Rik Kowall, Supervisor
Anthony L. Noble, Clerk
Mike Roman, Treasurer

Trustees
Scott Ruggles
Steve Anderson
Andrea C. Voorheis
Liz Fessler Smith

PLANNING COMMISSION MEETING

LOCATION: TOWNSHIP ANNEX, 7527 HIGHLAND ROAD, WHITE LAKE, MI 48383
THURSDAY, SEPTEMBER 17, 2026 – 6:30 PM

White Lake Township | 7525 Highland Rd | White Lake, MI 48383 | Phone: (248) 698-3300 | www.whitelaketwp.com

AGENDA

1. **CALL TO ORDER**
2. **ROLL CALL**
3. **PLEDGE OF ALLEGIANCE**
4. **APPROVAL OF AGENDA**
5. **APPROVAL OF MINUTES**
   A. August 20, 2026
6. **CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)**
7. **PUBLIC HEARING**
8. **CONTINUING BUSINESS**
   A. Edendale Crossing
   located on the northwest corner of Bogie Lake Road and Cedar Island Road. Identified as parcel IDs:12-29-476-016 thru 12-29-476-024. Consisting of approximately 45.7 acres. Currently zoned as PD (Planned Development).
   Applicant: PH Communities, LLC
   Request: 1. Consideration of Final Site Plan Approval
   2. Consideration of Planned Development Agreement

   B. BP Gas Station - 8320 Highland Rd
   Location: 8320 Highland Road, White Lake, MI 48386. The property is currently zoned GB (General Development). Identified as parcel number 12-13-454-019.
   Request: **Special Land Use Approval**

   C. Discussion of the 2027-2032 Capital Improvement Plan (CIP)
   1. Discussion of Parks
   2. Discussion of Fire Department
9. **NEW BUSINESS**
   A. Conceptual Discussion for Sunset Cove Lakefront Condominium
   located at 8300 Pontiac Lake Rd. Identified as parcel ID: 12-13-451-011. Consisting of approximately 3.31 acres. Currently zoned as PG (Pontiac Gateway).
   Applicant: Michael Zeer
10. **LIAISON'S REPORT**
11. **PLANNING CONSULTANT'S REPORT**
12. **DIRECTOR'S REPORT**
13. **OTHER BUSINESS**
14. **COMMUNICATIONS**
15. **NEXT MEETING DATE: October 1, 2026**
16. **ADJOURNMENT**

Procedures for accommodations for persons with disabilities: The Township will follow its normal procedures for individuals with disabilities needing accommodations for effective participation in

this meeting. Please contact the Township Clerk's office at (248) 698-3300 X-7 at least five days in advance of the meeting. An attempt will be made to provide reasonable accommodations.

WHITE LAKE TOWNSHIP
PLANNING COMMISSION
AUGUST 20, 2026

CALL TO ORDER
Commissioner Carlock called the meeting to order at 6:30 P.M. She then led the Pledge of Allegiance.

ROLL CALL
Present:
Mona Sevic
T. Joseph Seward
Pete Meagher
Robert Seeley, Vice Chair
Scott Ruggles, Township Board Liaison
Merrie Carlock, Chairperson
Debby Dehart

Others:
Sean O'Neil, Community Development Director
David Waligora, Senior Planner
Hannah Kennedy-Galley, Recording Secretary

APPROVAL OF AGENDA

It was MOVED by Commissioner Seward, seconded by Commissioner Seeley to approve the agenda as presented. The motion carried with a voice vote: (7 yes votes).

APPROVAL OF MINUTES

A. August 6, 2026

It was MOVED by Commissioner Seward, seconded by Commissioner Dehart to approve the minutes as presented. The motion carried with a voice vote: (7 yes votes).

CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)
None.

PUBLIC HEARING

A. BP Gas Station - 8320 Highland Rd
Location: 8320 Highland Road, White Lake, MI 48386. The property is currently zoned GB (General Development). Identified as parcel number 12-13-454-019.
Request: **Special Land Use Approval**

Senior Planner Waligora shared his review of the site with the Planning Commission. He mentioned there will be heightened noise due to the fast EV chargers.

Evan Shimkus, 102 Shore Lane, stated that he did not believe the chargers would increase noise

DRAFT

pollution. He said he was comfortable with shutting off the chargers during nighttime hours at this time until an acoustical study was done to determine night time decibel use. He added one light will be added to the current site, the screens above the chargers will be black to dim light pollution. Mr. Shimkus added that he would not be able to relocate the chargers due to the diesel line. An easement with DTE has been prepared and executed as well for the replacement of the transformer.

Chairperson Carlock opened the public hearing at 7:58 P.M.

Tracy McDonald, 8329 Pontiac Lake Road, stated he owns the house directly behind the gas station. His daughter lives in the house now, and he is not in favor of the chargers being on 24/7. He stated the fence that separates the property has been in disrepair for years, and he has been the one to fix it. He wanted to see a masonry wall as a screening in between the properties. He expressed concern about the noise in addition to the current noise of the gas station's HVAC units.

Caitlyn McDonald, 8329 Pontiac Lake Road, shared concern about the chargers being on without the gas station being open.

Mary Earley, 5925 Pine Ridge Court, questioned the need for four EV chargers. She suggested eliminating the two bordering the residential property.

Chairperson Carlock closed the public hearing at 7:08 P.M.

Commissioner Seeley suggested relocating the chargers to the west side of the property. Mr. Shimkus said there are fueling points near there, and he preferred to be away from them.

It was MOVED by Commissioner Seeley, seconded by Commissioner Sevic table the special land use request for the BP gas station at 8320 Highland Road, (parcel number 12-13-454-019), to gather further information from a sound expert and for said expert to be present at the next meeting this request is considered at, to study alternate charger locations and to improve the landscaping and buffering on the residential property line. The motion carried with a roll call vote: (7 yes votes) (Sevic/yes, Ruggles/yes, Seward/yes, Carlock/yes, Dehart/yes, Seeley/yes, Meagher/yes).

CONTINUING BUSINESS

None

NEW BUSINESS

A. <u>Review of the 2027-2032 draft Capital Improvement Plan (CIP)</u>

Senior Planner Waligora reviewed the changes and additions to this year's CIP.

LIAISON'S REPORT

Commissioner Ruggles updated the Planning Commission on Tuesday's Board meeting. Commissioner

Carlock shared Parks and Rec met last month to discuss Stanley Park and park operations.

DIRECTOR'S REPORT

Director O'Neil said the new buildings are getting closer to completion. The tentative move in dates would be somewhere in October and November, for Public Safety and Township Hall, respectfully.

OTHER BUSINESS

None.

COMMUNICATIONS

None.

NEXT MEETING DATE: September 3, 2026

ADJOURNMENT

It was MOVED by Commissioner Seeley, seconded by Chairperson Carlock, to adjourn at 8:12 P.M. The motion carried with a voice vote: (7 yes votes).

Director's Report

Project Name: Edendale

Description: Final Site Plan Approval

Date on Agenda this packet pertains to: September 17, 2026

☐Public Hearing

☐Initial Submittal

☐Revised Plans

☐Preliminary Approval

☒Final Site Plan Approval

☐Special Land Use

☐Planned Development Agreement

☐Other:

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Community Development Director	☐	☐	☐	☒	Based on comments from staff & consultants
Mike Leuffgen	DLZ	☐	☐	☒	☐	See letter dated 5/4/2026
Matteo Passalacqua	Carlisle Wortman Associates, Inc	☐	☐	☒	☐	See letter dated 5/4/2026
Jason Hanifen	WLT Fire Marshal	☒	☐	☐	☐	See letter dated

J EPPINK
PARTNERS INC
Traditional Town Planning
Landscape Architecture

27 S. Squirrel – Ste 104
Auburn Hills, MI 48326
248 922 0789 - t

April 10, 2026

Mr. Sean O'Neil
Community Development Director
White Lake Township
7525 Highland Road
White Lake Township, Michigan 48383

RE: Edendale Crossing
Final Site Plan Submission

Dear Mr. O'Neil:

On behalf of PH Homes, we are pleased to submit the attached final site plan submission documents for the proposed Edendale Crossing neighborhood.

The White Lake Township Board of Trustees approved the preliminary site plan and rezoning of the property to Planned Development (PD) at their March 17, 2026, meeting. That approval established the neighborhood's layout, lot sizes, number of homes, recreation spaces, pathway connections, and associated components of the site plan. Included within this submission are detailed designs that meet the requirements for Final Site Plan as well as clarification of points identified in past DLZ, Carlisle Wortman, and department reviews.

We appreciate the opportunity to work with the Township's planning and engineering departments in the review and processing of the final site plan submission for Edendale Crossing. Please let us know what additional information is needed for your review.

Sincerely,

President, J EPPINK PARTNERS, INC

Carlisle Wortman Assoc review dated December 18, 2025: items addressed.

Phasing:	Sheet C3: Phase 1 = units 1 – 60. Phase 2 = units 61 – 115
Existing Trees:	Sheet L2: 128 existing trees surveyed to remain in addition to existing natural vegetation. Table added to plans.
School pathway:	Sheet 17: A sidewalk extending to school property is depicted. Its final connection point within the school property will be determined by and coordinated with the school facilities department.
Draft Development Agreement:	PH Homes will work in coordination with White Lake Twp to draft development agreement. The Twp will initiate that process during this final site plan stage.
Development Setbacks:	Sheet C3: Front: The minimum front setback from Bogie Lake Road shall be no less than 130' from the right-of-way to the adjacent unit lot line. The minimum front setback from Cedar Island Road shall be no less than 25' from the right-of-way to the unit lot line on units 63, 64, 65, & 66, and shall be no less than 45' on units 54 - 62. Rear: 0' at the west parcel line and 0' at the north parcel line as approved by the Twp Board.
Road Access Points:	PH Homes will coordinate final approval from RCOC for all access points and improvements, as depicted for Bogie Lake Road and Cedar Island Road. (RCOC jurisdiction. No waiver required)
Road Width:	The boulevard exit drive widths are adjusted to 22' minimum. (waiver not requested)
Pathway locations:	Exterior pathways have been adjusted to ensure that they sit within the public right-of-ways.
Perimeter Landscaping:	North: preservation of 56 existing trees & vegetation (waiver requested) East: 32 trees + 186 shrubs (no waiver required) South: 80 trees + 369 shrubs (no waiver required) West: no proposed trees adjacent to ITC corridor (waiver requested)
Landscape Requirements:	Sheet L2: Entranceway landscape calculations added
Landscape at pump station:	Sheet L1: The pump station has been moved south away from the property line. Existing vegetation will remain and new trees are proposed. Most of the equipment is below ground and not visible.
Corner lot width:	The Twp Board approved the site layout and lot sizes which includes seven corner sites with the following sizes: #34 = 77', #37 = 77', #52 = 84', #54 = 77', #96 = 78', #102 = 78', #111 = 78' (no waiver required)

DLZ Engineering review letter dated January 8, 2026: items addressed.

Phasing:	There are now 115 homes with two phases: 1 – 60 and 61-115.
Sheet 19 note:	Former location for school crossing note has been removed.
School Pathway:	Sheet 17: A sidewalk extending to school property is depicted. Its final connection point within the school property will be determined by and coordinated with the school facilities department.
Grading:	Final proposed grades and contours have been added to the plans including in the area north of units 19 – 24.
Fire Truck Turning:	Sheet 5 & 9. Small central island has been adjusted.
Entrance road width:	The boulevard exit drive widths are adjusted to 22' minimum.
Hydrant locations:	Fire hydrants have been shifted to provide coverage.
Cedar Island utility extension:	The Township Board has approved the preliminary site plan including the acknowledgement that utilities will not be extend west on Cedar Island Road beyond the proposed entrance drive. (water & sanitary)
Stormwater calculations:	100-year basin calculations have been revised and are provided on Sheet 11

Fire Department review dated January 7, 2026: items addressed.

Turning radius:	Turning radius' have been added to the submission documents to ensure proper movement for a 40' fire department apparatus.

SITE PLAN

"Edendale Crossing"

SITE CONDOMINIUM

PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E,
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN,

NOTE:
THE CONDOMINIUM ASSOCIATION WILL BE RESPONSIBLE
FOR MAINTAINING THE STORM SEWER SYSTEM

ENGINEER & SURVEYOR

KIEFT ENGINEERING, INC.
5852 SOUTH MAIN STREET, STE 1
CLARKSTON, MICHIGAN 48346
Phone (248) 625–5251
Fax # (248) 625–7110
Attn: Patrick McWilliams
Email: pmcwilliams@kiefteng.com

Patrick C. McWilliams
STATE OF MICHIGAN
PATRICK COLIN McWILLIAMS
LICENSE NO. 62010316 58
LICENSED PROFESSIONAL ENGINEER

PROPRIETOR/BUILDER

PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
Phone (248) 242–6838
Contact: Craig Piasecki
Email: craigp@myphhome.com

PROPERTY DESCRIPTION

PARCELS 12-29-476-016 thru 12-29-476-024:

PROPOSED PARCEL COMBINATION DESCRIPTION:
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS: BEGINNING AT POINT ON THE SOUTH LINE OF SAID SECTION 29, SAID LINE ALSO BEING THE CENTERLINE OF CEDAR ISLAND ROAD, VARIABLE WIDTH, LOCATED S 89°50'00" W 244.18 FEET ALONG SAID SOUTH LINE FROM THE SOUTHEAST CORNER OF SECTION 29, T3N, R8E; THENCE CONTINUING ALONG SAID SOUTH LINE S 89°50'00" W 1379.73 FEET; THENCE N 01°23'00" E 1297.00 FEET; THENCE S 89°55'52" E 1609.36 FEET TO THE EAST LINE OF SAID SECTION 29, SAID EAST LINE ALSO BEING THE CENTERLINE OF BOGIE LAKE ROAD, VARIABLE WIDTH; THENCE ALONG SAID EAST LINE S 00°44'40" W 809.90 FEET; THENCE S 84°04'15" W 226.85 FEET; THENCE S 03°06'02" W 458.08 FEET TO SAID SOUTH LINE OF SECTION 29 AND TO THE POINT OF BEGINNING. CONTAINING 45.47 ACRES. SUBJECT TO RIGHTS-OF-WAY FOR CEDAR ISLAND AND BOGIE LAKE ROADS. ALSO SUBJECT TO ANY OTHER RIGHTS-OF-WAYS, RESTRICTIONS AND EASEMENTS OF RECORD.

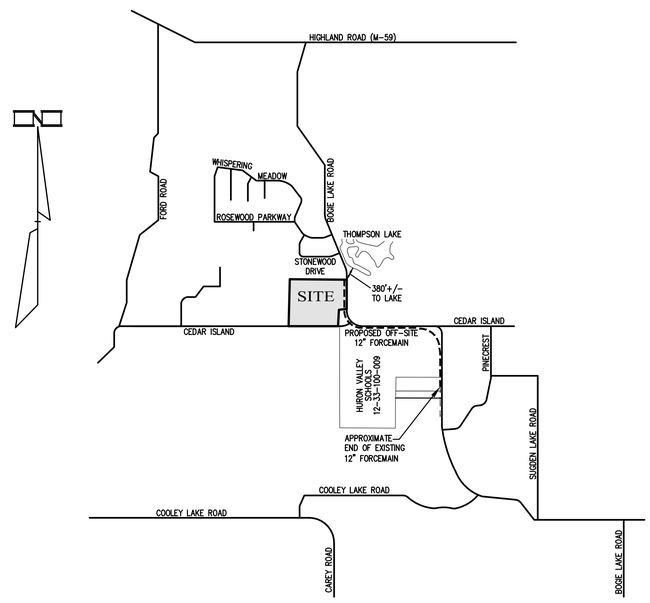
URBAN DESIGN & LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
27 S. Squirrel Road, Ste 104
Auburn Hills, MI 48326
248-922-0789

NOTES:

"THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT".

-GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SOIL EROSION CONTROLS.



LOCATION MAP

SCALE: 1" = 2000'

SHEET INDEX

1	COVER SHEET
FSP1	FINAL SITE PLAN SUMMARY
2	EXISTING CONDITIONS PLAN – OVERALL
3	OVERALL SITE PLAN & NOTES
4	SITE PLAN – NORTHEAST
5	SITE PLAN – SOUTHEAST
6	SITE PLAN – SOUTHWEST
7	SITE PLAN – NORTHWEST
8	BOGIE LAKE ROAD ENTRANCE PLAN
9	CEDAR ISLAND ENTRANCE PLAN
10	OFF-SITE STORM SEWER OUTLET PLAN & PRETREATMENT STRUCTURES
11	DETENTION BASIN CALCULATIONS & DETAILS
12	OFF-SITE SANITARY FORCEMAIN PLAN – OVERALL
13	OFF-SITESANITARY FORCEMAIN PLAN – SOUTH CONNECTION
14	OFF-SITE SANITARY FORCEMAIN PLAN
15	OFF-SITE SANITARY FORCEMAIN PLAN
16	OFF-SITE SANITARY FORCEMAIN PLAN
17	OFF-SITE SANITARY FORCEMAIN PLAN
18	OFF-SITE SANITARY FORCEMAIN PLAN – NORTH PUMP STATION & TREE CHART
19	CEDAR ISLAND ROAD & WHITE LAKE MIDDLE SCHOOL SIDEWALK PLAN
L1	COMMON AREA LANDSCAPE PLAN
L2	LANDSCAPE PLAN – ENTRANCE & SCREENING AREAS
L3	LANDSCAPE PLAN – ENTRANCE & SCREENING AREAS
L4	LANDSCAPE DETAILS AND PLANT LIST
A1	ARCHITECTURE

REVISION INDEX

REV. #	DESCRIPTION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	PER DLZ (8–26–2025)	9–19–2025	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	PER RCOC MTG (10–27–2025) PER DLZ (10–15–25)	10–29–2025	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	PER CLIENT/PLANNER (11–7–2025)	11–12–2025	X		X	X	X	X	X	X	X	X							X		X
4	PER P.C. MEETING (12–4–25), & CLIENT (12–12–2025)	12–18–2025	X		X	X	X	X	X	X	X	X							X		X
5	PER TOWNSHIP BOARD MEETING (2–17–26) & DLZ (1–8–26)	3–23–2026	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

DATE: 7–2–2025
SHEET 1 OF 19
KE 2025.010

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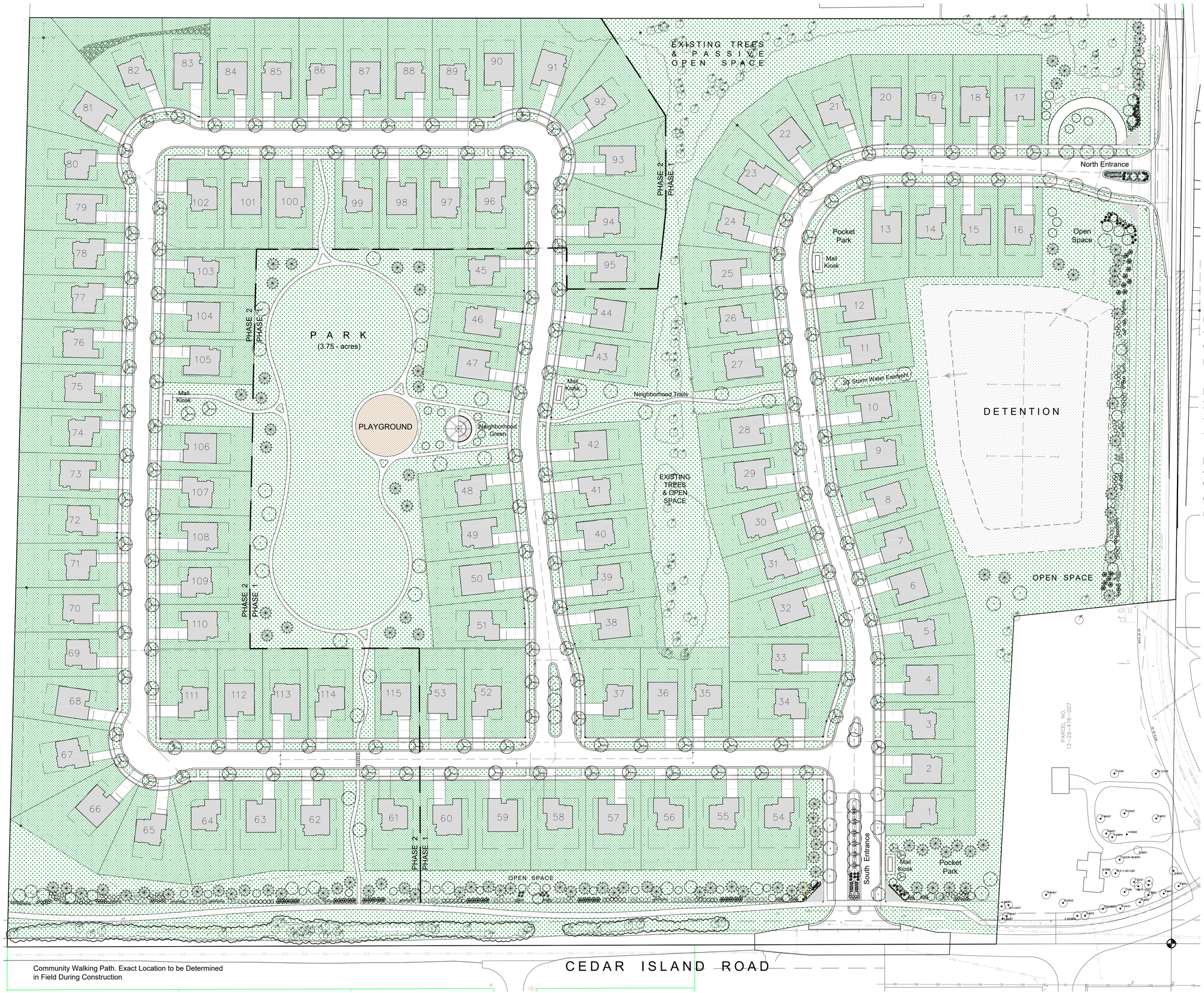

Community Walking Path. Exact Location to be Determined in Field During Construction

SITE DATA

Parcel Size :	45.47 acres Gross
Parcel Size :	36.02 acres Net
Zoning :	PD (Planned Dev.)
Proposed Density :	115 Residences 3.13 DU / NET AC (Total Site area less road easements, detention, & utility easements 45.47 ac - 9.45 ac = 36.02 ac / 115 = 3.13)
Phase 1 :	Units 1 - 60
Phase 2 :	Units 61 - 115
Proposed Open Space :	10.21 acres 28.4% Open Space

Roads: 60' ROW (28' back of curb)

See Sheet 3 of 19 "Overall Site Plan & Notes" for site detail

Item A.

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC
Urban Design Studio

Landscape Architecture
Traditional Town Planning

27 Squirrel Road
Suite 104
Auburn Hills, MI 48326
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

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Project:

Edendale Crossing

Bogie Lake Road
White Lake Township, MI

Owner:

PH Homes

8255 Cascade Ave
Suite 110
Commerce Twp, MI 48382
248-242-6838

Sheet:

Final Site Plan Summary

Issues / Revisions

Final Site Plan	04-01-26

Drawn by:

Checked By
JTE

Date
April 1, 2026

Scale
Scale: 1" = 60'

Not for Construction

Sheet
FSP-1

LEGEND

- STORM SEWER
- SANITARY SEWER
- WATERMAIN
- GAS MAIN
- UNDERGROUND ELECTRIC
- STORM MANHOLE
- CATCH BASIN
- INLET
- REARYARD CATCH BASIN
- END SECTION
- SANITARY MANHOLE
- GATE VALVE AND WELL
- HYDRANT
- EXISTING CONTOURS
- OVERHEAD TELE, ELEC, CATV
- POWER POLE
- LIGHT POLE
- GRADE
- SOIL BORING
- EXISTING ASPHALT
- EXISTING CONCRETE
- (R) REMOVE TREE
- DEMOLITION LIMITS

Benchmarks:

BM-1
ARROW OF EXISTING HYDRANT LOCATED 306'+/- SOUTH OF THOMPSON ROAD ON THE WEST SIDE OF BOGIE LAKE ROAD. ELEVATION = 971.63 (NAVD 88)

BM-2
ARROW OF EXISTING HYDRANT LOCATED 450'+/- NORTH OF CEDAR ISLAND ROAD ON THE WEST SIDE OF BOGIE LAKE ROAD. ELEVATION = 983.26 (NAVD 88)

BM-3
MAG NAIL IN NORTH FACE OF POWER POLE LOCATED 50'+/- EAST OF THE NORTH ENTRANCE OF LAKELAND H.S. ON THE SOUTH SIDE OF BOGIE LAKE ROAD. ELEVATION = 981.05 (NAVD 88)

BM-4
ARROW OF EXISTING HYDRANT LOCATED 165'+/- EAST OF THE MIDDLE ENTRANCE OF LAKELAND H.S. ON THE SOUTH SIDE OF BOGIE LAKE ROAD. ELEVATION = 968.44 (NAVD 88)

BM-5
ARROW OF EXISTING HYDRANT LOCATED 80'+/- SOUTH OF FOX N HOUNDS DRIVE ON THE WEST SIDE OF BOGIE LAKE ROAD. ELEVATION = 973.23 (NAVD 88)

BM-6
RR SPIKE IN EAST FACE OF POWER POLE LOCATED 15'+/- SOUTH OF THE SOUTH ENTRANCE OF LAKELAND H.S. ON THE WEST SIDE OF BOGIE LAKE ROAD. ELEVATION = 974.42 (NAVD 88)

PARCELS 12-29-476-016 thru 12-29-476-024:

PROPOSED PARCEL COMBINATION DESCRIPTION:
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS: BEGINNING AT POINT ON THE SOUTH LINE OF SAID SECTION 29, SAID LINE ALSO BEING THE CENTERLINE OF CEDAR ISLAND ROAD, VARIABLE WIDTH, LOCATED S 89°50'00" W 244.18 FEET ALONG SAID SOUTH LINE FROM THE SOUTHEAST CORNER OF SECTION 29, T3N, R8E; THENCE CONTINUING ALONG SAID SOUTH LINE S 89°50'00" W 1379.73 FEET; THENCE N 01°23'00" E 1297.00 FEET; THENCE S 89°55'52" E 1609.36 FEET TO THE EAST LINE OF SAID SECTION 29, SAID EAST LINE ALSO BEING THE CENTERLINE OF BOGIE LAKE ROAD, VARIABLE WIDTH; THENCE ALONG SAID EAST LINE S 00°44'40" W 809.90 FEET; THENCE S 84°04'15" W 226.85 FEET; THENCE S 03°06'02" W 458.08 FEET TO SAID SOUTH LINE OF SECTION 29 AND TO THE POINT OF BEGINNING. CONTAINING 45.47 ACRES. SUBJECT TO RIGHTS-OF-WAY FOR CEDAR ISLAND AND BOGIE LAKE ROADS. ALSO SUBJECT TO ANY OTHER RIGHTS-OF-WAYS, RESTRICTIONS AND EASEMENTS OF RECORD.

STATE OF MICHIGAN
PATRICK COLIN McWILLIAMS
LICENSE NO. 6201031658
LICENSED PROFESSIONAL ENGINEER

DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
10-29-2025	PER BOOK MEETING (10-27-2025) & DLZ (10-15-2025)
2-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

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KIEFT ENGINEERING
KIEFT ENGINEERING, INC.
PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS
5852 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346
PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

DATE 7-2-2025	CKD. BY	DATE	
DRAWN GF			
DESIGN PCM			
SECTION 29	T- 3 -N. R- 8 -E.		

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Existing Conditions Plan - Overall

"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 80'
SHEET 2 OF 19
KE 2025.010

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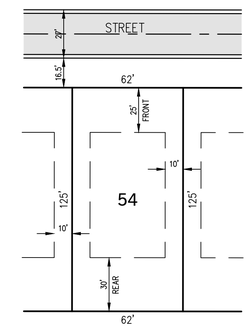
GENERAL NOTES

1) PROPERTY SIDWELL NUMBERS: 12-29-476-016 THRU 12-29-476-024: SITE AREA = 45.47 ACRES
2) ZONING: EXISTING - AG (AGRICULTURAL)
   PROPOSED - PD (PLANNED DEVELOPMENT)
3) PROPOSED USE: SINGLE FAMILY RESIDENTIAL (SITE CONDOMINIUM).
4) MINIMUM UNIT SIZE PROPOSED: 7,750 SF, WIDTH 62 FEET, AVERAGE UNIT SIZE 8,651 SF.
5) PROPOSED SETBACK REQUIREMENTS:
   TOTAL UNITS PROPOSED - 115
   FRONT SETBACK - 25 FT
   REAR SETBACKS - 30 FT
   SIDE YARD SETBACKS - 10 FT (EACH SIDE), 22 FT BETWEEN HOMES.
   ALL UNITS HAVE AT LEAST 62 FT OF FRONTAGE AT THE FRONT 25 FT SETBACK
6) STREETS ARE 60 FOOT WIDE RIGHT-OF-WAY W/23' WIDE ASPHALT WITH 24" MOUNTABLE CONCRETE CURB AND GUTTER (27' WIDE TOTAL)(4,862 LF TOTAL ROAD LENGTH). THE DEVELOPER INTENDS ALL ROADS TO BE PRIVATE.
7) SEWAGE DISPOSAL: TO BE CONNECTED TO ON-SITE PROPOSED PUMP STATION OUT-LETTING TO MUNICIPAL SANITARY FORCEMAIN SYSTEM (5,066 LF) TO BE CONSTRUCTED ALONG BOGIE LAKE ROAD.
8) WATER SUPPLY: AN 8" WATERMAIN IS PROPOSED TO BE CONNECTED TO THE EXISTING 12" MUNICIPAL WATERMAIN ALONG BOGIE LAKE ROAD.
9) PUBLIC UTILITIES (GAS, ELECTRIC, TELEPHONE & CABLE) SHALL BE INSTALLED UNDERGROUND.
10) NO BRUSH OR GRASS CLIPPINGS WILL BE STORED OR DISPOSED OF INTO THE COMMON/PARK AREAS OR DETENTION BASIN.
11) ALL YARD WASTE TO BE REMOVED FROM SITE.
12) PUBLIC SIDEWALKS ARE PROPOSED AS PER EXISTING ORDINANCE REQUIREMENTS.
13) INDIVIDUAL PLOT PLANS AND GRADING SHALL BE PREPARED BY A LICENSED ENGINEER OR SURVEYOR.
14) PROPOSED SITE GRADES SHALL MATCH EXISTING GRADES AT THE PROPERTY LINE WHERE OFF-SITE GRADING RIGHTS DO NOT EXIST.
15) ALL DISTURBED AREAS SHALL BE RE-VEGETATED.
16) DETENTION BASIN SIDE SLOPES SHALL BE LEFT 1 ON 6.
17) REAR AND SIDE-YARD DRAINAGE EASEMENTS WILL BE SHOWN ON THE GRADING PLAN.
18) ALL FINAL ROAD GRADES WILL COMPLY WITH ROAD COMMISSION FOR OAKLAND COUNTY STANDARDS.
19) TYPICAL UNIT COVERAGE: AVERAGE HOUSE FOOTPRINT = 2,400 SF, AVERAGE DRIVEWAY = 500 SF;
   TOTAL UNIT COVERAGE = 2,900 SF
   TYPICAL UNIT COVERAGE (%) = 2,900 SF/8,651 SF = 33.5% (OR LESS).
20) REQUIRED PERMITS/APPROVALS:
   -WHITE LAKE TOWNSHIP - ENGINEERING PLANS APPROVAL
   -O.C.W.R.C. - SOIL EROSION PERMIT
   -O.C.W.R.C. - WATERMAIN APPROVAL
   -O.C.W.R.C. - SANITARY SEWER APPROVAL
   -M.D.E.Q. - WATERMAIN PERMIT
   -M.D.E.Q. - SANITARY SEWER PERMIT
   -M.D.E.Q. - NPDES NOTICE OF COVERAGE PERMIT
   -M.D.E.Q. - WETLANDS STORM DISCHARGE PERMIT TO OFF-SITE LAKE
   -R.C.O.C. - APPROACH & UNDERGROUND PERMITS
21) THERE ARE NO WETLANDS ON THIS SITE.
22) EACH HOME SHALL HAVE A 2 CAR GARAGE AND DRIVEWAYS WHICH WILL ACCOMMODATE THE REQUIRED OFF-STREET PARKING.
23) OFF-SITE IMPROVEMENTS SHALL BECOME PUBLIC.
24) ALL SIDEWALKS MUST COMPLY WITH ADA STANDARDS.
25) NO STREET LIGHTING IS PROPOSED. EXTERIOR LIGHTS SHALL BE INSTALLED ON INDIVIDUAL HOMES.
26) TRASH PICKUP FOR THE HOMES WILL BE CURBSIDE.
27) PARKING IS NOT ALLOWED ON ANY OF THE BOULEVARD ROAD SECTIONS. PARKING IS ALLOWED ON ONE SIDE ONLY (OPPOSITE THE FIRE HYDRANTS/WATERMAIN).
28) FIRE LANES PROVIDED ALONG BOTH ROADS (27' WIDE).
29) INDIVIDUAL HOME ADDRESSES SHALL BE 6" MINIMUM.
30) STORM SEWER & STORM WATER MANAGEMENT SYSTEM SHALL BE OWNED, OPERATED & MAINTAINED REGULARLY BY THE CONDOMINIUM ASSOCIATION.
31) SINCE ALL PROPOSED HOMES WILL BE SINGLE FAMILY DETACHED HOUSING, THERE COULD BE MANY DIFFERENT TYPES & STYLES OF HOMES. REQUIREMENTS SUCH AS BUILDING MATERIALS & SIZING WILL BE PROVIDED WITHIN FUTURE CONDOMINIUM DOCUMENT.
32) THIS DEVELOPMENT IS PROPOSED TO BE RECORDED AS A CONDOMINIUM UNDER THE CURRENT RULES OF THE MICHIGAN CONDOMINIUM ACT.
33) LANDSCAPE PLAN PREPARED BY J. EPPINK PARTNERS, INC.
34) TWO PROJECT SIGNS WILL BE PROVIDED. SIGN DETAILS WILL BE SUBMITTED BY OTHERS.
35) THIS PROJECT DOES NOT LIE WITHIN THE 100 YEAR FLOOD PLAIN.
36) THERE WILL BE A 10 FT WIDE PRIVATE EASEMENT FOR PUBLIC UTILITIES GRANTED TO THE UTILITY COMPANIES. THERE WILL BE A 20 FT WIDE EASEMENT FOR SANITARY SEWER GRANTED TO WHITE LAKE TOWNSHIP AND CENTERED ON THE UTILITY AS SHOWN. THERE WILL BE A 20 FT WIDE EASEMENT FOR STORM SEWER CENTERED ON THE UTILITY AS SHOWN. THERE WILL BE A 20 FT WIDE EASEMENT FOR WATERMAIN GRANTED TO WHITE LAKE TOWNSHIP.



TYPICAL MINIMUM LOT

LEGEND

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	WATERMAIN	
GAS	GAS MAIN	GAS
E	ELEC. TELE. CABLE	E
OH	OVERHEAD WIRES	OH
	STORM MANHOLE	
	CATCH BASIN	
	INLET	
	REARYARD CATCH BASIN	
	END SECTION	
	SANITARY MANHOLE	
	GATE VALVE AND WELL	
	HYDRANT	
970	CONTOURS	(70)
	MATCH ELEVATION	(M)
	TOP OF CURB	T/C
	TOP OF SIDEWALK	T/S
	TOP OF PAVEMENT	T/P
	TOP OF CONCRETE	TC
	TOP OF WALL	T/W
	BOTTOM OF WALL	B/W
	DITCH	D
	TREE PRESERVATION	

STATE OF MICHIGAN PATRICK COLIN McWILLIAMS LICENSE NO. 6201031658 LICENSED PROFESSIONAL ENGINEER

DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
10-29-2025	PER RCOC MEETING (10-27-2025) & DLZ (10-15-2025)
11-12-2025	REVISED PER CLIENT/PLANNER-62' WIDE UNITS (11-7-2025)
12-18-2025	REVISED PER P.C. MEETING (12-4-25) & CLIENT (12-12-25)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

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KIEFT ENGINEERING
KIEFT ENGINEERING, INC.
PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS
5852 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346
PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

DATE 7-2-2025	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Overall Site Plan & Notes
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 80'
SHEET 3 OF 19
KE 2025.010

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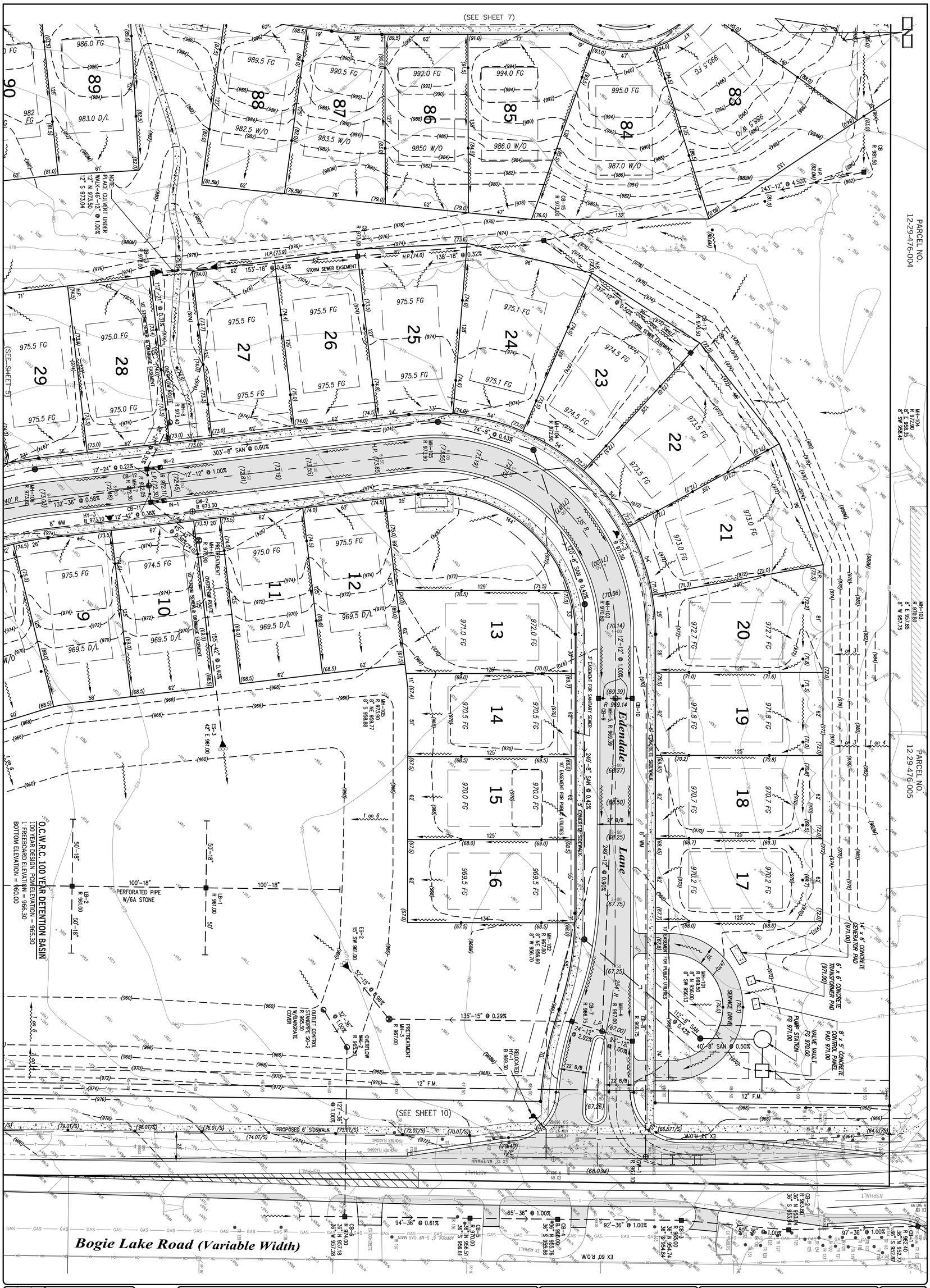

Site/Grading Plan - Northeast

"EDENDALE CROSSING" SITE CONDOMINIUM

PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E

WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

KIEFT ENGINEERING, INC.

PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS

5852 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346

PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

PROPRIETOR:

PH COMMUNITIES, LLC

8255 CASCADE AVENUE, SUITE 110

COMMERCE TOWNSHIP, MICHIGAN 48382

(248) 242-6838

DATE 7-2-2025	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

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DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
10-29-2025	PER BOOC MEETING (10-27-2025) & DLZ (10-15-2025)
11-12-2025	REVISED PER CLIENT/PLANNER - 64' WIDE UNITS (11-7-2025)
12-18-2025	REVISED PER P.C. MEETING (12-4-25) & CLIENT (12-12-25)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

72 HOURS BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

SCALE 1" = 30'

SHEET 4 OF 19

KE 2025.010

STATE OF MICHIGAN PATRICK COLLINS LICENSED PROFESSIONAL ENGINEER NO. 6201031653

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

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DATE	ISSUE
9-26-2025	PER ROW MEETING (10-2-2025)
10-15-2025	PER ROW MEETING (10-15-2025)
11-17-2025	REVISED PER CLIENT/PLANNER-82 WDE UNITS (11-7-2025)
12-12-2025	REVISED PER CLIENT/PLANNER (12-12-2025)
1-26-2026	REVISED PER WORKING SESSION (1-21-2026) & OLW (1-23-2026)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

DATE	CKD. BY	DATE
DATE 7-2-2025		
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N, R- 8 -E	

Site/Grading Plan - Southeast

"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

KIEFT ENGINEERING, INC.
PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS
5352 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346
PHONE (248) 625-5251 FAX (248) 625-7110
www.kiefteng.com

KIEFT ENGINEERING

STATE OF MICHIGAN
PATRICK COLIN McWILLIAMS
LICENSE NO. 6201031658
LICENSED PROFESSIONAL ENGINEER

SCALE	1" = 30'
SHEET	5 OF 19
KE 2025.010	

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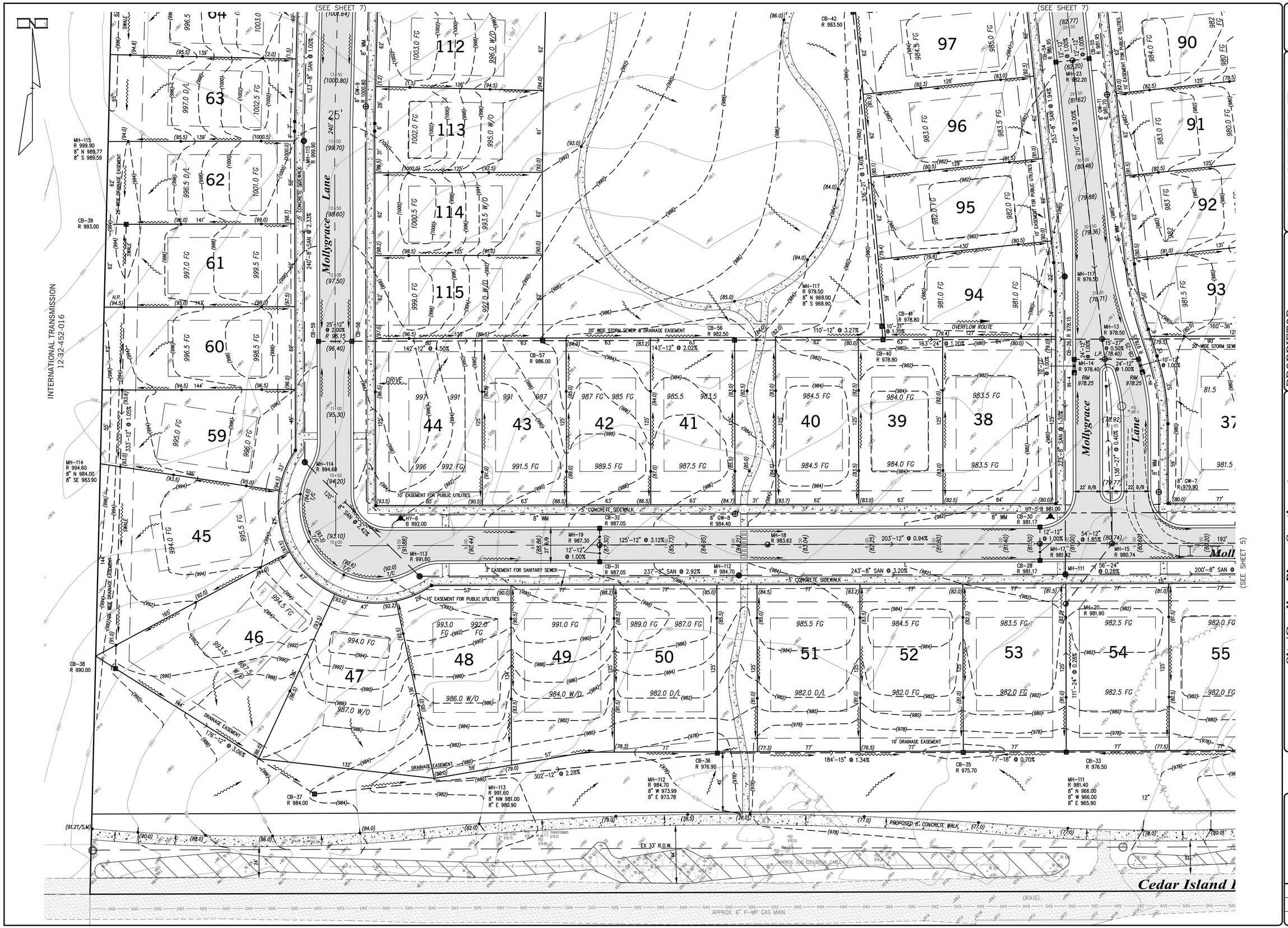
Item A.



72 HOURS
(3 WORKING DAYS)
BEFORE YOU DIG
CALL MISS DIG
(800) 482-7171
OR 811

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DATE	DESCRIPTION
9-25-2025	PER POC MEETING (9-22-2025)
10-17-2025	REVISED PER CLIENT/PLANNER (9-29-2025)
11-12-2025	REVISED PER CLIENT/PLANNER (10-15-2025)
12-12-2025	REVISED PER CLIENT/PLANNER (11-7-2025)
1-26-2026	REVISED PER CLIENT/PLANNER (12-12-2025)
2-18-2026	PER TOWNSHIP REVIEW (2-12-2026) & OLW (1-2-26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

DATE	7-2-2025
DRAWN	GF
DESIGN	PCM
SECTION	29

CKD. BY	DATE

T- 3 -N, R- 8 -E

Site/Grading Plan - Southwest

"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

KIEFT ENGINEERING, INC.
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5452 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346
PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

KIEFT ENGINEERING

STATE OF MICHIGAN
PATRICK COLIN McWILLIAMS
LICENSE NO. 6201031658
LICENSED PROFESSIONAL ENGINEER

SCALE	1" = 30'
SHEET	6 OF 19
KE 2025.010	

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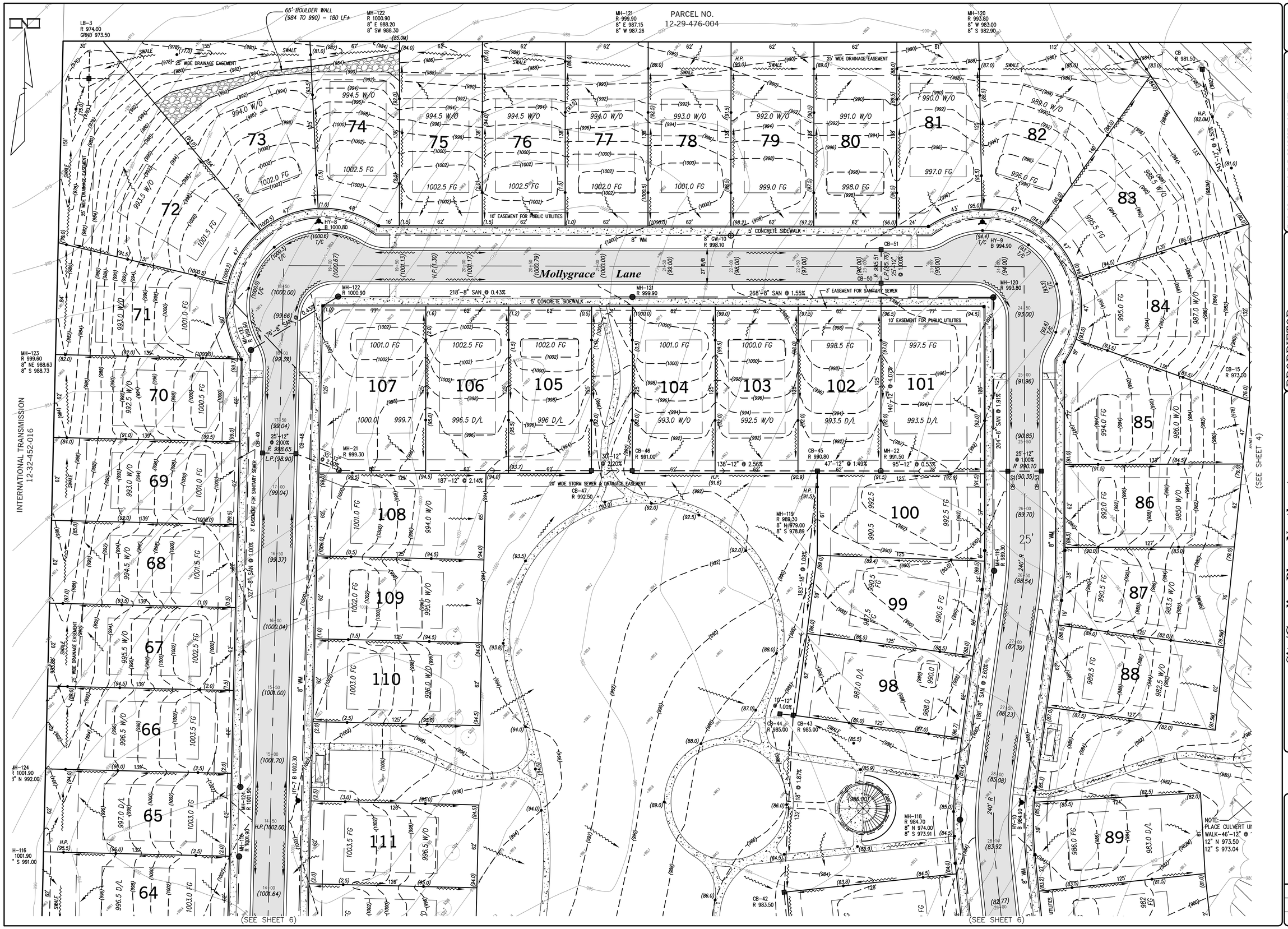

Item A.

72 HOURS
(3 WORKING DAYS)
BEFORE YOU DIG
CALL MISS DIG
(800) 482-7171
OR 811

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ISSUE	DATE
PER DEV. MEETING (10-29-2025)	10-29-2025
PER DEV. MEETING (10-15-2025)	10-15-2025
REVISED PER CLIENT/PLANNER-62 WDE UNITS	11-17-2025
REVISED PER CLIENT/PLANNER-62 WDE UNITS	11-17-2025
PER TOWNSHIP REVIEW (1-5-2026)	1-5-2026
PER TOWNSHIP REVIEW (2-12-2026)	2-12-2026

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

DATE 7-2-2025	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N, R- 8 -E	

Site/Grading Plan - Northeast

"EDENDALE CROSSING" SITE CONDOMINIUM

PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

KIEFT ENGINEERING, INC.
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KIEFT ENGINEERING

STATE OF MICHIGAN
PATRICK COLIN McWILLIAMS
LICENSE NO. 6201031658
LICENSED PROFESSIONAL ENGINEER

SCALE	1" = 30'
SHEET	7 OF 19
KE 2025.010	

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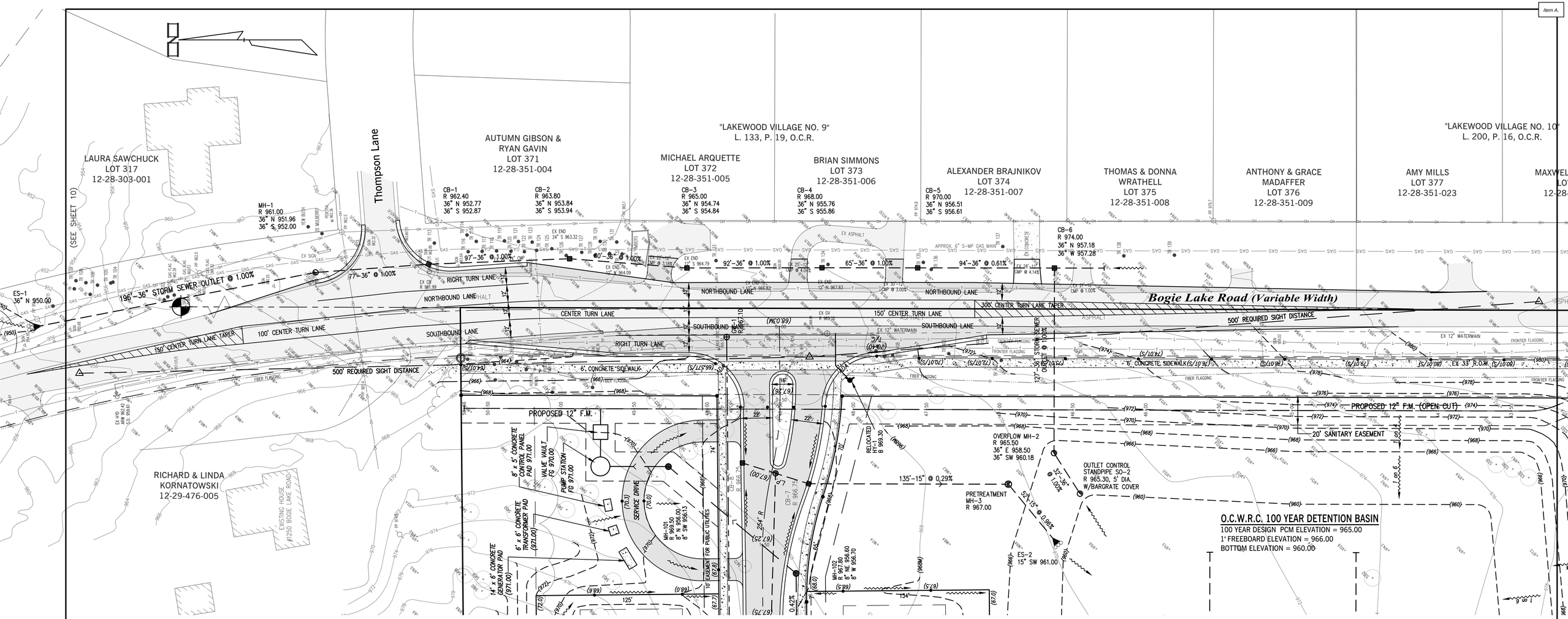

DATE	ISSUE
10-29-2025	PER RCOC MEETING (10-27-2025) & DLZ (10-15-2025)
11-12-2025	REVISED PER CLIENT/PLANNER-62' WIDE UNITS (11-7-2025)
12-18-2025	REVISED PER P.C. MEETING (12-4-25) & CLIENT (12-12-25)
2-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
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COMMERCE TOWNSHIP, MICHIGAN 48382
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DATE	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Bogie Lake Road Entrance Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 8 OF 19
KE 2025.016

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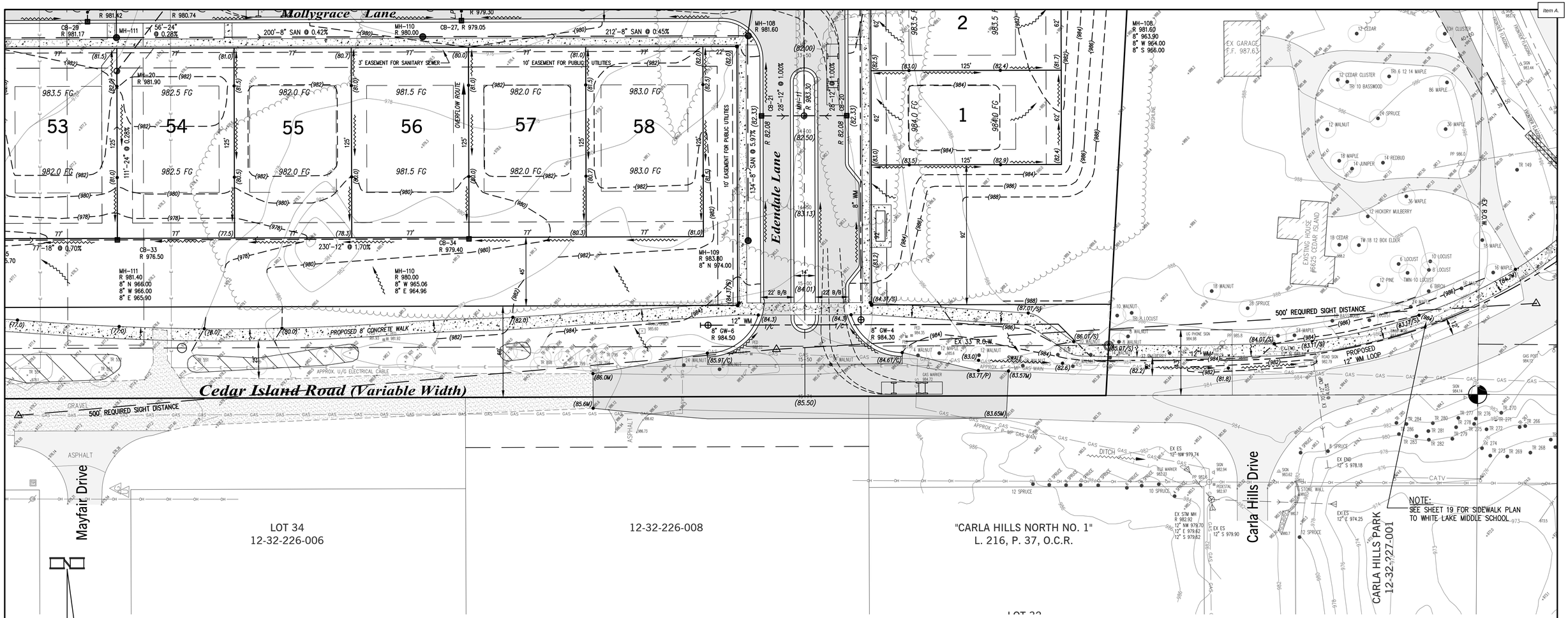

DATE	ISSUE
10-29-2025	PER RCOC MEETING (10-27-2025) & DLZ (10-15-2025)
11-12-2025	REVISED PER CLIENT/PLANNER-62' WIDE UNITS (11-7-2025)
12-18-2025	REVISED PER PC MEETING (12-4-25) & CLIENT (12-12-25)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

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PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

DATE	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Cedar Island Entrance Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 9 OF 19
KE 2025.010

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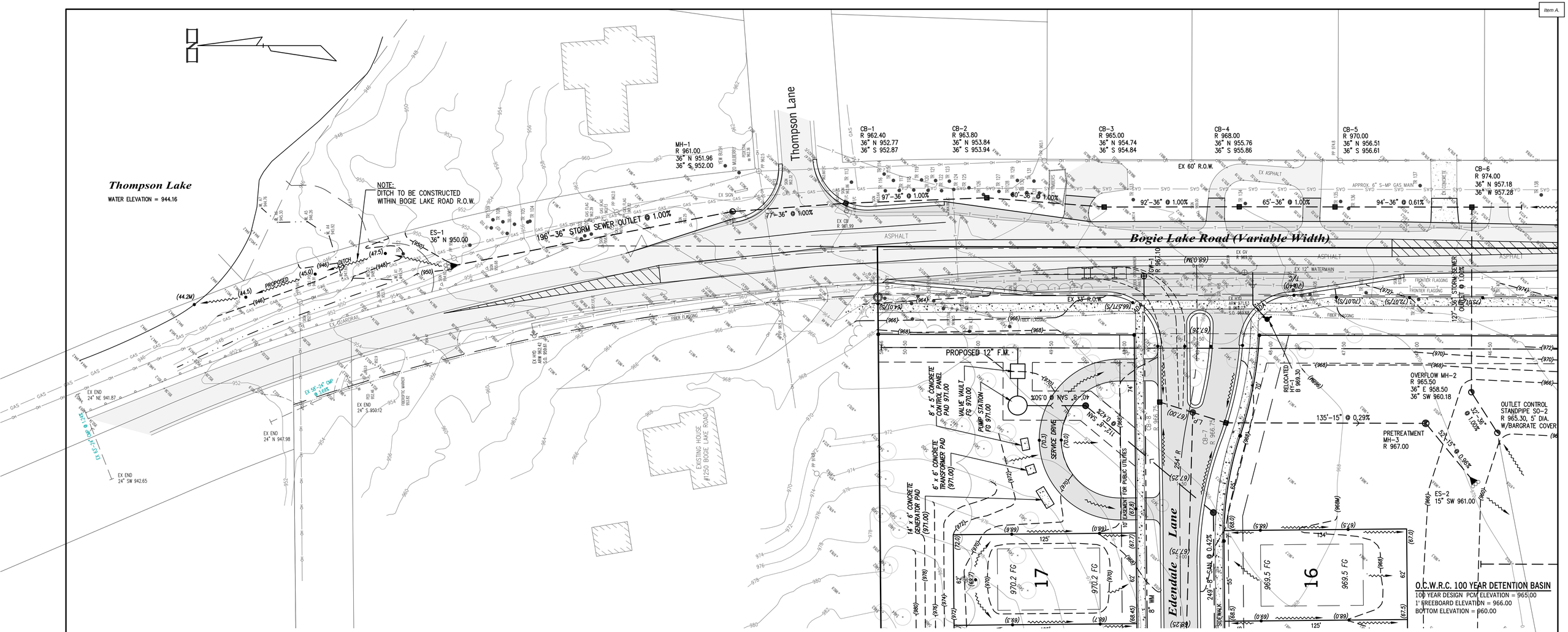
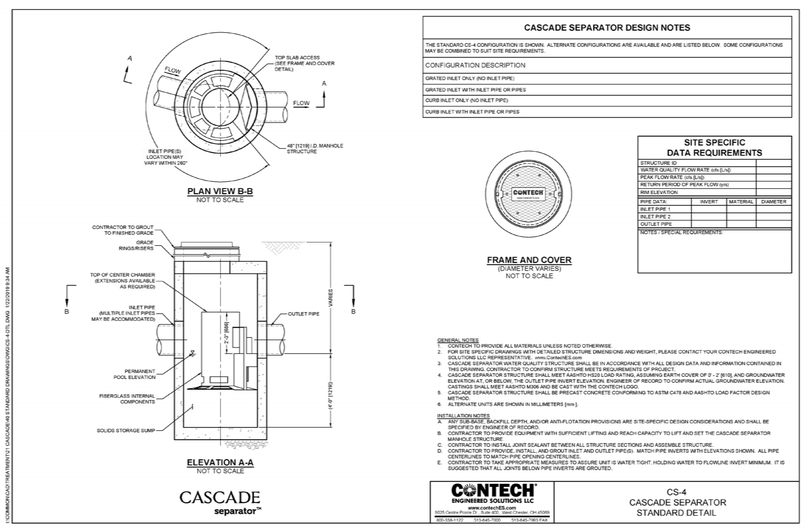


OUTLET CONTROL STANDPIPE SO-2
RIM 965.00, 5' DIA. W/BARGRATE COVER
100 YEAR OUTLET HOLES = (10) 1" DIA., @ 963.50
V_{ED} ELEVATION = 963.50
Q_{ED} OUTLET HOLES = (22) 1" DIA. @ I.E. 961.00
36" NE OUTLET PIPE = 960.50 (10 YEAR FLOW)
2' SUMP BOTTOM = 958.50



CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

SITE SPECIFIC DATA REQUIREMENTS

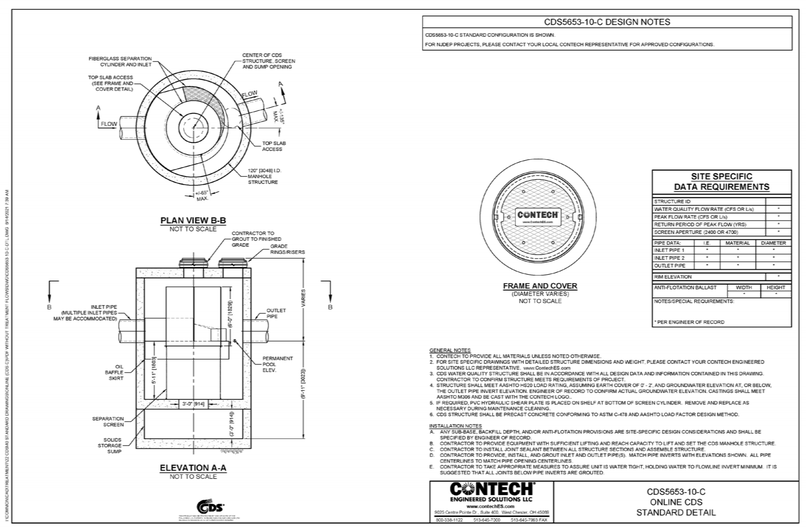
STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 2' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT. HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800.338.1122 513.645.7000 513.645.7993 Fax

CS-4
CASCADE SEPARATOR
STANDARD DETAIL



CDS5653-10-C DESIGN NOTES

CDS5653-10-C STANDARD CONFIGURATION IS SHOWN.
FOR NJDEP PROJECTS, PLEASE CONTACT YOUR LOCAL CONTECH REPRESENTATIVE FOR APPROVED CONFIGURATIONS.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (3/4SD OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
NOTES/SPECIAL REQUIREMENTS:			

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 2' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT. HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800.338.1122 513.645.7000 513.645.7993 Fax

CDS5653-10-C
ONLINE CDS
STANDARD DETAIL

LEGEND

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	WATERMAIN	
GAS	GAS MAIN	GAS
E	ELEC. TELE. CABLE	E
	STORM MANHOLE	
	CATCH BASIN	
	INLET	
	REARYARD CATCH BASIN	
	END SECTION	
	SANITARY MANHOLE	
	GATE VALVE AND WELL	
	HYDRANT	
970	CONTOURS	(70)
	MATCH ELEVATION	(M)
	TOP OF CURB	T/C
	TOP OF SIDEWALK	T/S
	TOP OF PAVEMENT	T/P
	TOP OF CONCRETE	TC
	TOP OF WALL	T/W
	BOTTOM OF WALL	B/W
	DITCH	D

PATRICK COLIN McWILLIAMS
LICENSE NO. 6201031658
STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER

DATE	ISSUE
9–19–2025	PER DLZ (8–26–2025)
10–29–2025	PER RCOC MEETING (10–27–2025) & DLZ (10–15–2025)
11–12–2025	REVISED PER CLIENT/PLANNER–82' WIDE UNITS (11–7–2025)
12–18–2025	REVISED PER RCOC MEETING (12–4–25) & CLIENT (12–12–25)
3–23–2026	PER TOWNSHIP BOARD MEETING (2–17–26) & DLZ (1–8–26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242–6838

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KIEFT ENGINEERING, INC.
PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS
5852 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346
PHONE (248) 625–5251 www.kiefteng.com FAX (248) 625–7110

DATE	7–2–2025	CKD. BY	DATE
DRAWN	GF		
DESIGN	PCM		
SECTION	29	T– 3 –N. R– 8 –E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482–7171 OR 811

Off-Site Storm Sewer Outlet Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 10 OF 19
KE 2025.016

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100 YEAR DETENTION BASIN CALCULATION (I.E. WITH OUTLET)

TOTAL CONTRIBUTING AREA — A = 45.47

HYDROLOGIC SOIL GROUP — B

RUNOFF COEFFICIENT

C = 0.95 (14.87) + 0.30 (28.60) + 1.00 (2) / 45.47

C = 0.54

			LENGTH		% SLOPE				
SHEET	K = 0.48	L=	230	FT	S= 1.5	V =	$KS^{1/2}$ =	0.59	FT/S
SWALE	K = 1.20	L=		FT	S=	V =	$KS^{1/2}$ =	0.00	FT/S
DITCH	K = 2.10	L=	300	FT	S= 1.0	V =	$KS^{1/2}$ =	2.10	FT/S
PIPES	Longest Run	L=	2400			V =		3	FT/S

$T_T = \frac{L}{3{,}600\ V}$ = 0.1086 HR = 6.52 MIN; 0.0396 HR = 2.38 MIN; 0.2220 HR = 13.32 MIN; HR = MIN

$T_C = \sum T_T$: 22.0 MIN

$I_{100} = \frac{83.3}{(T_C + 9.17)^{0.81}}$ = 5.14 IN/HR

CHANNEL PROTECTION VOLUME CONTROL: RECHARGE

V_{CPVC} = 4,719 CA = 115,869 CF

CAN BE SUBTRACTED FROM V_{100D} IF INFILTRATED

SOILS INFILTRATION RATE FROM BORINGS = 5.00 IN/HR

ABOVE 0.5 IN/HR SUPPLEMENTAL MEASURES NOT REQUIRED

BETWEEN 0.24 IN/HR & 0.5 IN/HR, SUPPLEMENTAL MEASURES REQUIRED

BELOW 0.24 IN/HR, INFILTRATION IMPRACTICAL & WAIVED

EXTENDED DETENTION

V_{ED}= 6,897 CA = 169,347 CF

WATER QUALITY - REMOVAL OF TSS (80 MG/L OR 80% TSS REDUCTION)

MECHANICAL SEPARATOR — N/A

$I_1 = \frac{30.2}{(T_C + 9.17)^{0.81}}$ = 1.86 IN/HR

$Q_{WQ} = CI_1A$ = 46.07 CFS

SEDIMENT FOREBAY — N/A

$V_F = 0.15V_{WQ}$ = 545 CA = CF

DETENTION & FLOOD CONTROL

$Q_{VRR} = 1.1055\text{-}0.206\ln(A)$ = 0.150 CFS/AC

$Q_{100P} = Q_{VRR}A$ = 6.821 CFS

V_{100R} = 18,985 CA = 466,154 CF

$Q_{100N} = CI_{100}A$ = 126.20 IN/HR

$R = 0.206 - 0.15\ln(Q_{100P}/Q_{100N})$ = 0.644

100-YEAR STORAGE VOLUME

$V_{100D} = V_{100D}R$ = 300,064 CF = 300,064 CF PER CPVC

WAS VOLUME CONTORL MET FOR CPVC? Y or N — N

V_{100D} OR V_{ED} CONTROL? — V100D 300,064 CF REQ'D

$Q_{ED} = \frac{V_{ED}}{172{,}800}$ = 0.98 CFS

48 HOURS FOR RATE CONTROL

ORIFICE FORMULA

$Q_A = 0.62\,(A_O)(2gH)^{1/2}$

A_O = AREA ORIFICE PIPE

g = 32.2 FT/SEC^2

H = DEPTH OF BASIN ABOVE CENTERLINE OF OUTLET PIPE

FOREBAY — N/A

V_F = RIM = INVERT =

H = 0.00 FT

EXTENDED DETENTION OUTLET

$A_O = \frac{Q_{ED}}{0.62\,(2gH)^{1/2}}$ = 0.000 IN^2

$A_{H} = \frac{\pi D^2}{4}$ = 0.785 IN^2

A_O/A_{H} = 0.00 → USE 0 1" HOLES EQ. SPACED AROUND STANDPIPE BOTTOM

DETENTION BASIN

EXTENDED DETENTION OUTLET (LOWER)

V_{ED} = HOLES = 963.50 INVERT = 961.00

H = 2.50 FT

$A_O = \frac{Q_{ED}}{0.62\,(2gH)^{1/2}}$ = 0.12 SF = 17.93873 IN^2

D_O = DIAMETER OF ORIFICE

$D_O = \sqrt{4A_O}$ = 0.40 FT = 4.78 INCH

$A_{H} = \frac{\pi D^2}{4}$ = 0.785398 IN^2

A_O/A_{H} = 22.84 → USE 23 1" HOLES EQ. SPACED AROUND STANDPIPE BOTTOM = 961.00

100-YEAR ALLOWABLE OUTLET (UPPER)

V_{100D} = RIM = 965.00 V_{ED} = = 963.50

H = 1.50 FT

$A_O = \frac{Q_{100P}}{0.62\,(2gH)^{1/2}}$ = 0.02 SF = 3.545 IN^2

$A_{H} = \frac{\pi D^2}{4}$ = 0.785 IN^2

A_O/A_{H} = 4.51 → USE 5 1" HOLES EQ. SPACED AROUND V_{ED} ELEVATION = 963.50

"C" CALCULATION

TOTAL SITE AREA = 45.47 ACRES

PAVEMENT AREAS:

ROADS: = 155,000 SF

SIDEWALKS: = 79,000 SF

FUTURE DRIVEWAYS: SAY (800 SF) x (115 DRIVES) = 92,000 SF

TOTAL PAVEMENT AREA = 326,000 SF = 7.48 ACRES @ C = 0.95

ROOF AREAS:
ASSUME (2,800 SF) x (115 HOMES) = 322,000 SF = 7.39 ACRES @ C = 0.95

DETENTION BASIN AREA: 2.00 ACRES @ C = 1.00 (AVERAGE)

GREENBELT AREAS: 28.60 ACRES @ C = 0.20

$$\text{"C"} = \left(\frac{7.48\ \text{ACRES}}{45.47\ \text{AC}} \times 0.95\right) + \left(\frac{7.39\ \text{ACRES}}{45.47\ \text{AC}} \times 0.95\right) + \left(\frac{28.60\ \text{ACRES}}{45.47\ \text{AC}} \times 0.30\right) + \left(\frac{2.00\ \text{ACRES}}{45.47\ \text{AC}} \times 1.00\right) = 0.543 = \underline{0.54}$$

VOLUME PROVIDED:

A_1 = @ 961.00 = 55,000 SF

A_2 = @ 965.30 = 86,000 SF

$V = \frac{H}{3}(A_1 + A_2 + \sqrt{A_1 \times A_2})$ = 300,677 CF, OK

DETENTION BASIN

EXISTING WATER ELEVATION = NONE
100 YEAR DESIGN HIGH WATER ELEVATION = 965.30
1' FREEBOARD ELEVATION = 966.30
STORAGE REQUIRED = 300,064 CF
STORAGE PROVIDED = 300,677 CF
SO-2 STANDPIPE RIM = 965.30
OVERFLOW MANHOLE RIM = 965.50
LOWEST EMERGENCY OVERFLOW CATCH BASIN ON N. SIDE IN ENTRY ROAD (OFF BOGIE LAKE ROAD) = 966.75
BOTTOM = 960.00

APPROXIMATE DETENTION BASIN 10 YEAR OUTFLOW CALCULATION

Q = ACI; A = 45.47 ACRES; C = 0.50; $I = \frac{175}{T+25}$; T = 30 MINUTES+/-.

$I = \frac{175}{30+25} = 3.18$; Q = (45.47)(0.50)(3.18) = 72.30 CFS

USE 36" OUTLET PIPE @ 1.00%; Q = 66.60 CFS; V = 9.42 FPS

NOTE: ESTIMATED TIME BASED ON THE LONGEST STORM SEWER RUN ≈ 2,400 LF
THUS, 2,400 LF ÷ 3 FPS (ASSUMED) = 800 SECONDS = 13.33 MINUTES
USE 10 MINUTES TO BE CONSERVATIVE.
20 MINUTES (INITIAL T_C) + 10 MINUTES = 30 MINUTES

Northwest Area Storm Run-off Calculation Comparison

"EXISTING CONDITIONS"
PRESENTLY 4.80 ACRES FLOWS OFF-SITE TO THE NORTHWEST.
EXISTING C = 0.30
FOR A 10 YEAR STORM Q_{10} = ACI
A = 4.80 ACRES
C = 0.30
$I = \frac{175}{T+25}$; T = 20 MINUTES; $I = \frac{175}{20+25} = 3.89$

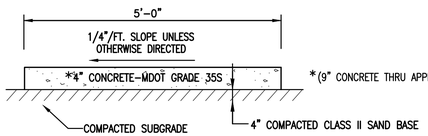
Q_{10} = (4.80)(0.30)(3.89) = 5.60 CFS EXISTING

PROPOSED "C" CALCULATION
(14 HOMES)(REAR ROOF=1,600 SF) = 22,400 SF = 0.51 ACRES @ C = 0.95
REMAINING 1.68 ACRES @ C = 0.30

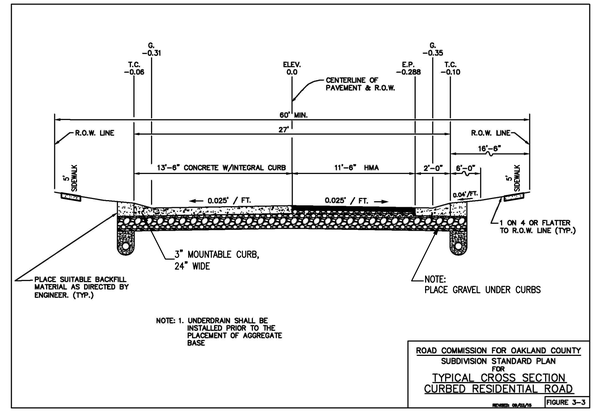
$$\text{"C"} = \left(\frac{0.51\ \text{ACRES}}{2.19\ \text{AC}} \times 0.95\right) + \left(\frac{1.68\ \text{ACRES}}{2.19\ \text{AC}} \times 0.30\right) = \underline{0.45}$$

A = 3.00 ACRES
C = 0.45
I = 3.89
Q_{10} = (2.19)(0.45)(3.89) = 3.83 CFS PROPOSED

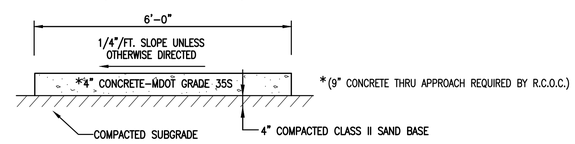
THUS, THERE IS LESS PROPOSED STORM WATER RUN-OFF THAT WILL BE FLOWING TO THE LEACH BASIN IN THE NORTHWEST AREA THEN THE EXISTING STORM WATER RUN-OFF FOR A TEN YEAR STORM.



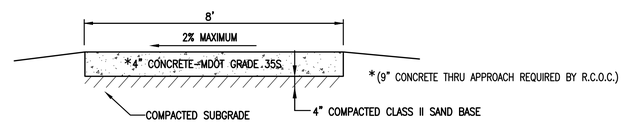
5' WD. 4" THICK CONCRETE SIDEWALK
(ONSITE)



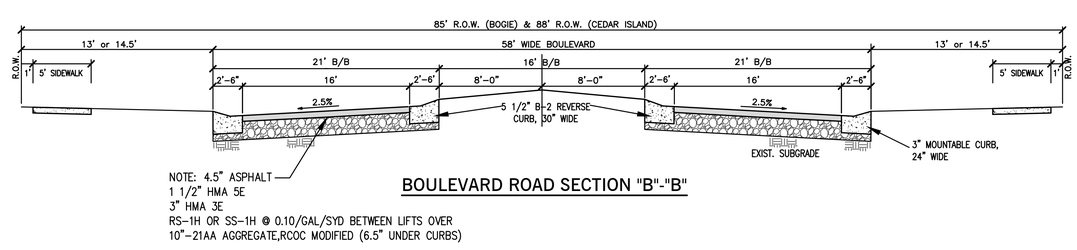
TYPICAL ROAD SECTION "A-A"
(SEE RCOC DETAIL SHEET 22 OF 25)



6' WD. 4" THICK CONCRETE SIDEWALK
(BOGIE LAKE ROAD & R.O.W.)



8' WD, 4" THICK CONCRETE SIDEWALK
CEDAR ISLAND ROAD R.O.W.



BOULEVARD ROAD SECTION "B"-"B"

Storm Water Facilities Maintenance Plan

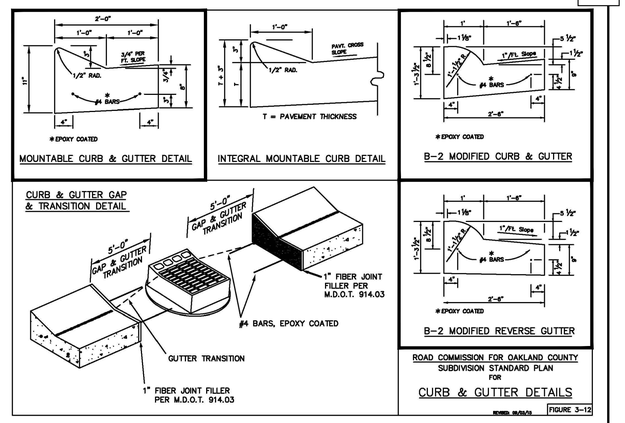
The "Edendale Crossing" Homeowners Association shall be responsible for the maintenance of all the storm water facilities. (Note: The developer is responsible until the HOA exists).

These facilities include the following:

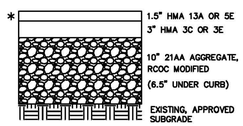
- *Detention Basin*
- *Pretreatment Structure Manholes*
- *Manholes, Rear Yard Catch Basins, Leach Basins, End Sections & connecting pipe work*
- *Rear yard swales (within easements)*

The HOA shall hired a qualified contractor to do the following Maintenance Schedule (including report kept on record):

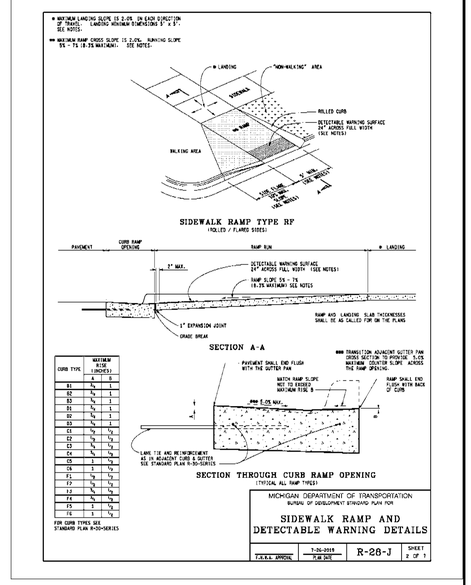
1. *The (2) Pretreatment Structures shall be inspected by a qualified contractor on a semi-annual basis (twice/year) and necessary action taken to clean out the structures in accordance with the manufacturers guidelines.*
2. *The Detention Basin shall be inspected on any annual basis by a qualified contractor and/or civil engineer to insure it is functioning as designed.*
3. *The storm structures & swales shall be inspected on a bi-annual basis (every two years). This is an "above ground" visual inspection to determine if any structures are "failing", (i.e. ground has sank around structure, etc.).*



HMA



SS-1H @ 0.10/GAL/SYD BETWEEN LIFTS
COMMERCIAL A.D.T. COULD WARRANT A DIFFERENT TYPE HMA MIXTURE



TOTAL SITE

RESIDENTIAL UNITS = 123 REU/UNIT = 123 REU'S

OVERALL SANITARY DESIGN

"AVERAGE FLOW"
123 REU'S @ 2.70 PERSONS/REU = 332.1 PERSONS
332.1 PERSONS x 100 GPCD = 33,210 GPD = 0.03321 MGPD
x 1.55 (conversion)
Q = 0.0515 CFS

"PEAK FLOW"
123 REU'S @ 2.70 PERSONS/REU = 332.1 PERSONS/1000 = 0.3321 = P

$Q = 100 \times (18 + \sqrt{P})/(4 + \sqrt{P})$ = 405.93 GPCD

332 PERSONS x 405.93 GPCD = 134,769 GPD = 0.13477 MGPD
x 1.55 (conversion)
Q = REQUIRED = 0.2089 CFS

NOTE: AN 8" TRUSS PIPE @ 0.40% CAN CARRY 0.765 CFS @ 2.19 FPS.
A 10" TRUSS PIPE @ 0.30% CAN CARRY 1.194 CFS @ 2.19 FPS.

STATE OF MICHIGAN — PATRICK COLIN McWILLIAMS — LICENSE NO. 6201031658 — LICENSED PROFESSIONAL ENGINEER

DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
10-29-2025	PER RCOC MEETING (10-27-2025) & DLZ (10-15-2025)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

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PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

DATE 7-2-2025	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Detention Basin Calculations & Details
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE N/A
SHEET 11 OF 19
KE 2025.010

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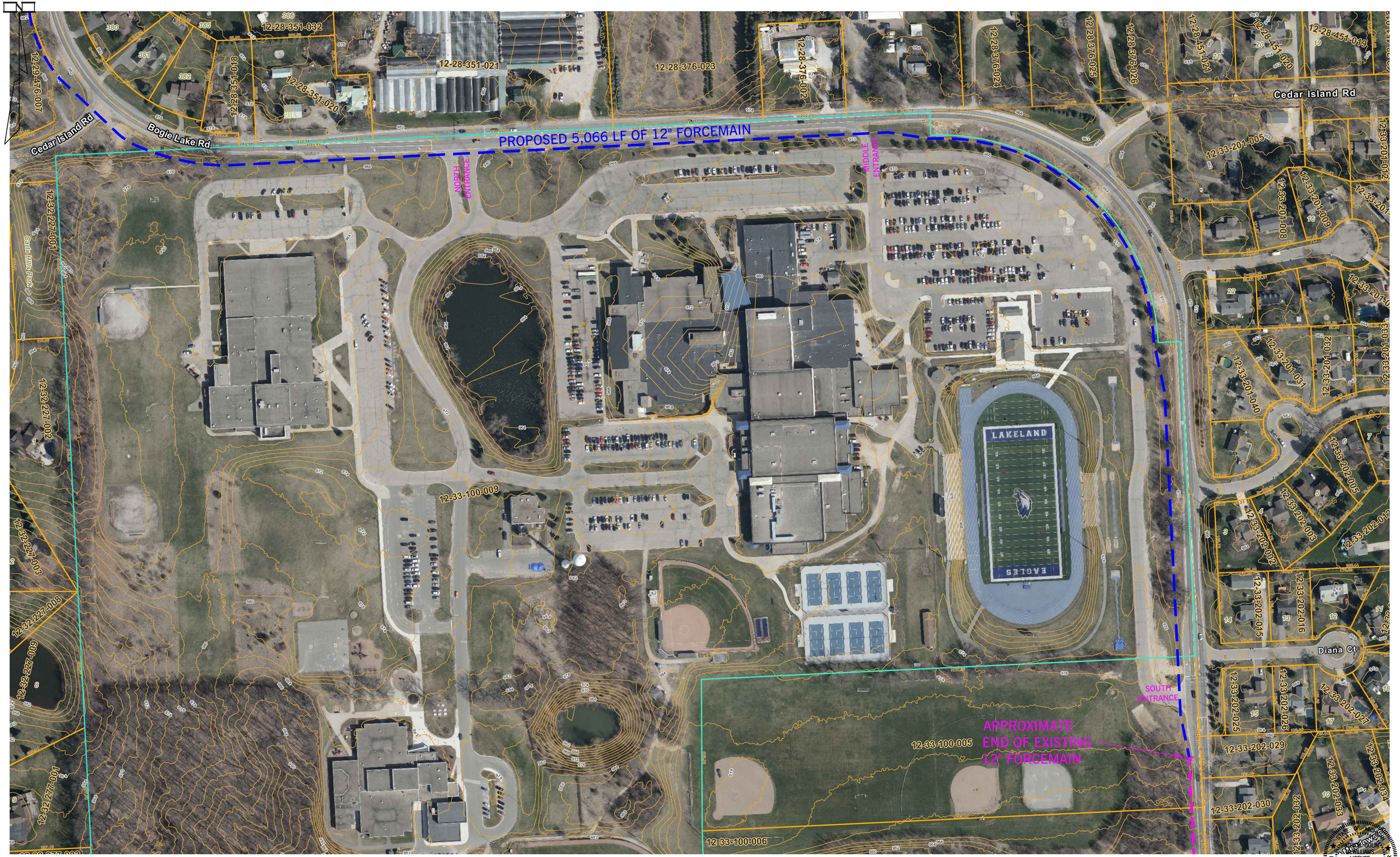

DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
10-29-2025	PER ROCK MEETING (10-27-2025) & DLZ (10-15-2025)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

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Off-Site Sanitary Forcemain Plan - Overall
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 100'
SHEET 12 OF 19
KE 2025.010

STATE OF MICHIGAN
PATRICK MICHAEL MCMILLIAMS
LICENSE NO. 62010316 58
LICENSED PROFESSIONAL ENGINEER

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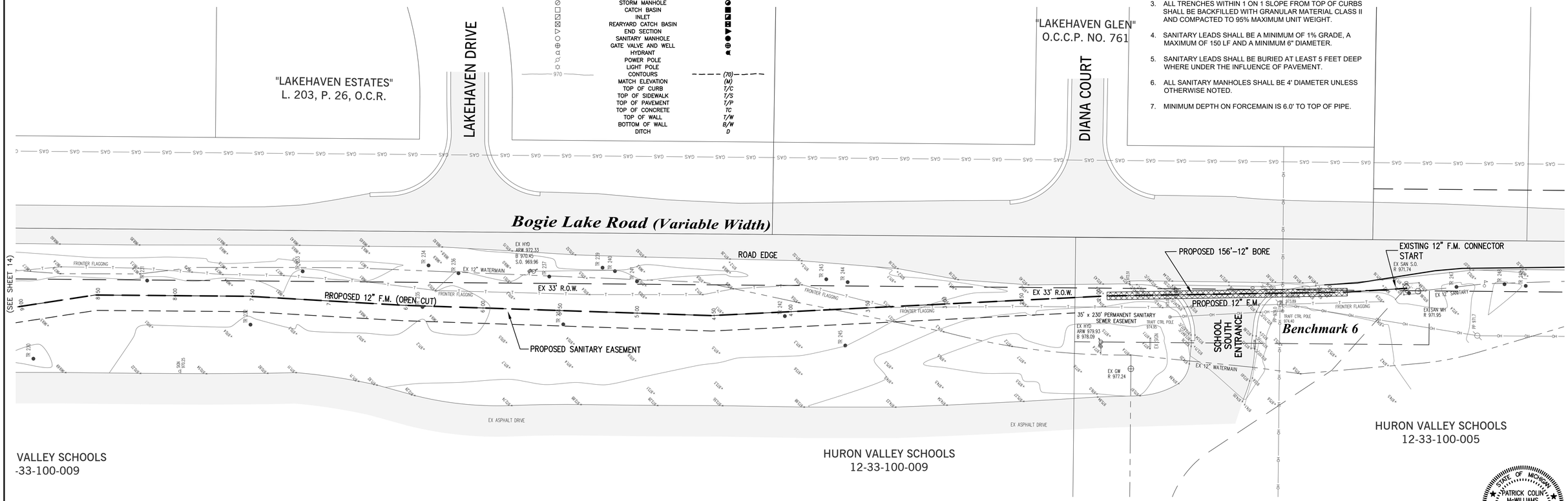
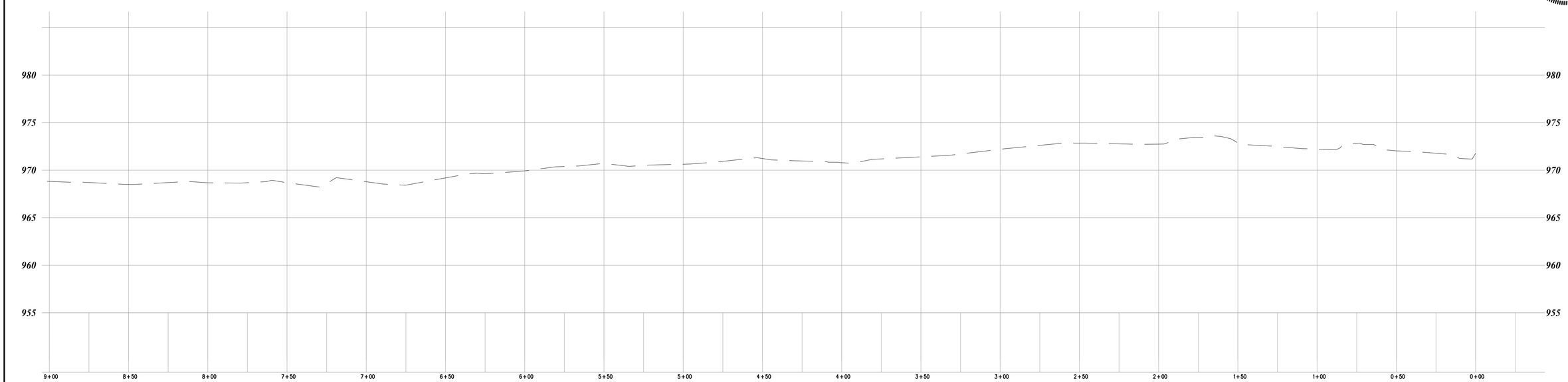
LEGEND

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	WATERMAIN	
GAS GAS	GAS MAIN	GAS GAS
E E	ELEC. TELE. CABLE	E E
OH OH	OVERHEAD WIRES	
	STORM MANHOLE	
	CATCH BASIN	
	INLET	
	REARYARD CATCH BASIN	
	END SECTION	
	SANITARY MANHOLE	
	GATE VALVE AND WELL	
	HYDRANT	
	POWER POLE	
	LIGHT POLE	
970	CONTOURS	(70)
	MATCH ELEVATION	(M)
	TOP OF CURB	T/C
	TOP OF SIDEWALK	T/S
	TOP OF PAVEMENT	T/P
	TOP OF CONCRETE	TC
	TOP OF WALL	T/W
	BOTTOM OF WALL	B/W
	DITCH	D

Notes:

1. ALL GRAVITY SANITARY SEWER SHALL BE PVC TRUSS PIPE OR APPROVED EQUIVALENT.
2. ALL GRAVITY SANITARY SEWER LEADS SHALL BE SDR 23.5 PVC PIPE.
3. ALL TRENCHES WITHIN 1 ON 1 SLOPE FROM TOP OF CURBS SHALL BE BACKFILLED WITH GRANULAR MATERIAL CLASS II AND COMPACTED TO 95% MAXIMUM UNIT WEIGHT.
4. SANITARY LEADS SHALL BE A MINIMUM OF 1% GRADE, A MAXIMUM OF 150 LF AND A MINIMUM 6" DIAMETER.
5. SANITARY LEADS SHALL BE BURIED AT LEAST 5 FEET DEEP WHERE UNDER THE INFLUENCE OF PAVEMENT.
6. ALL SANITARY MANHOLES SHALL BE 4' DIAMETER UNLESS OTHERWISE NOTED.
7. MINIMUM DEPTH ON FORCEMAIN IS 6.0' TO TOP OF PIPE.





DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
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3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
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(248) 242-6838

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DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Off-Site Sanitary Forcemain Plan - South Connection
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 13 OF 19
KE 2025.010

STATE OF MICHIGAN PATRICK COLIN McWILLIAMS LICENSE NO. 6201031658 LICENSED PROFESSIONAL ENGINEER

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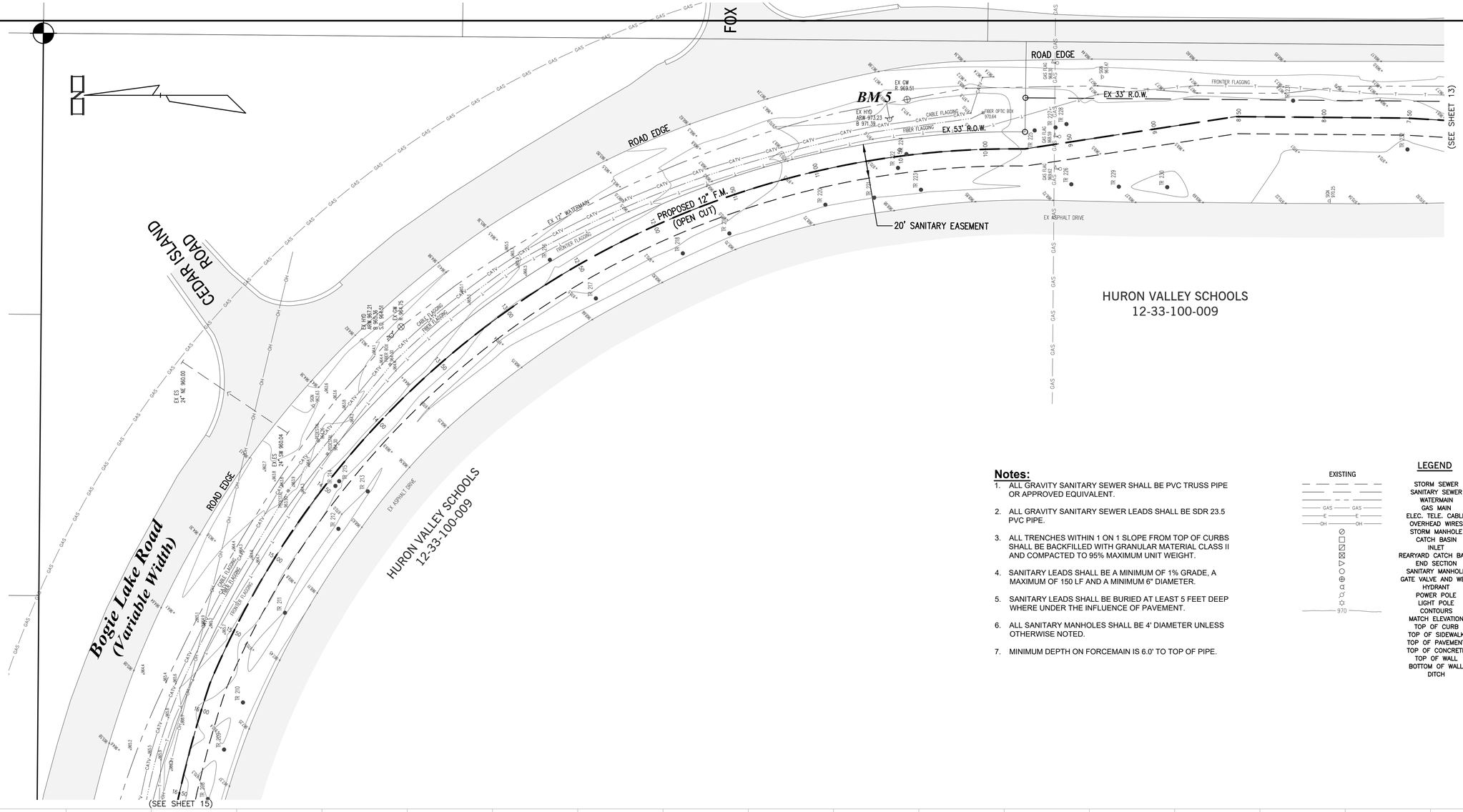

Notes:

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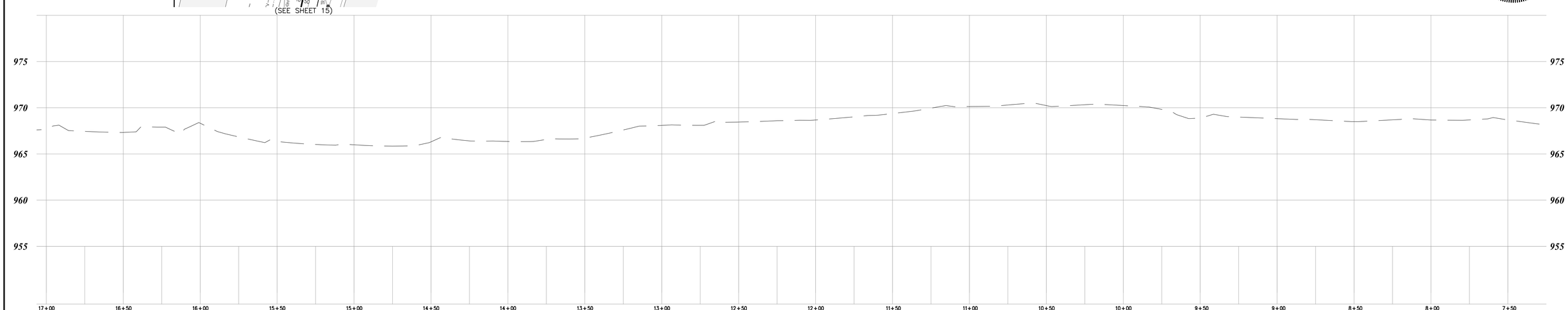
LEGEND

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	WATERMAIN	
GAS	GAS MAIN	GAS
E	ELEC. TELE. CABLE	E
OH	OVERHEAD WIRES	
	STORM MANHOLE	
	CATCH BASIN	
	INLET	
	REARYARD CATCH BASIN	
	END SECTION	
	SANITARY MANHOLE	
	GATE VALVE AND WELL	
	HYDRANT	
	POWER POLE	
	LIGHT POLE	
970	CONTOURS	(70)
	MATCH ELEVATION	(M)
	TOP OF CURB	T/C
	TOP OF SIDEWALK	T/S
	TOP OF PAVEMENT	T/P
	TOP OF CONCRETE	TC
	TOP OF WALL	T/W
	BOTTOM OF WALL	B/W
	DITCH	D

STATE OF MICHIGAN
PATRICK COLINY McWILLIAMS
LICENSE NO. 6201031658
LICENSED PROFESSIONAL ENGINEER



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DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

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Off-Site Sanitary Forcemain Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 14 OF 19
KE 2025.016

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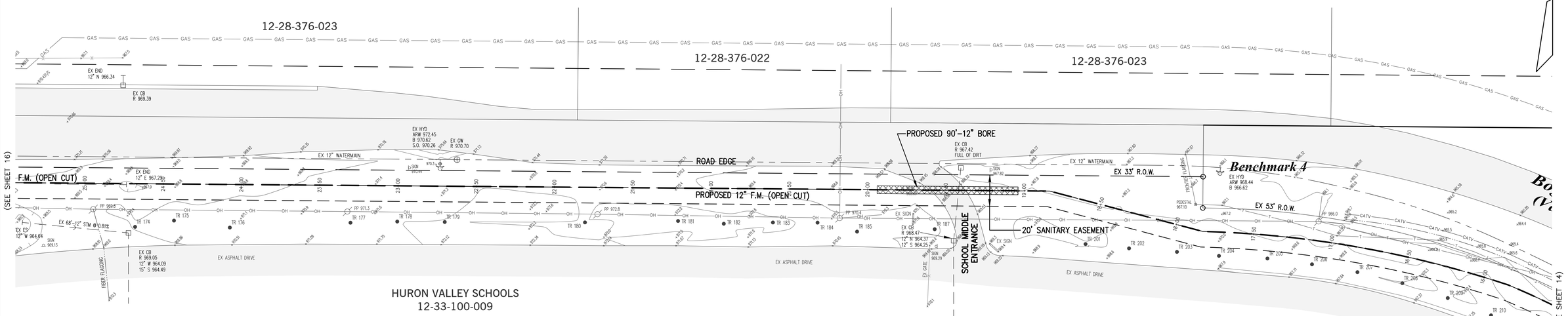

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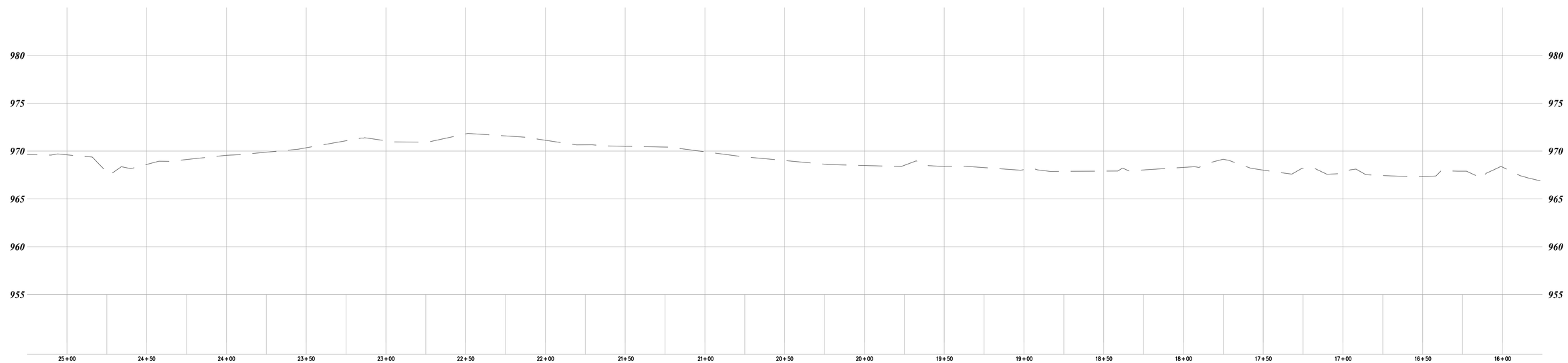
	TOP OF PAVEMENT	T/P
	TOP OF CONCRETE	TC
	TOP OF WALL	T/W
	BOTTOM OF WALL	B/W
	DITCH	D

STATE OF MICHIGAN
PATRICK COLIN McWILLIAMS
LICENSE NO. 6201031658
LICENSED PROFESSIONAL ENGINEER



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Off-Site Sanitary Forcemain Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 15 OF 19
KE 2025.010

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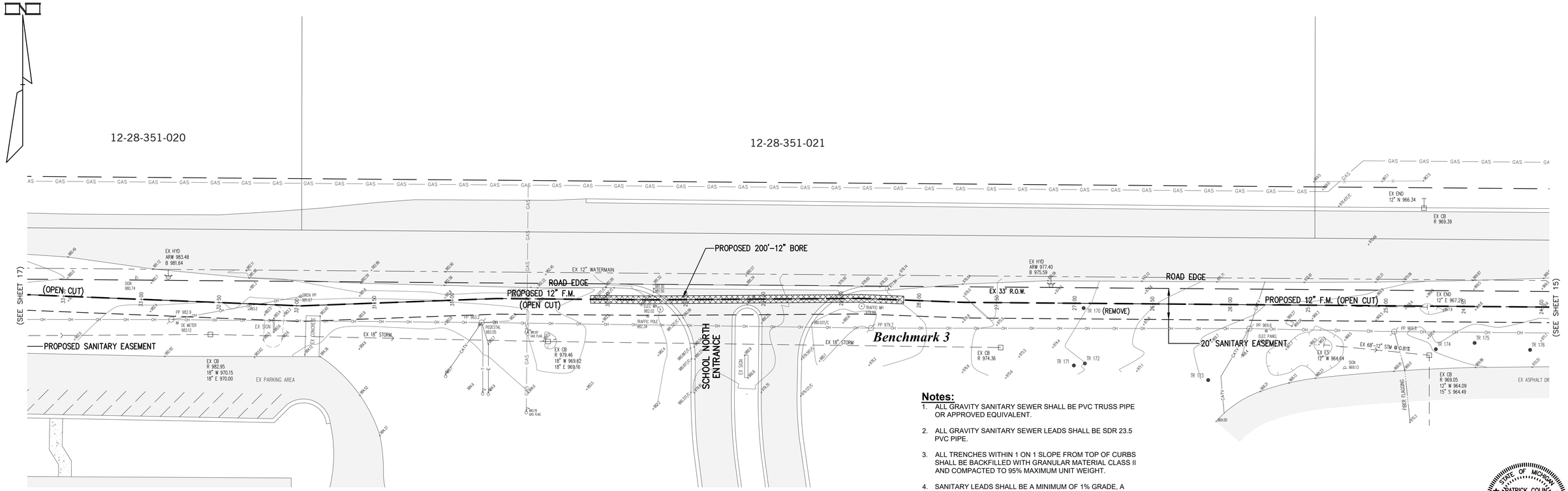

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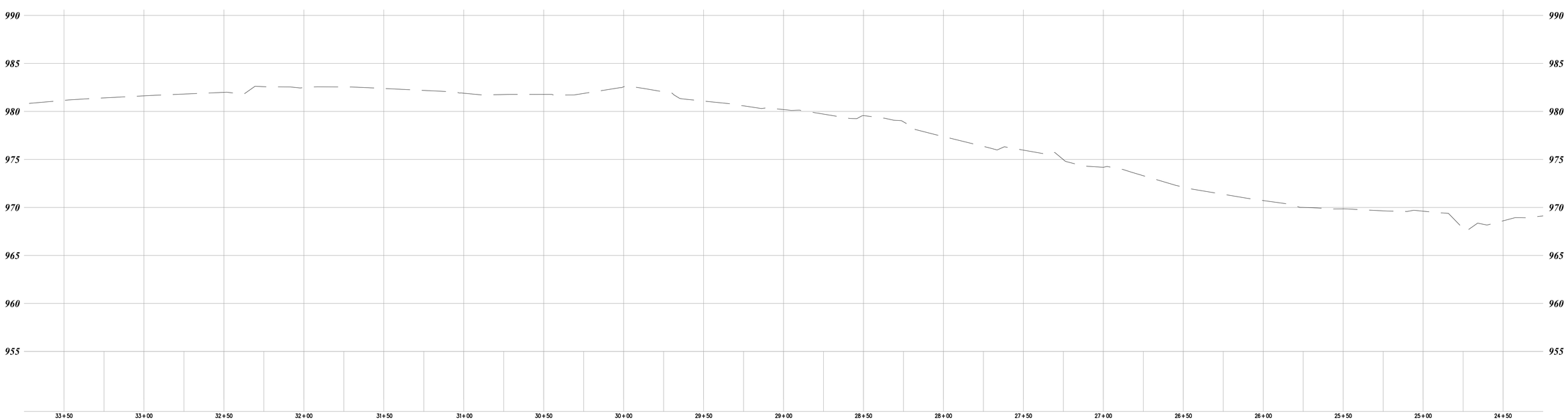

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Off-Site Sanitary Forcemain Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 16 OF 19
KE 2025.010

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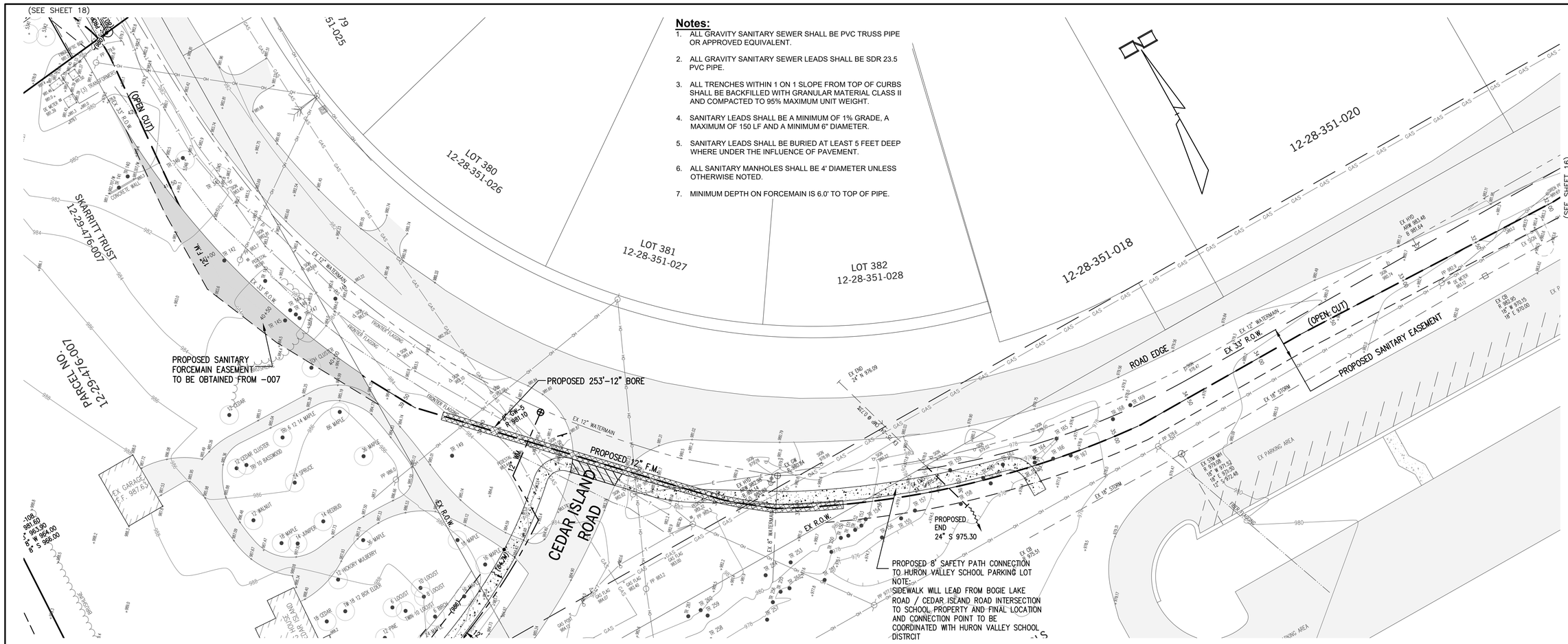

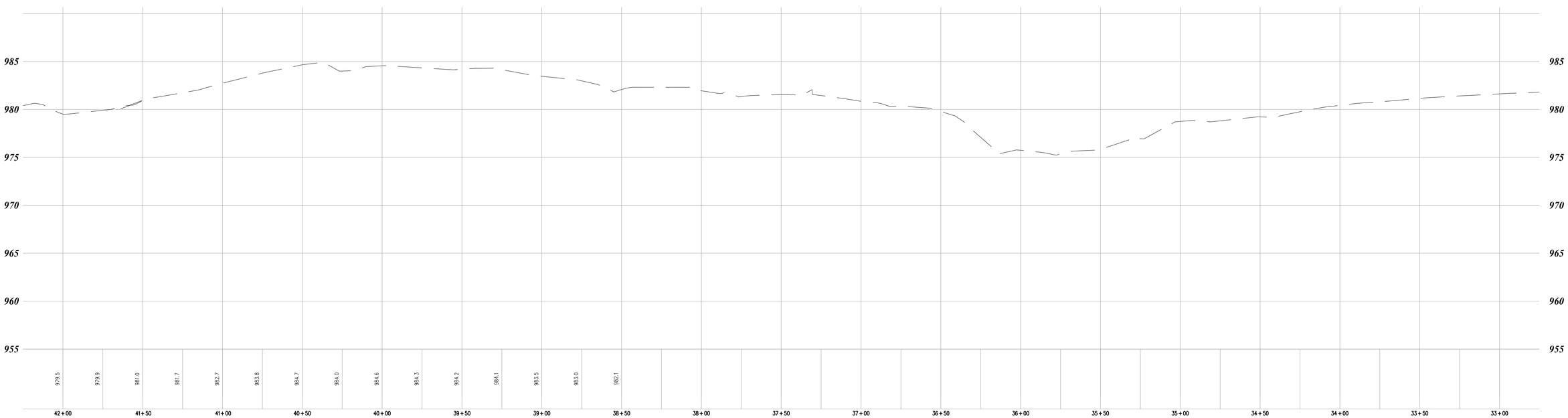

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Off-Site Sanitary Forcemain Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 17 OF 19
KE 2025.010

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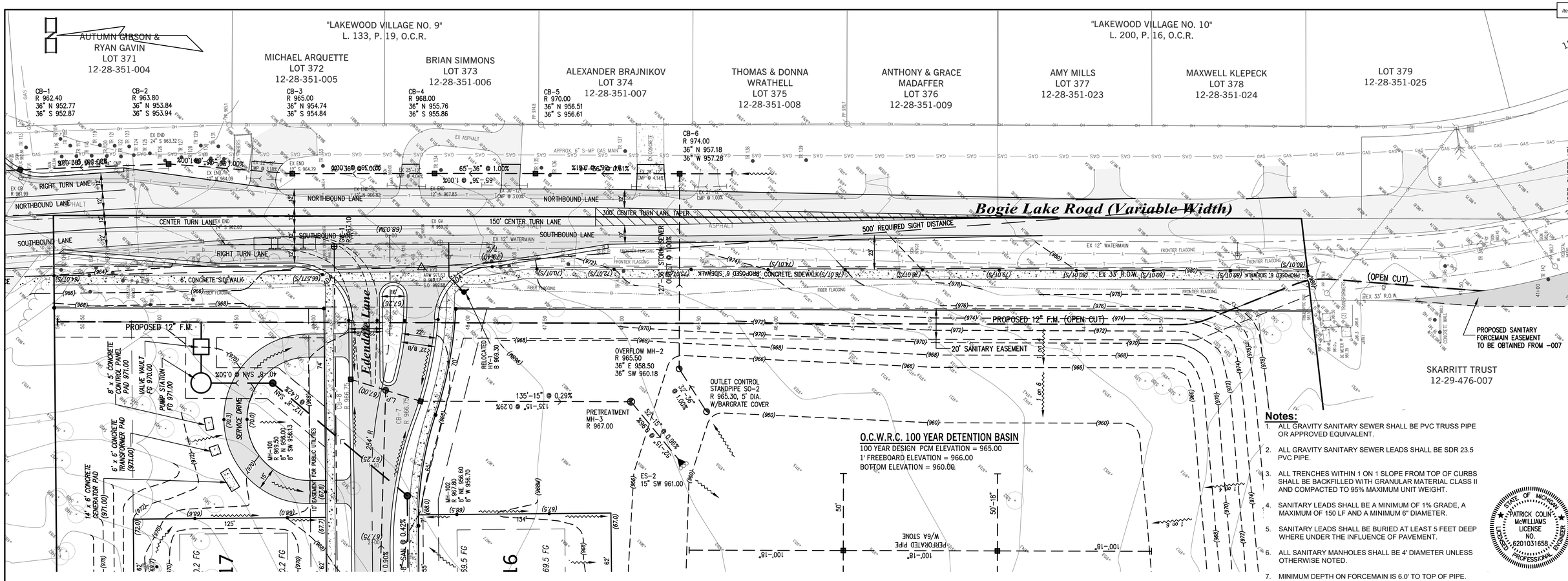

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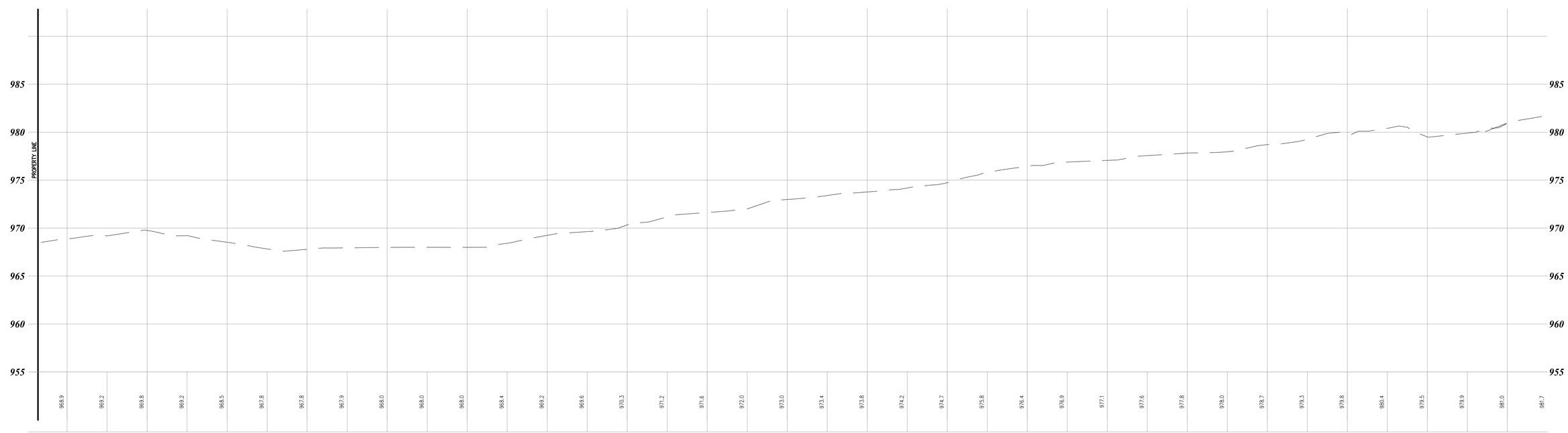
STATE OF MICHIGAN · PATRICK COLIN McWILLIAMS · LICENSE NO. 62010316581 · LICENSED PROFESSIONAL ENGINEER



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11-12-2025	REVISED PER CLIENT/PLANNER-62 WIDE UNITS (11-7-2025)
12-18-2025	REVISED PER P.C. MEETING (12-4-25) & CLIENT (12-12-25)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

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Off-Site Sanitary Forcemain Plan - North Pump Station & Tree Chart
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 18 OF 19
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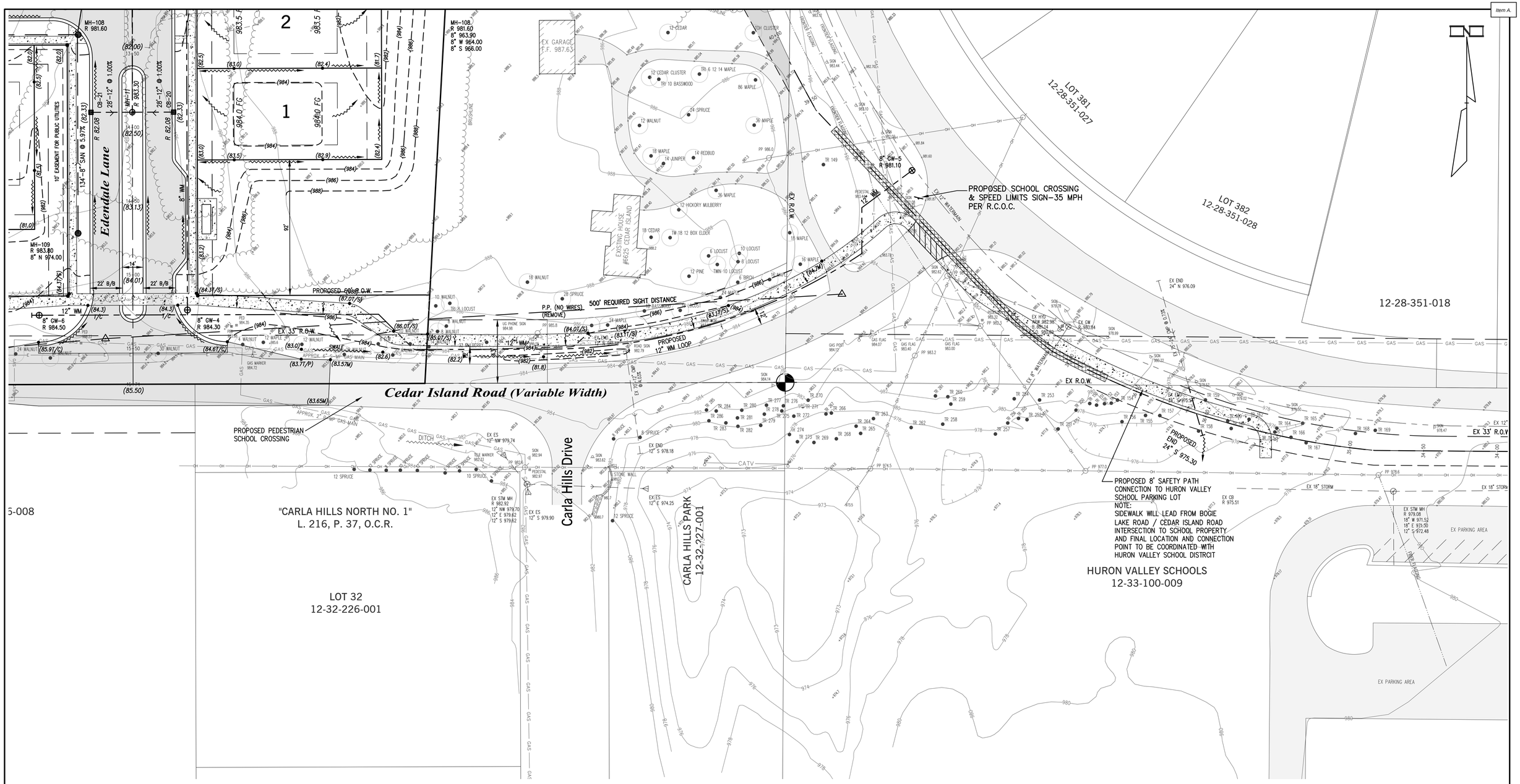

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Cedar Island & White Lake Middle School Sidewalk Plan
"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
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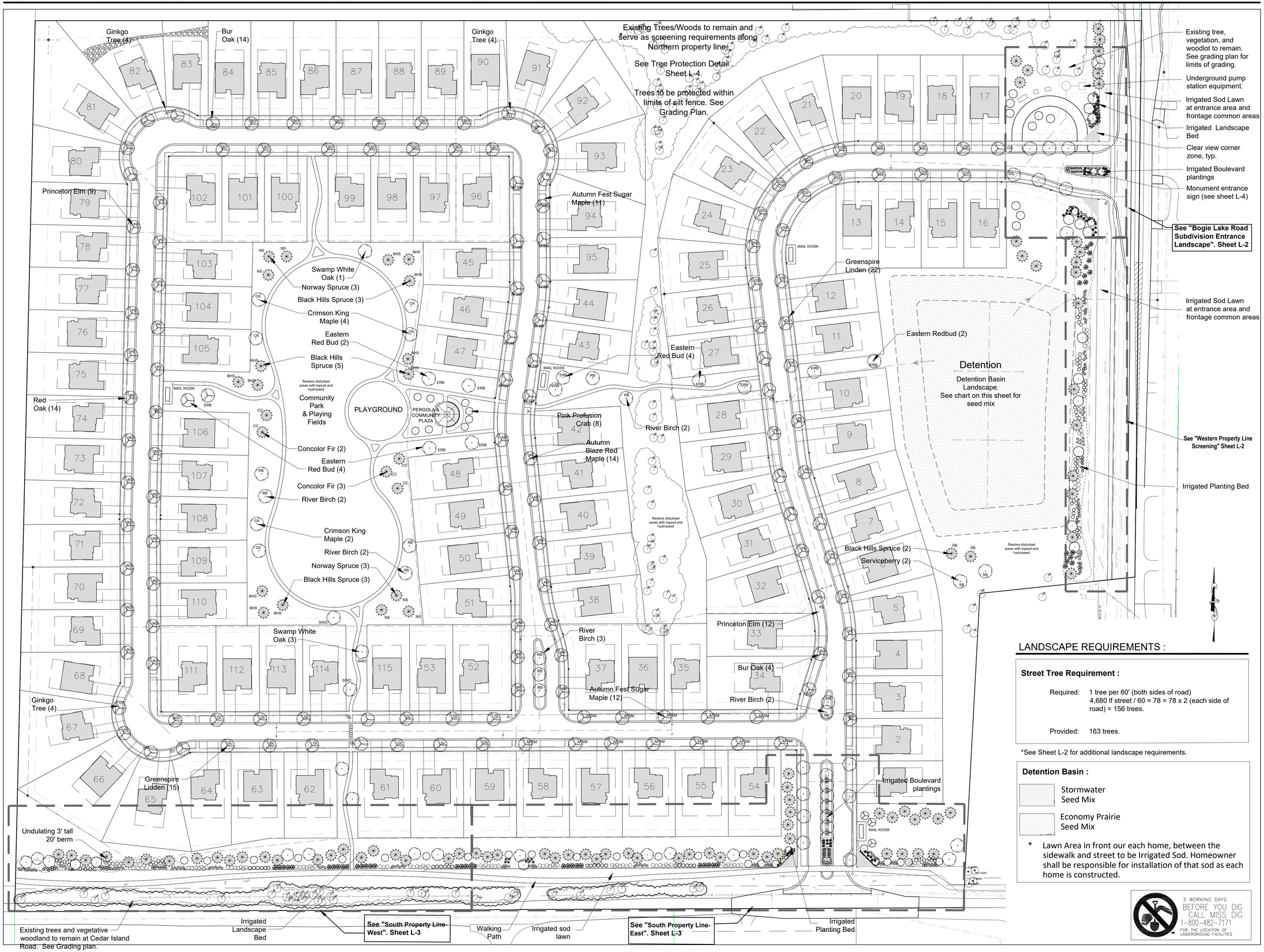
LANDSCAPE PLAN :

Scale: 1" = 60'



LANDSCAPE REQUIREMENTS :

Street Tree Requirement :

Required: 1 tree per 60' (both sides of road)
4,680 lf street / 60 = 78 = 78 x 2 (each side of road) = 156 trees.

Provided: 163 trees.

*See Sheet L-2 for additional landscape requirements.

Detention Basin :

Stormwater Seed Mix

Economy Prairie Seed Mix

* Lawn Area in front our each home, between the sidewalk and street to be Irrigated Sod. Homeowner shall be responsible for installation of that sod as each home is constructed.

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 FOR THE LOCATION OF UNDERGROUND FACILITIES

Item A.

STATE OF MICHIGAN REGISTERED LANDSCAPE ARCHITECT
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309

J EPPINK PARTNERS, INC
Urban Design Studio

Landscape Architecture
Traditional Town Planning

27 Squirrel Road
Suite 104
Auburn Hills, MI 48326
248.922.0789

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Project:

Edendale Crossing

Bogie Lake Road
White Lake Township, MI

Owner:

PH Homes

8255 Cascade Ave
Suite 110
Commerce Twp, MI 48382
248-242-6838

Sheet:

Common Area Landscape Plan

Issues / Revisions

Final Site Plan	04-01-26

Drawn by: LP

Checked By: JTE

Date: April 1, 2026

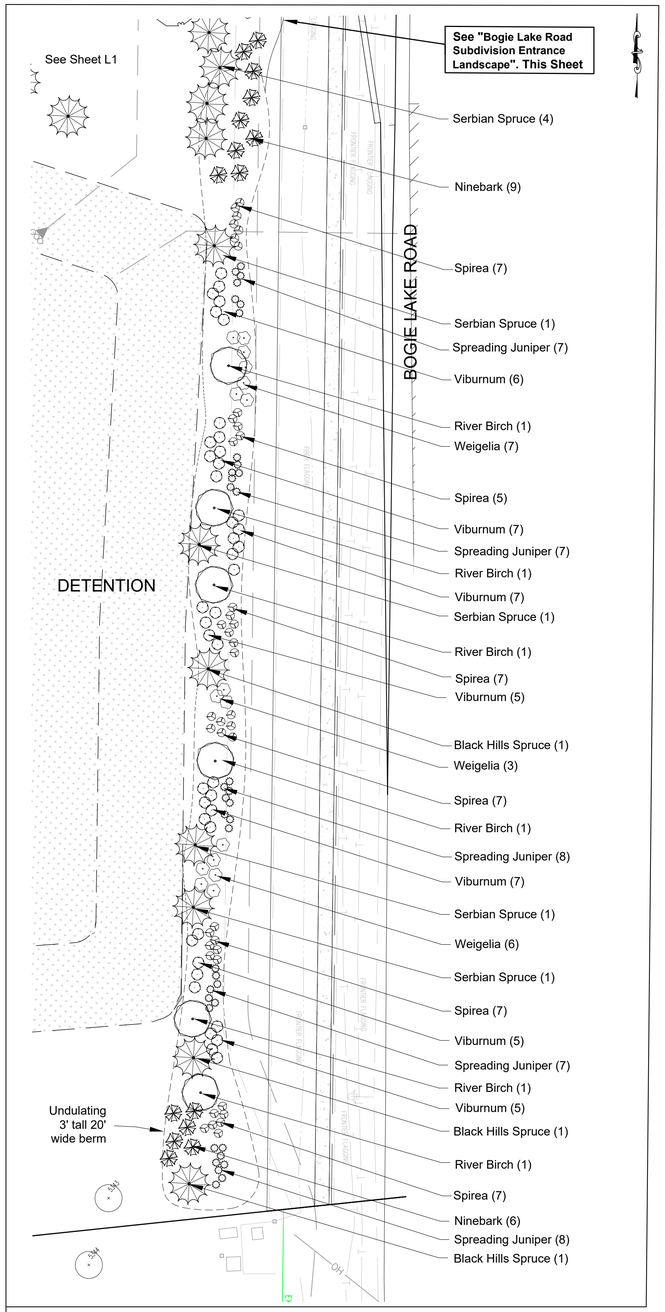
Scale: As Noted

Not for Construction

Sheet: L-1

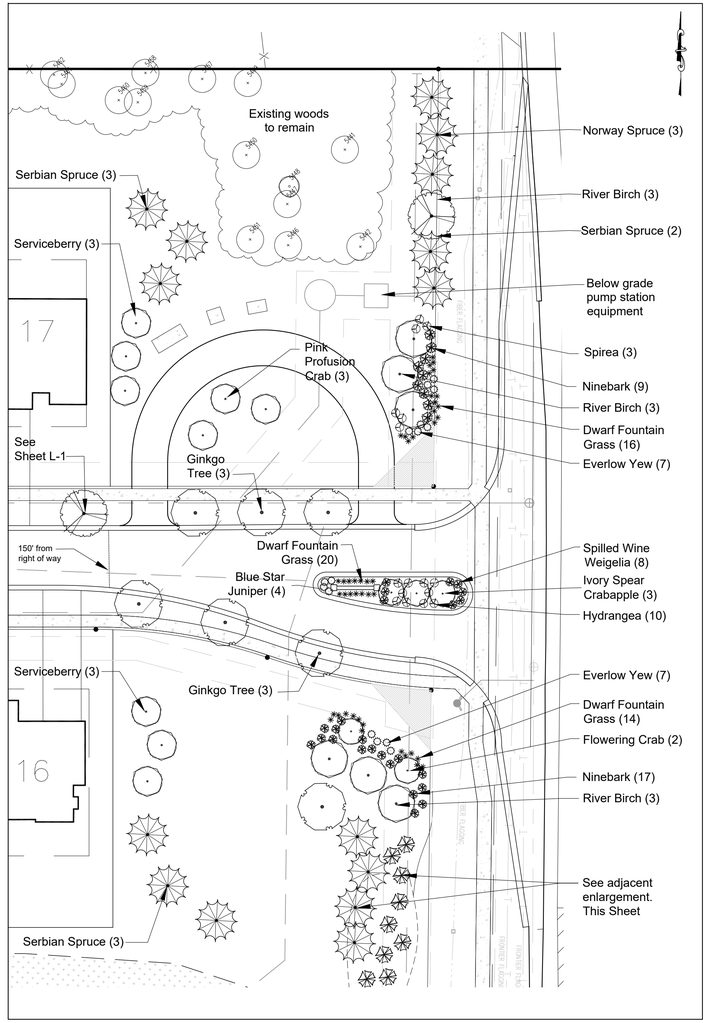
LANDSCAPE PLAN : Western Property Line Screening

Scale: 1" = 30'



LANDSCAPE PLAN : Bogie Lake Road Subdivision Entrance Landscape

Scale: 1" = 20'



Bogie Lake Entrance Drive Calculations: See landscape requirements and landscape provided in adjacent chart : this page. (Bogie Lake entrance exceeds Twp landscape requirements)

LANDSCAPE REQUIREMENTS :

Residential Entranceway Landscape Calculations :

Township Standard: Section 5.19.F

Area of Coverage: First 150' of Entrance Drive

Requirement: 1 tree and 3 shrubs per each 300sf of area

Bogie Lake Road Entrance :

North Side of Bogie Lake Road :

Area: 1,265 sf
1,265 \ 300 = 4.2 = 4

Trees: 4 x 1 = 4
4 Trees Required
6 Trees Provided

Shrubs: 5 x 3 = 15
15 Shrubs Required
22 Shrubs Provided
within entrance planting area.

South Side of Bogie Lake Road :

Area: 824 sf
824 \ 300 = 2.7 = 3

Trees: 3 x 1 = 3
3 Trees Required
8 Trees Provided

Shrubs: 3 x 3 = 9
9 Shrubs Required
21 Shrubs Provided
within entrance planting area.

Bogie Lake Road Entrance Island:

Area: 947 sf
947 \ 300 = 3

Trees: 3 x 1 = 3
3 Trees Required
3 Trees Provided

Shrubs: 4 x 3 = 12
12 Shrubs Required
19 Shrubs Provided

Cedar Island Road Entrance :

East Side of Cedar Island Road :

Area: 1,736 sf
1,736 \ 300 = 5.7 = 6

Trees: 6x 1 = 6
6 Trees Required
6 Trees Provided

Shrubs: 6 x 3 = 18
18 Shrubs Required
18 Shrubs Provided

West Side of Cedar Island Road :

Area: 2082 sf
2,082 \ 300 = 6.9 =7

Trees: 7 x 1 = 7
7 Trees Required
10 Trees Provided

Shrubs: 7 x 3 = 21
21 Shrubs Required
21 Shrubs Provided

Cedar Island Road Entrance Island:

Area: 2,172 sf
2,172 \ 300 = 7.2 = 8

Trees: 8 x 1 = 8
8 Trees Required
7 Trees Provided

*Remaining 1 required trees to be planted along the sides of the road due to spacing constraints in boulevard

Shrubs: 4 x 3 = 12
12 Shrubs Required
35 Shrubs Provided

Landscape Screening Between Uses Calculations :

Township Standard: Section 5.19.D

Area of Coverage: North, South, East, & Western Boundaries

Requirement: Land Form Buffer (A-2): A 20'-wide, 3'-tall berm with a 3:1 slope max. 1 large deciduous tree + 1 large evergreen tree + 8 shrubs per every 30'.

Northern Property Line : 1,550 lin ft.

Calculation: 1,550 / 30 = 51.6 = 52
"A2" greenbelt required

Required: 52 Deciduous trees
52 Evergreen trees
416 Shrubs

Provided: 56 existing trees and surrounding dense vegetation woodlot to remain and serve as required northern screening. The western portion of the northern boundary is adjacent to the cell-phone tower and the home sites were deliberately moved, at the direction of the Planning Commission, to the north in order to create a larger buffer at Cedar Island.

Waiver Request: Waiver requested at northern boundary to permit existing trees and vegetation to count as vegetative buffer because adjacent property is occupied by a commercial green house and cell tower.

Western Property Line : 1,230 lin ft. (adjacent to AG ITC corridor)

Calculation: 1,230/ 30 = 41
"A2" greenbelt required

Required: 41 Deciduous trees
41 Evergreen trees
328 Shrubs

Provided: No trees or shrubs are proposed along the western boundary. The western boundary is adjacent to the ITC corridor (240' wide) and the existing homes to the west are significantly up hill. The home sites along the western boundary were deliberately moved, at the direction of the Planning Commission, to the west in order to create a larger buffer at Bogie Lake.

Waiver Request: Waiver requested at western boundary omit landscape buffer adjacent to the 240' wide ITC corridor.

Eastern Property Line : 685 lin ft. (Right-of-Way)

Calculation: 685 / 30 = 22.8 = 23

Required: 23 Trees
184 Shrubs
20' wide greenbelt required

Provided: 32 Trees
186 Shrubs
75' - 225' wide greenbelt provided

NO Waiver Requested at Eastern boundary

Southern Property Line : 1,320 lin ft. (Right-of-Way)

Calculation: 1,320 / 30 = 44

Required: 44 Trees
352 Shrubs
20' wide greenbelt required

Provided: 88 Deciduous & Evergreen Trees
369 Shrubs
45' wide greenbelt provided

NO Waiver Requested at Southern boundary

Existing Trees to Remian :

474 Existing trees, 6" dbh or greater, have been located on site

128 Existing trees, 6" dbh or greater, are proposed to remain on site

Additional smaller, non-regulated trees, buffers, and natural vegetative growth and shrubby areas will remain on site within the central natural preservation areas of the neighborhood and adjacent to the Cedar Island Road frontage. The preservation areas are intended to be a community benefit for the preservation of woodland canopy, natural buffering along Cedar Island Road, and a continuous, regional natural habitat for wildlife.

Item A.

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC
Urban Design Studio

Landscape Architecture
Traditional Town Planning

27 Squirrel Road
Suite 104
Auburn Hills, MI 48326
248.922.0769

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Project:

Edendale Crossing

Bogie Lake Road
White Lake Township, MI

Owner:

PH Homes

8255 Cascade Ave
Suite 110
Commerce Twp, MI 48382
248-242-6838

Sheet:

Landscape Plan-Entrance & Screening Areas

Issues / Revisions

Final Site Plan	04-01-26

Drawn by: LP

Checked By: JTE

Date: April 1, 2026

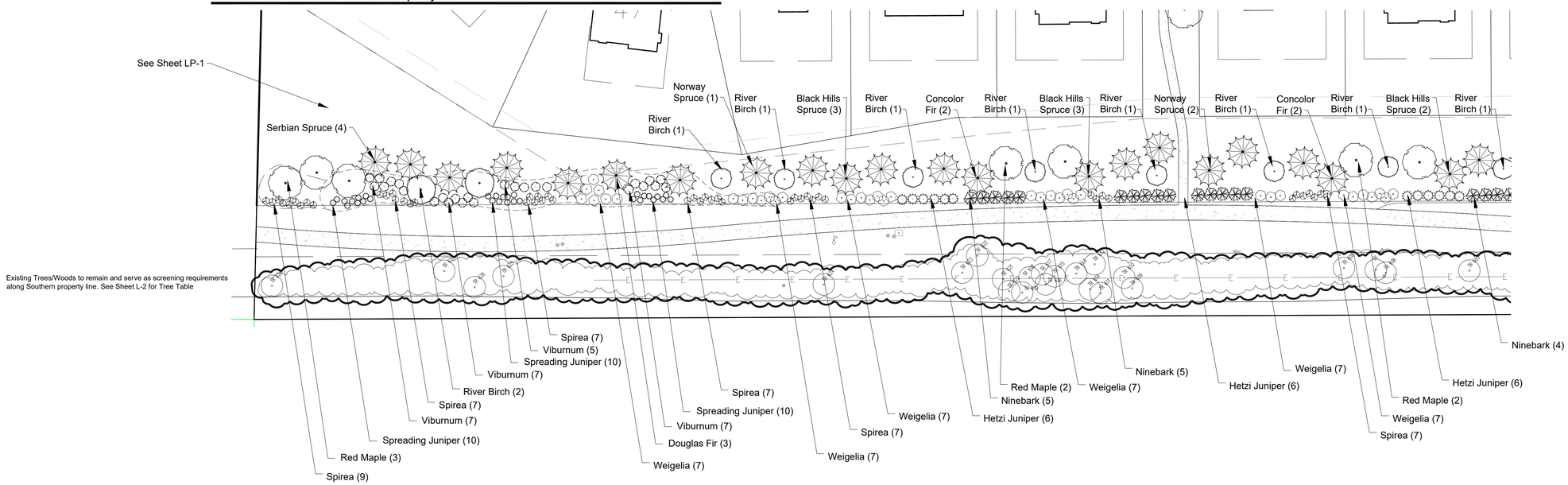
Scale: As Noted

Not for Construction

Sheet: L-2

LANDSCAPE PLAN : South Property Line- West

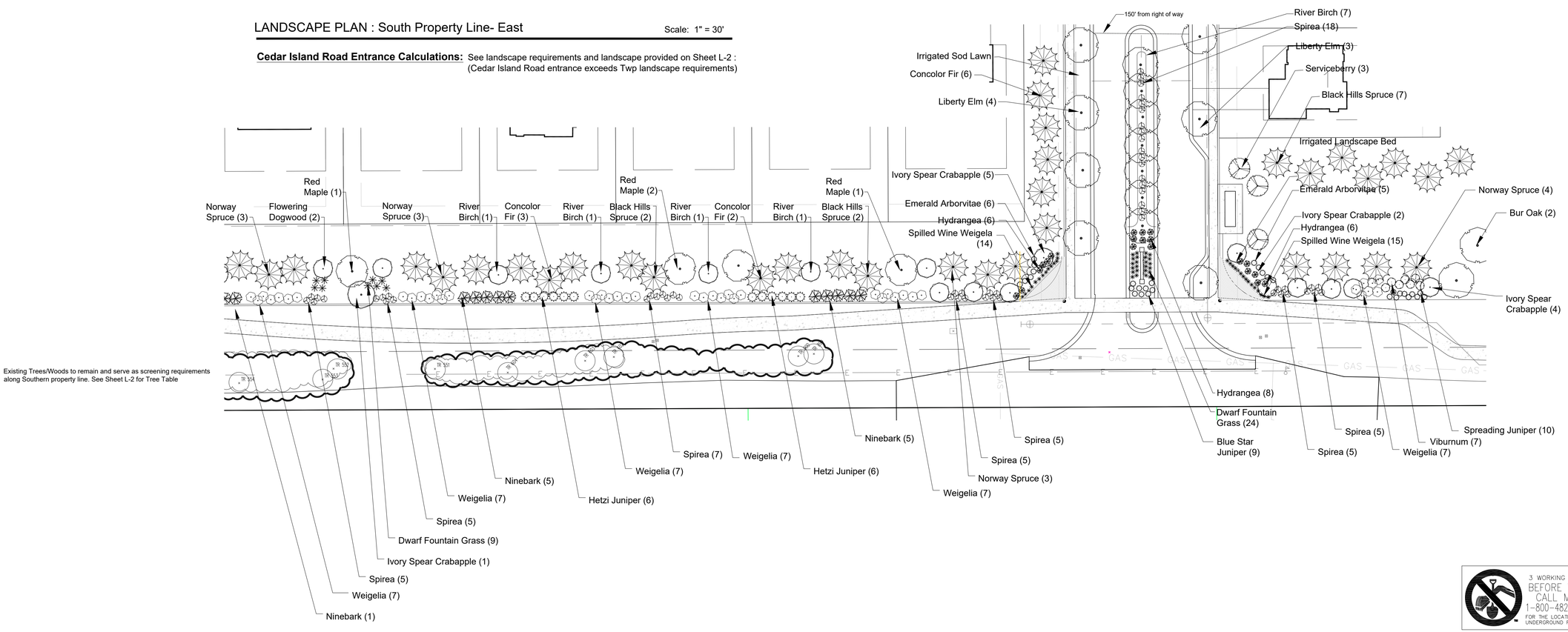
Scale: 1" = 30'



LANDSCAPE PLAN : South Property Line- East

Scale: 1" = 30'

Cedar Island Road Entrance Calculations: See landscape requirements and landscape provided on Sheet L-2 : (Cedar Island Road entrance exceeds Twp landscape requirements)



Item A.

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JAMES T. EPPINK
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Project:

Edendale Crossing

Bogie Lake Road
White Lake Township, MI

Owner:

PH Homes

8255 Cascade Ave
Suite 110
Commerce Twp, MI 48382
248-242-6838

Sheet:

Landscape Plan-Entrance & Screening Areas

Issues / Revisions

Final Site Plan	04-01-26

Drawn by: LP

Checked By: JTE

Date: April 1, 2026

Scale: As Noted

Not for Construction

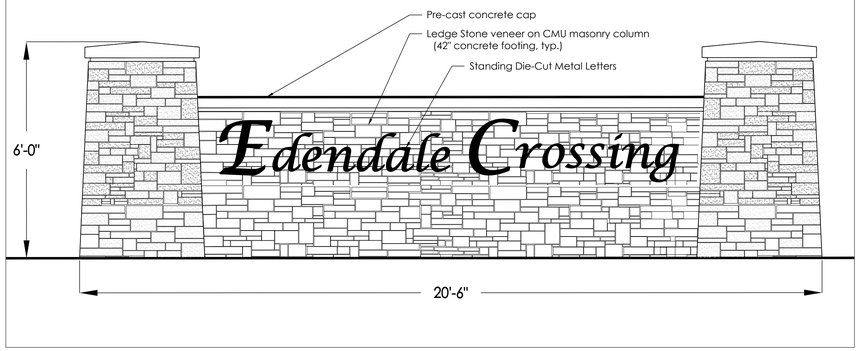
Sheet: L-3

ENTRANCE MONUMENT SIGN (BOGIE LAKE ROAD & CEDAR ISLAND ROAD):

SCALE: 1" = 2'

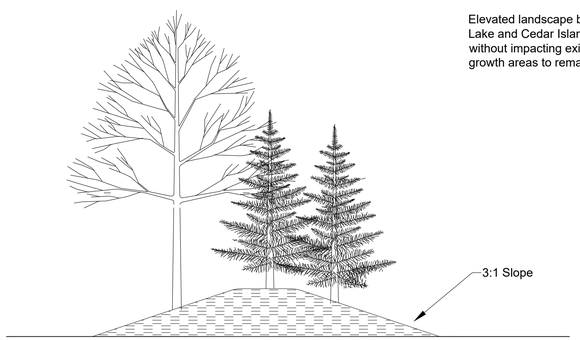
Masonry Stone Column Ledge Stone:

Stone Mfg: Owens Corning Masonry Products *
Style: Weather Edge Ledge Stone
Product #: CSV-2091
* Or approved equal



LANDSCAPE PLAN : Berm Cross Section

Scale: Not to Scale



Elevated landscape berm to be installed along Bogie Lake and Cedar Island Road frontages where possible without impacting existing woodland and vegetative growth areas to remain.

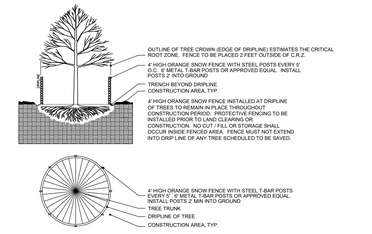
PLANTING LIST :

Quant	Description	Size/Root
16	Abies Concolor Concolor Fir	7' / B&B
6	Acer platanoides 'Crimson King' Crimson King Maple	2.5" / B&B
25	Acer Rubrum Red Maple 'Autumn Blaze'	2.2" / B&B
34	Acer saccharum 'JFS-KW8" Autumn Fest Maple	2.2" / B&B
11	Amalanchier arborea Serviceberry	7' / B&B
35	Betula nigra River Birch	7' / B&B
12	Cercis canadensis 'Forest Pansy' Forest Pansy Redbud	2" / B&B
2	Cornus florida Flowering dogwood	2" / B&B
18	Ginkgo biloba Ginkgo	2.5" / B&B
11	Malus ' Pink Profusion' Pink Profusion Crabapple	2" / B&B
15	Malus 'Ivory Spear' Ivory Spear Crabapple	2" / B&B
27	Picea glauca densata Black Hills Spruce	7' / B&B
3	Pseudotsuga mensiesii Douglas Fir	7' / B&B
20	Picea omorika Serbian Spruce	7' / B&B
22	Picea abies Norway Spruce	7' / B&B
37	Tilia cordata Greenspire Linden	2.5" / B&B
20	Ulmus americana 'Princeton' Princeton Elm	2.5" / B&B
7	Ulmus americana 'American Liberty' Liberty Elm	2.5" / B&B
20	Quercus macrocarpa Bur Oak	2.5" / B&B
14	Quercus rubra Red Oak	2.5" / B&B
4	Quercus bicolor Swamp White Oak	2.5" / B&B
Shrubs		
25	Hydrangea paniculata 'Little Quickfire' Little Quickfire Hydrangea	#5 / Container
66	Phisocarpus opulifolius 'Diablo' Diablo Ninebark	#5 / Container
94	Weigelia florida 'Bokraspiwi' Spilled Wine Weigla	#2 / Container
28	Weigela florida 'Alexandra' Wine and Roses Weiglea	#3 / Container
14	Taxus densformus 'Everlow' Everlow Yew	36"
11	Thuja occidentalis Emerald Arborvitae	#5 / Container
135	Spiraea x bumalda Anthony Waterer Spirea	#2 / Container
83	Juniperus horizontalis Blue Rug Juniper	#3 / Container
30	Juniperus Hetzi Col. Hetzi Juniper	#5 / Container
80	Viburnum dentatum 'Ralph Senior' Autumn Jazz Viburnum	#2 / Container
14	Juniperus squamata 'Blue Star' Blue Star Juniper	#3 / Container
Perennials		
83	Pennisetum alopecuroides 'Hameln' Dwarf Fountain Grass	#2 / Container

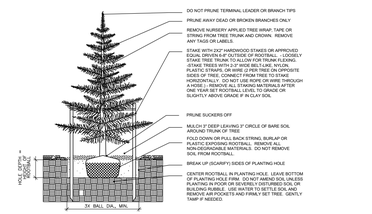
PLANTING NOTES :

1. Contractor shall be responsible for contacting and coordinating with all pertinent utility companies 72 hours in advance of any digging to make themselves familiar with all underground utilities, pipes and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities or structures.
2. Contractor shall not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist. Such conditions shall immediately be brought to the attention of the Owner's Representative. The contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
3. Any discrepancies between dimensioned layout and actual field conditions shall be reported to the Owner's Representative. Failure to make such discrepancies known will result in contractor's responsibility and liability for any changes and associated costs.
4. Contractor shall be responsible for any coordination with subcontractors as required to accomplish construction installation operations.
5. Contractor shall provide and maintain positive surface drainage.
6. Contractor shall be responsible for any existing materials that are damaged during construction.
7. See Plant & Material List and Planting Details for planting requirements, materials and execution.
8. All trees shall have a clay loam or clay root ball. Trees with sand root balls will not be accepted.
9. All tree varieties and substitutions, or deviations to the landscape plan must be approved prior to installation. Any plant material delivered to site not previously approved may be rejected and are the sole responsibility of the contractor.
10. The contractor shall "water in" and fertilize all plants immediately after planting.
11. Contractor shall install 3" depth Shredded Hardwood Mulch in all shrub and tree planting beds. Peat Moss is to be installed in all perennial flower area. Such beds shall have no shredded mulch, typ.
12. The contractor shall guarantee and maintain all trees, shrubs, ground cover and other plant materials for two years from the date of installation, including labor and removal and disposal of dead material.
13. All plant material shall be grade 1 northern nursery grown from a local source. All trees and plant material shall meet the current standards of the American Society of Nurseryman.
14. Contractor shall adhere to all soil erosion prevention methods as directed by the Municipal Ordinance including maintaining silt fencing and ensuring that soil, silt and other debris is prevented from leaving site or entering area drains, sewer inlets, creeks or natural areas.
15. Contractor shall protect existing irrigation system throughout construction, and shall modify the existing irrigation system as needed to ensure that all lawn and landscape areas within the project area receive irrigation coverage, and that the system operates correctly and efficiently. Contractor shall also install a rain detection and shut-off sensor onto the system.
16. Trees shall not be installed closer than 4' from a property line.
17. Contractor shall ensure that a 25' clear vision zone is maintained at each intersection as depicted, and must ensure that no limbs or obstructions exist between the grade and 8' above the grade within this zone.

PLANTING DETAILS :

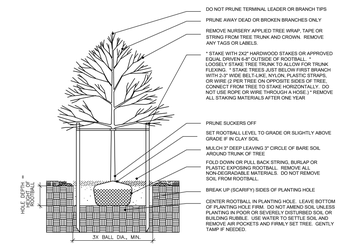


TREE PROTECTION - 4' HIGH ORANGE SNOW FENCE



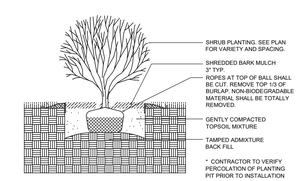
EVERGREEN TREE PLANTING DETAIL, TYP.

NOT TO SCALE



DECIDUOUS TREE PLANTING DETAIL, TYP.

NOT TO SCALE



SHRUB PLANTING - BALL AND BURLAP, TYP.

NOT TO SCALE

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

Item A.

STATE OF MICHIGAN
JAMES T. EPPINK
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Edendale Crossing

Bogie Lake Road
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Owner:

PH Homes

8255 Cascade Ave
Suite 110
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248-242-6838

Sheet:

Landscape Details & Plant List

Issues / Revisions

Final Site Plan	04-01-26

Drawn by: LZ

Checked By: JTE

Date: April 1, 2026

Scale: As Noted

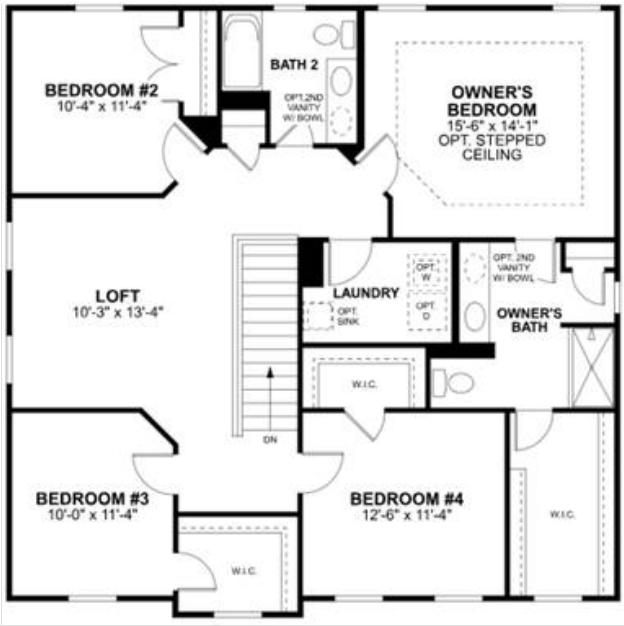
Not for Construction

Sheet: L-4

Brooklyn Plan (2,128 sf)

Aubrey Plan (2,260 sf)

Peyton Plan (2,427 sf)



Connect. Build. Thrive.

May 4, 2026

Sean O' Neil
Community Development Department
Charter Township of White Lake
7525 Highland Road
White Lake, Michigan 48383

RE: Edendale Crossing- Final Site Plan Review – 1st Review

Ref: DLZ No. 2545-7861-07 Design Professional: Kieft Engineering, Inc.

Dear Mr. O' Neil,

Our office has performed a Final Site Plan review for the above-mentioned plan dated March 23, 2026. The plans were reviewed for general conformance with the Township Engineering Design Standards.

General Site Information

This 45.47-acre site is located on the north side of Cedar Island Road and west of Bogie Lake Road.

Site Improvement Information:

- Construction of a ~~123~~ ~~125- 120~~ **115** unit site condominium with private roads. The development is to be phased as follows: Phase I- 60 units; Phase II-55-units.
- Two entrances: One off Bogie Lake Road and one off Cedar Island Road.
- Extension of proposed sidewalk along Cedar Island Road with off-site connection to the Huron Valley Schools property to the southeast.
- Water and sanitary sewer service.
- Storm water management facilities.

The following items should be noted with respect to Planning Commission review:

We note that comments from our January 8, 2026 review are in *italics*. Responses to those comments are in **bold.** New comments are in standard font.

Preliminary Site Plan Comments

General

1. *Sheet 19-Cedar Island & White Lake Middle School Sidewalk Plan- Remove 'Proposed Pedestrian School Crossing' note to the west of Carla Hills Drive as this was where the safety path was previously proposed.* **Comment outstanding.**
2. *Sheet 3- The number of lots for each phase has not been updated to correspond with the reduction in total units from 125 to 120. Please update.* **Comment addressed. Quantities have been updated.**

Paving/Grading

1. *The plan shows a proposed extension of an 8' wide path along the Cedar Island Road frontage. Please note the proposed sidewalk does not extend the entirety of the property width to the east and instead crosses Cedar Island Road and heads further east across Carla Hills Drive then onto Huron Valley Schools property where it terminates at the drive lane of the Middle School. This will require approval/easements from HVS and we question the safety of terminating the sidewalk at a drive lane. Comment addressed at this level of review. Per the design engineer, connection of the path to White Lake Middle School shall be coordinated with Huron Valley Schools. The FEP shall show final location of sidewalk connection to the school. We note that the current submittal shows connection to the White Lake Middle School parking lot. Please see our above comment regarding safety concerns of terminating the sidewalk at a drive lane. Per Item 5a of the 'Resubmission of updated Site Plan letter' from J Eppink Partners, Inc. and dated December 18, 2025, a final connection point for the proposed sidewalk has not yet been determined with Huron Valley Schools; however, the Community Impact Statement, also prepared by J Eppink Partners, Inc. and dated December 18, 2025 states on Page 4 that the proposed sidewalk shall connect to the existing school parking lot(White Lake Middle School) and on Page 9 states the sidewalk shall connect to Lakeland Elementary School Property which is located south of White Lake Middle School. In addition, Sheets 3,5,9,16, and 19 of the Preliminary Site Plan note/show connection of the proposed sidewalk to the White Lake Middle School parking lot. All correspondence and plan sheets shall be updated for consistency regarding the proposed sidewalk connection on the HVS property. We also note that our previous comment regarding the safety of connecting the sidewalk into a traffic circulation lane in a parking lot remains.* **Comment addressed at this level of review; the following comments are to be addressed on the Final Engineering Plan: 1) The final location of the sidewalk connection to HVS; 2) The safety of connecting the sidewalk into a traffic circulation lane in a parking lot on HVS property.**
2. *Is the intent to dedicate right of way along the Bogie Lake Road and Cedar Island Road frontages or to provide easements for the proposed sidewalk/path along these frontages? Comment addressed. ROW to equal 60' width shall be dedicated for both road frontages.* ***We note that offsite easements will be required from*** *~~Carla Hills and~~* ***Huron Valley Schools for the proposed 8' wide concrete walk.***

Comment is now outstanding due to the following requested clarification and change in sidewalk layout: The proposed 8' wide path along Cedar Island Road has now been shifted in its entirety to the north side of the road. The Existing Conditions Plan- Overall (Sheet 2) shows 43' existing ROW along Cedar Island Road in front of Parcel 12-29-476-007 while the Overall Site Plan and Notes (Sheet 3) shows the existing ROW in this area as 33'. Please clarify. The right of way along Parcel -007 will determine whether a sidewalk easement will need to be granted by this property owner. Additionally, please revise '8' Wide Safety Path Connection to Huron Valley School Parking Lot' reference notes on Sheets 3 and 5 from Sheet 17 to Sheet 19. Comment addressed. ROW width has now been corrected to 43' on the 'Overall Site Plan & Notes' (Sheet 3), so it now appears that an easement for the proposed path would not be required from Parcel -007. In addition, sheet references have been updated. **Comment remains as a notation.**

3. *Preliminary grading of the site has been proposed and demonstrates general drainage patterns. A more detailed grading review will be provided at the time of Final Engineering Plan submittal/review.* **Comment remains as a notation.**
4. *Provide plan indicating standard length fire truck access and turning radii so as to demonstrate adequate fire truck accessibility to and within the site. Comment addressed. Per design engineer, roads are per RCOC standards and support/provide adequate fire truck access. We note that there are a couple fire truck turning movements shown on the Cedar Island Entrance Plan (Sheet 9); movements show a standard (40' long) fire truck traversing the curb on Edendale Lane. The current plan revisions include slight modification to the configuration of the small island on Edendale Lane in front of proposed unit #3. Please include a turning radius for a fire truck to navigate around this island and note that since there are proposed tree plantings within this island that a fire truck will not be able to traverse over the center of the island. Please also reference Sheet 9 where the Fire truck movements on this sheet still show truck traversing curb after turning left onto Mollygrace Lane. It appears this could just be shifted slightly north to keep the movement within the paved area.* **Comment addressed. Island has been adjusted such that fire truck movements are now contained in the proposed street inside proposed curbing.**
5. *Sheet 4- the previous submittal showed proposed contours in the area north of units 19-24. The current submittal does not show grading in this area; however the proposed grades seem to indicate that additional grading will be necessary with cuts of up to 10 feet. Please clarify as this will impact the disturbance area and the number of existing trees that can remain.* **Comment addressed. The proposed grading and the previously proposed contours are now shown.**
6. *Sheets 5 and 9- Entrance dimensions of Edendale Lane at Cedar Island Road do not correspond to 21' B/B and 16' (island width) when measured per provided scale. Please revise.* **Entrance dimensions have been adjusted to 22' B/B widths.**

<u>Watermain</u>

1. *We defer to the Township Fire Department regarding hydrant coverage.* **Comment remains as a notation.**
2. *The Township requires two or more sources of water supply in any watermain extensions over 600 LF. This plan shows internal looping of watermain as well as stubbing into the right of way on*

Cedar Island Rd. However, there is no secondary source of supply. There would be potential for all ~~123~~ ~~125~~ ~~120~~ **115***homes to be out of water or have disruption of water quality during routine maintenance like valve exercising or hydrant flushing. The developer will need to provide a second connection point and sufficient valving so that approximately 20 homes maximum are out of water at any given time during routine maintenance or emergencies. Comment addressed. A secondary watermain connection has now been provided; a 12" watermain is now proposed along Cedar Island Road with stub shown adjacent to the southeast corner of Unit ~~47~~ ~~50~~ ~~63~~* **58. Comment remains as a notation.**

3. *Township Ordinance requires extension of utilities across property frontages; currently the plan proposes one stub out to the Cedar Island Road Right-of-Way at the Edendale Lane approach.* ***We defer to the Township as to whether the watermain shall be required to be extended across the Cedar Island Road frontage and stubbed to the western property line.*** *Please note that future expansion of the water system will be impacted by lack of access to watermain along Cedar Island Road. Please also note there are known contaminants related to the Huron Valley School site that may make the expansion of the Township water system desirable for nearby residents. Comment remains. Currently the proposed 12" diameter watermain along Cedar Island Road does not extend to the western property line and ends just south of Unit ~~63~~ 58.* **The Township Board at their 02/17/2026 meeting approved the Preliminary Site Plan as presented. Comment remains as a notation.**

Sanitary Sewer

1. *The plan proposes gravity sanitary sewer onsite which will flow to a proposed sanitary sewer pump station. This pump station will need to be designed to OCWRC standards. It should be noted that the plan also includes a significant amount of offsite sanitary sewer forcemain to connect to the existing system near the south end of the Huron Valley school campus along Bogie Road. This forcemain has been sized in accordance with the master plan for future flows from the north.* **Comment remains as a notation.**
2. ***We defer to the Township regarding the requirement to extend sanitary sewer along the Cedar Island Road frontage with a stub at the western property line.*** *Per Township Ordinance, utilities are required to be extended along property road frontages.* **The Township Board at their 02/17/2026 meeting approved the Preliminary Site Plan as presented. Comment remains as a notation.**
3. *Off-site easements shall be required for installation and future maintenance along parts of the proposed forcemain which fall outside of the Bogie Lake Road Right-of-Way. Comment remains as a notation. Per the design engineer, this is in process with Huron Valley Schools. In addition, it appears that an easement shall also be required from Parcel 12-29-476-007.* **Our office is in receipt of easement exhibit documents from both Parcel 12-29-476-007 and Huron Valley Schools. These documents are currently under review; comments shall be sent under separate cover and are forthcoming.**

Stormwater Management

1. *Sheet 8- It appears the discharge from the detention pond will flow across Parcel #12-28-303-001 which may require a storm drainage easement unless the storm sewer can be extended to a point there is no conflict. Comment addressed. A ditch that will route where the drainage to Thompson Lake goes is now proposed within the existing road ROW.* **Comment remains as a notation.**
2. *Sheet 8- The proposed storm sewer layout along Bogie Lake Road will need to be* ***clarified at the time of ~~Final Site Plan/~~Final Engineering Plan*** *to work with existing stormwater features, site drainage, and utility poles etc.* **Comment remains as a notation.**
3. *There are several comments/questions we have regarding the Detention Basin Calculations and Details Sheet 16. We have attached a red lined copy of the sheet for the design engineer's use. Comment partially addressed, but sufficient for this level of review. Please provide the T_t numbers in the 100 Year Basin Calculations. See attached plan sheet for a few remaining questions that can be answered with the FSP/FEP submittals.* **Comment remains partially addressed but is sufficient for FSP level of review. Please see red-lined plan sheet of stormwater management calculations as there are still remaining items within the calculations that will require revision. These calculations shall be required to be addressed on the FEP.**

Final Site Plan Comments

Sanitary Sewer

1. Sheet 11- Please see marked up calculations for revisions that shall be required.
2. We note that the location of the proposed sanitary pump station has changed from the Township Board approved Preliminary Site Plan. We consider the revised orientation to be an improvement compared to what was previously indicated so we do not take issue with this item but wanted to note the change.

Paving/Grading

1. Details of the proposed boulder wall (including cross section, etc.) on Units 73 and 74 shall be required at the time of FEP submittal. In addition, the wall shall require a minimum of a 36" high decorative fence at the top of the wall, as the wall is > 30" in height.

Recommendation

The majority of our above comments have been addressed, and we feel comfortable with remaining items being addressed at the time of Final Engineering Plan (FEP) review.

Please feel free to contact our office should you have any questions.

Sincerely,

DLZ Michigan

Michael Leuffgen, P.E.
Department Manager

Victoria Loemker, P.E.
Senior Engineer

Encl: Sheet 11-Detention Basin Calculations and Details Red Lined Plan Sheet

Cc: Hannah Kennedy-Galley, Community Development, *via email*
Paige Myers, Community Development, *via email*
Aaron Potter, DPS Director, White Lake Township, *via email*
Nick Spencer, Building Official, White Lake Township, *via email*
Jason Hanifen, Fire Marshall, White Lake Township, *via email*
David Waligora, Community Development *via email*
Matteo Passalacqua, Carlisle Wortman, *via email*

X:\Projects\2025\2545\786107 WLT Edendale Crossing\FSP Review.01\Review.01.docx

RED LINED COMMENTS TO ACCOMPANY FSP REVIEW.01 LETTER

(SHEET 1 OF 1)

100 YEAR DETENTION BASIN CALCULATION (I.E. WITH OUTLET)

TOTAL CONTRIBUTING AREA — A = 45.47

HYDROLOGIC SOIL GROUP — B

RUNOFF COEFFICIENT

C = 0.95 × 14.87 + 0.30 × 28.60 + 1.00 × 2 / 45.47

C = 0.54

This number and subsequent calculations involving weighted C-factor will have to be adjusted due to calculation error to the right.

		LENGTH		% SLOPE			
SHEET	K = 0.48	L= 230	FT	S= 1.5	V = $KS^{1/2}$	=	0.59 FT/S
SWALE	K = 1.20	L=	FT	S=	V = $KS^{1/2}$	=	0.00 FT/S
DITCH	K = 2.10	L= 300	FT	S= 1.0	V = $KS^{1/2}$	=	2.10 FT/S
PIPES	Longest Run	L= 2400			V =	3	FT/S

T_T = L / 3,600 V = 0.1086 HR = 6.52 MIN; 0.0396 HR = 2.38 MIN; 0.2220 HR = 13.32 MIN; HR = MIN

Some of storm sewer layout on plan has changed. Is this number still accurate?

T_C = $\sum T_T$ = 22.0 MIN

I_{100} = 83.3 / $(T_C + 9.17)^{0.81}$ = 5.14 IN/HR

CHANNEL PROTECTION VOLUME CONTROL: RECHARGE

$V_{CPV/C}$ = 4,719 CA = 115,869 CF

CAN BE SUBTRACTED FROM V_{100D} IF INFILTRATED

SOILS INFILTRATION RATE FROM BORINGS = 5.00 IN/HR

ABOVE 0.5 IN/HR SUPPLEMENTAL MEASURES NOT REQUIRED

BETWEEN 0.24 IN/HR & 0.5 IN/HR, SUPPLEMENTAL MEASURES REQUIRED

BELOW 0.24 IN/HR, INFILTRATION IMPRACTICAL & WAIVED

EXTENDED DETENTION

V_{ED}= 6,897 CA = 169,347 CF

WATER QUALITY - REMOVAL OF TSS (80 MG/L OR 80% TSS REDUCTION)

MECHANICAL SEPARATOR — N/A

I_1 = 30.2 / $(T_C + 9.17)^{0.81}$ = 1.86 IN/HR

Q_{WQ} = CI_1A = 46.07 CFS

SEDIMENT FOREBAY — N/A

V_F = $0.15V_{WQ}$ = 545 CA = CF

To arrive at Q= 0.150 cfs/ac, this assumes A= 103.38 acres which is greater than the actual acreage of 45.47 ac (see below calculation). Q value should be 0.319 based on 45.47 ac. This was correct on the last plan submittal.

QVRR=1.1055-0.206ln(A)
0.150=1.1055-0.206ln(A)
ln(A)=4.638
A=e^4.638
A=103.38 ac

DETENTION & FLOOD CONTROL

Q_{VRR} = 1.1055-0.206ln(A) = 0.150 CFS/AC

Q_{100P} = $Q_{VRR}A$ = 6.821 CFS

Correct, based on corrected QVRR

V_{100R} = 18,985 CA = 466,154 CF

Q_{100N} = $CI_{100}A$ = 126.20 IN/HR

R = 0.206 - 0.15ln(Q_{100P}/Q_{100N}) = 0.644

Correct, based on corrected Q100P

100-YEAR STORAGE VOLUME

V_{100D} = $V_{100R}R$ = 300,064 CF = 300,064 CF PER CPVC

Correct, based on corrected R

WAS VOLUME CONTORL MET FOR CPVC? Y or N — N

V_{100D} OR V_{ED} CONTROL? — V100D 300,064 CF REQ'D

Correct, based on corrected V100D

Q_{ED} = V_{ED} / 172,800 = 0.98 CFS

48 HOURS FOR RATE CONTROL

ORIFICE FORMULA

Q_A = $0.62\ (A_O)(2gH^{1/2})$

A_O = AREA ORIFICE PIPE

g = 32.2 FT/SEC^2

H = DEPTH OF BASIN ABOVE CENTERLINE OF OUTLET PIPE

FOREBAY — N/A

V_F = RIM = ____ INVERT = ____

H = 0.00 FT

EXTENDED DETENTION OUTLET

A_O = Q_{ED} / $0.62\ (2gH)^{1/2}$ = SF = 0.000 IN^2

$A_{1'}$ = πD^2 / 4 = 0.785 IN^2

$A_O/A_{1'}$ = 0.00 → USE 0 1" HOLES EQ. SPACED AROUND STANDPIPE BOTTOM

DETENTION BASIN

EXTENDED DETENTION OUTLET (LOWER)

V_{ED} = HOLES = 963.50 INVERT = 961.00

H = 2.50 FT

A_O = Q_{ED} / $0.62\ (2gH)^{1/2}$ = SF = 0.12 SF = 17.93873 IN^2

D_O = DIAMETER OF ORIFICE

D_O = $\sqrt{4A_O}$ = 0.40 FT = 4.78 INCH

$A_{1'}$ = πD^2 / 4 = 0.785398 IN^2

$A_O/A_{1'}$ = 22.84 → USE 23 1" HOLES EQ. SPACED AROUND STANDPIPE BOTTOM = 961.00

100-YEAR ALLOWABLE OUTLET (UPPER)

V_{100D} = RIM = 965.00 V_{ED} = = 963.50

H = 1.50 FT

A_O = Q_{100P} / $0.62\ (2gH)^{1/2}$ = SF = 0.02 SF = 3.545 IN^2

Correct, based on corrected QVRR

$A_{1'}$ = πD^2 / 4 = 0.785 IN^2

$A_O/A_{1'}$ = 4.51 → USE 5 1" HOLES EQ. SPACED AROUND V_{ED} ELEVATION = 963.50

"C" CALCULATION

TOTAL SITE AREA = 45.47 ACRES

PAVEMENT AREAS:

ROADS: = 155,000 SF

SIDEWALKS: = 79,000 SF

FUTURE DRIVEWAYS: SAY (800 SF) x (115 DRIVES) = 92,000 SF

TOTAL PAVEMENT AREA = 326,000 SF = 7.48 ACRES @ C = 0.95

ROOF AREAS:
ASSUME (2,800 SF) x (115 HOMES) = 322,000 SF = 7.39 ACRES @ C = 0.95

DETENTION BASIN AREA: 2.00 ACRES @ C = 1.00 (AVERAGE)

GREENBELT AREAS: 28.60 ACRES @ C = 0.20

Show below as 0.30

$$\text{"C"} = \left(\frac{7.48\ \text{ACRES}}{45.47\ \text{AC}} \times 0.95\right) + \left(\frac{7.39\ \text{ACRES}}{45.47\ \text{AC}} \times 0.95\right) + \left(\frac{28.60\ \text{ACRES}}{45.47\ \text{AC}} \times 0.30\right) + \left(\frac{2.00\ \text{ACRES}}{45.47\ \text{AC}} \times 1.00\right) = 0.543 = \underline{0.54}$$

VOLUME PROVIDED:

A_1 = @ 961.00 = 55,000 SF

A_2 = @ 965.30 = 86,000 SF

$V = \frac{H}{3}(A_1 + A_2 + \sqrt{A_1 \times A_2}) = 300{,}677$ CF, OK

DETENTION BASIN

EXISTING WATER ELEVATION = NONE
100 YEAR DESIGN HIGH WATER ELEVATION = 965.30
1' FREEBOARD ELEVATION = 966.30
STORAGE REQUIRED = 300,064 CF
STORAGE PROVIDED = 300,677 CF
SO-2 STANDPIPE RIM = 965.30
OVERFLOW MANHOLE RIM = 965.50
LOWEST EMERGENCY OVERFLOW CATCH BASIN ON N. SIDE IN ENTRY ROAD (OFF BOGIE LAKE ROAD) = 966.75
BOTTOM = 960.00

Correct, based on corrected R

Should be based on weighted C calculaton.

APPROXIMATE DETENTION BASIN 10 YEAR OUTFLOW CALCULATION

Q = ACI; A = 45.47 ACRES; C = 0.50; $I = \frac{175}{T+25}$; T = 30 MINUTES+/-.

$I = \frac{175}{30+25} = 3.18$; Q = (45.47)(0.50)(3.18) = 72.30 CFS

USE 36" OUTLET PIPE @ 1.00%; Q = 66.60 CFS; V = 9.42 FPS

NOTE: ESTIMATED TIME BASED ON THE LONGEST STORM SEWER RUN ≈ 2,400 LF
THUS, 2,400 LF ÷ 3 FPS (ASSUMED) = 800 SECONDS = 13.33 MINUTES
USE 10 MINUTES TO BE CONSERVATIVE.
20 MINUTES (INITIAL T_C) + 10 MINUTES = 30 MINUTES

Northwest Area Storm Run-off Calculation Comparison

"EXISTING CONDITIONS"
PRESENTLY 4.80 ACRES FLOWS OFF-SITE TO THE NORTHWEST.
EXISTING C = 0.30
FOR A 10 YEAR STORM Q_{10} = ACI
A = 4.80 ACRES
C = 0.30
$I = \frac{175}{T+25}$; T = 20 MINUTES; $I = \frac{175}{20+25} = 3.89$

Q_{10} = (4.80)(0.30)(3.89) = 5.60 CFS EXISTING
2.69

PROPOSED "C" CALCULATION
(14 HOMES)(REAR ROOF=1,600 SF) = 22,400 SF = 0.51 ACRES @ C = 0.95
REMAINING ~~1.68~~ ACRES @ C = 0.30

$$\text{"C"} = \left(\frac{0.51\ \text{ACRES}}{\cancel{2.19}\ \text{AC}\ 3.20} \times 0.95\right) + \left(\frac{1.68\ \text{ACRES}}{\cancel{2.19}\ \text{AC}\ 3.20} \times 0.30\right) = 0.45$$

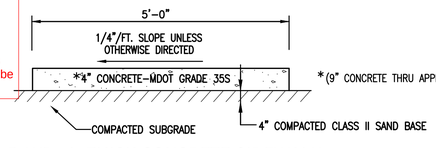
Does not match C (0.41)provided on Sheet 3

A = 3.00 ACRES
C = 0.45
I = 3.89
Q_{10} = (2.19)(0.45)(3.89) = 3.83 CFS PROPOSED

THUS, THERE IS LESS PROPOSED STORM WATER RUN-OFF THAT WILL BE FLOWING TO THE LEACH BASIN IN THE NORTHWEST AREA THEN THE EXISTING STORM WATER RUN-OFF FOR A TEN YEAR STORM.

