845	85.59	0.38
Water Quality	025yr096hr	DRA_PB-2	6.6678	85.58	0.38
Water Quality	025yr096hr	DRA_PB-2	6.7512	85.58	0.38
Water Quality	025yr096hr	DRA_PB-2	6.8345	85.57	0.37
Water Quality	025yr096hr	DRA_PB-2	6.9178	85.56	0.37
Water Quality	025yr096hr	DRA_PB-2	7.0012	85.56	0.37
Water Quality	025yr096hr	DRA_PB-2	7.0845	85.55	0.36
Water Quality	025yr096hr	DRA_PB-2	7.1678	85.54	0.36
Water Quality	025yr096hr	DRA_PB-2	7.2512	85.54	0.36
Water Quality	025yr096hr	DRA_PB-2	7.3345	85.53	0.35

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	7.4178	85.53	0.35
Water Quality	025yr096hr	DRA_PB-2	7.5012	85.52	0.35
Water Quality	025yr096hr	DRA_PB-2	7.5845	85.52	0.35
Water Quality	025yr096hr	DRA_PB-2	7.6678	85.51	0.34
Water Quality	025yr096hr	DRA_PB-2	7.7512	85.50	0.34
Water Quality	025yr096hr	DRA_PB-2	7.8345	85.50	0.34
Water Quality	025yr096hr	DRA_PB-2	7.9178	85.49	0.33
Water Quality	025yr096hr	DRA_PB-2	8.0012	85.49	0.33
Water Quality	025yr096hr	DRA_PB-2	8.0845	85.48	0.33
Water Quality	025yr096hr	DRA_PB-2	8.1678	85.48	0.33
Water Quality	025yr096hr	DRA_PB-2	8.2512	85.47	0.32
Water Quality	025yr096hr	DRA_PB-2	8.3345	85.46	0.32
Water Quality	025yr096hr	DRA_PB-2	8.4178	85.46	0.32
Water Quality	025yr096hr	DRA_PB-2	8.5012	85.45	0.32
Water Quality	025yr096hr	DRA_PB-2	8.5845	85.45	0.31
Water Quality	025yr096hr	DRA_PB-2	8.6678	85.44	0.31
Water Quality	025yr096hr	DRA_PB-2	8.7512	85.44	0.31
Water Quality	025yr096hr	DRA_PB-2	8.8345	85.43	0.31
Water Quality	025yr096hr	DRA_PB-2	8.9178	85.43	0.31
Water Quality	025yr096hr	DRA_PB-2	9.0012	85.42	0.30
Water Quality	025yr096hr	DRA_PB-2	9.0845	85.42	0.30
Water Quality	025yr096hr	DRA_PB-2	9.1678	85.41	0.30
Water Quality	025yr096hr	DRA_PB-2	9.2512	85.41	0.30
Water Quality	025yr096hr	DRA_PB-2	9.3345	85.40	0.30
Water Quality	025yr096hr	DRA_PB-2	9.4178	85.40	0.29
Water Quality	025yr096hr	DRA_PB-2	9.5012	85.39	0.29
Water Quality	025yr096hr	DRA_PB-2	9.5845	85.39	0.29
Water Quality	025yr096hr	DRA_PB-2	9.6678	85.38	0.29
Water Quality	025yr096hr	DRA_PB-2	9.7512	85.38	0.29
Water Quality	025yr096hr	DRA_PB-2	9.8345	85.37	0.28
Water Quality	025yr096hr	DRA_PB-2	9.9178	85.37	0.28
Water Quality	025yr096hr	DRA_PB-2	10.0012	85.36	0.28
Water Quality	025yr096hr	DRA_PB-2	10.0845	85.36	0.28
Water Quality	025yr096hr	DRA_PB-2	10.1678	85.35	0.28
Water Quality	025yr096hr	DRA_PB-2	10.2512	85.35	0.28
Water Quality	025yr096hr	DRA_PB-2	10.3345	85.34	0.27
Water Quality	025yr096hr	DRA_PB-2	10.4178	85.34	0.27
Water Quality	025yr096hr	DRA_PB-2	10.5012	85.33	0.27
Water Quality	025yr096hr	DRA_PB-2	10.5845	85.33	0.27
Water Quality	025yr096hr	DRA_PB-2	10.6678	85.33	0.27
Water Quality	025yr096hr	DRA_PB-2	10.7512	85.32	0.27
Water Quality	025yr096hr	DRA_PB-2	10.8345	85.32	0.26

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	10.9178	85.31	0.26
Water Quality	025yr096hr	DRA_PB-2	11.0012	85.31	0.26
Water Quality	025yr096hr	DRA_PB-2	11.0845	85.30	0.26
Water Quality	025yr096hr	DRA_PB-2	11.1678	85.30	0.26
Water Quality	025yr096hr	DRA_PB-2	11.2512	85.29	0.26
Water Quality	025yr096hr	DRA_PB-2	11.3345	85.29	0.26
Water Quality	025yr096hr	DRA_PB-2	11.4178	85.28	0.25
Water Quality	025yr096hr	DRA_PB-2	11.5012	85.28	0.25
Water Quality	025yr096hr	DRA_PB-2	11.5845	85.28	0.25
Water Quality	025yr096hr	DRA_PB-2	11.6678	85.27	0.25
Water Quality	025yr096hr	DRA_PB-2	11.7512	85.27	0.25
Water Quality	025yr096hr	DRA_PB-2	11.8345	85.26	0.25
Water Quality	025yr096hr	DRA_PB-2	11.9178	85.26	0.25
Water Quality	025yr096hr	DRA_PB-2	12.0012	85.25	0.25
Water Quality	025yr096hr	DRA_PB-2	12.0845	85.25	0.24
Water Quality	025yr096hr	DRA_PB-2	12.1678	85.25	0.24
Water Quality	025yr096hr	DRA_PB-2	12.2512	85.24	0.24
Water Quality	025yr096hr	DRA_PB-2	12.3345	85.24	0.24
Water Quality	025yr096hr	DRA_PB-2	12.4178	85.23	0.24
Water Quality	025yr096hr	DRA_PB-2	12.5012	85.23	0.24
Water Quality	025yr096hr	DRA_PB-2	12.5845	85.22	0.24
Water Quality	025yr096hr	DRA_PB-2	12.6678	85.22	0.24
Water Quality	025yr096hr	DRA_PB-2	12.7512	85.22	0.24
Water Quality	025yr096hr	DRA_PB-2	12.8345	85.21	0.23
Water Quality	025yr096hr	DRA_PB-2	12.9178	85.21	0.23
Water Quality	025yr096hr	DRA_PB-2	13.0012	85.20	0.23
Water Quality	025yr096hr	DRA_PB-2	13.0845	85.20	0.23
Water Quality	025yr096hr	DRA_PB-2	13.1678	85.20	0.23
Water Quality	025yr096hr	DRA_PB-2	13.2512	85.19	0.23
Water Quality	025yr096hr	DRA_PB-2	13.3345	85.19	0.23
Water Quality	025yr096hr	DRA_PB-2	13.4178	85.18	0.23
Water Quality	025yr096hr	DRA_PB-2	13.5012	85.18	0.23
Water Quality	025yr096hr	DRA_PB-2	13.5845	85.18	0.22
Water Quality	025yr096hr	DRA_PB-2	13.6678	85.17	0.22
Water Quality	025yr096hr	DRA_PB-2	13.7512	85.17	0.22
Water Quality	025yr096hr	DRA_PB-2	13.8345	85.16	0.22
Water Quality	025yr096hr	DRA_PB-2	13.9178	85.16	0.22
Water Quality	025yr096hr	DRA_PB-2	14.0012	85.16	0.22
Water Quality	025yr096hr	DRA_PB-2	14.0845	85.15	0.22
Water Quality	025yr096hr	DRA_PB-2	14.1678	85.15	0.22
Water Quality	025yr096hr	DRA_PB-2	14.2512	85.15	0.22
Water Quality	025yr096hr	DRA_PB-2	14.3345	85.14	0.22

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	14.4178	85.14	0.21
Water Quality	025yr096hr	DRA_PB-2	14.5012	85.13	0.21
Water Quality	025yr096hr	DRA_PB-2	14.5845	85.13	0.21
Water Quality	025yr096hr	DRA_PB-2	14.6678	85.13	0.21
Water Quality	025yr096hr	DRA_PB-2	14.7512	85.12	0.21
Water Quality	025yr096hr	DRA_PB-2	14.8345	85.12	0.21
Water Quality	025yr096hr	DRA_PB-2	14.9178	85.12	0.21
Water Quality	025yr096hr	DRA_PB-2	15.0012	85.11	0.21
Water Quality	025yr096hr	DRA_PB-2	15.0845	85.11	0.21
Water Quality	025yr096hr	DRA_PB-2	15.1678	85.10	0.21
Water Quality	025yr096hr	DRA_PB-2	15.2512	85.10	0.21
Water Quality	025yr096hr	DRA_PB-2	15.3345	85.10	0.20
Water Quality	025yr096hr	DRA_PB-2	15.4178	85.09	0.20
Water Quality	025yr096hr	DRA_PB-2	15.5012	85.09	0.20
Water Quality	025yr096hr	DRA_PB-2	15.5845	85.09	0.20
Water Quality	025yr096hr	DRA_PB-2	15.6678	85.08	0.20
Water Quality	025yr096hr	DRA_PB-2	15.7512	85.08	0.20
Water Quality	025yr096hr	DRA_PB-2	15.8345	85.08	0.20
Water Quality	025yr096hr	DRA_PB-2	15.9178	85.07	0.20
Water Quality	025yr096hr	DRA_PB-2	16.0012	85.07	0.20
Water Quality	025yr096hr	DRA_PB-2	16.0845	85.07	0.20
Water Quality	025yr096hr	DRA_PB-2	16.1678	85.06	0.20
Water Quality	025yr096hr	DRA_PB-2	16.2512	85.06	0.20
Water Quality	025yr096hr	DRA_PB-2	16.3345	85.05	0.20
Water Quality	025yr096hr	DRA_PB-2	16.4178	85.05	0.19
Water Quality	025yr096hr	DRA_PB-2	16.5012	85.05	0.19
Water Quality	025yr096hr	DRA_PB-2	16.5845	85.04	0.19
Water Quality	025yr096hr	DRA_PB-2	16.6678	85.04	0.19
Water Quality	025yr096hr	DRA_PB-2	16.7512	85.04	0.19
Water Quality	025yr096hr	DRA_PB-2	16.8345	85.03	0.19
Water Quality	025yr096hr	DRA_PB-2	16.9178	85.03	0.19
Water Quality	025yr096hr	DRA_PB-2	17.0012	85.03	0.19
Water Quality	025yr096hr	DRA_PB-2	17.0845	85.02	0.19
Water Quality	025yr096hr	DRA_PB-2	17.1678	85.02	0.19
Water Quality	025yr096hr	DRA_PB-2	17.2512	85.02	0.19
Water Quality	025yr096hr	DRA_PB-2	17.3345	85.01	0.19
Water Quality	025yr096hr	DRA_PB-2	17.4178	85.01	0.19
Water Quality	025yr096hr	DRA_PB-2	17.5012	85.01	0.18
Water Quality	025yr096hr	DRA_PB-2	17.5845	85.00	0.18
Water Quality	025yr096hr	DRA_PB-2	17.6678	85.00	0.18
Water Quality	025yr096hr	DRA_PB-2	17.7512	85.00	0.18
Water Quality	025yr096hr	DRA_PB-2	17.8345	84.99	0.18

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	17.9178	84.99	0.18
Water Quality	025yr096hr	DRA_PB-2	18.0012	84.99	0.18
Water Quality	025yr096hr	DRA_PB-2	18.0845	84.98	0.18
Water Quality	025yr096hr	DRA_PB-2	18.1678	84.98	0.18
Water Quality	025yr096hr	DRA_PB-2	18.2512	84.98	0.18
Water Quality	025yr096hr	DRA_PB-2	18.3345	84.97	0.18
Water Quality	025yr096hr	DRA_PB-2	18.4178	84.97	0.18
Water Quality	025yr096hr	DRA_PB-2	18.5012	84.97	0.18
Water Quality	025yr096hr	DRA_PB-2	18.5845	84.97	0.18
Water Quality	025yr096hr	DRA_PB-2	18.6678	84.96	0.18
Water Quality	025yr096hr	DRA_PB-2	18.7512	84.96	0.18
Water Quality	025yr096hr	DRA_PB-2	18.8345	84.96	0.17
Water Quality	025yr096hr	DRA_PB-2	18.9178	84.95	0.17
Water Quality	025yr096hr	DRA_PB-2	19.0012	84.95	0.17
Water Quality	025yr096hr	DRA_PB-2	19.0845	84.95	0.17
Water Quality	025yr096hr	DRA_PB-2	19.1678	84.94	0.17
Water Quality	025yr096hr	DRA_PB-2	19.2512	84.94	0.17
Water Quality	025yr096hr	DRA_PB-2	19.3345	84.94	0.17
Water Quality	025yr096hr	DRA_PB-2	19.4178	84.93	0.17
Water Quality	025yr096hr	DRA_PB-2	19.5012	84.93	0.17
Water Quality	025yr096hr	DRA_PB-2	19.5845	84.93	0.17
Water Quality	025yr096hr	DRA_PB-2	19.6678	84.92	0.17
Water Quality	025yr096hr	DRA_PB-2	19.7512	84.92	0.17
Water Quality	025yr096hr	DRA_PB-2	19.8345	84.92	0.17
Water Quality	025yr096hr	DRA_PB-2	19.9178	84.92	0.17
Water Quality	025yr096hr	DRA_PB-2	20.0012	84.91	0.17
Water Quality	025yr096hr	DRA_PB-2	20.0845	84.91	0.17
Water Quality	025yr096hr	DRA_PB-2	20.1678	84.91	0.17
Water Quality	025yr096hr	DRA_PB-2	20.2512	84.90	0.16
Water Quality	025yr096hr	DRA_PB-2	20.3345	84.90	0.16
Water Quality	025yr096hr	DRA_PB-2	20.4178	84.90	0.16
Water Quality	025yr096hr	DRA_PB-2	20.5012	84.89	0.16
Water Quality	025yr096hr	DRA_PB-2	20.5845	84.89	0.16
Water Quality	025yr096hr	DRA_PB-2	20.6678	84.89	0.16
Water Quality	025yr096hr	DRA_PB-2	20.7512	84.89	0.16
Water Quality	025yr096hr	DRA_PB-2	20.8345	84.88	0.16
Water Quality	025yr096hr	DRA_PB-2	20.9178	84.88	0.16
Water Quality	025yr096hr	DRA_PB-2	21.0012	84.88	0.16
Water Quality	025yr096hr	DRA_PB-2	21.0845	84.87	0.16
Water Quality	025yr096hr	DRA_PB-2	21.1678	84.87	0.16
Water Quality	025yr096hr	DRA_PB-2	21.2512	84.87	0.16
Water Quality	025yr096hr	DRA_PB-2	21.3345	84.87	0.16

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	21.4178	84.86	0.16
Water Quality	025yr096hr	DRA_PB-2	21.5012	84.86	0.16
Water Quality	025yr096hr	DRA_PB-2	21.5845	84.86	0.16
Water Quality	025yr096hr	DRA_PB-2	21.6678	84.85	0.16
Water Quality	025yr096hr	DRA_PB-2	21.7512	84.85	0.16
Water Quality	025yr096hr	DRA_PB-2	21.8345	84.85	0.15
Water Quality	025yr096hr	DRA_PB-2	21.9178	84.85	0.15
Water Quality	025yr096hr	DRA_PB-2	22.0012	84.84	0.15
Water Quality	025yr096hr	DRA_PB-2	22.0845	84.84	0.15
Water Quality	025yr096hr	DRA_PB-2	22.1678	84.84	0.15
Water Quality	025yr096hr	DRA_PB-2	22.2512	84.83	0.15
Water Quality	025yr096hr	DRA_PB-2	22.3345	84.83	0.15
Water Quality	025yr096hr	DRA_PB-2	22.4178	84.83	0.15
Water Quality	025yr096hr	DRA_PB-2	22.5012	84.83	0.15
Water Quality	025yr096hr	DRA_PB-2	22.5845	84.82	0.15
Water Quality	025yr096hr	DRA_PB-2	22.6678	84.82	0.15
Water Quality	025yr096hr	DRA_PB-2	22.7512	84.82	0.15
Water Quality	025yr096hr	DRA_PB-2	22.8345	84.81	0.15
Water Quality	025yr096hr	DRA_PB-2	22.9178	84.81	0.15
Water Quality	025yr096hr	DRA_PB-2	23.0012	84.81	0.15
Water Quality	025yr096hr	DRA_PB-2	23.0845	84.81	0.15
Water Quality	025yr096hr	DRA_PB-2	23.1678	84.80	0.15
Water Quality	025yr096hr	DRA_PB-2	23.2512	84.80	0.15
Water Quality	025yr096hr	DRA_PB-2	23.3345	84.80	0.15
Water Quality	025yr096hr	DRA_PB-2	23.4178	84.80	0.15
Water Quality	025yr096hr	DRA_PB-2	23.5012	84.79	0.15
Water Quality	025yr096hr	DRA_PB-2	23.5845	84.79	0.14
Water Quality	025yr096hr	DRA_PB-2	23.6678	84.79	0.14
Water Quality	025yr096hr	DRA_PB-2	23.7512	84.79	0.14
Water Quality	025yr096hr	DRA_PB-2	23.8345	84.78	0.14
Water Quality	025yr096hr	DRA_PB-2	23.9178	84.78	0.14
Water Quality	025yr096hr	DRA_PB-2	24.0012	84.78	0.14
Water Quality	025yr096hr	DRA_PB-2	24.0845	84.77	0.14
Water Quality	025yr096hr	DRA_PB-2	24.1678	84.77	0.14
Water Quality	025yr096hr	DRA_PB-2	24.2512	84.77	0.14
Water Quality	025yr096hr	DRA_PB-2	24.3345	84.77	0.14
Water Quality	025yr096hr	DRA_PB-2	24.4178	84.76	0.14
Water Quality	025yr096hr	DRA_PB-2	24.5012	84.76	0.14
Water Quality	025yr096hr	DRA_PB-2	24.5845	84.76	0.14
Water Quality	025yr096hr	DRA_PB-2	24.6678	84.76	0.14
Water Quality	025yr096hr	DRA_PB-2	24.7512	84.75	0.14
Water Quality	025yr096hr	DRA_PB-2	24.8345	84.75	0.14

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	24.9178	84.75	0.14
Water Quality	025yr096hr	DRA_PB-2	25.0012	84.75	0.14
Water Quality	025yr096hr	DRA_PB-2	25.0845	84.74	0.14
Water Quality	025yr096hr	DRA_PB-2	25.1678	84.74	0.14
Water Quality	025yr096hr	DRA_PB-2	25.2512	84.74	0.14
Water Quality	025yr096hr	DRA_PB-2	25.3345	84.74	0.14
Water Quality	025yr096hr	DRA_PB-2	25.4178	84.73	0.14
Water Quality	025yr096hr	DRA_PB-2	25.5012	84.73	0.14
Water Quality	025yr096hr	DRA_PB-2	25.5845	84.73	0.14
Water Quality	025yr096hr	DRA_PB-2	25.6678	84.73	0.13
Water Quality	025yr096hr	DRA_PB-2	25.7512	84.72	0.13
Water Quality	025yr096hr	DRA_PB-2	25.8345	84.72	0.13
Water Quality	025yr096hr	DRA_PB-2	25.9178	84.72	0.13
Water Quality	025yr096hr	DRA_PB-2	26.0012	84.72	0.13
Water Quality	025yr096hr	DRA_PB-2	26.0845	84.71	0.13
Water Quality	025yr096hr	DRA_PB-2	26.1678	84.71	0.13
Water Quality	025yr096hr	DRA_PB-2	26.2512	84.71	0.13
Water Quality	025yr096hr	DRA_PB-2	26.3345	84.71	0.13
Water Quality	025yr096hr	DRA_PB-2	26.4178	84.70	0.13
Water Quality	025yr096hr	DRA_PB-2	26.5012	84.70	0.13
Water Quality	025yr096hr	DRA_PB-2	26.5845	84.70	0.13
Water Quality	025yr096hr	DRA_PB-2	26.6678	84.70	0.13
Water Quality	025yr096hr	DRA_PB-2	26.7512	84.69	0.13
Water Quality	025yr096hr	DRA_PB-2	26.8345	84.69	0.13
Water Quality	025yr096hr	DRA_PB-2	26.9178	84.69	0.13
Water Quality	025yr096hr	DRA_PB-2	27.0012	84.69	0.13
Water Quality	025yr096hr	DRA_PB-2	27.0845	84.68	0.13
Water Quality	025yr096hr	DRA_PB-2	27.1678	84.68	0.13
Water Quality	025yr096hr	DRA_PB-2	27.2512	84.68	0.13
Water Quality	025yr096hr	DRA_PB-2	27.3345	84.68	0.13
Water Quality	025yr096hr	DRA_PB-2	27.4178	84.67	0.13
Water Quality	025yr096hr	DRA_PB-2	27.5012	84.67	0.13
Water Quality	025yr096hr	DRA_PB-2	27.5845	84.67	0.13
Water Quality	025yr096hr	DRA_PB-2	27.6678	84.67	0.13
Water Quality	025yr096hr	DRA_PB-2	27.7512	84.67	0.13
Water Quality	025yr096hr	DRA_PB-2	27.8345	84.66	0.13
Water Quality	025yr096hr	DRA_PB-2	27.9178	84.66	0.13
Water Quality	025yr096hr	DRA_PB-2	28.0012	84.66	0.12
Water Quality	025yr096hr	DRA_PB-2	28.0845	84.66	0.12
Water Quality	025yr096hr	DRA_PB-2	28.1678	84.65	0.12
Water Quality	025yr096hr	DRA_PB-2	28.2512	84.65	0.12
Water Quality	025yr096hr	DRA_PB-2	28.3345	84.65	0.12

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	28.4178	84.65	0.12
Water Quality	025yr096hr	DRA_PB-2	28.5012	84.64	0.12
Water Quality	025yr096hr	DRA_PB-2	28.5845	84.64	0.12
Water Quality	025yr096hr	DRA_PB-2	28.6678	84.64	0.12
Water Quality	025yr096hr	DRA_PB-2	28.7512	84.64	0.12
Water Quality	025yr096hr	DRA_PB-2	28.8345	84.63	0.12
Water Quality	025yr096hr	DRA_PB-2	28.9178	84.63	0.12
Water Quality	025yr096hr	DRA_PB-2	29.0012	84.63	0.12
Water Quality	025yr096hr	DRA_PB-2	29.0845	84.63	0.12
Water Quality	025yr096hr	DRA_PB-2	29.1678	84.63	0.12
Water Quality	025yr096hr	DRA_PB-2	29.2512	84.62	0.12
Water Quality	025yr096hr	DRA_PB-2	29.3345	84.62	0.12
Water Quality	025yr096hr	DRA_PB-2	29.4178	84.62	0.12
Water Quality	025yr096hr	DRA_PB-2	29.5012	84.62	0.12
Water Quality	025yr096hr	DRA_PB-2	29.5845	84.61	0.12
Water Quality	025yr096hr	DRA_PB-2	29.6678	84.61	0.12
Water Quality	025yr096hr	DRA_PB-2	29.7512	84.61	0.12
Water Quality	025yr096hr	DRA_PB-2	29.8345	84.61	0.12
Water Quality	025yr096hr	DRA_PB-2	29.9178	84.61	0.12
Water Quality	025yr096hr	DRA_PB-2	30.0012	84.60	0.12
Water Quality	025yr096hr	DRA_PB-2	30.0845	84.60	0.12
Water Quality	025yr096hr	DRA_PB-2	30.1678	84.60	0.12
Water Quality	025yr096hr	DRA_PB-2	30.2512	84.60	0.12
Water Quality	025yr096hr	DRA_PB-2	30.3345	84.59	0.12
Water Quality	025yr096hr	DRA_PB-2	30.4178	84.59	0.12
Water Quality	025yr096hr	DRA_PB-2	30.5012	84.59	0.12
Water Quality	025yr096hr	DRA_PB-2	30.5845	84.59	0.12
Water Quality	025yr096hr	DRA_PB-2	30.6678	84.59	0.11
Water Quality	025yr096hr	DRA_PB-2	30.7512	84.58	0.11
Water Quality	025yr096hr	DRA_PB-2	30.8345	84.58	0.11
Water Quality	025yr096hr	DRA_PB-2	30.9178	84.58	0.11
Water Quality	025yr096hr	DRA_PB-2	31.0012	84.58	0.11
Water Quality	025yr096hr	DRA_PB-2	31.0845	84.57	0.11
Water Quality	025yr096hr	DRA_PB-2	31.1678	84.57	0.11
Water Quality	025yr096hr	DRA_PB-2	31.2512	84.57	0.11
Water Quality	025yr096hr	DRA_PB-2	31.3345	84.57	0.11
Water Quality	025yr096hr	DRA_PB-2	31.4178	84.57	0.11
Water Quality	025yr096hr	DRA_PB-2	31.5012	84.56	0.11
Water Quality	025yr096hr	DRA_PB-2	31.5845	84.56	0.11
Water Quality	025yr096hr	DRA_PB-2	31.6678	84.56	0.11
Water Quality	025yr096hr	DRA_PB-2	31.7512	84.56	0.11
Water Quality	025yr096hr	DRA_PB-2	31.8345	84.56	0.11

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	31.9178	84.55	0.11
Water Quality	025yr096hr	DRA_PB-2	32.0012	84.55	0.11
Water Quality	025yr096hr	DRA_PB-2	32.0845	84.55	0.11
Water Quality	025yr096hr	DRA_PB-2	32.1678	84.55	0.11
Water Quality	025yr096hr	DRA_PB-2	32.2512	84.55	0.11
Water Quality	025yr096hr	DRA_PB-2	32.3345	84.54	0.11
Water Quality	025yr096hr	DRA_PB-2	32.4178	84.54	0.11
Water Quality	025yr096hr	DRA_PB-2	32.5012	84.54	0.11
Water Quality	025yr096hr	DRA_PB-2	32.5845	84.54	0.11
Water Quality	025yr096hr	DRA_PB-2	32.6678	84.53	0.11
Water Quality	025yr096hr	DRA_PB-2	32.7512	84.53	0.11
Water Quality	025yr096hr	DRA_PB-2	32.8345	84.53	0.11
Water Quality	025yr096hr	DRA_PB-2	32.9178	84.53	0.11
Water Quality	025yr096hr	DRA_PB-2	33.0012	84.53	0.11
Water Quality	025yr096hr	DRA_PB-2	33.0845	84.52	0.11
Water Quality	025yr096hr	DRA_PB-2	33.1678	84.52	0.11
Water Quality	025yr096hr	DRA_PB-2	33.2512	84.52	0.11
Water Quality	025yr096hr	DRA_PB-2	33.3345	84.52	0.11
Water Quality	025yr096hr	DRA_PB-2	33.4178	84.52	0.11
Water Quality	025yr096hr	DRA_PB-2	33.5012	84.51	0.11
Water Quality	025yr096hr	DRA_PB-2	33.5845	84.51	0.11
Water Quality	025yr096hr	DRA_PB-2	33.6678	84.51	0.11
Water Quality	025yr096hr	DRA_PB-2	33.7512	84.51	0.11
Water Quality	025yr096hr	DRA_PB-2	33.8345	84.51	0.10
Water Quality	025yr096hr	DRA_PB-2	33.9178	84.50	0.10
Water Quality	025yr096hr	DRA_PB-2	34.0012	84.50	0.10
Water Quality	025yr096hr	DRA_PB-2	34.0845	84.50	0.10
Water Quality	025yr096hr	DRA_PB-2	34.1678	84.50	0.10
Water Quality	025yr096hr	DRA_PB-2	34.2512	84.50	0.10
Water Quality	025yr096hr	DRA_PB-2	34.3345	84.49	0.10
Water Quality	025yr096hr	DRA_PB-2	34.4178	84.49	0.10
Water Quality	025yr096hr	DRA_PB-2	34.5012	84.49	0.10
Water Quality	025yr096hr	DRA_PB-2	34.5845	84.49	0.10
Water Quality	025yr096hr	DRA_PB-2	34.6678	84.49	0.10
Water Quality	025yr096hr	DRA_PB-2	34.7512	84.48	0.10
Water Quality	025yr096hr	DRA_PB-2	34.8345	84.48	0.10
Water Quality	025yr096hr	DRA_PB-2	34.9178	84.48	0.10
Water Quality	025yr096hr	DRA_PB-2	35.0012	84.48	0.10
Water Quality	025yr096hr	DRA_PB-2	35.0845	84.48	0.10
Water Quality	025yr096hr	DRA_PB-2	35.1678	84.47	0.10
Water Quality	025yr096hr	DRA_PB-2	35.2512	84.47	0.10
Water Quality	025yr096hr	DRA_PB-2	35.3345	84.47	0.10

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	35.4178	84.47	0.10
Water Quality	025yr096hr	DRA_PB-2	35.5012	84.47	0.10
Water Quality	025yr096hr	DRA_PB-2	35.5845	84.46	0.10
Water Quality	025yr096hr	DRA_PB-2	35.6678	84.46	0.10
Water Quality	025yr096hr	DRA_PB-2	35.7512	84.46	0.10
Water Quality	025yr096hr	DRA_PB-2	35.8345	84.46	0.10
Water Quality	025yr096hr	DRA_PB-2	35.9178	84.46	0.10
Water Quality	025yr096hr	DRA_PB-2	36.0012	84.45	0.10
Water Quality	025yr096hr	DRA_PB-2	36.0845	84.45	0.10
Water Quality	025yr096hr	DRA_PB-2	36.1678	84.45	0.10
Water Quality	025yr096hr	DRA_PB-2	36.2512	84.45	0.10
Water Quality	025yr096hr	DRA_PB-2	36.3345	84.45	0.10
Water Quality	025yr096hr	DRA_PB-2	36.4178	84.45	0.10
Water Quality	025yr096hr	DRA_PB-2	36.5012	84.44	0.10
Water Quality	025yr096hr	DRA_PB-2	36.5845	84.44	0.10
Water Quality	025yr096hr	DRA_PB-2	36.6678	84.44	0.10
Water Quality	025yr096hr	DRA_PB-2	36.7512	84.44	0.10
Water Quality	025yr096hr	DRA_PB-2	36.8345	84.44	0.10
Water Quality	025yr096hr	DRA_PB-2	36.9178	84.43	0.10
Water Quality	025yr096hr	DRA_PB-2	37.0012	84.43	0.10
Water Quality	025yr096hr	DRA_PB-2	37.0845	84.43	0.10
Water Quality	025yr096hr	DRA_PB-2	37.1678	84.43	0.10
Water Quality	025yr096hr	DRA_PB-2	37.2512	84.43	0.10
Water Quality	025yr096hr	DRA_PB-2	37.3345	84.42	0.10
Water Quality	025yr096hr	DRA_PB-2	37.4178	84.42	0.10
Water Quality	025yr096hr	DRA_PB-2	37.5012	84.42	0.10
Water Quality	025yr096hr	DRA_PB-2	37.5845	84.42	0.10
Water Quality	025yr096hr	DRA_PB-2	37.6678	84.42	0.09
Water Quality	025yr096hr	DRA_PB-2	37.7512	84.42	0.09
Water Quality	025yr096hr	DRA_PB-2	37.8345	84.41	0.09
Water Quality	025yr096hr	DRA_PB-2	37.9178	84.41	0.09
Water Quality	025yr096hr	DRA_PB-2	38.0012	84.41	0.09
Water Quality	025yr096hr	DRA_PB-2	38.0845	84.41	0.09
Water Quality	025yr096hr	DRA_PB-2	38.1678	84.41	0.09
Water Quality	025yr096hr	DRA_PB-2	38.2512	84.40	0.09
Water Quality	025yr096hr	DRA_PB-2	38.3345	84.40	0.09
Water Quality	025yr096hr	DRA_PB-2	38.4178	84.40	0.09
Water Quality	025yr096hr	DRA_PB-2	38.5012	84.40	0.09
Water Quality	025yr096hr	DRA_PB-2	38.5845	84.40	0.09
Water Quality	025yr096hr	DRA_PB-2	38.6678	84.40	0.09
Water Quality	025yr096hr	DRA_PB-2	38.7512	84.39	0.09
Water Quality	025yr096hr	DRA_PB-2	38.8345	84.39	0.09

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	38.9178	84.39	0.09
Water Quality	025yr096hr	DRA_PB-2	39.0012	84.39	0.09
Water Quality	025yr096hr	DRA_PB-2	39.0845	84.39	0.09
Water Quality	025yr096hr	DRA_PB-2	39.1678	84.38	0.09
Water Quality	025yr096hr	DRA_PB-2	39.2512	84.38	0.09
Water Quality	025yr096hr	DRA_PB-2	39.3345	84.38	0.09
Water Quality	025yr096hr	DRA_PB-2	39.4178	84.38	0.09
Water Quality	025yr096hr	DRA_PB-2	39.5012	84.38	0.09
Water Quality	025yr096hr	DRA_PB-2	39.5845	84.38	0.09
Water Quality	025yr096hr	DRA_PB-2	39.6678	84.37	0.09
Water Quality	025yr096hr	DRA_PB-2	39.7512	84.37	0.09
Water Quality	025yr096hr	DRA_PB-2	39.8345	84.37	0.09
Water Quality	025yr096hr	DRA_PB-2	39.9178	84.37	0.09
Water Quality	025yr096hr	DRA_PB-2	40.0012	84.37	0.09
Water Quality	025yr096hr	DRA_PB-2	40.0845	84.37	0.09
Water Quality	025yr096hr	DRA_PB-2	40.1678	84.36	0.09
Water Quality	025yr096hr	DRA_PB-2	40.2512	84.36	0.09
Water Quality	025yr096hr	DRA_PB-2	40.3345	84.36	0.09
Water Quality	025yr096hr	DRA_PB-2	40.4178	84.36	0.09
Water Quality	025yr096hr	DRA_PB-2	40.5012	84.36	0.09
Water Quality	025yr096hr	DRA_PB-2	40.5845	84.35	0.09
Water Quality	025yr096hr	DRA_PB-2	40.6678	84.35	0.09
Water Quality	025yr096hr	DRA_PB-2	40.7512	84.35	0.09
Water Quality	025yr096hr	DRA_PB-2	40.8345	84.35	0.09
Water Quality	025yr096hr	DRA_PB-2	40.9178	84.35	0.09
Water Quality	025yr096hr	DRA_PB-2	41.0012	84.35	0.09
Water Quality	025yr096hr	DRA_PB-2	41.0845	84.34	0.09
Water Quality	025yr096hr	DRA_PB-2	41.1678	84.34	0.09
Water Quality	025yr096hr	DRA_PB-2	41.2512	84.34	0.09
Water Quality	025yr096hr	DRA_PB-2	41.3345	84.34	0.09
Water Quality	025yr096hr	DRA_PB-2	41.4178	84.34	0.09
Water Quality	025yr096hr	DRA_PB-2	41.5012	84.34	0.09
Water Quality	025yr096hr	DRA_PB-2	41.5845	84.33	0.09
Water Quality	025yr096hr	DRA_PB-2	41.6678	84.33	0.09
Water Quality	025yr096hr	DRA_PB-2	41.7512	84.33	0.09
Water Quality	025yr096hr	DRA_PB-2	41.8345	84.33	0.09
Water Quality	025yr096hr	DRA_PB-2	41.9178	84.33	0.09
Water Quality	025yr096hr	DRA_PB-2	42.0012	84.33	0.09
Water Quality	025yr096hr	DRA_PB-2	42.0845	84.32	0.09
Water Quality	025yr096hr	DRA_PB-2	42.1678	84.32	0.09
Water Quality	025yr096hr	DRA_PB-2	42.2512	84.32	0.09
Water Quality	025yr096hr	DRA_PB-2	42.3345	84.32	0.08

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	42.4178	84.32	0.08
Water Quality	025yr096hr	DRA_PB-2	42.5012	84.32	0.08
Water Quality	025yr096hr	DRA_PB-2	42.5845	84.31	0.08
Water Quality	025yr096hr	DRA_PB-2	42.6678	84.31	0.08
Water Quality	025yr096hr	DRA_PB-2	42.7512	84.31	0.08
Water Quality	025yr096hr	DRA_PB-2	42.8345	84.31	0.08
Water Quality	025yr096hr	DRA_PB-2	42.9178	84.31	0.08
Water Quality	025yr096hr	DRA_PB-2	43.0012	84.31	0.08
Water Quality	025yr096hr	DRA_PB-2	43.0845	84.30	0.08
Water Quality	025yr096hr	DRA_PB-2	43.1678	84.30	0.08
Water Quality	025yr096hr	DRA_PB-2	43.2512	84.30	0.08
Water Quality	025yr096hr	DRA_PB-2	43.3345	84.30	0.08
Water Quality	025yr096hr	DRA_PB-2	43.4178	84.30	0.08
Water Quality	025yr096hr	DRA_PB-2	43.5012	84.30	0.08
Water Quality	025yr096hr	DRA_PB-2	43.5845	84.29	0.08
Water Quality	025yr096hr	DRA_PB-2	43.6678	84.29	0.08
Water Quality	025yr096hr	DRA_PB-2	43.7512	84.29	0.08
Water Quality	025yr096hr	DRA_PB-2	43.8345	84.29	0.08
Water Quality	025yr096hr	DRA_PB-2	43.9178	84.29	0.08
Water Quality	025yr096hr	DRA_PB-2	44.0012	84.29	0.08
Water Quality	025yr096hr	DRA_PB-2	44.0845	84.28	0.08
Water Quality	025yr096hr	DRA_PB-2	44.1678	84.28	0.08
Water Quality	025yr096hr	DRA_PB-2	44.2512	84.28	0.08
Water Quality	025yr096hr	DRA_PB-2	44.3345	84.28	0.08
Water Quality	025yr096hr	DRA_PB-2	44.4178	84.28	0.08
Water Quality	025yr096hr	DRA_PB-2	44.5012	84.28	0.08
Water Quality	025yr096hr	DRA_PB-2	44.5845	84.27	0.08
Water Quality	025yr096hr	DRA_PB-2	44.6678	84.27	0.08
Water Quality	025yr096hr	DRA_PB-2	44.7512	84.27	0.08
Water Quality	025yr096hr	DRA_PB-2	44.8345	84.27	0.08
Water Quality	025yr096hr	DRA_PB-2	44.9178	84.27	0.08
Water Quality	025yr096hr	DRA_PB-2	45.0012	84.27	0.08
Water Quality	025yr096hr	DRA_PB-2	45.0845	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.1678	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.2512	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.3345	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.4178	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.5012	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.5845	84.26	0.08
Water Quality	025yr096hr	DRA_PB-2	45.6678	84.25	0.08
Water Quality	025yr096hr	DRA_PB-2	45.7512	84.25	0.08
Water Quality	025yr096hr	DRA_PB-2	45.8345	84.25	0.08

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	45.9178	84.25	0.08
Water Quality	025yr096hr	DRA_PB-2	46.0012	84.25	0.08
Water Quality	025yr096hr	DRA_PB-2	46.0845	84.25	0.08
Water Quality	025yr096hr	DRA_PB-2	46.1678	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.2512	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.3345	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.4178	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.5012	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.5845	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.6678	84.24	0.08
Water Quality	025yr096hr	DRA_PB-2	46.7512	84.23	0.08
Water Quality	025yr096hr	DRA_PB-2	46.8345	84.23	0.08
Water Quality	025yr096hr	DRA_PB-2	46.9178	84.23	0.08
Water Quality	025yr096hr	DRA_PB-2	47.0012	84.23	0.08
Water Quality	025yr096hr	DRA_PB-2	47.0845	84.23	0.08
Water Quality	025yr096hr	DRA_PB-2	47.1678	84.23	0.08
Water Quality	025yr096hr	DRA_PB-2	47.2512	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.3345	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.4178	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.5012	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.5845	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.6678	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.7512	84.22	0.08
Water Quality	025yr096hr	DRA_PB-2	47.8345	84.21	0.08
Water Quality	025yr096hr	DRA_PB-2	47.9178	84.21	0.08
Water Quality	025yr096hr	DRA_PB-2	48.0012	84.21	0.08
Water Quality	025yr096hr	DRA_PB-2	48.0845	84.21	0.08
Water Quality	025yr096hr	DRA_PB-2	48.1678	84.21	0.08
Water Quality	025yr096hr	DRA_PB-2	48.2512	84.21	0.08
Water Quality	025yr096hr	DRA_PB-2	48.3345	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.4178	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.5012	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.5845	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.6678	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.7512	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.8345	84.20	0.07
Water Quality	025yr096hr	DRA_PB-2	48.9178	84.19	0.07
Water Quality	025yr096hr	DRA_PB-2	49.0012	84.19	0.07
Water Quality	025yr096hr	DRA_PB-2	49.0845	84.19	0.07
Water Quality	025yr096hr	DRA_PB-2	49.1678	84.19	0.07
Water Quality	025yr096hr	DRA_PB-2	49.2512	84.19	0.07
Water Quality	025yr096hr	DRA_PB-2	49.3345	84.19	0.07

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	49.4178	84.19	0.07
Water Quality	025yr096hr	DRA_PB-2	49.5012	84.18	0.07
Water Quality	025yr096hr	DRA_PB-2	49.5845	84.18	0.07
Water Quality	025yr096hr	DRA_PB-2	49.6678	84.18	0.07
Water Quality	025yr096hr	DRA_PB-2	49.7512	84.18	0.07
Water Quality	025yr096hr	DRA_PB-2	49.8345	84.18	0.07
Water Quality	025yr096hr	DRA_PB-2	49.9178	84.18	0.07
Water Quality	025yr096hr	DRA_PB-2	50.0012	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.0845	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.1678	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.2512	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.3345	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.4178	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.5012	84.17	0.07
Water Quality	025yr096hr	DRA_PB-2	50.5845	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	50.6678	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	50.7512	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	50.8345	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	50.9178	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	51.0012	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	51.0845	84.16	0.07
Water Quality	025yr096hr	DRA_PB-2	51.1678	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.2512	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.3345	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.4178	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.5012	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.5845	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.6678	84.15	0.07
Water Quality	025yr096hr	DRA_PB-2	51.7512	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	51.8345	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	51.9178	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	52.0012	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	52.0845	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	52.1678	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	52.2512	84.14	0.07
Water Quality	025yr096hr	DRA_PB-2	52.3345	84.13	0.07
Water Quality	025yr096hr	DRA_PB-2	52.4178	84.13	0.07
Water Quality	025yr096hr	DRA_PB-2	52.5012	84.13	0.07
Water Quality	025yr096hr	DRA_PB-2	52.5845	84.13	0.07
Water Quality	025yr096hr	DRA_PB-2	52.6678	84.13	0.07
Water Quality	025yr096hr	DRA_PB-2	52.7512	84.13	0.07
Water Quality	025yr096hr	DRA_PB-2	52.8345	84.13	0.07

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	52.9178	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.0012	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.0845	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.1678	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.2512	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.3345	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.4178	84.12	0.07
Water Quality	025yr096hr	DRA_PB-2	53.5012	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	53.5845	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	53.6678	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	53.7512	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	53.8345	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	53.9178	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	54.0012	84.11	0.07
Water Quality	025yr096hr	DRA_PB-2	54.0845	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.1678	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.2512	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.3345	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.4178	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.5012	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.5845	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.6678	84.10	0.07
Water Quality	025yr096hr	DRA_PB-2	54.7512	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	54.8345	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	54.9178	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	55.0012	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	55.0845	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	55.1678	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	55.2512	84.09	0.07
Water Quality	025yr096hr	DRA_PB-2	55.3345	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.4178	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.5012	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.5845	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.6678	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.7512	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.8345	84.08	0.07
Water Quality	025yr096hr	DRA_PB-2	55.9178	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.0012	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.0845	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.1678	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.2512	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.3345	84.07	0.07

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	56.4178	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.5012	84.07	0.07
Water Quality	025yr096hr	DRA_PB-2	56.5845	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	56.6678	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	56.7512	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	56.8345	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	56.9178	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	57.0012	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	57.0845	84.06	0.07
Water Quality	025yr096hr	DRA_PB-2	57.1678	84.05	0.07
Water Quality	025yr096hr	DRA_PB-2	57.2512	84.05	0.07
Water Quality	025yr096hr	DRA_PB-2	57.3345	84.05	0.07
Water Quality	025yr096hr	DRA_PB-2	57.4178	84.05	0.07
Water Quality	025yr096hr	DRA_PB-2	57.5012	84.05	0.07
Water Quality	025yr096hr	DRA_PB-2	57.5845	84.05	0.07
Water Quality	025yr096hr	DRA_PB-2	57.6678	84.05	0.06
Water Quality	025yr096hr	DRA_PB-2	57.7512	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	57.8345	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	57.9178	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	58.0012	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	58.0845	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	58.1678	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	58.2512	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	58.3345	84.04	0.06
Water Quality	025yr096hr	DRA_PB-2	58.4178	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	58.5012	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	58.5845	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	58.6678	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	58.7512	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	58.8345	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	58.9178	84.03	0.06
Water Quality	025yr096hr	DRA_PB-2	59.0012	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.0845	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.1678	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.2512	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.3345	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.4178	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.5012	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.5845	84.02	0.06
Water Quality	025yr096hr	DRA_PB-2	59.6678	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	59.7512	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	59.8345	84.01	0.06

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	59.9178	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	60.0012	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	60.0845	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	60.1678	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	60.2512	84.01	0.06
Water Quality	025yr096hr	DRA_PB-2	60.3345	84.00	0.06
Water Quality	025yr096hr	DRA_PB-2	60.4178	84.00	0.06
Water Quality	025yr096hr	DRA_PB-2	60.5012	84.00	0.06
Water Quality	025yr096hr	DRA_PB-2	60.5845	84.00	0.01
Water Quality	025yr096hr	DRA_PB-2	60.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	60.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	60.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	60.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	61.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	62.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.3345	84.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	63.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	63.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	64.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	65.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	66.8345	84.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	66.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	67.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	68.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	69.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.3345	84.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-2	70.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	70.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	71.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.0845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.1678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.2512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.3345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.4178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.5012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.5845	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.6678	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.7512	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.8345	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	72.9178	84.00	0.00
Water Quality	025yr096hr	DRA_PB-2	73.0012	84.00	0.00
Water Quality	025yr096hr	DRA_PB-3	0.0000	86.64	0.00
Water Quality	025yr096hr	DRA_PB-3	0.0834	86.62	7.60
Water Quality	025yr096hr	DRA_PB-3	0.1675	86.59	7.57
Water Quality	025yr096hr	DRA_PB-3	0.2511	86.57	7.55
Water Quality	025yr096hr	DRA_PB-3	0.3355	86.55	7.53
Water Quality	025yr096hr	DRA_PB-3	0.4193	86.52	7.51
Water Quality	025yr096hr	DRA_PB-3	0.5016	86.50	6.73
Water Quality	025yr096hr	DRA_PB-3	0.5847	86.48	5.94
Water Quality	025yr096hr	DRA_PB-3	0.6679	86.46	5.31
Water Quality	025yr096hr	DRA_PB-3	0.7523	86.45	4.82

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	0.8353	86.43	4.43
Water Quality	025yr096hr	DRA_PB-3	0.9192	86.42	4.10
Water Quality	025yr096hr	DRA_PB-3	1.0017	86.41	3.84
Water Quality	025yr096hr	DRA_PB-3	1.0833	86.40	3.62
Water Quality	025yr096hr	DRA_PB-3	1.1698	86.38	3.43
Water Quality	025yr096hr	DRA_PB-3	1.2525	86.37	3.26
Water Quality	025yr096hr	DRA_PB-3	1.3364	86.36	3.12
Water Quality	025yr096hr	DRA_PB-3	1.4185	86.35	3.00
Water Quality	025yr096hr	DRA_PB-3	1.5026	86.34	2.88
Water Quality	025yr096hr	DRA_PB-3	1.5841	86.34	2.78
Water Quality	025yr096hr	DRA_PB-3	1.6688	86.33	2.69
Water Quality	025yr096hr	DRA_PB-3	1.7512	86.32	2.60
Water Quality	025yr096hr	DRA_PB-3	1.8337	86.31	2.53
Water Quality	025yr096hr	DRA_PB-3	1.9170	86.30	2.46
Water Quality	025yr096hr	DRA_PB-3	2.0019	86.30	2.39
Water Quality	025yr096hr	DRA_PB-3	2.0855	86.29	2.33
Water Quality	025yr096hr	DRA_PB-3	2.1704	86.28	2.27
Water Quality	025yr096hr	DRA_PB-3	2.2524	86.27	2.22
Water Quality	025yr096hr	DRA_PB-3	2.3352	86.27	2.17
Water Quality	025yr096hr	DRA_PB-3	2.4188	86.26	2.12
Water Quality	025yr096hr	DRA_PB-3	2.5034	86.25	2.07
Water Quality	025yr096hr	DRA_PB-3	2.5855	86.25	2.03
Water Quality	025yr096hr	DRA_PB-3	2.6706	86.24	1.99
Water Quality	025yr096hr	DRA_PB-3	2.7509	86.23	1.96
Water Quality	025yr096hr	DRA_PB-3	2.8381	86.23	1.92
Water Quality	025yr096hr	DRA_PB-3	2.9196	86.22	1.89
Water Quality	025yr096hr	DRA_PB-3	3.0013	86.21	1.85
Water Quality	025yr096hr	DRA_PB-3	3.0894	86.21	1.82
Water Quality	025yr096hr	DRA_PB-3	3.1700	86.20	1.79
Water Quality	025yr096hr	DRA_PB-3	3.2540	86.20	1.76
Water Quality	025yr096hr	DRA_PB-3	3.3337	86.19	1.74
Water Quality	025yr096hr	DRA_PB-3	3.4178	86.19	1.71
Water Quality	025yr096hr	DRA_PB-3	3.5046	86.18	1.69
Water Quality	025yr096hr	DRA_PB-3	3.5870	86.17	1.66
Water Quality	025yr096hr	DRA_PB-3	3.6715	86.17	1.64
Water Quality	025yr096hr	DRA_PB-3	3.7521	86.16	1.62
Water Quality	025yr096hr	DRA_PB-3	3.8345	86.16	1.59
Water Quality	025yr096hr	DRA_PB-3	3.9178	86.15	1.57
Water Quality	025yr096hr	DRA_PB-3	4.0012	86.15	1.55
Water Quality	025yr096hr	DRA_PB-3	4.0845	86.14	1.53
Water Quality	025yr096hr	DRA_PB-3	4.1678	86.14	1.52
Water Quality	025yr096hr	DRA_PB-3	4.2512	86.13	1.50

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	4.3345	86.13	1.48
Water Quality	025yr096hr	DRA_PB-3	4.4178	86.12	1.46
Water Quality	025yr096hr	DRA_PB-3	4.5012	86.12	1.45
Water Quality	025yr096hr	DRA_PB-3	4.5845	86.11	1.43
Water Quality	025yr096hr	DRA_PB-3	4.6678	86.11	1.41
Water Quality	025yr096hr	DRA_PB-3	4.7512	86.11	1.40
Water Quality	025yr096hr	DRA_PB-3	4.8345	86.10	1.38
Water Quality	025yr096hr	DRA_PB-3	4.9178	86.10	1.37
Water Quality	025yr096hr	DRA_PB-3	5.0012	86.09	1.36
Water Quality	025yr096hr	DRA_PB-3	5.0845	86.09	1.34
Water Quality	025yr096hr	DRA_PB-3	5.1678	86.08	1.33
Water Quality	025yr096hr	DRA_PB-3	5.2512	86.08	1.32
Water Quality	025yr096hr	DRA_PB-3	5.3345	86.07	1.30
Water Quality	025yr096hr	DRA_PB-3	5.4178	86.07	1.29
Water Quality	025yr096hr	DRA_PB-3	5.5012	86.07	1.28
Water Quality	025yr096hr	DRA_PB-3	5.5845	86.06	1.27
Water Quality	025yr096hr	DRA_PB-3	5.6678	86.06	1.26
Water Quality	025yr096hr	DRA_PB-3	5.7512	86.05	1.24
Water Quality	025yr096hr	DRA_PB-3	5.8345	86.05	1.23
Water Quality	025yr096hr	DRA_PB-3	5.9178	86.05	1.22
Water Quality	025yr096hr	DRA_PB-3	6.0012	86.04	1.21
Water Quality	025yr096hr	DRA_PB-3	6.0845	86.04	1.20
Water Quality	025yr096hr	DRA_PB-3	6.1678	86.03	1.19
Water Quality	025yr096hr	DRA_PB-3	6.2512	86.03	1.18
Water Quality	025yr096hr	DRA_PB-3	6.3345	86.03	1.17
Water Quality	025yr096hr	DRA_PB-3	6.4178	86.02	1.16
Water Quality	025yr096hr	DRA_PB-3	6.5012	86.02	1.15
Water Quality	025yr096hr	DRA_PB-3	6.5845	86.01	1.14
Water Quality	025yr096hr	DRA_PB-3	6.6678	86.01	1.14
Water Quality	025yr096hr	DRA_PB-3	6.7512	86.01	1.13
Water Quality	025yr096hr	DRA_PB-3	6.8345	86.00	1.12
Water Quality	025yr096hr	DRA_PB-3	6.9178	86.00	1.11
Water Quality	025yr096hr	DRA_PB-3	7.0012	86.00	1.10
Water Quality	025yr096hr	DRA_PB-3	7.0845	85.99	1.09
Water Quality	025yr096hr	DRA_PB-3	7.1678	85.99	1.09
Water Quality	025yr096hr	DRA_PB-3	7.2512	85.98	1.08
Water Quality	025yr096hr	DRA_PB-3	7.3345	85.98	1.07
Water Quality	025yr096hr	DRA_PB-3	7.4178	85.98	1.06
Water Quality	025yr096hr	DRA_PB-3	7.5012	85.97	1.06
Water Quality	025yr096hr	DRA_PB-3	7.5845	85.97	1.05
Water Quality	025yr096hr	DRA_PB-3	7.6678	85.97	1.04
Water Quality	025yr096hr	DRA_PB-3	7.7512	85.96	1.04

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	7.8345	85.96	1.03
Water Quality	025yr096hr	DRA_PB-3	7.9178	85.96	1.02
Water Quality	025yr096hr	DRA_PB-3	8.0012	85.95	1.01
Water Quality	025yr096hr	DRA_PB-3	8.0845	85.95	1.01
Water Quality	025yr096hr	DRA_PB-3	8.1678	85.95	1.00
Water Quality	025yr096hr	DRA_PB-3	8.2512	85.94	1.00
Water Quality	025yr096hr	DRA_PB-3	8.3345	85.94	0.99
Water Quality	025yr096hr	DRA_PB-3	8.4178	85.94	0.98
Water Quality	025yr096hr	DRA_PB-3	8.5012	85.93	0.98
Water Quality	025yr096hr	DRA_PB-3	8.5845	85.93	0.97
Water Quality	025yr096hr	DRA_PB-3	8.6678	85.93	0.97
Water Quality	025yr096hr	DRA_PB-3	8.7512	85.92	0.96
Water Quality	025yr096hr	DRA_PB-3	8.8345	85.92	0.95
Water Quality	025yr096hr	DRA_PB-3	8.9178	85.92	0.95
Water Quality	025yr096hr	DRA_PB-3	9.0012	85.91	0.94
Water Quality	025yr096hr	DRA_PB-3	9.0845	85.91	0.94
Water Quality	025yr096hr	DRA_PB-3	9.1678	85.91	0.93
Water Quality	025yr096hr	DRA_PB-3	9.2512	85.90	0.93
Water Quality	025yr096hr	DRA_PB-3	9.3345	85.90	0.92
Water Quality	025yr096hr	DRA_PB-3	9.4178	85.90	0.92
Water Quality	025yr096hr	DRA_PB-3	9.5012	85.89	0.91
Water Quality	025yr096hr	DRA_PB-3	9.5845	85.89	0.91
Water Quality	025yr096hr	DRA_PB-3	9.6678	85.89	0.90
Water Quality	025yr096hr	DRA_PB-3	9.7512	85.89	0.90
Water Quality	025yr096hr	DRA_PB-3	9.8345	85.88	0.89
Water Quality	025yr096hr	DRA_PB-3	9.9178	85.88	0.89
Water Quality	025yr096hr	DRA_PB-3	10.0012	85.88	0.88
Water Quality	025yr096hr	DRA_PB-3	10.0845	85.87	0.88
Water Quality	025yr096hr	DRA_PB-3	10.1678	85.87	0.87
Water Quality	025yr096hr	DRA_PB-3	10.2512	85.87	0.87
Water Quality	025yr096hr	DRA_PB-3	10.3345	85.86	0.86
Water Quality	025yr096hr	DRA_PB-3	10.4178	85.86	0.86
Water Quality	025yr096hr	DRA_PB-3	10.5012	85.86	0.86
Water Quality	025yr096hr	DRA_PB-3	10.5845	85.86	0.85
Water Quality	025yr096hr	DRA_PB-3	10.6678	85.85	0.85
Water Quality	025yr096hr	DRA_PB-3	10.7512	85.85	0.84
Water Quality	025yr096hr	DRA_PB-3	10.8345	85.85	0.84
Water Quality	025yr096hr	DRA_PB-3	10.9178	85.84	0.84
Water Quality	025yr096hr	DRA_PB-3	11.0012	85.84	0.83
Water Quality	025yr096hr	DRA_PB-3	11.0845	85.84	0.83
Water Quality	025yr096hr	DRA_PB-3	11.1678	85.84	0.82
Water Quality	025yr096hr	DRA_PB-3	11.2512	85.83	0.82

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	11.3345	85.83	0.82
Water Quality	025yr096hr	DRA_PB-3	11.4178	85.83	0.81
Water Quality	025yr096hr	DRA_PB-3	11.5012	85.82	0.81
Water Quality	025yr096hr	DRA_PB-3	11.5845	85.82	0.80
Water Quality	025yr096hr	DRA_PB-3	11.6678	85.82	0.80
Water Quality	025yr096hr	DRA_PB-3	11.7512	85.82	0.80
Water Quality	025yr096hr	DRA_PB-3	11.8345	85.81	0.79
Water Quality	025yr096hr	DRA_PB-3	11.9178	85.81	0.79
Water Quality	025yr096hr	DRA_PB-3	12.0012	85.81	0.79
Water Quality	025yr096hr	DRA_PB-3	12.0845	85.81	0.78
Water Quality	025yr096hr	DRA_PB-3	12.1678	85.80	0.78
Water Quality	025yr096hr	DRA_PB-3	12.2512	85.80	0.78
Water Quality	025yr096hr	DRA_PB-3	12.3345	85.80	0.77
Water Quality	025yr096hr	DRA_PB-3	12.4178	85.80	0.77
Water Quality	025yr096hr	DRA_PB-3	12.5012	85.79	0.77
Water Quality	025yr096hr	DRA_PB-3	12.5845	85.79	0.76
Water Quality	025yr096hr	DRA_PB-3	12.6678	85.79	0.76
Water Quality	025yr096hr	DRA_PB-3	12.7512	85.78	0.76
Water Quality	025yr096hr	DRA_PB-3	12.8345	85.78	0.75
Water Quality	025yr096hr	DRA_PB-3	12.9178	85.78	0.75
Water Quality	025yr096hr	DRA_PB-3	13.0012	85.78	0.75
Water Quality	025yr096hr	DRA_PB-3	13.0845	85.77	0.74
Water Quality	025yr096hr	DRA_PB-3	13.1678	85.77	0.74
Water Quality	025yr096hr	DRA_PB-3	13.2512	85.77	0.74
Water Quality	025yr096hr	DRA_PB-3	13.3345	85.77	0.74
Water Quality	025yr096hr	DRA_PB-3	13.4178	85.76	0.73
Water Quality	025yr096hr	DRA_PB-3	13.5012	85.76	0.73
Water Quality	025yr096hr	DRA_PB-3	13.5845	85.76	0.73
Water Quality	025yr096hr	DRA_PB-3	13.6678	85.76	0.72
Water Quality	025yr096hr	DRA_PB-3	13.7512	85.75	0.72
Water Quality	025yr096hr	DRA_PB-3	13.8345	85.75	0.72
Water Quality	025yr096hr	DRA_PB-3	13.9178	85.75	0.72
Water Quality	025yr096hr	DRA_PB-3	14.0012	85.75	0.71
Water Quality	025yr096hr	DRA_PB-3	14.0845	85.74	0.71
Water Quality	025yr096hr	DRA_PB-3	14.1678	85.74	0.71
Water Quality	025yr096hr	DRA_PB-3	14.2512	85.74	0.70
Water Quality	025yr096hr	DRA_PB-3	14.3345	85.74	0.70
Water Quality	025yr096hr	DRA_PB-3	14.4178	85.73	0.70
Water Quality	025yr096hr	DRA_PB-3	14.5012	85.73	0.70
Water Quality	025yr096hr	DRA_PB-3	14.5845	85.73	0.69
Water Quality	025yr096hr	DRA_PB-3	14.6678	85.73	0.69
Water Quality	025yr096hr	DRA_PB-3	14.7512	85.73	0.69

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	14.8345	85.72	0.69
Water Quality	025yr096hr	DRA_PB-3	14.9178	85.72	0.68
Water Quality	025yr096hr	DRA_PB-3	15.0012	85.72	0.68
Water Quality	025yr096hr	DRA_PB-3	15.0845	85.72	0.68
Water Quality	025yr096hr	DRA_PB-3	15.1678	85.71	0.68
Water Quality	025yr096hr	DRA_PB-3	15.2512	85.71	0.67
Water Quality	025yr096hr	DRA_PB-3	15.3345	85.71	0.67
Water Quality	025yr096hr	DRA_PB-3	15.4178	85.71	0.67
Water Quality	025yr096hr	DRA_PB-3	15.5012	85.70	0.67
Water Quality	025yr096hr	DRA_PB-3	15.5845	85.70	0.67
Water Quality	025yr096hr	DRA_PB-3	15.6678	85.70	0.66
Water Quality	025yr096hr	DRA_PB-3	15.7512	85.70	0.66
Water Quality	025yr096hr	DRA_PB-3	15.8345	85.69	0.66
Water Quality	025yr096hr	DRA_PB-3	15.9178	85.69	0.66
Water Quality	025yr096hr	DRA_PB-3	16.0012	85.69	0.65
Water Quality	025yr096hr	DRA_PB-3	16.0845	85.69	0.65
Water Quality	025yr096hr	DRA_PB-3	16.1678	85.69	0.65
Water Quality	025yr096hr	DRA_PB-3	16.2512	85.68	0.65
Water Quality	025yr096hr	DRA_PB-3	16.3345	85.68	0.64
Water Quality	025yr096hr	DRA_PB-3	16.4178	85.68	0.64
Water Quality	025yr096hr	DRA_PB-3	16.5012	85.68	0.64
Water Quality	025yr096hr	DRA_PB-3	16.5845	85.67	0.64
Water Quality	025yr096hr	DRA_PB-3	16.6678	85.67	0.64
Water Quality	025yr096hr	DRA_PB-3	16.7512	85.67	0.63
Water Quality	025yr096hr	DRA_PB-3	16.8345	85.67	0.63
Water Quality	025yr096hr	DRA_PB-3	16.9178	85.67	0.63
Water Quality	025yr096hr	DRA_PB-3	17.0012	85.66	0.63
Water Quality	025yr096hr	DRA_PB-3	17.0845	85.66	0.63
Water Quality	025yr096hr	DRA_PB-3	17.1678	85.66	0.62
Water Quality	025yr096hr	DRA_PB-3	17.2512	85.66	0.62
Water Quality	025yr096hr	DRA_PB-3	17.3345	85.65	0.62
Water Quality	025yr096hr	DRA_PB-3	17.4178	85.65	0.62
Water Quality	025yr096hr	DRA_PB-3	17.5012	85.65	0.62
Water Quality	025yr096hr	DRA_PB-3	17.5845	85.65	0.61
Water Quality	025yr096hr	DRA_PB-3	17.6678	85.65	0.61
Water Quality	025yr096hr	DRA_PB-3	17.7512	85.64	0.61
Water Quality	025yr096hr	DRA_PB-3	17.8345	85.64	0.61
Water Quality	025yr096hr	DRA_PB-3	17.9178	85.64	0.61
Water Quality	025yr096hr	DRA_PB-3	18.0012	85.64	0.61
Water Quality	025yr096hr	DRA_PB-3	18.0845	85.64	0.60
Water Quality	025yr096hr	DRA_PB-3	18.1678	85.63	0.60
Water Quality	025yr096hr	DRA_PB-3	18.2512	85.63	0.60

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	18.3345	85.63	0.60
Water Quality	025yr096hr	DRA_PB-3	18.4178	85.63	0.60
Water Quality	025yr096hr	DRA_PB-3	18.5012	85.63	0.59
Water Quality	025yr096hr	DRA_PB-3	18.5845	85.62	0.59
Water Quality	025yr096hr	DRA_PB-3	18.6678	85.62	0.59
Water Quality	025yr096hr	DRA_PB-3	18.7512	85.62	0.59
Water Quality	025yr096hr	DRA_PB-3	18.8345	85.62	0.59
Water Quality	025yr096hr	DRA_PB-3	18.9178	85.61	0.59
Water Quality	025yr096hr	DRA_PB-3	19.0012	85.61	0.58
Water Quality	025yr096hr	DRA_PB-3	19.0845	85.61	0.58
Water Quality	025yr096hr	DRA_PB-3	19.1678	85.61	0.58
Water Quality	025yr096hr	DRA_PB-3	19.2512	85.61	0.58
Water Quality	025yr096hr	DRA_PB-3	19.3345	85.60	0.58
Water Quality	025yr096hr	DRA_PB-3	19.4178	85.60	0.58
Water Quality	025yr096hr	DRA_PB-3	19.5012	85.60	0.57
Water Quality	025yr096hr	DRA_PB-3	19.5845	85.60	0.57
Water Quality	025yr096hr	DRA_PB-3	19.6678	85.60	0.57
Water Quality	025yr096hr	DRA_PB-3	19.7512	85.59	0.57
Water Quality	025yr096hr	DRA_PB-3	19.8345	85.59	0.57
Water Quality	025yr096hr	DRA_PB-3	19.9178	85.59	0.57
Water Quality	025yr096hr	DRA_PB-3	20.0012	85.59	0.56
Water Quality	025yr096hr	DRA_PB-3	20.0845	85.59	0.56
Water Quality	025yr096hr	DRA_PB-3	20.1678	85.58	0.56
Water Quality	025yr096hr	DRA_PB-3	20.2512	85.58	0.56
Water Quality	025yr096hr	DRA_PB-3	20.3345	85.58	0.56
Water Quality	025yr096hr	DRA_PB-3	20.4178	85.58	0.56
Water Quality	025yr096hr	DRA_PB-3	20.5012	85.58	0.55
Water Quality	025yr096hr	DRA_PB-3	20.5845	85.57	0.55
Water Quality	025yr096hr	DRA_PB-3	20.6678	85.57	0.55
Water Quality	025yr096hr	DRA_PB-3	20.7512	85.57	0.55
Water Quality	025yr096hr	DRA_PB-3	20.8345	85.57	0.55
Water Quality	025yr096hr	DRA_PB-3	20.9178	85.57	0.55
Water Quality	025yr096hr	DRA_PB-3	21.0012	85.56	0.55
Water Quality	025yr096hr	DRA_PB-3	21.0845	85.56	0.54
Water Quality	025yr096hr	DRA_PB-3	21.1678	85.56	0.54
Water Quality	025yr096hr	DRA_PB-3	21.2512	85.56	0.54
Water Quality	025yr096hr	DRA_PB-3	21.3345	85.56	0.54
Water Quality	025yr096hr	DRA_PB-3	21.4178	85.56	0.54
Water Quality	025yr096hr	DRA_PB-3	21.5012	85.55	0.54
Water Quality	025yr096hr	DRA_PB-3	21.5845	85.55	0.54
Water Quality	025yr096hr	DRA_PB-3	21.6678	85.55	0.53
Water Quality	025yr096hr	DRA_PB-3	21.7512	85.55	0.53

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	21.8345	85.55	0.53
Water Quality	025yr096hr	DRA_PB-3	21.9178	85.54	0.53
Water Quality	025yr096hr	DRA_PB-3	22.0012	85.54	0.53
Water Quality	025yr096hr	DRA_PB-3	22.0845	85.54	0.53
Water Quality	025yr096hr	DRA_PB-3	22.1678	85.54	0.53
Water Quality	025yr096hr	DRA_PB-3	22.2512	85.54	0.53
Water Quality	025yr096hr	DRA_PB-3	22.3345	85.53	0.52
Water Quality	025yr096hr	DRA_PB-3	22.4178	85.53	0.52
Water Quality	025yr096hr	DRA_PB-3	22.5012	85.53	0.52
Water Quality	025yr096hr	DRA_PB-3	22.5845	85.53	0.52
Water Quality	025yr096hr	DRA_PB-3	22.6678	85.53	0.52
Water Quality	025yr096hr	DRA_PB-3	22.7512	85.53	0.52
Water Quality	025yr096hr	DRA_PB-3	22.8345	85.52	0.52
Water Quality	025yr096hr	DRA_PB-3	22.9178	85.52	0.51
Water Quality	025yr096hr	DRA_PB-3	23.0012	85.52	0.51
Water Quality	025yr096hr	DRA_PB-3	23.0845	85.52	0.51
Water Quality	025yr096hr	DRA_PB-3	23.1678	85.52	0.51
Water Quality	025yr096hr	DRA_PB-3	23.2512	85.51	0.51
Water Quality	025yr096hr	DRA_PB-3	23.3345	85.51	0.51
Water Quality	025yr096hr	DRA_PB-3	23.4178	85.51	0.51
Water Quality	025yr096hr	DRA_PB-3	23.5012	85.51	0.51
Water Quality	025yr096hr	DRA_PB-3	23.5845	85.51	0.50
Water Quality	025yr096hr	DRA_PB-3	23.6678	85.51	0.50
Water Quality	025yr096hr	DRA_PB-3	23.7512	85.50	0.50
Water Quality	025yr096hr	DRA_PB-3	23.8345	85.50	0.50
Water Quality	025yr096hr	DRA_PB-3	23.9178	85.50	0.50
Water Quality	025yr096hr	DRA_PB-3	24.0012	85.50	0.50
Water Quality	025yr096hr	DRA_PB-3	24.0845	85.50	0.50
Water Quality	025yr096hr	DRA_PB-3	24.1678	85.49	0.50
Water Quality	025yr096hr	DRA_PB-3	24.2512	85.49	0.50
Water Quality	025yr096hr	DRA_PB-3	24.3345	85.49	0.49
Water Quality	025yr096hr	DRA_PB-3	24.4178	85.49	0.49
Water Quality	025yr096hr	DRA_PB-3	24.5012	85.49	0.49
Water Quality	025yr096hr	DRA_PB-3	24.5845	85.49	0.49
Water Quality	025yr096hr	DRA_PB-3	24.6678	85.48	0.49
Water Quality	025yr096hr	DRA_PB-3	24.7512	85.48	0.49
Water Quality	025yr096hr	DRA_PB-3	24.8345	85.48	0.49
Water Quality	025yr096hr	DRA_PB-3	24.9178	85.48	0.49
Water Quality	025yr096hr	DRA_PB-3	25.0012	85.48	0.48
Water Quality	025yr096hr	DRA_PB-3	25.0845	85.48	0.48
Water Quality	025yr096hr	DRA_PB-3	25.1678	85.47	0.48
Water Quality	025yr096hr	DRA_PB-3	25.2512	85.47	0.48

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	25.3345	85.47	0.48
Water Quality	025yr096hr	DRA_PB-3	25.4178	85.47	0.48
Water Quality	025yr096hr	DRA_PB-3	25.5012	85.47	0.48
Water Quality	025yr096hr	DRA_PB-3	25.5845	85.47	0.48
Water Quality	025yr096hr	DRA_PB-3	25.6678	85.46	0.48
Water Quality	025yr096hr	DRA_PB-3	25.7512	85.46	0.48
Water Quality	025yr096hr	DRA_PB-3	25.8345	85.46	0.47
Water Quality	025yr096hr	DRA_PB-3	25.9178	85.46	0.47
Water Quality	025yr096hr	DRA_PB-3	26.0012	85.46	0.47
Water Quality	025yr096hr	DRA_PB-3	26.0845	85.45	0.47
Water Quality	025yr096hr	DRA_PB-3	26.1678	85.45	0.47
Water Quality	025yr096hr	DRA_PB-3	26.2512	85.45	0.47
Water Quality	025yr096hr	DRA_PB-3	26.3345	85.45	0.47
Water Quality	025yr096hr	DRA_PB-3	26.4178	85.45	0.47
Water Quality	025yr096hr	DRA_PB-3	26.5012	85.45	0.47
Water Quality	025yr096hr	DRA_PB-3	26.5845	85.44	0.46
Water Quality	025yr096hr	DRA_PB-3	26.6678	85.44	0.46
Water Quality	025yr096hr	DRA_PB-3	26.7512	85.44	0.46
Water Quality	025yr096hr	DRA_PB-3	26.8345	85.44	0.46
Water Quality	025yr096hr	DRA_PB-3	26.9178	85.44	0.46
Water Quality	025yr096hr	DRA_PB-3	27.0012	85.44	0.46
Water Quality	025yr096hr	DRA_PB-3	27.0845	85.43	0.46
Water Quality	025yr096hr	DRA_PB-3	27.1678	85.43	0.46
Water Quality	025yr096hr	DRA_PB-3	27.2512	85.43	0.46
Water Quality	025yr096hr	DRA_PB-3	27.3345	85.43	0.46
Water Quality	025yr096hr	DRA_PB-3	27.4178	85.43	0.45
Water Quality	025yr096hr	DRA_PB-3	27.5012	85.43	0.45
Water Quality	025yr096hr	DRA_PB-3	27.5845	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	27.6678	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	27.7512	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	27.8345	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	27.9178	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	28.0012	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	28.0845	85.42	0.45
Water Quality	025yr096hr	DRA_PB-3	28.1678	85.41	0.45
Water Quality	025yr096hr	DRA_PB-3	28.2512	85.41	0.45
Water Quality	025yr096hr	DRA_PB-3	28.3345	85.41	0.44
Water Quality	025yr096hr	DRA_PB-3	28.4178	85.41	0.44
Water Quality	025yr096hr	DRA_PB-3	28.5012	85.41	0.44
Water Quality	025yr096hr	DRA_PB-3	28.5845	85.41	0.44
Water Quality	025yr096hr	DRA_PB-3	28.6678	85.40	0.44
Water Quality	025yr096hr	DRA_PB-3	28.7512	85.40	0.44

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	28.8345	85.40	0.44
Water Quality	025yr096hr	DRA_PB-3	28.9178	85.40	0.44
Water Quality	025yr096hr	DRA_PB-3	29.0012	85.40	0.44
Water Quality	025yr096hr	DRA_PB-3	29.0845	85.40	0.44
Water Quality	025yr096hr	DRA_PB-3	29.1678	85.39	0.44
Water Quality	025yr096hr	DRA_PB-3	29.2512	85.39	0.43
Water Quality	025yr096hr	DRA_PB-3	29.3345	85.39	0.43
Water Quality	025yr096hr	DRA_PB-3	29.4178	85.39	0.43
Water Quality	025yr096hr	DRA_PB-3	29.5012	85.39	0.43
Water Quality	025yr096hr	DRA_PB-3	29.5845	85.39	0.43
Water Quality	025yr096hr	DRA_PB-3	29.6678	85.39	0.43
Water Quality	025yr096hr	DRA_PB-3	29.7512	85.38	0.43
Water Quality	025yr096hr	DRA_PB-3	29.8345	85.38	0.43
Water Quality	025yr096hr	DRA_PB-3	29.9178	85.38	0.43
Water Quality	025yr096hr	DRA_PB-3	30.0012	85.38	0.43
Water Quality	025yr096hr	DRA_PB-3	30.0845	85.38	0.43
Water Quality	025yr096hr	DRA_PB-3	30.1678	85.38	0.43
Water Quality	025yr096hr	DRA_PB-3	30.2512	85.37	0.42
Water Quality	025yr096hr	DRA_PB-3	30.3345	85.37	0.42
Water Quality	025yr096hr	DRA_PB-3	30.4178	85.37	0.42
Water Quality	025yr096hr	DRA_PB-3	30.5012	85.37	0.42
Water Quality	025yr096hr	DRA_PB-3	30.5845	85.37	0.42
Water Quality	025yr096hr	DRA_PB-3	30.6678	85.37	0.42
Water Quality	025yr096hr	DRA_PB-3	30.7512	85.36	0.42
Water Quality	025yr096hr	DRA_PB-3	30.8345	85.36	0.42
Water Quality	025yr096hr	DRA_PB-3	30.9178	85.36	0.42
Water Quality	025yr096hr	DRA_PB-3	31.0012	85.36	0.42
Water Quality	025yr096hr	DRA_PB-3	31.0845	85.36	0.42
Water Quality	025yr096hr	DRA_PB-3	31.1678	85.36	0.42
Water Quality	025yr096hr	DRA_PB-3	31.2512	85.36	0.41
Water Quality	025yr096hr	DRA_PB-3	31.3345	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.4178	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.5012	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.5845	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.6678	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.7512	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.8345	85.35	0.41
Water Quality	025yr096hr	DRA_PB-3	31.9178	85.34	0.41
Water Quality	025yr096hr	DRA_PB-3	32.0012	85.34	0.41
Water Quality	025yr096hr	DRA_PB-3	32.0845	85.34	0.41
Water Quality	025yr096hr	DRA_PB-3	32.1678	85.34	0.41
Water Quality	025yr096hr	DRA_PB-3	32.2512	85.34	0.41

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	32.3345	85.34	0.40
Water Quality	025yr096hr	DRA_PB-3	32.4178	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	32.5012	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	32.5845	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	32.6678	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	32.7512	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	32.8345	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	32.9178	85.33	0.40
Water Quality	025yr096hr	DRA_PB-3	33.0012	85.32	0.40
Water Quality	025yr096hr	DRA_PB-3	33.0845	85.32	0.40
Water Quality	025yr096hr	DRA_PB-3	33.1678	85.32	0.40
Water Quality	025yr096hr	DRA_PB-3	33.2512	85.32	0.40
Water Quality	025yr096hr	DRA_PB-3	33.3345	85.32	0.40
Water Quality	025yr096hr	DRA_PB-3	33.4178	85.32	0.40
Water Quality	025yr096hr	DRA_PB-3	33.5012	85.32	0.39
Water Quality	025yr096hr	DRA_PB-3	33.5845	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	33.6678	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	33.7512	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	33.8345	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	33.9178	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	34.0012	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	34.0845	85.31	0.39
Water Quality	025yr096hr	DRA_PB-3	34.1678	85.30	0.39
Water Quality	025yr096hr	DRA_PB-3	34.2512	85.30	0.39
Water Quality	025yr096hr	DRA_PB-3	34.3345	85.30	0.39
Water Quality	025yr096hr	DRA_PB-3	34.4178	85.30	0.39
Water Quality	025yr096hr	DRA_PB-3	34.5012	85.30	0.39
Water Quality	025yr096hr	DRA_PB-3	34.5845	85.30	0.39
Water Quality	025yr096hr	DRA_PB-3	34.6678	85.30	0.38
Water Quality	025yr096hr	DRA_PB-3	34.7512	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	34.8345	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	34.9178	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	35.0012	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	35.0845	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	35.1678	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	35.2512	85.29	0.38
Water Quality	025yr096hr	DRA_PB-3	35.3345	85.28	0.38
Water Quality	025yr096hr	DRA_PB-3	35.4178	85.28	0.38
Water Quality	025yr096hr	DRA_PB-3	35.5012	85.28	0.38
Water Quality	025yr096hr	DRA_PB-3	35.5845	85.28	0.38
Water Quality	025yr096hr	DRA_PB-3	35.6678	85.28	0.38
Water Quality	025yr096hr	DRA_PB-3	35.7512	85.28	0.38

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	35.8345	85.28	0.38
Water Quality	025yr096hr	DRA_PB-3	35.9178	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.0012	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.0845	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.1678	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.2512	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.3345	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.4178	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.5012	85.27	0.37
Water Quality	025yr096hr	DRA_PB-3	36.5845	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	36.6678	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	36.7512	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	36.8345	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	36.9178	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	37.0012	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	37.0845	85.26	0.37
Water Quality	025yr096hr	DRA_PB-3	37.1678	85.25	0.37
Water Quality	025yr096hr	DRA_PB-3	37.2512	85.25	0.37
Water Quality	025yr096hr	DRA_PB-3	37.3345	85.25	0.36
Water Quality	025yr096hr	DRA_PB-3	37.4178	85.25	0.36
Water Quality	025yr096hr	DRA_PB-3	37.5012	85.25	0.36
Water Quality	025yr096hr	DRA_PB-3	37.5845	85.25	0.36
Water Quality	025yr096hr	DRA_PB-3	37.6678	85.25	0.36
Water Quality	025yr096hr	DRA_PB-3	37.7512	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	37.8345	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	37.9178	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	38.0012	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	38.0845	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	38.1678	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	38.2512	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	38.3345	85.24	0.36
Water Quality	025yr096hr	DRA_PB-3	38.4178	85.23	0.36
Water Quality	025yr096hr	DRA_PB-3	38.5012	85.23	0.36
Water Quality	025yr096hr	DRA_PB-3	38.5845	85.23	0.36
Water Quality	025yr096hr	DRA_PB-3	38.6678	85.23	0.36
Water Quality	025yr096hr	DRA_PB-3	38.7512	85.23	0.35
Water Quality	025yr096hr	DRA_PB-3	38.8345	85.23	0.35
Water Quality	025yr096hr	DRA_PB-3	38.9178	85.23	0.35
Water Quality	025yr096hr	DRA_PB-3	39.0012	85.23	0.35
Water Quality	025yr096hr	DRA_PB-3	39.0845	85.22	0.35
Water Quality	025yr096hr	DRA_PB-3	39.1678	85.22	0.35
Water Quality	025yr096hr	DRA_PB-3	39.2512	85.22	0.35

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	39.3345	85.22	0.35
Water Quality	025yr096hr	DRA_PB-3	39.4178	85.22	0.35
Water Quality	025yr096hr	DRA_PB-3	39.5012	85.22	0.35
Water Quality	025yr096hr	DRA_PB-3	39.5845	85.22	0.35
Water Quality	025yr096hr	DRA_PB-3	39.6678	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	39.7512	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	39.8345	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	39.9178	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	40.0012	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	40.0845	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	40.1678	85.21	0.35
Water Quality	025yr096hr	DRA_PB-3	40.2512	85.21	0.34
Water Quality	025yr096hr	DRA_PB-3	40.3345	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.4178	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.5012	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.5845	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.6678	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.7512	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.8345	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	40.9178	85.20	0.34
Water Quality	025yr096hr	DRA_PB-3	41.0012	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.0845	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.1678	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.2512	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.3345	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.4178	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.5012	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.5845	85.19	0.34
Water Quality	025yr096hr	DRA_PB-3	41.6678	85.18	0.34
Water Quality	025yr096hr	DRA_PB-3	41.7512	85.18	0.34
Water Quality	025yr096hr	DRA_PB-3	41.8345	85.18	0.33
Water Quality	025yr096hr	DRA_PB-3	41.9178	85.18	0.33
Water Quality	025yr096hr	DRA_PB-3	42.0012	85.18	0.33
Water Quality	025yr096hr	DRA_PB-3	42.0845	85.18	0.33
Water Quality	025yr096hr	DRA_PB-3	42.1678	85.18	0.33
Water Quality	025yr096hr	DRA_PB-3	42.2512	85.18	0.33
Water Quality	025yr096hr	DRA_PB-3	42.3345	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	42.4178	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	42.5012	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	42.5845	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	42.6678	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	42.7512	85.17	0.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	42.8345	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	42.9178	85.17	0.33
Water Quality	025yr096hr	DRA_PB-3	43.0012	85.16	0.33
Water Quality	025yr096hr	DRA_PB-3	43.0845	85.16	0.33
Water Quality	025yr096hr	DRA_PB-3	43.1678	85.16	0.33
Water Quality	025yr096hr	DRA_PB-3	43.2512	85.16	0.33
Water Quality	025yr096hr	DRA_PB-3	43.3345	85.16	0.33
Water Quality	025yr096hr	DRA_PB-3	43.4178	85.16	0.33
Water Quality	025yr096hr	DRA_PB-3	43.5012	85.16	0.32
Water Quality	025yr096hr	DRA_PB-3	43.5845	85.16	0.32
Water Quality	025yr096hr	DRA_PB-3	43.6678	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	43.7512	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	43.8345	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	43.9178	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	44.0012	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	44.0845	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	44.1678	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	44.2512	85.15	0.32
Water Quality	025yr096hr	DRA_PB-3	44.3345	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.4178	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.5012	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.5845	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.6678	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.7512	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.8345	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	44.9178	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	45.0012	85.14	0.32
Water Quality	025yr096hr	DRA_PB-3	45.0845	85.13	0.32
Water Quality	025yr096hr	DRA_PB-3	45.1678	85.13	0.32
Water Quality	025yr096hr	DRA_PB-3	45.2512	85.13	0.32
Water Quality	025yr096hr	DRA_PB-3	45.3345	85.13	0.31
Water Quality	025yr096hr	DRA_PB-3	45.4178	85.13	0.31
Water Quality	025yr096hr	DRA_PB-3	45.5012	85.13	0.31
Water Quality	025yr096hr	DRA_PB-3	45.5845	85.13	0.31
Water Quality	025yr096hr	DRA_PB-3	45.6678	85.13	0.31
Water Quality	025yr096hr	DRA_PB-3	45.7512	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	45.8345	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	45.9178	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	46.0012	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	46.0845	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	46.1678	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	46.2512	85.12	0.31

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	46.3345	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	46.4178	85.12	0.31
Water Quality	025yr096hr	DRA_PB-3	46.5012	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	46.5845	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	46.6678	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	46.7512	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	46.8345	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	46.9178	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	47.0012	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	47.0845	85.11	0.31
Water Quality	025yr096hr	DRA_PB-3	47.1678	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.2512	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.3345	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.4178	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.5012	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.5845	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.6678	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.7512	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.8345	85.10	0.30
Water Quality	025yr096hr	DRA_PB-3	47.9178	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.0012	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.0845	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.1678	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.2512	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.3345	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.4178	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.5012	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.5845	85.09	0.30
Water Quality	025yr096hr	DRA_PB-3	48.6678	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	48.7512	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	48.8345	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	48.9178	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	49.0012	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	49.0845	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	49.1678	85.08	0.30
Water Quality	025yr096hr	DRA_PB-3	49.2512	85.08	0.29
Water Quality	025yr096hr	DRA_PB-3	49.3345	85.08	0.29
Water Quality	025yr096hr	DRA_PB-3	49.4178	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	49.5012	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	49.5845	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	49.6678	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	49.7512	85.07	0.29

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	49.8345	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	49.9178	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	50.0012	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	50.0845	85.07	0.29
Water Quality	025yr096hr	DRA_PB-3	50.1678	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.2512	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.3345	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.4178	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.5012	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.5845	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.6678	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.7512	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.8345	85.06	0.29
Water Quality	025yr096hr	DRA_PB-3	50.9178	85.05	0.29
Water Quality	025yr096hr	DRA_PB-3	51.0012	85.05	0.29
Water Quality	025yr096hr	DRA_PB-3	51.0845	85.05	0.29
Water Quality	025yr096hr	DRA_PB-3	51.1678	85.05	0.29
Water Quality	025yr096hr	DRA_PB-3	51.2512	85.05	0.29
Water Quality	025yr096hr	DRA_PB-3	51.3345	85.05	0.29
Water Quality	025yr096hr	DRA_PB-3	51.4178	85.05	0.28
Water Quality	025yr096hr	DRA_PB-3	51.5012	85.05	0.28
Water Quality	025yr096hr	DRA_PB-3	51.5845	85.05	0.28
Water Quality	025yr096hr	DRA_PB-3	51.6678	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	51.7512	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	51.8345	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	51.9178	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	52.0012	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	52.0845	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	52.1678	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	52.2512	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	52.3345	85.04	0.28
Water Quality	025yr096hr	DRA_PB-3	52.4178	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	52.5012	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	52.5845	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	52.6678	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	52.7512	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	52.8345	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	52.9178	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	53.0012	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	53.0845	85.03	0.28
Water Quality	025yr096hr	DRA_PB-3	53.1678	85.02	0.28
Water Quality	025yr096hr	DRA_PB-3	53.2512	85.02	0.28

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	53.3345	85.02	0.28
Water Quality	025yr096hr	DRA_PB-3	53.4178	85.02	0.28
Water Quality	025yr096hr	DRA_PB-3	53.5012	85.02	0.28
Water Quality	025yr096hr	DRA_PB-3	53.5845	85.02	0.28
Water Quality	025yr096hr	DRA_PB-3	53.6678	85.02	0.28
Water Quality	025yr096hr	DRA_PB-3	53.7512	85.02	0.27
Water Quality	025yr096hr	DRA_PB-3	53.8345	85.02	0.27
Water Quality	025yr096hr	DRA_PB-3	53.9178	85.02	0.27
Water Quality	025yr096hr	DRA_PB-3	54.0012	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.0845	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.1678	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.2512	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.3345	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.4178	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.5012	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.5845	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.6678	85.01	0.27
Water Quality	025yr096hr	DRA_PB-3	54.7512	85.00	0.27
Water Quality	025yr096hr	DRA_PB-3	54.8345	85.00	0.27
Water Quality	025yr096hr	DRA_PB-3	54.9178	85.00	0.27
Water Quality	025yr096hr	DRA_PB-3	55.0012	85.00	0.27
Water Quality	025yr096hr	DRA_PB-3	55.0845	85.00	0.27
Water Quality	025yr096hr	DRA_PB-3	55.1678	85.00	0.01
Water Quality	025yr096hr	DRA_PB-3	55.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	55.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.7512	85.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	56.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	56.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	57.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	58.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	59.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.2512	85.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	60.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	60.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	61.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	62.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.7512	85.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	63.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	63.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	64.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	65.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	66.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.2512	85.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	67.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	67.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	68.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	69.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.7512	85.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-3	70.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	70.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	71.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.0845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.1678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.2512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.3345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.4178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.5012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.5845	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.6678	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.7512	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.8345	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	72.9178	85.00	0.00
Water Quality	025yr096hr	DRA_PB-3	73.0012	85.00	0.00
Water Quality	025yr096hr	DRA_PB-4	0.0000	120.89	0.00
Water Quality	025yr096hr	DRA_PB-4	0.0834	120.87	2.97
Water Quality	025yr096hr	DRA_PB-4	0.1675	120.85	2.52
Water Quality	025yr096hr	DRA_PB-4	0.2511	120.83	2.17
Water Quality	025yr096hr	DRA_PB-4	0.3355	120.82	1.89
Water Quality	025yr096hr	DRA_PB-4	0.4193	120.81	1.67
Water Quality	025yr096hr	DRA_PB-4	0.5016	120.79	1.50
Water Quality	025yr096hr	DRA_PB-4	0.5847	120.78	1.36
Water Quality	025yr096hr	DRA_PB-4	0.6679	120.77	1.25
Water Quality	025yr096hr	DRA_PB-4	0.7523	120.77	1.15
Water Quality	025yr096hr	DRA_PB-4	0.8353	120.76	1.08
Water Quality	025yr096hr	DRA_PB-4	0.9192	120.75	1.01
Water Quality	025yr096hr	DRA_PB-4	1.0017	120.74	0.96
Water Quality	025yr096hr	DRA_PB-4	1.0833	120.74	0.91
Water Quality	025yr096hr	DRA_PB-4	1.1698	120.73	0.87

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	1.2525	120.72	0.83
Water Quality	025yr096hr	DRA_PB-4	1.3364	120.72	0.80
Water Quality	025yr096hr	DRA_PB-4	1.4185	120.71	0.77
Water Quality	025yr096hr	DRA_PB-4	1.5026	120.71	0.74
Water Quality	025yr096hr	DRA_PB-4	1.5841	120.70	0.72
Water Quality	025yr096hr	DRA_PB-4	1.6688	120.70	0.70
Water Quality	025yr096hr	DRA_PB-4	1.7512	120.69	0.68
Water Quality	025yr096hr	DRA_PB-4	1.8337	120.69	0.66
Water Quality	025yr096hr	DRA_PB-4	1.9170	120.68	0.64
Water Quality	025yr096hr	DRA_PB-4	2.0019	120.68	0.63
Water Quality	025yr096hr	DRA_PB-4	2.0855	120.67	0.61
Water Quality	025yr096hr	DRA_PB-4	2.1704	120.67	0.60
Water Quality	025yr096hr	DRA_PB-4	2.2524	120.66	0.58
Water Quality	025yr096hr	DRA_PB-4	2.3352	120.66	0.57
Water Quality	025yr096hr	DRA_PB-4	2.4188	120.66	0.56
Water Quality	025yr096hr	DRA_PB-4	2.5034	120.65	0.55
Water Quality	025yr096hr	DRA_PB-4	2.5855	120.65	0.54
Water Quality	025yr096hr	DRA_PB-4	2.6706	120.64	0.53
Water Quality	025yr096hr	DRA_PB-4	2.7509	120.64	0.52
Water Quality	025yr096hr	DRA_PB-4	2.8381	120.64	0.51
Water Quality	025yr096hr	DRA_PB-4	2.9196	120.63	0.50
Water Quality	025yr096hr	DRA_PB-4	3.0013	120.63	0.49
Water Quality	025yr096hr	DRA_PB-4	3.0894	120.63	0.49
Water Quality	025yr096hr	DRA_PB-4	3.1700	120.62	0.48
Water Quality	025yr096hr	DRA_PB-4	3.2540	120.62	0.47
Water Quality	025yr096hr	DRA_PB-4	3.3337	120.62	0.47
Water Quality	025yr096hr	DRA_PB-4	3.4178	120.61	0.46
Water Quality	025yr096hr	DRA_PB-4	3.5046	120.61	0.45
Water Quality	025yr096hr	DRA_PB-4	3.5870	120.61	0.45
Water Quality	025yr096hr	DRA_PB-4	3.6715	120.60	0.44
Water Quality	025yr096hr	DRA_PB-4	3.7521	120.60	0.44
Water Quality	025yr096hr	DRA_PB-4	3.8345	120.60	0.43
Water Quality	025yr096hr	DRA_PB-4	3.9178	120.59	0.42
Water Quality	025yr096hr	DRA_PB-4	4.0012	120.59	0.42
Water Quality	025yr096hr	DRA_PB-4	4.0845	120.59	0.41
Water Quality	025yr096hr	DRA_PB-4	4.1678	120.58	0.41
Water Quality	025yr096hr	DRA_PB-4	4.2512	120.58	0.41
Water Quality	025yr096hr	DRA_PB-4	4.3345	120.58	0.40
Water Quality	025yr096hr	DRA_PB-4	4.4178	120.58	0.40
Water Quality	025yr096hr	DRA_PB-4	4.5012	120.57	0.39
Water Quality	025yr096hr	DRA_PB-4	4.5845	120.57	0.39
Water Quality	025yr096hr	DRA_PB-4	4.6678	120.57	0.38

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	4.7512	120.56	0.38
Water Quality	025yr096hr	DRA_PB-4	4.8345	120.56	0.38
Water Quality	025yr096hr	DRA_PB-4	4.9178	120.56	0.37
Water Quality	025yr096hr	DRA_PB-4	5.0012	120.56	0.37
Water Quality	025yr096hr	DRA_PB-4	5.0845	120.55	0.37
Water Quality	025yr096hr	DRA_PB-4	5.1678	120.55	0.36
Water Quality	025yr096hr	DRA_PB-4	5.2512	120.55	0.36
Water Quality	025yr096hr	DRA_PB-4	5.3345	120.55	0.36
Water Quality	025yr096hr	DRA_PB-4	5.4178	120.54	0.35
Water Quality	025yr096hr	DRA_PB-4	5.5012	120.54	0.35
Water Quality	025yr096hr	DRA_PB-4	5.5845	120.54	0.35
Water Quality	025yr096hr	DRA_PB-4	5.6678	120.54	0.34
Water Quality	025yr096hr	DRA_PB-4	5.7512	120.53	0.34
Water Quality	025yr096hr	DRA_PB-4	5.8345	120.53	0.34
Water Quality	025yr096hr	DRA_PB-4	5.9178	120.53	0.34
Water Quality	025yr096hr	DRA_PB-4	6.0012	120.53	0.33
Water Quality	025yr096hr	DRA_PB-4	6.0845	120.52	0.33
Water Quality	025yr096hr	DRA_PB-4	6.1678	120.52	0.33
Water Quality	025yr096hr	DRA_PB-4	6.2512	120.52	0.32
Water Quality	025yr096hr	DRA_PB-4	6.3345	120.52	0.32
Water Quality	025yr096hr	DRA_PB-4	6.4178	120.51	0.32
Water Quality	025yr096hr	DRA_PB-4	6.5012	120.51	0.32
Water Quality	025yr096hr	DRA_PB-4	6.5845	120.51	0.32
Water Quality	025yr096hr	DRA_PB-4	6.6678	120.51	0.31
Water Quality	025yr096hr	DRA_PB-4	6.7512	120.50	0.31
Water Quality	025yr096hr	DRA_PB-4	6.8345	120.50	0.31
Water Quality	025yr096hr	DRA_PB-4	6.9178	120.50	0.31
Water Quality	025yr096hr	DRA_PB-4	7.0012	120.50	0.30
Water Quality	025yr096hr	DRA_PB-4	7.0845	120.50	0.30
Water Quality	025yr096hr	DRA_PB-4	7.1678	120.49	0.30
Water Quality	025yr096hr	DRA_PB-4	7.2512	120.49	0.30
Water Quality	025yr096hr	DRA_PB-4	7.3345	120.49	0.30
Water Quality	025yr096hr	DRA_PB-4	7.4178	120.49	0.29
Water Quality	025yr096hr	DRA_PB-4	7.5012	120.48	0.29
Water Quality	025yr096hr	DRA_PB-4	7.5845	120.48	0.29
Water Quality	025yr096hr	DRA_PB-4	7.6678	120.48	0.29
Water Quality	025yr096hr	DRA_PB-4	7.7512	120.48	0.29
Water Quality	025yr096hr	DRA_PB-4	7.8345	120.48	0.29
Water Quality	025yr096hr	DRA_PB-4	7.9178	120.47	0.28
Water Quality	025yr096hr	DRA_PB-4	8.0012	120.47	0.28
Water Quality	025yr096hr	DRA_PB-4	8.0845	120.47	0.28
Water Quality	025yr096hr	DRA_PB-4	8.1678	120.47	0.28

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	8.2512	120.47	0.28
Water Quality	025yr096hr	DRA_PB-4	8.3345	120.46	0.28
Water Quality	025yr096hr	DRA_PB-4	8.4178	120.46	0.27
Water Quality	025yr096hr	DRA_PB-4	8.5012	120.46	0.27
Water Quality	025yr096hr	DRA_PB-4	8.5845	120.46	0.27
Water Quality	025yr096hr	DRA_PB-4	8.6678	120.46	0.27
Water Quality	025yr096hr	DRA_PB-4	8.7512	120.45	0.27
Water Quality	025yr096hr	DRA_PB-4	8.8345	120.45	0.27
Water Quality	025yr096hr	DRA_PB-4	8.9178	120.45	0.26
Water Quality	025yr096hr	DRA_PB-4	9.0012	120.45	0.26
Water Quality	025yr096hr	DRA_PB-4	9.0845	120.45	0.26
Water Quality	025yr096hr	DRA_PB-4	9.1678	120.44	0.26
Water Quality	025yr096hr	DRA_PB-4	9.2512	120.44	0.26
Water Quality	025yr096hr	DRA_PB-4	9.3345	120.44	0.26
Water Quality	025yr096hr	DRA_PB-4	9.4178	120.44	0.26
Water Quality	025yr096hr	DRA_PB-4	9.5012	120.44	0.26
Water Quality	025yr096hr	DRA_PB-4	9.5845	120.43	0.25
Water Quality	025yr096hr	DRA_PB-4	9.6678	120.43	0.25
Water Quality	025yr096hr	DRA_PB-4	9.7512	120.43	0.25
Water Quality	025yr096hr	DRA_PB-4	9.8345	120.43	0.25
Water Quality	025yr096hr	DRA_PB-4	9.9178	120.43	0.25
Water Quality	025yr096hr	DRA_PB-4	10.0012	120.43	0.25
Water Quality	025yr096hr	DRA_PB-4	10.0845	120.42	0.25
Water Quality	025yr096hr	DRA_PB-4	10.1678	120.42	0.25
Water Quality	025yr096hr	DRA_PB-4	10.2512	120.42	0.24
Water Quality	025yr096hr	DRA_PB-4	10.3345	120.42	0.24
Water Quality	025yr096hr	DRA_PB-4	10.4178	120.42	0.24
Water Quality	025yr096hr	DRA_PB-4	10.5012	120.41	0.24
Water Quality	025yr096hr	DRA_PB-4	10.5845	120.41	0.24
Water Quality	025yr096hr	DRA_PB-4	10.6678	120.41	0.24
Water Quality	025yr096hr	DRA_PB-4	10.7512	120.41	0.24
Water Quality	025yr096hr	DRA_PB-4	10.8345	120.41	0.24
Water Quality	025yr096hr	DRA_PB-4	10.9178	120.41	0.24
Water Quality	025yr096hr	DRA_PB-4	11.0012	120.40	0.23
Water Quality	025yr096hr	DRA_PB-4	11.0845	120.40	0.23
Water Quality	025yr096hr	DRA_PB-4	11.1678	120.40	0.23
Water Quality	025yr096hr	DRA_PB-4	11.2512	120.40	0.23
Water Quality	025yr096hr	DRA_PB-4	11.3345	120.40	0.23
Water Quality	025yr096hr	DRA_PB-4	11.4178	120.40	0.23
Water Quality	025yr096hr	DRA_PB-4	11.5012	120.39	0.23
Water Quality	025yr096hr	DRA_PB-4	11.5845	120.39	0.23
Water Quality	025yr096hr	DRA_PB-4	11.6678	120.39	0.23

