PLANNING COMMISSION MEETING

LOCATION: TOWNSHIP ANNEX, 7527 HIGHLAND ROAD, WHITE LAKE, MICHIGAN, 48383
(FORMER WHITE LAKE LIBRARY)
THURSDAY, JULY 07, 2022 – 7:00 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. Minutes of June 16, 2022
6. **CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)**
7. **PUBLIC HEARING**
8. **CONTINUING BUSINESS**
   A. The Avalon fka White Lake Hill
   Property described as parcel number 12-20-101-003 (1085 Hill Road), located on the north side of Highland Road, west of Hill Road, consisting of approximately 68.96 acres. Property described as parcel number 12-20-126-006, located north of Highland Road, east of Hill Road, consisting of approximately 41.06 acres. Parcel number 12-20-101-003 is currently zoned (AG) Agricultural and (PB) Planned Business, and parcel number 12-20-126-006 is curently zoned (R1-A) Single Family Residential.
   Request:
   1) Preliminary site plan approval
   Applicant: White Lake Hill, LLC
   31550 Northwestern Highway
   Farmington Hills, MI 48334
9. **NEW BUSINESS**
   A. Hypershine Car Wash
   Property described as parcel number 12-23-202-006 (9345 Highland Road), located on the south side of Highland Road, west of Fisk Road, consisting of approximately 4.91 acres. Currently zoned as (GB) General Business.
   Request:
   1) Final site plan approval
   Applicant: EROP, LLC
   2390 East Federal Drive
   Decatur, IL 62526
10. **OTHER BUSINESS**
    A. Concept plan for the southeast corner of Hilltop Drive & Highland Road
11. **LIAISON'S REPORT**
12. **DIRECTOR'S REPORT**
13. **COMMUNICATIONS**
14. **NEXT MEETING DATE:** July 21, 2022 & August 4, 2022
15. **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-164 at least two days in advance of the meeting.** An attempt will be made to make reasonable accommodations.

WHITE LAKE TOWNSHIP
PLANNING COMMISSION

Township Annex, 7527 Highland Road
White Lake, MI 48383
June 16, 2022 @ 7:00 PM

CALL TO ORDER

Commissioner Anderson called the meeting to order at 7:02 PM and led the Pledge of Allegiance. Roll was called.

ROLL CALL

Steve Anderson
Merrie Carlock
Pete Meagher
Matt Slicker
T. Joseph Seward

Absent: Debby Dehart
Robert Seeley
Scott Ruggles
Mark Fine

Also Present: Sean O'Neil, Community Development Director
Justin Quagliata, Staff Planner
Mike Leuffgen, DLZ
Lisa Kane, Recording Secretary

Visitors: 25 members of the public were present

APPROVAL OF AGENDA

Commissioner Meagher moved to approve the agenda of the June 16, 2022 Planning Commission Meeting.
Commissioner Carlock supported and the MOTION CARRIED with a voice vote: 5 yes votes.

APPROVAL OF MINUTES

a. Regular meeting minutes of May 19, 2022

Commissioner Meagher moved to approve the Minutes of May 19, 2022.
Commissioner Seward supported and the MOTION CARRIED with a voice vote: 5 yes votes.

CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)

A letter from **John Hunt** of 871 Oxhill Dr., was read by Commissioner Anderson. Mr. Hunt has concerns about the amount of concrete that will be around his home if the Black Rock restaurant moves forward, and how that relates to climate change.

PUBLIC HEARING

A. Elizabeth Lake Retail

Location: Property described as parcel number 12-21-426-005, located on the southwest corner of Elizabeth Lake Road and Highland Road (M-59), consisting of approximately 53.41 acres.
Requests:
1) Preliminary site plan approval
2) Rezoning request - the applicant would like to rezone approximately 8.61 acres of the northeast portion of the parcel from AG (Agricultural) to PB (Planned Business) or any other appropriate zoning district.
Applicant: Nazir Jawich
40500 Ann Arbor #105 LL
Plymouth, MI 48170

Applicant Present: Nazir Jawich, property owner and Richard Shapak, owner's representative and Joe Maynard of Washtenaw Engineering

Director O'Neil introduced the project and clarified the portion that is subject to the rezoning. The project consists of five commercial buildings and two apartment style buildings that the applicant would like to use as a future area for development. The public benefit offered is public open space at the corner of Elizabeth Lake Road and M-59 and extending the sidewalk on Elizabeth Lake Road to the library. The project is consistent with the master plan. All approvals are subject to EGLE reviews, along with MDOT and Road Commission of Oakland County traffic studies and driveway application results. The rezoning is consistent with the goals and policies of the land use on the master plan, in which Planned Business zoning allows for the proposed uses with the exception of the residential units on the site plan which the applicant has stated they plan to remove. Staff recommends approval, dependent on all staff, consultant and governing authorities' comments being addressed.

Commissioner Seward questioned the consistency of this project with the master plan.

Director O'Neil stated that when looking at the civic center area as a whole, the spirit of the of master plan is met.

Mr. Leuffgen presented the engineering review for the project. Engineering approval for the site plan will be subject to the wetland delineation on the west boundary being determined by EGLE and a plan for restoration of the southern wetlands border after construction. There are concerns regarding a potential conflict of the dumpster pick up and drive thru staging lanes. Concurrence from the Drain Commission necessary regarding the Brendel drain on the west border is needed. Engineering has a concern of the lack of a sidewalk to access M-59 from the parking lot on the west entrance. This site plan demonstrates engineering feasibility. A response to a traffic impact study review was received from the RCOC on June 16, 2022. It states that trip generations from the west entrance to the future site development is needed however the developer did not include that for the presented study. Engineering recommends that trip generations for future development be analyzed, which may also indicate a right turn taper is to be required on the east entrance.

Commissioner Meagher inquired about the right turn taper for the east drive conversation mentioned by staff which occurred recently with the Road Commission of Oakland County.

Mr. Leuffgen stated that the recent study indicated that the right turn taper isn't warranted, however future use from the development that was proposed to the south would increase the amount of traffic and likely change that determination.

Deliberation occurred about the increase of traffic from future developments by board members and staff.

Mr. Shapack stated that the owner of this property also owns the property to the south.

Commissioner Anderson inquired if the development type of the southern property changes the traffic study parameters.

Deliberation occurred regarding the traffic impact depending on future use.

Mr. Jawich expressed concern that this project is being impacted based on projects that might happen in the future.

Director O'Neil clarified that considering future traffic impact is a requirement of the ordinance.

Joe Maynard of Washtenaw Engineering stated that they have been granted a permit from EGLE regarding the presented plan.

Mr. Shapack stated that garbage service will be scheduled so that it does not interfere with the drive thru traffic. The front and the rear elevation of the buildings will be identical and aesthetically pleasing. A public benefit of walkability throughout the property includes a walking path around the retention pond.

Commissioner Meagher inquired about the public benefit value of the corner patio lot and sidewalks.

Mr. Shapack added that the walking path around the retention pond that would be at the southern border.

Commissioner Anderson noted that the walking path is not included in the proposed plan that is being considered at this meeting.

Commissioner Carlock stated that more walking paths connecting around the southern border connecting to future projects is desirable.

Commissioner Slicker inquired if a plan was presented that did not include residential.

Director O'Neil stated that so far, no plan has been presented that doesn't include the residential component but it would be presented at final site plan review.

Commissioner Anderson opened public comment at 8:02 p.m.

Tom Close, who is a 45-year resident has concerns about the traffic that would be increasing from this project and would like to see sidewalks that connect the project to the park.

Pam Hassel of 4553 Spring Ridge Dr. questioned who determines if a right turn taper lane is installed and who the community should express concerns to about traffic.

Director O'Neil responded that Michigan Department of Transportation for M-59 and Road Commission of Oakland County for Elizabeth Lake Road are the entities that have jurisdiction of that determination.

Mr. Quagliata read a letter from a concerned resident.

Commissioner Anderson closed public comment at 8:10 p.m.

Mr. Jawich asked for clarification on what the rezoning was that is being requested, Planned Development or Planned Business.

Deliberation occurred regarding what zoning the applicant was seeking.

Commissioner Carlock inquired if staff recommended tabling the project.

Commissioner Seward moved to table the rezoning pending the applicant provide a revised traffic study and public benefit valuation.
Commissioner Carlock supported and the motion failed with a roll call vote (5 yes votes)
(Anderson/yes, Carlock/yes, Meagher/yes, Seward/yes, Slicker/yes)

Commissioner Seward moved to table the preliminary site plan review pending the applicant provide a revised traffic study and public benefit valuation.
Commissioner Meagher supported and the motion failed with a roll call vote (5 yes votes)
(Anderson/yes, Carlock/yes, Meagher/yes, Seward/yes, Slicker/yes)

CONTINUING BUSINESS

A. White Lake Hill LLC
Property described as parcel number 12-20-101-003 (1085 Hill Road), located on the north side of Highland Road, west of Hill Road, consisting of approximately 68.96 acres. Property described as parcel number 12-20-126-006, located north of Highland Road, east of Hill Road, consisting of approximately 41.06 acres.
Request:
1) Preliminary site plan approval
Applicant: White Lake Hill, LLC
31550 Northwestern Highway
Farmington Hills, MI 48334

Commissioner Slicker asked to be recused from the case due to a conflict of interest.

Commissioner Meagher moved to table the case due to lack of a quorum.
Commissioner Seward supported and the motion failed with a voice vote (5 yes votes)

NEW BUSINESS

A. Taco Bell
Property described as parcel number 12-20-276-036, located at the northeast corner of Highland Road (M-59) and Bogie Lake Road, consisting of approximately 1.07 acres, currently zoned (PB) Planned Business District.
Requests:
1) Final site plan approval
2) Planned business development agreement approval
Applicant: Great Lakes Taco, LLC
8487 Retreat Drive
Grand Blanc, Michigan, 48439

Applicant Present: Greg Lautzenheiser of Kem-Tec & Associates and Louis Dortch of Great Lakes Taco

Mr. Quagliata presented the final site plan which received prior approval from the White Lake Township Board. The applicant has requested several waivers and needs to address concerns from the Department of Public Services director regarding the dumpster area compost bins and grease receptor. The development agreement proposed needs updates as requested by the Township attorney.

Mr. Leuffgen presented the engineering review dated June 2, 2022. A storm water quality device is required, a vortex style filter would be acceptable. There is a sanitary sewer pump station directly in front of the project on M-59, which is managed by Oakland County and requires landscaping changes for accessibility. Engineering recommends approval dependent on all comments being addressed.

Commissioner Carlock is concerned about the color of the building brick veneer matching the other Taco Bell restaurant on Cooley Lake Road and recommended using male trees.

Mr. Lautzenheiser stated that they have selected a color pallet that closely resembles the other restaurant to satisfy the Planning Commission.

Commissioner Meagher moved to approve the final site plan subject to all staff and consultants' review comments being addressed and the new brick color for the property described as parcel number 12-20-276-036, located at the northeast corner of Highland Road (M-59) and Bogie Lake Road, consisting of approximately 1.07 acres, currently zoned (PB) Planned Business District.

Commissioner Seward supported, and the MOTION CARRIED with a roll call vote (5 yes votes): (Anderson/yes, Carlock/yes, Meagher/yes, Seward/yes, Slicker/yes)

Mr. Quagliata stated there are 5 waivers requested regarding landscaping, one for signage size, one for window coverage percentage, one for west line property line setback and one for the dumpster placement. Staff acknowledges the challenges for the landscaping due to the size of the lot.

Deliberation occurred regarding the waivers requested.

Mr. Dortch of Great Lakes Taco stated that the compost bins are actually recycling bins for cardboard. A 200-gallon grease receptor is an industry standard and this site has a greater number of landscaping than other sites they have in the area.

Mr. Quagliata stated they can work administratively with the staff to increase the number of landscaping trees and the plan should be revised to update the dumpster enclosure bins.

Mr. Leuffgen stated a cross access agreement needs to be mentioned in the agreement and there is an easement deficiency in the plan that will be resolved with the final site plan exhibit update.

Commissioner Seward moved to recommend approval of the planned business development agreement to the Township Board for the property described as parcel number 12-20-276-036 (6305 Highland), subject to all staff and consultants' review comments being addressed and the applicant working with staff to increase landscaping and labeling the dumpster area bins appropriately.

Commissioner Carlock supported, and the MOTION CARRIED with a roll call vote (5 yes votes): (Anderson/yes, Carlock/yes, Meagher/yes, Seward/yes, Slicker/yes)

OTHER BUSINESS

None

PLANNING CONSULTANT'S REPORT

Mr. Leuffgen stated there are multiple projects ongoing in the Township, including a water treatment plant, a water main on Bogey Lake Road and a sanitary sewer.

LIAISON'S REPORT

None.

DIRECTOR'S REPORT

Director O'Neil met with the RCOC regarding reconstruction of Elizabeth Lake Road between M-59 and Teggerdine Road. Conceptual designs will be shared in the near future.

Mr. Quagliata Saturday, June 25th from 3 – 8 p.m. is the Family Fun Day event at Hawley Park with bands, concessions and activities.

COMMUNICATIONS

NEXT MEETING DATES: July 7, 2022
July 21, 2022

ADJOURNMENT

Commissioner Meagher moved to adjourn the meeting at 9:12 PM
Commissioner Slicker supported and the MOTION CARRIED with a voice vote: 5 yes votes

Director's Report

Project Name: Avalon (White Lake Hill, LLC)

Description: Preliminary site plan approval

Date on Agenda this packet pertains to: July 7, 2022

☐Public Hearing

☐Initial Submittal

☒Revised Plans

☒Preliminary Approval

☐Final Approval

☐Special Land Use

☐Rezoning

☐Other:

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Community Development Director	☐	☐	☒	☐	Subject to all staff and consultant review comments being addressed.
DLZ	Engineering Consultant	☐	☐	☒	☐	See letter dated 05/25/2022
Justin Quagliata	Staff Planner	☐	☐	☒	☐	See letter dated 05/25/2022
John Holland	WLT Fire Chief	☐	☐	☒	☐	See letter dated 05/24/22

DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES

INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

May 25, 2022

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

RE: The Avalon- f.k.a. White Lake Hill- Preliminary Site Plan Review – 4th Review

Ref: DLZ No. 2145-7233-21 Design Professional: PEA Group

Dear Mr. O' Neil,

Our office has performed the above mentioned Preliminary Site Plan review for the revised plan dated May 16, 2022. The plans were reviewed for feasibility based on general conformance with the Township Engineering Design Standards.

General Site Information

This site is located on the north side of M-59 and east of Ormond Road. The property is located on both sides of Hill Road: across from former Brooks Elementary School and West of Meijers. Total site acreage is approximately 110.02 acres.

Site Improvement Information:

- Construction of a Planned Development consisting of **81 (previously 87)** single family condominium homes on the east side of Hill Road.
- Proposed paved and public road for the single family condominium homes with one point of access off Hill Road.
- Construction of a Planned Development consisting of **406? 393?** [see comment o)] multi-family units for lease on the west side of Hill Road. Associated clubhouse and pool as part of multi-family development.

- For multi- family units: associated paved and curbed parking including ADA accessible parking spaces and maneuvering aisles for clubhouse and pool. Internal streets and drives are also proposed with a point of access off M-59 and a second point of access off Hill Road.
- Site to be serviced by watermain and sanitary sewer.
- Storm water runoff is proposed to be detained as follows: 1) Detention Pond at the northwest corner of Hill Road and M-59- to discharge to existing storm sewer just south. 2) Two detention ponds on the west side of Hill Road and located centrally in the multi-family portion- to discharge to existing culvert under Hill Road. 3) Detention ponds located on the southernmost portion of the single family phase- to discharge to existing watercourse located between the two ponds. 4) Detention pond located on the eastern portion of the single family phase- to discharge to the existing wetlands to the southwest.

We offer the following comments:

Note that comments from our April 13, 2022 review letter are in *italics*. Responses to those comments are in **bold**. New comments are in standard typeface.

<u>The following items should be noted with respect to Planning Commission review:</u>

a) We note that the number of single family lots has been reduced from 87 to 81 and that the multi-family has been reduced from 406 units to 393 units. These reductions in the number of lots and units will likely not impact utility layout or design. We note that the plan sheets included as part of this submittal did not show the proposed watermain, sanitary sewer, or storm sewer; we assume that the layouts proposed on the previous Preliminary Site Plan dated April 4, 2022 are to remain the same.

b) *Pond 2 located in the single family section of the development (see plan Sheet P-5.1) proposes discharge to the adjacent wetlands to the west. Clarify where drainage from this wetland shall be routed as it appears from existing topography that there is no outlet from this wetland. In addition, a portion of this wetland is located off site; an off-site drainage easement would be required. Additional topographical survey information will be required for the property to the south of the wetlands in order to clarify the drainage path.* **The design engineer has noted that the discharge from the proposed pond (now labeled as Pond 5) will discharge at an agricultural rate and follow its natural off site drainage course. The difference in pre and post development area discharging from proposed Pond 5 to the existing wetlands is an increase of 0.2 acres. We can consider this item**

complete for this level of review, however the capacity for the receiving wetland to accommodate the increased runoff volume will need to be demonstrated at the time of Final Site Plan.

c) *The multifamily exiting drive onto M-59 shows a width of 16 feet. Township Zoning Ordinance 5.11Q.v. requires a width of 20' for one way drives and a minimum width of 24' for two way drives.* **Dimensions have been clarified; DLZ defers further comment regarding compliance to Township Planning Department.**

d) *We defer to the Township as to whether 6 foot wide sidewalk is required on both sides of Hill Road. None is proposed at this time. Township Zoning Ordinance 5.21 requires a minimum of 6 foot width for sidewalks along major roadways. Comment outstanding. We continue to defer to the Township with regard to this item. Note that an 8' wide path has now been added along a portion of the west side only of the Hill Road frontage and that two road crossings of the path have been proposed near the Hill Road entrances in order to connect the multi-family to the single-family units. The locations for the path crossings should be reviewed for proper pavement markings and pedestrian crossing signage.* **Comment addressed at this level of review. Per the design engineer, this item was discussed at a Township Zoom meeting on March 25, 2022. It was determined that an 8' wide path will be added along the western side of Hill Road from M-59 to the single family entrance. Paths are also now shown along the frontage for Units 81-84 and 85-87 only as the adjacent areas pose an issue with regulated wetlands and stream encroachment. The developer agreed at the meeting to make a contribution to the White Lake Sidewalk Fund to supplement pathway areas not installed along Hill Road.**

We note that portions of the proposed sidewalk along the western side of Hill Road are proposed outside the future ROW. This sidewalk locations shall be either adjusted to inside the future ROW or an easement shall be provided. In addition, our comment with respect to the proper pavement markings and pedestrian crossing signage for Hill Road crossing will need to be addressed at the time of FSP/FEP submittal.

e) *The following single family lots present conflicts with either the proposed house, required grading, or the potential deck/patio encroaching into the wetlands setback:1,27,28,40,61, and 88. Impacts to the wetlands buffer will need to be removed. Comment outstanding. The wetlands setback/buffer for all wetlands was not shown on the initial Preliminary Site Plan submittal dated December 8, 2021. There are now units in the single family portion of this development as well as other areas of the development where grading is proposed in the wetlands setback/buffer which is not allowable. The following single family units will require revision with respect to grading in the wetlands setback: 1-7,20,27,28,39,40,52-54,61,75,76,84,85, and 88. In addition, the proposed retaining wall adjacent*

grading to the northwest of multi-family Unit 19 will also require adjustment with respect to grading in the wetlands buffer. Since the units listed border EGLE regulated wetlands, our office concurs with the recommendation by Barr Engineering, Inc Wetland Delineation Report (dated February 9, 2022) recommending that Barr's wetland boundary determination and jurisdictional opinion be reviewed by EGLE prior to undertaking any activity near or within any identified wetlands; the proposed layout as submitted may require revision, in response to EGLE's review, to unit/ lot layout in the single family phase, thus impacting the preliminary site layout. **Comment addressed. Per a meeting with the Township on March 25, 2022, it was agreed that grading within the 25' wetland setback would be acceptable. A wetland restoration plan shall be required at the time of FSP/FEP submittal. Plan shall include a timeline for restoration of the wetland buffers. Note that the developer shall also be required to comply with all EGLE requirements with respect to grading and regulated wetlands. A note shall be provided on the FSP/FEP with regard to the wetland buffer restoration.**

f) *All public roads are required to be built to RCOC standards.* **Comment remains as a notation.**

g) *Specify the proposed width of the shared access driveways for Lots 81-84 and 85-88 of the single family portion. These drives shall be built to private access drive standards of White Lake as specified in the Zoning Ordinance Section 5.16. Section C. ii. requires two points of access for such drives to an adjacent public or private road. Section D. ii. requires that access driveways shall be able to accommodate emergency vehicles. Comment partially addressed. Two points of access for each of the drives are now proposed, however, Ordinance 5.16 C.i. requires a 30' wide easement width for an access drive; 25' is proposed for Lots 81-84 and 85-88. In addition, Zoning Ordinance Section 5.16 C. iii. regarding setbacks shall be met (Unit 85 is not in compliance). Also specify on plan that the 20' drive widths proposed are measured as 20' from the edge of the gutter line per Ordinance 5.16 C. v. Please also provide fire truck turning radius for these private access drives.* **Comment addressed. Fire truck movements have been provided and show that while tight the trucks will be able to traverse the drives.**

h) *Clarify if there is an existing drainage easement on the property south of the single family Detention Ponds 1 and 3. An easement will be required for discharge of drainage off site. In addition, the design engineer will be required to demonstrate that there will be no downstream impacts from the proposed development in terms of stormwater discharge flows. Engineer will need to demonstrate that adequate downstream capacity exists to handle post development flow.* **Comment remains as a notation and can be further clarified at the time of FSP. Design engineer has stated in their February 15, 2022 review response letter: "There is not an easement in place. There is an existing stream which provides the historical drainage route through the said parcel to a box culvert under M-59. Since the development will have a 100-year detention basin and will discharge stormwater at an agricultural rate, the downstream ditch should have adequate capacity. A detailed**

engineering analysis will be provided to the township and MDOT during the construction plan phase."

i) *End sections for the three detention basins proposed on the single family portion will be required to be located outside the wetland setback. Comment partially addressed. Our office finds the basin outlet locations acceptable and that the outlet pipes for Basins 4 and 5 shall be constructed within the wetlands setback and the land restored to its natural preconstruction condition. Note that location of the basin end sections shall be subject to review and approval by EGLE. EGLE may require revision of the end section locations. Our office recommends the Township require a wetland setback restoration plan and that the developer be required to post a bond amount to guarantee proper and timely completion of restoration of the wetland buffer setbacks in these two areas should EGLE approve the end section locations.* **Comment addressed for this level of review. The design engineer notes a wetland setback restoration plan shall be provided at the time of FSP/FEP submittal. A note shall be provided on the FSP/FEP regarding wetland setback restoration.**

j) *Extend the sanitary sewer to the north property line along Hill Road. Comment remains. Applicant indicated that the topography near the northern property restricts construction of the sanitary sewer at this location and would require a construction easement from the adjacent property owner. Township Ordinance requires extension to the limits of the property line and the sanitary sewer master plan indicates that gravity sanity sewer is ultimately proposed north of this location. We defer to the Township if a variance can be granted on this requirement or if completion of this item will be a condition of approval.* **Comment addressed. Discussion with the Township concluded that the sewer shall not be extended to the north property line and that an easement for future sanitary sewer extension shall be provided. In addition, the developer shall be required to deposit a monetary fee or escrow with the Township as assurance to supplement the future sewer extension.**

k) *With nearly 60 feet of elevation change, the designer should ensure that sufficient pressure exists at the higher elevations for a bathroom on the 2nd story. The water may have to come from Pressure District 4 to service units with higher elevations as it appears that there will be insufficient pressure on the northern portions of the proposed development. To interconnect between the pressure districts, at least one PRV may be required. We suggest that the Township request escrow funds with regard to this item such that DLZ can model the water system to determine any deficiencies that may exist regarding water pressures and/or capacities. Our office has performed modeling of the proposed water system, see attached water model results; In all scenarios the area at the northeast corner of Aurora Circle experienced the lowest resulting pressure. There is a need for a handful of homes in this vicinity to have individual booster pumps to ensure adequate pressure given the various scenarios. It can also not be understated that the proposed design places an incredibly high criticality*

rating on the existing 16" watermain along M59. This is the only supply proposed to serve the nearly 500 residential units. If something were to happen to this watermain there is no second source or storage to feed this area temporarily. DLZ recommends a second water supply be installed to provide redundancy to the proposed distribution system. Please note that in order to stay within the same pressure district the source would need to be from south of the existing Pressure Reducing Valves that exist on either side of the existing Meijer store. **Comment addressed at this level of review. As a condition of the Township engineer's recommendation for Preliminary Site Plan approval, the developer acknowledges the critical issue of not having a redundant source of water supply for the proposed development. The design engineer has stated that a second supply connection is being researched.**

l) *Sanitary sewage from this development is tributary to the existing Meijer sanitary sewer pump station located at the Northeast corner of Highland Road and Bogie Lake Road; an analysis will need to be provided that indicates there is sufficient capacity within the existing pump station, or if upgrades will be necessary to support the additional discharges.* **Comment addressed and remains as a notation. Design engineer states in their review response letter dated February 15, 2022: "Since an 18" sewer has been stubbed to the Hill Road/M-59 intersection, it is our understanding that the pump station and forcemain were designed for future development along Hill Road and Ormond Roads. A detailed analysis will be conducted during the construction plan phase."**

m) *Proposed future decks or patios for Lots 12,15,82, and 83 of the single family portion of the development appear to encroach into the proposed storm sewer easement. Please revise. Comment outstanding. A 12' wide deck or patio would only allow for 5' of easement on one side of the storm sewer relative to Units 82 and 83; 6' minimum is required. In addition, Units 9-12 would have a similar issue. Unit 80- the deck or patio could only be placed on the NE area of the rear of the house. Units 85 and 86 would not have enough space for a deck or patio without storm sewer easement encroachment.* **This comment remains outstanding. Since the lot numbering and count has changed and no utility information has been included with the current submittal, we are unable to review requested changes or provide comment.**

n) *Parcel Area Table on Sheet P-2.0 of plans appears to be missing parcel data for Units 82,83,84,86, and 87. Please update.* **Comment addressed.**

o) The number of multifamily units of 393 in the 'Multi-Family Site Data Table' on Sheet P-2.0 does not match the total shown (72+334=406) in the same table under subsection "Minimum Lot Size.'

The following comments can be addressed on the Final Site Plan/Final Engineering Plan:

Final Site Plan/Final Engineering Plan Comments-

General

1. Plan shall contain notes per White Lake Township Engineering Design Standards Section A. 8. a.-d.
2. Provide at least two permanent benchmarks on NAVD 88 datum. Benchmarks are required at least every 1,200 feet.
3. Provide soil boring reports that were prepared by CTI and McDowell.
4. The topographical survey shows existing overhead electrical lines on the parcel west of Hill Road. Clarify as to whether these lines shall remain or be relocated and as to whether an easement for the lines exists. In the event the lines are to be relocated, the easements (if existing) will need to be vacated.
5. A landscape plan showing all proposed trees relative to proposed storm sewer, sanitary sewer, and watermain shall be submitted. Note that 10' horizontal separation is required between proposed utilities noted and proposed trees.

Paving/Grading

1. ADA accessible ramps will be required on sidewalk adjacent to ADA parking spaces. Ramp slopes shall meet ADA requirements.
2. Structural wall calculations, that have been signed and sealed by a Registered Structural Engineer, verifying the wall integrity and the ability to support lateral and vertical stresses will need to be provided for retaining walls over 30" tall.
3. Retaining walls >30" in height shall require a decorative fence or railing at the top that is a minimum of 36" in height.
4. Wetland buffers shall be clearly shown on all grading sheets.
5. Sheets 3.1-3.4 have Hill Road mislabeled as Highland Road. Please revise.

Watermain

1. We defer to the Fire Department regarding items related to fire suppression and hydrant coverage.
2. Show 20' wide easements for all watermain on plan.
3. Additional gate wells will be required to meet isolation requirements.
4. Radii of watermain appears to be too small at Units 40-41. Bends may be necessary.

5. There appears to be less than 10 feet of separation barrel to barrel between the storm sewer and watermain proposed in front of multifamily Unit 38. Please revise.

Sanitary Sewer

1. A manhole will need to be added along Hill Road southeast of multifamily Unit 28. There is 720 feet between manholes.
2. There appears to be less than 10 feet of horizontal separation to storm sewer in front of multifamily Unit 57. Please revise so minimum separation is achieved.
3. Modify sanitary sewer connection note on Sheet P-4.1 to read:" Connect proposed 10" **and 18"** sanitary to existing 18" sanitary stub."

Stormwater Management

1. We recommend that the proposed ditch end section tie into the MH southwest (adjacent to multi-family Detention Pond 3) be moved such that the end section ties into a separate manhole due south of the end section. This would eliminate the potential for four pipe connections into the same MH. See Sheet 4.2.
2. Show 12' easements for storm sewer on plan.
3. A minimum of 12" diameter sewer is required for storm sewer carrying surface drainage. Reference Sheet 4.4; proposed sewer for Lots 55-80 and 28-36 will need to be changed from 8" to 12".
4. Storm sewer shall be located no closer than a 10' horizontally from proposed buildings/structures. Reference Building #28 multi-family.

Recommendation

Most of our previous comments have been addressed; the need for a redundant water source is a significant outstanding item that needs to be acknowledged by the applicant as a condition of PSP approval should the Planning Commission desire to make that motion. The storm sewer easement deck encroachments mentioned in Item m) above should be discussed as they may pose problems as units are built out. DLZ is confident the remaining items can be further clarified on the Final Site Plan submittals without significant modification to the site layout.

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

Cc: Justin Quagliata, Community Development, *via email*
Hannah Micallef, Community Development, *via email*
Aaron Potter, DPS Director, White Lake Township, *via email*
John Holland, Fire Chief, White Lake Township, *via email*
Jason Hanifen, Fire Marshal, White Lake Township, *via email*

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WHITE LAKE TOWNSHIP
PLANNING COMMISSION

REPORT OF THE
COMMUNITY DEVELOPMENT DEPARTMENT

TO: **Planning Commission**

FROM: **Sean O'Neil, AICP, Community Development Director**

Justin Quagliata, Staff Planner

DATE: **May 25, 2022**

RE: **The Avalon**
Rezoning and Preliminary Site Plan – Review #4

Staff reviewed the revised preliminary site plan (PSP) prepared by PEA Group (revision date May 16, 2022). The previous staff report for the rezoning and PSP (attached) should be referenced for a more complete overview of the project. At its April 21, 2022 meeting the Planning Commission recommended approval of rezoning both parcels to Planned Development (PD) and recommended denial of the PSP. In an effort to address concerns of the Planning Commission, a number of changes were made to the PSP, including:

- Reduction of 13 multiple-family (apartment) units, from 406 to 393
    - Multiple-family density reduced from 6.3 units per acre to 6.1 units per acre
- Reduction of 6 single-family units, from 87 to 81
    - Single-family density reduced from 2.8 units per acre to 2.6 units per acre
- Increased multiple-family setback from north property line, from 50 feet to 120 feet
- Eliminated sign setback waiver request at the corner of Hill Road and Highland Road
- Eliminated Highland Road driveway width waiver request
- Eliminated parking stall striping waiver request
- Eliminated dumpster pad waiver request

Overall, there would 393 apartment units for rent among 57 buildings **(Building 39 is not located on the PSP; revise building numbers accordingly)** consisting of 17, twelve-unit buildings; 17, six-unit buildings (21 on the prior PSP); 4, five-unit buildings (5 on the prior PSP); 10, four-unit buildings (6 on the prior PSP); and 9, three-unit buildings. **An updated number of two-bedroom units and three-bedroom units shall be provided on Sheet P-2.0.** In the multiple-family portion of the development, the 12-plex buildings would be two-stories in height and all other building types would consist of ranch-style dwellings. The 81 site condominiums would consist of one- and two-story units. All of the single-family and multiple-family units would have an attached two-car garage. Some single-family products have an optional two-and-a-half car garage and/or three-car garage. There are no side-entry garages on either the single-family or the multiple-family units.