Shown on Sheet 3 as 3.20 acres

In addition, Sheet reference note on Sheet 3 references Sheet 16; it should be Sheet 11.



5' WD. 4" THICK CONCRETE SIDEWALK

(ONSITE)

Storm Water Facilities Maintenance Plan

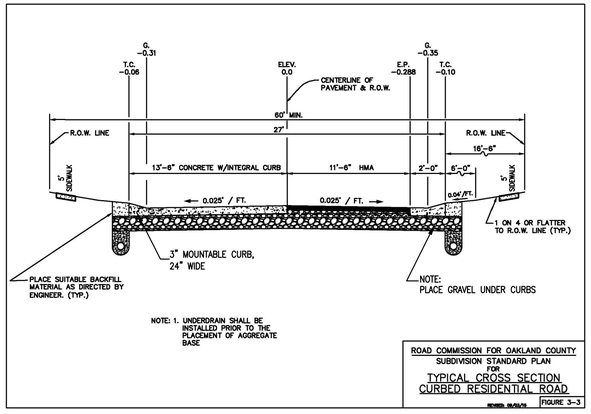
The "Edendale Crossing" Homeowners Association shall be responsible for the maintenance of all the storm water facilities. (Note: The developer is responsible until the HOA exists).

These facilities include the following:

- *Detention Basin*
- *Pretreatment Structure Manholes*
- *Manholes, Rear Yard Catch Basins, Leach Basins, End Sections & connecting pipe work*
- *Rear yard swales (within easements)*

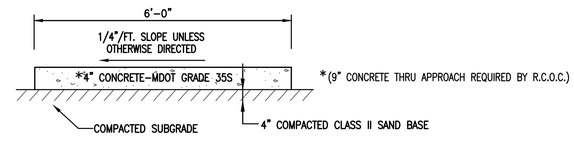
The HOA shall hired a qualified contractor to do the following Maintenance Schedule (including report kept on record):

1. *The (2) Pretreatment Structures shall be inspected by a qualified contractor on a semi-annual basis (twice/year) and necessary action taken to clean out the structures in accordance with the manufacturers guidelines.*
2. *The Detention Basin shall be inspected on any annual basis by a qualified contractor and/or civil engineer to insure it is functioning as designed.*
3. *The storm structures & swales shall be inspected on a bi-annual basis (every two years). This is an "above ground" visual inspection to determine if any structures are "failing", (i.e. ground has sank around structure, etc.).*



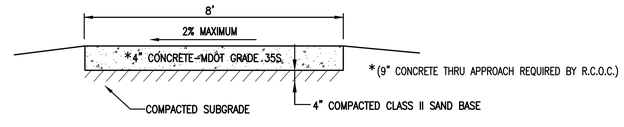
TYPICAL ROAD SECTION "A-A"

(SEE RCOC DETAIL SHEET 22 OF 25)



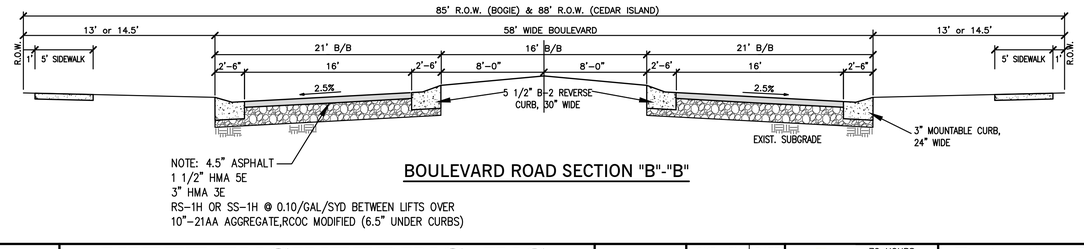
6' WD. 4" THICK CONCRETE SIDEWALK

(BOGIE LAKE ROAD & R.O.W.)



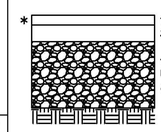
8' WD, 4" THICK CONCRETE SIDEWALK

CEDAR ISLAND ROAD R.O.W.



BOULEVARD ROAD SECTION "B"-"B"

HMA

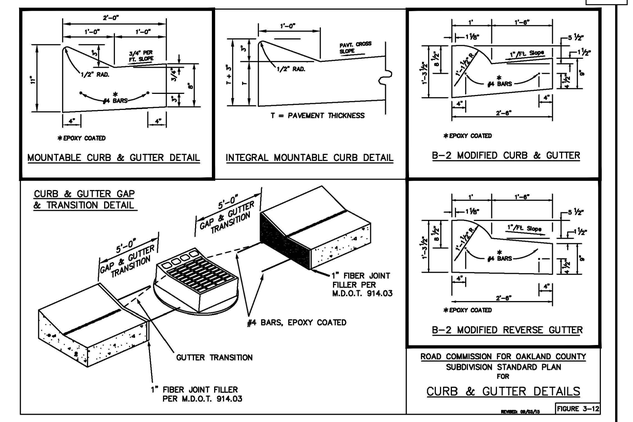


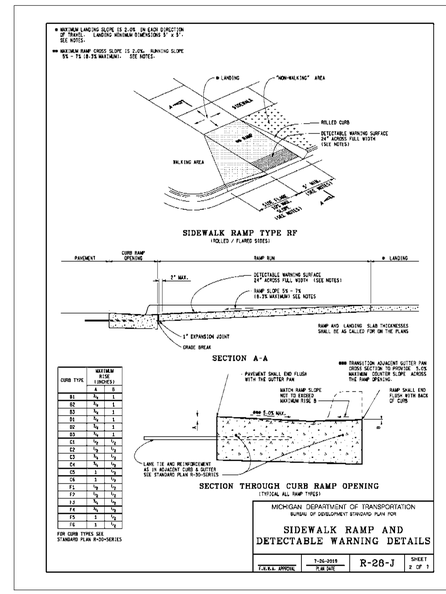
1.5" HMA 13A OR 5E
3" HMA 3C OR 3E

10" 21AA AGGREGATE, RCOC MODIFIED (6.5" UNDER CURB)

EXISTING, APPROVED SUBGRADE

SS-1H @ 0.10/GAL/SYD BETWEEN LIFTS COMMERCIAL A.D.T. COULD WARRANT A DIFFERENT TYPE HMA MIXTURE





TOTAL SITE

115 Units X 1 REU/Unit= 115 REUs

RESIDENTIAL UNITS = ~~123 REU/UNIT = 123 REU'S~~

OVERALL SANITARY DESIGN

"AVERAGE FLOW" 115 ~~123~~ REU'S @ 2.70 PERSONS/REU = ~~332.1~~ PERSONS 310.5
~~332.1~~ PERSONS x 100 GPCD = ~~33,210~~ GPD = ~~0.03321~~ MGPD 31050 0.03105
x 1.55 (conversion)
Q = ~~0.0515~~ CFS 0.0481

"PEAK FLOW" 115 ~~123~~ REU'S @ 2.70 PERSONS/REU = ~~332.1~~ PERSONS/1000 = ~~0.3321~~ = P 310.5 0.3105

Q = 100 x (18 + √P)/(4 + √P) = ~~405.93~~ GPCD 407.20
~~332~~ PERSONS x ~~405.93~~ GPCD = ~~134,769~~ GPD = ~~0.13477~~ MGPD 126539 0.12664
x 1.55 (conversion)
Q = REQUIRED = ~~0.2089~~ CFS 0.1963

NOTE: AN 8" TRUSS PIPE @ 0.40% CAN CARRY 0.765 CFS @ 2.19 FPS.
A 10" TRUSS PIPE @ 0.30% CAN CARRY 1.194 CFS @ 2.19 FPS.

STATE OF MICHIGAN — PATRICK COLIN McWILLIAMS — LICENSE NO. 6201031658 — PROFESSIONAL ENGINEER

DATE	ISSUE
9-19-2025	PER DLZ (8-26-2025)
10-29-2025	PER RCOC MEETING (10-27-2025) & DLZ (10-15-2025)
3-23-2026	PER TOWNSHIP BOARD MEETING (2-17-26) & DLZ (1-8-26)

PROPRIETOR:
PH COMMUNITIES, LLC
8255 CASCADE AVENUE, SUITE 110
COMMERCE TOWNSHIP, MICHIGAN 48382
(248) 242-6838

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DATE 7-2-2025	CKD. BY	DATE
DRAWN GF		
DESIGN PCM		
SECTION 29	T- 3 -N. R- 8 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG (800) 482-7171 OR 811

Detention Basin Calculations & Details

"EDENDALE CROSSING" SITE CONDOMINIUM
PART OF THE SOUTHEAST 1/4 OF SECTION 29, T3N, R8E
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE N/A
SHEET 11 OF 19
KE 2025.010

G:\2025\010 PH Homes - Bogie & Cedar Island\CAD\Edendale Crossing.dwg, 11 Detention, 3/23/2026 9:02:49 AM , AutoCAD PDF (High Quality Print MOD).pc3

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

May 4, 2026

Final Site Plan / Site Condominium / Planned Development Review
for
White Lake Charter Township, Michigan

Applicant:	PH Communities LLC
Project Name:	Edendale Crossing
Plan Date:	April 1, 2026
Location:	Northwest corner of Bogie Lake Road and Cedar Island Road Parcel IDs: 12-29-476-016 through 12-29-476-024 (nine adjacent parcels total)
Action Requested:	Final Site Plan / Site Condominium / Planned Development Approval

PROJECT NARRATIVE

On December 4th, 2025, the Planning Commission held a public hearing to review the Edendale Crossing planned unit development preliminary site plan. After consultant reviews, the public hearing was opened. Residents from the community expressed concerns regarding traffic, density of housing, and the development's contrast in character to the surrounding area. After closing the public hearing, The Planning Commission acknowledged that the area is zoned residential and that there was a general expectation that it would be developed into housing but also expressed concerns with the project's proposed density and layout. Commissioners agreed that the PD district was an appropriate mechanism to develop the site but that the site plan was not aligned with the character of the neighborhood. After deliberation, the Planning Commission voted unanimously to recommend denial of the preliminary site plan to the Township Board.

On December 19th, 2025, the applicant submitted a third revision of the preliminary site plan. The primary modifications to the plan are recorded throughout our updated preliminary site plan review dated January 7, 2026 but also listed below:

- Reduction in single family unit count from 125 to 120.
- Increase of open space from 24% to 27%.
- Density reduction to 3.3 units per net acre from 3.4 units per net acre.
- Homes near the north entrance have been moved 70 feet back from the Bogie Lake ROW from the original 40 foot buffer.
- Homes near the south entrance have been moved 45 feet back from the Cedar Island ROW from

Benjamin R. Carlisle, *President* John L. Enos, *Vice President* Douglas J. Lewan, *Principal*
David Scurto, *Principal* Sally M. Elmiger, *Principal* R. Donald Wortman, *Principal* Craig Strong, *Principal*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Senior Associate*
Richard K. Carlisle, *Past President/Senior Principal*

the original 30 foot buffer. See notes in the Area, Width, Height, Setbacks portion of this review.

- Open space and passive recreation areas have been redesigned. Open space is no longer proposed along the western and northern borders of the development. The central open space has increased in size and now includes a playground and larger walking path. A small pocket park has been included in the northeast corner of the site near units 12 and 13.
- Mollygrace Lane has been eliminated.

The increase in setbacks from Bogie Lake and Cedar Island Roads, as well as the increase in open space and recreation areas better align with the site's Master Plan subarea designation.

The applicant was requesting preliminary site plan approval as well as site condominium and planned development approval to construct a 120-unit site condominium using the Planned Development (PD) zoning option.

After public comment and deliberation, the Planning Commission voted to recommend denial of the preliminary planned development site plan to the Township Board. The applicant opted to take the site plan to the Township Board without modification. During the February 17, 2026 meeting, the Township Board took public comment then discussed the proposed site plan. Primary concerns expressed were housing density, safety, and traffic. Some board members expressed an understanding that change is inevitable and that the site is master planned for some form or dense residential. After deliberation, the Township Board voted five to two to approve the preliminary site plan with the condition that issues cited in staff and consultant reviews be addressed.

The primary modifications to the plan are recorded in depth throughout our final site plan review but summarized below:

- Unit reduction from 120 to 115. Units were located at the Bogie Lake Road entrance and along Cedar Island Road.
- Open Space has increased from 27% to 28.4% per the removal of 5 housing units.
- Addition of service drive to mechanical units near Bogie Lake Road entrance.
- Addition of pedestrian path from Cedar Island Road into the development and open space.
- Pathway to school no longer connects directly to the school parking lot.
- Minor changes to landscaping placement and counts.

When considering a Planned Development or Planned Unit Development, the preliminary site plan review is meant to critique the proposal against the standards of the Planned Development ordinance. This critique is based heavily on the community's Master Plan, applicant's parallel plan, and enhanced design standards and/or proposed community benefits. If the preliminary plan is approved, the purpose of the final site plan is to ensure the development has addressed any conditions tied to the preliminary approval and met the additional standards required at final site plan review.

This report will review the final site plan to ensure it complies with the conditions set forth by the Township Board, meets the requirements of additional information required at final site plan review, and note any other elective changes made to the plan since preliminary approval.

The largest parcel included in the project is 34.76 acres and zoned AG, Agricultural (Five acre minimum lots). The eight remaining parcels are zoned R1-A, Single Family (One acre minimum lots). A rezoning

SITE DESCRIPTION

Lot Area:	45.47 gross acres / 36 net acres
Frontage:	Approx. 809.9 feet along Bogie Lake / Approx. 1,375 feet along Cedar Island Road
Address:	Bogie Road Lot TBD / 5805 – 6605 Cedar Island Road
Current Use:	Vacant

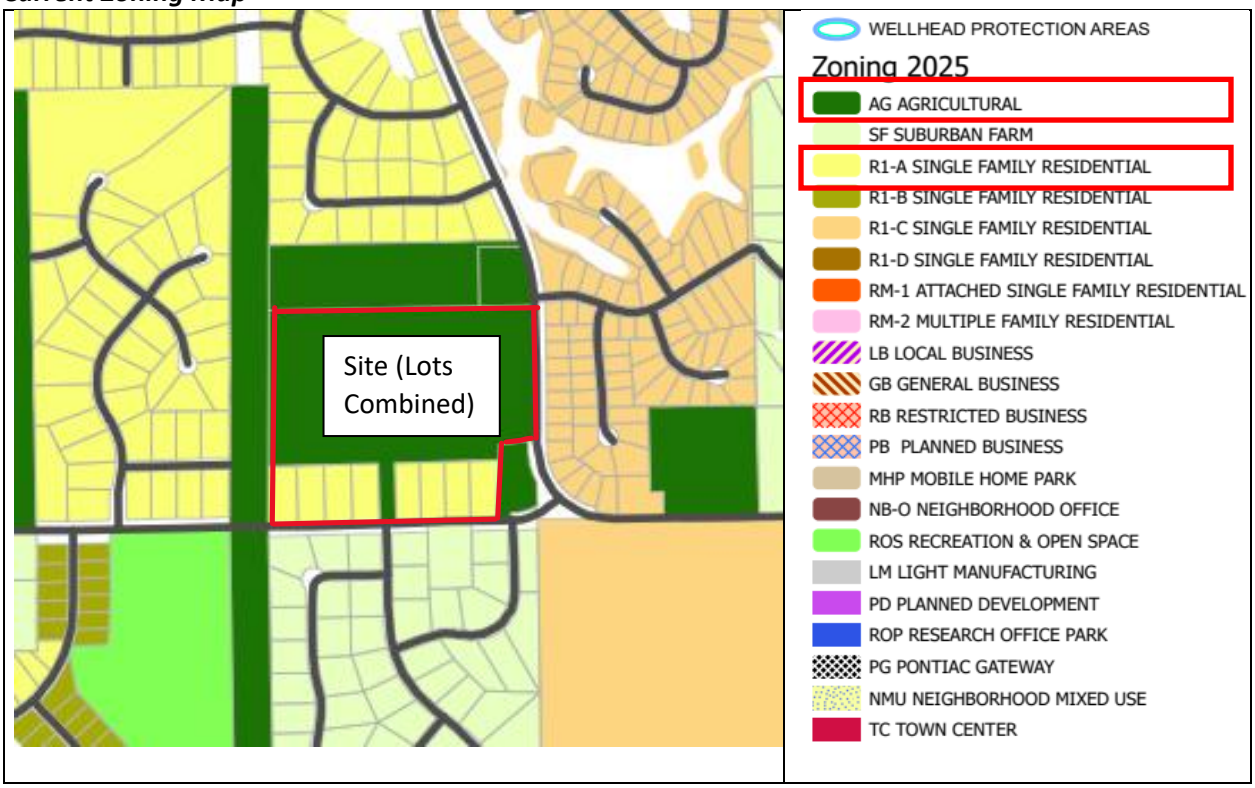
Aerial image of the site

Source: NearMap July 2025

	North	East	South	West
Surrounding Zoning	*AG, Agricultural*	*R1-C, Single Family Residential*	*Suburban Farm*	*AG, Agricultural*
Surrounding Land Uses	*Single Family Home / Landscaping Yard*	*Single Family Homes*	*Single Family Homes*	*Electrical Utility Lines*
Future Land-Use Map	*Neighborhood Residential*	*Neighborhood Residential*	*Agricultural / Rural Residential*	*Agricultural / Rural Residential*

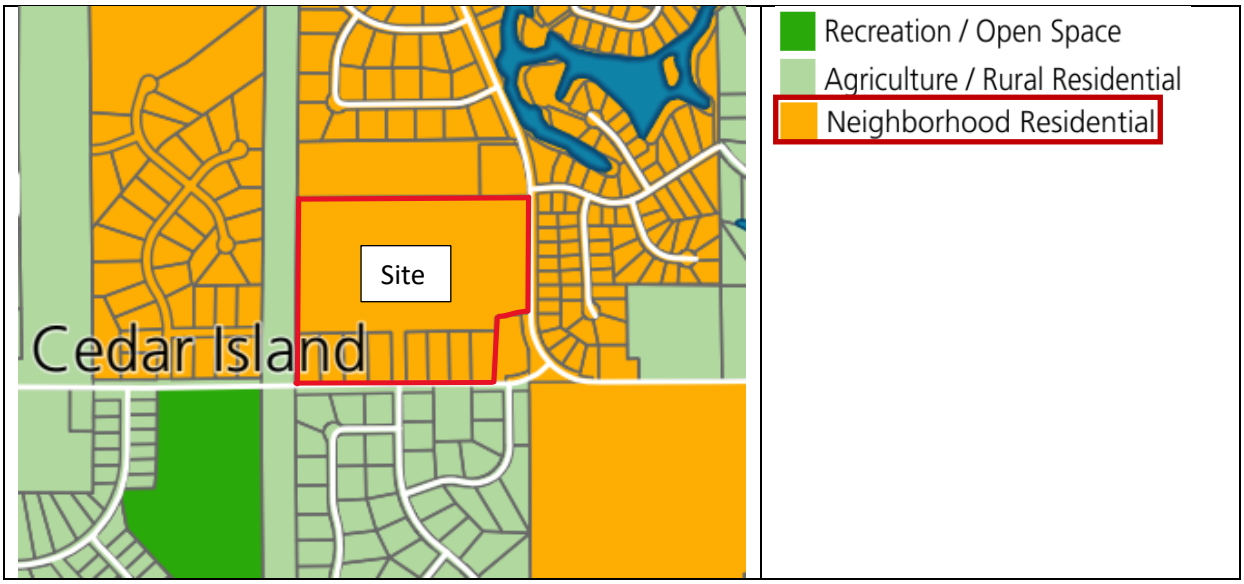
Current Zoning	**AG Agricultural / R1-A Single Family Residential** *AG: The Agricultural District is established as a district in which the principal use of land is for farming, dairying, forestry operations and other agricultural activities. The intent of this article is to protect land needed for agricultural pursuits from encroachment by untimely and unplanned residential, commercial or industrial development.* *R1-A: The Single-Family Residential Districts are established as districts in which the principal use of land is for single family dwellings, located in neighborhoods that include open space and that preserve sensitive natural environmental features.*

Current Zoning Map



Future Land Use	**Neighborhood Residential** *Description: "Maintains existing neighborhoods and provides for denser residential development in places where there is infrastructure to support the density and ensuring density is within the context of the surrounding neighborhood.* *Example of Uses: "Small-lot single family, duplexes, multi-family, parks, convalescent or nursing homes"*

Future Land Use Map



The zoning and Master Plan compatibility of the development is assessed in the Planned Development and Community Impact Statement portions of this review.

Item to be Addressed: *Addressed in other portions of this review.*

PLANNED DEVELOPMENT

Standards for PD projects are outlined in Section 6.7 of the zoning ordinance. This portion of the report will review the items to be addressed as part of the conditional approval granted by the Township Board.

> ***Item:*** *A schedule for the proposed phases is required. Sheet 3 outlines the previous unit count for phasing and should be updated.*
>
> ***CWA Comment:*** *Sheet C3 shows that Phase 1 will consist of 60 units along the perimeter of the site long Bogie Lake Road and Cedar Island Road. Phase will consist of 55 units primarily located in the interior of the lot.*

Item: *The proportions of brick and siding proposed on the façade of the units is complementary, however it is recommended that the brick also be included in a similar proportion on the side and rear elevations.*

CWA Comment: *Elevations provided in the preliminary site plan have not changed. No comment was provided stating whether this recommendation will be utilized.*

Item: *A table should be added to the site plan clearly stating how many trees are onsite and how many are to remain.*

CWA Comment: *Sheet L-2 has a table stating 474 6" dbh trees or greater are located on the site. 128 of those trees are to remain on site.*

Item: *The implementation of the pathway to the school complex will need to be coordinated with the school district and should be reoriented to not terminate into a parking lot.*

CWA Comment: *Sheet 17 shows the pathway running along Bogie Lake Road and terminating prior to the adjacent school parking lot. The applicant states the final connection will be determined by, and coordinated with, the school facilities department. This amenity was offered as a community benefit during preliminary review. The applicant should provide documentation from both parties showing a commitment to implement the pathway into the school campus.*

Item: *A draft development agreement will be required during final site plan review.*

CWA Comment: *The applicant states this process will commence during final site plan. All community benefits and the timeline for their implementation should be incorporated into the development agreement.*

Item: *The Planning Commission will need to consider the site's proposed layout, density, recreation space, pathway connections, and natural features protection and how they align with the Master Plan and proposed community benefits.*

CWA Comment: *This process was conducted during preliminary site plan review.*

Items to be Addressed:

1) *Sheet 17 shows the pathway running along Bogie Lake Road and terminating prior to the adjacent parking lot. The applicant states the final connection will be determined by, and coordinated with, the school facilities department. This amenity was offered as a community benefit during preliminary review. The applicant should provide documentation from both parties showing a commitment to implementing the pathway into the school campus.*
2) *All community benefits and their implementation timeline should be outlined in the development agreement.*

NATURAL RESOURCES

Topography: Sheet 2 shows the existing site topography. The site has a gentle slope going east to west for two thirds of the site then sloping back down at the western end of the lot. Proposed grading will retain a slight rolling hill effect with steeper sloping near the detention basin, and northern portion of the site.

We defer to Township Engineering for any concerns with the proposed grading plans as well as any issues cited regarding stormwater management and natural environment protection.

Wetlands: Sheet 3 states no wetlands are onsite. EGLE wetland mapper confirms no wetlands are present on the lots.

Woodland: Mature woodlands cover the majority of the sites northeast and southeast corners. The center and western half of the site is relatively clear. The site plan states that a portion of the woodlands in the northeastern portion of the site and the area between units lining Edendale Lane and Mollygrace Lane will remain as open space/existing trees.

The final site plan indicates that the development now offers 28.4% open space, an increase from 27% offered in the preliminary site plan. This is primarily a result of the reduction of housing units from the plan. Information on how existing trees will be protected during grading and construction is provided on Sheet L-4.

Soils: Soil survey maps indicate that spinks loamy sand, fix sandy loam, and ormas loamy sand soils are present.

Water: Site does not contain any natural water bodies. Sheet 3 states the site is not within any floodplain. Thompson Lake is approximately 430 feet northeast.

General Notes: The use of a PD district does allow for the consideration of requiring the preservation of natural features as a benefit to the development and community.

Source: Google Maps 2025

Items to be Addressed: *Any cited concerns from Township Engineering.*

AREA, WIDTH, HEIGHT, SETBACKS

Lot calculations and setbacks are provided on Sheet 3. Comparison tables between the proposed standards and R1-D standards is provided in the CIS. Standard bulk and lot regulations for the PD zoning district are set forth in Section 3.1.10. and Section 3.11. Notes on Sheet 3 provide proposed lot and setback information as well as one typical lot and development envelope layout.

Planned Development District Standards

Planned Development	R1-D Parallel Plan	Proposed PD	Deviation
Building Setbacks			
Front	30 feet	25 feet	5 foot reduction
Side	10 feet	10 feet	None
Rear	30 feet	30 feet	None
Wetland	N/A	N/A	N/A

Unit Lot Standards			
Minimum Lot Area	12,000 sqft	7,750 sqft (minimum), 8,651 sqft (average)	Approx. 3,349 - 4,250 sqft reduction
Minimum Lot Width	80 feet	62 feet	18 feet reduction
Maximum Lot Coverage	30%	33.5%	3.5% increase
Depth to Width	Approx. 2 to 1	Approx. 2 to 1	None
Planned Development	**Required**	**Proposed**	**Deviation**
Development Setbacks			
Front	40 feet	130 feet from Bogie Lake Road ROW (See notes below) 25 feet from Cedar Island ROW (See notes below)	None 15 feet Approved by Township Board
Side	25 feet each side	N/A	N/A
Rear	Determined by PC	0 feet at West Lot Line / 0 feet at North Lot Line	Approved by Township Board
Wetland	N/A	N/A	N/A
Density			
	Determined by Net Acreage / 3 units per acre	3.2 units per acre	.20 more units per acre
Lot Standards			
Minimum Lot Area	10 acres	45.47 gross acres	Yes
Minimum Lot Width	TBD	809.9 feet	TBD
Maximum Lot Coverage	TBD	TBD	TBD
Depth to Width	4 to 1	Less than 1 to 1	Yes
Building Height			
	30 feet or 2 stories	30 feet or 2 stories	None
Floor Area			
Two Story	1,500 sqft w/ 900 sqft first floor	Approx. 2,100 sqft to 2,700 sqft w/ 1,100 first floor	None

Setbacks are shown to be 0 feet and 50 feet along the north property line and 0 feet along the west property line from individual unit boundaries.

The setback for units 16 and 17 should be added to Sheet 3.

The Township Board approved the preliminary site plan which retained the majority of setbacks proposed in the final site plan. The primary change in setbacks are at the Bogie Lake Road entrance where units were moved an additional 63.5 feet from the road right-of-way.

Items to be Addressed: *None*

ACCESS & CIRCULATION

Vehicle Access & Circulation

The site is accessed via a boulevard entrance off Bogie Lake Road and another off Cedar Island Road. 60 foot right-of-way streets are proposed throughout the development. Section 6.4 outlines standards for access management. Public roads in the Township are either the jurisdiction on Michigan Department of Transportation (MDOT) or Road Commission of Oakland County (RCOC). The Planning Commission may waive standards for access per Section 6.4.F however permits will be required from RCOC for the proposed access points. Below is a review of the proposed access points per the standards of the zoning ordinance.

Edendale Lane / Bogie Lake Intersection

A 45 mph speed limit requires that the proposed access drive should be 350 feet from driveways on the same side or opposite side of the road. This standard is not met in relation to the distance from the Thompson Lane / Bogie Lake Road intersection. The Township Board approved of this access point during preliminary site plan review.

Edendale Lane / Cedar Island Intersection

Cedar Island is a dirt road. The site plan shows pavement being extended west to the proposed access drive intersection. The speed limit is unposted, and the area is somewhat rural so a 55 mph limit is assumed. This requires that the proposed access drive should be 455 feet from driveways on the same side or opposite side of the road. The distance between the proposed drive at Cedar Island Road and Carla Hills drive is 273 feet. The Township Board approved of this access point during preliminary site plan review.

Traffic Study

A TIS dated September 28th, 2025 was provided by FLEIS&VANDENBRINK during preliminary site plan review.

The study was conducted during the school year and accounts for peak travel times for school activity. The Bogie Lake Road / Cedar Island Road intersection currently operates at grades “E, C, and D” for eastbound traffic and at grades “A and B” for northbound traffic. The development is expected to generate 1,258 average daily trips. Future operations estimate that the grades of service for the northbound traffic will remain “A and B” however the eastbound traffic grades will drop to “E, D, and F”.

The study concludes with a recommendation that exclusive left turn lanes and right turn lanes be incorporated into the Cedar Island approach to the Bogie Lake Road intersection. These improvements have not been incorporated into the final site plan. The project does propose adding a center turn lane to

Bogie Lake Road from the south end of the Edendale Lane entrance north past the Thompson Lane intersection. Acceleration and deceleration lanes have also been added to Bogie Lake Road at the Edendale Lane entrance. These improvements are in response to preliminary notes provided by RCOC.

Per their preliminary review, RCOC has indicated that the location of the proposed development entrances in relation to existing intersections is acceptable.

The Township Board approved of the ingress/egress designs during preliminary site plan review.

Non-Motorized Access and Circulation

Sections 5.20 and 5.21 provide requirements for site sidewalks and pathways. Eight foot wide concrete paths are shown along Clear Island and Bogie Lake Roads. The pathways have been relocated within the ROW's alleviating the need for access easements. On Sheet 17, the developer has provided a safety path extension from the Edendale Lane / Cedar Island Road intersection to the Huron Valley School campus to the east. This would improve non-motorized connectivity and potentially reduce the amount of vehicle traffic during drop off / pickup times. As noted earlier, the design no longer extends to the parking lot however we recommend documentation be provided to the Township outlining each parties dedication to full implementation of the pedestrian connection as it was a community benefit to the project.

Internal sidewalks are shown along all streets as well as cross development pedestrian pathways. These sidewalks are required to be five feet wide as shown on Sheet 16. Additional pedestrian access has been provided to Cedar Island Road between units 50 and 51.

Public Transit

No public transit is accessible near the site.

White Lake Township is served by the Western Oakland Transportation Authority which provides scheduled transportation for Township residents with specific needs.

***Items to be Addressed**:*

1) *Township Engineering concerns.*
2) *Township Public Safety concerns.*
3) *The Road Commission of Oakland County approval of the access to Bogie Lake and Cedar Island Roads will be required.*

PARKING & LOADING

Section 5.11 outlines requirements for off-street parking. Sheet 3 states parking is provided via two garage spaces as well as driveway space for each unit. This meets the ordinance standards.

There are no loading zone requirements for single family developments.

***Items to be Addressed**: None*

ESSENTIAL SERVICES & UTILITIES

The site is not currently served by water or sewer. To address density, the project proposes bringing a force main sanitary line up from south of the Lakeland High School site. This will require a pump station proposed in the northeast corner of the development near unit 18. A water main connection is proposed from existing water lines along Bogie Lake Road. We defer to Township Engineering on the feasibility and capacity of the design of the system.

No circulation plan was provided for emergency vehicles. Notes on Sheet 3 provide information regarding fire lanes and hydrant placement. We defer to Township Public Safety to determine the feasibility of site design and hydrant placement.

Items to be Addressed:

1) *Any cited concerns of Township Engineering.*
2) *Any cited concerns of Township Public Safety.*

LANDSCAPING & SCREENING

The applicant has provided a landscape plan on Sheets L-1, L-2, and L-3. Landscaping plans are required at final site plan review.

Section 5.19.D provides requirements for screening along property lines as it relates to adjacent districts and is reviewed below.

<u>Greenbelts</u>

Property Line	Required	Provided	Compliant
North (AG)	Landscaping, Berms, Obscuring Fencing, and/or Screen Wall 53 deciduous trees, 53 evergreen trees, 424 shrubs	56 existing trees and surrounding brush vegetation.	No / Waiver Requested
East (ROW)	Greenbelt 23 trees and 184 shrubs	32 trees and 186 shrubs	Yes
South (ROW)	Greenbelt 44 trees and 352 shrubs	88 trees, and 369 shrubs	Yes
West (AG / ITC Corridor)	Landscaping, Berms, Obscuring Fencing, and/or Screen Wall 43 deciduous Trees, 43 evergreen trees, 344 shrubs	No new plantings / No major existing vegetation	No / Waiver Requested

The preliminary landscaping plan stated the installation of required screening along the North and South property lines would disturb the existing trees and is not recommended. No landscaping is provided along the west property line per the ITC Corridor. However, west of the ITC lines is a R1-A zoned residential development of which the ITC lines will not obscure view from.

Source: Google Maps 2025

Interior Landscaping

Interior landscaping is not required for condominium developments.

Residential Entrance Landscaping

Standards for residential development entryways is outlined in Section 5.19.F. The Bogie Lake entrance meets plant count requirements. Landscaping is present along the first 150 feet of the entrance roadway however plant counts are not provided to determine if the standard has been met.

The Cedar Island entrance fulfills all plant count requirements however one tree required for the drive island has been moved to the curbside due to size constraints. Landscaping is present along the first 150 feet of the entrance roadway however plant counts are not provided to determine if the standard has been met.

Minimum Plant Size and Species

The proposed plantings and species meet the requirements of Section 5.19.H.

Mechanical Equipment Screening

Per the proposal to bring water and sewer in to service the site, a pump station, transformer, and generator are proposed at the sites northeast corner. Landscaping is proposed around the vicinity of the equipment for the purpose of screening.

Items to be Addressed: *Planning Commission to consider waiving requested greenbelt landscaping deviations along the West and North property lines.*

PERFORMANCE STANDARDS

No issues are anticipated regarding performance standards outlined in Section 5.18. Sheet 3 indicates that no street lighting is proposed and that individual dwelling unit lighting will be provided. The Township has the ability to require lighting where it deems it is necessary for safety and security.

Lighting requirements are reviewed during final site plan review.

Items to be Addressed: *None*

SIGNAGE

Sheet L-4 provides specifications for monument signage proposed at the Bogie Lake Road and Cedar Island Road entrances. Stone veneer is the predominant finish for the sign. Signs are administratively reviewed by the Township.

Items to be Addressed: *None.*

ARCHITECTURE & LAYOUT

The proportions of brick and siding proposed on the façade of the units is complementary. We recommended that the brick also be included in a similar proportion on the side and rear elevations. Elevations provided in the preliminary site plan have not changed. No comment was provided stating whether this recommendation will be utilized.

Items to be Addressed: *Elevations provided in the preliminary site plan have not changed regarding the use of brick along the side and rear unit elevations. No comment was provided stating whether this recommendation will be utilized.*

CONDOMINIUM DOCUMENTS

Draft master deeds are required for final site plan review. Section 6.1.F outlines regulations for condominium development designs. Standards relevant to zoning and site design are reviewed below. We defer to Township Engineering for items referring to utility layout and capacity.

Streets

Sheet 3 states that all internal roads are to be private. A separate application to the Township requesting the roads be private must be provided. Street designs are compliant however we defer to Township Engineering regarding technical aspects of the proposed streets.

Blocks

Blocks, streets, and pedestrian designs conform to requirements.

Easements

No public facilities are offered within the development. We defer to Township Engineering regarding the proposed water/sewer utilities along Bogie Lake Road and the necessary easements to ensure the Township has access.

Condominium Lots

Corner lots are to be 20 feet wider than a standard lot. The development still proposes to offer approximately 15 to 22 foot wider corner lots. Condominium layout requirements state front-to-front lot orientation shall be utilized where possible. The proposed layout accomplishes this standard along most streets. The Township approved this layout during preliminary site plan review.

Public Dedications

The site is not offering any public amenities such as parks or schools.

Trees and Natural Features

As noted in the Natural Features and Landscaping portions of this review, the development is proposing to persevere existing trees along the eastern half of the north and south property line as well as down the middle of the development between dwelling units.

Condominium Documents

A draft master deed shall be provided during final site plan review

Items to be Addressed:

1) *Concerns cited by Township Engineering.*
2) *Concerns cited by Township Counsel.*
3) *A private road application is required.*
4) *A draft master deed will be required during final site plan review.*

SUMMARY

The Planned Development final site plan is substantially complete and should be placed on a Planning Commission agenda. Potential conditions for final site approval are listed below.

Below are waivers/modifications/determinations the Planning Commission will need to consider.

Waivers / Modifications / Determinations

1) *Planning Commission to consider waiving requested greenbelt landscaping deviations along the West and North property lines.*

Items to be addressed at Final Site Plan Review

1) *Concerns cited by Township Engineering.*
2) *Concerns cited by Township Counsel.*
3) *Concerns cited by Public Safety.*
4) *Final approval of the plan will require the condition that the lots be combined into one parcel.*
5) *Sheet 17 shows the pathway running along Bogie Lake Road and terminating prior to the adjacent parking lot. The applicant states the final connection will be determined by, and coordinated with, the school facilities department. This amenity was offered as a community benefit during preliminary review. The applicant should provide documentation from both parties showing a commitment to implementing the pathway into the school campus.*
6) *All community benefits and their implementation timeline should be outlined in the development agreement.*
7) *The Road Commission of Oakland County approval of the access to Bogie Lake and Cedar Island Roads will be required.*
8) *A private road application is required.*
9) *A draft master deed will be required during final site plan review.*

Respectfully,

CARLISLE/WORTMAN ASSOC., INC.
Matteo Passalacqua
Community Planner

Fire Department
Charter Township of White Lake

7420 Highland Road
White Lake, MI 48383
Office (248) 698-3993
www.whitelaketwp.com/fire

Site / Construction Plan Review

To: Sean O'Neil, Planning Department Director

Date: 04-30-2026

Project: Edendale Crossing

Job #: 2025.010

Date on Plans: 03-23-2026

The Fire Department has the following comments with regards to the 5th review of preliminary site plans for the project known as Edendale Crossing

1. The access drive and parking lot shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all weather driving capabilities.

2. The required turning radius shall accommodate the largest Fire Department apparatus (40') and provide a turn radius profile throughout entire plan showing apparatus movement on future plans.

3. The angle of approach/Departure to and from White Lake roads shall not exceed 8 degrees.

4. Where fire hydrants or fire department connections are subject to impact by a motor vehicle, guard posts or other approved means shall comply with section 312.

5. All fire lanes shall be conspicuously posted with uniform "NO PARKING FIRE LANE" signs as prescribed by the fire code official. The location and spacing of the signs, mounted or erected, shall be as directed by the fire code official.

6. The Fire Dept. has no further comments.

Jason Hanifen
Fire Marshal
Charter Township of White Lake
(248)698-3993
jhanifen@whitelaketwp.com

Plans are reviewed using the International Fire Code (IFC), 2021 Edition and Referenced NFPA Standards.

Director's Report

Project Name: Edendale

Description: Planned Development Agreement for Final PC Consideration

Date on Agenda this packet pertains to: September 17, 2026

☐Public Hearing

☐Initial Submittal

☐Revised Plans

☐Preliminary Approval

☐Final Site Plan Approval

☐Special Land Use

☒Planned Development Agreement

☐Other:

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Community Development Director	☐	☐	☒	☐	Based on comments from staff & consultants
Lisa Hamameh	Township Attorney	☐	☐	☒	☐	See attached Agreement

PLANNED BUSINESS DEVELOPMENT AGREEMENT

EDENDALE CROSSING

THIS PLANNED BUSINESS DEVELOPMENT AGREEMENT (the "Agreement"), dated _____, 2026, is made and entered into by and between the **CHARTER TOWNSHIP OF WHITE LAKE**, a Michigan municipal corporation, having the address of 7525 Highland Road, White Lake, Michigan 48383 (the "Township"), and **PH COMMUNITIES LLC**, a Michigan limited liability company, whose address is 8225 Cascade St. Suite 110, Commerce, Michigan 48382 ("Edendale").

RECITALS:

A. Edendale is the fee owner of the real property in White Lake Township, Michigan, which is more particularly described on **Exhibit A,** attached hereto and made a part hereof (hereinafter referred to as the "Property").

B. The Property is zoned PB, Planned Business District, and is currently designated as Neighborhood Residential on the 2024 Master Plan Future Land Use Map.

C. This Planned Development is comprised of nine adjacent parcels and consists of 45.47 acres of real property located at the northwest corner of Bogie Lake Road and Cedar Island Road, as described on Exhibit A.

D. Edendale applied to the Township to develop the Property as a 115-unit residential site condominium development using the Planned Development (PD) process under the Township's Zoning Ordinance and submitted a corresponding preliminary site plan. The development was proposed in two phases (60 units in Phase I and 55 units in Phase II).

E. On December 4, 2025, the Planning Commission, after having held a public hearing on that date, recommended approval of the rezoning, subject to various conditions including a recommendation of approval by the Planning Commission of the preliminary site plan; and recommended denial of the preliminary site plan prepared by J. Eppink Partners, Inc., dated July 2, 2025, with a revision date of November 12, 2025.

F. Edendale submitted a revised preliminary site plan prepared by J. Eppink Partners, Inc., dated July 2, 2025, with a revision date of December 18, 2025, and the Planning Commission reconsidered its prior recommendation to deny the preliminary site plan at its January 15, 2026 meeting. The Planning Commission recommended denial of the *revised* preliminary site plan, finding that the *revised* preliminary site plan, revised December 18, 2025, did not meet the intent and goals of the Township's Master Plan.

G. On January 20, 2026, the Township Board considered the *revised* preliminary site plan, prepared by J. Eppink Partners, Inc., dated July 2, 2025, with a revision date of December 18, 2025, and voted to remand the *revised* preliminary site plan back to the Planning Commission for reconsideration with the recommendation from the Township Board that Edendale remove five lots including lot 17, lot 18 and three lots along Cedar Lake Road, thereby reducing the number of residential units from 120 to 115.

H. Edendale submitted a *second revised* preliminary site plan, prepared by J. Eppink Partners, Inc., dated July 2, 2025, with a revision date of January 25, 2026, which *second revised* preliminary site plan incorporated the Township Board's recommended reductions.

I. On February 5, 2026, the Planning Commission voted to reconsider its prior recommendation, considered the *second revised* preliminary site plan, prepared by J. Eppink Partners, Inc., dated July 2, 2025, with a revision date of January 25, 2026, and voted to recommend denial of the *second revised* preliminary site plan, due to concerns regarding traffic, sewer not being a public benefit, lack of water extension, and density.

J. On February 17, 2026, the Township Board considered the *second revised* preliminary site plan, and the recommendation from the Planning Commission and voted to approve the *second revised* preliminary site plan, prepared by J. Eppink Partners, Inc., dated July 2, 2025, with a revision date of January 25, 2026. The Township Board also considered the first reading of the rezoning from R1-A (Single Family Residential) and AG (Agricultural) to PD (Planned Development).

K. On March 17, 2026, the Township Board approved the rezoning from R1-A (Single Family Residential) and AG (Agricultural) to PD (Planned Development).

L. Following Township Board approval, Edendale submitted a revised site plan for final site plan approval, prepared by J. Eppink Partners, Inc. dated July 5, 2025, with a revision date of March 23, 2026, which has been determined by the Community Development Director to be in substantial conformance with the Preliminary Site Plan approved by the Township Board.

M. On _____, 2026, the Planning Commission considered and recommended approval/denial of the Final Site Plan, dated _____ at its _____, 2026 meeting. The Final Site Plan, attached hereto as **Exhibit B** shall be hereinafter referred to as the "PD Plan."

N. The Township considered and relied upon the representations by Edendale of certain public benefits of the Edendale PD, which benefits were summarized in Edendale's Community Impact Statement, dated November 11, 2025, and updated December 18, 2025.

O. In accordance with the Township Zoning Ordinance, Sec. 6.7 B.i.b.(1), Edendale has represented to the Township its objective to be achieved by the development is to provide attainable single-family housing.

P. In accordance with the Township Zoning Ordinance, Sec. 6.7 B.i.b.(2), Edendale has represented to the Township that it intends to construct single-family residential housing that would be attractive to families due the close proximity and connection with the local public school complex and for active empty nesters desiring to stay in the community but wanting more manageable lot sizes with both on-site and accessible off-site amenities, including walking trails and nearby parks and connected school recreational facilities.

Q. In accordance with the Township Zoning Ordinance, Sec. 6.7 B.i.b.(4) and (5), the Traffic Impact Study, prepared by Fleis & Vandenbrink, dated September 28, 2025, and the

Community Impact Statement, dated November 11, 2025, were provided and considered during preliminary site plan review by the Planning Commission at its December 4, 2025 meeting.

The Township desires to ensure that the real property that is depicted on the PD Plan is developed in accordance with, and used for the purposes permitted by the approved PD Plan, the related documents and undertakings of Edendale, and all applicable laws, ordinances, regulations, and standards; and Edendale's desire to proceed with obtaining engineering approval of the proposed site plan and the issuance of permits required to develop the Property in accordance with the approved PD Plan.

NOW, THEREFORE, it is hereby agreed as follows:

1. The Township has granted its approval of the PD Plan and this Agreement under the Planned Development Approval Process of Section 6.7 of the Township's Zoning Ordinance, which approval is subject to the terms and conditions of this Agreement. The parties agree and acknowledge that the Property shall be developed only in accordance with:

(a) all applicable provisions of the White Lake Township Code of Ordinances, including (without limitation) Section 6.7 of the Zoning Ordinance relating to Planned Developments; and

(b) the PD Plan, as such PD Plan was approved by the Township Board on _____, which PD Plan shall also constitute the approved final site plan, lighting and landscape plan for the Development, because Edendale chose to submit the PD Plan in sufficient detail so as to allow the PD Plan to act as the final site plan, lighting and landscape plan for the Development; and

(c) engineering construction plan review and approval by the Township's Engineering Consultant, which plans shall be submitted by Edendale in accordance with all applicable laws, ordinances, regulations and standards; and

(d) this Agreement.

The items listed in 1(a) through (d) above are referred to in this Agreement as the "PD Documents."

2. The permitted use of the Property shall be those permitted in the PD, Planned Development District.

3. The Township's approval of the PD Documents, and the use of the Property and any development thereof, are subject to compliance with this Agreement and the following conditions:

a. Submission by Edendale of engineering construction plans and approval by the Township's Engineering Consultant. Such plans shall comply with all applicable ordinances, standards, rules, regulations, and requirements of the Township as determined by the Engineering Consultant, including without limitation its comments in the May 4, 2026 correspondence to the Community Development Director relating to the PD Plan.

b. The requirements of the Township as determined by the Planning Consultant, including without limitation its comments in the Report, issued by Mr. Matteo Passalacqua, of Carlisle Wortman Associates, Inc., the Township's Planning Consultant, dated May 4, 2026, relating to the PD Plan.

c. The requirements of the Fire Department, including without limitation, the requirements set forth in correspondence dated April 30, 2026, issued by the Fire Department to the Community Development Director, and applicable fire and safety codes adopted by the Township.

d. Edendale shall take all actions necessary to complete the condominium in accordance with the requirements of the Condominium Act, Act 59 of 1978, as amended, and Sec. 6.1 of the Township's Zoning Ordinance, including the provision of covenants, restrictions and master deed and by-laws for the Condominium (together referred to as "Condominium Documents"). The Condominium Documents shall be subject to review and approval by the Township attorney for compliance with this Agreement and Township ordinances, rules, regulations, standards, policies or practices prior to execution or recordation. Prior to the issuance of building permits, Edendale shall combine all lots into one parcel. The Township agrees to take all reasonable steps to approve such combination in a timely manner.

e. Edendale is required to provide documentation and design details, satisfactory to the Township, demonstrating its agreement with the Huron Valley School District ("HVSD") to construct the pathway along Bogie Lake Road to HVSD's property at a location to be agreed upon between Edendale, HVSD and the Township as confirmed by the approved Final Engineering Plans. The pathway should be designed with safe pedestrian circulation in mind and not terminate directly into a drive lane or parking area. Crosswalk or pathway indicator paint may be necessary to clearly demarcate where pedestrian traffic can access the buildings onsite. Edendale, at its sole cost and expense, shall be required to secure the necessary off-site easements for the installation by Edendale and future maintenance by the respective property owner of the pathway easement from the Huron Valley School District.

f. Edendale, at its sole cost and expense, shall be required to secure the necessary off-site easements for the installation by Edendale and future maintenance by the Township of the sewer force main, which falls outside of the Bogie Lake Road right of way.

g. Conditions imposed on the Development by the Township Board in connection with its approval of the PD Plan and this Agreement, conditions recommended by the Township's Planning Consultant and Engineer and any other staff, and any other reasonable conditions, which may be subsequently imposed on the site plan, landscape plan, and engineering plans that are not contrary to or inconsistent with this Agreement and the approved PD Plan.

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h. All improvements shown on the PD Plan and PD Documents completed at Edendale's sole cost and expense, in accordance with applicable ordinances, rules, standards and regulations.

i. The only deviation from otherwise applicable Township ordinances that shall be permitted are those deviations described below:

i. The front yard building setback requirement for the R1-D district is 30 feet. The PD Plan proposes a 25-foot front yard setback.

ii. The minimum lot area per unit for the R1-D district is 12,000 sq. ft. The PD Plan proposes approximately 7,750 sq. ft. (minimum) and 8,651 (average).

iii. The minimum lot width per unit for the R1-D district is 80 feet. The PD Plan proposes 62 feet.

iv. The maximum lot coverage per unit for the R1-D district is 30%. The PD Plan proposes 33.5%.

v. The front yard development setback requirement for the R1-D district is 40 feet. The PD Plan proposes 25 feet from the Cedar Island Road right of way.

vi. The rear yard development setback requirement for the R1-D district is determined by the Planning Commission. The PD Plan proposes zero (0) feet at west lot line and zero (0) feet at north lot line.

vii. The development density requirement for the R1-D district for this Property is determined by net acreage/3 units per acre. The PD Plan proposes 3.2 units per acre.

viii. The development minimum lot area for a PUD development is 10 acres. The PD Plan proposes 45.47 gross acres.

ix. The development depth to width standard for the R1-D district is 4 to 1. The PD Plan proposes less than 1 to 1.

x. The watermain along Cedar Island Road does not extend to the western property line and ends just south of Unit 54.

xi. The sanitary sewer main does not extend to the western property line and ends just south of Unit 54.

xii. The access drive off Bogie Lake Road is required by Sec. 6.4 of the Township Zoning Ordinance to be 350 from Thompson Lane. The PD Plan does not meet that standard.

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xiii. The access drive off Cedar Island Road is required by Sec. 6.4 of the Township Zoning Ordinance is required to be 350 from Carla Hills Drive. The PD Plan does not meet that standard.

xiv. The development requires 53 deciduous trees, 53 evergreen trees, and 424 shrubs along the north property line. The PD Plan proposes 56 existing trees.

xv. The development requires 43 deciduous trees, 43 evergreen trees, and 344 shrubs along the west property line. The PD Plan proposes no new plantings.

j. Edendale shall ensure that the proposed use on the Property shall not exceed the performance criteria found in the Township's Zoning Ordinance, Section 5.18.

k. Architectural style, elevation features and materials must be consistent with the architectural style, elevation features and materials as depicted in the PD Plan, but deviations to home elevations that are consistent with the quality and nature of materials shown in the concept elevations provided by Edendale may be considered minor modifications as defined by the Zoning Ordinance.

l. The proposed development schedule for the development of the Property is attached as Exhibit C, which may be modified by Edendale as necessary or appropriate, with the Township's consent, such consent not to be unreasonably withheld, conditioned or delayed.

4. The Zoning Board of Appeals shall have no jurisdiction over the Property or the application of this Agreement.

5. Except for deviations specifically approved by the Township under this Agreement and the approved PD Documents, the Township Code of Ordinances, Zoning Ordinance and all applicable regulations of the Township shall apply to the Property, and any violation of such Codes, Ordinances and regulations by Edendale, its successors or assigns, or occupant of the Property shall be deemed a breach of this Agreement, as well as a violation of the Township Code or Ordinance.

6. (a) Any breach of this Agreement shall constitute a nuisance *per se* which shall be abated. The parties therefore agree that, in the event of a breach of this Agreement by Edendale, which is not cured in accordance with this Agreement, the Township, in addition to any other relief to which it may be entitled at law or in equity, shall be entitled under this Agreement to an order of a court of competent jurisdiction providing for relief in the form of injunctive relief or specific performance requiring abatement of the nuisance *per se.*

(b) In the event of a breach of this Agreement, the Township may notify Edendale of the occurrence of the breach and issue a written notice requiring the breach be cured within thirty (30) days; provided, however, that if the breach, by its nature, cannot be cured within thirty (30) days, Edendale shall not be in the breach hereunder if Edendale commences the cure within the thirty (30) day period and diligently pursues the cure to completion. Failure to comply with such

notice shall, in addition to the remedy provided in subsection (c) below and any other relief to which the Township may be entitled in equity or at law, render Edendale liable to the Township in any suit for enforcement for actual costs incurred by the Township including, but not limited to, reasonable attorneys' fees, expert witness fees and the like.

(c) In addition to the above described remedies, in the event the breach is due to a failure to maintain the Property in a first class condition, using commercially reasonable standards consistent with the PD Plan and this Agreement, and the Township provided the notice described in subsection (b), above, which notice sets forth the date, time and place of a hearing before the Township Board for the purpose of allowing Edendale and/or its successors or assigns, including, but not limited to, the Condominium Association to the extent Edendale and/or its successors or assigns are responsible for the maintenance of the Property (each of which is referred to as a "Responsible Party"), to be heard as to why the Township should not proceed to perform the maintenance which has not been undertaken. In that hearing, the time for curing such deficiencies and the hearing itself may be extended. If, following the hearing, the Township Board shall determine that the deficiency has not been cured within the time specified at the hearing, then upon five (5) days written notice to the Responsible Party, the Township shall thereupon have the power and authority, but not the obligation, to enter upon the Property or cause its agents or contractors to enter upon the Property to cure such deficiency as reasonably found by the Township to be appropriate and/or necessary, in a manner so as to reasonably minimize any interference with the business operations on the Property and the cost and expense of such curative action, including the cost of notices by the Township and reasonable legal, planning, and engineering fees and costs incurred by the Township, shall be paid by the Responsible Party. Such amount shall constitute a lien on the Property and the Township may require such costs and expenses to be paid prior to the commencement of work. If such costs and expenses have not been paid within sixty (60) days of a billing to the Responsible Party, all unpaid amounts may be a) placed on a delinquent tax roll of the Township as to the Property and shall accrue interest and penalties and shall be collected as and shall be deemed delinquent real property taxes according to the laws made and provided for the collection of delinquent real property taxes in the discretion of the Township; or b) assessed against the Responsible Party and collected as a special assessment on the next annual Township tax roll; or c) collected by use of the applicable provisions of Michigan law providing for foreclosure by advertisement, the Responsible Party having specifically granted the Township the required power of sale to do so; or d) collected by suit against the Responsible Party. If suit is initiated, the Responsible Party shall pay all the Township's legal fees and costs. The selection of remedy shall be at the sole option of the Township, and election of one remedy shall not waive the use of any other remedy.

7. This Agreement may not be amended except in writing signed by the parties and recorded in the same manner as this Agreement. Minor modifications to the approved PUD Plans may be approved administratively to the extent permitted by the Zoning Ordinance or as required to comply with the engineering plans hereafter approved by the Township Engineer.

8. The parties understand and agree that if any part, term, or provision of this Agreement is held by a court of competent jurisdiction, and as a final enforceable judgment, to be illegal or in conflict with any law of the State of Michigan or the United States, the validity of the remaining portions or provisions of this Agreement shall not be affected, and the rights and obligations of the

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parties shall be construed and enforced as if this Agreement did not contain the particular part, term, or provisions held to be invalid.

9. This Agreement shall be governed by the laws of the State of Michigan, both as to interpretation and performance. In the event of any litigation relating to this Agreement or the PD, the parties consent to the venue in and to the exclusive jurisdiction of the courts of and in the State of Michigan, including the federal courts.

10. No waiver of any breach of this Agreement shall be held to be a waiver of any other or subsequent breach. A delay in enforcement of any provision of this Agreement shall not be construed as a waiver or estoppel of the Township's right to eventually enforce, or take action to enforce, the terms of this Agreement. All remedies afforded in this Agreement shall be taken and construed as cumulative; that is, all remedies afforded in this Agreement are in addition to every other remedy provided by law.

11. The signers of this Agreement warrant and represent that they have the authority to sign this Agreement on behalf of their respective principals and the authority to bind each party to this Agreement according to its terms. Further, each of the parties represent that the execution of this Agreement has been duly authorized and is binding on such parties.

12. This Agreement shall run with the land described herein as the Property and bind the parties, their heirs, successors, and assigns. This Agreement shall be recorded in the Oakland County Register of Deeds by the Township. The parties acknowledge that the Property is subject to changes in ownership and/or control at any time, but that heirs, successors, and assigns shall take their interest subject to the terms of this Agreement. All references to "Edendale" in this Agreement shall also include its heirs, successors, and assigns.

13. (a) Edendale has negotiated with the Township the terms of the PD Documents, including this Agreement, and such documentation represents the product of the joint efforts and mutual agreements of Edendale and the Township.

(b) The parties agree that this Agreement and its terms, conditions, and requirements are lawful and consistent with the intent and provisions of local ordinances, state and federal law, and the Constitutions of the State of Michigan and the United States of America. Edendale has offered and agreed to proceed with the undertakings and obligations as set forth in this Agreement in order to protect the public health, safety, and welfare and provide material advantages and development options for Edendale, all of which undertakings and obligations the parties agree are necessary in order to ensure public health, safety, and welfare, to ensure compatibility with adjacent uses of land, to promote use of the Property in a socially, environmentally, and economically desirable manner, and to achieve other reasonable and legitimate objectives of the parties, as authorized under applicable Township codes and ordinances and the Michigan Zoning Enabling Act, MCL 125.3101, *et seq.,* as amended. It is also agreed and acknowledged that the terms, conditions, obligations, and requirements of this Agreement are clearly and substantially related to the burdens to be created by the development and use of the Property under the approved PD, and are, without exception, clearly and substantially related to the Township's legitimate interests in protecting the public health, safety and general welfare. Furthermore, Edendale fully accepts and agrees to the final terms, conditions, requirements and obligations of the PD

Documents, and Edendale shall not be permitted in the future to claim that the effect of the PD Documents results in an unreasonable limitation upon uses of all or any portion of the Property, or claim that enforcement of the PD Documents causes an inverse condemnation, other condemnation or taking of all or any portion of the Property.

14. Edendale acknowledges that, at the time of the execution of this Agreement, Edendale has not yet obtained final engineering approvals for the development of the Property. Edendale acknowledges that the Township's Engineering Consultant may impose additional conditions other than those contained in this Agreement during their plan reviews and approvals as authorized by law; provided, however, that such conditions shall not be inconsistent with the PD Plan or PD Documents and shall not change or eliminate any development rights authorized thereby. The engineering plans approved by the Engineering Consultant and any conditions imposed thereby, shall be incorporated into and made a part of this Agreement automatically upon issuance of the Engineering Consultant's approval of same and without the necessity of amending this Agreement, and shall be enforceable against Edendale in the event it proceeds with the development of the Property.

15. It is understood that construction of some of the improvements included in the PD Documents may require the approval of other governmental agencies.

16. None of the terms or provisions of this Agreement shall be deemed to create a partnership or joint venture between Edendale and the Township.

17. The recitals contained in this Agreement and all exhibits attached to this Agreement and referred to herein shall for all purposes be deemed to be incorporated in this Agreement by this reference and made a part of this Agreement.

18. This Agreement, together with the PD Documents, are intended as the complete integration of all understandings between the parties related to the subject matter herein. No prior contemporaneous addition, deletion, or other amendment shall have any force or effect whatsoever, unless embodied herein in writing. No subsequent notation, renewal, addition, deletion or other amendment shall have any force or effect unless embodied in a written amendatory or other agreement executed by the parties required herein, other than additional conditions, which may be attached to site plan approvals as stated in Section 14 above.

19. The parties intend that this Agreement shall create no third-party beneficiary interest except for an assignment pursuant to this Agreement. The parties are not presently aware of any actions by them or any of their authorized representatives that would form the basis for interpretation construing a different intent and, in any event, expressly disclaim any such acts or actions, particularly in view of the integration of this Agreement.

20. Where there is a question with regard to applicable regulations for a particular aspect of the development, or with regard to clarification, interpretation, or definition of terms or regulations, and there are no apparent express provisions of the PD Documents which apply, the Township Board, in the reasonable exercise of its discretion, shall determine the regulations of the Township's Zoning Ordinance, as that Ordinance may have been amended, or other Township Ordinances that shall be applicable, provided that such determination is not inconsistent with the

nature and intent of this Agreement and the PD Documents. In the event of a conflict or inconsistency between two or more provisions of the PD Documents, the more restrictive provision, as determined in the reasonable discretion of the Township Board, shall apply. In the event there exists any conflict between this Agreement and the PD Plans and current and future Township Zoning Ordinance provisions, this Agreement and the PD Plans shall apply.

[Signatures on Next Page]

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IN WITNESS WHEREOF, the parties hereto have set their hands on the day and year set forth with the notarization of their signatures.

EDENDALE:

PH COMMUNITIES LLC, a Michigan limited liability company

_____
By:
Its:

STATE OF MICHIGAN)
) SS
COUNTY OF OAKLAND)

On this ____ day of _____, 2026, before me personally appeared _____ the _____ of PH Communities, LLC, a Michigan limited liability company, who acknowledged that he/she signed this agreement on behalf of said company.

_____
Notary Public
Oakland County, Michigan
Acting in Oakland County, Michigan
My Commission Expires: _____

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TOWNSHIP:

CHARTER TOWNSHIP OF WHITE LAKE, a Michigan municipal corporation

_____
By: Rik Kowall
Its: Township Supervisor

_____
By: Anthony Noble
Its: Township Clerk

STATE OF MICHIGAN)
) SS
COUNTY OF OAKLAND)

On this ____ day of _____, 2026, before me personally appeared Rik Kowall, the Township Supervisor, and Anthony Noble, the Township Clerk, who acknowledged that they signed and attested to this Agreement on behalf of the Township of White Lake.

_____
Notary Public
Oakland County, Michigan
Acting in Oakland County, Michigan
My Commission Expires: _____

Exhibits:
A — Property Legal Description
B — PD Plans
C — Development Schedule

Drafted Jointly By:
Lisa J. Hamameh, Esq.
Rosati Schultz Joppich & Amtsbuechler
27555 Executive Drive, Suite 250
Farmington Hills, MI 48331

and
Alan M. Greene, Esq.
Dykema
39577 Woodward Ave., Suite 300
Bloomfield Hills, MI 48304

When Recorded, Return To:
Township Clerk
Township of White Lake
7525 Highland Road
White Lake, MI 48383

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EXHIBIT A

PROPERTY LEGAL DESCRIPTION

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EXHIBIT B

PD PLANS

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Exhibit C

DEVELOPMENT SCHEDULE

127682.000001 4910-6269-4346.1

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WHITE LAKE CHARTER TOWNSHIP

COMMUNITY DEVELOPMENT DEPARTMENT
PLANNING COMMISSION – SUPPLEMENTAL STAFF REPORT

Property: 8320 Highland Road – BP Gas Station
Parcel ID: Y-12-13-454-019
Applicant: Evan Shimkus
Zoning: GB – General Business
Request: Special Land Use – Expansion of Existing Automobile Service Station
Proposal: Installation of four (4) dedicated EV charging spaces served by two (2) DC fast chargers and associated electrical equipment
Staff: David Waligora, AICP, Senior Planner

Background

The Planning Commission considered this Special Land Use request on August 20, 2026. The proposal would expand the existing automobile service station through the installation of four dedicated EV charging spaces served by two DC fast chargers, a pad-mounted transformer, and associated electrical and site improvements.

Discussion at the August meeting focused primarily on potential noise impacts and the relationship of the proposed charging equipment to the adjoining residential property. Residents also raised concerns regarding nighttime operation and the condition of the existing fence along the residential property line.

Following the public hearing, the Planning Commission unanimously tabled the request:

> *"…to gather further information from a sound expert and for said expert to be present at the next meeting this request is considered at, to study alternate charger locations and to improve the landscaping and buffering on the residential property line."*

The applicant has since provided additional noise information and prepared a revised plan, Revision 4, intended to respond to the Commission's concerns.

Revised Charger Location and Noise Analysis

Noise was a principal issue during the Planning Commission's August review. **Revision 3**, presented at the August meeting, included a sound-distance table using a charger sound level of **65 dBA at approximately one meter (3.5 feet)**. The table then calculated the anticipated reduction in sound over distance, decreasing to 59 dBA at 6.5 feet, 53 dBA at 13 feet, 47 dBA at 26 feet, 41 dBA at 52 feet, and 35 dBA at 105 feet. The same table identified transformer noise as 56 dBA at approximately one meter, decreasing to 30 dBA at 105 feet.

As part of the September resubmittal, the applicant provided additional documentation from Autel, the charger manufacturer, explaining the basis for the 65 dBA sound level used in the August plans. Autel tested its DC fast-charging equipment in a controlled indoor testing environment designed to minimize background sound and reflections. Measurements were taken one meter from the different sides of the equipment under high-power operating conditions. The highest reported measurement was 64.7 dBA at one meter.

Accordingly, the 65 dBA source level used in the August plans is consistent with, and slightly more conservative than, the manufacturer's maximum measured sound level. The new manufacturer documentation is therefore useful because it provides support for the starting sound level previously used by the manufacturer.

Please note, the manufacturer's documentation is not a site-specific acoustical study. It does not measure the existing ambient sound environment at 8320 Highland Road and does not provide dBC or low-frequency sound measurements. The question of dBC and low-frequency sound was raised during the Commission's August discussion, although it was not specifically incorporated into the formal tabling motion and the measurement is becoming increasingly more known due to an insurgence of sites with onsite transformers.

More importantly, Revision 4 substantially changes the physical circumstances that led to the August noise concerns. The charging equipment has been relocated away from the residential interface to approximately 115 feet from the residential property line. **Staff considers this a substantial improvement over the August layout and a meaningful response to the Commission's direction to study alternate charger locations.**

Using the same sound-distance methodology contained in the applicant's August plans, a 65 dBA charger source would be approximately **34 dBA at 115 feet**. If both charger cabinets are conservatively assumed to operate simultaneously at this level, together with the transformer sound identified in the applicant's plans, the combined sound level is estimated at approximately **38 dBA at the residential property line**. This is approximately **7 dBA below the Township's 45 dBA nighttime standard**.

This remains a planning-level estimate rather than a site-specific acoustical analysis. Actual sound can be affected by equipment orientation, reflections, site conditions, vehicle-generated sound, and other factors, and the calculation does not address dBC or low-frequency sound. Nevertheless, the manufacturer documentation provides additional support for the 65 dBA source level already used in the August plans, while the substantially increased separation shown on Revision 4 significantly reduces the anticipated sound level at the residential property line.

The Commission's August motion also requested that a sound expert be present when the application returns for consideration, which the applicant feels is not necessary due to the new proposed location.

Staff Field Observation

Following the August meeting, staff visited an operating commercial fast-charging installation located behind a Starbucks to gain practical context regarding this type of equipment. The charging installation was very quiet relative to the surrounding commercial environment. A low-frequency hum from the transformer was perceptible to staff only when immediately adjacent to the equipment, and even then it was difficult to detect from surrounding noise.

This observation is not an acoustical study, and staff cannot confirm that the equipment observed was identical to the equipment proposed at 8320 Highland Road. It does, however, provide practical context when considered together with the manufacturer information and the substantially increased separation from the residential property.

Based on the revised location and additional information provided, **staff's concern regarding the potential for significant charger noise impacts on the adjoining residential property has been considerably reduced from the August review.**

Existing Business Hours and Site Activity

Staff also reviewed the publicly listed operating hours of the existing BP station. The business is listed as operating:

- **Monday through Friday:** 5:00 a.m. to 12:00 a.m.
- **Saturday:** 7:00 a.m. to 12:00 a.m.
- **Sunday:** 8:00 a.m. to 10:00 p.m.

The property therefore already functions as an active automobile-oriented commercial site during substantial portions of the evening and nighttime period. Existing activity includes vehicle arrivals and departures, fueling activity, HVAC and mechanical equipment, and other normal gas-station operations.

These existing conditions do not exempt the proposed charging equipment from applicable Township noise standards. However, they provide relevant context when evaluating whether the relocated charging equipment is likely to materially change the existing sound environment experienced by the adjoining residential property.

Residential Fence and Buffer

The Commission's August tabling motion also directed the applicant to **"improve the landscaping and buffering on the residential property line."**

Since the August meeting, staff located a historical site plan associated with the approximately 1998 redevelopment of the current gas station site. The historical plan depicts a fence along the residential property line as part of the gas station site improvements. This provides additional context to the August public hearing, when the adjoining property owner indicated that he had been repairing the existing fence and requested that a masonry wall be installed, which he thought was a requirement of approval from memory.

However, the Commission's current direction was specifically to improve the landscaping and buffering along the residential property line, and as of the date of this report, they have not yet shown that on the proposed plan.

Staff has advised the applicant that a **new, high-quality screening fence supplemented by additional landscaping along the full residential property line** would more clearly respond to the Commission's direction than limited repairs to deteriorated portions of the existing fence.

Easements and Utility Infrastructure

During review of the resubmittal, staff located a recorded utility easement affecting the property that was not depicted on the August plans. The easement contains an existing **12-inch Township water main**.

The revised plans should depict the boundaries of the **recorded easement itself** so that the relationship between the proposed equipment and the Township's utility rights can be evaluated.

Staff has also requested that **all known easements affecting the property** be depicted on the revised plan. The applicant and its surveyor are responsible for accurately identifying known easements affecting the proposed improvements rather than relying solely upon easements that may be located in Township historical records.

Because the identified easement contains a Township water main, the proposed equipment location is also subject to DPW review to ensure that the improvements do not interfere with the utility or the Township's ability to access and maintain it.

Planning Commission Consideration

Revision 4 represents a meaningful change from the proposal considered in August. Most significantly, relocating the charging equipment to approximately **115 feet from the residential property line** directly responds to the Commission's request to study alternate locations and substantially increases the separation between the equipment and the adjoining residential use.

The additional Autel manufacturer documentation also provides support for the **65 dBA source level used in the August sound-distance calculations**. Applying that same methodology to the revised location results in a planning-level estimate of approximately **38 dBA at the residential property line when both chargers and the transformer are considered**, compared with the Township's 45 dBA nighttime standard.

The manufacturer documentation does not constitute a site-specific acoustical study or address dBC/low-frequency sound, and the Commission's direction that a sound expert be present remains relevant to its consideration.

The revised residential buffering and easement information should similarly be evaluated against the remaining portions of the Commission's August tabling motion.

Overall, staff considers the relocation of the charging equipment to be a **substantial improvement to the proposal**, and staff's concern regarding potential noise impacts on the adjoining residential property has been considerably reduced.

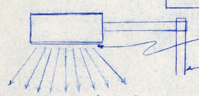
The Planning Commission may consider whether the revised plans and supplemental information sufficiently address the issues identified at its August 20 meeting and satisfy the applicable Special Land Use standards and their initial concerns.

Item B.

GENERAL NOTES-

1 - MDOT OR RCOC PERMIT MUST BE OBTAINED BY THE CONTR.
2 - CROSS ACCESS EASEMENTS WILL BE OBTAIN FROM ADJOINING PROPERTY
3 - FUTURE FIRE HYDRANT WILL BE PROPERLY PLACED ALONG HIGHLAND RD IN FUTUR.
4 - NO PARKING SIGN WILL BE PLACED IN FRONT OF BLDG.
5 - ALL SIDEWALKS AROUND BLDG. ARE 6" HIGH
6 - A SPEAKER SYSTEM WILL BE INSTALLED IN PUMPS AS REQ'D BY STATE FIRE MARSHAL
7 - EACH HOSE WILL BE EQUIPED W/ BREAK AWAY SYSTEM.
8 - IMPACT VALVE TO SHUT OFF LINE WILL BE INSTALLED IN CASE OF ACCIDENTS.
9 - SPILL PAN WILL BE INSTALLED UNDER EACH PUMP. ENERGY SWITCH SHUT OFF FOR ALL PUMPS WILL BE HANDLED BY CASHIER.
10 - ALL TANKS & PUMPS WILL BE EQUIPED W/ MICH. STATE FIRE MARSHAL REQUIREMENTS.

NOTE: RESIDENTIAL AREAS AND ALL ROADS R.O.W. TO BE SHIELDED FROM GLARE



- HI-TEX TAA SERIES. 400 W/P12, 208V DOWN LIGHT W/400 W. METAL HALIDE (SFC = 40') SINGLE FIXTURE 90
- BRONZE ANOD. ALUM. POLE 16' HEIGH

SINGLE LIGHT POLE FIXTURE

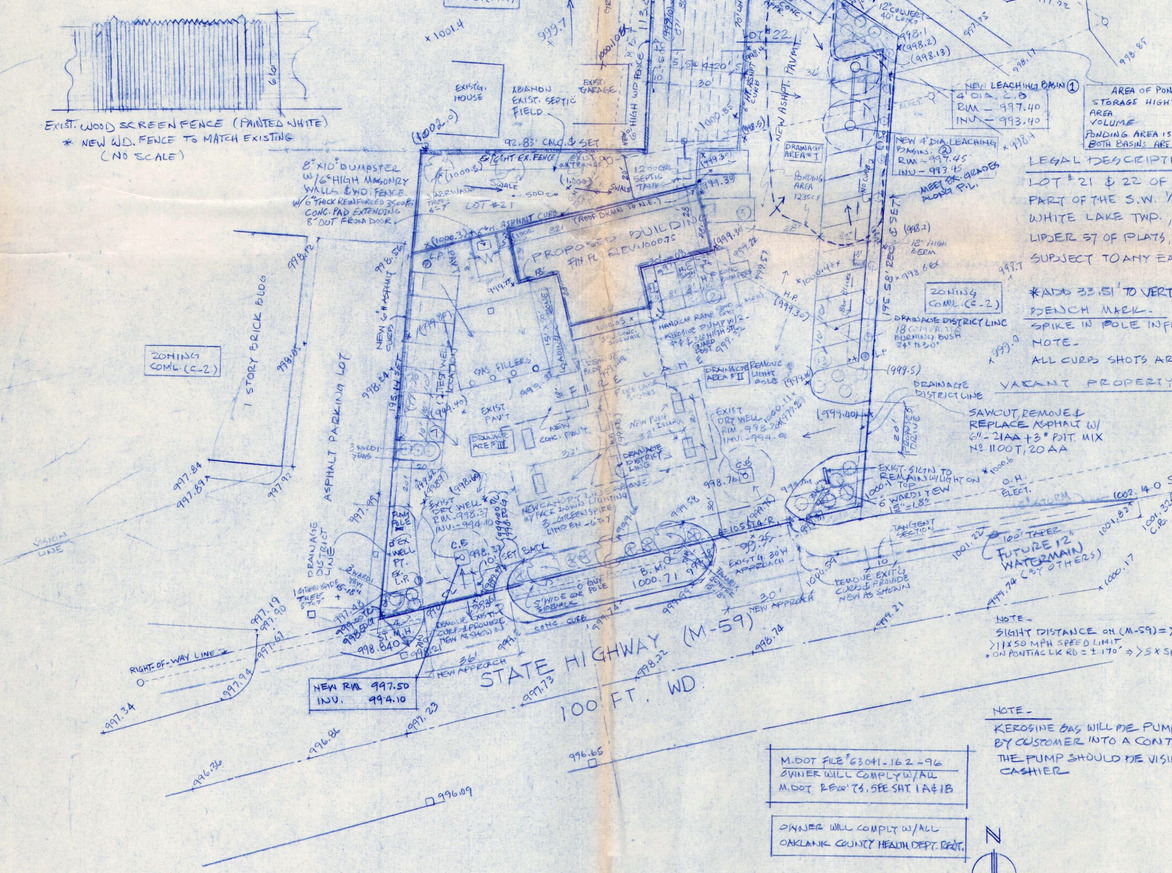
EXIST. WOOD SCREEN FENCE (PAINTED WHITE)
* NEW W.D. FENCE TO MATCH EXISTING
(NO SCALE)

WHITE LAKE TWP. STANDARDS CONST'N. NOTES-

1 - ALL CONST'N. SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS & SPECIFICATIONS OF WHITE LK CHARTER TWP.
2 - THE DEVELOPER SHALL CONTACT THE TWP. PLANNING DEPT. @ (810) 698-3300 TO SCHEDULE A PRE-CONST'N. MEETING. THE DEVELOPER'S PRIME SITE CONTR. SHALL ATTEND.
3 - THE CONTR. SHALL CONTACT THE TWP. ENGINEER AT (810) 334-9901 48 HOURS PRIOR TO THE BEGINNING OF CONST'N. THE CONTR. SHALL KEEP THE INSPECTOR APPRAISED OF THE NEED FOR INSPECTION ON A DAY BY DAY BASIS. LACKING SPECFIC SCHEDULING W/ THE INSPECTOR, THE CONTR. SHALL GIVE 48 HRS. NOTICE TO THE TWP. ENGINEER PRIOR TO RE-COMMENCING WORK REQUIRING INSPECTION. FAILURE TO INFORM THE INSPECTOR OR THE TWP. ENG. OF A WORK CANCELLATION MAY RESULT IN A ONE HALF DAY INSPECTION CHARGE TO THE DEVR.
4 - ALL WATERMAIN OR SANITARY SEWER WORK WILL REQ'D. FULL TIME INSPECN. FULL TIME INSPECTION WILL GEN. BE REQ'D FOR INDEED. STORM SEWER CONST'N. CONC. CURBING, PAVING, SITE GRADING & DETENTION BASIN CONST'N. WILL GEN. BE INSPECTED ON AN INTERMITTENT BASIS.
5 - GEN. CONTR. SHALL CONTACT "MISS DIG" AT (810) 647-6344, 72 HRS IN ADVANCE OF CONST'N. FOR EXIST'G. UNDERGROUND FACILITY LOCATION.

CONTACT BRIAN DHL MAYER. REDITCHING TO BE PERFORMED BY R.C.O.C.

ROADWAY ALONG PONTIAC LK RD. WILL BE RAISED TO COMPLY WITH R.C.O.C.



AREA OF PONDING TO ELEVATION (998.1)
STORAGE HIGHT = 9" (998.1 - 997.4)
AREA = (82×50) + (30×28) = 4940 SQ.F.
VOLUME = 4940 × 7/3 ÷ 12 = 1235 C.F.
PONDING AREA IS DRAINING TO LEACHING BASIN ①
BOTH BASINS ARE CONNECTED W/ 12" DIA. P.V.C. PIPE

NOTE -
KEROSINE GAS WILL BE PUMPED BY CUSTOMER INTO A CONTAINER. THE PUMP SHOULD BE VISIBLE TO CASHIER

M.DOT FILE # 63041-162-96
OWNER WILL COMPLY W/ ALL M.DOT REQ'TS. SEE SHT 1A & 1B

OWNER WILL COMPLY W/ ALL OAKLAND COUNTY HEALTH DEPT. REQ'T.

SITE PLAN

1" = 30'-0"

MDOT TYPE 'M' DETAIL TO BE USED IF REQ'D. BY THE APPROACHES. - SEE SHT. # 1A & 1B.

CASTINGS FOR THE DRY WELLS - SEE STORM SEWER STANDARD DETAILS.

PERMITS MUST BE OBTAINED FROM MDOT FOR ALL WORK IN HIGHLAND RD. R.O.W. - SEE SHT # 1A & 1B.

SITE DATA

1 -	LOT AREA	=	42,150 SQ FT.
2 -	BUILDING AREA	=	2,825 SQ FT
3 -	PARKING PROVIDED	=	25 CARS W/ 1 HAND. CAP
4 -	LANDSCAP AREA	=	4675 SQ FT
5 -	ZONING	=	C-2 (GENERAL BUSINESS)
6 -	BUILDING HEIGHT	=	15'-0" ±
7 -	CANOPY CLEARANCE HGT.	=	15'-0"
8 -	USABLE FLOOR AREA	=	1,197 SQ FT

CANOPY LIGHT FIXTURE
TO BE "SCOTTSDALE", PRISMATIC GLASS LENS TYPE CWA, 400 WATT, WITH UNIFORM LIGHT DISTRIBUTION - NO OF FIXTURES TO BE DESIGNED BY ENG. / CANOPY MGR.

WATER USAGE PER/DAY (AVARAGE)	(- MAX. EXPECTED WATER USAGE.)
- CONSIDERING 5 GAL./DAY PER EMPLOYEE & TO 7 EMPLOYEES "ALL SHIFTS" PER DAY	= 35 GAL.
- MOP SINK USAGE ONCE A DAY 5 TO 10 GAL.	= 10 GAL.
- WATER CLOSET TO BE "ELJAR" W/ 1.8 GAL. CAPACITY PER FLUSH (X25)	= 35 GAL.
- HAND SINK W/ 3 COMPT. SINK	= 40 GAL.
TOTAL	= 120 GAL.

* NOTE
MAX. WATER USAGE IS NOT TO EXCEED 350 GAL/DAY

LEGAL DESCRIPTION -
LOT # 21 & 22 OF HURON RIVER SUB., A SUBDIVISION OF PART OF THE S.W. 1/4 OF THE S.E. 1/4 OF SECTION 13, T.3N, R8E, WHITE LAKE TWP., OAKLAND COUNTY, MICH. RECORDED IN LIBER 37 OF PLATS, PAGE 53, OAKLAND COUNTY RECORDS.
SUBJECT TO ANY EASMENTS OF RECORD.

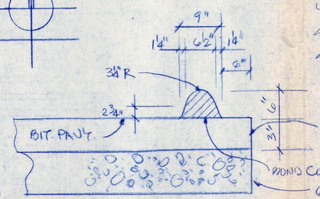
* ADD 33.51' TO VERTICAL DATUM TO OBTAIN U.S.G.S. ELEVATIONS.
BENCH MARK -
SPIKE IN POLE IN FRONT OF SERVICE STATION. ELEVATION = 1000.71 (ASSUMED)
NOTE -
ALL CURB SHOTS ARE AT TOP SUPS. 0.50 FOR BOTTOM.

VACANT PROPERTY

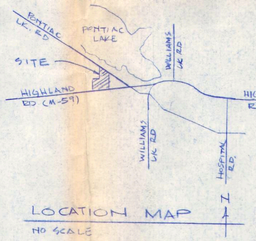
ELEVATIONS -
EXIS.T. ELEV. - x998.57
NEW ELEV. - (998.96)

NOTE -
1 - NEW PARKING AREAS TO RECEIVE 6"-21AA AGGREGATE LIMESTONE W/ 3" - BIT. MIX NO 1100 T, 20 AA. (2 COURSES)
APPROACH TO RECEIVE 8" CONC. UNIFORM.
2 - STREET CASTINGS SHALL BE AS SPECIFIED IN THE STANDARD DETAIL SHEET.
3 - SEPTIC FIELD IS A PROPOSED NEW SYSTEM - 2550 S.F.
4 - SINCE EX. DRY WELLS ARE USED, NO NEED FOR STORM SEWER IN SOUTH AREA

LANDSCAP NOTES -
SHREDDED BARK - 3" MIN. DEPTH SHALL BE USED TO MULCH PLANTING AS INDICATED
PLASTIC EDGING - SHALL BE USED TO SEPERATE BARK MULCH FROM SODDED AREAS AS INDICATED
SOD - SHALL BE CLASS "A" MIXED BLUEGRASS
UNDER GROUND SPRINKLER - SHALL BE INSTALLED TO SERVICE ALL SODDED AREAS IF REQUIRED
SEPTIC FIELD - TO RECEIVE 4" TOP SOIL & SEED ON TOP

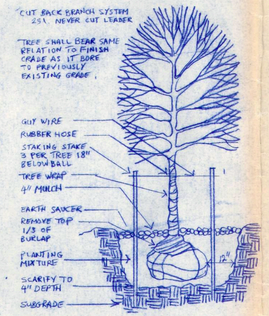


ASPHALT CURB DETAIL
NO SCALE

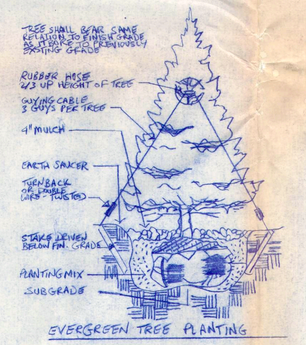


LOCATION MAP
NO SCALE

OWNER
TAREK GAYAR
3685 KAREN PKWY #302
WATERFORD, MICH. 48328
TEL. (810) 738-0214



CANOPY TREE PLANTING DETAIL



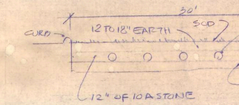
EVERGREEN TREE PLANTING

NOTE - ENCASE 4" PIPE FROM CAR WASH TO SEPTIC TANK W/ STEEL OR CONC.

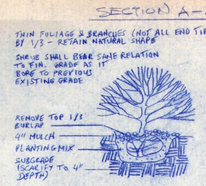
Landscape Requirements

1 - ALL PLANT MATERIALS SHALL CONFORM TO TYPE STATED ON PLANT LIST. ALL SIZES & MEASUREMENTS SHALL BE IN ACCORDANCE W/ LATEST EDITION OF THE A.A.N. STANDARDS FOR NURSERY STOCK.
2 - WHEN PLANTING HAS BEEN PROPERLY SET, THE PIT SHALL BE BACKFILLED W/ TOPSOIL MIXTURE, GRADUALLY FILLING.
3 - ALL PLANTS SHALL BE PRUNED & INJURIES REPAIRED.
4 - THE CONTR. AGREES TO GUARANTEE ALL PLANT MATERIALS FOR THE PERIOD OF ONE YEAR.
5 - SOD SHALL BE TWO YEAR OLD "PARON/CHERI/ADELPHI" KENTUCKY BLUE GRASS GROWN IN A SOD NURSERY ON LOAM SOIL.

SEPTIC FIELD NOTES -
1 - ALL PIPES ARE 4" Ø PERF. WEEP TILE @ 4'-0" O/C TYP.
2 - 6 ROWS OF TILE @ 75' ± EACH = 450 LIN. FT.
3 - PROVIDE 4" SOLID HEADER PIPE W/ DISTRIBUTION BOX
4 - PROVIDE 12" OF 1Ø A STONE & SAND UNDER TILE
5 - SOD TOP OF SEPTIC FIELD AS REQ'D.



SECTION A-A NO SCALE



SHRUB PLANTING DETAIL

NOTE -
LANDSCAPE PLAN WILL BE APPROVED & REVIEWED BY A LANDSCAPE ARCHITECT # FOR CONSTRUCTION PERMIT

PLANT LIST

QUAN.	BOTANICAL NAME	COMMON NAME	SIZE
4	TILIA CORDATA GREENSPIRE	GREENSPIRE LINDEN	2" CAL.
13		BURNING BUSH	24" TO 30"
6	JUNIPERUS HORZ. TAMARIX	TAMARIX SP. JUNIPER	15-18"
8	TAXUS WARDI	WARDI SP. YEW	15-18"
3		ARBORVITA	6-7'

DATE - 15 AUG. 96
REVISIONS -
9" FEB. 96
21" FEB. 96
17" APRIL 96
3rd JUNE 96
5th AUG. 96
3rd SEP 96
26th SEP 96
7th OCT 96

GAS STATION EXPANSION
8320 HIGHLAND RD (M-59)
WHITE LAKE TWP. MICH.