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	11.7512	120.39	0.23
Water Quality	025yr096hr	DRA_PB-4	11.8345	120.39	0.22
Water Quality	025yr096hr	DRA_PB-4	11.9178	120.39	0.22
Water Quality	025yr096hr	DRA_PB-4	12.0012	120.38	0.22
Water Quality	025yr096hr	DRA_PB-4	12.0845	120.38	0.22
Water Quality	025yr096hr	DRA_PB-4	12.1678	120.38	0.22
Water Quality	025yr096hr	DRA_PB-4	12.2512	120.38	0.22
Water Quality	025yr096hr	DRA_PB-4	12.3345	120.38	0.22
Water Quality	025yr096hr	DRA_PB-4	12.4178	120.38	0.22
Water Quality	025yr096hr	DRA_PB-4	12.5012	120.37	0.22
Water Quality	025yr096hr	DRA_PB-4	12.5845	120.37	0.22
Water Quality	025yr096hr	DRA_PB-4	12.6678	120.37	0.22
Water Quality	025yr096hr	DRA_PB-4	12.7512	120.37	0.21
Water Quality	025yr096hr	DRA_PB-4	12.8345	120.37	0.21
Water Quality	025yr096hr	DRA_PB-4	12.9178	120.37	0.21
Water Quality	025yr096hr	DRA_PB-4	13.0012	120.36	0.21
Water Quality	025yr096hr	DRA_PB-4	13.0845	120.36	0.21
Water Quality	025yr096hr	DRA_PB-4	13.1678	120.36	0.21
Water Quality	025yr096hr	DRA_PB-4	13.2512	120.36	0.21
Water Quality	025yr096hr	DRA_PB-4	13.3345	120.36	0.21
Water Quality	025yr096hr	DRA_PB-4	13.4178	120.36	0.21
Water Quality	025yr096hr	DRA_PB-4	13.5012	120.35	0.21
Water Quality	025yr096hr	DRA_PB-4	13.5845	120.35	0.21
Water Quality	025yr096hr	DRA_PB-4	13.6678	120.35	0.21
Water Quality	025yr096hr	DRA_PB-4	13.7512	120.35	0.21
Water Quality	025yr096hr	DRA_PB-4	13.8345	120.35	0.20
Water Quality	025yr096hr	DRA_PB-4	13.9178	120.35	0.20
Water Quality	025yr096hr	DRA_PB-4	14.0012	120.35	0.20
Water Quality	025yr096hr	DRA_PB-4	14.0845	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.1678	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.2512	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.3345	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.4178	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.5012	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.5845	120.34	0.20
Water Quality	025yr096hr	DRA_PB-4	14.6678	120.33	0.20
Water Quality	025yr096hr	DRA_PB-4	14.7512	120.33	0.20
Water Quality	025yr096hr	DRA_PB-4	14.8345	120.33	0.20
Water Quality	025yr096hr	DRA_PB-4	14.9178	120.33	0.20
Water Quality	025yr096hr	DRA_PB-4	15.0012	120.33	0.19
Water Quality	025yr096hr	DRA_PB-4	15.0845	120.33	0.19
Water Quality	025yr096hr	DRA_PB-4	15.1678	120.33	0.19

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	15.2512	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.3345	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.4178	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.5012	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.5845	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.6678	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.7512	120.32	0.19
Water Quality	025yr096hr	DRA_PB-4	15.8345	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	15.9178	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	16.0012	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	16.0845	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	16.1678	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	16.2512	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	16.3345	120.31	0.19
Water Quality	025yr096hr	DRA_PB-4	16.4178	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	16.5012	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	16.5845	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	16.6678	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	16.7512	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	16.8345	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	16.9178	120.30	0.18
Water Quality	025yr096hr	DRA_PB-4	17.0012	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.0845	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.1678	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.2512	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.3345	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.4178	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.5012	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.5845	120.29	0.18
Water Quality	025yr096hr	DRA_PB-4	17.6678	120.28	0.18
Water Quality	025yr096hr	DRA_PB-4	17.7512	120.28	0.18
Water Quality	025yr096hr	DRA_PB-4	17.8345	120.28	0.18
Water Quality	025yr096hr	DRA_PB-4	17.9178	120.28	0.17
Water Quality	025yr096hr	DRA_PB-4	18.0012	120.28	0.17
Water Quality	025yr096hr	DRA_PB-4	18.0845	120.28	0.17
Water Quality	025yr096hr	DRA_PB-4	18.1678	120.28	0.17
Water Quality	025yr096hr	DRA_PB-4	18.2512	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.3345	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.4178	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.5012	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.5845	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.6678	120.27	0.17

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	18.7512	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.8345	120.27	0.17
Water Quality	025yr096hr	DRA_PB-4	18.9178	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.0012	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.0845	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.1678	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.2512	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.3345	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.4178	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.5012	120.26	0.17
Water Quality	025yr096hr	DRA_PB-4	19.5845	120.25	0.17
Water Quality	025yr096hr	DRA_PB-4	19.6678	120.25	0.17
Water Quality	025yr096hr	DRA_PB-4	19.7512	120.25	0.16
Water Quality	025yr096hr	DRA_PB-4	19.8345	120.25	0.16
Water Quality	025yr096hr	DRA_PB-4	19.9178	120.25	0.16
Water Quality	025yr096hr	DRA_PB-4	20.0012	120.25	0.16
Water Quality	025yr096hr	DRA_PB-4	20.0845	120.25	0.16
Water Quality	025yr096hr	DRA_PB-4	20.1678	120.25	0.16
Water Quality	025yr096hr	DRA_PB-4	20.2512	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.3345	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.4178	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.5012	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.5845	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.6678	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.7512	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.8345	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	20.9178	120.24	0.16
Water Quality	025yr096hr	DRA_PB-4	21.0012	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.0845	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.1678	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.2512	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.3345	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.4178	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.5012	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.5845	120.23	0.16
Water Quality	025yr096hr	DRA_PB-4	21.6678	120.22	0.16
Water Quality	025yr096hr	DRA_PB-4	21.7512	120.22	0.16
Water Quality	025yr096hr	DRA_PB-4	21.8345	120.22	0.16
Water Quality	025yr096hr	DRA_PB-4	21.9178	120.22	0.15
Water Quality	025yr096hr	DRA_PB-4	22.0012	120.22	0.15
Water Quality	025yr096hr	DRA_PB-4	22.0845	120.22	0.15
Water Quality	025yr096hr	DRA_PB-4	22.1678	120.22	0.15

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	22.2512	120.22	0.15
Water Quality	025yr096hr	DRA_PB-4	22.3345	120.22	0.15
Water Quality	025yr096hr	DRA_PB-4	22.4178	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	22.5012	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	22.5845	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	22.6678	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	22.7512	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	22.8345	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	22.9178	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	23.0012	120.21	0.15
Water Quality	025yr096hr	DRA_PB-4	23.0845	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.1678	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.2512	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.3345	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.4178	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.5012	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.5845	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.6678	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.7512	120.20	0.15
Water Quality	025yr096hr	DRA_PB-4	23.8345	120.19	0.15
Water Quality	025yr096hr	DRA_PB-4	23.9178	120.19	0.15
Water Quality	025yr096hr	DRA_PB-4	24.0012	120.19	0.15
Water Quality	025yr096hr	DRA_PB-4	24.0845	120.19	0.15
Water Quality	025yr096hr	DRA_PB-4	24.1678	120.19	0.15
Water Quality	025yr096hr	DRA_PB-4	24.2512	120.19	0.15
Water Quality	025yr096hr	DRA_PB-4	24.3345	120.19	0.14
Water Quality	025yr096hr	DRA_PB-4	24.4178	120.19	0.14
Water Quality	025yr096hr	DRA_PB-4	24.5012	120.19	0.14
Water Quality	025yr096hr	DRA_PB-4	24.5845	120.19	0.14
Water Quality	025yr096hr	DRA_PB-4	24.6678	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	24.7512	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	24.8345	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	24.9178	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	25.0012	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	25.0845	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	25.1678	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	25.2512	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	25.3345	120.18	0.14
Water Quality	025yr096hr	DRA_PB-4	25.4178	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	25.5012	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	25.5845	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	25.6678	120.17	0.14

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	25.7512	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	25.8345	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	25.9178	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	26.0012	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	26.0845	120.17	0.14
Water Quality	025yr096hr	DRA_PB-4	26.1678	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.2512	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.3345	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.4178	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.5012	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.5845	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.6678	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.7512	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.8345	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	26.9178	120.16	0.14
Water Quality	025yr096hr	DRA_PB-4	27.0012	120.15	0.14
Water Quality	025yr096hr	DRA_PB-4	27.0845	120.15	0.14
Water Quality	025yr096hr	DRA_PB-4	27.1678	120.15	0.14
Water Quality	025yr096hr	DRA_PB-4	27.2512	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.3345	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.4178	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.5012	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.5845	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.6678	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.7512	120.15	0.13
Water Quality	025yr096hr	DRA_PB-4	27.8345	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	27.9178	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.0012	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.0845	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.1678	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.2512	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.3345	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.4178	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.5012	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.5845	120.14	0.13
Water Quality	025yr096hr	DRA_PB-4	28.6678	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	28.7512	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	28.8345	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	28.9178	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	29.0012	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	29.0845	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	29.1678	120.13	0.13

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	29.2512	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	29.3345	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	29.4178	120.13	0.13
Water Quality	025yr096hr	DRA_PB-4	29.5012	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	29.5845	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	29.6678	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	29.7512	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	29.8345	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	29.9178	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	30.0012	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	30.0845	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	30.1678	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	30.2512	120.12	0.13
Water Quality	025yr096hr	DRA_PB-4	30.3345	120.11	0.13
Water Quality	025yr096hr	DRA_PB-4	30.4178	120.11	0.13
Water Quality	025yr096hr	DRA_PB-4	30.5012	120.11	0.13
Water Quality	025yr096hr	DRA_PB-4	30.5845	120.11	0.13
Water Quality	025yr096hr	DRA_PB-4	30.6678	120.11	0.13
Water Quality	025yr096hr	DRA_PB-4	30.7512	120.11	0.12
Water Quality	025yr096hr	DRA_PB-4	30.8345	120.11	0.12
Water Quality	025yr096hr	DRA_PB-4	30.9178	120.11	0.12
Water Quality	025yr096hr	DRA_PB-4	31.0012	120.11	0.12
Water Quality	025yr096hr	DRA_PB-4	31.0845	120.11	0.12
Water Quality	025yr096hr	DRA_PB-4	31.1678	120.11	0.12
Water Quality	025yr096hr	DRA_PB-4	31.2512	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.3345	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.4178	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.5012	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.5845	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.6678	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.7512	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.8345	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	31.9178	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	32.0012	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	32.0845	120.10	0.12
Water Quality	025yr096hr	DRA_PB-4	32.1678	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.2512	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.3345	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.4178	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.5012	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.5845	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.6678	120.09	0.12

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	32.7512	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.8345	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	32.9178	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	33.0012	120.09	0.12
Water Quality	025yr096hr	DRA_PB-4	33.0845	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.1678	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.2512	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.3345	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.4178	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.5012	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.5845	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.6678	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.7512	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.8345	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	33.9178	120.08	0.12
Water Quality	025yr096hr	DRA_PB-4	34.0012	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.0845	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.1678	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.2512	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.3345	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.4178	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.5012	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.5845	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.6678	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.7512	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.8345	120.07	0.12
Water Quality	025yr096hr	DRA_PB-4	34.9178	120.06	0.12
Water Quality	025yr096hr	DRA_PB-4	35.0012	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.0845	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.1678	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.2512	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.3345	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.4178	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.5012	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.5845	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.6678	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.7512	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.8345	120.06	0.11
Water Quality	025yr096hr	DRA_PB-4	35.9178	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.0012	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.0845	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.1678	120.05	0.11

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	36.2512	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.3345	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.4178	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.5012	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.5845	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.6678	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.7512	120.05	0.11
Water Quality	025yr096hr	DRA_PB-4	36.8345	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	36.9178	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.0012	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.0845	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.1678	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.2512	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.3345	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.4178	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.5012	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.5845	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.6678	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.7512	120.04	0.11
Water Quality	025yr096hr	DRA_PB-4	37.8345	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	37.9178	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.0012	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.0845	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.1678	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.2512	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.3345	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.4178	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.5012	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.5845	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.6678	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.7512	120.03	0.11
Water Quality	025yr096hr	DRA_PB-4	38.8345	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	38.9178	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.0012	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.0845	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.1678	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.2512	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.3345	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.4178	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.5012	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.5845	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.6678	120.02	0.11

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	39.7512	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.8345	120.02	0.11
Water Quality	025yr096hr	DRA_PB-4	39.9178	120.01	0.11
Water Quality	025yr096hr	DRA_PB-4	40.0012	120.01	0.11
Water Quality	025yr096hr	DRA_PB-4	40.0845	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.1678	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.2512	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.3345	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.4178	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.5012	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.5845	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.6678	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.7512	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.8345	120.01	0.10
Water Quality	025yr096hr	DRA_PB-4	40.9178	120.00	0.10
Water Quality	025yr096hr	DRA_PB-4	41.0012	120.00	0.10
Water Quality	025yr096hr	DRA_PB-4	41.0845	120.00	0.10
Water Quality	025yr096hr	DRA_PB-4	41.1678	120.00	0.10
Water Quality	025yr096hr	DRA_PB-4	41.2512	120.00	0.10
Water Quality	025yr096hr	DRA_PB-4	41.3345	120.00	0.10
Water Quality	025yr096hr	DRA_PB-4	41.4178	120.00	0.07
Water Quality	025yr096hr	DRA_PB-4	41.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	41.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	41.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	41.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	41.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	41.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	42.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.1678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	43.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	43.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	44.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	45.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.6678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	46.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	46.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	47.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	48.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	49.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.1678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	50.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	50.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	51.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	52.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.6678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	53.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	53.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	54.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	55.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	56.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.1678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	57.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	57.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	58.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	59.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.6678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	60.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	60.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	61.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	62.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	63.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.1678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	64.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	64.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	65.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	66.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.6678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	67.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	67.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	68.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	69.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	70.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.1678	120.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-4	71.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	71.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.0845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.1678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.2512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.3345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.4178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.5012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.5845	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.6678	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.7512	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.8345	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	72.9178	120.00	0.00
Water Quality	025yr096hr	DRA_PB-4	73.0012	120.00	0.00
Water Quality	025yr096hr	DRA_PB-5	0.0000	90.95	0.00
Water Quality	025yr096hr	DRA_PB-5	0.0834	90.93	2.03
Water Quality	025yr096hr	DRA_PB-5	0.1675	90.91	2.03
Water Quality	025yr096hr	DRA_PB-5	0.2511	90.89	2.02
Water Quality	025yr096hr	DRA_PB-5	0.3355	90.86	2.01
Water Quality	025yr096hr	DRA_PB-5	0.4193	90.84	2.00
Water Quality	025yr096hr	DRA_PB-5	0.5016	90.82	2.00
Water Quality	025yr096hr	DRA_PB-5	0.5847	90.80	1.99
Water Quality	025yr096hr	DRA_PB-5	0.6679	90.78	1.98
Water Quality	025yr096hr	DRA_PB-5	0.7523	90.76	1.97
Water Quality	025yr096hr	DRA_PB-5	0.8353	90.74	1.96
Water Quality	025yr096hr	DRA_PB-5	0.9192	90.72	1.96
Water Quality	025yr096hr	DRA_PB-5	1.0017	90.70	1.95
Water Quality	025yr096hr	DRA_PB-5	1.0833	90.67	1.94
Water Quality	025yr096hr	DRA_PB-5	1.1698	90.65	1.93
Water Quality	025yr096hr	DRA_PB-5	1.2525	90.63	1.92
Water Quality	025yr096hr	DRA_PB-5	1.3364	90.61	1.92
Water Quality	025yr096hr	DRA_PB-5	1.4185	90.59	1.91
Water Quality	025yr096hr	DRA_PB-5	1.5026	90.57	1.89
Water Quality	025yr096hr	DRA_PB-5	1.5841	90.55	1.73

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	1.6688	90.53	1.61
Water Quality	025yr096hr	DRA_PB-5	1.7512	90.51	1.51
Water Quality	025yr096hr	DRA_PB-5	1.8337	90.50	1.42
Water Quality	025yr096hr	DRA_PB-5	1.9170	90.48	1.35
Water Quality	025yr096hr	DRA_PB-5	2.0019	90.46	1.29
Water Quality	025yr096hr	DRA_PB-5	2.0855	90.45	1.23
Water Quality	025yr096hr	DRA_PB-5	2.1704	90.44	1.18
Water Quality	025yr096hr	DRA_PB-5	2.2524	90.42	1.14
Water Quality	025yr096hr	DRA_PB-5	2.3352	90.41	1.11
Water Quality	025yr096hr	DRA_PB-5	2.4188	90.40	1.07
Water Quality	025yr096hr	DRA_PB-5	2.5034	90.39	1.04
Water Quality	025yr096hr	DRA_PB-5	2.5855	90.37	1.01
Water Quality	025yr096hr	DRA_PB-5	2.6706	90.36	0.98
Water Quality	025yr096hr	DRA_PB-5	2.7509	90.35	0.96
Water Quality	025yr096hr	DRA_PB-5	2.8381	90.34	0.93
Water Quality	025yr096hr	DRA_PB-5	2.9196	90.33	0.91
Water Quality	025yr096hr	DRA_PB-5	3.0013	90.32	0.89
Water Quality	025yr096hr	DRA_PB-5	3.0894	90.31	0.87
Water Quality	025yr096hr	DRA_PB-5	3.1700	90.30	0.85
Water Quality	025yr096hr	DRA_PB-5	3.2540	90.29	0.84
Water Quality	025yr096hr	DRA_PB-5	3.3337	90.28	0.82
Water Quality	025yr096hr	DRA_PB-5	3.4178	90.27	0.81
Water Quality	025yr096hr	DRA_PB-5	3.5046	90.26	0.79
Water Quality	025yr096hr	DRA_PB-5	3.5870	90.25	0.78
Water Quality	025yr096hr	DRA_PB-5	3.6715	90.24	0.76
Water Quality	025yr096hr	DRA_PB-5	3.7521	90.23	0.75
Water Quality	025yr096hr	DRA_PB-5	3.8345	90.22	0.74
Water Quality	025yr096hr	DRA_PB-5	3.9178	90.21	0.73
Water Quality	025yr096hr	DRA_PB-5	4.0012	90.21	0.71
Water Quality	025yr096hr	DRA_PB-5	4.0845	90.20	0.70
Water Quality	025yr096hr	DRA_PB-5	4.1678	90.19	0.69
Water Quality	025yr096hr	DRA_PB-5	4.2512	90.18	0.68
Water Quality	025yr096hr	DRA_PB-5	4.3345	90.17	0.67
Water Quality	025yr096hr	DRA_PB-5	4.4178	90.16	0.66
Water Quality	025yr096hr	DRA_PB-5	4.5012	90.16	0.65
Water Quality	025yr096hr	DRA_PB-5	4.5845	90.15	0.65
Water Quality	025yr096hr	DRA_PB-5	4.6678	90.14	0.64
Water Quality	025yr096hr	DRA_PB-5	4.7512	90.13	0.63
Water Quality	025yr096hr	DRA_PB-5	4.8345	90.13	0.62
Water Quality	025yr096hr	DRA_PB-5	4.9178	90.12	0.61
Water Quality	025yr096hr	DRA_PB-5	5.0012	90.11	0.61
Water Quality	025yr096hr	DRA_PB-5	5.0845	90.10	0.60

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	5.1678	90.10	0.59
Water Quality	025yr096hr	DRA_PB-5	5.2512	90.09	0.58
Water Quality	025yr096hr	DRA_PB-5	5.3345	90.08	0.58
Water Quality	025yr096hr	DRA_PB-5	5.4178	90.07	0.57
Water Quality	025yr096hr	DRA_PB-5	5.5012	90.07	0.56
Water Quality	025yr096hr	DRA_PB-5	5.5845	90.06	0.56
Water Quality	025yr096hr	DRA_PB-5	5.6678	90.05	0.55
Water Quality	025yr096hr	DRA_PB-5	5.7512	90.05	0.55
Water Quality	025yr096hr	DRA_PB-5	5.8345	90.04	0.54
Water Quality	025yr096hr	DRA_PB-5	5.9178	90.03	0.54
Water Quality	025yr096hr	DRA_PB-5	6.0012	90.03	0.53
Water Quality	025yr096hr	DRA_PB-5	6.0845	90.02	0.52
Water Quality	025yr096hr	DRA_PB-5	6.1678	90.01	0.52
Water Quality	025yr096hr	DRA_PB-5	6.2512	90.01	0.51
Water Quality	025yr096hr	DRA_PB-5	6.3345	90.00	0.51
Water Quality	025yr096hr	DRA_PB-5	6.4178	89.99	0.50
Water Quality	025yr096hr	DRA_PB-5	6.5012	89.99	0.50
Water Quality	025yr096hr	DRA_PB-5	6.5845	89.98	0.49
Water Quality	025yr096hr	DRA_PB-5	6.6678	89.98	0.49
Water Quality	025yr096hr	DRA_PB-5	6.7512	89.97	0.49
Water Quality	025yr096hr	DRA_PB-5	6.8345	89.96	0.48
Water Quality	025yr096hr	DRA_PB-5	6.9178	89.96	0.48
Water Quality	025yr096hr	DRA_PB-5	7.0012	89.95	0.47
Water Quality	025yr096hr	DRA_PB-5	7.0845	89.95	0.47
Water Quality	025yr096hr	DRA_PB-5	7.1678	89.94	0.46
Water Quality	025yr096hr	DRA_PB-5	7.2512	89.93	0.46
Water Quality	025yr096hr	DRA_PB-5	7.3345	89.93	0.46
Water Quality	025yr096hr	DRA_PB-5	7.4178	89.92	0.45
Water Quality	025yr096hr	DRA_PB-5	7.5012	89.92	0.45
Water Quality	025yr096hr	DRA_PB-5	7.5845	89.91	0.45
Water Quality	025yr096hr	DRA_PB-5	7.6678	89.90	0.44
Water Quality	025yr096hr	DRA_PB-5	7.7512	89.90	0.44
Water Quality	025yr096hr	DRA_PB-5	7.8345	89.89	0.44
Water Quality	025yr096hr	DRA_PB-5	7.9178	89.89	0.43
Water Quality	025yr096hr	DRA_PB-5	8.0012	89.88	0.43
Water Quality	025yr096hr	DRA_PB-5	8.0845	89.88	0.43
Water Quality	025yr096hr	DRA_PB-5	8.1678	89.87	0.42
Water Quality	025yr096hr	DRA_PB-5	8.2512	89.87	0.42
Water Quality	025yr096hr	DRA_PB-5	8.3345	89.86	0.42
Water Quality	025yr096hr	DRA_PB-5	8.4178	89.86	0.41
Water Quality	025yr096hr	DRA_PB-5	8.5012	89.85	0.41
Water Quality	025yr096hr	DRA_PB-5	8.5845	89.84	0.41

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	8.6678	89.84	0.40
Water Quality	025yr096hr	DRA_PB-5	8.7512	89.83	0.40
Water Quality	025yr096hr	DRA_PB-5	8.8345	89.83	0.40
Water Quality	025yr096hr	DRA_PB-5	8.9178	89.82	0.40
Water Quality	025yr096hr	DRA_PB-5	9.0012	89.82	0.39
Water Quality	025yr096hr	DRA_PB-5	9.0845	89.81	0.39
Water Quality	025yr096hr	DRA_PB-5	9.1678	89.81	0.39
Water Quality	025yr096hr	DRA_PB-5	9.2512	89.80	0.38
Water Quality	025yr096hr	DRA_PB-5	9.3345	89.80	0.38
Water Quality	025yr096hr	DRA_PB-5	9.4178	89.79	0.38
Water Quality	025yr096hr	DRA_PB-5	9.5012	89.79	0.38
Water Quality	025yr096hr	DRA_PB-5	9.5845	89.78	0.37
Water Quality	025yr096hr	DRA_PB-5	9.6678	89.78	0.37
Water Quality	025yr096hr	DRA_PB-5	9.7512	89.77	0.37
Water Quality	025yr096hr	DRA_PB-5	9.8345	89.77	0.37
Water Quality	025yr096hr	DRA_PB-5	9.9178	89.76	0.37
Water Quality	025yr096hr	DRA_PB-5	10.0012	89.76	0.36
Water Quality	025yr096hr	DRA_PB-5	10.0845	89.76	0.36
Water Quality	025yr096hr	DRA_PB-5	10.1678	89.75	0.36
Water Quality	025yr096hr	DRA_PB-5	10.2512	89.75	0.36
Water Quality	025yr096hr	DRA_PB-5	10.3345	89.74	0.35
Water Quality	025yr096hr	DRA_PB-5	10.4178	89.74	0.35
Water Quality	025yr096hr	DRA_PB-5	10.5012	89.73	0.35
Water Quality	025yr096hr	DRA_PB-5	10.5845	89.73	0.35
Water Quality	025yr096hr	DRA_PB-5	10.6678	89.72	0.35
Water Quality	025yr096hr	DRA_PB-5	10.7512	89.72	0.34
Water Quality	025yr096hr	DRA_PB-5	10.8345	89.71	0.34
Water Quality	025yr096hr	DRA_PB-5	10.9178	89.71	0.34
Water Quality	025yr096hr	DRA_PB-5	11.0012	89.70	0.34
Water Quality	025yr096hr	DRA_PB-5	11.0845	89.70	0.34
Water Quality	025yr096hr	DRA_PB-5	11.1678	89.70	0.33
Water Quality	025yr096hr	DRA_PB-5	11.2512	89.69	0.33
Water Quality	025yr096hr	DRA_PB-5	11.3345	89.69	0.33
Water Quality	025yr096hr	DRA_PB-5	11.4178	89.68	0.33
Water Quality	025yr096hr	DRA_PB-5	11.5012	89.68	0.33
Water Quality	025yr096hr	DRA_PB-5	11.5845	89.67	0.32
Water Quality	025yr096hr	DRA_PB-5	11.6678	89.67	0.32
Water Quality	025yr096hr	DRA_PB-5	11.7512	89.66	0.32
Water Quality	025yr096hr	DRA_PB-5	11.8345	89.66	0.32
Water Quality	025yr096hr	DRA_PB-5	11.9178	89.66	0.32
Water Quality	025yr096hr	DRA_PB-5	12.0012	89.65	0.32
Water Quality	025yr096hr	DRA_PB-5	12.0845	89.65	0.31

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	12.1678	89.64	0.31
Water Quality	025yr096hr	DRA_PB-5	12.2512	89.64	0.31
Water Quality	025yr096hr	DRA_PB-5	12.3345	89.63	0.31
Water Quality	025yr096hr	DRA_PB-5	12.4178	89.63	0.31
Water Quality	025yr096hr	DRA_PB-5	12.5012	89.63	0.31
Water Quality	025yr096hr	DRA_PB-5	12.5845	89.62	0.30
Water Quality	025yr096hr	DRA_PB-5	12.6678	89.62	0.30
Water Quality	025yr096hr	DRA_PB-5	12.7512	89.61	0.30
Water Quality	025yr096hr	DRA_PB-5	12.8345	89.61	0.30
Water Quality	025yr096hr	DRA_PB-5	12.9178	89.61	0.30
Water Quality	025yr096hr	DRA_PB-5	13.0012	89.60	0.30
Water Quality	025yr096hr	DRA_PB-5	13.0845	89.60	0.30
Water Quality	025yr096hr	DRA_PB-5	13.1678	89.59	0.29
Water Quality	025yr096hr	DRA_PB-5	13.2512	89.59	0.29
Water Quality	025yr096hr	DRA_PB-5	13.3345	89.59	0.29
Water Quality	025yr096hr	DRA_PB-5	13.4178	89.58	0.29
Water Quality	025yr096hr	DRA_PB-5	13.5012	89.58	0.29
Water Quality	025yr096hr	DRA_PB-5	13.5845	89.57	0.29
Water Quality	025yr096hr	DRA_PB-5	13.6678	89.57	0.29
Water Quality	025yr096hr	DRA_PB-5	13.7512	89.57	0.28
Water Quality	025yr096hr	DRA_PB-5	13.8345	89.56	0.28
Water Quality	025yr096hr	DRA_PB-5	13.9178	89.56	0.28
Water Quality	025yr096hr	DRA_PB-5	14.0012	89.55	0.28
Water Quality	025yr096hr	DRA_PB-5	14.0845	89.55	0.28
Water Quality	025yr096hr	DRA_PB-5	14.1678	89.55	0.28
Water Quality	025yr096hr	DRA_PB-5	14.2512	89.54	0.28
Water Quality	025yr096hr	DRA_PB-5	14.3345	89.54	0.28
Water Quality	025yr096hr	DRA_PB-5	14.4178	89.54	0.27
Water Quality	025yr096hr	DRA_PB-5	14.5012	89.53	0.27
Water Quality	025yr096hr	DRA_PB-5	14.5845	89.53	0.27
Water Quality	025yr096hr	DRA_PB-5	14.6678	89.52	0.27
Water Quality	025yr096hr	DRA_PB-5	14.7512	89.52	0.27
Water Quality	025yr096hr	DRA_PB-5	14.8345	89.52	0.27
Water Quality	025yr096hr	DRA_PB-5	14.9178	89.51	0.27
Water Quality	025yr096hr	DRA_PB-5	15.0012	89.51	0.27
Water Quality	025yr096hr	DRA_PB-5	15.0845	89.51	0.26
Water Quality	025yr096hr	DRA_PB-5	15.1678	89.50	0.26
Water Quality	025yr096hr	DRA_PB-5	15.2512	89.50	0.26
Water Quality	025yr096hr	DRA_PB-5	15.3345	89.49	0.26
Water Quality	025yr096hr	DRA_PB-5	15.4178	89.49	0.26
Water Quality	025yr096hr	DRA_PB-5	15.5012	89.49	0.26
Water Quality	025yr096hr	DRA_PB-5	15.5845	89.48	0.26

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	15.6678	89.48	0.26
Water Quality	025yr096hr	DRA_PB-5	15.7512	89.48	0.26
Water Quality	025yr096hr	DRA_PB-5	15.8345	89.47	0.25
Water Quality	025yr096hr	DRA_PB-5	15.9178	89.47	0.25
Water Quality	025yr096hr	DRA_PB-5	16.0012	89.47	0.25
Water Quality	025yr096hr	DRA_PB-5	16.0845	89.46	0.25
Water Quality	025yr096hr	DRA_PB-5	16.1678	89.46	0.25
Water Quality	025yr096hr	DRA_PB-5	16.2512	89.46	0.25
Water Quality	025yr096hr	DRA_PB-5	16.3345	89.45	0.25
Water Quality	025yr096hr	DRA_PB-5	16.4178	89.45	0.25
Water Quality	025yr096hr	DRA_PB-5	16.5012	89.45	0.25
Water Quality	025yr096hr	DRA_PB-5	16.5845	89.44	0.24
Water Quality	025yr096hr	DRA_PB-5	16.6678	89.44	0.24
Water Quality	025yr096hr	DRA_PB-5	16.7512	89.43	0.24
Water Quality	025yr096hr	DRA_PB-5	16.8345	89.43	0.24
Water Quality	025yr096hr	DRA_PB-5	16.9178	89.43	0.24
Water Quality	025yr096hr	DRA_PB-5	17.0012	89.42	0.24
Water Quality	025yr096hr	DRA_PB-5	17.0845	89.42	0.24
Water Quality	025yr096hr	DRA_PB-5	17.1678	89.42	0.24
Water Quality	025yr096hr	DRA_PB-5	17.2512	89.41	0.24
Water Quality	025yr096hr	DRA_PB-5	17.3345	89.41	0.24
Water Quality	025yr096hr	DRA_PB-5	17.4178	89.41	0.24
Water Quality	025yr096hr	DRA_PB-5	17.5012	89.40	0.23
Water Quality	025yr096hr	DRA_PB-5	17.5845	89.40	0.23
Water Quality	025yr096hr	DRA_PB-5	17.6678	89.40	0.23
Water Quality	025yr096hr	DRA_PB-5	17.7512	89.39	0.23
Water Quality	025yr096hr	DRA_PB-5	17.8345	89.39	0.23
Water Quality	025yr096hr	DRA_PB-5	17.9178	89.39	0.23
Water Quality	025yr096hr	DRA_PB-5	18.0012	89.38	0.23
Water Quality	025yr096hr	DRA_PB-5	18.0845	89.38	0.23
Water Quality	025yr096hr	DRA_PB-5	18.1678	89.38	0.23
Water Quality	025yr096hr	DRA_PB-5	18.2512	89.37	0.23
Water Quality	025yr096hr	DRA_PB-5	18.3345	89.37	0.23
Water Quality	025yr096hr	DRA_PB-5	18.4178	89.37	0.22
Water Quality	025yr096hr	DRA_PB-5	18.5012	89.37	0.22
Water Quality	025yr096hr	DRA_PB-5	18.5845	89.36	0.22
Water Quality	025yr096hr	DRA_PB-5	18.6678	89.36	0.22
Water Quality	025yr096hr	DRA_PB-5	18.7512	89.36	0.22
Water Quality	025yr096hr	DRA_PB-5	18.8345	89.35	0.22
Water Quality	025yr096hr	DRA_PB-5	18.9178	89.35	0.22
Water Quality	025yr096hr	DRA_PB-5	19.0012	89.35	0.22
Water Quality	025yr096hr	DRA_PB-5	19.0845	89.34	0.22

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	19.1678	89.34	0.22
Water Quality	025yr096hr	DRA_PB-5	19.2512	89.34	0.22
Water Quality	025yr096hr	DRA_PB-5	19.3345	89.33	0.22
Water Quality	025yr096hr	DRA_PB-5	19.4178	89.33	0.22
Water Quality	025yr096hr	DRA_PB-5	19.5012	89.33	0.21
Water Quality	025yr096hr	DRA_PB-5	19.5845	89.32	0.21
Water Quality	025yr096hr	DRA_PB-5	19.6678	89.32	0.21
Water Quality	025yr096hr	DRA_PB-5	19.7512	89.32	0.21
Water Quality	025yr096hr	DRA_PB-5	19.8345	89.32	0.21
Water Quality	025yr096hr	DRA_PB-5	19.9178	89.31	0.21
Water Quality	025yr096hr	DRA_PB-5	20.0012	89.31	0.21
Water Quality	025yr096hr	DRA_PB-5	20.0845	89.31	0.21
Water Quality	025yr096hr	DRA_PB-5	20.1678	89.30	0.21
Water Quality	025yr096hr	DRA_PB-5	20.2512	89.30	0.21
Water Quality	025yr096hr	DRA_PB-5	20.3345	89.30	0.21
Water Quality	025yr096hr	DRA_PB-5	20.4178	89.29	0.21
Water Quality	025yr096hr	DRA_PB-5	20.5012	89.29	0.21
Water Quality	025yr096hr	DRA_PB-5	20.5845	89.29	0.20
Water Quality	025yr096hr	DRA_PB-5	20.6678	89.28	0.20
Water Quality	025yr096hr	DRA_PB-5	20.7512	89.28	0.20
Water Quality	025yr096hr	DRA_PB-5	20.8345	89.28	0.20
Water Quality	025yr096hr	DRA_PB-5	20.9178	89.28	0.20
Water Quality	025yr096hr	DRA_PB-5	21.0012	89.27	0.20
Water Quality	025yr096hr	DRA_PB-5	21.0845	89.27	0.20
Water Quality	025yr096hr	DRA_PB-5	21.1678	89.27	0.20
Water Quality	025yr096hr	DRA_PB-5	21.2512	89.26	0.20
Water Quality	025yr096hr	DRA_PB-5	21.3345	89.26	0.20
Water Quality	025yr096hr	DRA_PB-5	21.4178	89.26	0.20
Water Quality	025yr096hr	DRA_PB-5	21.5012	89.26	0.20
Water Quality	025yr096hr	DRA_PB-5	21.5845	89.25	0.20
Water Quality	025yr096hr	DRA_PB-5	21.6678	89.25	0.20
Water Quality	025yr096hr	DRA_PB-5	21.7512	89.25	0.20
Water Quality	025yr096hr	DRA_PB-5	21.8345	89.24	0.19
Water Quality	025yr096hr	DRA_PB-5	21.9178	89.24	0.19
Water Quality	025yr096hr	DRA_PB-5	22.0012	89.24	0.19
Water Quality	025yr096hr	DRA_PB-5	22.0845	89.24	0.19
Water Quality	025yr096hr	DRA_PB-5	22.1678	89.23	0.19
Water Quality	025yr096hr	DRA_PB-5	22.2512	89.23	0.19
Water Quality	025yr096hr	DRA_PB-5	22.3345	89.23	0.19
Water Quality	025yr096hr	DRA_PB-5	22.4178	89.22	0.19
Water Quality	025yr096hr	DRA_PB-5	22.5012	89.22	0.19
Water Quality	025yr096hr	DRA_PB-5	22.5845	89.22	0.19

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	22.6678	89.22	0.19
Water Quality	025yr096hr	DRA_PB-5	22.7512	89.21	0.19
Water Quality	025yr096hr	DRA_PB-5	22.8345	89.21	0.19
Water Quality	025yr096hr	DRA_PB-5	22.9178	89.21	0.19
Water Quality	025yr096hr	DRA_PB-5	23.0012	89.20	0.19
Water Quality	025yr096hr	DRA_PB-5	23.0845	89.20	0.19
Water Quality	025yr096hr	DRA_PB-5	23.1678	89.20	0.19
Water Quality	025yr096hr	DRA_PB-5	23.2512	89.20	0.18
Water Quality	025yr096hr	DRA_PB-5	23.3345	89.19	0.18
Water Quality	025yr096hr	DRA_PB-5	23.4178	89.19	0.18
Water Quality	025yr096hr	DRA_PB-5	23.5012	89.19	0.18
Water Quality	025yr096hr	DRA_PB-5	23.5845	89.19	0.18
Water Quality	025yr096hr	DRA_PB-5	23.6678	89.18	0.18
Water Quality	025yr096hr	DRA_PB-5	23.7512	89.18	0.18
Water Quality	025yr096hr	DRA_PB-5	23.8345	89.18	0.18
Water Quality	025yr096hr	DRA_PB-5	23.9178	89.17	0.18
Water Quality	025yr096hr	DRA_PB-5	24.0012	89.17	0.18
Water Quality	025yr096hr	DRA_PB-5	24.0845	89.17	0.18
Water Quality	025yr096hr	DRA_PB-5	24.1678	89.17	0.18
Water Quality	025yr096hr	DRA_PB-5	24.2512	89.16	0.18
Water Quality	025yr096hr	DRA_PB-5	24.3345	89.16	0.18
Water Quality	025yr096hr	DRA_PB-5	24.4178	89.16	0.18
Water Quality	025yr096hr	DRA_PB-5	24.5012	89.16	0.18
Water Quality	025yr096hr	DRA_PB-5	24.5845	89.15	0.18
Water Quality	025yr096hr	DRA_PB-5	24.6678	89.15	0.18
Water Quality	025yr096hr	DRA_PB-5	24.7512	89.15	0.17
Water Quality	025yr096hr	DRA_PB-5	24.8345	89.14	0.17
Water Quality	025yr096hr	DRA_PB-5	24.9178	89.14	0.17
Water Quality	025yr096hr	DRA_PB-5	25.0012	89.14	0.17
Water Quality	025yr096hr	DRA_PB-5	25.0845	89.14	0.17
Water Quality	025yr096hr	DRA_PB-5	25.1678	89.13	0.17
Water Quality	025yr096hr	DRA_PB-5	25.2512	89.13	0.17
Water Quality	025yr096hr	DRA_PB-5	25.3345	89.13	0.17
Water Quality	025yr096hr	DRA_PB-5	25.4178	89.13	0.17
Water Quality	025yr096hr	DRA_PB-5	25.5012	89.12	0.17
Water Quality	025yr096hr	DRA_PB-5	25.5845	89.12	0.17
Water Quality	025yr096hr	DRA_PB-5	25.6678	89.12	0.17
Water Quality	025yr096hr	DRA_PB-5	25.7512	89.12	0.17
Water Quality	025yr096hr	DRA_PB-5	25.8345	89.11	0.17
Water Quality	025yr096hr	DRA_PB-5	25.9178	89.11	0.17
Water Quality	025yr096hr	DRA_PB-5	26.0012	89.11	0.17
Water Quality	025yr096hr	DRA_PB-5	26.0845	89.11	0.17

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	26.1678	89.10	0.17
Water Quality	025yr096hr	DRA_PB-5	26.2512	89.10	0.17
Water Quality	025yr096hr	DRA_PB-5	26.3345	89.10	0.17
Water Quality	025yr096hr	DRA_PB-5	26.4178	89.10	0.17
Water Quality	025yr096hr	DRA_PB-5	26.5012	89.09	0.16
Water Quality	025yr096hr	DRA_PB-5	26.5845	89.09	0.16
Water Quality	025yr096hr	DRA_PB-5	26.6678	89.09	0.16
Water Quality	025yr096hr	DRA_PB-5	26.7512	89.09	0.16
Water Quality	025yr096hr	DRA_PB-5	26.8345	89.08	0.16
Water Quality	025yr096hr	DRA_PB-5	26.9178	89.08	0.16
Water Quality	025yr096hr	DRA_PB-5	27.0012	89.08	0.16
Water Quality	025yr096hr	DRA_PB-5	27.0845	89.08	0.16
Water Quality	025yr096hr	DRA_PB-5	27.1678	89.07	0.16
Water Quality	025yr096hr	DRA_PB-5	27.2512	89.07	0.16
Water Quality	025yr096hr	DRA_PB-5	27.3345	89.07	0.16
Water Quality	025yr096hr	DRA_PB-5	27.4178	89.07	0.16
Water Quality	025yr096hr	DRA_PB-5	27.5012	89.06	0.16
Water Quality	025yr096hr	DRA_PB-5	27.5845	89.06	0.16
Water Quality	025yr096hr	DRA_PB-5	27.6678	89.06	0.16
Water Quality	025yr096hr	DRA_PB-5	27.7512	89.06	0.16
Water Quality	025yr096hr	DRA_PB-5	27.8345	89.05	0.16
Water Quality	025yr096hr	DRA_PB-5	27.9178	89.05	0.16
Water Quality	025yr096hr	DRA_PB-5	28.0012	89.05	0.16
Water Quality	025yr096hr	DRA_PB-5	28.0845	89.05	0.16
Water Quality	025yr096hr	DRA_PB-5	28.1678	89.04	0.16
Water Quality	025yr096hr	DRA_PB-5	28.2512	89.04	0.16
Water Quality	025yr096hr	DRA_PB-5	28.3345	89.04	0.15
Water Quality	025yr096hr	DRA_PB-5	28.4178	89.04	0.15
Water Quality	025yr096hr	DRA_PB-5	28.5012	89.03	0.15
Water Quality	025yr096hr	DRA_PB-5	28.5845	89.03	0.15
Water Quality	025yr096hr	DRA_PB-5	28.6678	89.03	0.15
Water Quality	025yr096hr	DRA_PB-5	28.7512	89.03	0.15
Water Quality	025yr096hr	DRA_PB-5	28.8345	89.02	0.15
Water Quality	025yr096hr	DRA_PB-5	28.9178	89.02	0.15
Water Quality	025yr096hr	DRA_PB-5	29.0012	89.02	0.15
Water Quality	025yr096hr	DRA_PB-5	29.0845	89.02	0.15
Water Quality	025yr096hr	DRA_PB-5	29.1678	89.02	0.15
Water Quality	025yr096hr	DRA_PB-5	29.2512	89.01	0.15
Water Quality	025yr096hr	DRA_PB-5	29.3345	89.01	0.15
Water Quality	025yr096hr	DRA_PB-5	29.4178	89.01	0.15
Water Quality	025yr096hr	DRA_PB-5	29.5012	89.01	0.15
Water Quality	025yr096hr	DRA_PB-5	29.5845	89.00	0.15

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	29.6678	89.00	0.15
Water Quality	025yr096hr	DRA_PB-5	29.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	29.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	29.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	30.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	31.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	32.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.0845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	33.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	33.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	34.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	35.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.5845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	36.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	36.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	37.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	38.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	39.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.0845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	40.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	40.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	41.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	42.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.5845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	43.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	43.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	44.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	45.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	46.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.0845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	47.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	47.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	48.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	49.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.5845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	50.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	50.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	51.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	52.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	53.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.0845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	54.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	54.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	55.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	56.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.5845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	57.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	57.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	58.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	59.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	60.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.0845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	61.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	61.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	62.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	63.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.5845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	64.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	64.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	65.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	66.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	67.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.0845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	68.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	68.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	69.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	70.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.5845	89.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5	71.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	71.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.0845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.1678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.2512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.3345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.4178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.5012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.5845	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.6678	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.7512	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.8345	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	72.9178	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5	73.0012	89.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	0.0000	88.52	0.00
Water Quality	025yr096hr	DRA_PB-5A	0.0834	88.50	4.02
Water Quality	025yr096hr	DRA_PB-5A	0.1675	88.48	4.01
Water Quality	025yr096hr	DRA_PB-5A	0.2511	88.45	4.00
Water Quality	025yr096hr	DRA_PB-5A	0.3355	88.43	3.99
Water Quality	025yr096hr	DRA_PB-5A	0.4193	88.41	3.98
Water Quality	025yr096hr	DRA_PB-5A	0.5016	88.39	3.96
Water Quality	025yr096hr	DRA_PB-5A	0.5847	88.37	3.95
Water Quality	025yr096hr	DRA_PB-5A	0.6679	88.35	3.52
Water Quality	025yr096hr	DRA_PB-5A	0.7523	88.33	3.10
Water Quality	025yr096hr	DRA_PB-5A	0.8353	88.31	2.80
Water Quality	025yr096hr	DRA_PB-5A	0.9192	88.30	2.56
Water Quality	025yr096hr	DRA_PB-5A	1.0017	88.28	2.38
Water Quality	025yr096hr	DRA_PB-5A	1.0833	88.27	2.23
Water Quality	025yr096hr	DRA_PB-5A	1.1698	88.26	2.09
Water Quality	025yr096hr	DRA_PB-5A	1.2525	88.25	1.99
Water Quality	025yr096hr	DRA_PB-5A	1.3364	88.23	1.89
Water Quality	025yr096hr	DRA_PB-5A	1.4185	88.22	1.81
Water Quality	025yr096hr	DRA_PB-5A	1.5026	88.21	1.74
Water Quality	025yr096hr	DRA_PB-5A	1.5841	88.20	1.68
Water Quality	025yr096hr	DRA_PB-5A	1.6688	88.20	1.62
Water Quality	025yr096hr	DRA_PB-5A	1.7512	88.19	1.57
Water Quality	025yr096hr	DRA_PB-5A	1.8337	88.18	1.52
Water Quality	025yr096hr	DRA_PB-5A	1.9170	88.17	1.47
Water Quality	025yr096hr	DRA_PB-5A	2.0019	88.16	1.43

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	2.0855	88.15	1.40
Water Quality	025yr096hr	DRA_PB-5A	2.1704	88.15	1.36
Water Quality	025yr096hr	DRA_PB-5A	2.2524	88.14	1.33
Water Quality	025yr096hr	DRA_PB-5A	2.3352	88.13	1.30
Water Quality	025yr096hr	DRA_PB-5A	2.4188	88.12	1.27
Water Quality	025yr096hr	DRA_PB-5A	2.5034	88.12	1.24
Water Quality	025yr096hr	DRA_PB-5A	2.5855	88.11	1.21
Water Quality	025yr096hr	DRA_PB-5A	2.6706	88.10	1.19
Water Quality	025yr096hr	DRA_PB-5A	2.7509	88.10	1.17
Water Quality	025yr096hr	DRA_PB-5A	2.8381	88.09	1.14
Water Quality	025yr096hr	DRA_PB-5A	2.9196	88.08	1.12
Water Quality	025yr096hr	DRA_PB-5A	3.0013	88.08	1.10
Water Quality	025yr096hr	DRA_PB-5A	3.0894	88.07	1.08
Water Quality	025yr096hr	DRA_PB-5A	3.1700	88.06	1.07
Water Quality	025yr096hr	DRA_PB-5A	3.2540	88.06	1.05
Water Quality	025yr096hr	DRA_PB-5A	3.3337	88.05	1.03
Water Quality	025yr096hr	DRA_PB-5A	3.4178	88.05	1.02
Water Quality	025yr096hr	DRA_PB-5A	3.5046	88.04	1.00
Water Quality	025yr096hr	DRA_PB-5A	3.5870	88.03	0.99
Water Quality	025yr096hr	DRA_PB-5A	3.6715	88.03	0.97
Water Quality	025yr096hr	DRA_PB-5A	3.7521	88.02	0.96
Water Quality	025yr096hr	DRA_PB-5A	3.8345	88.02	0.95
Water Quality	025yr096hr	DRA_PB-5A	3.9178	88.01	0.93
Water Quality	025yr096hr	DRA_PB-5A	4.0012	88.01	0.92
Water Quality	025yr096hr	DRA_PB-5A	4.0845	88.00	0.91
Water Quality	025yr096hr	DRA_PB-5A	4.1678	88.00	0.90
Water Quality	025yr096hr	DRA_PB-5A	4.2512	87.99	0.89
Water Quality	025yr096hr	DRA_PB-5A	4.3345	87.99	0.88
Water Quality	025yr096hr	DRA_PB-5A	4.4178	87.98	0.87
Water Quality	025yr096hr	DRA_PB-5A	4.5012	87.98	0.86
Water Quality	025yr096hr	DRA_PB-5A	4.5845	87.97	0.85
Water Quality	025yr096hr	DRA_PB-5A	4.6678	87.97	0.84
Water Quality	025yr096hr	DRA_PB-5A	4.7512	87.96	0.83
Water Quality	025yr096hr	DRA_PB-5A	4.8345	87.96	0.82
Water Quality	025yr096hr	DRA_PB-5A	4.9178	87.95	0.81
Water Quality	025yr096hr	DRA_PB-5A	5.0012	87.95	0.80
Water Quality	025yr096hr	DRA_PB-5A	5.0845	87.94	0.79
Water Quality	025yr096hr	DRA_PB-5A	5.1678	87.94	0.78
Water Quality	025yr096hr	DRA_PB-5A	5.2512	87.93	0.78
Water Quality	025yr096hr	DRA_PB-5A	5.3345	87.93	0.77
Water Quality	025yr096hr	DRA_PB-5A	5.4178	87.92	0.76
Water Quality	025yr096hr	DRA_PB-5A	5.5012	87.92	0.75

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	5.5845	87.91	0.75
Water Quality	025yr096hr	DRA_PB-5A	5.6678	87.91	0.74
Water Quality	025yr096hr	DRA_PB-5A	5.7512	87.91	0.73
Water Quality	025yr096hr	DRA_PB-5A	5.8345	87.90	0.73
Water Quality	025yr096hr	DRA_PB-5A	5.9178	87.90	0.72
Water Quality	025yr096hr	DRA_PB-5A	6.0012	87.89	0.71
Water Quality	025yr096hr	DRA_PB-5A	6.0845	87.89	0.71
Water Quality	025yr096hr	DRA_PB-5A	6.1678	87.89	0.70
Water Quality	025yr096hr	DRA_PB-5A	6.2512	87.88	0.70
Water Quality	025yr096hr	DRA_PB-5A	6.3345	87.88	0.69
Water Quality	025yr096hr	DRA_PB-5A	6.4178	87.87	0.68
Water Quality	025yr096hr	DRA_PB-5A	6.5012	87.87	0.68
Water Quality	025yr096hr	DRA_PB-5A	6.5845	87.86	0.67
Water Quality	025yr096hr	DRA_PB-5A	6.6678	87.86	0.67
Water Quality	025yr096hr	DRA_PB-5A	6.7512	87.86	0.66
Water Quality	025yr096hr	DRA_PB-5A	6.8345	87.85	0.66
Water Quality	025yr096hr	DRA_PB-5A	6.9178	87.85	0.65
Water Quality	025yr096hr	DRA_PB-5A	7.0012	87.85	0.65
Water Quality	025yr096hr	DRA_PB-5A	7.0845	87.84	0.64
Water Quality	025yr096hr	DRA_PB-5A	7.1678	87.84	0.64
Water Quality	025yr096hr	DRA_PB-5A	7.2512	87.83	0.63
Water Quality	025yr096hr	DRA_PB-5A	7.3345	87.83	0.63
Water Quality	025yr096hr	DRA_PB-5A	7.4178	87.83	0.62
Water Quality	025yr096hr	DRA_PB-5A	7.5012	87.82	0.62
Water Quality	025yr096hr	DRA_PB-5A	7.5845	87.82	0.61
Water Quality	025yr096hr	DRA_PB-5A	7.6678	87.82	0.61
Water Quality	025yr096hr	DRA_PB-5A	7.7512	87.81	0.61
Water Quality	025yr096hr	DRA_PB-5A	7.8345	87.81	0.60
Water Quality	025yr096hr	DRA_PB-5A	7.9178	87.80	0.60
Water Quality	025yr096hr	DRA_PB-5A	8.0012	87.80	0.59
Water Quality	025yr096hr	DRA_PB-5A	8.0845	87.80	0.59
Water Quality	025yr096hr	DRA_PB-5A	8.1678	87.79	0.59
Water Quality	025yr096hr	DRA_PB-5A	8.2512	87.79	0.58
Water Quality	025yr096hr	DRA_PB-5A	8.3345	87.79	0.58
Water Quality	025yr096hr	DRA_PB-5A	8.4178	87.78	0.57
Water Quality	025yr096hr	DRA_PB-5A	8.5012	87.78	0.57
Water Quality	025yr096hr	DRA_PB-5A	8.5845	87.78	0.57
Water Quality	025yr096hr	DRA_PB-5A	8.6678	87.77	0.56
Water Quality	025yr096hr	DRA_PB-5A	8.7512	87.77	0.56
Water Quality	025yr096hr	DRA_PB-5A	8.8345	87.77	0.56
Water Quality	025yr096hr	DRA_PB-5A	8.9178	87.76	0.55
Water Quality	025yr096hr	DRA_PB-5A	9.0012	87.76	0.55

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	9.0845	87.76	0.55
Water Quality	025yr096hr	DRA_PB-5A	9.1678	87.75	0.54
Water Quality	025yr096hr	DRA_PB-5A	9.2512	87.75	0.54
Water Quality	025yr096hr	DRA_PB-5A	9.3345	87.75	0.54
Water Quality	025yr096hr	DRA_PB-5A	9.4178	87.74	0.53
Water Quality	025yr096hr	DRA_PB-5A	9.5012	87.74	0.53
Water Quality	025yr096hr	DRA_PB-5A	9.5845	87.74	0.53
Water Quality	025yr096hr	DRA_PB-5A	9.6678	87.73	0.53
Water Quality	025yr096hr	DRA_PB-5A	9.7512	87.73	0.52
Water Quality	025yr096hr	DRA_PB-5A	9.8345	87.73	0.52
Water Quality	025yr096hr	DRA_PB-5A	9.9178	87.73	0.52
Water Quality	025yr096hr	DRA_PB-5A	10.0012	87.72	0.51
Water Quality	025yr096hr	DRA_PB-5A	10.0845	87.72	0.51
Water Quality	025yr096hr	DRA_PB-5A	10.1678	87.72	0.51
Water Quality	025yr096hr	DRA_PB-5A	10.2512	87.71	0.51
Water Quality	025yr096hr	DRA_PB-5A	10.3345	87.71	0.50
Water Quality	025yr096hr	DRA_PB-5A	10.4178	87.71	0.50
Water Quality	025yr096hr	DRA_PB-5A	10.5012	87.70	0.50
Water Quality	025yr096hr	DRA_PB-5A	10.5845	87.70	0.49
Water Quality	025yr096hr	DRA_PB-5A	10.6678	87.70	0.49
Water Quality	025yr096hr	DRA_PB-5A	10.7512	87.70	0.49
Water Quality	025yr096hr	DRA_PB-5A	10.8345	87.69	0.49
Water Quality	025yr096hr	DRA_PB-5A	10.9178	87.69	0.48
Water Quality	025yr096hr	DRA_PB-5A	11.0012	87.69	0.48
Water Quality	025yr096hr	DRA_PB-5A	11.0845	87.68	0.48
Water Quality	025yr096hr	DRA_PB-5A	11.1678	87.68	0.48
Water Quality	025yr096hr	DRA_PB-5A	11.2512	87.68	0.48
Water Quality	025yr096hr	DRA_PB-5A	11.3345	87.68	0.47
Water Quality	025yr096hr	DRA_PB-5A	11.4178	87.67	0.47
Water Quality	025yr096hr	DRA_PB-5A	11.5012	87.67	0.47
Water Quality	025yr096hr	DRA_PB-5A	11.5845	87.67	0.47
Water Quality	025yr096hr	DRA_PB-5A	11.6678	87.66	0.46
Water Quality	025yr096hr	DRA_PB-5A	11.7512	87.66	0.46
Water Quality	025yr096hr	DRA_PB-5A	11.8345	87.66	0.46
Water Quality	025yr096hr	DRA_PB-5A	11.9178	87.66	0.46
Water Quality	025yr096hr	DRA_PB-5A	12.0012	87.65	0.46
Water Quality	025yr096hr	DRA_PB-5A	12.0845	87.65	0.45
Water Quality	025yr096hr	DRA_PB-5A	12.1678	87.65	0.45
Water Quality	025yr096hr	DRA_PB-5A	12.2512	87.64	0.45
Water Quality	025yr096hr	DRA_PB-5A	12.3345	87.64	0.45
Water Quality	025yr096hr	DRA_PB-5A	12.4178	87.64	0.44
Water Quality	025yr096hr	DRA_PB-5A	12.5012	87.64	0.44

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	12.5845	87.63	0.44
Water Quality	025yr096hr	DRA_PB-5A	12.6678	87.63	0.44
Water Quality	025yr096hr	DRA_PB-5A	12.7512	87.63	0.44
Water Quality	025yr096hr	DRA_PB-5A	12.8345	87.63	0.44
Water Quality	025yr096hr	DRA_PB-5A	12.9178	87.62	0.43
Water Quality	025yr096hr	DRA_PB-5A	13.0012	87.62	0.43
Water Quality	025yr096hr	DRA_PB-5A	13.0845	87.62	0.43
Water Quality	025yr096hr	DRA_PB-5A	13.1678	87.62	0.43
Water Quality	025yr096hr	DRA_PB-5A	13.2512	87.61	0.43
Water Quality	025yr096hr	DRA_PB-5A	13.3345	87.61	0.42
Water Quality	025yr096hr	DRA_PB-5A	13.4178	87.61	0.42
Water Quality	025yr096hr	DRA_PB-5A	13.5012	87.60	0.42
Water Quality	025yr096hr	DRA_PB-5A	13.5845	87.60	0.42
Water Quality	025yr096hr	DRA_PB-5A	13.6678	87.60	0.42
Water Quality	025yr096hr	DRA_PB-5A	13.7512	87.60	0.42
Water Quality	025yr096hr	DRA_PB-5A	13.8345	87.59	0.41
Water Quality	025yr096hr	DRA_PB-5A	13.9178	87.59	0.41
Water Quality	025yr096hr	DRA_PB-5A	14.0012	87.59	0.41
Water Quality	025yr096hr	DRA_PB-5A	14.0845	87.59	0.41
Water Quality	025yr096hr	DRA_PB-5A	14.1678	87.58	0.41
Water Quality	025yr096hr	DRA_PB-5A	14.2512	87.58	0.41
Water Quality	025yr096hr	DRA_PB-5A	14.3345	87.58	0.40
Water Quality	025yr096hr	DRA_PB-5A	14.4178	87.58	0.40
Water Quality	025yr096hr	DRA_PB-5A	14.5012	87.57	0.40
Water Quality	025yr096hr	DRA_PB-5A	14.5845	87.57	0.40
Water Quality	025yr096hr	DRA_PB-5A	14.6678	87.57	0.40
Water Quality	025yr096hr	DRA_PB-5A	14.7512	87.57	0.40
Water Quality	025yr096hr	DRA_PB-5A	14.8345	87.57	0.39
Water Quality	025yr096hr	DRA_PB-5A	14.9178	87.56	0.39
Water Quality	025yr096hr	DRA_PB-5A	15.0012	87.56	0.39
Water Quality	025yr096hr	DRA_PB-5A	15.0845	87.56	0.39
Water Quality	025yr096hr	DRA_PB-5A	15.1678	87.56	0.39
Water Quality	025yr096hr	DRA_PB-5A	15.2512	87.55	0.39
Water Quality	025yr096hr	DRA_PB-5A	15.3345	87.55	0.39
Water Quality	025yr096hr	DRA_PB-5A	15.4178	87.55	0.38
Water Quality	025yr096hr	DRA_PB-5A	15.5012	87.55	0.38
Water Quality	025yr096hr	DRA_PB-5A	15.5845	87.54	0.38
Water Quality	025yr096hr	DRA_PB-5A	15.6678	87.54	0.38
Water Quality	025yr096hr	DRA_PB-5A	15.7512	87.54	0.38
Water Quality	025yr096hr	DRA_PB-5A	15.8345	87.54	0.38
Water Quality	025yr096hr	DRA_PB-5A	15.9178	87.53	0.38
Water Quality	025yr096hr	DRA_PB-5A	16.0012	87.53	0.37

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	16.0845	87.53	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.1678	87.53	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.2512	87.53	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.3345	87.52	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.4178	87.52	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.5012	87.52	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.5845	87.52	0.37
Water Quality	025yr096hr	DRA_PB-5A	16.6678	87.51	0.36
Water Quality	025yr096hr	DRA_PB-5A	16.7512	87.51	0.36
Water Quality	025yr096hr	DRA_PB-5A	16.8345	87.51	0.36
Water Quality	025yr096hr	DRA_PB-5A	16.9178	87.51	0.36
Water Quality	025yr096hr	DRA_PB-5A	17.0012	87.50	0.36
Water Quality	025yr096hr	DRA_PB-5A	17.0845	87.50	0.36
Water Quality	025yr096hr	DRA_PB-5A	17.1678	87.50	0.36
Water Quality	025yr096hr	DRA_PB-5A	17.2512	87.50	0.36
Water Quality	025yr096hr	DRA_PB-5A	17.3345	87.50	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.4178	87.49	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.5012	87.49	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.5845	87.49	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.6678	87.49	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.7512	87.49	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.8345	87.48	0.35
Water Quality	025yr096hr	DRA_PB-5A	17.9178	87.48	0.35
Water Quality	025yr096hr	DRA_PB-5A	18.0012	87.48	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.0845	87.48	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.1678	87.47	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.2512	87.47	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.3345	87.47	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.4178	87.47	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.5012	87.47	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.5845	87.46	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.6678	87.46	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.7512	87.46	0.34
Water Quality	025yr096hr	DRA_PB-5A	18.8345	87.46	0.33
Water Quality	025yr096hr	DRA_PB-5A	18.9178	87.46	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.0012	87.45	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.0845	87.45	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.1678	87.45	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.2512	87.45	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.3345	87.45	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.4178	87.44	0.33
Water Quality	025yr096hr	DRA_PB-5A	19.5012	87.44	0.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	19.5845	87.44	0.32
Water Quality	025yr096hr	DRA_PB-5A	19.6678	87.44	0.32
Water Quality	025yr096hr	DRA_PB-5A	19.7512	87.44	0.32
Water Quality	025yr096hr	DRA_PB-5A	19.8345	87.43	0.32
Water Quality	025yr096hr	DRA_PB-5A	19.9178	87.43	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.0012	87.43	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.0845	87.43	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.1678	87.43	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.2512	87.42	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.3345	87.42	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.4178	87.42	0.32
Water Quality	025yr096hr	DRA_PB-5A	20.5012	87.42	0.31
Water Quality	025yr096hr	DRA_PB-5A	20.5845	87.42	0.31
Water Quality	025yr096hr	DRA_PB-5A	20.6678	87.41	0.31
Water Quality	025yr096hr	DRA_PB-5A	20.7512	87.41	0.31
Water Quality	025yr096hr	DRA_PB-5A	20.8345	87.41	0.31
Water Quality	025yr096hr	DRA_PB-5A	20.9178	87.41	0.31
Water Quality	025yr096hr	DRA_PB-5A	21.0012	87.41	0.31
Water Quality	025yr096hr	DRA_PB-5A	21.0845	87.40	0.31
Water Quality	025yr096hr	DRA_PB-5A	21.1678	87.40	0.31
Water Quality	025yr096hr	DRA_PB-5A	21.2512	87.40	0.31
Water Quality	025yr096hr	DRA_PB-5A	21.3345	87.40	0.31
Water Quality	025yr096hr	DRA_PB-5A	21.4178	87.40	0.30
Water Quality	025yr096hr	DRA_PB-5A	21.5012	87.39	0.30
Water Quality	025yr096hr	DRA_PB-5A	21.5845	87.39	0.30
Water Quality	025yr096hr	DRA_PB-5A	21.6678	87.39	0.30
Water Quality	025yr096hr	DRA_PB-5A	21.7512	87.39	0.30
Water Quality	025yr096hr	DRA_PB-5A	21.8345	87.39	0.30
Water Quality	025yr096hr	DRA_PB-5A	21.9178	87.38	0.30
Water Quality	025yr096hr	DRA_PB-5A	22.0012	87.38	0.30
Water Quality	025yr096hr	DRA_PB-5A	22.0845	87.38	0.30
Water Quality	025yr096hr	DRA_PB-5A	22.1678	87.38	0.30
Water Quality	025yr096hr	DRA_PB-5A	22.2512	87.38	0.30
Water Quality	025yr096hr	DRA_PB-5A	22.3345	87.38	0.30
Water Quality	025yr096hr	DRA_PB-5A	22.4178	87.37	0.29
Water Quality	025yr096hr	DRA_PB-5A	22.5012	87.37	0.29
Water Quality	025yr096hr	DRA_PB-5A	22.5845	87.37	0.29
Water Quality	025yr096hr	DRA_PB-5A	22.6678	87.37	0.29
Water Quality	025yr096hr	DRA_PB-5A	22.7512	87.37	0.29
Water Quality	025yr096hr	DRA_PB-5A	22.8345	87.36	0.29
Water Quality	025yr096hr	DRA_PB-5A	22.9178	87.36	0.29
Water Quality	025yr096hr	DRA_PB-5A	23.0012	87.36	0.29

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	23.0845	87.36	0.29
Water Quality	025yr096hr	DRA_PB-5A	23.1678	87.36	0.29
Water Quality	025yr096hr	DRA_PB-5A	23.2512	87.36	0.29
Water Quality	025yr096hr	DRA_PB-5A	23.3345	87.35	0.29
Water Quality	025yr096hr	DRA_PB-5A	23.4178	87.35	0.29
Water Quality	025yr096hr	DRA_PB-5A	23.5012	87.35	0.28
Water Quality	025yr096hr	DRA_PB-5A	23.5845	87.35	0.28
Water Quality	025yr096hr	DRA_PB-5A	23.6678	87.35	0.28
Water Quality	025yr096hr	DRA_PB-5A	23.7512	87.34	0.28
Water Quality	025yr096hr	DRA_PB-5A	23.8345	87.34	0.28
Water Quality	025yr096hr	DRA_PB-5A	23.9178	87.34	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.0012	87.34	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.0845	87.34	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.1678	87.34	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.2512	87.33	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.3345	87.33	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.4178	87.33	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.5012	87.33	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.5845	87.33	0.28
Water Quality	025yr096hr	DRA_PB-5A	24.6678	87.33	0.27
Water Quality	025yr096hr	DRA_PB-5A	24.7512	87.32	0.27
Water Quality	025yr096hr	DRA_PB-5A	24.8345	87.32	0.27
Water Quality	025yr096hr	DRA_PB-5A	24.9178	87.32	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.0012	87.32	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.0845	87.32	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.1678	87.31	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.2512	87.31	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.3345	87.31	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.4178	87.31	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.5012	87.31	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.5845	87.31	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.6678	87.30	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.7512	87.30	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.8345	87.30	0.27
Water Quality	025yr096hr	DRA_PB-5A	25.9178	87.30	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.0012	87.30	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.0845	87.30	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.1678	87.29	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.2512	87.29	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.3345	87.29	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.4178	87.29	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.5012	87.29	0.26

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	26.5845	87.29	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.6678	87.28	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.7512	87.28	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.8345	87.28	0.26
Water Quality	025yr096hr	DRA_PB-5A	26.9178	87.28	0.26
Water Quality	025yr096hr	DRA_PB-5A	27.0012	87.28	0.26
Water Quality	025yr096hr	DRA_PB-5A	27.0845	87.28	0.26
Water Quality	025yr096hr	DRA_PB-5A	27.1678	87.27	0.26
Water Quality	025yr096hr	DRA_PB-5A	27.2512	87.27	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.3345	87.27	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.4178	87.27	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.5012	87.27	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.5845	87.27	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.6678	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.7512	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.8345	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	27.9178	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.0012	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.0845	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.1678	87.26	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.2512	87.25	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.3345	87.25	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.4178	87.25	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.5012	87.25	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.5845	87.25	0.25
Water Quality	025yr096hr	DRA_PB-5A	28.6678	87.25	0.24
Water Quality	025yr096hr	DRA_PB-5A	28.7512	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	28.8345	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	28.9178	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.0012	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.0845	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.1678	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.2512	87.24	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.3345	87.23	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.4178	87.23	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.5012	87.23	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.5845	87.23	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.6678	87.23	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.7512	87.23	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.8345	87.22	0.24
Water Quality	025yr096hr	DRA_PB-5A	29.9178	87.22	0.24
Water Quality	025yr096hr	DRA_PB-5A	30.0012	87.22	0.24

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	30.0845	87.22	0.24
Water Quality	025yr096hr	DRA_PB-5A	30.1678	87.22	0.24
Water Quality	025yr096hr	DRA_PB-5A	30.2512	87.22	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.3345	87.22	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.4178	87.21	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.5012	87.21	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.5845	87.21	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.6678	87.21	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.7512	87.21	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.8345	87.21	0.23
Water Quality	025yr096hr	DRA_PB-5A	30.9178	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.0012	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.0845	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.1678	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.2512	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.3345	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.4178	87.20	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.5012	87.19	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.5845	87.19	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.6678	87.19	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.7512	87.19	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.8345	87.19	0.23
Water Quality	025yr096hr	DRA_PB-5A	31.9178	87.19	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.0012	87.19	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.0845	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.1678	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.2512	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.3345	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.4178	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.5012	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.5845	87.18	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.6678	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.7512	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.8345	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	32.9178	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.0012	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.0845	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.1678	87.17	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.2512	87.16	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.3345	87.16	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.4178	87.16	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.5012	87.16	0.22

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	33.5845	87.16	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.6678	87.16	0.22
Water Quality	025yr096hr	DRA_PB-5A	33.7512	87.16	0.21
Water Quality	025yr096hr	DRA_PB-5A	33.8345	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	33.9178	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.0012	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.0845	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.1678	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.2512	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.3345	87.15	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.4178	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.5012	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.5845	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.6678	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.7512	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.8345	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	34.9178	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.0012	87.14	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.0845	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.1678	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.2512	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.3345	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.4178	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.5012	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.5845	87.13	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.6678	87.12	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.7512	87.12	0.21
Water Quality	025yr096hr	DRA_PB-5A	35.8345	87.12	0.20
Water Quality	025yr096hr	DRA_PB-5A	35.9178	87.12	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.0012	87.12	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.0845	87.12	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.1678	87.12	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.2512	87.12	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.3345	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.4178	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.5012	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.5845	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.6678	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.7512	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.8345	87.11	0.20
Water Quality	025yr096hr	DRA_PB-5A	36.9178	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.0012	87.10	0.20

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	37.0845	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.1678	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.2512	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.3345	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.4178	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.5012	87.10	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.5845	87.09	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.6678	87.09	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.7512	87.09	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.8345	87.09	0.20
Water Quality	025yr096hr	DRA_PB-5A	37.9178	87.09	0.20
Water Quality	025yr096hr	DRA_PB-5A	38.0012	87.09	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.0845	87.09	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.1678	87.09	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.2512	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.3345	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.4178	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.5012	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.5845	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.6678	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.7512	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.8345	87.08	0.19
Water Quality	025yr096hr	DRA_PB-5A	38.9178	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.0012	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.0845	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.1678	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.2512	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.3345	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.4178	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.5012	87.07	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.5845	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.6678	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.7512	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.8345	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	39.9178	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	40.0012	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	40.0845	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	40.1678	87.06	0.19
Water Quality	025yr096hr	DRA_PB-5A	40.2512	87.05	0.19
Water Quality	025yr096hr	DRA_PB-5A	40.3345	87.05	0.19
Water Quality	025yr096hr	DRA_PB-5A	40.4178	87.05	0.18
Water Quality	025yr096hr	DRA_PB-5A	40.5012	87.05	0.18

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	40.5845	87.05	0.18
Water Quality	025yr096hr	DRA_PB-5A	40.6678	87.05	0.18
Water Quality	025yr096hr	DRA_PB-5A	40.7512	87.05	0.18
Water Quality	025yr096hr	DRA_PB-5A	40.8345	87.05	0.18
Water Quality	025yr096hr	DRA_PB-5A	40.9178	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.0012	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.0845	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.1678	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.2512	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.3345	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.4178	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.5012	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.5845	87.04	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.6678	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.7512	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.8345	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	41.9178	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.0012	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.0845	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.1678	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.2512	87.03	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.3345	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.4178	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.5012	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.5845	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.6678	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.7512	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.8345	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	42.9178	87.02	0.18
Water Quality	025yr096hr	DRA_PB-5A	43.0012	87.02	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.0845	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.1678	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.2512	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.3345	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.4178	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.5012	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.5845	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.6678	87.01	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.7512	87.00	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.8345	87.00	0.17
Water Quality	025yr096hr	DRA_PB-5A	43.9178	87.00	0.17
Water Quality	025yr096hr	DRA_PB-5A	44.0012	87.00	0.17

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	44.0845	87.00	0.17
Water Quality	025yr096hr	DRA_PB-5A	44.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	44.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	45.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	46.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.5012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	47.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	47.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	48.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	49.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	50.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.0012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	51.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	51.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	52.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	53.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.5012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	54.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	54.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	55.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	56.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	57.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.0012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	58.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	58.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	59.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	60.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.5012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	61.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	61.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	62.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	63.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	64.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.0012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	65.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	65.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	66.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	67.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.5012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	68.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	68.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	69.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	70.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.0012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	71.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.0012	87.00	0.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Total Outflow Rate [cfs]
Water Quality	025yr096hr	DRA_PB-5A	72.0845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.1678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.2512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.3345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.4178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.5012	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.5845	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.6678	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.7512	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.8345	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	72.9178	87.00	0.00
Water Quality	025yr096hr	DRA_PB-5A	73.0012	87.00	0.00

18. PRE AND POST DEVELOPED DRAINAGE BASIN MAPS



Item 2.

WATERMARK CONSTRUCTION PLANS
TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC
210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE.
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
CERTIFICATE OF AUTHORIZATION
NUMBER: 33380

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PROJECT NO.:	045548
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DRAWN BY:	WDB
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SCALE:	1" =200'
SHEET TITLE:	

PRE BASINS

1 of 1

504

FILE NAME: A:\45000s\45548\003\LD\Calculations\Basin_map_REV.dwg DATE: June 30, 2025, TIME: 10:15 AM, USER: ah4310

WATERMARK CONSTRUCTION PLANS

TOWN OF HOWEY IN THE HILLS
LAKE COUNTY

REVELS ROAD INVESTORS, LLC

210 Hangar Rd.
Kissimmee, FL 34741

halff
902 NORTH SINCLAIR AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-8481
FAX: (407) 647-7322
CERTIFICATE OF AUTHORIZATION
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PROJECT NO.:	045548
ISSUED:	JANUARY 2025
DRAWN BY:	SPH
CHECKED BY:	BJT
SCALE:	1" = 200'

SHEET TITLE:

POST BASINS

1 of 1

FILE NAME: A:\45000s\45548\003\LD\Calculations\Basin_map_REV.dwg DATE: June 30, 2025, TIME: 10:17 AM, USER: ah4310

19. NOAA RAINFALL DATA

NOAA Atlas 14, Volume 9, Version 2
Location name: Howey-in-the-Hills, Florida, USA*
Latitude: 28.694°, Longitude: -81.7778°
Elevation: 145 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.506** (0.414-0.615)	**0.573** (0.468-0.697)	**0.679** (0.553-0.829)	**0.765** (0.619-0.938)	**0.879** (0.684-1.10)	**0.963** (0.734-1.23)	**1.04** (0.768-1.37)	**1.12** (0.792-1.52)	**1.22** (0.830-1.70)	**1.30** (0.858-1.84)
10-min	**0.740** (0.606-0.900)	**0.838** (0.685-1.02)	**0.995** (0.810-1.21)	**1.12** (0.907-1.37)	**1.29** (1.00-1.62)	**1.41** (1.07-1.80)	**1.53** (1.12-2.01)	**1.65** (1.16-2.22)	**1.79** (1.22-2.49)	**1.90** (1.26-2.70)
15-min	**0.903** (0.738-1.10)	**1.02** (0.836-1.24)	**1.21** (0.988-1.48)	**1.37** (1.11-1.68)	**1.57** (1.22-1.97)	**1.72** (1.31-2.20)	**1.86** (1.37-2.45)	**2.01** (1.42-2.71)	**2.19** (1.48-3.04)	**2.32** (1.53-3.29)
30-min	**1.41** (1.16-1.72)	**1.60** (1.31-1.95)	**1.90** (1.55-2.32)	**2.14** (1.73-2.63)	**2.46** (1.91-3.09)	**2.69** (2.05-3.44)	**2.92** (2.14-3.82)	**3.13** (2.21-4.23)	**3.41** (2.31-4.74)	**3.60** (2.38-5.12)
60-min	**1.83** (1.50-2.22)	**2.09** (1.71-2.55)	**2.51** (2.04-3.06)	**2.84** (2.30-3.48)	**3.28** (2.55-4.12)	**3.60** (2.74-4.60)	**3.91** (2.87-5.12)	**4.20** (2.96-5.67)	**4.58** (3.10-6.36)	**4.84** (3.20-6.88)
2-hr	**2.24** (1.85-2.71)	**2.58** (2.13-3.12)	**3.12** (2.56-3.78)	**3.54** (2.89-4.31)	**4.10** (3.21-5.11)	**4.51** (3.45-5.72)	**4.90** (3.62-6.38)	**5.28** (3.74-7.07)	**5.75** (3.92-7.93)	**6.08** (4.05-8.59)
3-hr	**2.42** (2.01-2.92)	**2.80** (2.31-3.37)	**3.40** (2.80-4.10)	**3.88** (3.18-4.71)	**4.54** (3.57-5.65)	**5.02** (3.87-6.36)	**5.50** (4.09-7.14)	**5.97** (4.25-7.98)	**6.57** (4.50-9.05)	**7.01** (4.68-9.86)
6-hr	**2.77** (2.31-3.31)	**3.18** (2.65-3.81)	**3.88** (3.22-4.65)	**4.48** (3.70-5.40)	**5.34** (4.27-6.68)	**6.03** (4.70-7.64)	**6.74** (5.07-8.77)	**7.48** (5.39-10.0)	**8.50** (5.88-11.7)	**9.30** (6.25-13.0)
12-hr	**3.22** (2.70-3.82)	**3.64** (3.05-4.32)	**4.41** (3.69-5.25)	**5.15** (4.28-6.16)	**6.30** (5.12-7.94)	**7.28** (5.76-9.28)	**8.37** (6.38-10.9)	**9.56** (6.97-12.8)	**11.3** (7.89-15.6)	**12.7** (8.59-17.6)
24-hr	**3.73** (3.15-4.39)	**4.18** (3.54-4.93)	**5.10** (4.30-6.03)	**6.03** (5.05-7.16)	**7.54** (6.22-9.54)	**8.90** (7.11-11.3)	**10.4** (8.02-13.6)	**12.1** (8.94-16.3)	**14.7** (10.4-20.2)	**16.8** (11.4-23.1)
2-day	**4.29** (3.66-5.02)	**4.86** (4.14-5.69)	**6.02** (5.11-7.07)	**7.19** (6.06-8.48)	**9.10** (7.57-11.5)	**10.8** (8.72-13.7)	**12.7** (9.89-16.6)	**14.9** (11.1-19.9)	**18.1** (12.9-24.8)	**20.8** (14.3-28.5)
3-day	**4.73** (4.05-5.51)	**5.36** (4.58-6.25)	**6.62** (5.65-7.74)	**7.90** (6.69-9.28)	**9.98** (8.34-12.5)	**11.9** (9.59-15.0)	**14.0** (10.9-18.0)	**16.3** (12.2-21.7)	**19.8** (14.1-27.0)	**22.7** (15.6-31.0)
4-day	**5.13** (4.41-5.96)	**5.77** (4.95-6.71)	**7.07** (6.04-8.24)	**8.38** (7.12-9.81)	**10.5** (8.83-13.2)	**12.5** (10.1-15.7)	**14.6** (11.4-18.9)	**17.1** (12.8-22.6)	**20.7** (14.8-28.2)	**23.7** (16.4-32.3)
7-day	**6.21** (5.37-7.17)	**6.81** (5.88-7.87)	**8.05** (6.93-9.33)	**9.33** (7.98-10.9)	**11.5** (9.69-14.2)	**13.4** (11.0-16.8)	**15.6** (12.3-20.0)	**18.1** (13.6-23.9)	**21.9** (15.8-29.6)	**25.0** (17.4-33.8)
10-day	**7.16** (6.21-8.23)	**7.75** (6.72-8.92)	**8.99** (7.77-10.4)	**10.3** (8.81-11.9)	**12.4** (10.4-15.2)	**14.3** (11.7-17.7)	**16.4** (12.9-20.9)	**18.8** (14.2-24.7)	**22.5** (16.2-30.2)	**25.5** (17.8-34.4)
20-day	**9.79** (8.57-11.2)	**10.7** (9.31-12.2)	**12.2** (10.6-14.0)	**13.6** (11.8-15.7)	**15.7** (13.3-18.9)	**17.5** (14.4-21.4)	**19.5** (15.4-24.4)	**21.6** (16.3-27.8)	**24.6** (17.8-32.5)	**27.0** (18.9-36.1)
30-day	**12.1** (10.6-13.7)	**13.3** (11.7-15.1)	**15.2** (13.3-17.4)	**16.9** (14.7-19.4)	**19.2** (16.2-22.8)	**21.1** (17.3-25.3)	**22.9** (18.1-28.3)	**24.8** (18.7-31.6)	**27.4** (19.8-35.9)	**29.3** (20.7-39.2)
45-day	**15.2** (13.4-17.1)	**16.8** (14.8-19.0)	**19.4** (17.0-22.0)	**21.5** (18.7-24.5)	**24.2** (20.3-28.3)	**26.2** (21.5-31.1)	**28.0** (22.2-34.3)	**29.9** (22.6-37.6)	**32.1** (23.3-41.7)	**33.7** (23.8-44.8)
60-day	**17.9** (15.8-20.2)	**19.9** (17.6-22.5)	**23.1** (20.4-26.2)	**25.6** (22.4-29.1)	**28.7** (24.1-33.4)	**30.9** (25.4-36.6)	**33.0** (26.1-40.0)	**34.8** (26.4-43.6)	**37.0** (26.9-47.9)	**38.5** (27.3-51.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

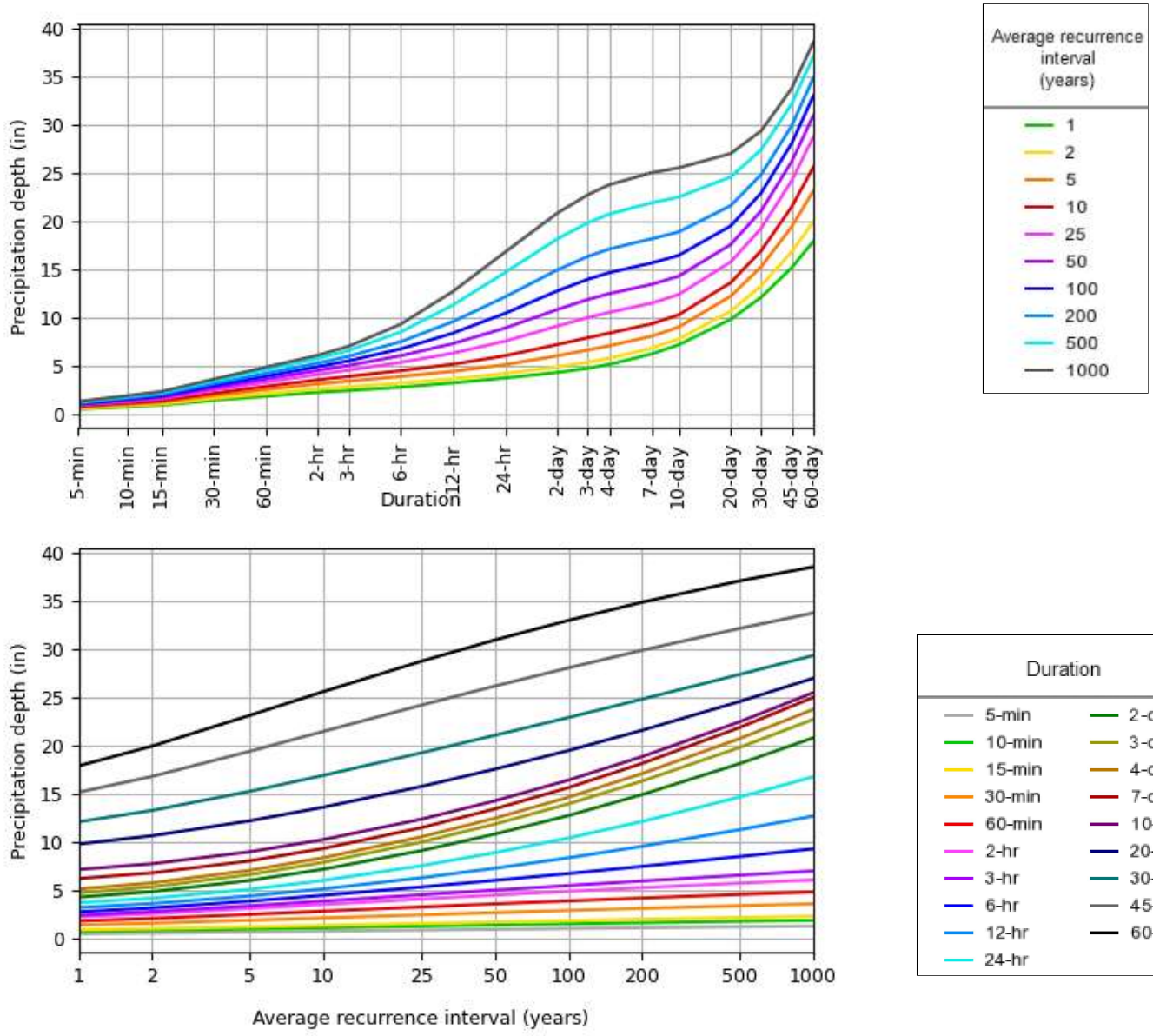
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 28.6940°, Longitude: -81.7778°



NOAA Atlas 14, Volume 9, Version 2

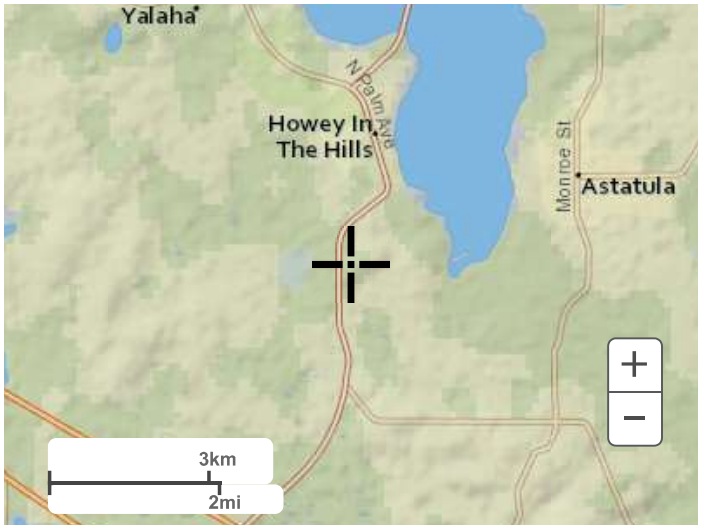
Created (GMT): Thu Apr 17 17:25:22 2025

Back to Top

Maps & aerials

Small scale terrain

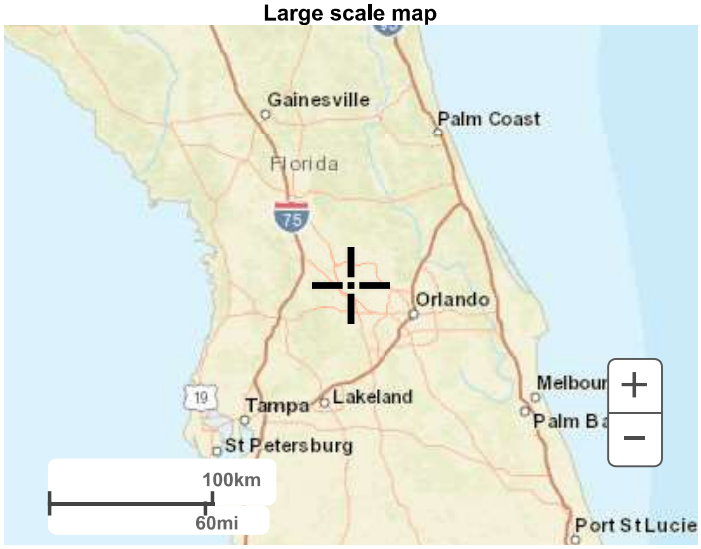
Item 2.



Large scale terrain

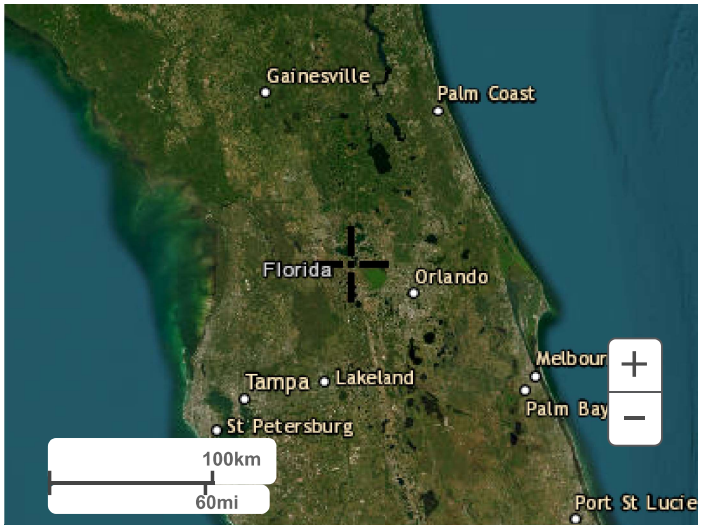


Large scale map



Large scale aerial

Item 2.



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Watermark Lift Station

Town of Howey-In-The-Hills, *Lake* County, Florida

Lift Station Calculations

Prepared by:

902 N. Sinclair Avenue • Tavares, Florida 32778 • Phone (352) 343-8481

Halff Project No. 045548.003

June 11, 2025

Revised July 22, 2025



Digitally signed by Troy Mitchell
DN: cn=Troy Mitchell, ou=Tavares
Date: 2025.07.22 15:18:39 -04'00'

Name: _____

Troy Mitchell, P.E. No. 60190

Date: _____

LIFT STATION CALCULATIONS

Watermark Lift Station

I. Design Flow Rates:

A. Residential

Parcel ID	Type Description	Unit Description	Units	Unit Flow (GPD/Unit)	Average Daily Flow (GPD)	Average Daily Flow (GPM)	Minimum Daily Flow (GPM)	Maximum Daily Flow (GPM)	Peak Daily Flow (GPM)
1	*Residential - SF (detached 3 Bedroom)*	dwelling unit	118	300	35,400	25	12	49	98
2	*Residential - SF (detached 3 Bedroom)*	dwelling unit	84	300	25,200	18	9	35	70
3	*Residential - SF (detached 3 Bedroom)*	dwelling unit	88	300	26,400	18	9	37	73
4	*N/A*	---		---	0	0	0	0	0
5	*N/A*	---		---	0	0	0	0	0
				Total Residential	87,000	60	30	121	242
							F_{min}	F_{max}	F_{peak}
				Residential Design Peaking Factors:			0.50	2.00	4.00

B. Non-Residential

Parcel ID	Non-Residential Land Use Description	Unit Description	Units	Unit Flow (GPD/Unit)	Average Daily Flow (GPD)	Average Daily Flow (GPM)	Minimum Daily Flow (GPM)	Maximum Daily Flow (GPM)	Peak Daily Flow (GPM)
1	*N/A*	---		---	0	0	0	0	0
2	*N/A*	---		---	0	0	0	0	0
3	*N/A*	---		---	0	0	0	0	0
4	*N/A*	---		---	0	0	0	0	0
5	*N/A*	---		---	0	0	0	0	0
				Total Non-Residential	0	0	0	0	0
							F_{min}	F_{max}	F_{peak}
				Non-Residential Design Peaking Factors:			0.50	2.00	4.00

Equivalent Residential Unit, ERU: 300 gpd/du

Total Project ERU's = 290

	Daily Flow (GPD)	Daily Flow (GPM)	Daily Flow (GPM)	Daily Flow (GPM)	Daily Flow (GPM)
Total Design	**87,000**	**60**	**30**	**121**	**242**

LIFT STATION CALCULATIONS

Watermark Lift Station

II. Wet Well Dimensions:

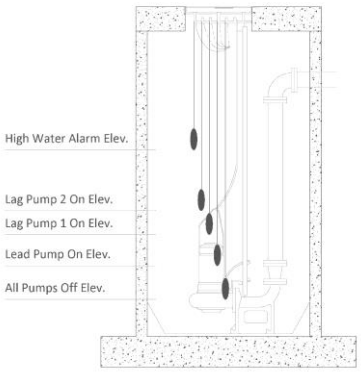
		Input	Units
Wetwell Information:			
1. Wet Well Layout:		Duplex	
2. No. of Wet Wells:		1	
3. Wet Well Configuration:		Circular	
4. Inside Diameter =	D	8	ft
5. Wetwell Inside Length =	L		ft
6. Wetwell Inside Width =	W		ft
7. Influent Sewer Elevation =		89.00	ft
8. Grade Elevation =		97.75	ft
9. Maintenance Pad height above grade =		0.50	ft
10. Cross-Sectional Area =	A_c	50.27	ft^2
Inflow Information:			
1. Design Average Inflow =	Q_a	60	gpm
2. Design Peak Inflow =	Q_p	242	gpm
Pump Flow Information:			
1. Design Pump Flow =	Q	330	gpm
2. Total Pump Flow =	Q_T	330	gpm

IV. Wet Well Control Levels:

	Input Δ	Input	Units
Design Operational Elevations:			
1. Top of Structure =		98.25	ft
2. Influent Sewer Main =		89.00	ft
3. High Water Alarm =	0.00	89.00	ft
4. Lag Pump No. 3 On =	0.00	N/A	ft
5. Lag Pump No. 2 On =	0.00	N/A	ft
6. Lag Pump No. 1 On =	0.50	88.50	ft
7. Lead Pump On =	1.00	87.50	ft
8. Pumps Off =		85.50	ft
9. Highest Wetwell Bottom =	3.00	82.50	ft
10. Selected Wetwell Bottom =		82.50	ft
11. Selected Wetwell Depth =		15.25	ft
Minimum Site Dimensions:			
1. Total Depth of Wet Well =		15.25	ft
2. Station Yard Finish Grade Elevation =		97.75	ft
3. Minimum Station Yard Width =		15.25	ft
4. Min. Station Easement Length & Width =		38.50	ft

III. Wet Well Operating Depth:

	Input/Result	Units	Design Equations
Actual Working Depth and Volume:			
1. Minimum Allowable Cycle Time =	10	min	$T_c = [V_r / (Q_{out} - Q_{in})] + (V_r / Q_{in})$
2. Wetwell Volume per Foot of Depth =	376	gal/ft	$V_{ft} = A_c * 7.481$
3. Flow Rate Ratio (Peak) =	1.37		$R = Q_T / Q_p$
4. Required Minimum Working Volume =	647	gal	$V_r = [Q_{out} * T_c * (R-1)] / R^2$
5. Required Minimum Working Depth =	1.720	ft	$d_r = V_r / (V_{ft})$
6. Selected Working Depth =	2.00	ft	d_a
7. Actual Working Volume =	752	gal	$V_a = A_c * 7.48 * d_a$

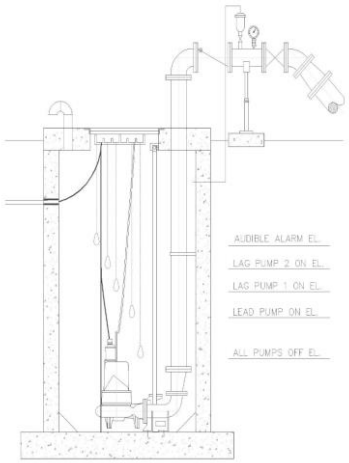


V. Static Head Loss

	Input/Result	Units	Design Equations
Station Discharge Valve Assembly:			
1. Valve Assembly Above Grade:	Yes		
2. Valve Assembly Elevation =	101.75	ft	
3. Wet Well High Water Elevation =	89.00	ft	E_{HW}
3. Wet Well Low Water Elevation =	85.50	ft	E_{LW}
4. Static Head Loss (min) =	12.75	ft	$LS = E_{HP} - E_{HW}$
5. Static Head Loss (max) =	16.25	ft	$LS = E_{HP} - E_{LW}$
Force Main Elevation Information:			
1. Grade Elevation at High Point =	94.50	ft	
2. Cover at High Point =	3.00	ft	
3. Elevation at High Point =	91.50	ft	E_{hp}
4. High Water Elevation =	89.00	ft	E_{HW}
5. Low Water Elevation =	85.50	ft	E_{LW}
6. Static Head Loss (min) =	2.50	ft	$LS = E_{HP} - E_{HW}$
7. Static Head Loss (max) =	6.00	ft	$LS = E_{HP} - E_{LW}$
Connection Pressure Information:			
1. Grade Elevation at Connection Point =	86.10	ft	
2. Cover at Connection Point =	3.00	ft	
3. Elevation at Connection =	83.10	ft	E_c
4. Connecting Pressure (Max.) =	14.15	psi	
5. Connecting Pressure (Min.) =	7.57	psi	
6. Connecting Head (Max.) =	32.64	ft	P
7. Connecting Head (Min.) =	17.46	ft	P
8. High Water Elevation =	89.00	ft	E_{HW}
9. Low Water Elevation =	85.50	ft	E_{LW}
10. Static Head Loss (min) =	11.56	ft	$LS = (E_C + P) - E_{HW}$
11. Static Head Loss (max) =	30.24	ft	$LS = (E_C + P) - E_{LW}$

Total Static Head Loss (Min) = 12.75 **feet**

Total Static Head Loss (Max) = 30.24 **feet**



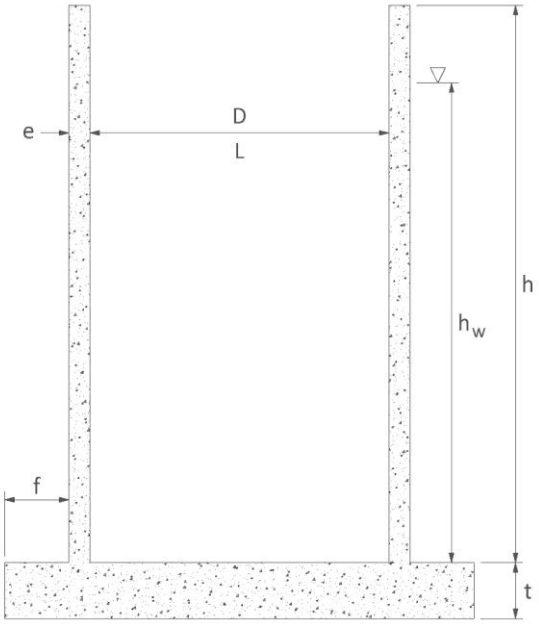
Notes: Connecting pressures provided by Connelly & Wicker, Inc.'s WaterCAD Model for the Hillside Grove Development - dated 10/27/2022.