On Sheet P-2.0, the following shall be updated in the Multi-Family Site Data Table:

- **Proposed Use: incorrect dwelling units per acre provided.**
- **Building Footprint Area: was not updated from prior PSP.**
- **Minimum Lot Size: number of units and minimum lot size not updated from prior PSP.**
- **Building Lot Coverage: was not updated from prior PSP.**
- **Setback Requirements (proposed only): was not updated from prior PSP.**
- **Parking Calculations: was not updated from prior PSP.**
- **Open Space: was not updated from prior PSP.**

On Sheet P-2.0, the following shall be updated in the Single-Family Site Data Table:

- **Maximum Building Lot Coverage: incorrect standard listed (correct standard is 20%) and proposed maximum lot coverage was not updated from prior PSP.**
- **Proposed Setbacks: the prior PSP noted a 45-foot rear yard setback prescribed for Units 8-13. If proposed, the data table shall note differing setbacks for certain units.**
- **Open Space: was not updated from prior PSP.**

Parallel Plan

For any residential project, a parallel plan demonstrating the layout and density of residential uses that would be possible without use of the PD District is required. A parallel plan must meet all standards for lot area, lot width, and setbacks; roadway improvements; open space; and contain an area which conceptually would provide sufficient area for stormwater detention. Lots in the parallel plan must provide sufficient building envelope size without impacting regulated wetlands.

The applicant provided a parallel plan showing the parcel on the east side of Hill Road developed under R1-D (Single-Family Residential) zoning. According to the plan, 96 units could be developed on “lots” 80 feet wide and 12,000 square feet in area (the minimum lot size standards for R1-D zoning). With 96 units on 32.51 net acres (net acreage for parallel plan purposes only), the parallel plan yields a single-family density of 2.9 dwelling units per acre.

On the west side of Hill Road, the parallel plan shows the parcel developed under RM-2 (Multiple-Family) zoning. As indicated on the plan, 600 units (apartments) could be developed among 49 twelve-unit buildings and 2 six-unit buildings. For the multiple-family portion of the development, the parallel plan shows buildings on the site at the maximum lot coverage (20%), and the minimum amount of recreation space is provided (1.49 acres). Note areas of recreation space are not identified on the plan; it appears areas likely comprising recreation space include the pocket park, clubhouse facility, and park commons noted on the plan. With 600 units on 63.94 net acres (net acreage for parallel plan purposes only), the parallel plan yields a multiple-family density of 9.4 dwelling units per acre.

Waivers

Generally, in a PD the standard requirements for lot size, yards, frontage, setbacks, building height, and type and size of dwelling unit are waived, provided the purpose and intent of the zoning ordinance are incorporated into the overall development plan. For PDs the zoning ordinance is intended to provide flexibility for the Planning Commission and Township Board to set appropriate standards during site plan review. Where modifications of zoning ordinance standards are requested, the Developer must provide a table which clearly compares each requested modification to the zoning ordinance standard to be modified. Unless variations are specifically requested and approved by the Planning Commission, the final site plan must comply with the appropriate standards of the Township. Based on the revised PSP, the Developer is requesting the following waivers for the Avalon PD:

Recreation Space

Multiple-family developments are required to provide recreation space for the use of the residents therein. A formula is applied whereby 5,000 square feet for the first unit plus an additional 100 square feet for each additional unit determines such space required for recreation. For a 406-unit multiple-family development, 45,500 square feet of recreation space is required. The submitted open space plan shall be revised to note the correct recreation space requirement (10,700 square feet is incorrectly listed as required). 18,623 square feet of recreation space (clubhouse, pool, and dog park) is proposed in the multiple-family portion of the development; therefore, a waiver of 26,877 square feet is required for the amount of recreation space. **It appears a recreation space waiver is still required – an updated calculation shall be provided on the PSP.**

Lot Area

The existing R1-A zoning district requires parcels have a minimum lot area of one acre. In the R1-D (Single-Family Residential) zoning district, the densest district in the Township, parcels are required to have a minimum lot area of 12,000 square feet. For the single-family portion of the project, the PD has "lots" ranging from 7,431.38 square feet to 17,750.68 square feet in size. The average "lot" size is 9,118.05 square feet. Staff suggests the Planning Commission consider requiring minimum lot area of at least 8,000 square feet. **Based on the revised PSP, "lots" range from 8,039 square feet (607.62 square foot increase) to 17,205 square feet (545.68 square foot decrease) in size. The average "lot" is 9,337 square feet (218.95 square foot increase) in size.**

Lot Frontage/Width

Lot width is the straight-line distance between parallel side lot lines, measured at the front setback line. Where side lot lines are not parallel, the width is measured at the front setback line parallel to the street or tangent to the curve of the street. The existing R1-A zoning district requires parcels have a minimum of 150 feet of lot frontage. In the R1-D zoning district, parcels are required to have a minimum lot width of 80 feet. Lots on a cul-de-sac or curvilinear street must have a minimum of 65 feet of frontage and comply with the lot width requirement at the minimum front setback line. Additionally, corner lots in condominium subdivisions must be at least 20 feet wider than the minimum width required by the zoning ordinance. For the single-family portion of the project, the PD has "lots" ranging from 62 feet of lot width (including "lots" on a cul-de-sac or curvilinear street) to 107 feet **(now 105 feet)**. The average "lot" width is 68 feet. Staff suggests the Planning Commission consider requiring minimum lot width of at least 70 feet. **Based on the revised PSP, the minimum lot width and average lot width remain unchanged from the prior plan. Maximum lot width decreased two feet, from 107 feet to 105 feet. Staff still supports a larger lot width, with 70 feet suggested as the requirement for the PD.**

Setbacks and Lot Coverage

The yard setbacks and lot coverage for the existing R1-A zoning district, R1-D zoning district, PD zoning district, and the proposed PD (single-family) are summarized in the table below.

	R1-A zoning	R1-D zoning	PD zoning	Proposed PD
Front yard setback	35 feet	30 feet	40 feet	25 feet
Side yard setback	25 feet	10 feet	25 feet	10 feet
Rear yard setback	40 feet	30 feet	TBD	35 feet**
Max. lot coverage	20%*	20%*	TBD	35%***

*A maximum 30% lot coverage may be approved administratively by the Community Development Director or his designee on existing lots of record where the lot has sanitary sewer service and the proposed building complies with all setback requirements.
A 45-foot rear yard setback is prescribed for Units 8-13. **As noted on page 2 of this report, clarification is required on the revised PSP.
*** **As noted on page 2 of this report, clarification is required on the revised PSP.**

Buildings within a multiple-family development must have a minimum setback of 25 feet from the back of sidewalk or 25 feet from back of curb (if no sidewalk is present). A five-foot waiver is requested to allow a 20-foot front setback. **Waiver remains requested.**

The Planning Commission may consider the proposed setbacks and lot coverage and determine whether they are appropriate or whether additional setbacks or less lot coverage should be established. The submitted plan notes no deck or patio would encroach into any setback.

Decks, Porches, and Patios

The zoning ordinance states "In no instance shall a deck, porch, patio or paved terrace be located in any recorded easement…" As noted in the DLZ review letter dated April 13, 2022 decks and patios attached to several single-family units would likely encroach into the proposed storm sewer easement. Staff is concerned about deck/patio encroachment into the storm sewer easement. Maintenance activities within the easement could potentially damage decks/patios in the vicinity. While the storm system is private and must be maintained by the condo association (after assignment by the Developer), if the association fails to maintain the storm sewer and the Township exercises its right to maintain/repair/replace the system (as would be outlined in the development agreement and master deed) correcting resulting damage to private decks/patios should not be the responsibility of the Township. Hold harmless language, subject to approval by the Township Attorney, would need to be incorporated into the development agreement and master deed if a waiver was granted to allow deck/patio encroachment into the storm sewer easement. There is an alternative to not install decks/patios on the rear of units where encroachment into the storm sewer easement would occur. The decks/patios on the units in question could potentially be relocated to the sides of units and/or reduced in size. **As noted in the DLZ review letter dated May 25, 2022, since the unit count and numbering has changed and no utility information was included with the current submittal staff and consultants are unable to review requested changes or provide comment.**

Separate from the waiver request, the note under the typical lot layout on Sheets P-2.3 and P-2.4 of the site plan shall be revised to add the word "within" following the word "encroaching." Also, the words "wetland buffer" shall be replaced with the words "natural features." **Comment outstanding.**

Additionally, the Developer shall clarify its correspondence to the Township dated April 4, 2022. In said communication, the Developer requested a waiver to allow decks/patios to encroach within the Natural Features Setback on Units 1, 4, 9, 27, and 40. Such a request for waiver is inconsistent with the submitted preliminary site plans. **Comment outstanding; however, it does not appear a waiver for the aforementioned units to encroach into the Natural Features Setback is required.**

Driveway Access

For boulevard-style driveways, the minimum required entering road width is 20 feet and the minimum required exiting road width is 22 feet. The Hill Road boulevard access to the multiple-family portion of the development (both entering and exiting drives) appear to be 19 feet in width (the PSP measures the drive width to the back of curb; road measurement surface is taken between the edges of the gutter pan) and is noncompliant. Waivers (1 foot for entrance; 3 feet for exit) are needed to allow a reduction of the required road surface width.

Street Layouts and Blocks

The maximum length of cul-de-sac streets and maximum length of blocks within condominium subdivisions cannot exceed 1,500 feet. The Developer is seeking a 930-foot waiver to allow maximum block length of 2,430 feet. Topography, steep grades, and natural features on the site were the stated reasons for the requested waiver. The Fire Department has reviewed the length of the streets and blocks and is satisfied with accommodations for emergency access.

Street Continuation

The zoning ordinance requires the street layout in condominium subdivisions provide for continuation of streets to adjoining residential developments or the proper projections of streets (a stub) to adjoining property which could be developed in the future. Currently there is no street stub proposed to the property to the north. The applicant stated there is a 26-foot grade difference from the north property line to the proposed road. Topographic conditions seem to justify a waiver from this requirement.

Sidewalks

The zoning ordinance requires a minimum six-foot-wide sidewalk placed one-foot from the inside edge of the right-of-way along both the east and west Hill Road property frontages, which the applicant is required to install as part of the project. The submitted site plan shows an eight-foot concrete sidewalk along the west side of the Hill Road property frontage from Highland Road to the south side of the single-family access (across the street). Portions of this sidewalk are proposed outside of the future right-of-way; the sidewalk must be relocated inside the road right-of-way or an easement be provided. Right-of-way/easement widths for public walkways when not adjacent to or a part of street rights-of-way must be at least 15 feet and dedicated to the use of the public. Sidewalks on the east side of Hill Road are proposed along the frontage of Units 81-84 **(now Units 75-78)** and Units 85-87 **(now Units 79-81)**. There are regulated wetlands and a stream along the remaining portion of Hill Road north of Units 81-84 **(now Units 75-78)**; therefore, the Developer is requesting a waiver to not install sidewalks in this location. However, the Developer offered to make a contribution to the Township Sidewalk Fund to supplement the pathway areas not installed along Hill Road. The amount of the proposed donation must be provided and accepted by the Township.

Signs

The zoning ordinance requires the area, quantity, location, and dimensions of all signs to be provided with the preliminary site plan. One monument sign, not more than 30 square feet in area, may be maintained at or adjacent to the principal entrance to a residential development. One additional sign may be permitted if the residential development has access to two thoroughfares or the development has more than one boulevard street entrance from an existing arterial or it has at least 250 dwellings. The signs may not exceed a height of six feet. The multiple-family portion of the development would contain more than 250 units, so a second development entry sign is permitted by right.

A waiver is requested to install a third sign (determined to be the sign at the corner of Highland Road and Hill Road). For the multiple-family portion of the development, the other monument signs are proposed adjacent to (Highland Road) and within (Hill Road) the boulevard entrances. One monument sign is proposed within the boulevard entrance to the single-family portion of the development.

While signage details were not provided, staff can administratively review and approve the sign design. The monument signs would be required to comply with residential district sign regulations, including not more than 30 square feet in area and six feet in height.

Comments to be addressed from previous review

- The apartments would have access to a 6,658 square foot clubhouse consisting of a business center, fitness center, and leasing office. A patio (covered and uncovered) at the rear of the clubhouse is adjacent to a swimming pool. The conceptual clubhouse renderings state the building would be 5,132 square feet in size. Clarify the size of the clubhouse and revise the plans for consistency.

- The open space plan does not clearly indicate if stormwater management areas are counted as open space. Clarification must be provided.

- Parking calculations (for multiple-family dwellings) on Sheet P-2.0 shall be revised; the number of bedrooms, guest parking required, and total parking required are incorrect.

- Phasing, if any, shall be indicated on the plans.

- A trash enclosure detail shall be provided on Sheet P-7.0 showing the finished face on the outside walls of the enclosure and indicate the color of the gate.

- An updated list of all requested waivers shall be provided by the Developer. Furthermore, PD modifications 2, 4, and 5 shall be removed from the table on Sheet P-2.0.

Planning Commission Options / Recommendation

The Planning Commission may recommend approval or denial of the rezoning request, or it may recommend a different zoning designation than proposed by the applicant to the Township Board. The Planning Commission may recommend approval, approval with conditions, or denial of the preliminary site plan to the Township Board. **The proposed rezoning and planned development are both compatible with the Master Plan and with surrounding land uses. Staff recommends approval of the rezoning, and approval of the preliminary site plan subject to the items identified in this report being addressed prior to final site plan.**

The following notations summarize the preliminary site plan review:

- Recommendation of approval is in accordance with the preliminary site plans prepared by PEA Group (revision date ~~April 4, 2022~~ May 16, 2022), subject to revisions as required. The utility, grading, and storm drainage plans for the site are subject to the approval of the Township Engineering Consultant and shall be completed in accordance with the Township Engineering Design Standards.

- Recommendation of approval is in accordance with the preliminary ranch unit building elevations and floor plans prepared by Alexander V. Bogaerts & Associates, P.C. dated March 29, 2022, subject to revisions as required and with the preliminary 12-plex elevations and floor plans prepared by Burmann Associates Inc. dated June 27, 2018 and July 17, 2018, subject to revisions as required.

Attachments:
1. Avalon staff report dated April 13, 2022.
2. Revised preliminary site plan prepared by PEA Group (revision date May 16, 2022).
3. Preliminary ranch unit building elevations and floor plans prepared by Alexander V. Bogaerts & Associates, P.C. dated March 29, 2022.
4. Preliminary 12-plex elevations and floor plans prepared by Burmann Associates Inc. dated June 27, 2018 and July 17, 2018.

Fire Department
Charter Township
of White Lake

Site / Construction Plan Review

To: Sean O'Neil, Planning Department Director

Date: 05/24/22

Project: The Avalon

File #: N/A

Date on Plans:

The Fire Department has the following comments with regards to the Revised site plan for the project known as The Avalon:

1. Multifamily phase.

a. The spacing between hydrants shall not exceed 300 feet. **Comment addressed**

b. The hydrants shall be arranged to provide adequate coverage for all buildings including #56 and #57 (additional hydrant to be added to this area). **Comment addressed**

c. Include a turn radius profile for units # 49-58. **Comment addressed**

d. The layout/configuration of the proposed street names assigned to this project are too closely grouped creating potential confusion to responders. **Pending (Street names are subject to Fire department approval)**

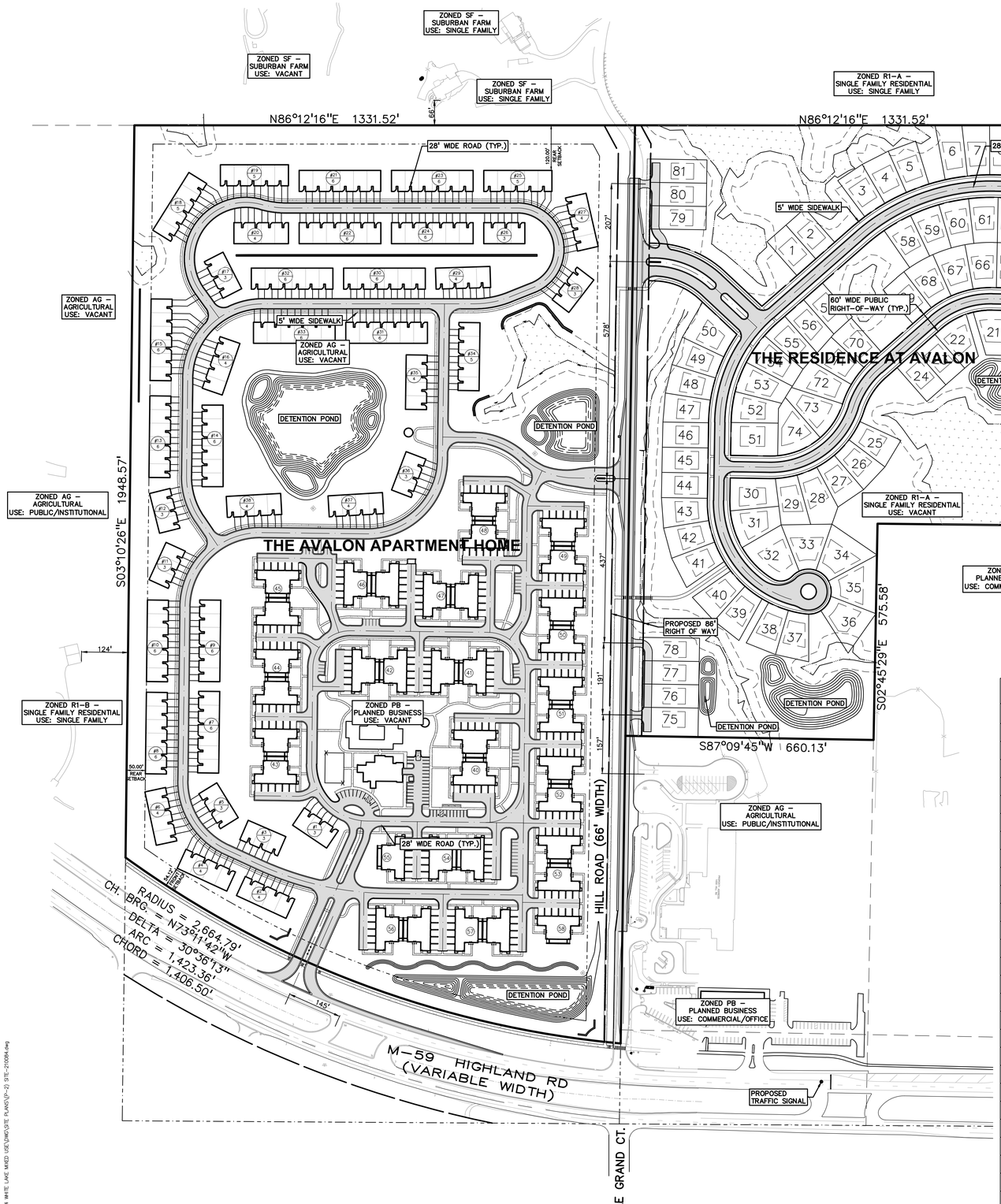
Avoid the following:

- Name changes at jogs and curves.
- Duplicate names.
- Names that could be mispronounced or are difficult to pronounce.
- Names that are spelled or pronounced close to an existing street/road name.

Reference the Township map for guidance.

John Holland
Fire Chief
Charter Township of White Lake
(248)698-3993
jholland@whitelaketwp.com

Plans are reviewed using the International Fire Code (IFC), 2015 Edition and Referenced NFPA Standards.



GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING–FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON–SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON–SITE SIDEWALK RAMP DETAILS

REQUESTED PD MODIFICATIONS:

1. 3.11.U – FRONT SETBACK FROM BUILDING TO SIDEWALK/CURB TO BE 20' INSTEAD OF 25'
2. ARTICLE III, SECTION 20–62 – PRIVATE ACCESS DRIVE EASEMENT TO BE 25' INSTEAD OF 30' WIDE
3. 3.11.S LOT WIDTH TO BE 62' – AT THE SETBACK LINE INSTEAD OF 65' MIN..
4. CHAPTER 20, ARTICLE 3, SECTION 20–62.b.1.a.10 PROVIDE ONE BOULEVARD ACCESS WITH 28' WIDTH EACH SIDE INSTEAD OF MULTIPLE ACCESS POINTS
5. CHAPTER 20, ARTICLE 3, SECTION 20–62.b.1.a.2 EXTENSIONS OF PROPOSED ROADS TO ADJOINING PROPERTIES NOT PROVIDED

DEVELOPMENT NOTES:

1. PRIOR TO FINAL SITE PLAN APPROVAL, A WETLAND BOUNDARY DETERMINATION AND JURISDICTIONAL OPINION SHALL BE REVIEWED BY EGLE.
2. PRIOR TO FINAL SITE PLAN APPROVAL, A WETLAND BOUNDARY DETERMINATION AND JURISDICTIONAL OPINION SHALL BE REVIEWED BY EGLE.
3. UPON COMPLETION OF ANY WORK WITHIN THE WETLAND SETBACK, THE AREA SHALL BE RESTORED TO ITS NATIVE VEGETATIVE STATE.
4. A WETLAND SETBACK RESTORATION PLAN AND A WETLAND RESTORATION BOND SHALL BE REQUIRED TO ENSURE PROPER RESTORATION.
5. A SIDEWALK ALONG HILL ROAD SHALL BE CONSTRUCTED AS SHOWN ON THE SITE PLAN. TO LIMIT WETLAND IMPACTS AND REDUCE SIDEWALKS TO "NO WHERE", A CONTRIBUTION TO THE WHITE LAKE SIDEWALK FUND SHALL BE ESTABLISHED.
6. A DETAILED ENGINEERING ANALYSIS SHALL BE CONDUCTED OF THE EXISTING BOX CULVERT UNDER M–59 TO DETERMINE ENOUGH CAPACITY. THE RESULTS SHALL BE PROVIDED TO THE TOWNSHIP AND MDOT DURING THE CONSTRUCTION PLAN PHASE.
7. THE DEVELOPER SHALL CONSTRUCT A SANITARY SEWER LINE ALONG HILL ROAD TO THE FURTHEST EXTEND POSSIBLE. TO SUPPLEMENT THE SHORTENED LENGTH A CONTRIBUTION TO THE TOWNSHIP SANITARY SEWER FUND SHALL BE MADE. IN ADDITION, A CONSTRUCTION EASEMENT SHALL BE PROVIDED TO THE TOWNSHIP AT THE NORTH END OF THE PROPERTY ALONG HILL ROAD.
8. A SECONDARY WATERMAIN CONNECTION ANALYSIS SHALL BE INVESTIGATED. IF THE SECOND CONNECTION IS NOT OBTAINABLE, ADDITIONAL BOOSTER PUMPS MAY BE REQUIRED AT SOME OF THE SINGLE FAMILY UNITS. .

TRASH COLLECTION NOTE:

ALL UNITS WILL BE SERVED BY INDIVIDUAL TRASH CARTS PROVIDED BY WASTE COLLECTION COMPANY

NOTES:

1. NO DECK OR PATIO WILL ENCROACH INTO ANY SETBACK.
2. LARGEST SF HOUSE TO BE 2,448 SF FLOOR AREA

LEGEND

IRON FOUND	BRASS PLUG SET	SEC. CORNER FOUND	
IRON SET	MONUMENT FOUND	R RECORDED	
NAIL FOUND	MONUMENT SET	M MEASURED	
NAIL & CAP SET		C CALCULATED	

EXISTING		PROPOSED
—OH—ELEC—	ELEC., PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE	
—UG—CATV—	UNDERGROUND CABLE TV, CATV PEDESTAL	
—UG—PHONE—	TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE	
—UG—ELEC—	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE	
	GAS MAIN, VALVE & GAS LINE MARKER	
	WATERMAIN, HYD., GATE VALVE, TAPPING SLEEVE & VALVE	
	SANITARY SEWER, CLEANOUT & MANHOLE	
	STORM SEWER, CLEANOUT & MANHOLE	
	COMBINED SEWER & MANHOLE	
	SQUARE, ROUND & BEEHIVE CATCH BASIN, YARD DRAIN	
	POST INDICATOR VALVE	
	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF	
	MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE	
	UNIDENTIFIED STRUCTURE	
	SPOT ELEVATION	671.21
670	CONTOUR LINE	671
	FENCE	
	GUARD RAIL	
	STREET LIGHT	
	SIGN	
CONC.	CONCRETE	STD DUTY / HEAVY DUTY / R.O.W. ONLY
ASPH.	ASPHALT	STD DUTY / HEAVY DUTY / DEEP STRENGTH
GRAVEL	GRAVEL SHOULDER	
	WETLAND	

SINGLE FAMILY SITE DATA TABLE:

SITE AREA: 41.06 ACRES GROSS
8.82 WETLAND ACRES
30.66 ACRES NET (NO R.O.W. OR REMAINING WETLAND AREA)
5.93 OPEN SPACE ACRES

ZONING: EXISTING: R1–A, SINGLE FAMILY RESIDENTIAL
PROPOSED: PD, PLANNED DEVELOPMENT

PROPOSED USE: 81 UNIT OWNER OCCUPIED SINGLE FAMILY HOME CONDOMINIUM (2.6 UNITS PER ACRE)

SCHEDULE OF DEVELOPMENT: SINGLE FAMILY SPRING 2023 – FALL 2025

BUILDING INFORMATION:
MAXIMUM ALLOWABLE BUILDING HEIGHT = 30 FEET (2 STORIES)
PROPOSED BUILDING HEIGHT: < 30' (2 STORIES)

MAXIMUM BUILDING LOT COVERAGE = 35%
PROPOSED MAXIMUM BUILDING LOT COVERAGE = 2,448/7,431 = 32.9%
(LARGEST BUILDING FOOTPRINT/MINIMUM LOT AREA)
MIN SF BUILDING ALLOWED: 1,000 SF GROUND FLOOR
MIN SF BUILDING PROVIDED: 1,297 SF GROUND FLOOR

SETBACK REQUIREMENTS:	PD:	R1–A:	PROPOSED(INT):	PROPOSED(EXT.)
FRONT:	40'	35'	25'	50'
SIDE:	25'/50'	25'	10'	25'/87.7'
REAR:	TBD	40'	35'	50'

OPEN SPACE:
MINIMUM OPEN SPACE REQUIRED = 15% OF NET SITE AREA
PROVIDED OPEN SPACE = 5.93/30.66 = 19.3%
(SEE SHEET P–6.0 PRELIMINARY OPEN SPACE PLAN)

WETLANDS:
EGLE WETLAND IMPACT: 0.41 ACRES

MULTI–FAMILY SITE DATA TABLE:

SITE AREA: 68.96 ACRES GROSS
1.7 WETLAND ACRES
64.82 ACRES NET (NO R.O.W. OR REMAINING WETLAND AREA)
24.22 ACRES OPEN SPACE

ZONING: EXISTING: PB, PLANNED BUSINESS
AG, AGRICULTURAL
PROPOSED: PD, PLANNED DEVELOPMENT

PROPOSED USE: 393 MULTI–FAMILY UNITS (FOR LEASE) (6.3 UNITS PER ACRE)

SCHEDULE OF DEVELOPMENT: MULTI–FAMILY SPRING 2022 – FALL 2025

BUILDING INFORMATION:
MAXIMUM ALLOWABLE BUILDING HEIGHT = 30 FEET (2 STORIES)
PROPOSED MAX BUILDING HEIGHT: MULTI–FAMILY = 27 FEET (2 STORIES)

BUILDING FOOTPRINT AREA:
SINGLE STORY RANCH BUILDINGS = 5,898–11,735 SQ.FT.
2–STORY BUILDINGS = 5,956–11,981 SQ.FT.
CLUBHOUSE = 6,658 SQ.FT.
TOTAL SF = 526,566 SQ.FT.