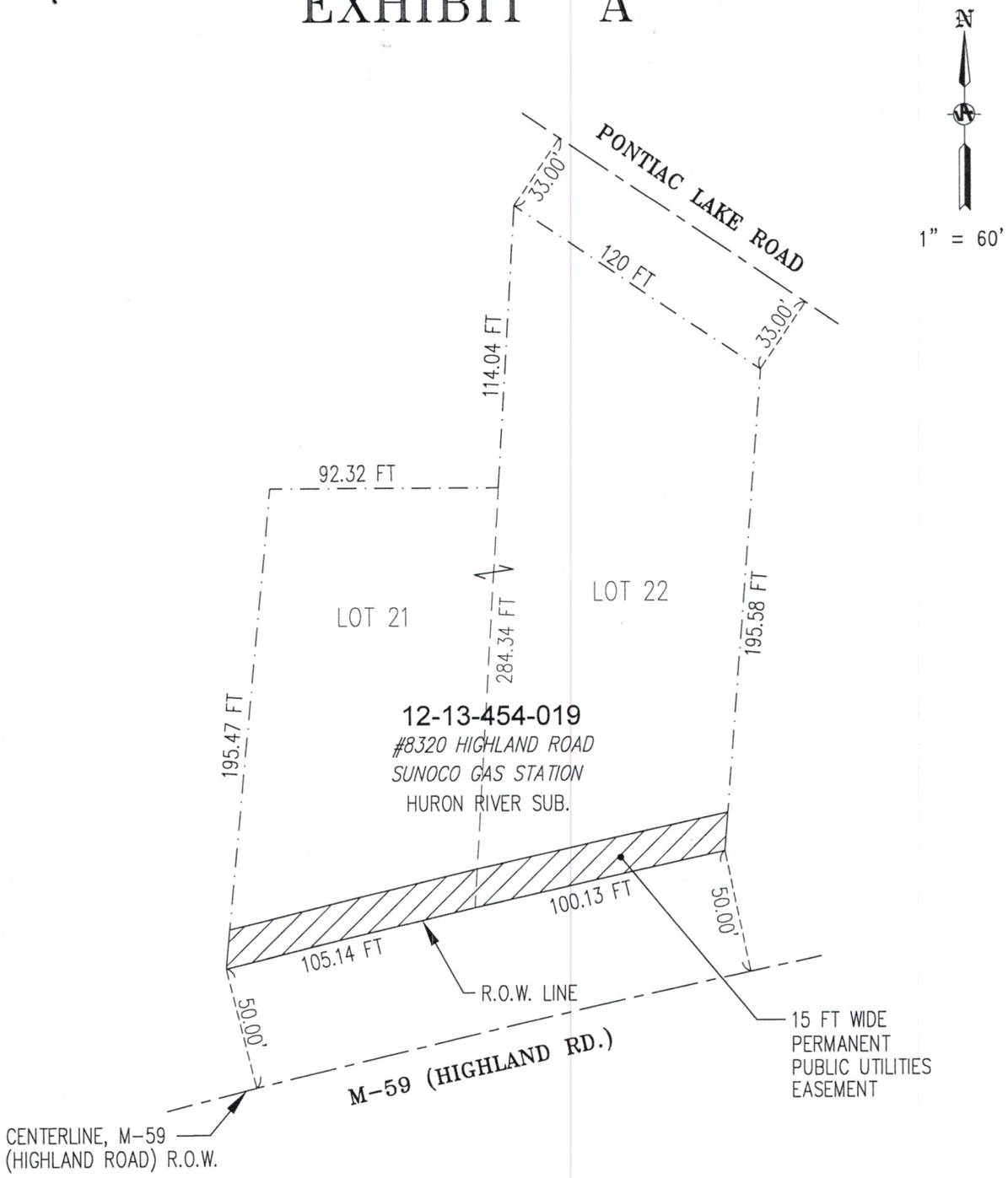
ALBERT ARDO & ASSOC.
18977 W. 10 MILE RD.
SOUTHFIELD, MICH. 48075
(810) 557-7880 FAX (810) 557-2540

PROJECT # 5295

RECEIVED
OCT 09 1996
WHITE LAKE TOWNSHIP PLANNING DEPARTMENT

1

EXHIBIT "A"



NOTE:
THE PARCEL DESCRIPTION ABOVE WAS OBTAINED FROM THE CHARTER TOWNSHIP OF WHITE LAKE TAX ASSESSMENT ROLL. THE EASEMENT DESCRIPTION IS WRITTEN BASED UPON THE FURNISHED DESCRIPTION OF THE OVERALL PARCEL. J & A HAS NOT PERFORMED A BOUNDARY SURVEY OF THIS PARCEL AND THE PARCEL DESCRIPTION DOES NOT NECESSARILY REFLECT FIELD-MEASURED VALUES.

SITUATED IN THE TOWNSHIP OF WHITE LAKE, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS:

T3N, R8E, SEC 13 HURON RIVER SUBDIVISION LOTS 21 & 22 57055

PARCEL IDENTIFICATION NO. 12-13-454-019

PERMANENT EASEMENT

THE EASEMENT SHALL BE A PERMANENT EASEMENT FOR CONSTRUCTION, INSTALLATION, REPAIR, MAINTENANCE AND REPLACEMENT OF PUBLIC UTILITIES DESCRIBED AS:

THE NORTHERLY 15.00 FEET OF THE ABOVE DESCRIBED PARCEL. CONTAINING 3104 SF (0.071 ACRES)

SECTION 13 TOWN 3 NORTH RANGE 8 EAST WHITE LAKE TOWNSHIP OAKLAND COUNTY, MICHIGAN

Johnson & Anderson, Inc.
Consulting Engineers
4494 Elizabeth Lake Road
Waterford, Michigan 48328
(248) 681-7800 Fax: (248) 681-2660

White Lake Township
7525 Highland Road (M-59)
White Lake, Michigan 48383
(248) 698-3300

DESIGN:	CHECKED:	DRAWN:
OA	TW	ST

JOB NO. 16142
DATE ISSUED: 07-08-08
SHEET NO. 1

L:\16000\16142 WLT M-59 East San-WM\Documents\Easements\12-13-454-019\12-13-454-019_ESMT-DRG.dwg, 8.5 x 14 Exhibit, 10/8/2008 10:45:46 AM, ole

AUTEL

Autel DC Fast 60-240kW
Noise Compliance Declaration

Date: 08/31/2026

To Whom It May Concern:

This letter serves as a formal declaration that the above-mentioned EV charging equipment has been evaluated for operational noise performance and complies with the applicable product noise requirement.

The charger was tested in a **semi-anechoic room** under stable operating conditions. During the test, the equipment was operated under representative high-power charging conditions, and noise measurements were taken at a distance of **1 meter** from the front, rear, left, and right sides of the equipment, at a height of approximately **1–1.5 meters above the ground**.

The applicable acceptance criterion for the product is that the **maximum operating noise level shall not exceed 65 dB(A)**.

The measured results are summarized below:

Power Setting	Ambient Background Noise (dB)	Front door (dB)	Rear side (dB)	Left door (dB)	Right door (dB)
400 V 300 A	37.1	55.0	62.6	57.7	64.5
800 V 300 A	37.1	59.0	61.1	55.5	64.7

The ambient background noise measured during the test was **37.1 dB(A)**.

Based on the above test results, the maximum measured operating noise level was **64.7 dB(A)**, which is **below the specified limit of 65 dB(A)**. Therefore, the equipment meets the applicable operational noise requirement under the tested conditions.

The equipment is designed and engineered to control operational noise generated by internal power conversion, cooling, and charging components. Under normal operating conditions, the charger is not expected to generate excessive or abnormal noise beyond the tested operating levels. Accordingly, the equipment is suitable for deployment at EV charging sites where noise performance is a consideration, subject to applicable site-specific installation and local noise regulations.

This declaration is issued for use in **project bidding, technical proposal, and compliance documentation** purposes.

Sincerely,

Authorized Signature:

Autel New Energy US Inc.

36 Harbor Park Drive, Port Washington, NY, 11050

8320 HIGHLAND

8320 HIGHLAND ROAD
WHITE LAKE, MI 48386

APPLICABLE CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE FOLLOWING CODES:

BUILDING CODE:

2021 MICHIGAN BUILDING CODE (IBC 2021)

ELECTRICAL CODE:

2023 NATIONAL ELECTRICAL CODE (NEC 2023)

PROJECT DESCRIPTION

- PROPOSED INSTALLATION OF (2) 160kW DCFC CHARGERS TO SUPPLY (4) DEDICATED CHARGING STALLS

CONTACTS

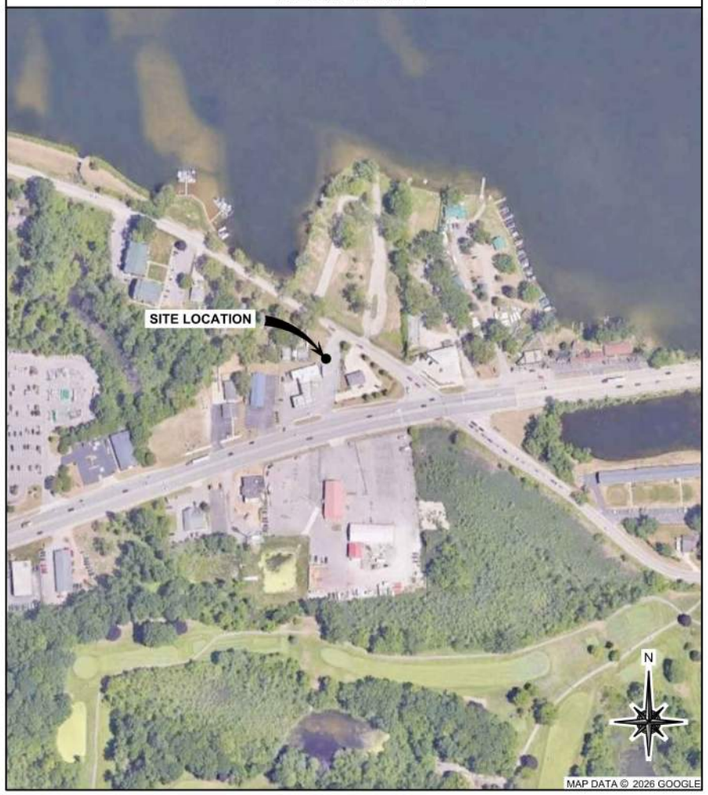
APPLICANT:

CHARGE-X USA
22345 W. WARREN AVENUE
DEARBORN HEIGHTS, MI 48127
TEL: (313) 523-1333
www.chargexusa.com

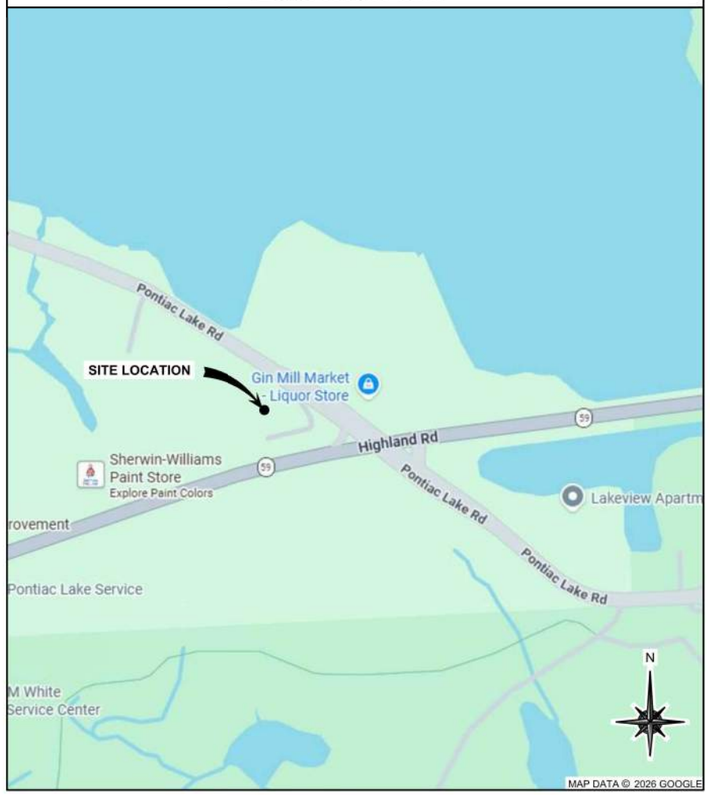
A&E:

WT GROUP AEC, LLC
2000 CENTER DRIVE
SUITE B411
HOFFMAN ESTATES, IL 60192
CONTACT: KEVIN CUNNIE
TEL: (847) 287-2085

AERIAL MAP



LOCATION MAP



SHEET INDEX

SHEET NUMBER:	DESCRIPTION:
T-1	TITLE SHEET
T-2 - T-4	GENERAL NOTES
1 OF 1	SURVEY (BY OTHERS)
C-1	OVERALL PROPERTY PLAN
C-2	OVERALL SITE PLAN
C-3	ENLARGED SITE PLAN
C-4	SOIL EROSION CONTROL PLAN
C-4.1	WRC SOIL EROSION DETAILS
C-4.2	CONSTRUCTION DETAILS
C-5	FEMA FIRMETTE MAP
C-6	WETLANDS MAP
C-7 - C-9	SITE DETAILS
L-1	LANDSCAPING PLAN
L-2	LANDSCAPING DETAIL & NOTES
E-1	ONE-LINE DIAGRAM
E-2	OVERALL ELECTRICAL PLAN
E-2.1	ENLARGED ELECTRICAL PLAN
E-3	ELECTRICAL DETAILS
E-4 - E-5	ELECTRICAL EQUIPMENT SPECIFICATIONS
E-6	UTILITY DETAILS AND SPECIFICATIONS

REFERENCED MATERIALS

A SITE WALK WAS NOT PERFORMED FOR THIS SITE PER SCOPE OF WORK. EQUIPMENT LAYOUT AND PLANS SHOWN WITHIN THIS SET WERE TAKEN FROM AVAILABLE DOCUMENTS/DRAWINGS PROVIDED BY OTHERS.

811 Know what's below. Call before you dig.

CALL AT LEAST THREE WORKING DAYS BEFORE YOU DIG

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING LOCATIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME

DO NOT SCALE DRAWINGS

Item B.

CHARGE-X

WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224-293-6333
wtgroupaec.com

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WT Group
Engineering • Design • Consulting

8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

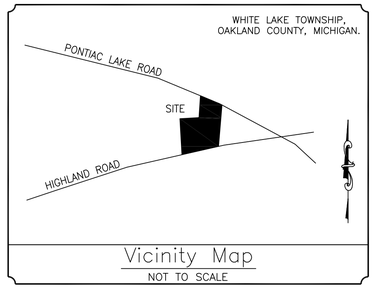
REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	03/18/26	JTB
0	REVISION	03/23/26	JTB
1	REVISION	05/20/26	JTB
2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

TITLE SHEET



Vicinity Map
NOT TO SCALE

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

NOTES CORRESPONDING TO SCHEDULE B

A TITLE COMMITMENT WAS NOT PROVIDED

ZONING INFORMATION

A ZONING REPORT WAS NOT PROVIDED BY THE CLIENT PER TABLE A 6(a) AND 6(B). THE ZONING CLASSIFICATION, SETBACK REQUIREMENTS, THE HEIGHT AND FLOOR SPACE AREA RESTRICTIONS, AND PARKING REQUIREMENTS ARE NOT SHOWN HEREON.

DESCRIPTION

That part of Section 13, T3N, R8E, White Lake Township, Oakland County, Michigan being described as:

Lots 21 & 22, Huron River Subdivision, as recorded in Liber 57 of Plats, on Page 55, Oakland County Records.

BEARING BASIS

BEARINGS ARE BASED ON THE CENTERLINE OF PONTIAC LAKE ROAD RECORDED AS BEARING S56°12"E.

FEMA 100 YEAR FLOODPLAIN

BY GRAPHIC PLOTTING ONLY, THIS PARCEL IS LOCATED IN ZONE X OF THE FLOOD INSURANCE RATE MAP NUMBER 26125C0337F WHICH BEARS AN EFFECTIVE DATE OF 9/29/2006.

GENERAL NOTES

1) NO EVIDENCE OF EARTH MOVING OR BUILDING CONSTRUCTION/ADDITIONS WERE OBSERVED WHILE CONDUCTING THE FIELD WORK. (ITEM 16, TABLE A).

2) NO EVIDENCE OF PROPOSED STREET RIGHT OF WAY LINE CHANGES WERE PROVIDED BY THE CONTROLLING JURISDICTION. (ITEM 17, TABLE A).

3) THERE IS NO OBSERVABLE EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS. (ITEM 17, TABLE A).

4) THIS PARCEL HAS IMPROVED DIRECT ACCESS TO PONTIAC LAKE ROAD AND HIGHLAND ROAD (M-59), BOTH DEDICATED PUBLIC RIGHT OF WAYS.

5) THIS SURVEY MAP CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF THE SURVEY.

6) THERE ARE NO OBSERVED GAPS OR OVERLAPS BETWEEN THE BOUNDARY LINES OF THE PARCEL AS SHOWN ON THIS SURVEY MAP AND AS PROVIDED IN THE DESCRIPTION PRESENTED IN THE TITLE COMMITMENT.

7) THE BOUNDARY LINE DIMENSIONS AS SHOWN ON THIS SURVEY MAP FORM A MATHEMATICALLY CLOSED FIGURE WITHIN +/-0.1 FOOT.

8) THE BOUNDARY LINES OF THE PARCEL AS PROVIDED IN THE DESCRIPTION PRESENTED IN THE TITLE COMMITMENT ARE CONTIGUOUS WITH THE BOUNDARY LINES OF ALL ADJOINING STREETS, HIGHWAYS, RIGHTS OF WAY AND EASEMENTS, PUBLIC OR PRIVATE, AS DESCRIBED IN THEIR MOST RECENT RESPECTIVE DESCRIPTIONS OF RECORD.

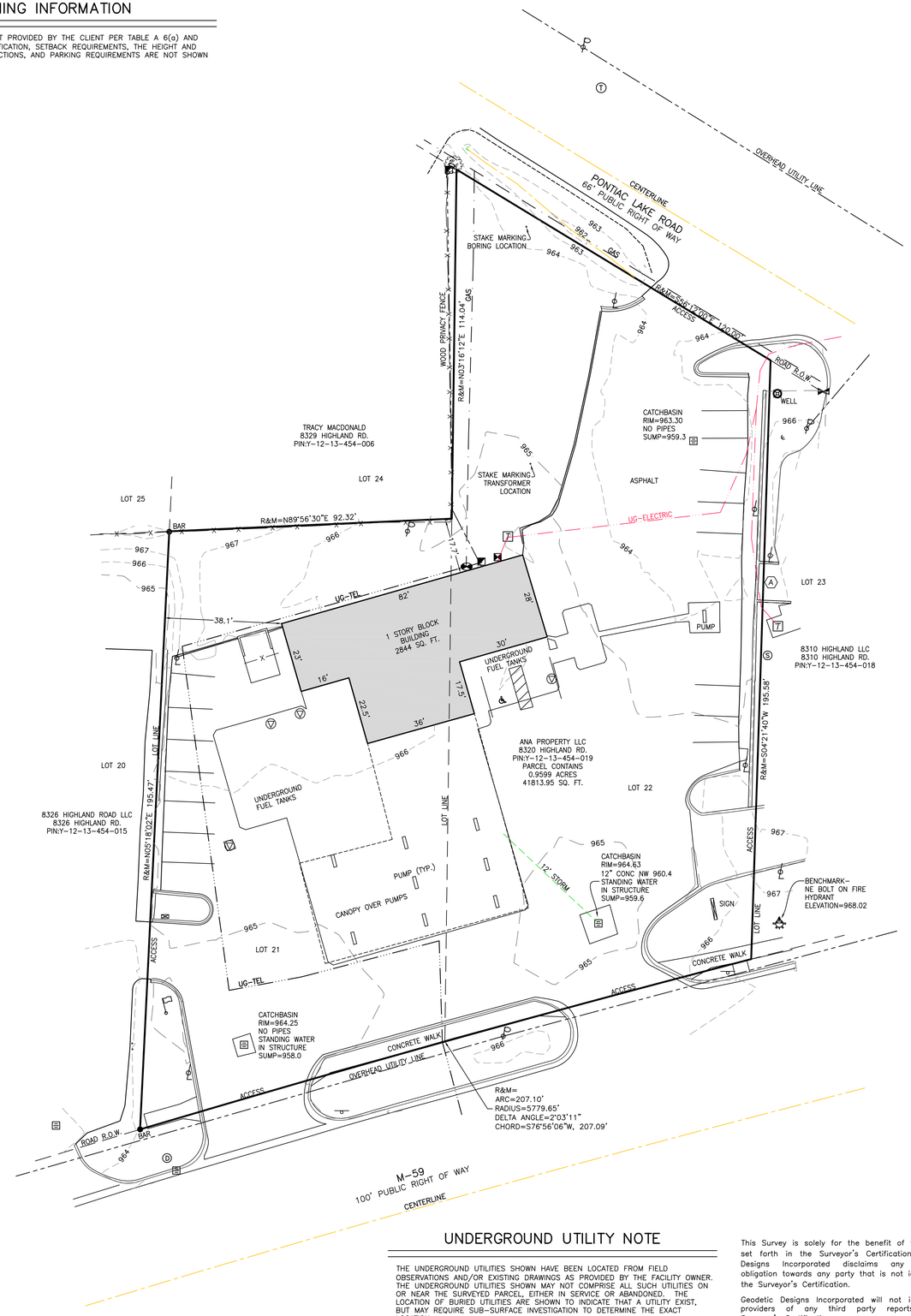
9) EXCEPT AS OTHERWISE NOTED BELOW, IF THE OVERALL PARCELS CONSISTS OF TWO OR MORE DESCRIPTIONS, THERE ARE NO GAPS OR GORES BETWEEN SAID DESCRIPTIONS.

10) THIS PARCEL FRONTS ON BOTH PONTIAC LAKE ROAD AND HIGHLAND ROAD (M-59). (ITEM 14, TABLE A).

11) EASEMENTS AND EXCEPTIONS SHOWN HEREON WERE PROVIDED BY THE TITLE INSURANCE COMPANY, NO RESEARCH HAS BEEN CONDUCTED BY GEODETIC DESIGNS INC. TO IDENTIFY ANY ADDITIONAL EASEMENTS OR RECORD ENCUMBRANCES THAT MAY AFFECT THIS PARCEL.

12) ALL LINEAR DIMENSIONS SHOWN ARE IN INTERNATIONAL FEET AND DECIMALS THEREOF.

13) WHITE LAKE TOWNSHIP HAS NOT RESPONDED TO A REQUEST FOR MAPS OF UNDERGROUND WATER AND SANITARY AND THOSE ARE NOT SHOWN HEREON.



SIGNIFICANT OBSERVATIONS

INFORMATION NOTED BELOW IS SIMPLY A STATEMENT OF FACT REGARDING THE LOCATION OF OBSERVED IMPROVEMENTS RELATIVE TO BOUNDARY, EASEMENT, AND SETBACK LINES, AND IS NOT A LEGAL OPINION, OPINION OF OWNERSHIP, OR DETERMINATION OF ENCROACHMENTS.	
BOUNDARY LINES	(A) DUMPSTER WALL CROSS PROPERTY LINE AS SHOWN
ROW & EASEMENTS	NONE OBSERVED
SETBACKS	NONE OBSERVED
PHYSICAL ACCESS BETWEEN ADJOINING PROPERTIES	NONE OBSERVED
USE OF ADJOINING PARCELS	NONE OBSERVED

CERTIFICATION

TO: RED E CHARGE:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2026 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 6a, 6b, 7a, 7b1, 7b2, 7c, 8, 9, 10a, 10b, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20 of Table A thereof. The fieldwork was completed on May 28, 2026.

STATE OF MICHIGAN
DAVID J. VanDenBerghe
PROFESSIONAL SURVEYOR No. 4001051489
LICENSED PROFESSIONAL SURVEYOR

Registration No. 4001051489
Within the State of Michigan

DAVID J. VANDENBERGHE
PROFESSIONAL SURVEYOR #4001051489

LEGEND

- Power Pole
- Power Pole w/Light
- Light Pole
- Telephone Pole
- Guy Wire
- Transformer
- Electric Manhole
- Telephone Manhole
- Telephone Pedestal
- Electric Meter
- Cable Box
- Air Conditioner Unit
- Easement Identifier
- Distance not to scale
- Flag Pole
- Sign (As Noted)
- Well Head
- Satellite Dish
- Tower
- Water Valve
- Fire Hydrant
- Water Manhole
- Water Meter Pit
- Water Meter
- Indicates Handicapped Parking
- Parking Count
- Mailbox
- Storm Manhole
- Storm Catchbasin
- Deciduous Tree
- Coniferous Tree
- Sanitary Manhole
- Sanitary Clean Out
- Gas Valve
- Gas Manhole
- Gas Meter
- Gas Marker
- Section Corner
- Set 5/8" Bar & Cap
- Found Corner Monument
- Monitoring Well

ABBREVIATIONS

R = RECORDED	T-N = TOWN - NORTH	AVE. = AVENUE
M = MEASURED	R-E = RANGE - EAST	BLVD. = BOULEVARD
C = CALCULATED	SQ. FT. = SQUARE FEET	CT. = COURT
N = NORTH	NE = NORTHEAST	RD. = ROAD
E = EAST	SE = SOUTHEAST	ST. = STREET
S = SOUTH	SW = SOUTHWEST	PIN = PARCEL IDENTIFICATION NUMBER
W = WEST	NW = NORTHWEST	

UNDERGROUND UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND/OR EXISTING DRAWINGS AS PROVIDED BY THE FACILITY OWNER. THE UNDERGROUND UTILITIES SHOWN MAY NOT COMPRISE ALL SUCH UTILITIES ON OR NEAR THE SURVEYED PARCEL, EITHER IN SERVICE OR ABANDONED. THE LOCATION OF BURIED UTILITIES ARE SHOWN TO INDICATE THAT A UTILITY EXIST, BUT MAY REQUIRE SUB-SURFACE INVESTIGATION TO DETERMINE THE EXACT LOCATION.

This Survey is solely for the benefit of the parties set forth in the Surveyor's Certification. Geodetic Designs Incorporated disclaims any duty or obligation towards any party that is not identified in the Surveyor's Certification.

Geodetic Designs Incorporated will not include the providers of any third party reports in the Surveyor's Certification.

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"ALTA/NSPS LAND TITLE SURVEY"

PREPARED BY:

GEODETIC DESIGNS, INC.
2300 N. GRAND RIVER AVE.
LANSING, MI 48906
PHONE: (517) 908-0008
FAX: (517) 908-0009
WWW.GEODETICDESIGNS.COM

DATE	REVISION	BY

RED E CHARGE

8320 Highland Road
White Lake, MI
Parcel #12-13-454-019

DATE: May 28, 2026	SCALE: 1" = 20'
DRAWN BY: DJV	JOB NUMBER: S092-2026
CHECKED BY: DJV	SHEET 1 OF 1

GENERAL NOTES:

1. CONTRACTOR RESPONSIBILITIES INCLUDE CHARGING STATION MOUNTING, OVERHEAD CONDUIT INSTALLATION AND WIRING.
2. CONTRACTOR TO PAINT PROPOSED EV PARKING SPACES PER JURISDICTIONAL REQUIREMENTS.
3. CONTRACTOR TO FIELD SCAN/X-RAY EXISTING CONCRETE SLAB TO ENSURE NO REINFORCEMENT IS DAMAGED DURING EQUIPMENT OR CONDUIT ANCHORING, ENSURE 1" GAP MIN. BETWEEN REBAR AND ANCHORAGE.
4. EXACT STATION PLACEMENT AND ROTATION ANGLE MAY VARY SLIGHTLY UPON INSTALLATION DEPENDING ON SITE CONDITIONS.
5. UNDERGROUND CONDUIT PATH TO BE VERIFIED BY GPR PRIOR TO INSTALLATION.
6. OVERALL CONDUIT ROUTE TO BE VERIFIED IN FIELD BY CONTRACTOR AND PROPERTY OWNER.
7. 3/4" MINIMUM FOR ALL CONDUIT.
8. ROOFTOP CONDUIT UTILIZING NON-PENETRATING SUPPORTS MAY BE USED IN ADDITION IF APPROVED BY PROPERTY OWNER.

PROPERTY INFORMATION	
JURISDICTION:	WHITE LAKE TOWNSHIP
ZONING:	GB
SUBDIVISION:	HURON RIVER
LOT AREA:	±0.9599 ACRES
OWNER:	ANA PROPERTY, LLC 8320 HIGHLAND ROAD WHITE LAKE TOWNSHIP, MI 48386

DISTANCES TO EXISTING BODIES OF WATER	
DIRECTION	
NORTH (PONTIAC LAKE)	±290'-0"
SOUTH (CEDAR CREEK)	±2575'-0"
EAST (INLET TO PONTIAC LAKE)	±660'-0"
WEST (UNNAMED PONDS)	±2690'-0"

LATITUDE AND LONGITUDE: 42.660101°, -83.449880°
SOURCE: GOOGLE MAPS, DATED 03/18/2026

NOTE:
TYPICAL PARKING SPACE MINIMUM DIMENSION FOR 90° PARKING STALL:
- 9'-0" WIDTH
- 18'-0" DEPTH

NOTE:
THIS SITE PLAN IS BASED ON A SURVEY PROVIDED BY GEODETIC DESIGNS, INC., DATED 05/28/2026. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

FLOOD STATEMENT:
BY GRAPHIC PLOTTING ONLY, THIS PARCEL IS LOCATED IN ZONE X OF FLOOD INSURANCE RATE MAP NUMBER 26125C0337F WHICH BEARS AN EFFECTIVE DATE OF 09/29/2006.

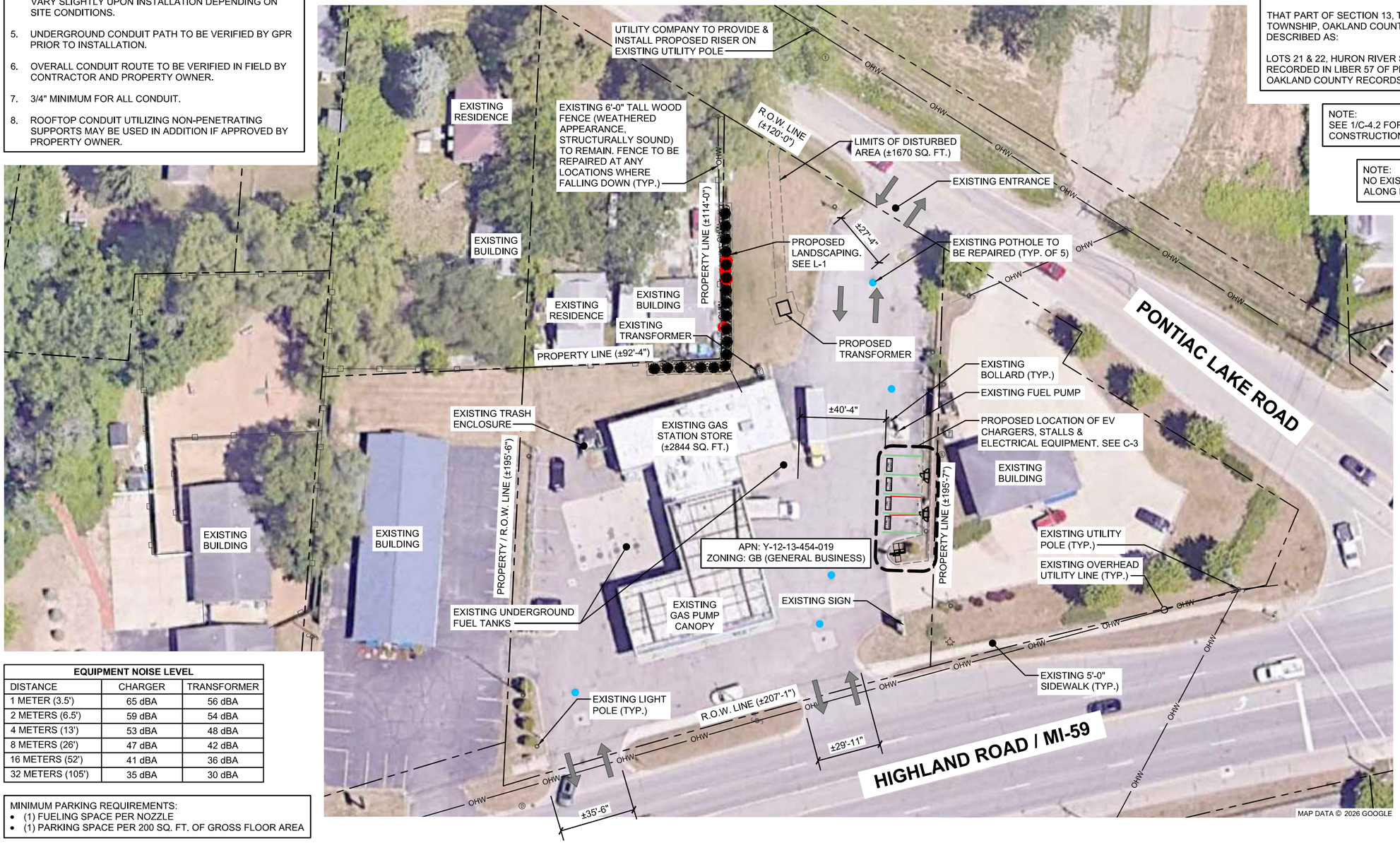
LEGAL DESCRIPTION:

THAT PART OF SECTION 13, T3N, R8E, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN BEING DESCRIBED AS:

LOTS 21 & 22, HURON RIVER SUBDIVISION, AS RECORDED IN LIBER 57 OF PLATS, ON PAGE 55, OAKLAND COUNTY RECORDS.

NOTE:
SEE 1/C-4.2 FOR SEQUENCE OF CONSTRUCTION & COST ESTIMATES.

NOTE:
NO EXISTING SIDEWALK ALONG PONTIAC LAKE ROAD.



EQUIPMENT NOISE LEVEL		
DISTANCE	CHARGER	TRANSFORMER
1 METER (3.5')	65 dBA	56 dBA
2 METERS (6.5')	59 dBA	54 dBA
4 METERS (13')	53 dBA	48 dBA
8 METERS (26')	47 dBA	42 dBA
16 METERS (52')	41 dBA	36 dBA
32 METERS (105')	35 dBA	30 dBA

MINIMUM PARKING REQUIREMENTS:
- (1) FUELING SPACE PER NOZZLE
- (1) PARKING SPACE PER 200 SQ. FT. OF GROSS FLOOR AREA

BUILDING SQUARE FOOTAGE	EXISTING REGULAR PARKING STALLS	EXISTING ADA PARKING STALLS	EXISTING PARKING STALLS CONVERTED TO EV PARKING STALLS	NEW EV PARKING STALLS	TOTAL PARKING STALLS (INCLUDING EV STALLS)	TOTAL PARKING STALLS (EXCLUDING EV STALLS)
±2844	17	2	3	1	20	16

0' 50' 100' 150'
SCALE: 1" = 50'-0"

N

OVERALL PROPERTY PLAN

SCALE: 1" = 50'-0"

1

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STATE OF MICHIGAN
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ENGINEER
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LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

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ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

C
OVERALL PROPERTY PLAN

GENERAL NOTES:

1. CONTRACTOR RESPONSIBILITIES INCLUDE CHARGING STATION MOUNTING, OVERHEAD CONDUIT INSTALLATION AND WIRING.
2. CONTRACTOR TO PAINT PROPOSED EV PARKING SPACES PER JURISDICTIONAL REQUIREMENTS.
3. CONTRACTOR TO FIELD SCAN/X-RAY EXISTING CONCRETE SLAB TO ENSURE NO REINFORCEMENT IS DAMAGED DURING EQUIPMENT OR CONDUIT ANCHORING, ENSURE 1" GAP MIN. BETWEEN REBAR AND ANCHORAGE.
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ZONING:	GB
SUBDIVISION:	HURON RIVER
LOT AREA:	±0.9599 ACRES
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DISTANCES TO EXISTING BODIES OF WATER	
DIRECTION	
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LATITUDE AND LONGITUDE: 42.660101°, -83.449880°
SOURCE: GOOGLE MAPS, DATED 03/18/2026

NOTE:
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- 18'-0" DEPTH

NOTE:
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FLOOD STATEMENT:
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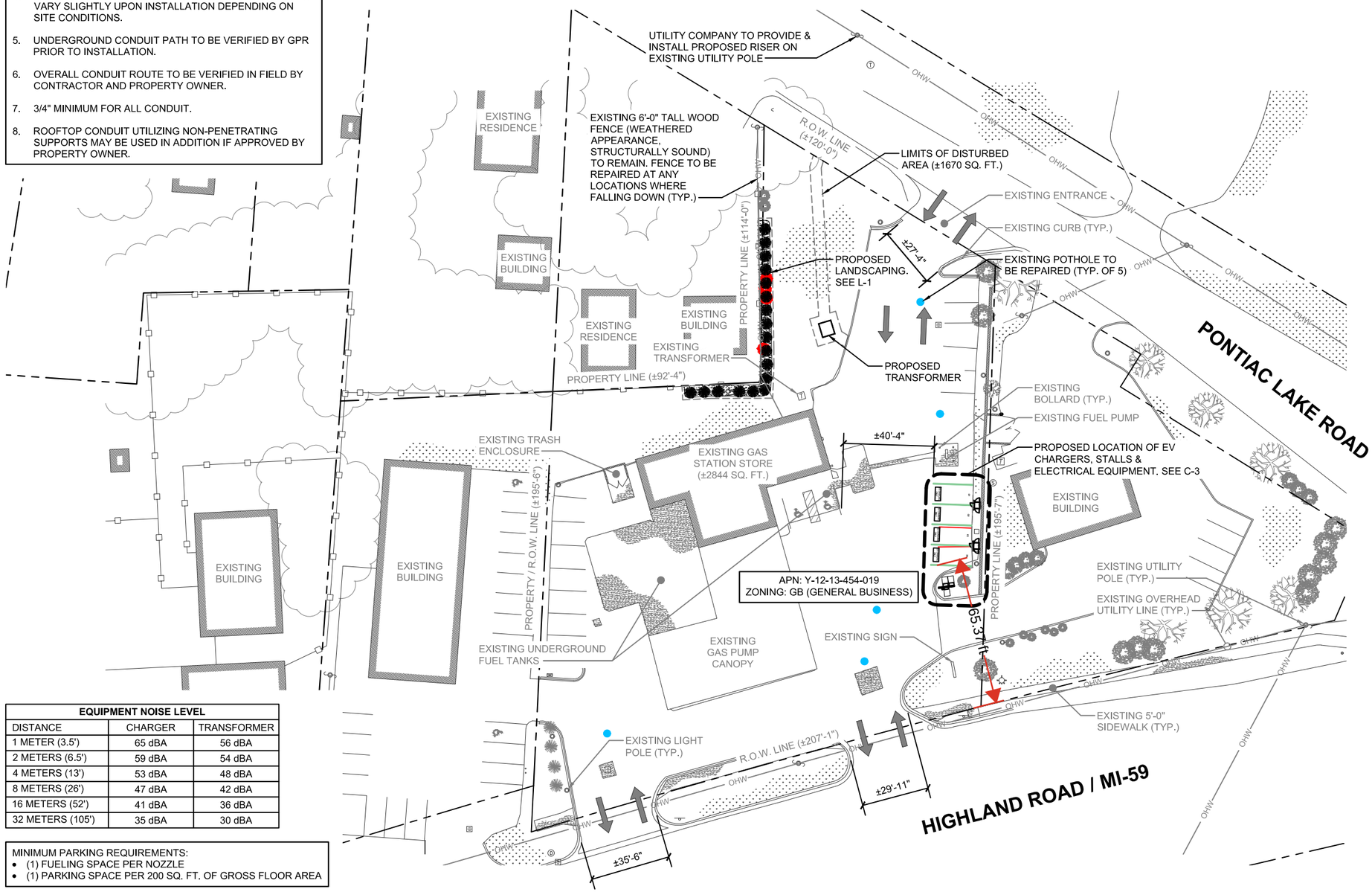
NOTE:
SEE 1/C-4.2 FOR SEQUENCE OF CONSTRUCTION & COST ESTIMATES.

NOTE:
NO EXISTING SIDEWALK ALONG PONTIAC LAKE ROAD.



EQUIPMENT NOISE LEVEL		
DISTANCE	CHARGER	TRANSFORMER
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0' 50' 100' 150'
SCALE: 1" = 50'-0"

OVERALL SITE PLAN

SCALE: 1" = 50'-0"

1

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ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

C
OVERALL SITE PLAN

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SOURCE: GOOGLE MAPS, DATED 03/18/2026

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EQUIPMENT NOISE LEVEL

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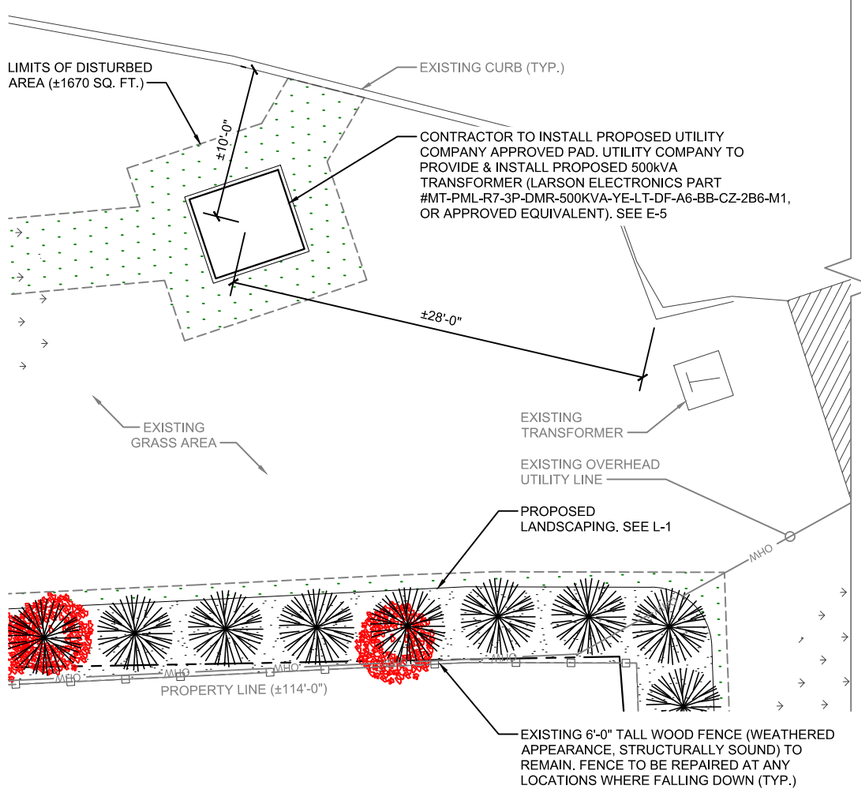
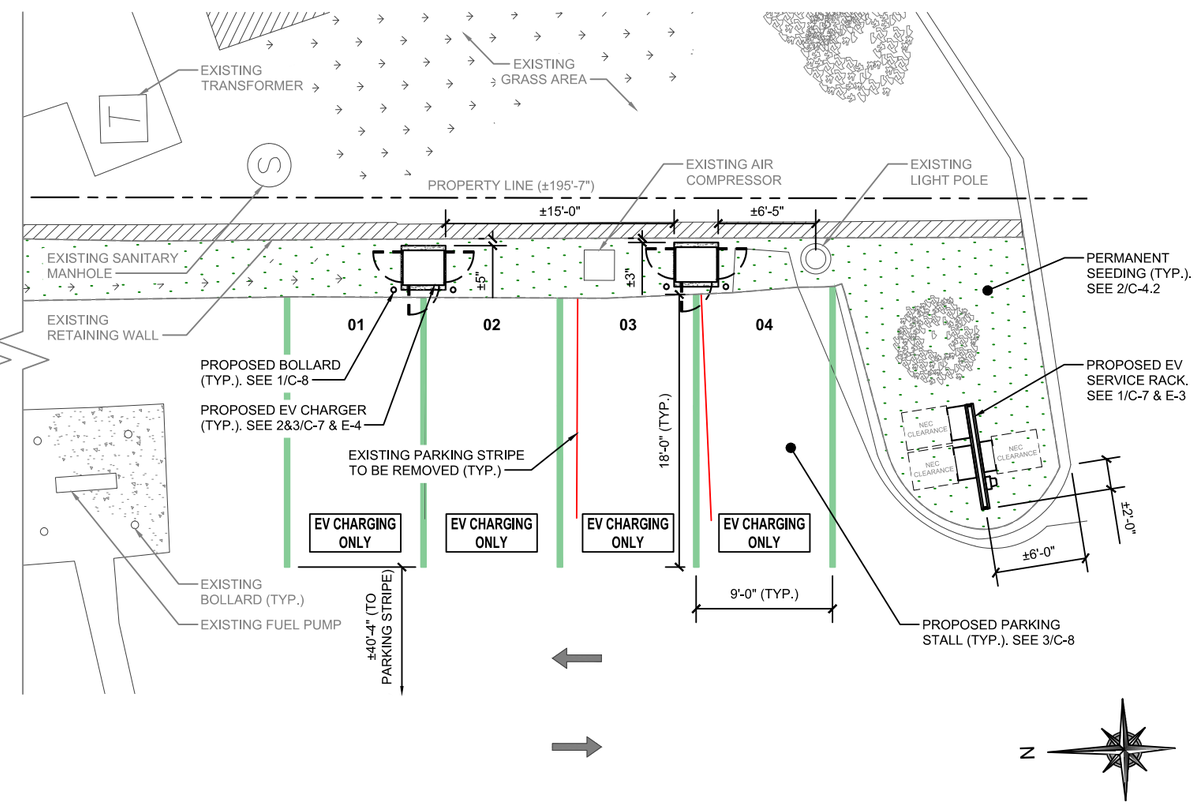
NOTE (ALL PROPOSED CONCRETE PADS):
WT'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL ANALYSIS OF THE CONCRETE PAD. THE CONCRETE DIMENSIONS, ANCHORING AND REBAR INFORMATION AS SHOWN IS DIAGRAMMATIC ONLY AND NOT FOR CONSTRUCTION. CONTRACTOR TO INSTALL FOUNDATION PER APPROVED STRUCTURAL ANALYSIS (BY OTHERS). A STRUCTURAL ANALYSIS SHALL BE PERFORMED PRIOR TO CONSTRUCTION.





0' 10' 20' 30'
SCALE: 1" = 10'-0"

ENLARGED SITE PLAN

SCALE: 1" = 10'-0"

1

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DRAWN: JTB
JOB: T2600207

C
ENLARGED SITE PLAN

LEGEND

XXX.XX	PROPOSED CONTOUR (FT)
XXX.XX	PROPOSED ELEVATION (FT)
T/F=XXX.XX T/P=XXX.XX	FOUNDATION/PAVEMENT ELEVATIONS (FT)
XXX.XX	INVERT/INLET (FT)
XXX.XX	PROPOSED SPOT GRADE (FT)
LF	LINEAR FEET
T/F	TOP OF FOUNDATION (CONCRETE)
T/P	TOP OF PAVEMENT (FINISHED GRADE/GRAVEL)
	FLOW DIRECTION
	PROPOSED CMP (CORRUGATED METAL PIPE)
	CENTER OF SWALE
	PROPOSED CONTOUR

DISTANCES TO EXISTING BODIES OF WATER	
DIRECTION	
NORTH (PONTIAC LAKE)	±290'-0"
SOUTH (CEDAR CREEK)	±2575'-0"
EAST (INLET TO PONTIAC LAKE)	±660'-0"
WEST (UNNAMED PONDS)	±2690'-0"

NOTE:
DUE TO EXISTING TOPOGRAPHY, A GRADING PLAN IS NOT REQUIRED.

NOTE:
CHARGE-X USA SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF SESC MEASURES UNTIL FINAL STABILIZATION.

NOTE:
THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY CHARGE-X USA.

NOTE:
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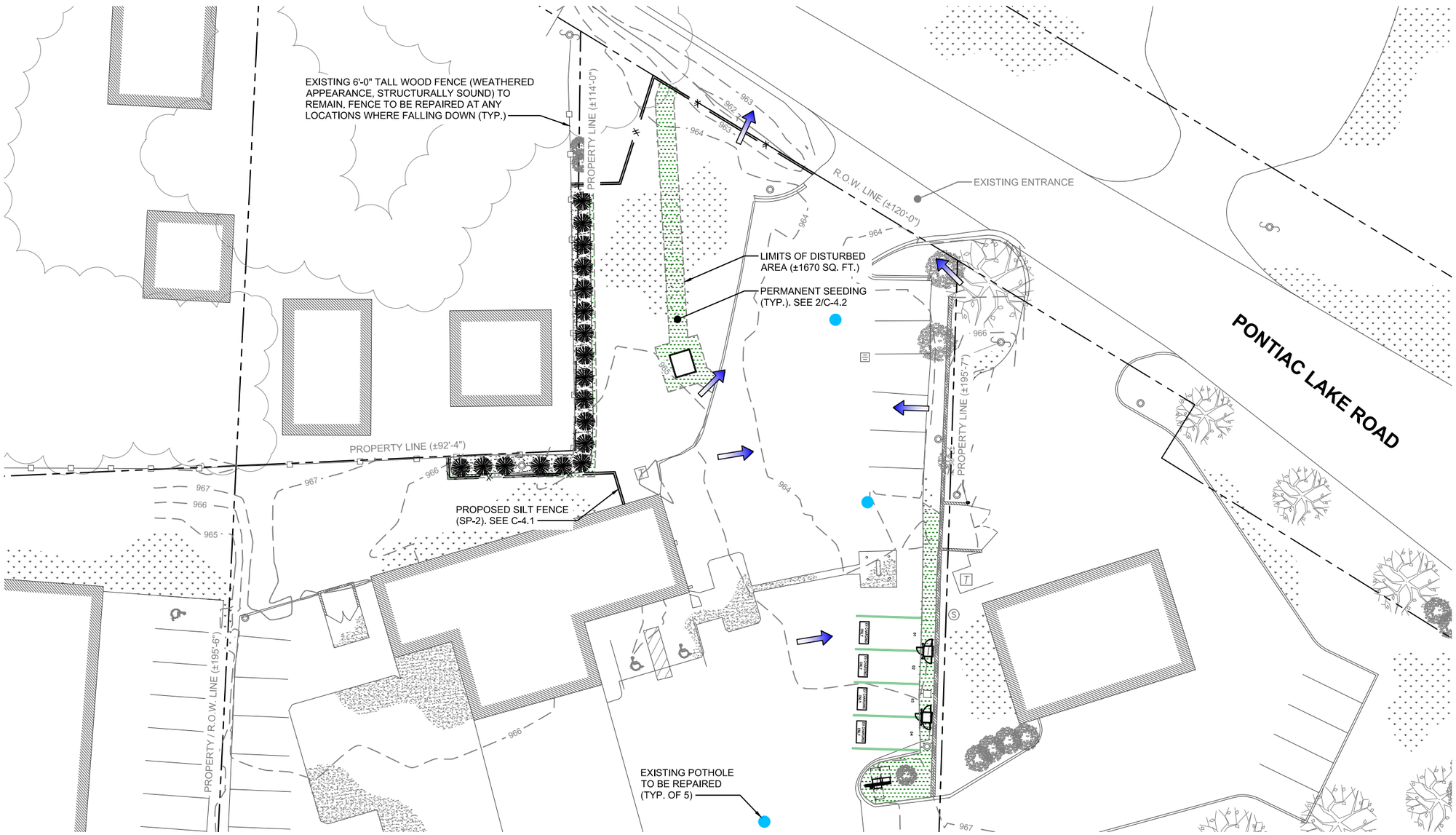

0' 30' 60' 90'
SCALE: 1" = 30'-0"

SOIL EROSION CONTROL PLAN

SCALE: 1" = 30'-0"

1

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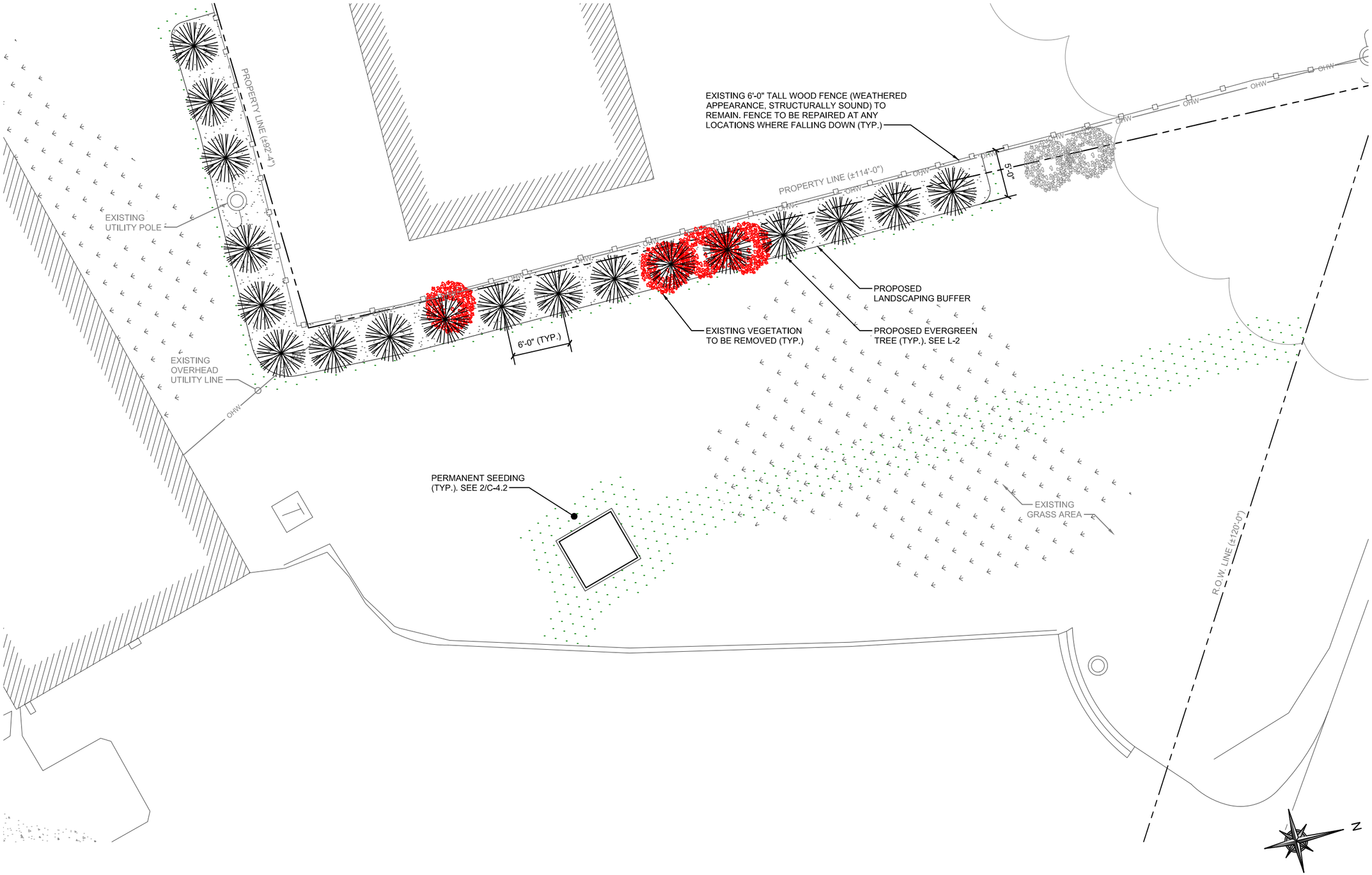
CHECK: JKR
DRAWN: JTB
JOB: T2600207

C
SOIL ERO
CONTROL PLAN

LANDSCAPE CHART

QTY.	COMMON NAME	SCIENTIFIC NAME	HT. AT INSTALL	SPACING	ROOTBALL	OVERALL PROJECTED HEIGHT
18	MISSION ARBORVITAE	thuja occidentalis 'mission'	6'-0"	6'-0" O.C. MAX	B/B	10'-0"

NOTE:
LAND OWNER WILL BE RESPONSIBLE FOR MAINTAINING AND WATERING ALL LANDSCAPING ON SITE.



0' 10' 20' 30'
SCALE: 1" = 10'-0"

LANDSCAPING PLAN

SCALE: 1" = 10'-0"

1

Item B.

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CHECK: JKR
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JOB: T2600207

L
LANDSCAPING PLAN

ALL PLACEMENT OF LANDSCAPING SHALL MEET THE FOLLOWING CONDITIONS:

1. ALL PLANT MATERIAL SHALL BE PLANTED IN A MANNER WHICH IS NOT TO INTERFERE WITH OVERHEAD WIRES OR BE INTRUSIVE TO UTILITIES OR PAVEMENT.
2. NO TREES OR OTHER LANDSCAPING SHALL BE LOCATED CLOSER THAN 10 FEET TO A FIRE HYDRANT OR OTHER ABOVE GROUND UTILITIES.
3. NO LANDSCAPING SHALL INTERFERE WITH SITE REQUIREMENTS FOR SAFE INGRESS AND EGRESS.

INSTALLATION STANDARDS:

1. PLANT MATERIAL SHALL CONFORM WITH THE CURRENT AMERICAN STANDARDS FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN FOR THAT TYPE OF TREE OR SHRUB AT THE TIME OF INSTALLATION.
2. ALL TREES SHALL BE GROWN IN A NURSERY LOCATED IN THE STATE OF MICHIGAN.
3. ALL PLANT MATERIAL SHALL BE INSTALLED FREE OF DISEASE AND IN A MANNER THAT ENSURES THE AVAILABILITY OF SUFFICIENT SOIL AND WATER TO SUSTAIN HEALTHY GROWTH.
4. ALL TAGS, WIRES, PLASTIC TIES AND ROPE SHALL BE CUT FROM EACH TREE TO PREVENT GIRDLING OF THE TREE. THE BURLAP SHALL BE PULLED BACK FROM THE UPPER THIRD OF THE ROOTBALL. IF A PLASTIC 'BURLAP' IS USED, IT SHALL BE REMOVED IN ITS ENTIRETY FROM THE ROOTBALL.
5. ALL PLANT MATERIAL SHALL BE PLANTED WITH A MINIMUM OF DEPTH OF THREE (3) INCHES OF MULCHED MATERIAL AND A DIAMETER OF THREE (3) FEET AROUND THE BASE OF THE TREE.
6. TREES SHALL BE STAKED WITH POSTS AND NOT STAKES IN AREAS OF HIGH WIND FOR ONE TO THREE YEARS TO ALLOW THE GROWTH OF PROPOSED ROOTS TO STABILIZE. ALL ROPES SHALL BE COVERED TO PREVENT CUTTING INTO THE BARK.
7. ANY EXCESS SOIL, CLAY, OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PLANTING SITE, PRIOR TO PLANTING OF INDIVIDUAL TREES AT FINAL GRADE.
8. THE JURISDICTION, AT ITS DISCRETION, HAS THE RIGHT TO RETAIN A PROFESSIONAL LANDSCAPE ARCHITECT OR ARBORIST TO REVIEW SUBMITTED LANDSCAPE PLAN AND THE PROFESSIONAL LANDSCAPE ARCHITECT OR ARBORIST WILL SUBMIT A WRITTEN REPORT TO THE PLANNING AND ZONING COMMISSION. ALL EXPENSES INCURRED BY THE JURISDICTION FOR THE USE OF THE LANDSCAPE ARCHITECT OR ARBORIST SHALL BE REIMBURSED BY THE DEVELOPER.

PLANTING SEASONS:

1. PLANTS MUST BE PLANTED DURING THE FOLLOWING DATES: APRIL 1ST TO MAY 15TH AND SEPTEMBER 1ST TO OCTOBER 1ST.
2. THE PLANTING PERIODS INDICATED MAY BE EXTENDED DUE TO WEATHER CONDITIONS OR OTHER FACTORS, WHICH MUST BE APPROVED BY THE LANDSCAPE ARCHITECT/ENGINEER.
3. THE CONTRACTOR WILL BE RELIEVED FOR HIS GUARANTEE RESPONSIBILITY SHOULD THE OWNER REQUIRE PLANT MATERIAL INSTALLATIONS TO BE COMPLETED DURING OTHER TIMES THAN THE PLANTING PERIODS INDICATED.

PLANTING:

1. ALL SHADE TREES, ORNAMENTAL TREES, EVERGREEN TREES AND SHRUBS SHALL BE PLANTED IN HOLES EXCAVATED AT LEAST 3x THE WIDTH OF THE DIAMETER OF THE BALL OR CONTAINER AND DEEP ENOUGH SO THAT THE TOP OF THE BALL OR SOIL IN THE CONTAINER IS AT OR JUST ABOVE EXISTING GRADE.
2. ALL TWINE OR ROPE MUST BE CUT AND REMOVED AND THE BURLAP FOLDED AWAY FROM THE TOP OF THE BALL. THE EXCAVATION MUST BE BACKFILLED WITH THE PLANTING MIXTURE AND WATERED. ANY SETTLEMENT WILL BE FILLED WITH PLANTING MIXTURE.
3. A 4" DEEP SAUCER, SIMILAR TO THE DIAMETER OF THE PLANTING HOLE SHALL BE CREATED USING PLANTING MIX.
4. PLANTING MIX TO CONSIST OF 1/3 TOP SOIL, 1/3 SOIL FROM EXCAVATION, AND 1/3 MUSHROOM COMPOST (OR 1/3 PEAT MOSS).

CLEAN UP:

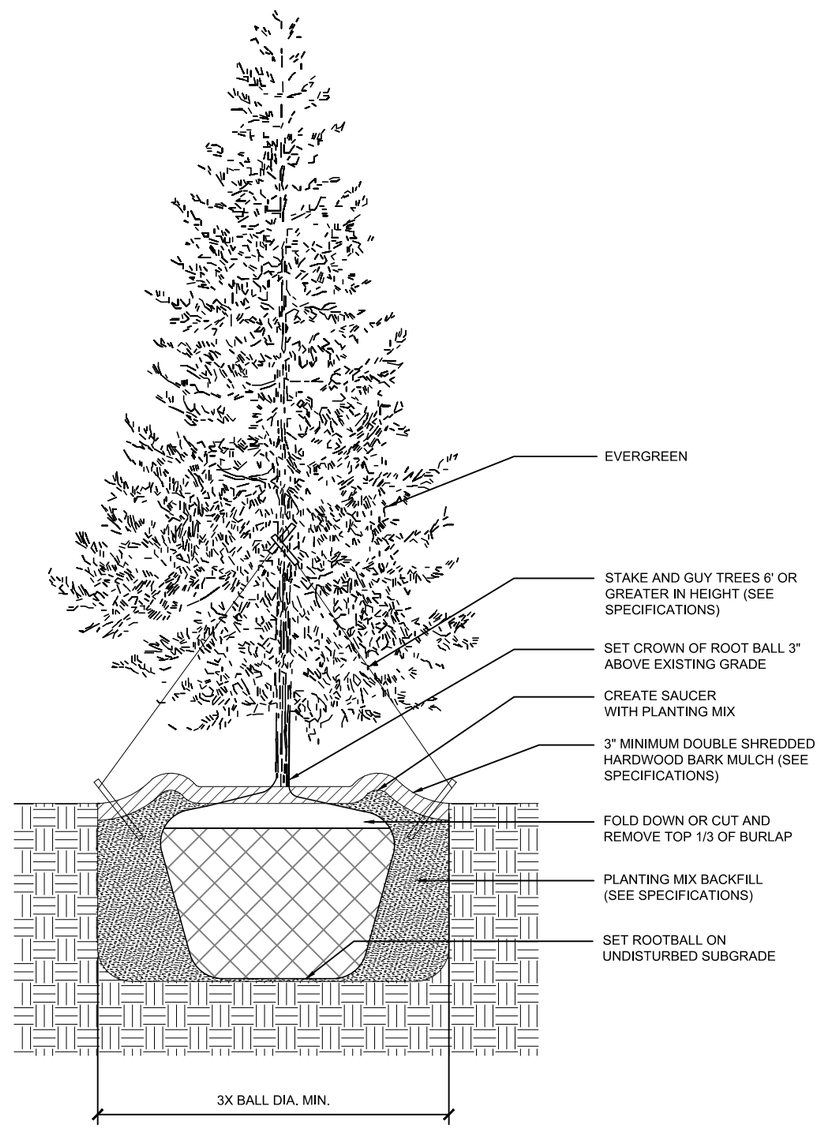
1. ALL DEBRIS GENERATED DURING THE INSTALLATION OF PLANT MATERIALS MUST BE REMOVED FROM THE SITE.
2. ALL PAVEMENTS AND WALKS MUST BE SWEPT AFTER EACH DAYS WORK. UPON COMPLETION OF THE WORK, ALL PAVEMENTS MUST BE WASHED TO REMOVE ALL MUD OR DIRT.

NOTES

SCALE: NONE

1

NOTE:
ALL MATERIALS SURROUNDING THE TREE ROOT BALL, INCLUDING WIRING, ARE TO BE REMOVED PRIOR TO PLANTING OF TREES.



LANDSCAPING DETAIL

SCALE: NONE

2

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STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057985
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

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A	FOR CLIENT REVIEW	03/18/26	JTB
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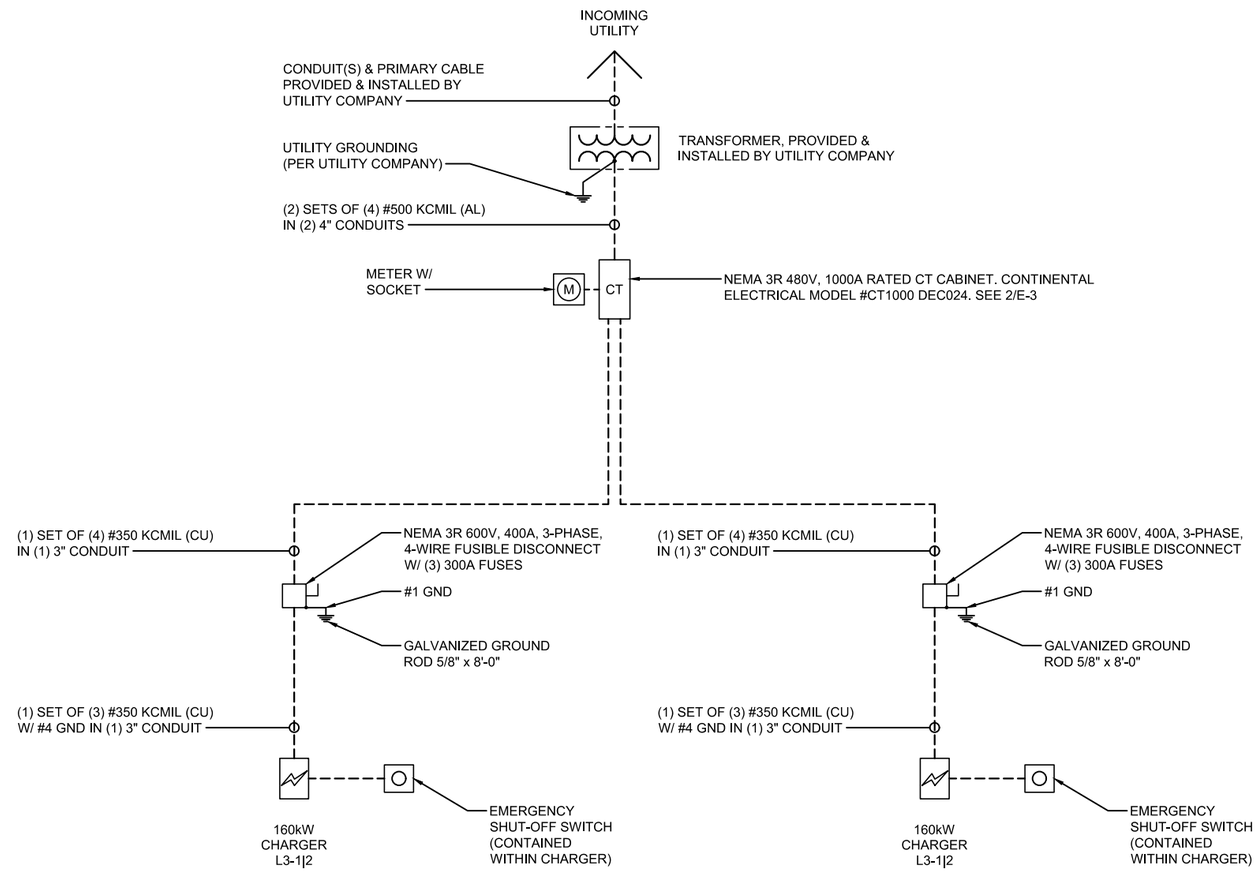
NOTES

GENERAL NOTES:

1. 1000VDC AND 600VAC CONDUCTORS ARE BASED ON 75°C COLUMN OF NEC TABLE 310.15B(16).
2. METER LOCATION SHALL BE ACCESSIBLE FOR READING AND SERVICING. UTILITY COORDINATION IS ONGOING.
3. UTILITY COORDINATION IS ONGOING. RESPONSIBILITY OF PRIMARY AND SECONDARY TERMINATIONS SHALL BE COMPLETED BY THE UTILITY COMPANY. CONTRACTOR SHALL SUPPLY CONDUIT ONLY ON PRIMARY SIDE AS SPECIFIED BY THE UTILITY COMPANY. TRANSFORMER SIZED AND PROVIDED BY THE UTILITY COMPANY. CONTRACTOR TO INSTALL PER UTILITY COMPANY GUIDELINES.
4. #4 SOLID AWG CU GROUNDING ELECTRODE CONDUCTOR PER 250.66(A) TO ROD.
5. GROUNDING ELECTRODE 5/8" x 8'-0" GALVANIZED GROUND ROD INSTALLATION PER NEC 250.52(A)(5), 250.53(A) AND 250.56. THERE SHALL BE TWO GROUND RODS SEPARATED BY SIX FEET OR MORE, OR PROVIDE A CERTIFIED TEST SHOWING THAT THE RESISTANCE TO GROUND IS 25 OHMs OR LESS.
6. PROVIDE NAMEPLATES IDENTIFYING ALL NEW PANELBOARDS, DISCONNECTS, AND BRANCH CIRCUITS PER NEC 230.2(E) AND 225.37. AT EACH DISCONNECTING LOCATION, A PERMANENT PLAQUE DIRECTORY SHALL BE PROVIDED DENOTING ALL SERVICE FEEDERS SUPPLYING/PASSING THROUGH THE BUILDING FOR AREA SERVED BY EACH.
7. CONTRACTOR SHALL PROVIDE A NAMEPLATE FOR ALL EMERGENCY STOP SWITCHES OR SAFETY DISCONNECTS THAT READS, "EV CHARGING EQUIPMENT EMERGENCY SHUTDOWN" AT EACH LOCATION.
8. ALL EQUIPMENT SHALL HAVE THE ABILITY TO BE LOCKABLE IN THE OPEN.

PENDING UTILITY COORDINATION



CONDUIT NOTE:

ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE-GRADE CONDUIT (INCLUDING CONDUIT ASSOCIATED WITH FREE-STANDING OR WALL-MOUNTED SERVICE EQUIPMENT) SHALL BE SCHEDULE 40 PVC, UNLESS THE ABOVE-GRADE RUN LENGTH IS GREATER THAN OR EQUAL TO (5) FEET, IN WHICH CASE SCHEDULE 80 PVC SHALL BE UTILIZED.

TRENCHING NOTE:

PROPOSED TRENCHING ROUTE IS SCHEMATIC AND SUBJECT TO MODIFICATION BASED ON FIELD CONDITIONS AND/OR IDENTIFICATION OF A MORE EFFICIENT ROUTING METHOD. ALL TRENCHING SHALL AVOID EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL COORDINATE UTILITY LOCATING THROUGH MISS DIG PRIOR TO EXCAVATION.

NOTE:
- CONTRACTOR TO PLAN FOR MULTIPLE LUGS FOR PARALLEL RUNS

ONE-LINE DIAGRAM

SCALE: NONE

1

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ONE-LINE DIAGRAM

LEGEND

TRENCHING ROUTE

PENDING UTILITY COORDINATION

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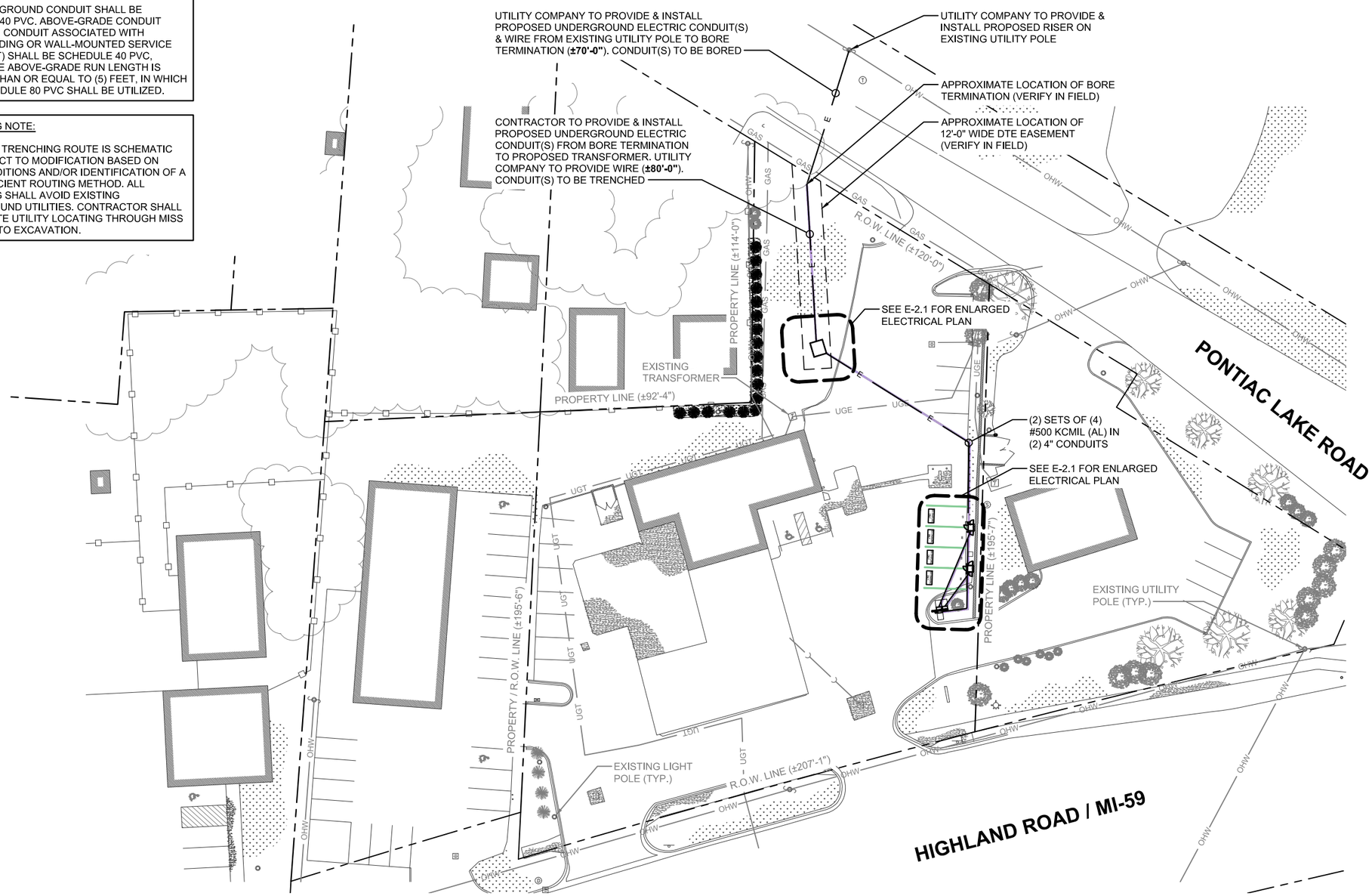
LEGEND

GAS	GAS LINE
OHW	OVERHEAD UTILITY LINE
	STORM SEWER LINE
UGE	UNDERGROUND ELECTRIC LINE
UGT	UNDERGROUND TELCO LINE



OVERALL ELECTRICAL PLAN

SCALE: 1" = 50'-0"

1

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E
OVE
ELECTRICAL PLAN

LEGEND

TRENCHING ROUTE

PENDING UTILITY COORDINATION

CONDUIT NOTE:

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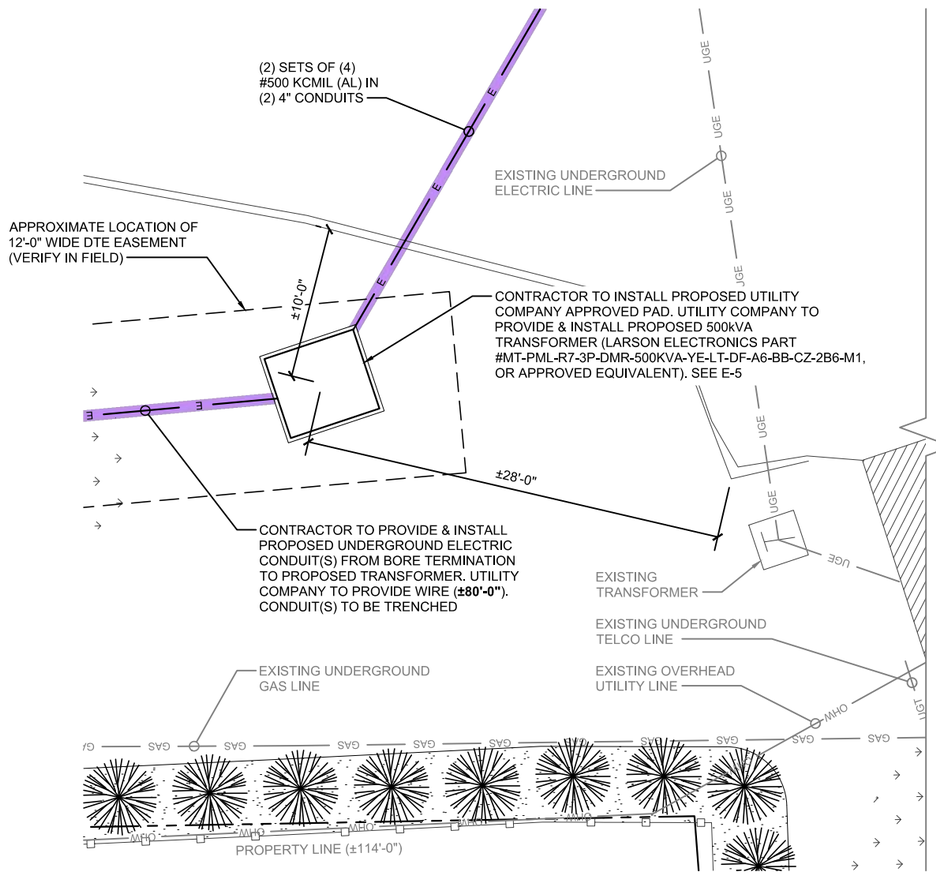
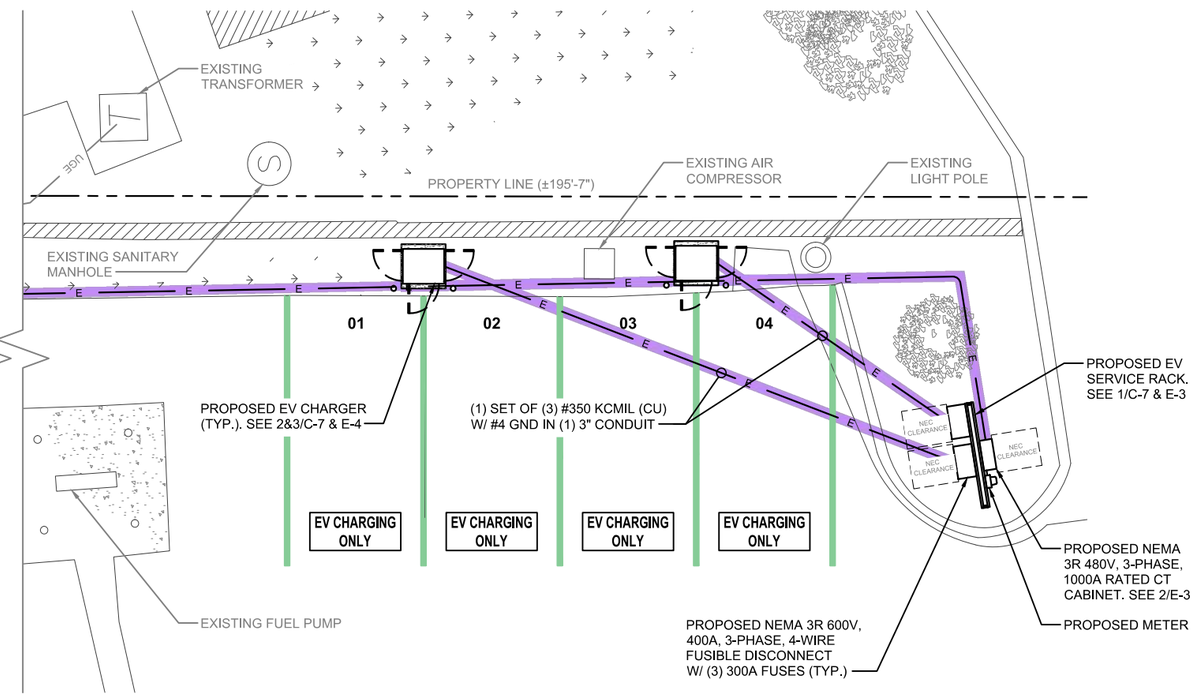
LEGEND

- GAS — GAS LINE
- OHW — OVERHEAD UTILITY LINE
- STORM SEWER LINE
- UGE — UNDERGROUND ELECTRIC LINE
- UGT — UNDERGROUND TELCO LINE





N

0' 10' 20' 30'

SCALE: 1" = 10'-0"

ENLARGED ELECTRICAL PLAN

SCALE: 1" = 10'-0"

1

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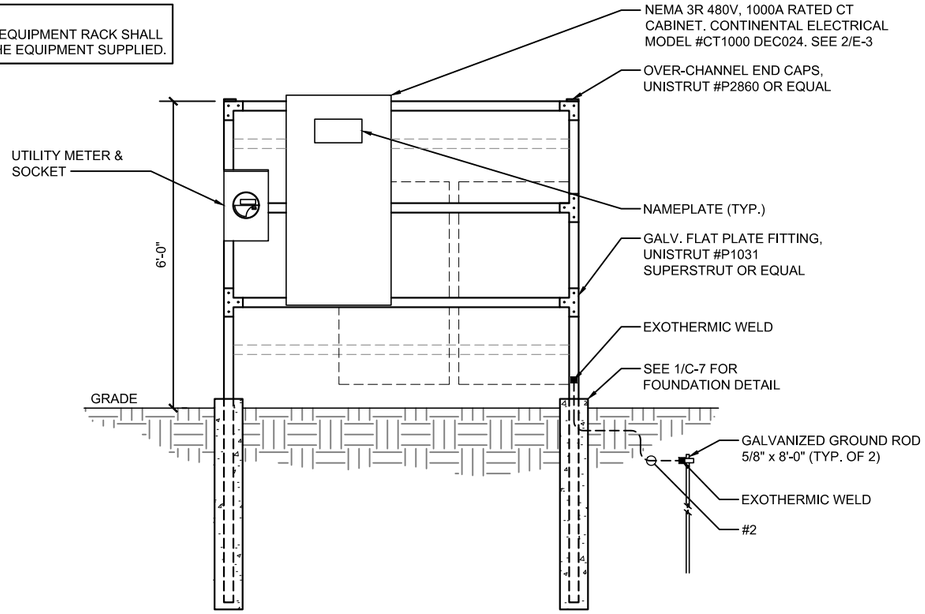
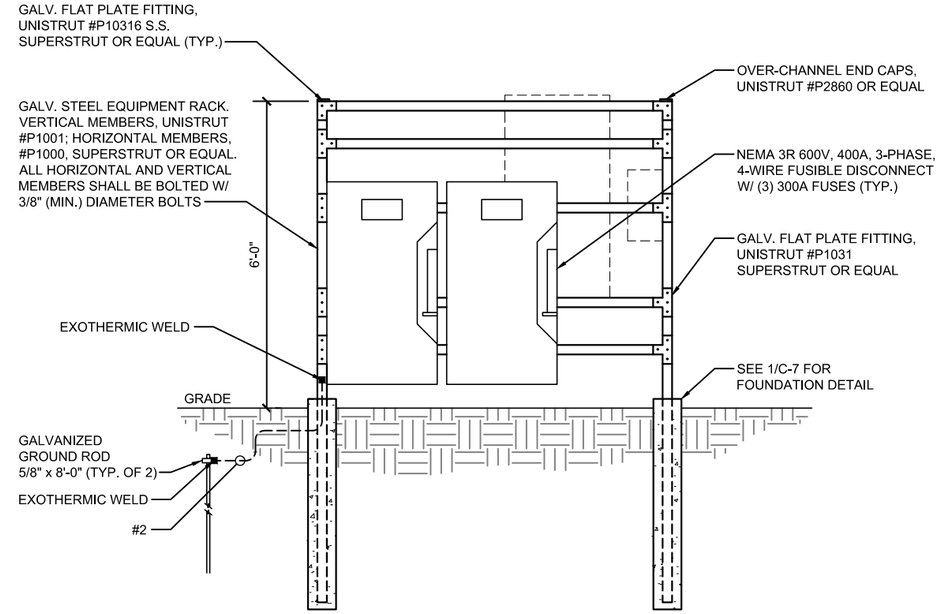
E-2
ENLA
ELECTRICAL PLAN

NOTE:
EXACT WIDTH OF THE EQUIPMENT RACK SHALL BE DETERMINED BY THE EQUIPMENT SUPPLIED.



FRONT VIEW



REAR VIEW

EQUIPMENT RACK DETAIL

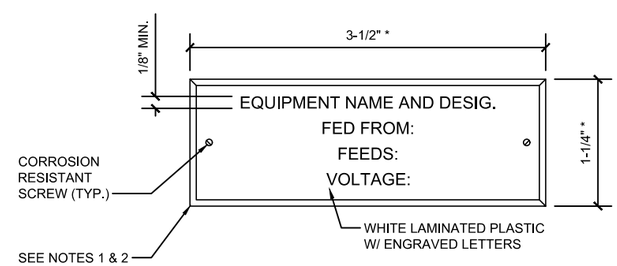
SCALE: NONE

1

CT CABINET SPECIFICATIONS

SCALE: NONE

2



* SMALLER SIZES MAY BE USED AS INDICATED; SEE SPECIFICATIONS

NOTES:

1. NAMEPLATES SHALL BE PROVIDED FOR ALL NEW BRANCH CIRCUITS IN NEW DISTRIBUTION PANELS AND RECEPTACLE PANELS.
2. NAMEPLATES SHALL BE PROVIDED FOR NEW BRANCH CIRCUITS AND/OR MODIFICATIONS TO EXISTING SWITCHGEARS, DISTRIBUTION PANELS, AND RECEPTACLE PANELS.

NAMEPLATE DETAIL

SCALE: NONE

3

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E
ELECTRICAL DETAILS

AUTEL

MAXICHARGER™ DC FAST 60KW-240KW WITH 20KW INCREMENTS

SPECIFICATIONS

- FLEXIBLE POWER MODULE DESIGN
- MULTIPLE CABLE & CHARGING CONNECTOR OPTIONS
- 27-INCH TOUCHSCREEN DISPLAY
- SMART CLOUD PORTAL WITH REMOTE DIAGNOSTICS
- DYNAMIC LOAD BALANCING
- ISO 15118 PLUG & CHARGE

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AUTEL

SPECIFICATIONS MAXICHARGER DC FAST 60KW-240KW WITH 20KW INCREMENTS

	DCFC 60KW-120KW	DCFC 140KW-240KW
PART NUMBERS	60kW: UF060xxxxx; 80kW: UF080xxxxx; 100kW: UF100xxxxx; 120kW: UF120xxxxx	140kW: UF140xxxxx; 160kW: UF160xxxxx; 180kW: UF180xxxxx; 200kW: UF200xxxxx; 220kW: UF220xxxxx; 240kW: UF240xxxxx
	The "xxxxx" portion of the product part number represents the various product configurations.	
ELECTRICAL		
CONNECTOR OPTION*	Dual CCS1, or CCS1 + CHAdeMO	Dual CCS1/CCS1 Boost, or CCS1 + CHAdeMO
MAX. INPUT AC CURRENT	60kW: 92A; 80kW: 122A; 100kW: 152A; 120kW: 182A	140kW: 213A; 160kW: 245A; 180kW: 276A; 200kW: 306A; 220kW: 336A; 240kW: 368A
NOMINAL INPUT AC CURRENT	60kW: 92A; 80kW: 122A; 100kW: 152A; 120kW: 182A	140kW: 213A; 160kW: 245A; 180kW: 276A; 200kW: 306A; 220kW: 336A; 240kW: 368A
INPUT VOLTAGE RANGE	400 V AC - 15 % to +10 % @ 50 Hz	
DC OUTPUT VOLTAGE	CCS1: 150 to 950 V DC; CHAdeMO: 150 to 500 V DC	
NETWORK TYPE	TN-S, TN-C, TN-C-S, & TT (External RCD** Required)	
AC INPUT CONNECTION	3P + PE (No Neutral)	
PROTECTION	Over-Current, Over-Voltage, Under-Voltage, Ground-Fault, Over-Temperature, Short-Circuit, Insulation Monitor (IMD), & Surge Protection	
OVERVOLTAGE CATEGORY	AC Side (Input) OVC III	
POWER FACTOR (> 50 % LOAD)	≥ 0.99	
THDi (> 50 % LOAD)	≤ 5 %	
PEAK EFFICIENCY	≥ 95 %	
STANDBY POWER	10 W	
SHORT CIRCUIT CURRENT RATING	≥ 10 kA	
ENERGY METERING	Class A	
USER INTERFACE & COMMUNICATION		
CONNECTIVITY	Internet Access Via 4G / Wi-Fi / Ethernet (RJ 45)	
USER AUTHENTICATION	QR Code, RFID, Credit Card (Optional)	
ISO 15118 PLUG & CHARGE	Yes	
DIN 70121	Yes	
INTERFACE	27" LCD High-Contrast Touchscreen (10.5" Optional)	
ACCESSIBLE FOR WHEELCHAIR USERS	Yes	
COMMUNICATIONS PROTOCOLS	OCPP 1.6 JSON, OCPP 2.0.1 (Can Be Upgraded Later)	
RFID READER	ISO 14443 A+B to Part 4 & ISO/IEC 15693, Mifare, NFC, Calypso, Ultralight, PayPass, MD & More	
EMERGENCY BUTTON	Yes	
SOFTWARE UPDATE	OTA Update Via Web Portal	
CONTROL AND CONFIGURATION	Web Portal, On-Board Service Portal	
GENERAL CHARACTERISTICS		
PROTECTION RATINGS	NEMA 3R Outdoor Use & IK 10	
ENCLOSURE TYPE	Stainless Steel 430	
OPERATION ALTITUDE	6561 Ft. (6561 to 9843 Ft. with Power Derating)	
OPERATING TEMPERATURE	-31 °F to +131 °F (+122 °F to +131 °F with Linear Power Derating)	
STORAGE TEMPERATURE	-40 °F to +158 °F	
HUMIDITY	< 95 % RH, Non-Condensing	
NOISE LEVEL	< 65 dB (@ no/20 %Full Load/800 VDC)	
MOUNTING	Free-Standing Cabinet	
CABLE LENGTH	18 ft (Optional: 20 or 25 ft)	
DIMENSIONS (H X W X D)	76.0"x32.5"x33.6" (1930 x 810 x 600 mm)	76.0"x 32.5"x 37.8" (1930 x 810 x 700 mm)
CERTIFICATIONS & STANDARDS		
COMPLIANCE & SAFETY	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16	
EMC COMPLIANCE	FCC Part 15 Class A, Class B (Optional)	
WARRANTY	24 Months with Warranty Extensions Available	

FC CE UK

* CCS1: Max 200A, CCS1 Boost: 300A (Max 400A) ** RCD: Residual Current Detector For Ground Fault Protection.