LIFT STATION CALCULATIONS

Watermark Lift Station

VI. Buoyancy Calculation:

		Input/Result	Units
Wetwell Information:			
1. Wet Well Configuration:		*Circular*	
2. Wetwell Inside Diameter =	D	8.0	ft
3. Wetwell Inside Length =	L	0.0	ft
4. Wetwell Inside Width =	W	0.0	ft
5. Wetwell Depth =	h	15.25	ft
6. Base Slab Thickness =	t	12	in
7. Wall Edge Thickness =	e	8	in
8. Flange Extension =	f	12	in
9. Wetwell Inside Area =	A_i	50.27	ft^2
10. Wetwell Outside Area =	A_o	68.42	ft^2
11. Base Slab Area =	A_b	100.88	ft^2



Materials Information:			
Wet Well Material:		Concrete	
1. Unit Weight of Water =	γ_{water}	62.4	lb/ft^3
2. Unit Weight of Wall =	γ_{wall}	150.0	lb/ft^3
3. Unit Weight of Base =	γ_{base}	150.0	lb/ft^3
4. Unit Weight of Saturated Soil =	γ_{sat}	110.0	lb/ft^3
5. Percent Saturation =		100%	
6. Submerged Unit Weight =	$\gamma' = \gamma_{sat} - \gamma_{water}$	47.6	lb/ft^3

For Fiberglass Wet Wells:		
7. Basin Diameter x Depth =	N/A	
8. Volume of Fiberglass Basin =	N/A	gallons
9. Weight of Fiberglass =	N/A	lbs.

Assumptions:

1. Assume groundwater surface 1 to 3 feet below finished grade.
2. Ignore weight of wetwell above grade, top slab and equipment/materials in wetwell.
3. Ignore soil cohesion and additional soil weight exerted on wetwell base due to soil repose effect.

	Input/Result	Units	Design Equations
Wetwell Buoyant Force:			
1. Depth to Groundwater	3.00	ft	
2. Water Displaced by Wetwell Cylinder =	52,298	lbs	$F_w = A_o * h_w * \gamma_{water}$
3. Water Displaced by Base =	6,295	lbs	$F_b = A_b * (t/12) * \gamma_{water}$
4. Total Bouyant Force =	58,593	lbs	$F_B = F_b + F_w$
Downward Forces:			
1. Downward Force of Concrete =	56,653	lbs	$F_c = [(A_o) - (A_i))] * h * \gamma_{wall} + A_b * (t/12) * \gamma_{base}$
2. Downward Force of Saturated Soil =	23,565	lbs	$F_s = [(A_b) - (A_o)] * h * (\gamma_{sat} - \gamma_{water})$
3. Total Downward Force =	80,218	lbs	$F_D = F_c + F_s$
Factor of Safety Against Buoyant Uplift:			
1. Wetwell Buoyant Force =	58,593	lbs	F_B
2. Downward Force =	80,218	lbs	F_D
3. Factor of Safety Against Buoyant Uplift =	1.37		$FS = F_D/F_B$

LIFT STATION CALCULATIONS (Cont'd)
Watermark Lift Station

VII. Calculation of System Head Curve:

Total Static Head (Min) = 12.75 Feet
Total Static Head (Max) = 30.24 Feet

	Station Piping			Force Main Piping								
	New			New			New			New		
Pipe Length (feet)	29			1,568			100			1,497		
Pipe Diameter (inches)	6			6			10			10		
Pipe Inside Dia. (inches)	5.349			6.090			8.219			9.790		
Pipe Area (Sq.-Ft.)	0.156			0.202			0.368			0.523		
Pipe Material	HDPE			PVC			HDPE			PVC		
Pressure Class	DR-11			DR-18			DR-9			DR-18		
Roughness C	120			120			120			120		
Fittings:	K-Value	No.	Tot K	K-Value	No.	Tot K	K-Value	No.	Tot K	K-Value	No.	Tot K
90° Bend	0.45	2	0.9	0.45	1	0.5	0.42	0	0.0	0.42	1	0.4
45° Bend	0.24	2	0.48	0.24	4	1.0	0.22	0	0.0	0.22	2	0.4
Tee (straight)	0.3	0	0.0	0.3	0	0.0	0.28	0	0.0	0.28	0	0.0
Tee (branch)	0.9	1	0.9	0.9	0	0.0	0.84	0	0.0	0.84	0	0.0
Plug Valve	0.27	1	0.27	0.27	2	0.5	0.25	0	0.0	0.25	1	0.3
Check Valve	0.75	1	0.75	0.75	0	0.0	0.7	0	0.0	0.7	0	0.0
Gate Valve	0.12	0	0	0.12	0	0.0	0.11	0	0.0	0.11	0	0.0
Total K-Value			3.3			2.0			0.0			1.1
Add. Manifold Flows (gpm):					0			0			340	

Step Interval = 20 gpm
Station Layout = Duplex
No. of Pumps = 1 in operation

System Head Curve

Total Q (gpm)	Pump Q (gpm)	Pipe & Fitting Friction Losses in Feet - Velocity in Feet per Second: 6 Pipe (ft)	6 Fittings (ft)	6 Velocity (fps)	6 Pipe (ft)	6 Fittings (ft)	6 Velocity (fps)	10 Pipe (ft)	10 Fittings (ft)	10 Velocity (fps)	10 Pipe (ft)	10 Fittings (ft)	10 Velocity (fps)	Friction Head (feet)	TDH Min (feet)	TDH Max (feet)
0	0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	1.62	0.04	1.4	1.66	14.41	31.90
20	20	0.00	0.00	0.3	0.09	0.00	0.2	0.00	0.00	0.1	1.80	0.04	1.5	1.94	14.69	32.18
40	40	0.01	0.02	0.6	0.33	0.01	0.4	0.00	0.00	0.2	1.99	0.05	1.6	2.40	15.15	32.64
60	60	0.02	0.04	0.9	0.69	0.01	0.7	0.01	0.00	0.4	2.19	0.05	1.7	3.02	15.77	33.26
80	80	0.04	0.07	1.1	1.18	0.02	0.9	0.02	0.00	0.5	2.40	0.06	1.8	3.78	16.53	34.02
100	100	0.06	0.10	1.4	1.78	0.04	1.1	0.03	0.00	0.6	2.61	0.06	1.9	4.68	17.43	34.92
120	120	0.09	0.15	1.7	2.49	0.05	1.3	0.04	0.00	0.7	2.84	0.07	2.0	5.72	18.47	35.96
140	140	0.11	0.20	2.0	3.31	0.07	1.5	0.05	0.00	0.8	3.07	0.07	2.0	6.90	19.65	37.14
160	160	0.15	0.27	2.3	4.24	0.09	1.8	0.06	0.00	1.0	3.31	0.08	2.1	8.20	20.95	38.44
180	180	0.18	0.34	2.6	5.28	0.12	2.0	0.08	0.00	1.1	3.56	0.08	2.2	9.64	22.39	39.88
200	200	0.22	0.42	2.9	6.41	0.15	2.2	0.10	0.00	1.2	3.82	0.09	2.3	11.20	23.95	41.44
220	220	0.26	0.51	3.1	7.65	0.18	2.4	0.11	0.00	1.3	4.08	0.10	2.4	12.89	25.64	43.13
240	240	0.31	0.60	3.4	8.98	0.21	2.6	0.13	0.00	1.5	4.36	0.11	2.5	14.70	27.45	44.94
260	260	0.36	0.71	3.7	10.42	0.25	2.9	0.15	0.00	1.6	4.64	0.11	2.6	16.63	29.38	46.87
280	280	0.41	0.82	4.0	11.95	0.29	3.1	0.18	0.00	1.7	4.93	0.12	2.6	18.69	31.44	48.93
300	300	0.47	0.94	4.3	13.57	0.33	3.3	0.20	0.00	1.8	5.23	0.13	2.7	20.87	33.62	51.11
320	320	0.53	1.07	4.6	15.29	0.38	3.5	0.23	0.00	1.9	5.53	0.14	2.8	23.16	35.91	53.40
330	330	0.56	1.14	4.7	16.19	0.40	3.6	0.24	0.00	2.0	5.69	0.14	2.9	24.36	37.11	54.60
340	340	0.59	1.21	4.9	17.11	0.42	3.7	0.25	0.00	2.1	5.85	0.14	2.9	25.58	38.33	55.82
360	360	0.66	1.35	5.1	19.02	0.48	4.0	0.28	0.00	2.2	6.17	0.15	3.0	28.11	40.86	58.35
380	380	0.72	1.51	5.4	21.02	0.53	4.2	0.31	0.00	2.3	6.50	0.16	3.1	30.75	43.50	60.99
400	400	0.80	1.67	5.7	23.11	0.59	4.4	0.34	0.00	2.4	6.84	0.17	3.2	33.52	46.27	63.76
420	420	0.87	1.84	6.0	25.29	0.65	4.6	0.38	0.00	2.5	7.18	0.18	3.2	36.39	49.14	66.63
440	440	0.95	2.02	6.3	27.57	0.71	4.8	0.41	0.00	2.7	7.54	0.19	3.3	39.39	52.14	69.63
460	460	1.03	2.21	6.6	29.93	0.78	5.1	0.44	0.00	2.8	7.90	0.20	3.4	42.49	55.24	72.73
480	480	1.12	2.41	6.9	32.38	0.85	5.3	0.48	0.00	2.9	8.27	0.21	3.5	45.71	58.46	75.95
500	500	1.20	2.61	7.1	34.92	0.92	5.5	0.52	0.00	3.0	8.64	0.22	3.6	49.04	61.79	79.28
520	520	1.29	2.82	7.4	37.55	0.99	5.7	0.56	0.00	3.1	9.03	0.23	3.7	52.48	65.23	82.72
540	540	1.39	3.05	7.7	40.27	1.07	5.9	0.60	0.00	3.3	9.42	0.24	3.8	56.03	68.78	86.27
560	560	1.48	3.28	8.0	43.07	1.15	6.2	0.64	0.00	3.4	9.82	0.25	3.8	59.69	72.44	89.93
580	580	1.58	3.51	8.3	45.96	1.24	6.4	0.68	0.00	3.5	10.23	0.26	3.9	63.46	76.21	93.70
600	600	1.69	3.76	8.6	48.93	1.32	6.6	0.73	0.00	3.6	10.64	0.28	4.0	67.35	80.10	97.59

VIII. Equations

Friction Losses:

Piping: $h_f = [(10.44 \times L \times Q^{1.85}) \div (C^{1.85} \times d^{4.8655})]$
Fittings: $h_f = K \times (v^2 \div 2g)$
Velocity: $v = Q \div A$

L = Pipe Length (feet)
d = Pipe Diameter (inches)
A = Pipe Cross-Section Area (sq ft)
Q = Flow Rate (gpm)
v = Velocity (fps)
C = Roughness Coefficient

K Coefficients

Fittings:	Pipe Diameter 1.25	1.5	2	3	4	6	8	10	12	14	16	18
90° Bend	0.66	0.63	0.57	0.54	0.51	0.45	0.42	0.42	0.39	0.39	0.39	0.36
45° Bend	0.35	0.34	0.30	0.29	0.27	0.24	0.22	0.22	0.21	0.21	0.21	0.19
Tee (straight)	0.44	0.42	0.38	0.36	0.34	0.30	0.28	0.28	0.26	0.26	0.26	0.24
Tee (branch)	1.32	1.26	1.14	1.08	1.02	0.90	0.84	0.84	0.78	0.78	0.78	0.72
Plug Valve	0.40	0.38	0.34	0.33	0.31	0.27	0.25	0.25	0.23	0.23	0.23	0.22
Check Valve	1.10	1.10	1.00	0.95	0.90	0.75	0.70	0.70	0.65	0.65	0.65	0.60
Gate Valve	0.18	0.15	0.15	0.14	0.14	0.12	0.11	0.11	0.10	0.10	0.10	0.10

LIFT STATION CALCULATIONS (Cont'd)
Watermark Lift Station

VIII. Calculation of System Head Curve:

Pump Information:

1. Pump Manufacturer:	Hydromatic	
2. Pump Model:	Submersible	
3. Curve:	H4H	Standard Efficiency
4. Impeller Diameter:	8.75	inches
5. Horsepower:	10	hp
6. Speed:	1750	rpm

Assumed Efficiency Information:	Input	Units	Equations
1. Design Pump Flow =	330.00	gpm	Q
2. Pump Efficiency =	68%		η_P
3. Drive Motor Efficiency =	75%		η_{DM}
4. Specific Gravity =	1.00		SG

Required Horsepower for Minimum Headloss:			
1. Total Discharge Head =	48.00	ft	H
2. Required Horsepower =	5.88	HP	HP = (Q * H * SG) / (3960 * η_P)
3. Kilowatt Input =	5.85	KW	KW = (HP * 0.7457) / η_{DM}

Required Horsepower for Maximum Headloss:			
1. Total Discharge Head =	55.00	ft	H
2. Required Horsepower =	6.74	HP	HP = (Q * H * SG) / (3960 * η_P)
3. Kilowatt Input =	6.70	KW	KW = (HP * 0.7457) / η_{DM}

IX. Cycle Time:

Flow Information:	Input	Units	Equations
1. Design Pumping Capacity (Min Head Case) =	435	gpm	Q_{min}
2. Design Pumping Capacity (Max Head Case) =	330	gpm	Q_{max}
3. Design Average Inflow =	60	gpm	Q_a
4. Design Peak Inflow =	242	gpm	Q_p
5. Actual Working Volume =	752	gal	V_a
6. Minimum Allowable Cycle Time =	10	min	

Cycle Times for Design Average Inflow:			
1. Time to Fill (Design Average Inflow) =	12.45	min	$t_f = V_a/Q_a$
2. Time to Empty (Design Average Inflow) =	2.79	min	$t_e = V_a/(Q_{min} - Q_a)$
3. Cycle Time (Design Average Inflow) =	15.24	min	$t_c = t_f + t_e$

Cycle Times for Design Peak Inflow:			
1. Time to Fill (Design Peak Inflow) =	3.11	min	$t_f = V_a/Q_p$
2. Time to Empty (Design Peak Inflow) =	8.51	min	$t_e = V_a/(Q_{max} - Q_p)$
3. Cycle Time (Design Peak Inflow) =	11.63	min	$t_c = t_f + t_e$

Note:
1. If cycle time is insufficient, iteratively increase selected working depth in the Wetwell Sizing tab or select a different pump and input new specifications in the Curve Data tab until sufficient.
2. Cycle time should not be less than 5 minutes (10 minutes is preferred).

X. Water Hammer:

Wave Velocity Calculation:	Input	Units	Equations
1. Fluid Bulk Modulus =	300,000	psi	k
2. Pipe Material =	PVC		
3. Modulus of Elasticity =	400,000	psi	E
4. Pipe Outside Diameter =	6.90	in	OD
5. Pipe Wall Thickness =	0.383	in	T
6. Standard Dimension Ratio =	18.02		SDR = OD / T
7. Wave Velocity =	1,291.87	ft/s	a = 4,660 / √[1 + (k*(SDR - 2)) / E]

Water Hammer Calculation:			
1. Max. Change in Velocity =	3.60	ft/s	Δv
2. Acceleration Due to Gravity =	32.2	ft/s^2	g
3. Maximum Surge Pressure =	62.61	psi	P = a*Δv / (2.307*g)
4. Water Hammer Head =	144.43	ft	h_{wh} = P*2.307

Peak Hoop Stress Calculation:			
1. Maximum Surge Pressure =	62.61	psi	P
2. Peak Hoop Stress =	532.64	psi	S = (P*(SDR - 1)) / 2

XI. System Curve:

Pump Manufacturers' Websites

Hydromatic:
Wastewater Pump Selection Software: https://www.pentair.com/en-us/brands/hydromatic.html

Wastewater Pump Electronic Catelog: http://pentairoec.pvcomm.net/login.asp

FLYGT:
Wastewater Pump Selection Software: https://www.xylect.com

FLYGT Submersible Pump: N 3000 Series

FLYGT Grinder Pump: M 3000 Series

ABS:
Wastewater Pump Selection Software: https://absel.sulzer.com/StartMain.aspx

XII. Travel Time and Distance:

Pump Run Time (peak): 8.51 minutes

Pipe ID	Diameter (inches)	Area (ft^2)	Length (ft)	Pump Flow Rate Maximum (gpm)	Pump Flow Rate Maximum (cfs)	Pipe Velocity (fps)	Travel Time Required (minutes)	Travel Time Actual (minutes)	Travel Distance (ft)
P-1	6.09	0.202	1,568	330	0.735	3.63	7.19	7.19	1568
P-2	8.22	0.368	100	330	0.735	2.00	0.84	1.32	158
P-3	9.79	0.523	1497	330	0.735	1.41	17.74	0.00	0
P-4	6.09	0.202	0	330	0.735	3.63	0.00	0.00	0
P-5	6.09	0.202	0	330	0.735	3.63	0.00	0.00	0
P-6	6.09	0.202	0	330	0.735	3.63	0.00	0.00	0
P-7	6.09	0.202	0	330	0.735	3.63	0.00	0.00	0
P-8	6.09	0.202	0	330	0.735	3.63	0.00	0.00	0
							25.77	8.51	1,726

Item Number / Tags	: Default	Size	: Hydromatic - H4H
Service	:	Stages	: 1
Quantity	: 1	Based on curve number	: SUB_S_E_AH_00021_B_4 Rev 2012-03-23
Quote number	:	Date last saved	: 22 Jul 2025 2:01 PM

Operating Conditions

Flow, rated	: 330.0 USgpm
Head, rated (requested)	: 55.00 ft
Head, rated (actual)	: 56.24 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available	: Ample
Site Supply Frequency	: 60 Hz

Performance

Speed criteria	: Synchronous
Speed	: 1750 rpm
Impeller dia.	: 8.75 in
Impeller diameter, maximum	: 10.00 in
Impeller diameter, minimum	: 8.00 in
Efficiency	: 61.36 %
NPSH required / margin required	: - / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 34 / - Metric units
Minimum Continuous Stable Flow	: 100.0 USgpm
Head max.	: 90.14 ft
Head rise to shutoff	: 63.88 %
Flow, best eff. point	: 444.2 USgpm
Flow ratio, rated / BEP	: 74.29 %
Diameter ratio (rated / max)	: 87.50 %
Head ratio (rated dia / max dia)	: 65.16 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable

Liquid

Liquid type	: Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids size limit	: 3.00 in
Solids concentration, by volume	: 0.00 %
Temperature	: 68.00 deg F
Fluid density	: 1.000 / 1.000 SG
Viscosity	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

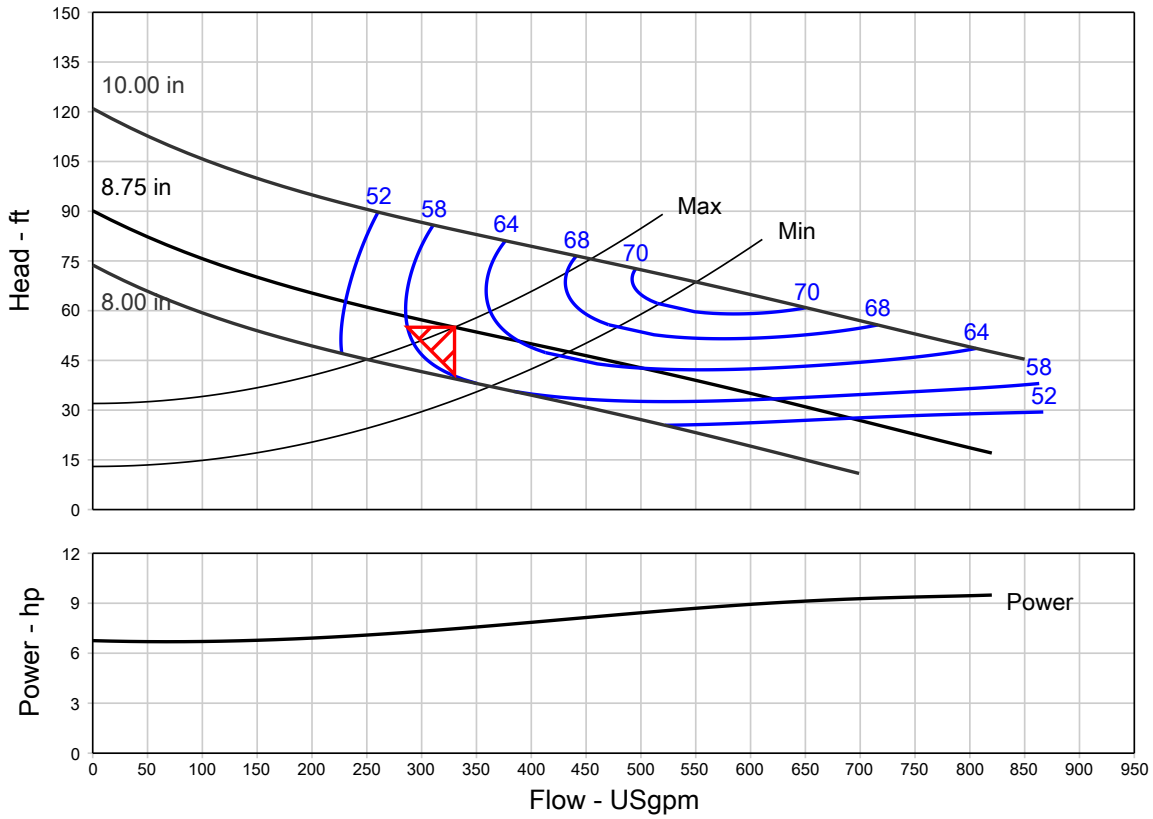
Material selected	: Standard

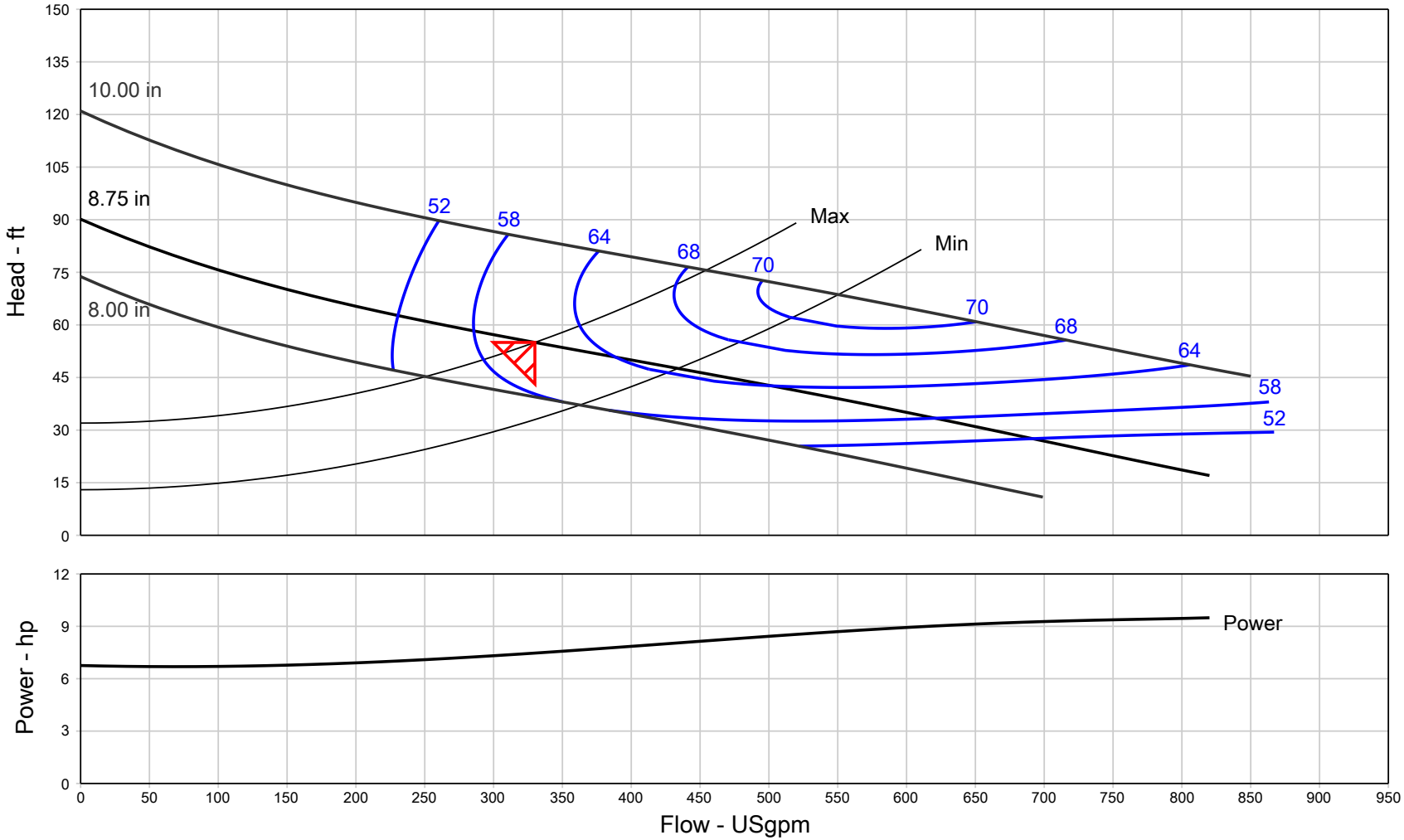
Pressure Data

Maximum working pressure	: 39.01 psi.g
Maximum allowable working pressure	: N/A
Maximum allowable suction pressure	: N/A
Hydrostatic test pressure	: N/A

Driver & Power Data (@Max density)

Driver sizing specification	: Max Power
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 4.58 hp
Power, rated	: 7.47 hp
Power, maximum	: 9.49 hp
Motor rating	: 10.00 hp / 7.46 kW





Item Number / Tags	: Default	Size	: Hydromatic - H4H	Flow, rated	: 330.0 USgpm
Service	:	Stages	: 1	Head, rated	: 55.00 ft
Quantity	: 1	Speed	: 1750 rpm	NPSH required	: -
Quote number	:	Based on curve number	: SUB_S_E_AH_00021_B_4 Rev 2012-03-23	Fluid density	: 1.000 / 1.000 SG
Date last saved	: 22 Jul 2025 2:01 PM			Viscosity	: 1.00 cP
		Efficiency	: 61.36 %	Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
		Power, rated	: 7.47 hp		

Item Number / Tags	: Default	Size	: Hydromatic - H4H
Service	:	Stages	: 1
Quantity	: 1	Speed	: 1750 rpm
Quote number	:	Frame size	:
		Date last saved	: 22 Jul 2025 2:01 PM

Performance Data

Head, maximum diameter, rated flow	: 84.41 ft
Head, minimum diameter, rated flow	: 39.46 ft
Head max.	: 90.14 ft
Efficiency adjustment factor, total	: 1.00
Power adjustment, total	: 0.00 hp
Head adjustment factor, total	: 1.00
Flow adjustment factor, total	: 1.00
NPSH3 adjustment factor, total	: 1.00
NPSH margin dictated by pump supplier	: 0.00 ft
NPSH margin dictated by user	: 0.00 ft
NPSH margin used (added to 'required' values)	: 0.00 ft

Mechanical Limits

Torque, rated power, rated speed	: 0.43 hp/100 rpm
Torque, maximum power, rated speed	: 0.54 hp/100 rpm
Torque, driver power, full load speed	: 0.57 hp/100 rpm
Torque, driver power, rated speed	: 0.57 hp/100 rpm
Torque, pump shaft limit	: 1,000 hp/100 rpm
Radial load, worst case	: -
Radial load limit	: -
Impeller peripheral speed, rated	: -
Impeller peripheral speed limit	: -

Stage, Speed and Solids Limits

Stages, maximum	: 1
Stages, minimum	: 1
Pump speed limit, maximum	: 1750 rpm
Pump speed limit, minimum	: 1170 rpm
Curve speed limit, maximum	: 1750 rpm
Curve speed limit, minimum	: 1170 rpm
Variable speed limit, maximum	: -
Variable speed limit, minimum	: 880 rpm
Solids size limit	: 3.00 in

Typical Driver Data

Driver speed, full load	: 1760 rpm
Driver speed, rated load	: 1770 rpm
Driver efficiency, 100% load	: 89.50 %
Driver efficiency, 75% load	: 90.00 %
Driver efficiency, 50% load	: 89.50 %

Various Performance Data	Flow (USgpm)	Head (ft)	Efficiency (%)	NPSH3 (ft)	Power (hp)
Shutoff, rated	0.00	90.14	-	-	6.76
Shutoff, maximum	0.00	121.0	-	-	11.33
Minimum Continuous Stable Flow	100.0	75.68	28.50	-	6.70
Rated flow, minimum	330.0	39.46	57.69	-	5.70
Rated flow, maximum	330.0	84.41	59.98	-	11.72
BEP flow, rated	444.2	46.84	64.78	-	8.11
120% rated flow, rated	396.0	50.28	64.19	-	7.83
End of curve, rated	820.0	17.05	37.19	-	9.49
End of curve, minimum	699.0	10.90	27.84	-	6.91
End of curve, maximum	850.0	45.37	61.72	-	15.77
Maximum value, rated	-	90.14	64.78	-	9.49
Maximum value, maximum	-	-	70.96	-	15.77

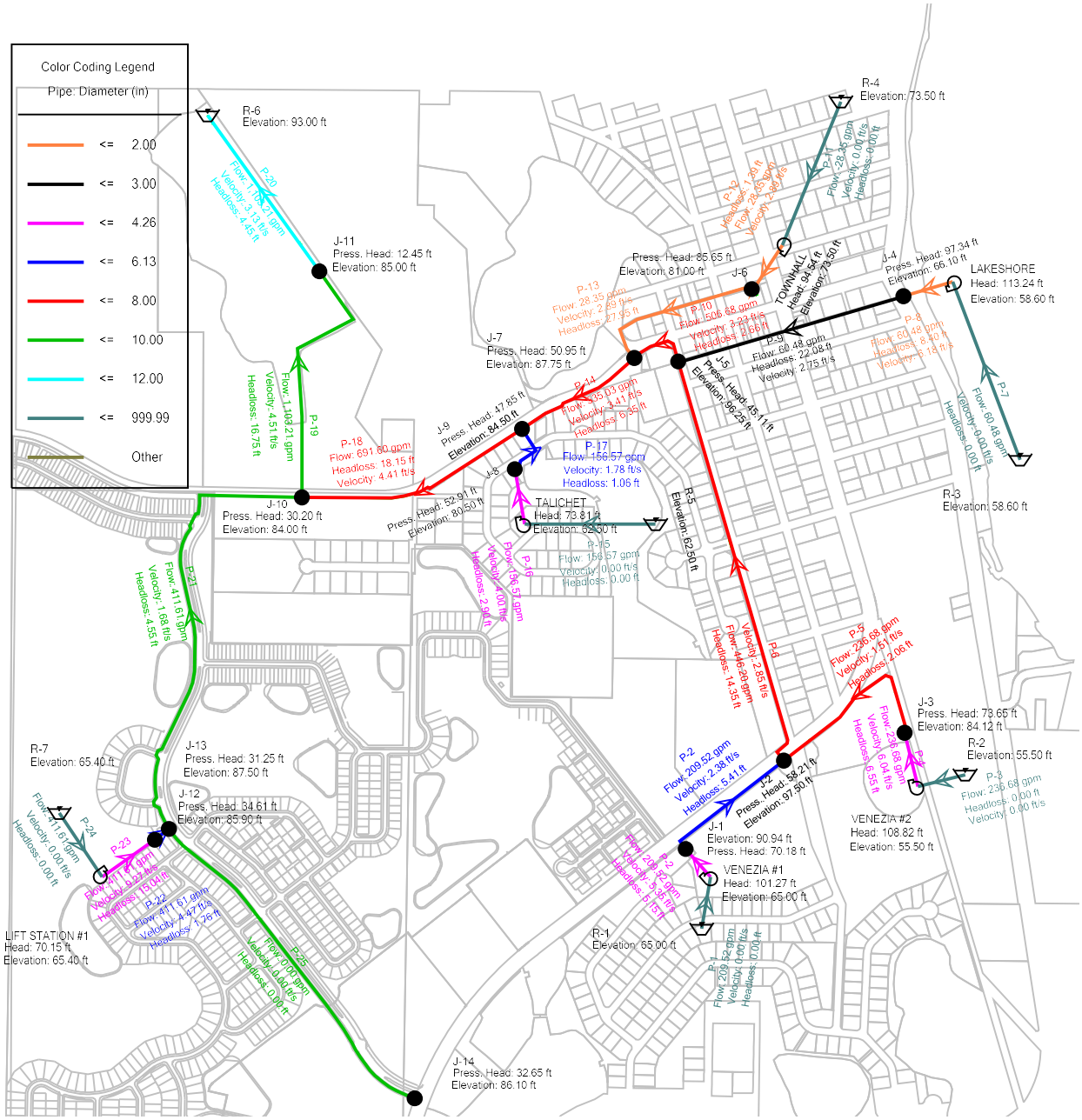
System differential pressure	@ Density, rated	@ Density, max
Differential pressure, rated flow, rated (psi)	23.80	23.80
Differential pressure, shutoff, rated (psi)	39.01	39.01
Differential pressure, shutoff, maximum (psi)	52.36	52.36

Discharge pressure	@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max
Discharge pressure, rated flow, rated (psi.g)	23.80	23.80	23.80	23.80
Discharge pressure, shutoff, rated (psi.g)	39.01	39.01	39.01	39.01
Discharge pressure, shutoff, maximum (psi.g)	52.36	52.36	52.36	52.36

Ratios

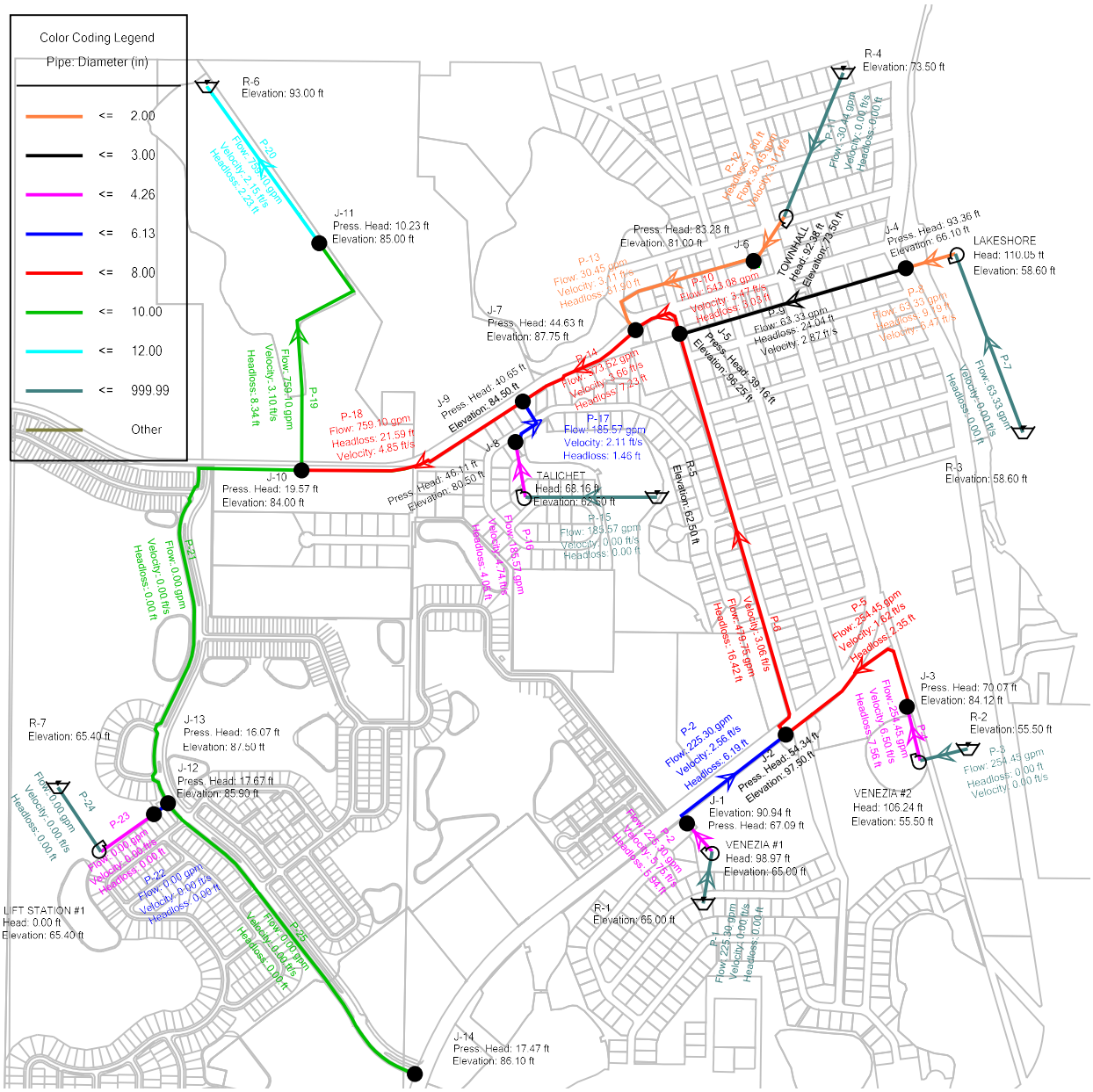
Maximum flow / rated flow, rated	: 248.50 %	Head rated diameter / head minimum diameter, rated flow	: 139.39 %

Scenario: Base (MANIFOLD CONDITION)



WaterCAD provided by Connelly & Wicker, Inc.'s WaterCAD Model for the Hillside Grove Development - dated 10/27/2022. J-14 is the connection point.

Scenario: Base (EXISTING NETWORK CONDITIONS)



Watermark
Project № 22105.1, v2.0
July 2025

Traffic Impact Analysis
Town of Howey-In-The-Hills
Florida

Prepared for:
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EXECUTIVE SUMMARY

Project Information

Name:	Watermark
Location:	Southeast corner of the SR 19 and Revels Road intersection
Jurisdiction	Town of Howey-In-The-Hills, Florida
Description:	290 Single-Family Detached Units

Findings

Trip Generation:	2,687 ADT / 196 AM Peak / 270 PM Peak
Adverse Impacts:	The proposed development impacts the following adverse facilities: • SR 19 and Revels Road • SR 19 and CR 455

Recommendations

Access Improvements:	No turn lanes are warranted at the project access driveways on Revels Road.
SR 19 and Revels Road Interim Conditions:	The following turn lanes are recommended at the intersection of SR 19 and Revels Road during the interim conditions: • 455-foot-long southbound left turn deceleration lane • 405-foot-long northbound right turn deceleration lane • 205-foot-long westbound left turn deceleration lane A signal is not warranted during interim conditions.
Proportionate Share:	The estimated proportionate share percentages for the signal and roundabout improvements at SR 19 and Revels Road are 9.2% and 13.1%, respectively. The estimated proportionate share percentage for the signal improvement at SR 19 and CR 455 is 4.9%.

PROFESSIONAL ENGINEERING CERTIFICATION

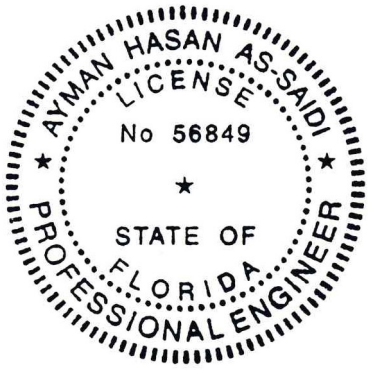
I hereby certify that I am a Professional Engineer properly registered in the State of Florida practicing with Traffic & Mobility Consultants LLC, a corporation authorized to operate as an engineering business, CA-30024, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluations, findings, opinions, conclusions, or technical advice attached hereto for:

PROJECT: Watermark

LOCATION: Town of Howey-In-The-Hills, Florida

CLIENT: JTD Land Company LLC

I hereby acknowledge that the procedures and references used to develop the results contained in these computations are standard to the professional practice of Transportation Engineering as applied through professional judgment and experience.



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

AYMAN H AS-SAIDI

Digitally signed by AYMAN H AS-SAIDI
Date: 2025.07.16 17:20:28 -04'00'

ON THE DATE ADJACENT TO THE SEAL

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TRAFFIC & MOBILITY CONSULTANTS LLC
988 WOODCOCK ROAD, SUITE 200
ORLANDO, FLORIDA 32803

CERTIFICATE OF AUTHORIZATION CA-30024

AYMAN H. AS-SAIDI, P.E. № 56849

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1

2.0 PROJECT TRAFFIC 3

2.1 Trip Generation 3
2.2 Trip Distribution 3

3.0 STUDY AREA 5

3.1 Study Roadways 5
3.2 Study Intersections 6

4.0 TRANSPORTATION IMPROVEMENTS 7

5.0 TRAFFIC PROJECTIONS 8

5.1 Projected Roadway Volumes 8
5.2 Projected Intersection Volumes 8

6.0 CAPACITY ANALYSIS 12

6.1 Roadway Segments 12
6.2 Intersections 14

7.0 ACCESS REVIEW 17

7.1 Access Treatment 17

8.0 ALTERNATIVE TRANSPORTATION MODES 18

8.1 Pedestrian Facilities 18
8.2 Bicycle Facilities 18
8.3 Transit Facilities 18

9.0 SR 19 AND REVELS ROAD INTERIM CONDITIONS ANALYSIS 19

10.0 PROPORTIANATE SHARE CALCULATION 22

11.0 STUDY CONCLUSIONS 23

APPENDICES

Appendix A Site Plan/Information
Appendix B Methodology Correspondence
Appendix C Trip Generation Information
Appendix D Model Distribution Plot
Appendix E 2024 Lake County CMP & 2023 FDOT MQ/LOS
Appendix F Planned & Programmed Improvements
Appendix G 2025 Lake County Traffic Counts, Historical Growth Trends, & Vested Trips
Appendix H Intersection Traffic Counts, Seasonal Factor, & Vested Trips
Appendix I Projected Intersection Volumes
Appendix J HCM Worksheets

Appendix K Mitigation HCM Printouts
Appendix L NCHRP 457 Reports
Appendix M Bus Map
Appendix N FDM 212-1
Appendix O Interim Condition Supporting Information

LIST OF TABLES

Table 1 Trip Generation Summary 3
Table 2 Study Segments 5
Table 3 Study Intersections 6
Table 4 Projected Background Volumes 9
Table 5 Segment Analysis 13
Table 6 Intersection Analysis 15
Table 7 Intersection Mitigation 16
Table 8 SR 19 and Revels Road Interim Intersection Analysis 20
Table 9 SR 19 and Revels Road Warrant 1 Analysis 21
Table 10 SR 19 and Revels Road Proportionate Share Calculation 22

LIST OF FIGURES

Figure 1 Site Location Map 2
Figure 2 Trip Distribution Pattern 4
Figure 3 AM Peak Intersection Volumes 10
Figure 4 PM Peak Intersection Volumes 11

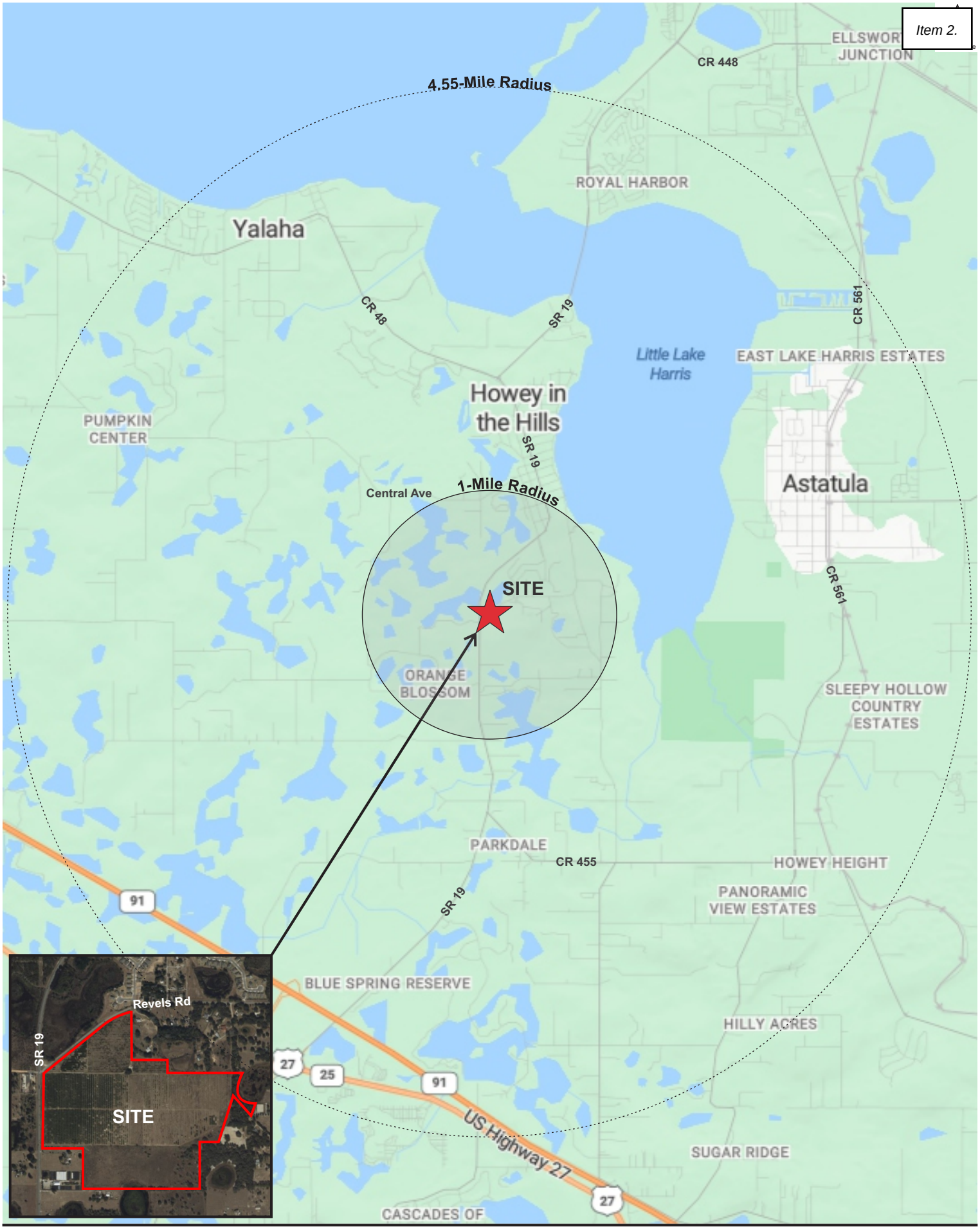
1.0 INTRODUCTION

This analysis was prepared in support of a development application for Watermark. The project is a residential development that includes 290 single-family units. The project's anticipated buildout date is 2027.

The site is located on the southeast corner of the SR 19 and Revels Road intersection, in the Town of Howey-In-The-Hills, Florida. **Figure 1** depicts the site location, the 1-mile influence area, and the surrounding transportation network. A conceptual site/development plan depicting the site layout, land uses, and access points is included in **Appendix A**.

The analysis was conducted in accordance with a methodology approved by Town of Howey-In-The-Hills and Lake County. The approved methodology and pertinent correspondence are included in **Appendix B**.

Information used in this analysis includes data collected by Traffic & Mobility Consultants, information provided by the project team, and/or other data and information obtained from the Town of Howey-In-The-Hills, Lake County, the Institute of Transportation Engineers (ITE), and the Florida Department of Transportation (FDOT).


4.55-Mile Radius
1-Mile Radius
SITE
Yalaha
Howey in the Hills
Astatula
ROYAL HARBOR
Little Lake Harris
EAST LAKE HARRIS ESTATES
PUMPKIN CENTER
Central Ave
ORANGE BLOSSOM
SLEEPY HOLLOW COUNTRY ESTATES
PARKDALE
HOWEY HEIGHT
PANORAMIC VIEW ESTATES
BLUE SPRING RESERVE
HILLY ACRES
SUGAR RIDGE
CASCADES OF
ELLSWORTH JUNCTION
CR 448
CR 48
SR 19
CR 561
CR 455
91
27
25
US Highway 27
Revels Rd
SITE

2.0 PROJECT TRAFFIC

2.1 Trip Generation

The trips generated by the proposed development were projected using data published in the ITE *Trip Generation Manual, 11th Edition*. Trip generation rates and/or equations published for the land use were applied to the proposed development program to determine the total trips generated by the project. The trip generation calculations are summarized in **Table 1** and detailed information is included in **Appendix C.**

Table 1
Trip Generation Summary

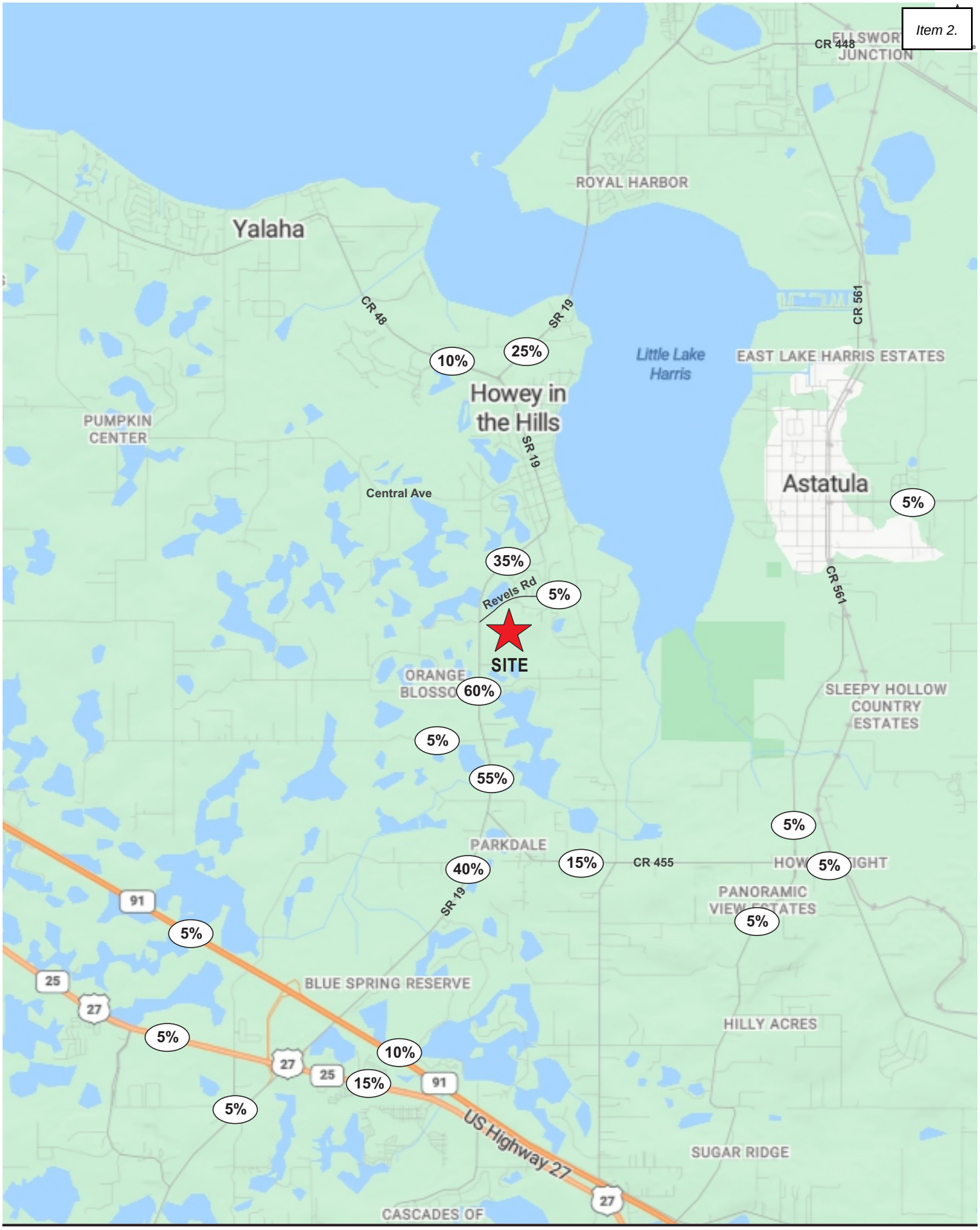
ITE Code	Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	Total	Enter	Exit	Rate	Total	Enter	Exit
210	Single-Family Detached	290 DU	9.27	2,687	0.68	196	49	147	0.93	270	170	100

Trip generation analysis based on ITE Trip Generation Manual, 11th Edition

The proposed development is projected to generate 2,687 new daily trips of which 196 trips occur during the AM peak hour, and 270 trips occur during the PM peak hour.

2.2 Trip Distribution

A preliminary trip distribution pattern was developed using the Central Florida Regional Planning Model (CFRPM). The adopted model was modified to include a project specific Traffic Analysis Zone with the corresponding socio-economic data to reflect the proposed development. A Select Zone Analysis was executed to obtain a model-generated trip distribution pattern on the surrounding transportation network. Minor manual adjustments were applied to the model generated distribution pattern to better reflect the local transportation network and prevailing travel patterns. The final trip distribution pattern is illustrated in **Figure 2** and the model output plot is included in **Appendix D.**


CR 448
ELLSWORTH JUNCTION
ROYAL HARBOR
Yalaha
CR 48
SR 19
CR 561
10%
25%
Little Lake Harris
EAST LAKE HARRIS ESTATES
Howey in the Hills
PUMPKIN CENTER
SR 19
Astatula
Central Ave
5%
35%
Revels Rd
5%
SITE
ORANGE BLOSSOM
60%
CR 561
SLEEPY HOLLOW COUNTRY ESTATES
5%
55%
5%
PARKDALE
40%
15%
CR 455
5%
SR 19
PANORAMIC VIEW ESTATES
5%
91
5%
25
27
BLUE SPRING RESERVE
HILLY ACRES
5%
10%
27
25
15%
91
5%
US Highway 27
SUGAR RIDGE
27
CASCADES OF

3.0 STUDY AREA

3.1 Study Roadways

The study area was established in accordance with the requirements of the Town of Howey-In-The-Hills and the approved methodology. The impact area includes roadway segments within the project's 1-mile influence area and where project trips are equivalent to 5% or more of the roadway segment's capacity. The project's study area determination is provided in **Table 2.** The roadway segment information and characteristics were obtained from *2025 Lake County Congestion Management Process Database* and *2023 FDOT Multimodal Quality/Level of Service* (*MQ/LOS*), which is included in **Appendix E.**

Table 2
Study Segments

Seg	Segment Information			Exist	LOS	Peak	Proj	Peak Project Trips					
								Enter	PM Peak				In
ID	Roadway	From	To	Lns	Std	Cap	Dist	Dir	NB/EB	SB/WB	Signif	Prime	Study?
245	CR 455	SR 19	CR 561	2	C	430	15%	SB/WB	15	26	6.0%	N	Y
243	CR 455	CR 561	CR 561A	2	C	430	5%	SB/WB	5	9	2.1%	N	N
264	CR 48	US 27	Lime Ave	2	D	1,049	10%	NB/EB	17	10	1.6%	N	N
255	CR 48	Lime Ave	SR 19	2	D	999	10%	NB/EB	17	10	1.7%	N	N
253	CR 48	CR 561	Ranch Rd	2	D	999	5%	SB/WB	5	9	0.9%	N	N
N/A	CR 48*	Ranch Rd	CR 488A	2	C	873	5%	SB/WB	5	9	1.0%	N	N
257	CR 561	CR 448	CR 48	2	D	677	0%	SB/WB	0	0	0.0%	N	N
252	CR 561	CR 48	S Astatula City Limits	2	D	799	5%	SB/WB	5	9	1.1%	N	N
N/A	CR 561*	S Astatula City Limits	CR 455	2	D	799	5%	SB/WB	5	9	1.1%	N	N
242	CR 561	CR 455	Howey Cross Rd	2	C	430	5%	NB/EB	9	5	2.1%	N	N
238	CR 561	Howey Cross Rd	Turnpike Rd/CR 561A	2	C	430	5%	NB/EB	9	5	2.1%	N	N
N/A	Revels Rd**	SR 19	6th Ave	2	C	430	95%	NB/EB	162	95	37.7%	Y	Y
N/A	SR 19**	Lane Park Rd	CR 48	2	D	890	25%	SB/WB	25	43	4.8%	N	N
110495	SR 19**	CR 48	Central Ave	2	D	890	35%	SB/WB	35	60	6.7%	N	Y
110255	SR 19**	Central Ave	Revels Rd	2	C	780	35%	SB/WB	35	60	7.7%	Y	Y
110255	SR 19**	Revels Rd	CR 455	2	C	450	60%	NB/EB	102	60	22.7%	Y	Y
110255	SR 19**	CR 455	US 27/SR 25	2	C	450	40%	NB/EB	68	40	15.1%	N	Y
N/A	SR 19**	US 27/SR 25	CR 478	2	C	450	5%	NB/EB	9	5	2.0%	N	N
240	US 27/SR 25	Florida Turnpike	SR 19	4	D	1,880	5%	SB/WB	5	9	0.5%	N	N
N/A	US 27/SR 25*	SR 19	CR 561	4	D	1,880	15%	NB/EB	26	15	1.4%	N	N

** Peak hour Directional Capacity Based on Adjacent Roadway*

*** Peak Hour Directional Capacity Based on 2023 FDOT MQ/LOS Tables*

Study Roadway Segments:

- CR 455
  - SR 19 and CR 561
- Revel Road
  - SR 19 to 6th Avenue
- SR 19
  - CR 48 to Central Avenue
  - Central Avenue to Revels Road
  - Revels Road to CR 455
  - CR 455 to US 27/SR 25

3.2 Study Intersections

The study area encompasses major intersections that were identified in the approved methodology. Additionally, the site is proposed to be served by two (2) full access driveways on Revels Road. The study intersections and access points are presented in **Table 3**.

Table 3
Study Intersections

Int #	Intersection		Traffic Control
	Major Road	Minor Road	
1	SR 19	CR 48	Signal
2	SR 19	Central Ave	Two-Way Stop
3	SR 19	Revels Rd	Two-Way Stop
4	SR 19	CR 455	Two-Way Stop
5	Revels Rd	West Project Access	Two-Way Stop
6	Revels Rd	East Project Access	Two-Way Stop

4.0 TRANSPORTATION IMPROVEMENTS

Transportation improvement programs published by Town of Howey-In-The-Hills, LSMPO, and the FDOT work program were reviewed to determine if any transportation improvements that influence the project's study area are planned or programmed. Improvements that are funded for construction within three (3) years are considered programmed and will be incorporated in the analysis. SR 19, from CR 561 to CR 48, is undergoing a Project Development and Environment study to be widened to four lanes. This improvement will not be included in the analysis. The *Transportation Improvement Program* excerpt is included in **Appendix F**.

5.0 TRAFFIC PROJECTIONS

5.1 Projected Roadway Volumes

The segment data, adopted LOS standard, and the capacity was obtained from the *2025 Lake County Congestion Management Process Database* and *2023 FDOT Multimodal Quality/Level of Service* (*MQ/LOS*). The existing traffic volumes were obtained form the *2025 Lake County Traffic Counts*. Vested trips were determined using traffic studies for development in the surrounding area obtained from the Town of Howey-In-The-Hills. The roadway volumes for Revels Road was calculated using the PM peak hour turning moving counts.

Projected background traffic in the buildout year 2027 was derived from historical growth rate trends, with a minimum growth rate of 2%, and vested trips. Historical traffic count data on SR 19 was obtained from *Florida Traffic Online*, the resultant growth calculations, and the roadway vested trips are included in **Appendix G**.

The total projected volumes on the roadway segments include background traffic and project trips, which are calculated based on the project's trip generation and distribution pattern. The total background traffic volumes by roadway segment are presented in **Table 4**.

5.2 Projected Intersection Volumes

Existing AM and PM peak hour turning movement volumes were obtained at the study intersections on May 29, 2025. The counts were seasonally adjusted using the peak season factor of 1.01, obtained from the *FDOT Traffic Online* data. The raw turning movement volumes, supporting information, and the vested trips are provided in **Appendix H**.

Projected background intersection volumes in the buildout year 2027 were calculated by applying the corresponding growth rates on the adjacent segments to the existing turning volumes at the study intersections and adding vested trips. The total projected intersection volumes include background traffic and project trips, which are calculated based on the project's trip generation and assignment at each intersection. Detailed intersection volume calculations are provided in **Appendix I** and the resulting existing, background, and buildout volumes are illustrated in **Figures 3** and **4** for the AM and PM peak hour, respectively.

Table 4
Projected Background Volumes

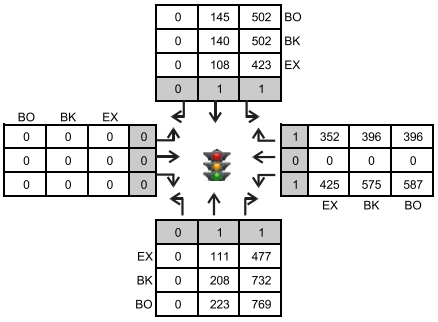
Seg ID	Segment Information			Existing Volumes PM Peak		AGR	Committed Trips PM Peak		2027 Bkground Volumes PM Peak	
	Roadway	From	To	NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB
245	CR 455	SR 19	CR 561	244	249	2.0%	60	43	329	328
N/A	Revels Rd*	SR 19	6th Ave	21	10	2.0%	0	0	184	105
110495	SR 19*	CR 48	Central Ave	458	532	5.4%	273	366	816	1,015
110255	SR 19*	Central Ave	Revels Rd	567	658	5.1%	538	426	1,198	1,211
110255	SR 19*	Revels Rd	CR 455	567	658	5.1%	538	426	1,265	1,211
110255	SR 19*	CR 455	US 27/SR 25	567	658	5.1%	400	337	1,093	1,102

** Peak Hour Volumes Based on Florida Traffic Online Data*



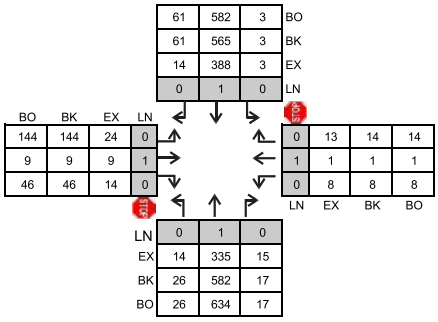
1. SR 19 & CR 48

NB	L	
	T	123 + {85} + (15) = 223
	R	528 + {204} + (37) = 769
SB	L	440 + {62} = 502
	T	112 + {28} + (5) = 145
	R	
EB	L	
	T	
	R	
WB	L	442 + {133} + (12) = 587
	T	
	R	366 + {30} = 396



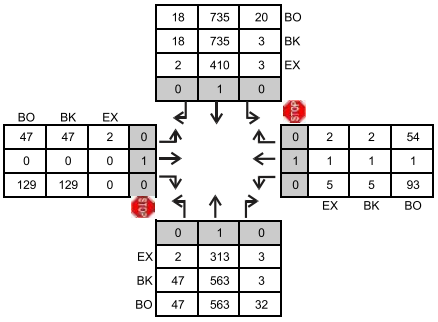
2. SR 19 & Central Ave

NB	L	15 + {11} = 26
	T	369 + {213} + (52) = 634
	R	17
SB	L	3
	T	430 + {135} + (17) = 582
	R	16 + {45} = 61
EB	L	25 + {119} = 144
	T	9
	R	15 + {31} = 46
WB	L	8
	T	1
	R	14



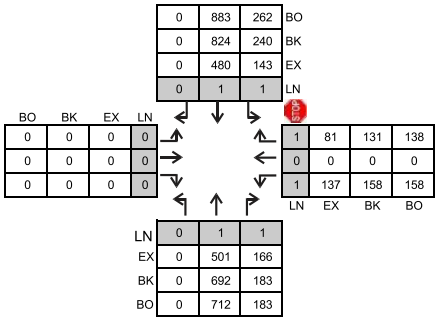
3. SR 19 & Revels Rd

NB	L	2 + {45} = 47
	T	345 + {218} = 563
	R	3 + (29) = 32
SB	L	3 + (17) = 20
	T	452 + {283} = 735
	R	2 + {16} = 18
EB	L	2 + {45} = 47
	T	
	R	+ {129} = 129
WB	L	5 + (88) = 93
	T	1
	R	2 + (52) = 54



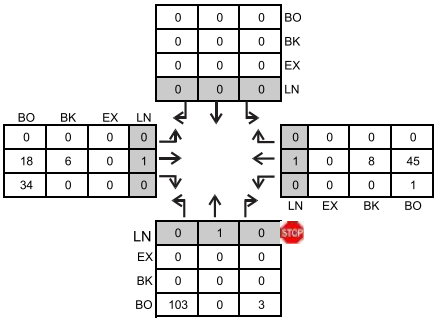
4. SR 19 & CR 455

NB	L	
	T	552 + {140} + (20) = 712
	R	183
SB	L	158 + {82} + (22) = 262
	T	529 + {295} + (59) = 883
	R	
EB	L	
	T	
	R	
WB	L	158
	T	
	R	93 + {38} + (7) = 138



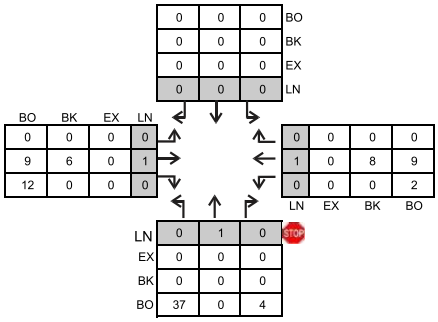
5. Revels Rd & West Project Access

NB	L	(103)
	T	
	R	(3)
SB	L	
	T	
	R	
EB	L	
	T	6 + (12) = 18
	R	(34)
WB	L	(1)
	T	8 + (37) = 45
	R	



6. Revels Rd & East Project Access

NB	L	(37)
	T	
	R	(4)
SB	L	
	T	
	R	
EB	L	
	T	6 + (3) = 9
	R	(12)
WB	L	(2)
	T	8 + (1) = 9
	R	



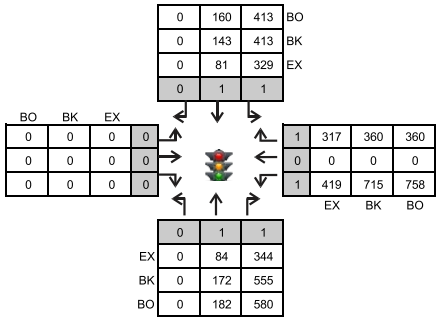
Legend: Background + {Vested} + (Project) = Total

1 Lanes by movement



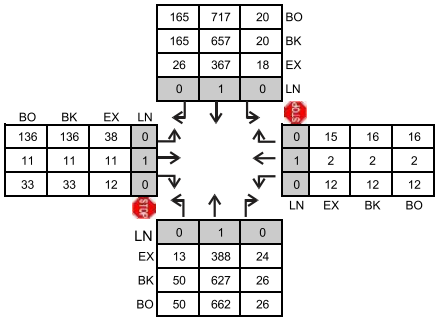
1. SR 19 & CR 48

NB	L	
	T	93 + {79} + (10) = 182
	R	381 + {174} + (25) = 580
SB	L	342 + {71} = 413
	T	84 + {59} + (17) = 160
	R	
EB	L	
	T	
	R	
WB	L	436 + {279} + (43) = 758
	T	
	R	330 + {30} = 360



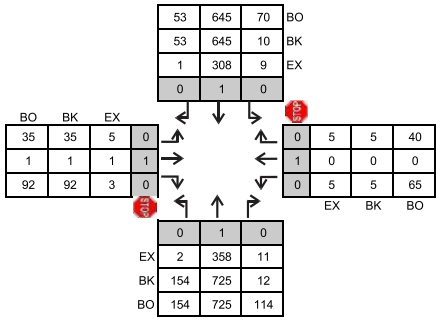
2. SR 19 & Central Ave

NB	L	14 + {36} = 50
	T	427 + {200} + (35) = 662
	R	26
SB	L	20
	T	406 + {251} + (60) = 717
	R	29 + {136} = 165
EB	L	40 + {96} = 136
	T	11
	R	12 + {21} = 33
WB	L	12
	T	2
	R	16



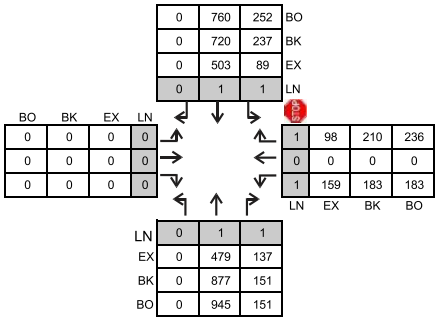
3. SR 19 & Revels Rd

NB	L	2 + {152} = 154
	T	394 + {331} = 725
	R	12 + (102) = 114
SB	L	10 + (60) = 70
	T	339 + {306} = 645
	R	1 + {52} = 53
EB	L	5 + {30} = 35
	T	1
	R	3 + {89} = 92
WB	L	5 + (60) = 65
	T	
	R	5 + (35) = 45



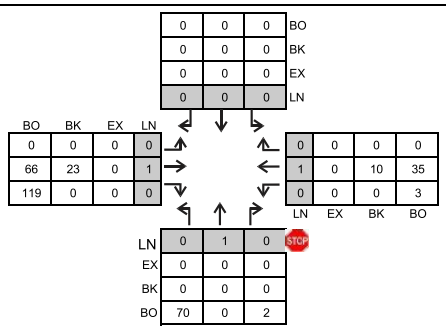
4. SR 19 & CR 455

NB	L	
	T	528 + {349} + (68) = 945
	R	151
SB	L	98 + {139} + (15) = 252
	T	554 + {166} + (40) = 760
	R	
EB	L	
	T	
	R	
WB	L	183
	T	
	R	113 + {97} + (26) = 236



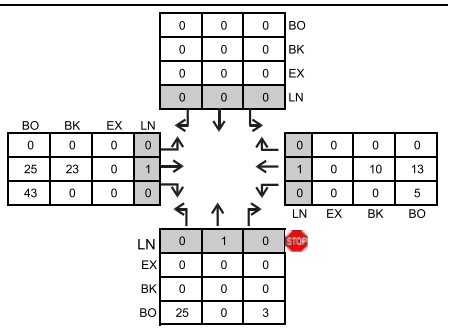
5. Revels Rd & West Project Access

NB	L	(70)
	T	
	R	(2)
SB	L	
	T	
	R	
EB	L	
	T	23 + (43) = 66
	R	(119)
WB	L	(3)
	T	10 + (25) = 35
	R	



6. Revels Rd & East Project Access

NB	L	(25)
	T	
	R	(3)
SB	L	
	T	
	R	
EB	L	
	T	23 + (2) = 25
	R	(43)
WB	L	(5)
	T	10 + (3) = 13
	R	



Legend: Background + {Vested} + (Project) = Total

1 Lanes by movement

6.0 CAPACITY ANALYSIS

6.1 Roadway Segments

Roadway segment capacity was analyzed based on the adopted service volumes, capacity, and the corresponding traffic volumes to determine the resulting LOS, as summarized in **Table 5**.

The results of the capacity analysis reveal the following:

- SR 19, from CR 48 to Revels Road, is projected to operate above its adopted capacity due to background traffic.
- SR 19, from Revel Road to US 27/SR 25, is currently and is projected to operate above its adopted capacity due to background traffic.
- The remaining study roadway segments are projected to operate adequately.

Table 5
Segment Analysis

Seg	Segment Information			Exist	LOS	Peak	Existing Conditions PM Peak				2027 Bkg'd Conditions PM Peak				Project Trips Proj	Project Trips PM Peak		2027 Buildout Conditions PM Peak			
ID	Roadway	From	To	Lns	Std	Cap	NB/EB	SB/WB	V/C	LOS	NB/EB	SB/WB	V/C	LOS	Dist	NB/EB	SB/WB	NB/EB	SB/WB	V/C	LOS
245	CR 455	SR 19	CR 561	2	C	430	244	249	0.58	C	314	302	0.73	C	15%	15	26	329	328	0.76	C
N/A	Revels Rd	SR 19	6th Ave	2	C	430	21	10	0.05	C	22	10	0.05	C	95%	162	95	184	105	0.43	C
110495	SR 19	CR 48	Central Ave	2	D	890	458	532	0.60	C	781	955	1.07	F	35%	35	60	816	1,015	1.14	F
110255	SR 19	Central Ave	Revels Rd	2	C	780	567	658	0.84	C	1,163	1,151	1.49	F	35%	35	60	1,198	1,211	1.55	F
110255	SR 19	Revels Rd	CR 455	2	C	450	567	658	1.46	D	1,163	1,151	2.58	E	60%	102	60	1,265	1,211	2.81	E
110255	SR 19	CR 455	US 27/SR 25	2	C	450	567	658	1.46	D	1,025	1,062	2.36	E	40%	68	40	1,093	1,102	2.45	E

6.2 Intersections

The study intersections were analyzed in accordance with the methods of the *Highway Capacity Manual* (HCM) as applied in the *Synchro* analytical tool. The TIA for the Hillside Groves development recommends a northbound left turn lane at the intersection of SR 19 and Revels Road. This left turn was added to the background and buildout conditions. The analysis results for existing, background, and buildout conditions are summarized in **Table 6,** which reveals the following:

- The intersection of SR 19 and CR 48 is projected to operate above its adopted LOS at the westbound approach during the AM and PM peak hour due to background traffic. A roundabout has been designed for this intersection but has not received funding.
- The intersection of SR 19 and Central Avenue is projected to operate above its adopted LOS at the eastbound approach during the AM and PM peak hour due to background traffic.
- The intersection of SR 19 and Revels Road is projected to operate above its adopted LOS at the westbound approach during the AM and PM peak hour at project buildout.
- The intersection of SR 19 and CR 455 is projected to operate above its adopted LOS at the westbound approach during the AM and PM peak hour due to background traffic.
- The remaining study intersections, including the access driveways, are projected to operate adequately.

The *Synchro* printouts and signal timings are included in **Appendix J**.

Table 6
Intersection Analysis

Int #	Intersection		Control	Time Period	Scenario	EB		WB		NB		SB		Overall	
	Major Road	Minor Road				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	SR 19	CR 48	Signal	AM	Existing	--	--	46.5	D	26.7	C	17.1	B	33.9	C
					Backg'd	--	--	123.2	F	30.6	C	36.2	D	81.9	F
					Buildout	--	--	130.1	F	31.5	C	39.8	D	86.7	F
				PM	Existing	--	--	29.9	C	20.9	C	12.9	B	23.6	C
					Backg'd	--	--	152.3	F	26.9	C	16.5	B	98.4	F
					Buildout	--	--	179.2	F	27.2	C	16.6	B	114.6	F
2	SR 19	Central Ave	TWSC	AM	Existing	17.8	C	14.6	B	8.5	A	8.5	A	--	--
					Backg'd	>300	F	26.3	D	9.4	A	9.4	A	--	--
					Buildout	>300	F	29.3	D	9.5	A	9.7	A	--	--
				PM	Existing	20.9	C	16.6	C	8.4	A	8.4	A	--	--
					Backg'd	>300	F	47.0	E	10.3	B	9.2	A	--	--
					Buildout	>300	F	58.9	F	10.6	B	9.4	A	--	--
3	SR 19	Revels Rd	TWSC	AM	Existing	20.9	C	14.7	B	8.9	A	7.9	A	--	--
					Backg'd	26.8	D	23.3	C	9.6	A	8.6	A	--	--
					Buildout	29.4	D	62.5	F	9.6	A	8.8	A	--	--
				PM	Existing	14.9	B	14.1	B	9.3	A	8.3	A	--	--
					Backg'd	31.7	D	33.5	D	10.3	B	9.6	A	--	--
					Buildout	61.0	F	>300	F	10.3	B	10.4	B	--	--
4	SR 19	CR 455	TWSC	AM	Existing	--	--	27.7	D	0.0	A	9.8	A	--	--
					Backg'd	--	--	150.9	F	0.0	A	12.3	B	--	--
					Buildout	--	--	204.6	F	0.0	A	12.8	B	--	--
				PM	Existing	--	--	23.1	C	0.0	A	9.3	A	--	--
					Backg'd	--	--	159.1	F	0.0	A	14.0	B	--	--
					Buildout	--	--	208.1	F	0.0	A	15.4	C	--	--
5	Revels Rd	West Project Access	TWSC	AM	Buildout	0.0	A	7.3	A	9.5	A	--	--	--	--
				PM	Buildout	0.0	A	7.6	A	9.9	A	--	--	--	--
6	Revels Rd	East Project Access	TWSC	AM	Buildout	0.0	A	7.3	A	8.8	A	--	--	--	--
				PM	Buildout	0.0	A	7.4	A	9.0	A	--	--	--	--

Average delay expressed in seconds/vehicle

Per the request of the Town of Howey-In-The-Hills the intersection of SR 19 and Revels Road was analyzed as a signal and roundabout. As shown in **Table 7,** the intersections are projected to operate adequately with alternative traffic control. The mitigation analysis worksheets are included in **Appendix K**.

Table 7
Intersection Mitigation

Int	Intersection			Time	EB			WB			NB			SB			Overall	
#	Major Road	Minor Road	Control	Period	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
3	SR 19	Revels Rd	TWSC	AM	29.4	D	0.56	62.5	F	0.75	9.6	A	0.06	8.8	A	0.02	--	--
				PM	61.0	F	0.72	>300	F	1.59	10.3	B	0.20	10.4	B	0.10	--	--
			Signal	AM	19.1	B	0.50	18.2	B	0.39	5.0	A	0.52	11.7	B	0.78	10.5	B
				PM	23.4	C	0.48	22.5	C	0.36	6.0	A	0.70	11.2	B	0.80	10.0	A
			RAB	AM	11.6	B	0.33	8.2	A	0.23	9.0	A	0.54	13.0	B	0.68	--	--
				PM	10.1	B	0.25	11.3	B	0.24	27.5	D	0.91	18.9	C	0.79	--	--
4	SR 19	CR 455	Signal	AM	--	--	--	25.3	C	0.71	13.5	B	0.83	8.2	A	0.74	12.4	B
				PM	--	--	--	44.0	D	0.86	33.5	C	0.96	17.5	B	0.88	28.8	C

Average delay expressed in seconds/vehicle

7.0 ACCESS REVIEW

The development's proposed access plan reflects two (2) full access driveways on Revels Road.

7.1 Access Treatment

Site access treatment was evaluated to determine the need for deceleration lanes and egress lanes at the project driveways. Turn lane warrants were evaluated based on the methods of the National Cooperative Highway Research Program (NCHRP) *Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide.* The turn lane warrant evaluation results indicate that deceleration lanes are not warranted or necessary to adequately serve the projected traffic at the site driveways. The turn lane warrants are included in **Appendix L**.

8.0 ALTERNATIVE TRANSPORTATION MODES

A review of pedestrian, bicycle, and transit facilities was conducted. This review consists of a visual inventory of available facilities to determine the context of alternative transportation modes in the vicinity of the proposed development.

8.1 Pedestrian Facilities

A visual survey of pedestrian facilities within a ¼-mile area of the site was conducted to determine the prevailing conditions for pedestrian connectivity. Revels Road is currently not improved with crosswalks.

8.2 Bicycle Facilities

A visual survey of the surrounding network within 1-mile of the site was conducted to identify on-street and dedicated bicycle facilities in the area. The surrounding roadways are not improved with dedicated on-street bicycle facilities.

8.3 Transit Facilities

Transit services are provided by Lake Xpress. The nearest bus stops are located at SR 19 and Woodlea Road, within 7.22 miles of the site. The existing bus stops are improved with a bench. A route map showing the existing transit network and the specifics of the bus route serving the site is included in **Appendix M**. It should be noted that Lake Xpress also provides on-demand para-transit services Lake County Connection to accommodate eligible riders.

9.0 SR 19 AND REVELS ROAD INTERIM CONDITIONS ANALYSIS

The Mission Rise development agreement states that the developer is responsible for improving the SR 19 and Revels Road intersection to either a traffic signal or roundabout. Per discussion with the Town of Howey-In-The-Hills and FDOT, it is expected that the Watermark development should be built out before the Mission Rise project and the intersection improvement. To accommodate the Watermark development an interim condition was determined to be constructed at the intersection. This interim condition would include the construction of a northbound right, southbound left, and westbound left turn lane at the intersection. The turn lane dimensions are calculated below:

- Southbound Left Turn Deceleration Lane
  Posted Speed = 55 mph
  Deceleration = 405 ft (per FDM Table 212-1)
  95th Percentile Queue Storage = 1 vehicle @ 25 ft/vehicle = 25ft (provide 50 ft min.)
  Total Lane Length = Deceleration + Queue = 405 ft + 50 ft = 455 ft (Incl. 50-ft taper)

- Northbound Right Turn Deceleration Lane
  Posted Speed = 55 mph
  Deceleration = 405 ft (per FDM Table 212-1)
  Total Lane Length = Deceleration = 405 ft (Incl. 50-ft taper)

- Westbound Left Turn Deceleration Lane
  Posted Speed = 35 mph
  Deceleration = 155 ft (per FDM Table 212-1)
  95th Percentile Queue Storage = 2 vehicles @ 25 ft/vehicle = 50ft (provide 50 ft min.)
  Total Lane Length = Deceleration + Queue = 155 ft + 50 ft = 205 ft (Incl. 50-ft taper)

The FDM Table 212-1 is provided in **Appendix N**.

For the interim conditions the Mission Rise project trips were removed from the volumes. **Table 8** reveals that the intersection is projected to operate adequately with interim improvements.

Table 8
SR 19 and Revels Road Interim Intersection Analysis

Int #	Intersection		Control	Time Period	EB			WB			NB			SB		
	Major Road	Minor Road			Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
3	SR 19	Revels Rd	TWSC	AM	15.5	C	0.09	24.0	C	0.41	9.2	A	0.02	8.8	A	0.02
				PM	17.9	C	0.11	31.4	D	0.42	9.2	A	0.04	10.2	B	0.10

Average delay expressed in seconds/vehicle

Warrant 1 from the *Manual on Uniform Traffic Control Devices (MUTCD)* evaluated to determine if a signal is projected to be warranted at the intersection SR 19 and Revels Road. To determine the SR 19 background volumes, hourly volumes obtained from the *FTO* website were used to determine the hourly percentage on SR 19. This percentage was applied to the background roadway volumes for the SR 19 segment adjacent to the intersection. For the Watermark project trips, the temporal distribution for the projected trips was obtained from the *ITE Trip Generation Manual, 11th Edition*. This temporal distribution was applied to the daily trip generation to determine the hourly project trips at the intersection. The SR 19 background volumes and the project trips were combined for the total buildout traffic. These volumes were compared against the threshold volumes. As shown in **Table 9**, the conditions for *Warrant 1* are ***not satisfied*** under the buildout conditions. The supporting information is provided in **Appendix O**.

Table 9
SR 19 and Revels Road Warrant 1 Analysis

Begin Time	Total Both Approaches Major Road	Minor Road*	Warrant 1 Condition A	Warrant 1 Condition B	Warrant 1 Both A & B
12:00 AM	80	2			
1:00 AM	58	2			
2:00 AM	75	1			
3:00 AM	114	2			
4:00 AM	221	8			
5:00 AM	609	21			
6:00 AM	886	61			
7:00 AM	1,203	104		X	
8:00 AM	922	89		X	
9:00 AM	881	60			
10:00 AM	827	58			
11:00 AM	802	53			
12:00 PM	864	60			
1:00 PM	933	62			
2:00 PM	977	64			
3:00 PM	993	65			
4:00 PM	1,265	78		X	
5:00 PM	1,281	76		X	
6:00 PM	874	61			
7:00 PM	525	44			
8:00 PM	381	33			
9:00 PM	302	25			
10:00 PM	247	11			
11:00 PM	167	7			
Hours Required			8	8	8
Hours Satisfied			0	4	0
Volume Threshold Satisfied			N	N	N
Warrant Results			**Not Satisfied**		

MUTCD 4C.02: On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.

**Note: The minor street volume was calculated with half of the right turning volumes.*

10.0 PROPORTIANATE SHARE CALCULATION

The project's impacts on the adverse transportation facilities within the study area are proposed to be mitigated through a payment of the project's proportionate share of the cost to make the planned or identified mitigating improvements.

The proportionate share calculations were prepared in accordance with the requirements of Town of Howey-In-The-Hills. The project's estimated proportionate share percentage is calculated in **Table 10.** The estimated proportionate share percentages for the signal and roundabout improvement at SR 19 and Revels Road are 9.2% and 13.1%, respectively. The estimated proportionate share percentage for the signal improvement at SR 19 and CR 455 is 4.9%.

Table 10
SR 19 and Revels Road Proportionate Share Calculation

Int #	Intersection		Improv.	Existing Capacity	Improv Capacity	Change in Capacity	Project Trips	Proportionate Share %
	Major Road	Minor Road						
3	SR 19	Revels Rd	Signal	1,283	4,066	2,783	257	9.2%
			RAB		3,240	1,957		13.1%
4	SR 19	CR 455	Signal	1,009	4,032	3,023	149	4.9%

The applicant intends to enter into a proportionate share mitigation agreement with the Town of Howey-In-The-Hills to establish the payment of the mitigation funds, the allocation of impact fee credits, and any other applicable terms.

11.0 STUDY CONCLUSIONS

This traffic analysis was conducted to evaluate the impacts of Watermark, a residential development. The site is located in the southeast corner of the SR 19 and Revels Road intersection, in Town of Howey-In-The-Hills, Florida.

The analysis included a determination of trip generation, a review of transportation capacity and operations, a review of the proposed site access plan, and a review of alternative modes of transportation. The results of the traffic analysis are summarized as follows:

Summary of Findings

- The proposed development is projected to generate 2,687 daily trips, of which 196 trips occur during the AM peak hour and 270 trips occur during the PM peak hour.
- A review of roadway capacity conditions reveals that the proposed development is not projected to adversely impact the roadway network.
- A review of intersection operations indicates that the following adverse intersections are projected to be impacted by the proposed development:
  - SR 19 and Revels Road
  - SR 19 and CR 455
- A signal is not projected to be warranted during the interim conditions.

Summary of Recommendations

- No turn lanes are warranted at the project access driveways on Revels Road.
- The following turn lanes are recommended at the intersection of SR 19 and Revels Road during the interim conditions:
  - 455-foot-long southbound left turn deceleration lane
  - 405-foot-long northbound right turn deceleration lane
  - 205-foot-long westbound left turn deceleration lane
- The estimated proportionate share percentages for the signal and roundabout improvement at SR 19 and Revels Road are 9.2% and 13.1%, respectively.
- The estimated proportionate share percentage for the signal improvement at SR 19 and CR 455 is 4.9%.

APPENDICES

Appendix A
Site Plan/Information

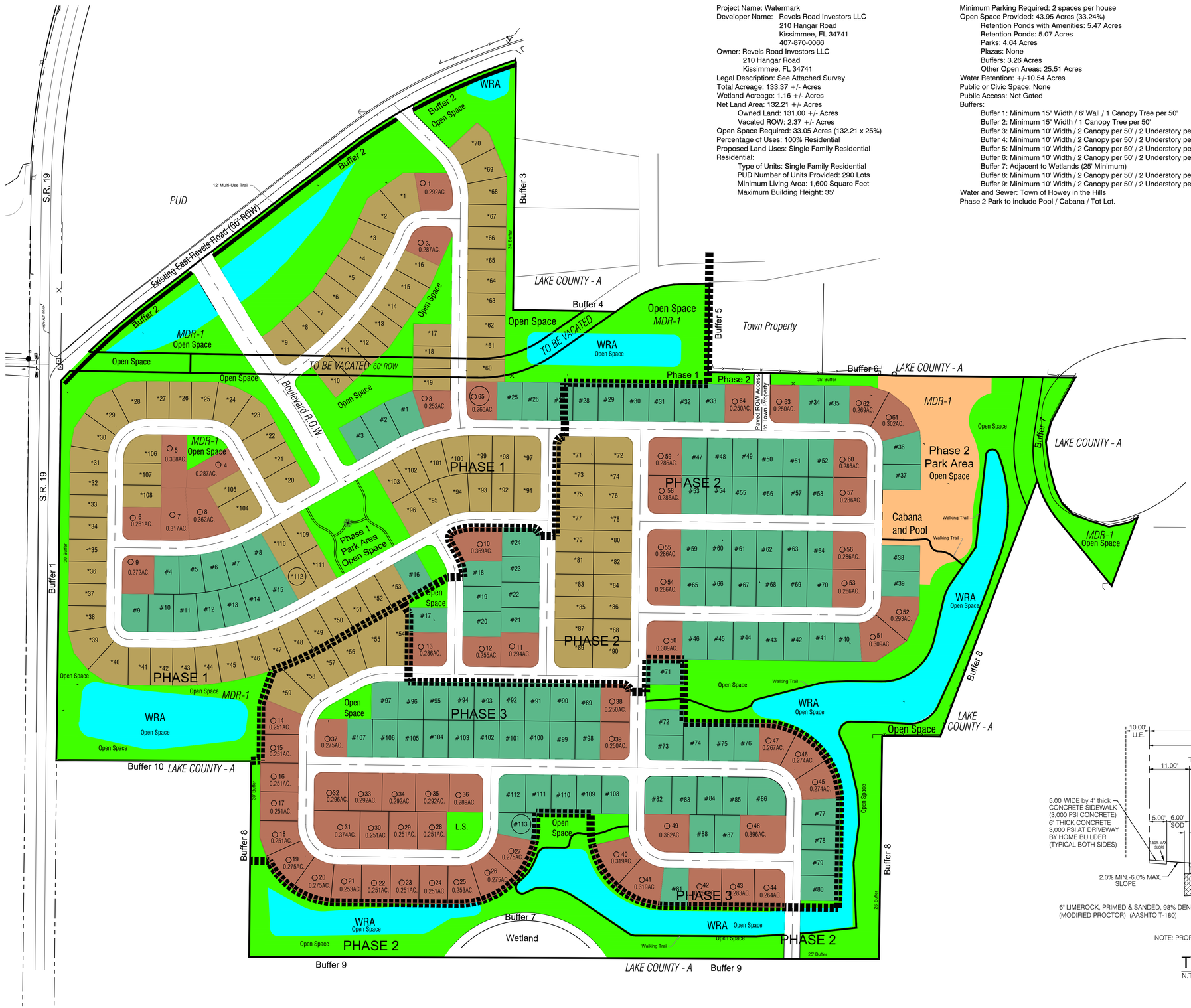
Project Name: Watermark
Developer Name: Revels Road Investors LLC
210 Hangar Road
Kissimmee, FL 34741
407-870-0066
Owner: Revels Road Investors LLC
210 Hangar Road
Kissimmee, FL 34741
Legal Description: See Attached Survey
Total Acreage: 133.37 +/- Acres
Wetland Acreage: 1.16 +/- Acres
Net Land Area: 132.21 +/- Acres
Owned Land: 131.00 +/- Acres
Vacated ROW: 2.37 +/- Acres
Open Space Required: 33.05 Acres (132.21 x 25%)
Percentage of Uses: 100% Residential
Proposed Land Uses: Single Family Residential
Residential:
Type of Units: Single Family Residential
PUD Number of Units Provided: 290 Lots
Minimum Living Area: 1,600 Square Feet
Maximum Building Height: 35'

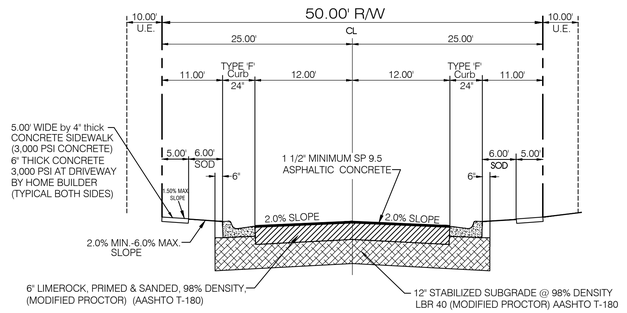
Minimum Parking Required: 2 spaces per house
Open Space Provided: 43.95 Acres (33.24%)
Retention Ponds with Amenities: 5.47 Acres
Retention Ponds: 5.07 Acres
Parks: 4.64 Acres
Plazas: None
Buffers: 3.26 Acres
Other Open Areas: 25.51 Acres
Water Retention: +/-10.54 Acres
Public or Civic Space: None
Public Access: Not Gated
Buffers:
Buffer 1: Minimum 15" Width / 6' Wall / 1 Canopy Tree per 50'
Buffer 2: Minimum 15" Width / 1 Canopy Tree per 50'
Buffer 3: Minimum 10' Width / 2 Canopy per 50' / 2 Understory per 50'.
Buffer 4: Minimum 10' Width / 2 Canopy per 50' / 2 Understory per 50'.
Buffer 5: Minimum 10' Width / 2 Canopy per 50' / 2 Understory per 50'.
Buffer 6: Minimum 10' Width / 2 Canopy per 50' / 2 Understory per 50'.
Buffer 7: Adjacent to Wetlands (25' Minimum)
Buffer 8: Minimum 10' Width / 2 Canopy per 50' / 2 Understory per 50'.
Buffer 9: Minimum 10' Width / 2 Canopy per 50' / 2 Understory per 50'.
Water and Sewer: Town of Howey in the Hills
Phase 2 Park to include Pool / Cabana / Tot Lot.

N

Scale: 1"= 150
150 0 150 300
SCALE IN FEET

LEGEND
*70' x 120' LOTS = 112 LOTS
#80' X 120' LOTS = 113 LOTS
○ MIN. 80' (1/4 AC.) LOTS = 65 LOTS
TOTAL NUMBER OF LOTS = 290 LOTS





NOTE: PROPOSED CURB TO MEET TOWN OF HOWEY LIST OF SPECIFICATIONS.

TYPICAL ROAD SECTION
N.T.S.

DATE	REVISION
	1
	2
	3
	4
	5
	6
	7
	8

WATERMARK

CONCEPTUAL LAND USE PLAN

halff
902 North Sinclair Ave.
Tavares, Florida 32778
Office: 352.343.8481
Fax: 352.343.8495
Certificate of Authorization Number: 33380

DATE:	09/17/2024
DESIGNED BY:	SPH
DRAWN BY:	SPH
CHECKED BY.:	BT
JOB NO.:	45548.002
FILE NAME:	WATERMARKMAS
Sheet	1

BRETT TOBIAS, PE
Registered Eng #69017

Appendix B
Methodology Correspondence

MEMORANDUM

April 1, 2025

Re: Watermark
Traffic Impact Analysis Methodology, v2.1
Howey-In-The-Hills, Florida
Project № 22105.1

This methodology outlines the Traffic Impact Analysis (TIA) for the above referenced project. This methodology is consistent with the requirements of the City of Leesburg and the Lake~Sumter Metropolitan Planning Organization (LSMPO) for a Tier 2 TIA.

Project Description

The proposed project is a residential development consisting of 290 single-family units. The project buildout is anticipated to be in 2027. A preliminary site plan is included in the **Attachments**. The site is located on the southeast corner of the SR 19 and Revels Road intersection, in the Town of Howey-In-The-Hills, Florida, as shown in **Figure 1**. The project proposes two (2) full access driveways along Revels Road.

Trip Generation

The trip generation analysis was conducted using information published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual, 11th Edition*. **Table 1** summarizes the trip generation analysis, and the detailed ITE sheets are included in the **Attachments**.

Table 1
Trip Generation Calculations

ITE Code	Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	Total	Enter	Exit	Rate	Total	Enter	Exit
210	Signle-Family Detached	290 DU	9.27	2,687	0.68	196	49	147	0.93	270	170	100

Trip generation analysis based on ITE Trip Generation Manual, 11th Edition

The proposed development is projected to generate 2,687 new daily trips of which 196 trips occur during the AM peak hour, and 270 trips occur during the PM peak hour.


4.55-Mile Radius
1-Mile Radius
SITE
Yalaha
Howey in the Hills
ROYAL HARBOR
Little Lake Harris
EAST LAKE HARRIS ESTATES
Astatula
PUMPKIN CENTER
Central Ave
ORANGE BLOSSOM
SLEEPY HOLLOW COUNTRY ESTATES
PARKDALE
HOWEY HEIGHT
PANORAMIC VIEW ESTATES
BLUE SPRING RESERVE
HILLY ACRES
SUGAR RIDGE
CASCADES OF
ELLSWORTH JUNCTION
CR 448
CR 48
SR 19
CR 561
CR 455
US Highway 27
91
27
25
Revels Rd
SITE

Trip Distribution

A trip distribution pattern was estimated using the *Central Florida Regional Planning Model (CFRPMv7)*. The model distribution was adjusted to account for interacting local activity centers and to reflect the local network. The raw model output is included in the **Attachments** and the adjusted general distribution is shown in **Figure 2.**

Study Area

The development is projected to generate more than 100 net new peak hour trips and therefore a Tier 2 TIA is required. The Tier 2 TIA will have a study area of a minimum 1-mile radius plus all roadways where the project's peak hour trips consume five percent (5%) or more of a roadway's directional peak hour generalized service volume based on the adopted Level of Service (LOS) and committed number of lanes, unless otherwise specified by the County/LSMPO. The extent of the study impact area shall be determined by the area of influence of the project. The area of influence shall be established as one-half (1/2) the total trip length associated with the land use of the proposed development, based upon the *2001 Lake County Transportation Impact Fee Update Study Final Report.* Accordingly, the area of influence will encompass roadway segments up to a 4.55-mile radius. Excerpts of the *2024 Lake County Congestion Management Process Database* and *2023 FDOT MQLOS* tables are included in the **Attachments** and a summary of the study area determination is presented in **Table 2**.

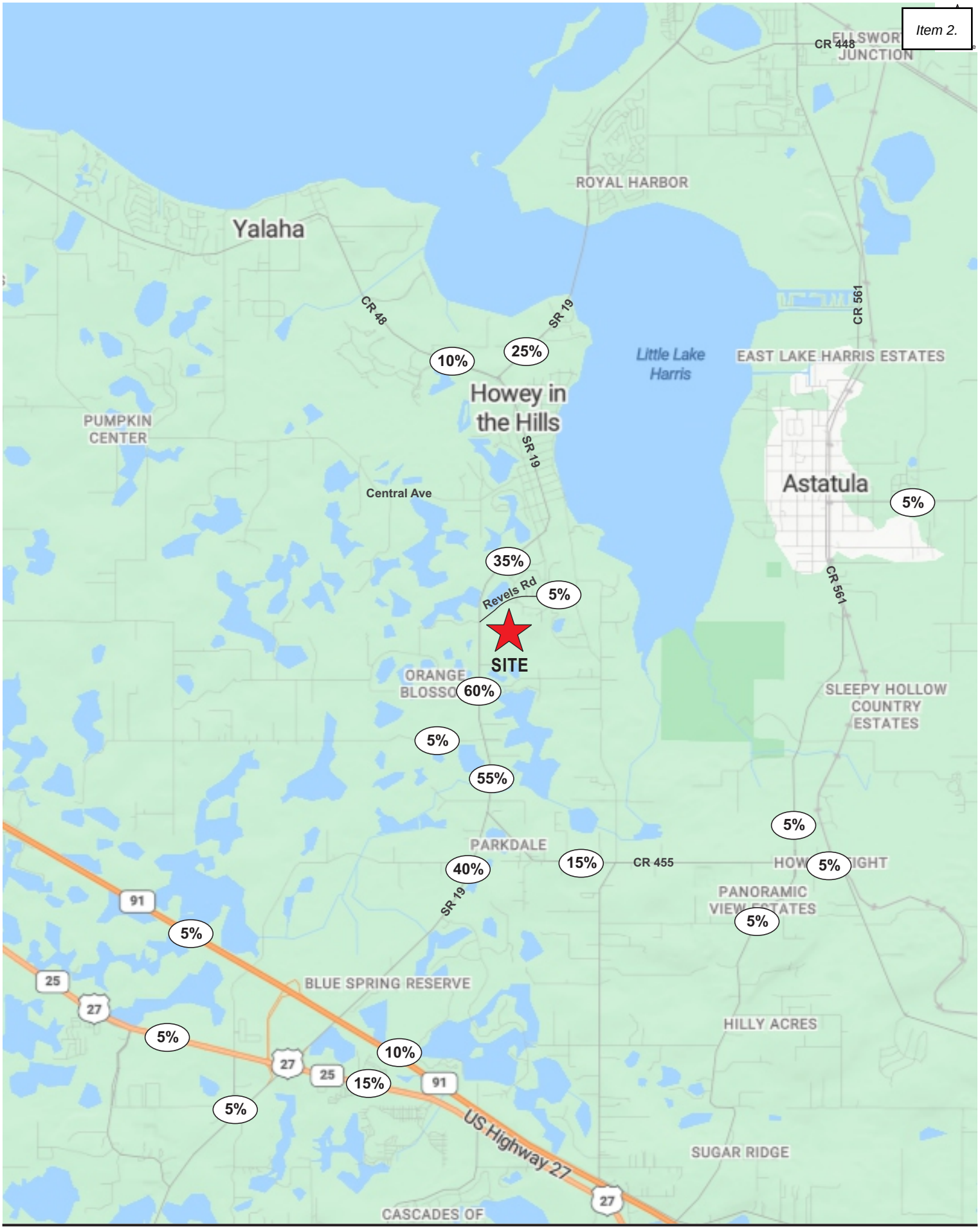

CR 448
ELLSWORTH JUNCTION
ROYAL HARBOR
Yalaha
CR 48
SR 19
CR 561
10%
25%
Little Lake Harris
EAST LAKE HARRIS ESTATES
Howey in the Hills
PUMPKIN CENTER
SR 19
Astatula
Central Ave
5%
35%
Revels Rd
5%
SITE
ORANGE BLOSSOM
60%
CR 561
SLEEPY HOLLOW COUNTRY ESTATES
5%
55%
5%
PARKDALE
40%
15%
CR 455
5%
SR 19
PANORAMIC VIEW ESTATES
5%
91
5%
25
27
BLUE SPRING RESERVE
HILLY ACRES
5%
27
10%
25
15%
91
5%
US Highway 27
SUGAR RIDGE
27
CASCADES OF

Table 2
Study Area of Significance

Seg ID	Segment Information			Exist Lns	LOS Std	Peak Cap	Proj Dist	Peak Project Trips					
								Enter Dir	PM Peak				In Study?
	Roadway	From	To						NB/EB	SB/WB	Signif	Prime	
245	CR 455	SR 19	CR 561	2	C	430	15%	SB/WB	15	26	6.0%	N	Y
243	CR 455	CR 561	CR 561A	2	C	430	5%	SB/WB	5	9	2.1%	N	N
264	CR 48	US 27	Lime Ave	2	D	1,049	10%	NB/EB	17	10	1.6%	N	N
255	CR 48	Lime Ave	SR 19	2	D	999	10%	NB/EB	17	10	1.7%	N	N
253	CR 48	CR 561	Ranch Rd	2	D	999	5%	SB/WB	5	9	0.9%	N	N
N/A	CR 48*	Ranch Rd	CR 488A	2	C	873	5%	SB/WB	5	9	1.0%	N	N
257	CR 561	CR 448	CR 48	2	D	677	0%	SB/WB	0	0	0.0%	N	N
252	CR 561	CR 48	S Astatula City Limits	2	D	799	5%	SB/WB	5	9	1.1%	N	N
N/A	CR 561*	S Astatula City Limits	CR 455	2	D	799	5%	SB/WB	5	9	1.1%	N	N
242	CR 561	CR 455	Howey Cross Rd	2	C	430	5%	NB/EB	9	5	2.1%	N	N
238	CR 561	Howey Cross Rd	Turnpike Rd/CR 561A	2	C	430	5%	NB/EB	9	5	2.1%	N	N
N/A	Revels Rd**	SR 19	6th Ave	2	C	430	95%	NB/EB	162	95	37.7%	Y	Y
N/A	SR 19**	Lane Park Rd	CR 48	2	D	890	25%	SB/WB	25	43	4.8%	N	N
N/A	SR 19**	CR 48	Central Ave	2	D	890	35%	SB/WB	35	60	6.7%	N	Y
N/A	SR 19**	Central Ave	Revels Rd	2	C	780	35%	SB/WB	35	60	7.7%	Y	Y
N/A	SR 19**	Revels Rd	CR 455	2	C	450	60%	NB/EB	102	60	22.7%	Y	Y
N/A	SR 19**	CR 455	US 27/SR 25	2	C	450	40%	NB/EB	68	40	15.1%	N	Y
N/A	SR 19**	US 27/SR 25	CR 478	2	C	450	5%	NB/EB	9	5	2.0%	N	N
240	US 27/SR 25	Florida Turnpike	SR 19	4	D	1,880	5%	SB/WB	5	9	0.5%	N	N
N/A	US 27/SR 25*	SR 19	CR 561	4	D	1,880	15%	NB/EB	26	15	1.4%	N	N

** Peak hour Directional Capacity Based on Adjacent Roadway*

*** Peak Hour Directional Capacity Based on 2023 FDOT MQ/LOS Tables*

Study Roadway Segments:

- CR 455
  - SR 19 and CR 561
- Revels Road
  - SR 19 to 6th Avenue
- SR 19
  - CR 48 to Central Avenue
  - Central Avenue to Revels Road
  - Revels Road to CR 455
  - CR 455 to US 27/SR 25

Study Intersections:

- SR 19 and CR 48
- SR 19 and Central Avenue
- SR 19 and Revels Road
- SR 19 and CR 455
- Revels Road and Project Access Driveways

Projected Traffic

Projected background traffic for the buildout year (2027) will be calculated using the corresponding annual growth rate for each of the study roadway segments as listed in the *2024 Lake County CMP Database*. A minimum of 2% historical growth rate will be applied, consistent with the LSMPO TIA guidelines.