BUILDING LOT COVERAGE = 12.1/64.82 = 18.7%

MINIMUM LOT SIZE:
FIRST UNIT = 10,000 SF
72 – 3 BEDROOM UNITS x 4,500 SF = 324,000
334 – 2 BEDROOM UNITS x 4,000 SF = 1,336,000
MINIMUM LOT SIZE REQUIRED = 1,660,000 (38.1 ACRES)

TOTAL LOT SIZE PROVIDED =
68.96 AC. (GROSS) – 1.7 AC. (WETLAND) – 2.44 AC. (R.O.W.) – 3.96 AC. (STORM) = 60.86 ACRES

SETBACK REQUIREMENTS:	PD:	PROPOSED:
FRONT:	40'	59.08'
SIDE:	25' (50' TOTAL)	N.A.
REAR:	TBD	50.92'

PARKING CALCULATIONS:

MULTI–FAMILY = 2 PER DWELLING UNIT + 1/4 SPACE PER BEDROOM FOR GUEST PARKING IN COMMON AREAS

TOTAL MULTI–FAMILY GUEST PARKING REQUIRED = 890 BEDROOMS/4 = 223 SPACES

TOTAL REQUIRED PARKING = 1,035 SPACES

TOTAL PROPOSED PARKING SPACES = 1,297 (812 RESIDENT PARKING IN GARAGE)
(406 GUEST PARKING IN DRIVEWAYS)
(79 GUEST SPACES INC. 4 H/C SPACES)

TOTAL PARKING SPACES NOT ASSOCIATED WITH INDIVIDUAL UNITS = 78 SPACES
TOTAL REQUIRED ADA SPACES = 75–100 = 4 SPACES
TOTAL ADA SPACES PROVIDED = 4 SPACES WITH 1 VAN SPACE

OPEN SPACE:
MINIMUM OPEN SPACE REQUIRED = 15% OF NET SITE AREA
PROVIDED OPEN SPACE = 24.22/64.82 = 37.4%

WETLANDS:
EGLE WETLAND IMPACT: 0.34 ACRES

Parcel Area Table		Parcel Area Table		Parcel Area Table	
PARCEL NO.	AREA (S.F.)	PARCEL NO.	AREA (S.F.)	PARCEL NO.	AREA (S.F.)
1	8,040	31	9,644	61	8,462
2	8,040	32	12,761	62	8,040
3	8,468	33	10,937	63	10,627
4	8,468	34	11,957	64	10,627
5	8,468	35	12,162	65	8,040
6	9,226	36	10,747	66	8,894
7	8,857	37	8,899	67	9,041
8	8,332	38	8,492	68	9,045
9	8,274	39	8,691	69	8,330
10	9,555	40	8,631	70	8,065
11	16,963	41	8,736	71	8,433
12	17,205	42	8,578	72	9,574
13	10,072	43	8,519	73	10,050
14	8,680	44	8,186	74	10,217
15	8,680	45	8,167	75	11,539
16	10,484	46	8,149	76	9,300
17	12,084	47	8,316	77	9,300
18	10,484	48	8,331	78	9,300
19	8,047	49	8,352	79	9,300
20	8,039	50	10,679	80	9,300
21	8,357	51	10,961	81	9,300
22	8,764	52	8,536		
23	8,040	53	9,084		
24	8,040	54	9,637		
25	8,246	55	8,795		
26	8,246	56	8,403		
27	8,246	57	8,099		
28	10,198	58	8,534		
29	8,755	59	8,534		
30	10,098	60	8,534		

MINIMUM LOT SIZE = 8,039 SF
MAXIMUM LOT SIZE = 17,205 SF
AVERAGE LOT SIZE = 9,337 SF

MINIMUM LOT WIDTH AT SETBACK = 62'
MAXIMUM LOT WIDTH AT SETBACK = 105'
AVERAGE LOT WIDTH AT SETBACK = 68'

NOT FOR CONSTRUCTION

PEA GROUP
t: 844.813.2949
www.peagroup.com

NORTH

0 75 150 300
SCALE: 1" = 150'

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

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT
WHITE LAKE HILL, LLC
31550 NORTHWESTERN HWY
FARMINGTON HILLS, MI 48334

PROJECT TITLE
THE AVALON
HIGHLAND ROAD
WHITE LAKE TWP, MI

REVISIONS

REVISED SITE LAYOUT	5-16-2022
TOWNSHIP PSP REVIEW	4-4-2022
TOWNSHIP PSP REVIEW	2-25-2022
OWNER REVIEW	11-29-2021

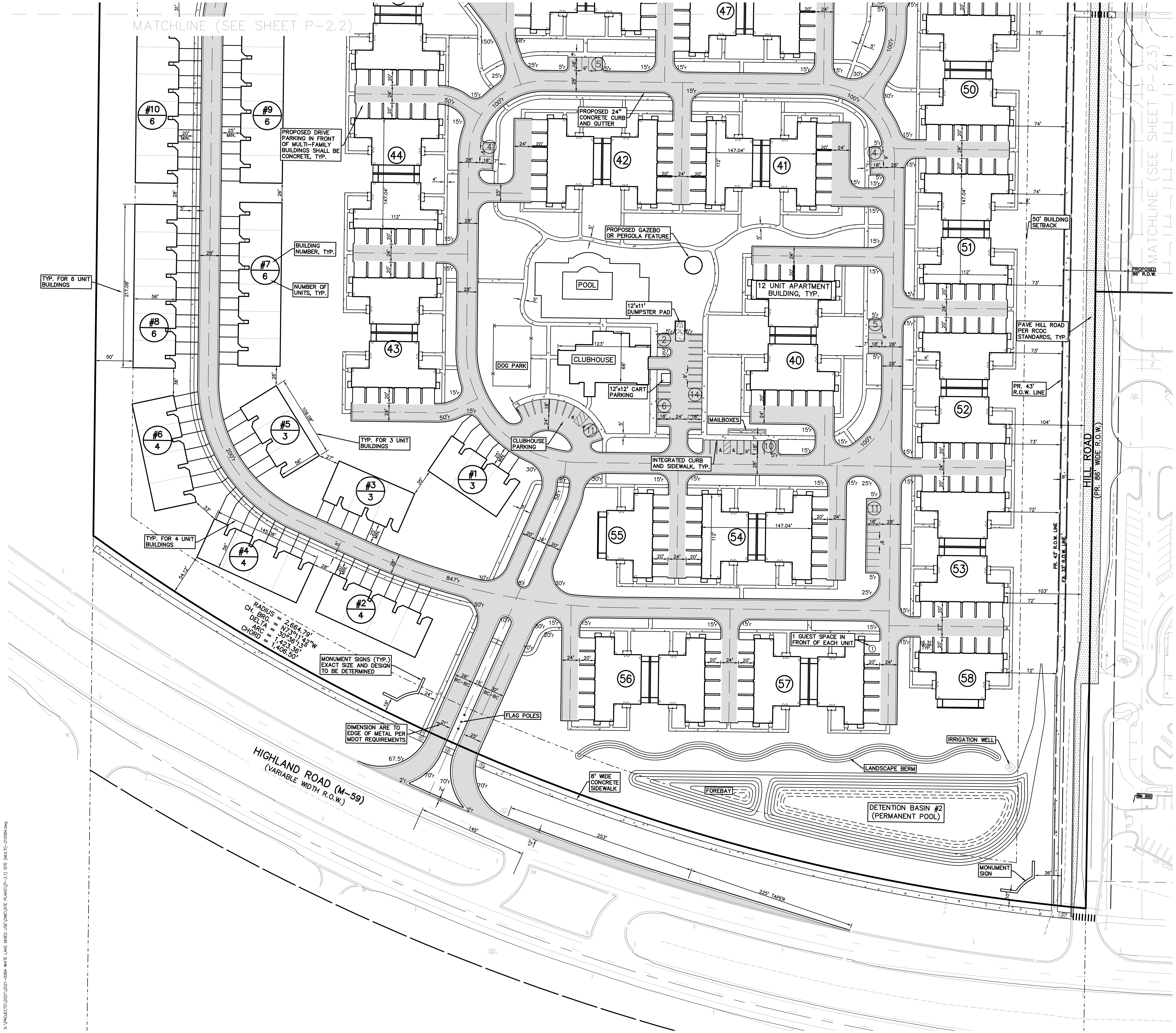
ORIGINAL ISSUE DATE:
12-8-2021

DRAWING TITLE
OVERALL PRELIMINARY SITE PLAN

PEA JOB NO.	2021-0084
P.M.	JC
DN.	KMB
DES.	DSK

DRAWING NUMBER:
P-2.0

S:\PROJECTS\2021\2021-0084 WHITE LAKE MIXED USE\DWG\SITE PLANS\P-2\ SITE-2100864.dwg



S:\PROJECTS\2021\2021-0084 WHITE LAKE MIXED USE\DWG\SITE PLANS\(P-2.1) SITE (MULTI)-210084.dwg

LEGEND

- ● IRON FOUND
- IRON SET
- NAIL FOUND
- NAIL & CAP SET
- BRASS PLUG SET
- MONUMENT FOUND
- MONUMENT SET
- SEC. CORNER FOUND
- R RECORDED
- M MEASURED
- C CALCULATED

EXISTING		PROPOSED
—OH—ELEC—	ELEC., PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE	
—UG—CATV—	UNDERGROUND CABLE TV, CATV PEDESTAL	
—UG—PHONE—	TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE	
—UG—ELEC—	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE	
GAS	GAS MAIN, VALVE & GAS LINE MARKER	
	WATERMAIN, HYD., GATE VALVE, TAPPING SLEEVE & VALVE	
CO	SANITARY SEWER, CLEANOUT & MANHOLE	C.O.
CO ST	STORM SEWER, CLEANOUT & MANHOLE	C.O.
C Y.D.	COMBINED SEWER & MANHOLE	
	SQUARE, ROUND & BEEHIVE CATCH BASIN, YARD DRAIN	Y.D.
	POST INDICATOR VALVE	
V WSO	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF	
M T I	MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE	
?	UNIDENTIFIED STRUCTURE	
×696.91	SPOT ELEVATION	671.21
670	CONTOUR LINE	671
—×—	FENCE	—×—
	GUARD RAIL	
☼	STREET LIGHT	☼
	SIGN	
CONC.	CONCRETE	STD DUTY / HEAVY DUTY / R.O.W. ONLY
ASPH.	ASPHALT	STD DUTY / HEAVY DUTY / DEEP STRENGTH
GRAVEL	GRAVEL SHOULDER	
	WETLAND	

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NORTH

0 30 60 120
SCALE: 1" = 60'

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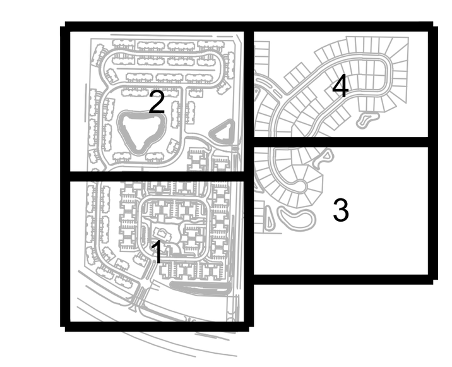

CLIENT
WHITE LAKE HILL, LLC
31550 NORTHWESTERN HWY
FARMINGTON HILLS, MI 48334

PROJECT TITLE
THE AVALON
HIGHLAND ROAD
WHITE LAKE TWP, MI

REVISIONS

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TOWNSHIP PSP REVIEW	4-4-2022
TOWNSHIP PSP REVIEW	2-25-2022
OWNER REVIEW	11-29-2021

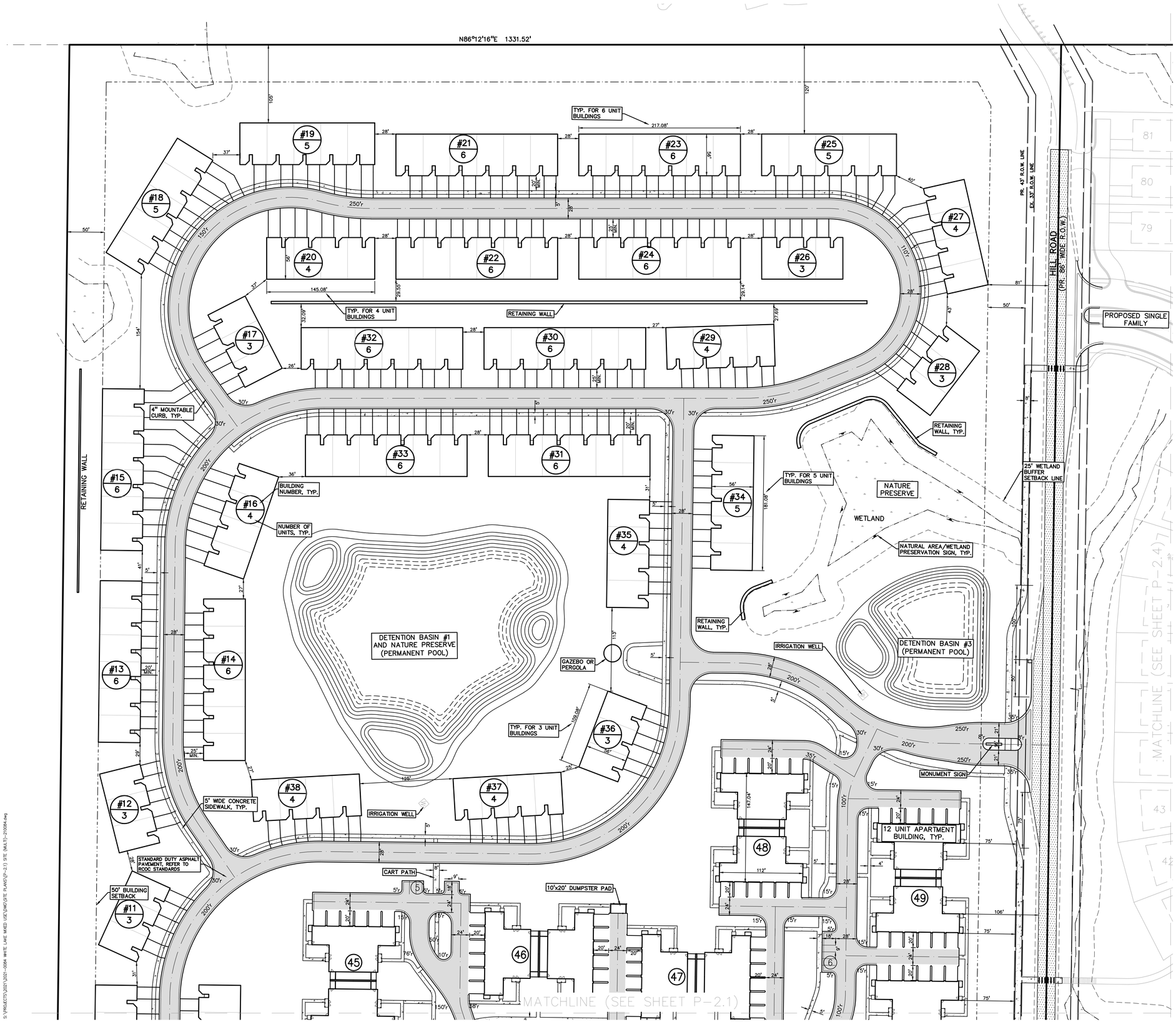
ORIGINAL ISSUE DATE:
12-8-2021

DRAWING TITLE
PRELIMINARY SITE PLAN - 1

PEA JOB NO.	2021-0084
P.M.	JC
DN.	KMB
DES.	DSK

DRAWING NUMBER:
P-2.1

NOT FOR CONSTRUCTION



LEGEND

- IRON FOUND
- IRON SET
- NAIL FOUND
- NAIL & CAP SET
- BRASS PLUG SET
- MONUMENT FOUND
- MONUMENT SET
- SEC. CORNER FOUND
- R RECORDED
- M MEASURED
- C CALCULATED

EXISTING	PROPOSED	
—OH—ELEC—		ELEC., PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE
—UG—CATV—		UNDERGROUND CABLE TV, CATV PEDESTAL
—UG—PHONE—		TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE
—UG—ELEC—		ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE
		GAS MAIN, VALVE & GAS LINE MARKER
		WATERMAIN, HYD., GATE VALVE, TAPPING SLEEVE & VALVE
		SANITARY SEWER, CLEANOUT & MANHOLE
		STORM SEWER, CLEANOUT & MANHOLE
		COMBINED SEWER & MANHOLE
		SQUARE, ROUND & BEEHIVE CATCH BASIN, YARD DRAIN
		POST INDICATOR VALVE
		WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
		MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
		UNIDENTIFIED STRUCTURE
		SPOT ELEVATION
		CONTOUR LINE
		FENCE
		GUARD RAIL
		STREET LIGHT
		SIGN
CONC.		CONCRETE
ASPH.		ASPHALT
GRAVEL		GRAVEL SHOULDER
		WETLAND

STD DUTY | HEAVY DUTY | R.O.W. ONLY

STD DUTY | HEAVY DUTY | DEEP STRENGTH

NORTH

0 30 60 120

SCALE: 1" = 60'

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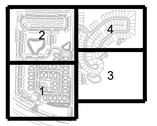

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CLIENT
WHITE LAKE HILL, LLC
31550 NORTHWESTERN HWY
FARMINGTON HILLS, MI 48334

PROJECT TITLE
THE AVALON
HIGHLAND ROAD
WHITE LAKE TWP, MI

REVISIONS

REVISED SITE LAYOUT	5-16-2022
TOWNSHIP PSP REVIEW	4-4-2022
TOWNSHIP PSP REVIEW	2-25-2022
OWNER REVIEW	11-29-2021

ORIGINAL ISSUE DATE:
12-8-2021

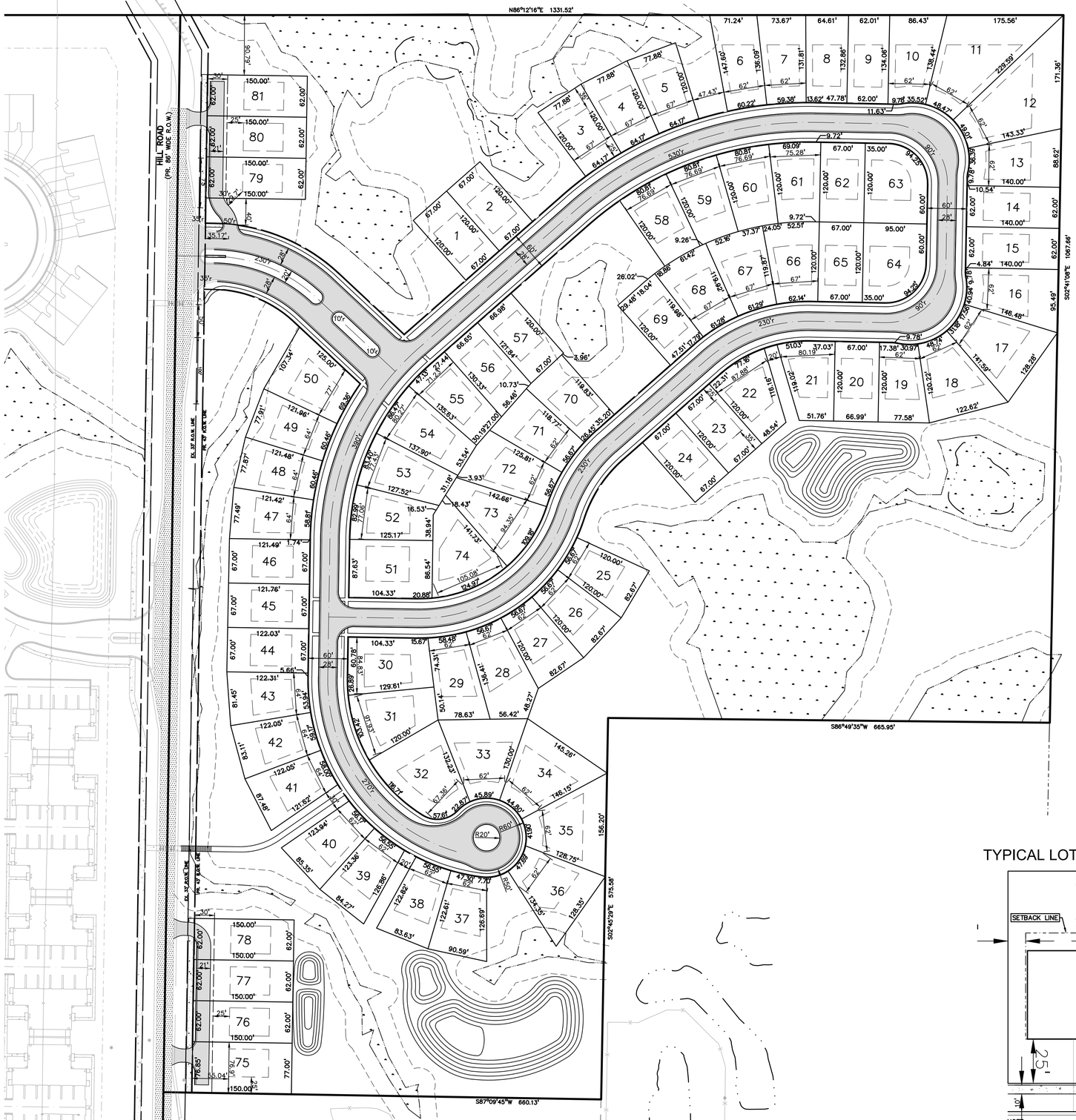
DRAWING TITLE
PRELIMINARY SITE PLAN - 2

PEA JOB NO.	2021-0084
P.M.	JC
DN.	KMB
DES.	DSK

DRAWING NUMBER:
P-2.2

NOT FOR CONSTRUCTION

S:\PROJECTS\2021\2021-0084 WHITE LAKE RATED ODE\DWG\SITE PLANS\P-2.1 SITE (MULTI)-210804.dwg



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NORTH

0 40 80 160
SCALE: 1" = 80'

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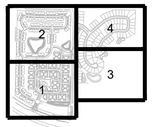


CLIENT
WHITE LAKE HILL, LLC
31550 NORTHWESTERN HWY
FARMINGTON HILLS, MI 48334

PROJECT TITLE
THE AVALON
HIGHLAND ROAD
WHITE LAKE TWP, MI

TYPICAL LOT LAYOUT

NOTE:
BUILDING STRUCTURES, INCLUDING DECKS, DRIVES, SIDEWALKS, ETC. ARE RESTRICTED FROM ENCROACHING THE 25' WETLAND BUFFER SETBACK.

LEGEND

IRON FOUND
IRON SET
NAIL FOUND
NAIL & CAP SET
BRASS PLUG SET
MONUMENT FOUND
MONUMENT SET
SEC. CORNER FOUND
R RECORDED
M MEASURED
C CALCULATED

EXISTING		PROPOSED
—OH—ELEC—	ELEC., PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE	
—UG—CATV—	UNDERGROUND CABLE TV, CATV PEDESTAL	
—UG—PHONE—	TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE	
—UG—ELEC—	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE	
	GAS MAIN, VALVE & GAS LINE MARKER	
	WATERMAIN, HYD., GATE VALVE, TAPPING SLEEVE & VALVE	
	SANITARY SEWER, CLEANOUT & MANHOLE	
	STORM SEWER, CLEANOUT & MANHOLE	
	COMBINED SEWER & MANHOLE	
	SQUARE, ROUND & BEEHIVE CATCH BASIN, YARD DRAIN	
	POST INDICATOR VALVE	
	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF	
	MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE	
	UNIDENTIFIED STRUCTURE	
	SPOT ELEVATION	
670	CONTOUR LINE	671
	FENCE	
	GUARD RAIL	
	STREET LIGHT	
	SIGN	
CONC.	CONCRETE	STD DUTY, HEAVY DUTY, R.O.W ONLY
ASPH.	ASPHALT	STD DUTY, HEAVY DUTY, DEEP STRENGTH
GRAVEL	GRAVEL SHOULDER	
	WETLAND	

NOT FOR CONSTRUCTION

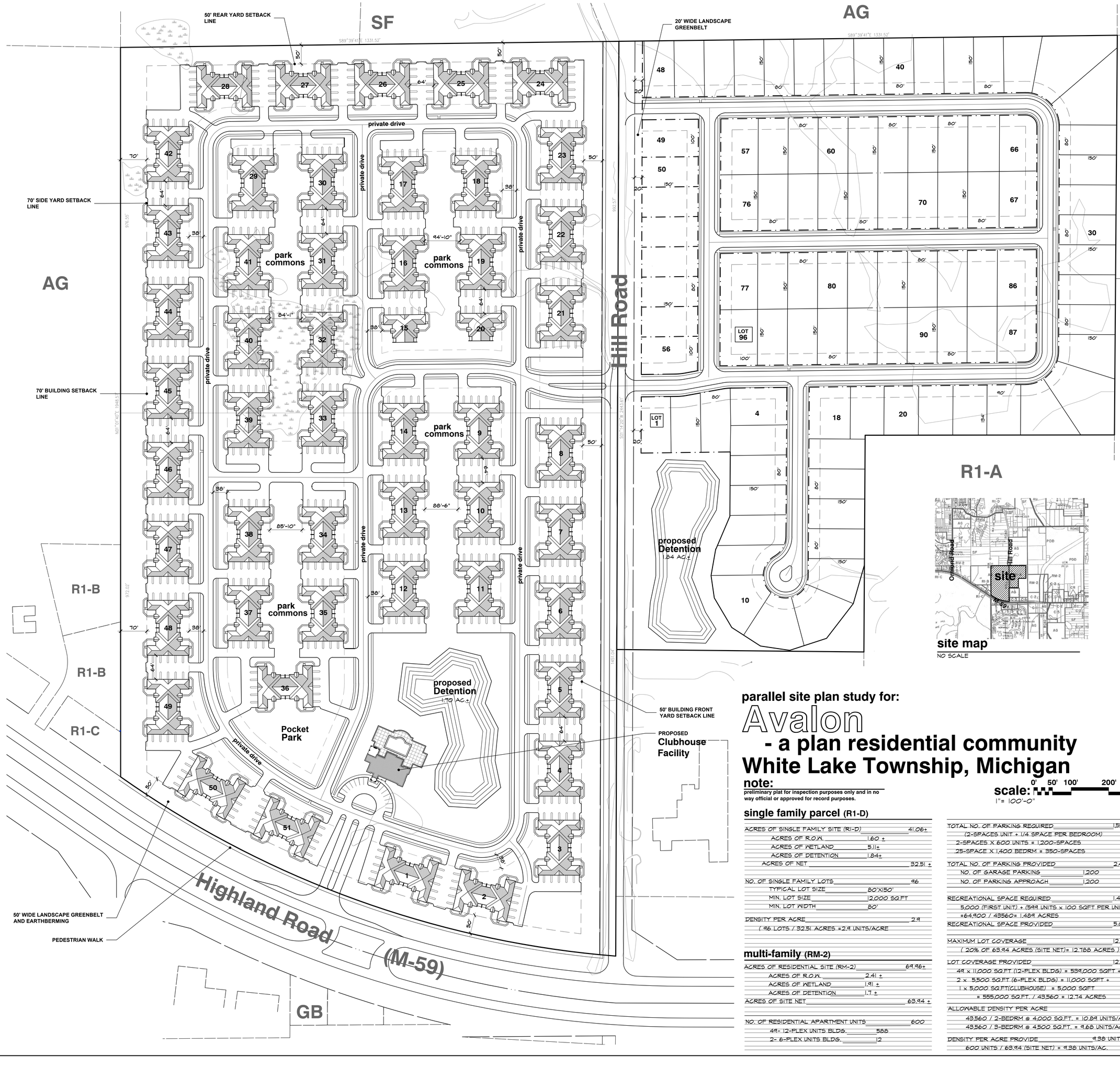
REVISIONS	
REVISED SITE LAYOUT	5-16-2022
TOWNSHIP PSP REVIEW	4-4-2022
TOWNSHIP PSP REVIEW	2-25-2022
OWNER REVIEW	11-29-2021
ORIGINAL ISSUE DATE: 12-8-2021	

DRAWING TITLE
PRELIMINARY SITE PLAN - 4

PEA JOB NO.	2021-0084
P.M.	JC
DN.	KMB
DES.	DSK

DRAWING NUMBER:
P-2.4

S:\PROJECTS\2021\2021-0084 WHITE LAKE MIXED USE\DWG\SITE PLANS\P-2.0 SITE (SP)-210084.dwg



site map
NO SCALE

parallel site plan study for:

Avalon
- a plan residential community
White Lake Township, Michigan

north

note:
preliminary plat for inspection purposes only and in no way official or approved for record purposes.

scale: 1"= 100'-0" 0' 50' 100' 200' 300'

single family parcel (R1-D)

ACRES OF SINGLE FAMILY SITE (R1-D)	41.06±
ACRES OF R.O.W.	1.60 ±
ACRES OF WETLAND	5.11±
ACRES OF DETENTION	1.84±
ACRES OF NET	32.51 ±
NO. OF SINGLE FAMILY LOTS	96
TYPICAL LOT SIZE	80'X150'
MIN. LOT SIZE	12,000 SQ.FT
MIN. LOT WIDTH	80'
DENSITY PER ACRE	2.9
(96 LOTS / 32.51 ACRES =2.9 UNITS/ACRE	

multi-family (RM-2)

ACRES OF RESIDENTIAL SITE (RM-2)	69.96±
ACRES OF R.O.W.	2.41 ±
ACRES OF WETLAND	1.91 ±
ACRES OF DETENTION	1.7 ±
ACRES OF SITE NET	63.94 ±
NO. OF RESIDENTIAL APARTMENT UNITS	600
49- 12-PLEX UNITS BLDG.	588
2- 6-PLEX UNITS BLDG.	12

TOTAL NO. OF PARKING REQUIRED	1,550
(2-SPACES UNIT + 1/4 SPACE PER BEDROOM)	
2-SPACES X 600 UNITS = 1,200-SPACES	
25-SPACE X 1,400 BEDRM = 350-SPACES	
TOTAL NO. OF PARKING PROVIDED	2,400
NO. OF GARAGE PARKING	1,200
NO. OF PARKING APPROACH	1,200
RECREATIONAL SPACE REQUIRED	1.49
5,000 (FIRST UNIT) + (599 UNITS x 100 SQFT PER UNIT)	
=64,900 / 43560= 1.489 ACRES	
RECREATIONAL SPACE PROVIDED	5.0
MAXIMUM LOT COVERAGE	12.79
(20% OF 63.94 ACRES (SITE NET)= 12.788 ACRES)	
LOT COVERAGE PROVIDED	12.74
49 x 11,000 SQ.FT (12-PLEX BLDG) = 539,000 SQFT +	
2 x 5,500 SQ.FT (6-PLEX BLDG) = 11,000 SQFT +	
1 x 5,000 SQ.FT(CLUBHOUSE) = 5,000 SQFT	
= 555,000 SQ.FT. / 43,560 = 12.74 ACRES	
ALLOWABLE DENSITY PER ACRE	
43,560 / 2-BEDRM @ 4,000 SQ.FT. = 10.89 UNITS/AC.	
43,560 / 3-BEDRM @ 4,500 SQ.FT. = 9.68 UNITS/AC.	
DENSITY PER ACRE PROVIDE	9.38 UNITS/AC.
600 UNITS / 63.94 (SITE NET) = 9.38 UNITS/AC.	

FELINO A. PASCUAL and ASSOCIATES
Community Land Planner and registered Landscape Architect
24333 Orchard Lake Rd, Suite G
Farmington Hills, MI 48336
ph. (248) 557-5588
fax. (248) 557-5416

seal:

client:
LAUTREC
31550 Northwestern Hwy
Farmington Hills, Michigan

project:
AVALON

project location:
White Lake Twp. Michigan
Highland Road & Hill Road

sheet title:
parallel site plan study

job no./issue/revision date:

LP20.077.09	REVIEW	10-1-2020
LP20.077.09	REVIEW	11-25-2020
LP21.008.01	REVIEW	1-6-2021
LP21.008.01	REVIEW	1-12-2021
LP22.052.05	REVIEW	5-11-2022
	REVIEW	5-13-2022

drawn by:
JP, DK , PH
checked by:
FP,
date:
5-10-2022

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
For free location of public utility lines

The location and elevations of existing underground utilities as shown on this drawing are only approximate. no guarantee is either expressed or implied as to the completeness of accuracy. contractor shall be exclusively responsible for determining the exact location and elevation prior to the start of construction

project no:
LP22.052.05

sheet no:

WHITE LAKE HILL, LLC

dba

The Avalon

Please see below for the summary of changes in waivers and modifications.

Summary of plan changes and improvements

- Decreased multi-family lots from **406** to **393**
- Decreased single-family lots from **87** to **81**
- Increased setback to a minimum of **100'** to the north property line and buildings adjacent northerly neighbor are setback to **120'** on the multi-family portion. The majority of the area within the setback will be kept in its natural state
- The minimum lot square footage has been increased to **8040** square feet.
- No patios, structures, or decks will encroach on a storm sewer easement or within the wetland setbacks.
- Developer will incorporate EV charging stations with the multi-family portion of the development

Director's Report

Project Name: Hypershine Car Wash

Description: Final site plan approval

Date on Agenda this packet pertains to: July 7, 2022

☐Public Hearing

☒Initial Submittal

☐Revised Plans

☐Preliminary Approval

☒Final Approval

☐Special Land Use

☐Rezoning

☐Other: PDA

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Planning Director	☐	☐	☒	☐	Subject to all staff and consultant review comments being addressed.
DLZ	Engineering Consultant	☐	☐	☒	☐	See letter dated 06/26/2022.
Justin Quagliata	Staff Planner	☐	☐	☒	☐	See letter dated 06/28/2022.
Jason Hanifen	WLT Fire Marshal	☐	☐	☒	☐	See letter dated 06/29/2022.

DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES

INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

June 26, 2022

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

RE: Hypershine Car Wash- Final Site Plan Review – 2nd Review

Ref: DLZ No. 2245-7382-03 Design Professional: Stonefield Engineering & Design

Dear Mr. O' Neil,

Our office has performed a Final Site Plan review for the above-mentioned revised plan dated June 13, 2022. The plans were reviewed against the approved Preliminary Site Plan (dated March 16, 2022 and approved by the White Lake Township Planning Commission on April 21, 2022) and for feasibility based on general conformance with the Township Engineering Design Standards.

General Site Information

This site is located on the south side of M-59, west of Fisk Road, and north of Tull Lake. Total site acreage is approximately 4.854 acres.

Site Improvement Information:

- Construction of car wash building totaling 3,756 square feet.
- Associated paved and curbed parking for both car wash employees and for patrons utilizing central vacuum system for their vehicles as well as maneuvering aisles. One (1) ADA van accessible parking space is also proposed.
- A 24' wide cross access drive is to be stubbed at both west and east property lines for future M-59 frontage road extension.
- Site to be serviced by watermain and sanitary sewer.

- Storm water runoff is proposed to be retained in proposed retention basin, located on southwestern side of the site.
- Construction of an 8' wide asphalt path along the M-59 frontage.

Preliminary Site Plan comments from our April 4, 2022 review:

Note that responses to those comments are in **bold**.