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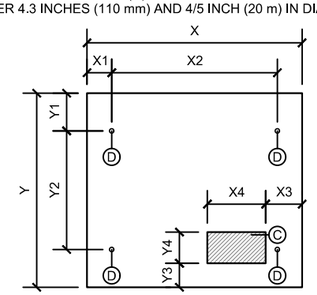
CHARGER SPECIFICATIONS

SCALE: NONE

1

PARAMETER	SPECIFICATIONS			
	MAXICHARGER DC FAST 120		MAXICHARGER DC FAST 160	
	in.	mm	in.	mm
X	32.3	820	32.3	820
Y	25.2	640	29.1	740
X1	3.7	95	3.7	95
X2	24.8	630	24.8	630
X3	5.5	140	5.5	140
X4	8.7	220	8.7	220
Y1	3.7	94.3	5.7	144.3
Y2	17.7	450	17.7	450
Y3	5.2	131	3.6	91.5
Y4	4.7	120	4.7	120

6. PLACE THE DRILLING TEMPLATE ON THE CONCRETE SURFACE, ALIGNING THE MARKED AREA (C). MARK THE FOUR MOUNTING HOLES (D) AND REMOVE THE DRILLING TEMPLATE. DRILL HOLES WITH DEPTH OVER 4.3 INCHES (110 mm) AND 4/5 INCH (20 m) IN DIAMETER. CLEAN ANY DEBRIS.



NOTE:
CHARGER BASES ARE THE SAME FOR 160kW THRU 240kW CHARGERS.

CHARGER BASE

SCALE: NONE

2

4.1.1 LOCATION REQUIREMENTS

- THE MAXICHARGER REQUIRES AN INSTALLATION SPACE OF 95.3 x 80.8 INCHES (2420 x 1950 mm, FOR MAXICHARGER DF 120) OR 103.2 x 80.7 INCHES (2620 x 2050 mm, FOR MAXICHARGER DF 160) IN ORDER TO ENSURE THE NORMAL OPERATION AND AIRFLOW AROUND THE MAXICHARGER. THE SPACE IS CALCULATED AS FOLLOWS:

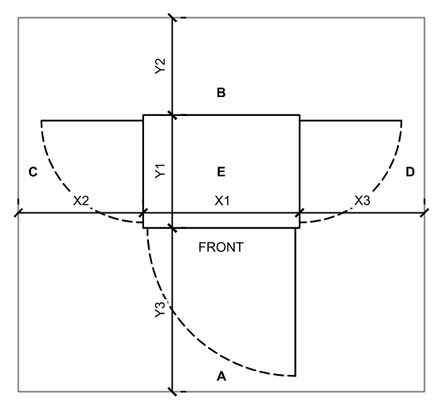


FIGURE 4-1 LOCATION REQUIREMENTS

A. FRONT SIDE OF THE MAXICHARGER

B. REAR SIDE OF THE MAXICHARGER

C. LEFT SIDE OF THE MAXICHARGER

D. RIGHT SIDE OF THE MAXICHARGER

E. CABINET

TABLE 4-1 SPACE REQUIREMENTS FOR MAXICHARGER DF 120

PARAMETER	SPECIFICATION	
	in.	mm
X1	32.3	820
X2	31.5	800
X3	31.5	800
Y1	23.6	600
Y2	19.7	500
Y3	33.5	850

TABLE 4-2 SPACE REQUIREMENTS FOR MAXICHARGER DF 160

PARAMETER	SPECIFICATION	
	in.	mm
X1	32.3	820
X2	35.4	900
X3	35.4	900
Y1	27.6	700
Y2	19.7	500
Y3	33.5	850

CHARGER CLEARANCES

SCALE: NONE

3

Item B.

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SPECIFICATIONS

Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1

500 KVA Pad Mount Transformer - 12470V Delta Primary, 480Y/277 Wye-n Secondary - Copper, KNAN/Bell Green

Product ID: 152805

Please see last page for supporting documentation for this product(certificates, CAD files & drawings, IES files, wiring diagrams, etc).

Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 3PH Pad Mount Transformer	
Transformer Type: Pad Mounted, Compartmental-Type	**Ratings**
Transformer Configuration: Liquid Filled Pad Mounted	Meets/Exceeds DOE 2016 Efficiency Ratings
Transformer Feed Type: Loop Feed	Meets/Exceeds CSA Efficiency Ratings
Operation: Step-Down Operation (Not Approved for Step-Up)	Complies with ANSI / IEEE C57.12.00
Phase: Three Phase	Complies with ANSI / IEEE C57 12.28
Capacity: 500 KVA	Complies with ANSI / IEEE C57 12.29
Vector Group: DYN1	Complies with ANSI / IEEE C57 12.34
Primary Voltage: 12470V	Complies with ANSI / IEEE C57.12.35
Primary Voltage Switch: N/A	Complies with ANSI / IEEE C57.12.70
Primary Voltage Class: 15 kV Class	Complies with ANSI / IEEE C57.12.110
Primary Phase: Delta	Complies with ANSI / IEEE C57.12.131
Primary BIL: 95 KV	Complies with ANSI / IEEE C62.11
Secondary Voltage: 480Y/277	Complies with ANSI / IEEE C62.22
Secondary Voltage Class: 1.2 kV Class	Complies with ANSI / IEEE 386
Secondary Phase: Wye-N	Complies with ANSI / IEEE C2
Secondary BIL: 30 KV	Complies with ANSI / IEEE C37.47
Frequency: 60 Hz	Complies with ANSI Z535.4
Temperature Rise: 65°C	Complies with ASTM D3487
Insulation Rating: Class E Insulation - 120°C, 248°F	Complies with ASTM D6871
Cooling Class: KNAN; Self-Cooled	Complies with NEMA 260-1996
Forced Air (Fans): None	Complies with 10 CFR Part 431
Tap Changer: 5-position Tap Changer	Complies with CSA C2.1-06
Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps	Complies with CSA C60
Tap %: 2.5%	Complies with CSA C68
	Complies with CSA C88.1

1

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9419 E US HWY 175, Kemp, TX 75143
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Tap Changer Switch Rating: 300-Amp, 15 kV
Tap Changer Switch Location: High Voltage (HV) [Left Side] Front Compartment
Impedance: 1.5/7.0% Typical, Target 4.35±5.75%
Primary Connection Type: Dead Front
Primary Termination Arrangement: V Terminal Arrangement
Primary Termination: Externally Clamped Integral Bushings w/ Removable Studs, 200A Loadd Break Elbows
Primary Connection Qty: (6) Primary Connections for use w/ Elbow Connectors
Primary Parking Stand Qty: (6) Welded Brackets for Installing Accessory Parking Stand Bushings
Primary Bushing Rating: 15 kV Class, 95 kV BIL, 200A, Load Break
Primary Neutral Connection: N/A
Primary Surge Arrestors: (3) High Voltage Elbow Surge Arrestors, Included
Primary Surge Arrestor Voltage Rating: 18 kV Class Elbow Arrestor
Primary Surge Arrestor MCOV Rating: 15.3 kVrms
Primary Over Current Protection (OCP): Bayonet Expulsion Fuse in series w/ Partial-Range Current-Limiting Fuse
Primary Over Current Protection Method: Fused, Oil-Immersed
Primary Over Current Protection Holder: Bayonet Fuse Holder w/ Flapper Valve and External Drip Shield
Primary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs in HV Cabinet
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Staggered Terminal Arrangement
Secondary Connections: NEMA Spade Terminals, 4-Hole Spade, Externally Clamped, Accepts up to (4) Double Lug connections with (2) cables per side of Spade connector
Secondary Connection Qty: (4) Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: N/A
Secondary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs in LV Cabinet
Metering Current Transformer (CT): N/A
Metering Panel: N/A
Auxiliary Control Panel : N/A
Load Break Switch: Three-Position Load Break Switches
Load Break Switch Qty: (1)
Load Break Switch Rating: 300-Amp, 15 kV
Load Break Switch Location: High Voltage (HV) Front Compartment
Efficiency Standard(s): Meets DOE 2016 Standards, Meets CSA Standards Meets ANSI/IEEE Standards
K-Factor Rating (Harmonic Mitigation): K-1 (Standard)
Pulse Drive Rating: N/A
Insulation Fluid: Biodegradable Natural Vegetable Oil Ester Insulating Fluid - Non-PCB Fluid
Fluid (Oil) Capacity": 167 Gallons
Fluid (Oil) Weight": 1,281 lb
Liquid Level Indicator: Analog Dial Gauge
Temperature Indicator: Analog Dial Gauge
Pressure/Vacuum Indicator: Analog Dial Gauge
Pressure Relief Device: Included, Automatic Action
Fault Indication: N/A
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 1" NPT Port w/ Removable Bolt Plug
Fill Valve Location: Front Compartment
Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -40°C to +40°C (-50°F to +104°F)
Sound Level: 56 dBA
Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material: Grain Oriented Steel
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel
Portability: Lifting lugs, provisions for jacking under base, w/ base construction suitable for using rollers or skidding
Housing Type: Compartmental Air-Filled Cabinet w/ Locking Doors, HV Compartment Left, LV Compartment Right, Steel Barrier Separation, HV Door Spring-Loaded Release Pin in Compliance with CSA C86-16
Complies with CSA C227.4
Complies with CSA C227.5
Complies with CSA C802-3
Complies with CSA C802.1

Features
Pentahead Bolt Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 3R Wiring Compartment
Hot Stick Included, HV Door Mount

Efficiency %: 99.35%
Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.
No Load Loss (in watts): +/- 700W
Full Load Loss (in watts) at 100%: +/- 5,000W
Total Load Loss (in watts) at 100%: +/- 5,700W
Total Losses at 65°C LL Temp.& 20°C NL Temp.
Total Load Loss (in watts) at 50%: +/- 1,899W
Note: Losses offered are typical only, not guaranteed

Labeling:
Externally Stenciled (Painted) KVA Rating
Externally Stenciled (Painted) Voltage Rating
External Non-PCB Label
External Warning & Danger Label
External Barcode Label
Internal Busing & Accessory Labeling
Stainless Steel Riveted Nameplate

Factory Tests:
Winding Resistance Test
Insulation Resistance Test
Voltage Ratio Error Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Induced Voltage Withstand Test
Separate Source Voltage Withstand Test
Pressure Integrity Test Test

Shipping:
Shipped on pallet on open flatbed
Palletized on Wooden Pallet w/ Skid Pockets
Pallet Skid Facing Outward Sides of Truck
Note: Crated shipping in lieu of palletizing can be done upon request for an additional fee

2

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9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
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LV Compartment
Enclosure Rating: NEMA 3R Weatherproof Wiring Cabinet, Sealed Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Peterson Brown
Mounting: Pad Mounted
Conduit Opening: Bottom Feed Underground Entry/Exit
HV Compartment Base Wireway Dimensions": 20"-W x 8"-D
LV Compartment Base Wireway Dimensions": 16"-W x 8"-D
MVLV Compartment Cabinet Depth": 24"-D
Tank Cover Access Handhole: N/A
Dimensions": 62"-W x 61"-D x 71"-H
Dry Weight (w/o Oil): 2,292 lb
Total Weight (Liquid Filled): 4,802 lb
*Please note that numbers are approximate and subject to change

Special Orders - Special Requirements
Contact us for special requirements

Toll Free: 1-800-369-6671
Intl: 1-903-270-1187
Fax: 1-903-498-3364
E-mail: sales@larsonelectronics.com

The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 Industrial Pad Mount Transformer from Larson Electronics offers powerful, reliable and efficient power distribution in indoor, outdoor and public locations. The low operating costs, low heat emissions and low cost of ownership makes this transformer ideal for a wide range of applications and businesses. An enclosed design caters to installations on concrete pads without protective fencing.
****PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS****
Transformer Features: With a transformer rating of 500 KVA, the industrial transformer features a primary voltage of three-phase 12470V Delta and a secondary voltage of three-phase 480Y/277 Wye-n. The unit has a primary loop feed for single installations and dead-front primary connections. We also offer systems with loop feed and live front primary connections. This transformer features a 5-position tap changer with two, +/- 2.5% taps above and two, +/- 2.5% taps below to allow small changes for voltage. There are no rapid rise relays present on the system.
The system features copper windings for high strength and thermal/electrical conductivity. This transformer consists of rectangular coil and five-legged wound core design with three coils and four core loops (this is for three-phase transformers only; single-phase units have one coil and two core loops).
The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 is air cooled and does not have fans or mounting provision for fans.
Enclosure Design: This pad mounted transformer is a compartmental design. The tank and housing are fabricated from steel. The front electrical enclosure carries a NEMA 3R rating. The high voltage and low voltage compartments are located in front of the transformer tank, with the high voltage compartment on the left side and low voltage compartment on the right side. The HV and LV compartments are air filled and separated by a full length steel barrier between the compartments. A removable steel plate at the base of the HV and LV compartments prevents rodents and other intrusions from entering the enclosure once installed. This steel plate allows for underground conduit entry into the enclosure compartments. Two hinged exterior doors allow for access into the compartments. A single pad lockable handle on the low voltage compartment door allows for securing the transformer. A spring loaded pin within the low voltage compartment prevents the high voltage door from being opened without pulling the safety pin. A hot stick is included in the high voltage compartment, mounted to the HV door.
Temperature Rise: This unit features 65°C temperature rise for reduced heat waste, increased reliability and longer life. At 65°C temperature rise, the transformer offers 500 KVA. The transformer meets standard efficiency requirements. The combination of low temperature rise and high efficiency makes this unit suitable for use in electrical rooms, air conditioned spaces in buildings, underground vaults and similar locations, in addition to outdoor areas.

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Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

Insulation Fluid: The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 features biodegradable cooling fluid (KNAN) with a capacity of 167 gallons. We offer transformers with PR-3 oil fluid, if needed.
Biodegradable Fluid: Biodegradable cooling fluid (vegetable oil) has a higher heat capacity compared to mineral oil, making the liquid safer to use and more reliable during operations. Vegetable oil has a higher flash point and fire point than mineral oil, hydrocarbon oil, silicone oil and synthetic ester. This cooling fluid is also non-toxic and can tolerate higher breakdown voltages than mineral oil. When operating at high temperatures, biodegradable cooling liquid sustains up to 120% loan conditions, which helps preserve the transformer's lifespan and performance.
Gauges: The following gauges are included with the system: liquid level, temperature and pressure/vacuum gauges. Standard liquid level, temperature and pressure/vacuum gauges are analog, manual reading types. These gauges do not have auxiliary contacts.
Fault Pressure Devices: This transformer features an automatic action fault pressure device. Fault pressure devices are used to detect high rates of pressure rise within the tank.
Rapid Rise Relay: There are no rapid rise relays on the unit. This safety component is designed for protection when a rapid increase in tank pressure occurs. The relay is suitable for detecting sudden pressure fluctuations above predetermined safe limits.
Surge arresters: This system comes with high elbow surge arresters on the primary side. Designed for over-voltage and transient voltage protection, the components prevent damage caused by lightning, internal switching or voltage surges. We can offer models without high elbow surge arresters that have mounting provisions for customer-provided surge arresters.
Load Break Switch: The transformer is equipped with three 2-position load break switches.
Valves: The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 is equipped with a pressure relief valve, fill valve and drain valve with sampler port.
Protection Fuses: This transformer contains bayonet protection fuses on the primary side. For units without protection fuses, up stream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.
Mount: The heavy-duty enclosure makes the unit suitable for both indoor and outdoor applications. This power distribution system can be pad mounted on concrete pads.
Benefits: The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 pad mount transformer offers many benefits to consumers. This transformer provides owners with significant energy savings, as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turns into cost savings for owners in the form of lower energy bills and decreased cost of ownership.
Applications: General purposes, industrial sites, electrical rooms, underground vaults, manufacturing facilities, steel plants, offshore, commercial, military, processing plants, electric power distribution, utilities, public locations and more. Larson Electronics is a manufacturer and as such can build stationary and portable transformer systems to your specifications. Although we carry several models of power distribution transformer systems, we can deliver custom ordered units almost as quickly as our prebuilt units. If this model does not meet your needs, please contact us at 1-800-369-6671 or sales@larsonelectronics.com to discuss your specific requirements.

4

TRANSFORMER SPECIFICATIONS	1
SCALE: NONE	

Item B.

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WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
wtgroupaec.com
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WT Group
Engineering • Design • Consulting

8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	03/18/26	JTB
0	REVISION	03/23/26	JTB
1	REVISION	05/20/26	JTB
2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

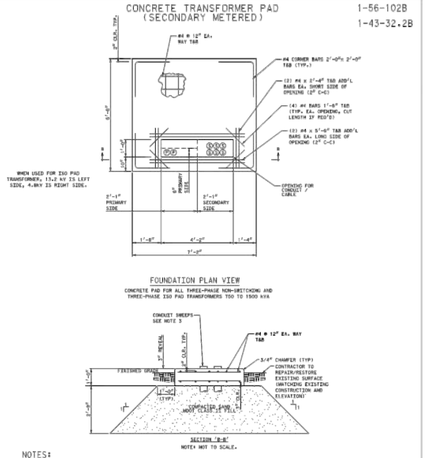
CHECK: JKR
DRAWN: JTB
JOB: T2600207

E
ELECTRICAL EQUIP
SPECIFICATIONS

MAR 24	UNDERGROUND SERVICE	3-6-4

CONCRETE TRANSFORMER PAD (SECONDARY METERED)

1-56-102B
1-43-32.2B



NOTES:

1. THIS SPECIFICATION IS FOR PADS CAST IN PLACE OR PRECAST.
2. REFER TO 3-6-14 TO 3-6-15 FOR GENERAL NOTES.
3. FIELD TO LOCATE AND POSITION ALL CONDUIT SLEEVES FOR CABINETS PRIOR TO PLACING CONCRETE. THE NUMBER OF DUCTS IS TO BE APPROVED BY THE SERVICE PLANNER/REGIONAL ENGINEER.
4. THE FOUNDATION DESIGNED FOR ASSUMING 1,000 PSF ALLOWABLE SOIL BEARING CAPACITY.
5. FOR MINIMUM SOIL BEARING CAPACITY DETAIL SEE 3-6-9.
6. FOR MINIMUM CLEARANCE TO OBSTRUCTION SEE 3-7-11.
7. FOR ANCHOR BOLT INSTALLATION DETAIL, SEE 3-6-10.
8. 1/2" TOP TO BOTTOM TAPER ALLOWED IN CONDUIT PLACEMENT OPENING.
9. PRIMARY CONDUIT MUST BE POSITIONED AT THE FRONT OF THE WINDOW.
10. TRANSFORMER AND PAD SELECTION ON SECONDARY METERED INSTALLATIONS ARE DETERMINED BY THE DTE PLANNER.

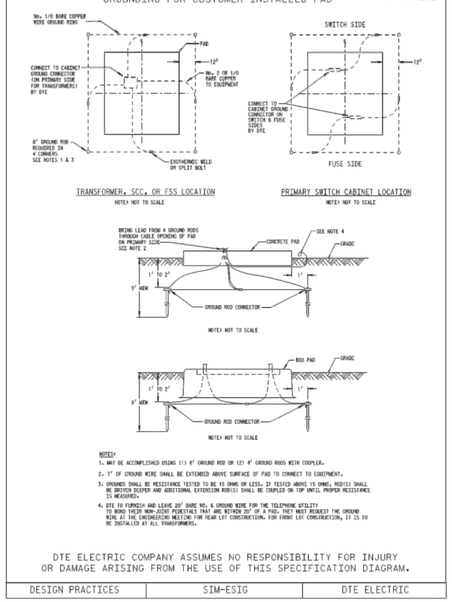
DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

MAR 24	UNDERGROUND SERVICE	3-6-9

GROUNDING FOR CUSTOMER INSTALLED PAD

1-15-202



NOTES:

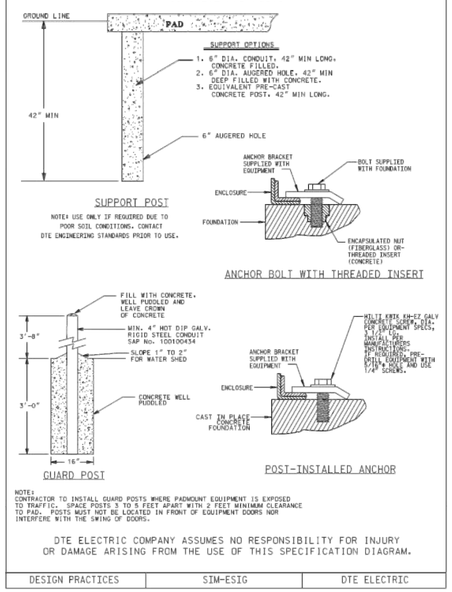
1. MUST BE ACCOMPLISHED USING (1) 8' GROUND ROD OR (2) 4' GROUND RODS WITH COUPLER.
2. 1' OF GROUND WIRE SHALL BE EXTENDED ABOVE SURFACE OF PAD TO CONNECT TO EQUIPMENT.
3. GROUNDS SHALL BE RESISTANCE TESTED TO BE 10 OHMS OR LESS. IF TESTED ABOVE 15 OHMS, RED(S) SHALL BE DRIVEN DEEPER AND ADDITIONAL EXTENSION ROD(S) SHALL BE COUPLED ON TOP UNTIL PROPER RESISTANCE IS MEASURED.
4. DTE TO FURNISH AND LEAVE 20' SWRE NO. 6 GROUND WIRE FOR THE TELEPHONE UTILITY TO BOND THEIR NON-ZONE PEDESTALS THAT ARE WITHIN 20' OF A PAD. THEY MUST REQUEST THE GROUND WIRE AT THE ENGINEERING MEETING FOR REAR LOT CONSTRUCTION. FOR FRONT LOT CONSTRUCTION, IT IS TO BE INSTALLED AT ALL TRANSFORMERS.

DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

MAR 24	UNDERGROUND SERVICE	3-6-10

CONCRETE PAD POSTS



NOTE:
CONTRACTOR TO INSTALL GUARD POSTS WHERE PADMOUNT EQUIPMENT IS EXPOSED TO TRAFFIC. SPACE POSTS 3 TO 5 FEET APART WITH 2 FEET MINIMUM CLEARANCE TO PAD. POSTS MUST NOT BE LOCATED IN FRONT OF EQUIPMENT DOORS NOR INTERFERE WITH THE SWING OF DOORS.

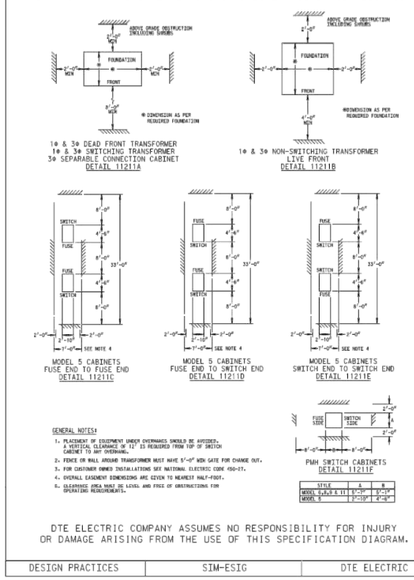
DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

FEB 24	UNDERGROUND SERVICE	3-7-11

MINIMUM CLEARANCE REQUIREMENTS FOR 13.2 KV OR 4.8 KV TRANSFORMER OR SWITCH CABINET FOUNDATION LOCATION

1-11-211



GENERAL NOTES:

1. PLACEMENT OF EQUIPMENT UNDER OVERHANGS SHOULD BE AVOIDED. A VERTICAL CLEARANCE OF 12' IS REQUIRED FROM TOP OF SWITCH CABINET TO ANY OVERHANG.
2. FENCE OR WALL AROUND TRANSFORMER MUST HAVE 5'-0" WIDE GATE FOR CHANGE OUT.
3. FOR CUSTOMER OWNED INSTALLATIONS SEE NATIONAL ELECTRIC CODE 450-27.
4. OVERALL EASEMENT DIMENSIONS ARE GIVEN TO NEAREST HALF-FOOT.
5. CLEARANCE AREA MUST BE LEVEL AND FREE OF OBSTRUCTIONS FOR OPERATING REQUIREMENTS.

STYLE	A	B
MODEL 5,W,X & Y	5'-0"	3'-0"
MODEL 5	1'-0"/0"	2'-0"

DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

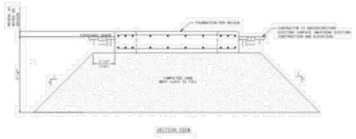
Foundation Installation – Excavation, Compacted Fill, Backfilling

These requirements apply to all underground line equipment foundation construction, including box pad, cast in place, and pre-cast foundations.

A. Excavation Requirements
(i) Excavation shall be to a depth that will permit preparation of a foundation as specified or installation of the box pad at prescribed depth, but at a minimum, shall be 3'-6" below finished grade. The width and length of the excavated hole shall be sufficient to permit the foundation and compacted fill installation, as specified below.
(ii) All excavations shall be kept free of standing water, frost, snow, ice, and foreign debris. No foundations shall be set against water, frost, snow, or ice.

B. Compacted Fill Requirements
(i) All foundations, including box pad, cast in place, and pre-cast, shall be laid on compacted sand (MDOT Class II fill). Fill shall extend to 3'-6" below finished grade. At the base of the foundation, fill shall extend 1'-0" beyond the plan dimensions of the foundation, on all sides. Fill shall be distributed to 3'-6" below finished grade at a 1:1 ratio. See sketch below.
(ii) Minimum soil bearing capacity is assumed to be 1000 psf. In cases where adequacy of the base may be doubtful, DTE may require bearing capacity tests results from a qualified testing laboratory.
(iii) When conditions such as unstable soil, frozen backfill, or rock are encountered, special action must be taken to provide a sound soil base for the entire foundation. The decision for correction of an overall poor condition such as swampy land or general regrading should be made by the division engineer.

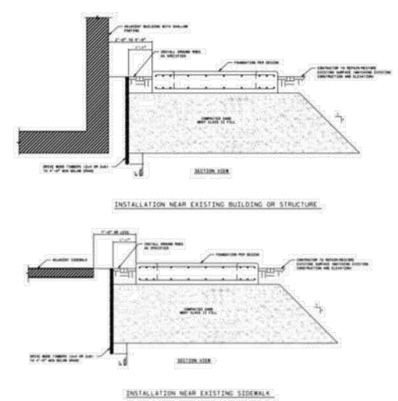
C. Backfilling Requirements
(i) All foundation excavations shall be backfilled with suitable material and compacted to the final grade as specified. Suitable material shall be lean grout fill (see 3-6-15), MDOT Class II fill (compacted sand), or mineral soil reasonably free of foreign materials, rubbish, debris, etc. Backfill shall be free of frozen clumps, oversized stone, rock or concrete, bituminous chunks or other unsuitable materials that may damage the foundations.
(ii) Backfill in 9" maximum lifts and compact well. Compaction of backfill materials placed within the foundation openings can be accomplished with portable or hand equipment methods.
(iii) The top surface shall be restored to match existing elevation and existing construction type.



Foundation Installation – Excavation, Compacted Fill, Backfilling (Continued)

D. Installations near existing buildings, structures, or sidewalks:
i. If the edge of a foundation pad is within 4'-0" of an existing building or structure or within 7'-0" of an existing sidewalk edge, follow this procedure to install base fill near the adjacent foundation/sidewalk.
ii. Maintain all minimum clearances as noted in Section 11.
iii. Along the edge adjacent to the building or structure, drive 2x4 or 2x6 wood timbers approximately 1'-1" from the edge of the future foundation pad.
iv. Timber driving and excavation may be done in stages. It is recommended to maintain the base of wood timbers at least 6" below the base of excavation at all times.
   a. For example, drive timber down 1'-0" below grade. Excavate 6" of soil. Drive timber another 1'-0". Excavate another 1'-0" of soil. Continue until final depth of excavation is reached.
v. Base of timbers shall be 4'-0" below finished grade, minimum.
vi. Compacted base fill shall be installed as directed. On edges which are not adjacent to existing building or structures, base fill shall be installed as normally specified.
vii. Install foundation as specified.
viii. Install grounding rods as specified. Ground rods should be between the wood timbers and the foundation on edges near to existing buildings or structures.
ix. Wood timbers may be removed prior to final backfill and surrounding grade restoration. Wood timbers may also be left in place, provided they are flush with surrounding grade and do not present a tripping hazard.

Foundation Installation – Excavation, Compacted Fill, Backfilling (Continued)



Foundation Installation – Concrete Work

These guidelines are intended to be applicable to all cast in place underground line equipment foundation construction.

A. Concrete Mix Requirements
(i) Minimum compressive strength of concrete at 28 days: 4500 psi (unless noted otherwise).
(ii) Use only type I, II, III or IL cement (unless noted otherwise). Contact the DTE civil engineer if types II or III is selected.
(iii) Provide 5½% +/- 1% entrained air, water cement ratio: 0.45 and a slump of 4" to 6" (unless noted otherwise). Add water reducing admixtures as required to achieve required slump.

B. Placing and Finishing Concrete
(i) Provide a float finish on all horizontal surfaces (unless noted otherwise).
(ii) Provide a 3/4" chamfer on all exposed edges of mats.
(iii) Place concrete directly against sides of augered excavations. Use sonotube or other approved forms for top 24" of pier (at minimum).
(iv) Provide top surface elevations of piers and mats 3" above finished grade (unless noted otherwise).
(v) Cold weather concrete placement - conform to ACI 306R (latest revision) requirements.
(vi) Hot weather concrete placement - conform to ACI 305R (latest revision) requirements.
(vii) Place all embedded items (such as anchor bolts, pipe sleeves, etc) accurately and secure prior to concrete placement.
(viii) Consolidate concrete during placement by use of an adequate number of internal type vibrators.

C. Curing Concrete
(i) Cure all concrete per ACI 308R for a minimum period of (7) seven days.
(ii) Keep concrete moist while forms are in place.
(iii) Once forms are removed use an approved ASTM C309 Type 2 Class A liquid membrane curing compound at approximately 1 gallon per 150 sq ft of coverage or as specified by manufacturer.

D. Reinforcing Steel
(i) Reinforcing bars, stirrups, and ties shall be ASTM A615 Grade 60 deformed bars.
(ii) Provide splices only where shown on drawings with minimum lap length as specified (not less than 12"). If no lap length is given, provide minimum ACI standard lap lengths.
(iii) Use black annealed tie-wire, 18 ga or heavier wire for fastening. No welding or torch cutting of rebar Is permitted.
(iv) Maintain minimum 1½" clearance between reinforcing steel and form ties, inserts, embedments, etc. Maintain 3" steel to soil clearance, and 2" steel to form clearance where not exposed to soil.

E. Lean Grout Fill
Lean grout fill mixes shall consist of the following (unless noted otherwise):
(i) 3550lbs of MDOT 2NS (Sect 902.08) fine aggregate per cubic yd.
(ii) 190 lbs of cement per cubic yd.
(iii) 250lbs +/- of water per cubic yd. Adjust water depending on fill application.

DETAILS FROM DTE ENERGY

UTILITY DETAILS AND SPECIFICATIONS

SCALE: NONE

1

Item B.

CHARGE-X

WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
wtgroupaec.com

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8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057985
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	03/18/26	JTB
0	REVISION	03/23/26	JTB
1	REVISION	05/20/26	JTB
2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

E
UTILITY DETAILS SPECIFICATIONS

WHITE LAKE CHARTER TOWNSHIP
COMMUNITY DEVELOPMENT DEPARTMENT
PLANNING COMMISSION STAFF REPORT

Meeting Date: August 20, 2026
Agenda Item: Special Land Use
Staff: David Waligora, AICP, Senior Planner

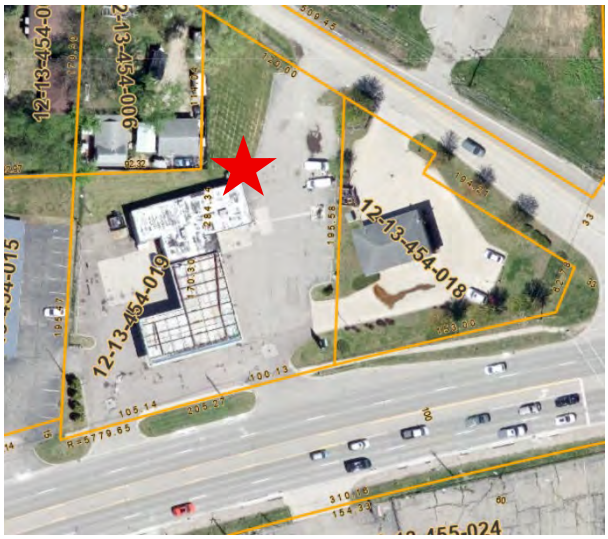
Property Address: 8320 Highland Road (BP Gas Station)
Parcel ID: Y-12-13-454-019

Applicant: Hadi Boussi
Applicant Address: 22243 W. Warren Avenue, Dearborn Heights, MI 48127

Property Owner: Abdelrahman Salem
Property Address: 8320 Highland Road, White Lake, MI 48386
Zoning: GB – General Business
Existing Use: Automobile Service Station / Gas Station

Request

The applicant is requesting Special Land Use approval to expand the existing automobile service station use at 8320 Highland Road through the installation of four (4) DC fast-charging electric vehicle spaces, charging equipment, a new pad-mounted transformer, and associated electrical infrastructure. The proposed improvements are located within the northeastern portion of the existing BP gas station site.



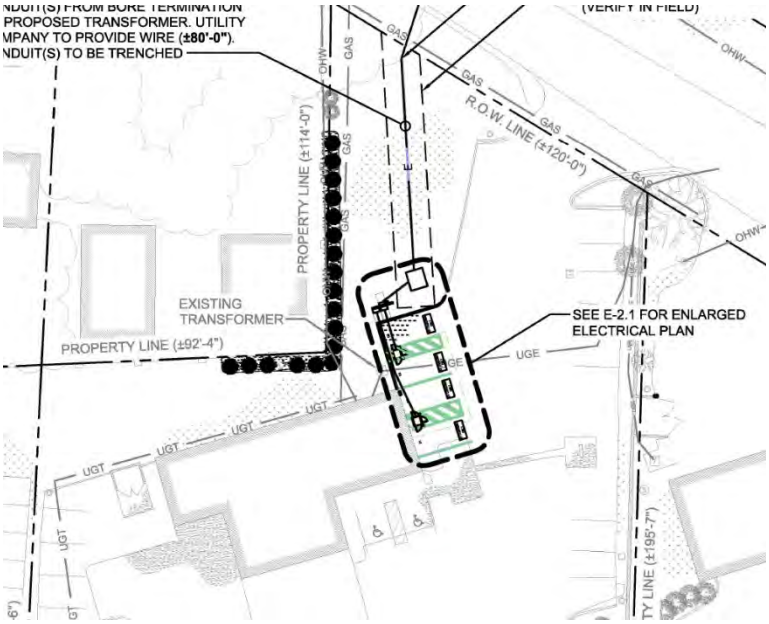
Proposed Request

The applicant is requesting Special Land Use approval to expand the existing automobile service station use through the installation of four (4) direct current fast charging (DCFC) electric vehicle charging stations and associated electrical equipment. The proposed improvements would be located within the northeastern portion of the site, generally between the existing convenience store and Pontiac Lake Road.

The proposed improvements include four EV charging spaces, charging equipment, a new pad-mounted transformer and associated electrical infrastructure, along with modifications to the existing parking and circulation area necessary to accommodate the proposed improvements.

The application does not propose establishment of a new automobile service station. Rather, it represents an expansion of the longstanding automobile service station use. Available historical information indicates that automobile fueling has occurred on the property since at least the early 1960s, when the property operated as the Hudson Oil Station. The site was substantially redeveloped in approximately 1997, when the previous station was demolished and the property was developed generally in its present configuration.

The automobile service station predates the Township's current Special Land Use approval requirements. Staff has also been unable to locate a Special Land Use Permit or approved site plan associated with the 1997 redevelopment. Accordingly, no existing Special Land Use approval governing the current automobile service station has been identified in the Township's available records. Because the applicant is now proposing an expansion of the automobile service station use, the Township is reviewing the use and proposed expansion under the current Special Land Use standards of the Zoning Ordinance. Finally, site plan review will be handled administratively.



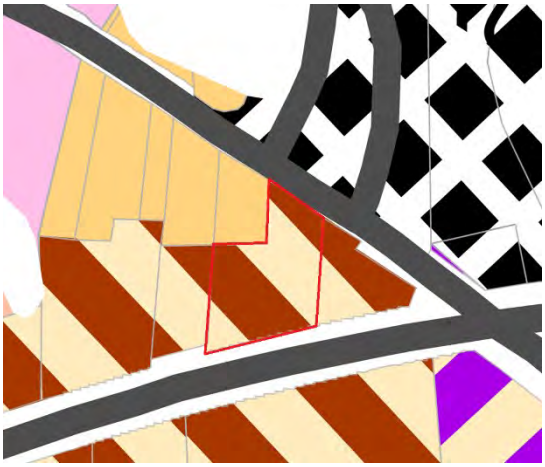
Existing Features

The subject property is located at 8320 Highland Road and consists of Lots 21 and 22 of the Huron River Subdivision, totaling approximately 0.982 acres. The property is currently zoned GB, General Business, and is developed with an existing automobile service station/convenience store.

According to Township assessing records, the site contains a 2,846-square-foot, one-story commercial building classified as a mini-mart/convenience store. The building was constructed in 1997 and has an average story height of approximately 14 feet.

The assessing records identify approximately 198.73 feet of total frontage and an average lot depth of approximately 215 feet. The site is located at the intersection of M-59 (Highland Road) and Pontiac Lake Road, with existing vehicular access to both roadways.

The site is currently improved with the convenience store building, gasoline fueling canopy and pumps, paved parking and circulation areas, and associated site improvements. The northeastern portion of the site contains additional parking and circulation area adjoining Pontiac Lake Road and the adjacent residential district.



Surrounding land uses generally consist of commercial development along the M-59 corridor and residential development to the north and northeast. M-59/Highland Road borders the property to the south, while Pontiac Lake Road borders the property to the east/northeast. Property immediately north/northeast of the site is zoned R1-C, Single-Family Residential, while commercial zoning and uses are generally located along the M-59 corridor to the east and west.

Site History / Existing Conditions

The subject property has a long history of automobile fueling use. Available historical information indicates that the property was in use as the **Hudson Oil Station** by at least the early 1960s, with curb cuts along Highland Road (M-59) established by approximately 1962. The automobile service station use therefore predates the Township's current Special Land Use requirements.

The site was substantially redeveloped in approximately **1997**, when the prior improvements were demolished and the service station was reconstructed generally in its present configuration. Around that time, an additional parcel appears to have been incorporated into the site to accommodate the northeastern parking and circulation area, and access to Pontiac Lake Road was established.

Staff reviewed available Township records for the 1997 redevelopment; however, **a Special Land Use Permit and/or approved site plan associated with that redevelopment was not located**. Accordingly, staff cannot confirm from the available records that the 1997 reconstruction received Special Land Use approval or identify any conditions that may have been attached to such an approval.

Historical Image from 1980

Section 4.10 – Automobile Service Station Standards

Although the subject property is zoned GB, General Business, the proposed expansion of the existing automobile service station is also reviewed for compliance with the specific automobile service station standards of Section 4.10. Staff reviewed the proposed improvements and existing site conditions against these standards as follows.

A. Entrance and Exit Drives

Section 4.10.A requires entrance and exit drives to be located at least 100 feet from any street intersection and at least 200 feet from any residential district.

The subject site contains longstanding access drives to both M-59 (Highland Road) and Pontiac Lake Road. These access points serve the existing automobile service station and are not proposed to be relocated, widened, or substantially modified as part of the EV charging project.

Although the existing driveway locations do not meet all current dimensional requirements of Section 4.10.A, staff considers these access points to be existing lawful nonconforming site conditions. The proposed EV charging facilities do not alter or increase the extent of these existing nonconformities.

Staff Finding: **Legal nonconforming condition**. No variance is required for the existing driveway locations as part of this application.

B. Minimum Street Frontage

Section 4.10.B requires a minimum of 200 feet of street frontage for an automobile service station.

Township assessing records identify approximately 198.73 feet of total frontage for the subject property. The existing lot configuration therefore falls approximately 1.27 feet short of the current requirement.

The proposed EV charging expansion does not alter the property boundaries, reduce the existing frontage, or otherwise increase the extent of the existing deficiency. Given the limited scope of the project and the fact that the site is not undergoing substantial redevelopment, staff considers the frontage deficiency to be an existing legal nonconforming site condition.

Staff Finding: Legal nonconforming condition. No variance is required for the existing frontage deficiency as part of this application.

C. Screening

Section 4.10.C requires a screen wall, obscuring fence, or land form buffer.

The site contains an existing approximately 6-foot-tall wood fence along the residential property line. The submitted plans describe the fence as weathered but structurally sound and propose that it remain. The applicant proposed additional plantings and shrubs in front of the existing fence, which are now shown on the site plan.

Given the limited scope of the proposed expansion and the fact that this application does not involve comprehensive redevelopment of the property, it is sufficient to satisfy the buffering requirement for this application.

Staff Finding: Complies as proposed.

D. Outdoor Lighting

Section 4.10.D requires outdoor lighting to be designed and shielded so that light does not project onto adjoining properties or public or private streets or rights-of-way. Outdoor lighting must also comply with the applicable performance standards of the Zoning Ordinance.

The proposed improvements will utilize fully shielded, wall-mounted lighting fixtures. Staff finds this approach acceptable provided the fixtures are downward-directed and installed so that illumination and glare are confined to the subject property.

Staff Finding: Complies subject to the use of fully shielded, downward-directed wall-mounted fixtures.

E. Steam Cleaning, Undercoating and Major Repair

Section 4.10.E prohibits steam cleaning, undercoating and major repair work.

The proposed EV charging expansion does not include any of these activities and does not propose an expansion of vehicle repair operations.

Staff Finding: Complies.

F. Setback of Fueling Equipment and Appurtenances

Section 4.10.F requires gasoline pumps, air and water hose stands, and other appurtenances to be set back at least 25 feet from existing or proposed street right-of-way lines.

The proposed EV charging equipment is located more than 25 feet from the applicable street right-of-way lines. The existing gasoline pumps and fueling canopy are not proposed to be relocated or modified as part of this application.

Staff Finding: Complies.

G. Vehicle Waiting Areas

Section 4.10.G requires adequate space to be available for vehicles that are required to wait.

The proposed project includes four dedicated EV charging spaces served by two DC fast chargers. The charging spaces are incorporated into the existing parking and circulation area adjacent to the convenience store. The site provides sufficient circulation area for vehicles entering and exiting the charging spaces, and the proposed configuration is not anticipated to result in vehicles waiting within the site's principal circulation routes or public rights-of-way.

Staff Finding: Complies.

H. Vehicle Storage

Section 4.10.H establishes screening and duration requirements for vehicles stored while awaiting service.

The proposed EV charging facilities are intended for temporary use by vehicles actively charging and do not involve the storage of vehicles awaiting repair or service. No expansion of vehicle storage activities is proposed.

Staff Finding: Not applicable to the proposed expansion.

Section 4.10 Recap

Staff finds that the proposed EV charging expansion is consistent with the applicable automobile service station standards of Section 4.10.

The existing driveway locations and approximately 198.73 feet of street frontage do not conform to the current dimensional standards of Sections 4.10.A and 4.10.B; however, these are longstanding existing site conditions that are not being altered or intensified by the proposed project. Staff therefore consider these conditions to be legal nonconforming site conditions for purposes of this limited expansion, and variance relief is not required as part of the present application.

The remaining applicable standards are either satisfied by the submitted plans or can be addressed through conditions of Special Land Use approval.

Special Land Use Standards – Section 6.10

Section 6.10 of the White Lake Township Zoning Ordinance requires the Planning Commission to make an affirmative finding for each of the following standards before approving a Special Land Use. Staff offers the following analysis based on the submitted plans and information available at the time of review.

i. Harmony with Surrounding Development and Zoning District

The subject property has operated as an automobile fueling/service station for several decades and is located within the GB, General Business District along the M-59 commercial corridor. The proposed installation of EV charging facilities represents an expansion and modernization of the existing automobile service station use rather than establishment of a substantially different land use.

The principal compatibility consideration is the relationship of the proposed charging facilities to the adjoining R1-C residential property. As discussed in greater detail under the nuisance standard below, staff has identified potential nighttime noise impacts associated with the proposed charging equipment. The applicant has also incorporated additional landscaping along the residential property line to supplement the existing fence and improve screening.

Staff Finding: Satisfied subject to conditions. The proposed expansion is generally compatible with the longstanding automobile service station and commercial character of the M-59 corridor, provided the recommended noise-related operating limitation and proposed residential buffering are maintained.

ii. Vehicular and Pedestrian Traffic

The subject property has existing vehicular access from both M-59 (Highland Road) and Pontiac Lake Road. The proposed EV charging facilities will utilize the existing access and circulation system and do not include the construction, relocation, or substantial modification of either driveway.

The proposed charging spaces are located adjacent to the existing convenience store and are integrated into the existing parking and circulation area. The work within the parking lot is limited primarily to installation of the charging facilities and associated electrical equipment, localized pavement modifications, and repair of deteriorated pavement and potholes.

The site does not currently contain a public sidewalk along Pontiac Lake Road. While Section 5.21 establishes sidewalk requirements for redevelopment, the present request represents a relatively limited expansion of an established automobile service station

and does not involve comprehensive redevelopment of the roadway frontages, driveway system, or principal parking areas. Given the limited scope of the proposed improvements and the number of longstanding existing site conditions, staff does not recommend requiring construction of the otherwise applicable sidewalk improvements as part of this application. Compliance with current sidewalk standards should instead be addressed as part of any future substantial redevelopment or remodel of the overall site.

Staff Finding: Satisfied for purposes of the Special Land Use standard. The proposed expansion will utilize the existing vehicular access and circulation system and is not anticipated to make vehicular or pedestrian traffic more hazardous than currently exists. Given the limited scope of the proposed improvements, staff is not recommending comprehensive pedestrian improvements as part of this application; those improvements can be addressed in conjunction with a future substantial redevelopment of the site.

iii. Nuisance Impacts, Including Noise and Lighting

The proposed EV charging equipment and associated transformer are located near residentially zoned property and therefore warrant particular review for potential noise and lighting impacts.

The principal stationary noise sources associated with the proposed expansion are the two DC fast chargers and the new pad-mounted transformer. The applicant's submitted equipment noise table identifies the chargers as producing 53 dBA at 13 feet and 47 dBA at 26 feet, while the transformer is identified at 48 dBA at 13 feet and 42 dBA at 26 feet.

Based on staff measurements from the submitted site plan, the nearest charger is located approximately 21.9 feet from the adjoining residential property line, the second charger approximately 34.7 feet, and the transformer approximately 25.7 feet from the property line. **Using the applicant's submitted sound data as a guide, the nearest charger alone is anticipated to generate approximately 48 to 49 dBA at the residential property line, which exceeds the Township's applicable 45 dBA nighttime noise standard.** The combined contribution of the two chargers and transformer would be greater than the contribution of the nearest charger alone.

The submitted noise information appears to address only the charging equipment and transformer. It does not quantify additional noise that may be generated by vehicles while actively using the DC fast chargers. Electric vehicles may operate battery cooling fans, coolant pumps, compressors, or other thermal-management systems during

charging. The level of vehicle-generated noise will vary by vehicle and operating conditions and cannot be reliably quantified from the information submitted. Accordingly, actual sound levels during charging events may exceed those attributable to the stationary equipment alone.

Based on the information currently submitted, staff does not believe the proposed charging operation can demonstrate compliance with the Township's nighttime noise standard. Staff therefore recommends that operation of the EV charging equipment be limited to 7:00 a.m. through 9:00 p.m., unless the applicant subsequently provides sufficient acoustical documentation and/or mitigation demonstrating compliance with the applicable nighttime noise standard at the adjoining residential property line.

The plans also propose new wall-mounted lighting associated with the EV charging area. Staff is comfortable with the use of fully shielded, downward-directed wall-mounted fixtures, provided the fixtures are designed and installed so that light is confined to the subject property and does not create glare or spillover onto adjoining residential property or public rights-of-way.

Staff Finding: Satisfied subject to conditions. The standard can be satisfied provided that the EV charging equipment is limited to operation between 7:00 a.m. and 9:00 p.m., unless nighttime noise compliance is otherwise demonstrated, and all proposed lighting consists of fully shielded, downward-directed wall-mounted fixtures.

iv. Buildings, Structures, Walls, Fences and Landscaping

The proposed EV charging equipment is located within the northeastern portion of the building near adjoining residential property. Because of this relationship, staff discussed additional screening and landscaping with the applicant during preliminary review of the project.

Additional plantings are proposed in front of the existing fence along the residential property line. The 6-foot-tall wood fence is identified as having a weathered appearance but being structurally sound and proposed to remain. The combination of the existing fence and the additional proposed landscaping is intended to improve visual screening between the charging area and the adjoining residences.

Staff Finding: Satisfied. The proposed location of the equipment, retention of the existing fence, and additional landscaping shown on the plan provide an appropriate level of screening for the scope of the proposed expansion.

v. Harmony with Adjacent Land Uses

The proposed EV charging facilities are functionally related to the existing automobile service station and are consistent with the longstanding commercial use of the property. The site is located along the M-59 commercial corridor, where vehicle-oriented commercial activity is already established.

The principal land use relationship requiring consideration is the adjoining residential property to the north and northeast. The proposed charging equipment has been positioned near the existing convenience store, and additional landscaping has been added along the residential property line to improve screening. Operational impacts are also addressed through the recommended limitation on charging activity between 9:00 p.m. and 7:00 a.m. unless compliance with the applicable nighttime noise standard is otherwise demonstrated.

Staff Finding: Satisfied subject to conditions. The proposed expansion is compatible with the physical and economic character of the surrounding area and with the existing commercial use of the property, provided the approved landscaping and recommended operational limitations are maintained.

vi. Density and Required Open Space

The proposed request does not involve residential development and therefore does not create any issue related to residential density.

The project consists of a limited expansion of an existing automobile service station within an already developed commercial site. The proposed improvements are concentrated within the existing developed area and do not materially alter the overall intensity of development on the property. Additional landscaping has been incorporated into the plan as part of the proposed improvements, particularly along the residential side of the site.

Because this application does not involve a comprehensive redevelopment of the property, staff is not recommending that the applicant reconstruct the entire site to current open-space and landscaping standards as part of this request.

Staff Finding: Satisfied. The proposed expansion does not increase residential density and does not materially reduce required open space or otherwise alter the overall development intensity of the site.

vii. Public Services and Facilities

The proposed EV charging expansion is limited in scope and is not anticipated to create a significant additional demand upon Township public services or facilities. The principal utility improvements associated with the project consist of the electrical infrastructure

necessary to serve the proposed charging stations, including the new pad-mounted transformer.

The applicant will be responsible for coordinating the proposed electrical improvements with the applicable utility provider and obtaining all required building, electrical, fire, and other permits prior to construction.

Staff Finding: Satisfied. The proposed expansion is not anticipated to create service or facility demands that cannot be accommodated by existing public services and utilities.

viii. Protection of the Natural Environment and Conservation of Natural Resources and Energy

The proposed improvements are located within an already developed commercial site and are largely confined to existing paved and disturbed areas. The project does not involve expansion into undeveloped portions of the property or significant alteration of existing natural features.

The proposed EV charging facilities will provide an additional vehicle fueling option that supports the use of electric vehicles and associated alternative energy infrastructure. The project also includes localized landscaping improvements and will be subject to applicable requirements for drainage, soil erosion control, utility installation, and restoration of disturbed areas.

Staff Finding: Satisfied. The proposed expansion is not expected to result in significant adverse impacts to the natural environment and is consistent with the intent of conserving energy resources through the provision of electric vehicle charging infrastructure.

ix. Public Convenience at the Proposed Location

The subject property is an existing automobile service station located at the intersection of M-59 (Highland Road) and Pontiac Lake Road. The proposed EV charging facilities would expand the range of vehicle fueling options available at an established automobile-oriented commercial site rather than requiring the development of a separate location for this service.

The proposed use is therefore well-suited to the existing function of the property and would provide an additional service to motorists traveling along the M-59 corridor and within the surrounding area.

Staff Finding: Satisfied. The proposed EV charging facilities are appropriately located at an existing automobile service station and would provide a convenient additional fueling option for the traveling public.

x. Public Health, Safety, and Welfare

The proposed expansion will utilize the existing access and circulation system of the automobile service station and is limited in scope to the installation of EV charging facilities, associated electrical equipment, localized pavement improvements, and landscaping.

Staff has reviewed the proposal with respect to circulation, parking, lighting, landscaping, screening, and the relationship of the proposed improvements to the adjoining residential property. The principal remaining health, safety, and welfare consideration is noise generated by the proposed chargers and transformer. As discussed previously, operation of the charging equipment should be limited to 7:00 a.m. through 9:00 p.m. unless the applicant demonstrates compliance with the applicable nighttime noise standard.

The project will also remain subject to applicable building, electrical, fire, utility, and other permitting requirements prior to construction.

Staff Finding: Satisfied subject to conditions. The proposed expansion can be operated in a manner protective of public health, safety, and welfare provided the recommended operating-hour limitation is observed and all applicable construction, electrical, fire, and utility requirements are satisfied.

xi. Property Values and Compatibility with Other Permitted Land Uses

The proposed EV charging facilities are consistent with the longstanding automobile service station use and the commercial character of the M-59 corridor. The primary compatibility consideration is the relationship of the proposed improvements to the adjoining residential properties.

The applicant has incorporated additional landscaping along the residential property line and will retain the existing 6-foot wood fence as part of the screening between the charging area and nearby residences. Operational impacts are further addressed through the recommended limitation on charging activity between 7:00 a.m. and 9:00 p.m. unless compliance with the applicable nighttime noise standard is otherwise demonstrated.

Staff Finding: Satisfied subject to conditions. With the proposed landscaping and screening improvements and the recommended operating-hour limitation, the

expansion is not expected to cause substantial injury to nearby property values or be detrimental to adjoining permitted land uses.

Planning Commission Consideration

The principal issue identified by staff is the potential for noise impacts on the adjoining residential property.

The applicant's submitted equipment data identifies the proposed DC fast chargers as producing 53 dBA at 13 feet and 47 dBA at 26 feet, while the proposed transformer is identified at 48 dBA at 13 feet and 42 dBA at 26 feet. Based on staff measurements from the submitted site plan, the nearest charger is approximately 21.9 feet from the residential property line, the second charger approximately 34.7 feet, and the transformer approximately 25.7 feet from the property line.

Based on the applicant's own sound data, the nearest charger alone is anticipated to generate approximately 48 to 49 dBA at the residential property line, exceeding the Township's applicable 45 dBA nighttime noise standard. The submitted noise information also does not quantify additional noise that may be generated by vehicles while actively charging, including battery cooling fans, compressors, pumps, and other thermal-management equipment.

The Planning Commission may wish to consider whether operation of the EV charging facilities should be limited to 7:00 a.m. through 9:00 p.m., unless the applicant can demonstrate through additional acoustical information or mitigation that the facility will comply with the applicable nighttime noise standard at the residential property line.

Section 6.11 – Planning Commission Action

In considering the application, the Planning Commission may incorporate its findings regarding the standards of Section 6.10 and any conditions of approval into its final action.

CHARTER TOWNSHIP OF WHITE LAKE

SITE PLAN AND PLAT REVIEW APPLICATION

White Lake Township Community development Department, 7525 Highland Road, White Lake Michigan 48383 (248)698 3300 x163

APPLICANT AND PROPERTY INFORMATION

Applicant: Hadi Boussi

Phone: (313) 798-7651 Fax:

Address: 22243 W Warren Ave, Dearborn Hts, MI 48127
(Street) (City) (State) (Zip)

Applicant's Legal Interest in Property: Contractor acting with owner authorization

Property Owner: Abdelrahman Salem Phone: 248 633 5685

Address: 8320 Highland Rd. White Lake, MI 48386
(Street) (City) (State) (Zip)

PROJECT INFORMATION

Project Name: 8320 Highland Parcel I.D. No.: 12-13-454-019

Proposed Use: Addition of (4) EV Charging Stalls Current Zoning: GB

Existing Use: Gas Station Parcel Size: 0.98 Floor Area / No. of Units 2,846sf/1

TYPE OF DEVELOPMENT

- [ ] Subdivision
- [ ] Site Condominium
- [x] Commercial
- [ ] Multiple Family
- [x] Special Land Use
- [ ] Industrial
- [ ] Adult Entertainment

SITE PLAN SUBMITTAL CHECKLIST

- [ ] PDF File and Three (3) paper copies (sealed) as required by Zoning Ordinance 58
- [ ] Application Review Fees

PLANS WILL NOT BE ACCEPTED UNLESS FOLDED AND NO GREATER THAN 24" X 36" IN SIZE

REQUIRED SIGNATURES

(Signature of Property Owner) 7/20/26 (Date)

(Signature of Applicant) 7/20/26 (Date)

Item B.

WHITE LAKE TOWNSHIP COMMUNITY DEVELOPMENT FEE SCHEDULE
PROJECT NAME: GAS STATION - ELECTRIC CHARGER STATION

PLANNING REVIEW		
Special Land Use/Cluster Option	$500 + site plan fee	$500.00
Planned Development Agreement	$125/hour	
Rezoning Request Review	$650	
Condominium Plan	$375 plus site plan review	
Additional reviews	$125/hour	
Site Plan		
Site Condominium	$1,625	
Public, Institutional or Semi-Public Uses	$1,625	
Multi-Family Residential	$1,625	
Non-Residential (incl. 3 reviews)	$1,625	
PBD/PDD Plan Review with Rezoning	$650 + Plus Review Fee	
PBD/PDD Plan Review(w/o Rezoning)	$1,625	
Sign Review	$125	
Subdivision Plat		
Tentative preliminary	$1,625	
Final preliminary	$1,625	
Final plat	$1,625	
Traffic Impact Study		
Abbreviated impact assessment - (such as Trip Generation Analysis)	$150 Hour	
Full impact study	$150 Hour	
Scoping contents with applicant	$150 Hour	
FIRE DEPARTMENT		
Site Plan Review	$233	$233.00
Construction Plan Review	$233	

PLANNING COMMISSION		
Residential	$950	
Commercial	$950	$950.00
Industrial	$950	
Planned Business/Development	$1,200	
Special Meeting	$1,200	
ZONING BOARD OF APPEALS (includes P.H. Notice & Mailing)		
Residential	$400	
Commercial	$500	
Special Meeting	$1,000	
WETLAND CONSULTANT		
Wetland verification and reports (flagged 2-5 acres of wetland)	$500	
Each additional acre over 5 acres of wetland	$100	
Preliminary wetland impact review or Final/Construction plan	$1,000	
Final Construction plan wetland impact review/permit issuance	$1,000	
PLANNING DEPARTMENT		
Administrative site plan review	$500	$500.00
Public Hearing/legal ads/300" mailing	$300	$300.00
Pre-application meeting	Based on departmental attendance	
ATTORNEY REVIEW		
PBD Agreement	$600	
Easement review (incl. 2 reviews)	$450	
Master Deeds and Bylaws (incl. 2 reviews)	$1000	
Recording Fee	$50	
Covenants and Restrictions	$450	
Hourly rate for additional reviews	$150	
Private Road Agreement	$450	
ENGINEERING REVIEW		
Preliminary Site Plan	$2,500	
Tentative preliminary plat	$2,500	
Final Site Plan/Construction plan and document review	Based on construction cost estimate	
Final Preliminary plat/construction/final plat and legal documents	Based on construction cost estimate	
Private Road review	$2500	
Total :		**$2,483.00**
10 % -Admin fee:		**$248.30**
TOTAL FEES DUE:		**$2,731.30**

MaBaydoun@chargexusa.com

*All fees subject to increase due to unforeseen review time. All fees due upon submission - NO EXCEPTIONS

(The engineering review fee schedule was adopted by Board action July 19, 2005)

*CONSTRUCTION COSTS	ENGINEERING PLAN REVIEW FEE	DOCUMENT REVIEW FEE	TOTAL
Up to $50,000	2.5% ($500.00 minimum)	1.5% ($500 minimum)	4.0% ($1,000 min)
$50,000 to $100,000	2.0% ($1,250 minimum)	1.0% ($750 minimum)	3.0% ($2,000 min)
$100,000 to $250,000	1.5% ($2,000 minimum)	1.0% ($1,000 minimum)	2.5% ($3,000 min)
Over $250,000	1.0% ($3,750 minimum)	0.5% ($2,500 minimum)	1.5% ($6,250 min)

Applicable Fee Total $_____
(enter total on page 3)

Note: A revised cost estimate and fee adjustment may be required as a result of design changes.

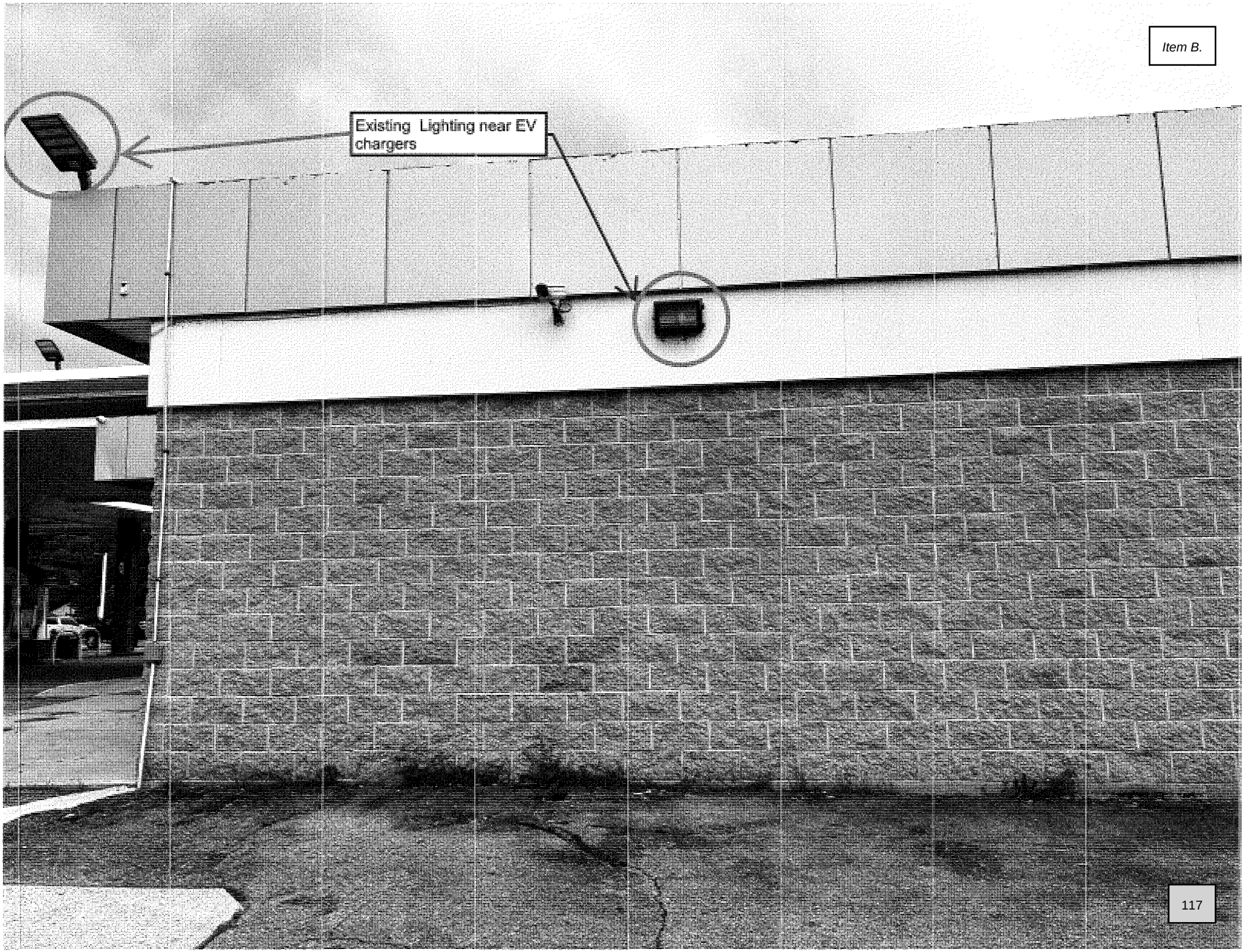
Submitted by: _____ Date: 7/20/26

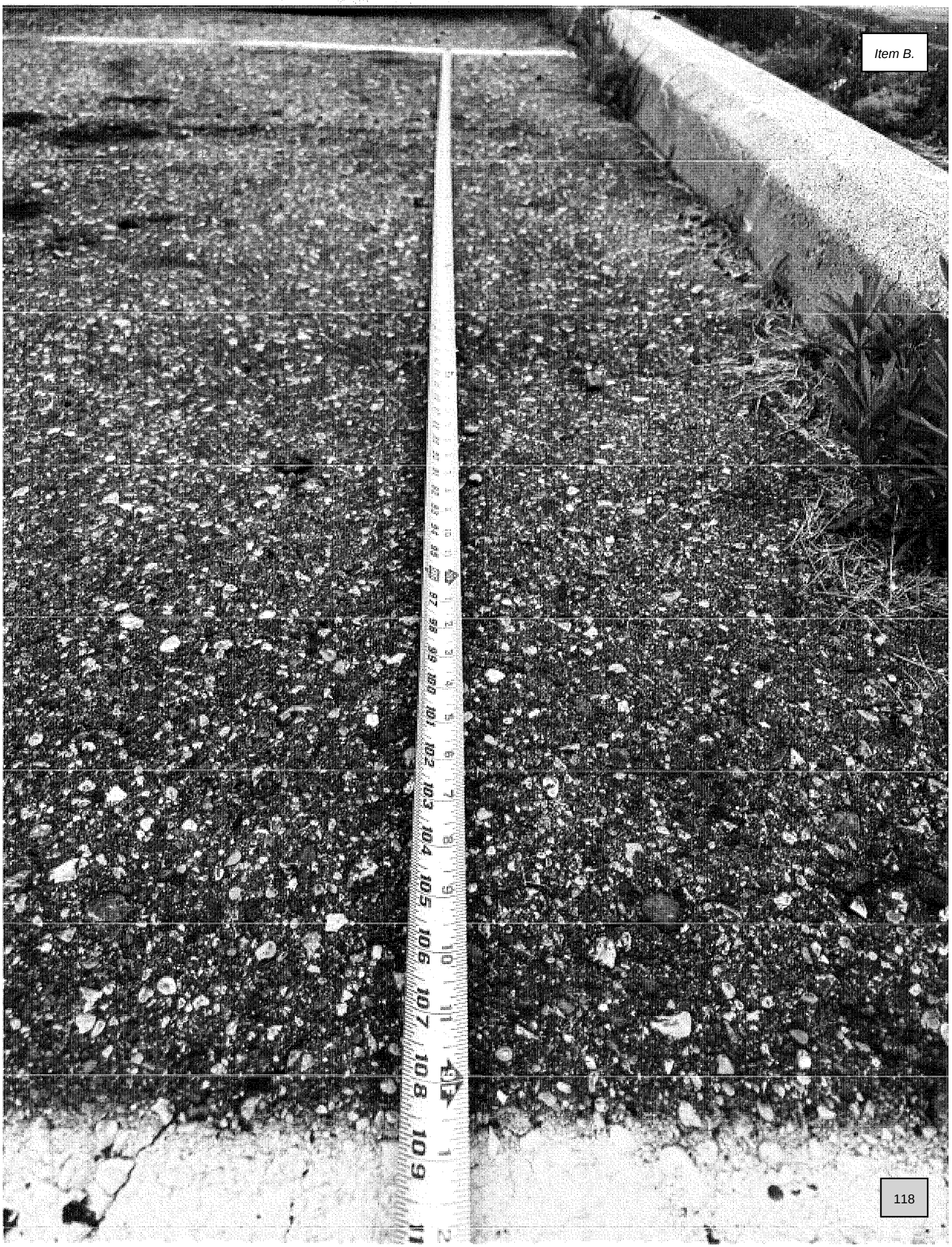
Print Name: Hadi Boussi

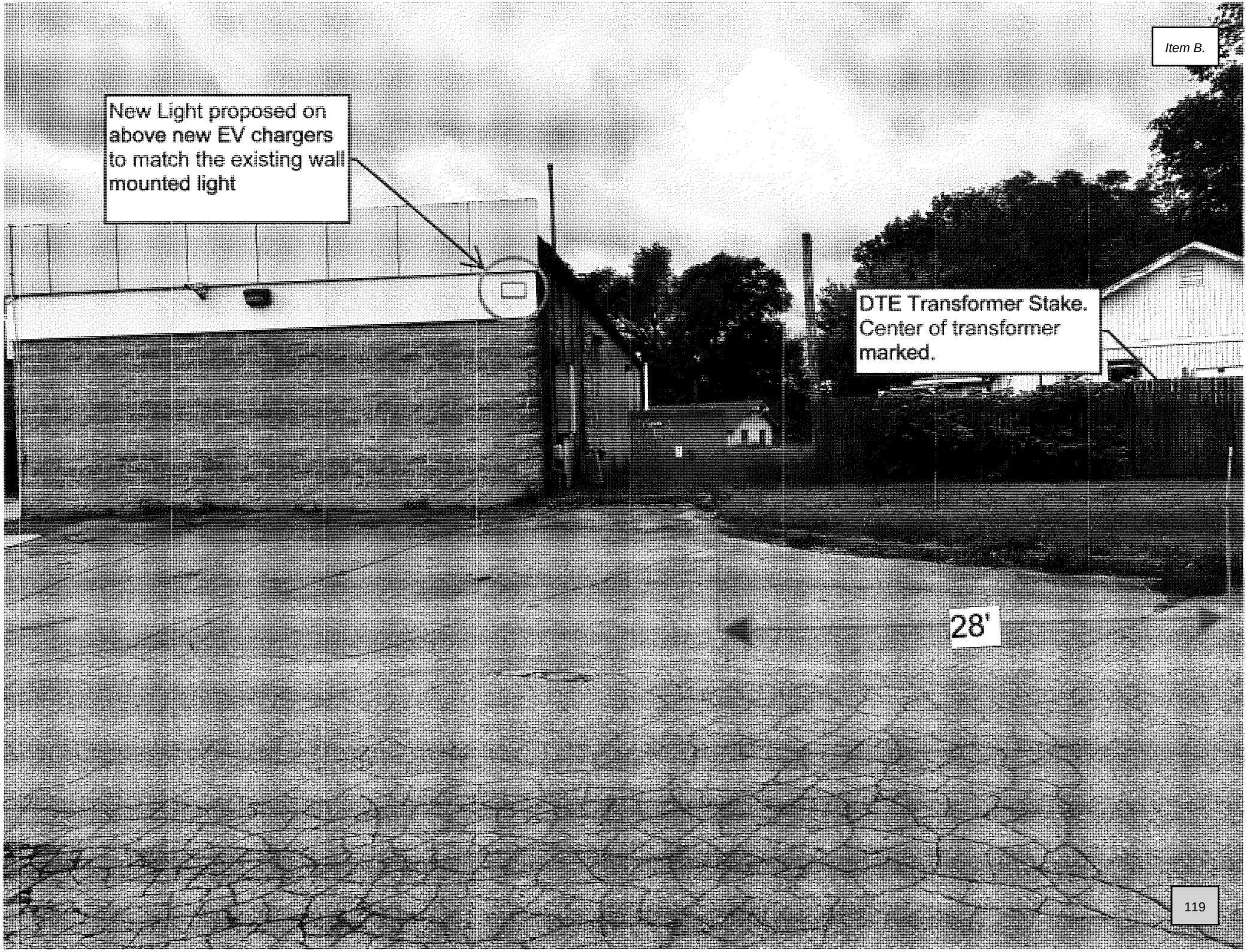
Make checks payable to **White Lake Township.**

For the construction plan review, **two (2)** sets of engineer sealed plans are required along with the following items:

	as attached
Storm sewer rational formula calculations	_____
Storm sewer discharge area map (on-site & off-site)	_____
Storm water detention/sedimentation basin calcs	_____
Construction plan checklist, completed	_____
Detailed engineers construction cost estimate, itemized	_____


Existing Lighting near EV chargers




New Light proposed on above new EV chargers to match the existing wall mounted light
DTE Transformer Stake. Center of transformer marked.
28'

AUTEL

Autel DC Fast 60-240kW
Noise Compliance Declaration

Date: 08/31/2026

To Whom It May Concern:

This letter serves as a formal declaration that the above-mentioned EV charging equipment has been evaluated for operational noise performance and complies with the applicable product noise requirement.

The charger was tested in a **semi-anechoic room** under stable operating conditions. During the test, the equipment was operated under representative high-power charging conditions, and noise measurements were taken at a distance of **1 meter** from the front, rear, left, and right sides of the equipment, at a height of approximately **1–1.5 meters above the ground**.

The applicable acceptance criterion for the product is that the **maximum operating noise level shall not exceed 65 dB(A)**.

The measured results are summarized below:

Power Setting	Ambient Background Noise (dB)	Front door (dB)	Rear side (dB)	Left door (dB)	Right door (dB)
400 V 300 A	37.1	55.0	62.6	57.7	64.5
800 V 300 A	37.1	59.0	61.1	55.5	64.7

The ambient background noise measured during the test was **37.1 dB(A)**.

Based on the above test results, the maximum measured operating noise level was **64.7 dB(A)**, which is **below the specified limit of 65 dB(A)**. Therefore, the equipment meets the applicable operational noise requirement under the tested conditions.

The equipment is designed and engineered to control operational noise generated by internal power conversion, cooling, and charging components. Under normal operating conditions, the charger is not expected to generate excessive or abnormal noise beyond the tested operating levels. Accordingly, the equipment is suitable for deployment at EV charging sites where noise performance is a consideration, subject to applicable site-specific installation and local noise regulations.

This declaration is issued for use in **project bidding, technical proposal, and compliance documentation** purposes.

Sincerely,

Authorized Signature:

Autel New Energy US Inc.

36 Harbor Park Drive, Port Washington, NY, 11050

8320 HIGHLAND

8320 HIGHLAND ROAD
WHITE LAKE, MI 48386

APPLICABLE CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE FOLLOWING CODES:

BUILDING CODE:

2021 MICHIGAN BUILDING CODE (IBC 2021)

ELECTRICAL CODE:

2023 NATIONAL ELECTRICAL CODE (NEC 2023)

PROJECT DESCRIPTION

- PROPOSED INSTALLATION OF (2) 160kW DCFC CHARGERS TO SUPPLY (4) DEDICATED CHARGING STALLS

CONTACTS

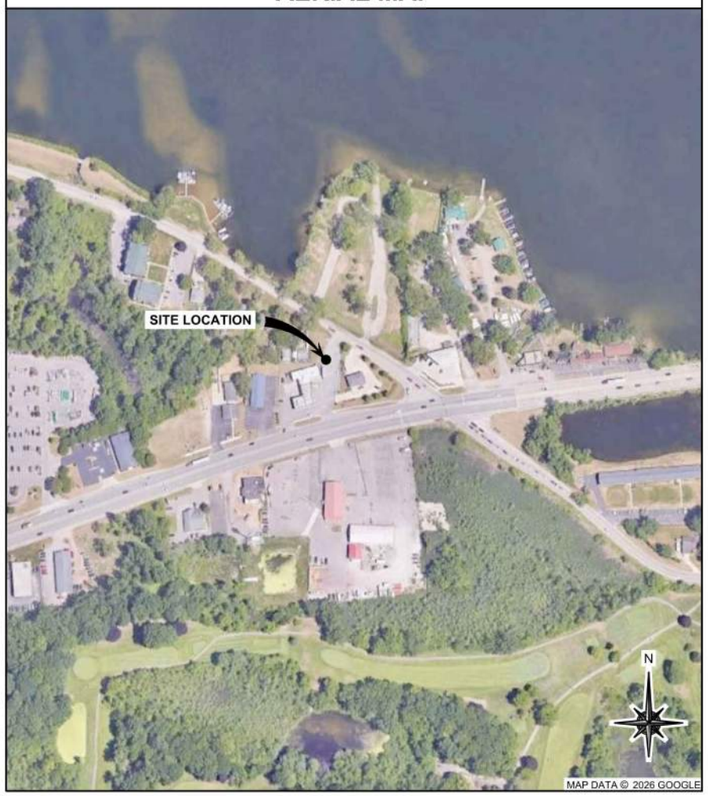
APPLICANT:

CHARGE-X USA
22345 W. WARREN AVENUE
DEARBORN HEIGHTS, MI 48127
TEL: (313) 523-1333
www.chargexusa.com

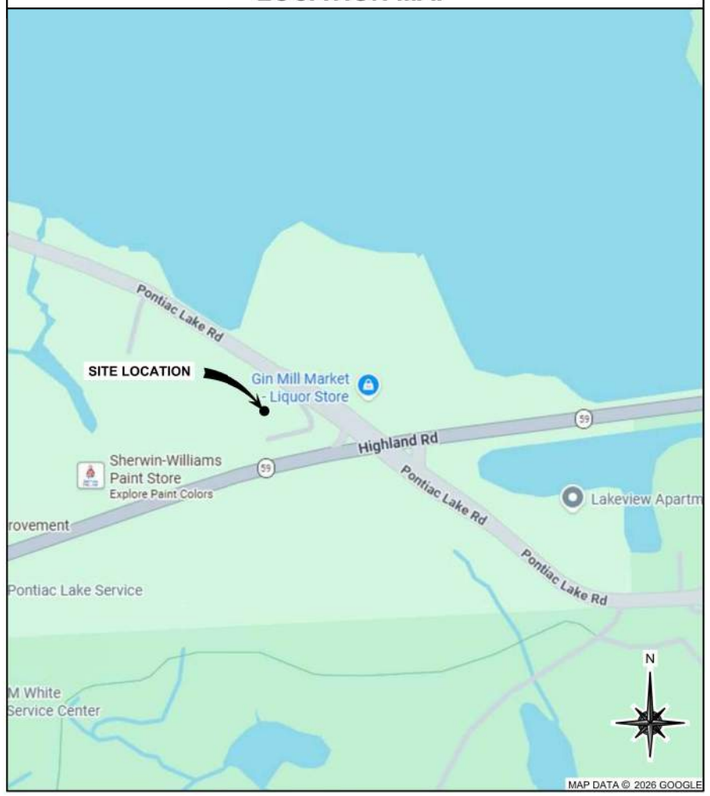
A&E:

WT GROUP AEC, LLC
2000 CENTER DRIVE
SUITE B411
HOFFMAN ESTATES, IL 60192
CONTACT: KEVIN CUNNIE
TEL: (847) 287-2085

AERIAL MAP



LOCATION MAP



SHEET INDEX

SHEET NUMBER:	DESCRIPTION:
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C-2	OVERALL SITE PLAN
C-3	ENLARGED SITE PLAN
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C-4.1	WRC SOIL EROSION DETAILS
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C-7 - C-9	SITE DETAILS
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REFERENCED MATERIALS

A SITE WALK WAS NOT PERFORMED FOR THIS SITE PER SCOPE OF WORK. EQUIPMENT LAYOUT AND PLANS SHOWN WITHIN THIS SET WERE TAKEN FROM AVAILABLE DOCUMENTS/DRAWINGS PROVIDED BY OTHERS.

811 Know what's below. Call before you dig.

CALL AT LEAST THREE WORKING DAYS BEFORE YOU DIG

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING LOCATIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME

DO NOT SCALE DRAWINGS

CHARGE-X

WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224-293-6333
wtgroupaec.com
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WT Group
Engineering • Design • Consulting

8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

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A	FOR CLIENT REVIEW	03/18/26	JTB
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AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

TITLE SHEET

GENERAL NOTES:

1. OBTAIN AND PAY FOR PERMITS, LICENSES, INSPECTION, APPROVALS AND FEES REQUIRED AND ENSURE THAT THE ENTIRE INSTALLATION CONFORMS TO CODES AND REGULATIONS REQUIRED BY AUTHORITY OR AGENCY HAVING JURISDICTION OVER THE INSTALLATION, ALTERATION OR CONSTRUCTION OF WORK INCLUDED. ALL FEES SHALL BE INCLUDED IN THE BASE PROPOSAL.
2. COORDINATE UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
3. POWER WIRING 120 VOLTS AND GREATER SHALL BE INSTALLED IN CONDUIT AND SHALL BE NEW, UNLESS NOTED OTHERWISE.
4. UNDERGROUND CONDUITS SHALL BE INSTALLED TO MEET NEC. EXPANSION FITTINGS SHALL BE PROVIDED AT ALL TRANSITIONS FROM UNDERGROUND TO EXPOSED CONDUIT, WHERE REQUIRED BY NEC.
5. EMPTY CONDUITS SHALL BE PROVIDED WITH A 1/4" DIA. POLYPROPYLENE FISHLINE.
6. CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1-1/2" CLEAR.
7. ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS AND METALLIC SUPPORT RACKS SHALL HAVE A MINIMUM #2 BARE COPPER GROUND CONDUCTOR BETWEEN THE MOTOR, FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
8. MATERIALS USED SHALL BE NEW AND BEAR THE U.L. LABEL WHERE SUCH SERVICE AND LABEL ARE REGULARLY PROVIDED AND BE OF THE APPROPRIATE NEMA STANDARD.
9. THE CONTRACTOR SHALL FURNISH MATERIALS AND LABOR AS INDICATED ON PLANS AND AS REQUIRED FOR A COMPLETE, REVISED ELECTRICAL SYSTEM.
10. THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) INSTALLED OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION. ALL HARDWARE SHALL BE STAINLESS STEEL OR GALVANIZED.
11. FLOOR MOUNTED EQUIPMENT SHALL BE MOUNTED ON A MINIMUM 2" CONCRETE PAD, UNLESS NOTED OTHERWISE.
12. WHEN THE JOB IS COMPLETE, CONTRACTOR SHALL PROVIDE THE OWNER WITH CERTIFICATE OF APPROVAL FROM THE ELECTRICAL INSPECTION AUTHORITY AND SHALL PROVIDE THE OWNER WITH A ONE YEAR WRITTEN GUARANTEE ON ALL NEW MATERIALS AND LABOR.

GENERAL SPECIFICATIONS:

1. THESE SPECIFICATIONS, ALL OTHER DOCUMENTS ATTACHED HERETO, ALL ADDENDA ISSUED AND THE ACCOMPANYING PLANS ARE INTENDED TO PROVIDE FOR THE COMPLETE FURNISHING AND INSTALL OF THE ENTIRE SYSTEM.
2. THE WORK SHALL BE DONE IN ACCORDANCE WITH BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION AND MINIMUM MAINTENANCE AND SHALL BE INSTALLED WITH PROPER ACCESSIBILITY. THE MATERIALS AND EQUIPMENT, INCLUDING ALL NECESSARY ACCESSORIES, SHALL BE PUT INTO PROPER ADJUSTMENT SO THAT THE COMPONENT PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND OPERATIONS AS INDICATED EITHER ON THE DRAWINGS OR CONTAINED HEREIN OR AS MAY BE REASONABLY IMPLIED BY EITHER TO ACCOMPLISH THE COMPLETE INSTALLATION.
3. PROVIDE ALL MATERIALS, EQUIPMENT LABOR AND INCIDENTALS NECESSARY FOR COMPLETE AND OPERABLE SYSTEMS. PROVIDE ALL NECESSARY TESTS AND PAY FOR ALL FEES, PERMITS, INSPECTIONS, ETC. AS REQUIRED BY LOCAL AUTHORITIES. SECURE PERMITS PRIOR TO STARTING WORK. OBTAIN ALL PERMITS, LICENSES, INSPECTIONS AND BONDS. PERFORMS ALL TESTS REQUIRED. UPON COMPLETION OF THE WORK, OBTAIN AND SEND CERTIFICATES OF INSPECTION AND APPROVAL TO THE ENGINEER/OWNER. PAY ALL FEES AND EXPENSES FOR PERMITS, LICENSES, TESTS AND INSPECTIONS.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR THAT HIS WORK IN INSTALLED IN THE MOST DIRECT AND WORKMANLIKE MANNER, AND THAT INTERFERENCE IS AVOIDED.
5. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE EQUIPMENT AND SYSTEMS TO BE INSTALLED AND THE GENERAL LOCATION AND ARRANGEMENT OF THE WORK. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE THE EXACT LOCATION AND ROUTING OF MECHANICAL WORK, UNLESS REFERENCE DIMENSIONS ARE SPECIFICALLY INDICATED ON THE DRAWINGS. DEVIATIONS FROM CONTRACT DRAWING LAYOUT IN ORDER TO AVOID INTERFERENCES WITH OTHER TRADES OR OTHER MECHANICAL WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT, WITH NO INCREASE IN CONTRACT PRICE. ALL COSTS FOR REMOVAL AND RELOCATION OF MECHANICAL AND ELECTRICAL WORK RESULTING FROM FAILURE TO COORDINATE WITH OTHER TRADES SHALL BE PAID BY THE CONTRACTOR.
6. INSTALLATION SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCE. THE CONTRACTOR SHALL BE HELD TO BE FULLY INFORMED OF ALL LAWS, ORDINANCES AND CODES, AND SHALL, IN THE PERFORMANCE OF THE CONTRACT, COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL AFORESAID REGULATIONS. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS AND ANY ADDITIONAL WORK NECESSARY TO MEET CODE REQUIREMENTS, SHALL BE MADE BY THE CONTRACTOR WITHOUT EXTRA COST TO THE OWNER.
7. EQUIPMENT IS TO BE U.L. LISTED AND LABELED.
8. ALL TRADES SHALL VISIT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. NOTIFY THE ENGINEER OF INTERFERENCES OR DISCREPANCIES AND CLARIFY ALL DISCREPANCIES WITH THE ENGINEER BEFORE SUBMITTING A BID, AS NO EXTRAS WILL BE ALLOWED FOR OMITTED WORK DUE TO FAILURE TO INSPECT THE PREMISES.
9. EACH TRADE SHALL BE RESPONSIBLE FOR ITS OWN CLEANUP.
10. SHOP DRAWING SUBMITTALS FOR EQUIPMENT AND MATERIALS TO BE USED ARE REQUIRED. SUBMIT TO OWNER.
11. FURNISH THE OWNER WITH TWO COPIES OF OPERATION/MAINTENANCE MANUALS FOR ALL EQUIPMENT AND PROVIDE FULL OPERATION INSTRUCTIONS TO THE OWNER'S PERSONNEL.
12. GUARANTEE: CONTRACTOR SHALL REPAIR OR REPLACE ANY PART OF THE INSTALLATION WHICH MAY FAIL WITHIN A PERIOD OF TWO YEARS AFTER FINAL ACCEPTANCE.