The committed trips for the following developments within the study area will be included in the analysis as vested trips:

A. Blue Sky
B. Hillside Groves
C. Lake Hills
D. Mission Rise
E. Whispering Hills

Planned and Programmed Improvements

Planned and programmed improvements from the *County's Capital Improvement Program (CIP)*, the FDOT's *Work Program*, and the LSMPO *Transportation Improvement Program (TIP)* for the study segments were reviewed. No improvements were found within the study area.

Traffic Analysis

The traffic study will analyze existing and buildout conditions. Buildout condition traffic will include projected background traffic and project trips. Roadway segments will be analyzed for the PM peak hour directional volumes. The analysis will be based on Lake County adopted roadway capacities, as obtained from *2024 Lake County Congestion Management Process Database* and the *2023 FDOT MQ/LOS* tables. Intersection analysis will be conducted for the AM peak hour and PM peak hour, based on field counts, buildout traffic, *Synchro* software and/or *Highway Capacity Software (HCS),* and the methods of *Highway Capacity Manual (HCM)*.

Turn Lane/Queue Analysis

Turn lane analysis will be conducted for the proposed study intersections, to review if the existing turn lane lengths will be adequate at project buildout. The analysis will be conducted for both AM and PM peak hours. Additionally, queue analysis will be performed at the proposed project access driveway to determine if exclusive turn lanes are required. The analysis will be based on the highest peak hour trips. If required, turn lane length will be recommended based on *FDOT Design Manual (FDM) Exhibit 212-1*. County road turn lanes will be recommended based on the *Lake County Land Development Code*.

Alternative Mode Analysis

A review of alternative modes of transportation will be conducted within proximity of the site to check the availability and accessibility of transit services. Also, a review will be conducted to check and recommend connectivity between the proposed development and external pedestrian and bicycle amenities.

Report

A traffic impact analysis report detailing the methods and findings of the study, including all associated graphics, tables, calculations, and supporting information, will be prepared for submittal to the Town of Howey-In-The-Hills.

ATTACHMENTS

April 1, 2025

John Brock
Deputy Town Manager
Town of Howey-in-the-Hills
101 North Palm Avenue
Howey-in-the-Hills
jbrock@howey.org

Re: Watermark
Response to Methodology Comments
TMC Project № 22105.1
Town of Howey-in-the-Hills, Florida

Dear Mr. Brock,

Please find below our responses to the review comments prepared by the Griffey Engineering dated March 31, 2025, regarding the above referenced Methodology dated March 7, 2025. The comments are listed in **bold** typeface and the TMC responses follow in *italic* typeface. Additionally, a revised Methodology is provided under cover reflecting the changes resulting from these comments.

1. **The buildout condition projected traffic needs to include traffic from other soon-to-be developed projects in the town as well as historic growth of background traffic. Projects to be included are: Blue Sky, Hillside Groves, Lake Hills, Mission Rise, and Whispering Hills.**

   TMC Response: The projects have been added to the projected traffic to be analyzed in the TIA.

2. **The future condition analysis for the intersection of SR 19 and Revels Road needs to be evaluated for both a traffic signal and a roundabout.**

   TMC Response: Acknowledged. The intersection of SR 19 and Revels Road will be evaluated as both as signal and roundabout in the TIA.

3. **The study should include Mitigation Strategies as well as a Proportionate Share Calculation towards the improvement of SR 19 & Revels Road.**

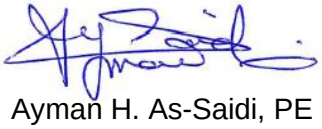
   TMC Response: Acknowledged. Mitigation strategies and a proportionate share calculation for the improvement of SR 19 and Revels Road will be included in the TIA.

END OF COMMENTS

We trust these responses and the revised methodology adequately address the review comments. We remain available to discuss this matter further or to answer any questions you may have.

Kind regards,

TRAFFIC & MOBILITY CONSULTANTS LLC



Ayman H. As-Saidi, PE
Director of Engineering

Appendix C
Trip Generation Information

Single-Family Detached Housing
(210)

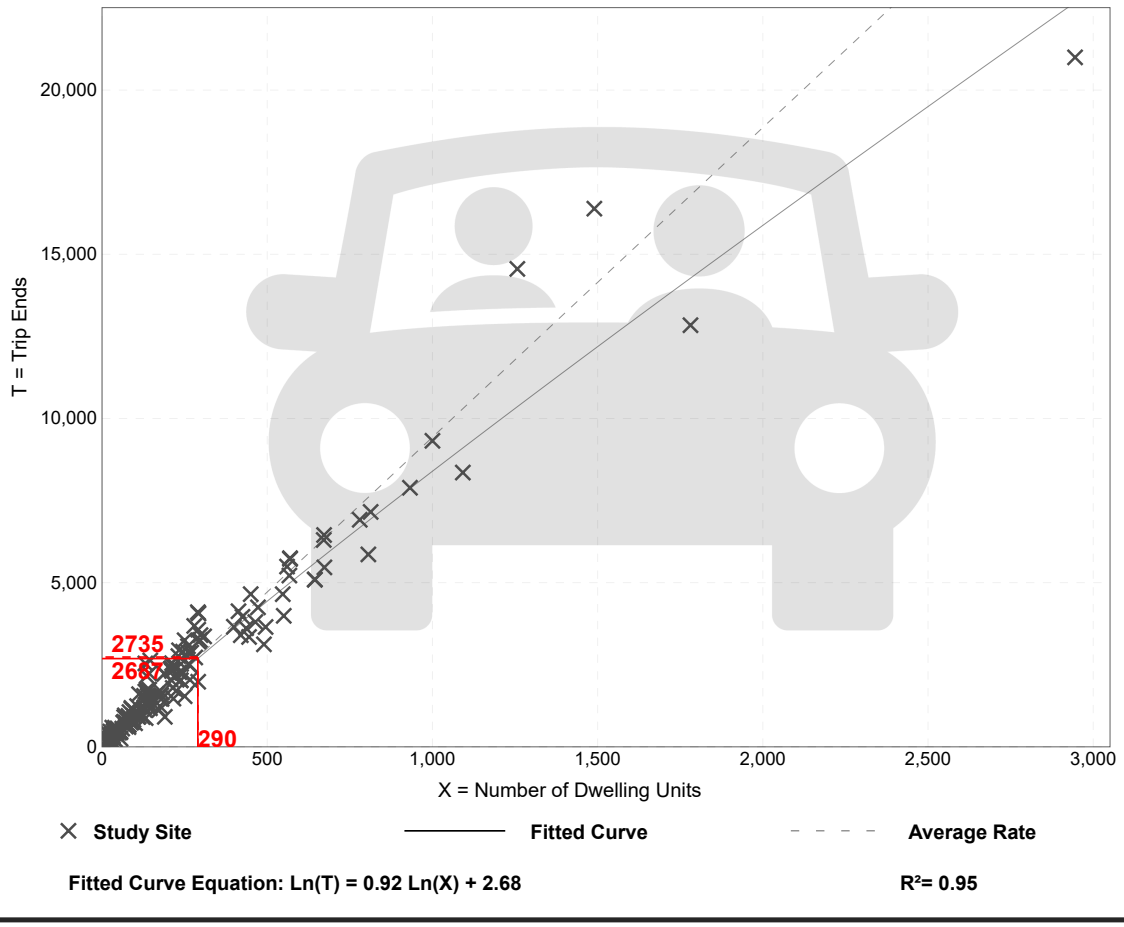
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.68 **R^2= 0.95**

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

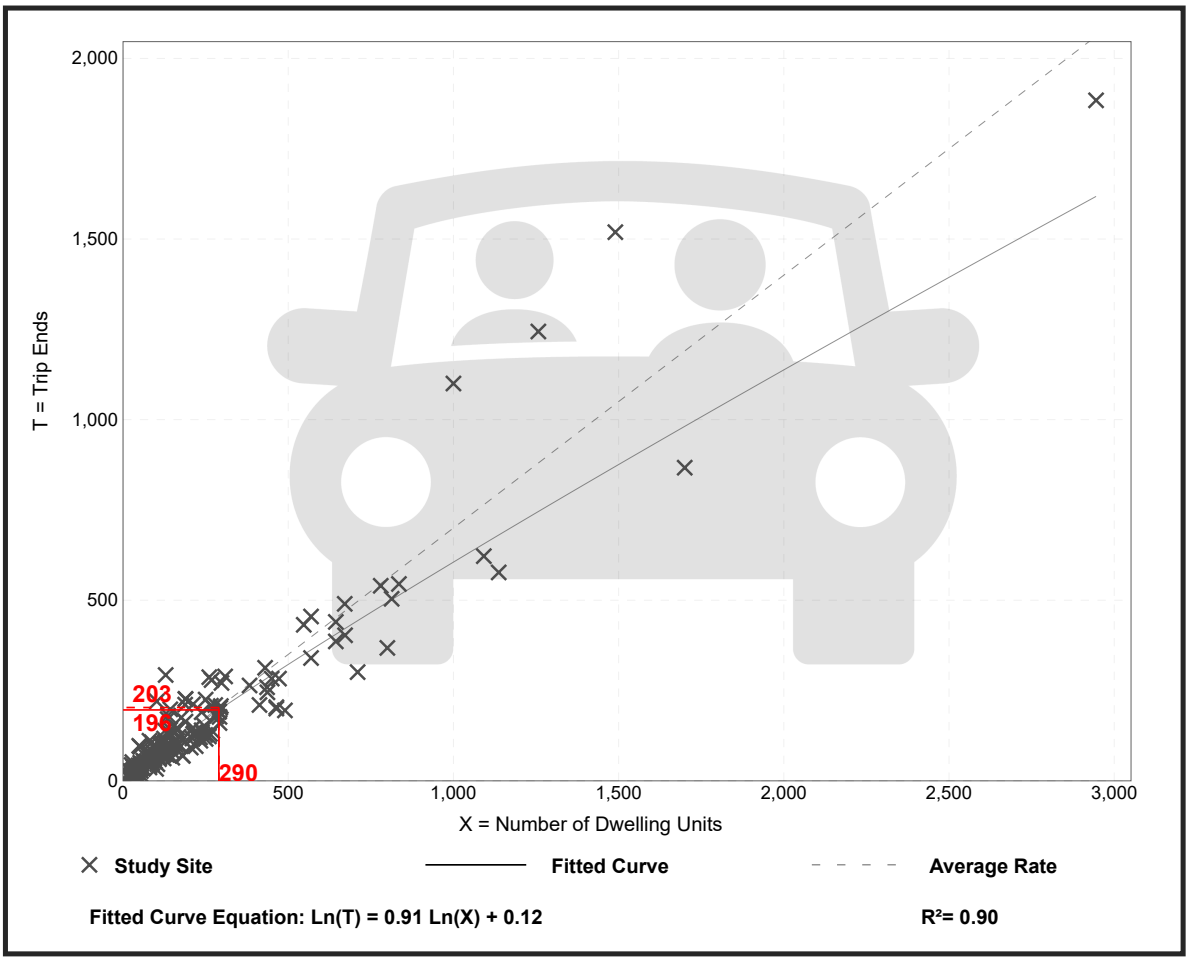
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 192
Avg. Num. of Dwelling Units: 226
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

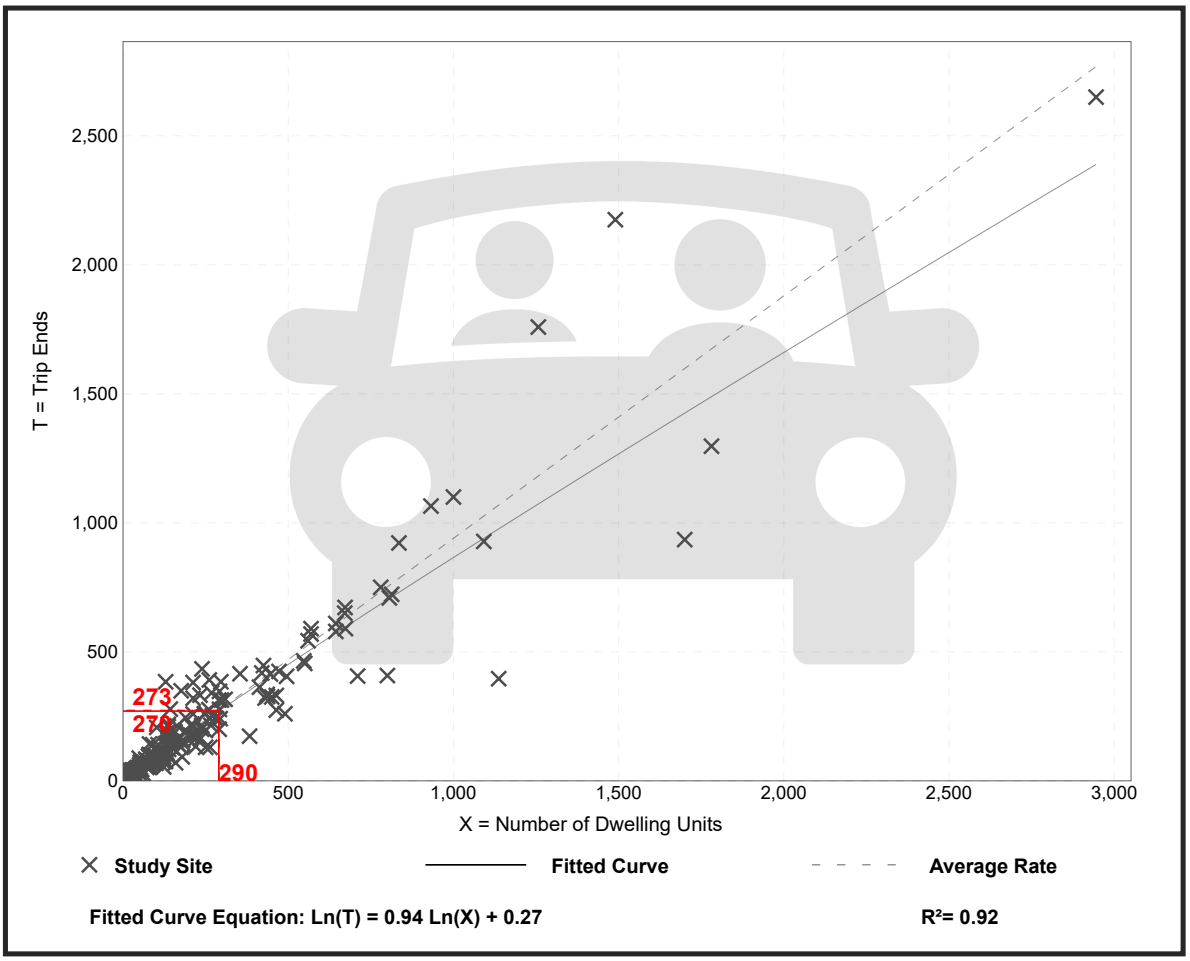
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 208
Avg. Num. of Dwelling Units: 248
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



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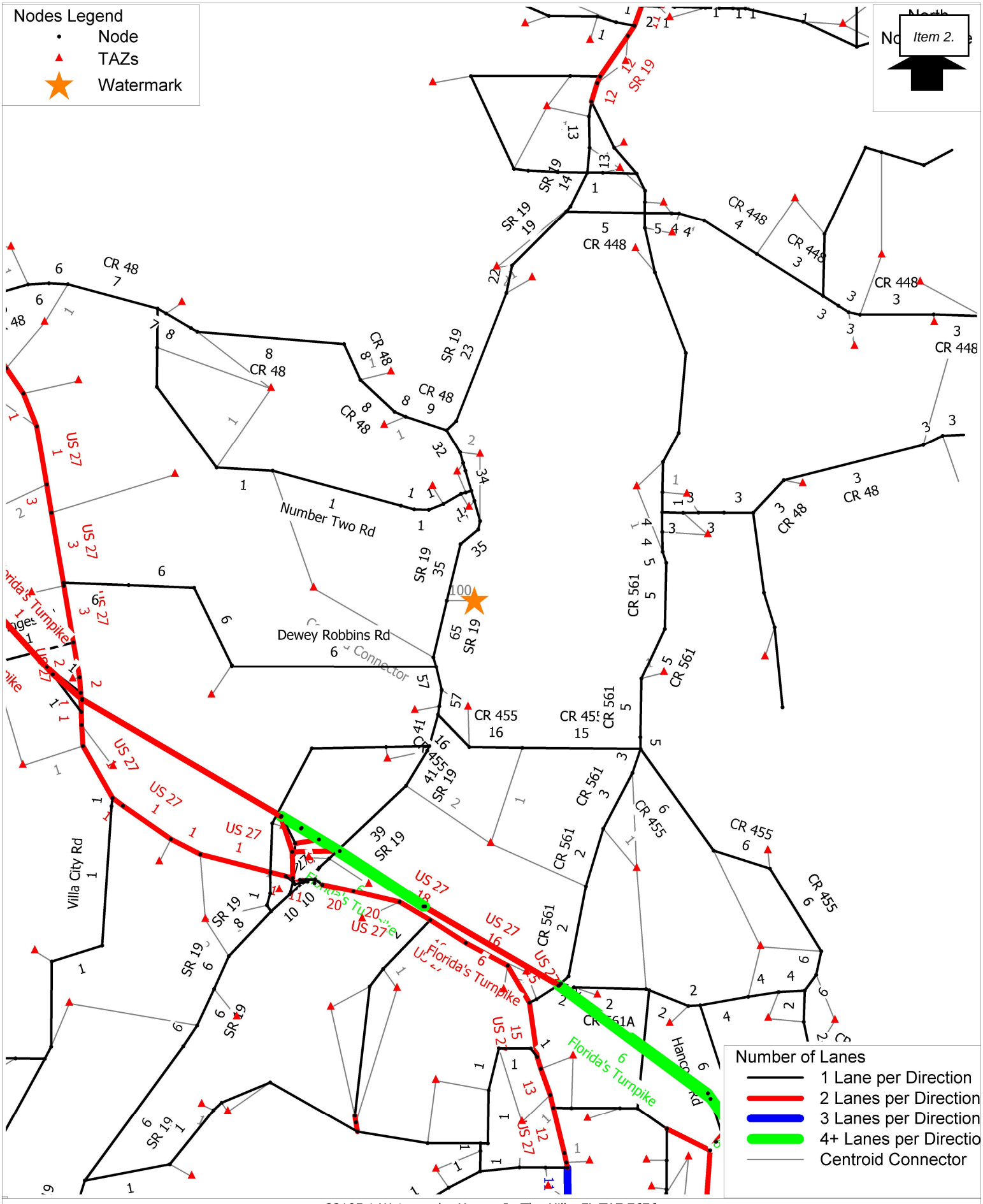
Appendix D
Model Distribution Plot



22105.1 Watermark, Howey-In-The-Hills, FL TAZ 7676
Project Distribution
T:\AProjectFiles\2022\22105 Simpson Howey-in-the-Hills\Model\Model Files\HWYLOAD_SL_AllDay_A25.NET

cube
(Licensed to Traffic & Mobility Consultants)

Appendix E
2024 Lake County CMP & 2023 FDOT MQ/LOS

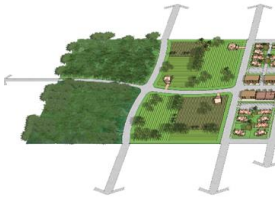
Traffic & Mobility Consultants' Summary of Lake County Roadway Paremeters

Service Voumes Derived from MQ/LOS

Count Station#	State/ County	CMS Seg ID	Segment Information										Existing		Proposed		2025 Existing Conditions							5-Year Annual Avg GR	Existing							
			Roadway	From	To	AT	FT	Post Speed	Cap Grp	Exist Lns	Imp Lns	LOS Std	Daily Cap	Peak Hr Cap	Daily Cap	Peak Cap	Daily			PM Peak					Daily Service Volumes				Peak Service Volumes				
																	Vol	V/C	LOS	NB/EB	SB/WB	V/C	LOS		B	C	D	E	B	C	D	E	LOS Code
1	State	3930	US 27/SR 25	CR 474	US 192	U		55	C6	6L		D	57,855	2,867			30,726	0.53	D	960	933	0.34	D	-9.86%		0	57,855	62,370		0	2,867	3,087	C6 6L_D_WL_WR
2	State	3150	SR 33	CR 474	POLK COUNTY LINE	R		60	C2	2L		C	8,200	430			10,989	1.34	D	429	465	1.08	D	12.00%		8,200	14,000	28,500		430	730	1,490	C2_2L_U_0L_0R
3	County	1200	CR 474	GREEN SWAMP RD	US 27	R		55	C3R	2L		C	17,640	873			5,850	0.33	C	210	298	0.34	C	-1.10%		17,640	20,160	20,161		873	999	1,000	C3R 2L_U_WL_0R
4	County	1190	CR 474	SR 33	GREEN SWAMP RD	R		55	C2	2L		C	7,380	430			5,528	0.75	C	237	323	0.75	C	-2.21%		7,380	12,600	25,650		430	730	1,490	C2 2L_U_WL_0R
5	State	3140	SR 33	CR 561	CR 474	R		60	C2	2L		C	8,200	430			11,839	1.44	D	469	488	1.14	D	13.87%		8,200	14,000	28,500		430	730	1,490	C2 2L_U_WL_0R
6	County	1530	CR 561	FLORIDA BOYS RANCH RD	SR 33	R		55	C2	2L		C	7,380	430			2,727	0.37	C	146	157	0.36	C	-15.10%		7,380	12,600	25,650		430	730	1,490	C2_2L_U_WL_0R
7	County	2260	LAKE ERIE RD	CR 565	SR 33	R		35	C2	2L		C	7,380	430			N/A	#VALUE!	F	N/A	N/A	0.00	B	N/A		7,380	12,600	25,650		430	730	1,490	C2_2L_U_WL_0R
8	County	2330	LAKESHORE DR (CLER)	CR 561	OSWALT RD	T		45	C2T	2L		C	13,041	680			3,556	0.27	C	142	188	0.28	C	-10.47%		13,041	17,010	17,011		680	888	889	C2T_2L_U_WL_WR
9	County	2290	LAKE LOUISA RD	VISTA DEL LAGO BLVD	US 27	U		35	C3R	2L		D	21,168	1,049			4,236	0.20	C	127	239	0.23	C	-7.28%		18,522	21,168	21,169		917	1,049	1,050	C3R 2L_U_WL_WR
10	County	1520	CR 561	LOG HOUSE RD	FLORIDA BOYS RANCH RD	U		55	C3R	2L		D	21,168	1,049			3,250	0.15	C	117	202	0.19	C	-12.07%		18,522	21,168	21,169		917	1,049	1,050	C3R 2L_U_WL_WR
11	County	2700	OSWALT RD	LAKESHORE DR	EDGEWATER DR	U		35	C3R	2L		D	21,168	1,049			4,272	0.20	C	130	255	0.24	C	-7.13%		18,522	21,168	21,169		917	1,049	1,050	C3R 2L_U_WL_WR
13	County	2450	LOG HOUSE RD	CR 561	LAKESHORE DR	U		35	C3R	2L		D	16,128	799			4,170	0.26	C	238	186	0.30	C	-7.57%		14,112	16,128	16,129		698	799	800	C3R_2L_U_0L_0R
14	County	2340	LAKESHORE DR (CLER)	OSWALT RD	HARDER RD	T		35	C3R	2L		C	18,522	917			12,113	0.65	C	660	409	0.72	C	14.40%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
15	County	2100	HARTWOOD MARSH RD	US 27	HANCOCK RD	U		40	C4	2L		D	16,632	822			16,953	1.02	E	735	683	0.89	D	22.35%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
16	County	#N/A	HARTWOOD MARSH RD	.1MI E HANCOCK	#N/A	U		40	C4	2L		D	16,632	822			13,489	0.81	D	577	720	0.88	D	16.89%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
17	County	2090	S. HANCOCK RD	JOHNS LAKE RD	HARTWOOD MARSH RD	U		45	C4	2L		D	16,632	822			11,852	0.71	D	486	510	0.62	D	13.90%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
18	County	1640	CR 565B	SR 33	CR 561	R		45	C2	2L		C	5,904	430			2,780	0.47	C	117	159	0.37	C	-14.78%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
19	County	2280	LAKE LOUISA RD	LAKESHORE DR	VISTA DEL LAGO BLVD	U		40	C3R	2L		D	21,168	1,049			4,225	0.20	C	198	194	0.19	C	-7.33%		18,522	21,168	21,169		917	1,049	1,050	C3R 2L_U_WL_WR
20	County	2110	HARTWOOD MARSH RD	N. 90 DEGREE BEND	ORANGE COUNTY LINE	U		35	C3R	2L		D	21,168	1,049			9,765	0.46	C	612	300	0.58	C	9.57%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
21	County	2050	HAMMOCK RIDGE	LAKE SHORE DR	US 27	U		35	C4	4L		D	34,115	1,482			16,106	0.47	C	524	530	0.36	C	21.11%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
22	County	2350	LAKESHORE DR (CLER)	HARDER RD	LAKE LOUISA RD	U		40	C3R	2L		D	21,168	1,049			16,510	0.78	C	523	851	0.81	C	21.71%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
23	County	2354	LAKESHORE DR (CLER)	LAKE LOUISA RD	ANDERSON HILL RD	U		30	C3R	2L		D	20,160	999			6,618	0.33	C	417	213	0.42	C	1.37%		17,640	20,160	20,161		873	999	1,000	C3R 2L_U_WL_0R
24	County	1695	CITRUS TOWER BLVD	JOHNS LAKE RD	US 27	U		40	C4	4L		D	34,115	1,482			18,201	0.53	C	767	568	0.52	C	24.10%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
26	County	2180	JOHNS LAKE RD	US 27	HANCOCK RD	U		35	C4	2L		D	16,632	822			6,623	0.40	D	325	326	0.40	D	1.39%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
27	County	20	ANDERSON HILL RD	LAKE SHORE DR	US 27	U		30	C3R	2L		D	16,128	799			1,538	0.10	C	103	54	0.13	C	-24.29%		14,112	16,128	16,129		698	799	800	C3R_2L_U_0L_0R
28	County	1690	CITRUS TOWER BLVD	SR 50	HOOKS ST	U		40	C4	4L		D	32,490	1,411			20,745	0.64	C	932	924	0.66	C	27.39%		21,960	32,490	36,720		1,089	1,411	1,818	C4_4L_D_WL_0R
29	County	3569	STEVES RD	US 27	CITRUS TOWER BLVD	U		30	C4	2L		D	16,632	822			7,531	0.45	D	389	331	0.47	D	4.02%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
30	County	1865	EXCALLIBUR RD	HOOKS ST	CITRUS TOWER BLVD	U		35	C3R	2L		D	22,226	1,101			7,125	0.32	C	321	313	0.29	C	2.88%		19,448	22,226	22,227		962	1,101	1,103	C3R_2L_D_WL_WR
31	County	2150	HOOKS ST	US 27	OAKLEY SEAVER DR	U		35	C4	4L		D	34,115	1,482			11,136	0.33	C	520	476	0.35	C	12.49%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
32	County	2140	HOOKS ST	LAKESHORE DR	US 27	U		30	C4	2L		D	12,672	626			7,285	0.57	D	359	248	0.57	D	3.34%		0	12,672	17,280		0	626	857	C4 2L_U_0L_0R
33	County	2153	HOOKS ST	OAKLEY SEAVER DR	CITRUS TOWER BLVD	U		35	C4	4L		D	34,115	1,482			11,619	0.34	C	502	520	0.35	C	13.45%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
34	County	2155	HOOKS ST	CITRUS TOWER BLVD	HANCOCK RD	U		35	C4	4L		D	32,490	1,411			8,915	0.27	C	368	329	0.26	C	7.60%		21,960	32,490	36,720		1,089	1,411	1,818	C4_4L_D_WL_0R
35	County	2080	S. HANCOCK RD	SR 50	HOOKS ST	U		45	C4	4L		D	32,490	1,411			19,673	0.61	C	700	649	0.50	C	26.05%		21,960	32,490	36,720		1,089	1,411	1,818	C4_4L_D_WL_0R
36	County	1692	CITRUS TOWER BLVD	HOOKS ST	JOHNS LAKE RD	U		30	C4	4L		D	34,115	1,482			18,053	0.53	C	677	689	0.46	C	23.90%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
37	County	1915	S. GRAND HIGHWAY	SR 50	HOOKS ST	U		25	C4	4L		D	34,115	1,482			5,727	0.17	C	287	197	0.19	C	-1.52%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
38	County	#N/A	HARTLE RD	0.11 SOUTH OF SR 50	#N/A	U		35	C4	4L		D	30,866	1,340			8,212	0.27	C	421	296	0.31	C	5.84%		20,862	30,866	34,884		1,035	1,340	1,727	C4 4L_U_WL_0R
39	County	2070	N. HANCOCK RD	N RIDGE BLVD	SR 50	U		45	C4	4L		D	34,115	1,482			16,107	0.47	C	676	629	0.46	C	21.11%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
40	County	1910	GRAND HIGHWAY	CITRUS TOWER BLVD	SR 50	U		35	C4	2L		D	16,632	822			6,853	0.41	D	278	279	0.34	D	2.08%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
42	County	1310	CR 50	CR 455	ORANGE COUNTY LINE	U		45	C4	2L		D	16,632	822			10,586	0.64	D	341	767	0.93	D	11.36%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
43	County	990	CR 455	CR 455 / CR 50	SR 50	U		45	C5	2L		D	13,136	652			9,541	0.73	D	513	347	0.79	D	9.06%		0	13,136	20,601		0	652	1,021	C5_2L_U_WL_WR
44	County	1680	CITRUS TOWER BLVD	OAKLEY SEAVER DR	SR 50	U		30	C5	4L		D	34,470	1,710			15,244	0.44	C	626	711	0.42	C	19.78%		23,490	34,470	38,700		1,161	1,710	1,917	C5_4L_D_WL_0R
45	County	1510	CR 561	SR 50	LOG HOUSE RD	U		25	C4	2L		D	16,632	822			6,441	0.39	D	335	268	0.41	D	0.82%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_WR
47	County	1630	CR 565A	SR 50	CR 565B	U		55	C4	2L		D	12,672	626			2,500	0.20	D	81	141	0.23	D	-16.57%		0	12,672	17,280		0	626	857	C4 2L_U_0L_0R
48	County	#N/A	WELLNESS WAY	B/W US 27 & SCHOFIELD RI	#N/A	U		40	C3R	2L		D	21,168	1,049			11,038	0.52	C	356	452	0.43	C	12.29%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_D_WL_0R
49	County	#N/A	WELLNESS WAY	0.51 Mi W. OF 5 MILE RD	#N/A	U		40	C3R	2L		D	22,226	1,101			N/A	#VALUE!	F	N/A	N/A	0.00	B	N/A		19,448	22,226	22,227		982	1,101	1,103	C3R_2L_D_WL_WR
50	County	#N/A	SCHOFIELD RD	0.20 Mi S. OF WELLNESS W	#N/A	U		40	C3R	2L		D	20,160	999			10,171	0.50	C	406	342	0.41	C	10.47%		17,640	20,160	20,161		873	999	1,000	C3R_2L_U_WL_0R
51	County	#N/A	SCHOFIELD RD	0.57 Mi E. OF 5 MILE RD	#N/A	R		35	C2	2L		C	7,380	430			12,602	1.71	E	381	646	1.50	D	15.31%		7,380	12,600	25,650		430	730	1,490	C2 2L_U_WL_WR
201	County	1620	CR 565A	SR 50	CR 561A	U		40	C4	2L		D	16,632	822			9,625	0.58	D	455	392	0.55	D	9.26%		0	16,632	22,680		0	822	1,125	C4 2L_U_WL_WR
202	County	1300	CR 50	N HANCOCK RD	CR 455	U		45	C3R	2L		D	20,160	999			10,363	0.51	C	317	782	0.78	C	10.88%		17,640	20,160	20,161		873	999	1,000	C3R 2L_U_WL_0R
203	County	1500	CR 561	CR 561A	SR 50	U		35	C3R	2L		D	21,168	1,049			5,456	0.26	C	214	302	0.29	C	-2.47%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
204	County	980	CR 455	RIDGEWOOD AVE	CR 455/ CR 50	U		35	C2T	2L		D	16,200	846			8,523	0.53	C	447	325	0.53	C	6.63%		12,420	16,200	16,201		648	846	847	C2T_2L_U_WL_0R
205	County	1670	CITRUS TOWER BLVD	US 27	OAKLEY SEAVER DR	U		35	C4	2L		D	16,632	822			11,930	0.72	D	607	426	0.74	D	14.05%		0	16,632	22,680		0	822	1,125	C4_2L_U_WL_0R
206	County	#N/A	CR 565A	NORTH OF SR 50	#N/A	#N/A		40	NA	4L		#N/A	#N/A	#N/A			7,357	#N/A	#N/A	278	245	#N/A	#N/A	3.54%		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A
207	County	2060	N. HANCOCK RD	OLD HWY 50 (E)	N RIDGE BLVD	U		35	C4	4L		D	34,115	1,482			20,417	0.60	C	779	961	0.65	C	26.99%		23,058	34,115	38,556		1,143	1,482	1,909	C4_4L_D_WL_WR
208	County	1590	CR 565 (VILLA CITY RD)	KJELLSTROM LANE	SR 50	U		40	C2T	2L		D	17,010	888			7,246	0.43	C	287	259	0.32	C	3.22%		13,041	17,010	17,011		680	888	889	C2T 2L_U_WL_WR
209	County	#N/A	CR 50	EAST OF HANCOCK RD	#N/A	#N/A		45	C3R	2L		#N/A	#N/A	#N/A			12,680	#N/A	C	509	774	#N/A	C	15.45%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
210	County	1290	CR 50	US 27	N HANCOCK RD	U		45	C3R	2L		D	21,168	1,049			7,537	0.36	C	309	400	0.38	C	4.04%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
212	County	100	BLACKSTILL LAKE RD	FOSGATE RD	CR 50	U		35	C3R	2L		D	21,168	1,049			5,222	0.25	C	248	244	0.24	C	-3.32%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
213	County	1560	CR 561A	CR 565A	JALARMY RD	U		40	C3R	2L		D	21,168	1,049			7,762	0.37	C	383	302	0.37	C	4.65%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
214	County	1470	EAST AVE/LAKE MINNEOLA DR/MAIN AVE	US 27	EAST AVE	U		30	C3R	2L		D	16,128	799			N/A	#VALUE!	F	N/A	N/A	0.00	B	N/A		14,112	16,128	16,129		698	799	800	C3R_2L_U_0L_0R
216	County	3640	TUSCANOOGA RD	EGG RD	SR 50	U		30	C2T	2L		D	12,960	677			2,087	0.16	C	69	122	0.18	C	-19.52%		9,936	12,960	12,961		518	677	678	C2T 2L_U_0L_0R
217	County	1280	CR 50 (SUNSET AVE)	CR 33	SR 50	U		30	C2	2L		D	10,080	730			2,028	0.20	C	94	87	0.13	C	-19.98%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
218	County	290	CR 33	BRIDGES RD	PEBBLE ROCK RD	R		35	C2T	2L		C	12,420	648			7,728	0.62	C	346	309	0.53	C	4.56%		12,420	16,200	16,201		648	846	847	C2T_2L_U_WL_0R
219	County	3650	UNDERPASS RD	CR 33	AMERICAN LEGION RD	U		40	C2T	2L		D	17,010	888			1,670	0.10	C	61	103	0.12	C	-23.03%		13,041	17,010	17,011		680	888	889	C2T_2L_U_WL_WR
221	County	1875	GRASSY LAKE RD/FOSGATE RD	CR 50 (WASHINGTON ST)	HANCOCK RD	U		40	C3R	2L		D	21,168	1,049			N/A	#VALUE!	F	N/A	N/A	0.00	B	N/A		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
222	County	1210	CR 478	SR 19	JAMARLY RD	U		45	C2	2L		D	12,600	730			2,463	0.20	C	98	126	0.17	C	-16.81%		7,380	12,600	25,650		430	730	1,490	C2 2L_U_WL_0R
223	County	1570	CR 561 (LAKE MINNEOLA SHORES)	JALARMY RD	US 27	U		40	C3R	2L		D	21,168	1,049			11,838	0.55	C	403	496	0.47	C	13.49%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
224	County	2170	JALARMY RD	CR 478	CR 561A	U		35	C3R	2L		D	16,128	799			6,384	0.40	C	264	275	0.34	C	0.64%		14,112	16,128	16,129		698	799	800	C3R_2L_U_0L_0R
225	County	2055	N. HANCOCK RD	SR 91 (FLORIDA TURNPIKE)	OLD HWY 50 (W)	U		45	C3R	4L		D	35,249	1,748			N/A	#VALUE!	F	N/A	N/A	0.00	B	N/A		32,414	35,249	35,249		1,607	1,748	1,749	C3R_4L_D_WL_WR
226	County	1920	CITRUS GROVE RD	US 27	GRASSY LAKE RD	U		40	C3R	2L		D	21,168	1,049			8,251	0.39	C	240	422	0.40	C	5.94%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
227	County	970	CR 455	CR 561A	RIDGEWOOD AVE	U		35	C3R	2L		D	16,128	799			2,940	0.18	C	155	139	0.19	C	-13.82%		14,112	16,128	16,129		698	799	800	C3R_2L_U_0L_0R
232	County	#N/A	VILLA CITY RD	0.5 MI N. OF SIMON BROWN	#N/A	R		40	C2T	2L		C	9,936	518			4,663	0.47	C	132	323	0.62	C	-5.48%		9,936	12,960	12,961		518	677	678	C2T 2L_U_0L_0R
233	County	2054	N. HANCOCK RD	CR 561A	SR 91 (FLORIDA TURNPIKE)	T		45	C2T	2L		C	12,420	648			7,169	0.58	C	321	271	0.50	C	3.00%		12,420	16,200	16,201		648	846	847	C2T 2L_U_WL_0R
234	County	1545	CR 561A	SCRUB JAY LN	N HANCOCK RD	T		55	C2T	2L		C	12,420	648			6,646	0.54	C	236	312	0.48	C	1.46%		12,420	16,200	16,201		648	846	847	C2T 2L_U_WL_0R
235	County	1460	CR 561 / CR 561A	TURNPIKE RD / CR 561A	US 27	T		45	C2T	2L		C	9,936	518			9,834	0.99	C	387	398	0.77	C	9.73%		9,936	12,960	12,961		518	677	678	C2T 2L_U_0L_0R
236	County	#N/A	CR 561A	0.25 Mi WEST OF CR 455	#N/A	T		55	C2T	2L		C	9,936	518			2,668	0.27	C	146	118	0.28	C	-15.47%		9,936	12,960	12,961		518	677	678	C2T 2L_U_0L_0R
237	County	1540	CR 561A	TURNPIKE RD / CR 561	SCRUB JAY LN	T		55	C2T	2L		C	9,936	518			6,757	0.68	C	344	233	0.66	C	1.79%		9,936	12,960	12,961		518	677	678	C2T 2L_U_0L_0R
238	County	1450	CR 561	HOWEY CROSS RD	TURNPIKE RD / CR 561A	T		40	C2	2L		C	6,199	430			8,534	1.38	D	398	369	0.92	C	6.66%		6,199	10,584	21,546		430	730	1,490	C2 2L_U_0L_WR
239	County	2420	WILSON LAKE PARKWAY	US 27	LIBBY RD	T		40	C2T	2L		C	10,433	544			3,573	0.34	C	76	194	0.36	C	-10.38%		10,433	13,608	13,609		544	711	712	C2T 2L_U_0L_WR
240	State	3820	US 27/SR 25	FLORIDA TURNPIKE	SR 19	U		55	C4	4L		D	37,905	1,880			22,244	0.59	C	903	721	0.48	C	29.18%		25,620	37,905	42,849		1,271	1,880	2,121	C4_4L_D_WL_WR
241	County	1580	CR 565	US 27	KJELLSTROM LANE	R		55	C2	2L		C	5,904	430			3,140	0.53	C	216	72	0.50	C	-12.67%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
242	County	1440	CR 561	CR 455	HOWEY CROSS RD	R		35	C2	2L		C	5,904	430			8,105	1.37	D	351	408	0.95	C	5.56%		5,904	10,080	20,520		430	730	1,490	C2_2L_U_0L_0R
243	County	960	CR 455	CR 561	CR 561A	R		45	C2	2L		C	5,904	430			2,448	0.41	C	134	127	0.31	C	-16.91%		5,904	10,080	20,520		430	730	1,490	C2_2L_U_0L_0R
245	County	950	CR 455	SR 19	CR 561	R		55	C2	2L		C	7,380	430			4,837	0.66	C	244	249	0.58	C	-4.79%		7,380	12,600	25,650		430	730	1,490	C2_2L_U_WL_WR
246	County	50	AUSTIN MERRITT RD	YOUTH CAMP RD	CR 33	R		40	C2	2L		C	5,904	430			2,227	0.38	C	140	63	0.32	C	-18.47%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
247	County	110	BRIDGES RD	US 27	CR 33	R		40	C2	2L		C	5,904	430			2,260	0.38	C	132	80	0.31	C	-18.23%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
248	County	1225	CR 48	CLEARWATER LAKE RD	CR 33	R		55	C2	2L		C	5,904	430			4,641	0.79	C	141	252	0.59	C	-5.57%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
249	County	280	CR 33	CR 48	BRIDGES RD	U		55	C2T	2L		D	16,200	846			4,942	0.31	C	297	148	0.35	C	-4.38%		12,420	16,200	16,201		648	846	847	C2T 2L_U_WL_0R
251	County	#N/A	DEWEY ROBBINS RD	0.25 Mi EAST OF US 27	#N/A	R		45	C2T	2L		C	12,420	648			1,016	0.08	C	74	41	0.11	C	-30.31%		12,420	16,200	16,201		648	846	847	C2T 2L_U_WL_0R
252	County	1420	CR 561	CR 48	SOUTH ASTATULA CITY LIMIT	U		40	C3R	2L		D	16,128	799			12,993	0.81	C	626	655	0.82	C	16.01%		14,112	16,128	16,129		698	799	800	C3R_2L_U_0L_0R
253	County	1260	CR 48	CR 561	RANCH RD	U		40	C3R	2L		D	20,160	999			7,499	0.37	C	348	341	0.35	C	3.94%		17,640	20,160	20,161		873	999	1,000	C3R_2L_U_WL_0R
255	County	1250	CR 48	LIME AVE	SR 19	R		40	C3R	2L		C	17,640	873			9,677	0.55	C	461	387	0.53	C	9.37%		17,640	20,160	20,161		873	999	1,000	C3R_2L_U_WL_0R
256	County	620	CR 448A	CR 448	CR 48	R		45	C2	2L		C	5,904	430			6,812	0.94	C	304	362	0.84	C	1.96%		7,380	12,600	25,650		430	730	1,490	C2 2L_U_WL_0R
257	County	1410	CR 561	CR 448	CR 48	U		50	C2T	2L		D	12,960	677			9,041	0.70	C	418	399	0.62	C	7.90%		9,936	12,960	12,961		518	677	678	C2T_2L_U_0L_0R
258	County	1770	DUDA RD	CR 448A	ORANGE COUNTY LINE	R		55	C2	2L		C	5,904	430			7,622	1.29	D	329	394	0.92	C	4.27%		5,904	10,080	20,520		430	730	1,490	C2_2L_U_0L_0R
259	County	1220	CR 48	SUMTER COUNTY LINE	CLEARWATER LAKE RD	R		55	C2	2L		C	7,380	430			4,677	0.63	C	164	265	0.62	C	-5.43%		7,380	12,600	25,650		430	730	1,490	C2_2L_U_WL_0R
260	County	270	SR 33 / SR 48 / CR 33 / CR 48	CR 48 /CR 470	CR 48	U		45	C3C	2L		D	19,530	963			9,859	0.50	C	303	551	0.57	C	9.78%		13,770	19,530	19,531		684	963	964	C3C_2L_U_WL_0R
261	County	610	CR 448	LAKE INDUSTRIAL BLVD	ORANGE COUNTY LINE	R		45	C2	2L		C	5,904	430			9,835	1.67	D	385	529	1.23	D	9.73%		5,904	10,080	20,520		430	730	1,490	C2 2L_U_0L_0R
262	County	1235	CR 48	HAYWOOD WORM FARM RD	US 27	U		45	C3R	2L		D	21,168	1,049			10,396	0.49	C	429	465	0.44	C	10.95%		18,522	21,168	21,169		917	1,049	1,050	C3R_2L_U_WL_WR
263	County	1230	CR 48	SR 33

C1 & C2

Motor Vehicle Highway Generalized Service Volume Tables



(C1-Natural & C2-Rural)

Revels Rd

Adjusted Capacity

Peak Hour Directional

	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

Peak Hour Two-Way

	B	C	D	E
2 Lane	440	780	1,330	2,710
4 Lane	3,040	4,350	5,290	6,070
6 Lane	4,560	6,490	7,950	9,110

AADT

	B	C	D	E
2 Lane	4,600	8,200	14,000	28,500
4 Lane	32,000	45,800	55,700	63,900
6 Lane	48,000	68,300	83,700	95,900

Round results to the nearest tens (i.e. 1,754 should be rounded to 1,750)

Base Capacity

Peak Hour Directional

	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

Peak Hour Two-Way

	B	C	D	E
2 Lane	440	780	1,330	2,710
4 Lane	3,040	4,350	5,290	6,070
6 Lane	4,560	6,490	7,950	9,110

AADT

	B	C	D	E
2 Lane	4,600	8,200	14,000	28,500
4 Lane	32,000	45,800	55,700	63,900
6 Lane	48,000	68,300	83,700	95,900

Apply Adjustment Factors

2 Lane Divided Roadway **with** Exclusive Left Turn Adjustment: Multiply by 1.05 ☐

Multilane Undivided Highway **with** Exclusive Left Turn Adjustment: Multiply by 0.95 ☐

Multilane Undivided Highway **without** Exclusive Left Turn Adjustment: Multiply by 0.75 ☐

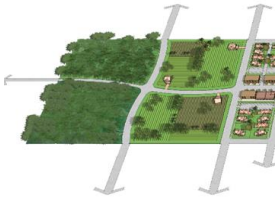
This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

Source: 2023 FDOT MQ/LOS Handbook, Appendix B: Florida's Generalized Service Volume Tables

2023 Multimodal Quality/ Level Of Service Handbook, January 2023

C1 & C2

Motor Vehicle Highway Generalized Service Volume Tables



(C1-Natural & C2-Rural)

SR 19, from Revels Rd to CR 478

Adjusted Capacity

Peak Hour Directional

	B	C	D	E
1 Lane	252	452	767	1,565
2 Lane	1,754	2,510	3,056	3,507
3 Lane	2,636	3,749	4,589	5,261

Peak Hour Two-Way

	B	C	D	E
2 Lane	462	819	1,397	2,846
4 Lane	3,192	4,568	5,555	6,374
6 Lane	4,788	6,815	8,348	9,566

AADT

	B	C	D	E
2 Lane	4,830	8,610	14,700	29,925
4 Lane	33,600	48,090	58,485	67,095
6 Lane	50,400	71,715	87,885	100,695

Round results to the nearest tens (i.e. 1,754 should be rounded to 1,750)

Base Capacity

Peak Hour Directional

	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

Peak Hour Two-Way

	B	C	D	E
2 Lane	440	780	1,330	2,710
4 Lane	3,040	4,350	5,290	6,070
6 Lane	4,560	6,490	7,950	9,110

AADT

	B	C	D	E
2 Lane	4,600	8,200	14,000	28,500
4 Lane	32,000	45,800	55,700	63,900
6 Lane	48,000	68,300	83,700	95,900

Apply Adjustment Factors

2 Lane Divided Roadway **with** Exclusive Left Turn Adjustment: Multiply by 1.05	☑
Multilane Undivided Highway **with** Exclusive Left Turn Adjustment: Multiply by 0.95	☐
Multilane Undivided Highway **without** Exclusive Left Turn Adjustment: Multiply by 0.75	☐

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

Source: 2023 FDOT MQ/LOS Handbook, Appendix B: Florida's Generalized Service Volume Tables

2023 Multimodal Quality/ Level Of Service Handbook, January 2023

C3R

Motor Vehicle Highway Generalized Service Volume Tables



(C3R-Suburban Residential)

SR 19, from Lane Park Rd to Revels Rd

Adjusted Capacity

Peak Hour Directional

	B	C	D	E
1 Lane	*	776	888	**
2 Lane	*	1,360	1,480	**
3 Lane	*	2,096	2,184	**

Peak Hour Two-Way

	B	C	D	E
2 Lane	*	1,408	1,616	**
4 Lane	*	2,472	2,688	**
6 Lane	*	3,808	3,968	**

AADT

	B	C	D	E
2 Lane	*	15,680	17,920	**
4 Lane	*	27,440	29,840	**
6 Lane	*	42,320	44,080	**

Round results to the nearest tens (i.e. 1,754 should be rounded to 1,750)

Base Capacity

Peak Hour Directional

	B	C	D	E
1 Lane	*	970	1,110	**
2 Lane	*	1,700	1,850	**
3 Lane	*	2,620	2,730	**

Peak Hour Two-Way

	B	C	D	E
2 Lane	*	1,760	2,020	**
4 Lane	*	3,090	3,360	**
6 Lane	*	4,760	4,960	**

AADT

	B	C	D	E
2 Lane	*	19,600	22,400	**
4 Lane	*	34,300	37,300	**
6 Lane	*	52,900	55,100	**

Source: 2023 FDOT MQ/LOS Handbook

Apply Adjustment Factors

One-way Facility: PHDS Multiply by 1.2 ; AADT: Multiply by 0.6	☐
2 Lane Divided Roadway **with** Exclusive Left Turn Adjustment: Multiply by 1.05	☐
2 Lane Undivided Roadway **with No** Exclusive Left Turn Lane(s): Multiply by 0.80	☑
Exclusive Right Turn Lane(s): Multiply by 1.05	☐
Multilane Undivided Roadway **with** Exclusive Left Turn: Multiply by 0.95	☐
Multilane Undivided Roadway **with No** Exclusive Left Turn Lane(s): Multiply by 0.75	☐
Non-State Signalized Roadway	☐

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

*Cannot be achieved using table input value defaults.

**Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.

Source: 2023 FDOT MQ/LOS Handbook, Appendix B: Florida's Generalized Service Volume Tables

PHDS: Peak Hour Directional Service

2023 Multimodal Quality/ Level Of Service Handbook, January 2023

Appendix F
Planned & Programmed Improvements

Florida Department of

TRANSPORTATION

Web Application

Office of Work Program and Budget

Updated: 4/9/2025 9:

Five Year Work Program

Selection Criteria	
District 05	**2025-2030 G1**
Lake County	**Item Number:**238319-1

Display current records in a Report Style
Display current records in an Excel Document

Project Summary

Transportation System: INTRASTATE STATE HIGHWAYDistrict 05 - Lake County
Description: SR 19 FROM CR 48 TO CR 561
Type of Work: ADD LANES & RECONSTRUCT View Scheduled Activities
Item Number: 238319-1
Length: 4.760 View Map of Item

Project Detail

Fiscal Year:	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Highways/PD & E						***(On-Going)***
Amount:	$200					
Highways/Preliminary Engineering						***(On-Going)***
Amount:	$1,883					
Highways/Environmental						***(On-Going)***
Amount:						
Item Total:	**$2,083**					

This site is maintained by the Office of Work Program and Budget, located at 605 Suwannee Street, MS 21, Tallahassee, Florida 32399.

View Contact Information for Office of Work Program and Budget

Application Home: Work Program
Office Home: Office of Work Program and Budget

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Appendix G

2025 Lake County Traffic Counts, Historical Growth Trends, & Vested Trips

2025 Lake County Annual Traffic Counts

MAP STA #	ROAD NAME	LOCATION	Map Sheet	SEC	TWP	RNG	ANNUAL ADJUSTED DAILY TRAFFIC (AADT)						5-YEAR ANNUAL AVERAGE GROWTH RATE PERCENT	ADJUSTED PEAK HR VOLUME 2025	BEGIN PEAK HOUR 2025	ADJUSTED 2025 PM PEAK HOUR VOLUME (3-7 PM reported as 15:00-18:45)				
							2020	2021	2022	2023	2024	2025				Total	NB/EB	SB/WB	Pk Dir	Time
201	C.R. 565A	0.2 Mi N OF S.R. 50	B	20	22	25	9,273	9,840	8,847	11,048	9,759	9,625	0.75%	892	14:15	846	455	392	NB	17:00
202	C.R. 50	0.5 Mi W OF C.R. 455	B	23	22	26	6,509	7,354	6,136	8,069	10,109	10,363	9.75%	1,099	16:45	1,099	317	782	WB	16:45
203	C.R. 561	0.16 Mi S OF BRIDGE #114046	B	23	22	25	3,111	4,476	4,617	6,247	5,439	5,456	11.89%	515	17:00	515	214	302	NB	17:00
204	C.R. 455	0.10 Mi N OF MAGNOLIA CREEK LN	B	14	22	26	7,351	7,487	6,847	7,230	7,975	8,523	3.00%	927	7:00	773	447	325	WB	15:15
205	CITRUS TOWER BV	0.113 Mi E OF U.S. 27	B	19	22	26	12,888	11,620	11,189	11,747	10,785	11,930	-1.53%	1,050	14:45	1,033	607	426	WB	16:30
206	CR 565A	NORTH OF SR 50	B	24	22	24	10,662	11,259	8,692	2,301	9,428	7,357	-7.15%	532	7:00	523	278	245	EB	17:30
207	N HANCOCK RD	0.14 Mi S OF C.R. 50	B	16	22	26	15,634	14,898	15,768	20,551	19,949	20,417	5.48%	1,740	17:15	1,740	779	961	SB	17:15
208	C.R. 565 (VILLA CITY RD)	0.134 Mi N OF S.R. 50	B	13	22	24	4,686	5,303	4,788	6,236	6,195	7,246	9.11%	546	15:45	546	287	259	SB	15:45
209	CR 50	EAST OF HANCOCK RD	B	16	22	26	10,744	11,915	10,878	12,397	13,346	12,680	3.37%	1,283	16:45	1,283	509	774	WB	16:45
210	C.R. 50	0.05 Mi W OF PARK TRAIL DR	B	17	22	26	7,953	6,762	6,687	8,028	7,687	7,537	-1.07%	760	7:30	709	309	400	EB	15:00
211	TURKEY FARM RD	0.040 Mi N OF C.R. 50	B	17	22	26	209	209	209	209	209	209	0.01%	N/A	12:45	N/A	N/A	N/A	NB	17:30
212	BLACKSTILL LAKE RD	0.16 Mi N OF C.R. 50	B	16	22	26	5,031	7,032	5,785	4,820	4,297	5,222	0.75%	547	7:00	491	248	244	SB	15:00
213	C.R. 561	0.10 Mi N OF C.R. 565A	B	14	22	25	6,627	7,489	5,785	8,500	7,343	7,762	3.21%	738	7:30	685	383	302	SB	16:15
214	MAIN ST	0.1 Mi N OF WASHINGTON ST	B	18	22	26	1,812	2,283	1,958	2,830	N/A	N/A	N/A	N/A	0:00	N/A	N/A	N/A	SB	15:00
215	MASCOTTE EMPIRE RD (S. SUI	.32 Mi S OF S.R. 50	B	14	22	24	800	800	800	800	800	800	0.00%	N/A	0:00	N/A	N/A	N/A	SB	15:00
216	TUSCANOOGA RD	.25 Mi N OF S.R. 50	B	10	22	24	2,662	2,785	2,269	2,241	2,313	2,087	-4.75%	191	17:30	191	69	122	NB	17:30
217	C.R. 50/SUNSET AV	0.03 Mi N OF S.R. 50	B	14	22	24	1,443	1,958	1,420	1,606	1,569	2,028	7.05%	181	17:30	181	94	87	SB	17:30
218	C.R. 33	0.17 Mi N OF S.R. 50	B	14	22	24	5,931	6,503	6,785	7,300	7,001	7,728	5.44%	656	16:00	656	346	309	NB	16:00
219	UNDERPASS RD	0.036 Mi E OF C.R. 33	B	14	22	24	1,064	1,189	964	1,310	1,440	1,670	9.43%	164	16:45	164	61	103	WB	16:45
220	PALMETTO DR	0.043 Mi W OF C.R. 33	B	14	22	24	840	840	840	840	840	840	-0.01%	N/A	0:00	N/A	N/A	N/A	WB	15:00
221	FOSGATE RD	0.19 Mi W OF GRASSY LAKE RD	B	8	22	26	4,061	5,678	5,455	6,330	N/A	N/A	N/A	N/A	0:00	N/A	N/A	N/A	WB	15:00
222	C.R. 478	0.25 Mi E OF S.R. 19	B	7	22	25	1,641	2,269	2,002	2,408	2,251	2,463	8.46%	233	7:15	223	98	126	WB	15:15
223	C.R. 561 (LAKE MINNEOLA SHO	0.11 Mi W OF U.S. 27	B	7	22	26	10,013	10,766	9,873	12,283	11,433	11,638	3.05%	917	7:30	900	403	496	WB	16:15
224	JALARMY RD	0.29 Mi N OF C.R. 561	B	12	22	25	5,060	5,891	5,555	6,114	4,457	6,384	4.76%	539	16:30	539	264	275	NB	16:30
225	HANCOCK RD	NORTH OF CITRUS GROVE RD	B	4	22	26	9,510	9,014	10,414	11,285	11,478	N/A	N/A	N/A	16:45	N/A	N/A	N/A	NB	16:45
226	CITRUS GROVE ROAD	0.14 Mi E OF U.S. 27	B	6	22	26	1,584	3,987	5,149	7,481	6,780	8,251	39.11%	662	17:00	662	240	422	EB	17:00
227	C.R. 455	0.05 Mi W OF FOSGATE RD	B	3	22	26	2,571	2,857	3,059	3,178	3,327	2,940	2.72%	365	7:00	295	155	139	WB	15:00
228	SULLIVAN RD	EAST OF US27	B	6	22	26	263	263	263	263	263	263	-0.03%	N/A	0:00	N/A	N/A	N/A	WB	15:00
229	SIMON BROWN	EAST OF SR 33	B	7	22	24	806	806	806	806	806	806	-0.01%	N/A	16:15	N/A	N/A	N/A	WB	16:15
230	E ASHPAWA RD	WEST OF US27	B	36	21	25	973	973	973	973	973	973	0.00%	N/A	16:30	N/A	N/A	N/A	WB	16:30
231	SCRUB JAY LN	SOUTH OF FLORIDA TURNPIKE BRIDGE	B	32	21	26	474	474	474	474	474	474	0.00%	N/A	6:30	N/A	N/A	N/A	SB	16:45
232	VILLA CITY RD	0.5 MI N. OF SIMON BROWN RD	B	36	21	24	2,878	3,321	2,620	4,361	3,936	4,663	10.13%	457	7:00	456	132	323	SB	17:00
233	HANCOCK RD	0.25 mi SOUTH OF CR 561A	B	32	21	26	5,917	5,275	5,433	7,318	7,654	7,169	3.91%	615	14:00	592	321	271	SB	16:15
234	C.R. 561A	0.35 Mi E OF SCRUB JAY RD	B	32	21	26	5,047	5,236	4,933	5,417	6,404	6,646	5.66%	549	16:30	549	236	312	WB	16:30
235	C.R. 561/C.R. 561A	0.09 Mi E OF U.S. 27	B	36	21	25	9,344	9,148	8,096	9,721	8,168	9,834	1.03%	785	16:30	785	387	398	WB	16:30
236	CR 561A	0.25 Mi WEST OF CR 455	B	33	21	26	2,032	2,003	2,118	2,789	3,006	2,668	5.59%	335	7:00	264	146	118	EB	15:15
237	C.R. 561A	0.18 Mi E OF C.R. 561	B	30	21	26	5,033	4,691	4,706	6,255	4,960	6,757	6.07%	577	16:30	577	344	233	WB	16:30
238	C.R. 561	0.25 Mi N OF C.R. 561A	B	30	21	26	8,301	8,698	7,240	8,338	8,433	8,534	0.56%	766	16:30	766	398	369	NB	16:30
239	WILSON LAKE PARKWAY	0.17 Mi S OF U.S. 27	B	26	21	25	2,429	2,813	2,442	3,106	3,345	3,573	8.02%	297	7:30	270	76	194	SB	17:00
240	U.S. 27/S.R. 25	0.53 Mi E OF C.R. 565	B	20	21	25	22,314	30,743	21,771	27,160	25,919	22,244	-0.06%	1,634	6:45	1,623	903	721	SB	16:30
241	C.R. 565	0.25 Mi S OF U.S. 27	B	18	21	25	2,037	2,523	2,115	3,151	2,549	3,140	9.04%	310	7:00	288	216	72	SB	17:00
242	C.R. 561	0.13 Mi S OF C.R. 455	B	17	21	26	7,927	6,588	7,004	7,463	7,154	8,105	0.44%	759	16:45	759	351	408	NB	16:45
243	C.R. 455	0.14 Mi E OF C.R. 561	B	17	21	26	1,962	1,953	1,835	1,817	1,802	2,448	4.52%	272	7:15	261	134	127	EB	17:00
244	YOUTH CAMP RD	0.48 Mi W OF AUSTIN MERRITT RD	B	17	21	24	1,178	1,178	1,178	1,178	1,178	1,178	0.01%	N/A	0:00	N/A	N/A	N/A	EB	15:00
245	C.R. 455	0.25 Mi E OF S.R. 19	B	11	21	25	3,350	3,066	3,555	4,008	3,816	4,837	7.63%	493	16:15	493	244	249	EB	16:15
246	AUSTIN MERRITT RD	0.19 Mi W OF C.R. 33	B	10	21	24	1,590	1,691	1,433	2,218	2,244	2,227	6.98%	203	16:30	203	140	63	WB	16:30
247	BRIDGES RD	0.23 Mi E OF C.R. 33	B	10	21	24	1,905	1,958	1,592	2,657	2,310	2,260	3.48%	213	16:15	213	132	80	WB	16:15
248	CR 48	AT SUMTER COUNTY LINE	B	7	21	24	2,730	2,833	2,969	3,180	4,942	4,641	11.19%	394	16:15	394	141	252	SB	16:15
249	C.R. 33	0.25 Mi N OF AUSTIN MERRITT RD	B	10	21	24	4,776	4,900	4,618	5,431	4,791	4,942	0.68%	454	7:00	445	297	148	SB	16:30
250	E. DEWEY ROBBINS RD	WEST OF SR19	B	2	21	25	630	630	630	630	630	630	-0.01%	N/A	0:00	N/A	N/A	N/A	EB	15:00
251	DEWEY ROBBINS RD	0.25 Mi EAST OF US 27	B	31	20	25	610	610	531	894	836	1,016	10.74%	115	16:30	115	74	41	EB	16:30
252	C.R. 561	0.55 Mi S OF C.R. 48	B	32	20	26	12,032	10,209	10,871	11,088	11,217	12,993	1.55%	1,282	16:30	1,282	626	655	SB	16:30
253	C.R. 48	0.19 Mi E OF C.R. 561	B	32	20	26	6,582	5,840	5,928	6,599	6,623	7,499	2.64%	758	7:30	689	348	341	WB	16:15
254	C.R. 448A	0.2 Mi S OF C.R. 48	B	25	20	26	290	290	290	290	290	290	-0.01%	N/A	0:00	N/A	N/A	N/A	NB	15:00
255	C.R. 48	0.25 Mi W OF S.R. 19	B	23	20	25	9,713	9,242	9,084	8,425	8,230	9,677	-0.07%	847	16:30	847	461	387	WB	16:30
256	C.R. 448A	0.2 Mi N OF C.R. 48	B	24	20	26	5,458	5,088	5,330	5,858	5,806	6,812	4.53%	666	16:30	666	304	362	SB	16:30
257	C.R. 561	0.07 Mi S OF WOODLAND DR	B	20	20	26	9,680	8,472	9,434	8,688	8,418	9,041	-1.36%	816	16:30	816	418	399	NB	16:30
258	DUDA RD	0.16 Mi E OF C.R. 448A	B	24	20	26	6,857	6,337	6,597	6,530	5,352	7,622	2.14%	722	16:45	722	329	394	WB	16:45
259	C.R. 48	0.12 Mi W OF C.R. 33	B	22	20	24	3,407	3,600	3,157	4,854	5,172	4,677	6.54%	429	16:15	429	164	265	WB	16:15
260	C.R. 33	0.28 Mi S OF C.R. 470/C.R. 48	D	15	20	24	10,033	10,210	8,811	11,209	10,477	9,859	-0.35%	853	16:15	853	303	551	SB	16:15
261	C.R. 448	AT ORANGE CO LINE	C	13	20	26	7,364	7,319	7,921	8,429	8,783	9,835	5.96%	914	16:30	914	385	529	WB	16:30
262	C.R. 48	0.12 Mi W OF U.S. 27	C	14	20	24	10,282	9,086	8,175	10,782	10,194	10,396	0.22%	894	15:45	894	429	465	WB	15:45

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2024 HISTORICAL AADT REPORT

COUNTY: 11 - LAKE

SITE: 0495 - ON SR-19, 0.326 MI. S OF CR-48 (RVL)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2024	11000 S	N 5400	S 5600	9.00	53.70	14.60
2023	10800 F	N 5300	S 5500	9.00	53.20	12.60
2022	10600 C	N 5200	S 5400	9.00	54.50	11.80
2021	9000 S	N 4500	S 4500	9.00	53.80	19.50
2020	9000 F	N 4500	S 4500	9.00	54.10	9.00
2019	9200 C	N 4600	S 4600	9.00	54.30	14.20
2018	9100 C	N 4600	S 4500	9.00	54.20	23.20
2017	9200 C	N 4600	S 4600	9.00	54.20	16.50
2016	9100 C	N 4600	S 4500	9.00	53.90	19.70
2015	8700 C	N 4400	S 4300	9.00	54.60	13.90
2014	8200 C	N 4100	S 4100	9.00	54.50	15.80
2013	8700 C	N 4400	S 4300	9.00	54.70	16.70
2012	8200 C	N 4100	S 4100	9.00	55.10	14.80
2011	7900 C	N 4000	S 3900	9.00	54.20	15.10
2010	8200 C	N 4000	S 4200	9.86	54.75	13.50
2009	9000 C	N 4700	S 4300	9.96	54.94	9.90

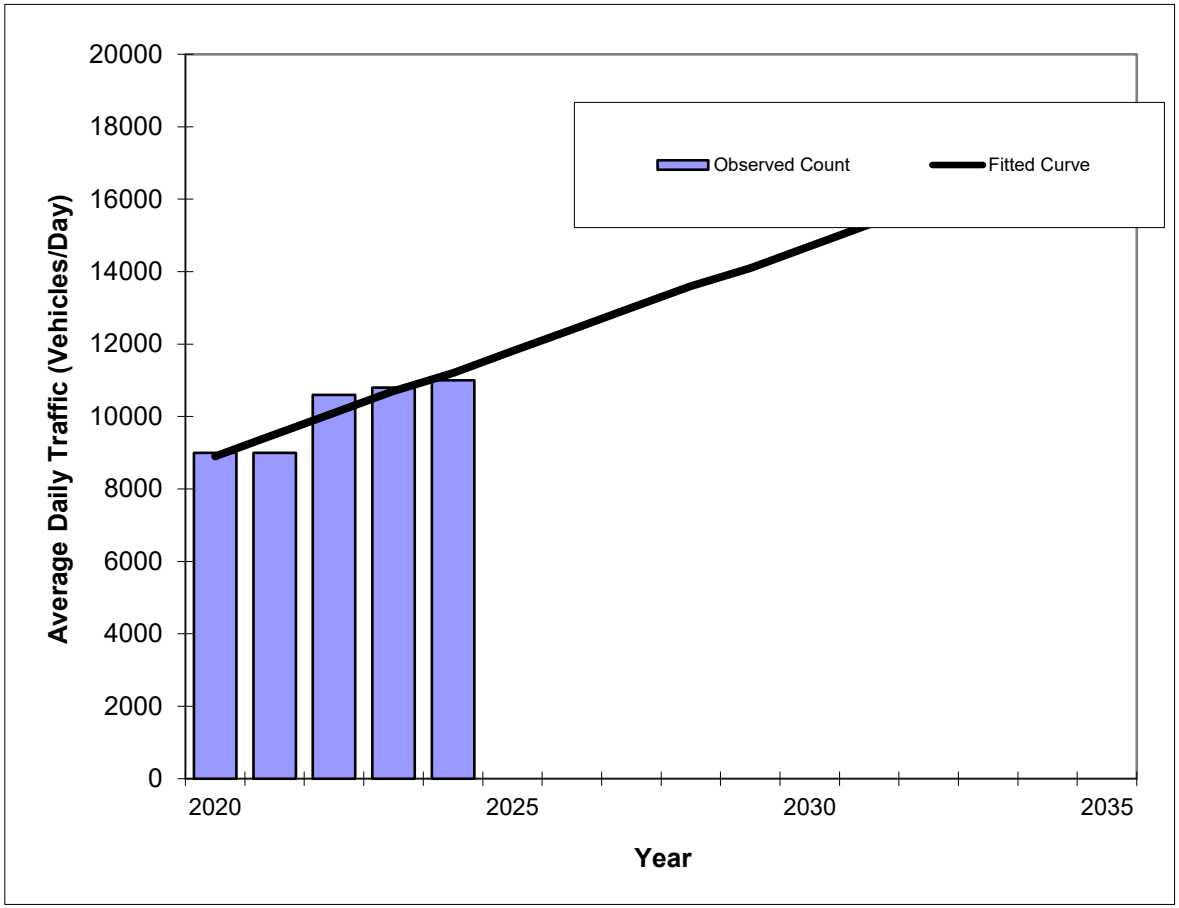
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V03.a

SR 19 -- CR 48 to Central Ave

FIN#	21100
Location	1

County:	Lake (11)
Station #:	0495
Highway:	SR 19



Year	Traffic (ADT/AADT) Count*	Trend**
2020	9000	8900
2021	9000	9500
2022	10600	10100
2023	10800	10700
2024	11000	11200
2025 Opening Year Trend		
2025	N/A	11800
2026 Mid-Year Trend		
2026	N/A	12400
2027 Design Year Trend		
2027	N/A	13000
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	580
Trend R-squared:	84.78%
Trend Annual Historic Growth Rate:	6.46%
Trend Growth Rate (2024 to Design Year):	5.36%
Printed:	6-Jun-25

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2024 HISTORICAL AADT REPORT

COUNTY: 11 - LAKE

SITE: 0255 - ON SR-19, 0.021 MI. S OF CR-455 (RVL) CAB NW

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2024	12900 S	N 6400	S 6500	9.50	53.70	14.60
2023	12500 F	N 6200	S 6300	9.50	53.20	12.60
2022	12300 C	N 6100	S 6200	9.50	54.50	11.80
2021	10500 S	N 5200	S 5300	9.50	53.80	19.50
2020	10500 F	N 5200	S 5300	9.50	54.10	9.00
2019	10900 C	N 5400	S 5500	9.50	54.30	14.20
2018	12000 F	N 5900	S 6100	9.50	54.20	23.20
2017	11800 C	N 5800	S 6000	9.50	54.20	16.50
2016	9200 C	N 4600	S 4600	9.00	53.90	19.70
2015	8800 C	N 4400	S 4400	9.00	54.60	13.90
2014	8000 C	N 4000	S 4000	9.00	54.50	15.80
2013	8400 C	N 4100	S 4300	9.00	54.70	16.70
2012	8000 C	N 4000	S 4000	9.00	55.10	14.80
2011	7600 C	N 3800	S 3800	9.00	54.20	15.10
2010	7700 C	N 3900	S 3800	9.86	54.75	13.50
2009	7700 C	N 3900	S 3800	9.96	54.94	9.90

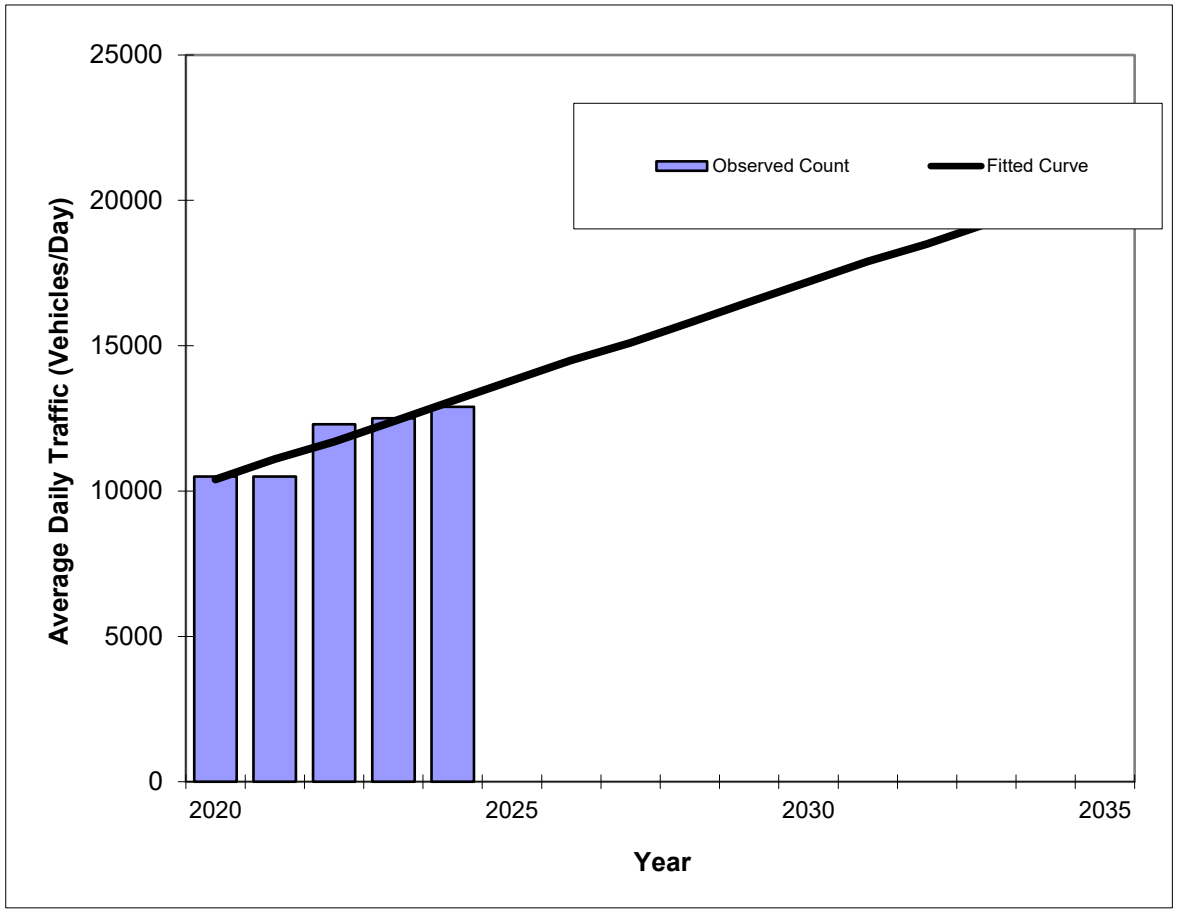
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V03.a

SR 19 -- Central Ave to US 27

FIN#	21100
Location	1

County:	Lake (11)
Station #:	0495
Highway:	SR 19



Year	Traffic (ADT/AADT) Count*	Trend**
2020	10500	10400
2021	10500	11100
2022	12300	11700
2023	12500	12400
2024	12900	13100
2025 Opening Year Trend		
2025	N/A	13800
2026 Mid-Year Trend		
2026	N/A	14500
2027 Design Year Trend		
2027	N/A	15100
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	680
Trend R-squared:	87.05%
Trend Annual Historic Growth Rate:	6.49%
Trend Growth Rate (2024 to Design Year):	5.09%
Printed:	6-Jun-25

Straight Line Growth Option

***Axle-Adjusted**

Vested Trips											
Blue Sky		Hillside Groves		Lake Hills		Mission Rise		Whispering Hills		Total	
NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
0	0	46	29	0	0	0	0	14	14	60	43
0	0	0	0	0	0	0	0	0	0	0	0
20	34	87	138	89	85	49	83	28	26	273	366
36	21	231	145	89	85	167	98	15	77	538	426
36	21	231	145	89	85	167	98	15	77	538	426
36	21	161	102	71	68	117	69	15	77	400	337

Table 4
Projected Roadway Capacity Analysis

Roadway Segment	No. of Lanes	Adopted		P.M. Peak Hour Peak Direction					
		LOS	Capacity	Direction	Volume	Approved Trips*	Project Trips*	Total	LOS
CR 48									
US 27 to Lime Ave	2	D	1,080	EB	469	123	32	624	C
Lime Ave to SR 19	2	D	1,080	EB	409	159	3	571	C
SR 19									
Lane Park Rd to CR 48	2	D	920	SB	652	182	27	861	D
CR 48 to Central Ave	2	D	700	SB	415	439	34	888	F
Central Ave to CR 455	2	D	1,200	SB	415	435	21	871	C
Number 2 Road									
CR 48 to Bloomfield Ave	2	D	675	WB	26	66	21	113	C
Bloomfield Ave to SR 19	2	D	675	EB	52	212	71	335	C

* Highest Trips on the Segment

Intersection Analysis

To assess the projected operating conditions at the study intersections, intersection capacity analyses were conducted using the *Highway Capacity Software (HCS)* in accordance with the procedures of the *Highway Capacity Manual*. **Figure 5a** and **5b** show the total traffic volumes with the project trips. The projected Levels of Service are summarized in **Table 5** and the *HCS* analysis worksheets are provided in **Appendix F**. The analysis shows that the study intersections will operate at overall satisfactory Levels of Service, except for the intersection of SR 19 and CR 48, and the intersection of Palm Avenue and Central Avenue.

The intersection of SR 19 and CR 48 will have a failing westbound approach in the P.M. peak hour, but will operate satisfactorily with signal timing optimization.

Table 5
Projected Roadway Segment Capacity Analysis

Roadway Segment	No Lns	LOS Std	PH Dir Capacity	Dir	Exist Vol	Growth Rate	2028 Backg'd	Vested Trips	Trip Distr	Project Volume	Total Volume	LOS
Number 2 Rd												
CR 48 to N Mare Ave	2	D	612	NB/EB SB/WB	51 50	2.00%	58 57	26 26	15%	69 44	153 127	C C
W Central Ave												
N Mare Ave to SR 19	2	D	612	NB/EB SB/WB	51 50	2.00%	58 57	26 26	15%	69 44	153 127	C C
CR 455												
SR 19 to NF 552	2	C	740	NB/EB SB/WB	146 151	5.75%	205 212	8 13	10%	46 29	259 254	B B
SR 19												
Lane Park Rd to CR 48	4	D	1,200	NB/EB SB/WB	625 676	3.75%	789 853	229 189	5%	15 23	1,033 1,065	D D
CR 48 to Central Ave	2	D	800	NB/EB SB/WB	387 423	2.00%	441 482	177 173	30%	87 138	705 793	C D
Central Ave to CR 455	2	D	1,200	NB/EB SB/WB	387 423	2.00%	441 482	82 48	50%	231 145	754 675	C C
CR 455 to US 27/ SR 25	2	C	850	NB/EB SB/WB	419 453	2.00%	478 516	141 83	35%	161 102	780 701	C C
US 27/ SR 25 to CR 478	2	C	850	NB/EB SB/WB	481 405	2.00%	548 462	141 83	20%	92 58	781 603	C C

Source: 2020 Lake County Annual Traffic Counts

- SR 19 from CR 561 to Central Avenue and from CR 455 to US 27/SR 25 are projected to operate over their capacities due to background traffic.
- All remaining roadway segments are projected to continue to operate adequately at project buildout.

Table 6
Projected Roadway Segment Capacity Analysis

Road Name	From	To	# of Lns	LOS Std	Dir Cap	Dir	Growth Rate	Existing Volume	Vested Trips	2028 Background Volume	2028 Background LOS	Trip Distr	2028 Buildout Project Trips	2028 Buildout Volume	2028 Buildout LOS	2028 Buildout V/C
CR 448	SR 19	CR 561	2	D	**840**	NB/EB	2%	277	37	314	C	20%	68	382	C	0.46
						SB/WB		224	63	287	C	20%	71	358	C	0.43
CR 48	US 27	LIME AVENUE	2	D	**1,080**	NB/EB	4%	420	219	639	C	25%	89	729	C	0.67
						SB/WB		380	285	665	C	25%	85	750	C	0.69
CR 48	LIME AVENUE	SR 19	2	D	**1,080**	NB/EB	2%	429	219	648	C	25%	85	733	C	0.68
						SB/WB		404	285	689	C	25%	89	778	C	0.72
SR 19	CR 561	LANE PARK ROAD	2	D	**920**	NB/EB	2%	775	155	930	F	30%	102	1,032	F	1.12
						SB/WB		647	292	939	F	30%	107	1,046	F	1.14
SR 19	LANE PARK ROAD	CR 48	2	D	**920**	NB/EB	2%	775	155	930	F	50%	170	1,100	F	1.20
						SB/WB		647	292	939	F	50%	178	1,117	F	1.21
SR 19	CR 48	CENTRAL AVENUE	2	D	**700**	NB/EB	2%	515	269	784	F	25%	89	873	F	1.25
						SB/WB		439	352	791	F	25%	85	876	F	1.25
SR 19	CENTRAL AVENUE	CR 455	2	D	**1,200**	NB/EB	2%	515	434	949	D	25%	89	1,038	D	0.87
						SB/WB		439	257	696	C	25%	85	781	C	0.65
SR 19	CR 455	US 27 / SR 25	2	C	**450**	NB/EB	2%	637	328	965	E	20%	71	1,036	E	2.30
						SB/WB		532	207	739	E	20%	68	807	E	1.79

Source: 2022 Lake County Congestion Management Process (CMP)

Background traffic volume is based on traffic growth or vested trips from committed developments, whichever was found to be higher.

It should be noted that SR 19 from CR 48 to CR 561 is programmed in the *TIP* to be widened to four (4) lanes, which will improve the LOS. The segment of SR 19 from CR 48 to Central would potentially require to be widened to four (4) lanes to achieve acceptable LOS conditions. If context classification of the segment SR 19 from CR 455 to US 27/SR 25 changes to urbanized area, the adopted LOS capacity would increase, which would result in an acceptable LOS.