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

a) *Preliminary detention basin contours and sizing calculations are required to demonstrate adequate required storage volume; clarification shall also be made relative to the 'infiltration basin' label shown on Sheet C-4 of the plan. Should the applicant desire to discharge to the existing M-59 storm sewer as shown on the plan, permission from MDOT would be required as this storm sewer is under MDOT jurisdiction. Design engineer shall also indicate method by which storm sewer shall be installed under M-59 for connection to the existing storm sewer on the north side of the road. The design engineer states: "Proposed site discharge is to be reduced compared to existing discharge rates. Plans to be submitted to MDOT for stormwater and access approval prior to Final Site Plan. Stormwater design will be coordinated with MDOT as required. Final calculations are pending the results of geotechnical testing to confirm infiltration rates on site and will be provided at Final Site Plan. Storm pipe is to be jack and bored beneath Highland Road as required by MDOT. Drilling pit locations to be shown on demolition plan at Final Site Plan." Stormwater retention for two 100 year back to back storm events is now proposed. Infiltration rate for existing soils has now been provided with hourly infiltration rate for proposed retention basin within acceptable infiltration rate parameters. We consider this item satisfied; however, we request a copy of the geotechnical report (done by Materials Testing Consultants and dated January 28, 2022) be provided at the time of Final Engineering Plan submittal.* **Comment previously satisfied. A copy of the geotechnical report prepared by Materials Testing Consultants and dated January 28, 2022 has been received by our office as part of the current submittal.**

b) *Method of stormwater pretreatment shall be provided. Comment addressed. A mechanical water quality unit is proposed for storm water pretreatment. Details regarding manufacturer and TSS removal rated (80% required) shall be provided at time of Final Engineering Plan submittal.* **A Contech unit, model CDS 2015-4, is now shown along with TSS removal rate data on plans. We consider the comment fully addressed.**

c) *Clarification on the water reclaim system will be required along with coordination with White Lake Township DPS and Oakland County WRC regarding the potential need for an external 1000-gallon oil/grit separator; a 4' diameter sampling MH located downstream of the oil/grit separator shall also be provided. A sampling manhole has been added upstream of the proposed duplex grinder station. In the design engineer's response letter, the engineer states that oil and grit separation occurs internally. Further clarification with respect to the process used shall be required to be coordinated with White Lake Township DPS and Oakland County WRC at the time of Final Site Plan. The concern is adequately protecting the sanitary sewer grinder station from grit and oils. Comment outstanding. Information and clarification regarding the oil and grit separation process is required at this time. This was a condition of approval of the Preliminary Site Plan, which was approved by the White Lake Township Planning Commission on April 21, 2022.* **Applicant has provided additional details regarding the proposed reclaim system within the HCWA Highland Permit set, Sheet 22 of 32. We defer further comment to the Township DPS but note that the reclaim system is located within the building limits so any Township inspection would require entry into the facility.**

Final Site Plan Comments-

Note that comments from our June 3, 2022 review are in *italics.* Responses to those comments are in **bold.** New comments are in standard typeface.

1. *A 24' wide cross access drive is now shown to be stubbed at the east and west property lines for inclusion of a possible M-59 future frontage road. An executed cross access easement / agreement shall be required prior to Final Engineering Plan approval.* **Comment remains as a notation.**
2. *Sheet C-6- Proposed Drainage Plan- change wording from Detention Area Plan to Retention Area Plan.* **Comment addressed.**
3. *Add note to Landscaping Plan that a minimum of 3' horizontal separation is to be maintained between proposed trees and existing watermain.* **Comment addressed. A note has been added to the landscaping plan.**

The following items can be addressed at the time of Final Engineering Plan Submittal:

FEP Comments-

Watermain

1. *We defer to the Fire Department with regard to items related to fire suppression including proposed hydrant locations. Comment remains as a notation.* **Per the design engineer's response dated June 15, 2022, the Fire Department comments have been addressed.**
2. Attach White Lake Township Watermain Standard Detail Sheet to the plan set. **Comment addressed and remains as a notation.**

Sanitary Sewer

1. *Provide peak flows for the grinder station as the station will need to be sized to accommodate anticipated discharge. Comment remains. Design engineer notes that this information will be provided on the FEP.* **A basis of design has been provided on the plan; this will be reviewed in further detail at the time of Final Engineering Plan submittal.**
2. *Attach White Lake Township Sanitary Sewer Standard Detail Sheet to the plan set.* **Comment remains as a notation.**

Storm Sewer

1. *Provide storm sewer profiles and attach White Lake Township Storm Sewer Standard Detail Sheet to plan set.* **Profiles have been provided and will be reviewed in further detail at time of Final Engineering Plan submittal. Standard detail sheet has been attached to plan and comment remains as a notation.**

Permits

1. *Permission from White Lake Township will be required for work within the existing 15' wide watermain easement.* **Comment remains as a notation, this work will be coordinated the Township DPS director Aaron Potter.**

Recommendation

DLZ recommends approval of the Final Site Plan subject to approval by the Township DPS regarding the proposed reclaim system and its oil/grit separation capabilities. DLZ anticipates Final Engineering submittals are still forthcoming and will be reviewed at a future date.

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. None

Cc: Justin Quagliata, Community Development, *via email*
Hannah Micallef, Community Development, *via email*
Aaron Potter, DPS Director, White Lake Township, *via email*
John Holland, Fire Chief, White Lake Township, *via email*
Jason Hanifen, Fire Marshall, White Lake Township, *via email*

X:\Projects\2022\2245\738203 WLT Hypershine Car\FSP Review.02\Review.02.docx

WHITE LAKE TOWNSHIP
PLANNING COMMISSION

REPORT OF THE
COMMUNITY DEVELOPMENT DEPARTMENT

TO: **Planning Commission**

FROM: **Sean O'Neil, AICP, Community Development Director**

Justin Quagliata, Staff Planner

DATE: **June 28, 2022**

RE: **Hypershine Auto Wash**
Final Site Plan – Review #2

Staff reviewed the final site plan (FSP) for the Hypershine Auto Wash project. The Applicant intends to construct a single-story, 3,756 square foot automobile wash establishment at 9345 Highland Road (Parcel Number 12-23-202-006), located on the south side of Highland Road, west of Fisk Road. The Township Board approved the preliminary site plan on May 17, 2022 and the Planning Commission granted special land use approval on April 21, 2022. Following is list of items relevant to the final site plan:

Building Architecture and Design

In accordance with the M-59 architectural character requirements, exterior building materials shall be comprised primarily of high quality, durable, low maintenance material, such as masonry, stone, brick, glass, or equivalent materials. Buildings should be completed on all sides with acceptable materials. The proposed building materials for the project are a mix of brick veneer, and cultured stone veneer with a stone cap four feet up around the base of the building. Faux columns add architectural interest to the building, with an EFIS (exterior insulation finishing system) parapet tower at the west side of the building. Pre-fabricated decorative metal panels are located below the EFIS parapet on the south and west elevations. An aluminum parapet cap complimentary in color to the proposed building materials would be located on top of the walls around the building (with the exception of the parapet tower). Tinted mirrored windows are proposed on three elevations of the building (no windows on east side), with aluminum lattice canopies using aluminum kicker legs at each end to attach to the building. Aluminum clad fascia (stripe) is proposed on three elevations of the building (not proposed on the rear). Most of the cladding/fascia is specified as 'sierra tan', the same color as the wall caps as to not attract attention to building. **As stated in previous correspondence, a note shall be added to the exterior elevations stating all cladding/fascia and wall caps shall be 'sierra tan' color.** **(Comment addressed).**

As stated in previous correspondence, a sample board of building materials to be displayed at the Planning Commission meeting is required by the zoning ordinance at final site plan and must be provided. (Comment remains as a notation. This requirement was acknowledged by the Applicant's engineer in the response letter provided to the first FSP review).

As stated in previous correspondence, the labeled height to the top of the parapet cap is 124'–3¾"; this is an error. Revise the exterior elevations accordingly. (Comment rescinded. The Applicant's engineer clarified the elevation point is accurate as the finished floor elevation starts at 100'–0" and matches the wall section found on the architectural plans).

As stated in previous correspondence, the car entrance, car exit, and travel direction are incorrect on the floor plan. As shown, the car entrance is on the east side of the building, the car exit is on the west side of the building, and the travel direction through the building is west. Revise the floor plan accordingly. (Comment addressed. The north arrow was adjusted on the plan).

Landscaping and Screening

Landscaping must comply with the provisions of the zoning ordinance and should be designed to preserve existing significant natural features and to buffer service areas, parking lots, and dumpsters. A mix of evergreen and deciduous plants and trees are preferred, along with seasonal accent plantings. Following are comments on the landscape plan:

- When the Applicant attended the April 28, 2022 Zoning Board of Appeals meeting, they stated their intention to eliminate the requests for landscaping variances. The revised plan shows the provision of the required quantity of landscaping.

- **The proposed greenbelt shrubs (Japanese Boxwood and Dwarf Fothergilla) would not screen the parking area from view along the length of the greenbelt. Shrubs no less than three feet in height which are salt-tolerant and of seasonal interest should be provided. Staff suggests the Planning Commission require Korean Spice Viburnum, Japanese Barberry, or Burning Bush. Revise the landscape plan accordingly. (Comment addressed. Greenbelt shrubs have been replaced with Korean Spice Viburnum and Burning Bush).**

- **Junipers are not considered evergreen trees; they are considered shrubs. The Plant Schedule shall be revised accordingly. (Comment partially addressed. Junipers have been replaced with Colorado Green Spruce. Evergreen trees must be a minimum of seven feet in height at the time of planting. Revise the Colorado Green Spruce and White Spruce size in the Plant Schedule).**

- **As stated in previous correspondence, trees identified for protection during construction and the means of protection shall be identified on the landscape plan. No construction shall occur until tree protection has been installed and approved by the Community Development Director. This note shall be provided on the demolition plan and the landscape plan. (Comment addressed. A note has been added to the plans).**

- **The submitted irrigation plan utilizes a prior version of the landscape plan (the particular version was not ever submitted to the Township). The irrigation plan shall be revised to utilize the current landscape plan (subject to revisions as required) as the basis for irrigation. (Comment addressed. The irrigation plan has been updated and incorporated into the landscaping plan).**

- **The Applicant shall note the proposed White Spruce evergreen trees shall not be substituted for White Pine, which is a prohibited species in the Township. (Comment addressed. A note has been added under the Plant Schedule on the landscaping plan).**

Outdoor Lighting

Outdoor lights must meet the performance standards of Article 5, Section 18.G of the zoning ordinance. Following are comments on the lighting (photometric) plan:

- As currently measured, footcandle averages for the development area exceed 2.0. **Therefore, a variance is required from the Zoning Board of Appeals. (Comment rescinded. The lighting (photometric) plan has been revised using a luminaire with lower lumens).**

- **As stated in previous correspondence, complete catalog details (lighting fixture specification sheets) for all proposed fixtures shall be provided. Only partial lighting fixture specifications have been provided. Light fixture selections and colors are subject to review and approval by the Township. (Comment addressed. Full lighting fixture specifications have been provided).**

- **As stated in previous correspondence, the light pole detail (Sheet C-13 of the revised plans) does not accurately represent the fixture to be utilized on the pole-mounted luminaries. For reference, the fixture is the assembly holding a lamp (bulb). Revise accordingly. (Comment addressed. Additional dimensions have been added to the light pole detail).**

Parking

The four employee parking spaces were relocated on the east side of the property to accommodate the installation of the frontage road.

Sidewalks

Frontage sidewalk concrete sections shall be constructed through the driveway to meet barrier-free accessibility requirements. Revise accordingly. (Comment addressed. Concrete sections are shown across the driveway on the site plan).

Other miscellaneous site plan comments:

- A frontage road was provided (stubbed at east and west property lines) and the width of the drive was widened four feet, from 20 feet to 24 feet, as requested by staff.

- The Zoning Board of Appeals granted a 40-foot variance to allow the dumpster/trash storage enclosure to project in front of the building and variances for the minimum driveway spacing (same side of road).

- **As stated in previous correspondence, a trash receptacle detail shall be provided at final site plan. (Comment addressed. A trash receptacle detail has been provided).**

- **As stated in previous correspondence, a note shall be added to the site plan stating waste receptables are mounted at each vacuum station. (Comment addressed. A note has been added on the site plan).**

- The Soil Erosion & Sediment Control Plan (Sheet C-10) shall be revised to address the following:

    - **Number 6 under Sequence of Construction shall be revised to replace "final seeding" with "sod." (Comment addressed. Number 6 has been revised).**

    - **Clarify why the legal description on Sheet C-10 differs from (written differently) than the legal description on the Coversheet (Sheet C-1). (Comment addressed. The Applicant's engineer stated this was an error and the legal descriptions have been updated to match the ALTA/NSPS Land Title Survey. For verification, the Township Engineering Consultant shall review the legal description).**

- **As stated in previous correspondence, a detail for the proposed six-foot-tall vinyl fence shall be provided at final site plan. (Comment partially addressed. A detail has been provided; however, the color and height of the vinyl fence shall be provided on the detail.**

- As shown on the exterior elevations, the location and quantity of wall signage is compliant with the zoning ordinance (previous variance request withdrawn – wall signage was proposed above the roofline).

- Signage is not permitted on the vacuum stations.

- **The Construction Details sheet identified as Drawing C-9 appears to be an error and should be identified as C-11. Revise accordingly.**

Planning Commission Options

The Planning Commission has the option to approve, approve with conditions, or deny the final site plan. **Staff recommends approval of the final site plan, subject to the items identified in this memorandum being addressed prior to a pre-construction meeting.**

The following notations summarize the final site plan review:

- Recommendation of approval is in accordance with the plans prepared by Stonefield Engineering and Design, LLC (revision date June 13, 2022), subject to revisions as required. Grading, storm drainage, and utility plans for the site are subject to the approval of the Township Engineering Consultant and shall be completed in accordance with the Township Engineering Design Standards.

- Recommendation of approval is in accordance with the overall floor plan and exterior elevations prepared by REB Architects, PLLC dated March 25, 2022, subject to revisions as required. **(The dates on the aforementioned plans provided with the first FSP review were March 25, 2022. The plans provided with the current submittal, which were since revised, contain the same date. A revision date on the necessary sheets shall be provided to indicate changes made in the plan set).**

Fire Department
Charter Township
of White Lake

Site / Construction Plan Review

To: Sean O'Neil, Planning Department Director

Date: 6/29/2022

Project: Hypershine Auto Wash

Project ID #: DET-210462

Date on Plans: 6/13/2022

The Fire Department has the following comments with regards to the 4nd Review of Hypershine Auto Wash.

1. Detailed exit gate plans must be submitted for Fire Department approval. Gate must have a manual override and a keypad that the Fire Department can program.

2. The submitted plans that addressed the turn around will meet the intent as long as the exit gate and keypad are approved by the Fire Department.

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

Plans are reviewed using the International Fire Code (IFC), 2015 Edition and Referenced NFPA Standards.

SITE DEVELOPMENT PLANS

FOR

HYPERSHINE

PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006

9345 HIGHLAND ROAD (M-59)

WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

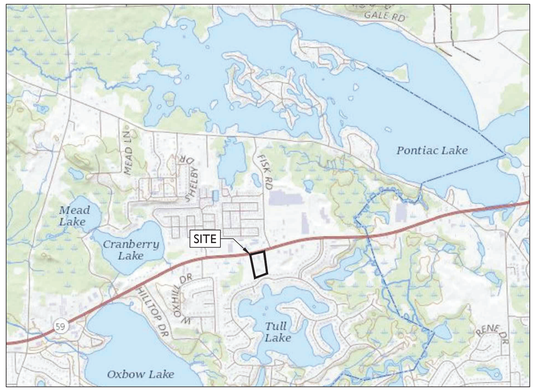
ZONING RELIEF TABLE			
RELIEF TYPE	**CODE SECTION**	**REQUIRED**	**PROPOSED**
VARIANCE (APPROVED 4/28)	§ 6.4.C.i	MINIMUM CENTER-TO-CENTER DRIVEWAY SPACING (SAME SIDE OF ROAD): 455 FT	197 FT TO EAST EXISTING DRIVE
VARIANCE (APPROVED 4/28)	§ 6.4.C.i	MINIMUM CENTER-TO-CENTER DRIVEWAY SPACING (SAME SIDE OF ROAD): 455 FT	262 FT TO WEST EXISTING DRIVE
WAIVER (APPROVED 4/21)	§ 6.4.D.i	TO MINIMIZE TURNING CONFLICTS, BOULEVARD-STYLE ACCESS DRIVES (OR LOCAL STREETS) SHALL GENERALLY NOT BE APPROVED OPPOSITE UNDIVIDED ACCESS DRIVES, OR VICE VERSA	UNDIVIDED ACCESS DRIVE
VARIANCE (APPROVED 4/28)	§ 5.19.N.c	NO ENCLOSURES SHALL BE PERMITTED WITHIN A REQUIRED FRONT YARD OR STREET-SIDE SIDE YARD SETBACK, NOR CLOSER TO THE FRONT LOT LINE THAN THE PRINCIPAL BUILDING.	40.0' PROJECTION INTO FRONT YARD

APPLICANT

EROP, LLC
3130 NORTH KANDY LANE
DECATUR, ILLINOIS 62526
215-521-2348

ARCHITECT

REB ARCHITECTS, PLLC
WIND HAVEN DRIVE SUITE 101
NICHOLASVILLE, KENTUCKY 40356
859-523-1500



SOURCE: USGS NATIONAL MAPPER

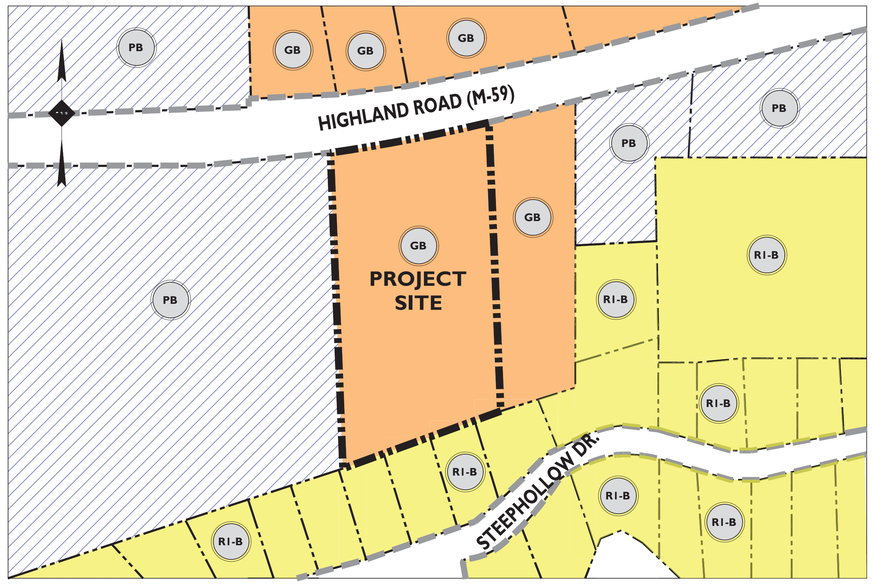
LOCATION MAP

SCALE: 1" = 2,000'±

SOURCE: GOOGLE EARTH PRO

AERIAL MAP

SCALE: 1" = 150'±



SOURCE: CITY OF WHITE LAKE ZONING MAP

ZONING MAP

SCALE: 1" = 150'±

WHITE LAKE CHARTER TOWNSHIP ENGINEERING NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWNSHIP'S CURRENT STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL NOTIFY THE TOWNSHIP ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION, 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
3. CONTRACTOR SHALL CONTACT MISS DIG AT 800-482-7171, 72 HOURS IN ADVANCE OF CONSTRUCTION, FOR EXISTING UNDERGROUND UTILITY LOCATIONS.
4. IN ORDER TO VERIFY COMPLIANCE WITH APPROVED PLANS, FULL-TIME CONSTRUCTION OBSERVATION WILL GENERALLY BE REQUIRED DURING ALL PHASES OF UNDERGROUND SITE CONSTRUCTION INCLUDING INSTALLATION OF SANITARY SEWER, STORM SEWERS, DRAINS, WATERMAINS AND APPURTENANCES AS WELL AS PRIVATE STREET CURBING AND PAVING CONSTRUCTION. INTERMITTENT OBSERVATIONS WILL BE MADE FOR SITE GRADING, PARKING LOT CURBING AND PAVING, RETAINING WALL CONSTRUCTION AND OTHER SURFACE ACTIVITY.

PLAN REFERENCE MATERIALS:

1. THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
   - ALTA / NSPS LAND TITLE SURVEY PREPARED BY KEM-TEC & ASSOCIATES INC. DATED 01/20/2022
   - ARCHITECTURAL PLANS PREPARED BY REB ARCHITECTS DATED 05/13/2022
   - GEOTECHNICAL REPORT PREPARED BY MATERIALS TESTING CONSULTANTS DATED 01/28/2022
   - AERIAL MAP OBTAINED FROM GOOGLE EARTH PRO
   - LOCATION MAP OBTAINED FROM USGS NATIONAL MAPPING SYSTEM
2. ALL REFERENCE MATERIAL LISTED ABOVE SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THESE MATERIALS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF EACH REFERENCE AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

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PLANS PREPARED BY:

STONEFIELD engineering & design

Detroit, MI · New York, NY · Rutherford, NJ
Princeton, NJ · Tampa, FL · Boston, MA
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

PROPERTY DESCRIPTION:

LAND SITUATED IN THE TOWNSHIP OF WHITE LAKE, COUNTY OF OAKLAND AND STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

PART OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23 TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT, SAID POINT BEING DISTANT NORTH 02 DEGREES 24 MINUTES 30 SECONDS EAST, 1731.78 FEET, AND SOUTH 75 DEGREES 05 MINUTES WEST, 483.89 FEET, FROM THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION; THENCE RUNNING SOUTH 75 DEGREES 05 MINUTES WEST, 217.5 FEET, TO A POINT; THENCE NORTH 02 DEGREES 47 MINUTES 20 SECONDS EAST, 661.50 FEET, TO A POINT ON THE SOUTHERLY LINE OF M-59 HIGHWAY; THENCE NORTHEASTERLY ALONG SAID HIGHWAY LINE AND ALONG THE ARC OF CURVE TO LEFT (RADIUS BEING 3869.83 FEET, AND CENTRAL ANGLE BEING 03 DEGREES 05 SECONDS) 208.35 FEET, TO A POINT; THENCE SOUTH 02 DEGREES 43 MINUTES 15 SECONDS WEST, 623.2 FEET, TO THE POINT OF BEGINNING.

AND

PART OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT, SAID POINT BEING DISTANT NORTH 02 DEGREES 24 MINUTES 30 SECONDS EAST, 1731.73 FEET, AND SOUTH 75 DEGREES 05 MINUTES WEST, 349.56 FEET, FROM THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION; THENCE RUNNING SOUTH 75 DEGREES 05 MINUTES WEST, 134.33 FEET TO A POINT; THENCE NORTH 02 DEGREES 43 MINUTES 15 SECOND EAST, 623.2 FEET TO A POINT ON THE SOUTHERLY LINE OF M-59 HIGHWAY; THENCE NORTHEASTERLY ALONG SAID HIGHWAY LINE AND ALONG THE ARC OF A CURVE TO THE LEFT (RADIUS BEING 3869.83 FEET, AND CENTRAL ANGLE BEING 01 DEGREE 55 MINUTES 30 SECONDS) 130.00 FEET, TO A POINT; THENCE SOUTH 02 DEGREES 43 MINUTES 15 SECONDS WEST, 605.5 FEET, TO THE POINT OF BEGINNING.

SHEET INDEX

DRAWING TITLE	*SHEET #*
COVER SHEET	C-1
DEMOLITION PLAN	C-2
SITE PLAN	C-3
GRADING PLAN	C-4
STORMWATER MANAGEMENT PLAN	C-5
DRAINAGE MAP	C-6
UTILITY PLAN	C-7
LIGHTING PLAN	C-8
LANDSCAPING & IRRIGATION PLAN	C-9
SOIL EROSION & SEDIMENT CONTROL PLAN	C-10
CONSTRUCTION DETAILS	C-11 TO C-14
FIRE TRUCK TURNING EXHIBIT	C-15

ADDITIONAL SHEETS

DRAWING TITLE	*SHEET #*
ALTA / NSPS LAND TITLE SURVEY	1 OF 1
WHITE LAKE TWP WATERMAIN DETAILS	1 OF 1
WHITE LAKE TWP STORM SEWER DETAILS	1 OF 1
OAKLAND COUNTY SOIL EROSION DETAILS	1 OF 1

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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Phone 248.247.1115

SITE DEVELOPMENT PLANS

HYPERSHINE

PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
PROFESSIONAL ENGINEER

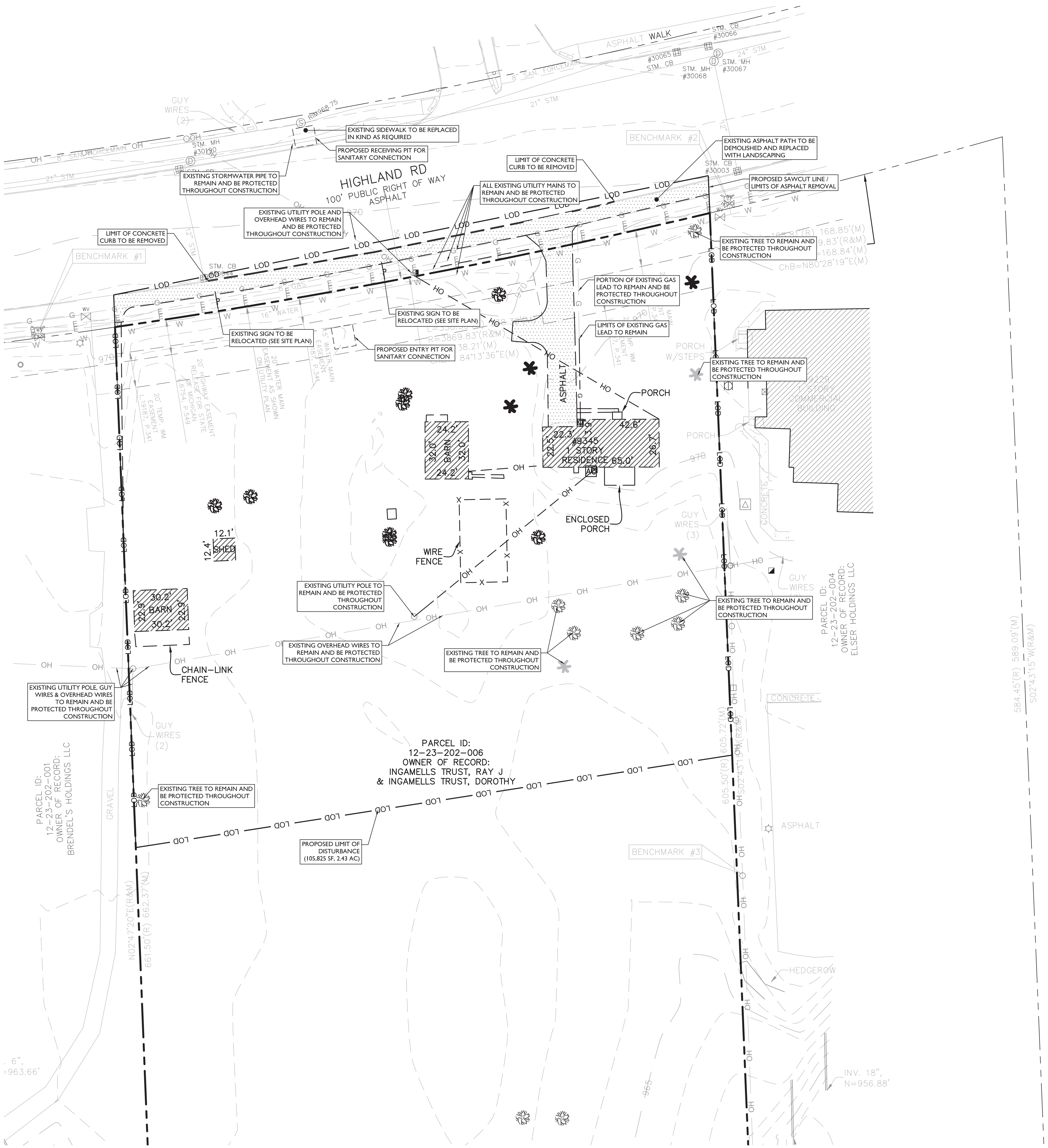
STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210462

TITLE: COVER SHEET

DRAWING: C-1

V:\DET\2021\DET-210462\ACAD\P-LAC\PM\HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOTS\PSP-01-COVER.DWG



SYMBOL	DESCRIPTION
— — — — —	FEATURE TO BE REMOVED / DEMOLISHED
▬▬ LOD ▬▬	LIMIT OF DISTURBANCE

ALL SITE FEATURES WITHIN THE LIMIT OF DISTURBANCE INDICATED ON THIS PLAN ARE TO BE REMOVED / DEMOLISHED UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF SIGNIFICANT DISCREPANCIES ARE DISCERNED BETWEEN THIS PLAN AND FIELD CONDITIONS

ALL TREES ON THIS PLAN INDICATED TO BE PROTECTED THROUGHOUT CONSTRUCITION SHALL BE EQUIPPED WITH A TREE PROTECTION FENCE. NO CONSTRUCTION SHALL OCCUR UNTIL TREE PROTECTION FENCE HAS BEEN INSTALLED AND APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR. SEE SOIL EROSION PLAN ON SHEET C-10.