ELECTRICAL SPECIFICATIONS:

1. WIRE BETWEEN ELECTRICAL SOURCE AND CT CABINET SHALL BE ALUMINUM (AL). WIRE BEYOND CT CABINET TO DISCONNECT, CHARGER, ETC. SHALL BE COPPER (CU).
2. BOXES SHALL BE GALVANIZED STEEL, CODE THICKNESS, A MINIMUM OF 1" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICES THEY SERVE, ACCORDING TO NEC REQUIREMENTS. PULL BOXES FOR ALL CONDUIT RUNS FOR ALL SYSTEMS SHALL BE INSTALLED AT INTERVALS NOT EXCEEDING 100 FEET OR AFTER 270 DEGREES OF BENDS.
3. CONDUITS SHALL NOT BE SUPPORTED FROM MECHANICAL DUCTS, PIPE, OR PIPE AND DUCT SUPPORTS.
4. ELECTRIC SYSTEM GROUNDING SHALL IN ALL INSTANCES COMPLY WITH THE MINIMUM REQUIREMENTS OF THE NEC. ALL CONDUITS SERVING WIRING OF 120 VOLTS OR GREATER SHALL INCLUDE A GROUND WIRE.
5. ELECTRICAL ENCLOSURES, CONDUIT SYSTEMS, ETC. SHALL BE THOROUGHLY GROUNDED IN ACCORDANCE WITH THE NEC AND ALL LOCAL CODES.
6. PROVIDE WATERTIGHT HUBS AT CONDUIT ENTRANCES TO ALL WATERTIGHT (NEMA 4) ENCLOSURES.
7. GFI DUPLEX RECEPTACLES SHALL BE 125 VOLT, 3 WIRE GFCI TYPE WITH FACE MOUNTED TEST AND RESET BUTTONS AND MATCHING STAINLESS STEEL COVER PLATE, HUBBELL HBL GF-5362-I, LEVITON 6898-I, OR EQUAL. ALL SWITCHES AND RECEPTACLES SHALL BE PROVIDED WITH STAINLESS STEEL COVER PLATES AND LOCKABLE COVERS, OR LOCKABLE, WEATHERPROOF WHILE-IN-USE COVERS, AS INDICATED ON THE DRAWINGS.
8. DUPLEX RECEPTACLE SHALL BE 20 AMP, 125 VOLT, 3 WIRE, GROUNDING TYPE BY HUBBELL, GE, COOPER, OR EQUAL.
9. CIRCUIT BREAKERS FOR PANELBOARDS SHALL BE OF BOLT-IN-PLACE TYPE USING SINGLE POLE OR COMMON TRIP, TWO OR THREE POLE AS INDICATED ON THE DRAWINGS. CIRCUIT BREAKERS SHALL BE ON MOLDER CASE TYPE WITH THERMAL MAGNETIC TRIP AND BREAKER HANDLES INDICATING "ON" - "OFF" AND "TRIP" POSITIONS. GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE BREAKERS SHALL BE PROVIDED WHERE INDICATED ON INTERRUPTING CAPACITY MINIMUM AND SHALL BE APPROVED FOR "SWITCHING DUTY." ALL CIRCUIT BREAKERS SHALL BE LOCKABLE. CIRCUIT BREAKERS SHALL BE EATON-CUTLER-HAMMER, SQUARE D BY SCHNEIDER ELECTRIC, OR ABB.
10. THE RECEPTACLE PANELBOARDS SHALL BE FACTORY ASSEMBLED FOR 208/120V, THREE PHASE SERVICE. PANELBOARDS SHALL HAVE MAIN CIRCUIT BREAKERS AS INDICATED ON THE DRAWINGS. PANELBOARD SHALL HAVE A NEMA TYPE 1 RATING. THE PANELBOARDS SHALL BE LISTED BY UL WITH AN INTEGRATED INTERRUPTING CAPACITY OF 10,000 RMS SYMMETRICAL AMPERES AT 160 VAC, MINIMUM. PANELBOARDS SHALL BE EATON, SCHNEIDER ELECTRIC, OR ABB. THE PANEL SHALL BE PROVIDED WITH A DIRECTORY ON THE INSIDE OF THE DOOR.
11. WHERE INDICATED ON THE DRAWINGS, PROVIDE MODIFICATIONS TO EXISTING PANELBOARDS AS REQUIRED. PANELBOARDS SHALL BE MODIFIED BY THE ADDITION OF NEW DEVICES, CONNECTIONS TO EXISTING DEVICES, AND/OR DISCONNECTION FROM EXISTING DEVICES. CIRCUIT BREAKERS FOR ADDITION TO EXISTING PANELBOARDS SHALL BE THE PANELBOARD MANUFACTURER'S COMPATIBLE REPLACEMENT PARTS AND SHALL MATCH THE PANELBOARD'S EXISTING BREAKER INTERRUPTING RATINGS. BREAKER TRIP RATINGS AND NUMBER OF POLES SHALL BE INDICATED ON THE DRAWINGS.
12. DRY TYPE TRANSFORMERS SHALL BE INDOOR OR OUTDOOR, SELF AIR-COOLED, DRY TYPE WITH MIN. TWO 5% FCBN TAPS. TRANSFORMERS SHALL HAVE A BIL OF NOT LESS THAN 10kV ON THE PRIMARY AND SECONDARY AND SHALL NOT BE RATED 115°C TYPE RISE WITH INSULATION SYSTEM DESIGNED FOR A TOTAL TEMPERATURE OF 185°C. TRANSFORMERS SHALL BE BY EATON, SQUARE D, OR EQUAL. PROVIDE MIN. 3" CONCRETE PAD FOR FLOOR MOUNTED TRANSFORMERS.

ELECTRICAL SPECIFICATIONS (CONT.):

13. DISCONNECT SWITCHES SHALL BE 600 VOLT RATED. NEMA TYPE 3R ENCLOSED DISCONNECT SWITCHES SHALL BE EATON-CUTLER-HAMMER, SQUARE D BY SCHNEIDER ELECTRIC, ABB, OR SIEMENS. ALL DISCONNECT SWITCHES SHALL HAVE PROVISIONS FOR PADLOCKING IN EITHER THE "ON" OR "OFF" POSITIONS AND ALL TERMINALS OR LUGS SHALL BE 75°C RATED FOR CONDUCTORS. FUSED SWITCHES SHALL UTILIZE CLASS R FUSES. ENCLOSURES SHALL BE AS INDICATED ON THE DRAWINGS.
14. RIGID STEEL CONDUITS SHALL CONSIST OF HEAVY WALL, MILD STEEL TUBE, HOT-DIPPED GALVANIZED WITH THREADS ELECTROGALVANIZED AFTER CUTTING, AS MANUFACTURED BY WHEATLAND TUBE, ALLIED TUBE, OR EQUAL.
15. ELECTRICAL METALLIC TUBING (EMT) SHALL BE THIN WALL, GALVANIZED STEEL CONDUIT AS MANUFACTURED BY WHEATLAND TUB, ALLIED TUBE, OR EQUAL.
16. PVC SCHEDULE 40 CONDUIT SHALL BE HEAVY WALL WITH INTEGRAL BELL AND SHALL BE BY THOMAS & BETTS - CARLON, JM EAGLE, OSBURN, OR EQUAL.
17. ALL CONDUIT RUNS (POWER AND CONTROL) SHALL BE LABELED IN ACCORDANCE WITH ANSI 13.1 WITH LABELS THAT ARE WATER-RESISTANT. CIRCUIT NUMBER MARKERS SHALL CONSIST OF SELF-ADHESIVE VINYL CLOTH OR POLYVINYL FLUORIDE FILM MARKERS WITH 1/8" HIGH (MINIMUM), BLACK LETTERING ON A YELLOW BACKGROUND, W.H. BRADY CO. MARKERS MAY ALSO CONSIST OF COMPUTER GENERATED, VINYL CLOTH, PERMANENT, NON-SMEARING, SELF-ADHESIVE MARKERS SUCH AS BRADY DATAB, BRADYMAKER XC PLUS, 3M SCOTCHCODE SCS OR STS, OR EQUAL. CIRCUIT NUMBER MARKERS FOR PANELBOARD CIRCUIT BREAKERS MAY BE THE MANUFACTURER'S STANDARD.
18. UNDERGROUND CONDUIT FOR DIRECTIONAL BORING SHALL BE COILABLE HIGH-DENSITY POLYETHYLENE TYPE III, GRADE P-22. CONDUIT WITHIN 5'-0" OF POLE AND HANDHOLES SHALL BE RIGID GALVANIZED STEEL.
19. FUSES SHALL BE DUAL ELEMENT OR CURRENT LIMITED TYPE, CLASS R OR AS OTHERWISE REQUIRED FOR INSTALLATION IN EXISTING EQUIPMENT OR IN THE EQUIPMENT FURNISHED, AND AS SHOWN ON THE DRAWINGS. FUSES SHALL PROVIDE TYPE II PROTECTION FOR MOTOR CIRCUITS.

CODE AND STANDARDS:

WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL STATE BUILDING, ELECTRICAL & CONSTRUCTION CODES.

IF AUTHORITY HAVING JURISDICTION HAS NOT ADOPTED CURRENT EDITIONS OF THE NATIONAL CODE, THEN THE AUTHORIZED EDITION SHALL BE FOLLOWED.

CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS REQUIRED TO COMPLETE THE WORK.

CONTRACTOR "RECORD DRAWINGS":

THE CONTRACTOR SHALL MAINTAIN A CLEAR, LEGIBLE, MARKED-UP SET OF DRAWINGS AT THE SITE, THAT RECORD FIELD CONDITIONS AND CHANGES MADE TO THE WORK. THE DRAWINGS SHALL RECORD THE CONTRACTOR'S NOTES, MEASUREMENTS, ETC. AS THEY PERTAIN TO THE WORK. THE DRAWINGS SHALL BE TURNED OVER TO THE ENGINEER OF RECORD AT THE COMPLETION OF THE PROJECT FOR DEVELOPMENT OF FINAL RECORD DOCUMENTS.

Item B.

CHARGE-X
WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
wtgroupaec.com

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WT Group
Engineering • Design • Consulting

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WHITE LAKE TOWNSHIP, MI 48386

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ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

GENERAL NOTES

GENERAL CIVIL CONSTRUCTION NOTES:

1. CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE JURISDICTION AND LOCAL STATE DOT.
2. PAVEMENT SHALL BE SAWCUT FULL DEPTH PRIOR TO REMOVAL.
3. EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE JURISDICTION.
   - 3.1. EROSION AND ANY SEDIMENTATION RESULTING FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF SITE AREAS OR INCLUDE BOTH NATURAL AND MAN MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES OR PONDS.
   - 3.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF SOIL EROSION AND SEDIMENTATION CONTROL DEVICES.
   - 3.3. FOR ANY AND ALL DEWATERING OPERATION, WATER SHALL BE DISCHARGED THROUGH A SOCK FILTER AND DISSIPATED PRIOR TO DISCHARGE.
   - 3.4. CONTRACTOR TO INSTALL INLET FILTERS AS REQUIRED OF AS DIRECTED BY THE LOCAL GOVERNING AGENCY/ENGINEER. INLET FILTERS SHALL BE CLEANED ONCE PER WEEK OR AFTER EACH STORM EVENT.
   - 3.5. CONTRACTOR TO INSTALL SILT FENCE AS REQUIRED OR AS DIRECTED BY THE LOCAL GOVERNING AGENCY/ENGINEER.
     - A. SILT FENCE SHALL BE INSTALLED PER DETAIL.
     - B. BUILD UP OF SEDIMENT SHALL BE REMOVED WHEN SEDIMENT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE SILT FENCE.
     - C. IF SILT FENCE FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO THE END OF EXPECTED USABLE LIFE AND THE BARRIER IS STILL REQUIRED, THE SILT FENCE SHALL BE REPLACED PROMPTLY.
     - D. SILT FENCE SHALL BE INSPECTED WEEKLY UNDER NORMAL CONDITIONS, WITHIN 24 HOURS OF RAINFALL AND DAILY DURING A PROLONGED RAIN EVENT. REQUIRED MAINTENANCE SHALL BE PROVIDED PROMPTLY.
4. IMMEDIATELY AFTER SEEDING, MULCH ALL SEEDED AREAS WITH UNWEATHERED SMALL GRAIN STRAW, SPREAD UNIFORMLY AT THE RATE OF 1 TO 2 TONS PER ACRE OR 100 POUNDS (2-3 BALES) PER 1000 SQUARE FEET. THIS MULCH SHOULD BE ANCHORED WITH DISC TYPE MULCH ANCHORING TOOL. MULCH MATTING MAY BE USED IN LIEU OF LOOSE MULCH.
5. STOCKPILED SOILS SHALL BE MAINTAINED IN SUCH A WAY AS TO PREVENT EROSION FROM LEAVING THE SITE. IF THE STOCKPILE WILL BE ON SITE FOR MORE THAN 30 DAYS, THEN THE STOCKPILE MUST BE SEEDED. SILT FENCE MUST BE INSTALLED AROUND THE PERIMETER OF THE STOCKPILE.
6. DIRT TRACKED ONTO ANY ROADWAY SHALL BE REMOVED IMMEDIATELY.
7. STREET AND/OR PARKING AREAS WILL BE SCRAPED ON A DAILY BASIS AND SWEPT AT A MINIMUM OF ONCE PER WEEK BY THE CONTRACTOR.
8. DURING DRY PERIODS, DISTURBED AREAS SHALL BE WATERED FOR DUST CONTROL.
9. FINAL GRADE, ESTABLISH VEGETATION AND/OR LANDSCAPE ALL DISTURBED AREAS NOT BUILT OR PAVED UPON.
10. REMOVE ALL TEMPORARY SOIL EROSION DEVICES AFTER PERMANENT STABILIZATION IS ESTABLISHED AND UPON LOCAL AGENCY APPROVAL.
11. EXISTING PAVEMENT MARKING SCHEDULED FOR REMOVAL SHALL BE BLACKED OUT WITH WATERBORNE PAINT OR BY AN APPROVED ALTERNATE METHOD AND SHALL BE FROM A LOCAL STATE DOT APPROVED SOURCE.
12. PROPOSED PAVEMENT MARKINGS SHALL EITHER BE WATERBORNE PAINT OR APPROVED ALTERNATE AND SHALL BE FROM A LOCAL STATE DOT APPROVED SOURCE.
13. PROPOSED PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE LOCAL STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
14. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS FROM CONSTRUCTION OPERATIONS TO THEIR ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER. LANDSCAPE AREAS REQUIRING RESTORATION SHALL INCLUDE MIN. 4" TOPSOIL, SEED AND MULCH. PAVEMENT AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, WITH THE APPLICABLE CROSS SECTION TO MATCH EXISTING AND THE MINIMUM REQUIREMENTS OF THE JURISDICTION.

GENERAL PAVING NOTES:

1. EXISTING TOPSOIL, VEGETATION, AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM THE PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF THE BASE MATERIAL. TREE ROOTS SHALL BE COMPLETELY REMOVED.
2. THE PAVEMENT SUBGRADE SHALL BE THOROUGHLY PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY OF LOOSE OR YIELDING. AREAS THAT CANNOT BE MECHANICALLY STABILIZED SHALL BE REMOVED AND REPLACED WITH 1"x3" CRUSHED LIMESTONE OR AS DIRECTED BY THE ENGINEER. ALL FILL MATERIAL AND BASE MATERIAL SHALL BE TESTED AND ITS COMPACTION AND SUITABILITY FOR ACCEPTANCE OF THE BASE MATERIAL AND PAVEMENT SHALL BE ACCEPTED BY THE ENGINEER.
3. AGGREGATE BASE MATERIAL SHALL BE CRUSHED CONCRETE COMPACTED TO 98% OF THE MAXIMUM DENSITY DETERMINED BY THE MODIFIED PROCTOR (ASTM D1557) METHOD OF TESTING. THE AGGREGATE BASE SHALL EXTEND A MINIMUM OF ONE FOOT BEYOND THE BACK OF CURB OR THE PAVED EDGE. AGGREGATE SHALL BE FROM A LOCAL STATE DOT APPROVED SOURCE.
4. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT JURISDICTION CONSTRUCTION STANDARDS AND SPECIFICATIONS AND THE CURRENT LOCAL STATE DOT STANDARDS AND SPECIFICATIONS.
5. FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES IN THICKNESS (BEFORE COMPACTION) TO 95% OF THE MAXIMUM DENSITY DETERMINED BY THE MODIFIED PROCTOR (ASTM D1557) METHOD OF TESTING PRIOR TO PLACEMENT OF THE PROPOSED PAVEMENT.

CONCRETE SPECIFICATIONS:

CONCRETE SHALL BE FURNISHED, PLACED, FINISHED AND INSTALLED IN ACCORDANCE WITH THE CURRENT JURISDICTION CONSTRUCTION STANDARDS AND SPECIFICATIONS AND THE CURRENT LOCAL STATE DOT STANDARDS AND SPECIFICATIONS.

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
2. (DRILL & GROUT) - REFERS TO DRILLING INTO EXISTING CONCRETE TO THE SPECIFIED HOLE DIAMETER AND EMBEDMENT UNLESS OTHERWISE SHOWN AND ANCHORING THE REINFORCEMENT WITH STRUCTURAL EPOXY ADHESIVE, HIT-HY 200 SYSTEM HIGH STRENGTH INJECTION ADHESIVE SYSTEM BY HILTI CORP. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. MINOR REINFORCEMENT RELOCATION, AS APPROVED BY THE ENGINEER MAY OCCUR WHEN ENCOUNTERING EXISTING REINFORCEMENT.
3. CONCRETE SHALL BE RESISTANT TO EXCESSIVE EXPANSION CAUSED BY ALKALI-SILICA REACTIVITY (ASR). CONCRETE MIX DESIGNS SHALL BE A REFERENCE WITH THE FOLLOWING:
   - A. CEMENT FOR CONCRETE SHALL BE ASTM C-150 TYPE I OR II WITH EQUIVALENT TOTAL ALKALI CONTENT AS Na_2O NO GREATER THAN 0.60%
   - B. A PORTION OF THE CEMENT WILL BE SUBSTITUTED WITH GROUND GRANULATED BLAST FURNACE SLAG (GGBFS) MINIMUM 25% TO MAXIMUM 35% BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL. GGBFS SHALL COMPLY WITH ASTM C-989 GRADE 100 OR 120.
   - C. FINE AGGREGATE SHALL BE NATURAL SAND 2NS.
   - D. COARSE AGGREGATE SHALL CONFORM TO ASTM C-33 AND SHALL BE GRADED IN ACCORDANCE WITH LOCAL STATE DOT CLASS 26A LIMESTONE FOR SIDEWALKS, CURBS (UNLESS INTEGRAL) AND 7" CONCRETE PAVEMENT. LOCAL STATE DOT CLASS 6AA LIMESTONE SHALL BE USED FOR 8" & GREATER CONCRETE PAVEMENT.
   - E. FINE AND COARSE AGGREGATES SHALL BE FROM SOURCES THAT HAVE BEEN TESTED FOR ALKALI-SILICA REACTIVITY (ASR) PER ASTM 1260 AND ASTM 1293 AND HAVE SHOWN TO BE RESISTANT TO EXCESSIVE EXPANSION CAUSED BY ASR.
   - F. CONCRETE SHALL BE AIR ENTRAINED TO A TOTAL AIR CONTENT OF 6% +/- 1%
   - G. CONCRETE MIXTURE WATER-CEMENT RATIO SHALL BE NO GREATER THAN 0.45
   - H. THE USE OF FLY ASH IS NOT ALLOWED.
   - I. NO WATER SHALL BE ADDED TO CONCRETE AFTER BATCHING.
   - J. NO FIELD ADDITION OF AIR ENTRAINED CHEMICALS IS ALLOWED.
   - K. CONCRETE NOT MEETING PROJECT REQUIREMENTS WILL BE REJECTED AND NOT PLACED ON PROJECT SITE.
5. CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. SUBMITTAL SHALL CONTAIN:
   - MIX RECIPE
   - CURRENT CEMENT MANUFACTURER DATA SHEET
   - HISTORICAL TEST DATA WITH STANDARD DEVIATION PER ACI 318 CHAPTER 5 OR 3 POINT TRIAL BATCH CURVE DATE
   - FINE AND COARSE AGGREGATE: GRADATION, ANY AVAILABLE ASTM TEST DATA FOR ALKALI SILICA REACTION (ASR), PIT ID, LOCAL STATE DOT PIT ID
   - ADMIXTURE DATA SHEETS

CONCRETE SPECIFICATIONS (CONT.):

6. CONCRETE MIX TESTING MAY BE PERFORMED BY THE OWNER FOR EACH CONCRETE PLACEMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER'S AGENT ACCESS TO THE AREAS TO BE TESTED.
7. ALL CONCRETE SHALL HAVE A WHITE CURING COMPOUND COMPLYING WITH LOCAL STATE DOT SPECIFICATIONS FOR CONSTRUCTION APPLIED AT A MAXIMUM OF 150 SFT PER GALLON WITHIN ONE HOUR OF PLACEMENT.

ASPHALT PAVEMENT SPECIFICATIONS:

1. SUBMIT MIX REPORT FOR ASPHALT/CONCRETE MIXTURE TO BE USED. SUBMIT IN SUFFICIENT TIME TO ALLOW REVIEW AND APPROVAL BEFORE START OF FIELD OPERATIONS.
2. DO NOT INSTALL ANY MATERIALS WHEN GROUND IS FROZEN OR COVERED WITH SNOW, ICE OR WATER; IT IS RAINING; OR WHEN RAIN IS THREATENING.
3. JOINT SEALANT - HOT APPLIED, SINGLE COMPONENT, POLYMER-MODIFIED ASPHALT SEALANT.
4. BOND/TACK COAT - RAPID CURING LIQUID ASPHALT CONFORMING TO LOCAL STATE DOT DESIGNATION RC-70; OR ASPHALT EMULSION CONFORMING TO LOCAL STATE DOT DESIGNATION SS-1H OR MS-2A. APPLY UNIFORMLY TO VERTICAL SURFACES ABUTTING OR PROJECTING INTO NEW, HOT-MIX ASPHALT PAVING AT RATE OF 0.05 TO 0.15 GAL. PER SQ. YD. (0.2 TO 0.7 L/SQ. M.). ALLOW BOND COAT TO CURE UNDISTURBED BEFORE APPLYING HOT-MIX ASPHALT PAVING. AVOID SMEARING OR STAINING ADJOINING SURFACES, APPURTENANCES, AND SURROUNDINGS. REMOVE SPILLAGES AND CLEAN AFFECTED SURFACES.
5. FINE GRADE AND COMPACT EARTH SUBGRADES AND BRING TO REQUIRED ELEVATIONS AND CROSS SECTIONS.
6. MACHINE PLACE HOT-MIX ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND TO AREA INACCESSIBLE TO EQUIPMENT IN MANNER THAT PREVENTS SEGREGATION OF MIX. PLACE EACH COURSE TO REQUIRED GRADE, CROSS SECTION, AND THICKNESS WHEN COMPACTED.
7. PLACE ASPHALT AT SURFACE TEMPERATURES EQUAL TO OR GREATER THAN 35°F AS SPECIFIED IN LOCAL STATE DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
8. BEGIN COMPACTION AS SOON AS PLACED HOT-MIX PAVING WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT. COMPACT HOT-MIX PAVING WITH HOT, HAND TAMPERS OR VIBRATORY-PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS. COMPLETE COMPACTION BEFORE MIX TEMPERATURE COOLS TO 185°F (85°C).
9. AVERAGE DENSITY: 96% OF REFERENCE LABORATORY DENSITY ACCORDING TO AASHTO T 245, BUT NOT LESS THAN 94% NOR GREATER THAN 100%
10. AVERAGE DENSITY: 92% OF REFERENCE MAXIMUM THEORETICAL DENSITY ACCORDING TO ASTM D 2041, "STANDARD TEST METHOD FOR THEORETICAL MAXIMUM SPECIFIC GRAVITY AND DENSITY OF BITUMINOUS PAVING MIXTURES", BUT NOT LESS THAN 90% NOR GREATER THAN 96%
11. FINISH ROLLING: FINISH ROLL PAVED SURFACES TO REMOVE ROLLER MARKS WHILE HOT-MIX ASPHALT IS STILL WARM.
12. EDGE SHAPING: WHILE SURFACE IS BEING COMPACTED AND FINISHED, TRIM EDGES OF PAVEMENT TO PROPER ALIGNMENT. ROLL EDGES LEVEL WHEN ABUTTING EXISTING PAVEMENT & HOT SEAL JOINT.
13. REPAIRS: REMOVE PAVED AREAS THAT ARE DEFECTIVE OR CONTAMINATED WITH FOREIGN MATERIALS AND REPLACE WITH FRESH, HOT-MIX ASPHALT. COMPACT BY ROLLING TO SPECIFIED DENSITY AND SURFACE SMOOTHNESS.
14. PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.
15. JOINTS: CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVING SECTIONS. CLEAN CONTACT SURFACES AND APPLY BOND COAT TO JOINTS.

EXCAVATION & BACKFILL NOTES:

1. ALL MATERIALS EXCAVATED SHALL BE STOCKPILED ON THE SITE AS DIRECTED BY THE OWNER. EXCAVATED MATERIAL MAY BE RE-USED FOR BACKFILL UNLESS NEW SAND BEDDING/SUB-BASE IS SPECIFIED. RE-USED MATERIALS SHALL MEET THE REQUIREMENTS OF THIS SECTION SPECIFICATION. FOR THE PURPOSES OF BIDDING, ASSUME THAT EXCAVATED MATERIALS ARE SUITABLE FOR RE-USE.
2. BROKEN CONCRETE AND ASPHALT SHALL NOT BE USED FOR BACKFILL AND BE LEGALLY DISPOSED OF OFF-SITE.
3. ALL MATERIALS USE IN BACKFILLING SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. LIFTS SHALL NOT EXCEED 9 INCHES BETWEEN TESTING.
4. ALL EXCAVATION ACTIVITIES SHALL BE DONE IN SUCH A MANNER AS TO NOT JEOPARDIZE THE FOUNDATION OF THE BUILDING OR UTILITIES IN AREA.
5. SAND FOR SUB-BASE UNDER BUILDING SLAB AREAS AND PIPE BEDDING SHALL BE LOCAL STATE DOT CLASS II MATERIAL, COMPACTED IN PLACE.

Item B.

CHARGE-X

WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
wtgroupaec.com

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WT Group
Engineering • Design • Consulting

8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057985
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	03/18/26	JTB
0	REVISION	03/23/26	JTB
1	REVISION	05/20/26	JTB
2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

GENERAL NOTES

ELECTRICAL LEGEND

S	SINGLE POLE SWITCH
F	DISCONNECT SWITCH (F = FUSED)
	PUSHBUTTON STATION (SEE WIRING DIAG'S FOR TYPE)
T	TRANSFORMER (PLAN VIEW)
	TRANSFORMER (DIAGRAM VIEW)
	LIGHTING PANEL
	DISTRIBUTION PANEL
CP	CONTROL PANEL
	120V DUPLEX RECEPTACLE
	NEMA 14-50 RECEPTACLE
J.B.	JUNCTION BOX
P.B.	PULL BOX
	HEATER
	LEVEL 3 DC EV CHARGER (PLAN VIEW)
	LEVEL 2 AC EV CHARGER SINGLE PORT (PLAN VIEW)
	LEVEL 2 AC EV CHARGER DUAL PORT (PLAN VIEW)
	EV CHARGER (DIAGRAM VIEW)
	MOTOR, 1 PHASE
	MOTOR, 3 PHASE
- - - - -	CONDUIT RUN CONCEALED ABOVE CEILING ON IN WALL
— E —	CONDUIT RUN UNDERGROUND
———	CONDUIT RUN EXPOSED
— G —	BUILDING GROUND MASS & GROUND CONDUCTOR
	GROUND ROD, 5/8" DIA. x 8'-0" LONG
— OHW —	OVERHEAD LINE
	DISTRIBUTION PANELBOARD POSITION NUMBER

ABBREVIATIONS

PVC	POLYVINYL CHLORIDE CONDUIT
RGS	RIGID GALVANIZED STEEL
A.F.F.	ABOVE FINISHED FLOOR
W.T.	WATERTIGHT (NEMA 4)
W.T.X.	WATERTIGHT, CORROSION RESISTANT (NEMA 4X)
W.P.	WEATHERPROOF (NEMA 3R)
C.	CONDUIT
GFI	GROUND FAULT INTERRUPTER
EX.	EXISTING
O.C.	ON CENTER
ASR	ALKALI-SILICA REACTIVITY
NEC	NATIONAL ELECTRICAL CODE
DOT	DEPARTMENT OF TRANSPORTATION
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
U.L.	UNDERWRITERS LABORATORIES
EMT	ELECTRICAL METALLIC TUBING
EV	ELECTRIC VEHICLE
HDPE	HIGH-DENSITY POLYETHYLENE TYPE III
EQ.	EQUAL
CLR.	CLEAR
DIA.	DIAMETER
LG.	LONG
MISC.	MISCELLANEOUS
I.D.	INNER DIAMETER
PSI	POUNDS PER SQUARE INCH
TYP.	TYPICAL
GALV.	GALVANIZED
A	AMPERES
W.	WIRE
KAIC	KILO AMPERAGE INTERRUPTING CAPACITY
LSIG	LONG TIME SHORT TIME, INSTANTANEOUS AND GROUND FAULTS
kW	KILOWATT
P.	POLE
AC	ALTERNATING CURRENT
PH.	PHASE
kVA	KILOVOLT-AMPERE
DCFC	DIRECT CURRENT FAST CHARGER
QTY.	QUANTITY
RECEPT.	RECEPTACLE
MIN.	MINIMUM
N.T.S.	NOT TO SCALE
TVSS	TRANSIENT VOLTAGE SURGE SUPPORTER

Item B.

CHARGE-X

WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
wtgroupaec.com

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Engineering • Design • Consulting

8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

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A	FOR CLIENT REVIEW	03/18/26	JTB
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1	REVISION	05/20/26	JTB
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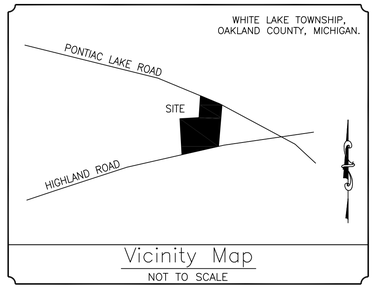
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

GENERAL NOTES



Vicinity Map
NOT TO SCALE

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

NOTES CORRESPONDING TO SCHEDULE B

A TITLE COMMITMENT WAS NOT PROVIDED

ZONING INFORMATION

A ZONING REPORT WAS NOT PROVIDED BY THE CLIENT PER TABLE A 6(a) AND 6(B). THE ZONING CLASSIFICATION, SETBACK REQUIREMENTS, THE HEIGHT AND FLOOR SPACE AREA RESTRICTIONS, AND PARKING REQUIREMENTS ARE NOT SHOWN HEREON.

DESCRIPTION

That part of Section 13, T3N, R8E, White Lake Township, Oakland County, Michigan being described as:

Lots 21 & 22, Huron River Subdivision, as recorded in Liber 57 of Plats, on Page 55, Oakland County Records.

BEARING BASIS

BEARINGS ARE BASED ON THE CENTERLINE OF PONTIAC LAKE ROAD RECORDED AS BEARING S56°12"E.

FEMA 100 YEAR FLOODPLAIN

BY GRAPHIC PLOTTING ONLY, THIS PARCEL IS LOCATED IN ZONE X OF THE FLOOD INSURANCE RATE MAP NUMBER 26125C0337F WHICH BEARS AN EFFECTIVE DATE OF 9/29/2006.

GENERAL NOTES

1) NO EVIDENCE OF EARTH MOVING OR BUILDING CONSTRUCTION/ADDITIONS WERE OBSERVED WHILE CONDUCTING THE FIELD WORK. (ITEM 16, TABLE A).

2) NO EVIDENCE OF PROPOSED STREET RIGHT OF WAY LINE CHANGES WERE PROVIDED BY THE CONTROLLING JURISDICTION. (ITEM 17, TABLE A).

3) THERE IS NO OBSERVABLE EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS. (ITEM 17, TABLE A).

4) THIS PARCEL HAS IMPROVED DIRECT ACCESS TO PONTIAC LAKE ROAD AND HIGHLAND ROAD (M-59), BOTH DEDICATED PUBLIC RIGHT OF WAYS.

5) THIS SURVEY MAP CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF THE SURVEY.

6) THERE ARE NO OBSERVED GAPS OR OVERLAPS BETWEEN THE BOUNDARY LINES OF THE PARCEL AS SHOWN ON THIS SURVEY MAP AND AS PROVIDED IN THE DESCRIPTION PRESENTED IN THE TITLE COMMITMENT.

7) THE BOUNDARY LINE DIMENSIONS AS SHOWN ON THIS SURVEY MAP FORM A MATHEMATICALLY CLOSED FIGURE WITHIN +/-0.1 FOOT.

8) THE BOUNDARY LINES OF THE PARCEL AS PROVIDED IN THE DESCRIPTION PRESENTED IN THE TITLE COMMITMENT ARE CONTIGUOUS WITH THE BOUNDARY LINES OF ALL ADJOINING STREETS, HIGHWAYS, RIGHTS OF WAY AND EASEMENTS, PUBLIC OR PRIVATE, AS DESCRIBED IN THEIR MOST RECENT RESPECTIVE DESCRIPTIONS OF RECORD.

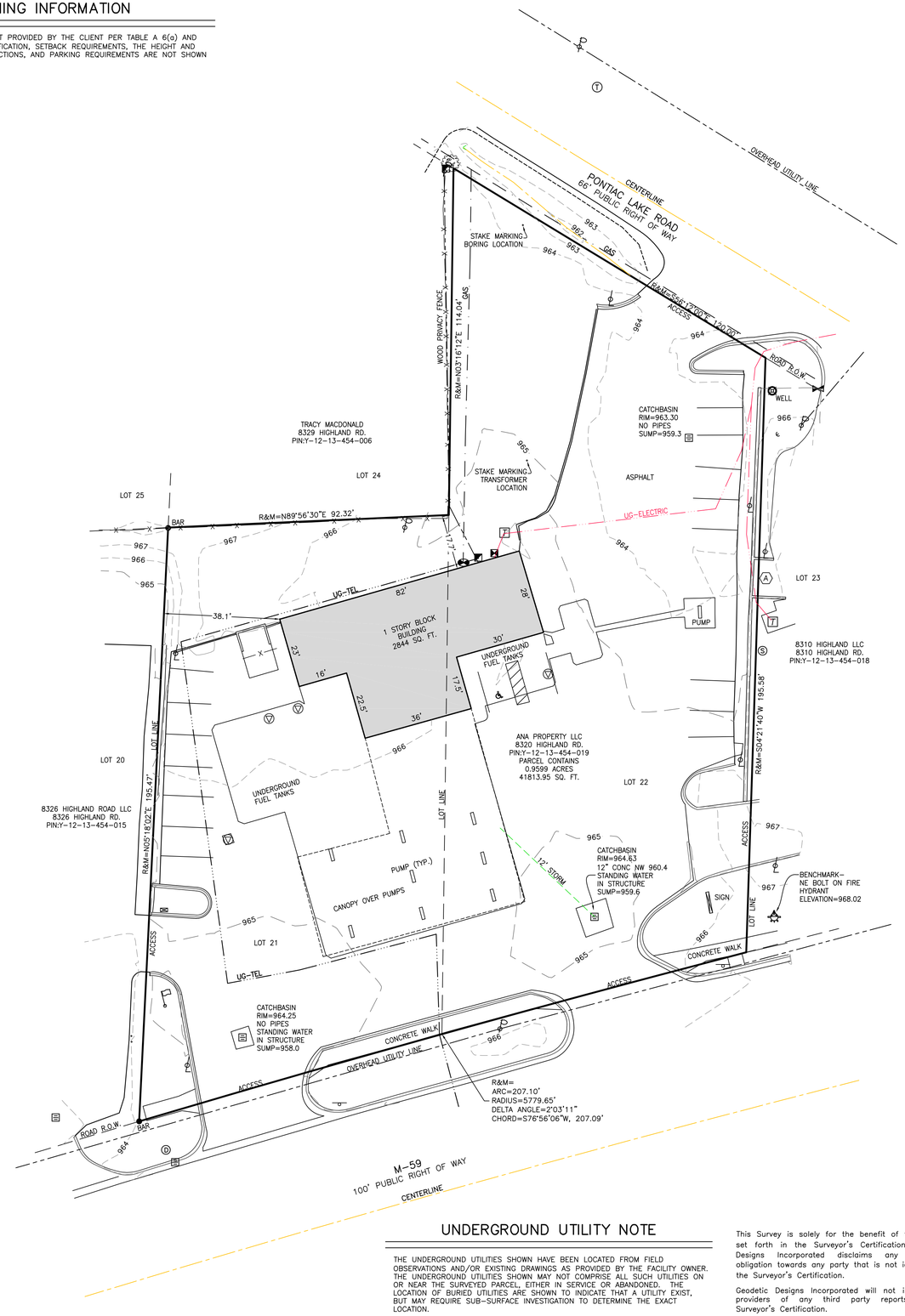
9) EXCEPT AS OTHERWISE NOTED BELOW, IF THE OVERALL PARCELS CONSISTS OF TWO OR MORE DESCRIPTIONS, THERE ARE NO GAPS OR GORES BETWEEN SAID DESCRIPTIONS.

10) THIS PARCEL FRONTS ON BOTH PONTIAC LAKE ROAD AND HIGHLAND ROAD (M-59). (ITEM 14, TABLE A).

11) EASEMENTS AND EXCEPTIONS SHOWN HEREON WERE PROVIDED BY THE TITLE INSURANCE COMPANY, NO RESEARCH HAS BEEN CONDUCTED BY GEODETIC DESIGNS INC. TO IDENTIFY ANY ADDITIONAL EASEMENTS OR RECORD ENCUMBRANCES THAT MAY AFFECT THIS PARCEL.

12) ALL LINEAR DIMENSIONS SHOWN ARE IN INTERNATIONAL FEET AND DECIMALS THEREOF.

13) WHITE LAKE TOWNSHIP HAS NOT RESPONDED TO A REQUEST FOR MAPS OF UNDERGROUND WATER AND SANITARY AND THOSE ARE NOT SHOWN HEREON.



SIGNIFICANT OBSERVATIONS

INFORMATION NOTED BELOW IS SIMPLY A STATEMENT OF FACT REGARDING THE LOCATION OF OBSERVED IMPROVEMENTS RELATIVE TO BOUNDARY, EASEMENT, AND SETBACK LINES, AND IS NOT A LEGAL OPINION, OPINION OF OWNERSHIP, OR DETERMINATION OF ENCROACHMENTS.	
BOUNDARY LINES	(A) DUMPSTER WALL CROSS PROPERTY LINE AS SHOWN
ROW & EASEMENTS	NONE OBSERVED
SETBACKS	NONE OBSERVED
PHYSICAL ACCESS BETWEEN ADJOINING PROPERTIES	NONE OBSERVED
USE OF ADJOINING PARCELS	NONE OBSERVED

CERTIFICATION

TO: RED E CHARGE:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2026 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 6a, 6b, 7a, 7b1, 7b2, 7c, 8, 9, 10a, 10b, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20 of Table A thereof. The fieldwork was completed on May 28, 2026.

STATE OF MICHIGAN
DAVID J. VanDenBerghe
PROFESSIONAL SURVEYOR No. 4001051489
LICENSED PROFESSIONAL SURVEYOR

Registration No. 4001051489
Within the State of Michigan

DAVID J. VANDENBERGHE
PROFESSIONAL SURVEYOR #4001051489

LEGEND

- Power Pole
- Power Pole w/Light
- Light Pole
- Telephone Pole
- Guy Wire
- Transformer
- Electric Manhole
- Telephone Manhole
- Telephone Pedestal
- Electric Meter
- Cable Box
- Air Conditioner Unit
- Easement Identifier
- Distance not to scale
- Flag Pole
- Sign (As Noted)
- Well Head
- Satellite Dish
- Tower
- Water Valve
- Fire Hydrant
- Water Manhole
- Water Meter Pit
- Water Meter
- Indicates Handicapped Parking
- Parking Count
- Mailbox
- Storm Manhole
- Storm Catchbasin
- Deciduous Tree
- Coniferous Tree
- Sanitary Manhole
- Sanitary Clean Out
- Gas Valve
- Gas Manhole
- Gas Meter
- Gas Marker
- Section Corner
- Set 5/8" Bar & Cap
- Found Corner Monument
- Monitoring Well

ABBREVIATIONS

R = RECORDED	T-N = TOWN - NORTH	AVE. = AVENUE
M = MEASURED	R-E = RANGE - EAST	BLVD. = BOULEVARD
C = CALCULATED	SQ. FT. = SQUARE FEET	CT. = COURT
N = NORTH	NE = NORTHEAST	RD. = ROAD
E = EAST	SE = SOUTHEAST	ST. = STREET
S = SOUTH	SW = SOUTHWEST	PIN = PARCEL IDENTIFICATION NUMBER
W = WEST	NW = NORTHWEST	

UNDERGROUND UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND/OR EXISTING DRAWINGS AS PROVIDED BY THE FACILITY OWNER. THE UNDERGROUND UTILITIES SHOWN MAY NOT COMPRISE ALL SUCH UTILITIES ON OR NEAR THE SURVEYED PARCEL, EITHER IN SERVICE OR ABANDONED. THE LOCATION OF BURIED UTILITIES ARE SHOWN TO INDICATE THAT A UTILITY EXIST, BUT MAY REQUIRE SUB-SURFACE INVESTIGATION TO DETERMINE THE EXACT LOCATION.

This Survey is solely for the benefit of the parties set forth in the Surveyor's Certification. Geodetic Designs Incorporated disclaims any duty or obligation towards any party that is not identified in the Surveyor's Certification.

Geodetic Designs Incorporated will not include the providers of any third party reports in the Surveyor's Certification.

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"ALTA/NSPS LAND TITLE SURVEY"

PREPARED BY:

GEODETIC DESIGNS, INC.
2300 N. GRAND RIVER AVE.
LANSING, MI 48906
PHONE: (517) 908-0008
FAX: (517) 908-0009
WWW.GEODETICDESIGNS.COM

DATE	REVISION	BY

RED E CHARGE

8320 Highland Road
White Lake, MI
Parcel #12-13-454-019

DATE: May 28, 2026	SCALE: 1" = 20'
DRAWN BY: DJV	JOB NUMBER: S092-2026
CHECKED BY: DJV	SHEET 1 OF 1

GENERAL NOTES:

1. CONTRACTOR RESPONSIBILITIES INCLUDE CHARGING STATION MOUNTING, OVERHEAD CONDUIT INSTALLATION AND WIRING.
2. CONTRACTOR TO PAINT PROPOSED EV PARKING SPACES PER JURISDICTIONAL REQUIREMENTS.
3. CONTRACTOR TO FIELD SCAN/X-RAY EXISTING CONCRETE SLAB TO ENSURE NO REINFORCEMENT IS DAMAGED DURING EQUIPMENT OR CONDUIT ANCHORING, ENSURE 1" GAP MIN. BETWEEN REBAR AND ANCHORAGE.
4. EXACT STATION PLACEMENT AND ROTATION ANGLE MAY VARY SLIGHTLY UPON INSTALLATION DEPENDING ON SITE CONDITIONS.
5. UNDERGROUND CONDUIT PATH TO BE VERIFIED BY GPR PRIOR TO INSTALLATION.
6. OVERALL CONDUIT ROUTE TO BE VERIFIED IN FIELD BY CONTRACTOR AND PROPERTY OWNER.
7. 3/4" MINIMUM FOR ALL CONDUIT.
8. ROOFTOP CONDUIT UTILIZING NON-PENETRATING SUPPORTS MAY BE USED IN ADDITION IF APPROVED BY PROPERTY OWNER.

PROPERTY INFORMATION	
JURISDICTION:	WHITE LAKE TOWNSHIP
ZONING:	GB
SUBDIVISION:	HURON RIVER
LOT AREA:	±0.9599 ACRES
OWNER:	ANA PROPERTY, LLC 8320 HIGHLAND ROAD WHITE LAKE TOWNSHIP, MI 48386

DISTANCES TO EXISTING BODIES OF WATER	
DIRECTION	
NORTH (PONTIAC LAKE)	±290'-0"
SOUTH (CEDAR CREEK)	±2575'-0"
EAST (INLET TO PONTIAC LAKE)	±660'-0"
WEST (UNNAMED PONDS)	±2690'-0"

LATITUDE AND LONGITUDE: 42.660101°, -83.449880°
SOURCE: GOOGLE MAPS, DATED 03/18/2026

NOTE:
TYPICAL PARKING SPACE MINIMUM DIMENSION FOR 90° PARKING STALL:
- 9'-0" WIDTH
- 18'-0" DEPTH

NOTE:
THIS SITE PLAN IS BASED ON A SURVEY PROVIDED BY GEODETIC DESIGNS, INC., DATED 05/28/2026. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

FLOOD STATEMENT:
BY GRAPHIC PLOTTING ONLY, THIS PARCEL IS LOCATED IN ZONE X OF FLOOD INSURANCE RATE MAP NUMBER 26125C0337F WHICH BEARS AN EFFECTIVE DATE OF 09/29/2006.

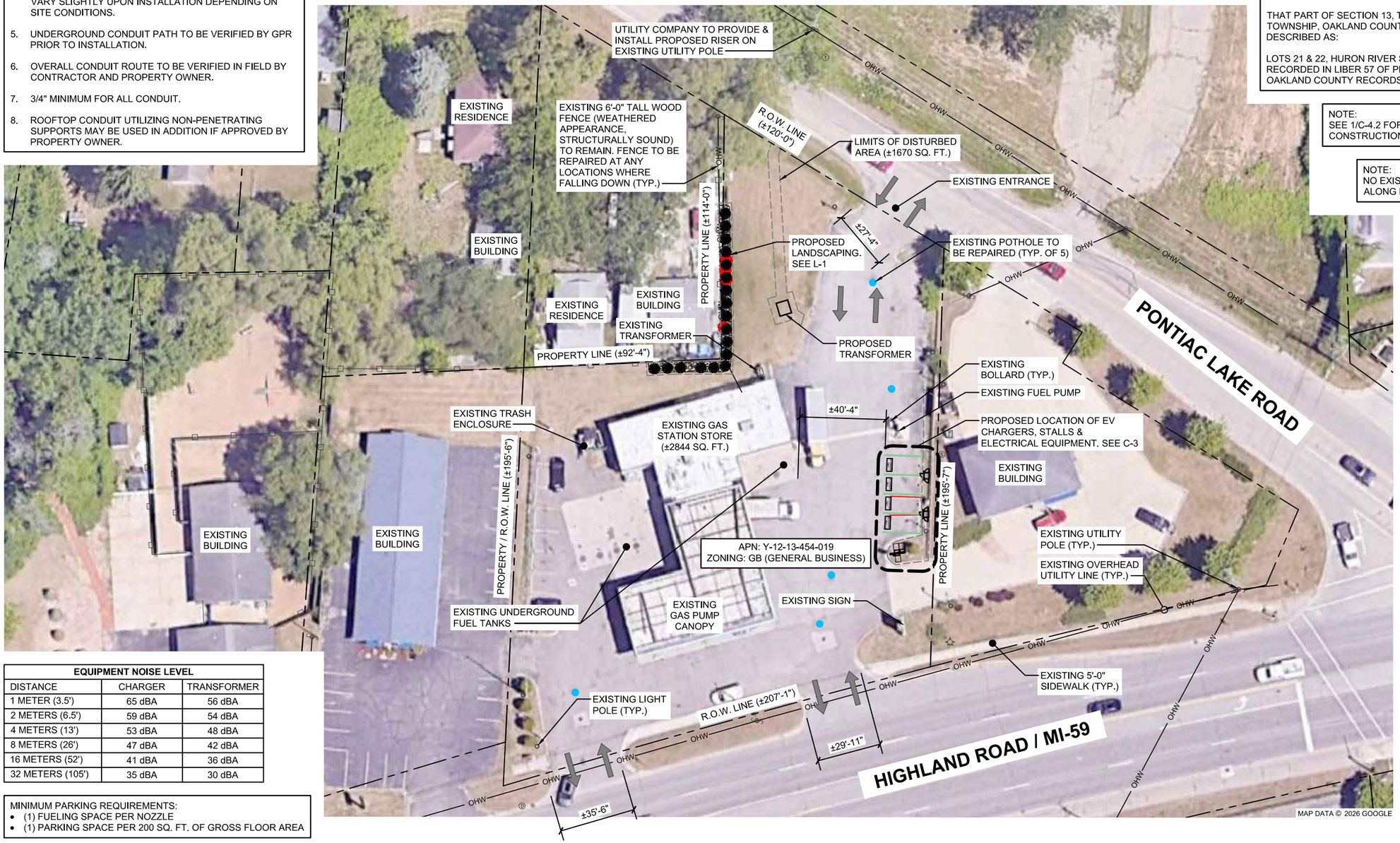
LEGAL DESCRIPTION:

THAT PART OF SECTION 13, T3N, R8E, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN BEING DESCRIBED AS:

LOTS 21 & 22, HURON RIVER SUBDIVISION, AS RECORDED IN LIBER 57 OF PLATS, ON PAGE 55, OAKLAND COUNTY RECORDS.

NOTE:
SEE 1/C-4.2 FOR SEQUENCE OF CONSTRUCTION & COST ESTIMATES.

NOTE:
NO EXISTING SIDEWALK ALONG PONTIAC LAKE ROAD.



EQUIPMENT NOISE LEVEL		
DISTANCE	CHARGER	TRANSFORMER
1 METER (3.5')	65 dBA	56 dBA
2 METERS (6.5')	59 dBA	54 dBA
4 METERS (13')	53 dBA	48 dBA
8 METERS (26')	47 dBA	42 dBA
16 METERS (52')	41 dBA	36 dBA
32 METERS (105')	35 dBA	30 dBA

MINIMUM PARKING REQUIREMENTS:
- (1) FUELING SPACE PER NOZZLE
- (1) PARKING SPACE PER 200 SQ. FT. OF GROSS FLOOR AREA

BUILDING SQUARE FOOTAGE	EXISTING REGULAR PARKING STALLS	EXISTING ADA PARKING STALLS	EXISTING PARKING STALLS CONVERTED TO EV PARKING STALLS	NEW EV PARKING STALLS	TOTAL PARKING STALLS (INCLUDING EV STALLS)	TOTAL PARKING STALLS (EXCLUDING EV STALLS)
±2844	17	2	3	1	20	16

0' 50' 100' 150'
SCALE: 1" = 50'-0"

N

OVERALL PROPERTY PLAN

SCALE: 1" = 50'-0"

1

Item B.

CHARGE-X

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8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	03/18/26	JTB
0	REVISION	03/23/26	JTB
1	REVISION	05/20/26	JTB
2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

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ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

OVERALL PROPERTY PLAN

GENERAL NOTES:

1. CONTRACTOR RESPONSIBILITIES INCLUDE CHARGING STATION MOUNTING, OVERHEAD CONDUIT INSTALLATION AND WIRING.
2. CONTRACTOR TO PAINT PROPOSED EV PARKING SPACES PER JURISDICTIONAL REQUIREMENTS.
3. CONTRACTOR TO FIELD SCAN/X-RAY EXISTING CONCRETE SLAB TO ENSURE NO REINFORCEMENT IS DAMAGED DURING EQUIPMENT OR CONDUIT ANCHORING, ENSURE 1" GAP MIN. BETWEEN REBAR AND ANCHORAGE.
4. EXACT STATION PLACEMENT AND ROTATION ANGLE MAY VARY SLIGHTLY UPON INSTALLATION DEPENDING ON SITE CONDITIONS.
5. UNDERGROUND CONDUIT PATH TO BE VERIFIED BY GPR PRIOR TO INSTALLATION.
6. OVERALL CONDUIT ROUTE TO BE VERIFIED IN FIELD BY CONTRACTOR AND PROPERTY OWNER.
7. 3/4" MINIMUM FOR ALL CONDUIT.
8. ROOFTOP CONDUIT UTILIZING NON-PENETRATING SUPPORTS MAY BE USED IN ADDITION IF APPROVED BY PROPERTY OWNER.

PROPERTY INFORMATION	
JURISDICTION:	WHITE LAKE TOWNSHIP
ZONING:	GB
SUBDIVISION:	HURON RIVER
LOT AREA:	±0.9599 ACRES
OWNER:	ANA PROPERTY, LLC 8320 HIGHLAND ROAD WHITE LAKE TOWNSHIP, MI 48386

DISTANCES TO EXISTING BODIES OF WATER	
DIRECTION	
NORTH (PONTIAC LAKE)	±290'-0"
SOUTH (CEDAR CREEK)	±2575'-0"
EAST (INLET TO PONTIAC LAKE)	±660'-0"
WEST (UNNAMED PONDS)	±2690'-0"

LATITUDE AND LONGITUDE: 42.660101°, -83.449880°
SOURCE: GOOGLE MAPS, DATED 03/18/2026

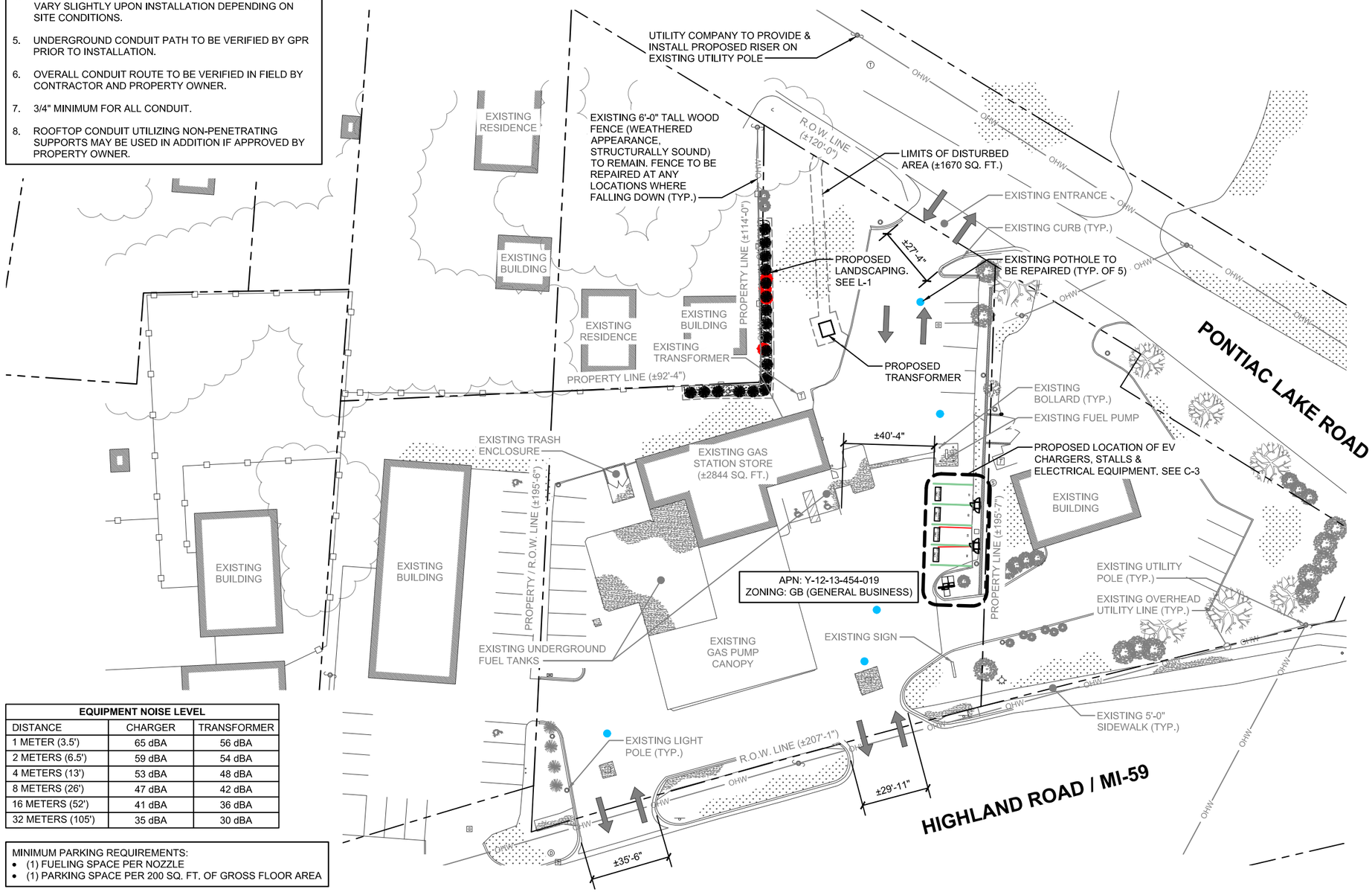
NOTE:
TYPICAL PARKING SPACE MINIMUM DIMENSION FOR 90° PARKING STALL:
- 9'-0" WIDTH
- 18'-0" DEPTH

NOTE:
THIS SITE PLAN IS BASED ON A SURVEY PROVIDED BY GEODETIC DESIGNS, INC., DATED 05/28/2026. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

FLOOD STATEMENT:
BY GRAPHIC PLOTTING ONLY, THIS PARCEL IS LOCATED IN ZONE X OF FLOOD INSURANCE RATE MAP NUMBER 26125C0337F WHICH BEARS AN EFFECTIVE DATE OF 09/29/2006.

NOTE:
SEE 1/C-4.2 FOR SEQUENCE OF CONSTRUCTION & COST ESTIMATES.

NOTE:
NO EXISTING SIDEWALK ALONG PONTIAC LAKE ROAD.



EQUIPMENT NOISE LEVEL		
DISTANCE	CHARGER	TRANSFORMER
1 METER (3.5')	65 dBA	56 dBA
2 METERS (6.5')	59 dBA	54 dBA
4 METERS (13')	53 dBA	48 dBA
8 METERS (26')	47 dBA	42 dBA
16 METERS (52')	41 dBA	36 dBA
32 METERS (105')	35 dBA	30 dBA

MINIMUM PARKING REQUIREMENTS:
- (1) FUELING SPACE PER NOZZLE
- (1) PARKING SPACE PER 200 SQ. FT. OF GROSS FLOOR AREA

BUILDING SQUARE FOOTAGE	EXISTING REGULAR PARKING STALLS	EXISTING ADA PARKING STALLS	EXISTING PARKING STALLS CONVERTED TO EV PARKING STALLS	NEW EV PARKING STALLS	TOTAL PARKING STALLS (INCLUDING EV STALLS)	TOTAL PARKING STALLS (EXCLUDING EV STALLS)
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0' 50' 100' 150'
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PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

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EQUIPMENT NOISE LEVEL

DISTANCE	CHARGER	TRANSFORMER
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8 METERS (26')	47 dBA	42 dBA
16 METERS (52')	41 dBA	36 dBA
32 METERS (105')	35 dBA	30 dBA

DISTANCES TO EXISTING BODIES OF WATER

DIRECTION	
NORTH (PONTIAC LAKE)	±290'-0"
SOUTH (CEDAR CREEK)	±2575'-0"
EAST (INLET TO PONTIAC LAKE)	±660'-0"
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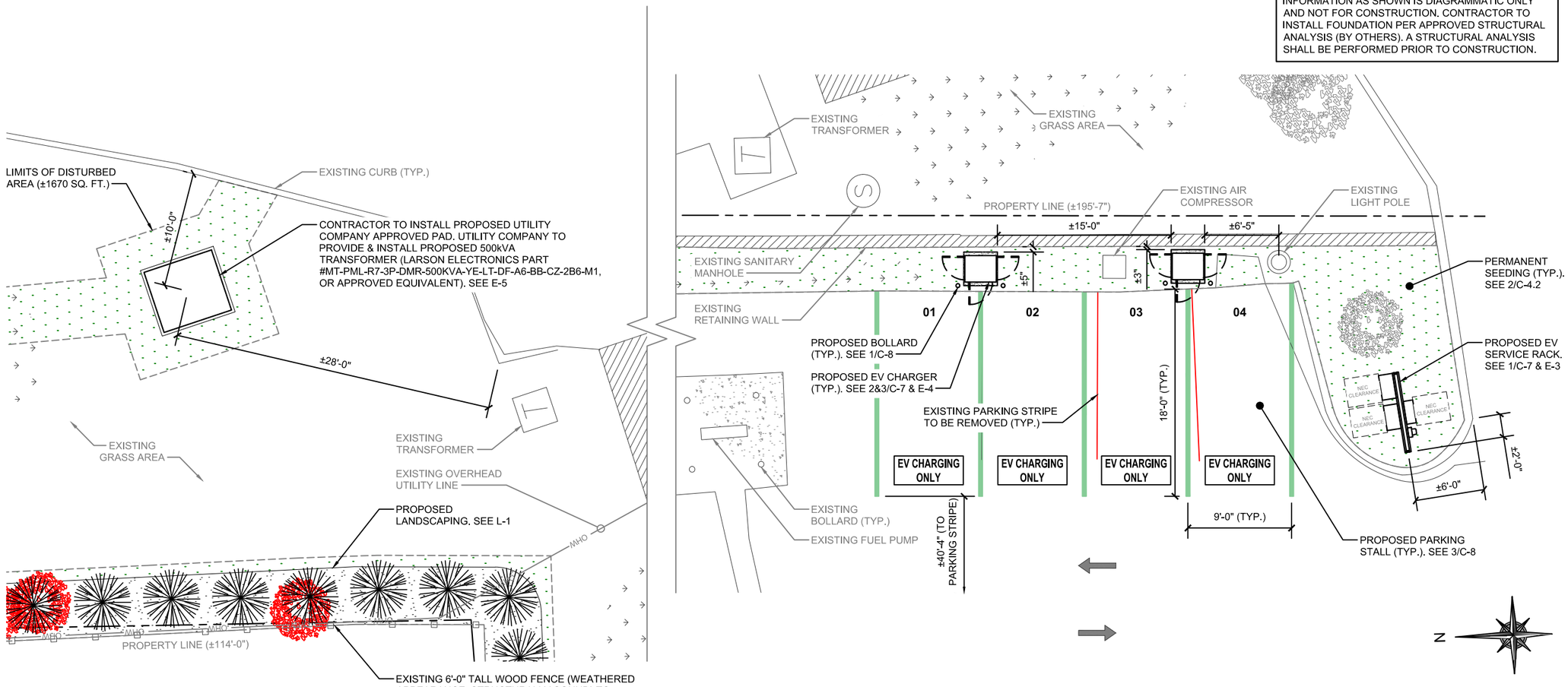
8. ROOFTOP CONDUIT UTILIZING NON-PENETRATING SUPPORTS MAY BE USED IN ADDITION IF APPROVED BY PROPERTY OWNER.

NOTE (ALL PROPOSED CONCRETE PADS):
WT'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL ANALYSIS OF THE CONCRETE PAD. THE CONCRETE DIMENSIONS, ANCHORING AND REBAR INFORMATION AS SHOWN IS DIAGRAMMATIC ONLY AND NOT FOR CONSTRUCTION. CONTRACTOR TO INSTALL FOUNDATION PER APPROVED STRUCTURAL ANALYSIS (BY OTHERS). A STRUCTURAL ANALYSIS SHALL BE PERFORMED PRIOR TO CONSTRUCTION.



ENLARGED SITE PLAN

SCALE: 1" = 10'-0"

1

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ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

LEGEND

XXX.XX	PROPOSED CONTOUR (FT)
XXX.XX	PROPOSED ELEVATION (FT)
T/F=XXX.XX T/P=XXX.XX	FOUNDATION/PAVEMENT ELEVATIONS (FT)
XXX.XX	INVERT/INLET (FT)
XXX.XX	PROPOSED SPOT GRADE (FT)
LF	LINEAR FEET
T/F	TOP OF FOUNDATION (CONCRETE)
T/P	TOP OF PAVEMENT (FINISHED GRADE/GRAVEL)
	FLOW DIRECTION
	PROPOSED CMP (CORRUGATED METAL PIPE)
	CENTER OF SWALE
	PROPOSED CONTOUR

DISTANCES TO EXISTING BODIES OF WATER	
DIRECTION	
NORTH (PONTIAC LAKE)	±290'-0"
SOUTH (CEDAR CREEK)	±2575'-0"
EAST (INLET TO PONTIAC LAKE)	±660'-0"
WEST (UNNAMED PONDS)	±2690'-0"

NOTE:
DUE TO EXISTING TOPOGRAPHY, A GRADING PLAN IS NOT REQUIRED.

NOTE:
CHARGE-X USA SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF SESC MEASURES UNTIL FINAL STABILIZATION.

NOTE:
THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY CHARGE-X USA.

NOTE:
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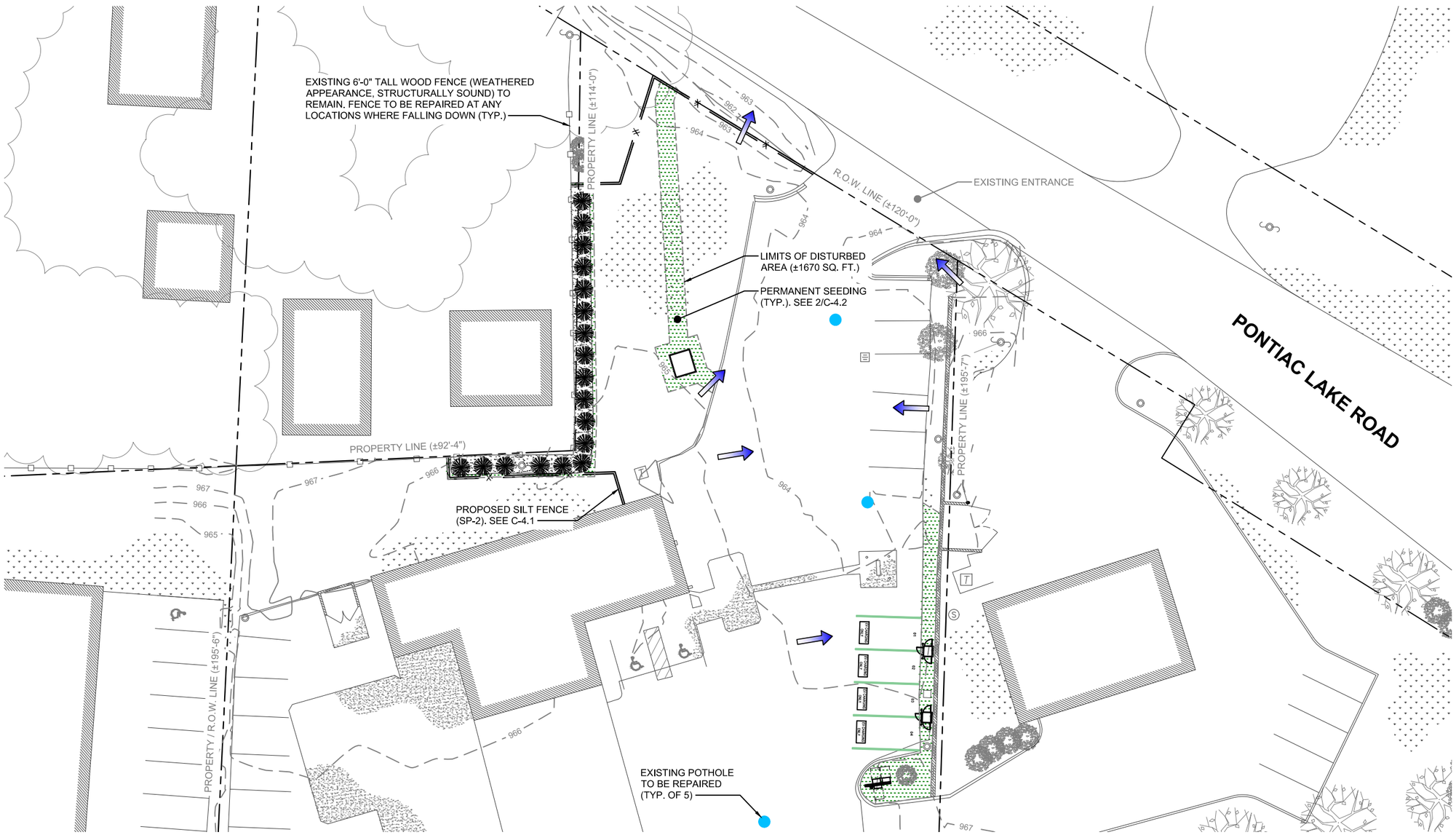

0' 30' 60' 90'

SCALE: 1" = 30'-0"

SOIL EROSION CONTROL PLAN

SCALE: 1" = 30'-0"

1

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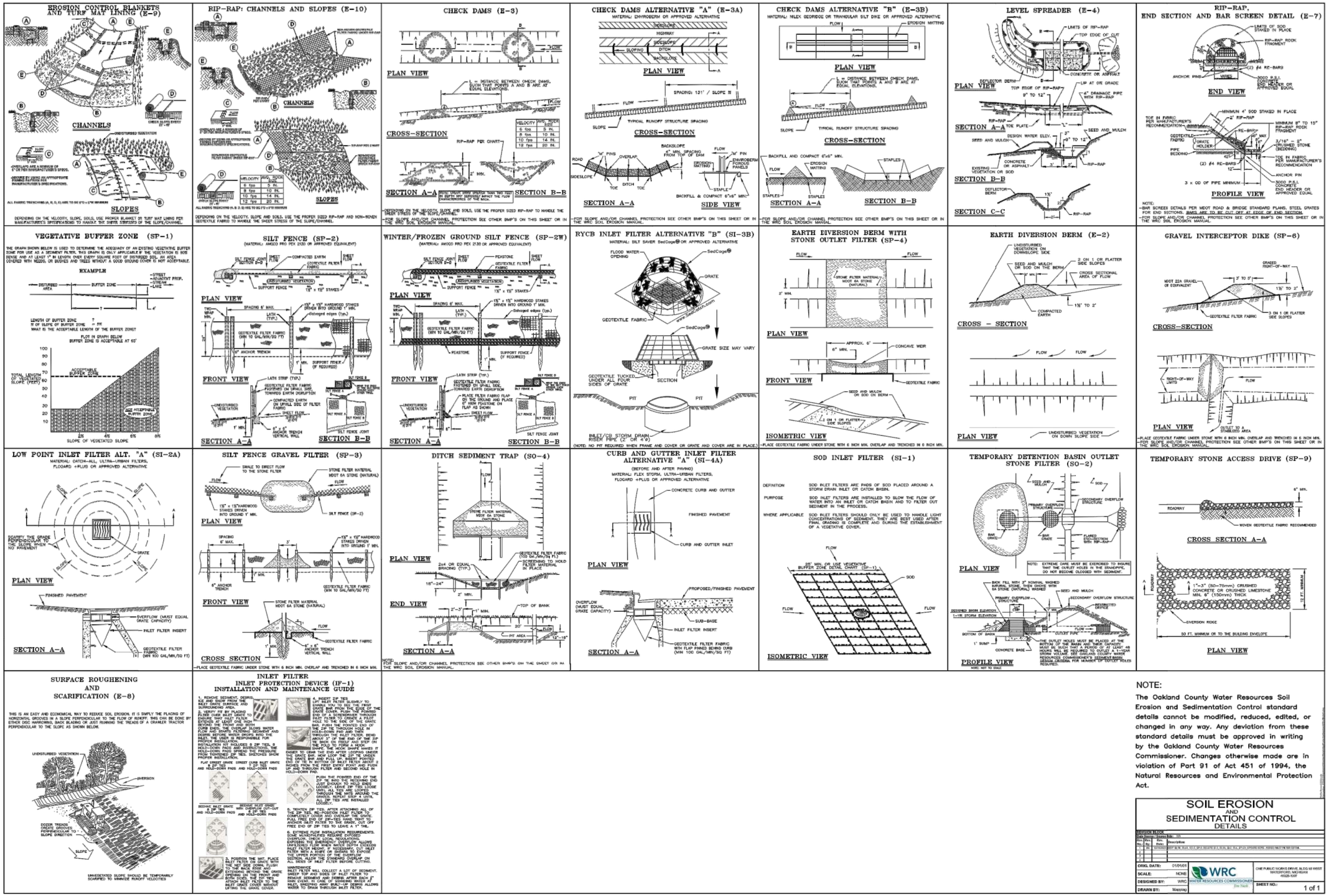
SOIL EROSION CONTROL PLAN



NOTE:

The Oakland County Water Resources Soil Erosion and Sedimentation Control standard details cannot be modified, reduced, edited, or changed in any way. Any deviation from these standard details must be approved in writing by the Oakland County Water Resources Commissioner. Changes otherwise made are in violation of Part 91 of Act 451 of 1994, the Natural Resources and Environmental Protection Act.

SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

REVISION BLOCK

Date	Revision	Expires Date	BY
03/18/26	0	03/23/26	JTB
05/20/26	1	06/12/26	JTB
07/16/26	2	07/16/26	JTB
09/02/26	3	09/02/26	JTB

Rev.	Rev. Date	Description
0	03/23/26	INITIATED EDIT IN WE. MAKE TOTAL SHEET REVISIONS BY L. ULISH, SEE TOTAL SHEET REVISIONS.
1	06/12/26	UPDATED EDIT IN WE. MAKE TOTAL SHEET REVISIONS BY L. ULISH, SEE TOTAL SHEET REVISIONS.
2		
3		
4		
5		

CRSG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: Mapping

WRC WATER RESOURCES COMMISSIONER
Jim Nash

ONE PUBLIC WORKS DRIVE, BLDG 95 WEST
WATERFORD, MICHIGAN
48328-1087

SHEET NO.: 1 of 1

DETAILS FROM WRC

WRC SOIL EROSION DETAILS

SCALE: NONE

1

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CHECK: JKR
DRAWN: JTB
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C-130
WRC EROSION DETAILS

SEQUENCE OF CONSTRUCTION:

- INITIALIZATION
  - TRENCH AND LAY CONDUIT FOR THE UTILITY TO INTERCEPT THE PRIMARY LINE FROM THE EXISTING XFMR TO THE NEW XFMR
  - TRENCH FROM NEW XFMR TO A FREE-STANDING SERVICE RACK –> LAY CONDUIT
  - ASSEMBLE THE SERVICE RACK AND ATTACH THE CT CABINET, CT METER, DISCONNECT 1, AND DISCONNECT 2
  - TRENCH FROM D1 TO FIRST EV CHARGER ON GRASS –> LAY CONDUIT
  - TRENCH FROM D2 AND SAW CUT CEMENT ABOUT 10-15 FEET TO CHARGER 2 --> LAY CONDUIT
  - RE-POUR CEMENT
- INSTALLATION
  - DROP THE PRE-CAST TRANSFORMER PAD OVER THE TRENCHED TRANSFORMER WINDOWS
  - TRENCH 35X35 L X W DOWN TO THE FREEZE LINE FOR EACH CHARGER PAD
  - POUR CEMENT FOR THE PADS
  - DROP CHARGERS ON PADS
  - BACKFILL AND COMPACT

ITEMIZED ESTIMATED COST LIST:

- TRENCHING: $3,782.63
- SAW-CUTTING CEMENT: $1,537.28
- POURING CONCRETE FOR 8" AND 12" SONOTUBES: $850.00
- SERVICE: $26,127
  - METER BASE
  - CT CABINET
  - D1
  - D2
  - 3" RIGID PIPE
  - PVC PIPE
  - WIRE
- POURING CEMENT FOR 35X35 PADS: $5,135.00
- PRE-CAST XFMR PAD W/COST OF INSTALLATION: $1900.00
- REPOUR CEMENT AFTER SAW-CUTTING: $2286.93
- DROPPING CHARGERS W/COST OF INSTALLATION: $4563.28
- BACKFILLING AND COMPACTION: $2,517.00
- TOTAL COST: $48,699.12

SEQUENCE OF CONSTRUCTION — **1**

SCALE: NONE

SEEDING SCHEDULE FOR WINTER / SPRING CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

SPECIES	RATE (LB/ACRE)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

SEEDING DATES

MOUNTAINS – ABOVE 2500 FT:	FEB 15 - MAY 15
BELOW 2500 FT.:	FEB. 1 - MAY 1
PIEDMONT --	JAN. 1 - MAY 1
COASTAL PLAIN –	DEC. 1 - APR. 15

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
RE-FERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, RE-FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SEEDING SCHEDULE FOR SUMMER CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

SPECIES	RATE (LB/ACRE)
COMMON BERMUDA GRASS	40-80 (1-2 LB/1,000 SQ. FT.)

SEEDING DATES

COASTAL PLAIN --	APR. 1 - JULY
PIEDMONT –	APR. 15 - JUNE 30

SOIL AMENDMENTS
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 500 LB/ACRE 10-10-10 FERTILIZER.

MULCH
USE JUTE, EXCELSIOR MATTING, OR OTHER EFFECTIVE CHANNEL LINING MATERIAL TO COVER THE BOTTOM OF CHANNELS AND DITCHES. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGE NOT REQUIRING TEMPORARY LINING, APPLY 4,000 LB/ACRE GRAIN STRAW AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MAINTENANCE
A MINIMUM OF 3 WEEKS IS REQUIRED FOR ESTABLISHMENT. INSPECT AND REPAIR MULCH FREQUENTLY. RE-FERTILIZE THE FOLLOWING APR. WITH 50 LB/ACRE NITROGEN.

SOIL STABILIZATION - SEEDING — **2**

SCALE: NONE

NOT USED — **3**

SCALE: NONE

NOT USED — **4**

SCALE: NONE

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DRAWN: JTB
JOB: T2600207

C-131
CONSTRUCTION DETAILS

National Flood Hazard Layer FIRMette

FEMA

83°27'18"W 42°39'50"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

83°26'41"W 42°39'23"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/8/2026 at 5:39 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

N

FEMA FIRMETTE MAP | 1

SCALE: NONE

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STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057985
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

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ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

FEMA FIRMETTE MAP

U.S. Fish and Wildlife Service
National Wetlands Inventory

8320 Highland

April 8, 2026

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

N

WETLANDS MAP | 1

SCALE: NONE

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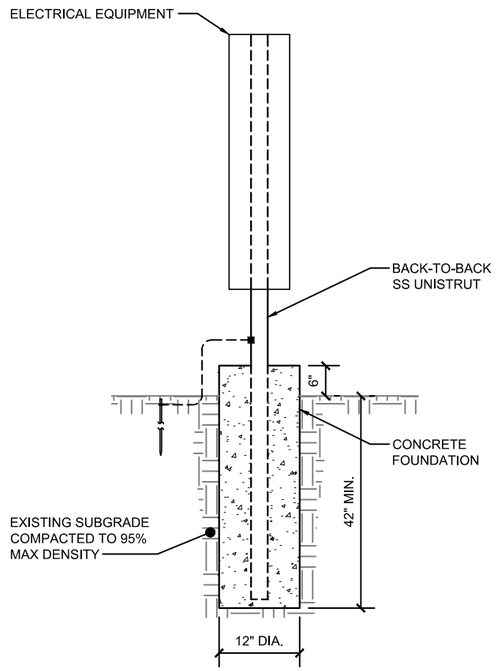
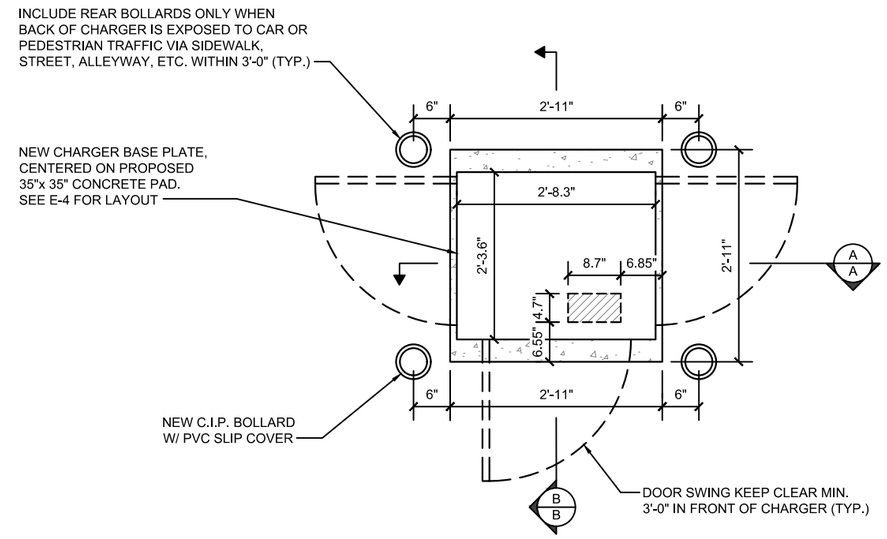


EQUIPMENT RACK & FOUNDATION DETAIL

SCALE: NONE

1



CHARGER EQUIPMENT PAD PLAN

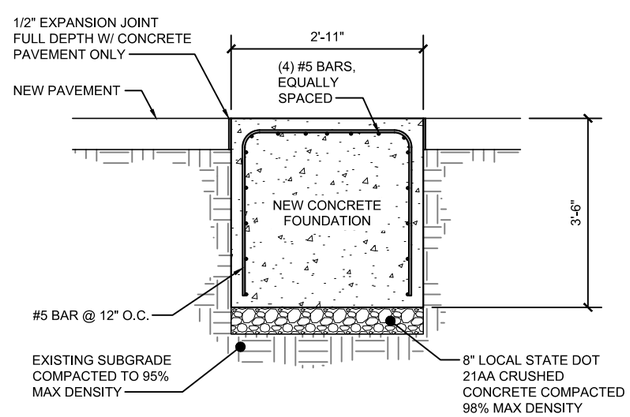
SCALE: NONE

2

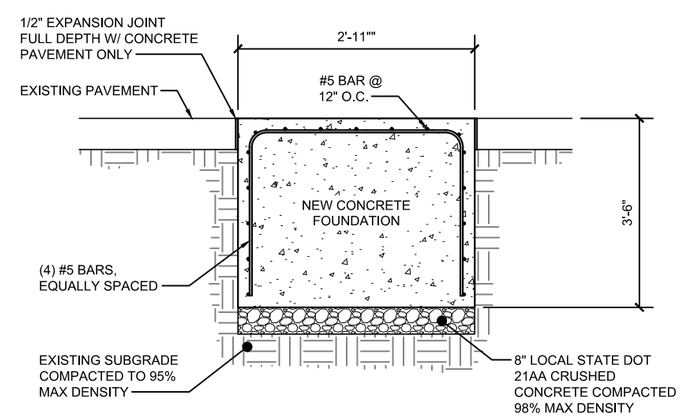
NOTE (ALL PROPOSED CONCRETE PADS):
WT'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL ANALYSIS OF THE CONCRETE PAD. THE CONCRETE DIMENSIONS, ANCHORING AND REBAR INFORMATION AS SHOWN IS DIAGRAMMATIC ONLY AND NOT FOR CONSTRUCTION. CONTRACTOR TO INSTALL FOUNDATION PER APPROVED STRUCTURAL ANALYSIS (BY OTHERS). A STRUCTURAL ANALYSIS SHALL BE PERFORMED PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES:

1. PROVIDE 3" MIN. CLEAR SPACE FROM EDGE OF PAD FOR ALL MOUNTING ANCHORS OR PENETRATIONS.
2. ALL CONCRETE TO USE LOCAL STATE DOT CONCRETE MIX 4000HP, 4000 PSI



SECTION "A-A"



SECTION "B-B"

CHARGER EQUIPMENT PAD SECTION

SCALE: NONE

3

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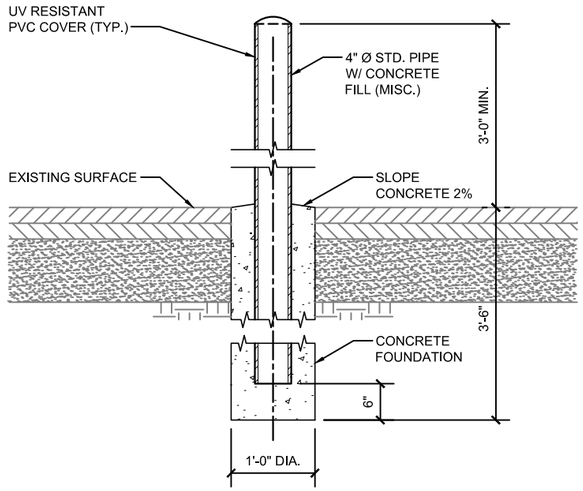
NOTE:
ALL BOLLARDS ARE TO BE PRIMED AND COVERED WITH 1/4" IDEAL SHIELD PVC COVER, OR APPROVED EQUAL. COLOR TO BE COORDINATED WITH OWNER.



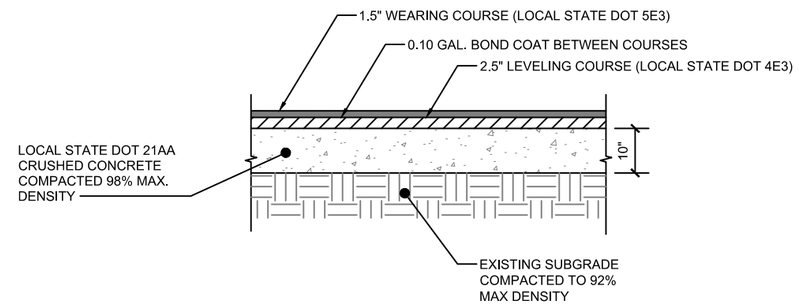
CAST-IN-PLACE (C.I.P.) BOLLARD DETAIL

SCALE: NONE

1

NOTES:

1. ASPHALT SHALL BE SAW CUT FULL DEPTH AND REMOVED WITH A CLEAN EDGE. ALL BROKEN OR DETERIORATED ADJACENT SURFACES SHALL BE REMOVED AND REPLACED AS PART OF THIS PROJECT.
2. ALL ADJACENT EDGED SHALL BE HOT ROLLED OVERLAPPED JOINTS WITH LIKE IN KIND CONCRETE WEAR COURSE. ALL SURFACES SHALL BE CLEANED, DRY, AND FREE OF DEBRIS BEFORE APPLYING BOND COMPOUND COAT.

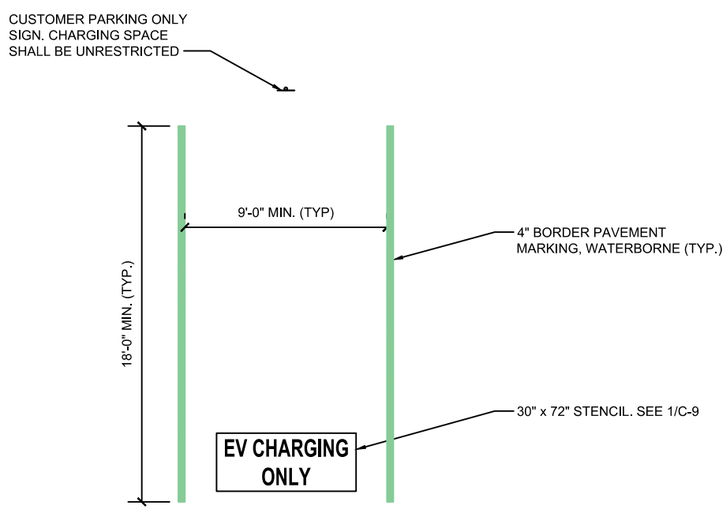


NOTE:
ALTERNATE PATCH - TO BE USED AT OWNER'S DISCRETION.

ASPHALT PAVEMENT DETAIL

SCALE: NONE

2



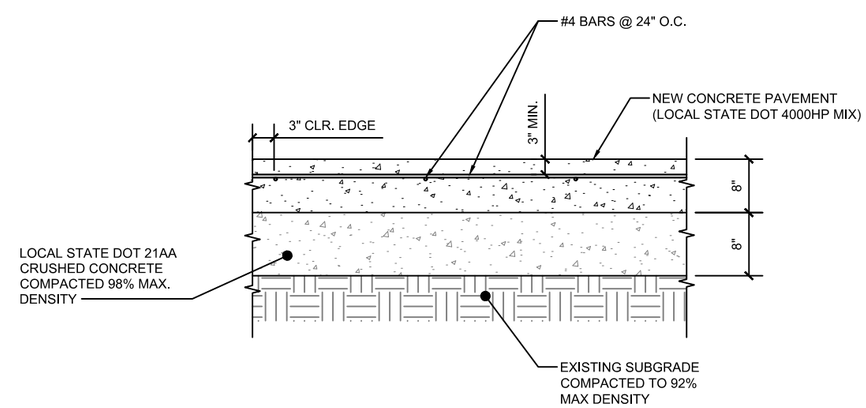
NOTE:
ALL NEW PAVEMENT MARKINGS TO BE GREEN OR AS APPROVED BY OWNER.

NOTE:
ONLY FOR USE ON CONCRETE AND ASPHALT PAVEMENT WHEN APPLICABLE.

PARKING SPACE PAVEMENT MARKINGS

SCALE: NONE

3



CONCRETE PAVEMENT DETAIL

SCALE: NONE

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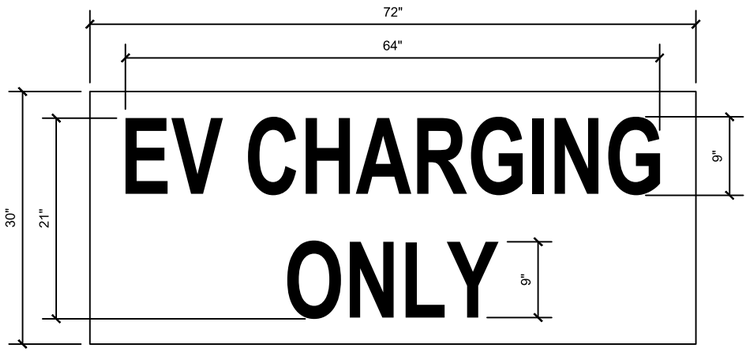
SITE DETAILS



NOTE:
CHARGE-X USA TO PROVIDE SIGNS IN CHARGER SHIPPING CRATES.