Table 6
Projected Roadway Segment Capacity Analysis

Roadway Segment	No Lns	LOS Std	PH Dir Capacity	Dir	Exist Vol	Growth Rate	2033 Backg'd	Vested Trips	Total Backg'd Volume	Backg'd LOS	Backg'd V/C	Trip Distr	Proj Dir	Project Volume	Total Volume	Final LOS	Final V/C
***Central Ave**																	
SR 19 to Mare Ave	2	D	530	NB/EB SB/WB	57 59	2.00%	70 72	53 85	123 157	C C	0.23 0.30	10%	OUT IN	20 33	143 190	C C	0.27 0.36
SR 19																	
Lane Park Rd to CR 48	2	D	920	NB/EB SB/WB	610 656	2.00%	744 800	72 115	816 915	C D	0.89 0.99	23%	OUT IN	45 77	861 992	C F	0.94 1.08
CR 48 to Central Ave	2	D	700	NB/EB SB/WB	433 372	2.00%	528 454	167 268	695 722	D F	0.99 1.03	25%	OUT IN	49 83	744 805	F F	1.06 1.15
Central Ave to CR 455	2	D	1,200	NB/EB SB/WB	433 372	2.00%	528 454	266 167	794 621	C C	0.66 0.52	50%	IN OUT	167 98	961 719	D C	0.80 0.60
CR 455 to US 27/ SR 25	2	C	450	NB/EB SB/WB	507 435	2.00%	619 531	102 161	721 692	D D	1.60 1.54	35%	IN OUT	117 69	838 761	E E	1.86 1.69
US 27/ SR 25 to CR 478	2	C	450	NB/EB SB/WB	466 519	2.00%	569 633	102 161	671 794	D E	1.49 1.76	10%	IN OUT	33 20	704 814	D E	1.56 1.81
****Number 2 Rd**																	
Mare Ave to Silverwood Ln	2	D	400	NB/EB SB/WB	57 59	2.00%	70 72	53 53	123 125	C C	0.31 0.31	35%	OUT IN	69 117	192 242	C D	0.48 0.61
Silverwood Ln to CR 48	2	D	400	NB/EB SB/WB	57 59	2.00%	70 72	53 53	123 125	C C	0.31 0.31	15%	IN OUT	50 29	173 154	C C	0.43 0.39

Source: 2022 Lake County Annual Traffic Counts
**Exiting Counts were obtained from PM Peak Turning Movement Counts*
***A reduction of 25% was applied to the Peak Hour Directional Capacity of 530, as Number 2 Road is a substandard road*

Table 4
Projected P.M. Peak Hour Roadway Analysis

Roadway Segment	# of Lns	F/Class	LOS		Peak Hour/Peak Direction							V/C Ratio	LOS
			Std	Capacity	Direction	Existing	Reserved* 1	Reserved* 2	Reserved* 3	Project**	Total		
SR 19													
CR 561 to Lake Harris N. End	2	ART. 1	D	1,190	NB	595	50	93	14	14	766	0.64	C
Lake Harris N. End to CR 48	2	ART. 1	C	850	NB	595	50	93	14	14	766	0.90	C
CR 48 to Central Ave	2	ART. 1	C	710	NB	362	24	167	32	28	613	0.86	C
Central Ave to CR 455	2	ART. 1	C	850	SB	446	77	171	29	37	760	0.89	C
CR 455 to US 27	2	ART. 1	C	850	SB	446	77	130	11	10	674	0.79	C
CR 48													
US 27 to Lime Ave	2	Maj. Coll.	D	792	WB	576	65	93	12	14	760	0.96	C
Lime Ave to SR 19	2	Maj. Coll.	D	792	WB	390	50	74	16	14	544	0.69	C
CR 561 to Ranch Rd	2	Maj. Coll.	D	792	WB	307	23	22	3	9	364	0.46	C
Ranch Rd to CR 448A	2	Coll.	C	670	WB	258	28	19	3	9	317	0.47	C
CR 561													
CR 448 to CR 48	2	Maj. Coll.	D	792	SB	449	52	5	2	1	509	0.64	C
CR 48 to S. Astatula City Limits	2	Maj. Coll.	D	720	SB	449	52	5	7	1	514	0.71	D
S. Astatula City Limits to CR 455	2	Maj. Coll.	D	720	SB	534	57	22	6	11	630	0.88	D
CR 455 to Howey Cross Rd	2	Maj. Coll.	D	720	NB	357	26	0	3	11	397	0.55	D
Howey Cross Rd to Turnpike Rd/CR 561A	2	Maj. Coll.	D	720	SB	542	153	7	1	11	714	0.99	E
CR 455													
SR 19 to CR 561	2	Maj. Coll.	D	1,200	EB	165	28	33	8	14	248	0.21	B
CR 561 to CR 561A	2	Maj. Coll.	D	1,200	WB	99	12	19	2	1	133	0.11	B

* 1 = MPO Database, 2 = Mission Rise, 3 = Talichet

** Highest trips on the segment

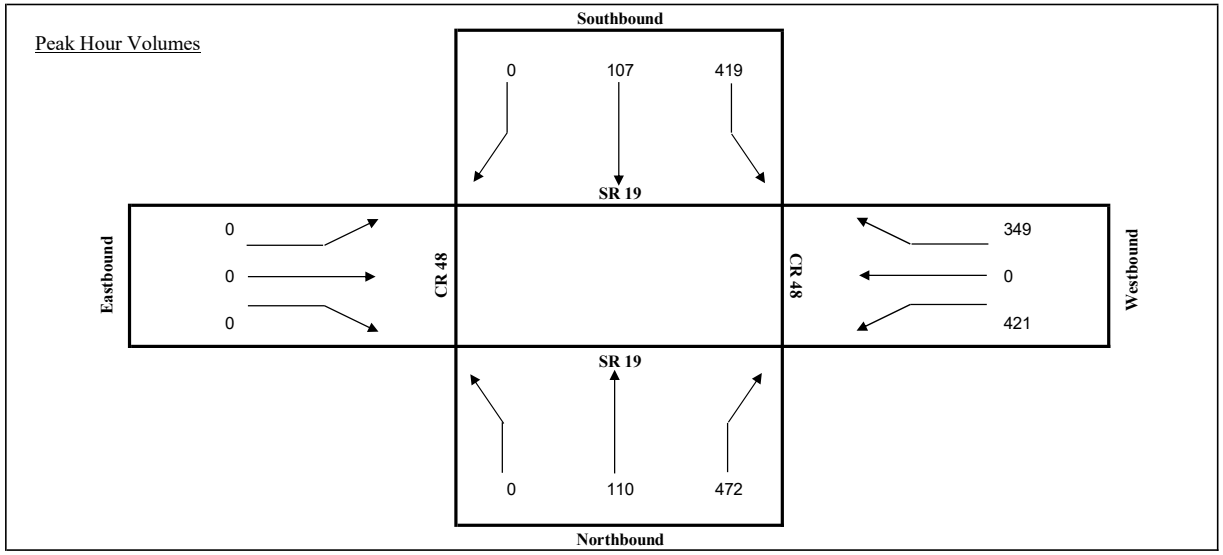
Appendix H
Intersection Traffic Counts, Seasonal Factor, & Vested Trips

TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 48
Date: 5/29/2025

			SR 19 NB			SR 19 SB			CR 48 EB			CR 48 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
7:00 AM	7:15 AM	0	19	89	71	35	0	0	0	0	71	0	80	365
7:15 AM	7:30 AM	0	26	118	92	22	0	0	0	0	98	0	94	450
7:30 AM	7:45 AM	0	22	125	126	25	0	0	0	0	127	0	99	524
7:45 AM	8:00 AM	0	35	113	105	33	0	0	0	0	108	0	88	482
8:00 AM	8:15 AM	0	27	116	96	27	0	0	0	0	88	0	68	422
8:15 AM	8:30 AM	0	32	101	88	29	0	0	0	0	82	0	67	399
8:30 AM	8:45 AM	0	31	81	79	22	0	0	0	0	87	0	80	380
8:45 AM	9:00 AM	0	17	91	88	27	0	0	0	0	84	0	81	388
Total for:	7:00 AM	8:00 AM	0	102	445	394	115	0	0	0	0	404	0	361	1821
Total for:	8:00 AM	9:00 AM	0	107	389	351	105	0	0	0	0	341	0	296	1589
Tota Peak Hour:	7:15 AM	8:15 AM	0	110	472	419	107	0	0	0	0	421	0	349	1878
Overall PHF:	0.90														

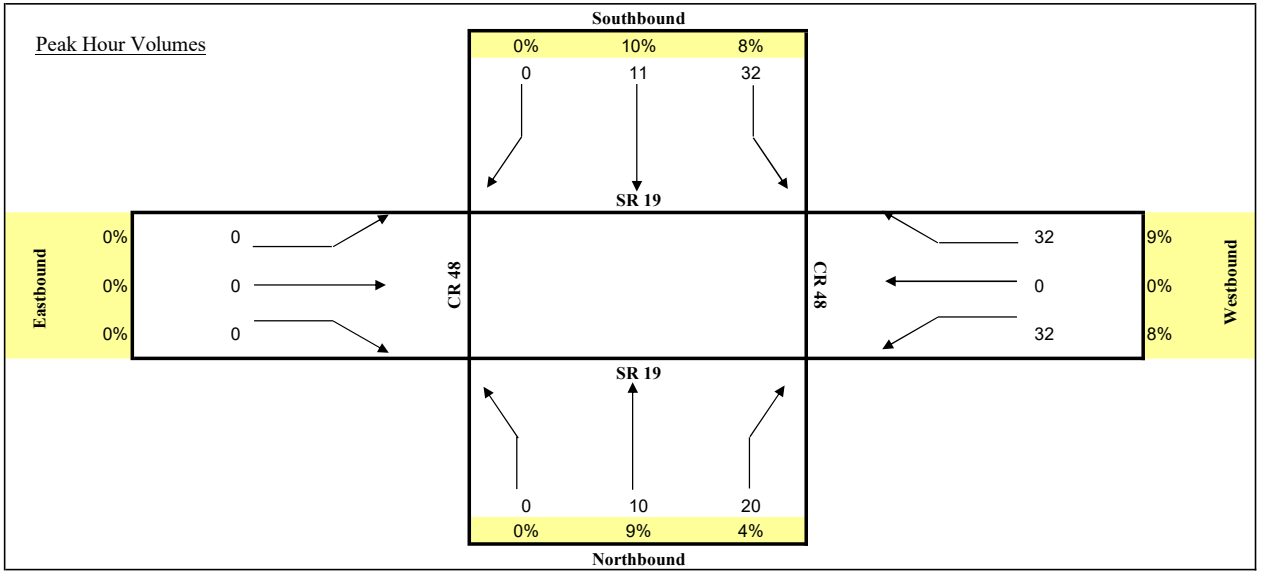


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 48
Date: 5/29/2025

		SR 19 NB			SR 19 SB			CR 48 EB			CR 48 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
7:00 AM	7:15 AM	0	4	1	5	2	0	0	0	0	5	0	5	22
7:15 AM	7:30 AM	0	4	4	7	2	0	0	0	0	8	0	6	31
7:30 AM	7:45 AM	0	2	2	10	1	0	0	0	0	12	0	9	36
7:45 AM	8:00 AM	0	3	5	5	3	0	0	0	0	10	0	10	36
8:00 AM	8:15 AM	0	1	5	9	5	0	0	0	0	4	0	5	29
8:15 AM	8:30 AM	0	4	8	8	2	0	0	0	0	6	0	8	36
8:30 AM	8:45 AM	0	3	3	10	2	0	0	0	0	8	0	9	35
8:45 AM	9:00 AM	0	1	9	6	2	0	0	0	0	4	0	11	33
Total for:	7:00 AM	8:00 AM	0	13	12	27	8	0	0	0	0	35	0	30	125
Total for:	8:00 AM	9:00 AM	0	9	25	33	11	0	0	0	0	22	0	33	133
Tota Peak Hour:	7:30 AM	8:30 AM	0	10	20	32	11	0	0	0	0	32	0	32	137
Overall PHF:	0.95														

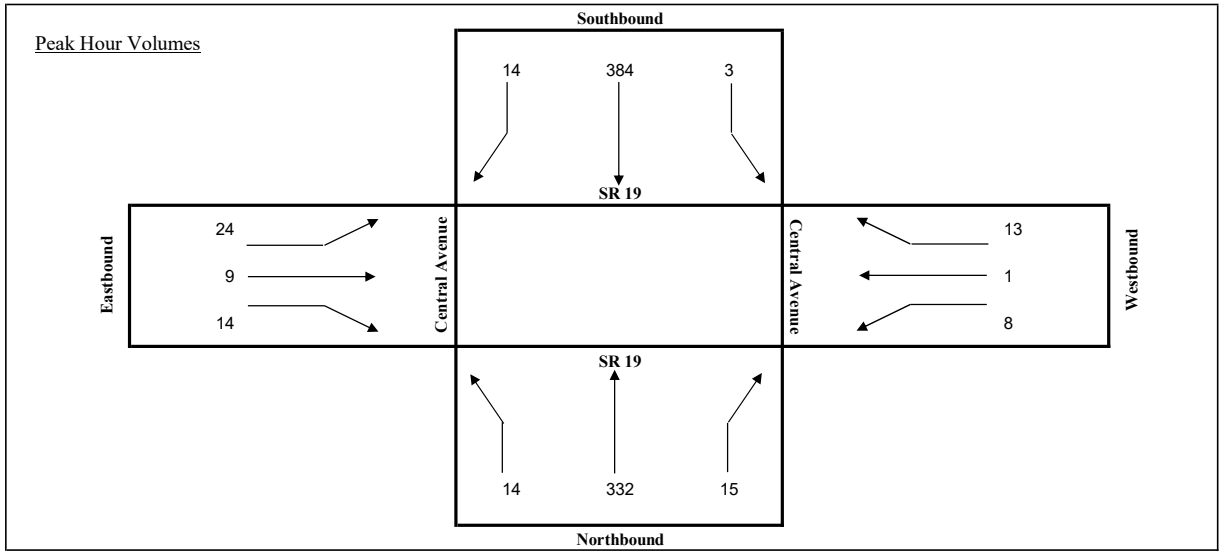


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): Central Avenue
Date: 5/29/2025

			SR 19			SR 19			Central Avenue			Central Avenue			
			NB			SB			EB			WB			
	Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
	7:00 AM	7:15 AM	5	76	5	3	74	2	2	2	2	0	0	2	173
	7:15 AM	7:30 AM	7	78	2	2	82	3	4	2	7	3	1	3	194
	7:30 AM	7:45 AM	3	96	1	4	82	2	6	1	4	2	1	1	203
	7:45 AM	8:00 AM	4	87	5	1	103	4	6	0	3	4	0	4	221
	8:00 AM	8:15 AM	1	83	3	2	105	3	3	3	3	1	0	1	208
	8:15 AM	8:30 AM	4	78	4	0	85	3	6	1	6	1	0	4	192
	8:30 AM	8:45 AM	5	84	3	0	91	4	9	5	2	2	1	4	210
	8:45 AM	9:00 AM	4	78	6	2	79	2	8	2	3	4	1	2	191
Total for:	7:00 AM	8:00 AM	19	337	13	10	341	11	18	5	16	9	2	10	791
Total for:	8:00 AM	9:00 AM	14	323	16	4	360	12	26	11	14	8	2	11	801
Tota Peak Hour:	7:45 AM	8:45 AM	14	332	15	3	384	14	24	9	14	8	1	13	831
Overall PHF:	0.94														

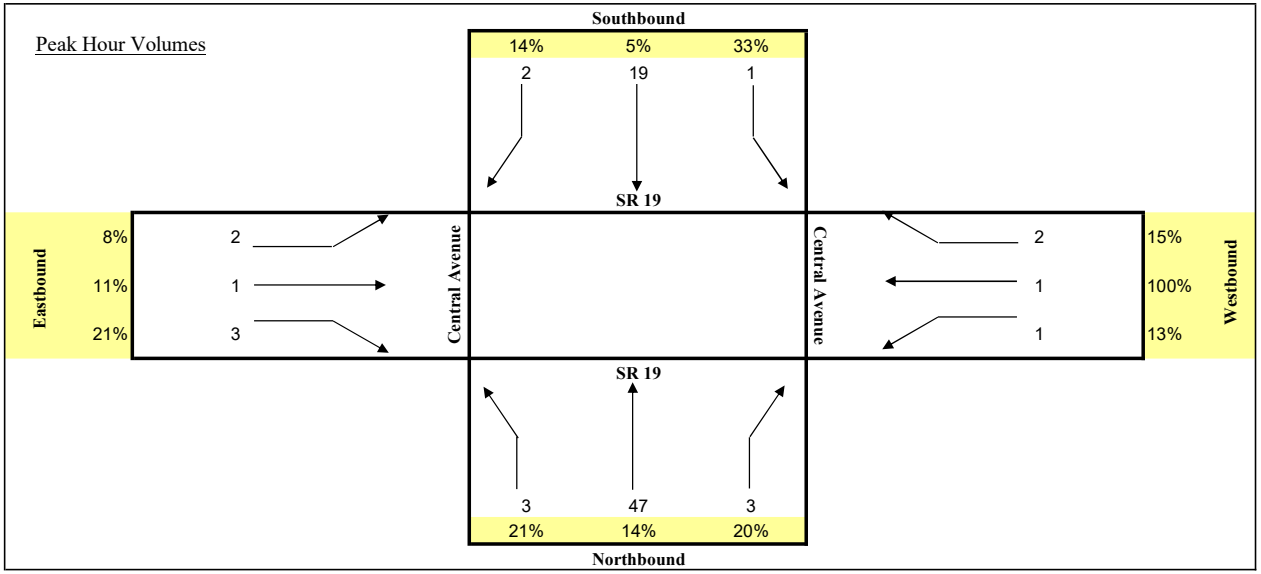


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): Central Avenue
Date: 5/29/2025

			SR 19 NB			SR 19 SB			Central Avenue EB			Central Avenue WB			
Start	End		R	T	L	R	T	L	R	T	L	R	T	L	TOTAL
7:00 AM	7:15 AM		0	10	1	1	5	0	0	0	0	0	0	0	17
7:15 AM	7:30 AM		2	8	0	1	2	1	0	0	0	1	0	1	16
7:30 AM	7:45 AM		1	5	0	0	4	1	1	0	0	1	0	0	13
7:45 AM	8:00 AM		0	9	0	0	7	0	1	0	0	0	0	0	17
8:00 AM	8:15 AM		0	11	0	1	3	0	0	0	1	0	0	0	16
8:15 AM	8:30 AM		1	10	2	0	6	1	0	0	1	0	0	1	22
8:30 AM	8:45 AM		0	14	1	0	3	0	2	1	0	0	1	1	23
8:45 AM	9:00 AM		2	12	0	0	7	1	0	0	1	1	0	0	24
Total for:	7:00 AM	8:00 AM	3	32	1	2	18	2	2	0	0	2	0	1	63
Total for:	8:00 AM	9:00 AM	3	47	3	1	19	2	2	1	3	1	1	2	85
Tota Peak Hour:	8:00 AM	9:00 AM	3	47	3	1	19	2	2	1	3	1	1	2	85
Overall PHF:	0.89														

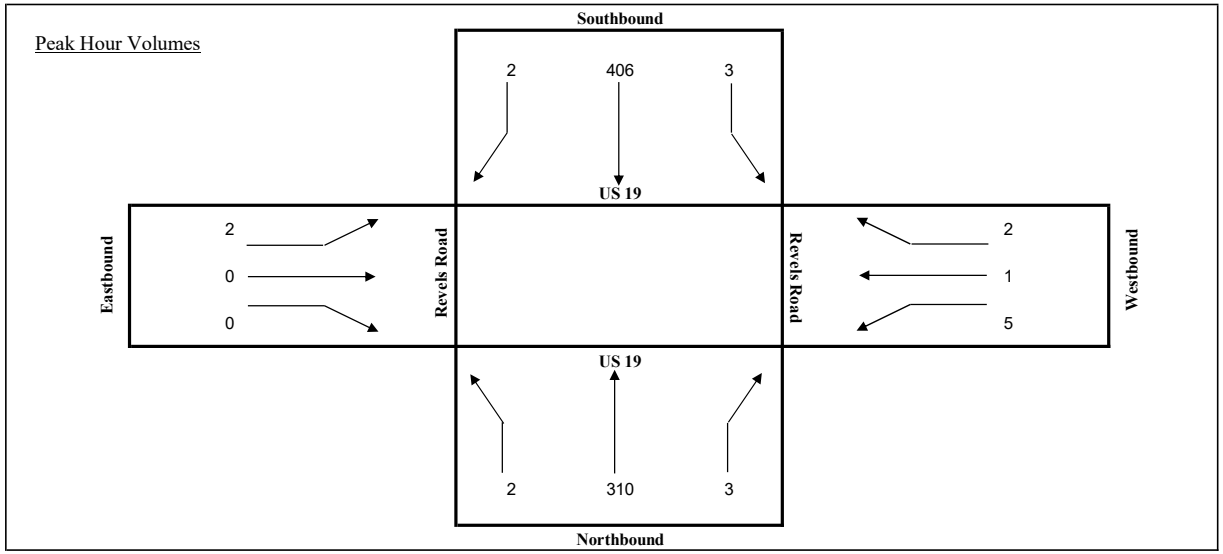


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): US 19
Intersection (E/W): Revels Road
Date: 5/29/2025

			US 19 NB			US 19 SB			Revels Road EB			Revels Road WB			
Start	End		L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
7:00 AM	7:15 AM		4	82	2	0	74	2	0	0	0	2	0	2	168
7:15 AM	7:30 AM		5	68	3	0	79	2	0	0	1	2	0	1	161
7:30 AM	7:45 AM		0	79	1	2	98	1	0	0	0	1	1	0	183
7:45 AM	8:00 AM		0	90	0	1	94	0	1	0	0	2	0	0	188
8:00 AM	8:15 AM		1	68	1	0	115	0	1	0	0	0	0	1	187
8:15 AM	8:30 AM		1	73	1	0	99	1	0	0	0	2	0	1	178
8:30 AM	8:45 AM		1	68	5	1	80	0	1	0	4	1	0	0	161
8:45 AM	9:00 AM		2	61	0	0	70	1	3	1	1	0	0	0	139
Total for:	7:00 AM	8:00 AM	9	319	6	3	345	5	1	0	1	7	1	3	700
Total for:	8:00 AM	9:00 AM	5	270	7	1	364	2	5	1	5	3	0	2	665
Tota Peak Hour:	7:30 AM	8:30 AM	2	310	3	3	406	2	2	0	0	5	1	2	736
Overall PHF:	0.98														

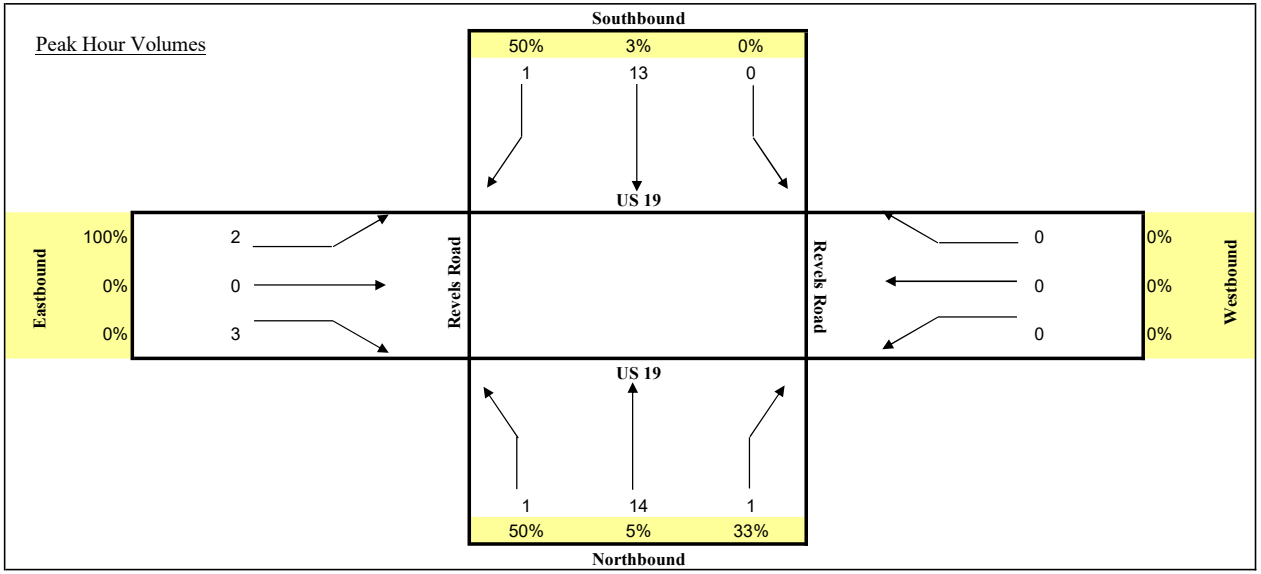


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): US 19
Intersection (E/W): Revels Road
Date: 5/29/2025

		US 19 NB			US 19 SB			Revels Road EB			Revels Road WB			
Start	End	R	T	L	R	T	L	R	T	L	R	T	L	TOTAL
7:00 AM	7:15 AM	1	2	0	0	3	1	0	0	0	0	0	1	8
7:15 AM	7:30 AM	1	2	0	0	4	1	0	0	0	0	0	0	8
7:30 AM	7:45 AM	0	5	1	0	2	0	0	0	0	0	0	0	8
7:45 AM	8:00 AM	0	2	0	0	2	0	0	0	0	1	0	0	5
8:00 AM	8:15 AM	0	4	0	0	4	0	0	0	0	0	0	0	8
8:15 AM	8:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	6
8:30 AM	8:45 AM	1	5	1	0	5	0	1	0	2	0	0	0	15
8:45 AM	9:00 AM	0	2	0	0	1	1	1	0	1	0	0	0	6
Total for:	7:00 AM	8:00 AM	2	11	1	0	11	2	0	0	0	1	0	1	29
Total for:	8:00 AM	9:00 AM	1	14	1	0	13	1	2	0	3	0	0	0	35
Tota Peak Hour:	8:00 AM	9:00 AM	1	14	1	0	13	1	2	0	3	0	0	0	35
Overall PHF:	0.58														

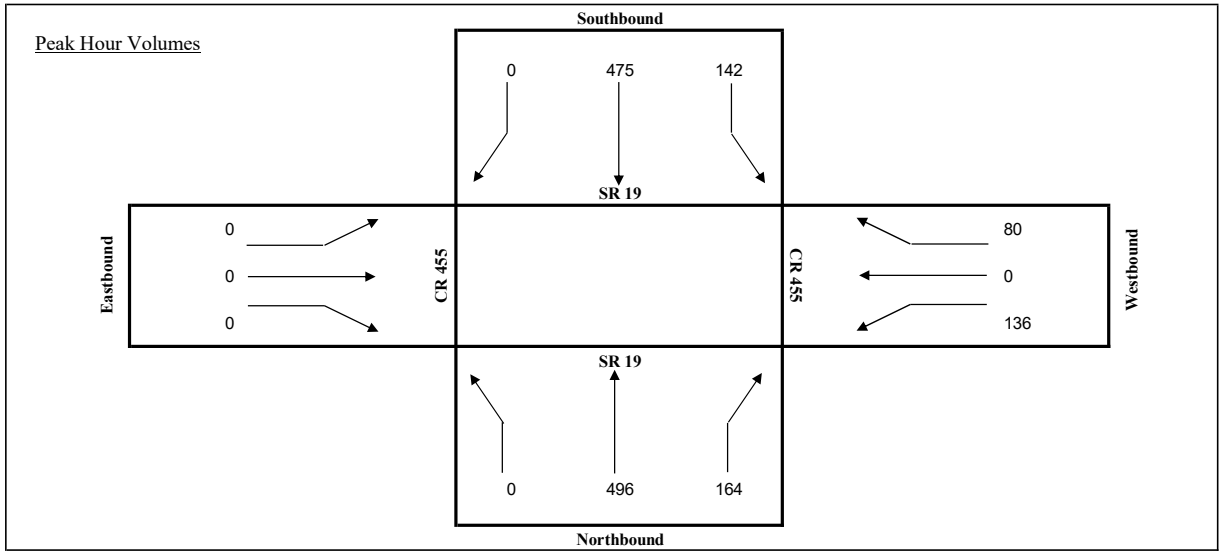


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 455
Date: 5/29/2025

			SR 19 NB			SR 19 SB			CR 455 EB			CR 455 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
7:00 AM	7:15 AM	0	102	29	21	102	0	0	0	0	19	0	12	285
7:15 AM	7:30 AM	0	120	40	27	116	0	0	0	0	27	0	17	347
7:30 AM	7:45 AM	0	140	47	33	115	0	0	0	0	31	0	21	387
7:45 AM	8:00 AM	0	115	41	38	126	0	0	0	0	39	0	19	378
8:00 AM	8:15 AM	0	121	36	44	118	0	0	0	0	39	0	23	381
8:15 AM	8:30 AM	0	80	40	36	87	0	0	0	0	36	0	19	298
8:30 AM	8:45 AM	0	102	38	32	72	0	0	0	0	33	0	24	301
8:45 AM	9:00 AM	0	76	29	26	69	0	0	0	0	24	0	22	246
Total for:	7:00 AM	8:00 AM	0	477	157	119	459	0	0	0	0	116	0	69	1397
Total for:	8:00 AM	9:00 AM	0	379	143	138	346	0	0	0	0	132	0	88	1226
Tota Peak Hour:	7:15 AM	8:15 AM	0	496	164	142	475	0	0	0	0	136	0	80	1493
Overall PHF:	0.96														

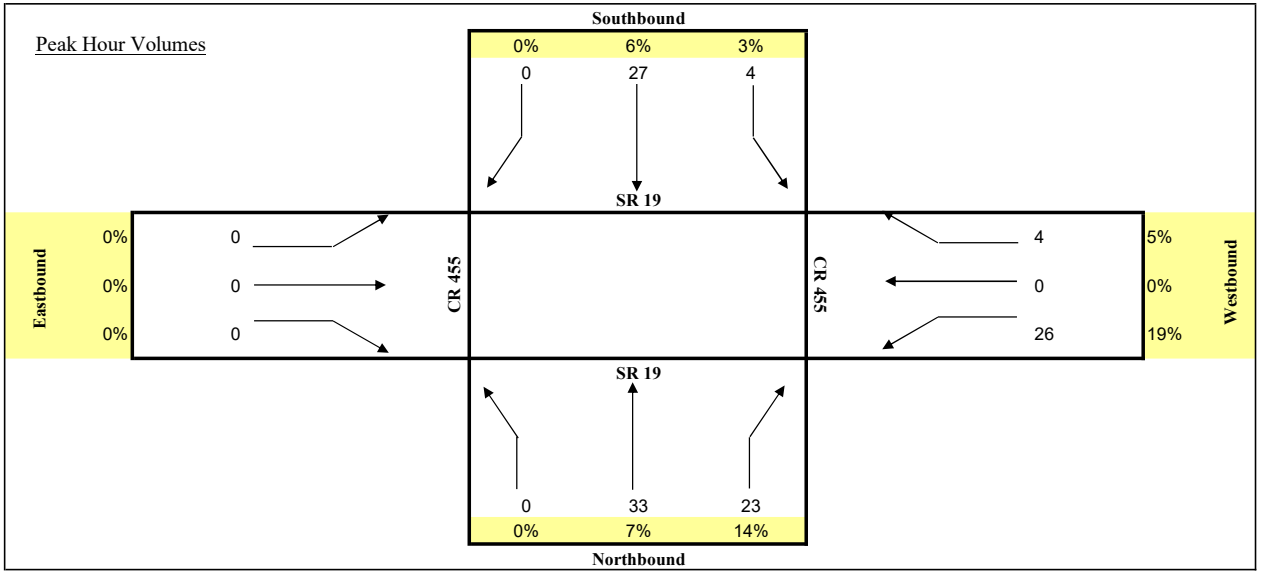


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 455
Date: 5/29/2025

		SR 19 NB			SR 19 SB			CR 455 EB			CR 455 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
7:00 AM	7:15 AM	0	8	7	1	5	0	0	0	0	2	0	0	23
7:15 AM	7:30 AM	0	5	9	1	8	0	0	0	0	7	0	1	31
7:30 AM	7:45 AM	0	11	10	0	4	0	0	0	0	5	0	1	31
7:45 AM	8:00 AM	0	7	1	1	6	0	0	0	0	6	0	2	23
8:00 AM	8:15 AM	0	10	3	2	9	0	0	0	0	8	0	0	32
8:15 AM	8:30 AM	0	5	6	1	3	0	0	0	0	5	0	1	21
8:30 AM	8:45 AM	0	12	8	1	6	0	0	0	0	4	0	2	33
8:45 AM	9:00 AM	0	8	3	0	6	0	0	0	0	4	0	2	23
Total for:	7:00 AM	8:00 AM	0	31	27	3	23	0	0	0	0	20	0	4	108
Total for:	8:00 AM	9:00 AM	0	35	20	4	24	0	0	0	0	21	0	5	109
Tota Peak Hour:	7:15 AM	8:15 AM	0	33	23	4	27	0	0	0	0	26	0	4	117
Overall PHF:	0.91														

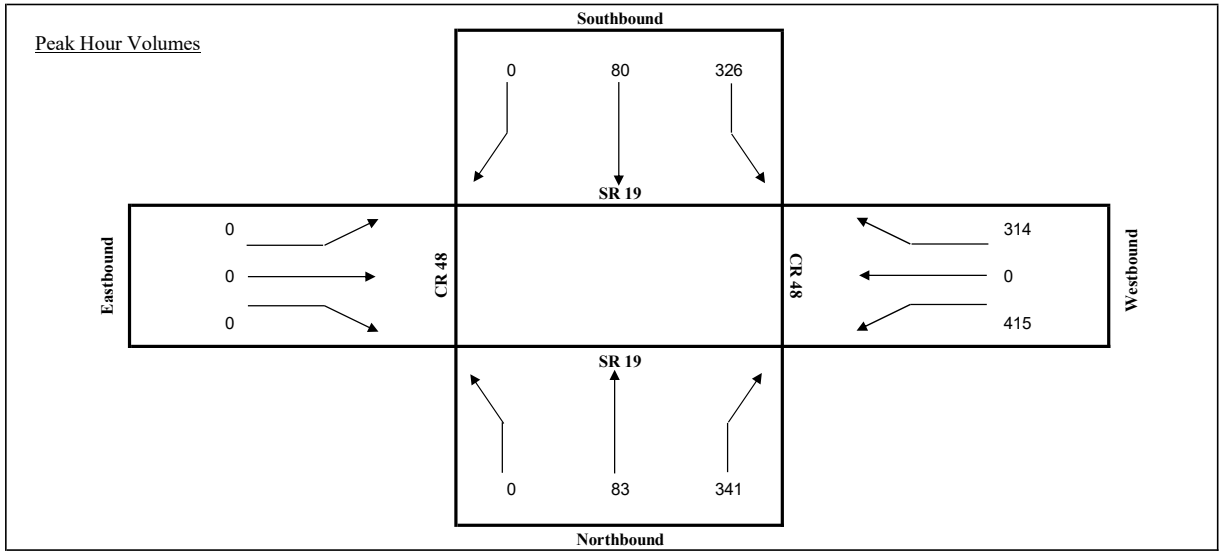


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 48
Date: 5/29/2025

			SR 19 NB			SR 19 SB			CR 48 EB			CR 48 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
4:00 PM	4:15 PM	0	15	98	62	21	0	0	0	0	89	0	66	351
4:15 PM	4:30 PM	0	21	83	73	20	0	0	0	0	95	0	71	363
4:30 PM	4:45 PM	0	24	86	75	13	0	0	0	0	107	0	82	387
4:45 PM	5:00 PM	0	20	90	88	17	0	0	0	0	97	0	74	386
5:00 PM	5:15 PM	0	24	84	78	19	0	0	0	0	92	0	71	368
5:15 PM	5:30 PM	0	19	69	91	23	0	0	0	0	115	0	77	394
5:30 PM	5:45 PM	0	20	98	69	21	0	0	0	0	111	0	92	411
5:45 PM	6:00 PM	0	24	73	64	17	0	0	0	0	103	0	79	360
Total for:	4:00 PM	5:00 PM	0	80	357	298	71	0	0	0	0	388	0	293	1487
Total for:	5:00 PM	6:00 PM	0	87	324	302	80	0	0	0	0	421	0	319	1533
Tota Peak Hour:	4:45 PM	5:45 PM	0	83	341	326	80	0	0	0	0	415	0	314	1559
Overall PHF:	0.95														

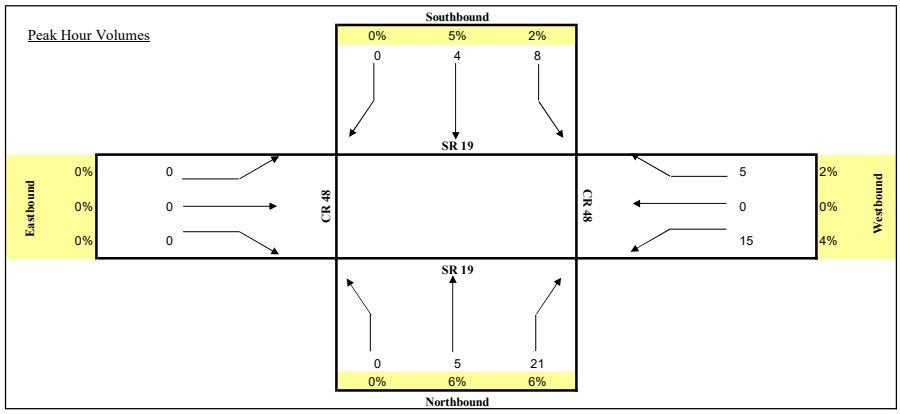


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 48
Date: 5/29/2025

		SR 19 NB			SR 19 SB			CR 48 EB			CR 48 WB			
Start	End	R	T	L	R	T	L	R	T	L	R	T	L	TOTAL
4:00 PM	4:15 PM	0	1	8	3	1	0	0	0	0	2	0	3	18
4:15 PM	4:30 PM	0	2	5	4	2	0	0	0	0	5	0	1	19
4:30 PM	4:45 PM	0	2	6	1	1	0	0	0	0	5	0	1	16
4:45 PM	5:00 PM	0	0	2	0	0	0	0	0	0	3	0	0	5
5:00 PM	5:15 PM	0	0	5	3	1	0	0	0	0	4	0	2	15
5:15 PM	5:30 PM	0	0	1	1	0	0	0	0	0	4	0	0	6
5:30 PM	5:45 PM	0	1	4	2	1	0	0	0	0	4	0	0	12
5:45 PM	6:00 PM	0	1	1	1	0	0	0	0	0	3	0	1	7
Total for:	4:00 PM	5:00 PM	0	5	21	8	4	0	0	0	0	15	0	5	58
Total for:	5:00 PM	6:00 PM	0	2	11	7	2	0	0	0	0	15	0	3	40
Tota Peak Hour:	4:00 PM	5:00 PM	0	5	21	8	4	0	0	0	0	15	0	5	58
Overall PHF:	0.76														

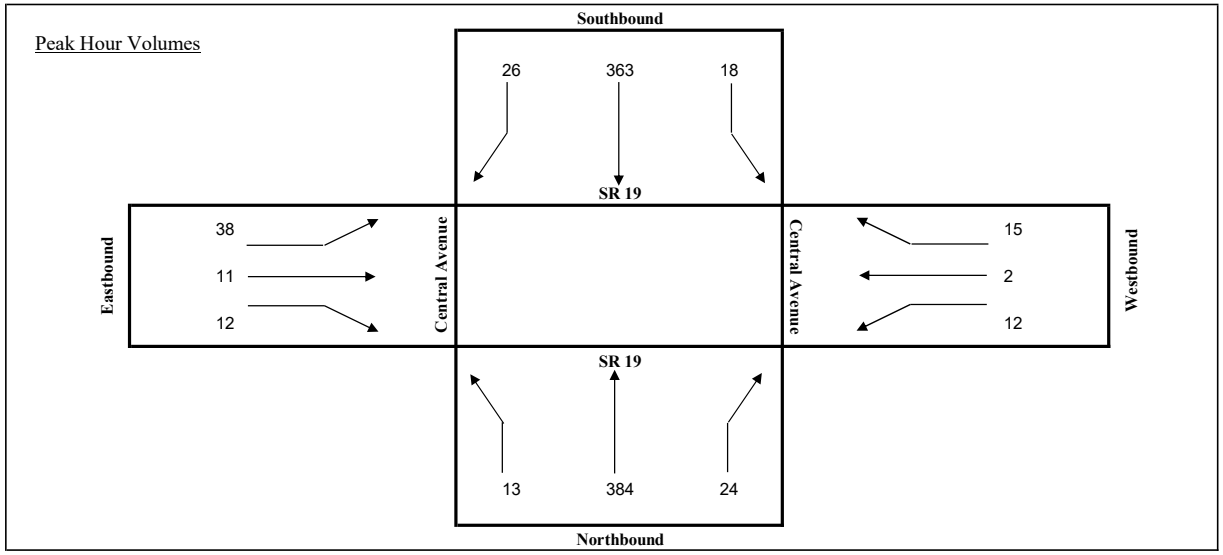


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): Central Avenue
Date: 5/29/2025

			SR 19 NB			SR 19 SB			Central Avenue EB			Central Avenue WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
4:00 PM	4:15 PM	4	98	5	3	93	13	6	2	3	3	2	4	236
4:15 PM	4:30 PM	5	85	3	5	69	5	6	2	2	0	1	1	184
4:30 PM	4:45 PM	3	102	5	8	89	7	9	4	3	4	0	4	238
4:45 PM	5:00 PM	4	107	5	5	74	9	12	2	4	3	0	3	228
5:00 PM	5:15 PM	3	83	8	4	107	7	10	2	3	1	2	4	234
5:15 PM	5:30 PM	3	92	6	1	93	3	7	3	2	4	0	4	218
5:30 PM	5:45 PM	5	82	3	2	99	5	10	6	5	2	1	3	223
5:45 PM	6:00 PM	6	86	3	4	88	8	10	3	4	2	2	4	220
Total for:	4:00 PM	5:00 PM	16	392	18	21	325	34	33	10	12	10	3	12	886
Total for:	5:00 PM	6:00 PM	17	343	20	11	387	23	37	14	14	9	5	15	895
Tota Peak Hour:	4:30 PM	5:30 PM	13	384	24	18	363	26	38	11	12	12	2	15	918
Overall PHF:	0.96														

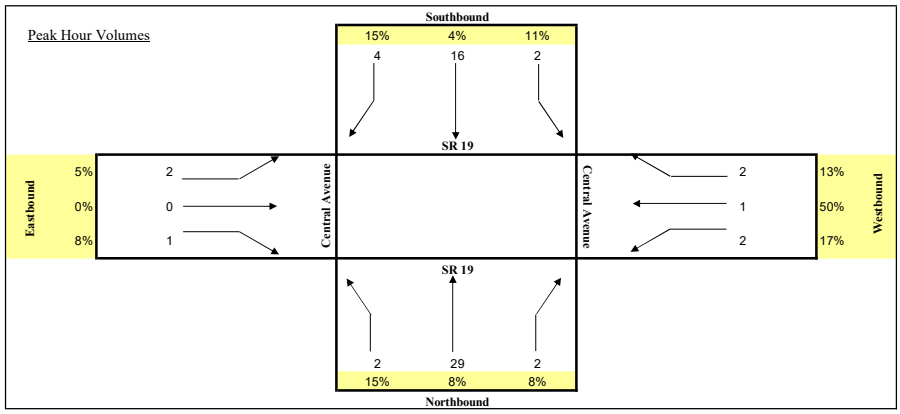


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): Central Avenue
Date: 5/29/2025

		SR 19 NB			SR 19 SB			Central Avenue EB			Central Avenue WB			
Start	End	R	T	L	R	T	L	R	T	L	R	T	L	TOTAL
4:00 PM	4:15 PM	1	10	0	1	5	3	1	0	0	1	1	2	25
4:15 PM	4:30 PM	0	5	1	1	2	0	1	0	0	0	0	0	10
4:30 PM	4:45 PM	1	9	1	0	4	0	0	0	1	1	0	0	17
4:45 PM	5:00 PM	0	5	0	0	5	1	0	0	0	0	0	0	11
5:00 PM	5:15 PM	0	8	0	0	5	1	0	0	1	0	1	0	16
5:15 PM	5:30 PM	1	3	0	0	4	0	0	0	0	0	0	0	8
5:30 PM	5:45 PM	0	6	0	0	1	0	1	0	0	0	0	1	9
5:45 PM	6:00 PM	0	8	0	0	1	1	0	0	1	0	0	0	11
Total for:	4:00 PM	5:00 PM	2	29	2	2	16	4	2	0	1	2	1	2	63
Total for:	5:00 PM	6:00 PM	1	25	0	0	11	2	1	0	2	0	1	1	44
Tota Peak Hour:	4:00 PM	5:00 PM	2	29	2	2	16	4	2	0	1	2	1	2	63
Overall PHF:	0.63														

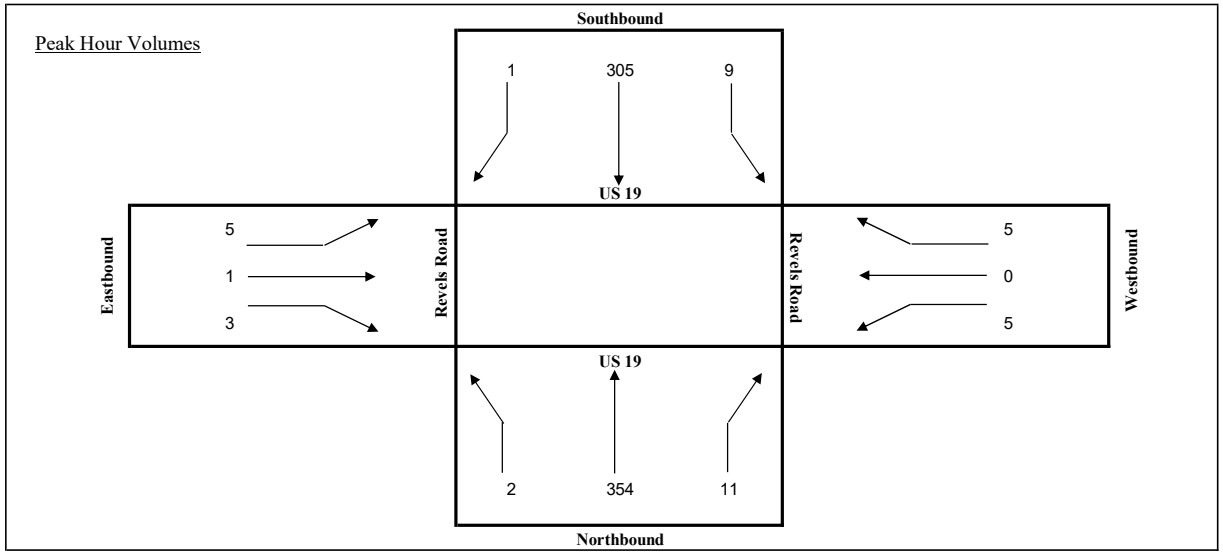


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): US 19
Intersection (E/W): Revels Road
Date: 5/29/2025

		US 19			US 19			Revels Road			Revels Road			
		NB			SB			EB			WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
4:00 PM	4:15 PM	3	81	4	3	56	1	1	0	1	3	0	1	154
4:15 PM	4:30 PM	2	87	3	4	71	2	0	0	0	1	2	0	172
4:30 PM	4:45 PM	0	94	0	1	83	1	1	0	1	1	0	3	185
4:45 PM	5:00 PM	0	95	4	3	79	0	0	1	1	3	0	2	188
5:00 PM	5:15 PM	1	80	2	1	65	0	3	0	1	1	0	0	154
5:15 PM	5:30 PM	1	85	5	4	78	0	1	0	0	0	0	0	174
5:30 PM	5:45 PM	0	94	2	2	81	0	2	0	0	2	0	1	184
5:45 PM	6:00 PM	0	80	2	1	70	1	0	1	2	1	0	0	158
Total for:	4:00 PM	5:00 PM	5	357	11	11	289	4	2	1	3	8	2	6	699
Total for:	5:00 PM	6:00 PM	2	339	11	8	294	1	6	1	3	4	0	1	670
Tota Peak Hour:	4:30 PM	5:30 PM	2	354	11	9	305	1	5	1	3	5	0	5	701
Overall PHF:	0.93														

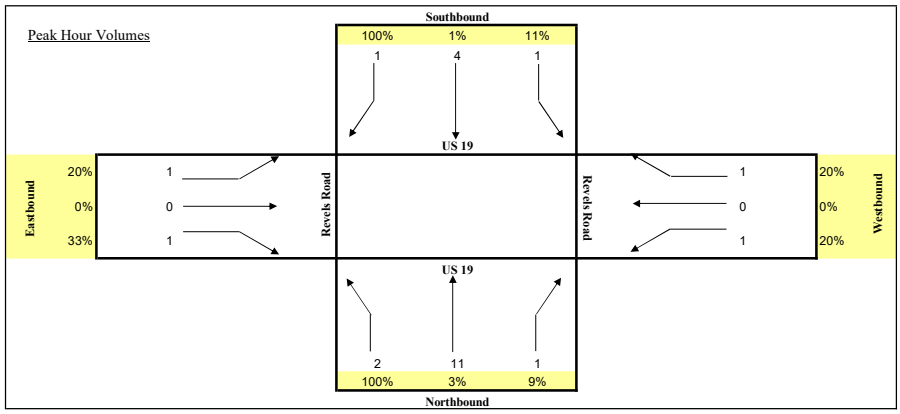


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): US 19
Intersection (E/W): Revels Road
Date: 5/29/2025

		US 19 NB			US 19 SB			Revels Road EB			Revels Road WB			
Start	End	R	T	L	R	T	L	R	T	L	R	T	L	TOTAL
4:00 PM	4:15 PM	1	2	1	1	2	0	1	0	0	1	0	0	9
4:15 PM	4:30 PM	1	1	0	0	1	1	0	0	0	0	0	0	4
4:30 PM	4:45 PM	0	6	0	0	1	0	0	0	1	0	0	0	8
4:45 PM	5:00 PM	0	2	0	0	0	0	0	0	0	0	0	1	3
5:00 PM	5:15 PM	0	1	1	0	2	0	1	0	0	0	0	0	5
5:15 PM	5:30 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:30 PM	5:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:45 PM	6:00 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
Total for:	4:00 PM	5:00 PM	2	11	1	1	4	1	1	0	1	1	0	1	24
Total for:	5:00 PM	6:00 PM	0	7	1	0	5	0	1	0	0	0	0	0	14
Tota Peak Hour:	4:00 PM	5:00 PM	2	11	1	1	4	1	1	0	1	1	0	1	24
Overall PHF:	0.67														

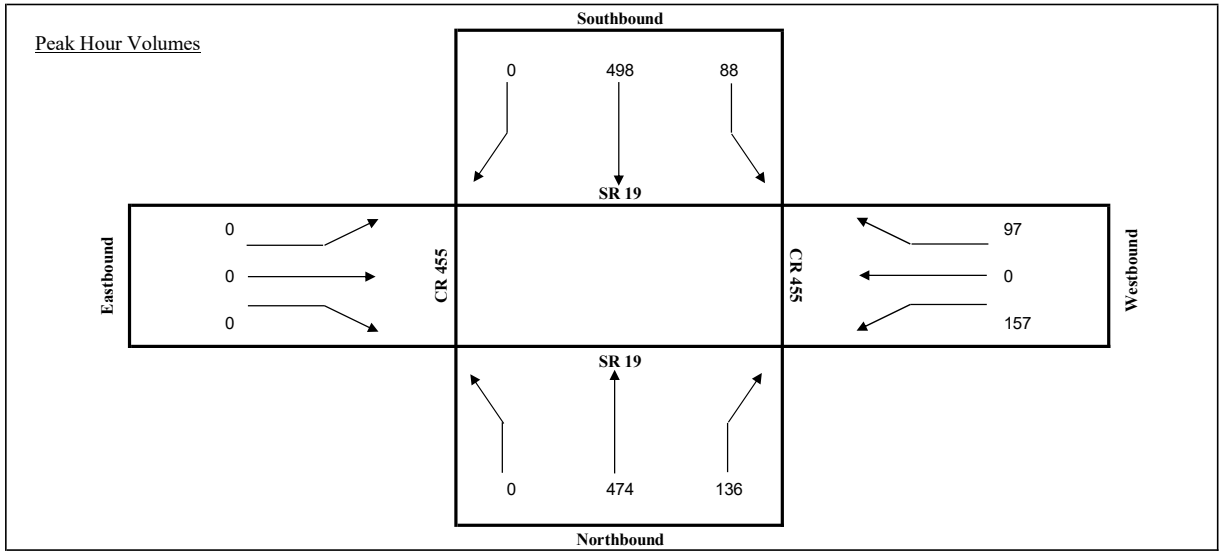


TURNING MOVEMENT COUNT ANALYSIS

AUTOS & TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 455
Date: 5/29/2025

			SR 19 NB			SR 19 SB			CR 455 EB			CR 455 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
4:00 PM	4:15 PM	0	122	31	21	140	0	0	0	0	31	0	20	365
4:15 PM	4:30 PM	0	110	35	26	119	0	0	0	0	34	0	26	350
4:30 PM	4:45 PM	0	124	30	19	127	0	0	0	0	42	0	31	373
4:45 PM	5:00 PM	0	118	40	22	112	0	0	0	0	50	0	20	362
5:00 PM	5:15 PM	0	116	32	20	100	0	0	0	0	57	0	26	351
5:15 PM	5:30 PM	0	111	49	20	113	0	0	0	0	48	0	23	364
5:30 PM	5:45 PM	0	103	37	17	126	0	0	0	0	45	0	21	349
5:45 PM	6:00 PM	0	113	34	14	127	0	0	0	0	52	0	27	367
Total for:	4:00 PM	5:00 PM	0	474	136	88	498	0	0	0	0	157	0	97	1450
Total for:	5:00 PM	6:00 PM	0	443	152	71	466	0	0	0	0	202	0	97	1431
Tota Peak Hour:	4:00 PM	5:00 PM	0	474	136	88	498	0	0	0	0	157	0	97	1450
Overall PHF:	0.97														

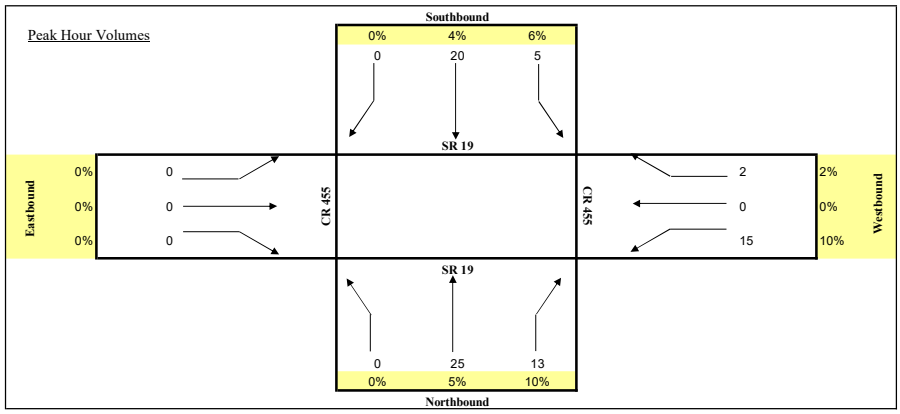


TURNING MOVEMENT COUNT ANALYSIS

TRUCKS

Intersection (N/S): SR 19
Intersection (E/W): CR 455
Date: 5/29/2025

		SR 19 NB			SR 19 SB			CR 455 EB			CR 455 WB			
Start	End	L	T	R	L	T	R	L	T	R	L	T	R	TOTAL
4:00 PM	4:15 PM	0	11	3	1	7	0	0	0	0	1	0	1	24
4:15 PM	4:30 PM	0	2	4	3	4	0	0	0	0	6	0	1	20
4:30 PM	4:45 PM	0	3	1	1	3	0	0	0	0	3	0	0	11
4:45 PM	5:00 PM	0	9	5	0	6	0	0	0	0	5	0	0	25
5:00 PM	5:15 PM	0	1	2	0	2	0	0	0	0	5	0	1	11
5:15 PM	5:30 PM	0	4	5	2	6	0	0	0	0	4	0	0	21
5:30 PM	5:45 PM	0	5	1	0	8	0	0	0	0	4	0	0	18
5:45 PM	6:00 PM	0	2	1	1	4	0	0	0	0	2	0	1	11
Total for:	4:00 PM	5:00 PM	0	25	13	5	20	0	0	0	0	15	0	2	80
Total for:	5:00 PM	6:00 PM	0	12	9	3	20	0	0	0	0	15	0	2	61
Tota Peak Hour:	4:00 PM	5:00 PM	0	25	13	5	20	0	0	0	0	15	0	2	80
Overall PHF:	0.80														



2024 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 1100 LAKE COUNTYWIDE

MOCF: 0.95

WEEK	DATES	SF	PSCF
1	01/01/2024 - 01/06/2024	1.02	1.07
2	01/07/2024 - 01/13/2024	1.04	1.09
3	01/14/2024 - 01/20/2024	1.05	1.11
4	01/21/2024 - 01/27/2024	1.03	1.08
5	01/28/2024 - 02/03/2024	1.01	1.06
6	02/04/2024 - 02/10/2024	0.99	1.04
* 7	02/11/2024 - 02/17/2024	0.97	1.02
* 8	02/18/2024 - 02/24/2024	0.96	1.01
* 9	02/25/2024 - 03/02/2024	0.96	1.01
*10	03/03/2024 - 03/09/2024	0.95	1.00
*11	03/10/2024 - 03/16/2024	0.94	0.99
*12	03/17/2024 - 03/23/2024	0.94	0.99
*13	03/24/2024 - 03/30/2024	0.94	0.99
*14	03/31/2024 - 04/06/2024	0.94	0.99
*15	04/07/2024 - 04/13/2024	0.94	0.99
*16	04/14/2024 - 04/20/2024	0.94	0.99
*17	04/21/2024 - 04/27/2024	0.95	1.00
*18	04/28/2024 - 05/04/2024	0.96	1.01
*19	05/05/2024 - 05/11/2024	0.98	1.03
20	05/12/2024 - 05/18/2024	0.99	1.04
21	05/19/2024 - 05/25/2024	1.00	1.05
22	05/26/2024 - 06/01/2024	1.01	1.06
23	06/02/2024 - 06/08/2024	1.02	1.07
24	06/09/2024 - 06/15/2024	1.03	1.08
25	06/16/2024 - 06/22/2024	1.04	1.09
26	06/23/2024 - 06/29/2024	1.05	1.11
27	06/30/2024 - 07/06/2024	1.06	1.12
28	07/07/2024 - 07/13/2024	1.06	1.12
29	07/14/2024 - 07/20/2024	1.07	1.13
30	07/21/2024 - 07/27/2024	1.06	1.12
31	07/28/2024 - 08/03/2024	1.05	1.11
32	08/04/2024 - 08/10/2024	1.04	1.09
33	08/11/2024 - 08/17/2024	1.03	1.08
34	08/18/2024 - 08/24/2024	1.03	1.08
35	08/25/2024 - 08/31/2024	1.03	1.08
36	09/01/2024 - 09/07/2024	1.03	1.08
37	09/08/2024 - 09/14/2024	1.04	1.09
38	09/15/2024 - 09/21/2024	1.04	1.09
39	09/22/2024 - 09/28/2024	1.02	1.07
40	09/29/2024 - 10/05/2024	1.01	1.06
41	10/06/2024 - 10/12/2024	0.99	1.04
42	10/13/2024 - 10/19/2024	0.97	1.02
43	10/20/2024 - 10/26/2024	0.98	1.03
44	10/27/2024 - 11/02/2024	0.99	1.04
45	11/03/2024 - 11/09/2024	0.99	1.04
46	11/10/2024 - 11/16/2024	1.00	1.05
47	11/17/2024 - 11/23/2024	1.00	1.05
48	11/24/2024 - 11/30/2024	1.01	1.06
49	12/01/2024 - 12/07/2024	1.01	1.06
50	12/08/2024 - 12/14/2024	1.02	1.07
51	12/15/2024 - 12/21/2024	1.02	1.07
52	12/22/2024 - 12/28/2024	1.04	1.09
53	12/29/2024 - 12/31/2024	1.05	1.11

* PEAK SEASON

04-MAR-2025 16:32:53 830UPD 5_1100_PKSEASON.TXT

Project No. 22105.1
Vested Intersection Volumes

Analysis Period
AM Peak

Intersection: SR 19 & CR 48 — 1

App	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L						0
NB	T	3	21	39	5	17	85
	R	24	82	26	65	7	204
	L			32		30	62
SB	T	1	8	13	2	4	28
	R						0
	L						0
EB	T						0
	R						0
	L	8	32	52	21	20	133
WB	T						0
	R					30	30

Intersection: SR 19 & Central Ave — 2

Appr	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L	11					11
NB	T		82	65	42	24	213
	R						0
	L						0
SB	T		32	65	14	24	135
	R	10	24		9	2	45
	L	29	62		28		119
EB	T						0
	R	31					31
	L						0
WB	T						0
	R						0

Intersection: SR 19 & Revels Rd — 3

Appr	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L		12		33		45
NB	T		67	65	9	77	218
	R						0
	L						0
SB	T		175	65	28	15	283
	R		2		14		16
	L		3		42		45
EB	T						0
	R		30		99		129
	L						0
WB	T						0
	R						0

Intersection: SR 19 & CR 455 — 4

Appr	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L						0
NB	T		55	52	33		140
	R						0
	L		41	13	28		82
SB	T		144	52	99		295
	R						0
	L						0
EB	T						0
	R						0
	L						0
WB	T						0
	R		16	13	9		38

Project No. 22105.1
Vested Intersection Volumes

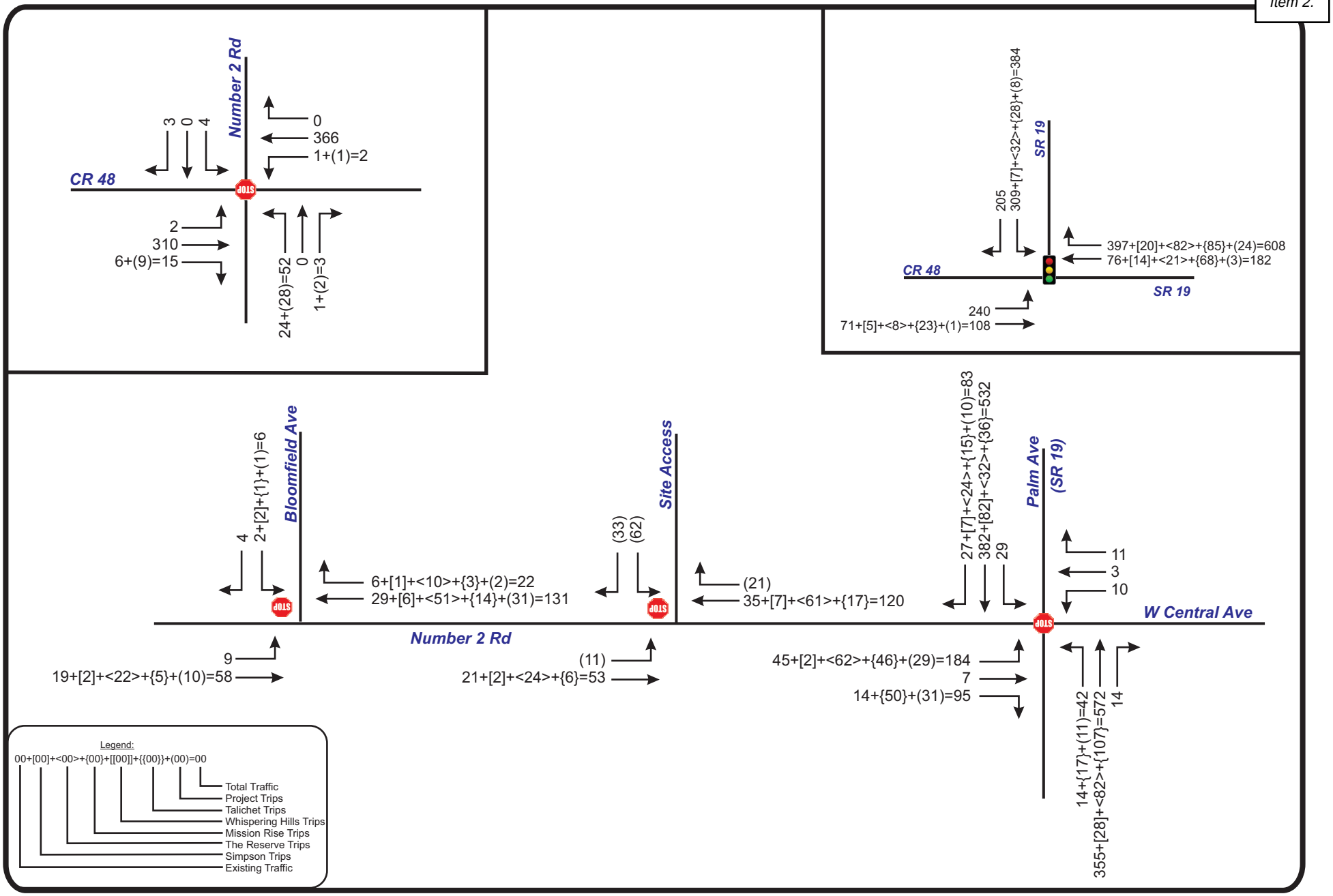
Analysis Period
PM Peak

Intersection:		SR 19 & CR 48					1
App	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L						0
NB	T	2	15	54	4	4	79
	R	16	58	35	45	20	174
	L			41		30	71
SB	T	3	23	9	7	17	59
	R						0
	L						0
EB	T						0
	R						0
	L	27	92	76	77	7	279
WB	T						0
	R					30	30

Intersection:		SR 19 & Central Ave					2
Appr	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L	36					36
NB	T		58	89	29	24	200
	R						0
	L						0
SB	T		92	85	50	24	251
	R	34	69		33		136
	L	30	44		20	2	96
EB	T						0
	R	21					21
	L						0
WB	T						0
	R						0

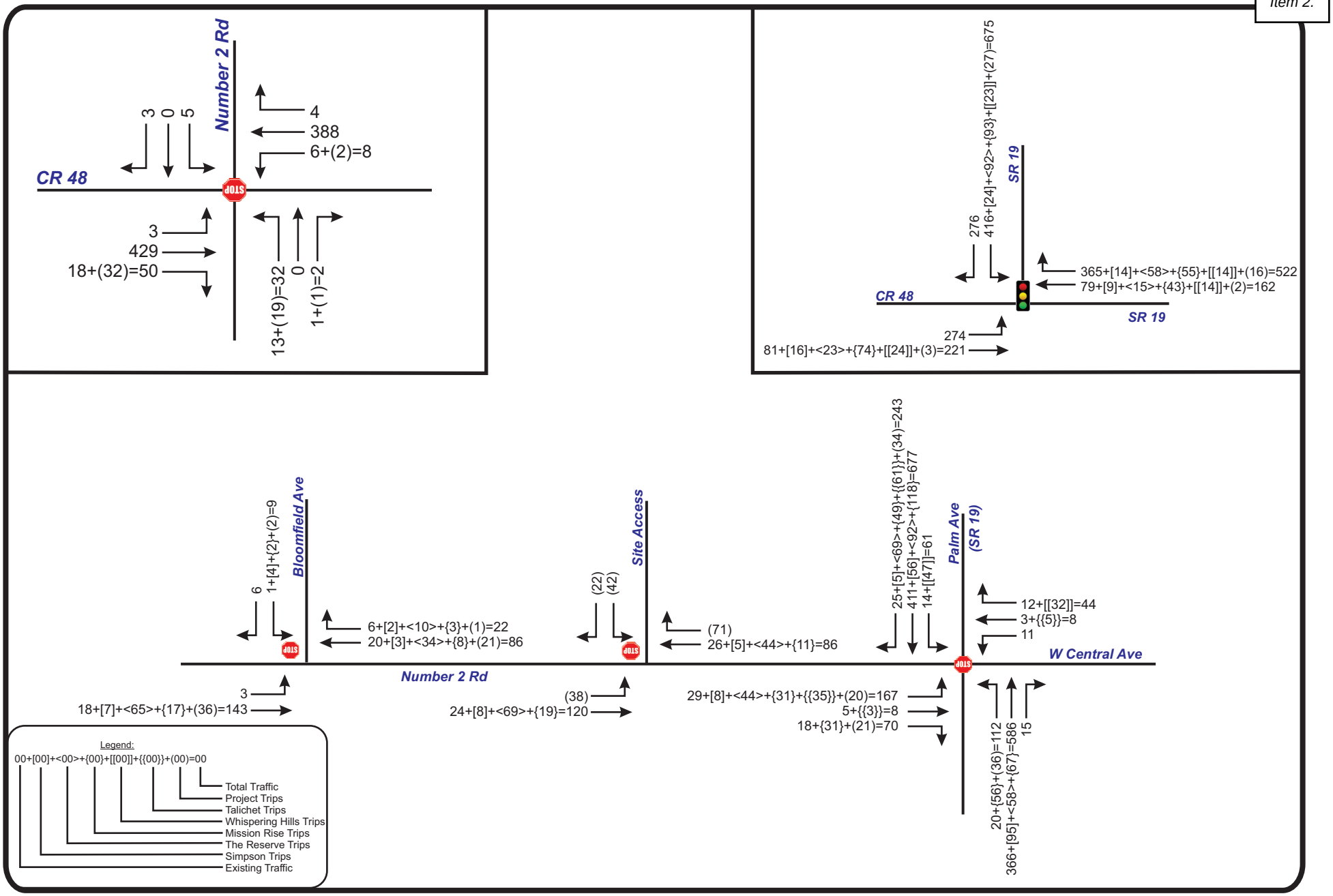
Intersection:		SR 19 & Revels Rd					3
Appr	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L		35		117		152
NB	T		194	89	33	15	331
	R						0
	L						0
SB	T		124	85	20	77	306
	R		2		50		52
	L		1		29		30
EB	T						0
	R		21		68		89
	L						0
WB	T						0
	R						0

Intersection:		SR 19 & CR 455					4
Appr	Mvmt	Blue Sky	Hillside Groves	Lake Hills	Mission Rise	Whispering Hills	Total
	L						0
NB	T		161	71	117		349
	R						0
	L		102	17	20		139
SB	T		29	68	69		166
	R						0
	L						0
EB	T						0
	R						0
	L						0
WB	T						0
	R		46	18	33		97



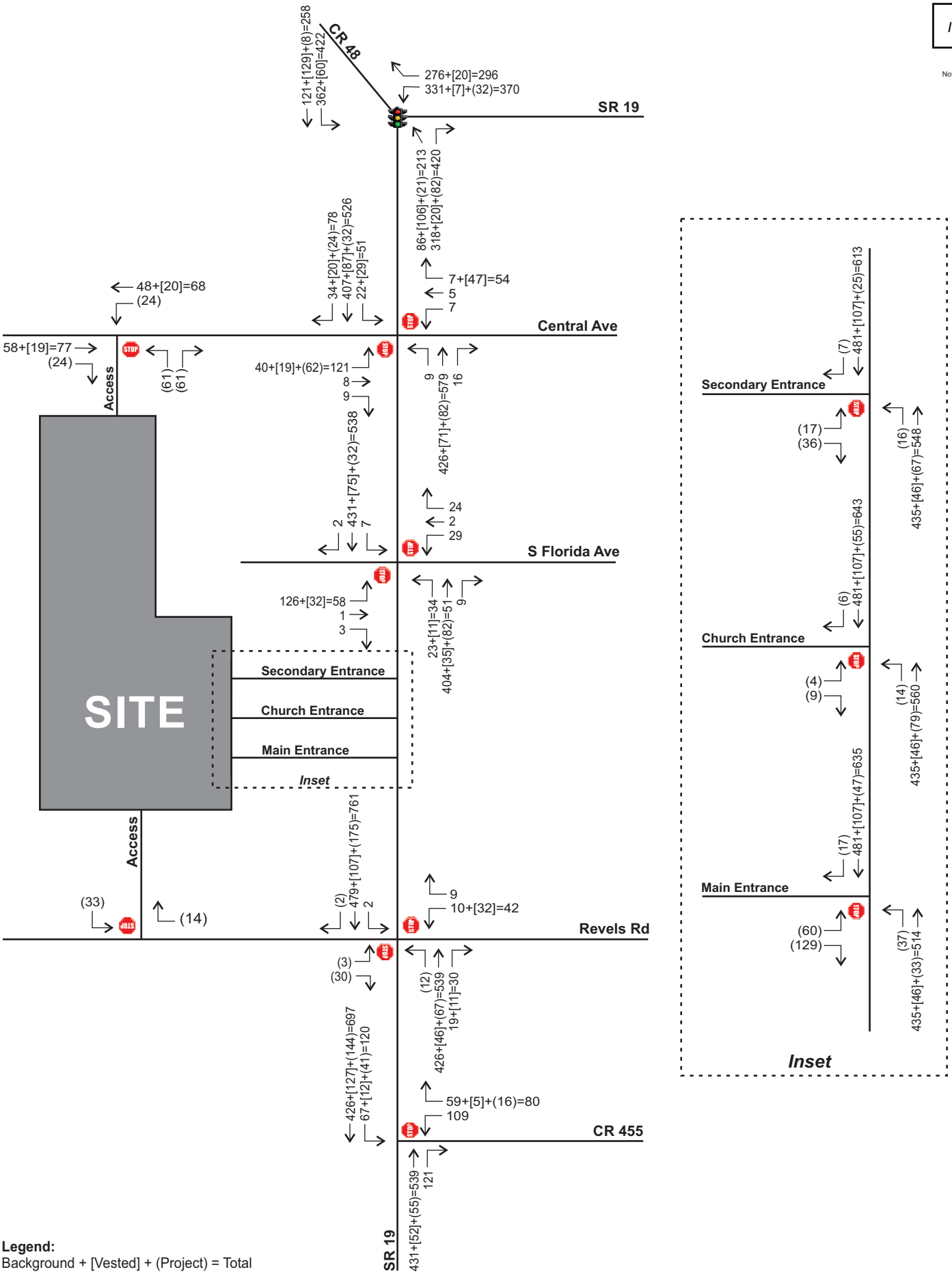
Howey in the Hills
Project № 5659
Figure 5a

Projected AM Peak Hour Volumes



Howey in the Hills
Project № 5659
Figure 5b

Projected PM Peak Hour Volumes



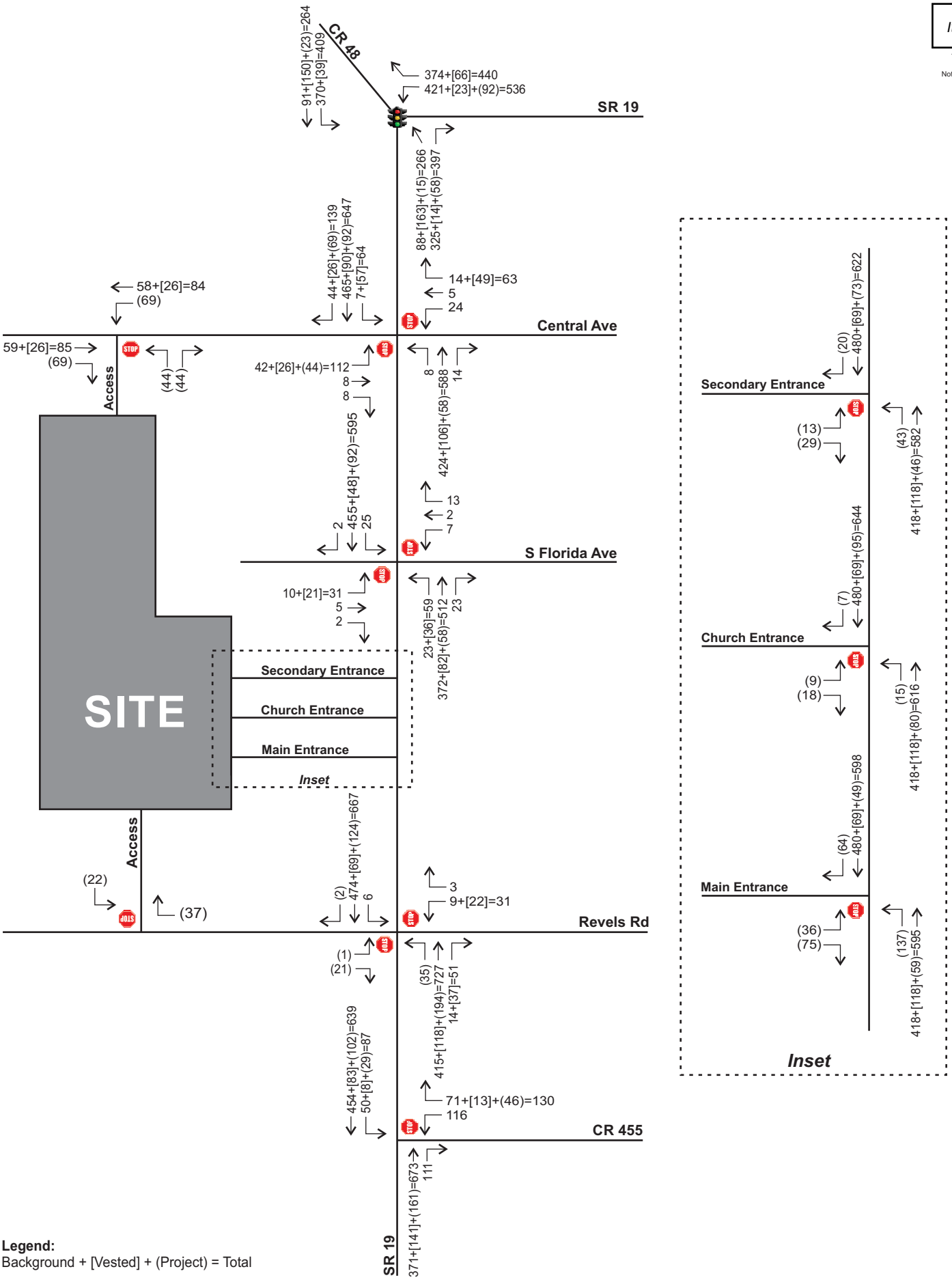
Legend:
Background + [Vested] + (Project) = Total

TMC Traffic & Mobility Consultants

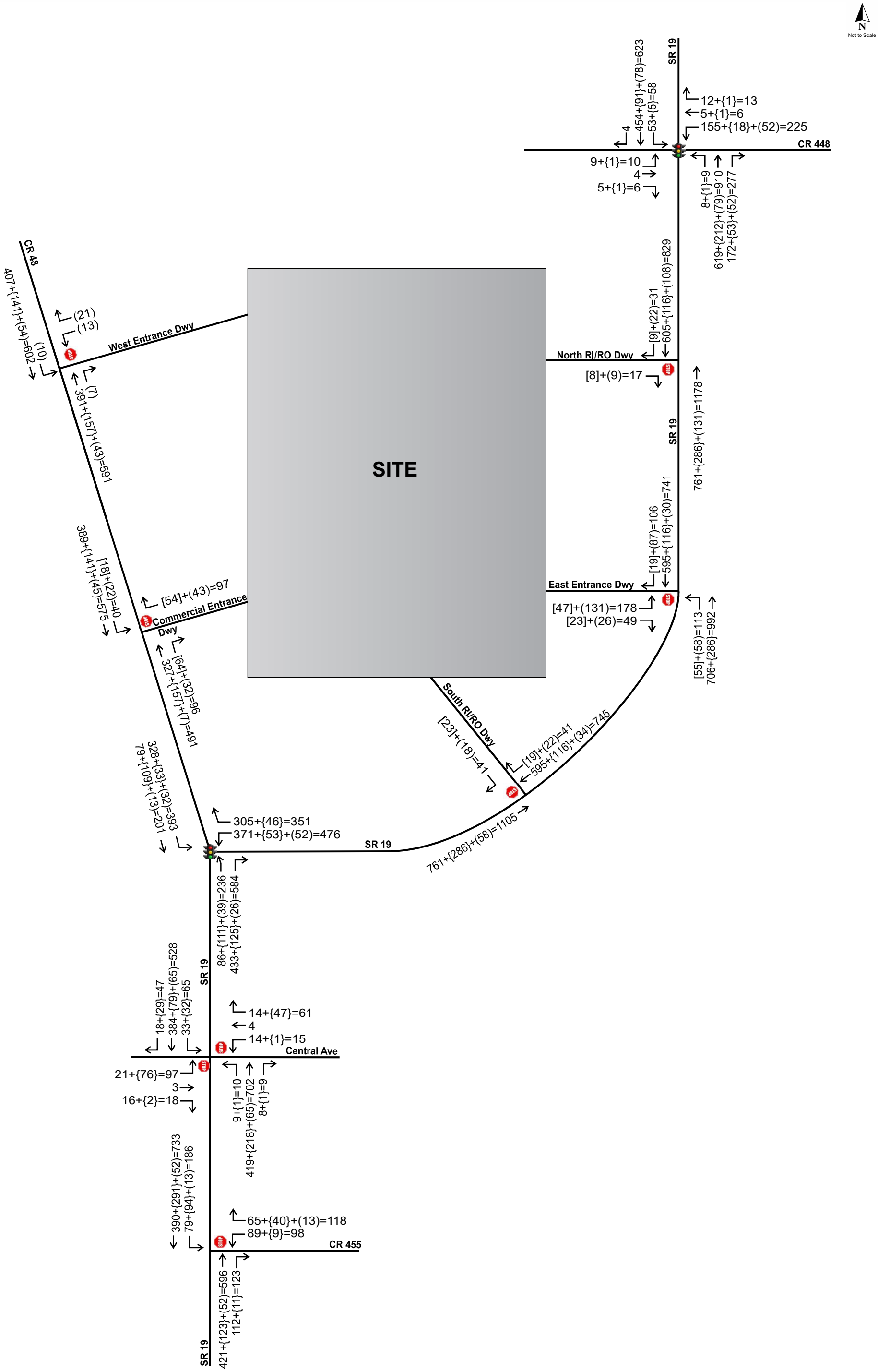
Projected AM Peak Intersection Volumes

The Reserve at Howey in the Hills
21082

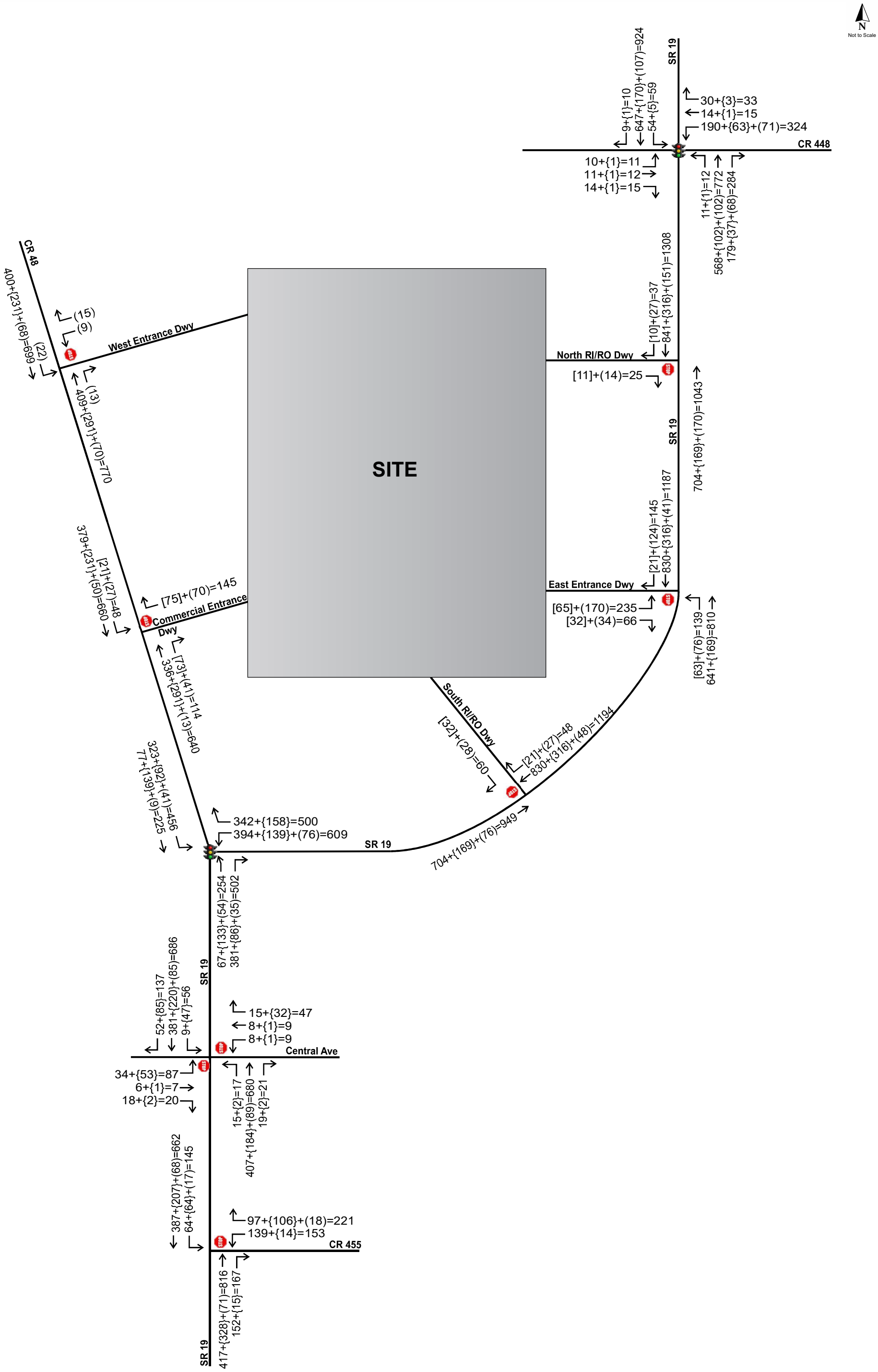
Figure 5



Legend:
Background + [Vested] + (Project) = Total



Legend:
Existing + {Vested} + [Pass-by]+ (Project) = Total



Legend:
Existing + {Vested} + [Pass-by]+ (Project) = Total

Projected PM Intersection Volumes
Lake Hills PD
23103

Figure
5

N
Not to Scale

Number 2 Rd
S Florida Ave
Central Ave
CR 48
SR 19
Connector Rd
Access 1
Spine Rd
Interconnect Rd
Revels Rd
Orange Blossom Rd
CR 455
SITE
SITE

28+{5}=33
30+(19)=49
59+{3}=62
15+(14)=29
15+(43)=58
30+(56)=86
(28)
(9)
0
0
0
1
44+(28)=72
14+{3}=17
1
23+(9)=32
1+{9}=10
5+{5}=10
0
4+{16}=20
8+{33}+(9)=50
514+{56}+(14)=584
5+{32}=37
42+{78}+(28)=148
4
12
118+{22}+(2)=142
332
275
415+{46}+(21)=482
379+{45}+(5)=429
546+{105}+(65)=716
18+{47}=65
1
13
14
452+{124}+(42)=618
29
25+(20)=45
20+(28)=48
25+(9)=34
(0)
20+(59)=79
4+(6)=10
74+(81)=155
62+(53)=115
3+(8)=11
4+(2)=6
3+(3)=6
7
(14)
7
(5)
{2}+(14)=16
522+{175}+(28)=725
4
2+{3}+(42)=47
0
6+{30}+(99)=135
5
0
6+{37}=43
4+{12}+(33)=49
389+{67}+(9)=465
16+{22}=38
590+{144}+(99)=833
84+{41}+(28)=153
52+{16}+(9)=77
78
473+{55}+(33)=561
133

Legend:
Background + {Vested} + (Project) = Total

Projected AM Peak Hour Intersection Volumes
Mission Rise
23017, v1.1

Figure
6

N
Not to Scale

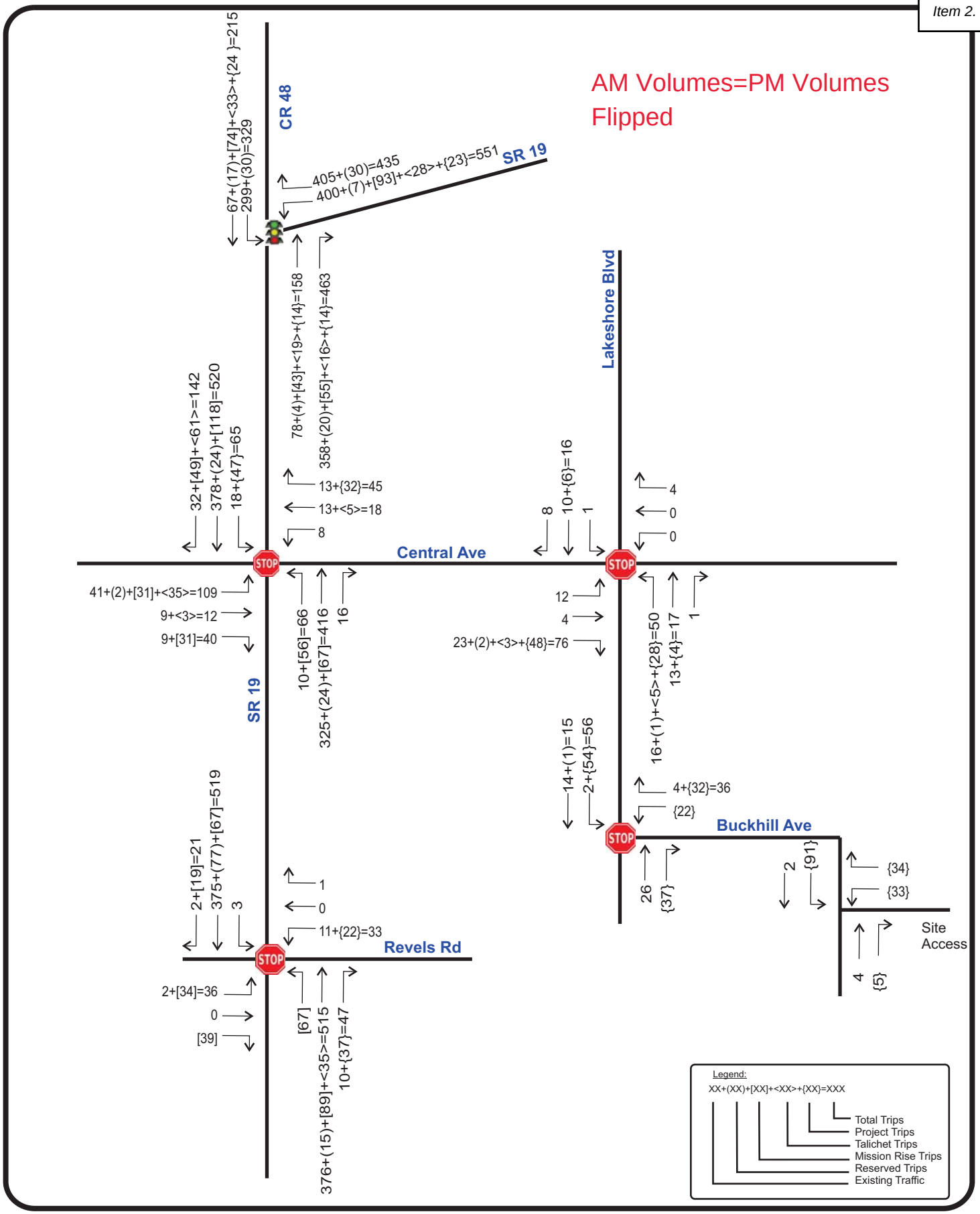
Number 2 Rd
Central Ave
S Florida Ave
CR 48
SR 19
Connector Rd
Spine Rd
Access 1
Interconnect Rd
Revels Rd
Orange Blossom Rd
CR 455
SITE
SITE

36+{3}=39
30+(67)=97
41+{5}=46
15+(50)=65
15+(29)=44
30+(40)=70
(20)
(33)
0
0
1
0
35+(20)=55
6+{5}=11
6
30+(33)=63
20+{16}=36
6+{3}=9
1
24+{9}=33
48+{85}+(33)=166
518+{134}+(50)=702
19+{47}=66
38+{53}+(20)=111
14
16
101+{47}+(7)=155
365
383
521+{115}+(77)=713
86+{29}+(4)=119
424+{72}+(45)=541
17+{32}=49
4
20
19
436+{82}+(29)=547
25
20+(70)=90
25+(20)=45
20+(33)=53
(0)
25+(41)=66
{2}+(50)=52
412+{124}+(20)=556
8
4
0
10+{22}=32
4+{1}+(29)=34
1
5+{21}+(68)=94
1+{35}+(117)=153
446+{194}+(33)=673
14+{37}=51
3+(3)=6
62+(84)=146
74+(103)=177
4+(7)=11
3+(7)=10
4+(9)=13
7
(10)
7
(16)
520+{102}+(69)=691
60+{29}+(20)=109
66+{46}+(33)=145
100
571+{161}+(117)=849
110

Legend:
Background + {Vested} + (Project) = Total

Projected PM Peak Hour Intersection Volumes
Mission Rise
23017, v1.1

Figure 7



Whispering Hills
Project № 5199
Figure 5

Projected P.M. Peak Hour Intersection Volumes

Appendix I
Projected Intersection Volumes

Project No. 22105.1
Intersection Volumes

Analysis Period	Factors SF	AGR	Years	Tgen Enter	Exit	Legend
AM Peak	1.01	2.00%	2	49	147	Backg'd + {Vested} + (Project) = Total

Intersection: SR 19 & CR 48 — 1

App	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Volumes
	L	0	0	1.01	**0**	1.11		0	**0**	0%	0%	**0**	**0**	
NB	T	1	110	1.01	**111**	1.11		85	**208**	0%	10%	**15**	**223**	123 + {85} + (15) = 223
	R	1	472	1.01	**477**	1.11		204	**732**	0%	25%	**37**	**769**	528 + {204} + (37) = 769
	L	1	419	1.01	**423**	1.04		62	**502**	0%	0%	**0**	**502**	440 + {62} = 502
SB	T	1	107	1.01	**108**	1.04		28	**140**	10%	0%	**5**	**145**	112 + {28} + (5) = 145
	R	0	0	1.01	**0**	1.04		0	**0**	0%	0%	**0**	**0**	
	L	0	0	1.01	**0**	1.04		0	**0**	0%	0%	**0**	**0**	
EB	T	0	0	1.01	**0**	1.04		0	**0**	0%	0%	**0**	**0**	
	R	0	0	1.01	**0**	1.04		0	**0**	0%	0%	**0**	**0**	
	L	1	421	1.01	**425**	1.04		133	**575**	25%	0%	**12**	**587**	442 + {133} + (12) = 587
WB	T	0	0	1.01	**0**	1.04		0	**0**	0%	0%	**0**	**0**	
	R	1	349	1.01	**352**	1.04		30	**396**	0%	0%	**0**	**396**	366 + {30} = 396

Intersection: SR 19 & Central Ave — 2

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	14	1.01	14	1.10		11	**26**	0%	0%	**0**	**26**	15 + {11} = 26
NB	T	1	332	1.01	335	1.10		213	**582**	0%	35%	**52**	**634**	369 + {213} + (52) = 634
	R	0	15	1.01	15	1.10		0	**17**	0%	0%	**0**	**17**	17
	L	0	3	1.01	3	1.11		0	**3**	0%	0%	**0**	**3**	3
SB	T	1	384	1.01	388	1.11		135	**565**	35%	0%	**17**	**582**	430 + {135} + (17) = 582
	R	0	14	1.01	14	1.11		45	**61**	0%	0%	**0**	**61**	16 + {45} = 61
	L	0	24	1.01	24	1.04		119	**144**	0%	0%	**0**	**144**	25 + {119} = 144
EB	T	1	9	1.01	9	1.04		0	**9**	0%	0%	**0**	**9**	9
	R	0	14	1.01	14	1.04		31	**46**	0%	0%	**0**	**46**	15 + {31} = 46
	L	0	8	1.01	8	1.04		0	**8**	0%	0%	**0**	**8**	8
WB	T	1	1	1.01	1	1.04		0	**1**	0%	0%	**0**	**1**	1
	R	0	13	1.01	13	1.04		0	**14**	0%	0%	**0**	**14**	14

Intersection: SR 19 & Revels Rd — 3

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	2	1.01	2	1.10		45	**47**	0%	0%	**0**	**47**	2 + {45} = 47
NB	T	1	310	1.01	313	1.10		218	**563**	0%	0%	**0**	**563**	345 + {218} = 563
	R	0	3	1.01	3	1.10		0	**3**	60%	0%	**29**	**32**	3 + (29) = 32
	L	0	3	1.01	3	1.10		0	**3**	35%	0%	**17**	**20**	3 + (17) = 20
SB	T	1	406	1.01	410	1.10		283	**735**	0%	0%	**0**	**735**	452 + {283} = 735
	R	0	2	1.01	2	1.10		16	**18**	0%	0%	**0**	**18**	2 + {16} = 18
	L	0	2	1.01	2	1.04		45	**47**	0%	0%	**0**	**47**	2 + {45} = 47
EB	T	1	0	1.01	0	1.04		0	**0**	0%	0%	**0**	**0**	
	R	0	0	1.01	0	1.04		129	**129**	0%	0%	**0**	**129**	+ {129} = 129
	L	0	5	1.01	5	1.04		0	**5**	0%	60%	**88**	**93**	5 + (88) = 93
WB	T	1	1	1.01	1	1.04		0	**1**	0%	0%	**0**	**1**	1
	R	0	2	1.01	2	1.04		0	**2**	0%	35%	**52**	**54**	2 + (52) = 54

Intersection: SR 19 & CR 455 — 4

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	0	1.01	0	1.10		0	**0**	0%	0%	**0**	**0**	
NB	T	1	496	1.01	501	1.10		140	**692**	40%	0%	**20**	**712**	552 + {140} + (20) = 712
	R	1	164	1.01	166	1.10		0	**183**	0%	0%	**0**	**183**	183
	L	1	142	1.01	143	1.10		82	**240**	0%	15%	**22**	**262**	158 + {82} + (22) = 262
SB	T	1	475	1.01	480	1.10		295	**824**	0%	40%	**59**	**883**	529 + {295} + (59) = 883
	R	0	0	1.01	0	1.10		0	**0**	0%	0%	**0**	**0**	
	L	0	0	1.01	0	1.04		0	**0**	0%	0%	**0**	**0**	
EB	T	0	0	1.01	0	1.04		0	**0**	0%	0%	**0**	**0**	
	R	0	0	1.01	0	1.04		0	**0**	0%	0%	**0**	**0**	
	L	1	136	1.01	137	1.04		0	**142**	0%	0%	**0**	**142**	142
WB	T	0	0	1.01	0	1.04		0	**0**	0%	0%	**0**	**0**	
	R	1	80	1.01	81	1.04		38	**122**	15%	0%	**7**	**129**	84 + {38} + (7) = 129

Intersection: Revels Rd & West Project Access — 5

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0							**0**	0%	70%	**103**	**103**	(103)
NB	T	1							**0**	0%	0%	**0**	**0**	
	R	0							**0**	0%	2%	**3**	**3**	(3)
	L	0							**0**	0%	0%	**0**	**0**	
SB	T	0							**0**	0%	0%	**0**	**0**	
	R	0							**0**	0%	0%	**0**	**0**	
	L	0							**0**	0%	0%	**0**	**0**	
EB	T	1							**6**	25%	0%	**12**	**18**	6 + (12) = 18
	R	0							**0**	70%	0%	**34**	**34**	(34)
	L	0							**0**	2%	0%	**1**	**1**	(1)
WB	T	1							**8**	0%	25%	**37**	**45**	8 + (37) = 45
	R	0							**0**	0%	0%	**0**	**0**	

Project No. 22105.1
Intersection Volumes

Analysis Period	Factors SF	AGR	Years	Tgen Enter	Exit	Legend
AM Peak	1.01	2.00%	2	49	147	Backg'd + {Vested} + (Project) = Total

Intersection: Revels Rd & East Project Access 6

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0							**0**	0%	25%	**37**	**37**	(37)
NB	T	1							**0**	0%	0%	**0**	**0**	
	R	0							**0**	0%	3%	**4**	**4**	(4)
	L	0							**0**	0%	0%	**0**	**0**	
SB	T	0							**0**	0%	0%	**0**	**0**	
	R	0							**0**	0%	0%	**0**	**0**	
	L	0							**0**	0%	0%	**0**	**0**	
EB	T	1							**6**	0%	2%	**3**	**9**	6 + (3) = 9
	R	0							**0**	25%	0%	**12**	**12**	(12)
	L	0							**0**	3%	0%	**2**	**2**	(2)
WB	T	1							**8**	2%	0%	**1**	**9**	8 + (1) = 9
	R	0							**0**	0%	0%	**0**	**0**	

Project No. 22105.1
Intersection Volumes

Analysis Period	Factors SF	AGR	Years	Tgen Enter	Exit	Legend
PM Peak	1.01	2.00%	2	170	100	Backg'd + {Vested} + (Project) = Total

Intersection: SR 19 & CR 48 — 1

App	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	0	1.01	0	1.11		0	0	0%	0%	0	0	
NB	T	1	83	1.01	84	1.11		79	172	0%	10%	10	182	93 + {79} + (10) = 182
	R	1	341	1.01	344	1.11		174	555	0%	25%	25	580	381 + {174} + (25) = 580
	L	1	326	1.01	329	1.04		71	413	0%	0%	0	413	342 + {71} = 413
SB	T	1	80	1.01	81	1.04		59	143	10%	0%	17	160	84 + {59} + (17) = 160
	R	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	L	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
EB	T	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	R	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	L	1	415	1.01	419	1.04		279	715	25%	0%	43	758	436 + {279} + (43) = 758
WB	T	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	R	1	314	1.01	317	1.04		30	360	0%	0%	0	360	330 + {30} = 360

Intersection: SR 19 & Central Ave — 2

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	13	1.01	13	1.10		36	50	0%	0%	0	50	14 + {36} = 50
NB	T	1	384	1.01	388	1.10		200	627	0%	35%	35	662	427 + {200} + (35) = 662
	R	0	24	1.01	24	1.10		0	26	0%	0%	0	26	26
	L	0	18	1.01	18	1.11		0	20	0%	0%	0	20	20
SB	T	1	363	1.01	367	1.11		251	657	35%	0%	60	717	406 + {251} + (60) = 717
	R	0	26	1.01	26	1.11		136	165	0%	0%	0	165	29 + {136} = 165
	L	0	38	1.01	38	1.04		96	136	0%	0%	0	136	40 + {96} = 136
EB	T	1	11	1.01	11	1.04		0	11	0%	0%	0	11	11
	R	0	12	1.01	12	1.04		21	33	0%	0%	0	33	12 + {21} = 33
	L	0	12	1.01	12	1.04		0	12	0%	0%	0	12	12
WB	T	1	2	1.01	2	1.04		0	2	0%	0%	0	2	2
	R	0	15	1.01	15	1.04		0	16	0%	0%	0	16	16

Intersection: SR 19 & Revels Rd — 3

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	2	1.01	2	1.10		152	154	0%	0%	0	154	2 + {152} = 154
NB	T	1	354	1.01	358	1.10		331	725	0%	0%	0	725	394 + {331} = 725
	R	0	11	1.01	11	1.10		0	12	60%	0%	102	114	12 + (102) = 114
	L	0	9	1.01	9	1.10		0	10	35%	0%	60	70	10 + (60) = 70
SB	T	1	305	1.01	308	1.10		306	645	0%	0%	0	645	339 + {306} = 645
	R	0	1	1.01	1	1.10		52	53	0%	0%	0	53	1 + {52} = 53
	L	0	5	1.01	5	1.04		30	35	0%	0%	0	35	5 + {30} = 35
EB	T	1	1	1.01	1	1.04		0	1	0%	0%	0	1	1
	R	0	3	1.01	3	1.04		89	92	0%	0%	0	92	3 + {89} = 92
	L	0	5	1.01	5	1.04		0	5	0%	60%	60	65	5 + (60) = 65
WB	T	1	0	1.01	0	1.04		0	0	0%	0%	0	0	
	R	0	5	1.01	5	1.04		0	5	0%	35%	35	40	5 + (35) = 45

Intersection: SR 19 & CR 455 — 4

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0	0	1.01	0	1.10		0	0	0%	0%	0	0	
NB	T	1	474	1.01	479	1.10		349	877	40%	0%	68	945	528 + {349} + (68) = 945
	R	1	136	1.01	137	1.10		0	151	0%	0%	0	151	151
	L	1	88	1.01	89	1.10		139	237	0%	15%	15	252	98 + {139} + (15) = 252
SB	T	1	498	1.01	503	1.10		166	720	0%	40%	40	760	554 + {166} + (40) = 760
	R	0	0	1.01	0	1.10		0	0	0%	0%	0	0	
	L	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
EB	T	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	R	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	L	1	157	1.01	159	1.04		0	165	0%	0%	0	165	165
WB	T	0	0	1.01	0	1.04		0	0	0%	0%	0	0	
	R	1	97	1.01	98	1.04		97	199	15%	0%	26	225	102 + {97} + (26) = 225

Intersection: Revels Rd & West Project Access — 5

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0							0	0%	70%	70	70	(70)
NB	T	1							0	0%	0%	0	0	
	R	0							0	0%	2%	2	2	(2)
	L	0							0	0%	0%	0	0	
SB	T	0							0	0%	0%	0	0	
	R	0							0	0%	0%	0	0	
	L	0							0	0%	0%	0	0	
EB	T	1							23	25%	0%	43	66	23 + (43) = 66
	R	0							0	70%	0%	119	119	(119)
	L	0							0	2%	0%	3	3	(3)
WB	T	1							10	0%	25%	25	35	10 + (25) = 35
	R	0							0	0%	0%	0	0	

Project No. 22105.1
Intersection Volumes

Analysis Period	Factors SF	AGR	Years	Tgen Enter	Exit	Legend
PM Peak	1.01	2.00%	2	170	100	Backg'd + {Vested} + (Project) = Total

Intersection: Revels Rd & East Project Access — 6

Appr	Mvmt	Lns	Raw	SF	Adjusted	GR	Redirect	Vested	Adj Bg'd	ProjIn	ProjOut	Project	BldOut	Formula
	L	0							**0**	0%	25%	**25**	**25**	(25)
NB	T	1							**0**	0%	0%	**0**	**0**	
	R	0							**0**	0%	3%	**3**	**3**	(3)
	L	0							**0**	0%	0%	**0**	**0**	
SB	T	0							**0**	0%	0%	**0**	**0**	
	R	0							**0**	0%	0%	**0**	**0**	
	L	0							**0**	0%	0%	**0**	**0**	
EB	T	1							**23**	0%	2%	**2**	**25**	23 + (2) = 25
	R	0							**0**	25%	0%	**43**	**43**	(43)
	L	0							**0**	3%	0%	**5**	**5**	(5)
WB	T	1							**10**	2%	0%	**3**	**13**	10 + (3) = 13
	R	0							**0**	0%	0%	**0**	**0**	

Appendix J
HCM Worksheets

HCM 7th Signalized Intersection Summary
1: SR 19 & CR 48



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	425	352	111	477	423	108
Future Volume (veh/h)	425	352	111	477	423	108
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1781	1767	1767	1841	1781	1752
Adj Flow Rate, veh/h	472	391	123	0	470	120
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	9	9	4	8	10
Cap, veh/h	506	447	351		662	911
Arrive On Green	0.30	0.30	0.20	0.00	0.24	0.52
Sat Flow, veh/h	1697	1497	1767	1560	1697	1752
Grp Volume(v), veh/h	472	391	123	0	470	120
Grp Sat Flow(s),veh/h/ln	1697	1497	1767	1560	1697	1752
Q Serve(g_s), s	20.4	18.7	4.5	0.0	15.6	2.7
Cycle Q Clear(g_c), s	20.4	18.7	4.5	0.0	15.6	2.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	506	447	351		662	911
V/C Ratio(X)	0.93	0.88	0.35		0.71	0.13
Avail Cap(c_a), veh/h	510	450	903		678	911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	25.2	26.1	0.0	15.7	9.3
Incr Delay (d2), s/veh	24.1	17.2	0.6	0.0	3.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	8.4	1.9	0.0	6.1	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	49.9	42.3	26.7	0.0	19.0	9.4
LnGrp LOS	D	D	C		B	A
Approach Vol, veh/h	863		123			590
Approach Delay, s/veh	46.5		26.7			17.1
Approach LOS	D		C			B

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.3	21.4		29.8		45.7
Change Period (Y+Rc), s	6.5	6.4		7.3		6.4
Max Green Setting (Gmax), s	18.5	38.6		22.7		38.6
Max Q Clear Time (g_c+I1), s	17.6	6.5		22.4		4.7
Green Ext Time (p_c), s	0.2	0.7		0.1		0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary
1: SR 19 & CR 48



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	575	396	208	732	502	140
Future Volume (veh/h)	575	396	208	732	502	140
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1781	1767	1767	1841	1781	1752
Adj Flow Rate, veh/h	639	440	231	0	558	156
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	9	9	4	8	10
Cap, veh/h	504	445	347		588	917
Arrive On Green	0.30	0.30	0.20	0.00	0.24	0.52
Sat Flow, veh/h	1697	1497	1767	1560	1697	1752
Grp Volume(v), veh/h	639	440	231	0	558	156
Grp Sat Flow(s),veh/h/ln	1697	1497	1767	1560	1697	1752
Q Serve(g_s), s	22.7	22.4	9.2	0.0	18.5	3.6
Cycle Q Clear(g_c), s	22.7	22.4	9.2	0.0	18.5	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	504	445	347		588	917
V/C Ratio(X)	1.27	0.99	0.67		0.95	0.17
Avail Cap(c_a), veh/h	504	445	893		588	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	26.7	28.4	0.0	18.4	9.5
Incr Delay (d2), s/veh	135.5	39.7	2.2	0.0	25.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.6	12.4	4.0	0.0	11.1	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	162.3	66.4	30.6	0.0	43.6	9.6
LnGrp LOS	F	E	C		D	A
Approach Vol, veh/h	1079		231			714
Approach Delay, s/veh	123.2		30.6			36.2
Approach LOS	F		C			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.0	21.4		30.0		46.4
Change Period (Y+Rc), s	6.5	6.4		7.3		6.4
Max Green Setting (Gmax), s	18.5	38.6		22.7		38.6
Max Q Clear Time (g_c+I1), s	20.5	11.2		24.7		5.6
Green Ext Time (p_c), s	0.0	1.4		0.0		0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	81.9
HCM 7th LOS	F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary
1: SR 19 & CR 48



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	587	396	223	769	502	145
Future Volume (veh/h)	587	396	223	769	502	145
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1781	1767	1767	1841	1781	1752
Adj Flow Rate, veh/h	652	440	248	0	558	161
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	9	9	4	8	10
Cap, veh/h	504	445	347		575	917
Arrive On Green	0.30	0.30	0.20	0.00	0.24	0.52
Sat Flow, veh/h	1697	1497	1767	1560	1697	1752
Grp Volume(v), veh/h	652	440	248	0	558	161
Grp Sat Flow(s),veh/h/ln	1697	1497	1767	1560	1697	1752
Q Serve(g_s), s	22.7	22.4	10.0	0.0	18.5	3.7
Cycle Q Clear(g_c), s	22.7	22.4	10.0	0.0	18.5	3.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	504	445	347		575	917
V/C Ratio(X)	1.29	0.99	0.72		0.97	0.18
Avail Cap(c_a), veh/h	504	445	893		575	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	26.7	28.7	0.0	18.6	9.5
Incr Delay (d2), s/veh	146.2	39.7	2.8	0.0	30.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.1	12.4	4.4	0.0	11.8	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	173.1	66.4	31.5	0.0	48.5	9.6
LnGrp LOS	F	E	C		D	A
Approach Vol, veh/h	1092		248			719
Approach Delay, s/veh	130.1		31.5			39.8
Approach LOS	F		C			D

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.0	21.4		30.0		46.4
Change Period (Y+Rc), s	6.5	6.4		7.3		6.4
Max Green Setting (Gmax), s	18.5	38.6		22.7		38.6
Max Q Clear Time (g_c+I1), s	20.5	12.0		24.7		5.7
Green Ext Time (p_c), s	0.0	1.5		0.0		0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	86.7
HCM 7th LOS	F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary
1: SR 19 & CR 48



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	419	317	84	344	329	81
Future Volume (veh/h)	419	317	84	344	329	81
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1841	1870	1811	1811	1870	1826
Adj Flow Rate, veh/h	441	334	88	0	346	85
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	6	6	2	5
Cap, veh/h	508	459	412		670	917
Arrive On Green	0.29	0.29	0.23	0.00	0.18	0.50
Sat Flow, veh/h	1753	1585	1811	1535	1781	1826
Grp Volume(v), veh/h	441	334	88	0	346	85
Grp Sat Flow(s),veh/h/ln	1753	1585	1811	1535	1781	1826
Q Serve(g_s), s	15.7	12.5	2.6	0.0	9.0	1.6
Cycle Q Clear(g_c), s	15.7	12.5	2.6	0.0	9.0	1.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	508	459	412		670	917
V/C Ratio(X)	0.87	0.73	0.21		0.52	0.09
Avail Cap(c_a), veh/h	603	545	1060		855	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	21.1	20.7	0.0	13.3	8.6
Incr Delay (d2), s/veh	11.3	4.0	0.3	0.0	0.6	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	4.8	1.1	0.0	3.3	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	33.5	25.0	20.9	0.0	13.9	8.6
LnGrp LOS	C	C	C		B	A
Approach Vol, veh/h	775		88			431
Approach Delay, s/veh	29.9		20.9			12.9
Approach LOS	C		C			B

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	18.1	21.4		26.4		39.5
Change Period (Y+Rc), s	6.5	6.4		7.3		6.4
Max Green Setting (Gmax), s	18.5	38.6		22.7		38.6
Max Q Clear Time (g_c+I1), s	11.0	4.6		17.7		3.6
Green Ext Time (p_c), s	0.7	0.5		1.4		0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	23.6
HCM 7th LOS	C

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary
1: SR 19 & CR 48



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	715	360	172	555	413	143
Future Volume (veh/h)	715	360	172	555	413	143
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1841	1870	1811	1811	1870	1826
Adj Flow Rate, veh/h	753	379	181	0	435	151
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	6	6	2	5
Cap, veh/h	541	489	369		617	923
Arrive On Green	0.31	0.31	0.20	0.00	0.21	0.51
Sat Flow, veh/h	1753	1585	1811	1535	1781	1826
Grp Volume(v), veh/h	753	379	181	0	435	151
Grp Sat Flow(s),veh/h/ln	1753	1585	1811	1535	1781	1826
Q Serve(g_s), s	22.7	16.0	6.5	0.0	13.2	3.3
Cycle Q Clear(g_c), s	22.7	16.0	6.5	0.0	13.2	3.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	541	489	369		617	923
V/C Ratio(X)	1.39	0.78	0.49		0.71	0.16
Avail Cap(c_a), veh/h	541	489	950		684	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	23.1	25.9	0.0	15.8	9.8
Incr Delay (d2), s/veh	187.9	7.7	1.0	0.0	2.9	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	37.0	6.7	2.8	0.0	5.4	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	213.4	30.8	26.9	0.0	18.7	9.9
LnGrp LOS	F	C	C		B	A
Approach Vol, veh/h	1132		181			586
Approach Delay, s/veh	152.3		26.9			16.5
Approach LOS	F		C			B

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.2	21.4		30.0		43.6
Change Period (Y+Rc), s	6.5	6.4		7.3		6.4
Max Green Setting (Gmax), s	18.5	38.6		22.7		38.6
Max Q Clear Time (g_c+I1), s	15.2	8.5		24.7		5.3
Green Ext Time (p_c), s	0.5	1.0		0.0		0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	98.4
HCM 7th LOS	F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 7th Signalized Intersection Summary
1: SR 19 & CR 48