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DEMOLITION NOTES

1. THE WORK REFLECTED ON THE DEMOLITION PLAN IS TO PROVIDE GENERAL INFORMATION TOWARDS THE EXISTING ITEMS TO BE DEMOLISHED AND/OR REMOVED. THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE ENTIRE PLAN SET AND ASSOCIATED REPORTS/REFERENCE DOCUMENTS INCLUDING ALL DEMOLITION ACTIVITIES AND INCIDENTAL TASKS NECESSARY TO COMPLETE THE SITE IMPROVEMENTS.
2. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF DEMOLITION ACTIVITIES.
3. EXPLOSIVES SHALL NOT BE USED UNLESS WRITTEN CONSENT FROM BOTH THE OWNER AND ANY APPLICABLE GOVERNING AGENCY IS OBTAINED. BEFORE THE START OF ANY EXPLOSIVE PROGRAM, THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL LOCAL, STATE, AND FEDERAL PERMITS. ADDITIONALLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL SEISMIC TESTING AS REQUIRED AND ANY DAMAGES AS THE RESULT OF SAID DEMOLITION PRACTICES.
4. ALL DEMOLITION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL CODES. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL UTILITIES ARE DISCONNECTED IN ACCORDANCE WITH THE UTILITY AUTHORITY'S REQUIREMENTS PRIOR TO STARTING THE DEMOLITION OF ANY STRUCTURE. ALL EXCAVATIONS ASSOCIATED WITH DEMOLISHED STRUCTURES OR REMOVED TANKS SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO SUPPORT SITE AND BUILDING IMPROVEMENTS. A GEOTECHNICAL ENGINEER SHOULD BE PRESENT DURING BACKFILLING ACTIVITIES TO OBSERVE AND CERTIFY THAT BACKFILL MATERIAL WAS COMPACTED TO A SUITABLE CONDITION.
5. DEMOLISHED DEBRIS SHALL NOT BE BURIED ON SITE. ALL WASTE/DEBRIS GENERATED FROM DEMOLITION ACTIVITIES SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ALL RECORDS OF THE DISPOSAL TO DEMONSTRATE COMPLIANCE WITH THE ABOVE REGULATIONS.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
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1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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HYPERSHINE

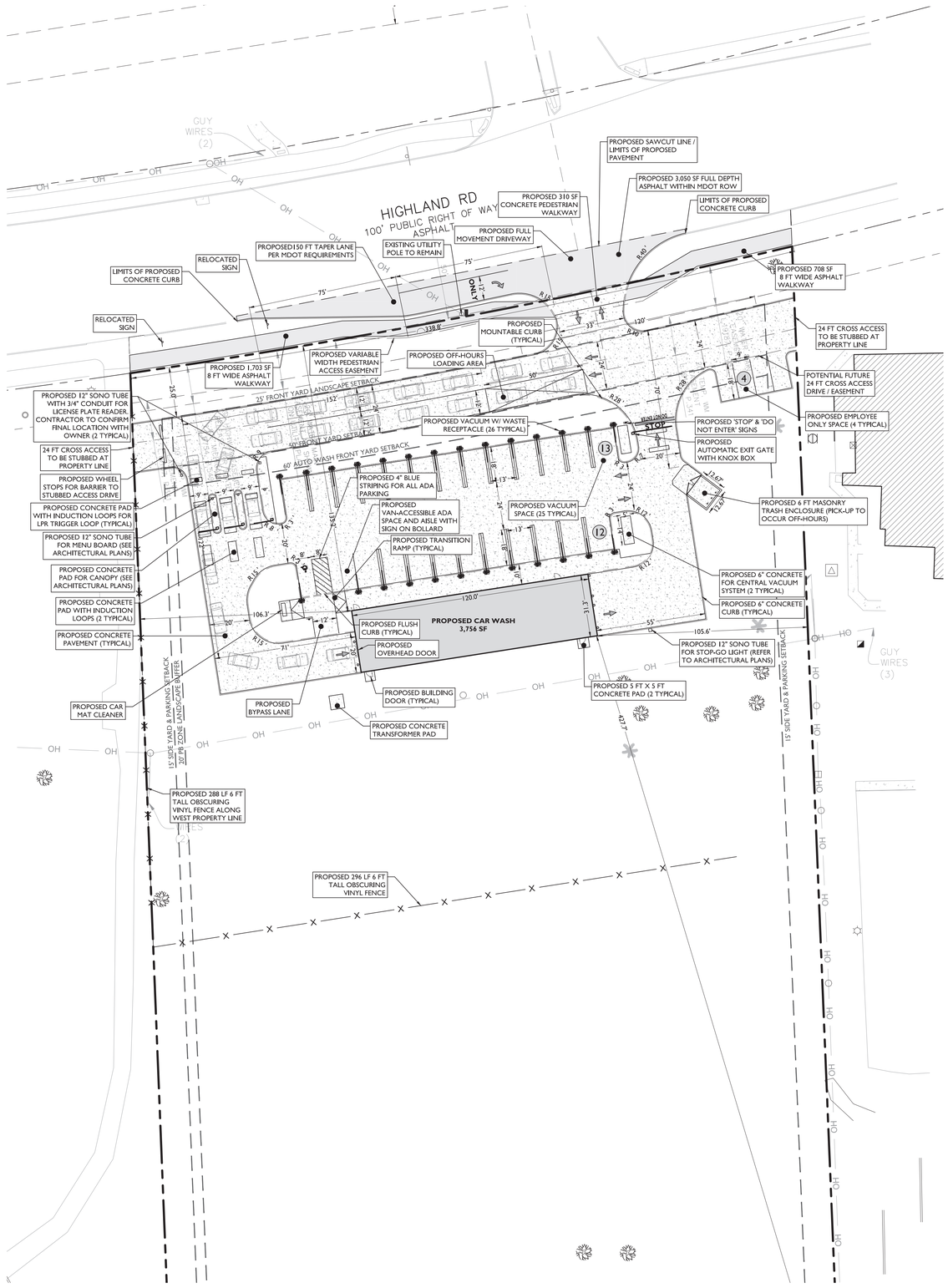
SITE DEVELOPMENT PLANS
HYPERSHINE
PROPOSED AUTO WASH
PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
MICHIGAN LICENSE No. 6201069428
LICENSED PROFESSIONAL ENGINEER
[illegible]

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462
TITLE: DEMOLITION PLAN
DRAWING: C-2

V:\DET\2021\DET-210462-EROP, LLC-9345 HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CADD\PLOT\SDP-02-DEMO.DWG



LAND USE AND ZONING

PID: 12-23-202-006

GENERAL BUSINESS DISTRICT (GB)

PROPOSED USE

AUTOMOBILE WASH — SPECIAL LAND USE

ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT AREA	43,560 SF (1 AC)	211,477 SF (4.85 AC)
MINIMUM LOT WIDTH	200 FT	338.2 FT
MAXIMUM BUILDING HEIGHT	35 FT (2 STORIES)	24 FT (1 STORY)
MINIMUM FRONT YARD SETBACK (AUTOMOBILE WASH)	60 FT	135.2 FT
MINIMUM SIDE YARD SETBACK (ONE)	15 FT	105.6 FT
MINIMUM SIDE YARD SETBACK (BOTH)	30 FT	211.9 FT
MINIMUM REAR YARD SETBACK	20 FT	427.7 FT
MINIMUM FRONT LANDSCAPE SETBACK	20 FT	25.0 FT
MINIMUM R.O.W. PARKING SETBACK	25 FT	25.0 FT
MINIMUM SIDE PARKING SETBACK	15 FT	22.4 FT
INTERIOR LANDSCAPING AREA	15% (31,722 SF)	83% (175,679 SF)
MINIMUM DRIVEWAY SPACING (HIGHLAND ROAD)	455 FT	±213 FT TO EAST (V) ±246 FT TO WEST (V)
TRASH ENCLOSURE SETBACK	NO ENCLOSURES SHALL BE PERMITTED CLOSER TO THE FRONT LOT LINE THAN THE PRINCIPAL BUILDING	TRASH ENCLOSURE PROJECTS 40.0' (V)

(V) VARIANCE

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 5.11.M	AUTOMOBILE CAR WASH: 1 SPACE PER EMPLOYEE (4 EMP.)X(1 SPACE / 1 EMP.) = **4 SPACES**	4 SPACES
§ 5.11.M	STACKING SPACES: 7 TIMES MAXIMUM CAPACITY, 9 FT X 18 FT 4 CAR CAPACITY (7 X 4 CARS) = **28 SPACES**	28 SPACES 9 FT X 18 FT
§ 5.11.Q	DIMENSIONAL REQUIREMENTS (90°): 9 FT X 18 FT W/ 24 FT AISLE	9 FT X 18 FT W/ 24 FT AISLE
§ 5.21	MULTI-USE, NON MOTORIZED PATHWAY: 8 FT WIDE PAVED PATH	8 FT PATH

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	SAWCUT LINE
	PROPOSED CURB
	PROPOSED MOUNTABLE CURB
	PROPOSED FLUSH CURB
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED BUILDING DOORS

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.
13. ANY LOADING/UNLOADING TO OCCUR OFF-HOURS AS TO NOT CONFLICT WITH CUSTOMER TRAFFIC FLOW.
14. ALL TRASH PICKUP TO OCCUR OFF-HOURS AS TO NOT CONFLICT WITH CUSTOMER TRAFFIC FLOW.

30' 0' 30' 60'

GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
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6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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Princeton, NJ · Tampa, FL · Boston, MA
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607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

HYPERSHINE

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201049428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: SITE PLAN

DRAWING: C-3

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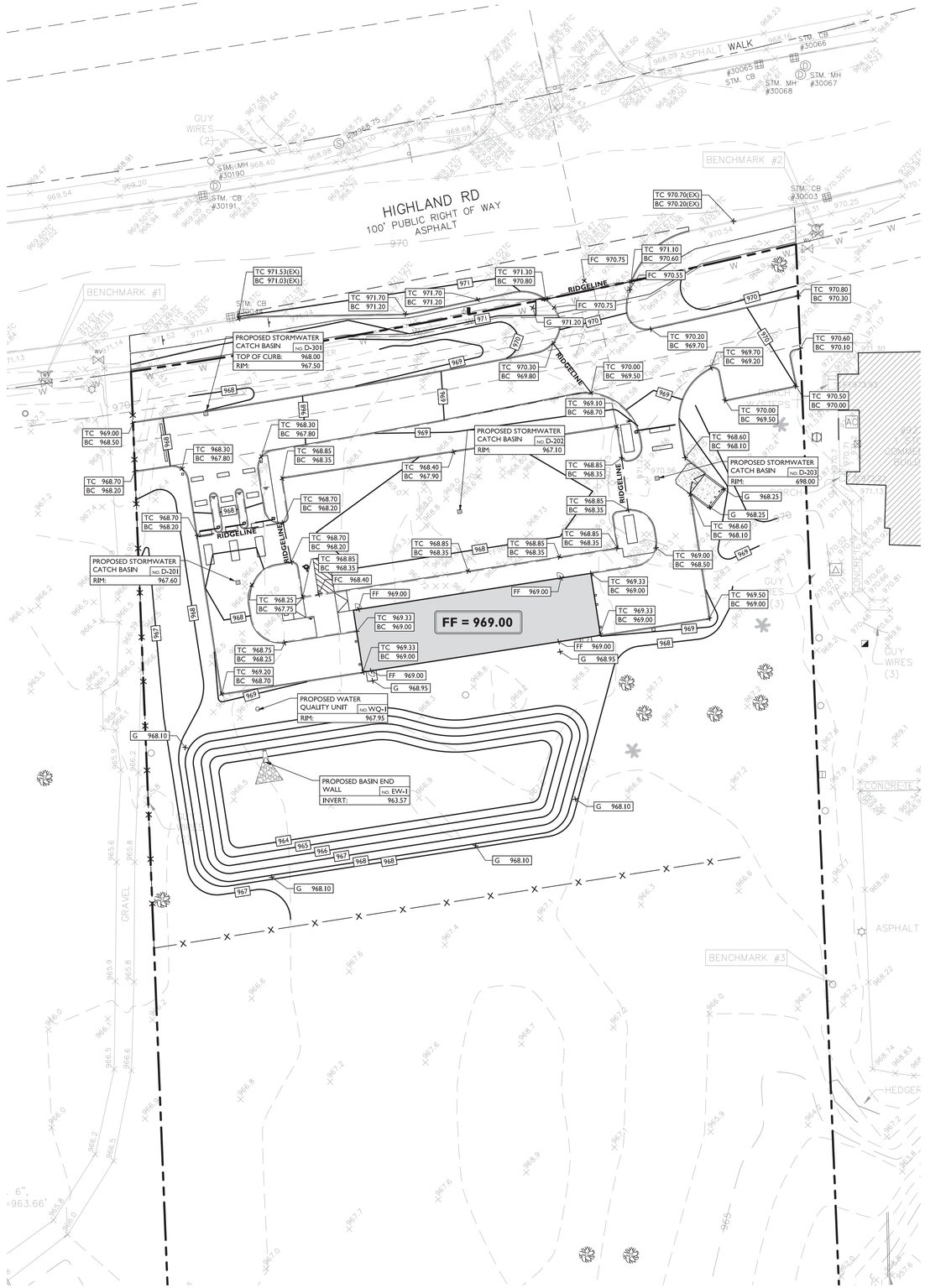

SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED DIRECTION OF DRAINAGE FLOW
G 100.00	PROPOSED GRADE SPOT SHOT
TC 100.50 BC 100.00	PROPOSED TOP OF CURB / BOTTOM OF CURB SPOT SHOT
FC 100.00	PROPOSED FLUSH CURB SPOT SHOT

MANHOLE SCHEDULE

#	TYPE	RIM (FT)	SIZE (IN)	DIRECTION	INVERT (FT)
30003	CATCH BASIN	969.98	12	N	963.48
30044	CATCH BASIN	970.93	12	N	962.93
30065	CATCH BASIN	967.54	12	E	962.74
30066	CATCH BASIN	967.63	12	W	962.63
			12	SE	962.63
30067	STORM MANHOLE	967.78	12	SW	962.03
			12	NW	962.28
			24	E	959.38
			21	W	959.43
30068	STORM MANHOLE	967.89	12	S	962.39
			12	NE	962.29
30190	STORM MANHOLE	969.35	12	SW	961.53
			21	E	960.97
			21	W	960.90
30191	CATCH BASIN	968.78	12	NE	962.08
			12	S	962.28

GRADING NOTES

1. ALL SOIL AND MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. ANY GROUNDWATER DE-WATERING PRACTICES SHALL BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE DISCHARGE OF DE-WATERED GROUNDWATER. ALL SOIL IMPORTED TO THE SITE SHALL BE CERTIFIED CLEAN FILL. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL FILL MATERIALS BROUGHT TO THE SITE.
2. THE CONTRACTOR IS REQUIRED TO PROVIDE TEMPORARY AND/OR PERMANENT SHORING WHERE REQUIRED DURING EXCAVATION ACTIVITIES, INCLUDING BUT NOT LIMITED TO UTILITY TRENCHES, TO ENSURE THE STRUCTURAL INTEGRITY OF NEARBY STRUCTURES AND STABILITY OF THE SURROUNDING SOILS.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4 INCHES TO 7 INCHES ABOVE EXISTING GRADES UNLESS OTHERWISE NOTED. THE CONTRACTOR WILL SUPPLY ALL STAKEOUT CURB GRADE SHEETS TO STONEFIELD ENGINEERING & DESIGN, LLC FOR REVIEW AND APPROVAL PRIOR TO POURING CURBS.
4. THE CONTRACTOR IS RESPONSIBLE TO SET ALL PROPOSED UTILITY COVERS AND RESET ALL EXISTING UTILITY COVERS WITHIN THE PROJECT LIMITS TO PROPOSED GRADE IN ACCORDANCE WITH ANY APPLICABLE MUNICIPAL, COUNTY, STATE AND/OR UTILITY AUTHORITY REGULATIONS.
5. MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
   - CURB GUTTER: 0.50%
   - CONCRETE SURFACES: 1.00%
   - ASPHALT SURFACES: 1.00%
5. A MINIMUM SLOPE OF 1.00% SHALL BE PROVIDED AWAY FROM ALL BUILDINGS. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FROM THE BUILDING IS ACHIEVED AND SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF THIS CONDITION CANNOT BE MET.
6. FOR PROJECTS WHERE BASEMENTS ARE PROPOSED, THE DEVELOPER IS RESPONSIBLE TO DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED STRUCTURE. IF GROUNDWATER IS ENCOUNTERED WITHIN THE BASEMENT AREA, SPECIAL CONSTRUCTION METHODS SHALL BE UTILIZED AND REVIEWED/APPROVED BY THE CONSTRUCTION CODE OFFICIAL. IF SUMP PUMPS ARE UTILIZED, ALL DISCHARGES SHALL BE CONNECTED DIRECTLY TO THE PUBLIC STORM SEWER SYSTEM WITH APPROVAL FROM THE GOVERNING STORM SEWER SYSTEM AUTHORITY.

ADA NOTES

1. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
2. THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 5.00% RUNNING SLOPE AND A MAXIMUM OF 2.00% CROSS SLOPE ALONG WALKWAYS WITHIN THE ACCESSIBLE PATH OF TRAVEL (SEE THE SITE PLAN FOR THE LOCATION OF THE ACCESSIBLE PATH). THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE ACCESSIBLE PATH OF TRAVEL IS 36 INCHES WIDE OR GREATER UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
4. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION AT ALL LANDINGS. LANDINGS INCLUDE, BUT ARE NOT LIMITED TO, THE TOP AND BOTTOM OF AN ACCESSIBLE RAMP, AT ACCESSIBLE BUILDING ENTRANCES, AT AN AREA IN FRONT OF A WALK-UP ATM, AND AT TURNING SPACES ALONG THE ACCESSIBLE PATH OF TRAVEL. THE LANDING AREA SHALL HAVE A MINIMUM CLEAR AREA OF 60 INCHES BY 60 INCHES UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 8.33% RUNNING SLOPE AND A MAXIMUM 2.00% CROSS SLOPE ON ANY CURB RAMPS ALONG THE ACCESSIBLE PATH OF TRAVEL. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 10.00% IF A LANDING AREA IS PROVIDED AT THE TOP OF THE RAMP. FOR ALTERATIONS, A CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 8.33% IF A LANDING AREA IS NOT PROVIDED AT THE TOP OF THE RAMP. CURBS RAMPS SHALL NOT RISE MORE THAN 6 INCHES IN ELEVATION WITHOUT A HANDRAIL. THE CLEAR WIDTH OF A CURB RAMP SHALL BE NO LESS THAN 36 INCHES WIDE.
6. ACCESSIBLE RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL CONTAIN COMPLIANT HANDRAILS ON BOTH SIDES OF THE RAMP AND SHALL NOT RISE MORE THAN 30" IN ELEVATION WITHOUT A LANDING AREA IN BETWEEN RAMP RUNS. LANDING AREAS SHALL ALSO BE PROVIDED AT THE TOP AND BOTTOM OF THE RAMP.
7. A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
8. THE CONTRACTOR SHALL ENSURE A MAXIMUM OF ¼ INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN ¼ INCHES AND ½ INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP ½ INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
9. THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN ½ INCH.

30' 0' 30' 60'

GRAPHIC SCALE IN FEET
1" = 30'

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HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

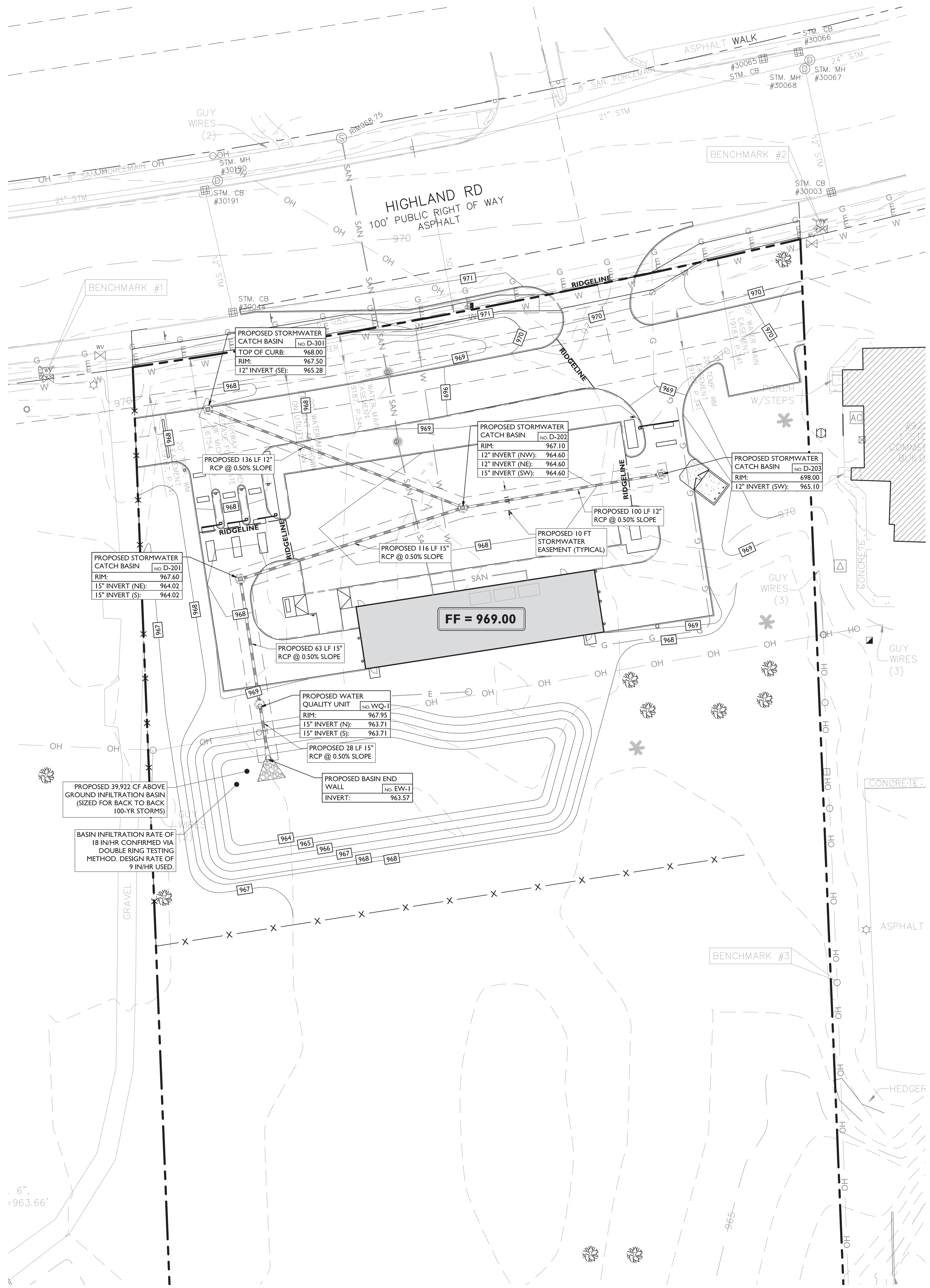
STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: GRADING PLAN

DRAWING: C-4

V:\DET\2021\DET-21046\LIB\DP_LIC.PWI HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOT\DP-ALGRAD.DWG



SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING

DRAINAGE SUMMARY

	PRE-DEVELOPED FLOW TO M-59		POST-DEVELOPED FLOW WITHOUT RETENTION		POST-DEVELOPED FLOW WITH RETENTION		
FREQUENCY	DISCHARGE (CFS)	RUNOFF VOLUME (CF)	DISCHARGE (CFS)	RUNOFF VOLUME (CF)	DISCHARGE (CFS)	RUNOFF VOLUME (CF)	WATER SURFACE ELEVATION (FT)
10-YEAR STORM EVENT	0.18	646	1.70	5,173	0.00	5,173	963.57
100-YEAR STORM EVENT	0.68	2,003	4.64	13,232	0.00	13,232	964.31
BACK TO BACK 100-YEAR	2.43	6,871	13.73	39,153	0.00	39,153	965.72
DRAINAGE AREA (ACRES)	0.32		1.52		1.52		
DESIGNED STORAGE VOLUME					39,922 CF @ 9.00 IN/HR DESIGN INFILTRATION RATE		

CALCULATED USING HYDROCAD TR-20. STORM PRECIPITATION VALUES BASED ON NOAA 24-HR STORMS FOR CITY OF OREGON, LUCAS COUNTY, OHIO.

STORMWATER SYSTEM DESIGN (10-YEAR STORM)

Line #	Line ID	Rim Elevation Downstream (FT)	Rim Elevation Upstream (FT)	Invert Downstream (FT)	Invert Upstream (FT)	Pipe Size (IN)	Pipe Length (FT)	Pipe Slope (%)	Flow Rate (CFS)	Pipe Capacity (CFS)	Velocity Downstream (FPS)	HGL Downstream (FT)	HGL Upstream (FT)	Drainage Area (AC)	Runoff Coefficient	Time of Concentration (MIN)	Rainfall Intensity (IN/HR)
2	EW1-WQ1	963.58	967.95	963.58	963.71	15.00	25.00	0.52	3.16	4.66	2.57	964.83	964.88	0.00	0.00	17.60	3.81
3	WQ1-D201	967.95	967.60	963.71	964.02	15.00	63.00	0.49	3.19	4.53	2.65	964.90	965.01	0.19	0.86	17.30	3.86
4	D201-D202	967.60	967.10	964.02	964.60	15.00	116.00	0.50	2.62	4.57	2.16	965.23	965.40	0.35	0.78	16.50	3.95
5	D202-D203	967.10	698.00	964.60	965.10	12.00	100.00	0.50	0.89	2.52	1.13	965.63	965.70	0.34	0.63	15.00	4.16
6	D202-D301	967.10	967.50	964.60	965.28	12.00	136.00	0.50	0.74	2.52	0.94	965.63	965.75	0.30	0.59	15.00	4.16

*C-Values obtained from Oakland County WRC Standards

MANHOLE SCHEDULE

#	TYPE	RIM (FT)	SIZE (IN)	DIRECTION	INVERT (FT)
30003	CATCH BASIN	969.98	12	N	963.48
30044	CATCH BASIN	970.93	12	N	962.93
30065	CATCH BASIN	967.54	12	E	962.74
30066	CATCH BASIN	967.63	12	W	962.63
			12	SE	962.63
30067	STORM MANHOLE	967.78	12	SW	962.03
			12	NW	962.28
			24	E	959.38
			21	W	959.43
30068	STORM MANHOLE	967.89	12	S	962.39
			12	NE	962.29
30190	STORM MANHOLE	969.35	12	SW	961.53
			21	E	960.97
			21	W	960.90
30191	CATCH BASIN	968.78	12	NE	962.08
			12	S	962.28

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
2. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADIENT.
3. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

1. THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION, THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
2. THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC. AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
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HYPERSHINE

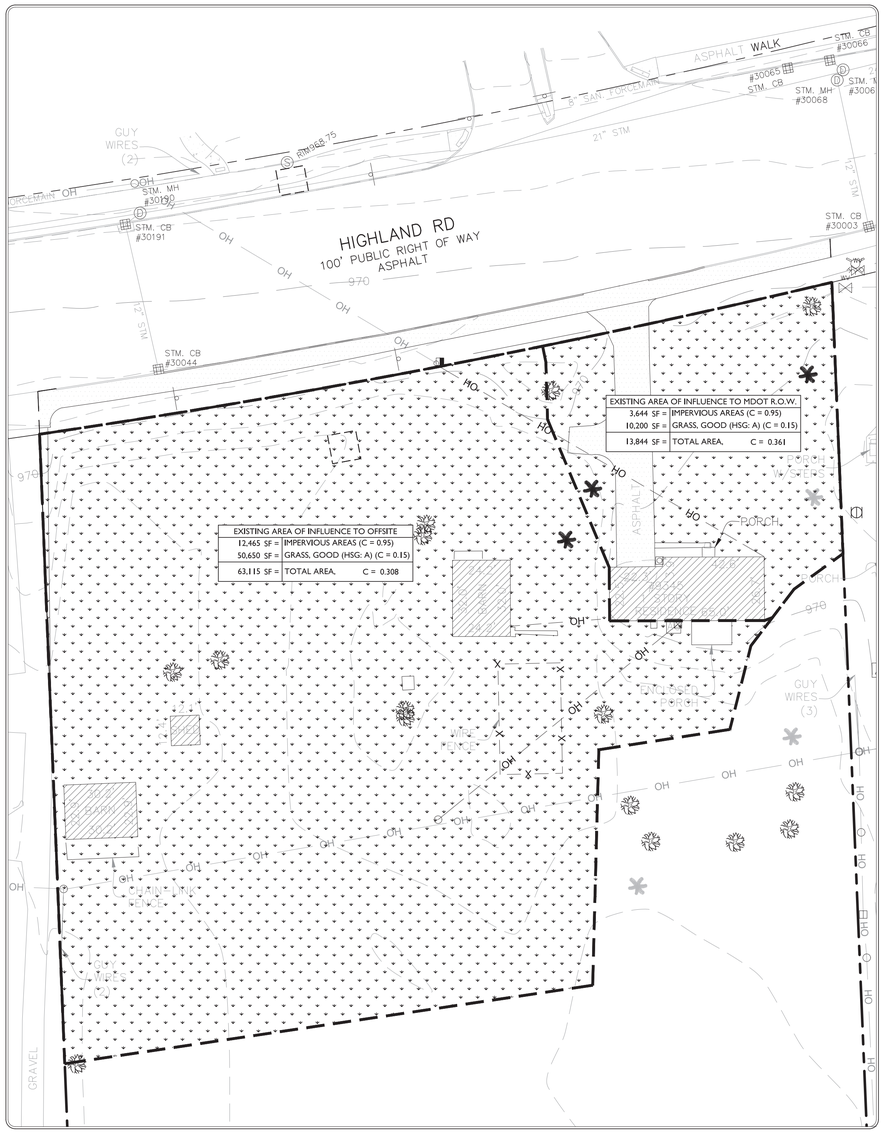
SITE DEVELOPMENT PLANS
HYPERSHINE
PROPOSED AUTO WASH
PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
LICENSED PROFESSIONAL ENGINEER
MICHIGAN LICENSE No. 6201069428
LICENSED PROFESSIONAL ENGINEER

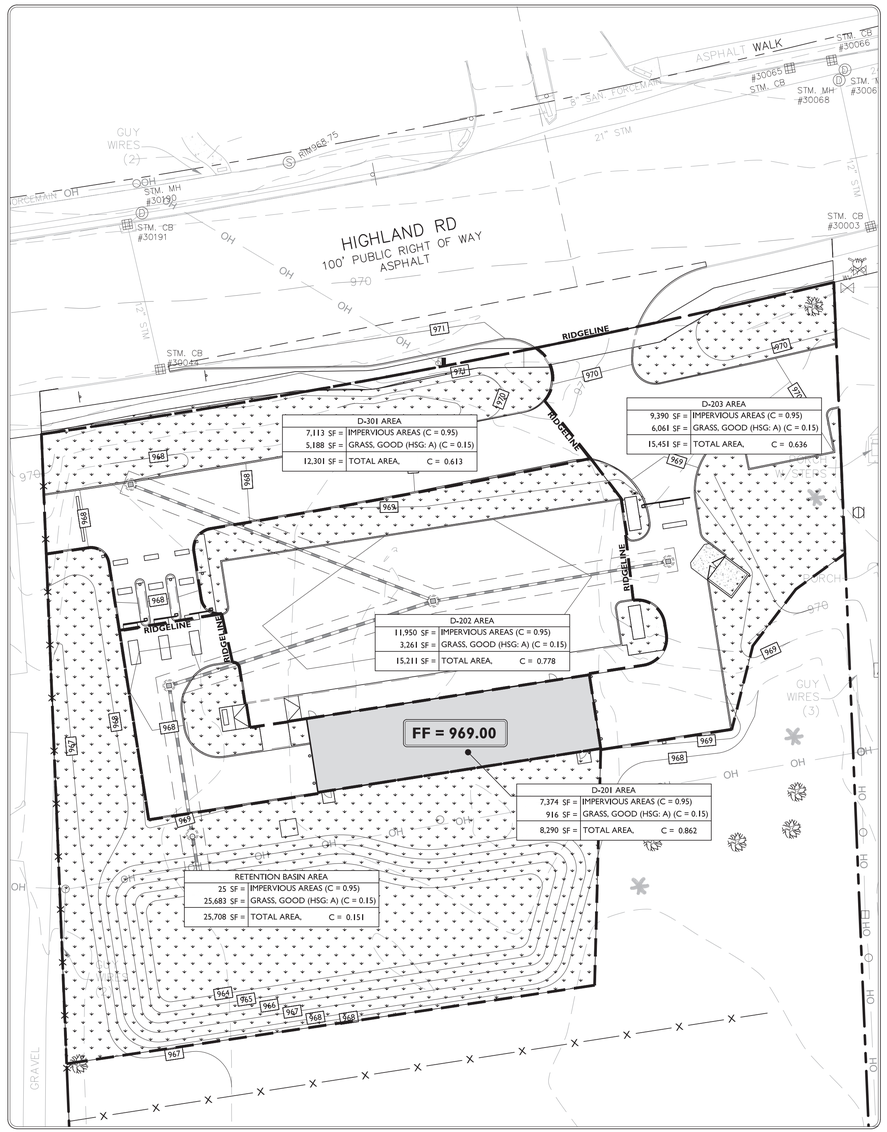
STONEFIELD engineering & design

SCALE: 1" = 30' PROJECT ID: DET-210462
TITLE: STORMWATER MANAGEMENT PLAN
DRAWING: C-5

V:\DET\2021\DET-210462-EROP, LLC-9345 HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CADD\PLOT\SDP-05-STRM.DWG



EXISTING DRAINAGE PLAN



PROPOSED DRAINAGE PLAN

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
2. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADIENT.
3. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

1. THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION. THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
2. THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC. AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-22-202-004
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