EV STENCIL DETAIL

SCALE: NONE

1

NOT USED

SCALE: NONE

2

NOT USED

SCALE: NONE

3

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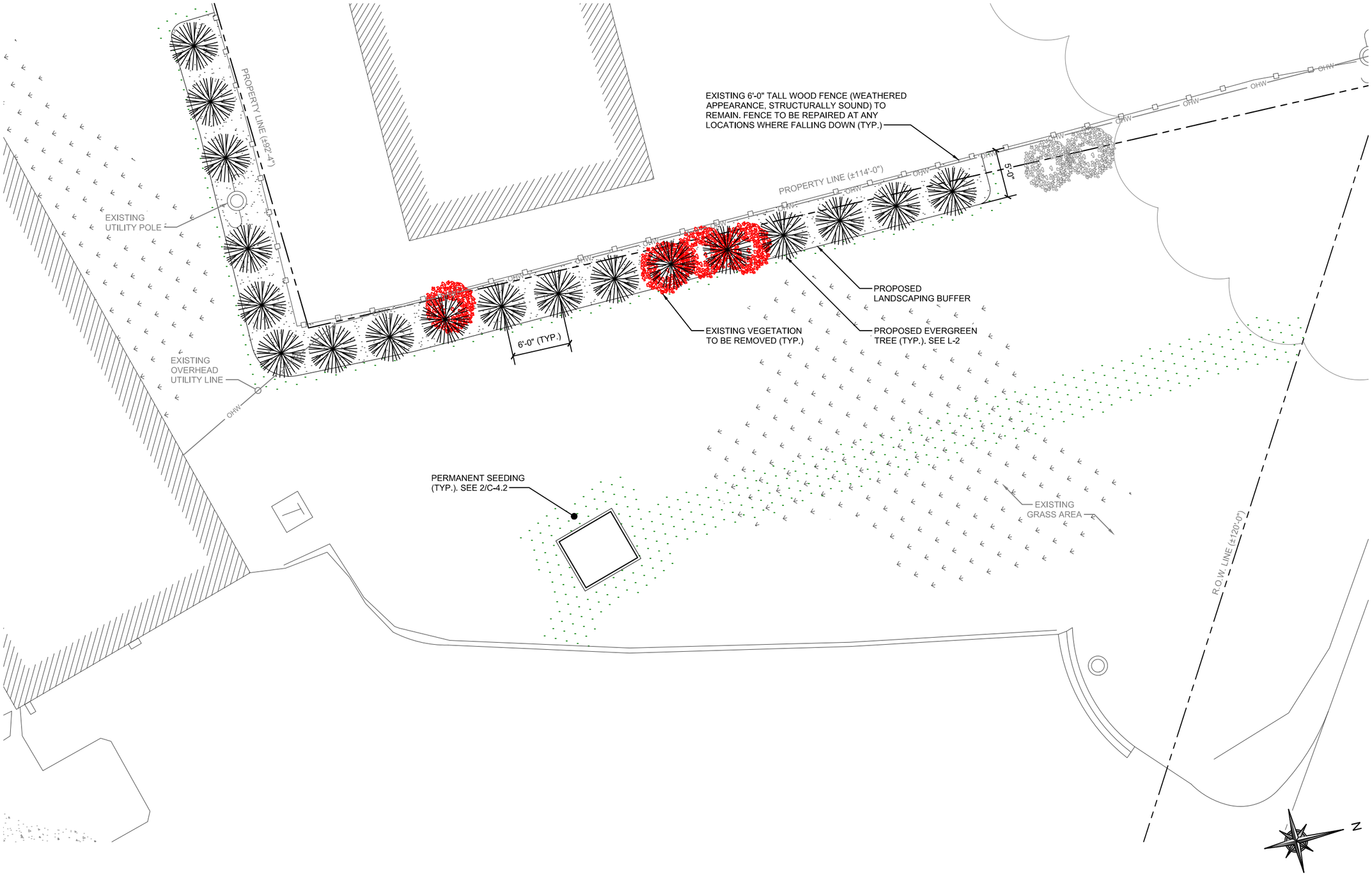
SITE DETAILS

LANDSCAPE CHART

QTY.	COMMON NAME	SCIENTIFIC NAME	HT. AT INSTALL	SPACING	ROOTBALL	OVERALL PROJECTED HEIGHT
18	MISSION ARBORVITAE	thuja occidentalis 'mission'	6'-0"	6'-0" O.C. MAX	B/B	10'-0"

NOTE:
LAND OWNER WILL BE RESPONSIBLE FOR MAINTAINING AND WATERING ALL LANDSCAPING ON SITE.



0' 10' 20' 30'
SCALE: 1" = 10'-0"

LANDSCAPING PLAN

SCALE: 1" = 10'-0"

1

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ALL PLACEMENT OF LANDSCAPING SHALL MEET THE FOLLOWING CONDITIONS:

1. ALL PLANT MATERIAL SHALL BE PLANTED IN A MANNER WHICH IS NOT TO INTERFERE WITH OVERHEAD WIRES OR BE INTRUSIVE TO UTILITIES OR PAVEMENT.
2. NO TREES OR OTHER LANDSCAPING SHALL BE LOCATED CLOSER THAN 10 FEET TO A FIRE HYDRANT OR OTHER ABOVE GROUND UTILITIES.
3. NO LANDSCAPING SHALL INTERFERE WITH SITE REQUIREMENTS FOR SAFE INGRESS AND EGRESS.

INSTALLATION STANDARDS:

1. PLANT MATERIAL SHALL CONFORM WITH THE CURRENT AMERICAN STANDARDS FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN FOR THAT TYPE OF TREE OR SHRUB AT THE TIME OF INSTALLATION.
2. ALL TREES SHALL BE GROWN IN A NURSERY LOCATED IN THE STATE OF MICHIGAN.
3. ALL PLANT MATERIAL SHALL BE INSTALLED FREE OF DISEASE AND IN A MANNER THAT ENSURES THE AVAILABILITY OF SUFFICIENT SOIL AND WATER TO SUSTAIN HEALTHY GROWTH.
4. ALL TAGS, WIRES, PLASTIC TIES AND ROPE SHALL BE CUT FROM EACH TREE TO PREVENT GIRDLING OF THE TREE. THE BURLAP SHALL BE PULLED BACK FROM THE UPPER THIRD OF THE ROOTBALL. IF A PLASTIC 'BURLAP' IS USED, IT SHALL BE REMOVED IN ITS ENTIRETY FROM THE ROOTBALL.
5. ALL PLANT MATERIAL SHALL BE PLANTED WITH A MINIMUM OF DEPTH OF THREE (3) INCHES OF MULCHED MATERIAL AND A DIAMETER OF THREE (3) FEET AROUND THE BASE OF THE TREE.
6. TREES SHALL BE STAKED WITH POSTS AND NOT STAKES IN AREAS OF HIGH WIND FOR ONE TO THREE YEARS TO ALLOW THE GROWTH OF PROPOSED ROOTS TO STABILIZE. ALL ROPES SHALL BE COVERED TO PREVENT CUTTING INTO THE BARK.
7. ANY EXCESS SOIL, CLAY, OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PLANTING SITE, PRIOR TO PLANTING OF INDIVIDUAL TREES AT FINAL GRADE.
8. THE JURISDICTION, AT ITS DISCRETION, HAS THE RIGHT TO RETAIN A PROFESSIONAL LANDSCAPE ARCHITECT OR ARBORIST TO REVIEW SUBMITTED LANDSCAPE PLAN AND THE PROFESSIONAL LANDSCAPE ARCHITECT OR ARBORIST WILL SUBMIT A WRITTEN REPORT TO THE PLANNING AND ZONING COMMISSION. ALL EXPENSES INCURRED BY THE JURISDICTION FOR THE USE OF THE LANDSCAPE ARCHITECT OR ARBORIST SHALL BE REIMBURSED BY THE DEVELOPER.

PLANTING SEASONS:

1. PLANTS MUST BE PLANTED DURING THE FOLLOWING DATES: APRIL 1ST TO MAY 15TH AND SEPTEMBER 1ST TO OCTOBER 1ST.
2. THE PLANTING PERIODS INDICATED MAY BE EXTENDED DUE TO WEATHER CONDITIONS OR OTHER FACTORS, WHICH MUST BE APPROVED BY THE LANDSCAPE ARCHITECT/ENGINEER.
3. THE CONTRACTOR WILL BE RELIEVED FOR HIS GUARANTEE RESPONSIBILITY SHOULD THE OWNER REQUIRE PLANT MATERIAL INSTALLATIONS TO BE COMPLETED DURING OTHER TIMES THAN THE PLANTING PERIODS INDICATED.

PLANTING:

1. ALL SHADE TREES, ORNAMENTAL TREES, EVERGREEN TREES AND SHRUBS SHALL BE PLANTED IN HOLES EXCAVATED AT LEAST 3x THE WIDTH OF THE DIAMETER OF THE BALL OR CONTAINER AND DEEP ENOUGH SO THAT THE TOP OF THE BALL OR SOIL IN THE CONTAINER IS AT OR JUST ABOVE EXISTING GRADE.
2. ALL TWINE OR ROPE MUST BE CUT AND REMOVED AND THE BURLAP FOLDED AWAY FROM THE TOP OF THE BALL. THE EXCAVATION MUST BE BACKFILLED WITH THE PLANTING MIXTURE AND WATERED. ANY SETTLEMENT WILL BE FILLED WITH PLANTING MIXTURE.
3. A 4" DEEP SAUCER, SIMILAR TO THE DIAMETER OF THE PLANTING HOLE SHALL BE CREATED USING PLANTING MIX.
4. PLANTING MIX TO CONSIST OF 1/3 TOP SOIL, 1/3 SOIL FROM EXCAVATION, AND 1/3 MUSHROOM COMPOST (OR 1/3 PEAT MOSS).

CLEAN UP:

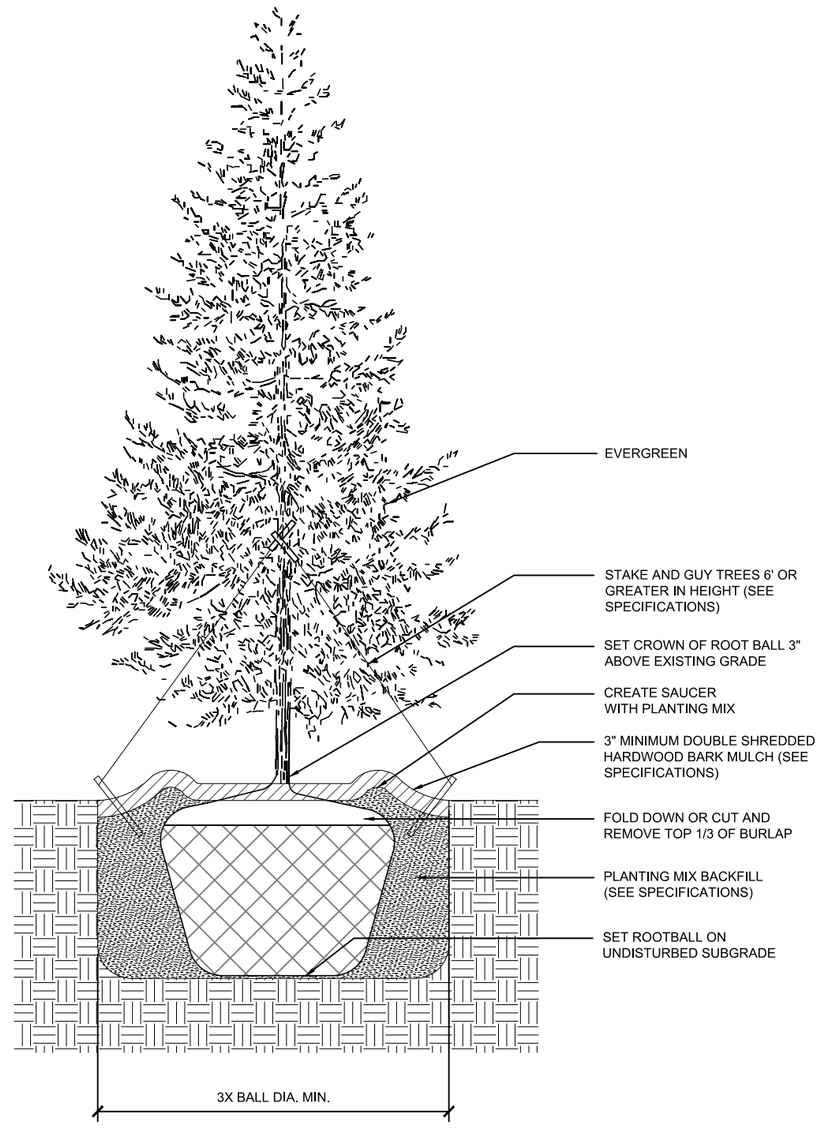
1. ALL DEBRIS GENERATED DURING THE INSTALLATION OF PLANT MATERIALS MUST BE REMOVED FROM THE SITE.
2. ALL PAVEMENTS AND WALKS MUST BE SWEPT AFTER EACH DAYS WORK. UPON COMPLETION OF THE WORK, ALL PAVEMENTS MUST BE WASHED TO REMOVE ALL MUD OR DIRT.

NOTES

SCALE: NONE

1

NOTE:
ALL MATERIALS SURROUNDING THE TREE ROOT BALL, INCLUDING WIRING, ARE TO BE REMOVED PRIOR TO PLANTING OF TREES.



LANDSCAPING DETAIL

SCALE: NONE

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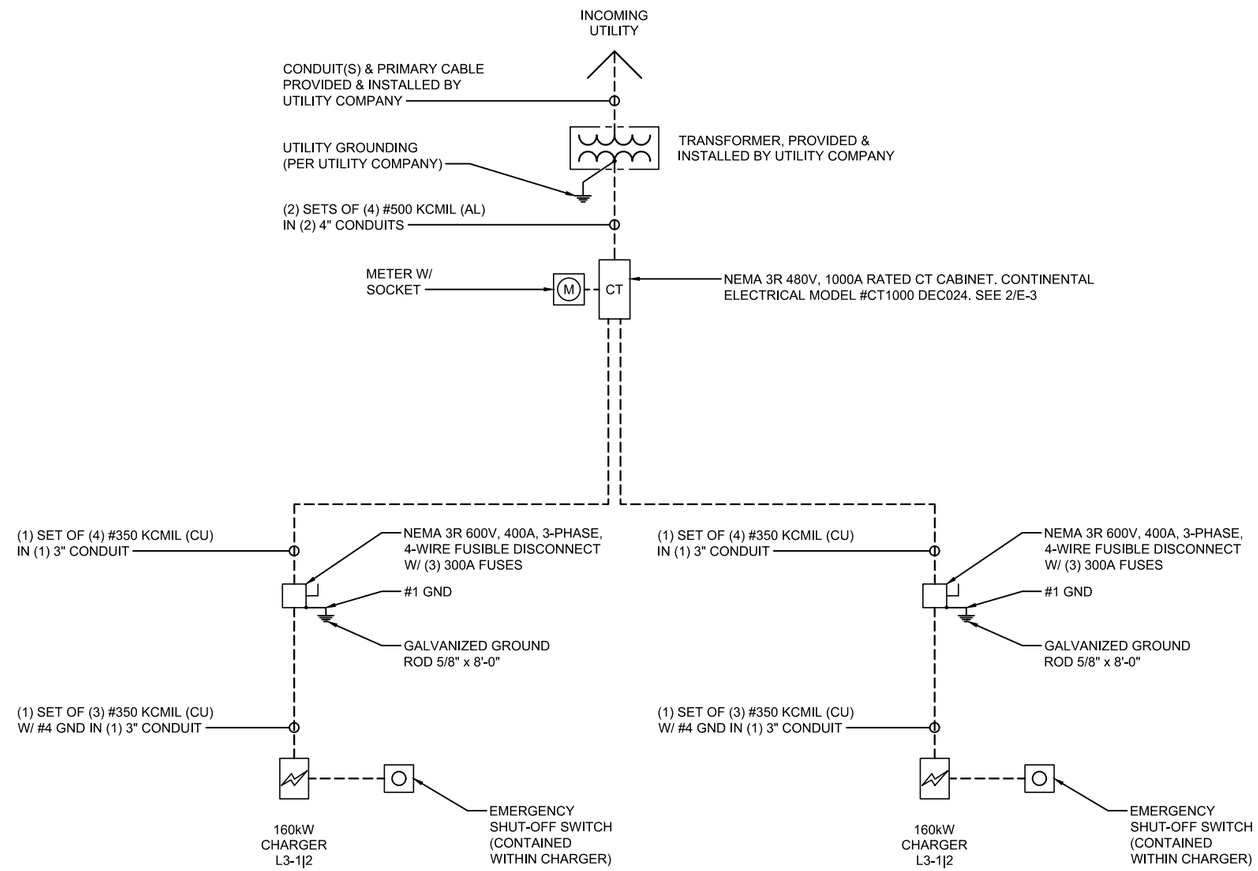
LANDSCAPING D
NOTES

GENERAL NOTES:

1. 1000VDC AND 600VAC CONDUCTORS ARE BASED ON 75°C COLUMN OF NEC TABLE 310.15B(16).
2. METER LOCATION SHALL BE ACCESSIBLE FOR READING AND SERVICING. UTILITY COORDINATION IS ONGOING.
3. UTILITY COORDINATION IS ONGOING. RESPONSIBILITY OF PRIMARY AND SECONDARY TERMINATIONS SHALL BE COMPLETED BY THE UTILITY COMPANY. CONTRACTOR SHALL SUPPLY CONDUIT ONLY ON PRIMARY SIDE AS SPECIFIED BY THE UTILITY COMPANY. TRANSFORMER SIZED AND PROVIDED BY THE UTILITY COMPANY. CONTRACTOR TO INSTALL PER UTILITY COMPANY GUIDELINES.
4. #4 SOLID AWG CU GROUNDING ELECTRODE CONDUCTOR PER 250.66(A) TO ROD.
5. GROUNDING ELECTRODE 5/8" x 8'-0" GALVANIZED GROUND ROD INSTALLATION PER NEC 250.52(A)(5), 250.53(A) AND 250.56. THERE SHALL BE TWO GROUND RODS SEPARATED BY SIX FEET OR MORE, OR PROVIDE A CERTIFIED TEST SHOWING THAT THE RESISTANCE TO GROUND IS 25 OHMs OR LESS.
6. PROVIDE NAMEPLATES IDENTIFYING ALL NEW PANELBOARDS, DISCONNECTS, AND BRANCH CIRCUITS PER NEC 230.2(E) AND 225.37. AT EACH DISCONNECTING LOCATION, A PERMANENT PLAQUE DIRECTORY SHALL BE PROVIDED DENOTING ALL SERVICE FEEDERS SUPPLYING/PASSING THROUGH THE BUILDING FOR AREA SERVED BY EACH.
7. CONTRACTOR SHALL PROVIDE A NAMEPLATE FOR ALL EMERGENCY STOP SWITCHES OR SAFETY DISCONNECTS THAT READS, "EV CHARGING EQUIPMENT EMERGENCY SHUTDOWN" AT EACH LOCATION.
8. ALL EQUIPMENT SHALL HAVE THE ABILITY TO BE LOCKABLE IN THE OPEN.

PENDING UTILITY COORDINATION



CONDUIT NOTE:

ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE-GRADE CONDUIT (INCLUDING CONDUIT ASSOCIATED WITH FREE-STANDING OR WALL-MOUNTED SERVICE EQUIPMENT) SHALL BE SCHEDULE 40 PVC, UNLESS THE ABOVE-GRADE RUN LENGTH IS GREATER THAN OR EQUAL TO (5) FEET, IN WHICH CASE SCHEDULE 80 PVC SHALL BE UTILIZED.

TRENCHING NOTE:

PROPOSED TRENCHING ROUTE IS SCHEMATIC AND SUBJECT TO MODIFICATION BASED ON FIELD CONDITIONS AND/OR IDENTIFICATION OF A MORE EFFICIENT ROUTING METHOD. ALL TRENCHING SHALL AVOID EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL COORDINATE UTILITY LOCATING THROUGH MISS DIG PRIOR TO EXCAVATION.

NOTE:
- CONTRACTOR TO PLAN FOR MULTIPLE LUGS FOR PARALLEL RUNS

ONE-LINE DIAGRAM

SCALE: NONE

1

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LEGEND

TRENCHING ROUTE

PENDING UTILITY COORDINATION

CONDUIT NOTE:

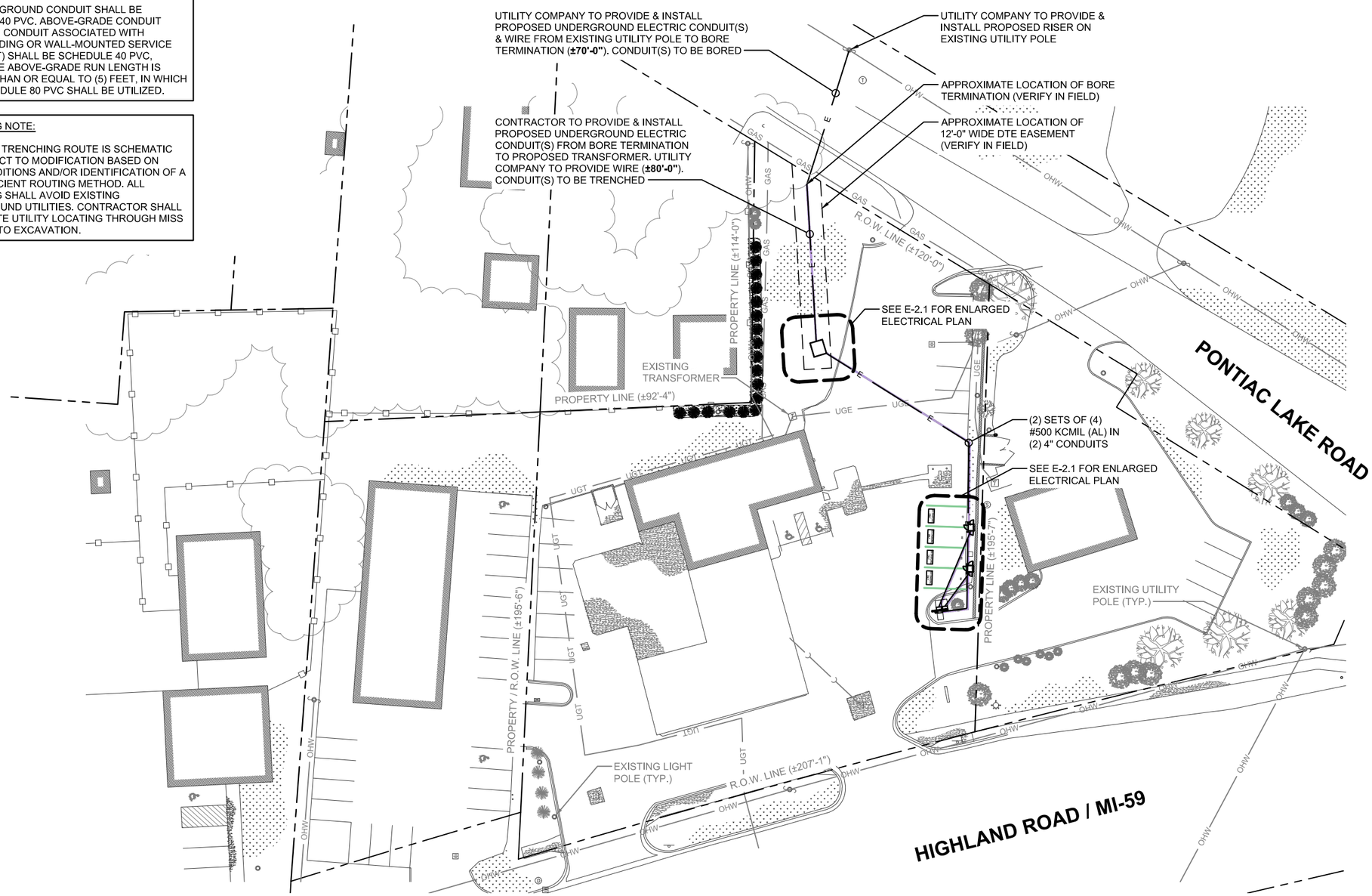
ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE-GRADE CONDUIT (INCLUDING CONDUIT ASSOCIATED WITH FREE-STANDING OR WALL-MOUNTED SERVICE EQUIPMENT) SHALL BE SCHEDULE 40 PVC, UNLESS THE ABOVE-GRADE RUN LENGTH IS GREATER THAN OR EQUAL TO (5) FEET, IN WHICH CASE SCHEDULE 80 PVC SHALL BE UTILIZED.

TRENCHING NOTE:

PROPOSED TRENCHING ROUTE IS SCHEMATIC AND SUBJECT TO MODIFICATION BASED ON FIELD CONDITIONS AND/OR IDENTIFICATION OF A MORE EFFICIENT ROUTING METHOD. ALL TRENCHING SHALL AVOID EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL COORDINATE UTILITY LOCATING THROUGH MISS DIG PRIOR TO EXCAVATION.

LEGEND

GAS	GAS LINE
OHW	OVERHEAD UTILITY LINE
	STORM SEWER LINE
UGE	UNDERGROUND ELECTRIC LINE
UGT	UNDERGROUND TELCO LINE



OVERALL ELECTRICAL PLAN

SCALE: 1" = 50'-0"

1

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Hoffman Estates, IL 60192
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WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

REV.	ISSUED FOR	DATE	BY
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JOB: T2600207

OVERALL ELECTRICAL PLAN

LEGEND

TRENCHING ROUTE

PENDING UTILITY COORDINATION

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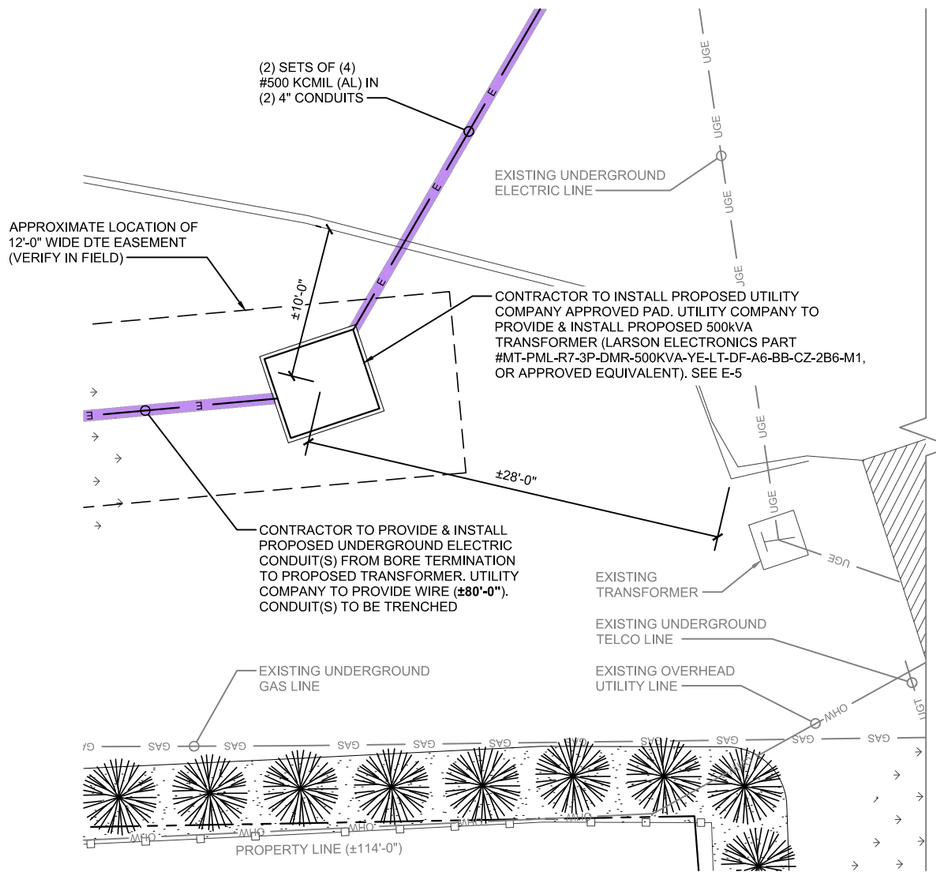
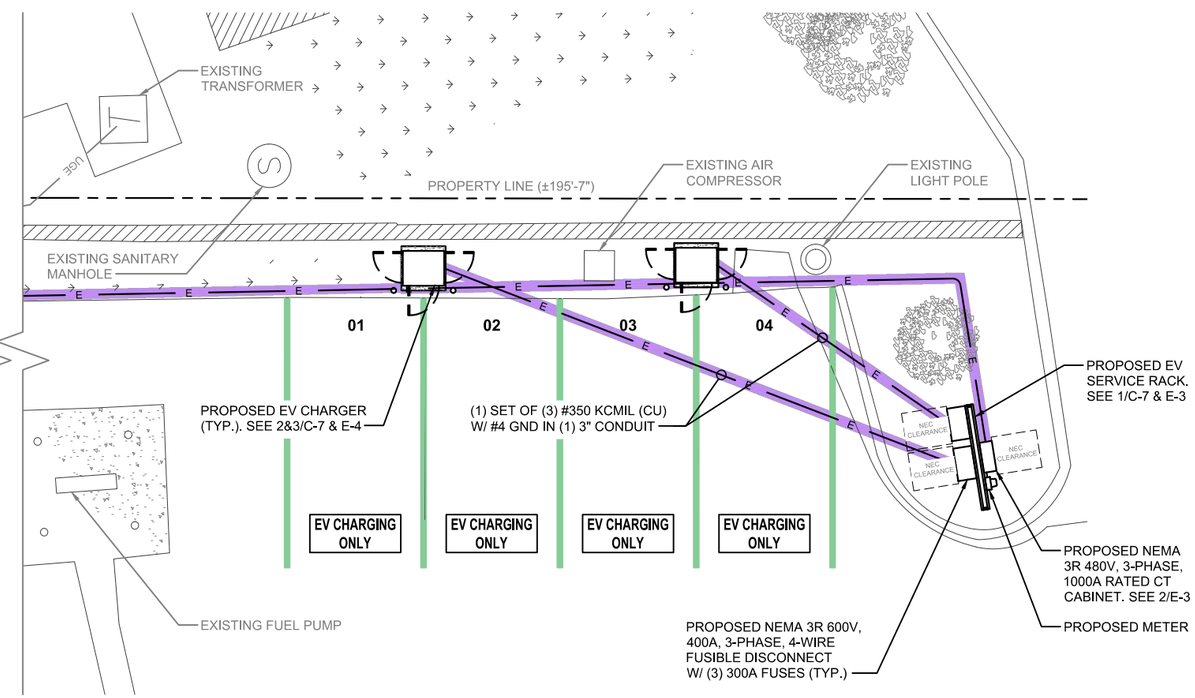
LEGEND

- GAS — GAS LINE
- OHW — OVERHEAD UTILITY LINE
- STORM SEWER LINE
- UGE — UNDERGROUND ELECTRIC LINE
- UGT — UNDERGROUND TELCO LINE





N

0' 10' 20' 30'

SCALE: 1" = 10'-0"

ENLARGED ELECTRICAL PLAN

SCALE: 1" = 10'-0"

1

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Hoffman Estates, IL 60192
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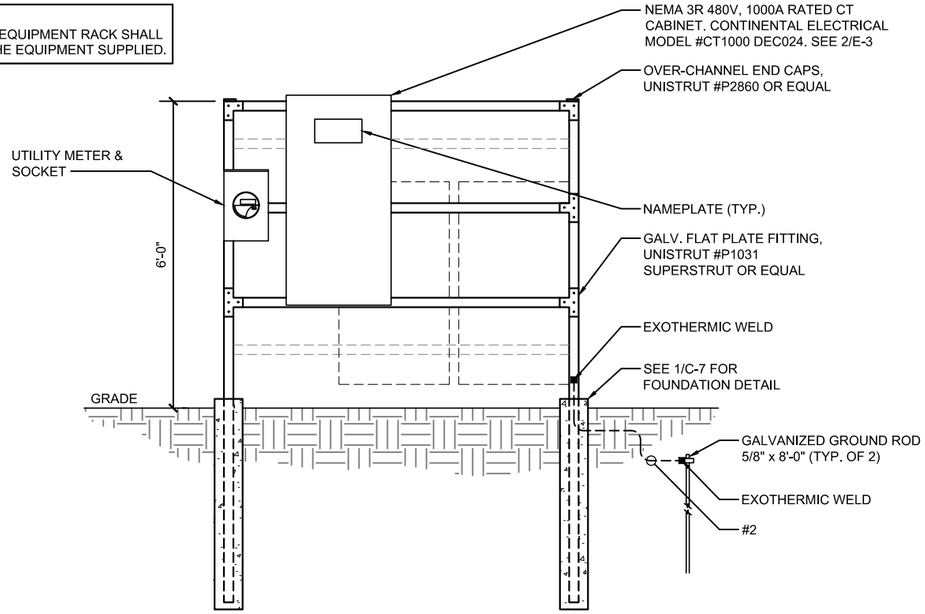
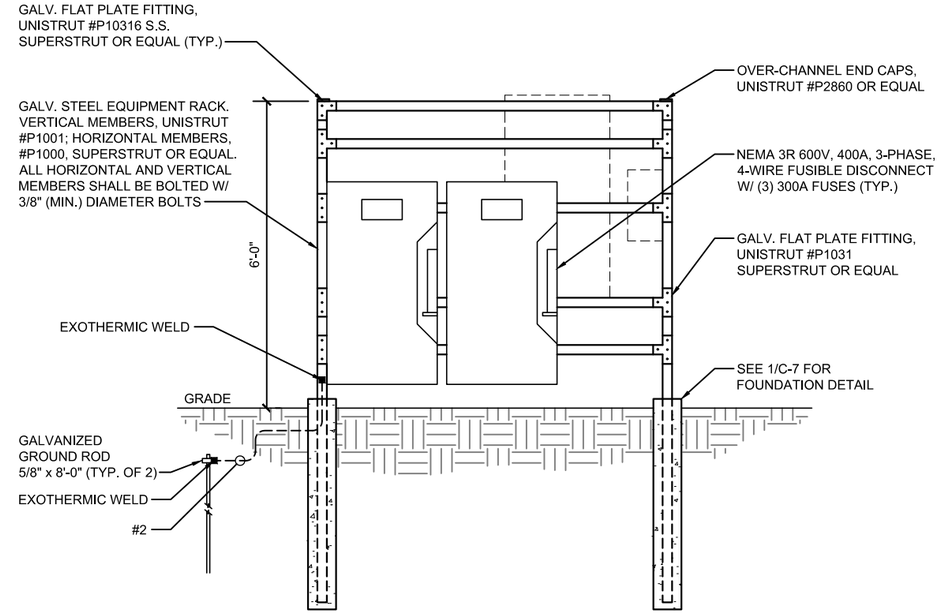
E-1
ENLARGED ELECTRICAL PLAN

NOTE:
EXACT WIDTH OF THE EQUIPMENT RACK SHALL BE DETERMINED BY THE EQUIPMENT SUPPLIED.



FRONT VIEW



REAR VIEW

EQUIPMENT RACK DETAIL

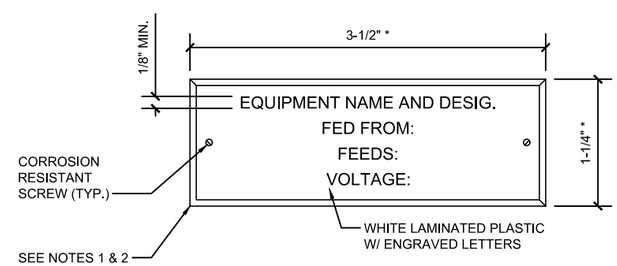
SCALE: NONE

1

CT CABINET SPECIFICATIONS

SCALE: NONE

2



* SMALLER SIZES MAY BE USED AS INDICATED; SEE SPECIFICATIONS

NOTES:

1. NAMEPLATES SHALL BE PROVIDED FOR ALL NEW BRANCH CIRCUITS IN NEW DISTRIBUTION PANELS AND RECEPTACLE PANELS.
2. NAMEPLATES SHALL BE PROVIDED FOR NEW BRANCH CIRCUITS AND/OR MODIFICATIONS TO EXISTING SWITCHGEARS, DISTRIBUTION PANELS, AND RECEPTACLE PANELS.

NAMEPLATE DETAIL

SCALE: NONE

3

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ELECTRICAL DETAILS

AUTEL

MAXICHARGER™ DC FAST 60KW-240KW WITH 20KW INCREMENTS

SPECIFICATIONS

- FLEXIBLE POWER MODULE DESIGN
- MULTIPLE CABLE & CHARGING CONNECTOR OPTIONS
- 27-INCH TOUCHSCREEN DISPLAY
- SMART CLOUD PORTAL WITH REMOTE DIAGNOSTICS
- DYNAMIC LOAD BALANCING
- ISO 15118 PLUG & CHARGE

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AUTEL

SPECIFICATIONS MAXICHARGER DC FAST 60KW-240KW WITH 20KW INCREMENTS

	DCFC 60KW-120KW	DCFC 140KW-240KW
PART NUMBERS	60kW: UF060xxxxx; 80kW: UF080xxxxx; 100kW: UF100xxxxx; 120kW: UF120xxxxx	140kW: UF140xxxxx; 160kW: UF160xxxxx; 180kW: UF180xxxxx; 200kW: UF200xxxxx; 220kW: UF220xxxxx; 240kW: UF240xxxxx
	The "xxxxx" portion of the product part number represents the various product configurations.	
ELECTRICAL		
CONNECTOR OPTION*	Dual CCS1, or CCS1 + CHAdeMO	Dual CCS1/CCS1 Boost, or CCS1 + CHAdeMO
MAX. INPUT AC CURRENT	60kW: 92A; 80kW: 122A; 100kW: 152A; 120kW: 182A	140kW: 213A; 160kW: 245A; 180kW: 276A; 200kW: 306A; 220kW: 336A; 240kW: 368A
NOMINAL INPUT AC CURRENT	60kW: 92A; 80kW: 122A; 100kW: 152A; 120kW: 182A	140kW: 213A; 160kW: 245A; 180kW: 276A; 200kW: 306A; 220kW: 336A; 240kW: 368A
INPUT VOLTAGE RANGE	400 V AC - 15 % to +10 % @ 50 Hz	
DC OUTPUT VOLTAGE	CCS1: 150 to 950 V DC; CHAdeMO: 150 to 500 V DC	
NETWORK TYPE	TN-S, TN-C, TN-C-S, & TT (External RCD** Required)	
AC INPUT CONNECTION	3P + PE (No Neutral)	
PROTECTION	Over-Current, Over-Voltage, Under-Voltage, Ground-Fault, Over-Temperature, Short-Circuit, Insulation Monitor (IMD), & Surge Protection	
OVERVOLTAGE CATEGORY	AC Side (Input) OVC III	
POWER FACTOR (> 50 % LOAD)	≥ 0.99	
THDi (> 50 % LOAD)	≤ 5 %	
PEAK EFFICIENCY	≥ 95 %	
STANDBY POWER	10 W	
SHORT CIRCUIT CURRENT RATING	≥ 10 kA	
ENERGY METERING	Class A	
USER INTERFACE & COMMUNICATION		
CONNECTIVITY	Internet Access Via 4G / Wi-Fi / Ethernet (RJ 45)	
USER AUTHENTICATION	QR Code, RFID, Credit Card (Optional)	
ISO 15118 PLUG & CHARGE	Yes	
DIN 70121	Yes	
INTERFACE	27" LCD High-Contrast Touchscreen (10.5" Optional)	
ACCESSIBLE FOR WHEELCHAIR USERS	Yes	
COMMUNICATIONS PROTOCOLS	OCPP 1.6 JSON, OCPP 2.0.1 (Can Be Upgraded Later)	
RFID READER	ISO 14443 A+B to Part 4 & ISO/IEC 15693, Mifare, NFC, Calypso, Ultralight, PayPass, MD & More	
EMERGENCY BUTTON	Yes	
SOFTWARE UPDATE	OTA Update Via Web Portal	
CONTROL AND CONFIGURATION	Web Portal, On-Board Service Portal	
GENERAL CHARACTERISTICS		
PROTECTION RATINGS	NEMA 3R Outdoor Use & IK 10	
ENCLOSURE TYPE	Stainless Steel 430	
OPERATION ALTITUDE	6561 Ft. (6561 to 9843 Ft. with Power Derating)	
OPERATING TEMPERATURE	-31 °F to +131 °F (+122 °F to +131 °F with Linear Power Derating)	
STORAGE TEMPERATURE	-40 °F to +158 °F	
HUMIDITY	< 95 % RH, Non-Condensing	
NOISE LEVEL	< 65 dB (@ no/20 %Full Load/800 VDC)	
MOUNTING	Free-Standing Cabinet	
CABLE LENGTH	18 ft (Optional: 20 or 25 ft)	
DIMENSIONS (H X W X D)	76.0"x32.5"x33.6" (1930 x 810 x 600 mm)	76.0"x 32.5"x 37.8" (1930 x 810 x 700 mm)
CERTIFICATIONS & STANDARDS		
COMPLIANCE & SAFETY	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16	
EMC COMPLIANCE	FCC Part 15 Class A, Class B (Optional)	
WARRANTY	24 Months with Warranty Extensions Available	

FC CE UK

* CCS1: Max 200A, CCS1 Boost: 300A (Max 400A) ** RCD: Residual Current Detector For Ground Fault Protection.

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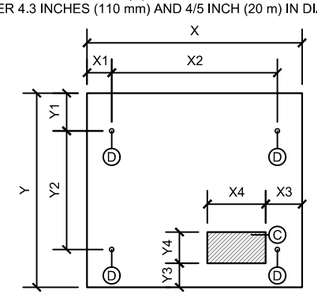
CHARGER SPECIFICATIONS

SCALE: NONE

1

PARAMETER	SPECIFICATIONS			
	MAXICHARGER DC FAST 120		MAXICHARGER DC FAST 160	
	in.	mm	in.	mm
X	32.3	820	32.3	820
Y	25.2	640	29.1	740
X1	3.7	95	3.7	95
X2	24.8	630	24.8	630
X3	5.5	140	5.5	140
X4	8.7	220	8.7	220
Y1	3.7	94.3	5.7	144.3
Y2	17.7	450	17.7	450
Y3	5.2	131	3.6	91.5
Y4	4.7	120	4.7	120

6. PLACE THE DRILLING TEMPLATE ON THE CONCRETE SURFACE, ALIGNING THE MARKED AREA (C). MARK THE FOUR MOUNTING HOLES (D) AND REMOVE THE DRILLING TEMPLATE. DRILL HOLES WITH DEPTH OVER 4.3 INCHES (110 mm) AND 4/5 INCH (20 m) IN DIAMETER. CLEAN ANY DEBRIS.



NOTE:
CHARGER BASES ARE THE SAME FOR 160kW THRU 240kW CHARGERS.

CHARGER BASE

SCALE: NONE

2

4.1.1 LOCATION REQUIREMENTS

- THE MAXICHARGER REQUIRES AN INSTALLATION SPACE OF 95.3 x 80.8 INCHES (2420 x 1950 mm, FOR MAXICHARGER DF 120) OR 103.2 x 80.7 INCHES (2620 x 2050 mm, FOR MAXICHARGER DF 160) IN ORDER TO ENSURE THE NORMAL OPERATION AND AIRFLOW AROUND THE MAXICHARGER. THE SPACE IS CALCULATED AS FOLLOWS:

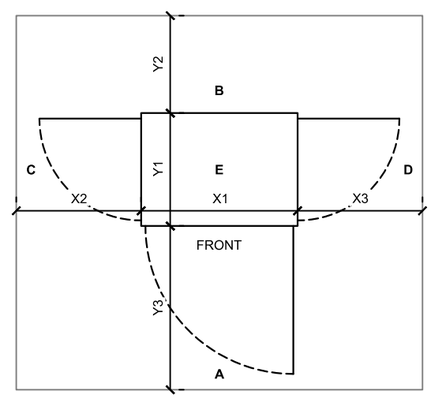


FIGURE 4-1 LOCATION REQUIREMENTS

A. FRONT SIDE OF THE MAXICHARGER

B. REAR SIDE OF THE MAXICHARGER

C. LEFT SIDE OF THE MAXICHARGER

D. RIGHT SIDE OF THE MAXICHARGER

E. CABINET

TABLE 4-1 SPACE REQUIREMENTS FOR MAXICHARGER DF 120

PARAMETER	SPECIFICATION	
	in.	mm
X1	32.3	820
X2	31.5	800
X3	31.5	800
Y1	23.6	600
Y2	19.7	500
Y3	33.5	850

TABLE 4-2 SPACE REQUIREMENTS FOR MAXICHARGER DF 160

PARAMETER	SPECIFICATION	
	in.	mm
X1	32.3	820
X2	35.4	900
X3	35.4	900
Y1	27.6	700
Y2	19.7	500
Y3	33.5	850

CHARGER CLEARANCES

SCALE: NONE

3

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CHECK: JKR
DRAWN: JTB
JOB: T2600207

ELECTRICAL EQU
SPECIFICATIONS

Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671
www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1

500 KVA Pad Mount Transformer - 12470V Delta Primary, 480Y/277 Wye-n Secondary - Copper, KNAN/Bell Green

Product ID: 152805

Please see last page for supporting documentation for this product(certificates, CAD files & drawings, IES files, wiring diagrams, etc).

Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 3PH Pad Mount Transformer	
Transformer Type: Pad Mounted, Compartmental-Type	**Ratings**
Transformer Configuration: Liquid Filled Pad Mounted	Meets/Exceeds DOE 2016 Efficiency Ratings
Transformer Feed Type: Loop Feed	Meets/Exceeds CSA Efficiency Ratings
Operation: Step-Down Operation (Not Approved for Step-Up)	Complies with ANSI / IEEE C57.12.00
Phase: Three Phase	Complies with ANSI / IEEE C57 12.28
Capacity: 500 KVA	Complies with ANSI / IEEE C57 12.29
Vector Group: DYN1	Complies with ANSI / IEEE C57 12.34
Primary Voltage: 12470V	Complies with ANSI / IEEE C57.12.35
Primary Voltage Switch: N/A	Complies with ANSI / IEEE C57.12.70
Primary Voltage Class: 15 kV Class	Complies with ANSI / IEEE C57.12.110
Primary Phase: Delta	Complies with ANSI / IEEE C57.12.131
Primary BIL: 95 KV	Complies with ANSI / IEEE C62.11
Secondary Voltage: 480Y/277	Complies with ANSI / IEEE C62.22
Secondary Voltage Class: 1.2 kV Class	Complies with ANSI / IEEE 386
Secondary Phase: Wye-N	Complies with ANSI / IEEE C2
Secondary BIL: 30 KV	Complies with ANSI / IEEE C37.47
Frequency: 60 Hz	Complies with ANSI Z535.4
Temperature Rise: 65°C	Complies with ASTM D3487
Insulation Rating: Class E Insulation - 120°C, 248°F	Complies with ASTM D6871
Cooling Class: KNAN; Self-Cooled	Complies with NEMA 260-1996
Forced Air (Fans): None	Complies with 10 CFR Part 431
Tap Changer: 5-position Tap Changer	Complies with CSA C2.1-06
Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps	Complies with CSA C60
Tap %: 2.5%	Complies with CSA C68
	Complies with CSA C88.1

1

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Email: sales@LarsonElectronics.com
Fax: 903.498.3364

Tap Changer Switch Rating: 300-Amp, 15 kV
Tap Changer Switch Location: High Voltage (HV) [Left Side] Front Compartment
Impedance: 1.5/7.0% Typical, Target 4.35±5.75%
Primary Connection Type: Dead Front
Primary Termination Arrangement: V Terminal Arrangement
Primary Termination: Externally Clamped Integral Bushings w/ Removable Studs, 200A Loadd Break Elbows
Primary Connection Qty: (6) Primary Connections for use w/ Elbow Connectors
Primary Parking Stand Qty: (6) Welded Brackets for Installing Accessory Parking Stand Bushings
Primary Bushing Rating: 15 kV Class, 95 kV BIL, 200A, Load Break
Primary Neutral Connection: N/A
Primary Surge Arrestors: (3) High Voltage Elbow Surge Arrestors, Included
Primary Surge Arrestor Voltage Rating: 18 kV Class Elbow Arrestor
Primary Surge Arrestor MCOV Rating: 15.3 kVrms
Primary Over Current Protection (OCP): Bayonet Expulsion Fuse in series w/ Partial-Range Current-Limiting Fuse
Primary Over Current Protection Method: Fused, Oil-Immersed
Primary Over Current Protection Holder: Bayonet Fuse Holder w/ Flapper Valve and External Drip Shield
Primary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs in HV Cabinet
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Staggered Terminal Arrangement
Secondary Connections: NEMA Spade Terminals, 4-Hole Spade, Externally Clamped, Accepts up to (4) Double Lug connections with (2) cables per side of Spade connector
Secondary Connection Qty: (4) Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: N/A
Secondary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs in LV Cabinet
Metering Current Transformer (CT): N/A
Metering Panel: N/A
Auxiliary Control Panel : N/A
Load Break Switch: Three (3) Position Load Break Switches
Load Break Switch Qty: (1)
Load Break Switch Rating: 300-Amp, 15 kV
Load Break Switch Location: High Voltage (HV) Front Compartment
Efficiency Standard(s): Meets DOE 2016 Standards, Meets CSA Standards Meets ANSI/IEEE Standards
K-Factor Rating (Harmonic Mitigation): K-1 (Standard)
Pulse Drive Rating: N/A
Insulation Fluid: Biodegradable Natural Vegetable Oil Ester Insulating Fluid - Non-PCB Fluid
Fluid (Oil) Capacity": 167 Gallons
Fluid (Oil) Weight": 1,281 lb
Liquid Level Indicator: Analog Dial Gauge
Temperature Indicator: Analog Dial Gauge
Pressure/Vacuum Indicator: Analog Dial Gauge
Pressure Relief Device: Included, Automatic Action
Fault Indication: N/A
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 1" NPT Port w/ Removable Bolt Plug
Fill Valve Location: Front Compartment
Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -40°C to +40°C (-50°F to +104°F)
Sound Level: 56 dBA
Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material: Grain Oriented Steel
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel
Portability: Lifting lugs, provisions for jacking under base, w/ base construction suitable for using rollers or skidding
Housing Type: Compartmental Air-Filled Cabinet w/ Locking Doors, HV Compartment Left, LV Compartment Right, Steel Barrier Separation, HV Door Spring-Loaded Release Pin in Compliance with CSA C86-16
Complies with CSA C227.4
Complies with CSA C227.5
Complies with CSA C602-3
Complies with CSA C802.1

Features
Pentahead Bolt Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 3R Wiring Compartment
Hot Stick Included, HV Door Mount

Efficiency %: 99.35%
Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.
No Load Loss (in watts): +/- 700W
Full Load Loss (in watts) at 100%: +/- 5,000W
Total Load Loss (in watts) at 100%: +/- 5,700W
Total Losses at 65°C LL Temp.& 20°C NL Temp.
Total Load Loss (in watts) at 50%: +/- 1,899W
Note: Losses offered are typical only, not guaranteed

Labeling:
Externally Stenciled (Painted) KVA Rating
Externally Stenciled (Painted) Voltage Rating
External Non-PCB Label
External Warning & Danger Label
External Barcode Label
Internal Busing & Accessory Labeling
Stainless Steel Riveted Nameplate

Factory Tests:
Winding Resistance Test
Insulation Resistance Test
Voltage Ratio Error Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Induced Voltage Withstand Test
Separate Source Voltage Withstand Test
Pressure Integrity Test Test

Shipping:
Shipped on pallet on open flatbed
Palletized on Wooden Pallet w/ Skid Pockets
Pallet Skid Facing Outward Sides of Truck
Note: Crated shipping in lieu of palletizing can be done upon request for an additional fee

2

Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671
www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

LV Compartment
Enclosure Rating: NEMA 3R Weatherproof Wiring Cabinet, Sealed Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Peterson Brown
Mounting: Pad Mounted
Conduit Opening: Bottom Feed Underground Entry/Exit
HV Compartment Base Wireway Dimensions": 20"-W x 8"-D
LV Compartment Base Wireway Dimensions": 16"-W x 8"-D
MVLV Compartment Cabinet Depth": 24"-D
Tank Cover Access Handhole: N/A
Dimensions": 62"-W x 61"-D x 71"-H
Dry Weight (w/o Oil): 2,292 lb
Total Weight (Liquid Filled): 4,802 lb
*Please note that numbers are approximate and subject to change

Special Orders - Special Requirements
Contact us for special requirements

Toll Free: 1-800-369-6671
Intl: 1-903-270-1187
Fax: 1-903-498-3364
E-mail: sales@larsonelectronics.com

The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 Industrial Pad Mount Transformer from Larson Electronics offers powerful, reliable and efficient power distribution in indoor, outdoor and public locations. The low operating costs, low heat emissions and low cost of ownership makes this transformer ideal for a wide range of applications and businesses. An enclosed design caters to installations on concrete pads without protective fencing.
****PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS****
Transformer Features: With a transformer rating of 500 KVA, the industrial transformer features a primary voltage of three-phase 12470V Delta and a secondary voltage of three-phase 480Y/277 Wye-n. The unit has a primary loop feed for single installations and dead-front primary connections. We also offer systems with loop feed and live front primary connections. This transformer features a 5-position tap changer with two, +/- 2.5% taps above and two, +/- 2.5% taps below to allow small changes for voltage. There are no rapid rise relays present on the system.
The system features copper windings for high strength and thermal/electrical conductivity. This transformer consists of rectangular coil and five-legged wound core design with three coils and four core loops (this is for three-phase transformers only; single-phase units have one coil and two core loops).
The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 is air cooled and does not have fans or mounting provision for fans.
Enclosure Design: This pad mounted transformer is a compartmental design. The tank and housing are fabricated from steel. The front electrical enclosure carries a NEMA 3R rating. The high voltage and low voltage compartments are located in front of the transformer tank, with the high voltage compartment on the left side and low voltage compartment on the right side. The HV and LV compartments are air filled and separated by a full length steel barrier between the compartments. A removable steel plate at the base of the HV and LV compartments prevents rodents and other intrusions from entering the enclosure once installed. This steel plate allows for underground conduit entry into the enclosure compartments. Two hinged exterior doors allow for access into the compartments. A single pad lockable handle on the low voltage compartment door allows for securing the transformer. A spring loaded pin within the low voltage compartment prevents the high voltage door from being opened without pulling the safety pin. A hot stick is included in the high voltage compartment, mounted to the HV door.
Temperature Rise: This unit features 65°C temperature rise for reduced heat waste, increased reliability and longer life. At 65°C temperature rise, the transformer offers 500 KVA. The transformer meets standard efficiency requirements. The combination of low temperature rise and high efficiency makes this unit suitable for use in electrical rooms, air conditioned spaces in buildings, underground vaults and similar locations, in addition to outdoor areas.

3

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9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671
www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

Insulation Fluid: The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 features biodegradable cooling fluid (KNAN) with a capacity of 167 gallons. We offer transformers with PR-3 oil fluid, if needed.
Biodegradable Fluid: Biodegradable cooling fluid (vegetable oil) has a higher heat capacity compared to mineral oil, making the liquid safer to use and more reliable during operations. Vegetable oil has a higher flash point and fire point than mineral oil, hydrocarbon oil, silicone oil and synthetic ester. This cooling fluid is also non-toxic and can tolerate higher breakdown voltages than mineral oil. When operating at high temperatures, biodegradable cooling liquid sustains up to 120% loan conditions, which helps preserve the transformer's lifespan and performance.
Gauges: The following gauges are included with the system: liquid level, temperature and pressure/vacuum gauges. Standard liquid level, temperature and pressure/vacuum gauges are analog, manual reading types. These gauges do not have auxiliary contacts.
Fault Pressure Devices: This transformer features an automatic action fault pressure device. Fault pressure devices are used to detect high rates of pressure rise within the tank.
Rapid Rise Relay: There are no rapid rise relays on the unit. This safety component is designed for protection when a rapid increase in tank pressure occurs. The relay is suitable for detecting sudden pressure fluctuations above predetermined safe limits.
Surge arresters: This system comes with high elbow surge arresters on the primary side. Designed for over-voltage and transient voltage protection, the components prevent damage caused by lightning, internal switching or voltage surges. We can offer models without high elbow surge arresters that have mounting provisions for customer-provided surge arresters.
Load Break Switch: The transformer is equipped with three 2-position load break switches.
Valves: The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 is equipped with a pressure relief valve, fill valve and drain valve with sampler port.
Protection Fuses: This transformer contains bayonet protection fuses on the primary side. For units without protection fuses, up stream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.
Mount: The heavy-duty enclosure makes the unit suitable for both indoor and outdoor applications. This power distribution system can be pad mounted on concrete pads.
Benefits: The MT-PML-R7-3P-DMR-500KVA-YE-LT-DF-A6-BB-CZ-2B4-M1 pad mount transformer offers many benefits to consumers. This transformer provides owners with significant energy savings, as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turns into cost savings for owners in the form of lower energy bills and decreased cost of ownership.
Applications: General purposes, industrial sites, electrical rooms, underground vaults, manufacturing facilities, steel plants, offshore, commercial, military, processing plants, electric power distribution, utilities, public locations and more. Larson Electronics is a manufacturer and as such can build stationary and portable transformer systems to your specifications. Although we carry several models of power distribution transformer systems, we can deliver custom ordered units almost as quickly as our prebuilt units. If this model does not meet your needs, please contact us at 1-800-369-6671 or sales@larsonelectronics.com to discuss your specific requirements.

4

TRANSFORMER SPECIFICATIONS	1
SCALE: NONE	

Item B.

WT GROUP AEC
Engineering with Precision, Pace and Passion.
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
wtgroupaec.com
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Engineering • Design • Consulting

8320 HIGHLAND
8320 HIGHLAND ROAD
WHITE LAKE TOWNSHIP, MI 48386

STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057995
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	03/18/26	JTB
0	REVISION	03/23/26	JTB
1	REVISION	05/20/26	JTB
2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

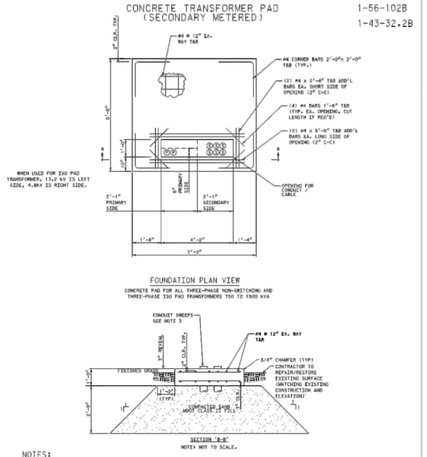
CHECK: JKR
DRAWN: JTB
JOB: T2600207

ELECTRICAL EQUI
SPECIFICATIONS

MAR 24	UNDERGROUND SERVICE	3-6-4

CONCRETE TRANSFORMER PAD (SECONDARY METERED)

1-56-102B
1-43-32.2B



NOTES:

1. THIS SPECIFICATION IS FOR PADS CAST IN PLACE OR PRECAST.
2. REFER TO 3-6-14 TO 3-6-15 FOR GENERAL NOTES.
3. FIELD TO LOCATE AND POSITION ALL CONDUIT SLEEVES FOR CABINETS PRIOR TO PLACING CONCRETE. THE NUMBER OF DUCTS IS TO BE APPROVED BY THE SERVICE PLANNER/REGIONAL ENGINEER.
4. THE FOUNDATION DESIGNED FOR ASSUMING 1,000 PSF ALLOWABLE SOIL BEARING CAPACITY.
5. FOR MORE INFORMATION DETAIL SEE 3-6-9.
6. FOR MINIMUM CLEARANCE TO OBSTRUCTION SEE 3-7-11.
7. FOR ANCHOR BOLT INSTALLATION DETAIL, SEE 3-6-10.
8. 1/2" TOP TO BOTTOM TAPER ALLOWED IN CONDUIT PLACEMENT OPENING.
9. PRIMARY CONDUIT MUST BE POSITIONED AT THE FRONT OF THE WINDOW.
10. TRANSFORMER AND PAD SELECTION ON SECONDARY METERED INSTALLATIONS ARE DETERMINED BY THE DTE PLANNER.

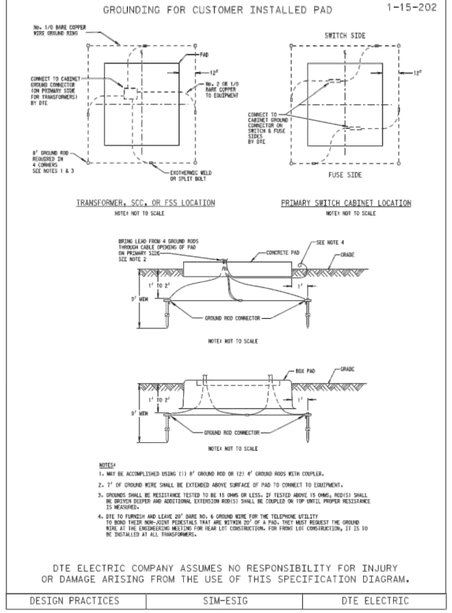
DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

MAR 24	UNDERGROUND SERVICE	3-6-9

GROUNDING FOR CUSTOMER INSTALLED PAD

1-15-202



NOTES:

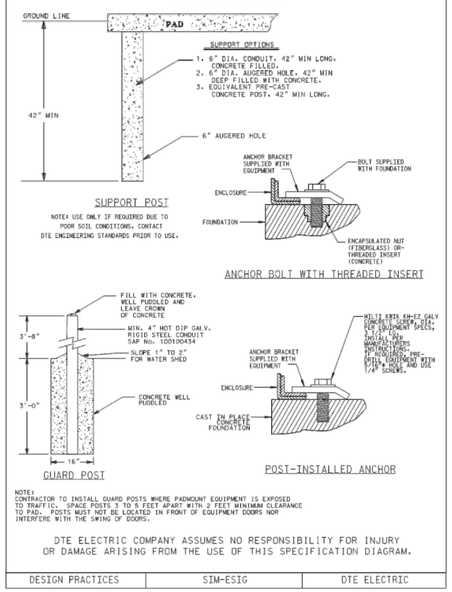
1. MUST BE ACCOMPLISHED USING (1) 8' GROUND ROD OR (2) 4' GROUND RODS WITH COUPLER.
2. 1' OF GROUND WIRE SHALL BE EXTENDED ABOVE SURFACE OF PAD TO CONNECT TO EQUIPMENT.
3. GROUNDS SHALL BE RESISTANCE TESTED TO BE 10 OHMS OR LESS. IF TESTED ABOVE 15 OHMS, RED(S) SHALL BE DRIVEN DEEPER AND ADDITIONAL EXTENSION ROD(S) SHALL BE COUPLED ON TOP UNTIL PROPER RESISTANCE IS MEASURED.
4. DTE TO FURNISH AND LEAVE 20' SLACK NO. 6 GROUND WIRE FOR THE TELEPHONE UTILITY TO BOND THEIR NON-ZONE PEDESTALS THAT ARE WITHIN 20' OF A PAD. THEY MUST REQUEST THE GROUND WIRE AT THE ENGINEERING MEETING FOR REAR LOT CONSTRUCTION. FOR FRONT LOT CONSTRUCTION, IT IS TO BE INSTALLED AT ALL TRANSFORMERS.

DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

MAR 24	UNDERGROUND SERVICE	3-6-10

CONCRETE PAD POSTS



NOTE:
CONTRACTOR TO INSTALL GUARD POSTS WHERE PADMOUNT EQUIPMENT IS EXPOSED TO TRAFFIC. SPACE POSTS 3 TO 5 FEET APART WITH 2 FEET MINIMUM CLEARANCE TO PAD. POSTS MUST NOT BE LOCATED IN FRONT OF EQUIPMENT DOORS NOR INTERFERE WITH THE SWING OF DOORS.

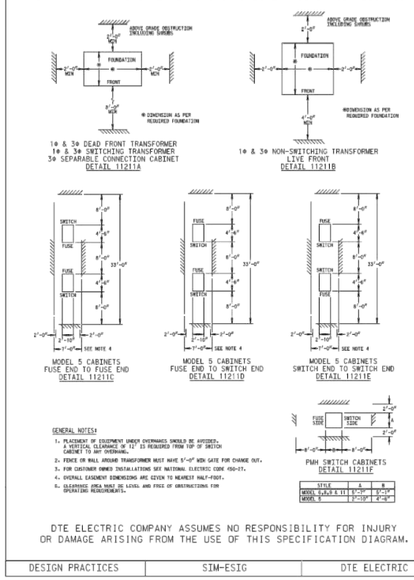
DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

FEB 24	UNDERGROUND SERVICE	3-7-11

MINIMUM CLEARANCE REQUIREMENTS FOR 13.2 KV OR 4.8 KV TRANSFORMER OR SWITCH CABINET FOUNDATION LOCATION

1-11-211



GENERAL NOTES:

1. PLACEMENT OF EQUIPMENT UNDER OVERHANGS SHOULD BE AVOIDED. A VERTICAL CLEARANCE OF 12' IS REQUIRED FROM TOP OF SWITCH CABINET TO ANY OVERHANG.
2. FENCE OR WALL AROUND TRANSFORMER MUST HAVE 5'-0" WIDE GATE FOR CHANGE OUT.
3. FOR CUSTOMER OWNED INSTALLATIONS SEE NATIONAL ELECTRIC CODE 450-27.
4. OVERALL EASEMENT DIMENSIONS ARE GIVEN TO NEAREST HALF-FOOT.
5. CLEARANCE AREA MUST BE LEVEL AND FREE OF OBSTRUCTIONS FOR OPERATING REQUIREMENTS.

STYLE	A	B
MODEL 5,W,X & Y	3'-0"	3'-0"
MODEL 5	1'-0"/0"	2'-0"

DTE ELECTRIC COMPANY ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE ARISING FROM THE USE OF THIS SPECIFICATION DIAGRAM.

DESIGN PRACTICES	SIM-ESIG	DTE ELECTRIC

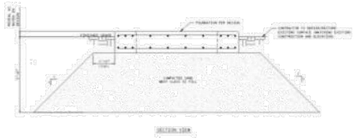
Foundation Installation – Excavation, Compacted Fill, Backfilling

These requirements apply to all underground line equipment foundation construction, including box pad, cast in place, and pre-cast foundations.

A. Excavation Requirements
(i) Excavation shall be to a depth that will permit preparation of a foundation as specified or installation of the box pad at prescribed depth, but at a minimum, shall be 3'-6" below finished grade. The width and length of the excavated hole shall be sufficient to permit the foundation and compacted fill installation, as specified below.
(ii) All excavations shall be kept free of standing water, frost, snow, ice, and foreign debris. No foundations shall be set against water, frost, snow, or ice.

B. Compacted Fill Requirements
(i) All foundations, including box pad, cast in place, and pre-cast, shall be laid on compacted sand (MDOT Class II fill). Fill shall extend to 3'-6" below finished grade. At the base of the foundation, fill shall extend 1'-0" beyond the plan dimensions of the foundation, on all sides. Fill shall be distributed to 3'-6" below finished grade at a 1:1 ratio. See sketch below.
(ii) Minimum soil bearing capacity is assumed to be 1000 psf. In cases where adequacy of the base may be doubtful, DTE may require bearing capacity tests results from a qualified testing laboratory.
(iii) When conditions such as unstable soil, frozen backfill, or rock are encountered, special action must be taken to provide a sound soil base for the entire foundation. The decision for correction of an overall poor condition such as swampy land or general regrading should be made by the division engineer.

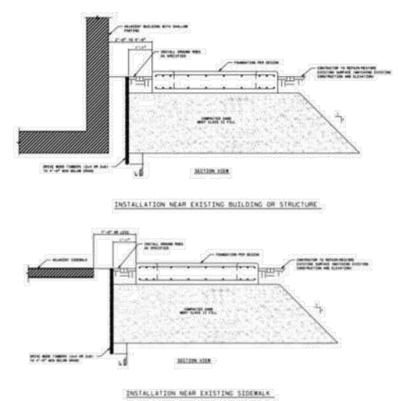
C. Backfilling Requirements
(i) All foundation excavations shall be backfilled with suitable material and compacted to the final grade as specified. Suitable material shall be lean grout fill (see 3-6-15), MDOT Class II fill (compacted sand), or mineral soil reasonably free of foreign materials, rubbish, debris, etc. Backfill shall be free of frozen clumps, oversized stone, rock or concrete, bituminous chunks or other unsuitable materials that may damage the foundations.
(ii) Backfill in 9" maximum lifts and compact well. Compaction of backfill materials placed within the foundation openings can be accomplished with portable or hand equipment methods.
(iii) The top surface shall be restored to match existing elevation and existing construction type.



Foundation Installation – Excavation, Compacted Fill, Backfilling (Continued)

D. Installations near existing buildings, structures, or sidewalks:
i. If the edge of a foundation pad is within 4'-0" of an existing building or structure or within 7'-0" of an existing sidewalk edge, follow this procedure to install base fill near the adjacent foundation/sidewalk.
ii. Maintain all minimum clearances as noted in Section 11.
iii. Along the edge adjacent to the building or structure, drive 2x4 or 2x6 wood timbers approximately 1'-1" from the edge of the future foundation pad.
iv. Timber driving and excavation may be done in stages. It is recommended to maintain the base of wood timbers at least 6" below the base of excavation at all times.
   a. For example, drive timber down 1'-0" below grade. Excavate 6" of soil. Drive timber another 1'-0". Excavate another 1'-0" of soil. Continue until final depth of excavation is reached.
v. Base of timbers shall be 4'-0" below finished grade, minimum.
vi. Compacted base fill shall be installed as directed. On edges which are not adjacent to existing building or structures, base fill shall be installed as normally specified.
vii. Install foundation as specified.
viii. Install grounding rods as specified. Ground rods should be between the wood timbers and the foundation on edges near to existing buildings or structures.
ix. Wood timbers may be removed prior to final backfill and surrounding grade restoration. Wood timbers may also be left in place, provided they are flush with surrounding grade and do not present a tripping hazard.

Foundation Installation – Excavation, Compacted Fill, Backfilling (Continued)



Foundation Installation – Concrete Work

These guidelines are intended to be applicable to all cast in place underground line equipment foundation construction.

A. Concrete Mix Requirements
(i) Minimum compressive strength of concrete at 28 days: 4500 psi (unless noted otherwise).
(ii) Use only type I, II, III or IL cement (unless noted otherwise). Contact the DTE civil engineer if types II or III is selected.
(iii) Provide 5½% +/- 1% entrained air, water cement ratio: 0.45 and a slump of 4" to 6" (unless noted otherwise). Add water reducing admixtures as required to achieve required slump.

B. Placing and Finishing Concrete
(i) Provide a float finish on all horizontal surfaces (unless noted otherwise).
(ii) Provide a 3/4" chamfer on all exposed edges of mats.
(iii) Place concrete directly against sides of augered excavations. Use sonotube or other approved forms for top 24" of pier (at minimum).
(iv) Provide top surface elevations of piers and mats 3" above finished grade (unless noted otherwise).
(v) Cold weather concrete placement - conform to ACI 306R (latest revision) requirements.
(vi) Hot weather concrete placement - conform to ACI 305R (latest revision) requirements.
(vii) Place all embedded items (such as anchor bolts, pipe sleeves, etc) accurately and secure prior to concrete placement.
(viii) Consolidate concrete during placement by use of an adequate number of internal type vibrators.

C. Curing Concrete
(i) Cure all concrete per ACI 308R for a minimum period of (7) seven days.
(ii) Keep concrete moist while forms are in place.
(iii) Once forms are removed use an approved ASTM C309 Type 2 Class A liquid membrane curing compound at approximately 1 gallon per 150 sq ft of coverage or as specified by manufacturer.

D. Reinforcing Steel
(i) Reinforcing bars, stirrups, and ties shall be ASTM A615 Grade 60 deformed bars.
(ii) Provide splices only where shown on drawings with minimum lap length as specified (not less than 12"). If no lap length is given, provide minimum ACI standard lap lengths.
(iii) Use black annealed tie-wire, 18 ga or heavier wire for fastening. No welding or torch cutting of rebar Is permitted.
(iv) Maintain minimum 1½" clearance between reinforcing steel and form ties, inserts, embedments, etc. Maintain 3" steel to soil clearance, and 2" steel to form clearance where not exposed to soil.

E. Lean Grout Fill
Lean grout fill mixes shall consist of the following (unless noted otherwise):
(i) 3550lbs of MDOT 2NS (Sect 902.08) fine aggregate per cubic yd.
(ii) 190 lbs of cement per cubic yd.
(iii) 250lbs +/- of water per cubic yd. Adjust water depending on fill application.

DETAILS FROM DTE ENERGY

UTILITY DETAILS AND SPECIFICATIONS

SCALE: NONE

1

Item B.

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2000 Center Drive, Suite B411
Hoffman Estates, IL 60192
T: 224.293.6333
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8320 HIGHLAND
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STATE OF MICHIGAN
MARK VENTRELLI
ENGINEER
No. 6201057985
LICENSED PROFESSIONAL ENGINEER

EXPIRES: 03/02/28 SIGNED: 09/02/26

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2	REVISION	06/12/26	JTB
3	REVISION	07/16/26	JTB
4	REVISION	09/02/26	JTB

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: JTB
JOB: T2600207

UTILITY DETAILS AND SPECIFICATIONS

CHARTER TOWNSHIP OF WHITE LAKE

2027–2032

Capital Improvement Plan

CIP Snap Shot

Aerial view of the new White Lake Township Civic Center Campus, under construction — August 21, 2026

Prepared from the Planning Commission's 2027–2032 CIP

A Six-Year Roadmap for Township Investment

The Capital Improvement Plan (CIP) is White Lake Township's six-year game plan for the big-ticket public investments — new buildings, water and sewer upgrades, fire and police equipment, and parks and pathways. Required annually under the Michigan Planning Enabling Act because the Township runs its own water and sewer systems, the CIP turns long-range goals into a scheduled, funded, and prioritized list of projects the Planning Commission and Township Board can act on.

Every project is scored with a standardized rating system that weighs health & safety impact, legal obligations, consistency with adopted plans, and community benefit — so a fire truck replacement and a pathway extension can be compared on the same scale.

2026 in the Rearview: A Landmark Year

The headline story of the last CIP cycle is the new Civic Center Campus — an 11-acre development on Elizabeth Lake Road bringing together a new 46,000 SF Public Safety Building and a new 36,000 SF Township Hall. Design wrapped in spring 2024, bidding and award followed that year, and construction has been underway since fall 2024. As of the August 21, 2026, project status update, both buildings are deep into interior finishes — paint, flooring, millwork, ceiling grids, and doors — with occupancy targeted for fall 2026.

New Public Safety Building — brick installation complete on the hose tower wall (8/21/26)

Also worth celebrating: Stanley Park — 59 acres off Elizabeth Lake Road — opened to vehicular traffic on July 1, 2026, with Phase II improvements (see the 2027 priority list below).

Supervisor Kowall, Clerk Noble, and Treasurer Roman officially unlocking the Stanley Park gates to vehicular traffic.

Top 5 Priorities to Tackle in 2027

The full 2027 project list spans Fire, Water, Sewer, Parks, Police, Facilities, and Internal Services — but by the CIP's own project-rating system, these five rise to the top as the most important next projects to consider in 2027:

#1 Rating 143	**Upgrades & Equipment Replacement — 7 Sanitary Sewage Pump Stations** **2027 funding:** $716,667 (installment toward a $6.99M multi-year project) Replacing pumps, controls, and adding variable-frequency drives and iron filtration across seven pump stations for better system control and long-term operating savings.
#2 Rating 141	**Brush Truck Replacement** *(Fire Protection / EMS)* **2027 funding:** $90,000 The department's current brush truck and its skid-mounted pump/hose unit are nearing the end of useful life and need replacing.
#3 Rating 140	**Fire Station No. 2 Replacement** *(Fire Protection / EMS)* **2027 funding:** $100,000 (2027 start toward a $4.0M project) Construction of a new satellite fire station with living quarters and three bays begins moving forward in 2027, funded through grants, a bond issue, and the Building Authority.
#4 Rating 139	**Water Tanker (Tender) Truck** *(Fire Protection / EMS)* **2027 funding:** $500,000 After selling off two aging tankers in recent years, the department needs a replacement tanker to maintain water-supply capability at fire scenes.
#5 Rating 127	**Repaint Water Tower 1 & Water Tower 2** *(Water Supply)* **2027 funding:** $932,750 (combined — WS-0021 & WS-0022) Exterior overcoat and interior repainting for both elevated water towers. The CIP flags these two as a natural pairing, since bidding them together can save on mobilization and traffic control costs.

Other notable 2027 activity includes Stanley Park Phase II improvements ($1,000,000), continued Twin Lakes I well upgrades, a new ambulance, extrication tools, and structural firefighting gear.

The Money Picture

Most CIP projects draw on a dedicated enterprise or millage fund rather than the General Fund — which matters, because the CIP is explicit that the General Fund balance alone is not enough to cover the Township's full capital share across all departments. Grants, bonds, and special assessment districts are expected to fill much of the remaining gap, though as of this draft many of those grants have not yet been secured.

Fund	2026 Balance (12-31-25)
General Fund	$8,058,037
Water Supply Fund	$8,711,768
Sewer Fund	$5,059,722
Police Fund	$6,186,253
Fire Protection Fund	$5,924,401
Improvement Revolving Fund	$9,988,762
Parks & Recreation Fund	$2,757,920
Total	$46,686,863

2027-2032
Capital Improvement Plan (CIP)

CHARTER TOWNSHIP OF WHITE LAKE
Oakland County, Michigan

Prepared By: White Lake Township Planning Commission
with Assistance from the CIP Team

Draft for Review –August

2027-2032
Capital Improvement Plan (CIP)

ACKNOWLEDGEMENTS

White Lake Township Board of Trustees
Rik Kowall, Supervisor | Anthony L. Noble, Clerk | Mike Roman, Treasurer |
Scott Ruggles, Trustee | Liz Fessler Smith, Trustee | Andrea C. Voorheis, Trustee | Steve Anderson, Trustee |

White Lake Township Planning Commission
Merrie Carlock, Chair | Robert Seeley , Vice-Chair | Debby Dehart, Secretary & ZBA Liaison | T. Joseph Seward |
Scott Ruggles, Township Board Liaison | Mona Sevic | Peter Meagher |

White Lake Township Department Heads
Rik Kowall, Supervisor | Anthony L. Noble, Clerk | Mike Roman, Treasurer |
David Hieber, Assessor | Aaron Potter, DPS Director | David Feichtner, Fire Chief |
Daniel T. Keller, Chief of Police | Sean O'Neil (AICP), Community Development Director |
Kathy Gordinear, Dublin Community Senior Center Director | David Waligora, Parks and Recreation | Nick Spencer, Building Official |

White Lake Township Community Development Department — Planning Division
Sean O'Neil (AICP), Community Development Director | David Waligora, AICP, Senior Planner |
Hannah Kennedy-Galley, Building Specialist | Paige Myers, Executive Secretary |

The CIP Team
Community Development Department — Planning Division | Staff and Administration of White Lake Townshi

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Resolution of Adoption

White Lake
Oakland County, Michigan

Capital Improvement Plan 2027-2032
Resolution #26-027

Motion by _____, supported by _____, that the White Lake Township Board of Trustees accept the Capital Improvement Plan for the years 2027-2032. The White Lake Township Board has determined the following:

WHEREAS, the Michigan Planning Enabling Act, Act 33 of 2008, requires the White Lake Township Planning Commission to annually prepare a Capital Improvement Plan for the benefit of the health, safety, and welfare of the community as those criteria relate to the physical development of the Charter Township of White Lake; and

WHEREAS, the Township's professional engineering consultant and Community Development Director have consulted with the Township's professional staff who carry on the business of planning and providing for the present and future needs of the citizens of the Charter Township of White Lake; and

WHEREAS, the Capital Improvement Plan is intended to consider the present and future needs and goals of the Charter Township of White Lake, as identified by the public, department heads, the Township Board of Trustees, and the Township Planning Commission, in consideration of existing projects and plans as well as anticipated resources; and

WHEREAS, the Capital Improvement Plan is a flexible document, intended to be reevaluated and updated on an annual basis to project into the six (6) succeeding years, and further amended as necessary to address the policies and philosophies of relevant Township Boards, Planning Commissions, and other stakeholders; and

WHEREAS the Capital Improvement Plan is a guide and forum to aid the Township Supervisor and Township Board of Trustees in making decisions regarding the physical development and infrastructure maintenance of the Township and determining what, if any, resources can and should be available to carry out the Township Board's policies and budgetary decisions; and

WHEREAS, the draft of the Capital Improvement Plan has b2026,available for public review via the Township website and copies made available at the office of the Township Community Development Department, and has been an agenda item for discussion and review by the Planning Commission and Township Board at several public meetings, and has been the subject of a duly-noticed Public Hearing held before the

Resolution of Adoption, continued

White Lake Township Planning Commission on September 3, 2026 and will be reviewed, revised, and updated by the Planning Commission on an annual basis; and

WHEREAS, the Capital Improvement Projects included within the Capital Improvement Plan have been evaluated utilizing a point-system of variables that included, among other things, whether a Capital Improvement Project has already begun, whether funds have been committed to the Project, the sources of funds committed to a Project, whether the Project is required per a legal obligation, or whether the projects is part of a Township-adopted policy, plan, or program; and

WHEREAS the White Lake Township Planning Commission on September 3, 2026, moved to adopt the 2027-2032 Capital Improvement Plan.

NOW THEREFORE BE RESOLVED, that the Capital Improvement Plan presented during the Public Hearing on September 3, 2026, and revised by the public comments received during that Public Hearing, and adopted by the White Lake Township Planning Commission on September 3, 2026, IS ACCEPTED BY THE WHITE LAKE TOWNSHIP BOARD OF TRUSTEES; and

BE FURTHER RESOLVED, that this Capital Improvement Plan should be published and attested to according to State law.
Ayes:
Nays:
Absent:

RESOLUTION DECLARED ADOPTED.

I HEREBY CERTIFY, that I am duly elected and qualified Clerk of the Charter Township of White Lake, County of Oakland, State of Michigan, and the keeper of the records of the proceedings of said Township as authorized by the Township Board, and the foregoing is a true and correct copy of a resolution duly adopted by a majority vote at a regular meeting of the Township Board legally held on the September 15, 2026, at which a quorum was present.

Anthony L. Noble, Clerk
White Lake Township
Oakland County, Michigan

1. Overview

The 2027-2032 White Lake Township Capital Improvement Plan (CIP) will serve as a tool to assist White Lake Township in turning long-range policy planning into real improvements on the ground. A six-year capital improvement plan and an annual update of that plan is a requirement for White Lake Township under the Michigan Planning Enabling Act of 2008. The following report identifies the major capital improvements needed and/or planned for the community, the time-frame for implementation of those improvements, and the budget and revenue sources that will make those improvements a reality. Capital improvements cover multiple departments within White Lake Township, and include new Township facilities, water and sewer extensions, fire protection vehicles and equipment, police equipment, parks and recreation facilities, non-motorized pathways, and professional services.

The following subsections within this first chapter include an introduction to capital improvement planning, the community of White Lake Township, and the capital improvement planning process. In subsequent chapters, this report summarizes existing facilities (Chapter 2), provides detailed components for all major Township departments, facilities, and systems (Chapter 3), and presents the projected cost and revenue sources for all covered improvements (Chapter 4).

1a. Overview - CIP Overview

What is a Capital Improvement Plan (CIP)?
A Capital Improvement Plan is a six-year schedule of public physical improvements which identifies the needs for major public infrastructure improvements, and the sources of funding to make those improvements. It provides a schedule of expenditures for constructing, maintaining, upgrading, and/or replacing a community's physical inventory. The CIP, therefore, is a tool to assess the long-term capital project requirements (the "big jobs") of White Lake Township. Since capital improvement projects are spread across multiple community needs (fire protection, police, water and sewer, parks and recreation, municipal administration, etc.), the CIP prioritizes these projects across the entire community and over time, providing an "apples-to-apples" comparison of the community's various needs and wants.

What are Capital Improvement Projects?
Capital improvement projects are major and infrequent expenditures, such as the construction of a new facility, a major rehabilitation or repair of an existing facility, or the purchase of major equipment. Capital improvement projects are nonrecurring expenditures that tend to be large both in physical size and in cost, and have a long-term usefulness (10 years or more). Examples of capital improvement projects can include:

- Construction of a new township hall
- Construction of a new fire station
- Extension of a water/sewer line
- Purchase of a new fire truck
- Major rehabilitation of a township's community/senior center
- Creation of a new township park

Examples of expenditures which would not usually constitute a capital improvement project include:

- Purchase of new office furniture
- Purchase of small equipment (lawn mowers, copiers, individual computers, etc.)
- Recurring maintenance of existing facilities
- Minor repairs of existing buildings and equipment
- Minor improvements to existing buildings (carpet, painting, etc.)

The term "major expenditure" is relative; what is "major" to one community might be "minor" to another. The City of Ann Arbor, for example, sets a minimum threshold of $100,000 for projects to be included in the City's CIP, while the City of Rochester Hills sets a minimum of $25,000. White Lake Township's policy for determining a Capital Improvement is defined in the following section.

What is White Lake Township's Capital Improvement Policy?

A capital improvement project is a major, nonrecurring expenditure that meets one of more of the following criteria:

- Any acquisition of land for a public purpose which costs $75,000 or more.
- Any construction of a new public facility (Township building, water/sewer lines, pathways), or any addition to an existing public facility, the cost of which equals $50,000 or more and has a useful life of three or more years.
- A nonrecurring rehabilitation (not to include annual/recurring maintenance) of a building, its grounds, a facility, or equipment, the cost of said rehabilitation being $50,000 or more with a useful life of three or more years.
- Purchase of major equipment which, individually or in total, cost $75,000 or more with a useful life of three or more years.
- Planning, feasibility, engineering, or design studies related to an individual capital improvement project, or program implemented through individual capital improvement projects, with a cost of $50,000 or more and a useful life of three or more years.

Why a CIP for White Lake Township?

The Michigan Planning Enabling Act of 2008 requires a Capital Improvement Program for any Michigan township which owns and/or operates a water supply or sewage disposal system. Since White Lake Township owns and manages both a public water and sanitary sewer system, adopting and annually updating a Capital Improvement Plan is a requirement per State law.

What are the benefits of preparing a CIP?

The CIP is more than just a State requirement; it is an essential planning tool in addition to a statement of budgetary policy. It informs the taxpayers of White Lake Township how the Township plans to prioritize, schedule, and coordinate capital improvement projects over the next six (6) years. The benefits of creating and annually updating the CIP include:

- Prudent use of taxpayer dollars
- Focusing the Township expenditures on the needs of the community
- Prioritizing projects across the needs of the community
- Generating community support by inviting public input
- Promoting economic development
- Improving the Township's eligibility for State and Federal grants

- Providing an implementation tool for the goals and objectives of the Township Master Plan
- Transparency in identification of high-priority projects
- Coordination/cost-sharing between projects

What is the role of the Township Planning Commission in the CIP process?

The Capital Improvement Plan is a dynamic planning document, intended to serve as a tool to implement the White Lake Township Master Plan. The Master Plan should correspondingly include capital improvement projects as well as guide long-term capital planning. The White Lake Township Planning Commission is uniquely qualified to manage the development and annual update of the Township's CIP, based on its role in creating and updating the Township Master Plan. The Planning Commission's role will ensure that public works projects are consistent with the land uses identified within the Master Plan. By making a recommendation of approval for the CIP to the Township Board, the Planning Commission agrees that the projects outlined within it reasonably address the Township's capital improvement needs.

The CIP is an essential link between planning for capital improvement projects and budgeting for them. Once approved by the Township Board, the CIP can be used to develop the capital project portion of the Township's budget. Those projects included in the CIP's first year (2027) potentially form the basis for the upcoming year's capital project budget. As the CIP is annually updated, a continuous relationship will be maintained between the CIP and the Township's annual budget. The annual update to the CIP will occur in advance of the preparation of the Township's budget.

1b. Overview - White Lake Township Overview

White Lake Township, Oakland County's "Four Seasons Playground," prides itself as a community which continues to promote economic growth, sustainable development, and a strong sense of place. White Lake's character as a premier residential community, with ample recreational opportunities and superior public and private schools, sets it apart and establishes the Township's unique identity.

The Township continues to promote sound fiscal policy while maintaining appropriate levels of service to meet the needs of its growing population. Public utilities infrastructure, police, fire and emergency services, parks, recreation and senior services, as well as planning, building inspection and administrative services are all designed to provide residents with the full-service amenities of a modern municipality in a cost-effective, fiscally responsible, and sustainable manner.

Principal Land Uses

While the commercial base of White Lake Township continues to grow, the principal land use within the Township remains single-family residential. Based on existing land use data from Oakland County Economic Development and Community Affairs, 46.7% of the Township's nearly 24,000 acres is developed as single-family residential. The second largest land use in the Township (in terms of land area) is recreation/open space, comprised of two State Recreation Areas (Pontiac Lake and Highland), a regional Metropark (HCMA's Indian Springs), and an Oakland County-owned golf course (White Lake Oaks). Combined, the recreation/open space land uses within the Township comprise over 25% of the land area (6,000 acres). The Township's commercial, industrial, and office uses comprised 2.2% of the land area in 2019. The majority of the commercial, industrial, and office uses in White Lake Township are located along the Highland Road (M-59) corridor, although some are scattered elsewhere throughout the Township, mostly in the southeast quadrant. There is also a small industrial concentration in the Township's northeast corner. The 21 lakes within White Lake Township comprise almost 11% of its total land area. Figure 1-1 displays the 2024 Existing Land Use Map.