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	758	360	182	580	413	160
Future Volume (veh/h)	758	360	182	580	413	160
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1841	1870	1811	1811	1870	1826
Adj Flow Rate, veh/h	798	379	192	0	435	168
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	6	6	2	5
Cap, veh/h	541	489	369		608	923
Arrive On Green	0.31	0.31	0.20	0.00	0.21	0.51
Sat Flow, veh/h	1753	1585	1811	1535	1781	1826
Grp Volume(v), veh/h	798	379	192	0	435	168
Grp Sat Flow(s),veh/h/ln	1753	1585	1811	1535	1781	1826
Q Serve(g_s), s	22.7	16.0	7.0	0.0	13.2	3.7
Cycle Q Clear(g_c), s	22.7	16.0	7.0	0.0	13.2	3.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	541	489	369		608	923
V/C Ratio(X)	1.48	0.78	0.52		0.72	0.18
Avail Cap(c_a), veh/h	541	489	950		676	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	23.1	26.1	0.0	15.9	9.9
Incr Delay (d2), s/veh	224.2	7.7	1.1	0.0	3.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	42.5	6.7	3.0	0.0	5.4	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	249.6	30.8	27.2	0.0	19.1	10.0
LnGrp LOS	F	C	C		B	B
Approach Vol, veh/h	1177		192			603
Approach Delay, s/veh	179.2		27.2			16.6
Approach LOS	F		C			B

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.2	21.4		30.0		43.6
Change Period (Y+Rc), s	6.5	6.4		7.3		6.4
Max Green Setting (Gmax), s	18.5	38.6		22.7		38.6
Max Q Clear Time (g_c+I1), s	15.2	9.0		24.7		5.7
Green Ext Time (p_c), s	0.5	1.1		0.0		1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	114.6
HCM 7th LOS	F

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	9	14	8	1	13	14	335	15	3	388	14
Future Vol, veh/h	24	9	14	8	1	13	14	335	15	3	388	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	8	11	21	13	100	15	21	14	20	33	5	14
Mvmt Flow	26	10	15	9	1	14	15	356	16	3	413	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	813	829	420	818	828	364	428	0	0	372	0	0
Stage 1	427	427	-	394	394	-	-	-	-	-	-	-
Stage 2	387	402	-	424	434	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.61	6.41	7.23	7.5	6.35	4.31	-	-	4.43	-	-
Critical Hdwy Stg 1	6.18	5.61	-	6.23	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.61	-	6.23	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.099	3.489	3.617	4.9	3.435	2.389	-	-	2.497	-	-
Pot Cap-1 Maneuver	290	296	594	282	218	652	1037	-	-	1035	-	-
Stage 1	594	570	-	609	466	-	-	-	-	-	-	-
Stage 2	625	585	-	587	444	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	276	290	594	260	213	652	1037	-	-	1035	-	-
Mov Cap-2 Maneuver	276	290	-	260	213	-	-	-	-	-	-	-
Stage 1	592	568	-	598	457	-	-	-	-	-	-	-
Stage 2	599	574	-	560	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	17.75	14.62	0.33	0.06
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	69	-	-	332	398	13	-	-
HCM Lane V/C Ratio	0.014	-	-	0.151	0.059	0.003	-	-
HCM Ctrl Dly (s/v)	8.5	0	-	17.7	14.6	8.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.2	0	-	-

Intersection	
Int Delay, s/veh	41.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	144	9	46	8	1	14	26	582	17	3	565	61
Future Vol, veh/h	144	9	46	8	1	14	26	582	17	3	565	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	8	11	21	13	100	15	21	14	20	33	5	14
Mvmt Flow	153	10	49	9	1	15	28	619	18	3	601	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1315	1332	634	1296	1356	628	666	0	0	637	0	0
Stage 1	640	640	-	684	684	-	-	-	-	-	-	-
Stage 2	675	693	-	612	672	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.61	6.41	7.23	7.5	6.35	4.31	-	-	4.43	-	-
Critical Hdwy Stg 1	6.18	5.61	-	6.23	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.61	-	6.23	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.099	3.489	3.617	4.9	3.435	2.389	-	-	2.497	-	-
Pot Cap-1 Maneuver	~ 131	148	447	132	96	460	840	-	-	814	-	-
Stage 1	454	456	-	422	329	-	-	-	-	-	-	-
Stage 2	434	431	-	462	333	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 118	139	447	104	90	460	840	-	-	814	-	-
Mov Cap-2 Maneuver	~ 118	139	-	104	90	-	-	-	-	-	-	-
Stage 1	451	453	-	400	312	-	-	-	-	-	-	-
Stage 2	397	409	-	400	331	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 304.05	26.26	0.39	0.05
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	74	-	-	144	194	8	-	-
HCM Lane V/C Ratio	0.033	-	-	1.474	0.126	0.004	-	-
HCM Ctrl Dly (s/v)	9.4	0	-	$ 304	26.3	9.4	0	-
HCM Lane LOS	A	A	-	F	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	14.1	0.4	0	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	50.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	144	9	46	8	1	14	26	634	17	3	582	61
Future Vol, veh/h	144	9	46	8	1	14	26	634	17	3	582	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	8	11	21	13	100	15	21	14	20	33	5	14
Mvmt Flow	153	10	49	9	1	15	28	674	18	3	619	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1388	1406	652	1369	1429	684	684	0	0	693	0	0
Stage 1	658	658	-	739	739	-	-	-	-	-	-	-
Stage 2	730	748	-	630	690	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.61	6.41	7.23	7.5	6.35	4.31	-	-	4.43	-	-
Critical Hdwy Stg 1	6.18	5.61	-	6.23	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.61	-	6.23	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.099	3.489	3.617	4.9	3.435	2.389	-	-	2.497	-	-
Pot Cap-1 Maneuver	~ 116	133	436	117	85	427	827	-	-	774	-	-
Stage 1	444	448	-	393	307	-	-	-	-	-	-	-
Stage 2	404	407	-	451	326	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 104	125	436	91	80	427	827	-	-	774	-	-
Mov Cap-2 Maneuver	~ 104	125	-	91	80	-	-	-	-	-	-	-
Stage 1	441	445	-	371	290	-	-	-	-	-	-	-
Stage 2	368	385	-	389	324	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 388.69	29.34	0.37	0.04
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	69	-	-	128	172	8	-	-
HCM Lane V/C Ratio	0.033	-	-	1.658	0.142	0.004	-	-
HCM Ctrl Dly (s/v)	9.5	0	-	$ 388.7	29.3	9.7	0	-
HCM Lane LOS	A	A	-	F	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	15.6	0.5	0	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	11	12	12	2	15	13	388	24	18	367	26
Future Vol, veh/h	38	11	12	12	2	15	13	388	24	18	367	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	2	8	17	50	13	15	8	8	11	4	15
Mvmt Flow	40	11	13	13	2	16	14	404	25	19	382	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	866	890	396	869	891	417	409	0	0	429	0	0
Stage 1	433	433	-	444	444	-	-	-	-	-	-	-
Stage 2	432	456	-	426	447	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.28	7.27	7	6.33	4.25	-	-	4.21	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.27	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.27	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.372	3.653	4.45	3.417	2.335	-	-	2.299	-	-
Pot Cap-1 Maneuver	270	282	641	256	236	613	1083	-	-	1084	-	-
Stage 1	595	581	-	565	502	-	-	-	-	-	-	-
Stage 2	596	568	-	578	500	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	251	271	641	232	227	613	1083	-	-	1084	-	-
Mov Cap-2 Maneuver	251	271	-	232	227	-	-	-	-	-	-	-
Stage 1	582	568	-	556	493	-	-	-	-	-	-	-
Stage 2	569	559	-	543	489	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	20.89	16.58	0.26	0.37
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	54	-	-	290	341	78	-	-
HCM Lane V/C Ratio	0.013	-	-	0.219	0.089	0.017	-	-
HCM Ctrl Dly (s/v)	8.4	0	-	20.9	16.6	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	71.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	136	11	33	12	2	16	50	627	26	20	657	165
Future Vol, veh/h	136	11	33	12	2	16	50	627	26	20	657	165
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	2	8	17	50	13	15	8	8	11	4	15
Mvmt Flow	142	11	34	13	2	17	52	653	27	21	684	172

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1570	1596	770	1503	1669	667	856	0	0	680	0	0
Stage 1	812	812	-	771	771	-	-	-	-	-	-	-
Stage 2	758	784	-	732	898	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.28	7.27	7	6.33	4.25	-	-	4.21	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.27	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.27	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.372	3.653	4.45	3.417	2.335	-	-	2.299	-	-
Pot Cap-1 Maneuver	~ 88	107	391	92	75	440	731	-	-	871	-	-
Stage 1	368	392	-	371	347	-	-	-	-	-	-	-
Stage 2	395	404	-	390	300	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 70	90	391	63	63	440	731	-	-	871	-	-
Mov Cap-2 Maneuver	~ 70	90	-	63	63	-	-	-	-	-	-	-
Stage 1	351	374	-	328	307	-	-	-	-	-	-	-
Stage 2	334	357	-	329	286	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 681.15	46.95	0.73	0.22
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	127	-	-	83	116	41	-	-
HCM Lane V/C Ratio	0.071	-	-	2.253	0.269	0.024	-	-
HCM Ctrl Dly (s/v)	10.3	0	-	$ 681.2	47	9.2	0	-
HCM Lane LOS	B	A	-	F	E	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	17.1	1	0.1	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	88.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	136	11	33	12	2	16	50	662	26	20	717	165
Future Vol, veh/h	136	11	33	12	2	16	50	662	26	20	717	165
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	2	8	17	50	13	15	8	8	11	4	15
Mvmt Flow	142	11	34	13	2	17	52	690	27	21	747	172

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1669	1695	833	1602	1768	703	919	0	0	717	0	0
Stage 1	874	874	-	807	807	-	-	-	-	-	-	-
Stage 2	795	821	-	794	960	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.28	7.27	7	6.33	4.25	-	-	4.21	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.27	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.27	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.372	3.653	4.45	3.417	2.335	-	-	2.299	-	-
Pot Cap-1 Maneuver	~ 75	93	360	79	64	419	692	-	-	844	-	-
Stage 1	340	367	-	354	333	-	-	-	-	-	-	-
Stage 2	377	389	-	360	279	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 58	77	360	51	53	419	692	-	-	844	-	-
Mov Cap-2 Maneuver	~ 58	77	-	51	53	-	-	-	-	-	-	-
Stage 1	322	348	-	309	291	-	-	-	-	-	-	-
Stage 2	314	340	-	298	264	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	$ 894.31	58.87	0.72	0.21
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	121	-	-	70	97	38	-	-
HCM Lane V/C Ratio	0.075	-	-	2.695	0.322	0.025	-	-
HCM Ctrl Dly (s/v)	10.6	0	-	$ 894.3	58.9	9.4	0	-
HCM Lane LOS	B	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	18.5	1.2	0.1	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	5	1	2	2	313	3	3	410	2
Future Vol, veh/h	2	0	0	5	1	2	2	313	3	3	410	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	100	2	2	2	2	2	51	5	33	2	3	50
Mvmt Flow	2	0	0	5	1	2	2	319	3	3	418	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	749	752	419	749	752	321	420	0	0	322	0	0
Stage 1	426	426	-	325	325	-	-	-	-	-	-	-
Stage 2	324	327	-	424	427	-	-	-	-	-	-	-
Critical Hdwy	8.1	6.52	6.22	7.12	6.52	6.22	4.61	-	-	4.12	-	-
Critical Hdwy Stg 1	7.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.018	3.318	3.518	4.018	3.318	2.659	-	-	2.218	-	-
Pot Cap-1 Maneuver	231	339	634	328	339	720	919	-	-	1237	-	-
Stage 1	453	586	-	687	649	-	-	-	-	-	-	-
Stage 2	523	648	-	608	586	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	229	337	634	326	337	720	919	-	-	1237	-	-
Mov Cap-2 Maneuver	229	337	-	326	337	-	-	-	-	-	-	-
Stage 1	452	584	-	686	647	-	-	-	-	-	-	-
Stage 2	519	646	-	606	584	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	20.89	14.7	0.06	0.06
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	11	-	-	229	379	13	-	-
HCM Lane V/C Ratio	0.002	-	-	0.009	0.022	0.002	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	20.9	14.7	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	0	129	5	1	2	47	563	3	3	735	18
Future Vol, veh/h	47	0	129	5	1	2	47	563	3	3	735	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	455	-	-	-	-	405
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	5	2	2	2	2	2	5	5	33	2	3	5
Mvmt Flow	48	0	132	5	1	2	48	574	3	3	750	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1427	1430	750	1428	1446	576	768	0	0	578	0	0
Stage 1	756	756	-	672	672	-	-	-	-	-	-	-
Stage 2	671	673	-	756	774	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.22	7.12	6.52	6.22	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.318	3.518	4.018	3.318	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	111	135	411	113	132	517	832	-	-	996	-	-
Stage 1	396	416	-	445	455	-	-	-	-	-	-	-
Stage 2	441	454	-	400	408	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	103	126	411	72	123	517	832	-	-	996	-	-
Mov Cap-2 Maneuver	230	249	-	162	234	-	-	-	-	-	-	-
Stage 1	394	414	-	420	428	-	-	-	-	-	-	-
Stage 2	413	428	-	271	406	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	26.84	23.32	0.74	0.03
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	832	-	-	340	205	7	-	-
HCM Lane V/C Ratio	0.058	-	-	0.528	0.04	0.003	-	-
HCM Ctrl Dly (s/v)	9.6	-	-	26.8	23.3	8.6	0	-
HCM Lane LOS	A	-	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.9	0.1	0	-	-

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	0	129	93	1	54	47	563	32	20	735	18
Future Vol, veh/h	47	0	129	93	1	54	47	563	32	20	735	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	455	-	-	-	-	405
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	5	2	2	2	2	2	5	5	5	2	3	5
Mvmt Flow	48	0	132	95	1	55	48	574	33	20	750	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1462	1494	750	1478	1496	591	768	0	0	607	0	0
Stage 1	791	791	-	687	687	-	-	-	-	-	-	-
Stage 2	671	703	-	791	809	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.22	7.12	6.52	6.22	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.318	3.518	4.018	3.318	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	105	123	411	104	123	507	832	-	-	971	-	-
Stage 1	379	401	-	437	448	-	-	-	-	-	-	-
Stage 2	441	440	-	383	393	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	85	112	411	~ 64	111	507	832	-	-	971	-	-
Mov Cap-2 Maneuver	201	229	-	149	219	-	-	-	-	-	-	-
Stage 1	365	386	-	412	422	-	-	-	-	-	-	-
Stage 2	370	415	-	251	379	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	29.44	62.49	0.7	0.23
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	832	-	-	322	201	48	-	-
HCM Lane V/C Ratio	0.058	-	-	0.558	0.75	0.021	-	-
HCM Ctrl Dly (s/v)	9.6	-	-	29.4	62.5	8.8	0	-
HCM Lane LOS	A	-	-	D	F	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	3.2	5	0.1	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1	3	5	0	5	2	358	11	9	308	1
Future Vol, veh/h	5	1	3	5	0	5	2	358	11	9	308	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	20	2	33	20	2	20	100	3	9	11	2	100
Mvmt Flow	5	1	3	5	0	5	2	385	12	10	331	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	740	752	332	746	747	391	332	0	0	397	0	0
Stage 1	351	351	-	395	395	-	-	-	-	-	-	-
Stage 2	389	401	-	351	352	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.52	6.53	7.3	6.52	6.4	5.1	-	-	4.21	-	-
Critical Hdwy Stg 1	6.3	5.52	-	6.3	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.52	-	6.3	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4.018	3.597	3.68	4.018	3.48	3.1	-	-	2.299	-	-
Pot Cap-1 Maneuver	311	339	644	308	342	620	834	-	-	1115	-	-
Stage 1	630	632	-	596	605	-	-	-	-	-	-	-
Stage 2	600	601	-	630	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	304	334	644	301	337	620	834	-	-	1115	-	-
Mov Cap-2 Maneuver	304	334	-	301	337	-	-	-	-	-	-	-
Stage 1	623	625	-	594	603	-	-	-	-	-	-	-
Stage 2	593	599	-	619	625	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.9	14.12	0.05	0.23
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	10	-	-	373	405	51	-	-
HCM Lane V/C Ratio	0.003	-	-	0.026	0.027	0.009	-	-
HCM Ctrl Dly (s/v)	9.3	0	-	14.9	14.1	8.3	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	1	92	5	0	5	154	725	12	10	645	53
Future Vol, veh/h	35	1	92	5	0	5	154	725	12	10	645	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	455	-	-	-	-	405
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	2	5	20	2	20	5	3	9	11	2	5
Mvmt Flow	38	1	99	5	0	5	166	780	13	11	694	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1826	1839	694	1833	1889	786	751	0	0	792	0	0
Stage 1	715	715	-	1117	1117	-	-	-	-	-	-	-
Stage 2	1111	1124	-	716	772	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.25	7.3	6.52	6.4	4.15	-	-	4.21	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.3	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.3	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.345	3.68	4.018	3.48	2.245	-	-	2.299	-	-
Pot Cap-1 Maneuver	58	76	438	53	70	365	845	-	-	790	-	-
Stage 1	417	434	-	232	283	-	-	-	-	-	-	-
Stage 2	250	281	-	394	409	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	59	438	32	55	365	845	-	-	790	-	-
Mov Cap-2 Maneuver	135	154	-	84	130	-	-	-	-	-	-	-
Stage 1	407	424	-	187	227	-	-	-	-	-	-	-
Stage 2	198	226	-	297	400	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	31.71	33.46	1.78	0.14
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	845	-	-	268	137	27	-	-
HCM Lane V/C Ratio	0.196	-	-	0.513	0.078	0.014	-	-
HCM Ctrl Dly (s/v)	10.3	-	-	31.7	33.5	9.6	0	-
HCM Lane LOS	B	-	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.7	-	-	2.7	0.3	0	-	-

Intersection	
Int Delay, s/veh	27.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	1	92	65	0	40	154	725	114	70	645	53
Future Vol, veh/h	35	1	92	65	0	40	154	725	114	70	645	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	455	-	-	-	-	405
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	2	5	5	2	5	5	3	5	5	2	5
Mvmt Flow	38	1	99	70	0	43	166	780	123	75	694	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1955	2077	694	2017	2073	841	751	0	0	902	0	0
Stage 1	844	844	-	1172	1172	-	-	-	-	-	-	-
Stage 2	1111	1233	-	845	901	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.25	7.15	6.52	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.15	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.15	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.345	3.545	4.018	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	47	54	438	~ 43	54	360	845	-	-	741	-	-
Stage 1	354	379	-	231	266	-	-	-	-	-	-	-
Stage 2	250	249	-	353	357	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 28	35	438	~ 22	36	360	845	-	-	741	-	-
Mov Cap-2 Maneuver	78	94	-	~ 48	88	-	-	-	-	-	-	-
Stage 1	291	312	-	186	214	-	-	-	-	-	-	-
Stage 2	177	200	-	225	294	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	60.95	$ 420.39	1.6	0.95
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	845	-	-	191	71	176	-	-
HCM Lane V/C Ratio	0.196	-	-	0.719	1.59	0.102	-	-
HCM Ctrl Dly (s/v)	10.3	-	-	61	$ 420.4	10.4	0	-
HCM Lane LOS	B	-	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.7	-	-	4.6	9.6	0.3	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	137	81	501	166	143	480
Future Vol, veh/h	137	81	501	166	143	480
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	210	0	-	434	460	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	19	5	7	14	3	6
Mvmt Flow	143	84	522	173	149	500

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1320	522	0	0	695	0
Stage 1	522	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Critical Hdwy	6.59	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.59	-	-	-	-	-
Critical Hdwy Stg 2	5.59	-	-	-	-	-
Follow-up Hdwy	3.671	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	159	549	-	-	896	-
Stage 1	562	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 133	549	-	-	896	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	346	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	27.74	0	2.25
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	251	549	896	-
HCM Lane V/C Ratio	-	-	0.568	0.154	0.166	-
HCM Ctrl Dly (s/v)	-	-	36.6	12.7	9.8	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	3.2	0.5	0.6	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	19.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	142	122	692	183	240	824
Future Vol, veh/h	142	122	692	183	240	824
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	210	0	-	434	460	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	19	5	7	14	3	6
Mvmt Flow	148	127	721	191	250	858

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2079	721	0	0	911	0
Stage 1	721	-	-	-	-	-
Stage 2	1358	-	-	-	-	-
Critical Hdwy	6.59	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.59	-	-	-	-	-
Critical Hdwy Stg 2	5.59	-	-	-	-	-
Follow-up Hdwy	3.671	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	~ 53	422	-	-	743	-
Stage 1	452	-	-	-	-	-
Stage 2	220	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 35	422	-	-	743	-
Mov Cap-2 Maneuver	~ 112	-	-	-	-	-
Stage 1	452	-	-	-	-	-
Stage 2	~ 146	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	150.93	0	2.77
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	112	422	743	-
HCM Lane V/C Ratio	-	-	1.322	0.301	0.336	-
HCM Ctrl Dly (s/v)	-	-	265.9	17.1	12.3	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	10	1.2	1.5	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	25.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	142	129	712	183	262	883
Future Vol, veh/h	142	129	712	183	262	883
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	210	0	-	434	460	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	19	5	7	14	3	6
Mvmt Flow	148	134	742	191	273	920

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2207	742	0	0	932	0
Stage 1	742	-	-	-	-	-
Stage 2	1466	-	-	-	-	-
Critical Hdwy	6.59	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.59	-	-	-	-	-
Critical Hdwy Stg 2	5.59	-	-	-	-	-
Follow-up Hdwy	3.671	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	~ 43	411	-	-	730	-
Stage 1	442	-	-	-	-	-
Stage 2	194	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 27	411	-	-	730	-
Mov Cap-2 Maneuver	~ 95	-	-	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	~ 122	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	204.56	0	2.94
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	95	411	730	-
HCM Lane V/C Ratio	-	-	1.558	0.327	0.374	-
HCM Ctrl Dly (s/v)	-	-	$ 374.1	18	12.8	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	11.5	1.4	1.7	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	98	479	137	89	503
Future Vol, veh/h	159	98	479	137	89	503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	210	0	-	434	460	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	10	2	5	10	6	4
Mvmt Flow	164	101	494	141	92	519

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1196	494	0	0	635	0
Stage 1	494	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Critical Hdwy	6.5	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	198	575	-	-	929	-
Stage 1	597	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	179	575	-	-	929	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	430	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	23.05	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	306	575	929	-
HCM Lane V/C Ratio	-	-	0.535	0.176	0.099	-
HCM Ctrl Dly (s/v)	-	-	29.5	12.6	9.3	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	3	0.6	0.3	-

Intersection	
Int Delay, s/veh	26.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	199	877	151	237	720
Future Vol, veh/h	165	199	877	151	237	720
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	210	0	-	434	460	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	10	2	5	10	6	4
Mvmt Flow	170	205	904	156	244	742

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2135	904	0	0	1060	0
Stage 1	904	-	-	-	-	-
Stage 2	1231	-	-	-	-	-
Critical Hdwy	6.5	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	~ 51	335	-	-	642	-
Stage 1	382	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 32	335	-	-	642	-
Mov Cap-2 Maneuver	~ 117	-	-	-	-	-
Stage 1	382	-	-	-	-	-
Stage 2	~ 164	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	159.14	0	3.47
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	117	335	642	-
HCM Lane V/C Ratio	-	-	1.455	0.612	0.38	-
HCM Ctrl Dly (s/v)	-	-	$ 313.3	31.3	14	-
HCM Lane LOS	-	-	F	D	B	-
HCM 95th %tile Q(veh)	-	-	12	3.8	1.8	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	34

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	225	945	151	252	760
Future Vol, veh/h	165	225	945	151	252	760
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	210	0	-	434	460	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	10	2	5	10	6	4
Mvmt Flow	170	232	974	156	260	784

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2277	974	0	0	1130	0
Stage 1	974	-	-	-	-	-
Stage 2	1303	-	-	-	-	-
Critical Hdwy	6.5	6.22	-	-	4.16	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.318	-	-	2.254	-
Pot Cap-1 Maneuver	~ 42	305	-	-	604	-
Stage 1	354	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 24	305	-	-	604	-
Mov Cap-2 Maneuver	~ 100	-	-	-	-	-
Stage 1	354	-	-	-	-	-
Stage 2	~ 139	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	208.07	0	3.83
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	100	305	604	-
HCM Lane V/C Ratio	-	-	1.704	0.759	0.43	-
HCM Ctrl Dly (s/v)	-	-	$ 429	46.1	15.4	-
HCM Lane LOS	-	-	F	E	C	-
HCM 95th %tile Q(veh)	-	-	13.5	5.8	2.2	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	34	1	45	103	3
Future Vol, veh/h	18	34	1	45	103	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	37	1	49	112	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	89	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	51	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1548	-	911	1034
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	971	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1548	-	911	1034
Mov Cap-2 Maneuver	-	-	-	-	911	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	971	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.16	9.51
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	914	-	-	39	-
HCM Lane V/C Ratio	0.126	-	-	0.001	-
HCM Ctrl Dly (s/v)	9.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	66	119	3	35	70	2
Future Vol, veh/h	66	119	3	35	70	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	129	3	38	76	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	201	0	181	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	45	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1371	-	808	912
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1371	-	807	912
Mov Cap-2 Maneuver	-	-	-	-	807	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.6	9.93
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	809	-	-	142	-
HCM Lane V/C Ratio	0.097	-	-	0.002	-
HCM Ctrl Dly (s/v)	9.9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	9	12	2	9	37	4
Future Vol, veh/h	9	12	2	9	37	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	13	2	10	40	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	23	0	30	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1592	-	984	1063
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	1009	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1592	-	982	1063
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	1007	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.32	8.81
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	990	-	-	327	-
HCM Lane V/C Ratio	0.045	-	-	0.001	-
HCM Ctrl Dly (s/v)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	43	5	13	25	3
Future Vol, veh/h	25	43	5	13	25	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	47	5	14	27	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	74	0	76	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1526	-	928	1018
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1526	-	924	1018
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	994	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.05	8.99
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	934	-	-	500	-
HCM Lane V/C Ratio	0.033	-	-	0.004	-
HCM Ctrl Dly (s/v)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

CARTEGRAPH ID: LC-S-043 **DATE: 05/15/2015**

INTERSECTION NAME AND ID#: SR 19 & CR 48 076

PHASE	1	2	3	4	5	6	7	8
	EBL	WB		SB		EB		
INITIAL	8	15		8		15		
PASSAGE	3	3		3		3		
YELLOW	4.4	4.4		4.8		4.4		
RED CLEAR	2.1	2.0		2.5		2.0		
MAX 1	25	45		30		45		
MAX 2								
WALK								
DON'T WALK								
RECALL				SOFT				
DET. FUNC.	L	L		L		L		

SYSTEM TIMING

PATTERN	CYCLE Sec.	OFFSET Sec.	COORDINATED Phase	COORDINATED Sequence	BASE DAY 1 Mon.- Fri.		BASE DAY 2 Sat.- Sun.	

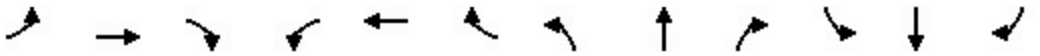
SPLIT ALLOCATION - Sec.

PHASE	1	2	3	4	5	6	7	8

NOTES: Naztec 980

Appendix K
Mitigation HCM Printouts

HCM 7th Signalized Intersection Summary
3: SR 19 & Revels Rd

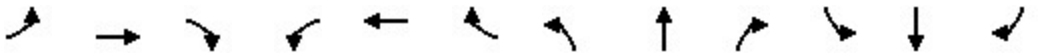


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	0	129	93	1	54	47	563	32	20	735	18
Future Volume (veh/h)	47	0	129	93	1	54	47	563	32	20	735	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1870	1870	1870	1870	1870	1826	1826	1826	1870	1856	1826
Adj Flow Rate, veh/h	48	0	132	95	1	55	48	574	33	20	750	18
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	5	2	2	2	2	2	5	5	5	2	3	5
Cap, veh/h	151	18	189	274	20	95	337	1101	63	90	899	766
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.05	0.64	0.64	0.50	0.50	0.50
Sat Flow, veh/h	321	113	1192	918	125	598	1739	1710	98	17	1816	1547
Grp Volume(v), veh/h	180	0	0	151	0	0	48	0	607	770	0	18
Grp Sat Flow(s),veh/h/ln	1626	0	0	1641	0	0	1739	0	1808	1833	0	1547
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	8.2	2.2	0.0	0.3
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.5	0.0	0.0	0.5	0.0	8.2	16.4	0.0	0.3
Prop In Lane	0.27		0.73	0.63		0.36	1.00		0.05	0.03		1.00
Lane Grp Cap(c), veh/h	358	0	0	389	0	0	337	0	1164	989	0	766
V/C Ratio(X)	0.50	0.00	0.00	0.39	0.00	0.00	0.14	0.00	0.52	0.78	0.00	0.02
Avail Cap(c_a), veh/h	733	0	0	727	0	0	460	0	1687	1381	0	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	0.0	17.6	0.0	0.0	8.0	0.0	4.3	9.9	0.0	5.9
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.4	1.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	1.3	0.0	0.0	0.1	0.0	0.6	3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.1	0.0	0.0	18.2	0.0	0.0	8.2	0.0	4.7	11.8	0.0	5.9
LnGrp LOS	B			B			A		A	B		A
Approach Vol, veh/h		180			151			655			788	
Approach Delay, s/veh		19.1			18.2			5.0			11.7	
Approach LOS		B			B			A			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		33.8		11.7	6.8	27.1		11.7				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5		18.5	5.5	32.5		18.5				
Max Q Clear Time (g_c+I1), s		10.2		6.6	2.5	18.4		5.5				
Green Ext Time (p_c), s		3.7		0.8	0.0	4.1		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.5									
HCM 7th LOS			B									

HCM 7th Signalized Intersection Summary
3: SR 19 & Revels Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	1	92	65	0	40	154	725	114	70	645	53
Future Volume (veh/h)	35	1	92	65	0	40	154	725	114	70	645	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1870	1826	1826	1870	1826	1826	1856	1826	1826	1870	1826
Adj Flow Rate, veh/h	38	1	99	70	0	43	166	780	123	75	694	57
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	2	5	5	2	5	5	3	5	5	2	5
Cap, veh/h	128	15	143	221	14	77	392	1107	175	130	834	830
Arrive On Green	0.12	0.12	0.12	0.12	0.00	0.12	0.09	0.71	0.71	0.54	0.54	0.54
Sat Flow, veh/h	338	123	1169	906	118	629	1739	1564	247	104	1555	1547
Grp Volume(v), veh/h	138	0	0	113	0	0	166	0	903	769	0	57
Grp Sat Flow(s),veh/h/ln	1629	0	0	1653	0	0	1739	0	1811	1659	0	1547
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	15.4	11.3	0.0	0.9
Cycle Q Clear(g_c), s	4.1	0.0	0.0	3.1	0.0	0.0	1.9	0.0	15.4	20.3	0.0	0.9
Prop In Lane	0.28		0.72	0.62		0.38	1.00		0.14	0.10		1.00
Lane Grp Cap(c), veh/h	287	0	0	313	0	0	392	0	1281	965	0	830
V/C Ratio(X)	0.48	0.00	0.00	0.36	0.00	0.00	0.42	0.00	0.70	0.80	0.00	0.07
Avail Cap(c_a), veh/h	630	0	0	628	0	0	423	0	2135	1673	0	1532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	0.0	21.8	0.0	0.0	9.6	0.0	4.5	10.0	0.0	5.9
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.7	0.0	0.0	0.7	0.0	0.7	1.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	1.3	0.0	0.0	0.6	0.0	0.8	4.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.4	0.0	0.0	22.5	0.0	0.0	10.3	0.0	5.2	11.6	0.0	5.9
LnGrp LOS	C			C			B		A	B		A
Approach Vol, veh/h		138			113			1069			826	
Approach Delay, s/veh		23.4			22.5			6.0			11.2	
Approach LOS		C			C			A			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		42.0		11.0	9.1	32.9		11.0				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		62.5		18.5	5.5	52.5		18.5				
Max Q Clear Time (g_c+I1), s		17.4		6.1	3.9	22.3		5.1				
Green Ext Time (p_c), s		7.3		0.5	0.1	6.1		0.4				

Intersection Summary	
HCM 7th Control Delay, s/veh	10.0
HCM 7th LOS	A

Intersection	
Intersection Delay, s/veh	11.0
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	180	151	655	788
Demand Flow Rate, veh/h	185	154	688	811
Vehicles Circulating, veh/h	889	703	70	148
Vehicles Exiting, veh/h	70	55	1004	709
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.6	8.2	9.0	13.0
Approach LOS	B	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	185	154	688	811
Cap Entry Lane, veh/h	557	674	1285	1187
Entry HV Adj Factor	0.973	0.980	0.952	0.971
Flow Entry, veh/h	180	151	655	788
Cap Entry, veh/h	542	660	1224	1152
V/C Ratio	0.332	0.229	0.536	0.684
Control Delay, s/veh	11.6	8.2	9.0	13.0
LOS	B	A	A	B
95th %tile Queue, veh	1	1	3	6

Intersection	
Intersection Delay, s/veh	22.2
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	138	113	1069	826
Demand Flow Rate, veh/h	145	118	1106	847
Vehicles Circulating, veh/h	860	1017	120	247
Vehicles Exiting, veh/h	234	209	885	888
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.1	11.3	27.5	18.9
Approach LOS	B	B	D	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	145	118	1106	847
Cap Entry Lane, veh/h	574	489	1221	1073
Entry HV Adj Factor	0.952	0.958	0.966	0.975
Flow Entry, veh/h	138	113	1069	826
Cap Entry, veh/h	546	468	1180	1046
V/C Ratio	0.253	0.241	0.906	0.790
Control Delay, s/veh	10.1	11.3	27.5	18.9
LOS	B	B	D	C
95th %tile Queue, veh	1	1	14	9

HCM 7th Signalized Intersection Summary
4: CR 455 & SR 19



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	158	138	712	183	262	883
Future Volume (veh/h)	158	138	712	183	262	883
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1618	1826	1796	1693	1856	1811
Adj Flow Rate, veh/h	165	144	742	191	273	920
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	19	5	7	14	3	6
Cap, veh/h	232	233	894	714	403	1241
Arrive On Green	0.15	0.15	0.50	0.50	0.11	0.68
Sat Flow, veh/h	1541	1547	1796	1434	1767	1811
Grp Volume(v), veh/h	165	144	742	191	273	920
Grp Sat Flow(s),veh/h/ln	1541	1547	1796	1434	1767	1811
Q Serve(g_s), s	5.6	4.8	19.3	4.2	3.6	17.8
Cycle Q Clear(g_c), s	5.6	4.8	19.3	4.2	3.6	17.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	232	233	894	714	403	1241
V/C Ratio(X)	0.71	0.62	0.83	0.27	0.68	0.74
Avail Cap(c_a), veh/h	521	523	1297	1036	492	1738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	21.8	11.8	8.0	10.8	5.5
Incr Delay (d2), s/veh	4.0	2.7	3.1	0.2	2.8	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.8	6.8	1.1	1.7	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.1	24.4	14.9	8.2	13.6	6.6
LnGrp LOS	C	C	B	A	B	A
Approach Vol, veh/h	309		933			1193
Approach Delay, s/veh	25.3		13.5			8.2
Approach LOS	C		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.3	31.7			42.0	12.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	8.5	39.5			52.5	18.5
Max Q Clear Time (g_c+I1), s	5.6	21.3			19.8	7.6
Green Ext Time (p_c), s	0.2	5.9			8.9	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	12.4
HCM 7th LOS	B

HCM 7th Signalized Intersection Summary
4: CR 455 & SR 19



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	183	236	945	151	252	760
Future Volume (veh/h)	183	236	945	151	252	760
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1752	1870	1826	1752	1811	1841
Adj Flow Rate, veh/h	189	243	974	156	260	784
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	10	2	5	10	6	4
Cap, veh/h	298	283	1014	824	294	1319
Arrive On Green	0.18	0.18	0.56	0.56	0.11	0.72
Sat Flow, veh/h	1668	1585	1826	1485	1725	1841
Grp Volume(v), veh/h	189	243	974	156	260	784
Grp Sat Flow(s),veh/h/ln	1668	1585	1826	1485	1725	1841
Q Serve(g_s), s	9.0	12.8	43.6	4.5	7.3	18.0
Cycle Q Clear(g_c), s	9.0	12.8	43.6	4.5	7.3	18.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	298	283	1014	824	294	1319
V/C Ratio(X)	0.63	0.86	0.96	0.19	0.88	0.59
Avail Cap(c_a), veh/h	360	342	1033	840	297	1342
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	34.2	18.2	9.5	24.7	6.0
Incr Delay (d2), s/veh	2.6	16.7	19.1	0.1	25.2	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	6.1	21.5	1.4	7.2	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	35.2	50.8	37.3	9.6	49.9	6.7
LnGrp LOS	D	D	D	A	D	A
Approach Vol, veh/h	432		1130			1044
Approach Delay, s/veh	44.0		33.5			17.5
Approach LOS	D		C			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.8	52.1			65.9	19.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	9.5	48.5			62.5	18.5
Max Q Clear Time (g_c+I1), s	9.3	45.6			20.0	14.8
Green Ext Time (p_c), s	0.0	2.0			7.1	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	28.8
HCM 7th LOS	C

Appendix L
NCHRP 457 Reports

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

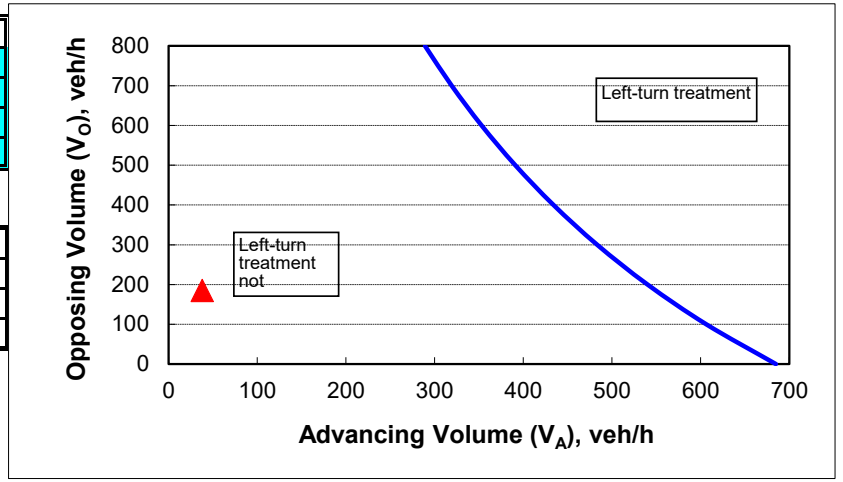
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	8%
Advancing volume (V_A), veh/h:	38
Opposing volume (V_O), veh/h:	185

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	549
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

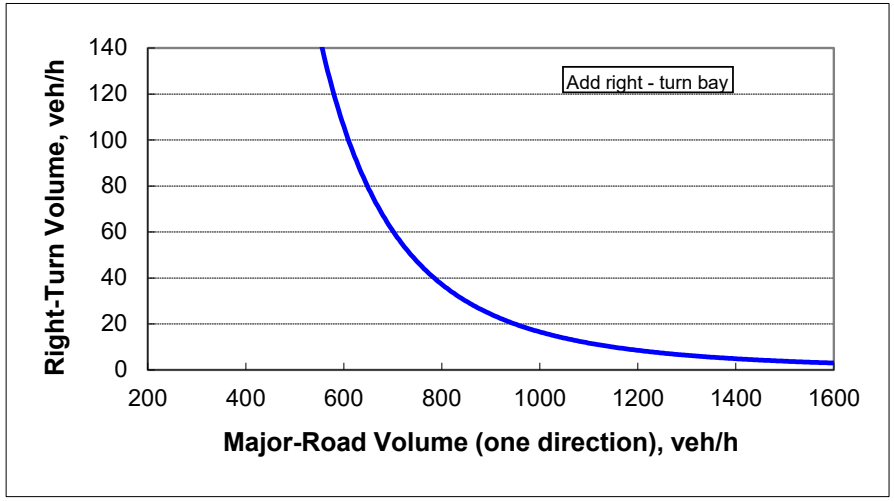
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	185
Right-turn volume, veh/h:	119

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	7638
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



Source: National Cooperative Highway Research Program (NCHRP) Report 457- Evaluating Intersection Improvements: An Engineering Study Guide

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

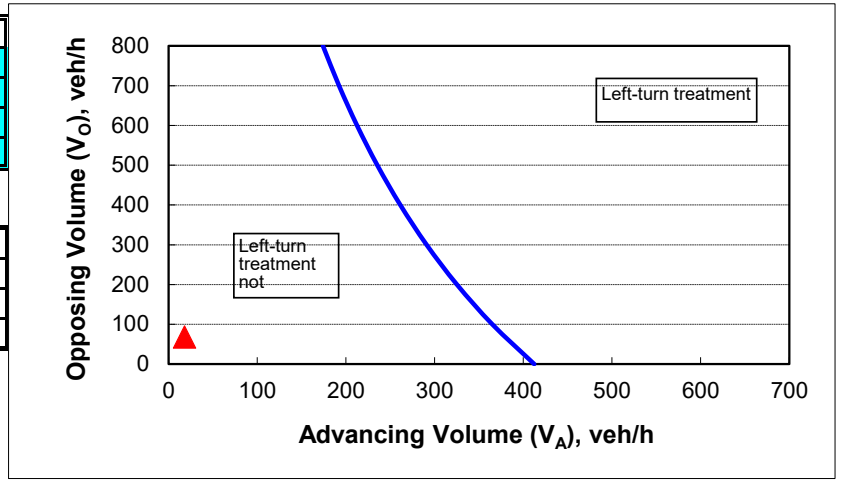
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	28%
Advancing volume (V_A), veh/h:	18
Opposing volume (V_O), veh/h:	68

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	379
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

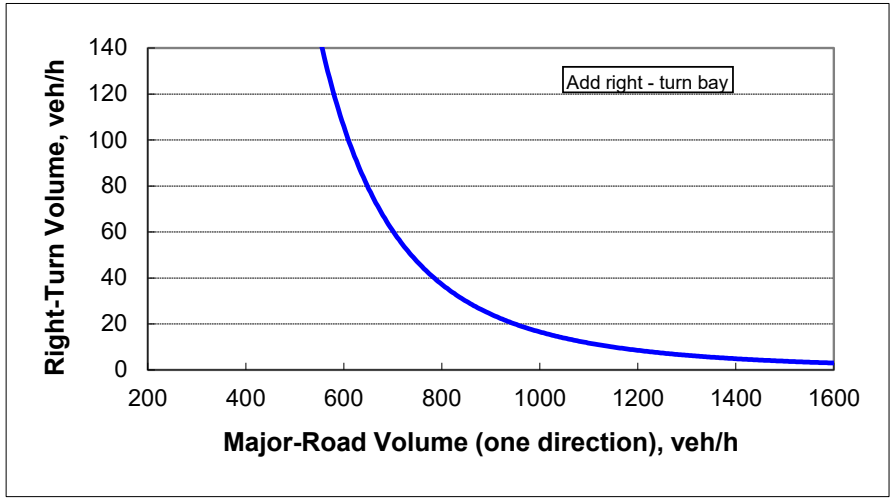
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	68
Right-turn volume, veh/h:	43

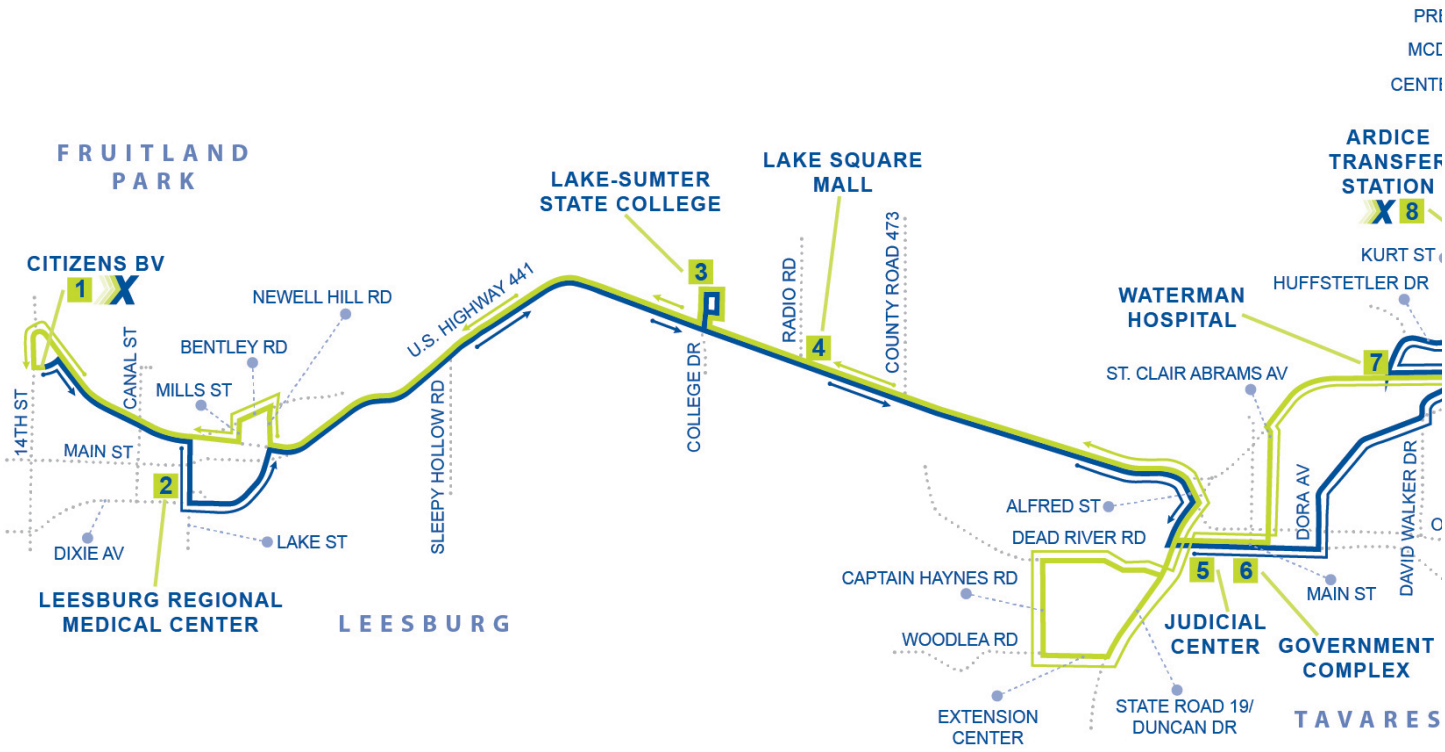
OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	290756
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



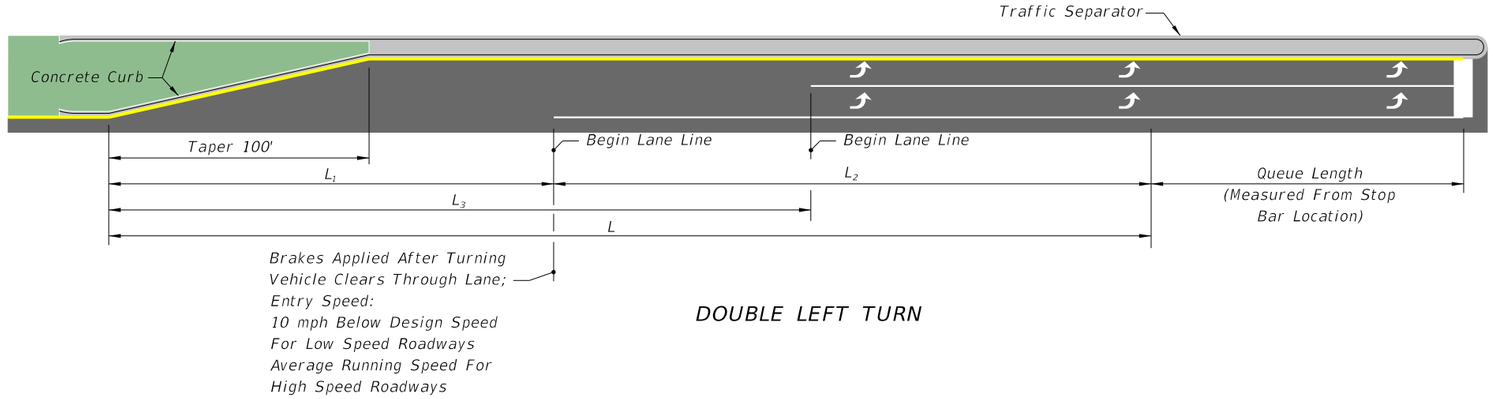
Source: National Cooperative Highway Research Program (NCHRP) Report 457- Evaluating Intersection Improvements: An Engineering Study Guide

Appendix M
Bus Map

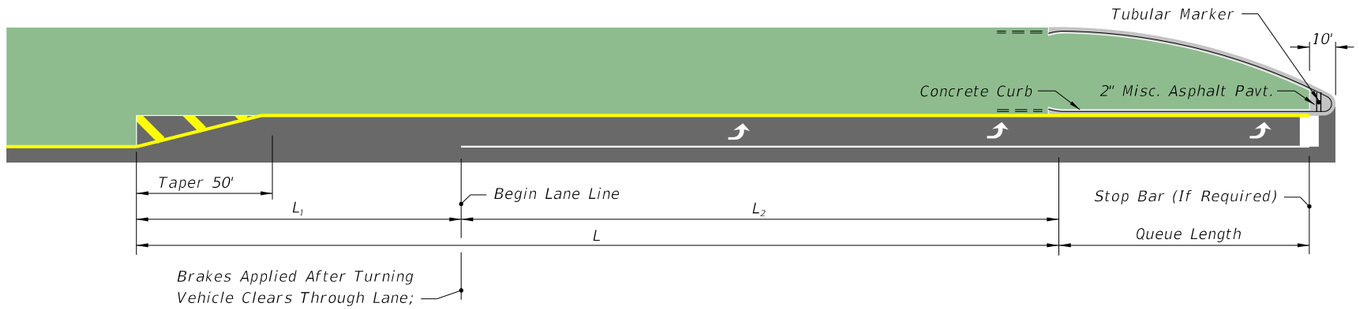

FRUITLAND PARK
CITIZENS BV
1
X
NEWELL HILL RD
BENTLEY RD
MILLS ST
CANAL ST
14TH ST
MAIN ST
2
DIXIE AV
LAKE ST
LEESBURG REGIONAL MEDICAL CENTER
SLEEPY HOLLOW RD
U.S. HIGHWAY 441
LAKE-SUMTER STATE COLLEGE
3
COLLEGE DR
LEESBURG
RADIO RD
LAKE SQUARE MALL
4
COUNTY ROAD 473
ALFRED ST
DEAD RIVER RD
CAPTAIN HAYNES RD
WOODLEA RD
EXTENSION CENTER
5
6
JUDICIAL CENTER
GOVERNMENT COMPLEX
STATE ROAD 19/ DUNCAN DR
TAVARES
WATERMAN HOSPITAL
7
ST. CLAIR ABRAMS AV
DORA AV
MAIN ST
DAVID WALKER DR
ARDICE TRANSFER STATION
X
8
KURT ST
HUFFSTETLER DR

Appendix N
FDM 212-1

MEDIAN TURN LANES
MINIMUM DECELERATION LENGTHS



DOUBLE LEFT TURN



SINGLE LEFT TURN

MEDIAN TURN LANES					
Design Speed (mph)	Entry Speed (mph)	Clearance Distance L_1 (ft.)	Brake To Stop Distance L_2 (ft.)	Total Decel. Distance L (ft.)	Clearance Distance L_3 (ft.)
25	15	70	25	95	90
30	20	70	50	120	100
35	25	70	75	145	110
40	30	80	75	155	120
45	35	85	100	185	135
50	44	105	185	290	160
55	48	125	225	350	195
60	52	145	260	405	230
65	55	170	290	460	270
70	58	200	325	525	300

NOTE:

1) For C3 Context Classification roadways with Design Speeds of 50 mph, the following values may be used under constrained conditions:
   - Entry Speed of 40 mph
   - Brake to stop distance (L_2) of 135 ft.
   - Total deceleration distance (L) of 240 ft.

2) For RRR Projects with Design Speeds of 50 mph and Entry Speeds of 40 mph, existing brake to stop distances (L_2) of 135 ft. and total deceleration distances (L) of 240 ft. may be retained.

NOT TO SCALE

Appendix O
Interim Condition Supporting Information

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	30	93	1	54	14	554	32	20	707	4
Future Vol, veh/h	5	0	30	93	1	54	14	554	32	20	707	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	355	-	-	455	-	405	455	-	405
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	5	2	2	2	2	2	5	5	5	2	3	5
Mvmt Flow	5	0	31	95	1	55	14	565	33	20	721	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1357	1389	721	1356	1360	565	726	0	0	598	0	0
Stage 1	762	762	-	594	594	-	-	-	-	-	-	-
Stage 2	594	627	-	762	766	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.22	7.12	6.52	6.22	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.318	3.518	4.018	3.318	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	124	143	427	126	148	524	864	-	-	979	-	-
Stage 1	393	413	-	491	493	-	-	-	-	-	-	-
Stage 2	486	477	-	397	412	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	107	137	427	113	143	524	864	-	-	979	-	-
Mov Cap-2 Maneuver	229	257	-	234	261	-	-	-	-	-	-	-
Stage 1	384	405	-	483	485	-	-	-	-	-	-	-
Stage 2	427	469	-	361	403	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.45	23.95	0.22	0.24
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	864	-	-	380	234	515	979	-	-
HCM Lane V/C Ratio	0.017	-	-	0.094	0.406	0.109	0.021	-	-
HCM Ctrl Dly (s/v)	9.2	-	-	15.5	30.5	12.8	8.8	-	-
HCM Lane LOS	A	-	-	C	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.9	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	24	65	0	40	37	692	114	70	625	3
Future Vol, veh/h	6	1	24	65	0	40	37	692	114	70	625	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	355	-	-	455	-	405	455	-	405
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	2	5	5	2	5	5	3	5	5	2	5
Mvmt Flow	6	1	26	70	0	43	40	744	123	75	672	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1646	1769	672	1647	1649	744	675	0	0	867	0	0
Stage 1	823	823	-	824	824	-	-	-	-	-	-	-
Stage 2	824	946	-	823	826	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.25	7.15	6.52	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.15	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.15	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.345	3.545	4.018	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	78	83	451	78	99	410	902	-	-	764	-	-
Stage 1	363	388	-	363	387	-	-	-	-	-	-	-
Stage 2	363	340	-	363	387	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	72	451	~ 63	85	410	902	-	-	764	-	-
Mov Cap-2 Maneuver	152	165	-	166	192	-	-	-	-	-	-	-
Stage 1	328	350	-	347	370	-	-	-	-	-	-	-
Stage 2	311	325	-	308	349	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	17.85	31.37	0.4	1.03
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	902	-	-	313	166	410	764	-	-
HCM Lane V/C Ratio	0.044	-	-	0.106	0.421	0.105	0.098	-	-
HCM Ctrl Dly (s/v)	9.2	-	-	17.9	41.5	14.8	10.2	-	-
HCM Lane LOS	A	-	-	C	E	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	1.9	0.3	0.3	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

COUNTY: 11
STATION: 0376
DESCRIPTION: ON SR-19, 0.364 MI. S OF US-27 (RCLP)
START DATE: 05/15/2024
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	15	6	4	7	32	11	7	7	6	31	63
0100	3	7	3	1	14	11	8	3	11	33	47
0200	11	3	9	5	28	5	11	7	10	33	61
0300	7	10	14	8	39	8	10	27	10	55	94
0400	18	21	25	26	90	16	16	32	31	95	185
0500	42	54	57	77	230	42	55	81	102	280	510
0600	94	99	113	148	454	57	57	80	87	281	735
0700	161	183	168	142	654	66	71	75	123	335	989
0800	107	140	127	88	462	72	58	85	65	280	742
0900	103	117	98	89	407	88	69	68	79	304	711
1000	71	89	104	78	342	99	74	69	71	313	655
1100	80	103	83	79	345	61	61	73	82	277	622
1200	86	78	92	79	335	93	82	84	76	335	670
1300	86	85	100	77	348	76	104	103	93	376	724
1400	95	81	107	87	370	98	91	97	95	381	751
1500	89	86	85	74	334	99	104	102	107	412	746
1600	95	104	140	97	436	112	138	136	135	521	957
1700	125	100	128	108	461	139	124	138	114	515	976
1800	72	73	42	39	226	122	118	101	79	420	646
1900	51	54	38	32	175	60	55	54	35	204	379
2000	25	34	19	19	97	39	37	36	47	159	256
2100	35	14	13	9	71	47	30	34	25	136	207
2200	19	15	20	19	73	14	36	31	32	113	186
2300	20	10	18	6	54	20	14	23	17	74	128
24-HOUR TOTALS:					6077					5963	12040

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	645	660	715	341	700	989
P.M.	1615	466	1615	548	1615	1014
DAILY	645	660	1615	548	1615	1014

TRUCK PERCENTAGE 23.51 24.23 23.87

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	8	3530	1110	55	1027	7	0	330	4	0	6	0	0	0	0	1429	6077
S	72	3456	990	57	756	17	8	574	27	0	5	0	1	0	0	1445	5963

GENERATED BY SPS 5.0.0.63

Begin Time	SR 19	
	NB	SB
	Thru	Thru
12:00 AM	37	37
1:00 AM	16	39
2:00 AM	33	39
3:00 AM	46	66
4:00 AM	105	113
5:00 AM	269	334
6:00 AM	531	335
7:00 AM	765	399
8:00 AM	540	334
9:00 AM	476	362
10:00 AM	400	373
11:00 AM	403	330
12:00 PM	392	399
1:00 PM	407	448
2:00 PM	433	454
3:00 PM	391	491
4:00 PM	510	621
5:00 PM	539	614
6:00 PM	264	501
7:00 PM	205	243
8:00 PM	113	190
9:00 PM	83	162
10:00 PM	85	135
11:00 PM	63	88
Total	7,106	7,107

Begin Time	Site 110376			
	NB		SB	
	Vol	Percent	Vol	Percent
12:00 AM	32	0.5%	31	0.5%
1:00 AM	14	0.2%	33	0.6%
2:00 AM	28	0.5%	33	0.6%
3:00 AM	39	0.6%	55	0.9%
4:00 AM	90	1.5%	95	1.6%
5:00 AM	230	3.8%	280	4.7%
6:00 AM	454	7.5%	281	4.7%
7:00 AM	654	10.8%	335	5.6%
8:00 AM	462	7.6%	280	4.7%
9:00 AM	407	6.7%	304	5.1%
10:00 AM	342	5.6%	313	5.2%
11:00 AM	345	5.7%	277	4.6%
12:00 PM	335	5.5%	335	5.6%
1:00 PM	348	5.7%	376	6.3%
2:00 PM	370	6.1%	381	6.4%
3:00 PM	334	5.5%	412	6.9%
4:00 PM	436	7.2%	521	8.7%
5:00 PM	461	7.6%	515	8.6%
6:00 PM	226	3.7%	420	7.0%
7:00 PM	175	2.9%	204	3.4%
8:00 PM	97	1.6%	159	2.7%
9:00 PM	71	1.2%	136	2.3%
10:00 PM	73	1.2%	113	1.9%
11:00 PM	54	0.9%	74	1.2%
Total	6077	100.0%	5963	100.0%

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	210			210			210		
Land Use	Single-Family Detached Housing			Single-Family Detached Housing			Single-Family Detached Housing		
Setting	General Urban/Suburban			General Urban/Suburban			General Urban/Suburban		
Time Period	Weekday			Saturday			Sunday		
# Data Sites	7			3			2		
	% of 24-Hour Vehicle Trips			% of 24-Hour Vehicle Trips			% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting	Total	Entering	Exiting	Total	Entering	Exiting
12:00 - 1:00 AM	0.3%	0.5%	0.2%	0.8%	0.6%	1.0%	0.6%	0.6%	0.6%
1:00 - 2:00 AM	0.2%	0.2%	0.1%	0.4%	0.6%	0.2%	0.6%	1.2%	0.0%
2:00 - 3:00 AM	0.2%	0.3%	0.1%	0.3%	0.4%	0.2%	0.0%	0.0%	0.0%
3:00 - 4:00 AM	0.2%	0.2%	0.2%	0.5%	0.4%	0.6%	0.3%	0.0%	0.6%
4:00 - 5:00 AM	0.6%	0.3%	0.8%	0.5%	0.6%	0.4%	0.0%	0.0%	0.0%
5:00 - 6:00 AM	1.2%	0.5%	2.0%	1.0%	0.8%	1.2%	1.8%	1.8%	1.8%
6:00 - 7:00 AM	3.7%	1.6%	5.8%	1.0%	0.4%	1.5%	1.5%	1.8%	1.2%
7:00 - 8:00 AM	6.5%	3.1%	10.0%	2.0%	0.8%	3.3%	1.8%	0.6%	3.0%
8:00 - 9:00 AM	6.2%	3.8%	8.5%	3.8%	2.5%	5.2%	4.7%	0.6%	9.0%
9:00 - 10:00 AM	4.6%	3.3%	5.8%	5.5%	5.0%	6.0%	4.7%	3.5%	6.0%
10:00 - 11:00 AM	4.9%	4.2%	5.6%	8.2%	6.2%	10.2%	11.5%	8.8%	14.4%
11:00 - 12:00 PM	5.3%	5.4%	5.1%	7.2%	8.7%	5.8%	7.7%	8.2%	7.2%
12:00 - 1:00 PM	5.7%	5.7%	5.7%	7.7%	7.3%	8.1%	9.2%	10.5%	7.8%
1:00 - 2:00 PM	6.1%	6.1%	6.0%	8.1%	7.1%	9.0%	9.8%	10.5%	9.0%
2:00 - 3:00 PM	6.6%	7.1%	6.1%	8.0%	8.7%	7.3%	5.9%	5.8%	6.0%
3:00 - 4:00 PM	7.5%	8.7%	6.2%	9.2%	9.8%	8.7%	4.4%	5.8%	3.0%
4:00 - 5:00 PM	8.9%	10.5%	7.4%	6.2%	6.9%	5.4%	8.3%	8.2%	8.4%
5:00 - 6:00 PM	8.7%	10.0%	7.3%	8.4%	9.6%	7.1%	9.8%	11.1%	8.4%
6:00 - 7:00 PM	7.2%	8.5%	5.9%	6.0%	7.3%	4.6%	6.2%	5.8%	6.6%
7:00 - 8:00 PM	5.1%	6.1%	4.2%	5.1%	4.8%	5.4%	5.3%	7.0%	3.6%
8:00 - 9:00 PM	4.6%	6.1%	3.1%	4.8%	6.0%	3.7%	4.1%	5.8%	2.4%
9:00 - 10:00 PM	3.3%	4.4%	2.3%	2.4%	2.7%	2.1%	0.3%	0.6%	0.0%
10:00 - 11:00 PM	1.6%	2.1%	1.0%	1.7%	1.5%	1.9%	1.5%	1.8%	1.2%
11:00 - 12:00 AM	1.0%	1.3%	0.6%	1.4%	1.5%	1.3%	0.0%	0.0%	0.0%

Begin Time	Revels Rd WB		SR 19 NB	SR 19 SB
	Left	Right	Right	Left
0:00	0.09%	0.05%	0.29%	0.17%
1:00	0.09%	0.05%	0.13%	0.08%
2:00	0.04%	0.02%	0.15%	0.09%
3:00	0.10%	0.06%	0.11%	0.06%
4:00	0.48%	0.28%	0.18%	0.11%
5:00	1.20%	0.70%	0.27%	0.16%
6:00	3.51%	2.05%	0.93%	0.54%
7:00	5.98%	3.49%	1.84%	1.07%
8:00	5.11%	2.98%	2.26%	1.32%
9:00	3.46%	2.02%	2.01%	1.17%
10:00	3.34%	1.95%	2.52%	1.47%
11:00	3.06%	1.79%	3.25%	1.90%
12:00	3.41%	1.99%	3.45%	2.01%
13:00	3.61%	2.10%	3.67%	2.14%
14:00	3.67%	2.14%	4.27%	2.49%
15:00	3.75%	2.19%	5.22%	3.05%
16:00	4.43%	2.59%	6.31%	3.68%
17:00	4.39%	2.56%	6.01%	3.51%
18:00	3.51%	2.05%	5.12%	2.98%
19:00	2.54%	1.48%	3.63%	2.12%
20:00	1.85%	1.08%	3.68%	2.14%
21:00	1.38%	0.80%	2.65%	1.55%
22:00	0.60%	0.35%	1.27%	0.74%
23:00	0.39%	0.23%	0.76%	0.44%
Total	**60%**	**35%**	**60%**	**35%**

Source: ITE Trip Generation Manual, 11th Edition

Begin Time	LUC 210	
	Enter	Exit
0:00	0.5%	0.2%
1:00	0.2%	0.1%
2:00	0.3%	0.1%
3:00	0.2%	0.2%
4:00	0.3%	0.8%
5:00	0.5%	2.0%
6:00	1.6%	5.8%
7:00	3.1%	10.0%
8:00	3.8%	8.5%
9:00	3.3%	5.8%
10:00	4.2%	5.6%
11:00	5.4%	5.1%
12:00	5.7%	5.7%
13:00	6.1%	6.0%
14:00	7.1%	6.1%
15:00	8.7%	6.2%
16:00	10.5%	7.4%
17:00	10.0%	7.3%
18:00	8.5%	5.9%
19:00	6.1%	4.2%
20:00	6.1%	3.1%
21:00	4.4%	2.3%
22:00	2.1%	1.0%
23:00	1.3%	0.6%
% of Daily	**100%**	**100%**

Source: ITE Trip Generation Manual, 11th Edition

Project Trips							
Begin Time	Revels Rd			SR 19			
	WB			NB		SB	
	Left	Right	Total	Right	Total	Left	Total
12:00 AM	1	1	2	4	4	2	2
1:00 AM	1	1	2	2	2	1	1
2:00 AM	1	0	1	2	2	1	1
3:00 AM	1	1	2	1	1	1	1
4:00 AM	6	4	10	2	2	1	1
5:00 AM	16	9	25	4	4	2	2
6:00 AM	47	27	74	13	13	7	7
7:00 AM	80	47	127	25	25	14	14
8:00 AM	69	40	109	30	30	18	18
9:00 AM	46	27	73	27	27	16	16
10:00 AM	45	26	71	34	34	20	20
11:00 AM	41	24	65	44	44	25	25
12:00 PM	46	27	73	46	46	27	27
1:00 PM	48	28	76	49	49	29	29
2:00 PM	49	29	78	57	57	33	33
3:00 PM	50	29	79	70	70	41	41
4:00 PM	60	35	95	85	85	49	49
5:00 PM	59	34	93	81	81	47	47
6:00 PM	47	28	75	69	69	40	40
7:00 PM	34	20	54	49	49	28	28
8:00 PM	25	15	40	49	49	29	29
9:00 PM	19	11	30	36	36	21	21
10:00 PM	8	5	13	17	17	10	10
11:00 PM	5	3	8	10	10	6	6
Total	804	471	1,275	806	806	468	468

Begin Time	Revels Rd				SR 19							
	WB				NB				SB			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
12:00 AM	1	0	1	2	0	37	4	41	2	37	0	39
1:00 AM	1	0	1	2	0	16	2	18	1	39	0	40
2:00 AM	1	0	0	1	0	33	2	35	1	39	0	40
3:00 AM	1	0	1	2	0	46	1	47	1	66	0	67
4:00 AM	6	0	4	10	0	105	2	107	1	113	0	114
5:00 AM	16	0	9	25	0	269	4	273	2	334	0	336
6:00 AM	47	0	27	74	0	531	13	544	7	335	0	342
7:00 AM	80	0	47	127	0	765	25	790	14	399	0	413
8:00 AM	69	0	40	109	0	540	30	570	18	334	0	352
9:00 AM	46	0	27	73	0	476	27	503	16	362	0	378
10:00 AM	45	0	26	71	0	400	34	434	20	373	0	393
11:00 AM	41	0	24	65	0	403	44	447	25	330	0	355
12:00 PM	46	0	27	73	0	392	46	438	27	399	0	426
1:00 PM	48	0	28	76	0	407	49	456	29	448	0	477
2:00 PM	49	0	29	78	0	433	57	490	33	454	0	487
3:00 PM	50	0	29	79	0	391	70	461	41	491	0	532
4:00 PM	60	0	35	95	0	510	85	595	49	621	0	670
5:00 PM	59	0	34	93	0	539	81	620	47	614	0	661
6:00 PM	47	0	28	75	0	264	69	333	40	501	0	541
7:00 PM	34	0	20	54	0	205	49	254	28	243	0	271
8:00 PM	25	0	15	40	0	113	49	162	29	190	0	219
9:00 PM	19	0	11	30	0	83	36	119	21	162	0	183
10:00 PM	8	0	5	13	0	85	17	102	10	135	0	145
11:00 PM	5	0	3	8	0	63	10	73	6	88	0	94
Total	804	0	471	1,275	0	7,106	806	7,912	468	7,107	0	7,575

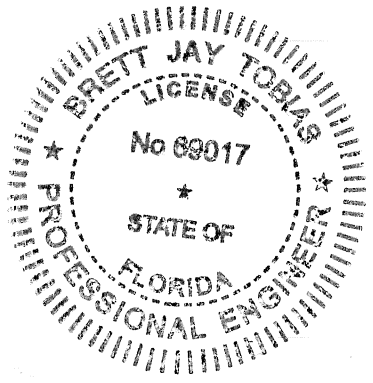
Number of lanes for moving traffic on each approach				Vehicles/hour on major street (total of both approaches)				Vehicles/hour on higher-volume minor-street approach (one direction only)			
Condition A – Minimum Vehicular Volume											
Major Street		Minor Street		100%	80%	70%	56%	100%	80%	70%	56%
1	Lane	1	Lane	500	400	350	280	150	120	105	84
2+	Lanes	1	Lane	600	480	420	336	150	120	105	84
2+	Lanes	2+	Lanes	600	480	420	336	200	160	140	112
1	Lane	2+	Lanes	500	400	350	280	200	160	140	112
Condition B – Interruption of Continuous Traffic											
Major Street		Minor Street		100%	80%	70%	56%	100%	80%	70%	56%
1	Lane	1	Lane	750	600	525	420	75	60	53	42
2+	Lanes	1	Lane	900	720	630	504	75	60	53	42
2+	Lanes	2+	Lanes	900	720	630	504	100	80	70	56
1	Lane	2+	Lanes	750	600	525	420	100	80	70	56

Source: Manual on Uniform Traffic Control Devices, 2009 Edition, U.S. Department of Transportation, Federal Highway Administration.

STORMCAD
DATA

WATERMARK
PHASE 1

JULY 2025



Halff Associates, Inc.
902 N. Sinclair Avenue
Tavares, FL 32778

Brett J. Tobias, P.E., Team Leader
#69017

FlexTable: Catch Basin Table

Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Inlet Type	Hydraulic Grade Line (In) (ft)	Capture Efficiency (Calculated) (%)	Headloss Method	Headloss Coefficient (Standard)	Is Active?
33	153.62	True	153.62	148.62	Full Capture	149.09	100.0	Standard	0.000	True
34	150.23	True	150.23	145.23	Full Capture	146.32	100.0	Standard	0.800	True
35	150.23	True	150.23	144.23	Full Capture	145.35	100.0	Standard	0.800	True
D-1	130.63	True	130.63	125.60	Full Capture	126.36	100.0	Standard	0.000	True
D-2	129.21	True	129.21	124.00	Full Capture	125.21	100.0	Standard	0.600	True
D-3	120.13	True	120.13	113.00	Full Capture	114.77	100.0	Standard	0.700	True
D-4	120.13	True	120.13	115.10	Full Capture	115.84	100.0	Standard	0.000	True
D-5	113.13	True	113.13	108.10	Full Capture	108.69	100.0	Standard	0.000	True
D-6	112.28	True	112.28	106.00	Full Capture	108.07	100.0	Standard	0.700	True
D-8	103.46	True	103.46	95.24	Full Capture	97.96	100.0	Standard	0.700	True
D-9	103.46	True	103.46	98.20	Full Capture	98.95	100.0	Standard	0.000	True
D-10	96.30	True	96.30	86.00	Full Capture	89.96	100.0	Standard	0.700	True
D-11	96.30	True	96.30	91.05	Full Capture	91.62	100.0	Standard	0.000	True
D-12	89.77	True	89.77	84.00	Full Capture	87.21	100.0	Standard	0.000	True
D-13	89.77	True	89.77	84.00	Full Capture	87.21	100.0	Standard	0.700	True
D-16	109.47	True	109.47	104.45	Full Capture	105.95	100.0	Standard	0.000	True
D-17	109.04	True	109.04	104.00	Full Capture	105.89	100.0	Standard	0.600	True
D-19	108.16	True	108.16	102.90	Full Capture	105.52	100.0	Standard	0.000	True
D-20	108.16	True	108.16	103.15	Full Capture	105.52	100.0	Standard	0.000	True
D-21	109.85	True	109.85	104.85	Full Capture	107.01	100.0	Standard	0.000	True
D-22	109.74	True	109.74	104.60	Full Capture	106.92	100.0	Standard	0.900	True
D-23	109.02	True	109.02	103.75	Full Capture	106.20	100.0	Standard	0.000	True
D-24	109.02	True	109.02	103.50	Full Capture	106.16	100.0	Standard	0.700	True
D-26	146.85	True	146.85	141.85	Full Capture	142.83	100.0	Standard	0.000	True
D-27	146.85	True	146.85	141.35	Full Capture	142.84	100.0	Standard	0.600	True
D-29	141.75	True	141.75	136.75	Full Capture	138.97	100.0	Standard	0.000	True
D-30	141.47	True	141.47	135.50	Full Capture	138.92	100.0	Standard	0.000	True
D-31	137.89	True	137.89	132.30	Full Capture	134.34	100.0	Standard	0.500	True
D-32	135.02	True	135.02	129.50	Full Capture	132.80	100.0	Standard	0.600	True
D-33	134.19	True	134.19	128.65	Full Capture	131.95	100.0	Standard	0.600	True
D-34	131.14	True	131.14	125.60	Full Capture	129.76	100.0	Standard	0.700	True
D-35	131.36	True	131.36	126.35	Full Capture	129.77	100.0	Standard	0.000	True

FlexTable: Catch Basin Table

Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Inlet Type	Hydraulic Grade Line (In) (ft)	Capture Efficiency (Calculated) (%)	Headloss Method	Headloss Coefficient (Standard)	Is Active?
D-38	129.28	True	129.28	123.85	Full Capture	123.96	100.0	Standard	0.000	True
D-39	119.77	True	119.77	110.00	Full Capture	111.87	100.0	Standard	0.000	True
D-40	119.77	True	119.77	114.00	Full Capture	114.34	100.0	Standard	0.000	True
D-41	129.28	True	129.28	121.00	Full Capture	122.82	100.0	Standard	0.000	True
D-42	107.95	True	107.95	102.25	Full Capture	102.88	100.0	Standard	0.000	True
D-43	107.95	True	107.95	99.50	Full Capture	102.92	100.0	Standard	0.700	True
D-44	97.46	True	97.46	88.00	Full Capture	91.50	100.0	Standard	0.700	True
D-45	97.46	True	97.46	91.70	Full Capture	92.00	100.0	Standard	0.000	True
D-46	89.54	True	89.54	83.00	Full Capture	86.95	100.0	Standard	0.700	True
D-47	89.54	True	89.54	83.00	Full Capture	86.95	100.0	Standard	0.000	True
D-50	126.59	True	126.59	121.55	Full Capture	122.36	100.0	Standard	0.000	True
D-51	126.25	True	126.25	121.25	Full Capture	122.36	100.0	Standard	0.600	True
D-52	123.13	True	123.13	117.85	Full Capture	119.40	100.0	Standard	0.700	True
D-53	123.13	True	123.13	118.10	Full Capture	119.40	100.0	Standard	0.000	True
D-54	120.04	True	120.04	115.00	Full Capture	117.22	100.0	Standard	0.600	True
D-55	116.81	True	116.81	110.00	Full Capture	114.68	100.0	Standard	0.700	True
D-56	116.81	True	116.81	111.80	Full Capture	114.69	100.0	Standard	0.000	True
D-58	123.55	True	123.55	118.55	Full Capture	119.32	100.0	Standard	0.000	True
D-59	123.27	True	123.27	118.25	Full Capture	119.32	100.0	Standard	0.600	True
D-61	120.07	True	120.07	114.80	Full Capture	116.62	100.0	Standard	0.900	True
D-62	120.00	True	120.00	115.05	Full Capture	116.63	100.0	Standard	0.000	True
D-64	115.76	True	115.76	110.75	Full Capture	114.16	100.0	Standard	0.000	True
D-65	115.76	True	115.76	110.50	Full Capture	114.15	100.0	Standard	0.700	True
D-66	114.24	True	114.24	108.60	Full Capture	112.66	100.0	Standard	0.000	True
D-67	114.00	True	114.00	108.25	Full Capture	112.65	100.0	Standard	0.600	True
D-68	112.40	True	112.40	106.80	Full Capture	110.94	100.0	Standard	0.600	True
D-69	112.19	True	112.19	106.15	Full Capture	110.12	100.0	Standard	0.600	True
D-70	111.69	True	111.69	105.75	Full Capture	108.73	100.0	Standard	0.900	True
D-71	111.69	True	111.69	103.00	Full Capture	106.63	100.0	Standard	0.800	True
D-72	117.95	True	117.95	112.95	Full Capture	114.06	100.0	Standard	0.000	True
D-73	117.95	True	117.95	112.70	Full Capture	114.06	100.0	Standard	0.900	True
D-75	114.81	True	114.81	109.75	Full Capture	111.12	100.0	Standard	0.600	True

FlexTable: Catch Basin Table

Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Inlet Type	Hydraulic Grade Line (In) (ft)	Capture Efficiency (Calculated) (%)	Headloss Method	Headloss Coefficient (Standard)	Is Active?
D-76	112.93	True	112.93	107.90	Full Capture	109.56	100.0	Standard	0.000	True
D-77	112.93	True	112.93	107.65	Full Capture	109.48	100.0	Standard	0.700	True
D-86	144.70	True	144.70	139.70	Full Capture	140.20	100.0	Standard	0.000	True
D-87	142.64	True	142.64	137.60	Full Capture	138.46	100.0	Standard	0.000	True
D-88	142.64	True	142.64	137.15	Full Capture	138.47	100.0	Standard	0.700	True
D-89	141.51	True	141.51	136.00	Full Capture	137.34	100.0	Standard	0.500	True
D-90	139.27	True	139.27	134.25	Full Capture	134.98	100.0	Standard	0.000	True
D-91	139.12	True	139.12	133.20	Full Capture	135.00	100.0	Standard	0.700	True
D-92	134.58	True	134.58	129.10	Full Capture	131.57	100.0	Standard	0.600	True
D-93	133.91	True	133.91	128.40	Full Capture	130.57	100.0	Standard	0.600	True
D-94	128.62	True	128.62	122.70	Full Capture	124.74	100.0	Standard	0.600	True
D-95	125.86	True	125.86	120.80	Full Capture	123.34	100.0	Standard	0.000	True
D-96	125.54	True	125.54	119.50	Full Capture	123.31	100.0	Standard	0.800	True
D-99	145.73	True	145.73	140.25	Full Capture	141.39	100.0	Standard	0.000	True
D-100	145.73	True	145.73	140.00	Full Capture	141.39	100.0	Standard	0.800	True

FlexTable: Manhole Table

Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Headloss Method	Flow (Total Out) (cfs)	Depth (Out) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Is Active?
D-85	145.61	True	145.61	139.48	Standard	1.79	0.50	140.13	139.98	True
D-97	125.80	True	125.80	118.75	Standard	22.26	2.25	121.21	121.00	True
D-60	121.60	True	121.60	116.60	Standard	4.98	0.86	117.67	117.46	True
D-63	118.78	True	118.78	113.60	Standard	9.63	1.81	115.69	115.41	True
D-57	115.01	True	115.01	109.00	Standard	31.88	4.18	113.64	113.18	True
D-79	107.50	True	107.50	98.00	Standard	59.77	2.50	100.50	100.50	True
D-80	100.00	True	100.00	91.00	Standard	59.59	2.49	93.49	93.49	True
D-81	93.00	True	93.00	84.50	Standard	59.47	2.68	87.80	87.18	True
D-78	112.04	True	112.04	107.00	Standard	14.71	1.38	108.76	108.38	True
D-37	130.66	True	130.66	125.00	Standard	28.04	1.83	128.04	126.83	True
D-25	110.15	True	110.15	102.50	Standard	41.41	2.16	105.58	104.66	True
D-7	110.57	True	110.57	102.30	Standard	22.47	1.69	104.67	103.99	True
D-28	145.09	True	145.09	139.10	Standard	11.54	1.82	141.32	140.92	True

FlexTable: Conduit Table

Label	Start Node	Set Invert to Start?	Invert (Start) (ft)	Stop Node	Set Invert to Stop?	Invert (Stop) (ft)	Length (Scaled) (ft)	Diameter (in)	Slope (Calculated) (ft/ft)	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Flow / Capacity (Design) (%)	Depth (Normal) / Rise (%)	Is Active?
CO-131	D-86	True	139.70	D-85	True	139.48	43.0	18.0	0.005	1.80	3.49	0.65	23.9	33.3	True
CO-136	D-85	True	139.48	D-88	True	137.15	253.1	18.0	0.009	1.79	4.29	1.32	17.7	28.5	True
CO-137	D-87	True	137.60	D-88	False	137.35	26.7	18.0	0.010	1.69	4.31	1.12	16.5	27.4	True
CO-138	D-88	True	137.15	D-89	True	136.00	122.3	18.0	0.009	6.76	6.17	1.34	66.3	59.5	True
CO-139	D-89	True	136.00	D-91	True	133.20	149.8	18.0	0.019	7.87	8.31	1.80	54.8	52.8	True
CO-140	D-90	True	134.25	D-91	False	134.00	26.6	18.0	0.009	2.09	4.51	1.00	20.7	30.8	True
CO-141	D-91	True	133.20	D-92	True	129.10	177.6	18.0	0.023	11.14	9.76	2.47	69.9	61.6	True
CO-142	D-92	True	129.10	D-93	True	128.40	37.5	18.0	0.019	12.56	7.11	2.17	86.9	72.1	True
CO-143	D-93	True	128.40	D-94	True	122.70	207.3	18.0	0.028	15.54	11.15	2.04	89.1	73.6	True
CO-144	D-94	True	122.70	D-96	True	119.50	134.4	24.0	0.024	18.85	11.31	3.81	54.1	52.4	True
CO-145	D-95	True	120.80	D-96	False	120.55	31.6	18.0	0.008	3.08	1.74	2.76	33.2	39.7	True
CO-146	D-96	True	119.50	D-97	True	118.75	148.2	24.0	0.005	22.49	7.16	2.46	139.7	(N/A)	True
CO-147	D-97	True	118.75	D-98	True	118.50	41.9	30.0	0.007	22.26	7.26	2.43	66.9	59.9	True
CO-148	D-58	True	118.55	D-59	True	118.25	39.3	18.0	0.008	1.66	3.98	1.07	17.8	28.5	True
CO-149	D-59	True	118.25	D-60	True	116.60	114.4	18.0	0.014	5.02	6.72	1.07	39.9	43.9	True
CO-150	D-60	True	116.60	D-61	True	114.80	66.3	18.0	0.027	4.98	8.48	1.82	28.7	36.7	True
CO-153	D-63	True	113.60	D-65	True	110.50	139.1	18.0	0.021	9.63	5.45	3.65	63.7	58.0	True
CO-154	D-64	True	110.75	D-65	False	110.50	27.5	18.0	0.010	1.51	0.86	3.65	14.7	25.9	True
CO-155	D-65	True	110.50	D-57	False	109.00	71.7	24.0	0.022	14.47	4.60	4.64	43.4	46.1	True
CO-158	D-67	True	108.25	D-68	True	106.80	160.4	30.0	0.009	35.69	7.27	4.14	91.4	75.2	True
CO-159	D-68	True	106.80	D-69	True	106.15	33.8	30.0	0.019	37.45	7.63	3.97	66.0	59.3	True
CO-160	D-69	True	106.15	D-70	True	105.75	78.6	30.0	0.005	40.32	8.21	2.98	137.3	(N/A)	True
CO-161	D-70	True	105.75	D-71	False	105.55	26.2	36.0	0.008	41.96	9.00	1.94	71.7	62.7	True
CO-162	D-71	True	103.00	D-79	False	100.00	147.6	36.0	0.020	60.07	14.25	1.78	63.0	57.6	True
CO-163	D-79	True	98.00	D-80	False	93.50	112.6	36.0	0.040	59.77	18.38	1.51	44.7	46.9	True
CO-164	D-80	True	91.00	D-81	False	86.50	85.8	36.0	0.052	59.59	20.25	1.45	39.1	43.4	True
CO-167	D-72	True	112.95	D-73	True	112.70	26.8	18.0	0.010	1.82	4.39	1.36	17.6	28.5	True
CO-170	D-75	True	109.75	D-77	True	107.65	136.9	18.0	0.015	7.67	7.68	1.83	58.7	55.1	True
CO-171	D-76	True	107.90	D-77	True	107.65	27.1	18.0	0.010	6.00	3.40	1.83	58.3	54.8	True
CO-172	D-77	True	107.65	D-78	True	107.00	104.3	24.0	0.006	14.82	6.36	1.76	82.8	69.4	True
CO-173	D-78	True	107.00	D-71	False	106.20	65.5	24.0	0.012	14.71	8.30	1.12	58.6	55.0	True
CO-174	34	True	145.23	35	True	144.23	26.4	18.0	0.038	4.58	9.38	1.12	22.3	32.1	True

FlexTable: Conduit Table

Label	Start Node	Set Invert to Start?	Invert (Start) (ft)	Stop Node	Set Invert to Stop?	Invert (Stop) (ft)	Length (Scaled) (ft)	Diameter (in)	Slope (Calculated) (ft/ft)	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Flow / Capacity (Design) (%)	Depth (Normal) / Rise (%)	Is Active?
CO-175	35	True	144.23	D-27	True	141.35	160.5	18.0	0.019	4.79	7.33	1.49	33.2	39.7	True
CO-176	D-26	True	141.85	D-27	False	141.60	26.9	18.0	0.010	3.05	5.08	1.24	29.6	37.2	True
CO-177	D-27	True	141.35	D-28	True	139.10	87.1	18.0	0.026	8.75	9.63	2.22	51.9	51.1	True
CO-177b	D-28	True	139.10	D-30	True	135.50	165.9	18.0	0.022	11.54	6.53	3.42	74.5	64.3	True
CO-178	D-29	True	136.75	D-30	False	136.35	29.8	18.0	0.014	3.98	2.25	2.57	32.2	39.0	True
CO-179	D-30	True	135.50	D-31	True	132.30	165.1	18.0	0.020	17.56	9.94	2.04	119.7	(N/A)	True
CO-183	D-33	True	128.65	D-34	True	125.60	143.3	24.0	0.021	24.17	7.69	4.16	73.2	63.5	True
CO-191	D-21	True	104.85	D-22	True	104.60	29.6	18.0	0.009	6.15	3.48	2.32	61.9	57.0	True
CO-192	D-22	True	104.60	D-24	True	103.50	91.4	18.0	0.012	7.75	4.38	2.66	66.7	59.7	True
CO-193	D-24	True	103.50	D-25	True	102.50	139.6	24.0	0.007	12.35	3.93	3.08	64.4	58.4	True
CO-194	D-23	True	103.75	D-24	True	103.50	26.4	18.0	0.010	3.83	2.17	2.66	37.2	42.2	True
CO-195	D-25	True	102.50	D-43	False	102.00	30.9	30.0	0.017	41.41	11.93	1.83	78.2	66.6	True
CO-196	D-42	True	102.25	D-43	False	102.00	26.8	18.0	0.010	1.98	4.50	0.92	19.2	29.7	True
CO-197	D-43	True	99.50	D-44	False	91.45	151.0	30.0	0.053	48.05	19.36	1.30	50.7	50.4	True
CO-198	D-45	True	91.70	D-44	False	91.45	26.2	18.0	0.010	0.64	3.24	0.25	6.2	16.8	True
CO-199	D-44	True	88.00	D-46	True	83.00	123.5	30.0	0.041	49.71	17.62	3.95	60.1	55.9	True
CO-200	D-47	True	83.00	D-46	True	83.00	46.7	36.0	0.000	0.55	0.08	3.95	83.0	(N/A)	True
CO-201	D-46	True	83.00	31	True	83.00	69.1	30.0	0.000	42.42	8.64	2.47	10,343.2	(N/A)	True
CO-202	D-1	True	125.60	D-2	True	124.00	39.0	18.0	0.042	3.92	9.27	1.21	18.2	28.9	True
CO-203	D-2	True	124.00	D-3	False	114.85	181.9	18.0	0.051	6.15	11.24	0.52	26.0	34.8	True
CO-204	D-4	True	115.10	D-3	False	114.85	26.5	18.0	0.010	3.72	5.36	0.63	36.2	41.6	True
CO-205	D-3	True	113.00	D-6	False	107.25	156.4	18.0	0.037	10.81	11.61	0.78	53.6	52.1	True
CO-206	D-5	True	108.10	D-6	False	107.25	31.7	18.0	0.027	2.46	6.96	0.82	14.1	25.4	True
CO-207	D-6	True	106.00	D-7	False	105.00	37.9	18.0	0.027	13.56	10.82	1.07	78.5	66.7	True
CO-209	D-16	True	104.45	D-17	True	104.00	50.8	18.0	0.009	3.85	2.18	1.89	38.6	43.1	True
CO-212	D-20	True	103.15	D-19	True	102.90	26.4	18.0	0.010	1.31	0.74	2.62	12.7	24.1	True
CO-213	D-19	True	102.90	D-7	True	102.30	108.8	18.0	0.006	9.27	5.24	2.37	118.3	(N/A)	True
CO-214	D-7	True	102.30	D-8	False	97.95	135.7	24.0	0.032	22.47	13.25	1.07	55.3	53.1	True
CO-215	D-9	True	98.20	D-8	False	97.95	26.2	18.0	0.010	3.88	5.42	0.65	37.7	42.6	True
CO-216	D-8	True	95.24	D-10	False	90.80	127.9	24.0	0.035	27.32	14.27	1.19	64.8	58.6	True
CO-217	D-11	True	91.05	D-10	False	90.80	25.9	18.0	0.009	2.25	4.63	0.48	22.0	31.9	True
CO-218	D-10	True	86.00	D-13	True	84.00	99.2	24.0	0.020	30.08	9.58	3.21	93.6	76.7	True

FlexTable: Conduit Table

Label	Start Node	Set Invert to Start?	Invert (Start) (ft)	Stop Node	Set Invert to Stop?	Invert (Stop) (ft)	Length (Scaled) (ft)	Diameter (in)	Slope (Calculated) (ft/ft)	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Flow / Capacity (Design) (%)	Depth (Normal) / Rise (%)	Is Active?
CO-219	D-12	True	84.00	D-13	True	84.00	26.8	36.0	0.000	0.36	0.05	3.21	54.2	(N/A)	True
CO-220	D-13	True	84.00	D-15	True	84.00	46.1	24.0	0.000	25.55	8.13	1.78	11,293.7	(N/A)	True
CO-225	D-50	True	121.55	D-51	True	121.25	30.8	18.0	0.010	0.51	3.06	1.11	4.8	14.9	True
CO-226	D-51	True	121.25	D-52	True	117.85	148.0	18.0	0.023	5.34	8.14	1.55	33.4	39.8	True
CO-227	D-53	True	118.10	D-52	True	117.85	27.0	18.0	0.009	0.33	2.65	1.55	3.3	12.4	True
CO-228	D-52	True	117.85	D-54	True	115.00	148.6	18.0	0.019	8.81	8.64	2.22	60.5	56.1	True
CO-229	D-54	True	115.00	D-55	False	111.30	153.8	18.0	0.024	12.26	6.94	3.38	75.1	64.7	True
CO-230	D-56	True	111.80	D-55	False	111.55	27.3	24.0	0.010	2.22	0.71	3.13	10.0	21.4	True
CO-231	D-55	True	110.00	D-57	True	109.00	126.0	24.0	0.009	17.70	5.63	4.64	83.6	69.9	True
CO-233	D-38	True	123.85	D-41	False	123.50	27.8	18.0	0.013	0.09	2.00	0.09	0.7	6.0	True
CO-234	D-41	True	121.00	D-39	False	113.75	194.3	30.0	0.037	28.33	14.80	1.03	35.8	41.3	True
CO-235	D-37	True	125.00	D-41	False	123.50	58.2	24.0	0.026	28.04	12.76	1.41	77.2	65.9	True
CO-236	D-35	True	126.35	D-34	False	126.05	28.6	18.0	0.011	1.40	0.79	3.71	12.9	24.3	True
CO-237	D-34	True	125.60	D-37	True	125.00	28.6	24.0	0.011	28.12	8.95	3.04	119.0	(N/A)	True
CO-238	D-31	True	132.30	D-32	True	129.50	137.1	24.0	0.020	20.11	10.85	3.30	62.2	57.1	True
CO-239	D-32	True	129.50	D-33	True	128.65	48.0	24.0	0.018	21.37	6.80	3.30	70.3	61.8	True
CO-240	D-81	True	84.50	D-82	True	84.00	75.6	36.0	0.007	59.47	8.41	2.49	107.7	(N/A)	True
CO-242	33	True	148.62	34	True	145.23	161.0	18.0	0.022	1.57	5.66	1.09	10.0	21.4	True
CO-246	D-100	True	140.00	D-28	True	139.10	44.6	18.0	0.020	2.90	6.54	2.22	19.4	29.9	True
CO-247	D-99	True	140.25	D-100	True	140.00	26.5	18.0	0.009	2.62	4.84	1.39	25.7	34.6	True
CO-250	D-39	True	110.00	D-25	False	103.50	141.5	30.0	0.046	30.00	16.21	2.08	34.1	40.3	True
CO-251	D-17	True	104.00	D-19	True	102.90	103.5	18.0	0.011	5.48	3.10	2.62	50.6	50.4	True
CO-252	D-73	True	112.70	D-75	True	109.75	102.8	18.0	0.029	6.37	9.23	1.37	35.8	41.3	True
CO-253	D-40	True	114.00	D-39	False	113.75	26.9	18.0	0.009	0.82	3.45	0.29	8.1	19.2	True
CO-254	D-62	True	115.05	D-61	True	114.80	27.1	18.0	0.009	1.56	0.88	1.82	15.4	26.6	True
CO-255	D-61	True	114.80	D-63	True	113.60	62.2	18.0	0.019	9.66	8.82	2.09	66.2	59.4	True
CO-256	D-57	True	109.00	D-67	True	108.25	88.8	30.0	0.008	31.88	6.49	4.40	84.6	70.5	True
CO-257	D-66	True	108.60	D-67	True	108.25	35.5	18.0	0.010	1.96	1.11	4.40	18.8	29.3	True

FlexTable: Catchment Table

Label	Outflow Element	Scaled Area (acres)	Runoff Coefficient (Rational)	Time of Concentration (min)	Is Active?
CM-126	D-86	0.139	0.600	10.000	True
CM-127	D-86	0.262	0.600	10.000	True
CM-142	D-88	0.097	0.600	10.000	True
CM-143	D-88	0.683	0.600	10.000	True
CM-144	D-87	0.379	0.600	10.000	True
CM-71	D-89	0.273	0.600	10.000	True
CM-72	D-91	0.319	0.600	10.000	True
CM-70	D-90	0.467	0.600	10.000	True
CM-73	D-92	0.358	0.600	10.000	True
CM-69	D-93	0.715	0.600	10.000	True
CM-68	D-94	0.828	0.600	10.000	True
CM-61	D-96	0.216	0.600	10.000	True
CM-74	D-95	0.688	0.600	10.000	True
CM-75	D-58	0.370	0.600	10.000	True
CM-60	D-59	0.755	0.600	10.000	True
CM-59	D-61	0.718	0.600	10.000	True
CM-58	D-65	0.806	0.600	10.000	True
CM-77	D-64	0.338	0.600	10.000	True
CM-57	D-67	0.503	0.600	10.000	True
CM-32	D-68	0.504	0.600	10.000	True
CM-85	D-69	0.698	0.600	10.000	True
CM-84	D-70	0.434	0.600	10.000	True
CM-33	D-71	0.968	0.600	10.000	True
CM-82	D-72	0.406	0.600	10.000	True
CM-29	D-73	1.020	0.600	10.000	True
CM-30	D-75	0.300	0.600	10.000	True
CM-31	D-77	0.296	0.600	10.000	True
CM-81	D-76	1.341	0.600	10.000	True
CM-9	34	0.687	0.600	10.000	True
CM-133	35	0.048	0.600	10.000	True
CM-131	D-27	0.235	0.600	10.000	True
CM-10	D-26	0.680	0.600	10.000	True
CM-129	D-30	0.543	0.600	10.000	True

FlexTable: Catchment Table

Label	Outflow Element	Scaled Area (acres)	Runoff Coefficient (Rational)	Time of Concentration (min)	Is Active?
CM-11	D-29	0.888	0.600	10.000	True
CM-120	D-31	0.628	0.600	10.000	True
CM-93	D-32	0.325	0.600	10.000	True
CM-119	D-33	0.678	0.600	10.000	True
CM-118	D-34	0.680	0.600	10.000	True
CM-92	D-35	0.313	0.600	10.000	True
CM-89	D-38	0.019	0.600	10.000	True
CM-117	D-41	0.067	0.600	10.000	True
CM-88	D-39	0.262	0.600	10.000	True
CM-96	D-21	1.374	0.600	10.000	True
CM-20	D-22	0.363	0.600	10.000	True
CM-21	D-24	0.203	0.600	10.000	True
CM-95	D-23	0.857	0.600	10.000	True
CM-22	D-43	0.207	0.600	10.000	True
CM-23	D-43	0.973	0.600	10.000	True
CM-24	D-42	0.443	0.600	10.000	True
CM-26	D-44	0.307	0.600	10.000	True
CM-25	D-45	0.142	0.600	10.000	True
CM-27	D-46	0.120	0.600	10.000	True
CM-28	D-47	0.124	0.600	10.000	True
CM-4	D-1	0.876	0.600	10.000	True
CM-94	D-2	0.501	0.600	10.000	True
CM-13	D-3	0.229	0.600	10.000	True
CM-5	D-4	0.832	0.600	10.000	True
CM-14	D-6	0.089	0.600	10.000	True
CM-6	D-5	0.549	0.600	10.000	True
CM-12	D-16	0.860	0.600	10.000	True
CM-16	D-17	0.378	0.600	10.000	True
CM-15	D-19	0.594	0.600	10.000	True
CM-17	D-20	0.293	0.600	10.000	True
CM-18	D-8	0.286	0.600	10.000	True
CM-7	D-9	0.868	0.600	10.000	True
CM-19	D-10	0.170	0.600	10.000	True

FlexTable: Catchment Table

Label	Outflow Element	Scaled Area (acres)	Runoff Coefficient (Rational)	Time of Concentration (min)	Is Active?
CM-8	D-11	0.502	0.600	10.000	True
CM-2	D-13	0.080	0.600	10.000	True
CM-1	D-12	0.081	0.600	10.000	True
CM-90	D-50	0.113	0.600	10.000	True
CM-91	D-51	1.086	0.600	10.000	True
CM-78	D-52	0.721	0.600	10.000	True
CM-183	D-53	0.075	0.600	10.000	True
CM-79	D-54	0.802	0.600	10.000	True
CM-80	D-55	0.785	0.600	10.000	True
CM-83	D-56	0.497	0.600	10.000	True
CM-184	33	0.350	0.600	10.000	True
CM-128	D-100	0.063	0.600	10.000	True
CM-130	D-99	0.224	0.600	10.000	True
CM-132	D-99	0.362	0.600	10.000	True
CM-87	D-40	0.183	0.600	10.000	True
CM-76	D-62	0.348	0.600	10.000	True
CM-86	D-66	0.437	0.600	10.000	True

FlexTable: Outfall Table

Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (cfs)	Is Active?
D-15	89.00	True	89.00	84.00	85.47	85.78	25.49	True
D-98	125.00	True	125.00	118.50	120.93	120.93	22.21	True
D-82	89.00	True	89.00	84.00	85.47	86.49	59.22	True
31	89.00	True	89.00	83.00	85.47	85.47	42.29	True

Andreyev Engineering, Inc.

SANFORD OFFICE
4055 St. John's Parkway
Sanford, Florida 32771
407-330-7763

▼ Groundwater ▼ Environmental ▼ Geotechnical ▼ Construction Materials Testing

April 28, 2023
GPGT-23-033

To: **JTD Land Company, LLC**
210 Hangar Road
Kissimmee, Florida 34741
Attention: Mr. Craig C. Harris

C/O: **HALFF Associates, Inc.**
902 North Sinclair Avenue
Tavares, Florida 32778
Attention: Mr. Scott Harp

Subject: **Geotechnical Investigation, Proposed Site Improvements, Simpson Property, Howey-In-The-Hills, Lake County, Florida**

Dear Mr. Harris:

Andreyev Engineering, Inc. (AEI) has completed a geotechnical investigation for the above referenced project location. We understand that the proposed site improvements will route stormwater into a proposed on-site stormwater retention pond system. The purpose of this geotechnical investigation and evaluation was to assess the shallow soil and groundwater conditions and provide recommendations for pavement section design and assist with stormwater retention system design.