JONATHAN REID COOKSEY ENGINEER No. 61069428 STATE OF MICHIGAN LICENSED NO. 61069428 PROFESSIONAL ENGINEER

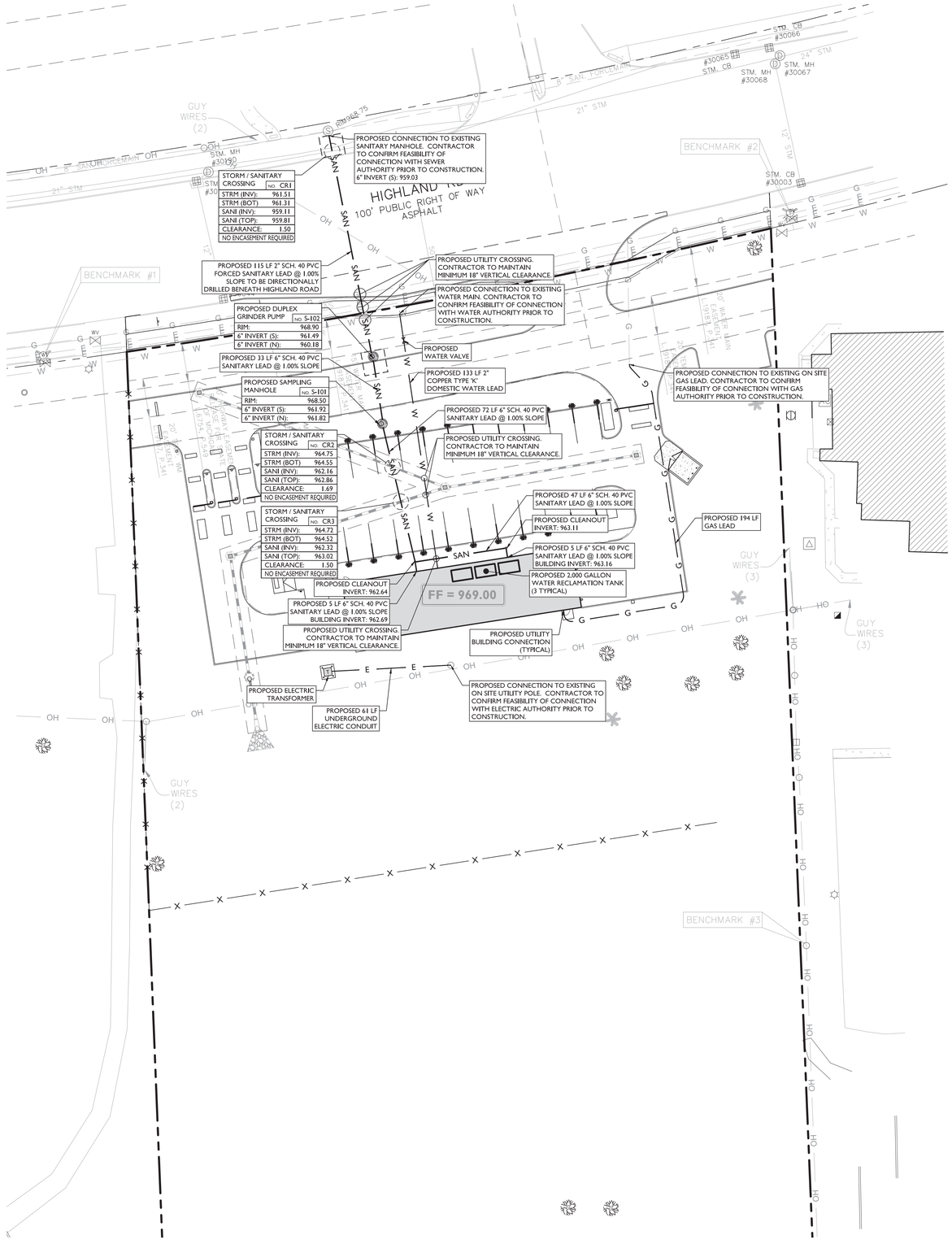
STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: DRAINAGE MAPS

DRAWING: C-6

V:\DET\2021\DET-21046\LIB\CP-1\C-PLAN (HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI)\ADDITIONS\TOPSOIL PLAN.DWG



REU DETERMINATION

FULLY & SEMI-AUTOMATIC CAR WASHES =
(6.95 REU / 1,000 SF)(3,756 SF) = 26.10

INITIAL/ULTIMATE REU: 26.10

PEAKING FACTOR

POPULATION FACTOR: (3.5 PERSONS/REU)

INITIAL/ULTIMATE POPULATION: (26.10 REU)(3.5 PERSONS/REU) = 91.36

INITIAL/ULTIMATE PEAKING FACTOR: $(18+\sqrt{(91.36/1,000)}) / ((4+\sqrt{91.36/1,000})) = 4.56$

SANITARY BASIS OF DESIGN

CONTRIBUTION PER REU: 350 GPD/REU (2)

AVERAGE FLOW: (350 GPD/REU)(26.10 REU) = 9,135 GPD (0.014137 CFS)

PEAK FLOW: AVERAGE FLOW * 4.56 = (9,135 GPD)(4.56) =
41,655 GPD (0.064462 CFS)

6" LATERAL FLOW (1.00% SLOPE): 0.240 CFS
6" LATERAL VELOCITY (1.00% SLOPE): 2.480 FPS
(WHEN HALF FULL)

(*) OAKLAND COUNTY WATER RESOURCES COMMISSIONER: APPENDIX VI 2018 SCHEDULE OF UNIT ASSIGNMENT FACTORS

SYMBOL	DESCRIPTION
	PROPERTY LINE
SAN	PROPOSED SANITARY LATERAL
W	PROPOSED DOMESTIC WATER SERVICE
E	PROPOSED ELECTRIC CONDUITS
G	PROPOSED GAS LINE
	PROPOSED VALVE
	PROPOSED WATER TEE / BEND
S	PROPOSED SANITARY MANHOLE / CLEANOUT
T	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS

MANHOLE SCHEDULE

#	TYPE	RIM (FT)	SIZE (IN)	DIRECTION	INVERT (FT)
30003	CATCH BASIN	969.98	12	N	963.48
30044	CATCH BASIN	970.93	12	N	962.93
30065	CATCH BASIN	967.54	12	E	962.74
30066	CATCH BASIN	967.63	12	W	962.63
			12	SE	962.63
30067	STORM MANHOLE	967.78	12	SW	962.03
			12	NW	962.28
			24	E	959.38
			21	W	959.43
30068	STORM MANHOLE	967.89	12	S	962.39
			12	NE	962.29
30190	STORM MANHOLE	969.35	12	SW	961.53
			21	E	960.97
			21	W	960.90
30191	CATCH BASIN	968.78	12	NE	962.08
			12	S	962.28

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IMMEDIATELY IN WRITING.
2. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN IN OPERATION ALL UTILITIES NOT DESIGNATED TO BE REMOVED.
3. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO ANY EXISTING UTILITY IDENTIFIED TO REMAIN WITHIN THE LIMITS OF THE PROPOSED WORK DURING CONSTRUCTION.
4. A MINIMUM HORIZONTAL SEPARATION OF 10 FEET IS REQUIRED BETWEEN ANY SANITARY SEWER SERVICE AND ANY WATER LINES. IF THIS SEPARATION CANNOT BE PROVIDED, A CONCRETE ENCASEMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. ALL WATER LINES SHALL BE VERTICALLY SEPARATED ABOVE SANITARY SEWER LINES BY A MINIMUM DISTANCE OF 18 INCHES. IF THIS SEPARATION CANNOT BE PROVIDED, A CONCRETE ENCASEMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
6. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR WATER AND SANITARY SEWER CONNECTION IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC, IN WRITING.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING GAS, ELECTRIC AND TELECOMMUNICATION CONNECTIONS WITH THE APPROPRIATE GOVERNING AUTHORITY.
8. CONTRACTOR SHALL START CONSTRUCTION OF ANY GRAVITY SEWER AT THE LOWEST INVERT AND WORK UP-GRADIENT.
9. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD SET OF PLANS REFLECTING THE LOCATION OF EXISTING UTILITIES THAT HAVE BEEN CAPPED, ABANDONED, OR RELOCATED BASED ON THE DEMOLITION/REMOVAL ACTIVITIES REQUIRED IN THIS PLAN SET. THIS DOCUMENT SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.
10. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

30' 0' 30' 60'
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HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL I.D.: 12-22-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201049428
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: UTILITY PLAN

DRAWING: C-7

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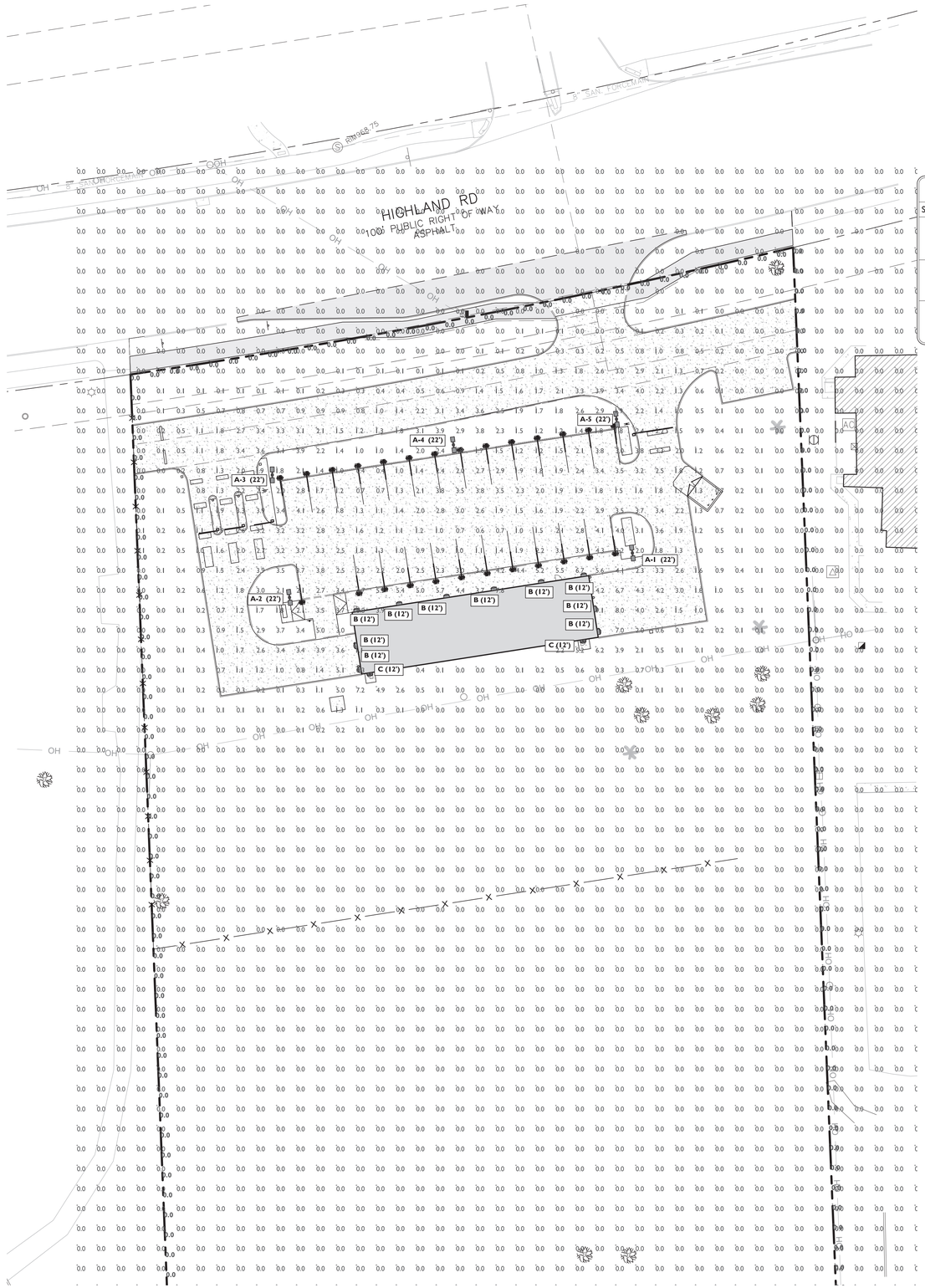

PROPOSED LUMINAIRE SCHEDULE

SYMBOL	LABEL	QUANTITY	LIGHTING SPECIFICATION	DISTRIBUTION	LLF	MANUFACTURER	IES FILE
	A	5	MIRADA MEDIUM OUTDOOR LED AREA LIGHT W/ INTEGRAL LOUVER FULL CUTOFF SHIELD (2 @ 90°)	III	0.9	LSI LIGHTING	MRM-LED-09L-SIL-3-40-70CRI-IL.IES
	B	10	MIRADA OUTDOOR LED WALLPACK (DOWNLIGHTING POSITION)	FT	0.9	LSI LIGHTING	XWM-FT-LED-03L-40.IES
	C	2	MIRADA OUTDOOR LED WALLPACK (EMERGENCY FIXTURE ONLY) (DOWNLIGHTING POSITION)	II	0.9	LSI LIGHTING	XWM-2-LED-03L-40.IES

SYMBOL	DESCRIPTION
A (XX')	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
+XX	PROPOSED LIGHTING INTENSITY (FOOTCANDLES)
	PROPOSED AREA LIGHT
	PROPOSED BUILDING MOUNTED LIGHT

LIGHTING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 5.18.G	LIGHT FIXTURES SHALL BE FULL CUT OFF AT 90°	PROVIDED
§ 5.18.G.iii	MINIMUM PROPERTY LINE SETBACK: 5 FT	60.0 FT
§ 5.18.G.vii.a	MAXIMUM FIXTURE HEIGHTS:	
	WITHIN 25 FT OF PROPERTY LINE: 16 FT	N/A
	WITHIN 26-60 FT OF PROPERTY LINE: 20 FT	N/A
	WITHIN 61-100 FT OF PROPERTY LINE: 25 FT	22 FT
	> 100 FT OFF PROPERTY LINE: 30 FT	N/A
§ 5.18.G.iii	PERMITTED GLARE:	
	ALL PROPERTY LINES: 0 FC	0.00 FC
§ 5.18.G.viii	FOOT CANDLE LIMITS (MAXIMUM AVERAGE):	
	DRIVEWAY & PARKING: 2.0 FC	1.96 FC

LIGHTING STATISTICS

DESCRIPTION	AVERAGE	MINIMUM	MAXIMUM
OVERALL PARCEL	0.25 FC	0.00 FC	9.10 FC
DRIVEWAY & PARKING AREAS	1.96 FC	0.00 FC	9.10 FC
PROPERTY LINE	0.00 FC	0.00 FC	0.00 FC

(1) ALL CALCULATIONS MEASURED 6 FT ABOVE GRADE

SECURITY CAMERAS TO BE MOUNTED ON EACH POLE 10 FT ABOVE GRADE

POLE LABEL	NUMBER OF CAMERAS	DIRECTION OF CAMERAS
A-1		
A-2		
A-3		
A-4		
A-5		

GENERAL LIGHTING NOTES

1. THE LIGHTING LEVELS DEPICTED WITHIN THE PLAN SET ARE CALCULATED UTILIZING DATA OBTAINED FROM THE LISTED MANUFACTURER, ACTUAL ILLUMINATION LEVELS AND PERFORMANCE OF ANY PROPOSED LIGHTING FIXTURE MAY VARY DUE TO UNCONTROLLABLE VARIABLES SUCH ARE WEATHER, VOLTAGE SUPPLY, LAMP TOLERANCE, EQUIPMENT SERVICE LIFE AND OTHER VARIABLE FIELD CONDITIONS.
2. WHERE APPLICABLE, THE EXISTING LIGHT LEVELS DEPICTED WITHIN THE PLAN SET SHALL BE CONSIDERED APPROXIMATE. THE EXISTING LIGHT LEVELS ARE BASED ON FIELD OBSERVATIONS AND THE MANUFACTURER'S DATA OF THE ASSUMED OR MOST SIMILAR LIGHTING FIXTURE MODEL.
3. UNLESS NOTED ELSEWHERE WITHIN THIS PLAN SET, THE LIGHT LOSS FACTORS USED IN THE LIGHTING ANALYSIS ARE AS FOLLOWS:
   - LIGHT EMITTING DIODES (LED): 0.90
   - HIGH PRESSURE SODIUM: 0.72
   - METAL HALIDE: 0.72
4. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY PROPOSED LIGHTING LOCATIONS THAT CONFLICT WITH EXISTING/ PROPOSED DRAINAGE, UTILITY, OR OTHER IMPROVEMENTS.
5. THE CONTRACTOR IS RESPONSIBLE TO PREPARE A WIRING PLAN AND PROVIDE ELECTRIC SERVICE TO ALL PROPOSED LIGHTING FIXTURES. THE CONTRACTOR IS REQUIRED TO PREPARE AN AS-BUILT PLAN OF WIRING AND PROVIDE COPIES TO THE OWNER AND STONEFIELD ENGINEERING & DESIGN, LLC.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

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HYPERSHINE

SITE DEVELOPMENT PLANS

PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006
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WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201060428
PROFESSIONAL ENGINEER

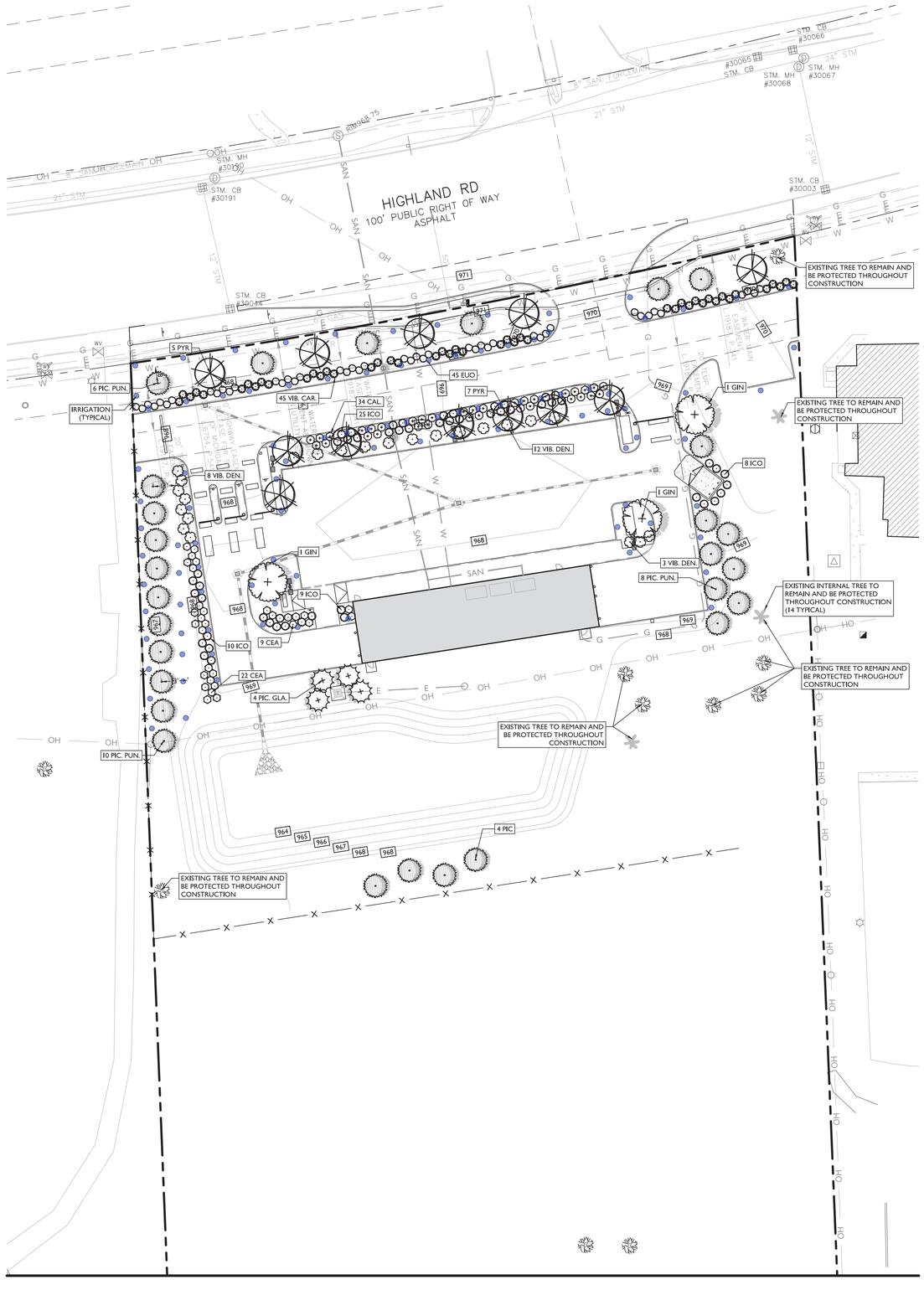
STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: LIGHTING PLAN

DRAWING: C-8

V:\DET\2021\DET-21043.BYOP LLC-PAR HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOTS\DP-08-LIGHT.DWG



PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING
	GIN	3	GINKGO BILOBA 'SENTRY'	PRINCETON SENTRY	3" CAL.	B&B	AS SHOWN
	PYR	12	PYRUS CALLERYANA	CLEVELAND SELECT PEAR	3" CAL.	B&B	AS SHOWN
EVERGREEN TREES							
	PIC. GLA.	28	PICEA GLAUCA	WHITE SPRUCE	6' - 7' HT	B&B	AS SHOWN
	PIC. PUN.	4	PICEA PUNGENS	COLORADO GREEN SPRUCE	5' - 6' HT	B&B	AS SHOWN
EVERGREEN SHRUBS							
	ICO	44	ILEX GLABRA `COMPACTA`	COMPACT INKBERRY	24" - 30"	POT	AS SHOWN
SHRUBS							
	EUO	45	EUONYMUS ALATA	BURNING BUSH	18" - 24"	POT	AS SHOWN
	VIB. CAR.	45	VIBURNUM CARLESII	KOREAN SPICE VIBURNUM	18" - 24"	POT	AS SHOWN
	CEA	31	CEANOTHUS AMERICANUS	NEW JERSEY TEA	24" - 30"	POT	AS SHOWN
	VIB. DEN.	23	VIBURNUM DENTATUM	VIBURNUM	24" - 30"	POT	AS SHOWN
	CAL	34	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	24" - 30"	POT	AS SHOWN

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.
WHITE PINE IS A PROHIBITED SPECIES AND SHALL NOT BE USED AS A SUBSTITUTE FOR WHITE SPRUCE.

LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 5.19	LANDSCAPING ISLANDS: MINIMUM 200 SF IN ANY SINGLE LANDSCAPE AREA	338 SF
§ 5.19	LANDSCAPE SCREENING (GB ADJACENT TO PB): 20 FT WIDE BUFFER 6-8 FT FENCE OR 6 FT SCREEN WALL(1) 1 DECIDUOUS/EVERGREEN TREE PER 15 LF BUFFER AREA (150 LF)(1 TREE / 15 LF) = 10 TREES 4 SHRUBS PER 15 LF BUFFER AREA (150 LF)(4 SHRUBS / 15 LF) = 40 SHRUBS	20.0 FT LANDSCAPED SCREENING PROVIDED 10 TREES 40 SHRUBS
§ 5.19	GREENBELT LANDSCAPING: 20 FT WIDTH 1 DECIDUOUS OR EVERGREEN TREE AND 8 SHRUBS FOR EVERY 30 LF (338 LF)(1 TREE / 30 LF) = 11 TREES 8 SHRUBS PER 30 LF BUFFER AREA (338 LF)(8 SHRUBS / 30 LF) = 90 SHRUBS	20.0 FT 11 TREES 90 SHRUBS
§ 5.19.G.ii	PARKING LOT LANDSCAPING: 20 SF PER PARKING SPACE (30 SPACES)(20 SF / 1 SPACE) = 600 SF 1 TREE PER 100 SF OF REQUIRED PARKING LOT LANDSCAPING AREA (600 SF)(1 TREE / 100 SF) = 6 TREES 3 SHRUBS FOR EVERY 100 SF REQUIRED PARKING LOT LANDSCAPING AREA (600 SF)(3 SHRUBS / 100 SF) = 18 SHRUBS	5,048 SF 6 TREES 18 SHRUBS
§ 5.19.E	INTERIOR LOT LANDSCAPING: 15% OF TOTAL LOT AREA (211,477 SF)(0.15)=31,722 SF 1 TREE PER 300 SF REQUIRED INTERIOR LOT LANDSCAPING AREA(2) (8,926 SF)/(1 TREE / 300 SF) = 30 TREES 5 SHRUBS FOR EVERY 300 SF REQUIRED INTERIOR LOT LANDSCAPING AREA(2) (8,926 SF)/(5 SHRUBS / 300 SF) = 149 SHRUBS	83% (175,679 SF) 16 PROPOSED +14 EXISTING **30 TOTAL TREES** 149 SHRUBS

(1) PER § 5.19.iii THE PLANNING COMMISSION MAY PERMIT A COMBINATION OF A REQUIRED BUFFER TYPE UPON FINDING THAT THE COMBINED LANDSCAPING AND/OR SCREENING WILL ACHIEVE THE SAME EFFECT AS OTHERWISE REQUIRED

(2) FOR REQUIRED INTERIOR TREE CALCULATIONS, ONLY THE AREA IMPACTED BY THE DEVELOPMENT (LIMIT OF DISTURBANCE) WAS CONSIDERED: (59,505 SF)(0.15) = 8,926 SF

ALL TREES ON THIS PLAN INDICATED TO BE PROTECTED THROUGHOUT CONSTRUCITION SHALL BE EQUIPPED WITH A TREE PROTECTION FENCE. NO CONSTRUCTION SHALL OCCUR UNTIL TREE PROTECTION FENCE HAS BEEN INSTALLED AND APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR. SEE SOIL EROSION PLAN ON SHEET C-10.

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

IRRIGATION NOTE:

1. IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA, PRIOR TO CONSTRUCTION. DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.
2. ALL REQUIRED SITE IRRIGATION SYSTEMS SHALL INCLUDE A RAIN SENSOR OR SIMILAR MEASURE TO ENSURE IRRIGATION DOES NOT OCCUR DURING OR SHORTLY AFTER PRECIPITATION EVENTS. ALL SITE PLANS SHALL NOTE INSTALLATION OF REQUIRED IRRIGATION.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SOD.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH (DOUBLE-SHREDDED QUALITY) .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.
7. TREES SHALL NOT BE PLANTED CLOSER THAN 4 FT TO PROPERTY LINE.
8. TREES SHALL NOT BE PLANTED CLOSER THAN 3 FT TO EXISTING WATER MAIN.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

PAUL DEVITTO, L.L.A.
MICHIGAN LICENSE No. 3901001797
LICENSED LANDSCAPE ARCHITECT

ISSUE	DATE	BY	DESCRIPTION
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PROPOSED AUTO WASH

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OAKLAND COUNTY, MICHIGAN

HYPERSHINE

STATE OF MICHIGAN · JONATHAN REID COOKSEY · ENGINEER · No. 6201064128 · LICENSED PROFESSIONAL ENGINEER

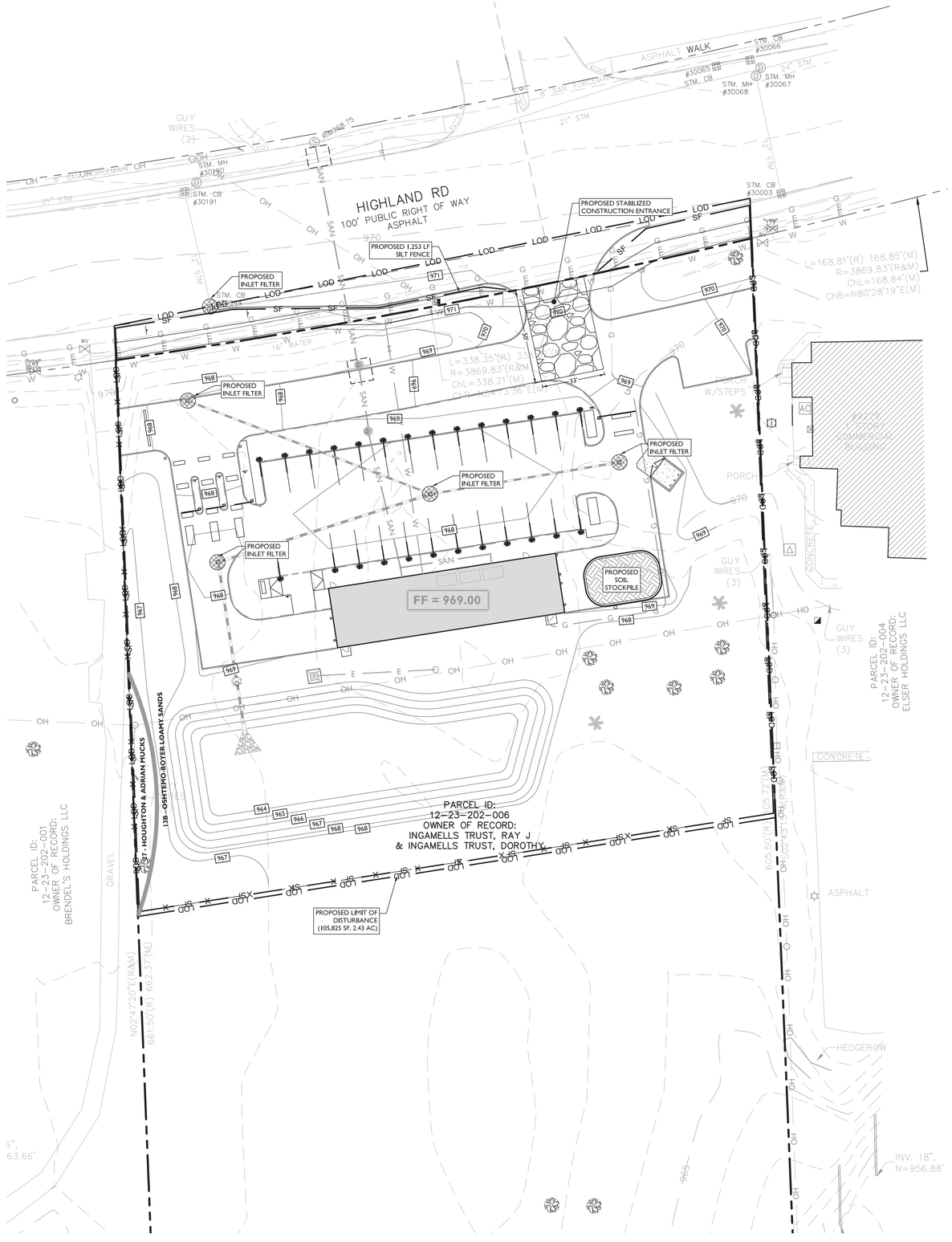
STONEFIELD engineering & design

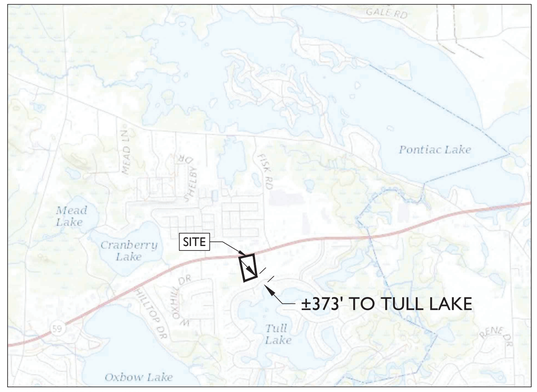
SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: LANDSCAPING & IRRIGATION PLAN

DRAWING: C-9

V:\DET\2021\DET-210462\LDP\DP_LLC FINE (HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI)\CAD\PLOTS\DP-PA-LANDSCAPE





SOURCE: USGS NATIONAL MAPPER

LOCATION MAP

SCALE: 1" = 2,000'±

LEGAL DESCRIPTION:

LAND SITUATED IN THE TOWNSHIP OF WHITE LAKE, COUNTY OF OAKLAND AND STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

PART OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23 TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP. OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT, SAID POINT BEING DISTANT NORTH 02 DEGREES 24 MINUTES 30 SECONDS EAST, 1731.78 FEET, AND SOUTH 75 DEGREES 05 MINUTES WEST, 483.89 FEET, FROM THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION; THENCE RUNNING SOUTH 75 DEGREES 05 MINUTES WEST, 217.5 FEET, TO A POINT; THENCE NORTH 02 DEGREES 47 MINUTES 20 SECONDS EAST, 661.50 FEET, TO A POINT ON THE SOUTHERLY LINE OF M-59 HIGHWAY, THENCE NORTHEASTERLY ALONG SAID HIGHWAY LINE AND ALONG THE ARC OF CURVE TO LEFT (RADIUS BEING 3869.83 FEET, AND CENTRAL ANGLE BEING 03 DEGREES 05 SECONDS) 208.35 FEET, TO A POINT; THENCE SOUTH 02 DEGREES 43 MINUTES 15 SECONDS WEST, 623.2 FEET, TO THE POINT OF BEGINNING.