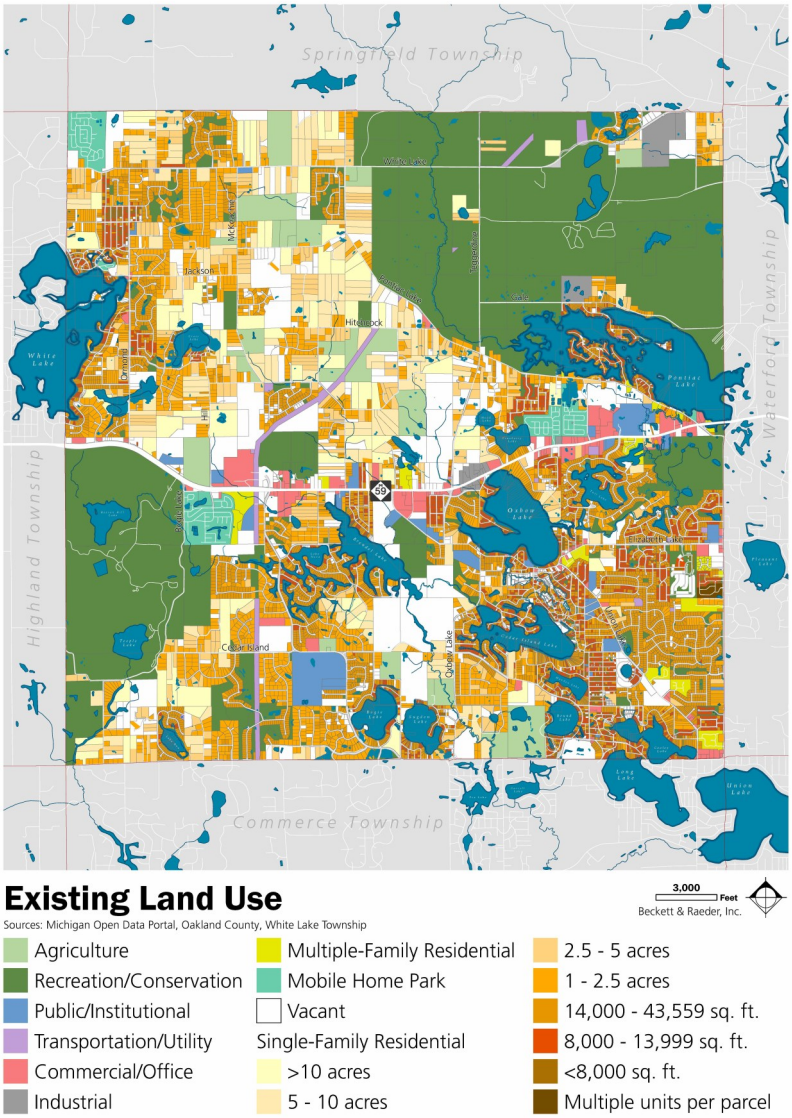
Population

As of the 2020 Census, the population of White Lake Township was 30,950, a 3.1% increase from the 2010 Census (30,019). Population projections by the Southeast Michigan Council of Governments (SEMCOG) estimate the population of White Lake Township will only increase slightly over the next twenty years, with a forecasted population of 32,236 in 2040. This projection is subject to change based on economic and social factors.

Employment

SEMCOG Community Data for White Lake Township shows the two highest employment sectors within the Township to be Retail Trade (approximately 21% of total employment) and Information and Financial Activities (approximately 15%).

FIGURE 1-1 EXISTING LAND USE, 2024



1c. Overview - CIP Process Overview

Background

The development and the adoption of a CIP is driven by a statutory requirement at the State level. The State of Michigan has set forth the requirement for a CIP under the Michigan Planning Enabling Act, Act 33 of 2008. This reporting requirement for townships was effective September 1, 2008. The following excerpt from Act 33 sets forth the requirement of a township to adopt a CIP:

> *"…(2) Any township may prepare and adopt a capital improvement program. However, subsection (1) is only mandatory for a township if the township, alone or jointly with 1 or more other local units of government, owns or operates a water supply or sewage disposal system."*

The contents of the CIP are set forth under the Government Accounting Standards Board Statement 34 that basically **requires** the CIP to report on the value of their infrastructure. GASB 34 requires state and local governments to begin reporting all financial transactions, including the value of their infrastructure assets, roads, bridges, water and sewer facilities, and dams, in their annual financial reports on an accrual accounting basis.

The Charter Township of White Lake is not a road agency under Public Act 51 of the laws of the State of Michigan. Accordingly, public road and bridge projects are not reported in this CIP. **All other infrastructure components with construction costs in excess of $50,000 per year are reported in this CIP.**

The following sections outline the Program Areas of the White Lake Township CIP:

1. Data Collection Process
2. Data Compilation Process
3. CIP Adoption Process

PROGRAM AREAS

The components of the CIP are compiled and reported by Program Areas. The following table (Figure 1-2) displays the Program Areas used in this CIP (each assigned with a color). These program areas represent the stakeholders in the CIP.

FIGURE 1-2. CIP PROGRAM AREAS	
Label	**Definition / Description**
BP / PK	Bike paths, trail ways, and park facilities/services
FA	Township-owned buildings and facilities (offices, storage buildings, museums, etc.)
FD	Fire protection / EMS facilities and equipment
IS	Internal support services (IT, GIS, fleet vehicles, communications, etc.)
PD	Police Department facilities and equipment
SS	Sanitary sewerage disposal system
WS	Water supply system

1. Data Collection

Each of the stakeholders outlined above has either a master plan or schedule that defines the needs and resource level within their respective area of responsibility. This information is in varied formats and cannot be readily compiled without a significant amount of interpretation. To resolve this interface situation, standard forms were created that allow the stakeholders to define their projects and resource allocation levels. The standard forms used for data collection are found in the Appendix. At a meeting with the stakeholders, the CIP process and the forms were explained in detail along with a request for the forms to be filled out based on what information was available. The information generated from these forms has been systematically compiled as the core of the CIP. A definition of the forms is provided as follows:

- **Project Application Form** - Consists of project descriptions, schedules, necessity, and possible sources of funding. The information provides an understanding of the overall scope of each project and how it is valued within its program area and within the Township. While stakeholders may be aware of major projects further out on the horizon, only those planned for within the six-year window of the 2027-2032 CIP were included.

- **Project Cost Detail Form** - Consists of a matrix of six (6) budget years across the top of the form and a listing of costing components along the side of the form. The form is split into two (2) parts; the upper half is the capital cost for the project and the lower half is the cost of operations or maintenance for that project, if applicable. Recognition of the operations and maintenance costs of a project is a valuable tool in forecasting future needs for resource allocation. Investment in a new facility is only worthwhile if there are funds available to operate and maintain it.

- **Project Rating Form** - Used to rate both the importance and impact of a project within its program area and within the Township (an "apples-to-apples" comparison). The rating number is not an absolute in itself but is important in distinguishing between projects that are similar in scope. The ratings are weighted with emphasis given to those projects that are mandated by law, by agreement, or because they are a matter affecting health, safety, and welfare.

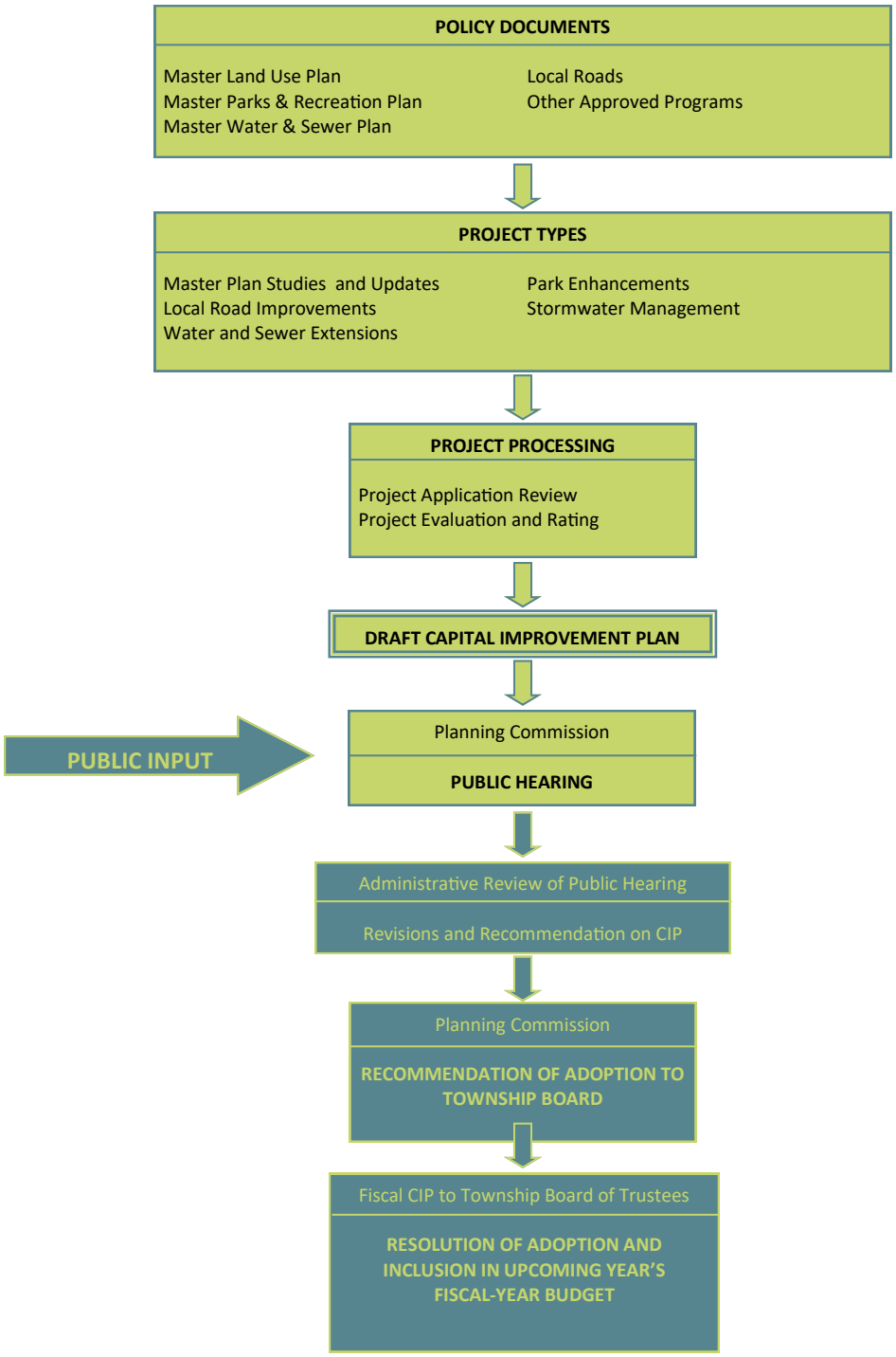
2. Data Compilation

The information received from the stakeholders has been compiled into a Project Summary Worksheet. This worksheet contains all of the projects in the CIP over six (6) budget years with a cost summary of each budget year by program area and for the entire CIP. Included with the worksheet is the listing of possible funding sources and an estimate of the Township's share for each project. The Project Summary Worksheet can be found in the Appendix of this CIP.

3. CIP Adoption Process

The adoption process involves a public hearing to solicit citizen input. The CIP will then be modified (if necessary), approved by the Township Planning Commission (via a formal recommendation for approval to the Township Board), and forwarded to the Township Board for adoption. Adoption of the CIP by the Township's Board of Trustees does not constitute an authorization to commit resources to any project. This approval is recognition of a plan for projects within the community that may move toward implementation in the future. The projects included within Year 1 of the Capital Improvement Plan potentially form the basis for the upcoming year's capital projects budget. An outline of the process is displayed in Figure 1-3 on the following page.

FIGURE 1-3. CIP ADOPTION PROCESS



2. Existing Capital Facilities

In developing a Capital Improvement Plan, communities often find it essential to develop an inventory of their existing capital facilities. Before a community develops a list of "What we need," it is important to first look at "What we have." As stated in White Lake Township's Master Plan, "A municipality's public facilities are an important part of community life and are directly related to important issues such as quality of life and protection of the public health, safety, and welfare." The following is a summary of White Lake Township's major capital facilities and their current condition (where applicable), as determined by the directors of the respective departments. The location of existing Township facilities is noted on the Existing Facilities Map (Figure 2-1).

White Lake Township Hall
7525 Highland Road
Year Built: ±1948
Last Major Improvement: 1996
Houses: Supervisor, Clerk, Treasurer, Assessing, Building, Planning, Water, Sewer, Maintenance
Condition: Fair
Extent of Use: Heavy

White Lake Township Fleet Vehicles
Includes: Administrative vehicles, inspection vehicles; does not include Fire Dept. vehicles
Year Acquired: Varies
Condition: Varies
Extent of Use: Varies
Average Duty Cycle: Approximately 7 years

Fire Hall Number 1 (Headquarters)
7420 Highland Road
Year Built: ±1948
Last Major Improvement: Parking Lot Replacement
Serves: M-59 corridor; northeast and southwest quadrant
Condition: Fair
Extent of Use: Heavy

Fire Hall Number 2
Address: 860 Round Lake Road
Year Built: ±1973
Last Major Improvement: ±1996
Serves: Southeast quadrant
Condition: Fair
Extent of Use: Heavy

Fire Hall Number 3
4870 Ormond Road
Year Built: ±1979
Last Major Improvement: ±1996
Serves: Northwest quadrant
Condition: Fair
Extent of Use: Moderate

White Lake Township Police Station
7525 Highland Road
Year Built: ±1949
Last Major Improvement: 2001 (expansion)
Condition: Poor
Extent of Use: Heavy

White Lake Township Police Garage
Location: Behind Police Station
Year Built: 2004
Last Major Improvement: None
Condition: Poor
Extent of Use: Heavy

White Lake Township Police Communications System
Year Acquired: New in 2010
Last Major Improvement: None
Condition: Good
Extent of Use: Heavy

White Lake Township Police Vehicles
Includes: 18 Vehicles
Year Acquired: Varies
Condition: Excellent
Extent of Use: Heavy

Fire and EMS Equipment
Includes: three engines, two tankers, two ambulances / transporting units, one light duty rescue (no pumping or water carrying capabilities), one pick-up style grass truck with a skid-mounted pump and tank, four fleet vehicles, one drone aircraft, two cardiac monitors, and breathing apparatus
Year acquired: Varies; between 1997 and 2022
Condition: Varies; from Fair to Excellent
Extent of Use: Varies; primarily Moderate to Heavy

Township Office Annex
7527 Highland Road
Year Built: 1985
Last Major Improvement: 2020 remodel
Condition: Good
Extent of Use: Moderate

Dublin Community Senior Center
685 Union Lake Road
Year Built: approx. 1950
Last Major Improvement: 2001
Condition: Good
Extent of Use: Heavy

White Lake Township Clerk's Equipment
Includes: Voting tabulation machines (18)
Voter assist terminals (13)
Year acquired: Varies; between 2018 and 2022
Condition: Excellent
Extent of Use: Varies

White Lake Township Water System

Includes: Approx. 55 miles of water main ranging in size from 4 to 16 inches in diameter, service supply laterals, 15 pressure control valves, approx. 1,000 gate valves, approx. 700 fire hydrants and hydrant valves, 2 one million gallon elevated water storage tanks, 5 water treatment plants, 9 water supply wells

Year Built: Ongoing

Last Major Improvement/Extension: 2020 Hillview Well House & 2019 Twin Lakes II Well House

Condition: Varies; primarily Good to Excellent

Extent of Use: Varies; primarily Moderate to Heavy

White Lake Township Sanitary Sewer System

Includes: The Township's wastewater collection system serves approximately 4,500 people in the Township. Sewer mains were constructed largely in 1999 or later. There are approximately 20 miles of gravity sewer mains and approximately 22 miles of pressured mains. The Township's sanitary system contains ten (10) pumping stations. The wastewater flow is ultimately discharged into Commerce Township's collection system and is conveyed to the Commerce Township Wastewater Treatment Plant for treatment.

Year Built: Ongoing since 1998

Last Major Improvement/Extension: 2012

Condition: Good to Excellent

Extent of Use: Light to Moderate

Water Tower 1

360 Woodsedge Drive

Year Built: 1994

Last Major Improvement: 2007

Condition: Good

Extent of Use: Heavy

Water Tower 2

6055 Highland Road

Year Built: 2004

Last Major Improvement: None

Condition: Excellent

Extent of Use: Moderate

Hidden Pines Park
Location: Intersection of White Lake Road and Hidden Pines Drive.
Size: 9 Acres
Includes: Baseball Field and parking area

Township-Owned Land
Total acreage: approx. 177 acres (including Township parks)

Judy Hawley Park
Location: Behind Township Hall, just east of the Township Annex
Size: 12 acres
Includes: Soccer fields, pavilion, play structure, basketball courts, sand volleyball court, and pathway

Ferdinand C. Vetter Park
Location: Behind Dublin Community Center on Union Lake Road
Size: 6 acres
Includes: Baseball field, picnic shelter, pathway, and play structure

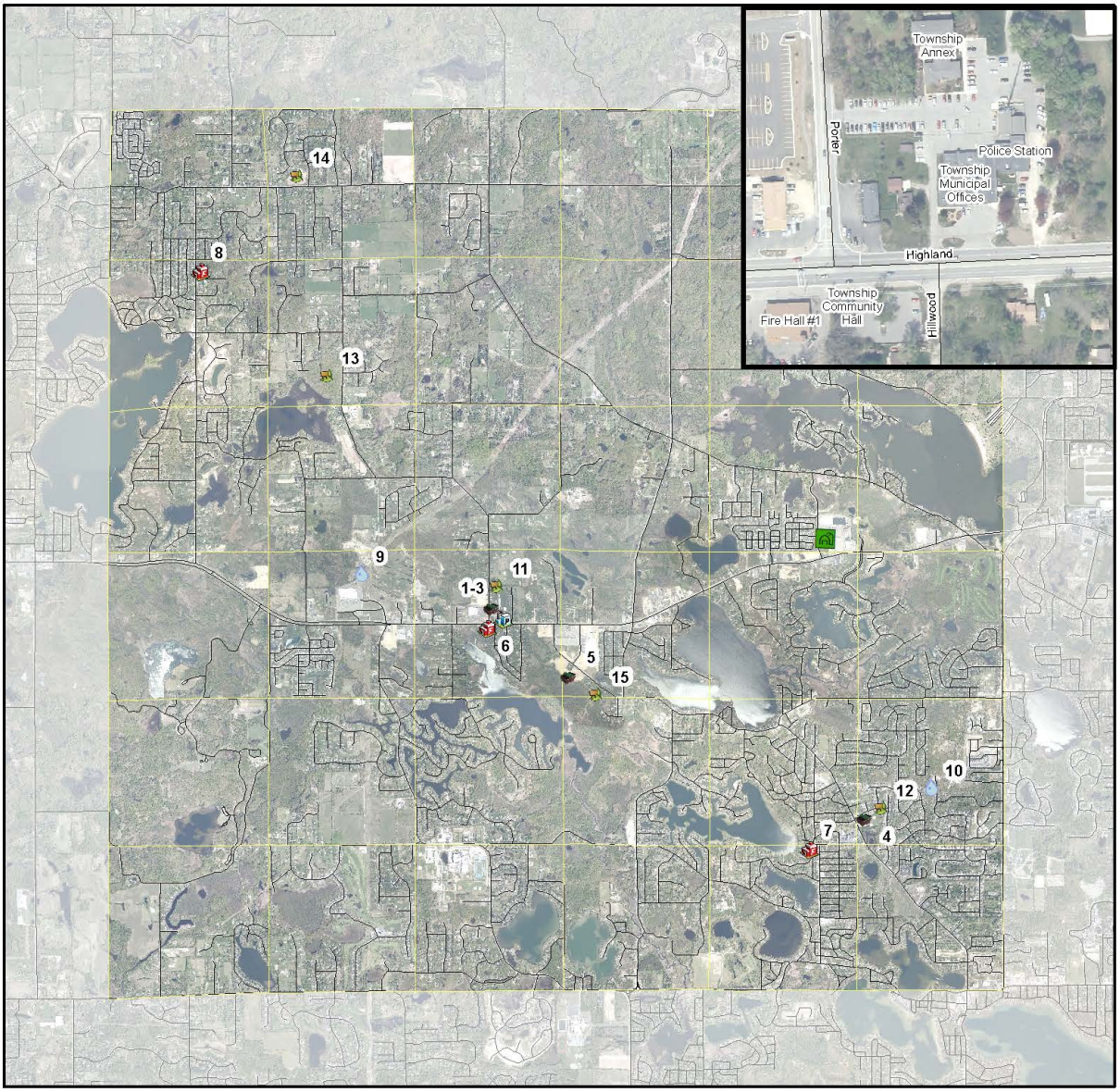
Bloomer Park
Location: West side of McKeachie Road, between Grass Lake and Jackson Roads
Size: Approximately 28 acres
Description: Picnic shelter, scenic overlook, and nature trails

Stanley Park
Location: West side of Elizabeth Lake Road, south of White Lake Library
Size: 59 acres
Description: Park opened to vehicular traffic on July 1, 2026. Phase 2 anticipated construction in 2027.

White Lake Community Hall
Address: 7500 Highland Road
Year Built: 1875 (State-designated historic site)
Last Major Renovation: 2013 (Interior)
Condition: Good
Extent of Use: Light

Civic Center Campus
Location: West side of Elizabeth Lake Road, south of White Lake Library
Size: 29 acres
Description: Currently under development, anticipated completion for Fall 2026.

FIGURE 2-1



White Lake Charter Township

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Existing Facilities

Public Facilities
1 - Township Municipal Offices
2 - Community Hall
3 - Township Annex
4 - Dublin Community Center
5 - Civic Center Property

Fire Stations
6 - Fire Hall #1
7 - Fire Hall #2
8 - Fire Hall #3

Police Station

Water Towers
9 - Water Towerl #1
10 - Water Tower #2

Township Parks
11 - Judy Hawley Park
12 - Ferdanand C. Vetter Park
13 - Bloomer Park
14 - Hidden Pines Park
15 - Stanley Park

Fisk Farm

3. Executive Summary

Stakeholders

The level of input from the stakeholders has greatly contributed toward the formulation of the CIP. Project profiles consisting of the Project Application Form, the Project Cost Detail Form, and the Project Rating Form were received from Parks and Recreation, Senior Center, Police Department, Fire Protection, Facilities, and Department of Public Services. Though some of the information received will require further detail, it is the most current information available until future refinements are made to the project profile.

Project Histories

Just as important as tracking current and future projects is cataloging the past accomplishments of the Capital Improvement Plan. Located in the back of the plan is a Project Histories Summary Table. This table illustrates those past projects that have been completed or canceled. Some projects are changed over time; the original project number may be dropped and new project numbers created in its place. The Project Histories Summary can be used to track the priorities of the Township over time and can help track overall investment in the community based on geographic regions.

2026 Project Histories

The capital improvement projects, outlined in the 2026-2031 CIP, completed during 2026 were Township Civic Building (FA-0007) and Public Safety Headquarters (FA-0006).

Projects

Review of the Project Summary Worksheet (found in the Appendix of this report) indicates that there are several individual projects located in the same geographic area. There are potential cost savings that can be realized by combining projects. At a minimum, mobilization, traffic control, and restoration are just some of the potential cost savings achieved by combining projects for construction. The potential grouping of projects are identified in Figure 3-1 below:

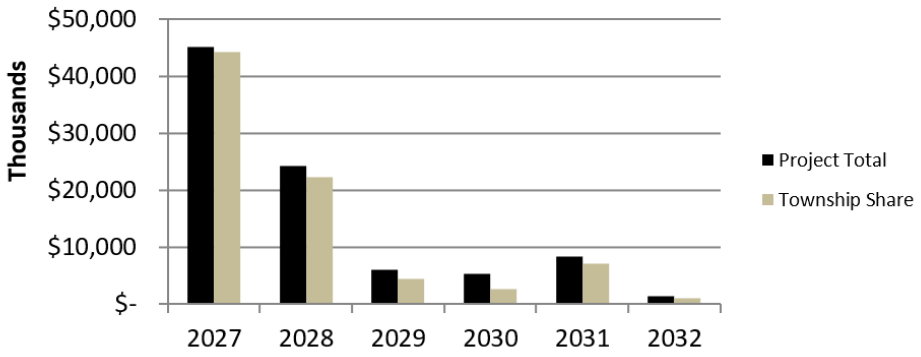
FIGURE 3-1	
Location	Project Labels
M-59, Teggerdine east 0.3 miles	BP-0003 & PK-0006
Stanley Park Phase II & Pickleball Courts	PK-0013 & PK-0014
Elizabeth Lake Road, south of White Lake Library	FA-0006 & FA-0007
Repaint Water Tower 1& 2	WS-0021 & WS-0022

If the funding and timing of these projects can be orchestrated, the savings are significant. The exact savings cannot be determined until a detailed project costing and analysis of the common scope between the projects is performed. Also, in the future other projects such as new facilities can be can be studied to determine if combining operations can realize a cost savings. Other benefits include providing a list of projects in advance in order to help establish the need for grants and funding opportunities.

Funding

This CIP has many projects that are unfunded. The limitations of funding will likely cause projects to be delayed, deferred or cancelled. Each project has a potential funding source and many are dependent on a contribution from the Township's General Fund (GF). Many projects list funding sources from State and Federal grant programs, but those grants have not yet been secured. The following chart depicts the relationship between total project costs, and the Township's share of those costs. Additional revenue for projects that are not completely funded by the Township will come from grants and other funding sources.

OVERALL FUNDING
FIGURE 3-2



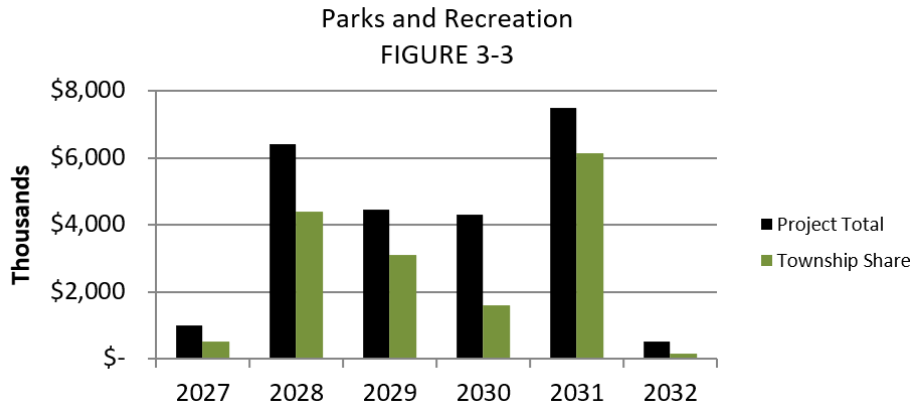
The Township's General Fund balance at the end of fiscal year 2025 was $8,058,037. <u>That amount is inadequate to support the Township's share of the CIP, which is shown in Figure 3-2 above.</u>

Funding Components

In the following section, each of the funds shown on the Project Summary Worksheet are graphed and reported as part of the CIP with the exception of the projects listed under Internal Services.

Parks and Recreation

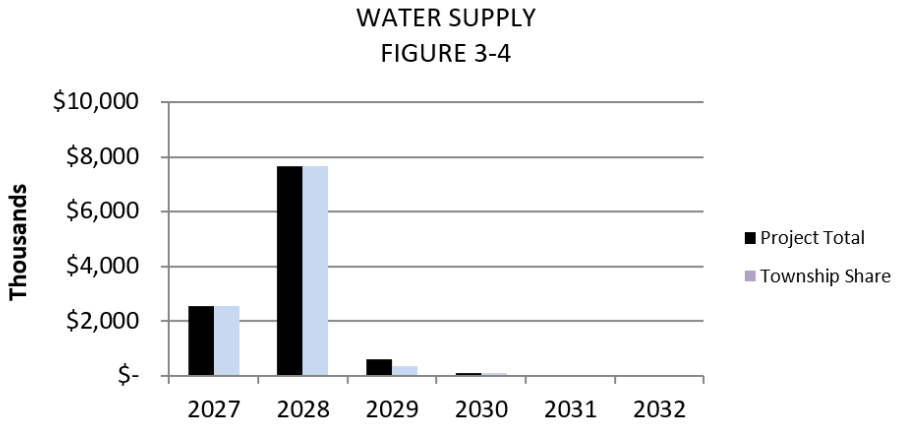
The Parks and Recreation Fund had a fund balance of **$2,757,920** as of December 31, 2025, as shown in the Township's 2025 Audit Report. The 2026 Budget carries forward a beginning fund balance of **$2,757,920.22** for the Parks and Recreation Fund. These funds, together with any awarded grant funds, may be used to support and leverage future park improvement projects.



Careful budgeting of the Parks and Recreation Fund will allow the level of service and maintenance of the Township's current and future park facilities to occur until additional parks funding can be established.

Water Supply Fund

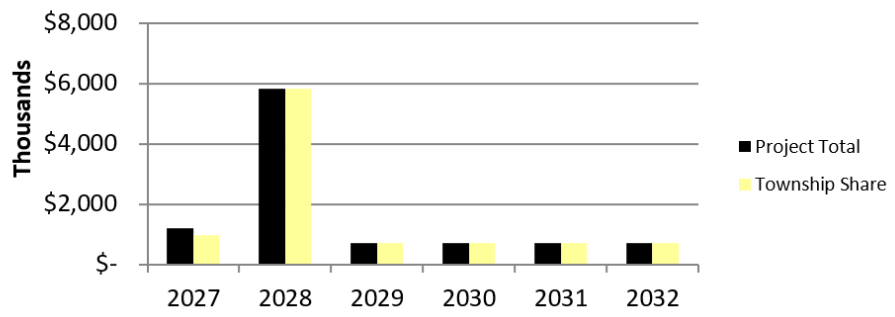
The Water Supply Fund (WF) is an enterprise fund that is not dependent on support from the General Fund. The Water Supply Fund (WF) has a balance of $16,316,762 as of the close of 2025. Several projects in this program area are funded using the Drinking Water Revolving Fund supplemented by the Water Supply Fund balance.



Sewerage Disposal System

Development of sewer has been done either by private development or special assessment districts (SADs). As of 2025, the Sewer Fund (Enterprise Fund) has a balance of $31,887,477.

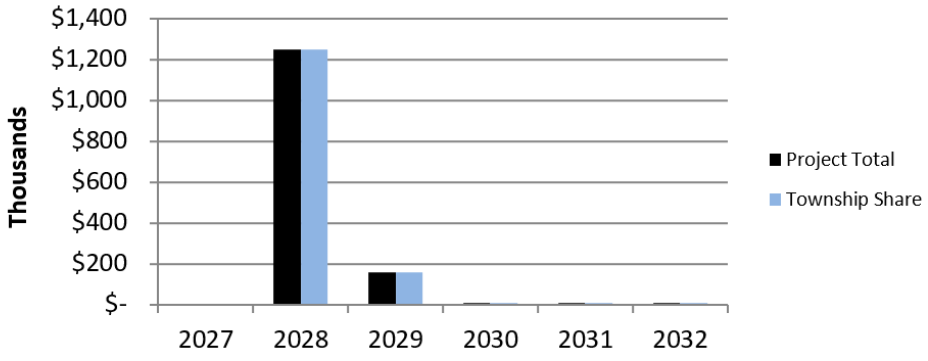
SEWERAGE DISPOSAL
FIGURE 3-5



Police Department

The 2025 CAFR reports a balance of $6,186,253 in the Police Fund. The Police Department is currently funded by a Township Millage.

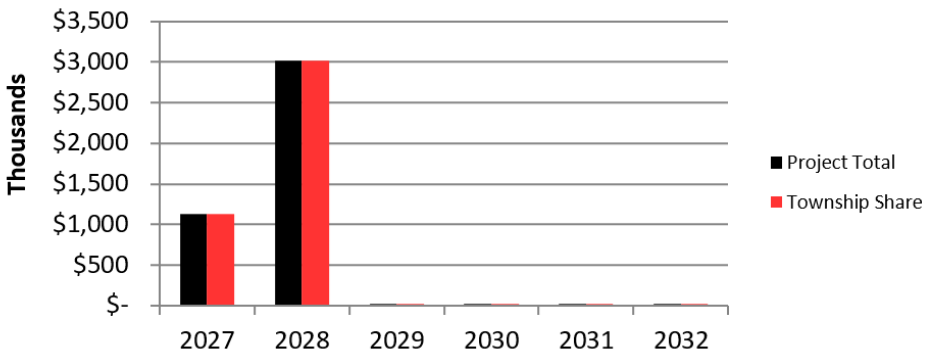
POLICE DEPARTMENT
FIGURE 3-6



Fire Protection

The Fire Protection Fund has a balance of $5,924,401 as reported in the 2025 CAFR. The Fire Protection Fund is supported solely through millage money.

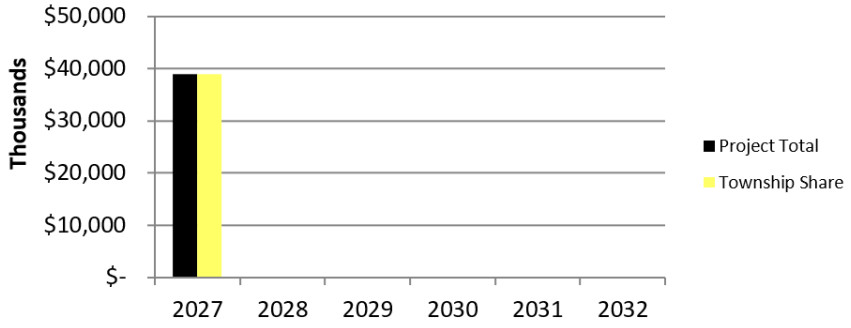
FIRE PROTECTION
FIGURE 3-7



Facilities

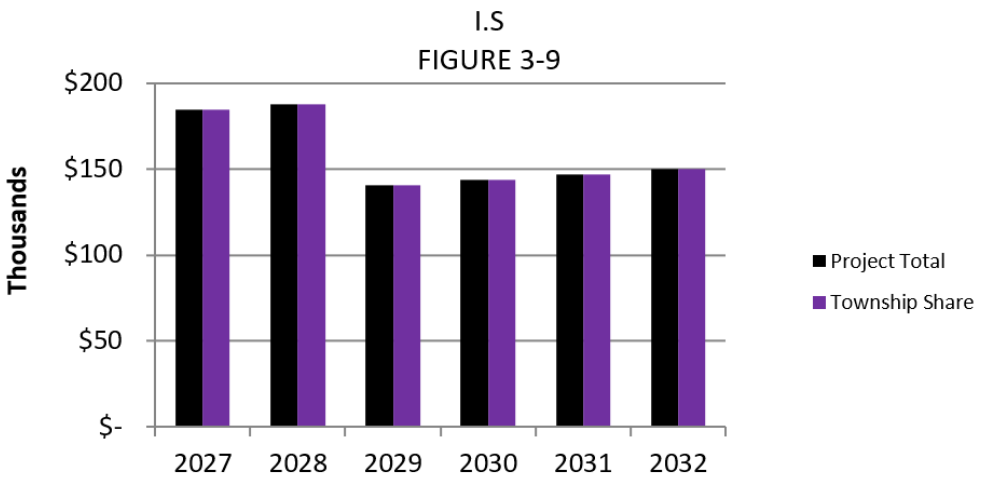
The Township Civic Center district will have a new Public Safety Headquarters that will cost approximately $25 million dollars and a new Civic Center Building to replace the current Township Offices at an approximate cost of $20 million dollars. This money will come from the Capital Project Fund and the issuance of bonds. The Township currently has $10,166,676 available for a new Township Municipal Complex in an Improvement Revolving Fund listed in the 2025 CAFR.

FACILITIES
FIGURE 3-8



Internal Services

The Internal Services used to support the operating departments are included in the CIP due to their costs that are in excess of $50,000. As these services are collected as a charge back to the operating departments, there is no special fund involved.



4. CIP Components

The components of the Capital Improvement Plan have been compiled and reported by the following seven program areas, each representing a stakeholder in the CIP.

Section 1a. Facilities

Section 4b. Fire Protection / Emergency Medical Services

FD-0002 - Fire Station 2 Replacement
FD-0006 - Fire Ladder Truck
FD-0009 - Fire Station 3 Replacement
FD-0017 - Structural Firefighting Gear
FD-0019 - Engine / Pumper Replacement

Section 4c. Internal Services

IS-0002 - Fleet Vehicles (excluding Fire)
IS-0003 - Document Management Program

Section 4d. Parks and Recreation

BP-0002 - M-59 Pathway (Phase I)
BP-0003 - M-59 Pathway (Phase II)
BP-0004 - M-59 Pathway (Phase III)
BP-0005 - Union Lake Rd. Pathway
BP-0006 - Bogie Lake Rd. Pathway
PK-0002 - Four Seasons Trail (Phase I)
PK-0003 - Four Seasons Trail (Phase II)
PK-0004 - Four Seasons Trail (Phase III)
PK-0008 - Hidden Pines Park Phase II
PK-0009 - Teggerdine Trail Design
PK-0010 - Bloomer Park (Phase II)
PK-0013 - Stanley Park (Phase II)
PK-0014 - Pickleball Courts

Section 4e. Police Department

PD-0002 - Mobile Command Center
PD-0002 - Public Safety Firearms Range

Section 4f. Sanitary Sewerage Disposal System

SS-0005 - Western Outlet Sanitary Extension Phase 2
SS-0006 - Pump Station at Lakeland High school
SS-0008 - Upgrades & Equipment Replacement of 7 Sanitary Sewage Pump Stations

Section 4g. Water Supply System

WS-0004 - Twin Lakes Well Replacement and Upgrades
WS-0012 - 6 - Inch Diameter Water Main Replacement
WS-0015 - Twin Lakes I Well House Updates
WS-0017 - Interconnection of High Pressure Districts (Elizabeth Lake Road)
WS-0018 - Residual Chlorine Analyzers at Water Towers
WS-0019 - Residential and Commercial Meter Replacement with AMR System
WS-0021 - Repaint Water Tower 1
WS-0022 - Repaint Water Tower 2
WS-0023 - Backhoe Machine
WS-0024 - Waterford / White Lake Emergency Interconnection
WS-0025 - DPS Storage / Maintenance Building

Funding Sources Abbreviations

Building Authority	BA
Fire Protection Fund	FPF
General Fund	GF
Federal Housing and Urban Development	HUD
Michigan Dept. of Transportation Enhancement Grant	MDOT-EG
Michigan Natural Resources Trust Fund Grant	MNRTFG
Michigan Safe Routes to School Program	MSRSP
Parks & Recreation - Special Township Revenue Fund	P&RF
Police Department Fund	PDF
Road Commission Tri-Party Program	RCOCTP
Special Assessment District	SAD
Sewer Fund (Township Enterprise Fund)	SF
State Revolving Fund	SRF
United States Dept. of Transportation	USDOT
Drinking Water Revolving Fund	DWRF
Water Supply Fund (Township Enterprise Fund)	WF
Private Developer	PD

4a. CIP Components - Facilities

Overview

Facilities play an important role in providing an environment that is conducive to supporting the various operating departments that provide services directly to the residents in the Township. Facilities can be new building projects, building renovations, building expansions or the cost of services to support the existing buildings if this cost is significant. Identification of significant costs to support existing building operations is an important tool in determining the cost effectiveness of operating existing public buildings.

Funding for supporting existing Facilities is normally derived by either a charge back to the budgets from the operating departments or done as a direct operating cost to General Fund. Funding for new Facilities can be accomplished by a building authority. The Township has a legally established Building Authority that would be the governing body to finance and construct any new public buildings in the Township.

On the following page, each of the Facilities projects are listed along with their cost and funding sources.

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4b. CIP Components - Fire Protection/EMS

Overview

Fire Protection/Emergency Medical Services provides a variety of vital services to Township residents. Fire Protection facilities are provided at several locations within the Township. In the CIP, new Fire Protection facilities, new Fire Protection equipment, and new Fire Protection vehicles are included under this section.

Fire Protection is principally funded by a Township Millage. Potential sources of funding for projects are the Fire Protection Fund balance, bond issue, or grants. Another possibility would be to use the Township's Building Authority to finance new fire stations.

On the following pages, each of the Fire Protection projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
FIRE PROTECTION (FD)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0001	Extrication Tools	New Equipment	106	GF, FPF	$120,000	$120,000	$--

Project Description
We need to upgrade our extrication tools every 8-10 years or so due to construction methods of vehicles. Our tools are 10 years old.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0003	Brush Truck	New Equipment	141	GF, FPF	$90,000	$90,000	$--

Project Description
We currently have one brush truck. It is nearing its end of life for both the vehicle and the skid unit (pump, hose, etc. that goes in the bed).

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0004	Water tanker (tender) truck	New Equipment	139	GF, FPF	$500,000	$500,000	$--

Project Description
We currently have one (1) tanker (tender) truck. Several years ago, the department sold the third tanker (tender). We recently sold our second one that was beyond its useful life. We need to replace it.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0005	Ambulance	New Equipment	111	GF, FPF	$300,000	$300,000	$--

Project Description
We currently have three (3) excellent ambulances. Should one go down for a short or longer period of time, we need to have a reliable backup. A good used remounted ambulance should suffice.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
FIRE PROTECTION (FD)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0002	Fire Station 2 Replacement	New Construction	140	Grant, Bond Issue, BA	$4,000,000	$4,000,000	$--

Project Description
Construct a satellite fire station with living quarters and three bays.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0006	Fire Ladder Truck	New Equipment	108	FPF	$1,500,000	$1,500,000	$--

Project Description
100-foot fire-fighting ladder truck.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0009	Fire Station 3 Replacement	New Construction	112	Grant, Bond Issue, BA, GF	$5,000,000	$5,000,000	$--

Project Description
Restoration and Addition to the existing Fire Station 3.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0017	Structural Firefighting Gear (30 sets)	New Equipment	102	FPF	$126,000	$126,000	$--

Project Description
Structural Firefighting Gear. $4,200 per set = $126,000

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0019	Engine/Pumper Replacement	New Equipment	112	FPF	$3,000,000	$3,000,000	$--

Project Description
Specification process beginning in 2027.

4c. CIP Components - Internal Services

Overview

Internal Services play an important role in supporting the various operating departments that provide services directly to the residents in the Township. While Internal Services in itself is not a "project," the cost of this internal support is significant and bears inclusion as part of the CIP. Internal Services in this CIP are defined as computer networks, geographic information service (GIS), document storage, communications, and fleet vehicles.

There is no dedicated fund for Internal Services. Funding for Internal Services is normally derived by a charge back to the budgets from the operating departments that use or are supported by these services.

On the following page, each of the Internal Services projects are listed along with their cost and funding sources.

CHARTER TOWNSHIP OF WHITE LAKE CAPITAL IMPROVEMENTS PLAN PROJECT SUMMARY INTERNAL SERVICES (IS)							
PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
IS-0002	Fleet Vehicles	New Equipment	80	PD / GF	$ 873,000	$ 873,000	$--

Project Description
Replacement of cars and trucks (except Fire Department) on an annual basis to systematize the vehicle replacement process. Estimates are for a combination of three (3) cars and two (2) trucks each year, for a total of six (6) years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
IS-0003	Document Management Program	Equipment / Professional Services	90	GF	$100,000	$100,000	$--

Project Description
Project includes providing Township Departments with the necessary software and hardware needed to continue digitizing the Township's document files. Project also includes funding for contracting with private firms to help expedite the process.

4d. CIP Components - Parks & Recreation

Overview

The Parks and Recreation Master Plan outlines a variety of services to Township residents. Parks and Recreation is principally funded by a non-major special revenue fund. Potential funding for projects can be from Parks and Recreation Fund balance, grants such as Michigan Department of Natural Resources Trust Fund, County based tri-party funding, Michigan Safe Routes to School Program, Michigan Department of Transportation Enhancement Grant, or Federal Housing and Urban Development.

In January 2023 the Township Board adopted the 2023-2027 Parks and Recreation Master Plan. The Plan outlines goals and objectives illustrating the vision for parks and recreation over the next five plus years, and documents desired capital improvements to meet the goals, and categorizes them as short-, mid-, long-term, or ongoing priorities including magnitude of cost of the proposed capital improvements. The Plan also identifies potential funding sources that might best align with the various capital projects. The CIP incorporates several of the capital projects identified in the 2023-2027 Parks and Recreation Master Plan.

On the following pages, each of the Parks and Recreation projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
PARKS AND RECREATION (BP and PK)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0002	M-59 Pathway (Phase I)	Rehabilitation	98	MDOT-EG; P&RF	$2,000,000	$1,500,000	$500,000

Project Description
An important, long term, high-priority objective is the development of a Township-wide system of pathways connected to the regional network. Renovation of the M-59 pathway is an essential element that will connect future north-south routes, for example, Bogie Lake Pathway to the Four Seasons Trail.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0003	M-59 Pathway (Phase II)	Rehabilitation	98	MDOT-EG; P&RF	$2,000,000	$1,500,000	$500,000

Project Description
An important, long term, high-priority objective is the development of a Township-wide system of pathways connected to the regional network. Renovation of the M-59 pathway is an essential element that will connect future north-south routes, for example, Bogie Lake Pathway to the Four Seasons Trail.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0004	M-59 Pathway (Phase III)	Rehabilitation	98	MDOT-EG; P&RF	$2,000,000	$1,500,000	$500,000

Project Description
An important, long term, high-priority objective is the development of a Township-wide system of pathways connected to the regional network. Renovation of the M-59 pathway is an essential element that will connect future north-south routes, for example, Bogie Lake Pathway to the Four Seasons Trail.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0005	Union Lake Road Pathway	New Construction	98	MNRTFG; RCOCTP; P&RF	$1,500,000	$1,150,000	$350,000

Project Description
The Union Lake Road corridor is the area of White Lake that contains the highest density of residential development in the Township. A pathway along the corridor is critical to provide residents with safe, non-motorized access to homes, churches, schools, parks, retail, and other places in the area.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0006	Bogie Lake Road Pathway	New Construction	83	MDOT-EG; P&RF; MSRSP	$5,500,000	$5,000,000	$500,000

Project Description
An important, long term, high-priority objective is the development of a Township wide system of pathways connected to the regional network. This pathway provides the north-south connection from M-59 (north) to the Township's southern boundary and connects a complex of 3 schools to neighborhoods throughout the length of the corridor.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0002	Four Seasons Trail (Phase I)	New Construction	67	MNRTFG; P&RF; USDOT	$2,000,000	$1,500,000	$500,000

Project Description
An important, long-term, high-priority objective is the development of a Township-wide pathways system. The ITC Corridor Four Seasons Trail provides a critical link between Pontiac Lake State Recreation Area and Highland Lake State Recreation Area, via the M-59 trailway. This route is included in the Oakland County Greenways Plan and should include state and regional financial participation. Construction of the trailway is expected to occur over several years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0003	Four Seasons Trail (Phase II)	New Construction	67	MNRTFG; P&RF; USDOT	$2,000,000	$1,500,000	$500,000

Project Description
An important, long-term, high-priority objective is the development of a Township-wide pathways system. The ITC Corridor Four Seasons Trail provides a critical link between Pontiac Lake State Recreation Area and Highland Lake State Recreation Area, via the M-59 trailway. This route is included in the Oakland County Greenways Plan and should include state and regional financial participation. Construction of the trailway is expected to occur over several years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0004	Four Seasons Trail (Phase III)	New Construction	67	MNRTFG; P&RF; USDOT	$2,000,000	$1,500,000	$500,000

Project Description
An important, long-term, high-priority objective is the development of a Township-wide pathways system. The ITC Corridor Four Seasons Trail provides a critical link between Pontiac Lake State Recreation Area and Highland Lake State Recreation Area, via the M-59 trailway. This route is included in the Oakland County Greenways Plan and should include state and regional financial participation. Construction of the trailway is expected to occur over several years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0008	Hidden Pines Park Phase II	New Construction	80	MNRTFG; P&RF, Passport Grant	$500,000	$150,000	$350,000

Project Description
This property would be further developed using the Hidden Pines Park Master Plan that was completed in 2012. Improvements would include a playground as well as other park amenities.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0009	Teggerdine Trail Development Design	New Construction	78	MNRTFG, P&RF	$150,000	$150,000	-

Project Description
The Teggerdine Road Pathway would connect M-59 in the south to Indian Springs Metro Park in the north. This pathway would provide access at certain points to the Pontiac Lake Recreation Area. This pathway would connect to regional pathways through Indian Springs Metro Park, and through the potential development of a trail inside of the ITC transmission corridor in White Lake.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0010	Bloomer Park Phase II	New Construction	60	MNRTFG, P&RF	$305,000	$105,000	$200,000

Project Description
With the completion of Bloomer Park's Phase I redevelopment in 2013, the Township seeks to complete the restoration of the northern half of the park. The second phase of development would include completing the pathway network and providing other park amenities including park benches.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0013	Stanley Park Phase II	Improvements	91	MNRTFG; P&RF; GF; Donations	$2,250,000	$1,250,000	$1,000,000

Project Description
Balance of Stanley Park improvements.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0014	Pickleball Courts	New Construction	91	Grant(s); P&RF	$450,000	$100,000	$350,000

Project Description
Location to be determined. This recreational amenity is identified in the Parks and Recreation Master Plan.

4e. CIP Components - Police Department

Overview

The Township Police Department provides a variety of vital services to Township residents. The costs of operations and the demand for services create financial circumstances that are difficult to predict. In this CIP, special police equipment is listed as projects. Standard police cars are included as Internal Services under Fleet.

Police Department operations are funded by a major special revenue fund. Potential funding for projects can be from the Police Fund balance, grants from sources such as Homeland Security, and drug forfeitures. The Police also have a 10-year operating millage that will collect through 2031.

On the following page, each of the Police Department projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
POLICE DEPARTMENT (PD)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PD-0002	Mobile Command Center	New Equipment	65	Grants; Drug Forfeitures	$152,000	$152,000	$--

Project Description
A Mobile Command Center is a vehicle-based police facility, usually built around a motor home chassis. It allows command officers to provide on-scene command and control of large scale events or catastrophes.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PD-0003	Public Safety Firearms Range	New Construction	99	Grants; Drug Forfeitures; PDF	$1,250,000	$1,250,000	$--

Project Description
Outfitting of the Public Safety Building Firearms Range by moving forward with construction of the range, the Firearms Instruction Unit will be able to provide training to officers on a consistent basis. Additional benefits to White Lake Township are that area agencies will be able to utilize this range for training purposes for a fee that will help offset the cost of the outfitting.

4f. CIP Components - Sanitary Sewerage Disposal System

Overview

Sanitary Sewerage Disposal Systems do not currently provide service to all Township residents. Sewerage Disposal Systems that do exist are operated by the Water Resources Commissioner for Oakland County.

A Sanitary Sewerage Disposal Enterprise Fund was created in 2022.

The Department of Public Services completed an asset management plan in 2019 following a roughly three year study of the condition of the Township wastewater system. Potential sources of funding for projects are the Sewer Fund, Special Assessment Districts (SADs), and the State Revolving Fund (SRF) loan program.

On the following page, each of the Sanitary Sewerage Disposal projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE CAPITAL IMPROVEMENTS PLAN PROJECT SUMMARY Sanitary Sewer (SS)							
PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0005	Western Outlet Sanitary Extension Phase Two	New Construction	80	SF, SRF	$5,329,711	$5,329,711	$--

Project Description
The proposed project will provide public force main sewer from the HVS Lakeland Campus north to M-59. The scope of the project will include the placement of 12" HDD directionally drilled pressure sewer (force main) with related appurtenances, pipe rework within the temporary diversion district, traffic control, pavement replacement, and restoration.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0006	Pump Station at Lakeland	New Construction	110	SF, SRF, Private Development	$500,000	$260,250	$--

Project Description
Installation of intermediate booster pumping station on sanitary sewer force main consisting of two submersible pumps, and building housing controls and generator.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0008	Sanitary Sewer Pump Stations (11)	Rehabilitation	139	SF, SRF	$6,994,348	$6,994,348	$--

Project Description
Replacement of pumping equipment, controls, and addition of VFDs (Variable Frequency Drive) and iron filtration. VFDs will provide better system control and operational cost savings.

4g. CIP Components - Water Supply System

Overview

The Municipal Water Supply System that is owned and operated by the Township and administered by the Department of Public Services does not provide service to all Township residents. The Municipal Water Supply System derives its water from underground aquifers and is used for fire protection and domestic consumption. Many areas of the Township currently operate with private wells as their source of potable water supply.

The Township has a Water Enterprise Fund managed by the Department of Public Services.

The Department of Public Services completed an asset management plan in 2017 following a roughly three-year study of the condition of the Township water system. Potential sources of funding for Water Supply projects are the Water Fund balance, Drinking Water Revolving Fund (DWRF), revenue bonds, special assessment districts (SADs), or contributions from General Fund.

On the following pages, each of the Water Supply projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
WATER SUPPLY (WS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0004	Twin Lakes I Well Replacement and Upgrades	Rehabilitation	126	DWRF, WF	$500,000	$484,000	$16,000

Project Description
The Township proposes to install a new well and pump at Twin Lakes I well site to replace the smaller capacity well at the site. This will require discussion with the MDEQ water bureau, site investigation using test/production well(s) to evaluate aquifer capacities, engineering design, permitting, identifying funding sources, contract administration and construction. This will have to be combined with WS-0015.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0012	6-Inch Water Main Replacement (9,000ft)	Rehabilitation	114	WF, DWRF	$2,723,516	$2,723,516	$--

Project Description
Replace 6-inch diameter water main in Colony Heights, Twin Lakes Village, and Suburban Knolls for better system pressure and fire flow.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0015	Twin Lakes Well House Upgrades	Rehabilitation	108	WF, DWRF	$3,123,000	$3,123,000	$--

Project Description
Update controls, piping, iron filtration, and instrumentation to allow efficient operation of the Twin Lakes well house. New in 2027 is well replacement.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0017	High Pressure Districts Elizabeth Lake Road	New Construction	90	WF, DWRF	$3,928,148	$3,928,148	$--

Project Description
The interconnect will allow the high pressure district to utilize both elevated towers for storage at Aspen Meadows and Village Acres well houses for water supply. This will increase system reliability.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
WATER SUPPLY (WS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0019	Meter Replacement	Rehabilitation	82	WF, DWRF	$500,000	$500,000	$--

Project Description
The water system meters in older subdivisions are reaching or exceeding their useful life. As meters age they deteriorate and develop inaccuracies in readings. Replacing meters will provide homeowners with the proper readings and provide accurate billing of water usage.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0021	Repaint Water Tower 1	Rehabilitation	127	WF, DWRF	$658,672	$658,672	$--

Project Description
Exterior overcoat polyurethane paint. Complete wet interior repaint.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0022	Repaint Water Tower 2	Rehabilitation	127	WF, DWRF	$312,300	$312,300	$--

Project Description
Exterior overcoat polyurethane paint. Dry interior partial repaint.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
WATER SUPPLY (WS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0023	Backhoe Machine	New Equipment	74	WF, DWRF	$100,000	$100,000	$--

Project Description
Purchase a Backhoe Machine to assist in day-to-day department operations.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0024	Waterford / White Lake Emergency Interconnection	New Construction	103	WF, DWRF, Waterford	$500,000	$250,000	$--

Project Description
Construction of a second interconnection between the Waterford and White Lake water systems to increase reliability and capacity.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0025	DPS Storage / Maintenance Building	New Construction	58	SF, WF	$1,457,400	$1,457,400	$--

Project Description
Currently gathering estimates and developing preliminary site plan.

Appendix

Excerpt from the Michigan Planning Enabling Act of 2008:

MICHIGAN PLANNING ENABLING ACT (EXCERPT)
Act 33 of 2008

125.3865 Capital improvements program of public structures and improvements; preparation; basis.

Sec. 65.

(1) To further the desirable future development of the local unit of government under the master plan, a planning commission, after adoption of a master plan, shall annually prepare a capital improvements program of public structures and improvements, unless the planning commission is exempted from this requirement by charter or otherwise. If the planning commission is exempted, the legislative body either shall prepare and adopt a capital improvements program, separate from or as a part of the annual budget, or shall delegate the preparation of the capital improvements program to the chief elected official or a nonelected administrative official, subject to final approval by the legislative body. The capital improvements program shall show those public structures and improvements, in the general order of their priority, that in the commission's judgment will be needed or desirable and can be undertaken within the ensuing 6-year period. The capital improvements program shall be based upon the requirements of the local unit of government for all types of public structures and improvements. Consequently, each agency or department of the local unit of government with authority for public structures or improvements shall upon request furnish the planning commission with lists, plans, and estimates of time and cost of those public structures and improvements.

(2) Any township may prepare and adopt a capital improvement program. However, subsection (1) is only mandatory for a township if the township, alone or jointly with 1 or more other local units of government, owns or operates a water supply or sewage disposal system.

History: 2008, Act 33, Eff. Sept. 1, 2008

Charter Township of White Lake
Capital Improvement Plan – Project Application

Project Title: **Click here to enter text.**
Program Area: **Choose an item.**
Prepared By: Click here to enter text.
Date Prepared: **Click here to enter a date.**
CIP ID # : Click here to enter text.

Project Description: Provide a brief (1-2 paragraph) description of project:

Click here to enter text.

Planning Context: Is the project part of an Adopted Program, Policy or Plan?
Yes or No
Choose an item. If yes, identify Program, Policy or Plan
Click here to enter text.

List the adopted program or policy, and how this project directly or indirectly meets these objectives:

Click here to enter text.

Planning Context: Is the Township Legally Obligated to perform this service? (E.G. Federal or State Law, Consent Judgment, etc.)

Yes or No
Choose an item.
If yes, please describe Township's Obligation:
Click here to enter text.

Schedule: Estimated project beginning and ending dates. If project will take several years to complete, fill out Form 2. If applicable, be sure to include any work done in prior years, including studies or other planning:

Click here to enter text.

Coordination: Please identify if this project is dependant upon one or more other CIP projects, and describe what the relationship is:

Click here to enter text.

Project Priority: Low, Medium, High

Choose an item. Priority within Program Area
Choose an item. Priority for the Township

Form 1 - Page 1 of 2

Capital Improvement Plan – Project Application

Prior Approval: Is this project included the prior year's budget?
Has this project been approved by the Township Board, Commission or Authority?

Yes or No
Choose an item.
If Yes, Choose an item.

Total Estimated Cost: In today's dollars (Amount shown here should agree with total on Form 2)

$Click here to enter text.
List all funding options available for this project.

Click here to enter text.

Recommended funding option(s) to be used? (i.e: Operating Revenues, Grants, Fund Balance, Bond Issue etc…)

Click here to enter text.

Basis of Cost Estimate: Please check the following

Choose an item.

Impacts. Describe potential loss of service, benefit or opportunity if the project is not included in the C.I.P.

Click here to enter text.

Form 2 - Page 2 of 2

CHARTER TOWNSHIP OF WHITE LAKE
Capital Improvement Plan
Project Cost Detail

Project ID _____ Category

Project Construction Components	Prior Year	Budget Year	Budget Year 2	Budget Year 3	Budget Year 4	Budget Year 5	Budget Year 6	Totals	TWP Share
Preliminary Engineering								$ -	
Right of Way or Easement Services								$ -	
Land Acquisition								$ -	
Geotechnical Engineering								$ -	
Environmental Services								$ -	
Contractor payments								$ -	
Construction Engineering								$ -	
Depreciable equipment or facilities								$ -	
Post Construction Monitoring								$ -	
Finance Costs								$ -	
Other Construction Costs								$ -	
Total Construction Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Operating Costs	Prior Year	Budget Year	Budget Year 2	Budget Year 3	Budget Year 4	Budget Year 5	Budget Year 6	Totals	TWP Share
Contracted Services								0	
Staff								0	
Routine Maintenance								0	
Utilities, Insurance, Communication								0	
Other								0	
Total Operating Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Total Project Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	

WLT_Project Costing Form templateTemplate

10/5/2009

CHARTER TOWNSHIP OF WHITE LAKE
Capital Improvement Plan
Project Evaluation Form

Project ID _____

Rater Name:	Score Range	Rater Score	Weight	Total Points
1. Contribution to Health, Safety & Welfare			5	0
Eliminates a known hazard (accident history)	5			
Eliminates a potential hazard	4			
Materially contributes	3			
Minimally contributes	1			
No impact	0			
2. Project Needed to Comply with Local, State or Federal Law			5	0
Yes	5			
No	0			
3. Project Conforms to Adopted Program, Policy or Plan			4	0
Project is consistent with adopted City Council policy or plan	5			
Project is consistent with Administrative policy	3			
No policy / plan in place	0			
4. Project Remediates as Existing or Projected Deficiency			3	0
Completely Remedy Problem	5			
Partially Remedy Problem	3			
No	0			
5. Will Project Upgrade Facilities			3	0
Rehabilitates / upgrades existing facility	5			
Replaces existing facility	3			
New facility	1			
6. Contributes to Long-term Needs of Community			2	0
More than 30 years	5			
21 - 30 years	4			
11 - 20 years	3			
4 - 10 years	2			
3 years or less	1			
7. Annual Impact on Operating Costs Compared to Operating Costs assuming the project proceeds			2	0
Net Cost Savings	5			
No Change	4			
Minimal increase (>$25,000)	3			
Moderate Increase ($25,000 - $100,000)	2			
Major Increase (>$100,000)	1			
8. Annual Impact on OperatingCosts Compared to Operating Costs assuming the project does not proceed			2	0
Major Impact (> $100,000)	5			
Moderate Impact ($50,000 - $100,000)	3			
Minor Impact ($25,000-$50,000)	2			
Minimal Impact (< $25,000)	1			
None	0			
9. Service Area of Project			2	0
Regional	5			
Township-Wide	4			
Several neighborhoods	3			
One neighborhood or less	1			
10. Department Priority			2	0
High	5			
Medium	3			
Low	1			
11. Project Delivers Level of Service Desired by Community			2	0
High	5			
Medium	3			
Low	1			

WHITE LAKE TOWNSHIP FOUNDED 1836

CHARTER TOWNSHIP OF WHITE LAKE

1985

OAKLAND COUNTY, MICHIGAN

FOUR SEASONS PLAYGROUND

WHITE LAKE CHARTER TOWNSHIP | CAPITAL IMPROVEMENT PROGRAM

Summary and History by Category · FY 2027–2032

Item C.

	Project ID	Title	Category	Rating	Potential Funding Sources	Summary		2027		2028		2029		2030		2031		2032		
						Project Total	Twp Share	Project Total	Twp Share	Project Total	Twp Share	Project Total	Twp Share	Project Total	Twp Share	Project Total	Twp Share	Project Total	Twp Share	
PARKS & RECREATION	BP-0002	M-59 Pathway (Phase I)	Rehabilitation	98	MDOT-EG; P&RF	$2,000,000	$1,500,000			$2,000,000	$1,500,000									MDOT-EG Funding ($500,000)
	BP-0003	M-59 Pathway (Phase II)	Rehabilitation	98	MDOT-EG; P&RF	$2,000,000	$1,500,000					$2,000,000	$1,500,000							MDOT-EG Funding ($500,000)
	BP-0004	M-59 Pathway (Phase III)	Rehabilitation	98	MDOT-EG; P&RF	$2,000,000	$1,500,000							$2,000,000	$1,500,000					MDOT-EG Funding ($500,000)
	BP-0005	Union Lake Road Pathway	New Construction	98	MNRTFG; RCOCTP; P&RF	$1,500,000	$1,150,000									$1,500,000	$1,150,000			MNRTFG & RCOCTP Funding ($350,000)
	BP-0006	Bogie Lake Road Pathway	New Construction	83	MDOT-EG; P&RF; MSRSP	$5,500,000	$5,000,000									$5,500,000	$5,000,000			MDOT-EG & MSRSP Funding ($500,000)
	PK-0002	Four Seasons Trail (Phase I)	New Construction	67	MNRTFG; P&RF, USDOT	$2,000,000	$1,500,000			$2,000,000	$1,500,000									MNRTFG Funding ($500,000)
	PK-0003	Four Seasons Trail (Phase II)	New Construction	67	MNRTFG; P&RF, USDOT	$2,000,000	$1,500,000					$2,000,000	$1,500,000							MNRTFG Funding ($500,000)
	PK-0004	Four Seasons Trail (Phase III)	New Construction	67	MNRTFG; P&RF, USDOT	$2,000,000	$1,500,000							$2,000,000	$1,500,000					MNRTFG Funding ($500,000)
	PK-0008	Hidden Pines Park Phase II	New Construction	80	MNRTFG; P&RF	$500,000	$150,000											$500,000	$150,000	
	PK-0009	Teggerdine Trail Development Design	New Construction	78	MNRTFG; P&RF	$150,000	$150,000			$150,000	$150,000									
	PK-0010	Bloomer Park Phase II Development	New Construction	60	MNRTFG; P&RF	$305,000	$105,000							$305,000	$105,000					MNRTFG Funding ($200,000)
	PK-0013	Stanley Park Phase II	New Construction	91	MNRTF, P&RF, GF, Donations	$1,000,000	$500,000	$1,000,000	$500,000	$2,250,000	$1,250,000									LWCF Funding ($500,000 Phase 1)
	PK-0014	Pickleball Courts	New Construction	91	Grant(s), P&RF	$450,000	$100,000					$450,000	$100,000							MNRTFG Funding ($350,000)
			Subtotals			**$21,405,000**	**$16,155,000**	**$0**	**$0**	**$6,400,000**	**$4,400,000**	**$4,450,000**	**$3,100,000**	**$4,305,000**	**$3,105,000**	**$7,000,000**	**$6,150,000**	**$500,000**	**$150,000**	
WATER SUPPLY	WS-0021	Repaint Water Tower 1	Rehabilitation	127	DWRF, WF	$658,672	$658,672	$632,750	$632,730											
	WS-0022	Repaint Water Tower 2	Rehabilitation	127	DWRF, WF	$3,123,000	$312,300	$300,000	$300,000											
	WS-0004	Twin Lakes I Well House Upgrades	Rehabilitation	126	DWRF, WF	$500,000	$484,000	$484,000	$459,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
	WS-0012	6-inch diameter Water Main Replacement (9,100 ft.)	Rehabilitation	114	DWRF, WF	$2,723,516	$2,723,516					$2,275,000	$2,275,000							
	WS-0015	Twin Lakes I Well House Upgrades	Rehabilitation	108	DWRF, WF	$3,123,000	$3,123,000	$1,000,000	$1,000,000											
	WS-0024	Waterford/White Lake Emergency Connection	New Construction	103	DWRF, WF, Waterford	$500,000	$250,000							$500,000	$250,000					
	WS-0017	Interconnection of High Pressure Districts (Elizabeth Lake Road)	New Construction	90	DWRF, WF	$3,928,148	$3,928,148			$3,773,437	$3,773,437									
	WS-0019	Residential and Commercial Meter Replacement w/ AMR System	Rehabilitation	82	DWRF, WF	$500,000	$500,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000					
	WS-0023	Backhoe Machine	New Equipment	74	DWRF, WF	$100,000	$100,000			$97,000	$97,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
	WS-0025	DPS Storage/ Maintenance Building	New Construction	58	SF, WF	$1,457,400	$1,457,400			$1,400,000	$1,400,000									
			Subtotals			**$15,955,064**	**$12,878,364**	**$1,884,000**	**$1,859,000**	**$7,650,437**	**$7,650,437**	**$606,000**	**$356,000**	**$106,000**	**$106,000**	**$6,000**	**$6,000**	**$6,000**	**$6,000**	
SANITARY	SS-0008	Upgrades & Equipment Replacement of 7 Sanitary Sewage Pump Stations	Rehabilitation	143	GF, SRF	$6,994,348	$6,994,348	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	$716,667	
	SS-0006	Pump Station at Lakeland High School (when necessary)	New Construction	110	GF, SRF, PD	$260,250	$260,250	$500,000	$250,000											
	SS-0005	Western Outlet Sanitary Extension, Phase II	New Construction	87	GF, SRF	$5,329,711	$5,329,711			$5,119,800	$5,119,800									
			Subtotals			**$12,584,309**	**$12,584,309**	**$1,216,667**	**$966,667**	**$5,836,467**	**$5,836,467**	**$716,667**	**$716,667**	**$716,667**	**$716,667**	**$716,667**	**$716,667**	**$716,667**	**$716,667**	
P.D.	PD-0002	Public Safety Building Firearms Range	New Construction	99	Grants, Drug Forfeitures, PDF	$1,250,000	$1,250,000			$1,250,000	$1,250,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	
	PD-0003	Mobile Command Center	New Equipment	65	Grants, Drug Forfeitures	$153,000	$153,000					$150,000	$150,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
			Subtotals			**$1,403,000**	**$1,403,000**	**$0**	**$0**	**$1,250,000**	**$1,250,000**	**$160,000**	**$160,000**	**$11,000**	**$11,000**	**$11,000**	**$11,000**	**$11,000**	**$11,000**	
FIRE PROTECTION		Brush Truck	New Equipment	141	GF, FPF	$90,000	$90,000	$90,000	$90,000											
		Fire Station No 2 Replacement	New Construction	140	Grant, Bond Issue, BA	$4,000,000	$4,000,000	$100,000	$100,000	$1,950,000	$1,950,000	$1,950,000	$1,950,000							
		Water tanker (tender) truck	New Equipment	139	GF, FPF	$500,000	$500,000	$500,000	$500,000											
		Fire Station No 3 Improvement	New Construction	112	Grant, Bond Issue, BA, GF	$5,000,000	$5,000,000							$5,000,000	$5,000,000					
		Engine / Pumper Replacement	New Equipment	112	FPF	$3,000,000	$3,000,000			$3,000,000	$3,000,000									
		Ambulance	New Equipment	111	GF, FPF	$300,000	$300,000	$300,000	$300,000											
		Fire Ladder Truck	New Equipment	108	FPF	$1,500,000	$1,500,000			$1,500,000	$1,500,000									
		Extrication tools	New Equipment	106	GF, FPF	$120,000	$120,000	$120,000	$120,000											
		Structural Firefighting Gear (30 sets)	New Equipment	102	FPF	$126,000	$126,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	
			Subtotals			**$14,546,000**	**$14,546,000**	**$1,131,000**	**$1,131,000**	**$6,471,000**	**$6,471,000**	**$1,971,000**	**$1,971,000**	**$5,021,000**	**$5,021,000**	**$21,000**	**$21,000**	**$21,000**	**$21,000**	
I.S.	IS-0002	Fleet (excluding Fire Dept)	New Equipment	80	PDF / GF	$855,000	$855,000	$135,000	$135,000	$138,000	$138,000	$141,000	$141,000	$144,000	$144,000	$147,000	$147,000	$150,000	$150,000	
	IS-0003	Township Document Management Program	Professional Services	90	GF	$100,000	$100,000	$50,000	$50,000	$50,000	$50,000									
			Subtotals			**$955,000**	**$955,000**	**$185,000**	**$185,000**	**$188,000**	**$188,000**	**$141,000**	**$141,000**	**$144,000**	**$144,000**	**$147,000**	**$147,000**	**$150,000**	**$150,000**	
			TOTALS			**$65,893,373**	**$57,566,673**	**$4,231,667**	**$3,956,667**	**$27,607,904**	**$25,607,904**	**$7,903,667**	**$6,303,667**	**$10,159,667**	**$8,959,667**	**$7,754,667**	**$6,904,667**	**$1,254,667**	**$904,667**	

WHITE LAKE CHARTER TOWNSHIP | CAPITAL IMPROVEMENT PROGRAM — PROJECT HISTORY

Completed, Canceled, and Superseded Projects · 2018–2026

	Project ID	Title	Category	Rating	Potential Funding Sources	Summary			To Date		2018		2019		2020		2021		2022		2023		2024		2025		2026		
						Total	Twp Share	Other Funds	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	Total	Twp Share	
PARKS & RECREATION	PK-0007	Brendel Lake Campground Acquisition	Land Acquisition	51	MNRTFG; P&RF	$1,372,400	$483,000	$889,400					$1,372,400	$483,000															Project completed (MNRTFG)
	PK-0005	Brendel Lake Property Acquisition	Land Acquisition	58	MNRTFG; P&RF	$700,000	$231,000	$469,000											$300,000	$117,000	$250,000	$57,000	$150,000	$57,000					Replaced by PK-0007
	BP-0008	Triangle Trail Development Design	Prof. Services	96	Grant ($50,000); P&RF	$55,000	$5,000	$50,000									$55,000	$5,000											Completed project
	BP-0009	Triangle Trail Development	New Construction	96	Grant(s), P&RF	$660,000	$560,000	$100,000															$660,000	$660,000					Completed project
	PK-0012	Stanley Park Phase I	New Construction	91	MNRTF, P&RF, GF, Donations	$2,000,000	$1,500,000	$500,000																	$2,000,000	$1,500,000			Completed project
WATER SUPPLY	WS-0016	Hillview Well House Upgrades	Rehabilitation	108	DWRF, WF	$400,000	$400,000								$400,000	$400,000													Completed project
	WS-0020	Twin Lakes II Well House Upgrades	Rehabilitation	127	DWRF, WF	$178,000	$178,000								$170,000	$170,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000					Completed project
	WS-0007	Additional Tank No. 1 Feed	New Construction	71	WF	$90,000	$90,000												$8,000	$8,000	$82,000	$82,000							Project removed
	WS-0008	Aspen Meadows Iron Filtration and Sewer Connection	Rehabilitation	87	DWRF, WF	$5,500,000	$5,500,000										$1,000,000	$1,000,000	$1,000,000	$1,000,000	$3,500,000	$3,500,000							Completed project
	WS-0010	SCADA Tower Replacement and GENSET	Rehabilitation	82	WF, DWRF																								
	WS-0011	Water Main Extension Bogie Lake Road (M-59 to Cedar Island)	New Construction	90	DWRF, WF	$3,750,000	$3,750,000												$1,400,000	$1,400,000	$2,350,000	$2,350,000							Completed project
SANITARY	SS-0007	Meijer Pump Station Upgrade / Replacement	Rehabilitation	130	GF, SRF	$50,000	$50,000								$50,000	$50,000													
	SS-0009	SCADA Equipment to Monitor Sanitary Sewage Pump Stations	New Construction	143	GF, SRF	$240,000	$240,000														$240,000	$240,000							
	SS-0010	Shotwell Gravity Rehabilitation	Rehabilitation	137	GF, SRF	$350,000	$350,000										$350,000	$350,000											Completed project
	SS-0011	Sewer Main Rehabilitation Projects	Rehabilitation	137	GF, SRF	$2,850,000	$2,850,000																		$2,850,000	$2,850,000			Completed project
FIRE PROTECTION	FD-0001	Fire Station Land Acquisition	Land Acquisition	113	Grant, Bond Issue, BA	$500,000	$500,000								$500,000	$500,000													Project removed
	FD-0008	Fire Tanker Truck	New Equipment	120	FPF	$500,000	$500,000												$473,182	$473,182									Completed project
	FD-0011	SCBA Replacement	New Equipment	137	FPF, Grant	$856,000	$856,000						$350,000	$350,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000			$500,000	$500,000					Completed project
	FD-0012	Administrative Vehicles (x2)	New Equipment	80	FPF, GF	$60,000	$60,000		$60,000	($60,000)	$60,000	$60,000																	
	FD-0013	Rescue One Refurbishment	Rehabilitation	143	FPF, GF	$60,000	$60,000		$60,000	$60,000	$60,000	$60,000																	
	FD-0014	Rescue Air Boat	New Equipment	75	FPF, GF	$100,000	$100,000										$100,000	$100,000											Project removed
	FD-0015	Fire Station No. 3 Transporting Unit / Ambulance	New Equipment	112	FPF	$220,000	$220,000												$220,000	$220,000									Project removed
	FD-0016	Cardiac Monitors (x2)	New Equipment	82	FPF	$70,000	$70,000												$73,892	$73,892									Completed project
	FD-0018	Ambulance Replacement - 3 (2 new units and 1 refurbishment)	New Equipment	112	FPF	$800,000	$800,000																						Completed project
	FD-0020	Emergency Medical Service Equipment	New Equipment	137	FPF	$283,262	$283,262																		$283,262	$283,262			Completed project
FACILITIES	FA-0005	Municipal Facilities (All Departments)	New Construction	107	GF, Bond Issue, Grant	$20,325,000	$20,325,000	$0	$0	$0	$175,000	$175,000	$20,000,000	$20,000,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000					Replaced by FA-0006 & FA-0007
	FA-0008	Township Hall Genset	New Equipment	97	GF, PDF, FPF	$100,000	$100,000												$100,000	$100,000									Project removed (< $50,000)
	FA-0006	Public Safety Headquarters (approx.)	New Construction	--	Capital Project Fund, Bond Issue, BA	$25,000,000	$25,000,000																				$25,000,000	$25,000,000	Approximate cost per narrative report (p. 3-6); completed 2026
	FA-0007	Civic Center Building (approx.)	New Construction	--	Capital Project Fund, Bond Issue, BA	$20,000,000	$20,000,000																				$20,000,000	$20,000,000	Approximate cost per narrative report (p. 3-6); completed 2026

Source: Project History tab (working draft), Community Development Department, extended with a 2026 column per the narrative CIP report. A year's Total/Twp Share pair is left blank where the source spreadsheet left one or both cells blank rather than reporting $0 -- this reflects gaps in the original working file, not necessarily zero activity. FD-0012 and FD-0013 also appear on the 2011-2017 History chart with different figures -- both entries are reproduced as printed; the source appears to have carried these two projects forward across both working tabs. FA-0005 ("Municipal Facilities, All Departments," $20,325,000) was itself replaced by FA-0006 and FA-0007, shown below in the 2026 column: the narrative report gives only approximate totals for these two ("approximately $25 million" / "approximate cost of $20 million," p. 3-6) with no per-year dollar breakdown in the source workbook, and no Rating was given for either. The source listed "P.D." and "I.S." category headers with no projects under them in this tab; they are omitted here.

Preliminary Exterior Rendering from Pontiac Lake

(FOR REFERENCE ONLY)

KRIEGER KLATT
ARCHITECTS
400 E. Lincoln Ave. | Royal Oak, MI 48067
P: 248.414.9270 **F:** 248.414.9275
www.kriegerklatt.com

Client:

White Lake JZ, LLC
30201 Orchard Lake Road, Suite 250
Farmington Hills, MI 48334

PRELIMINARY NOT FOR CONSTRUCTION

Project:

Sunset Cove Condominiums
8300 Pontiac Lake Road
White Lake Township, MI 48386

Issued	Description	By
09-02-2026	Client Review	RP

Seal:

Note:

Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

Sheet Title:

3D Rendering

Project Number:

22-096

Sheet Number:

A.005

Zoning Information (White Lake Twp.)

Parcel Identification Number: 12-13-451-011
Zoned: PG Pontiac Gateway
Lot Area: 3.31 Gross Acres, 2.68 Net Acres w/ 60' R.O.W.
Maximum Lot Coverage Allowed: N/A

Height

- Maximum Building Height = **3-Stories; 40.00'**
  Special Land Use = **4-Sotries; 50.00'**

  Building #1 Proposed = **4-Stories; 50.00' (compliant)**

  Building #2 Proposed = **4-Stories; 50.00' (compliant)**

Setback Information

- Pontiac Lake Setback:
  30' + 5' for each story over 3 + 5' for each 100' of building length

  Building #1 = 4-stories, 198.66' (length)
  30' + 5' + 9.93' = **44.93'**

  Building #1 Provided Setback = **30.00' (Variance #1)**

  Building #2 = 4-stories, 174.00' (length)
  30' + 5' + 8.70' = **43.70'**

  Building #2 Provided Setback = **30.00' (Variance #2)**

- Natural Features Setback @ Pontiac Lake = **25.00'**

  Building #1 Provided Setback = **30.00' (compliant)**

  Building #2 Provided Setback = **30.00' (compliant)**

- Req'd. Setback Between Bldgs. 1 & 2 = **45.50'**

  Provided Setback = **51.33' (compliant)**

- Req'd. Setback @ Bldg. & Sidewalk = **25.00'**

  Building #1 Provided Setback = **0.00' (Variance #3)**

  Building #2 Provided Setback = **0.00' (Variance #4)**

- Build-to-Line Requirement = **75%**
  (non-conducive for lakefront property)

  Building #1 Provided = **0% (Variance #5)**

Required Spaces: **Multi-Family**
(2) Space per Dwelling Unit
(1/4) Additional Space per Bedroom

45 Units X 2 Spaces = 90 Parking Spaces
90 Bedrooms X 1/4 Spaces = 23 Parking Spaces
90 + 23 = **113 Parking Spaces Required**

Total Provided Spaces
Off Street Parking:
(61) Enclosed Parking Spaces Provided
(99) Off-Street Parking Spaces Provided
(160) Total Spaces Provided

Unit Schedule:
(45) Two Bedroom Units (2 Buildings)
(45) Total Units

Architectural Site Plan

1" = 30'-0"

krieger klatt ARCHITECTS
architecture interiors consulting
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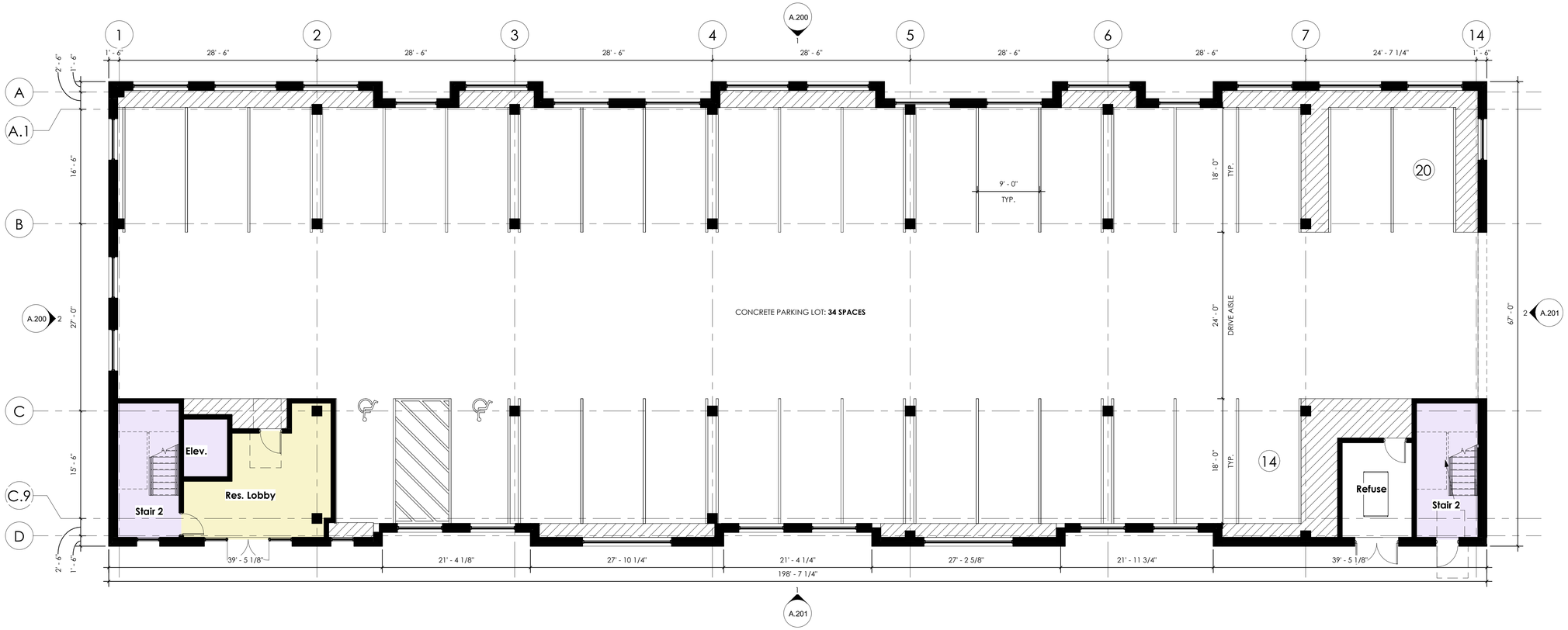
North Arrow:

Sheet Title:
Architectural Site Plan

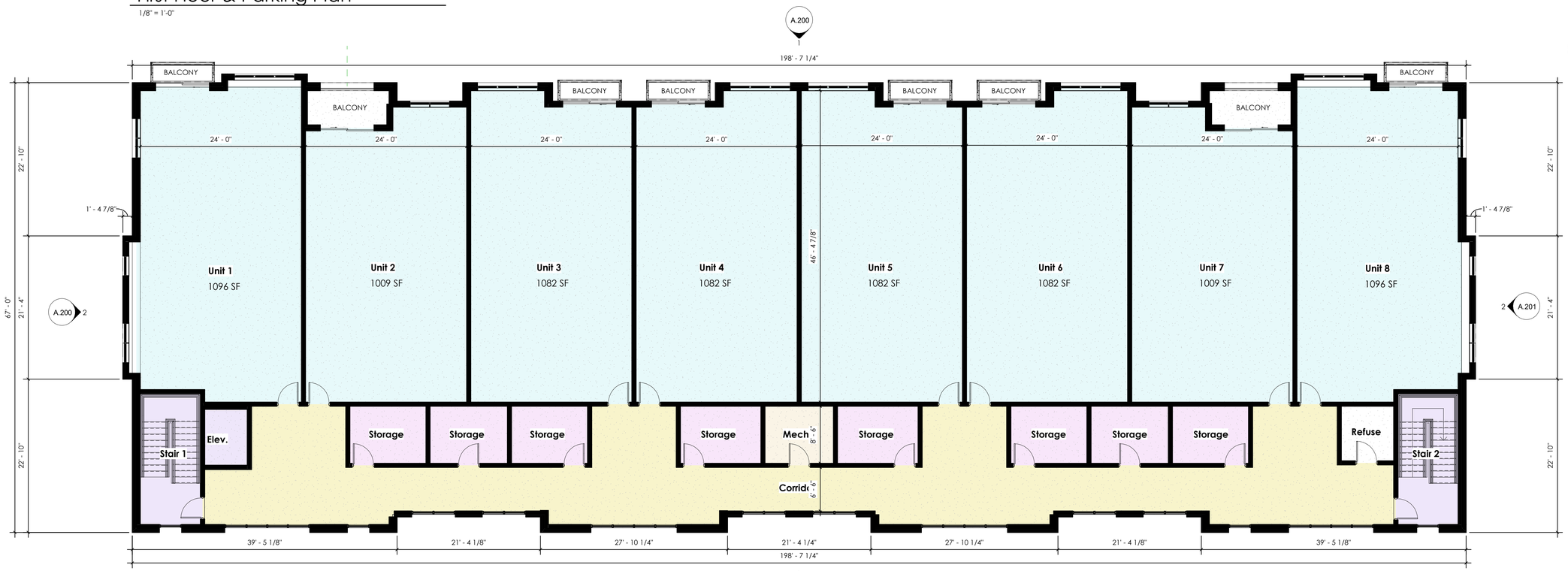
Project Number:
22-098

Sheet Number:
C.100



First Floor & Parking Plan

1/8" = 1'-0"



Second - Fourth Floor Plan

1/8" = 1'-0"

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North Arrow:

Sheet Title:

Floor Plans

Project Number:

22-096

Sheet Number:

A.100

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Front (West) Elevation
1/8" = 1'-0"

Exterior Material Schedule X

SYMBOL	DESCRIPTION	LOCATION	MANUFACTURER	FINISH / COLOR
M-1	CAST STONE BASE	AS NOTED ON ELEVATIONS	CUSTOM CAST STONE	SPLIT FACE / DARK BUFF
M-2	MASONRY (BRICK)	AS NOTED ON ELEVATIONS	ENDICOTT PRODUCTS OR SIMILAR	EXECUTIVE IRONSPOT
M-3	EXTERIOR SIDING (BATTEN)	AS NOTED ON ELEVATIONS	JAMES HARDIE BATTEN SIDING	MONTEREY TAUPE
M-4	ASPHALT SHINGLES	AS NOTED ON ELEVATIONS	CERTAINTEED	LANDMARK / CHARCOAL BLACK
M-5	ALUM. STOREFRONT	AS NOTED ON ELEVATIONS	KAWNEER OR SIMILAR	ANODIZED / DARK BRONZE
M-6	EXTERIOR LAP SIDING	AS NOTED ON ELEVATIONS	JAMES HARDIE OR SIMILAR	TAN

Right (South) Side Elevation
1/8" = 1'-0"

Seal:

Note:
Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

Sheet Title:
Elevations - Typ.

Project Number:
22-096

Sheet Number:
A.200

Rear (East) Elevation

1/8" = 1'-0"

Exterior Material Schedule X				
SYMBOL	DESCRIPTION	LOCATION	MANUFACTURER	FINISH / COLOR
M-1	CAST STONE BASE	AS NOTED ON ELEVATIONS	CUSTOM CAST STONE	SPLIT FACE / DARK BUFF
M-2	MASONRY (BRICK)	AS NOTED ON ELEVATIONS	ENDICOTT PRODUCTS OR SIMILAR	EXECUTIVE IRONSPOT
M-3	EXTERIOR SIDING (BATTEN)	AS NOTED ON ELEVATIONS	JAMES HARDIE BATTEN SIDING	MONTEREY TAUPE
M-4	ASPHALT SHINGLES	AS NOTED ON ELEVATIONS	CERTAINTEED	LANDMARK / CHARCOAL BLACK
M-5	ALUM. STOREFRONT	AS NOTED ON ELEVATIONS	KAWNEER OR SIMILAR	ANODIZED / DARK BRONZE
M-6	EXTERIOR LAP SIDING	AS NOTED ON ELEVATIONS	JAMES HARDIE OR SIMILAR	TAN

Left (North) Side Elevation

1/8" = 1'-0"

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Seal:

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North Arrow:

Sheet Title:
Elevations - Typ.

Project Number:
22-096

Sheet Number:
A.201