SITE LOCATION AND DESCRIPTION

The subject site is located within Sections 1, 2, and 35, Townships 20 and 21 South, and Range 25 East, in Howey-In-The-Hills, Lake County, Florida. We have included the U.S.G.S. Topographic Map, which depicts the location of the site, on the attached **Figure 1**. In addition, the Natural Resources Conservation Service (NRCS) Soil Map, which depicts the location and general soil types of the subject site and is presented on the attached **Figure 2**.

PURPOSE AND SCOPE OF SERVICES

The purpose of this geotechnical investigation and evaluation will be to assess the encountered shallow soil and groundwater conditions and provide recommendations for pavement section design and provide stormwater retention system area design parameters. The boring locations and boring designations were selected by representatives of HALFF Associates, Inc. prior to mobilization of drilling personnel and equipment to this project location.

The scope of this investigation included:

- Drilled twenty-two (22) machine auger borings, designated B-1 through B-11, and P-1 through P-11, to a depth of 30 feet below ground surface within the proposed stormwater retention pond areas.

- Collected eleven (11) undisturbed permeability tube samples from proposed stormwater retention area boring locations P-1 through P-11 and conducted laboratory permeability testing on the samples to assess soil hydraulic conductivity.

- Performed four (4) field permeability tests, at proposed stormwater retention area boring locations B-1, B-2, B-3, and B-8, to assess soil hydraulic conductivity between depths of 20 to 30 feet below the existing ground surface.

- Drilled ten (10) machine auger borings, designated R-1 through R-10, to a depth of 20 feet below ground surface within the proposed paved roadways.

- Estimated normal seasonal high groundwater table levels.

Samples were recovered from the borings and returned to AEI's laboratory for visual classification and stratification. Soil strata were classified according to the Unified Soil Classification System (USCS). Approximate boring locations are shown on **Figure 3**, and results of the machine auger borings, in profile form, are presented on **Figures 4 through 7**. On the soil profiles, horizontal lines designating the interface between differing materials represent approximate boundaries. The actual transition between layers is typically gradual.

NATURAL RESOURCES CONSERVATION SERVICE SOIL SURVEY

The publication titled "Soil Survey of Lake County, Florida" published by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) was reviewed. For your reference, we have included a portion of the NRCS Soil Map which depicts the location of the subject site on the attached **Figure 2**. Seven soil map units were identified to exist at the subject project location and are depicted as:

Soil Map Unit 5: ***Apopka Sand, 0 to 5 Percent Slopes***

Brief Description: "This soil is a nearly level to gently sloping, well-drained sandy soil that has a sandy clay loam subsoil at a depth of 55 inches. This soil has the profile described as representative for the series. In a representative profile the surface layer is very dark gray sand about 6 inches thick. The subsurface layers are yellowish-brown and light yellowish-brown sand to a depth of about 55 inches. The subsoil is red sandy clay loam to a depth of about 84 inches. The water table is at a depth of more than 84 inches. The sandy surface and subsurface layers are rapidly permeable and have very low available water capacity. Permeability in the subsoil is moderate or moderately rapid, and available water capacity is medium to high."

Soil Map Unit 6: ***Apopka Sand, 5 to 12 Percent Slopes***

Brief Description: "This is a sloping to strongly sloping, well-drained sandy soil. Unless protected by vegetation, it is readily erodible by wind and water. The water table is at a depth of more than 84 inches. The sandy surface and subsurface layers are rapidly permeable. Available

water capacity is very low, and the organic matter content is low. The loamy subsoil is moderately permeable or moderately rapidly permeable and has a medium to high available water capacity. In a representative profile the surface layer is very dark gray sand about 6 inches thick. The subsurface layers are yellowish-brown and light yellowish-brown sand to a depth of about 55 inches. The subsoil is red sandy clay loam to a depth of about 84 inches."

Soil Map Unit 8: ***Candler Sand, 0 to 5 Percent Slopes***

Brief Description: "This soil is nearly level to gently sloping and is excessively drained. It is on ridges, knolls, and broad uplands. The slopes range from smooth to broken. Typically, the surface layer is dark grayish brown sand about 6 inches thick. The subsurface layer, to a depth of about 63 inches is light yellowish brown and yellowish brown sand. The next layers to a depth of 80 inches or more are yellow sand that has thin strong textural bands. This soil does not have a high water table within 80 inches of the surface. The available water capacity is very low throughout. Permeability is high to very high.**"**

Soil Map Unit 9:* ***Candler Sand, 5 to 12 Percent Slopes*

Brief Description: "This soil is a sloping to strongly sloping, excessively drained soil found on rolling uplands of the central ridge. Typically, the surface layer of this soil type consists of sand about 5 inches thick. The next layer is sand about 62 inches thick followed by a layer of sand about 13 inches thick. The water table for this soil type is at a depth of more than 80 inches. Available water capacity is very low and permeability is considered to be rapid to very rapid throughout the profile of this soil type."

Soil Map Unit 17: ***Arents***

Brief Description: "This soil consists of material dug up from several areas that have different kinds of soil. This fill material is the result of earthmoving operations. This material is used to fill such areas as sloughs, marshes, shallow depressions, swamps, and other low-lying areas above their natural ground levels, for use in land leveling operations, or as a final cover for sanitary landfills. Fill material used in some areas contain fragments of shells, whole shells, and a few rock fragments. The high water table varies with the amount of fill material and artificial drainage within any mapped area. The Arents soil is used mainly for urban development."

Soil Map Unit 45: ***Tavares Sand, 0 to 5 Percent Slopes***

Brief Description: "This is a nearly level to gently sloping, moderately well drained soil. It has a very dark grayish-brown sand surface layer about 7 inches thick. Below this is a layer of very pale brown sand that has faint yellowish-brown mottles to a depth of 25 inches. The next layer, to a depth of 34 inches, is a light yellowish-brown sand. Very pale brown sand that has faint yellow mottles is at depth between 34 and 61 inches. Below this is white sand mottled with very pale brown. The water table is at a depth of 40 to 60 inches for more than 6 months of the year. During periods of drought, it is below 60 inches. Tavares sand is very rapidly permeable. Available water capacity and organic matter content are low. This soil has slight limitations for use as foundations for low buildings, roads, airports, and paved parking areas. This soil has slight limitations for use as septic tank filter fields as possible contamination of ground water supplies can occur."

Soil Map Unit 50: ***Borrow Pit***

Brief Description: "An area where material has been excavated for use at another location."

* This soil map unit description is not presented in the 1975 NRCS "Soil Survey of Lake County, Florida" publication including revisions made to soil descriptions in 2004. These soil descriptions are interpreted from corresponding soil survey map units published from adjacent or nearby counties.

SOIL AND GROUNDWATER CONDITIONS

The soil types encountered at the boring locations are presented in the form of soil profiles on the attached **Figures 4 through 7**. The stratification presented is based on visual examination of the recovered soil samples and the interpretation of the field logs by a geotechnical engineer.

Soil Conditions

In general, the borings encountered the following soil Strata:

- Gray to Brown to Grayish Brown to Brownish Gray to Yellowish Brown to Reddish Brown Fine Sand (Stratum 1)
- Yellowish Brown to Reddish Brown to Gray to Light Gray to Light Pinkish Gray Slightly Silty to Silty Fine Sand (Stratum 2)
- Yellowish Brown to Reddish Brown to Gray to Grayish Brown Silty to Clayey Fine Sand (Stratum 3)
- Light Brown to Light Yellowish Brown to Light Gray Fine Sand (Stratum 4)
- Dark Gray to Dark Brown to Dark Grayish Brown Fine Sand (Stratum 5)
- Grayish Brown to Reddish Brown to Light Gray Clayey Fine Sand (Stratum 6)

Groundwater Conditions

Groundwater was encountered between depths of 9.0 to 29.0 feet at B-1, B-5, B-6, B-7, B-9, B-11, P-1, P-3, P-8, P-9, and P-10. Groundwater was not encountered between the ground surface and the termination depth of drilling of 30 feet at B-2, B-3, B-4, B-8, B-10, P-2, P-4, P-5, P-6, P-7, and P-11. In addition, groundwater was not encountered between the ground surface and the termination depth of drilling of 20 feet at RB-1 through RB-10. Based on the encountered subsurface conditions, our local experience, review of the NRCS Soil Survey, and antecedent rainfall conditions, the normal seasonal high groundwater level is estimated to exist about 2 to 3 feet above measured levels at B-1, B-5, B-6, B-9, P-3, and P-10. At B-2, B-7, B-8, B-11, P-1, P-2, P-5, P-6, P-7, P-8, P-9, P-10, R-1, R-3, R-5, R-6, R-8, R-9, and R-10, the normal seasonal high groundwater table is estimated to exist in a temporary perched condition, slightly above the poorly permeable Strata 3 and 6 silty to clayey fine sand and clayey fine sand, during periods of heavy or extended rainfall. At B-3, B-4, P-4, P-11, R-2, R-4, and R-7, the normal seasonal high groundwater level is estimated to exist about 3 feet above the respective termination depth of drilling of 20 to 30 feet below existing ground surface.

Percent of Fines Passing a U.S # 200 Sieve Test Results

The results of the laboratory classification tests selected for moisture content and percent of fines passing a U.S. #200 Sieve are shown adjacent to the corresponding soil profile and depth on **Figure 6** are also presented as follows:

B-4		**B-4**	
Sample Depth:	22.5 feet	Sample Depth:	28.5 feet
Classification:	S.S. to S.F.S.*	Classification:	F.S. to S.S.F.S.**
Moisture Content:	8.3%	Moisture Content:	3.7%
Percent of Fines:	20.1%	Percent of Fines:	5.8%

B-6		**B-7**	
Sample Depth:	10.5 feet	Sample Depth:	11.0 feet
Classification:	F.S. to S.S.F.S.**	Classification:	Clayey Fine Sand
Moisture Content:	2.3%	Moisture Content:	8.8%
Percent of Fines:	1.9%	Percent of Fines:	18.5%

B-9		**P-1**	
Sample Depth:	17.5 feet	Sample Depth:	10.0 Feet
Classification:	F.S. to S.S.F.S.**	Classification:	Clayey Fine Sand
Moisture Content:	7.3%	Moisture Content:	15.3%
Percent of Fines:	2.1%	Percent of Fines:	26.8%

P-8		**P-8**	
Sample Depth:	17.5 feet	Sample Depth:	22.5 Feet
Classification:	F.S. to S.S.F.S.**	Classification:	Silty to Clayey Fine Sand
Moisture Content:	3.2%	Moisture Content:	14.7%
Percent of Fines:	5.9%	Percent of Fines:	21.3%

* Slightly Silty to Silty Fine Sand
** Fine Sand to Slightly Silty Fine Sand

EVALUATIONS AND RECOMMENDATIONS

Based on the results of this investigation and dependent on planned site grades, conventional pavement section design and construction using flexible or semi flexible pavement sections will be possible at this site, provided that a two-foot separation is maintained between the bottom of the pavement base course and the estimated normal seasonal high groundwater table levels. In addition, a two-foot separation should also be maintained between the bottom of the pavement base course and the top of any encountered poorly permeable Strata 3 and 6 silty to clayey fine sand and clayey fine sand to prevent perched groundwater from adversely affecting the pavement section. Depending on final site grades, roadway underdrains may be necessary to control possible perched groundwater conditions, from affecting the long-term performance of the proposed paved roadways.

Dependent on planned site grades, the proposed stormwater retention pond areas appear suitable for dry stormwater retention design. On-site Strata 1, 4, and 5 sandy soils, excavated from the proposed stormwater retention pond areas, should be suitable for general fill purposes.

Paved Roadways

In general, conventional pavement section design and construction using flexible or semi flexible pavement sections will be possible at this site, provided that a two-foot separation is maintained between the pavement base course and the top of any encountered poorly permeable Strata 3 and 6 silty to clayey fine sand and clayey fine sand to prevent perched groundwater from adversely affecting the pavement base. Dependent on final site grades, pavement section underdrains may be necessary to control perched groundwater conditions, from affecting the long-term performance of the proposed paved roadways.

Typical flexible and semi-flexible pavement sections are as follows:

Limerock Base

1-1/2" to 2-1/2" asphaltic concrete wearing surface

6" to 8" limerock base course, quality of limerock to be in accordance with current Florida Department of Transportation specifications and compacted to a minimum density equivalent to 98 percent of the modified Proctor maximum density (AASHTO T-180).

12" stabilized subbase with minimum Limerock Bearing Ratio (LBR) of 40 percent. The subbase should be compacted to a minimum density equivalent to 98 percent of the modified Proctor maximum density (AASHTO T-180). The subgrade material, below the subbase, shall be compacted to minimum density of 98% of the modified Proctor maximum density of the soil.

Soil-Cement Base

1-1/2" to 2-1/2" asphaltic concrete wearing surface

6" to 8" soil-cement base designed and constructed in accordance with current Portland Cement Association recommended methods.

12" subgrade consisting of free draining natural fine sand or fine sand fill with less than 7 percent passing a U.S. #200 sieve. The subgrade should be compacted to a minimum density of 98 percent of the modified Proctor maximum density (AASHTO T-180).

Crushed Concrete Base

1-1/2" to 2-1/2" asphaltic concrete wearing surface

6" to 8" crushed concrete base with the quality of crushed concrete to be in accordance with current Florida Department of Transportation specifications and should have a minimum Limerock Bearing Ratio (LBR) of 150 and be compacted to at least 98 percent of the Modified proctor maximum dry density per ASTM D-1557.

12" stabilized subbase with minimum Limerock Bearing Ratio (LBR) of 40 percent. The subbase should be compacted to a minimum density equivalent to 98 percent of the modified Proctor maximum density per ASTM D-1557. The subgrade material, below the subbase, shall be compacted to minimum density of 98% of the modified Proctor maximum density of the soil per ASTM D-1557.

Type of Development	ADT (average daily traffic)	Base Thickness	Wearing Surface Thickness
Residential Subdivision	< 1,500	6"	1 ½"
	>1,500	8"	2 ½"

The pavement section should be designed based on expected traffic including truck loads. Traffic should not be allowed on the subgrade prior to placement of the base to avoid rutting. The final pavement thickness design should be checked by the project civil engineer using data contained in this report and anticipated traffic conditions.

As a possible pavement section design alternative, AEI presents recommendations for a rigid pavement section as follows:

Rigid Pavement

6" reinforced concrete wearing surface: Designed to withstand the design traffic loads and jointed to reduce the chances for crack development. The concrete should have a minimum unconfined compressive strength of 3,000 psi.

12" subgrade: consisting of free draining natural fine sand or fine sand fill. Subgrade to be compacted to a minimum density equivalent to 98 percent of the modified Proctor maximum density (AASHTO T-180).

Stormwater Retention Pond Areas

Based on the results of the borings and permeability tests and dependent on planned site grades, the proposed stormwater retention pond areas located in the vicinities of B-1 through B-11 and P-1 through P-11, appear suitable for dry stormwater retention pond design.

Strata 1, 4, and 5 fine sand and fine sand to slightly silty fine sand, excavated from the stormwater retention pond areas during construction, are considered suitable for use as general fill with minimal soil preparation efforts provided that the soil's moisture content is maintained near optimum prior to fill placement and compaction. For more detailed recommendations for soils excavated from the stormwater retention pond area, please reference the fill suitability section presented in the following section of this geotechnical report.

For analysis and design purposes the following aquifer characteristics should be used. Dependent on the final planned stormwater retention system configuration for this project, the flowing aquifer design parameters may be averaged, for each individual stormwater retention area location, where two or more auger borings were performed within, to assist with performing stormwater recovery analysis calculations. These aquifer characteristics were determined from the results of the field and laboratory investigations, adjusting for depth and soil variability:

Boring Location	Bottom of Aquifer *	Avg. Unsat. Vertical Hydraulic Conductivity (ft/day)	Avg. Horizontal Hydraulic Conductivity (ft/day)	Depth to Seasonal High Groundwater Level *	Soil Storage Coefficient
B-1	21.0	12.1	24.8	6.1 (apparent)	0.25
B-2	7.0	16.0	36.0	6.5 (perched)	0.25
B-2**	30.0	10.9	17.9	27.0 (estimated)	0.25
B-3	30.0	7.1	17.5	27.0 (estimated)	0.25
B-4	30.0	8.1	21.4	27.0 (estimated)	0.25
B-5	30.0	15.4	26.2	12.0 (apparent)	0.25
B-6	30.0	15.9	27.6	11.0 (apparent)	0.25
B-7	9.0	15.4	34.8	8.5 (perched)	0.25
B-8	17.0	8.4	22.3	16.5 (perched)	0.25
B-9	30.0	16.1	36.9	17.0 (apparent)	0.25
B-10	30.0	12.2	31.9	27.0 (estimated)	0.25
B-11	15.0	15.0	33.7	14.5 (perched)	0.25
P-1	9.0	12.2	28.4	8.5 (perched)	0.25
P-1**	30.0	11.9	24.3	11.5 (apparent)	0.25
P-2	6.0	12.3	28.4	5.5 (perched)	0.25
P-3	30.0	13.3	30.0	9.0 (apparent)	0.25
P-4	30.0	8.1	22.9	27.0 (estimated)	0.25
P-5	20.0	11.2	28.0	19.5 (perched)	0.25
P-5**	30.0	10.4	21.2	27.0 (estimated)	0.25
P-6	4.5	13.2	29.7	4.0 (perched)	0.25
P-6**	25.0	9.0	19.6	24.5 (perched)	0.25
P-7	20.0	12.2	32.2	19.5 (perched)	0.25
P-8	20.0	8.3	21.1	19.5 (perched)	0.25
P-9	15.0	10.3	22.6	14.5 (perched)	0.25
P-10	30.0	14.6	28.9	11.0 (apparent)	0.25
P-11	30.0	12.0	26.7	27.0 (estimated)	0.25

* Feet below existing land surface

** With over-excavation and replacement of poorly permeable Strata 3 and 6 silty to clayey fine sand and clayey fine sand soils to connect the pond bottom to a deeper, more permeable aquifer base. In this

scenario, the replacement fine sand soils should have an in-place vertical permeability of 15 feet per day or greater.

Factors of safety have not been applied to the above weighted average permeability values. For the purpose of recovery analysis in accordance with water management district rules, a factor of safety of 2 should be applied to the unsaturated vertical permeability to account for long-term performance and siltation of the pond bottom.

The following formulas were used in the calculation of both the weighted average horizontal and weighted average vertical permeabilities:

$$\text{Weighted Average Vertical Permeability} = \frac{\sum L}{\frac{L_1}{Kv_1} + \frac{L_2}{Kv_2} + \frac{L_3}{Kv_3} + \ldots\ldots\ldots \frac{L_n}{Kv_n}}$$

$$\text{Weighted Average Horizontal Permeability} = \frac{Kh_1.L_1 + Kh_2.L_2 + Kh_3.L_3 + \ldots . Kh_n.L_n}{\sum L}$$

B-1:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 6.1 ft / (5.0 ft/17.5 ft/day + 1.1 ft/22.5 ft/day) X 2/3 = 12.1 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 17.5 ft/day + 8.0 ft. x 22.5 ft/day + 8.0 ft. x 9.9 ft/day) / 21.0 ft) X 1.5 = 24.8 ft/day

B-2:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 6.5 ft / (6.5 ft/24.0 ft/day) X 2/3 = 16.0 ft/day

Horizontal Hydraulic Conductivity
Kh = (7.0 ft. x 24.0 ft/day) / 7.0 ft) X 1.5 = 36.0 ft/day

B-2 (With Over-Excavation and Replacement of Stratum 3 silty to clayey soils. Replacement fine sand soils should have an in-place vertical permeability of 15 feet per day or greater.):

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (7.0 ft/24.0 ft/day + 5.0 ft/15.0 ft/day + 8.0 ft/12.5 ft/day + 3.5 ft/9.0 ft/day) X 2/3 = 10.9 ft/day

Horizontal Hydraulic Conductivity
Kh = (7.0 ft. x 24.0 ft/day + 5.0 ft. x 0.01 ft/day + 8.0 ft. x 12.5 ft/day + 10.0 ft. x 9.0 ft/day) / 30.0 ft) X 1.5 = 17.9 ft/day

B-3:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (5.0 ft/22.5 ft/day + 22.0 ft/9.5 ft/day) X 2/3 = 7.1 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 22.5 ft/day + 25.0 ft. x 9.5 ft/day) / 30.0 ft) X 1.5 = 17.5 ft/day

B-4:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (5.0 ft/22.5 ft/day + 5.0 ft/25.0 ft/day + 17.0 ft/9.5 ft/day) X 2/3 = 8.1 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 22.5 ft/day + 5.0 ft. x 25.0 ft/day + 17.0 ft. x 9.5 ft/day 3.0 ft. x 10.0 ft/day) / 30.0 ft) X 1.5 = 21.4 ft/day

B-5:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 12.0 ft / (9.0 ft/22.5 ft/day + 3.0 ft/25.0 ft/day) X 2/3 = 15.4 ft/day

Horizontal Hydraulic Conductivity
Kh = (9.0 ft. x 22.5 ft/day + 7.5 ft. x 25.0 ft/day + 13.5 ft. x 9.9 ft/day) / 30.0 ft) X 1.5 = 26.2 ft/day

B-6:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 11.0 ft / (5.0 ft/22.5 ft/day + 6.0 ft/25.0 ft/day) X 2/3 = 15.9 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 22.5 ft/day + 11.0 ft. x 25.0 ft/day + 4.0 ft. x 17.5 ft/day + 10.0 ft. x 9.5 ft/day) / 30.0 ft) X 1.5 = 27.6 ft/day

B-7:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 8.5 ft / (6.5 ft/22.5 ft/day + 2.0 ft/25.0 ft/day) X 2/3 = 15.4 ft/day

Horizontal Hydraulic Conductivity
Kh = (6.5 ft. x 22.5 ft/day + 2.5 ft. x 25.0 ft/day) / 9.0 ft) X 1.5 = 34.8 ft/day

B-8:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 16.5 ft / (7.0 ft/22.5 ft/day + 9.5 ft/9.5 ft/day) X 2/3 = 8.4 ft/day

Horizontal Hydraulic Conductivity
Kh = (7.0 ft. x 22.5 ft/day + 10.0 ft. x 9.5 ft/day) / 17.0 ft) X 1.5 = 22.3 ft/day

B-9:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 17.0 ft / (5.0 ft/22.5 ft/day + 12.0 ft/25.0 ft/day) X 2/3 = 16.1 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 22.5 ft/day + 25.0 ft. x 25.0 ft/day) / 30.0 ft) X 1.5 = 36.9 ft/day

B-10:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (15.0 ft/22.5 ft/day + 12.0 ft/25.0 ft/day) X 2/3 = 12.2 ft/day

Horizontal Hydraulic Conductivity
Kh = (15.0 ft. x 22.5 ft/day + 15.0 ft. x 25.0 ft/day) / 30.0 ft) X 1.5 = 31.9 ft/day

B-11:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 14.5 ft / (14.5 ft/22.5 ft/day) X 2/3 = 15.0 ft/day

Horizontal Hydraulic Conductivity
Kh = (15.0 ft. x 22.5 ft/day) / 15.0 ft) X 1.5 = 33.7 ft/day

P-1:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 8.5 ft / (5.0 ft/16.1 ft/day + 3.5 ft/22.5 ft/day) X 2/3 = 12.2 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 16.1 ft/day + 4.0 ft. x 22.5 ft/day) / 9.0 ft) X 1.5 = 28.4 ft/day

P-1 (With Over-Excavation and Replacement of Stratum 6 clayey soils. Replacement fine sand soils should have an in-place vertical permeability of 15 feet per day or greater.):

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 11.5 ft / (5.0 ft/16.1 ft/day + 4.0 ft/22.5 ft/day + 2.0 ft/15.0 ft/day + 0.5 ft/22.5 ft/day) X 2/3 = 11.9 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 16.1 ft/day + 4.0 ft. x 22.5 ft/day + 2.0 ft. x 0.01 ft/day + 10.0 ft. x 22.5 ft/day + 9.0 ft. x 10.0 ft/day) / 30.0 ft) X 1.5 = 24.3 ft/day

P-2:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 5.5 ft / (4.0 ft/17.2 ft/day + 1.5 ft/22.5 ft/day) X 2/3 = 12.3 ft/day

Horizontal Hydraulic Conductivity
Kh = (4.0 ft. x 17.2 ft/day + 2.0 ft. x 22.5 ft/day) / 6.0 ft) X 1.5 = 28.4 ft/day

P-3

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 9.0 ft / (5.0 ft/18.4 ft/day + 4.0 ft/22.5 ft/day) X 2/3 = 13.3 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 18.4 ft/day + 5.0 ft. x 22.5 ft/day + 10.0 ft. x 20.0 ft/day + 10.0 ft. x 17.5 ft/day) / 30.0 ft) X 1.5 = 30.0 ft/day

P-4

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (10.0 ft/23.3 ft/day + 10.0 ft/12.5 ft/day + 10.0 ft/10.0 ft/day) X 2/3 = 8.1 ft/day

Horizontal Hydraulic Conductivity
Kh = (10.0 ft. x 23.3 ft/day + 10.0 ft. x 12.5 ft/day + 10.0 ft. x 10.0 ft/day) / 30.0 ft) X 1.5 = 22.9 ft/day

P-5:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 19.5 ft / (5.0 ft/24.7 ft/day + 5.0 ft/25.0 ft/day + 9.5 ft/12.5 ft/day) X 2/3 = 11.2 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 24.7 ft/day + 5.0 ft. x 25.0 ft/day + 10.0 ft/12.5 ft/day) / 20.0 ft) X 1.5 = 28.0 ft/day

P-5 (With Over-Excavation and Replacement of Stratum 3 silty to clayey fine sand soils. Replacement fine sand soils should have an in-place vertical permeability of 15 feet per day or greater.):

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (5.0 ft/24.7 ft/day + 5.0 ft/25.0 ft/day + 10.0 ft/12.5 ft/day + 5.0 ft/15.0 ft/day + 2.0 ft/10.0 ft/day) X 2/3 = 10.4 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 24.7 ft/day + 5.0 ft. x 25.0 ft/day + 10.0 ft. x 12.5 ft/day + 5.0 ft. x 0.01 ft/day + 5.0 ft. x 10.0 ft/day) / 30.0 ft) X 1.5 = 21.2 ft/day

P-6:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 4.0 ft / (4.0 ft/19.8 ft/day) X 2/3 = 13.2 ft/day

Horizontal Hydraulic Conductivity
Kh = (4.5 ft. x 19.8 ft/day) / 4.5 ft) X 1.5 = 29.7 ft/day

P-6 (With Over-Excavation and Replacement of shallow Stratum 3 silty to clayey soils. Replacement fine sand soils should have an in-place vertical permeability of 15 feet per day or greater.):

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 24.5 ft / (4.5 ft/19.8 ft/day + 1.5 ft/15.0 ft/day + 18.5 ft/12.5 ft/day) X 2/3 = 9.0 ft/day

Horizontal Hydraulic Conductivity
Kh = (4.5 ft. x 19.8 ft/day + 1.5 ft. x 0.01 ft/day + 19.0 ft. x 12.5 ft/day) / 25.0 ft) X 1.5 = 19.6 ft/day

P-7:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 19.5 ft / (11.0 ft/25.6 ft/day + 4.0 ft/25.0 ft/day + 4.5 ft/9.5 ft/day) X 2/3 = 12.2 ft/day

Horizontal Hydraulic Conductivity
Kh = (11.0 ft. x 25.6 ft/day + 4.0 ft. x 25.0 ft/day + 5.0 ft. x 9.5 ft/day) / 20.0 ft) X 1.5 = 32.2 ft/day

P-8:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 19.5 ft / (5.0 ft/19.7 ft/day + 10.0 ft/9.5 ft/day + 4.5 ft/17.5 ft/day) X 2/3 = 8.3 ft/day

Horizontal Hydraulic Conductivity
Kh = (5.0 ft. x 19.7 ft/day + 10.0 ft. x 9.5 ft/day + 5.0 ft. x 17.5 ft/day) / 20.0 ft) X 1.5 = 21.1 ft/day

P-9:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 14.5 ft / (10.0 ft/21.5 ft/day + 4.5 ft/9.5 ft/day) X 2/3 = 10.3 ft/day

Horizontal Hydraulic Conductivity
Kh = (10.0 ft. x 21.5 ft/day + 5.0 ft. x 9.5 ft/day) / 15.0 ft) X 1.5 = 26.2 ft/day

P-10:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 11.0 ft / (10.0 ft/22.9 ft/day + 1.0 ft/17.5 ft/day) X 2/3 = 14.6 ft/day

Horizontal Hydraulic Conductivity
Kh = (10.0 ft. x 22.9 ft/day + 20.0 ft. x 17.5 ft/day) / 30.0 ft) X 1.5 = 28.9 ft/day

P-11:

Unsaturated Vertical Hydraulic Conductivity
Kv unsat = 27.0 ft / (15.0 ft/20.8 ft/day + 10.0 ft/17.5 ft/day + 2.0 ft/9.5 ft/day) X 2/3 = 12.0 ft/day

Horizontal Hydraulic Conductivity
Kh = (15.0 ft. x 20.8 ft/day + 10.0 ft. x 17.5 ft/day + 5.0 ft. x 9.5 ft/day) / 30.0 ft) X 1.5 = 26.7 ft/day

Fill Suitability

Based on the results of this geotechnical investigation and to evaluate soils planned to be excavated from the stormwater retention pond areas during construction, AEI presents the following evaluations and recommendations for fill material preparation and fill placement.

Strata 1, 4, and 5 fine sand and fine sand to slightly silty fine sand will be suitable for use as general fill with minimal soil preparation efforts, provided root content is minimal, and provided the soil's moisture content is maintained near the laboratory modified Proctor test result for optimum moisture content, prior to fill placement and compaction.

Excavated Stratum 2 slightly silty to silty fine sand may also be used as general fill material, however; additional soil preparation efforts should be anticipated. Due to the higher percent of fines content of this soil, this soil type will exhibit a high level of moisture retention characteristics. Additional soil preparation efforts, in order to maintain the moisture content near optimum, will be needed prior to fill placement and compaction.

The excavated soil type classifications with limitations for use as general fill, includes the encountered Strata 3 and 6 silty to clayey fine sand and clayey fine sand. The Strata 3 and 6 silty to clayey fine sand and clayey fine sand should not be used for direct foundation support or placed in near-surface areas, due to their moisture retention properties, difficulties with compaction, and drainage issues associated with higher surface runoff volumes, from these poorly permeable soils, when compacted. The Strata 3 and 6 silty to clayey fine sand and clayey fine sand soils can also expose overlying supported structures to increased levels of differential settlement, so their use should also be minimized in settlement sensitive project areas.

Excavations

Any and all excavations should be constructed in accordance with applicable local, state and federal regulation including those outlined by the Occupational Safety and Health Administration (OSHA). It is the contractor's sole responsibility for designing and constructing safe and stable excavations. Excavations should be sloped, benched or braced as required to maintain stability of the excavation sides and bottoms. Excavations should take into account loads resulting from equipment, fill stockpiles and existing construction. Any shoring need to maintain a safe excavation should be designed by a professional engineer registered in the State of Florida in accordance with local, state, and federal guidelines.

LIMITATIONS

This report has been prepared for the exclusive use of JTD Land Company, LLC, HALFF Associates, Inc., and their designers, based on our understanding of the project as stated in this report. Any modifications in design concepts from the description stated in this report should be made known to AEI for possible modification of recommendations presented in this report. This exploration was performed in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made as to the professional advice presented herein. Statements regarding all geotechnical recommendations are for use by the designers and are not intended for use by potential contractors. The geotechnical exploration and recommendations submitted herein are based on the data obtained from the soil borings presented on **Figures 4 through 7**. The report does not reflect any variations which may occur adjacent to, between, or away from the borings. The nature and extent of the variations between the borings may not become evident until during construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations presented in this report. An on-site visit may be required by a geotechnical engineer to note the characteristics of the variations during the construction period. This geotechnical study investigated the soil conditions within the proposed stormwater retention areas and paved roadways to the drilled depths of 20 to 30 feet and was not intended to investigate deeper soil conditions with regard to the presence or absence of Karst activity.

CLOSURE

AEI appreciates the opportunity to participate in this project, and we trust that the information herein is sufficient for your immediate needs. If you have any questions or comments concerning the contents of this report, please do not hesitate to contact the undersigned.

Sincerely,
ANDREYEV ENGINEERING, INC.

Mark L. Jung
Senior Project Manager

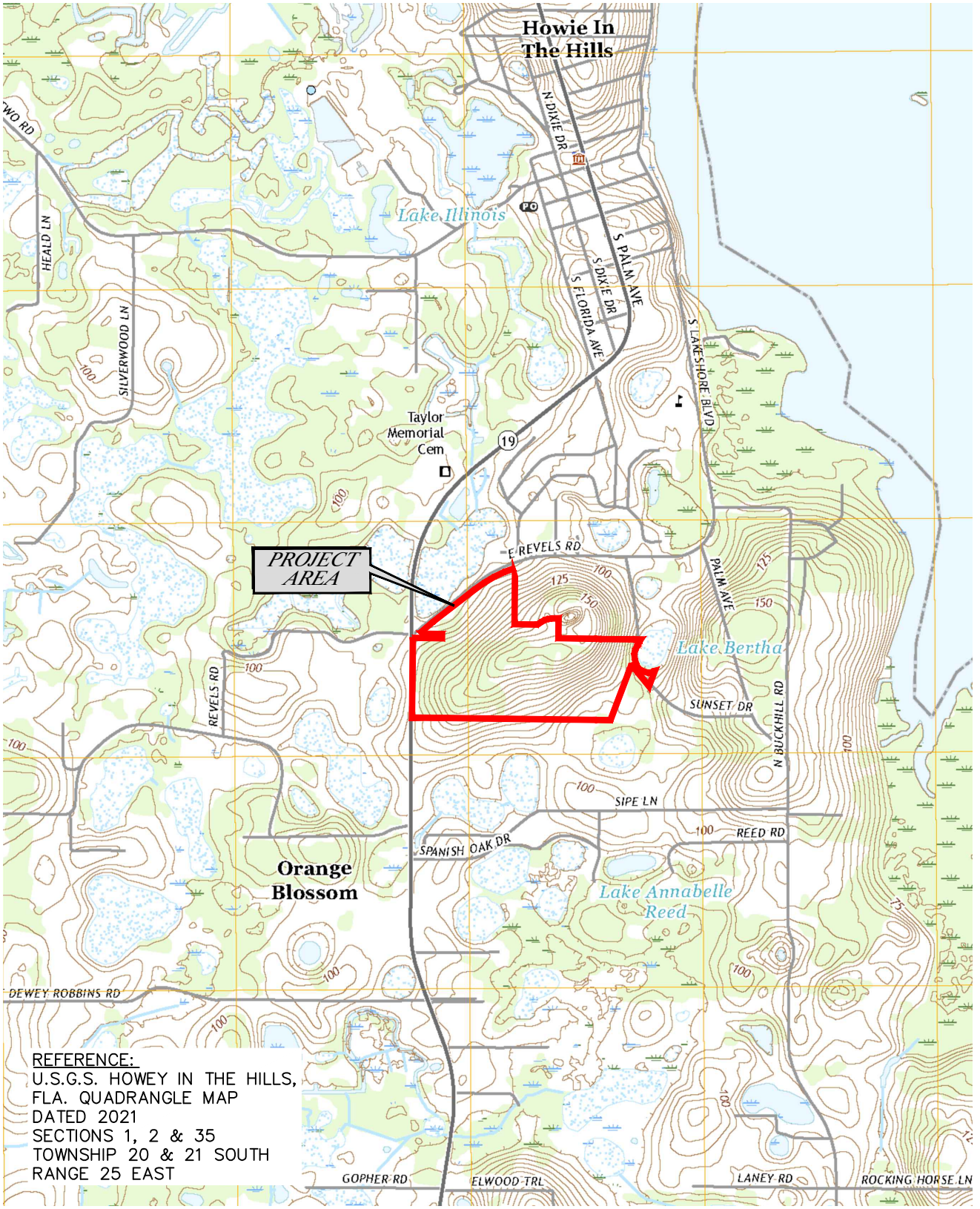
This item has been digitally signed and sealed by Ray Jones, P.E. on 4/28/23.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

RAYMOND W. JONES LICENSE NO. 58079 STATE OF FLORIDA PROFESSIONAL ENGINEER

Raymond W. Jones, P.E.
Vice President
Florida Registration No.58079

FIGURES



REFERENCE:
U.S.G.S. HOWEY IN THE HILLS, FLA. QUADRANGLE MAP
DATED 2021
SECTIONS 1, 2 & 35
TOWNSHIP 20 & 21 SOUTH
RANGE 25 EAST

0 1000 2000 4000

GRAPHIC SCALE: 1"=2000'

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

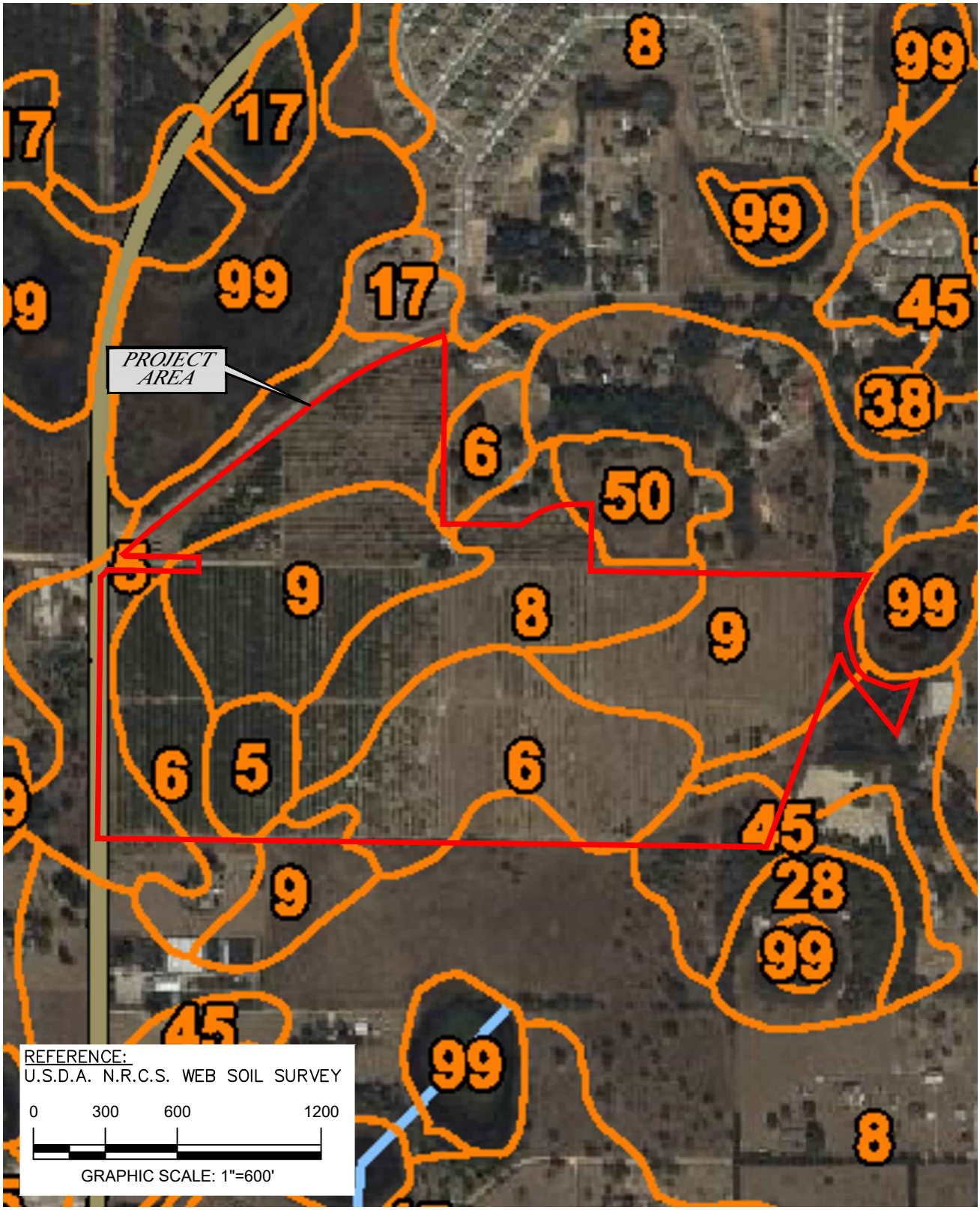
SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

U.S.G.S. TOPOGRAPHIC MAP

APPROXIMATE SCALE:	DATE: 04/03/23	ENGINEER: RJ
1"=2000'	PN: GPGT-23-033	DRAWN BY: DLS

FIGURE 1



LEGEND:

5	APOPKA SAND, 0 TO 5% SLOPES
6	APOPKA SAND, 5 TO 12% SLOPES
8	CANDLER SAND, 0 TO 5% SLOPES
9	CANDLER SAND, 5 TO 12% SLOPES
17	ARENTS
45	TAVARES SAND, 0 TO 5% SLOPES
50	BORROW PITS

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

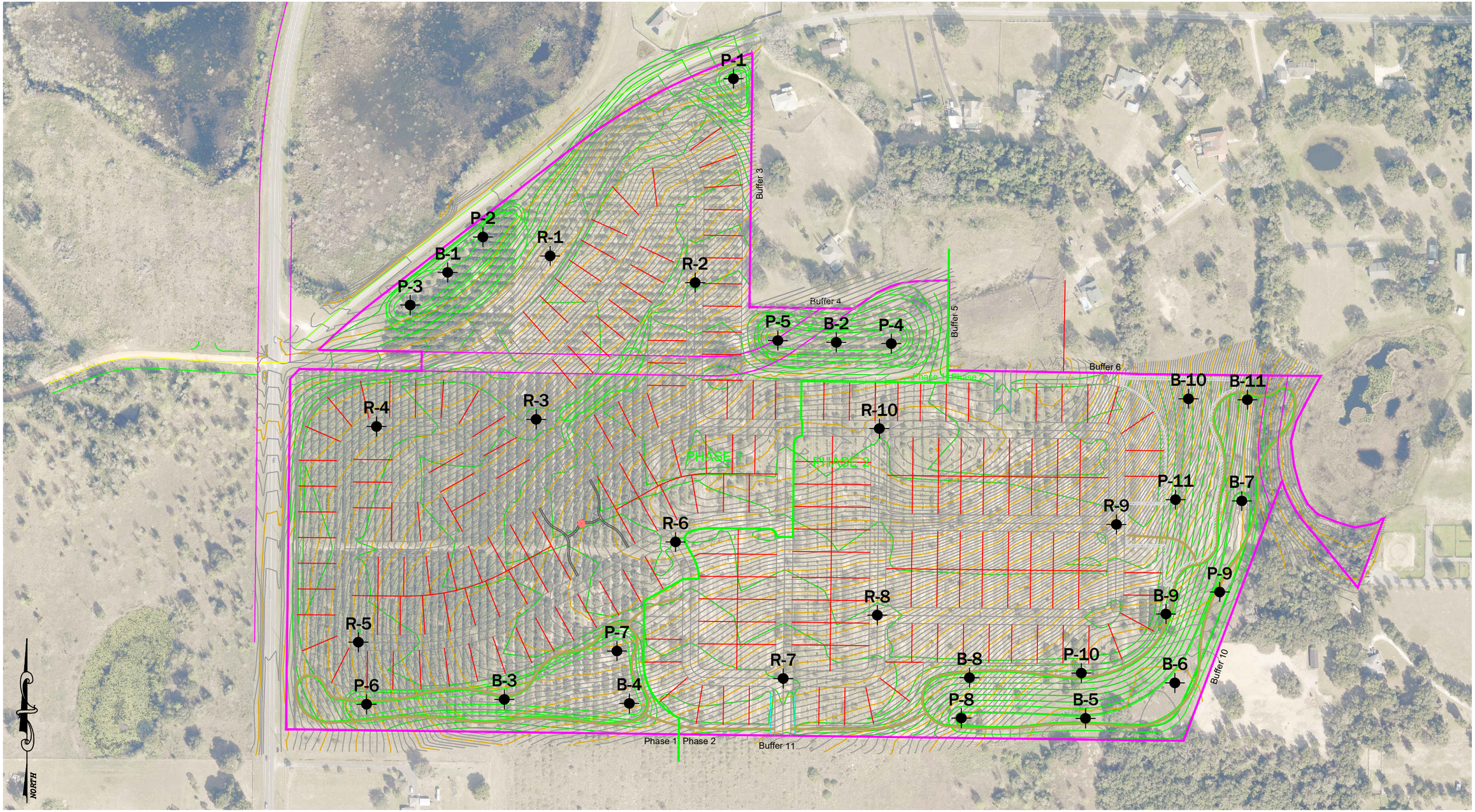
SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

N.R.C.S. SOIL SURVEY MAP

APPROXIMATE SCALE:	DATE: 04/03/23	ENGINEER: RJ
1"=600'	PN: GPGT-23-033	DRAWN BY: DLS

FIGURE 2



0 150 300 600

GRAPHIC SCALE: 1"=300'

LEGEND:

APPROXIMATE LOCATION OF MACHINE AUGER BORING

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

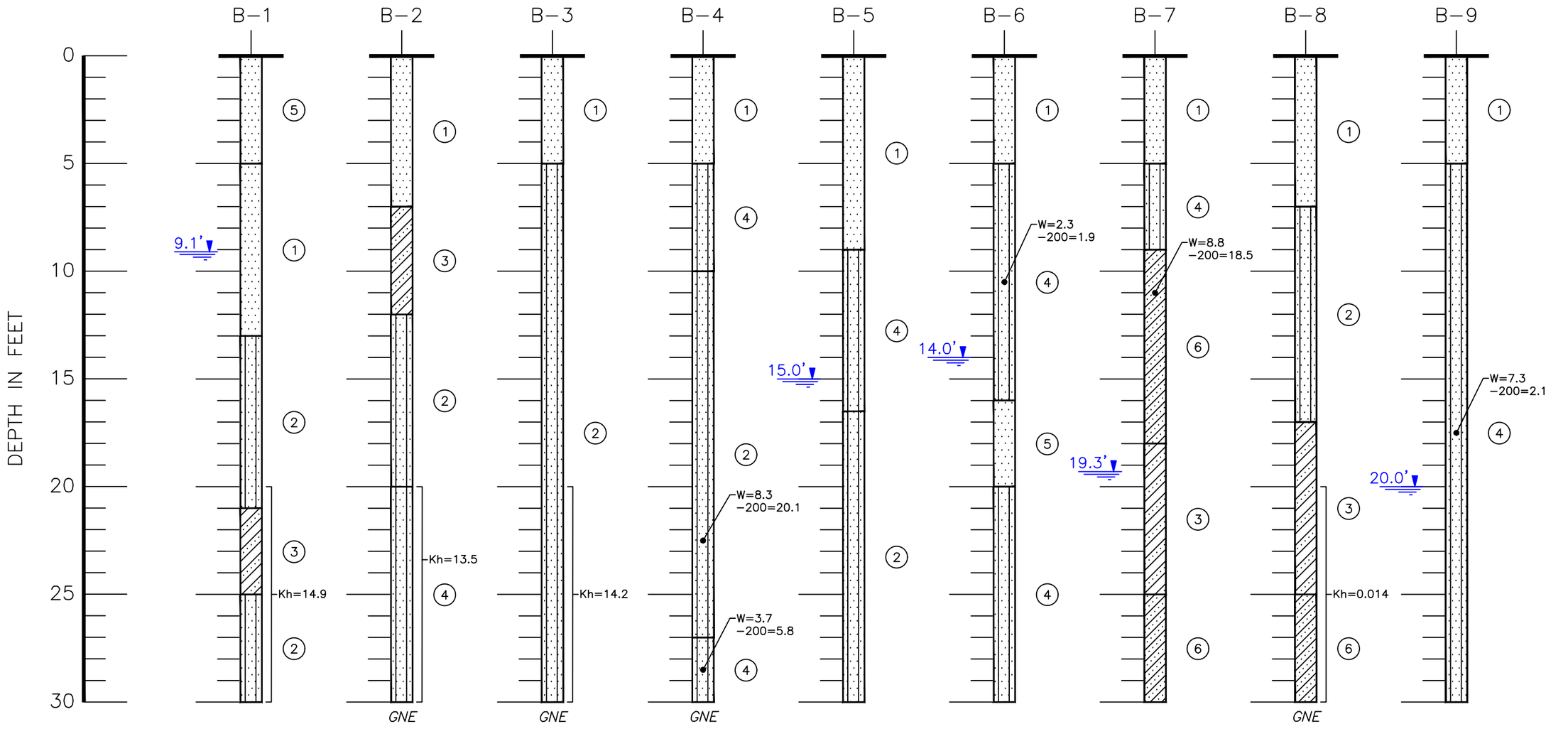
SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

BORING LOCATION PLAN

FIGURE 3

APPROXIMATE SCALE:	DATE: 04/03/23	ENGINEER: RJ
1"=300'	PN: GPGT-23-033	DRAWN BY: DLS



LEGEND:

1. GRAY TO BROWN TO GRAYISH BROWN TO BROWNISH GRAY TO YELLOWISH BROWN TO REDDISH BROWN FINE SAND (SP)
2. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO LIGHT GRAY TO LIGHT PINKISH GRAY SLIGHTLY SILTY TO SILTY FINE SAND (SP-SM)(SM)
3. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO GRAYISH BROWN SILTY TO CLAYEY FINE SAND (SM)(SC)
4. LIGHT BROWN TO LIGHT YELLOWISH BROWN TO LIGHT GRAY FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP-SM)
5. DARK GRAY TO DARK BROWN TO DARK GRAYISH BROWN FINE SAND (SP)
6. GRAYISH BROWN TO REDDISH BROWN TO LIGHT GRAY CLAYEY FINE SAND (SC)

(SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL

1.0' DEPTH TO GROUNDWATER, MARCH 2023

GNE GROUNDWATER NOT ENCOUNTERED

W MOISTURE CONTENT, IN PERCENT

-200 PERCENT OF FINES PASSING THE U.S. No. 200 SIEVE

Kv VERTICAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Kh HORIZONTAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

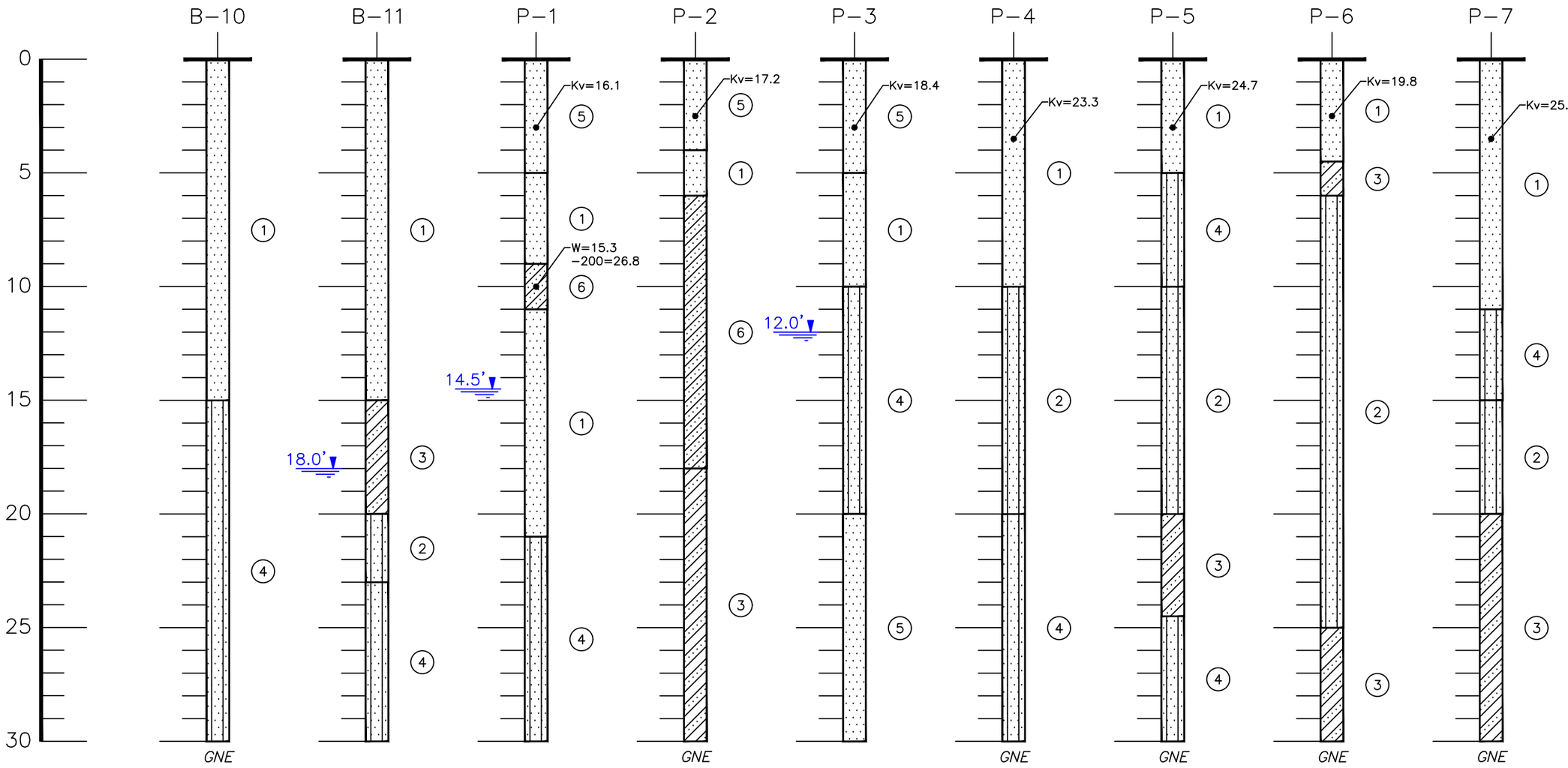
SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

SOIL PROFILES

FIGURE 4

APPROXIMATE SCALE:	DATE: 04/18/23	ENGINEER: RJ
1"=5'	PN: GPGT-23-033	DRAWN BY: DLS



LEGEND:

1. GRAY TO BROWN TO GRAYISH BROWN TO BROWNISH GRAY TO YELLOWISH BROWN TO REDDISH BROWN FINE SAND (SP)
2. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO LIGHT GRAY TO LIGHT PINKISH GRAY SLIGHTLY SILTY TO SILTY FINE SAND (SP–SM)(SM)
3. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO GRAYISH BROWN SILTY TO CLAYEY FINE SAND (SM)(SC)
4. LIGHT BROWN TO LIGHT YELLOWISH BROWN TO LIGHT GRAY FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP–SM)
5. DARK GRAY TO DARK BROWN TO DARK GRAYISH BROWN FINE SAND (SP)
6. GRAYISH BROWN TO REDDISH BROWN TO LIGHT GRAY CLAYEY FINE SAND (SC)

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1.0' DEPTH TO GROUNDWATER, MARCH 2023

GNE GROUNDWATER NOT ENCOUNTERED

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–200 PERCENT OF FINES PASSING THE U.S. No. 200 SIEVE

Kv VERTICAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Kh HORIZONTAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Andreyev Engineering, Inc.

APPROXIMATE SCALE: 1"=5'

DATE: 04/18/23 | ENGINEER: RJ

PN: GPGT–23–033 | DRAWN BY: DLS

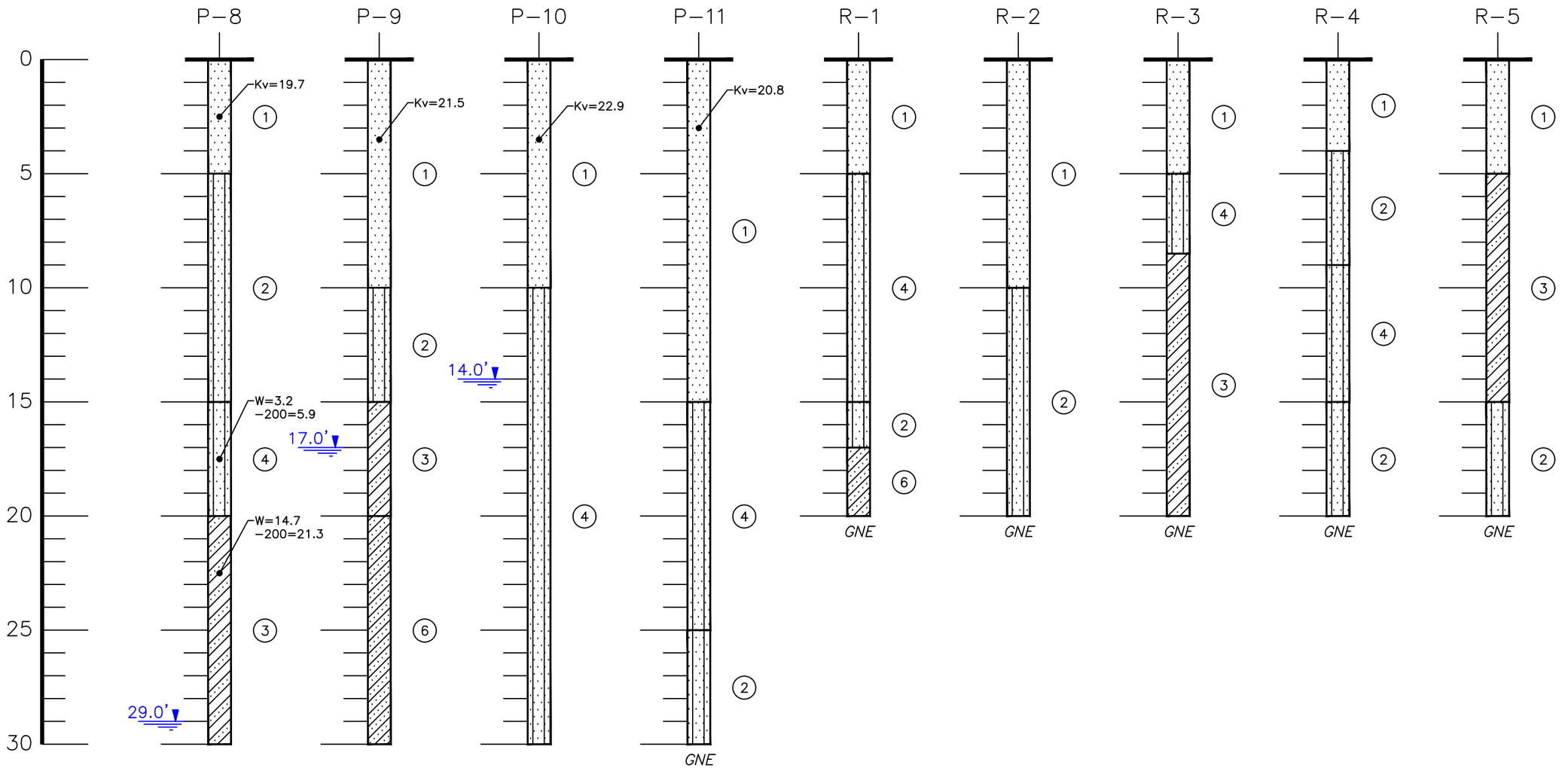
GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

SOIL PROFILES

FIGURE 5



LEGEND:

1. GRAY TO BROWN TO GRAYISH BROWN TO BROWNISH GRAY TO YELLOWISH BROWN TO REDDISH BROWN FINE SAND (SP)
2. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO LIGHT GRAY TO LIGHT PINKISH GRAY SLIGHTLY SILTY TO SILTY FINE SAND (SP–SM)(SM)
3. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO GRAYISH BROWN SILTY TO CLAYEY FINE SAND (SM)(SC)
4. LIGHT BROWN TO LIGHT YELLOWISH BROWN TO LIGHT GRAY FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP–SM)
5. DARK GRAY TO DARK BROWN TO DARK GRAYISH BROWN FINE SAND (SP)
6. GRAYISH BROWN TO REDDISH BROWN TO LIGHT GRAY CLAYEY FINE SAND (SC)

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1.0' DEPTH TO GROUNDWATER, MARCH 2023

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Kv VERTICAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

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Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

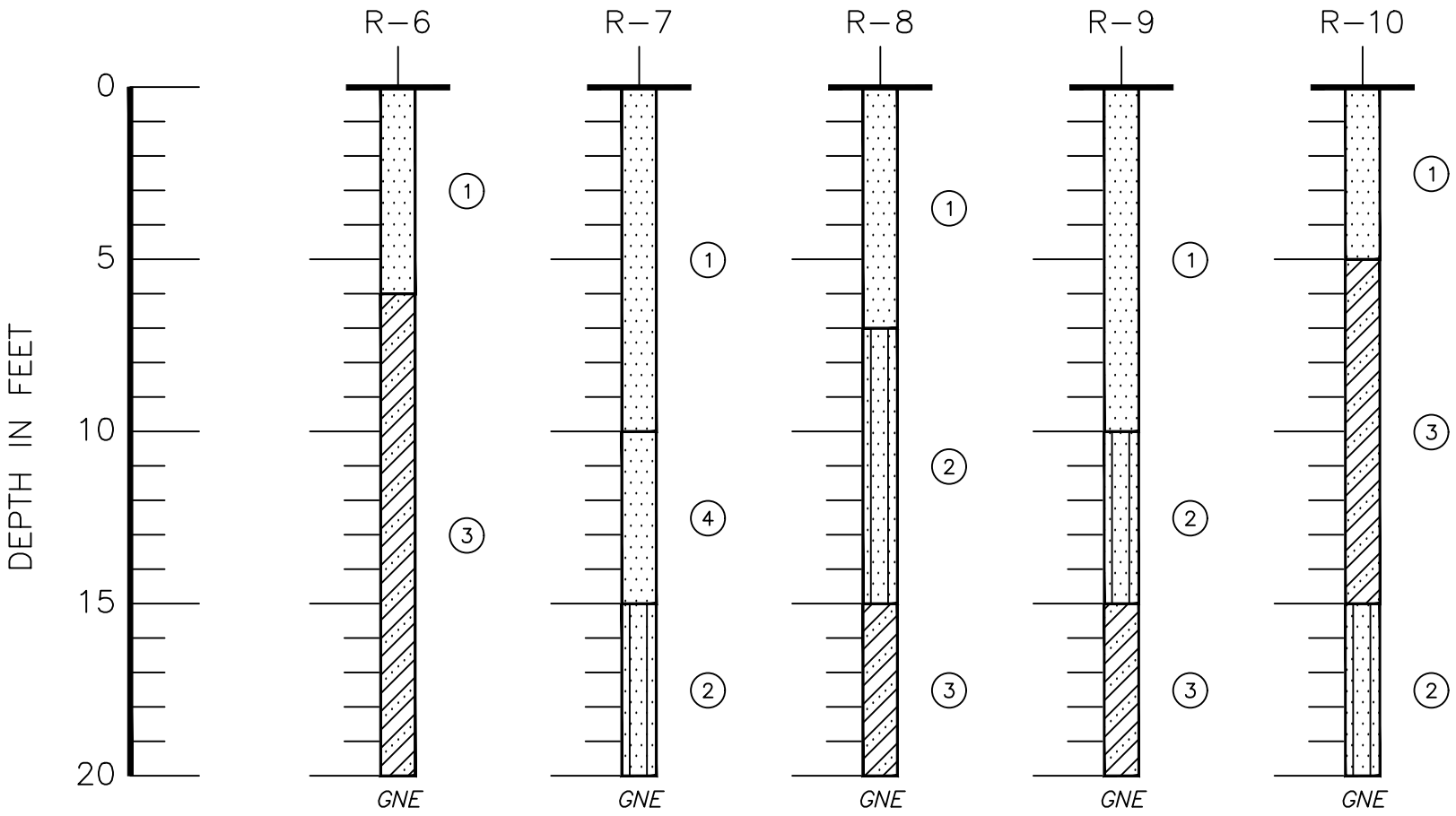
SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

SOIL PROFILES

APPROXIMATE SCALE:	DATE: 04/17/23	ENGINEER: RJ
1"=5'	PN: GPGT–23–033	DRAWN BY: DLS

FIGURE 6



LEGEND:

1. GRAY TO BROWN TO GRAYISH BROWN TO BROWNISH GRAY TO YELLOWISH BROWN TO REDDISH BROWN FINE SAND (SP)
2. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO LIGHT GRAY TO LIGHT PINKISH GRAY SLIGHTLY SILTY TO SILTY FINE SAND (SP-SM)(SM)
3. YELLOWISH BROWN TO REDDISH BROWN TO GRAY TO GRAYISH BROWN SILTY TO CLAYEY FINE SAND (SM)(SC)
4. LIGHT BROWN TO LIGHT YELLOWISH BROWN TO LIGHT GRAY FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP-SM)
5. DARK GRAY TO DARK BROWN TO DARK GRAYISH BROWN FINE SAND (SP)
6. GRAYISH BROWN TO REDDISH BROWN TO LIGHT GRAY CLAYEY FINE SAND (SC)

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1.0' DEPTH TO GROUNDWATER, MARCH 2023

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Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
PROPOSED SITE IMPROVEMENTS

SIMPSON PROPERTY

HOWEY IN THE HILLS, LAKE COUNTY, FL

SOIL PROFILES

APPROXIMATE SCALE:	DATE: 04/18/23	ENGINEER: RJ
1"=5'	PN: GPGT-23-033	DRAWN BY: DLS

FIGURE 7

Andreyev Engineering, Inc.

SANFORD OFFICE
4055 St. John's Parkway
Sanford, Florida 32771
407-330-7763

▼ Groundwater ▼ Environmental ▼ Geotechnical ▼ Construction Materials Testing

March 14, 2025
GPGT-25-009

To: **JTD Land Company, LLC**
210 Hangar Road
Kissimmee, Florida 34741
Attention: Mr. Craig Harris

C/O: **Halff Associates, Inc.**
902 North Sinclair Avenue
Tavares, Florida 32778
Attention: Mr. Scott Harp

Subject: **Geotechnical Investigation, Proposed Stormwater Retention Areas & Paved Roadways, Watermark Property, Howey-in-the-Hills, Lake County, Florida**

Dear Mr. Harris:

As requested, Andreyev Engineering, Inc. (AEI) has completed a geotechnical investigation for the above-referenced project location. We understand that the proposed facility includes plans for several newly proposed stormwater retention areas and paved roadways, as part of a future residential development. A conceptual site plan showing the proposed locations of the ponds/swales and roadways, including soil boring locations, was provided to AEI by Scott Harp.

This report presents the results of our geotechnical investigation along with an evaluation of the soil and groundwater conditions encountered. In addition, it provides geotechnical engineering recommendations for proper site preparation, pavement section design, and an evaluation of the proposed stormwater system.

SITE LOCATION AND DESCRIPTION

The subject site is located within Section 2, Township 21 South, and Range 25 East, in Howey-in-the-Hills, Lake County, Florida. We have included the U.S.G.S. Topographic Map, which depicts the location of the site, on the attached **Figure 1**. In addition, the Natural Resources Conservation Service (NRCS) Soil Map, which depicts the location and general soil types of the subject site, is presented on **Figure 2**.

PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to explore subsurface soil and groundwater conditions within the proposed paved roadway areas and stormwater system areas and provide recommendations for proper site preparation, pavement section design, and evaluation of the stormwater system.

The scope of this investigation included:

- Drilled eight (8) machine auger borings, designated as P-12 through P-18 and B-12, to depths of up to 30 feet below ground surface, within the proposed stormwater retention areas, for soil and groundwater evaluation.

- Collected four (4) shallow depth undisturbed tube samples, from a depth of about 2.5 feet below ground surface, at P-13, P-14, P-16 and P-18 within the stormwater retention areas, and conducted laboratory permeability testing on the undisturbed tube samples, to estimate soil hydraulic conductivity.

- Installed three (3) 2-inch piezometers, at P-12, P-14 and P-17 within the stormwater retention areas, and performed field permeability tests at these locations, to estimate soil hydraulic conductivity.

- Drilled five (5) machine auger borings, designated as R-11 through R-15, to a depth of 20 feet below ground surface, within the proposed paved roadway areas, for soil and groundwater evaluation.

- Performed limited index laboratory tests on selected samples, to assist with soil classification and stratification.

- Estimated normal seasonal high groundwater table levels.

Samples were recovered from the borings and returned to AEI's laboratory for visual classification and stratification. Soil strata were classified according to the Unified Soil Classification System (USCS). Approximate boring locations are shown on **Figure 3**. Results of the auger borings, in profile form, are presented on **Figures 4 and 5**. On the profiles, horizontal lines designating the interface between differing materials represent approximate boundaries. The actual transition between layers is typically gradual.

NATURAL RESOURCES CONSERVATION SERVICE SOIL SURVEY

The publication titled "Soil Survey of Lake County, Florida" published by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) was reviewed. For your reference, we have included a portion of the NRCS Soil Map which depicts the location of the subject site on the attached **Figure 2**. The six soil map units identified to exist for the subject site are described as:

Soil Map Unit 5: **Apopka Sand, 0 to 5 Percent Slopes**

Brief Description: *"This soil is a nearly level to gently sloping, well-drained sandy soil that has a sandy clay loam subsoil at a depth of 55 inches. This soil has the profile described as representative for the series. In a representative profile the surface layer is very dark gray sand about 6 inches thick. The subsurface layers are yellowish-brown and light yellowish-brown sand to a depth of about 55 inches. The subsoil is red sandy clay loam to a depth of about 84 inches. The water table is at a depth of more than 84 inches. The sandy surface and subsurface layers are rapidly permeable and have very low available water capacity. Permeability in the subsoil is moderate or moderately rapid, and available water capacity is medium to high."*

Soil Map Unit 6: **Apopka Sand, 5 to 12 Percent Slopes**

Brief Description: *"This is a sloping to strongly sloping, well-drained sandy soil. Unless protected by vegetation, it is readily erodible by wind and water. The water table is at a depth of more than 84 inches. The sandy surface and subsurface layers are rapidly permeable. Available water capacity is very low, and the organic matter content is low. The loamy subsoil is moderately permeable or moderately rapidly permeable and has a medium to high available water capacity. In a representative profile the surface layer is very dark gray sand about 6 inches thick. The subsurface layers are yellowish-brown and light yellowish-brown sand to a depth of about 55 inches. The subsoil is red sandy clay loam to a depth of about 84 inches."*

*Soil Map Unit 8: **Candler Sand, 0 to 5 Percent Slopes**

Brief Description: *"This soil is nearly level to gently sloping and is excessively drained. It is on ridges, knolls, and broad uplands. The slopes range from smooth to broken. Typically, the surface layer is dark grayish brown sand about 6 inches thick. The subsurface layer, to a depth of about 63 inches is light yellowish brown and yellowish brown sand. The next layers to a depth of 80 inches or more are yellow sand that has thin strong textural bands. This soil does not have a high water table within 80 inches of the surface. The available water capacity is very low throughout. Permeability is high to very high."*

*Soil Map Unit 9: **Candler Sand, 5 to 12 Percent Slopes**

Brief Description: *"This soil is a sloping to strongly sloping, excessively drained soil found on rolling uplands of the central ridge. Typically, the surface layer of this soil type consists of sand about 5 inches thick. The next layer is sand about 62 inches thick followed by a layer of sand about 13 inches thick. The water table for this soil type is at a depth of more than 80 inches. Available water capacity is very low and permeability is considered to be rapid to very rapid throughout the profile of this soil type."*

*Soil Map Unit 28: **Myakka – Myakka Wet Sands - 0 to 2 Percent Slopes**

Brief Description: *"The Myakka series consists of nearly level, poorly drained soils on the flatwoods. These soils formed in sandy marine deposits. In a typical profile, the surface layer is sand about 6 inches thick underlain by a layer of sand about 14 inches thick. The subsurface layer is sand about 16 inches thick. The substratum layer is sandy clay loam about 44 inches thick. In most years, the water table rises to a depth of less than 10 inches for 1 to 4 months and recedes to a depth of more than 40 inches during dry periods. This soil has low water capacity and permeability is considered to be moderate high to high."*

Soil Map Unit 45: **Tavares Sand, 0 to 5 Percent Slopes**

Brief Description: *"This is a nearly level to gently sloping, moderately well drained soil. It has a very dark grayish-brown sand surface layer about 7 inches thick. Below this is a layer of very pale brown sand that has faint yellowish-brown mottles to a depth of 25 inches. The next layer, to a depth of 34 inches, is a light yellowish-brown sand. Very pale brown sand that has faint yellow mottles is at depth between 34 and 61 inches. Below this is white sand mottled with very pale brown. The water table is at a depth of 40 to 60 inches for more than 6 months of the year. During periods of drought, it is below 60 inches. Tavares sand is very rapidly permeable. Available water capacity and organic matter content are low. This soil has slight limitations for use as foundations*

for low buildings, roads, airports, and paved parking areas. This soil has slight limitations for use as septic tank filter fields as possible contamination of ground water supplies can occur."

* This soil map unit is not present in the 1975 NRCS Soil Survey publication for Lake County, including revisions made to soil descriptions in 2004, and has been interpreted from an adjacent or nearby county's NRCS Soil Survey publication.

SOIL AND GROUNDWATER CONDITIONS

The soil types encountered at the boring locations are presented in the form of soil profiles on the attached **Figures 4 and 5**. The stratification presented is based on visual examination of the recovered soil samples and the interpretation of the field logs by a geotechnical engineer.

In general, the borings encountered the following soil Strata:

- Dark Grayish Brown to Dark Brown Fine Sand to Slightly Silty Fine Sand (SP)(SP-SM) with occasional roots and/or other organic debris ***Stratum 1***
- Grayish Brown to Light Brown to Brown Fine Sand (SP) ***Stratum 2***
- Very Pale Brown to Light Brown to Light Orangish Brown to Yellowish Brown Slightly Silty to Silty Fine Sand (SP-SM)(SM) ***Stratum 3***
- Pink to White Slightly Silty to Silty Fine Sand (SP-SM)(SM) ***Stratum 4***
- Light Brown to Brown to Pink Silty-Clayey Fine Sand (SM-SC) ***Stratum 5***
- Light Brown to Orangish Brown to Reddish Brown Clayey Fine Sand (SC) ***Stratum 6***

Please refer to **Figures 3, 4, and 5** for boring locations, strata depths, and encountered soil conditions. The stratification lines represent the approximate boundaries between soil types, the actual transition may be gradual. Minor variations not considered important to our engineering evaluations may have been abbreviated or omitted for clarity.

Groundwater Conditions

At the time of drilling on February 10 and 11, 2025, groundwater was encountered within the termination depths at seven (7) of the thirteen (13) boring locations. Groundwater was encountered at P-14, P-15, P-16, P-17, P-18, R-15 and B-12, at depths ranging from about 8.0 to 14.0 feet below the existing ground surface. While we do not have accurate elevation data, it appears that the site is generally sloping downward to the south and east. The borings where groundwater was encountered are located along the southern and southeastern portions of the site. The respective measured groundwater levels are shown next to the corresponding soil profiles on **Figures 4 and 5**.

Based on the encountered subsurface conditions, our local experience, antecedent rainfall conditions, and review of the NRCS Soil Survey, the normal seasonal high groundwater levels at the boring locations are generally estimated to exist 1 to 2 feet above the measured levels. However, at P-14, P-15 and P-16, the encountered groundwater levels are well below the top of

the confining clay layer (Stratum 6). In these cases, normal seasonal high groundwater levels will exist in a temporary "perched" condition, approximately 0.5 feet above the low permeability Stratum 6 clayey soils. This also applies to the boring locations where groundwater was not encountered. For P-17, P-18, R-14 and B-12, where groundwater exists above the clay layer, the normal seasonal high groundwater levels are estimated to exist at the general 1 to 2 feet above the measured levels. Our estimated normal seasonal high groundwater levels are shown next to the corresponding soil profiles on **Figures 4 and 5**. These levels may not be accurate in all cases, and are based on our interpretation of the soil and groundwater conditions encountered at the boring locations.

Laboratory Test Results

Laboratory moisture content tests (ASTM D2216) and fines content (percent soil passing ASTM Standard Sieve No.200) tests (ASTM D1140) were performed on eleven (11) selected samples. Four (4) falling head permeability tests were performed on the undisturbed tube samples collected from the immediate vicinities of P-13, P-14, P-16 and P-18, from a depth of about 2.5 feet below ground surface. The results of these tests are presented next to the corresponding depths and soil profiles on **Figures 4 and 5**.

EVALUATION AND RECOMMENDATIONS

General

Based on the results of this investigation and our evaluation of the encountered subsurface conditions, it is our opinion that the soils encountered throughout the site are generally suitable to support conventionally designed and constructed flexible or semi-flexible pavements, provided that proper site soil preparation and soil densification procedures are carried out. It is critical that site preparation and soil densification procedures are thorough to ensure consistent and uniform support conditions for the proposed site improvements. The soils encountered in the stormwater retention areas are also generally suitable for drainage of water, however the depth to the confining clay layer (Stratum 6) may be limiting in some cases.

The soil borings encountered a somewhat wide variance in groundwater levels across the site, likely mostly due to the topographical sloping of the ground surface of the site. Six (6) out of the seven (7) locations where groundwater was measured are within the stormwater retention areas, and the remaining one is within a roadway area. The measured depths are not likely to cause issues with design or construction of the proposed site improvements. However at most of the boring locations, we estimate that normal seasonal high groundwater levels will exist in a temporary "perched" condition above the low permeability Stratum 6 clayey soils. As seen on **Figures 4 and 5**, these estimated perched groundwater levels are as shallow as 2.5 feet below ground surface such as at P-13. Both the proposed pavements and stormwater ponds should maintain adequate separation from these estimated normal seasonal high groundwater levels and any Stratum 6 clayey soils to ensure proper performance and longevity. Dependent on the selected pavement section details, there are different requirements for groundwater separation which are aimed at preventing moisture-related issues from affecting the pavement sections. Additionally, pond bottoms should maintain adequate separation from the estimated normal seasonal high groundwater levels and the Stratum 6 clayey soils to ensure proper recovery of stormwater in a dry retention system. Based on the boring results, over-excavation and replacement of the unsuitable Stratum 6 clayey soils may be necessary to maintain separation in

some areas such as P-13. Underdrains near the roadways may also help to control perched groundwater conditions. More specific details about these recommendations are provided in the *'Paved Areas'* and *'Stormwater Evaluations'* sections below.

On-site Strata 1 and 2 fine sands, excavated from the site during construction, are considered suitable for use as general fill, provided minimal root/organic content and that the soil's moisture content is maintained near optimum prior to fill placement and compaction. As there were roots and/or other organic debris materials encountered in some of the Stratum 1 soils, we recommend careful attention be paid when using these soils, and to filter/screen the soils if necessary.

More specific recommendations for the proposed site improvements are provided below.

Site Preparation

The paved roadway areas, plus a minimum margin of 5 feet beyond their outer lines, should be cleared and stripped to remove all surface vegetation, roots, topsoil, organic debris, or any other encountered deleterious materials. Any encountered type(s) of debris will need to be properly removed from beneath all paved areas, plus a five-foot perimeter.

After clearing, grubbing, and any necessary additional site preparation efforts, including potential over-excavation and replacement of Stratum 6 clayey soils, the exposed soils for the pavement areas, plus a minimum margin of 5 feet beyond building lines, should be proof rolled and compacted to a minimum of 95% of the soil's modified Proctor maximum dry density as determined by ASTM Specification D-1557 to a depth of 2 feet before any fill material is placed. All fill required to bring the site to final grade should be inorganic, non-plastic, granular soil (clean sands) with less that 10% passing a U.S. #200 sieve.

All fill should be placed in level lifts not to exceed 12 inches loose and should be compacted to a minimum of 95% of the soil's modified Proctor maximum dry density as determined by ASTM Specification D-1557. In-place density tests should be performed on each lift by an experienced engineering technician working under the direction of a registered geotechnical engineer to verify that the recommended degree of compaction has been achieved. We suggest a minimum testing frequency of one (1) test per lift per 10,000 square feet in pavement areas. This fill should extend a minimum of 5 feet beyond building lines to prevent possible erosion or undermining of footing bearing soils. Further, fill slopes should not exceed 2 horizontal to 1 vertical (2H:1V).

All fill placed in utility line trenches and adjacent to footings beneath slabs on grade should also be properly placed and compacted to the specifications stated above. However, in these restricted working areas, compaction should be accomplished with lightweight, hand-guided compaction equipment and lift thickness should be limited to a maximum of 4 inches loose thickness.

Paved Areas

Dependent on planned site grades, perched groundwater at the site may cause some limitations for pavement section design and construction. Over-excavation and replacement of unsuitable Stratum 6 clayey soils may be necessary in some areas to maintain adequate separation of the pavement base course from perched groundwater levels. Installing underdrains along with the roadways is another option to help control perched groundwater. However, in general, the compacted subsurface soils will be suitable for support of a flexible (limerock) or semi-flexible

(crushed concrete or soil cement) type pavement base after subgrade preparation. The use of one system over another is normally governed by the depth to the encountered and/or seasonal high groundwater table. Soil cement and crushed concrete are a more moisture-tolerant base material than limerock and are typically used in areas where the wet season groundwater table levels are within 12 to 18 inches of the proposed bottom of the pavement section. When using a soil cement base, a minimum 12-inch layer of free draining fine sand is required. For limerock, a two-foot separation should be maintained between the bottom of the pavement base course and the estimated seasonal high groundwater levels. As a possible pavement design alternative, AEI also presents recommendations for a rigid pavement section.

Typical flexible and semi-flexible pavement sections are as follows:

Limerock Base

1-1/2" to 2-1/2" asphaltic concrete wearing surface

6" to 8" limerock base course, quality of limerock to be in accordance with current Florida Department of Transportation specifications and compacted to a minimum density equivalent to 98% of the modified Proctor maximum density (AASHTO T-180).

12" stabilized subbase with minimum Limerock Bearing Ratio (LBR) of 40%. The subbase should be compacted to a minimum density equivalent to 98% of the modified Proctor maximum density (AASHTO T-180). The subgrade material, below the subbase, shall be compacted to a minimum density of 98% of the modified Proctor maximum density of the soil.

Soil-Cement Base

1-1/2" to 2-1/2" asphaltic concrete wearing surface

6" to 8" soil-cement base designed and constructed in accordance with current Portland Cement Association recommended methods.

12" subgrade consisting of free draining natural fine sand or fine sand fill with less than 7% passing a U.S. #200 sieve. Subgrade to be compacted to a minimum density of 98% of the modified Proctor maximum density (AASHTO T-180).

Crushed Concrete Base

1-1/2" to 2-1/2" asphaltic concrete wearing surface

6" to 8" crushed concrete base with the quality of crushed concrete to be in accordance with current Florida Department of Transportation specifications and should have a minimum Limerock Bearing Ratio (LBR) of 150% and be compacted to at least 98% of the modified Proctor maximum dry density per ASTM D-1557.

12" stabilized subbase with minimum Limerock Bearing Ratio (LBR) of 40%. The subbase should be compacted to a minimum density equivalent to 98% of the modified Proctor maximum density per ASTM D-1557. The subgrade material, below the subbase, shall

be compacted to a minimum density of 98% of the modified Proctor maximum density of the soil per ASTM D-1557.

Type of Development	ADT (average daily traffic)	Base Thickness	Wearing Surface Thickness
Residential	< 1,500	6"	1 ½"
	>1,500	8"	2 ½"

The pavement section should be designed based on expected traffic including truck loads. Traffic should not be allowed on the subgrade prior to placement of the base to avoid rutting. The final pavement thickness design should be checked by the project civil engineer using data contained in this report and anticipated traffic conditions.

As a possible pavement section design alternative, AEI presents recommendations for a rigid pavement section as follows:

Rigid Pavement

6" reinforced concrete wearing surface: Designed to withstand the design traffic loads and jointed to reduce the chances for crack development. The concrete should have a minimum unconfined compressive strength of 3,000 psi.

12" subgrade: consisting of free draining natural fine sand or fine sand fill. Subgrade to be compacted to a minimum density equivalent to 98% of the modified Proctor maximum density (AASHTO T-180).

Stormwater Evaluations

Machine auger borings P-12 through P-18 and B-12 were drilled to depths of 30 feet below ground surface within the proposed stormwater retention areas to assess soil drainage characteristics and groundwater conditions, with the exception of P-13 being terminated at 10 feet. P-13 encountered thick/dense clayey soils that the auger rig was not able to push through. The locations of these borings is shown on **Figure 3** and the soil profiles with laboratory results and groundwater information are shown on **Figures 4 and 5**.

As previously mentioned, low permeability Stratum 6 clayey soils are expected to cause perched groundwater conditions in some areas, as shown by P-14, P-15 and P-16. The normal seasonal high groundwater levels at the stormwater boring locations, including perched and apparent levels, are estimated to exist between about 6.5 and 8.5 feet below ground surface. Dependent on the planned grading of the ponds, the estimated normal seasonal high groundwater levels and/or the Stratum 6 clayey soils may encroach on the pond bottoms. In these cases, we recommend over excavation of the low permeability Stratum 6 clayey soils and replacement with free-draining sands. Additionally, care should be taken to ensure the pond bottoms are not being excavated into the clay layer, creating a "bathtub" effect.

Constant-head field permeability tests were performed in the piezometers installed to 30 feet depth at P-12, P-14 and P-17. The tested intervals for these tests were the 20 to 30 foot depth range, which contained some silty soils, which can be expected to slow down water conveyance. Laboratory falling-head permeability tests were performed on the undisturbed tube samples

collected from about 2.5 feet depth at P-13, P-14, P-16 and P-18. The results of these tests were combined with the soil profiles to calculate the aquifer parameters in the table below, and are shown next to the corresponding depths and soil profiles on **Figure 4**.

For dry retention stormwater system design, the following normal seasonal high groundwater levels, average hydraulic conductivities, and soil storage coefficients may be used:

Boring Location	Bottom of Aquifer (ft)*	Avg. Unsat. Vertical Hydraulic Conductivity (ft/day)	Avg. Horizontal Hydraulic Conductivity (ft/day)	Seasonal High Groundwater Level (ft)*	Soil Storage Coefficient
P-13	3.0	15.3	34.4	2.5 (perched)	0.25
P-14	7.0	13.2	29.6	6.5 (perched)	0.25
P-16	7.0	26.7	59.9	6.5 (perched)	0.25
P-18	26.0	19.6	44.0	6.5 (apparent)	0.25

*-feet below existing ground surface at time of drilling

Factors of safety have not been applied to the above weighted average permeability values. For the purpose of recovery analysis in accordance with water management district rules, a factor of safety of 2 should be applied to the unsaturated vertical permeability to account for long-term performance and siltation of the pond bottom.

The following formulas were used in the calculation of both the weighted average horizontal and weighted average vertical permeabilities:

$$\text{Weighted Average Horizontal Permeability} = \frac{Kh_1.L_1 + Kh_2.L_2 + Kh_3.L_3 + ...Kh_n.L_n}{\sum L}$$

$$\text{Weighted Average Vertical Permeability} = \frac{\sum L}{\frac{L_1}{Kv_1} + \frac{L_2}{Kv_2} + \frac{L_3}{Kv_3} + ...\frac{L_n}{Kv_n}}$$

Due to the soil conditions encountered at this site, additional investigations may become necessary to design and construct a stormwater system meeting regulatory requirements. We further recommend that final design of the stormwater system at this site be reviewed by AEI to ensure the data provided in this report has been properly interpreted for the selected stormwater system design, prior to construction. AEI will be glad to assist if further evaluations or groundwater modeling to document stormwater system recovery are needed.

Excavations

Any and all excavations should be constructed in accordance with applicable local, state and federal regulation including those outlined by the Occupational Safety and Health Administration (OSHA). It is the contractor's sole responsibility for designing and constructing safe and stable excavations. Excavations should be sloped, benched or braced as required to maintain stability of the excavation sides and bottoms. Excavations should take into account loads resulting from equipment, fill stockpiles and existing construction. Any shoring needed to maintain a safe excavation should be designed by a professional engineer registered in the State of Florida in accordance with local, state and federal guidelines.

LIMITATIONS

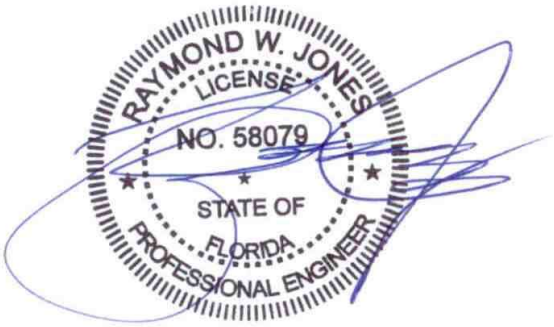
This report has been prepared for the exclusive use of JTD Land Company, LLC, and their designers, based on our understanding of the project as stated in this report. Any modifications in design concepts from the description stated in this report should be made known to AEI for possible modification of recommendations presented in this report. This exploration was performed in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made as to the professional advice presented herein. Statements regarding all geotechnical recommendations are for use by the designers and are not intended for use by potential contractors. The geotechnical exploration and recommendations submitted herein are based on the data obtained from the soil borings presented on **Figures 4 and 5**. The report does not reflect any variations which may occur adjacent to, between, or away from the borings. The nature and extent of the variations between the borings may not become evident until during construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations presented in this report. An on-site visit may be required by a geotechnical engineer to note the characteristics of the variations during the construction period. This geotechnical study investigated the soil conditions within the proposed stormwater pond areas and pavement areas to drilled depths of 10 to 30 feet below ground surface and was not intended to investigate deeper soil conditions with regard to the presence or absence of Karst activity.

CLOSURE

AEI appreciates the opportunity to participate in this project, and we trust that the information herein is sufficient for your immediate needs. If you have any questions or comments concerning the contents of this report, please do not hesitate to contact the undersigned.

Sincerely,

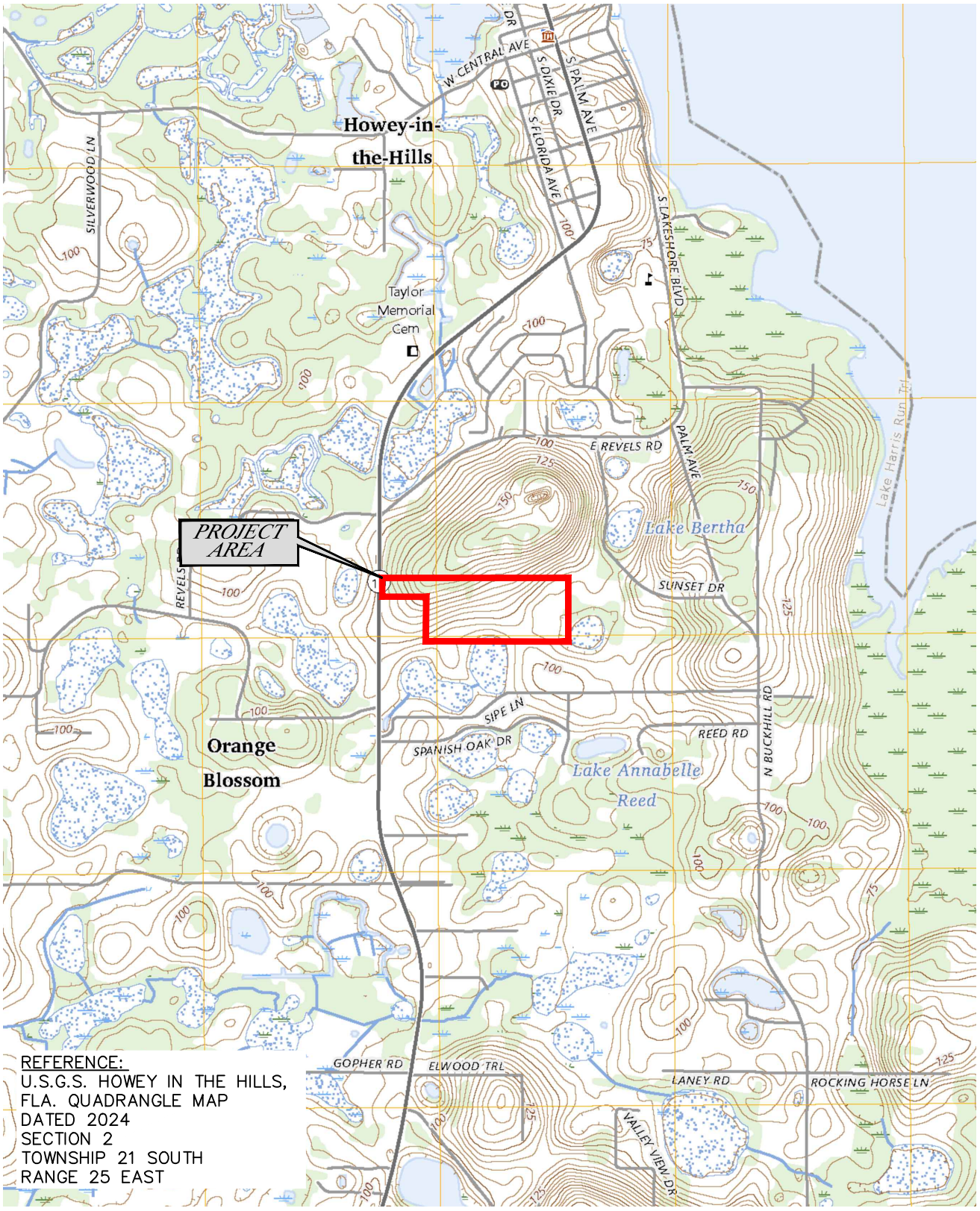
ANDREYEV ENGINEERING, INC.