AND

PART OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT, SAID POINT BEING DISTANT NORTH 02 DEGREES 24 MINUTES 30 SECONDS EAST, 1731.73 FEET, AND SOUTH 75 DEGREES 05 MINUTES WEST, 349.56 FEET, FROM THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION; THENCE RUNNING SOUTH 75 DEGREES 05 MINUTES WEST, 134.33 FEET TO A POINT; THENCE NORTH 02 DEGREES 43 MINUTES 15 SECOND EAST, 623.2 FEET TO A POINT ON THE SOUTHERLY LINE OF M-59 HIGHWAY; THENCE NORTHEASTERLY ALONG SAID HIGHWAY LINE AND ALONG THE ARC OF A CURVE TO THE LEFT (RADIUS BEING 3869.83 FEET, AND CENTRAL ANGLE BEING 01 DEGREE 55 MINUTES 30 SECONDS) 130.00 FEET, TO A POINT; THENCE SOUTH 02 DEGREES 43 MINUTES 15 SECONDS WEST, 605.5 FEET, TO THE POINT OF BEGINNING.

SYMBOL	DESCRIPTION
	PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
LOD	PROPOSED LIMIT OF DISTURBANCE
SF	PROPOSED SILT FENCE
TPF	PROPOSED TREE PROTECTION FENCE
	PROPOSED STOCKPILE & EQUIPMENT STORAGE
	PROPOSED STABILIZED CONSTRUCTION ENTRANCE
	PROPOSED INLET PROTECTION FILTER

SEQUENCE OF CONSTRUCTION

1. INSTALL INLET FILTERS ON EXISTING STRUCTURES, SILT FENCE AND CONSTRUCTION ENTRANCE (2 DAYS).
2. ROUGH GRADING AND TEMPORARY SEEDING (20 DAYS).
3. EXCAVATE AND INSTALL UNDERGROUND UTILITIES, DRAINAGE PIPING, AND INLETS (20 DAYS).
4. INSTALL INLET FILTERS (1 DAY).
5. BUILDING CONSTRUCTION AND SITE IMPROVEMENTS (90 DAYS).
6. LANDSCAPING IMPROVEMENTS AND FINAL SOD (7 DAYS).
7. REMOVE SOIL EROSION MEASURES (1 DAY).

ANTICIPATED START DATE: JULY 2022
ANTICIPATED COMPLETION DATE: DECEMBER 2022

NOTE: TIME DURATIONS ARE APPROXIMATE AND ARE INTENDED TO ACT AS A GENERAL GUILE TO THE CONSTRUCTION TIMELINE. ALL DURATIONS ARE SUBJECT TO CHANGE BY CONTRACTOR. CONTRACTOR SHALL SUBMIT CONSTRUCTION SCHEDULE TO CITY AND ENGINEER. CONTRACTOR SHALL PHASE CONSTRUCTION ACCORDINGLY

SOIL CHARACTERISTICS CHART

TYPE OF SOIL	OSHTEMO-BOYER LOAMY SANDS (13B)	HOUGHTON AND ADRIAN MUCKS (27)	URBAN LAND-SPINKS COMPLEX (62B)
PERCENT OF SITE COVERAGE	98.6%	0.9%	0.5%
HYDROLOGIC SOIL GROUP	A	A/D	A
DEPTH TO RESTRICTIVE LAYER	> 80 INCHES	> 80 INCHES	> 80 INCHES
SOIL PERMEABILITY	1.98 TO 5.95 IN / HR	0.20 TO 5.95 IN / HR	1.98 TO 5.95 IN / HR
DEPTH TO WATER TABLE	> 80 INCHES	ABOUT 0 INCHES	> 80 INCHES

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

ALL TREES ON THIS PLAN INDICATED TO BE PROTECTED THROUGHOUT CONSTRUCITION SHALL BE EQUIPPED WITH A TREE PROTECTION FENCE. NO CONSTRUCTION SHALL OCCUR UNTIL TREE PROTECTION FENCE HAS BEEN INSTALLED AND APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL AIR QUALITY STANDARDS.
3. THE CONTRACTOR IS RESPONSIBLE TO INSPECT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER A PRECIPITATION EVENT GREATER THAN 1 INCH. THE CONTRACTOR SHALL MAINTAIN AN INSPECTION LOG ON SITE AND DOCUMENT CORRECTIVE ACTION TAKEN THROUGHOUT THE COURSE OF CONSTRUCTION AS REQUIRED.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Rutherford, NJ
Princeton, NJ · Tampa, FL · Boston, MA
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
LICENSE PROFESSIONAL ENGINEER
STATE OF MICHIGAN
PROFESSIONAL ENGINEER

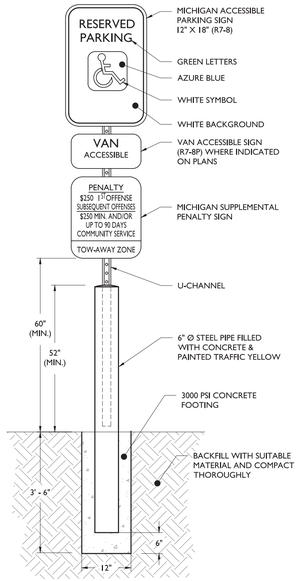
STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE: SOIL EROSION & SEDIMENT CONTROL PLAN

DRAWING: C-10

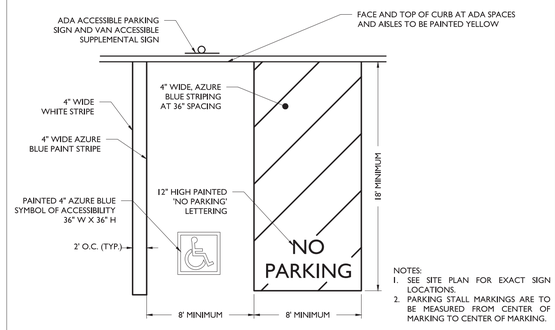
V:\DET\2021\DET-210462\DROP_LOC\PWD\HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOTS\SEP-19 SESC.DWG



ACCESSIBLE PARKING SIGN WITH BOLLARD

NOT TO SCALE

1

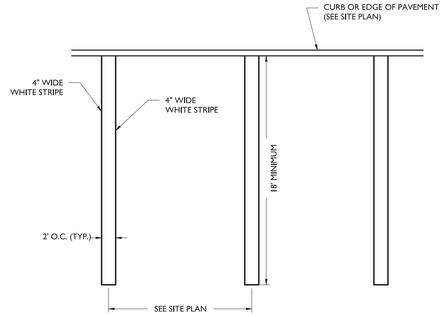


NOTES:
1. SEE SITE PLAN FOR EXACT SIGN LOCATIONS.
2. PARKING STALL MARKINGS ARE TO BE MEASURED FROM CENTER OF MARKING TO CENTER OF MARKING.

ACCESSIBLE PARKING STALL MARKINGS

NOT TO SCALE

2



PARKING STALL MARKINGS (DUAL)

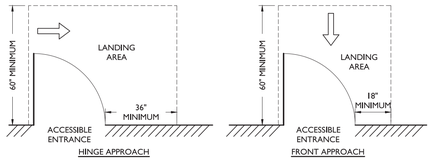
NOT TO SCALE

3

PAVEMENT STRIPING & MARKINGS NOTES:

1. ALL SIGNING AND STRIPING IN EXISTING CONDITION IN CONFLICT WITH THE PROPOSED DESIGN PLAN SHALL BE REMOVED.
2. ALL PROPOSED SIGNING AND STRIPING SHALL CONFORM TO THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
3. PAVEMENT STRIPING AND MARKINGS SHALL BE INSTALLED IN CONFORMANCE WITH ALL APPLICABLE LOCAL, COUNTY AND STATE REQUIREMENTS.
4. UNLESS OTHERWISE SPECIFIED, ALL STRIPING AND MARKINGS IN THE PUBLIC RIGHT-OF-WAY SHALL BE OF THERMOPLASTIC PAINT OR PREFORMED THERMOPLASTIC MARKINGS.
5. UNLESS OTHERWISE SPECIFIED, ON SITE PARKING STALL STRIPING, FIRE LANE STRIPING AND DIRECTIONAL ARROWS SHALL BE EPOXY PAINT. ON SITE STOP BARS, "DO NOT ENTER" BARS, AND ASSOCIATED LETTERING SHALL BE THERMOPLASTIC PAINT OR PREFORMED THERMOPLASTIC MARKINGS.

4

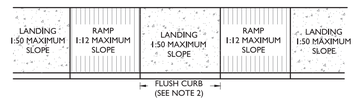


ACCESSIBLE ENTRANCE LANDING

NOT TO SCALE

NOTES:
1. MAXIMUM SLOPE ON LANDING SHALL BE 1:50 IN ALL DIRECTIONS
2. DIMENSIONS SHOWN HERE ARE THE MINIMUM DIMENSIONS REQUIRED FOR AN ADA COMPLIANT LANDING AT THE ACCESSIBLE ENTRANCE. REFER TO SITE PLAN FOR SITE SPECIFIC DIMENSIONS THAT MAY SPECIFY A LARGER LANDING AREA.
3. CONTRACTOR SHALL CONTACT THE ENGINEER BEFORE CONSTRUCTION IF THE ACCESSIBLE ENTRANCE ON SITE DOES NOT MATCH THE SCENARIO SHOWN ABOVE.

5

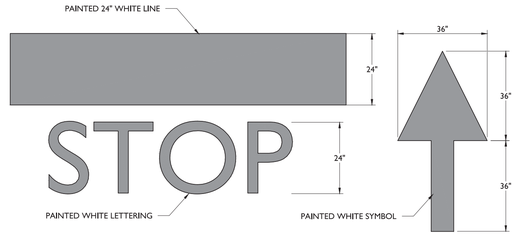


TRANSITION RAMP DETAIL

NOT TO SCALE

NOTES:
1. CROSS SLOPE ON RAMP SHALL NOT EXCEED 2%
2. A FLUSH CURB SHALL HAVE A MINIMUM WIDTH OF 36". SEE PLAN FOR EXACT WIDTH.
3. RAMP SHALL HAVE A MAXIMUM RISE OF 6" WITHOUT A HANDRAIL

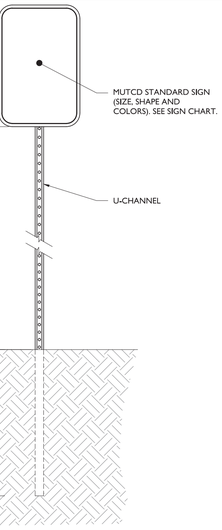
6



STOP BAR & ARROW

NOT TO SCALE

7



SIGN POST

NOT TO SCALE

M.U.T.C.D. NUMBER	TEXT	COLOR		SIZE OF SIGN (WIDTH X HEIGHT)	TYPE OF MOUNT
		LEGEND	BACKGROUND		
STOP SIGN (R1-1)	STOP	WHITE	RED	36"x36"	GROUND
DO NOT ENTER (R5-1)	DO NOT ENTER	RED	WHITE	30"x30"	GROUND

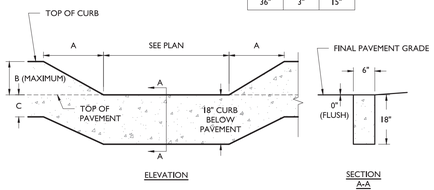
NOTE:
1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), EXCEPT AS NOTED.
2. ALL SIGNS SHALL BE MOUNTED AS TO NOT OBSTRUCT THE SHAPE OF "STOP" (R1-1) AND "YIELD" (R1-2) SIGNS.

SIGN DATA TABLE

NOT TO SCALE

8

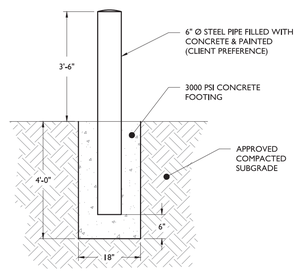
FLUSH CURB DIMENSIONS		
A	B	C
72"	6"	12"
60"	5"	13"
48"	4"	14"
36"	3"	15"



FLUSH CURB

NOT TO SCALE

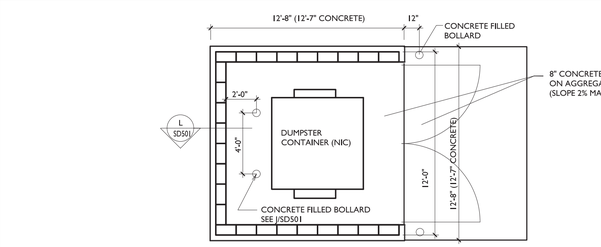
9

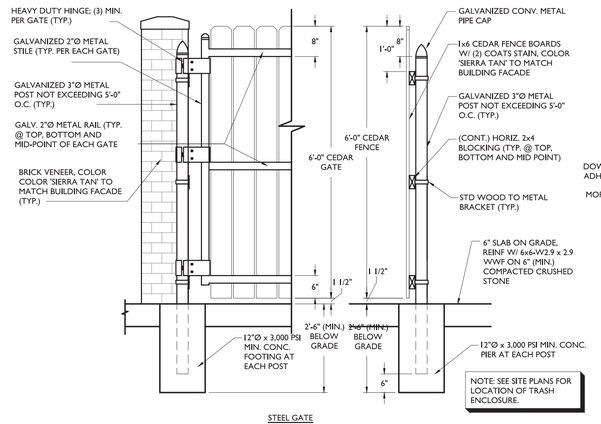


BOLLARD

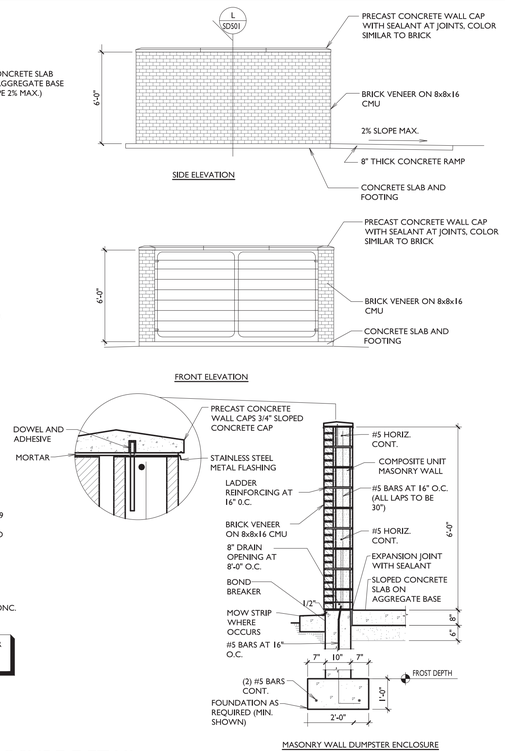
NOT TO SCALE

10





NOTE:
BLOCK COLOR TO MATCH BUILDING OR AS SPECIFIED BY OWNER



TRASH / RECYCLE ENCLOSURE DETAIL

NOT TO SCALE

11

ISSUE	DATE	BY	DESCRIPTION
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HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-22-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

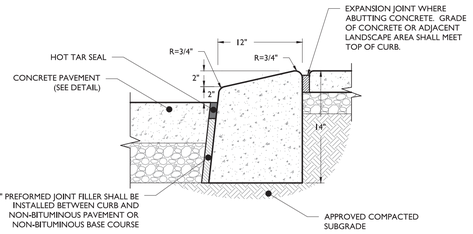
STATE OF MICHIGAN
JONATHAN FRED COOKSEY
ENGINEER
No. 6201049428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210462

TITLE:
CONSTRUCTION DETAILS

DRAWING:
C-9

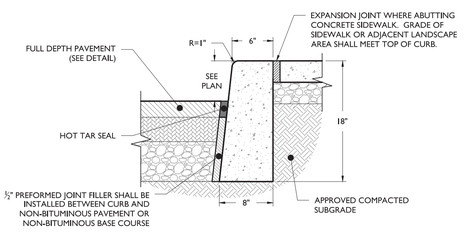


MOUNTABLE CONCRETE CURB

NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM SURFACE.
3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
4. 18" CURB DEPTH SHALL BE MAINTAINED AT DEPRESSED OR FLUSH CURBED AREAS.

1

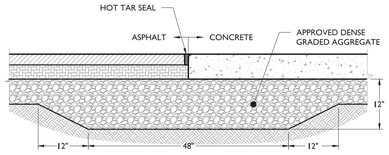


CONCRETE CURB DETAIL (ON-SITE)

NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM SURFACE.
3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
4. 18" CURB DEPTH SHALL BE MAINTAINED AT DEPRESSED OR FLUSH CURBED AREAS.

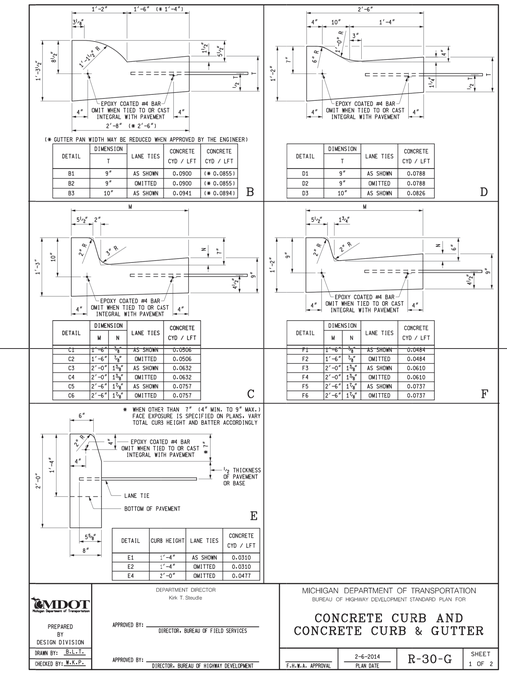
2



CONCRETE TO ASPHALT TRANSITION

NOT TO SCALE

3



MDOT

PREPARED BY DESIGN DIVISION
DRAWN BY: R.L.L.
CHECKED BY: R.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES
APPROVED BY: _____ DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

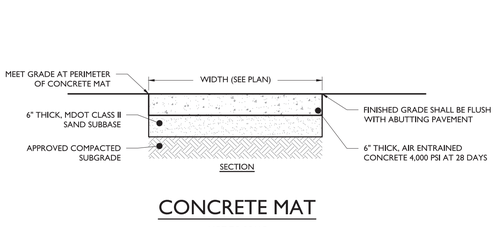
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
CONCRETE CURB AND CONCRETE CURB & GUTTER

F.H.W.A. APPROVAL | 2-6-2014 PLAN DATE | R-30-G | SHEET 1 OF 2

MDOT CONCRETE CURB DETAILS (RIGHT-OF-WAY)

NOT TO SCALE

7



CONCRETE PAVEMENT

NOT TO SCALE

NOTES:
1. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ¾" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY ½" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS OR 6' INTERVALS MAX.
3. CONCRETE SHALL RECEIVE BROOM FINISH.
4. ALL EXPOSED CORNERS TO HAVE 12" CHAMFER.

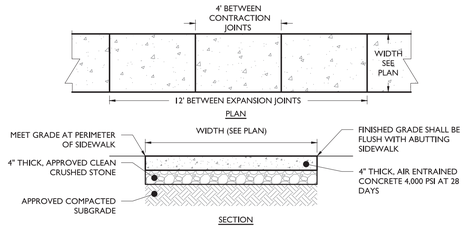
4

CONCRETE MAT

NOT TO SCALE

NOTES:
1. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY ½" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS OR 6' INTERVALS MAX.
3. CONCRETE SHALL RECEIVE BROOM FINISH.
4. ALL EXPOSED CORNERS TO HAVE 12" CHAMFER.

5

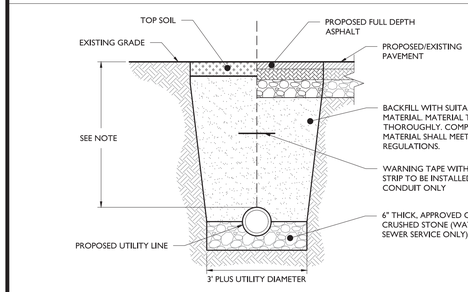


CONCRETE WALKWAY

NOT TO SCALE

NOTES:
1. MAXIMUM CROSS SLOPE SHALL BE ¼" PER FOOT.
2. ½" EXPANSION JOINTS SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM THE SURFACE.
3. 1" DEEP BY ¼" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT 4' INTERVALS.
4. EXPANSION JOIN SHALL BE PROVIDED WHERE ADJACENT TO A BUILDING.

6



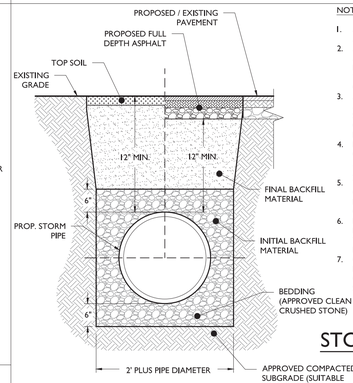
UTILITY TRENCH

NOT TO SCALE

NOTE:

MINIMUM PIPE COVER SHALL BE AS FOLLOW:
- ELECTRIC SERVICE - PER APPLICABLE UTILITY AUTHORITY
- GAS SERVICE - PER APPLICABLE UTILITY AUTHORITY
- SEWER SERVICE - 36" MINIMUM
- WATER SERVICE - 48" MINIMUM

8

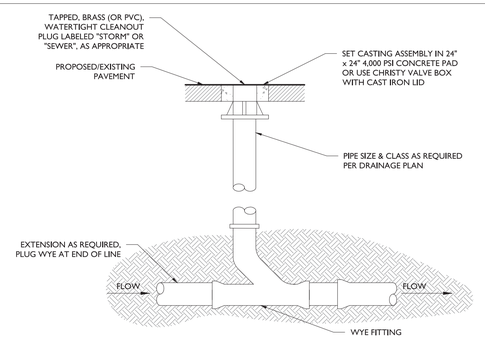


NOTES:
1. ALL PIPE SYSTEM INSTALLATIONS SHALL MEET ALL APPLICABLE STANDARDS AND SPECIFICATIONS.
2. ALL HDPE PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS" (LATEST EDITION).
3. ALL RCP PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C76-15, "STANDARD SPECIFICATION FOR REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE" (LATEST EDITION).
4. FOR NON HDPE OR RCP PIPE INSTALLATIONS, CONTRACTOR SHALL INSTALL PIPE IN ACCORDANCE WITH ALL APPLICABLE STANDARDS AND SPECIFICATIONS.
5. WHERE THE TRENCH BOTTOM IS UNSTABLE, CONTRACTOR SHALL PROVIDE SUITABLE BACKFILL MATERIAL AS REQUIRED BY ENGINEER OR PER GEOTECH RECOMMENDATIONS.
6. MINIMUM COVER IN TRAFFIC AREAS IS 12" UP TO 48" DIAMETER PIPE AND 24" FOR 54" - 60" DIAMETER PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.
7. CONTRACTOR SHALL INSTALL SUITABLE MATERIAL FOR INITIAL AND FINAL BACKFILL. BACKFILL COMPACTION SHOULD MEET ALL APPLICABLE STANDARDS AND SPECIFICATIONS.

STORM TRENCH DETAIL

NOT TO SCALE

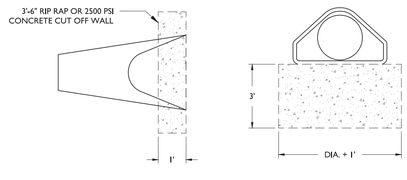
9



HARDSCAPE CLEAN-OUT

NOT TO SCALE

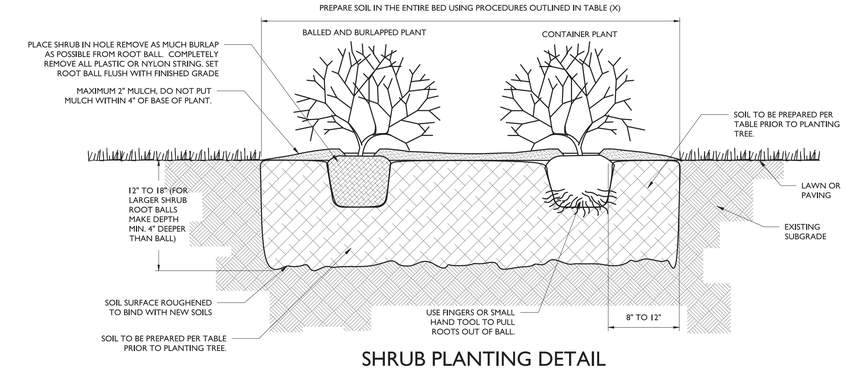
10



FLARED END SECTION DETAIL

NOT TO SCALE

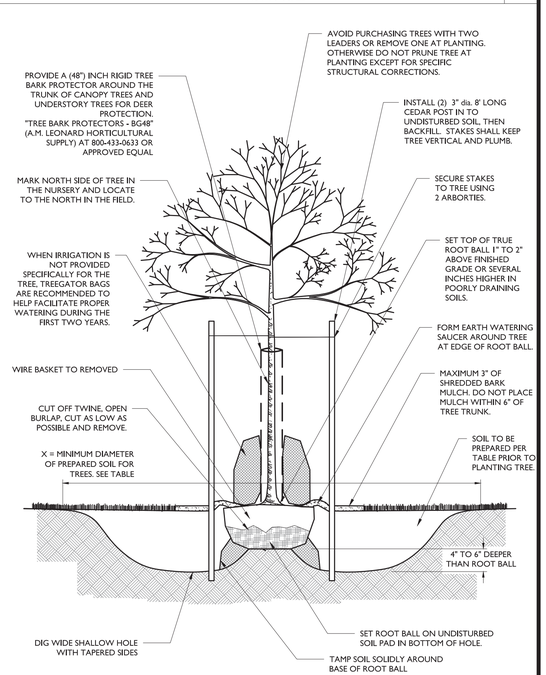
11



SHRUB PLANTING DETAIL

NOT TO SCALE

12



DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

13

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Rutherford, NJ
Princeton, NJ · Tampa, FL · Boston, MA
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE PROPOSED AUTO WASH

PARCEL ID: 12-22-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201049428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210462

TITLE: CONSTRUCTION DETAILS

DRAWING: C-12

V:\DET\2021\DET-21042\LDP\DP_LUC\PAR HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOTS\DP-11-14-DETS.DWG

Type: ____________

Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: **MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[2]	Voltage	Driver
MRM - Mirada	**LED**	**7L** - 7,000 lms **9L** - 9,000 lms **12L** - 12,000 lms **18L** - 18,000 lms **24L** - 24,000 lms **30L** - 30,000 lms **36L** - 36,000 lms **42L** - 42,000 lms **48L** - 48,000 lms **Custom Lumen Packages**[1]	**SIL** - Silicone	**2** - Type 2 **3** - Type 3 **5W** - Type 5 Wide **FT** - Forward Throw **FTA** - Forward Throw Automotive **AM** - Automotive Merchandise	**(blank)** - standard **L**- Optics rotated left 90° **R** - Optics rotated right 90°	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**DIM** - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Finish	Options
50 - 5,000 CCT **40** - 4,000 CCT **30** - 3,000 CCT **AMB** - Phosphor Converted Amber[12]	**70CRI** - 70 CRI	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**(Blank) - None** **IH** - Integral Houseside Shield[2] **IL** - Integral Louver (Sharp Spill Light Cutoff)[2]

Controls (Choose One)

(Blank) - None

Wireless Controls System
ALSC - AirLink Synapse Control System
ALSCH - AirLink Synapse Control System Host / Satelite[3]
ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor
ALSCHS02 - AirLink Synapse Control System Host / Satelite with 12-20' Motion Sensor[3]
ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor
ALSCHS04 - AirLink Synapse Control System Host / Satelite with 20-40' Motion Sensor[3]
ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[4]
ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[4]

Stand-Alone Controls
EXT - 0-10v Dimming leads extended to housing exterior
CR7P - 7 Pin Control Receptacle ANSI C136.41[6]
IMSBT1- Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height[4,5]
IMSBT2- Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height[4,5]

Button Type Photocells
PCI120 - 120V
PCI208-277 - 208 -277V
PCI347 - 347V

(Lutron Limelight Controls
LLC – LimeLight Integral Wireless Radio Control by Lutron[4]
LLCS1 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 8-15' mt height[4]
LLCS2 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 16-30' mt height[4]
LLCS3 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 31-40' mt height[4]

Accessory Ordering Information[7]

Controls Accessories	
Description	**Order Numberr[10]**
PC120 Photocell for use with CR7P option (120V)[8]	122514
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[8]	122515
Twist Lock Photocell (347V) for use with CR7P[8]	122516
Twist Lock Photocell (480V) for use with CR7P[8]	1225180
AirLink 5 Pin Twist Lock Controller[8]	661409
AirLink 7 Pin Twist Lock Controller[8]	661410
PMOS24-24V Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

Mounting Accessories[9]	
Description	**Order Number[10]**
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Wood Pole Bracket (6" Minimum Pole Diameter)	751219CLR

Fusing Accessories[11]	
Description	**Order Number**
Single Fusing (120V)	FK120
Single Fusing (120V)	FK277
Double Fusing (208V, 240V)	DFK240
Double Fusing (480V)	DFK480
Double Fusing (347V)	DFK347

Miscellaneous Accessories	
Description	**Order Number**
IL - Integral Louver/Shield[2]	690981
IH - Integral House Side Shield[2]	743415
10' Linear Bird Spike Kit (3' Recommended per Luminaire)	736795

FOOTNOTES:
1. Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2. Not available with 5W distribution
3. Consult Factory for availability.
4. Not available in HV.
5. IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store
6. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
7. Accessories are shipped separately and field installed.
8. Factory installed CR7P option required. See Options.
9. "CLR" denotes finish. See Finish options.
10. Only available with ALSC/ALSCH control options.
11. Fusing must be located in hand hole of pole.
12. Only available in 9L and 12L Lumen Packages. Consult factory for lead time and availability.