Frank Moschette, E.I.
Project Engineer

Raymond W. Jones, P.E.
Vice President
Florida Registration No.58079

FIGURES



REFERENCE:
U.S.G.S. HOWEY IN THE HILLS, FLA. QUADRANGLE MAP
DATED 2024
SECTION 2
TOWNSHIP 21 SOUTH
RANGE 25 EAST

0 2000 4000 Feet

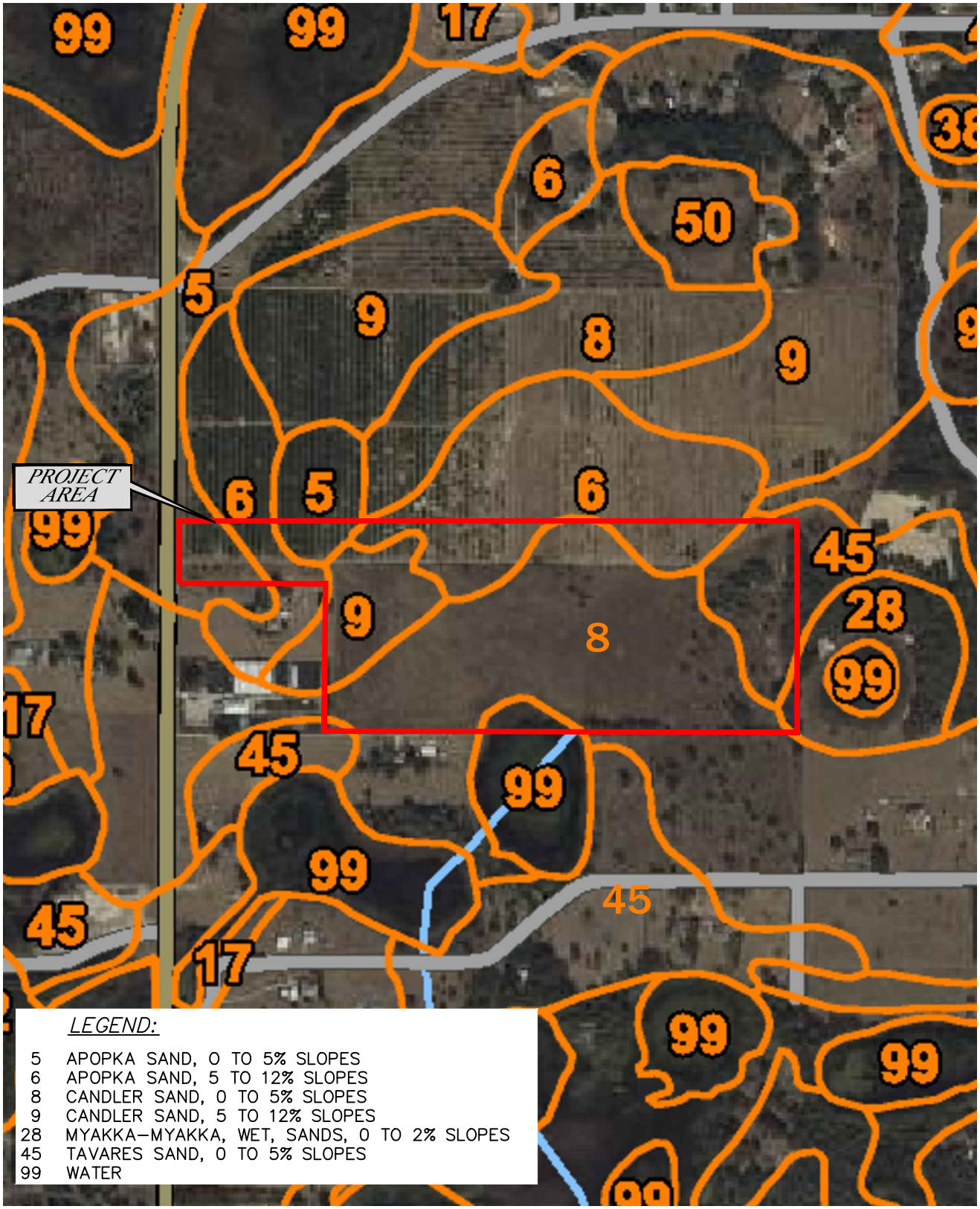
Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
WATERMARK PROPERTY
PROPOSED STORMWATER RETENTION AREAS & PAVED ROADWAYS
HOWEY IN THE HILLS, LAKE COUNTY, FL

U.S.G.S. TOPOGRAPHIC MAP

APPROXIMATE SCALE:	DATE: 03/12/25	ENGINEER: RJ
1"=2000'	PN: GPGT-25-009	DRAWN BY: DLS

FIGURE 1



REFERENCE:
U.S.D.A. N.R.C.S. WEB SOIL SURVEY

0 600 1200 Feet

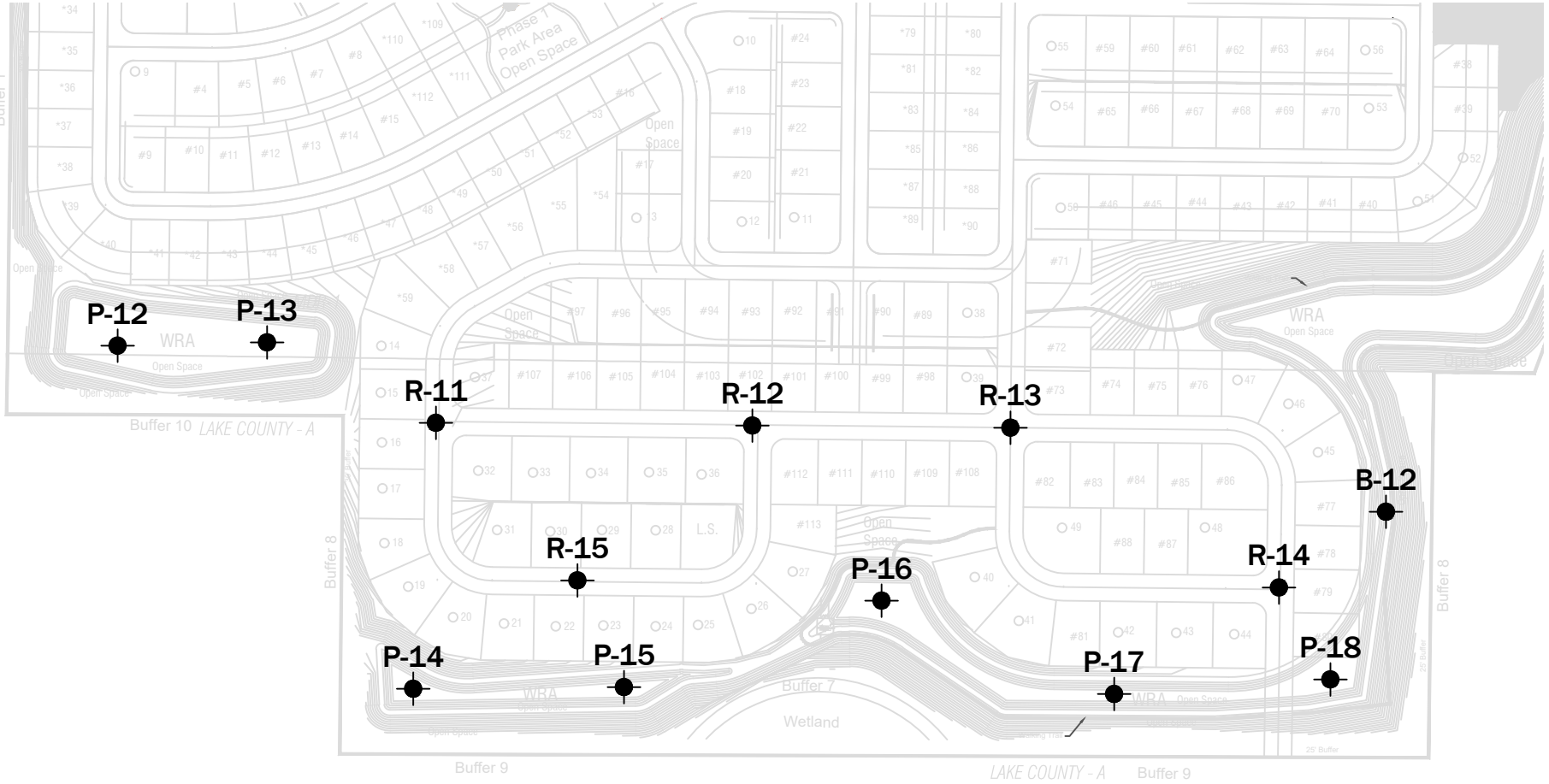
Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
WATERMARK PROPERTY
PROPOSED STORMWATER RETENTION AREAS & PAVED ROADWAYS
HOWEY IN THE HILLS, LAKE COUNTY, FL

N.R.C.S. SOIL SURVEY MAP

APPROXIMATE SCALE:	DATE: 03/12/25	ENGINEER: RJ
1"=600'	PN: GPGT–25–009	DRAWN BY: DLS

FIGURE 2



LEGEND:

APPROXIMATE LOCATION OF MACHINE AUGER BORING

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION

WATERMARK PROPERTY

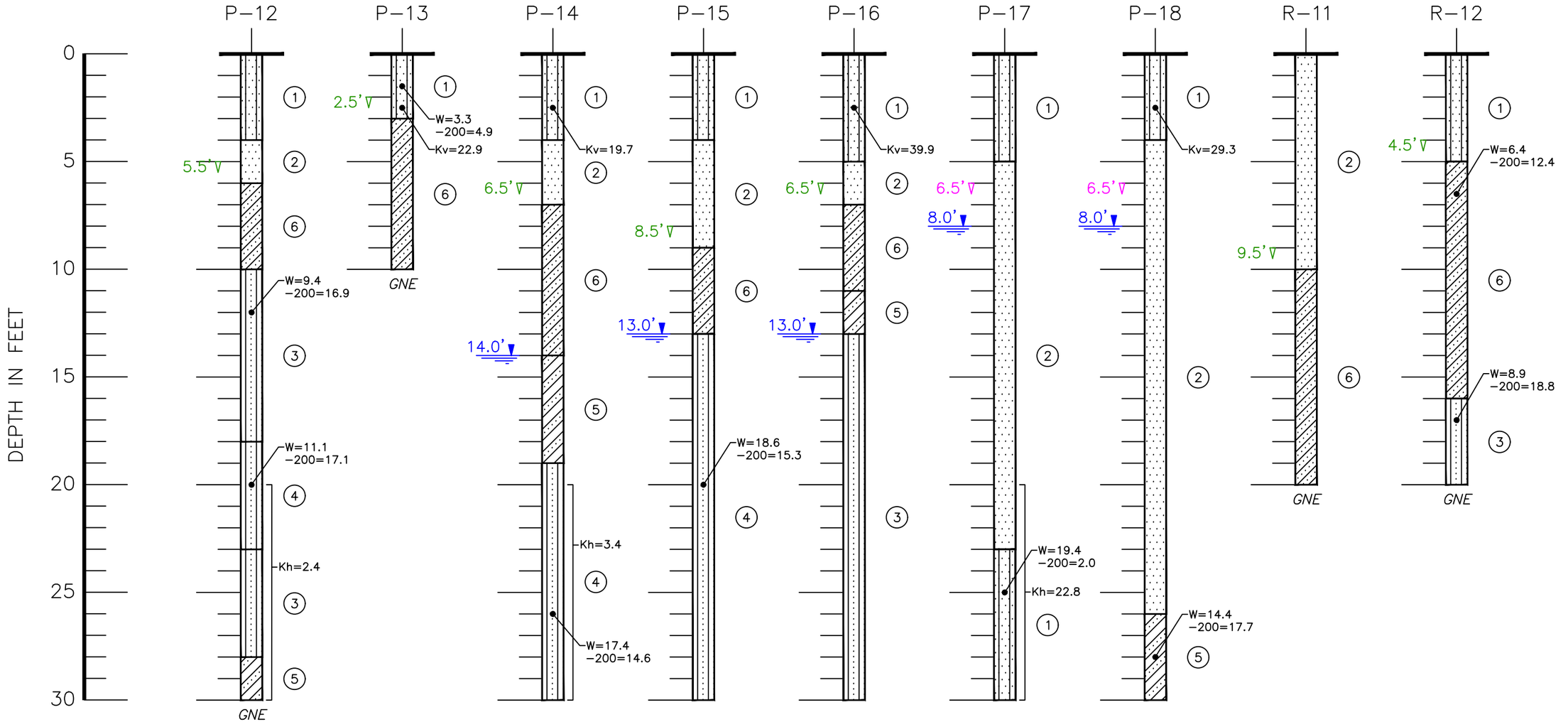
PROPOSED STORMWATER RETENTION AREAS & PAVED ROADWAYS

HOWEY IN THE HILLS, LAKE COUNTY, FL

BORING LOCATION PLAN

APPROXIMATE SCALE:	DATE: 03/12/25	ENGINEER: RJ
1"=300'	PN: GPGT-25-009	DRAWN BY: DLS

FIGURE 3



LEGEND:

1. DARK GRAYISH BROWN TO DARK BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP–SM) WITH OCCASIONAL ROOTS AND/OR OTHER ORGANIC DEBRIS
2. GRAYISH BROWN TO LIGHT BROWN TO BROWN FINE SAND (SP)
3. VERY PALE BROWN TO LIGHT BROWN TO LIGHT ORANGISH BROWN TO YELLOWISH BROWN SLIGHTLY SILTY TO SILTY FINE SAND (SP–SM)(SM)
4. PINK TO WHITE SLIGHTLY SILTY TO SILTY FINE SAND (SP–SM)(SM)
5. LIGHT BROWN TO BROWN TO PINK SILTY–CLAYEY FINE SAND (SM–SC)
6. LIGHT BROWN TO ORANGISH BROWN TO REDDISH BROWN CLAYEY FINE SAND (SC)

(SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL

1.0' MEASURED DEPTH TO GROUNDWATER, FEBRUARY 10–11, 2025

GNE GROUNDWATER NOT ENCOUNTERED

W MOISTURE CONTENT, IN PERCENT

–200 PERCENT OF FINES PASSING THE U.S. No. 200 SIEVE

Kv VERTICAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

1.0' APPARENT ESTIMATED SEASONAL HIGH WATER TABLE

1.0' PERCHED ESTIMATED SEASONAL HIGH WATER TABLE

Kh HORIZONTAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION

WATERMARK PROPERTY

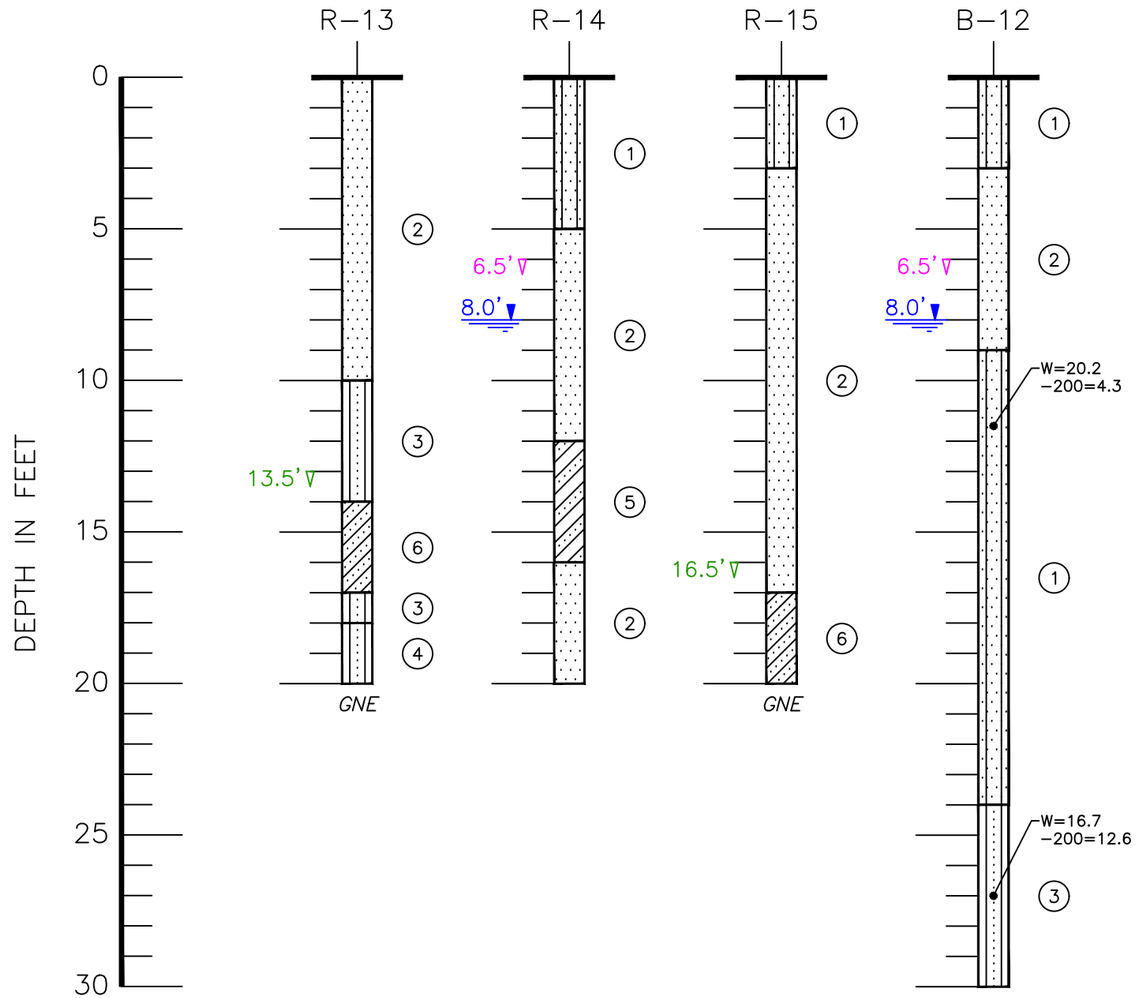
PROPOSED STORMWATER RETENTION AREAS & PAVED ROADWAYS

HOWEY IN THE HILLS, LAKE COUNTY, FL

SOIL PROFILES

APPROXIMATE SCALE:	DATE: 03/14/25	ENGINEER: RJ
1"=5'	PN: GPGT–25–009	DRAWN BY: DLS

FIGURE 4



LEGEND:

1. DARK GRAYISH BROWN TO DARK BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP–SM) WITH OCCASIONAL ROOTS AND/OR OTHER ORGANIC DEBRIS
2. GRAYISH BROWN TO LIGHT BROWN TO BROWN FINE SAND (SP)
3. VERY PALE BROWN TO LIGHT BROWN TO LIGHT ORANGISH BROWN TO YELLOWISH BROWN SLIGHTLY SILTY TO SILTY FINE SAND (SP–SM)(SM)
4. PINK TO WHITE SLIGHTLY SILTY TO SILTY FINE SAND (SP–SM)(SM)
5. LIGHT BROWN TO BROWN TO PINK SILTY–CLAYEY FINE SAND (SM–SC)
6. LIGHT BROWN TO ORANGISH BROWN TO REDDISH BROWN CLAYEY FINE SAND (SC)

(SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL

1.0'▽ MEASURED DEPTH TO GROUNDWATER, FEBRUARY 10–11, 2025

GNE GROUNDWATER NOT ENCOUNTERED

W MOISTURE CONTENT, IN PERCENT

–200 PERCENT OF FINES PASSING THE U.S. No. 200 SIEVE

Kv VERTICAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

1.0'▽ APPARENT ESTIMATED SEASONAL HIGH WATER TABLE

1.0'▽ PERCHED ESTIMATED SEASONAL HIGH WATER TABLE

Kh HORIZONTAL COEFFICIENT OF PERMEABILITY, IN FEET PER DAY

Andreyev Engineering, Inc.

GEOTECHNICAL INVESTIGATION
WATERMARK PROPERTY
PROPOSED STORMWATER RETENTION AREAS & PAVED ROADWAYS
HOWEY IN THE HILLS, LAKE COUNTY, FL

SOIL PROFILES

APPROXIMATE SCALE:	DATE: 03/14/25	ENGINEER: RJ
1"=5'	PN: GPGT–25–009	DRAWN BY: DLS

FIGURE 5

Orlando [Headquarters]
3025 East South Street
Orlando, FL 32803

Cocoa
400 High Point Drive
Suite 400
Cocoa, FL 32926

Jacksonville
11235 St. Johns Industrial Pkwy N
Suite 2
Jacksonville, FL 32246

Key West
1107 Key Plaza
Suite 259
Key West, FL 33040

Lantana
445 West Lantana Road
Suite 5
Lantana, FL 33462

Tallahassee
2560-1 Barrington Circle
Tallahassee, FL 32308

Tampa
6011 Benjamin Road
Suite 101-B
Tampa, FL 33634

Denver
10701 Melody Drive
Suite 304
Northglenn, CO 80234

Raleigh
4338 Bland Road
Raleigh, NC 27609

Charlotte
5105 Monroe Road
Suite A
Charlotte, NC 28205

East Syracuse
6700 Old Collamer Road
Suite 112
East Syracuse, NY 13057

Bismarck
4501 Coleman Street
Suite 103
Bismarck, ND 58503

Austin
3801 N Capital of TX Highway
Suite E-240
Austin, TX 78746

Midland
5114 West County Road 12
Midland, TX 79706

San Antonio
7700 Broadway Street
Suite 104
San Antonio, TX 78209

Orlando [Aquatic & Land Management Operations]
3825 Rouse Road
Orlando, FL 32817

June 24, 2025

Scott Harp, P.E.
Halff
902 North Sinclair Avenue
Tavares, Florida 34778

Proj: Watermark – Howey-in-the-Hills, Lake County, Florida
Sections 35 and 35, Township 20 South, Range 25 East and
Sections 1 and 2, Township 21 South, Range 25 East
(BTC File #583-48)
Re: Environmental Assessment/Site Constraints Analysis

Dear Mr. Harp:

The purpose of this document is to provide the St. Johns River Water Management District (SJRWMD) with the approximately 130.54-acre Watermark project site. This site is located in the City of Howey-in-the-Hills, just east of the intersection of State Road 19 and East Revels Road, within Sections 35 and 35, Township 20 South, Range 25 East and Sections 1 and 2, Township 21 South, Range 25 East; Lake County, Florida (**Figures 1, 2 and 3**). Bio-Tech Consulting, Inc. (BTC) conducted an environmental assessment of the Watermark project site in July of 2021 and March of 2024. This environmental assessment included the following elements:

- **Review of soil types mapped within the site boundaries;**
- **Evaluation of land use types/vegetative communities present;**
- **Field review for occurrence of protected flora and fauna;**
- **Delineation of on-site wetland communities; and,**
- **Site constraints analysis.**

SOILS

According to the Soil Survey of Lake County, Florida, prepared by the U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), eight (8) soil types exist within the project site (**Figure 4**). The soil types include the following:

877.894.5969 407.894.5969 fax 407.894.5970 info@bio-techconsulting.com bio-techconsulting.com

- **Apopka sand, 0 to 5 percent slopes (#5)**
- **Apopka sand, 5 to 12 percent slopes (#6)**
- **Candler sand, 0 to 5 percent slopes (#8)**
- **Candler sand, 5 to 12 percent slopes (#9)**
- **Arents (#17)**
- **Myakka-Myakka, wet, sands, 0 to 2 percent slopes (#28)**
- **Tavares sand, 0 to 5 percent slopes (#45)**
- **Borrow Pits (#50)**

The following presents a brief description of each of the soil types mapped for the subject property:

Apopka sand, 0 to 5 percent slopes (#5) is a nearly level to gently sloping, well drained sandy soil that has a sandy clay loam subsoil at a depth of about 55 inches. Typically, the surface layer of this soil type is dark gray sand about 6 inches thick. The water table for this soil type is at a depth of more than 84 inches. Permeability of this soil type is rapid in the sandy surface and subsurface layers and moderate or moderately rapid in the subsoil.

Apopka sand, 5 to 12 percent slopes (#6) is a sloping to strongly sloping, well drained sandy soil. Typically, the surface layer of this soil type is dark gray sand about 6 inches thick. The water table for this soil type is at a depth of more than 84 inches. Permeability of this soil type is rapid in the sandy surface and subsurface layers and moderate or moderately rapid in the subsoil.

Candler sand, 0 to 5 percent slopes (#8) is a nearly level to gently sloping, excessively drained soil found on the rolling uplands of Florida's central ridge. The surface layer of this soil type generally consists of dark gray sand about 7 inches thick. The water table for this soil type is at a depth of more than 120 inches. Permeability is very rapid throughout the profile of this soil type.

Candler sand, 5 to 12 percent slopes (#9) is a sloping to strongly sloping, excessively drained soil found on the rolling uplands of Florida's central ridge. Typically, the surface layer of this soil type consists of dark gray sand about 5 to 6 inches thick. The water table for this soil type is at a depth of more than 120 inches. Permeability is very rapid throughout the profile of this soil type.

Arents (#17) are deeply disturbed soils consisting of loamy soil material that has been mixed, reworked and leveled or shaped by earth-moving equipment. These units are mostly 12 to 60 inches thick. The water table for this soil type is at a depth of 30 to 60 inches except in low-lying areas, where it is at a depth of 10 to 30 inches, and in a few dry areas, where it is at a depth of more than 60 inches.

Myakka-Myakka, wet, sands, 0 to 2 percent slopes (#28) is a nearly level, poorly drained hydric soil that has a layer stained by organic material at a depth of less than 30 inches. The water table is normally at a depth of 10 to 40 inches during extended dry seasons. The surface and subsurface layers and the layer at a depth of 56 to 85 inches have rapid permeability, low water available water capacity, and very low natural fertility.

Tavares sand, 0 to 5 percent slopes (#45) is a nearly level to gently sloping soil, moderately well drained soil. It has a very dark grayish-brown sandy surface layer approximately 7 inches thick. Below this layer are 4 levels of sand beginning at 7 inches, 25 inches, 34 inches, and 61 inches. The water table for this soil type is at a depth of 40 to 60 inches for more than 6 months out of the year and below 60 inches during dry periods. This soil type is rapidly permeable throughout.

Borrow Pits (#50) are open excavations from which soil and shell fragments have been removed for use as fill material when constructing roads and streets and for building site development.

The Florida Association of Environmental Soil Scientists (FAESS) considers inclusions present within the Myakka-Myakka, wet, sands, 0 to 2 percent slopes (#2) and the Borrow Pits (#50) soil types associated with the subject site to be hydric. This information can be found in the Hydric Soils of Florida Handbook, Fourth Edition (March 2007).

LAND USE TYPES/VEGETATIVE COMMUNITIES

The Watermark project site currently supports seven (7) land use types/vegetative communities. The land use types/vegetative communities were identified utilizing the Florida Land Use, Cover and Forms Classification System, Level III (FLUCFCS, FDOT, January 2004) (**Figure 5**). The upland land use types/vegetative communities within the subject property are classified as Open Land (190), Citrus Groves (221), Abandoned Groves (224), Hardwood – Conifer Mixed (434) and Mixed Hardwoods (438). The wetland/surface water land use types/vegetative communities within the subject property are classified as Lakes, less than 10 acres (524) and Vegetated Non-Forested Wetlands (640). The following provides a brief description of the land use types/vegetative communities identified on the site:

Uplands:

190 Open Land

The southeastern and northwestern portions of the property are most consistent with the Open Land (190) FLUCFCS classification. Vegetative species identified within this land use type include scattered live oak (*Quercus virginiana*), caesarweed (*Urena lobata*), dogfennel

(*Eupatorium capillifolium*), common ragweed (*Ambrosia artemisiifolia*), Mexican clover (*Richardia brasiliensis*), shrub verbena (*Lantana camara*), guineagrass (*Panicum maximum*), and begger ticks (*Bidens alba*).

221 Citrus Groves

The western portion of the property contained well-maintained citrus groves that appeared active and this land use type/vegetative community is most consistent with the Citrus Groves (221) FLUCFCS classification. Vegetative species identified within this land use type include C*itrus* spp., bahiagrass (*Paspalum notatum*), common ragweed (*Ambrosia artemisiifolia*), dogfennel (*Eupatorium capillifolium*), and guinea grass (*Megathyrsus maximus*).

224 Abandoned Groves

The majority of the site and remainder of the citrus groves on the property are not well maintained and appear inactive and this land use type/vegetative community is most consistent with Abandoned Groves (224) FLUCFCS classification. Vegetative species identified within this land use type include C*itrus* spp., bahiagrass (*Paspalum notatum*), common ragweed (*Ambrosia artemisiifolia*), dogfennel (*Eupatorium capillifolium*), guineagrass (*Megathyrsus maximus*), passionflower (*Passiflora* spp.), prairie cottonweed (*Froelichia floridana*), yellow buttons (*Balduina angustifolia*), and shrub verbena (*Lantana camera*).

434 Hardwood – Conifer Mixed

The northeastern portion of the site contained a small forested area that is best described as Hardwood – Conifer Mixed (434), per the FLUCFCS. Vegetative species identified within this land use type include live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), American beautyberry (*Callicarpa americana*), saw palmetto (*Serenoa repens*), bracken fern (*Pteridium aquilinum*), air-potato (*Dioscorea bulbifera*), caesarweed (*Urena lobata*), dogfennel (*Eupatorium capillifolium*), guineagrass (*Panicum maximum*), muscadine (*Vitis rotundifolia*), blackberry (*Rubus cuneifolius*), and common ragweed (*Ambrosia artemisiifolia*).

438 Mixed Hardwoods

The site contained a mixed hardwoods community type located along its eastern boundary that is most consistent with the Mixed Hardwoods (438) FLUCFCS classification. Vegetative species identified within this community type included live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), black cherry tree (*Prunus serotina*), cabbage palm (*Sabal palmetto*), chinaberry (*Melia*

azedarach), Brazilian pepper (*Schinus terebinthifolius*), saw palmetto (*Serenoa repens*), beggar-ticks (*Bidens alba*), lantana (*Lantana strigocamara*), caesarweed (*Urena lobata*), rose natalgrass (*Melinis repens*), common ragweed (*Ambrosia artemisiifolia*), muscadine grapevine (*Vitis rotundifolia*), and greenbrier (*Smilax* spp.).

Wetlands/Surface Waters:

524 Lakes, less than 10 acres

The south-central portion of the site included a portion of unnamed wetland/surface water that extends off-site to the south. This area is most consistent with the Lakes, less than 10 acres (524) FLUCFCS classification. Vegetative species identified within this community type included Carolina willow (*Salix caroliniana*), Peruvian primrosewillow (*Ludwigia peruviana*), maidencane (*Panicum hemitomon*), marsh pennywort (*Hydrocotyle umbellata*), spadeleaf (*Centella asiatica*), white fragrant waterlily (*Nymphaea odorata*), Brazilian pepper (*Schinus terebinthifolius*), groundsel tree (*Baccharis halimifolia*), wax myrtle (*Myrica cerifera*), spikerush (*Eleocharis* spp.), soft rush (*Juncus effusus*), beaksedge (*Rhynchospora* spp.), blackberry (*Rubus* spp.), broomsedge (*Andropogon virginicus*), caesarweed (*Urena lobata*), and common ragweed (*Ambrosia artemisiifolia*).

640 Vegetated Non-Forested Wetlands

The northeastern portion of the site also contained a small portion of a larger wetland system that is most consistent with the Vegetated Non-Forested Wetlands (640) FLUCFCS classification. Vegetative species identified within this community type include water oak (*Quercus nigra*), swamp bay (*Persea palustri*s), air potato (*Dioscorea bulbifera*), greenbrier vine (*Smilax* spp.), swamp fern (*Blechnum serrulatum*), spikerush (*Eleocharis* spp.), Peruvian primrosewillow (*Ludwigia peruviana*), muscadine vine (*Vitis rotundifolia*), and blackberry (*Rubus cuneifolius*).

All on-site wetland/surface water areas were flagged utilizing pink BTC flagging tape (**Figure 8**). The limits of these on-site wetlands/surface waters can only be verified through a field review by the pertinent regulatory agencies.

WILDLIFE AND PROTECTED SPECIES

Using methodologies outlined in the Florida's Fragile Wildlife (Wood, 2001); Measuring and Monitoring Biological Diversity Standard Methods for Mammals (Wilson, et al., 1996); and Florida Fish and Wildlife Conservation Commission's (FWC's) Gopher Tortoise Permitting Guidelines (April 2023); an assessment for listed floral and faunal species was conducted at the site on July 26, 2021 and March 4, 2024 (**Figure 6A**). This assessment included both direct observations and indirect evidence, such as tracks, burrows, tree markings and vocalizations which indicated the presence of species observed. The assessment focused on species that are listed by the FWC's Official Lists - Florida's Endangered and Threatened Species (December 2022) and listed species that have the potential to occur in Lake County (**see attached Table 1**).

No plant species listed as "Threatened" or "Endangered" by either The Florida Department of Agriculture and Consumer Services (FDACS) or U.S. Fish and Wildlife Service (USFWS) were identified on the site during the assessments conducted. One (1) species identified on the site is listed as commercially exploited by the FDACS. The harvesting of this species, saw palmetto (*Serenoa repens*), for commercial gain is prohibited. The FDACS protection of listed plant species centers on preventing the illegal collection, transport and sale of the listed plants. The FDACS will issue permits for collection purposes. There are no regulations that prohibits the destruction of state-listed flora species as a result of proposed development activities.

The following is a list of those wildlife species identified on the site during the evaluation of the property:

Reptiles and Amphibians
brown anole (*Norops sagrei*)
coachwhip (*Masticophis flagellum*)
curly-tailed lizard (*Leiocephalidae carinatus*)
eastern black racer (*Coluber constrictor*)
gopher tortoise (*Gopherus polyphemus*)
green anole (*Anolis carolinensis*)
six-lined racerunner (*Cnemidophorus sexlineatus sexlineatus*)

Birds
American Crow (*Corvus brachyrhynchos*)
Black Vulture (*Coragyps atratus*)
Blue Jay (*Cyanocitta cristata*)
Common Ground Dove (*Columbina passerine*)
Common Yellowthroat (*Geothlypis trichas*)

Birds (cont)
Great Egret (*Ardea alba*)
Northern Mockingbird (*Mimus polyglottos*)
Red-bellied Woodpecker (*Melanerpes carolinus*)
Red-shouldered Hawk (*Buteo lineatus*)

Mammals
coyote (*Canis latrans*)
eastern cottontail (*Sylvilagus floridanus*)
eastern gray squirrel (*Sciurus carolinensis*)
nine-banded armadillo (*Dasypus novemcinctus*)
southeastern pocket gopher (*Geomys pinetis*)

One (1) of the above wildlife species, the gopher tortoise (*Gopherus polyphemus*), is identified in the FWC's Official Lists - Florida's Endangered and Threatened Species (December 2022).

Observed Wildlife

Gopher Tortoise *(Gopherus polyphemus)*
State Listed as "Threatened" by FFWCC

Currently the gopher tortoise (*Gopherus polyphemus*) is classified as a "Category 2 Candidate Species" by the USFWS, and as of September 2007 is now classified as "Threatened" by FWC, and as "Threatened" by Florida Committee on Rare and Endangered Plants and Animals (FCREPA). The basis of the "Threatened" classification by the FWC for the gopher tortoise is due to habitat loss and destruction of burrows. Gopher tortoises are commonly found in areas with well-drained soils associated with the pine flatwoods, pastures and abandoned orange groves. Several other protected species known to occur in Lake County have a possibility of occurring in this area, as they are gopher tortoise commensal species. These species include the eastern indigo snake (*Drymarchon corais couperi*), Florida mouse (*Podomys floridanus*) and the gopher frog (*Rana capito*). However, none of these species were observed during the survey conducted.

During the site visits, BTC observed gopher tortoise burrows on-site. The subject site was surveyed for the presence of gopher tortoises through the use of pedestrian transects. The survey covered approximately 100% of the suitable habitat present within the subject site boundaries. Based on the survey results, a total of thirty-eight (38) Potentially Occupied gopher tortoise burrows (PO-active/inactive) were observed and recorded using a handheld GPS (**Figure 6A**). Utilizing the factored occupation rate of 0.614 (*Auffenburg-Franz*), there is an estimated population of twenty-four (24) tortoises on site.

The FFWCC provides three (3) options for developers that have gopher tortoises on their property. These options include: 1) avoidance (i.e., maintain at least a 25-foot distance from construction activities), 2) preservation of habitat, and 3) off-site relocation. As such, resolution of the gopher tortoise issue will need to be permitted through FFWCC prior to any construction activities commencing.

If relocation efforts cannot be completed within 90 days of a formal gopher tortoise survey, FFWCC requires an additional survey to be conducted.

Potential Wildlife

The wildlife surveys conducted within the subject site boundaries do not preclude the potential for any listed species, currently or in the future. The following listed species were not observed on-site, but have the potential to occur: Bald Eagle and Eastern Indigo Snake.

Bald Eagle *(Haliaeetus leucocephalus)*
State protected by F.A.C. 68A-16.002 and federally protected by both the Migratory Bird Treaty Act (*1918*) *and the Bald and Golden Eagle Protection Act* (*1940*)

In August of 2007, the USFWS removed the Bald Eagle from the list of federally endangered and threatened species. Additionally, the Bald Eagle was removed from FWC's imperiled species list in April of 2008. Although the Bald Eagle is no longer protected under the Endangered Species Act, it is still protected under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and FWC's Bald Eagle rule (Florida Administrative Code 68A-16.002 Bald Eagle (*Haliaeetus leucocephalus*).

In May of 2007, the USFWS issued the National Bald Eagle Management Guidelines. In April of 2008, the FWC adopted a new Bald Eagle Management Plan that was written to closely follow the federal guidelines. In November of 2017, the FWC issued "A Species Action Plan for the Bald Eagle" in response to the sunset of the 2008 Bald Eagle Management Plan. Under the USFWS's management plans, buffer zones are recommended based on the nature and magnitude of the project or activity. The recommended protective buffer zone is 660 feet or less from the nest tree, depending on what activities or structures are already near the nest. As provided within the above referenced Species Action Plan, the USFWS is the regulating body responsible for issuing permits for Bald Eagles. In 2017, the need to obtain a State permit (FWC) for the take of Bald Eagles or their nests in Florida was eliminated following revisions to F.A.C. 68A-16.002. A USFWS Bald Eagle "Non-Purposeful Take Permit" is not needed for any activity occurring outside of the 660-foot buffer zone. No activities are permitted within 330 feet of a nest without a USFWS permit.

In addition to the on-site evaluation for listed species, BTC conducted a review of FWC's database (2015-2016 Nesting Season) and Audubon's Eagle Watch program database (2024 Nesting Season) for recorded Bald Eagle nests within the surrounding 660 feet of the subject site (**Figure 6B**). This review identified no Bald Eagle nests within 660 feet of the subject site boundaries. Thus, no developmental constraints are expected with respect to Bald Eagle nests unless a new nest is found.

Eastern Indigo Snake (*Drymarchon couperi*)
Federally Listed as "Threatened" by USFWS

The Eastern indigo snake (*Drymarchon couperi*) is a federally threatened species. The basis for this listing was a result of dramatic population declines caused by over-collecting for the domestic and international pet trade as well as mortalities caused by rattlesnake collectors who gassed gopher tortoise burrows to collect snakes. Since its listing, habitat loss and fragmentation by residential and commercial expansion have become much more significant threats to the eastern indigo snake. This species is widely distributed throughout central and south Florida and primarily occurs in sandhill habitat in northern Florida and southern Georgia.

No evidence of Eastern indigo snakes were observed within the site during the wildlife survey conducted by BTC. Based on the field assessment, this site will impact less than 25 acres of xeric habitat, however, it will potentially impact more than 25 active/inactive gopher tortoise burrows. Using the USFWS's August 13, 2013 Consultation Key for the Eastern indigo snake, a key determination would result in a finding of "may affect".

During the Environmental Resource Permit (ERP), State 404 or U.S. Army Corps of Engineers (USACOE) Dredge and Fill permit review process, the USFWS may determine that an Eastern indigo snake survey is required during the review of the project. The survey can be accomplished from October 1st thru April 30th for a minimum of five (5) surveys with 2 days of optimal weather (overnight low temperature above 60º F). It should also be noted that eastern indigo snake mitigation may be purchased in lieu of conducting the Eastern indigo snake survey. A FDEP 404 or USACOE Permit will likely require the following of the Service's Standard Protection Measures for the Eastern indigo snake which will include, but not limited to, posting Eastern indigo snake identification signage and educational material at the site, inspecting on-site holes and other refugia, as well as stopping construction to allow any Eastern indigo snake to safely vacate the project site. In addition, a FWC Conservation Permit to relocate Gopher tortoises will also contain permit conditions relating to the safety of indigo snakes and require that any encountered snakes be allowed to leave the property unharmed during the gopher tortoise relocation and during the development construction.

USFWS CONSULTATION AREAS

The USFWS have established "consultation areas" for certain listed species. Generally, these consultation areas only become an issue if USFWS consultation is required, which is typically associated with federal permitting under Section 10 and Section 404 of the Clean Water Act (CWA). It should be noted that a listed species presence and need for additional review are often determined to be unnecessary early in the permit review process due to lack of appropriate habitat or other conditions. However, the USFWS makes the final determination.

Consultation areas are typically very regional in size, often spanning multiple counties where the species in question is known to exist. Consultation areas by themselves do not indicate the presence of a listed species. They only indicate an area where there is a potential for a listed species to occur and that additional review might be necessary to confirm or rule-out the presence of the species. The additional review typically includes the application of species-specific criteria to rule-out or confirm the presence of the species in question. Such criteria might consist of a simple review for critical habitat types. In other cases, the review might include the need for species-specific surveys using established methodologies that have been approved by the USFWS.

The Simpson Property is located within three (3) USFWS Consultation Areas which included the Everglade Snail Kite *(Rostrhamus sociabilis plumbeus)*, Florida Scrub-jay *(Aphelocoma coerulescens)* and the sand skink *(Neoseps reynoldsi)*. The following provides a brief description of the respective species, its habitat and the potential for additional review:

Everglade Snail Kite *(Rostrhamus sociabilis plumbeus)*
Federally Listed as "Endangered" by USFWS

The subject site falls within the USFWS Consultation Area for the Snail Kite. Currently the Snail Kite is listed as "Endangered" by the USFWS. Snail Kites are similar in size to Red-shouldered Hawks. All Snail Kites have deep red eyes and a white rump patch. Males are slate gray, and females and juveniles vary in amounts of white, light brown, and dark brown, but the females always have white on their chin. Kites vocalize mainly during courtship and nesting. They may occur in nearly all of the wetlands of central and southern Florida. They regularly occur in lake shallows along the shores and islands of many major lakes, including Lakes Okeechobee, Kissimmee, Tohopekaliga (Toho) and East Toho. They also regularly occur in the expansive marshes of southern Florida such as Water Conservation Areas 1, 2, and 3, Everglades National Park, the upper St. John's River marshes and Grassy Waters Preserve.

No Everglade Snail Kites were observed within the project site during the cursory wildlife survey conducted by BTC. As no suitable habitat exists within the limits of the site, it is not anticipated that a formal survey would be required by the USFWS or another agency to determine if any Everglade Snail Kites utilize any portions of the site.

Florida Scrub-Jay *(Aphelocoma coerulescens)*
Federally Listed as "Threatened" by USFWS

Currently the Florida Scrub-Jay is listed as "Threatened" by the USFWS. Florida Scrub-Jays are largely restricted to scattered, often small and isolated patches of sand pine scrub, xeric oak, scrubby flatwoods, and scrubby coastal stands in peninsular Florida (Woolfenden 1978a, Fitzpatrick et al. 1991). They avoid wetlands and forests, including canopied sand pine stands. Optimal Scrub-Jay habitat is dominated by shrubby scrub, live oaks, myrtle oaks, or scrub oaks from 1 to 3 m (3 to 10 ft.) tall, covering 50% to 90 % of the area; bare ground or sparse vegetation less than 15 cm (6 in) tall covering 10% to 50% of the area; and scattered trees with no more than 20% canopy cover (Fitzpatrick et al. 1991).

Florida Scrub-Jays are most abundant in open, oak-dominated scrub communities of the interior and Atlantic coast sand ridges of the Peninsula. Florida Scrub-Jay habitat is broken down into three (3) types. These habitat types are the following:

- TYPE I HABITAT. Any upland plant community in which the percent cover of the substrate by scrub oak species is 15% or more.

- TYPE II HABITAT. Any plant community not meeting the definition of Type I habitat, in which one or more scrub oak species is represented.

- TYPE III HABITAT. Any upland or seasonally dry wetland within ¼ mile of any designated as Type I or Type II habitat.

In most cases, the Type I habitat is recognized as xeric oak scrub, scrubby pine flatwoods, scrubby coastal strand, or sand pine scrub. Usual classification schemes are not as useful in identifying or predicting habitat type; the presence of scrub oaks is the key indicator. The third habitat type includes many different plant communities where scrub oak species are not represented, but that are nearby or adjacent to Type I or Type II habitat. The subject site contains potential Type I and Type II Habitat based on the apparent sand pine scrub community that is present on-site and adjacent to the subject site to the west and north.

No Scrub-Jays were observed on the subject site during the cursory wildlife survey conducted by BTC. However, due to historic observations of this species within surrounding areas, it is likely that a formal Scrub-Jay survey will be required as confirmation to the regulatory agencies that this species is not utilizing the property. Surveys should be conducted during 1) Spring (March), 2) Fall (September and October) and 3) Mid-summer (July).

Sand Skink *(Neoseps reynoldsi)*
Federally Listed as "Threatened" by USFWS

The subject site falls within the Sand Skink Consultation Area for the USFWS. The sand skink is listed as "Threatened" by the USFWS. The sand skink exists in areas vegetated with sand pine *(Pinus clausa)* - rosemary *(Ceratiola ericoides)* scrub or a long leaf pine *(Pinus palustris)* - turkey oak *(Quercus laevis)* association. Habitat destruction is the primary threat to this species' survival. Citrus groves, residential, commercial and recreational facilities have depleted the xeric upland habitat of the sand skink. All properties within the limits of this consultation area that are located at elevations greater than 80' and contain suitable (moderate-to-well drained soils) soils are believed by USFWS to be areas of potential sand skink habitat.

The results of the wildlife survey showed no evidence (i.e. sinusoidal tracks) that indicate the presence of the sand skink. However, the site is within the USFWS Sand Skink Consultation Area, the entire site is above the 80-foot above sea level requirement and the majority of the uplands within the site contain appropriate soil types for the sand skink.

Based on the above, both a cursory sand skink survey (2021) and a formal sand skink survey (2024) have been conducted across those portions of the property that would provide potential habitat for this species. Accordingly, a Habitat Conservation Plan (HCP) application has been submitted to the USFWS and is currently under review.

SITE PLAN ANALYSIS

The extent of the wetlands/surface waters existing within the Watermark project site have been field delineated by BTC in accordance with local, state, and federal guidelines. At this time neither the St. Johns River Water Management District (SJRWMD) nor the US Army Corps of Engineers (USACE) have reviewed the project's wetland/surface water limits. The on-site wetlands/surface waters are located within the Souther Ocklawaha River drainage basin (**Figure 9**).

Based on the site plan provided by Halff for the Watermark project site, the total area of wetlands/surface waters that exist within the limits of the subject project is approximately 1.16 acres (W-1 = ±0.35 ac; SW-1 = ±0.81 ac). As indicated on the submitted construction plans, the

proposed development will require 0.00 acres of wetland/surface water impacts in association with the project's overall layout.

A Project Wetland (WL) and Other Surface Water (SW) Summary (Table 1 – ERP Application) is attached with this submittal. Also included are Tables 2 and 3, which outline the proposed mitigation (if applicable). Per the submitted construction plans, there are no direct wetland/surface water impacts. As such, the total acreage of direct wetland/surface water impacts that require mitigation totals 0.00 acres. Development of the site and construction activities are proposed to commence upon the receipt of all requisite local, State and/or Federal permits.

Elimination and/or Reduction of Wetland Impacts

In considering alternative site plans with respect to the elimination or reduction of wetland/surface water impacts, it is believed that the project satisifies the District's criteria per Chapter 62-340.700(2)(a), F.A.C, as no direct wetland and/or other surface water impacts are proposed that would require minimization measures.

Secondary Impacts

The Basis of Review contains a four-part criterion that addresses additional impacts that may be caused by a project: (a) impacts to wetland functions that may result from the intended use of a project; (b) impacts to the upland nesting habitat of listed species that are aquatic or wetland dependent; (c) impacts to significant historical and archaeological resources that are closely linked and causally related to any proposed dredging or filling of wetland or other surface waters; and (d) wetland impacts that may be caused by future phases of the project or activities that are closely linked and causally related to the project.

According to Section 10.2.7(a), A.H., secondary impacts to habitat functions of wetlands will not be considered adverse provided a 25-foot, average, 15-foot minimum width upland buffer is maintained. As depicted on the submitted construction plans, a 15' minimum/25' average upland buffer has been provided landward of the project's post-development wetlands.

No nesting or denning by listed aquatic or wetland dependent fish or wildlife species was observed within the project site.

Based on the above provided information, it is believed that the applicant has demonstrated that the proposed project will have no unacceptable adverse secondary impacts to wetlands and water quality.

Cumulative Impacts

As the project is not proposing any wetland/surface water impacts that require mitigation, it is believed that the project will have no unacceptable adverse cumulative impacts to wetlands, water quality, or upland habitat for aquatic and wetland dependent fish or wildlife listed as endangered, threatened, or species of special concern.

Mitigation

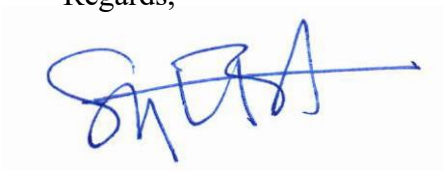
No mitigation is required.

Erosion & Sediment Control

The applicant will implement and maintain erosion and sediment control measures both prior to and during the proposed project. This practice will ensure that no adverse water quality impacts to receiving waters and adjacent lands will occur during the proposed work. Control measures will retain sediment on-site and prevent potential violations of State standards. Practices incorporated will be in accordance with Chapter 6 of the Florida Land Development Manual: A Guide to Sound Land and Water Management. Details of the erosion and sediment control measures are included on the plans provided by Halff.

The environmental limitations described in this document are based on observations and technical information available on the date of the on-site evaluation. This report is for general planning purposes only. The limits of any on-site wetlands/surface waters can only be determined and verified through field delineation and/or on-site review by the pertinent regulatory agencies. The wildlife surveys conducted within the subject property boundaries do not preclude the potential for any listed species, as noted on Table 1 (attached), currently or in the future. Should you have any questions or require any additional information, please do not hesitate to contact our office at (407) 894-5969. Thank you.

Regards,

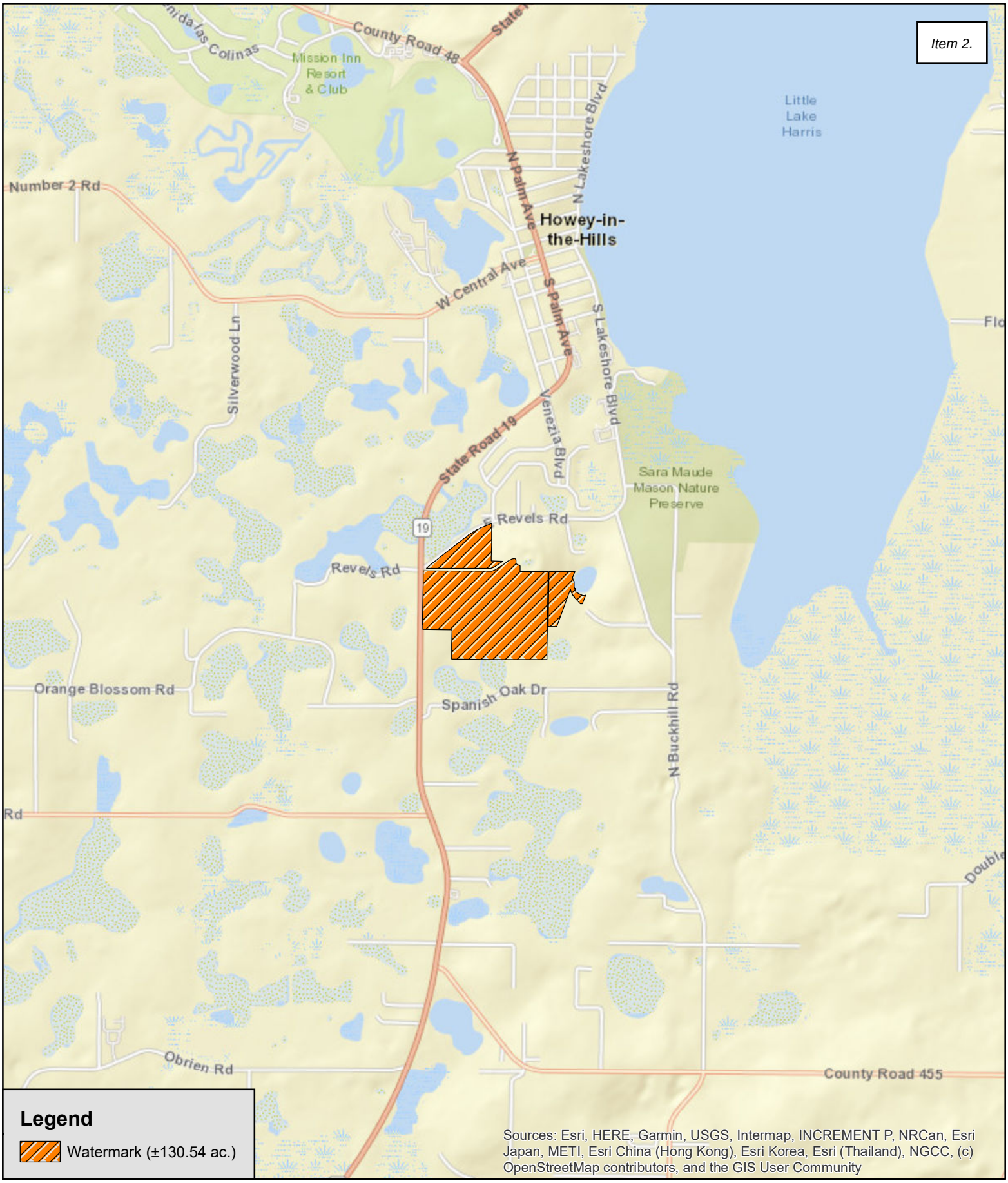




Stephen Butler
Vice President of Environmental Services

John Miklos
President

Attachments



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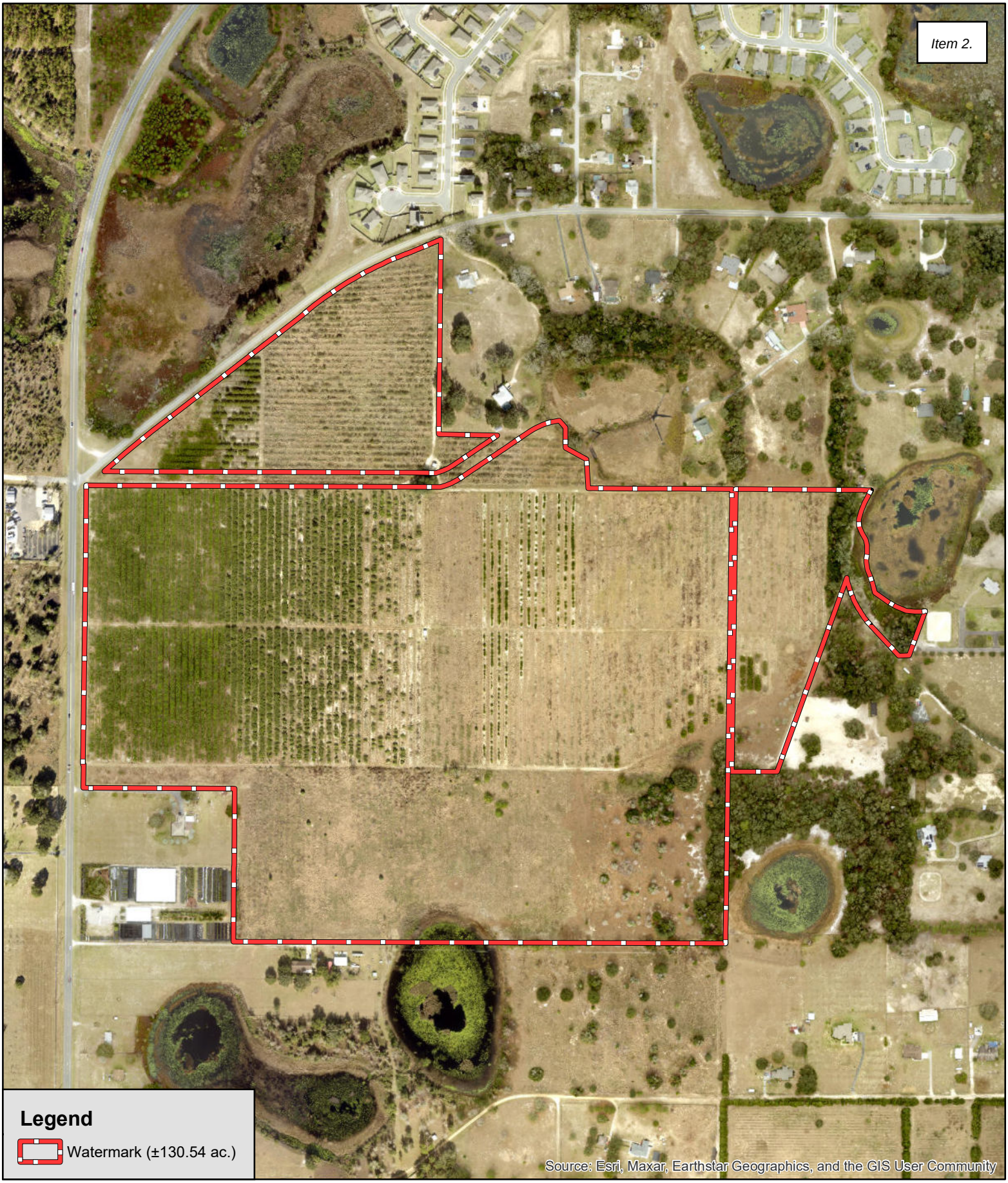
bio-techconsulting.com

Watermark
Lake County, Florida
Figure 1
Location Map

0.5 Miles

Project #: 583-48
Produced By: G
Date: 6/24/2025



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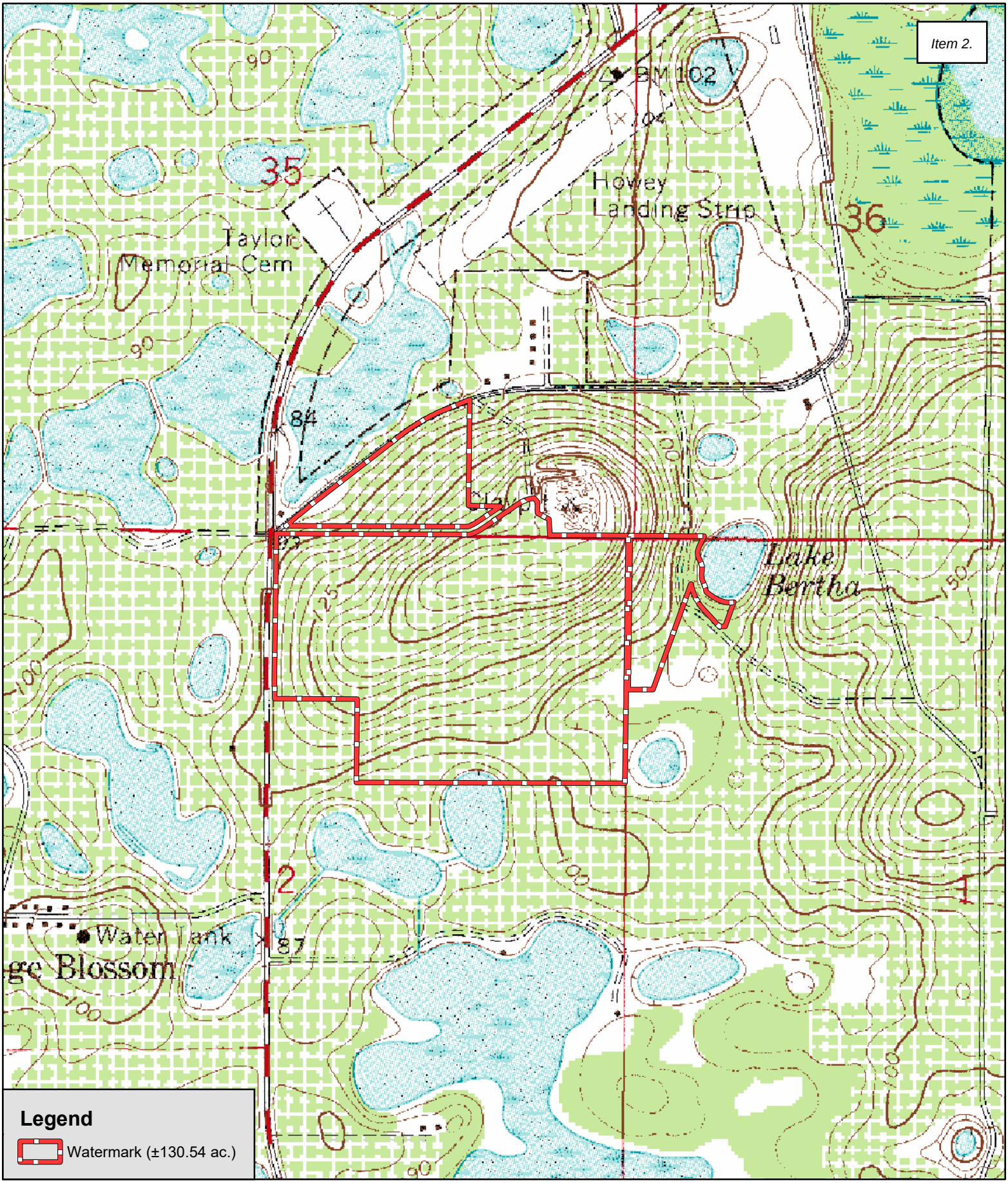
Watermark
Lake County, Florida
Figure 2
2023 Aerial Photograph

N
W E
S

550
Feet

Project #: 583-48
Produced By: G
Date: 6/24/2025



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Watermark
Lake County, Florida
Figure 3
USGS Topographic Map

N
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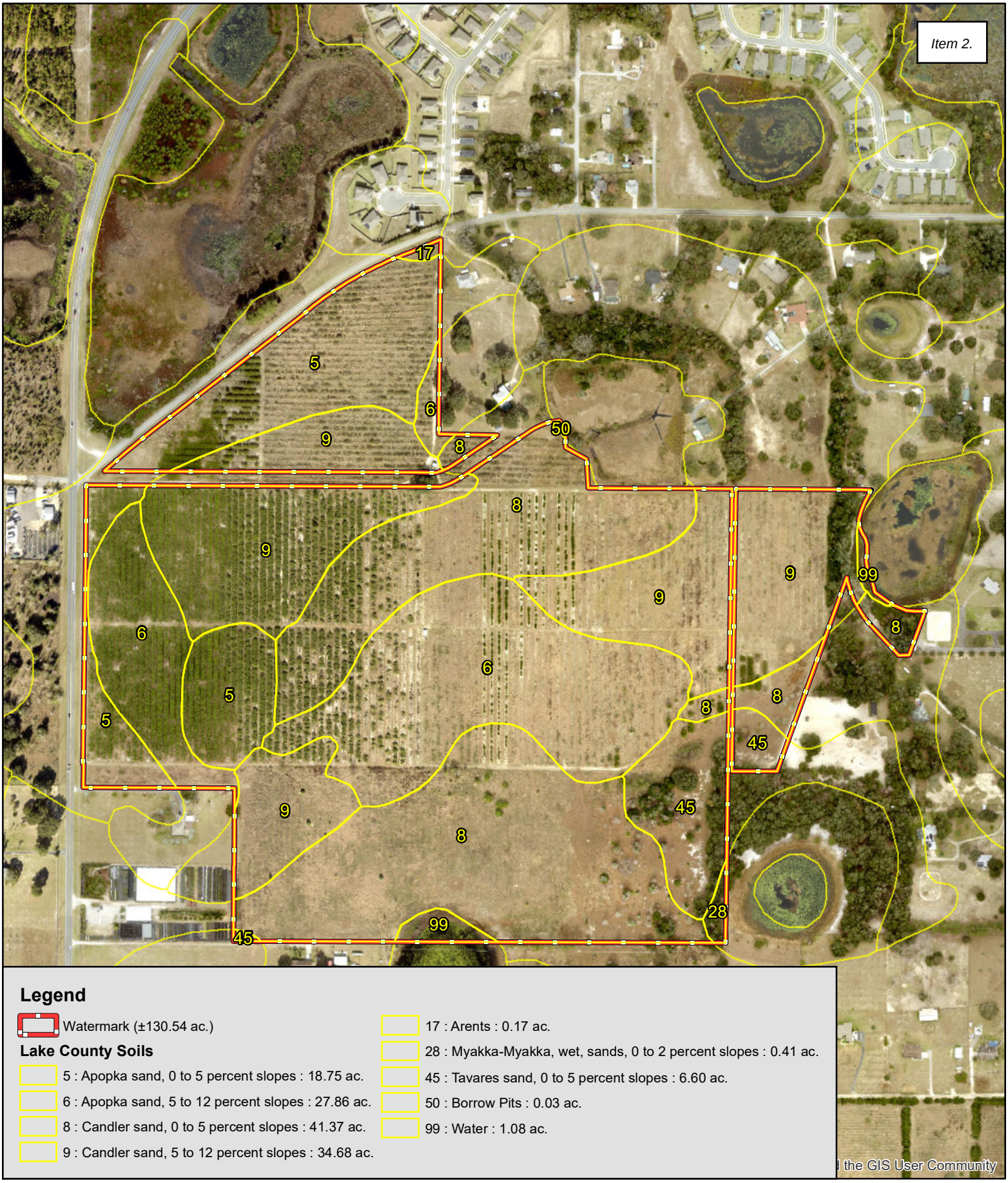
1,000
Feet

Project #: 583-48
Produced By: G
Date: 6/24/2025



Legend

Watermark (±130.54 ac.)

Lake County Soils

- 5 : Apopka sand, 0 to 5 percent slopes : 18.75 ac.
- 6 : Apopka sand, 5 to 12 percent slopes : 27.86 ac.
- 8 : Candler sand, 0 to 5 percent slopes : 41.37 ac.
- 9 : Candler sand, 5 to 12 percent slopes : 34.68 ac.
- 17 : Arents : 0.17 ac.
- 28 : Myakka-Myakka, wet, sands, 0 to 2 percent slopes : 0.41 ac.
- 45 : Tavares sand, 0 to 5 percent slopes : 6.60 ac.
- 50 : Borrow Pits : 0.03 ac.
- 99 : Water : 1.08 ac.

the GIS User Community

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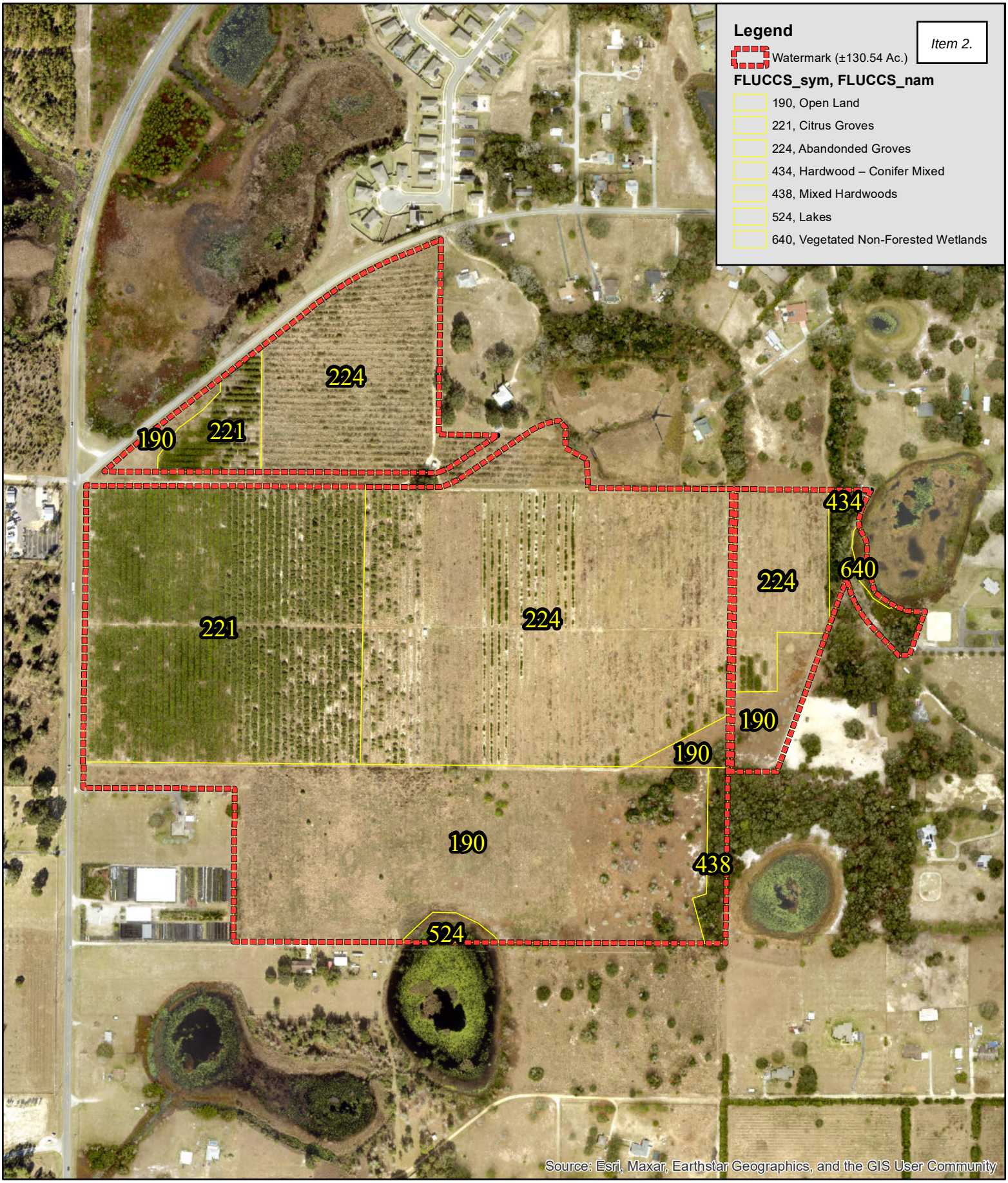
Watermark
Lake County, Florida
Figure 4
USDA-NRCS Soils Map

N W E S

550 Feet

Project #: 583-48
Produced By: G
Date: 6/24/2025



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Watermark
Lake County, Florida
Figure 5
FLUCFCS Map

N
W E
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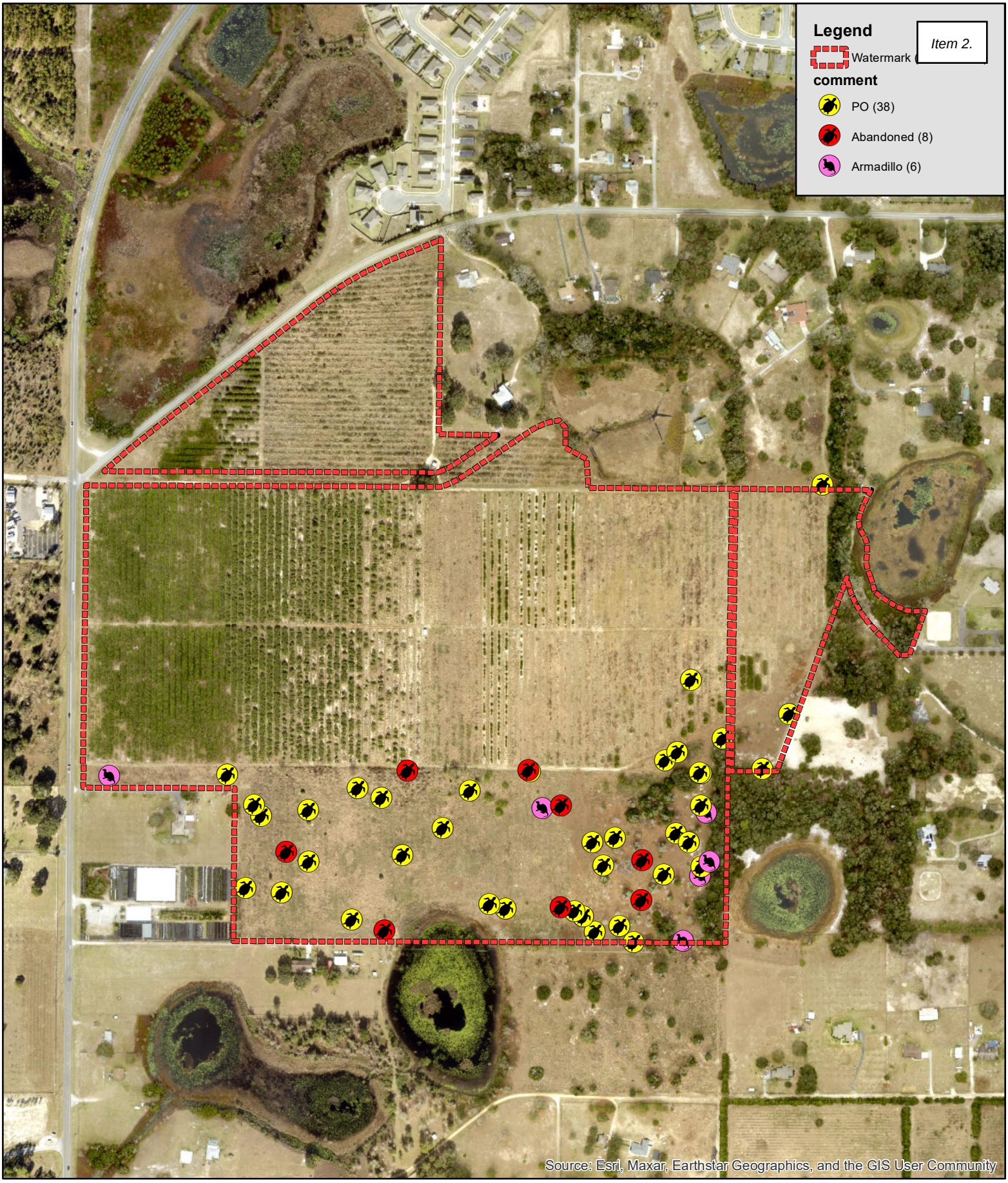
550
Feet
750

Project #: 583-48
Produced By: H
Date: 6/24/2025



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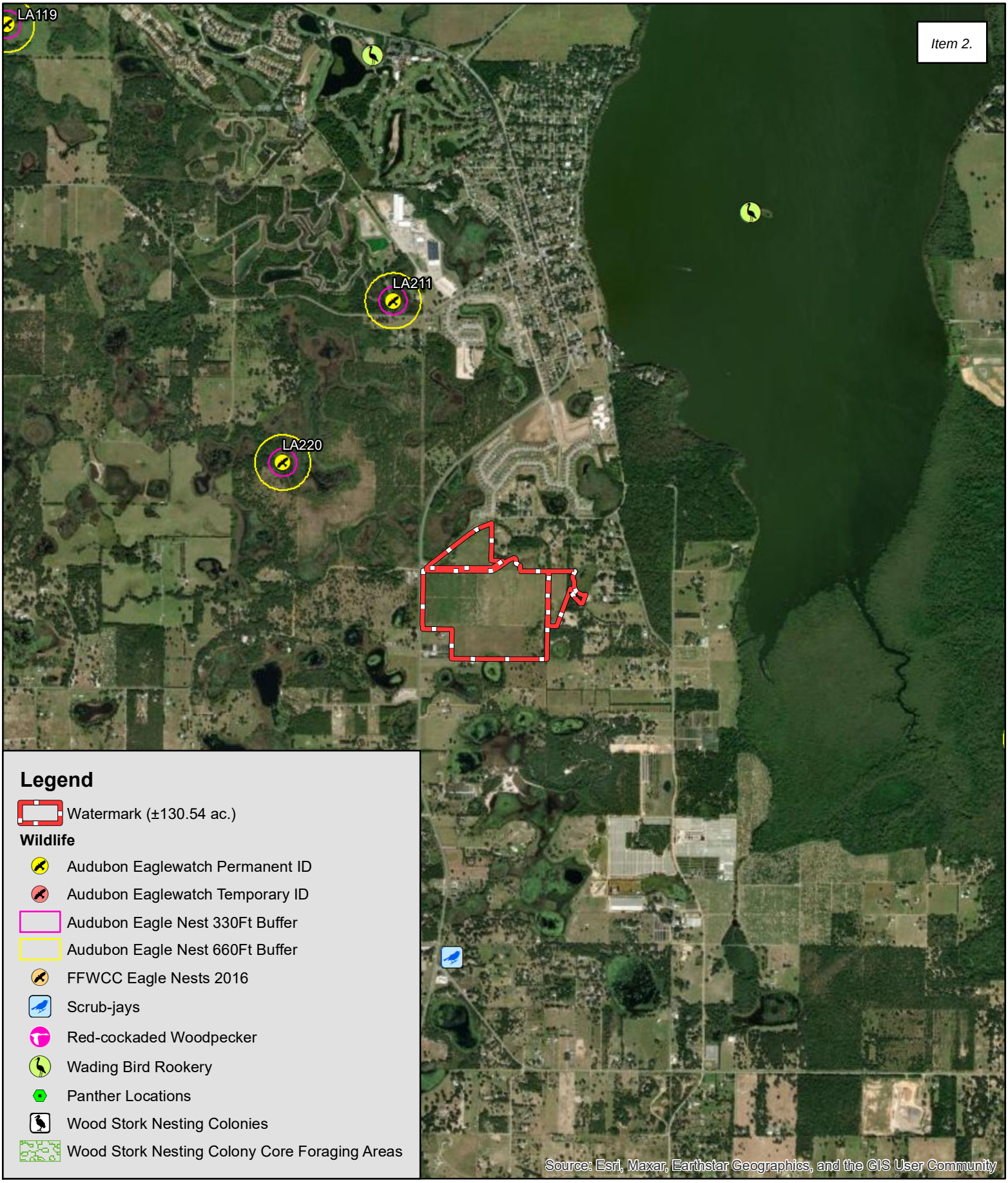
Watermark
Lake County, Florida
Figure 6
Wildlife Survey

N
W E
S

550
Feet

Project #: 583-48
Produced By: H
Date: 6/24/2025



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Watermark
Lake County, Florida
Figure 6B
Wildlife Proximity Map

N
W E
S

0.5
Miles

Project #: 583-48
Produced By: G
Date: 6/24/2025



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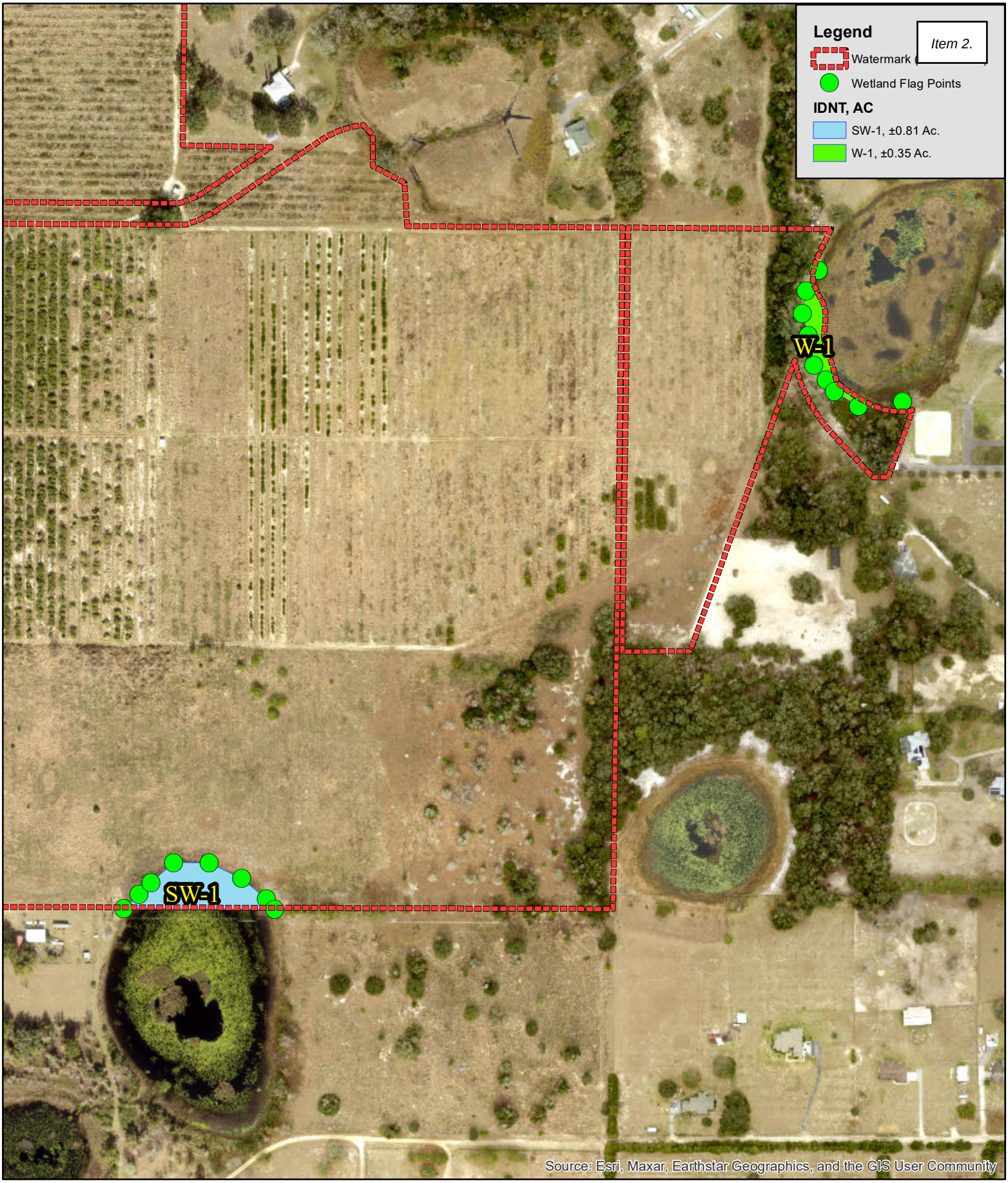
Watermark
Lake County, Florida
Figure 7
USFWS Consultation Areas Map

N
W E
S

550
Feet

Project #: 583-48
Produced By: JG
Date: 6/24/2025



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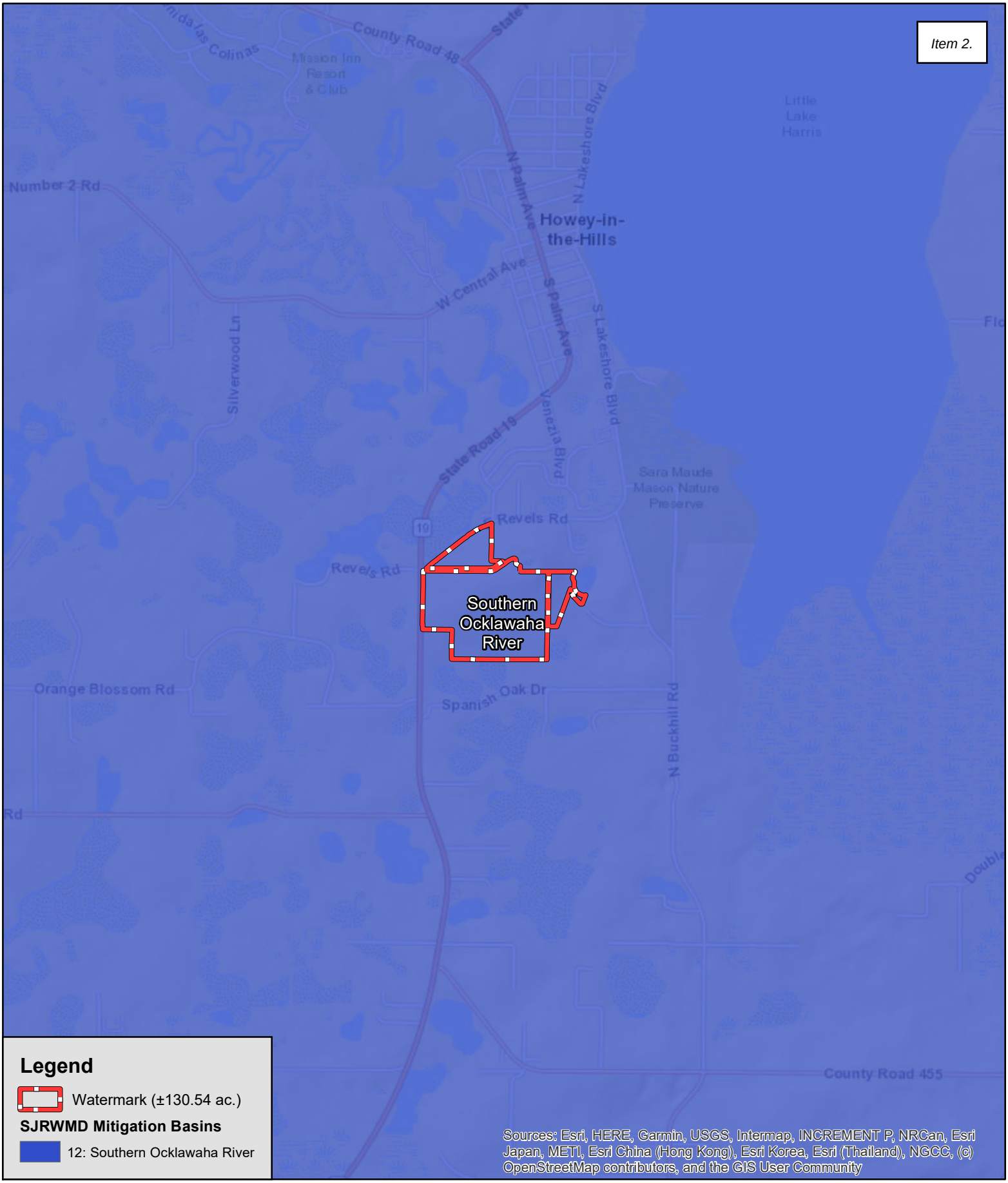
Watermark
Lake County, Florida
Figure 8
Wetlands & Surface Water Map

370
Feet

Project #: 583-48
Produced By: H
Date: 6/24/2025



Legend

Watermark (±130.54 ac.)

SJRWMD Mitigation Basins

12: Southern Ocklawaha River

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Watermark
Lake County, Florida
Figure 9
SJRWMD Mitigation Basins Map

N W E S

0.5 Miles

Project #: 583-48
Produced By: JG
Date: 6/24/2025

EagleWatch Map



7/6/2021, 7:57:47 AM

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Bald Eagle Nest Locations

660ft Buffer Around Nest Locations

330ft Buffer Around Nest Locations

© 2021 Microsoft Corporation © 2021 Maxar ©CNES (2021) Distri

ArcGIS Web AppB

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Table 1 :	Potentially Occuring Listed Wildlife and Plant Species in Lake County, F		
Scientific Name	**Common Name**	**Federal Status**	**State Status**
FISH			
Pteronotropis welaka	Bluenose Shiner	N	ST
REPTILES			
Alligator mississippiensis	American Alligator	SAT	FT(S/A)
Drymarchon corais couperi	Eastern Indigo Snake	LT	FT
Gopherus polyphemus	Gopher Tortoise	C	ST
Lampropeltis extenuata	Short-Tailed Snake	N	ST
Pituophis melanoleucus mugitus	Florida Pine Snake	N	ST
Plestiodon reynoldsi	Sand Skink	LT	FT
BIRDS			
Antigone canadensis pratensis	Florida Sandhill Crane	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
Athene cunicularia floridana	Florida Burrowing Owl	N	ST
Egretta caerulea	Little Blue Heron	N	ST
Egretta tricolor	Tricolored Heron	N	ST
Falco sparverius paulus	Southeastern American kestrel	N	ST
Grus americana	Whooping Crane	XN	FXN
Mycteria americana	Wood Stork	LT	FT
Picoides borealis	Red-Cockaded Woodpecker	LE	FE
MAMMALS			
Trichechus manatus	West Indian Manatee	LT	FT
VASCULAR PLANTS			
Bonamia grandiflora	Florida bonamia	LT	E
Carex chapmanii	Chapman's Sedge	N	T
Centrosema arenicola	Sand Butterfly Pea	N	E
Chionanthus pygmaeus	pygmy fringe tree	LE	E
Clitoria fragrans	scrub pigeon-wing	LT	E
Coelorachis tuberculosa	Piedmont Jointgrass	N	T
Coeleataenia abscissa	Cutthroat Grass	N	E
Cucurbita okeechobeensis	Okeechobee Gourd	LE	E
Eriogonum longifolium var *gnaphalifolium*	Scrub Buckwheat	LT	E
Hartwrightia floridana	Hartwrightia	N	T
Hasteola robertiorum	Florida Hasteola	N	E
Illicium parviflorum	Star Anise	N	E
Justicia cooleyi	Cooley's Water-Willow	LE	E
Lechea cernua	Nodding Pinweed	N	T
Matelea floridana	Florida Spiny-Pod	N	E
Monotropa hypopithys	Pinesap	N	E
Najas filifolia	Narrowleaf Naiad	N	T
Nemastylis floridana	Celestial Lily	N	E
Nolina brittoniana	Britton's Beargrass	LE	E
Paronychia chartacea ssp *chartacea*	Paper-Like Nailwort	LT	E
Pecluma plumula	Plume Polypody	N	E
Pecluma ptilota var. bourgeauana	Comb Polypody	N	E
Polygala lewtonii	Lewton's Polygala	LE	E
Polygonella myriophylla	Small's Jointweed	LE	E
Prunus geniculata	Scrub Plum	LE	E
Pteroglossaspis ecristata	Giant Orchid	N	T
Salix floridana	Florida Willow	N	E
Sideroxylon alachuense	Silver Buckthorn	N	E
Stylisma abdita	Scrub Stylisma	N	E
Vicia ocalensis	Ocala Vetch	N	E
Warea amplexifolia	Clasping Warea	LE	E
Warea carteri	Carter's Warea	LE	E

FEDERAL LEGAL STATUS

LE-Endangered: species in danger of extinction throughout all or a significant portion of its range.

LT-Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
SAT-Endangered due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unli

C-Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
XN-Non-essential experimental population.
N-Not currently listed, nor currently being considered for listing as Endangered or Threatened.

STATE LEGAL STATUS - ANIMALS

FE- Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT- Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN- Federal listed as an experimental population in Florida
FT(S/A)- Federal Threatened due to similarity of appearance
ST- State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC-Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N-Not currently listed, nor currently being considered for listing.

*** State protected by F.A.C. 68A-16.002 and federally protected by both the Migratory Bird Treaty Act (1918) and the Bald and Golden Eagle Protection Act (1940)*

STATE LEGAL STATUS - PLANTS

E-Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T-Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N-Not currently listed, nor currently being considered for listing.

SECTION C: SUPPLEMENTAL INFORMATION FOR WORKS OR OTHER ACTIVITIES IN, ON, OR OVER WETLANDS AND/OR OTHER SURFACE WATERS

(Note: This section is not required if all the proposed activities are covered in Section B.)

Instructions: This section is for ERP applications that do not involve activities associated with an individual single-family residence, duplex, triplex or quadruplex. For those activities, please use Section B. This form is to be completed if the proposed work or activity will occur in, on, over, or within 25 feet of a wetland or other surface water. The supplemental information required by this section is in addition to the information required by Section A of the ERP application.

PART 1: WETLAND OR OTHER SURFACE WATER IMPACT SUMMARY

1. Describe the basic purpose of the project or activity: **Construction of a stormwater management system to service a residential development, known as Watermark.**

2. Total area of work (dredging, filling, construction, alteration, or removal) in, on, or over wetlands or other surface waters: sq. ft.; **0.00** ac.

3. Total volume of material in wetlands or other surface waters:
   a. to be dredged: cubic yards,
   b. to be filled: cubic yards.

4. Identify the seasonal high water level (SHWL) and wetland normal pool elevations for each wetland or surface water within the project site. For tidal wetlands and/or surface waters provide the elevation of mean high and mean low water. Include an aerial photograph showing the location of each sampling location, dates, datum, and methods used to determine these elevations. **TBD**

5. Name of waterbody(ies) (if applicable & if known) in which work will occur? **N/A**

6. Is the activity proposed in an Outstanding Florida Water or Aquatic Preserve?
   ☐ yes, name: ☒ no ☐ I don't know

7. Has there ever been a formal or informal wetland determination for the project site? If yes, provide the identifying number and/ or a copy of the jurisdictional map. **NO**

8. Provide a map(s) of the project area and vicinity delineating USDA/NRCS soil types. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT**

9. Provide recent aerials, legible for photointerpretation (no photocopies) with a scale of 1" = 400 ft, or more detailed, with project boundaries and wetland boundaries delineated on the aerial. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT**

10. Provide existing and proposed maps indicating vegetative community types based on Florida Land Use and Cover Classification System (FLUCCS) (FDOT 1999). For vegetated areas dominated by exotic vegetation, use the FLUCCS code representative of the native community type that was present prior to exotic infestation. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT**

11. Provide existing and proposed maps indicating vegetative community types based on the Florida Natural Areas Inventory Guide to the Natural Communities of Florida. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT**

12. Impact Summary Tables (located at the end of this section):

    a. For all projects, complete Table 1, 2 and 3 as applicable. **SEE ATTACHED ERP TABLES**

    b. For shoreline stabilization projects, provide the information requested in Table 4. **NA**

13. Adjacent property owners. The following information is required only for projects proposed to occur in, on or over wetlands that need a federal dredge and fill permit and/or authorization to use state owned submerged lands and is not necessary when applying solely for an Environmental Resource Permit. If the activity is located on state owned submerged lands and requires a lease or easement, provide a list of names and addresses from the latest county tax assessment roll of all property owners located within a 500 ft. radius of the proposed lease or easement boundary in mailing label format, or you may elect to send notice to those persons by certified mail, with the return-receipt card addressed to the DEP or water management district, as applicable, in accordance with subsection 18-21.005(3), F.A.C., and Section 253.115, F.S. For projects that need a federal dredge and fill permit, please provide the names, addresses and zip codes of property owners whose property directly adjoins the project (excluding applicant). Attach additional sheets if necessary.

1.	2.
3.	4.
5.	6.

PART 2: ENVIRONMENTAL CONSIDERATIONS

Note: for many questions, a state rule/Applicant's Handbook Volume I (AH I) section is cited to assist the applicant in addressing these questions. However, additional Federal criteria may apply.

1. Elimination or Reduction of Impacts (Avoidance and Minimization). Describe measures taken to eliminate or reduce impacts to wetlands and other surface waters (*Refer to AH I Section 10.2.1*). **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT**

2. Fish, Wildlife, Listed Species and their Habitats. Provide results of any wildlife assessments that have been conducted on the project site and provide any comments pertaining to the project from the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service (*Refer to AH I Section 10.2.2*). **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT**

3. Water quantity impacts to wetlands and other surface waters (*Refer to AH I Section 10.2.2.4 and AH II*).

   a. Does the activity include a proposed stormwater water management system with a control elevation different than the wetland normal pool elevation(s) of existing or proposed created wetlands or other surface waters? **NO**

   b. If yes to (a), provide documentation (e.g. drawdown assessment or other methods) that shows the proposed surface water management system will not change the hydroperiod of the existing or created wetland or other surface water.

4. Public Interest Test. Please describe how the proposed activity will ***not be contrary*** to the public interest, OR if such an activity significantly degrades or is located within an Outstanding Florida Water (OFW), that the regulated activity will be ***clearly in*** the public interest (*Refer to AH I Section 10.2.3*).

   a. Please describe how the project will be designed to avoid adverse affects to public health, safety, or the welfare or the property of others. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS**

   b. Please describe how the project will be designed to avoid adverse affects to the conservation of fish and wildlife, including endangered or threatened species, or their habitats. **ALL REQUIRED STATE & FEDERAL WILDLIFE PERMITS TO BE OBTAINED AS APPLICABLE**

   c. Please describe how the project will be designed to avoid adverse affects to navigation or the flow of water or cause harmful erosion or shoaling. **NA**

   d. Please describe how the project will be designed to avoid adverse affects to the fishing or recreational values or marine productivity in the vicinity of the activity. **NA**

   e. Will the project be of a temporary or permanent nature? **PERMANENT**

   f. Please describe how the project will be designed to avoid adverse impacts to significant historical and archaeological resources, under the provisions of section 267.061, F.S. **NA**

   g. Please describe how the project will be designed to avoid adverse affects to the current condition and relative value of functions being performed by areas affected by the proposed regulated activity. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS AND SUBMITTED CONSTRUCTION PLANS**

5. Water Quality. Provide a description of how water quality will be maintained in wetlands and other surface waters that will be preserved or will remain undisturbed, both on and offsite. Please address both short-term (such as during construction) and long-term water quality considerations (*Refer to AH I Section 10.2.4*). **SEE SUBMITTED STORMWATER PLANS**

6. Class II Waters; Waters approved for shellfish harvesting *(Refer to AH I Section 10.2.5)*.

   a. Will the project occur in Class II that are NOT approved for shellfish harvesting? If yes, please provide a plan or procedure detailing the measures to be taken to meet the requirements of *AH I Section 10.2.5(a)*. **NO**

b. Is the project located adjacent to or in close proximity to Class II waters? If yes, please provide a plan or procedure detailing the measures to be taken to meet the requirements of *AH I Section 10.2.5(b)*. **NO**

c. Is the project located in Class II or Class III waters that are classified as “approved”, “restricted”, “conditionally approved”, or “conditionally restricted”? If yes, demonstrate that the project meets the requirements of *AH I Section 10.2.5(c)*. **NO**

7. Vertical seawalls. Are vertical seawalls proposed in an estuary or lagoon as part of the project? If yes, please describe how the project meets the requirements of *AH I Section 10.2.6*. **NO**

8. Secondary Impacts (*AH I Section 10.2.7*).

a. Will an upland buffer, with a minimum width of 15' and an average width of 25', be provided between the proposed activities and existing wetlands or wetlands to be preserved, enhanced, restored, or created? Provide the location and dimension of all buffers on the plans. **YES** If not, demonstrate that secondary impacts will not occur or how they will be offset. **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT AND SUBMITTED CONSTRUCTION PLANS**

b. If listed species are present or may be present then coordination with wildlife agencies is needed. Have you coordinated with the FFWCC and/or USFWS? If so, please provide correspondence from the wildlife agencies indicating concurrence with the species management plan(s). **COORDINATION WITH FFWCC AND/OR USFWS WILL BE CONDUCTED ACCORDINGLY.**

c. What measures will be taken to avoid impacts to wetland-dependent wildlife and/or listed species that use uplands for nesting or denning? **NO WETLAND-DEPENDENT LISTED SPECIES**

d. Describe whether there are any other relevant activities that are very closely linked and causally related to any proposed dredging or filling in wetlands or other surface waters that have the potential to cause impacts to significant historical and archaeological resources. **NONE**

e. Are there additional future phases or extensions of the proposed activities that are not shown? If yes, please describe. **NA**

9. Cumulative Impacts. Is the proposed mitigation located within the same drainage basin (*Refer to AH I Figures 10.2.8.1 – 10.2.8.5)* as the proposed wetland impacts? **SEE ATTACHED ENVIRONMENTAL ASSESSMENT/SITE PLAN ANALYSIS REPORT** If not, please submit a Cumulative Impact Evaluation in accordance with *AH I Section 10.2.8*.

10. Mitigation Plan (*Refer to AH I Section 10.3*).

a. If a mitigation bank is proposed to offset wetland/other surface water impacts, provide:

i. the name of the bank: . A letter of reservation from the banker will be required once the application has been evaluated.
ii. If the mitigation bank was assessed using UMAM, provide UMAM worksheets for impact area(s). If the bank was assessed using a method other than UMAM, then prepare the impact assessment using the same method.

b. If mitigation is proposed to offset wetland/other surface water impacts, please provide a mitigation plan that includes, at a minimum, the following:

i. ☐ Proposed mitigation narrative:
   (1) ☐ Describe the current and proposed condition for each type of mitigation component (restoration, enhancement, creation, preservation), including:
      (a) ☐ Describe current and proposed vegetation
      (b) ☐ Describe current and proposed hydrologic conditions for the proposed mitigation.
      (c) ☐ Describe the soil types from NRCS maps and confirm if actual soil conditions appear to match.
   (2) ☐ Provide details of the proposed construction/mitigation activities including phasing and timing, as appropriate.
   (3) ☐ Identify measures that will be implemented during and after construction to avoid adverse impacts related to the proposed activities.
   (4) ☐ A mitigation implementation and monitoring schedule with dates.
   (5) ☐ Identify the success criteria.
   (6) ☐ Describe the anticipated site conditions in and around the mitigation area after the mitigation plan is successfully implemented.
   (7) ☐ Provide a comparison of current fish and wildlife habitat to expected habitat after the mitigation plan is successfully implemented.

ii. ☐ Provide a Management Plan that includes, as appropriate, aspects of operation and maintenance, including water management practices, vegetation establishment, exotic and nuisance species control, fire management, and control of access.

iii. ☐ Maps:
   (1) ☐ Soil map (include soil names/codes, hydrologic soil groups and hydric soil types).
   (2) ☐ Topographic map of the mitigation area and adjacent contributing and receiving areas.
   (3) ☐ Hydrologic features map of the mitigation area and adjacent contributing and receiving areas.
   (4) ☐ Vegetative communities map (using FLUCCS or other appropriate classification system).
   (5) ☐ For all maps, indentify source.

iv. Provide the necessary supporting information for the application of sections 62-345.400 - .600 (Uniform Mitigation Assessment Method (UMAM)). To meet this requirement, submittal of UMAM worksheets is acceptable for impact and mitigation areas.

v. If onsite and/or offsite applicant-responsible mitigation is proposed, submit a draft Conservation Easement document or other form of restrictive covenant that provides for protection of the mitigation area in perpetuity. Standard forms, as described in subsection 62-330.301(6), F.A.C., are available from the Agency or on its website.

vi. If onsite and/or offsite applicant-responsible mitigation is proposed, submit a cost estimate for completing the mitigation, including monitoring and maintenance.

vii. If onsite and/or offsite applicant-responsible mitigation is proposed and the proposed mitigation exceeds $25,000, please provide a draft financial assurance document.

viii. Identify the entity responsible for monitoring, maintenance and long-term stewardship of the mitigation area (i.e. the landowner or homeowner association, not the consultant or contractor that will do the work).

PART 3: PLANS

PLANS: The information listed in the checklist below represent the typical information required on the submitted project plans. The Plans checklists in each application section are cumulative unless otherwise noted. Separate plans for each application section are not required.

1. ☒ Include the following on the construction plans and cross sections:

   a. ☐ An Existing Conditions sheet showing the entire project and wetland/other surface water boundaries. Include the following: Acreage and type (herbaceous, forested or other surface water) of each wetland/other surface water.
   b. ☐ A Proposed Conditions sheet showing the entire project and wetland/other surface water boundaries with construction plan overlay.
   c. ☐ A Proposed Wetland Impact sheet that include the following:
      i. ☐ Acreage and type (herbaceous, forested or other surface water) of each wetland/other surface water to be impacted.
      ii. ☐ Proposed upland buffers with dimensions.
      iii. ☐ Identify the seasonal high water and wetland normal pool elevations on the plans.
      iv. ☐ Separately identify WMD/FDEP and USACE wetland/other surface water impacts if different.
   d. ☐ Include wetland boundaries on all construction plan sheets.

2. ☐ If onsite and/or offsite applicant-responsible mitigation is proposed, submit mitigation permit plans and cross sections including, at a minimum:

   a. ☐ existing conditions plan sheet identifying upland and wetland communities and acreage of each, topography, drainage patterns, and location of cross-section detail.
   b. ☐ proposed conditions plan sheet identifying proposed improvements by type (restoration, enhancement, creation, preservation), acreage of each, topography, drainage patterns, and location of cross-section detail.
   c. ☐ monitoring plan sheet including proposed improvements, monitoring transects, photostations, and mitigation signage (if applicable).
   d. ☐ cross-section and/or profile detail(s) sheet(s) including representative section of each type of mitigation component. Include existing and proposed conditions and representative elevations.
   e. ☐ planting schedule, plant species including common and scientific names divided into three sections (canopy, shrub, herbaceous) by mitigation component, quantity, spacing, size, and elevation range.

TABLE 1 - PROJECT WETLAND (WL) AND OTHER SURFACE WATER (SW) AND IMPACT SUMMARY

SEE ATTACHED TABLES WITHIN EA-ERP SUBMITTAL PACKAGE

WL & SW ID	UMAM ASSESSMENT AREA NAME(S)	WL & SW TYPE	WL & SW SIZE (acres)	WL & SW NOT IMPACTED (acres)	TEMPORARY WL & SW IMPACTS		PERMANENT WL & SW IMPACTS		MITIGATION ID
					IMPACT SIZE (acres)	IMPACT TYPE	IMPACT SIZE (acres)	IMPACT TYPE	
PROJECT TOTALS:									

Comments:

Codes (multiple entries per cell not allowed):

- Wetland & Surface Water ID: Include ID on submitted wetland and surface water impact maps
- Wetland Type: from an established wetland classification system

- Impact Type: D=dredge; F=fill; H=change hydrology; S=shading; C=clearing; O=other

TABLE 2 - PROJECT ON-SITE MITIGATION SUMMARY **SEE ATTACHED TABLES WITHIN EA-ERP SUBMITTAL PACKAGE**

MITIGATION ID	UMAM ASSESSMENT AREA NAME(S)	TARGET TYPE	CREATION	RESTORATION	ENHANCEMENT	WETLAND PRESERVE	UPLAND PRESERVE	OTHER
			AREA (acres)	AREA (acres)	AREA (acres)	AREA (acres)	AREA (acres)	AREA (acres)
PROJECT TOTALS								

COMMENTS:

Codes (multiple entries per cell not allowed):

- Target Type or Type=target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation

TABLE 3 - PROJECT OFF-SITE MITIGATION SUMMARY **SEE ATTACHED TABLES WITHIN EA-ERP SUBMITTAL PACKAGE**

MITIGATION ID	UMAM ASSESSMENT AREA NAME(S)	TARGET TYPE	CREATION	RESTORATION	ENHANCEMENT	WETLAND PRESERVE	UPLAND PRESERVE	OTHER
			AREA (acres)	AREA (acres)	AREA (acres)	AREA (acres)	AREA (acres)	AREA (acres)
PROJECT TOTALS								

COMMENTS:

Codes (multiple entries per cell not allowed):

- Target Type or Type=target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation

TABLE 4 - SHORELINE STABILIZATION

Stabilization	Linear Ft. New	Linear Ft. Replaced	Linear Ft. Repaired	Linear Ft. Removed	Slope H: V:	Toe Width (Ft.)
Natural Vegetation (living shoreline)					**N/A**	**N/A**
Rip Rap + Vegetation						
Rip Rap						
Seawall + Rip Rap						
Vertical Seawall						
Other Shoreline Stabilization Type						

Size of Rip Rap _____

Type of Rip Rap _____

TABLE 1. PROJECT WETLAND (WL) AND OTHER SURFACE WATER (SW) SUMMARY

WL & SW ID	WL & SW TYPE	WL & SW SIZE	WL & SW NOT IMPACTED	TEMPORARY WL & SW IMPACTS			PERMANENT WL & SW IMPACTS			MITIGATION ID
				WL & SW TYPE	IMPACT SIZE	IMPACT CODE	WL & SW TYPE	IMPACT SIZE	IMPACT CODE	
W-1	**640**	**0.35**	**0.35**							
SW-1	**524**	**0.81**	**0.81**							
PROJECT TOTALS		**1.16**	**1.16**		**0.00**			**0.00**		

Comments: FLUCFCS - Florida Land Use, Cover and Forms Classification System

CODES (multiple entries per cell not allowed):
Wetland Type: from an established wetland classification system (see Section E, 111b.)
Impact Type: D=dredge; F=fill; H=change hydrology; S=shading; C=clearing; O=other

Reviewer: _____

FORM NUMBER 40C-4.900(1)

TABLE 2: PROJECT ON-SITE MITIGATION SUMMARY

MITIGATION ID	CREATION		RESTORATION		ENHANCEMENT		WETLAND PRESERVATION		UPLAND PRESERVATION		OTHER	
	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TYPE	AREA	TARGET	AREA	TARGET
PROJECT TOTALS:	0		0		0		0		0		0	

Comments:

CODES (multiple entries per cell not allowed):
Target Type or Type = target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation
Impact Type: D=dredge; F=fill; H=change hydrology; S=shading; C=clearing; O=other

Reviewer: _____

TABLE 3: PROJECT OFF-SITE MITIGATION SUMMARY

MITIGATION ID	CREATION		RESTORATION		ENHANCEMENT		WETLAND PRESERVATION		UPLAND PRESERVATION		OTHER	
	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TYPE	AREA	TARGET	AREA	TARGET
PROJECT TOTALS:	0		0		0		0		0		0	

Comments:

CODES (multiple entries per cell not allowed):
Target Type or Type = target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation
Impact Type: D=dredge; F=fill; H=change hydrology; S=shading; C=clearing; O=other

Reviewer: _____