Type: ____________

Mirada Medium Outdoor LED Area Light

PERFORMANCE

Back to Quick Links

Delivered Lumens*

Lumen Package	Distribution	CRI	3000K CCT Delivered Lumens	3000K Efficacy	3000K BUG Rating	4000K CCT Delivered Lumens	4000K Efficacy	4000K BUG Rating	5000K CCT Delivered Lumens	5000K Efficacy	5000K BUG Rating	Wattage
7L	2	70	6711	127	B2-U0-G1	7208	137	B2-U0-G2	7596	144	B2-U0-G2	53
	3		6889	130	B1-U0-G2	7400	140	B1-U0-G2	7798	148	B1-U0-G2	
	5W		6557	124	B3-U0-G1	7043	133	B3-U0-G2	7422	141	B3-U0-G2	
	FT		6701	127	B1-U0-G2	7197	136	B1-U0-G2	7584	144	B2-U0-G2	
	FTA		6799	129	B2-U0-G1	7303	138	B2-U0-G1	7696	146	B2-U0-G1	
	AM		7225	136	B1-U0-G1	7922	149	B2-U0-G1	8239	155	B2-U0-G1	
9L	2	70	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	68
	3		8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	5W		8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B3-U0-G2	
	FT		8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FTA		8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	AM		9432	137	B2-U0-G1	10342	150	B2-U0-G2	10755	156	B2-U0-G2	
12L	2	70	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	93
	3		11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	5W		11199	119	B4-U0-G2	12269	131	B4-U0-G2	12775	136	B4-U0-G2	
	FT		11444	122	B2-U0-G2	12538	133	B2-U0-G3	13055	139	B2-U0-G3	
	FTA		11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	AM		12582	134	B2-U0-G2	13796	147	B2-U0-G2	14348	153	B2-U0-G2	
18L	2	70	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	149
	3		17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	5W		16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT		17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FTA		17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	AM		18863	127	B3-U0-G2	20683	149	B3-U0-G2	21511	149	B3-U0-G2	
24L	2	70	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	189
	3		23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	5W		22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT		23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FTA		23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	AM		24522	131	B3-U0-G3	26227	140	B3-U0-G3	26751	143	B3-U0-G3	
30L	2	70	28900	117	B4-U0-G3	30905	125	B4-U0-G3	31551	128	B4-U0-G3	249
	3		30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	5W		28557	116	B5-U0-G3	30538	124	B5-U0-G4	3117	126	B5-U0-G4	
	FT		29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FTA		29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	AM		31061	126	B3-U0-G3	33221	134	B3-U0-G3	33885	137	B3-U0-G3	
36L	2	70	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	318
	3		36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	5W		34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT		36251	114	B3-U0-G5	38766	122	B4-U0-G5	39557	125	B4-U0-G5	
	FTA		36058	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G3	
	AM		37429	118	B3-U0-G3	40030	126	B3-U0-G3	40831	129	B3-U0-G3	

SPECIFICATIONS FOR FIXTURE 'A'

NOT TO SCALE

1

Type: ____________

Mirada Wall Sconce (XWM)

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: **XWM 2 LED 03L 30 UE BRZ ALSC**

Luminaire Prefix	Distribution	LED Technology	Lumen Package	Color Temperature	Voltage
XWM - Mirada Wall Sconce	**2** - Type 2 **3** - Type 3 **FT** - Type 4 Forward Throw	**LED**	**3L** - 3,000 lms **4L** - 4,000 lms **6L** - 6,000 lms **8L** - 8,000 lms **12L** - 12,000 lms **Custom Lumen Packages**[6]	**30** - 3000K **40** - 4000K **50** - 5000K	**UE** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)

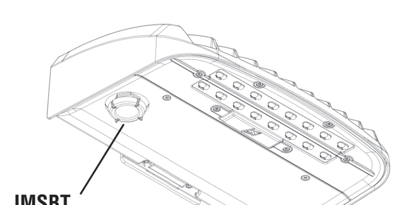
Finish	Controls (Choose One)	Options
BRZ - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**Wireless Controls** **ALSC** - Airlink Synapse Control System[2] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor[2] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor[2] **ALBCS1** - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[2] **ALBCS2** - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[2] **Standalone Controls** **DIM** - 0-10v Dimming leads extended to housing exterior **IMSBT1**- Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height[2,4] **IMSBT2**- Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height[2,4] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V **Lutron Limelight Controls** **LLC** – LimeLight Integral Wireless Radio Control by Lutron[2] **LLCS1** – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 8-15' mt height[2] **LLCS2** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 16-30' mt height[2] **LLCS3** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 31-40' mt height[2]	**BB** - Battery Back-up[2] **CWBB** - Cold Weather Battery Backup[2] **XPMA** - Pole Mounting Bracket **SP1** - 10kV Surge Protection **TB** - Terminal Block

ACCESSORY ORDERING INFORMATION[6]

Description	Order Number	Description	Order Number
XWM SW BLK - Surface Wiring Box (Available in black only)	3569[1]5BLK	DFK - Double Fusing	DFK208[6]
FK120 - Single Fusing	FK120[5]	DFK - Double Fusing (240V)	DFK240[6]
FK277 - Single Fusing	FK277[5]	DFK - Double Fusing (480V)	DFK480[6]
FK347 - Single Fusing	FK347[5]	10' Linear Bird Spike Kit (2' Recommended per Luminaire)	736795

FOOTNOTES:
1. Consult Factory for availability.
2. Not available in HV.
3. Consult Factory for Site Layout.
4. IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5. Fusing must be located in a hand hole for pole or in the junction box.
6. Custom lumen and wattage packages available consult factory. Values are within industry standard tolerances but not DLC listed.

Luminaire Shown with IMSBT



Type: ____________

Mirada Wall Sconce (XWM)

PERFORMANCE

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DELIVERED LUMENS*

Lumen Package	Distribution	CRI	3000K Delivered Lumens	3000K Efficacy	3000K BUG Rating	4000K Delivered Lumens	4000K Efficacy	4000K BUG Rating	5000K Delivered Lumens	5000K Efficacy	5000K BUG Rating	Wattage
03L	2	70	2822	125	B1-U0-G1	3088	137	B1-U0-G1	3088	137	B1-U0-G1	22.6
	3	70	2873	127	B1-U0-G1	3144	139	B1-U0-G1	3144	139	B1-U0-G1	
	FT	70	2838	126	B1-U0-G1	3105	137	B1-U0-G1	3105	137	B1-U0-G1	
04L	2	70	3702	125	B1-U0-G1	4051	137	B1-U0-G1	4051	137	B1-U0-G1	29.5
	3	70	3769	128	B1-U0-G1	4124	140	B1-U0-G1	4124	140	B1-U0-G1	
	FT	70	3722	126	B1-U0-G1	4073	138	B1-U0-G1	4073	138	B1-U0-G1	
06L	2	70	5506	123	B2-U0-G2	6025	135	B2-U0-G2	6025	135	B2-U0-G2	44.7
	3	70	5606	125	B1-U0-G1	6134	137	B1-U0-G2	6134	137	B1-U0-G2	
	FT	70	5536	124	B1-U0-G2	6058	136	B1-U0-G2	6058	136	B1-U0-G2	
08L	2	70	7304	118	B2-U0-G2	7993	129	B2-U0-G2	7993	129	B2-U0-G2	62.0
	3	70	7437	120	B1-U0-G2	8138	131	B2-U0-G2	8138	131	B2-U0-G2	
	FT	70	7345	118	B2-U0-G2	8037	130	B2-U0-G2	8037	130	B2-U0-G2	
12L	2	70	10979	107	B3-U0-G3	12014	118	B3-U0-G3	12014	118	B3-U0-G3	102.2
	3	70	11178	109	B2-U0-G2	12232	120	B2-U0-G2	12232	120	B2-U0-G2	
	FT	70	11040	108	B2-U0-G3	12080	118	B2-U0-G3	12080	118	B2-U0-G3	

*LEDs are frequently updated therefore values are nominal.

ELECTRICAL DATA*

Lumen Package	Watts	120V	208V	240V	277V	347V	480V
03L	22.6	0.19	0.11	0.09	0.08	0.07	0.05
04L	29.5	0.25	0.14	0.12	0.11	0.09	0.06
06L	44.7	0.37	0.21	0.19	0.16	0.13	0.09
08L	62.0	0.52	0.30	0.26	0.22	0.18	0.13
12L	102.2	0.85	0.49	0.43	0.37	0.29	0.21

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

RECOMMENDED LUMEN MAINTENANCE (3L-6L)[1]

Ambient Temperature C	Initial[2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	98%	95%	93%	90%
10 C	100%	98%	95%	93%	90%
20 C	100%	98%	95%	93%	90%
25 C	100%	98%	95%	93%	90%
30 C	100%	98%	95%	93%	90%
40 C	100%	98%	95%	93%	90%
50 C	100%	98%	96%	94%	91%

RECOMMENDED LUMEN MAINTENANCE (8L-12L)[1]

Ambient Temperature C	Initial[2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	97%	94%	90%	87%
10 C	100%	97%	94%	90%	87%
20 C	100%	97%	94%	90%	87%
25 C	100%	97%	93%	90%	86%
30 C	100%	97%	93%	90%	85%
40 C	100%	97%	93%	88%	84%
50 C	100%	96%	91%	87%	83%

1 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2 - In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing times the IESNA LM-80-08 total test duration for the device under testing

SPECIFICATIONS FOR FIXTURE 'B'
(TO BE MOUNTED IN DOWNLIGHTING POSITION)

2

Type: ____________

Mirada Wall Sconce (XWM)

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: **XWM 2 LED 03L 30 UE BRZ ALSC**

Luminaire Prefix	Distribution	LED Technology	Lumen Package	Color Temperature	Voltage
XWM - Mirada Wall Sconce	**2** - Type 2 **3** - Type 3 **FT** - Type 4 Forward Throw	**LED**	**3L** - 3,000 lms **4L** - 4,000 lms **6L** - 6,000 lms **8L** - 8,000 lms **12L** - 12,000 lms **Custom Lumen Packages**[6]	**30** - 3000K **40** - 4000K **50** - 5000K	**UE** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)

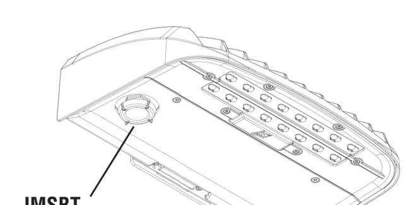
Finish	Controls (Choose One)	Options
BRZ - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**Wireless Controls** **ALSC** - Airlink Synapse Control System[2] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor[2] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor[2] **ALBCS1** - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[2] **ALBCS2** - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[2] **Standalone Controls** **DIM** - 0-10v Dimming leads extended to housing exterior **IMSBT1**- Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height[2,4] **IMSBT2**- Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height[2,4] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V **Lutron Limelight Controls** **LLC** – LimeLight Integral Wireless Radio Control by Lutron[2] **LLCS1** – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 8-15' mt height[2] **LLCS2** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 16-30' mt height[2] **LLCS3** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 31-40' mt height[2]	**BB** - Battery Back-up[2] **CWBB** - Cold Weather Battery Backup[2] **XPMA** - Pole Mounting Bracket **SP1** - 10kV Surge Protection **TB** - Terminal Block

ACCESSORY ORDERING INFORMATION[6]

Description	Order Number	Description	Order Number
XWM SW BLK - Surface Wiring Box (Available in black only)	356915BLK	DFK - Double Fusing	DFK208[6]
FK120 - Single Fusing	FK120[5]	DFK - Double Fusing (240V)	DFK240[6]
FK277 - Single Fusing	FK277[5]	DFK - Double Fusing (480V)	DFK480[6]
FK347 - Single Fusing	FK347[5]	10' Linear Bird Spike Kit (2' Recommended per Luminaire)	736795

FOOTNOTES:
1. Consult Factory for availability.
2. Not available in HV.
3. Consult Factory for Site Layout.
4. IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5. Fusing must be located in a hand hole for pole or in the junction box.
6. Custom lumen and wattage packages available consult factory. Values are within industry standard tolerances but not DLC listed.

Luminaire Shown with IMSBT



Type: ____________

Mirada Wall Sconce (XWM)

PERFORMANCE

Back to Quick Links

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	3000K Delivered Lumens	3000K Efficacy	3000K BUG Rating	4000K Delivered Lumens	4000K Efficacy	4000K BUG Rating	5000K Delivered Lumens	5000K Efficacy	5000K BUG Rating	Wattage
03L	2	70	2822	125	B1-U0-G1	3088	137	B1-U0-G1	3088	137	B1-U0-G1	22.6
	3	70	2873	127	B1-U0-G1	3144	139	B1-U0-G1	3144	139	B1-U0-G1	
	FT	70	2838	126	B1-U0-G1	3105	137	B1-U0-G1	3105	137	B1-U0-G1	
04L	2	70	3702	125	B1-U0-G1	4051	137	B1-U0-G1	4051	137	B1-U0-G1	29.5
	3	70	3769	128	B1-U0-G1	4124	140	B1-U0-G1	4124	140	B1-U0-G1	
	FT	70	3722	126	B1-U0-G1	4073	138	B1-U0-G1	4073	138	B1-U0-G1	
06L	2	70	5506	123	B2-U0-G2	6025	135	B2-U0-G2	6025	135	B2-U0-G2	44.7
	3	70	5606	125	B1-U0-G1	6134	137	B1-U0-G2	6134	137	B1-U0-G2	
	FT	70	5536	124	B1-U0-G2	6058	136	B1-U0-G2	6058	136	B1-U0-G2	
08L	2	70	7304	118	B2-U0-G2	7993	129	B2-U0-G2	7993	129	B2-U0-G2	62.0
	3	70	7437	120	B1-U0-G2	8138	131	B2-U0-G2	8138	131	B2-U0-G2	
	FT	70	7345	118	B2-U0-G2	8037	130	B2-U0-G2	8037	130	B2-U0-G2	
12L	2	70	10979	107	B3-U0-G3	12014	118	B3-U0-G3	12014	118	B3-U0-G3	102.2
	3	70	11178	109	B2-U0-G2	12232	120	B2-U0-G2	12232	120	B2-U0-G2	
	FT	70	11040	108	B2-U0-G3	12080	118	B2-U0-G3	12080	118	B2-U0-G3	

*LEDs are frequently updated therefore values are nominal.

ELECTRICAL DATA*

Lumen Package	Watts	120V	208V	240V	277V	347V	480V
03L	22.6	0.19	0.11	0.09	0.08	0.07	0.05
04L	29.5	0.25	0.14	0.12	0.11	0.09	0.06
06L	44.7	0.37	0.21	0.19	0.16	0.13	0.09
08L	62.0	0.52	0.30	0.26	0.22	0.18	0.13
12L	102.2	0.85	0.49	0.43	0.37	0.29	0.21

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

RECOMMENDED LUMEN MAINTENANCE (3L-6L)[1]

Ambient Temperature C	Initial[2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	98%	95%	93%	90%
10 C	100%	98%	95%	93%	90%
20 C	100%	98%	95%	93%	90%
25 C	100%	98%	95%	93%	90%
30 C	100%	98%	95%	93%	90%
40 C	100%	98%	95%	93%	90%
50 C	100%	98%	96%	94%	91%

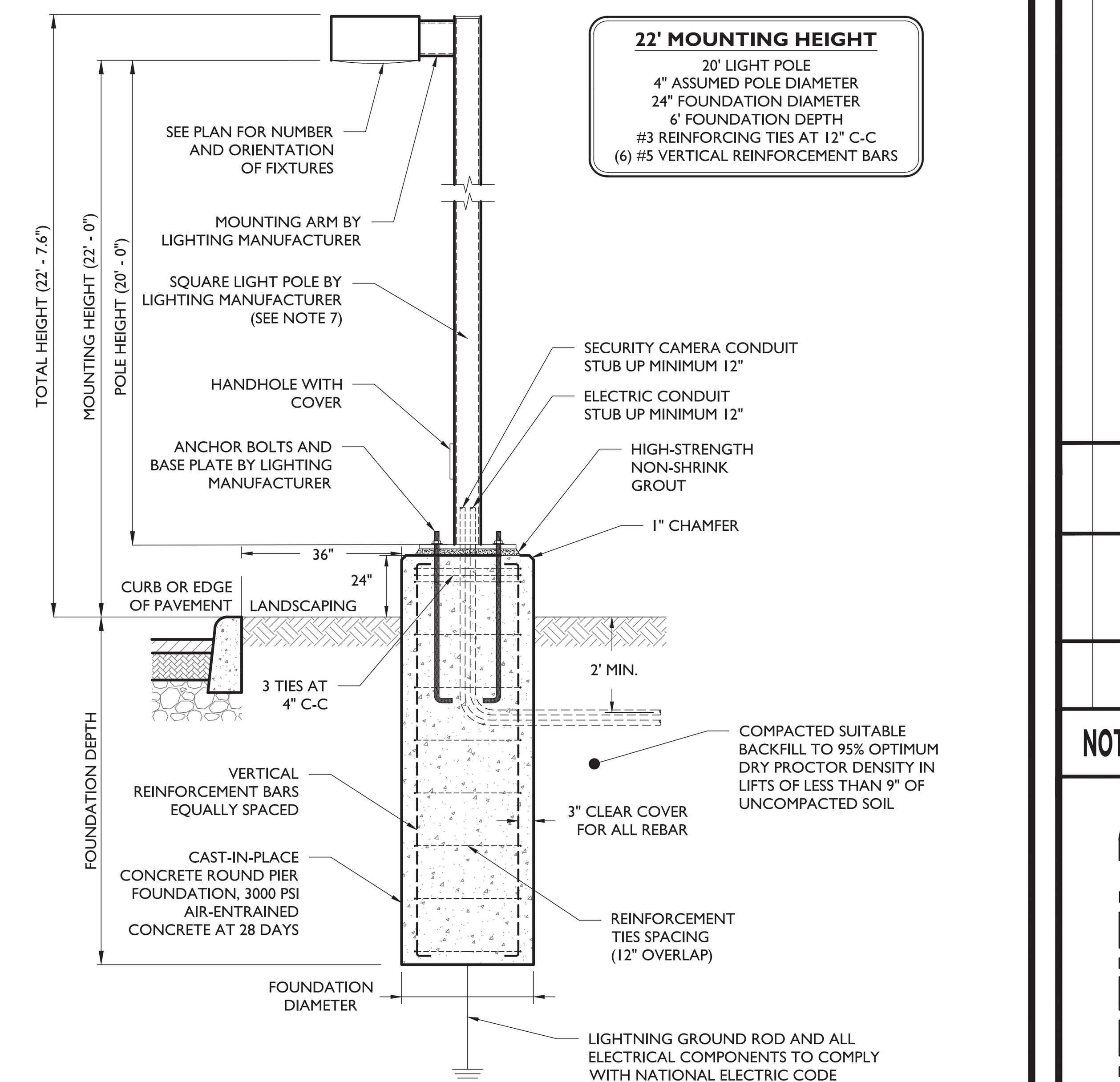
RECOMMENDED LUMEN MAINTENANCE (8L-12L)[1]

Ambient Temperature C	Initial[2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	97%	94%	90%	87%
10 C	100%	97%	94%	90%	87%
20 C	100%	97%	94%	90%	87%
25 C	100%	97%	93%	90%	86%
30 C	100%	97%	93%	90%	85%
40 C	100%	97%	93%	88%	84%
50 C	100%	96%	91%	87%	83%

1 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2 - In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing times the IESNA LM-80-08 total test duration for the device under testing

SPECIFICATIONS FOR FIXTURE 'C'
(TO BE MOUNTED IN DOWNLIGHTING POSITION)

3



LIGHT POLE INSTALLATION

NOT TO SCALE

NOTES:
1. MINIMUM SOIL BEARING PRESSURE OF 1500 PSF, SOIL FRICTION ANGLE OF 30 DEGREES, AND SOIL DRY UNIT WEIGHT OF 120 PCF SHALL BE CONFIRMED IN THE FIELD BY A QUALIFIED PROFESSIONAL.
2. CAST-IN-PLACE CONCRETE SHALL BE CONSOLIDATED USING VIBRATOR.
3. ALL REBAR TO BE NEW GRADE 60 STEEL.
4. PRE-CAST PIERS ACCEPTABLE UPON WRITTEN APPROVAL OF SHOP DRAWING BY ENGINEER.
5. CONCRETE TO BE INSTALLED A MINIMUM OF 7 DAYS PRIOR TO INSTALLING LIGHT POLE. POURED CONCRETE MIX REQUIRED TO OBTAIN 80% OF DESIGN STRENGTH PRIOR TO INSTALLING LIGHT POLE.
6. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" (WITHIN 1" TOLERANCE).
7. POLE SHALL BE A SQUARE POLE RATED FOR 10 MPH HIGHER THAN MAXIMUM WIND SPEED 33FT ABOVE GROUND FOR THE AREA BASED ON ANSI/ASCE 7-93.
8. POUR TO BE TERMINATED AT A FORM.
9. WORK SHALL CONFORM TO ACI BEST PRACTICES FOR APPROPRIATE TEMPERATURE AND WEATHER CONDITIONS.
10. CONTRACTOR TO TEMPORARILY SUPPORT ADJACENT SOIL AND STRUCTURES DURING EXCAVATION IF REQUIRED.

4

Sonny's CarWash
Vacuums

Vacuum Booms

Provide customers with an inviting free vacuum area that doesn't require a lot of staff, or effort, to keep ready to serve the next customer.

The boom style keeps hoses securely off the ground providing better access to both sides of the vehicle and reducing wear and tear. Choose from different boom styles, canopy colors, drop kits, attachments and piping.

Double-Drop Boom

Single Drop Boom

Dimensions	114-1/2inL x 20inW x 132-7-8inH
Clearance	Height Clearance 95-5/16inH

Boom Styles

Custom Color Powder Coating Options
Contact a Sonny's Sales Representative for details

Join Sonny's OneWash and Save

VACUUM & TRASH RECEPTACLE SPECIFICATIONS

5

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD
engineering & design
Detroit, MI · New York, NY · Rutherford, NJ
Princeton, NJ · Tampa, FL · Boston, MA
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

HYPERSHINE

SITE DEVELOPMENT PLANS
HYPERSHINE
PROPOSED AUTO WASH
PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
MICHIGAN LICENSE No. 6201069428
LICENSED PROFESSIONAL ENGINEER

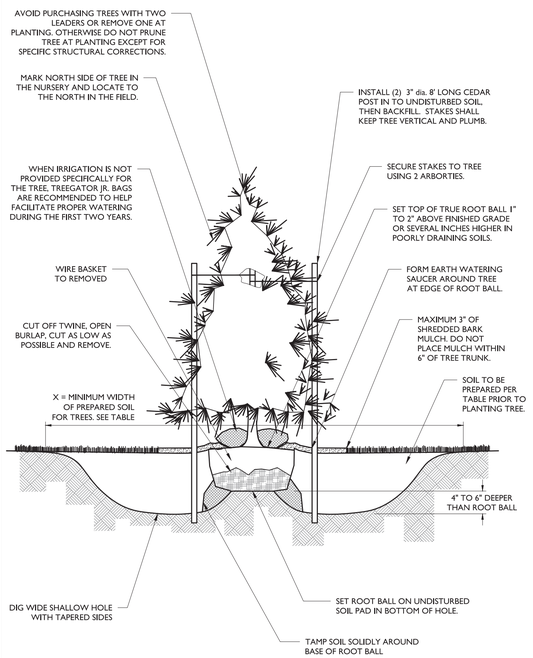
STONEFIELD
engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210462

TITLE:
CONSTRUCTION DETAILS

DRAWING:
C-13

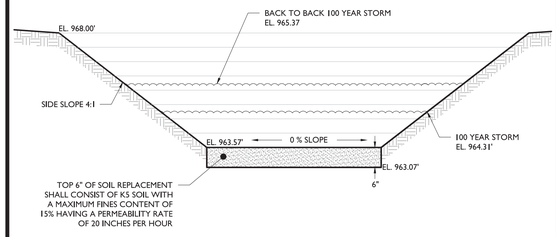
V:\DET\2021\DET-210462-EROP, LLC-9345 HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CADD\PLOTS\DP-11-14-DETL.DWG



CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

1

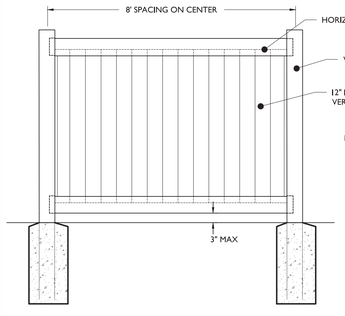


INFILTRATION BASIN DETAIL

NOT TO SCALE

NOTES:
1. BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.
2. BASIN INFILTRATION RATE OF 18 IN/HR CONFIRMED VIA DOUBLE RING TESTING METHOD. DESIGN RATE OF 9 IN/HR USED.

2



NOTES:
1. VERTICAL AND HORIZONTAL MEMBER TO BE SPECIFIED BY FENCING MANUFACTURER.
2. CONTRACTOR TO PROVIDE ALL HARDWARE NECESSARY FOR FENCE CONSTRUCTION AND OPERATION, PER SITE DESIGN. INSTALLATION SHALL COMPLY WITH MANUFACTURER'S REQUIREMENTS.
3. FENCE DETAIL ONLY APPLIES TO FENCE WITHOUT PRIVACY SLATS.
4. FENCE TO BE INSTALLED FOLLOWING SITE GRADING.
5. FENCE TO BE INSTALLED ONE FOOT WITHIN PROPERTY LINE WHERE SHOWN ON PROPERTY LINE ON SITE PLAN.
6. VIBRATE OR TAMP BACKFILL FOR CONSOLIDATION SURROUNDING FENCE POSTS.

VINYL FENCE DETAIL

NOT TO SCALE

3

I:\COMMON\CAD\TREATMENT\22 CDS\643 STANDARD DRAWINGS\ONLINE CDS\CDSPDF WITHOUT TREATMENT FLOW\DWG\CDS2015-4-C-DTL.DWG 6/9/2021 3:38 PM

Project: Hypershine Proposed Auto Wash
Location: *White Lake Township, MI*
Prepared For: Stonefield Engineering

CONTECH ENGINEERED SOLUTIONS

Purpose: To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 0.5" of rainfall.

Reference: United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A (miles²)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-1	1.77	0.00277	0.57	45.00	17.3	0.288

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Gr

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
P = design precipitation (inches)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (CF)
WQ-1	45.00	0.455	0.5	0.228	1,461.71

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-1	0.228	96.42

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-1	0.083	0.166

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles. A minimum t_c of 0.167 hours (10 minutes) should be used.

Structure Name	t_c (hr)	A (miles²)
WQ-1	0.288	0.00277

5. Read the unit peak discharge (q_u) from Exhibit 4-II in Chapter 4 of TR-55 for appropriate t_c for type II rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-1	0.288	0.166	654

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge (cfs/mi²/inch)
A = drainage area (mi²)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A (miles²)	Q (in)	WQF (cfs)
WQ-1	654	0.00277	0.228	0.41

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

Hypershine Proposed Auto Wash
White Lake Twp, MI
Water Quality Unit, WQ-1

CONTECH ENGINEERED SOLUTIONS — CDS

AREA (acres): 1.77
WEIGHTED C: 0.57
Tc (minutes): 17.3

CDS MODEL: 2015-4
PARTICLE SIZE (µm): 110

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Cumulative Rainfall Volume	Total Flowrate (cfs)	Removal Efficiency (%)	Incremental Removal (%)
0.02	13.13%	13.1%	0.02	100.00	13.13
0.04	11.36%	24.5%	0.04	100.00	11.36
0.06	10.08%	34.6%	0.06	99.33	10.01
0.08	7.49%	42.1%	0.08	98.64	7.39
0.10	7.01%	49.1%	0.10	97.96	6.87
0.12	5.37%	54.4%	0.12	97.27	5.22
0.14	4.73%	59.2%	0.14	96.59	4.57
0.16	4.13%	63.3%	0.16	95.90	3.96
0.18	3.53%	66.8%	0.18	95.22	3.36
0.20	2.99%	69.8%	0.20	94.53	2.83
0.25	5.50%	75.3%	0.25	92.82	5.11
0.30	4.47%	79.8%	0.30	91.1	4.07
0.35	3.85%	83.6%	0.35	89.40	3.44
0.40	2.16%	85.8%	0.40	87.7	1.9
0.45	2.09%	87.9%	0.45	86.0	1.8
0.50	1.31%	89.2%	0.50	84.3	1.1
0.75	5.07%	94.3%	0.76	71.8	3.6
1.00	2.58%	96.9%	1.01	53.3	1.4
1.50	2.50%	99.4%	1.51	35.9	0.9
2.00	0.51%	99.9%	2.02	26.9	0.1
2.54	0.15%	100.0%	2.56	21.2	0.0
					92.21

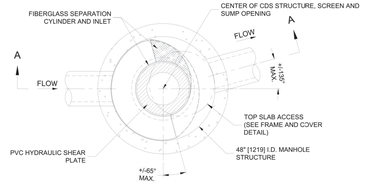
Removal Efficiency Adjustment[2] = 6.5%
Predicted % Annual Rainfall Treated = 90.6%
Predicted Net Annual Load Removal Efficiency = 85.8%

1 - Based on Rainfall Data from DETROIT METRO AP Station
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

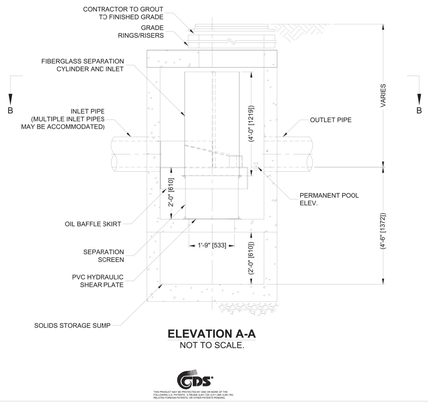
WATER QUALITY UNIT SPECIFICATIONS

NOT TO SCALE

4



PLAN VIEW B-B
NOT TO SCALE.



ELEVATION A-A
NOT TO SCALE.

CDS2015-4-C DESIGN NOTES

CDS2015-4-C STANDARD CONFIGURATION IS SHOWN.
FOR NJDEP PROJECTS, PLEASE CONTACT YOUR LOCAL CONTECH REPRESENTATIVE FOR APPROVED CONFIGURATIONS.

FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

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 (240C 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 0' - 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 SCALANT 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.

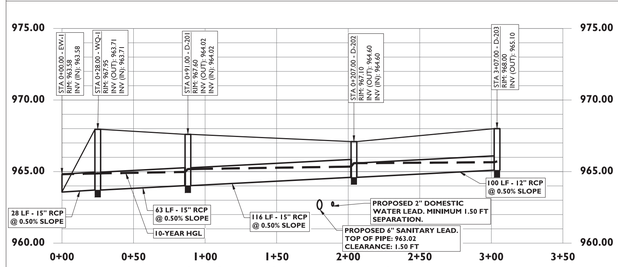
CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
ONLINE CDS
STANDARD DETAIL

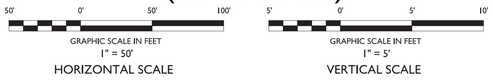
WATER QUALITY UNIT SPECIFICATIONS (CONT.)

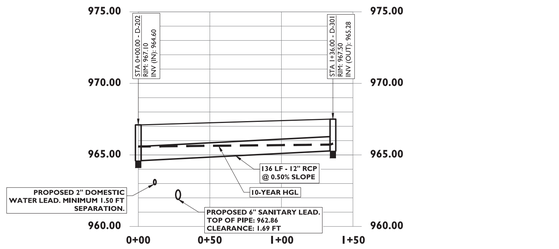
NOT TO SCALE

5

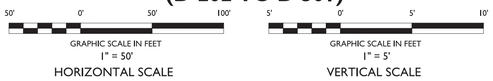


STORM SEWER PROFILE (EW-1 TO D-203)





STORM SEWER PROFILE (D-202 TO D-301)



6

6/15/22, 8:55 AM — Global Industrial™ Outdoor Diamond Steel Trash Can With Flat Lid, 36 Gallon, Black | 261924BK - GLOBALindustrial.com

SUN-SATIONAL SUMMER SOLUTIONS. WE CAN SUPPLY THAT.®

Global Industrial™ Outdoor Diamond Steel Trash Can With Flat Lid, 36 Gallon, Black
Item #: 797261924BK

Price: $570.00
$95.00/mo suggested payments with 6 month special financing OR Save $Xom Purchase.
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Quantity Discount

Buy 1-2	$570.00 ea.
Buy 3+	$542.00 ea.

Customers Also Viewed

✓ 36-gallon waste capacity
✓ Flat lid with open top provides a non-contact method of waste disposal
✓ Rust-prevention and resilience against the elements

Cover your grounds with a trash can that handles waste collection with ease. The Global Industrial™ Outdoor Diamond-Steel Trash Can With Flat Lid is a strong, thermoplastic receptacle that is ideal for schools, public parks, outdoor office areas, and more. Both lid and base are shielded with a black powder coat finish for rust-prevention and resilience against the elements. Mesh-frame design has 3/4" openings. Flat lid allows easy waste disposal. Protective coating creates a smooth, high-gloss surface that stays cool to the touch. Rugged 1/8" thick, 11-gauge steel frame is thermoplastic coated to resist fading, mold and vandalism, and will ensure maintenance-free durability. Assembly required.

- Includes flat lid, plastic liner, and security cable

View our coordinating collection of **Recycling Bins.**

Weights & Dimensions

Depth	23-1/2 in
Width	23-1/2 in
Height	30 in
Thickness	1/8 in

Product Details

Liner Material	Plastic
Lid Color Family	Black
Assembly Required	Unassembled
Capacity	36 gal
GET 10% OFF*!	Diamond Trash Can
	Global Industrial

https://www.globalindustrial.com/p/global-8482-thermoplastic-32-gallon-mesh-receptacle-w-flat-lid-black?ref=42 1/3

VACUUM MOUNTED TRASH CAN

NOT TO SCALE

7

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
5	05/19/2022	JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
4	05/02/2022	JRC	FOR MDOT APPROVAL
3	04/25/2022	JRC	REVISED PER PRELIMINARY SITE PLAN APPROVAL
2	03/16/2022	ECM	REVISED PER SITE PLAN REVIEW #1
1	01/20/2022	RAC / ECM	FOR PRELIMINARY SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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Princeton, NJ · Tampa, FL · Boston, MA
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-23-202-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

HYPERSHINE

STATE OF MICHIGAN — JONATHAN REID COOKSEY — ENGINEER — No. 6201049428 — PROFESSIONAL ENGINEER

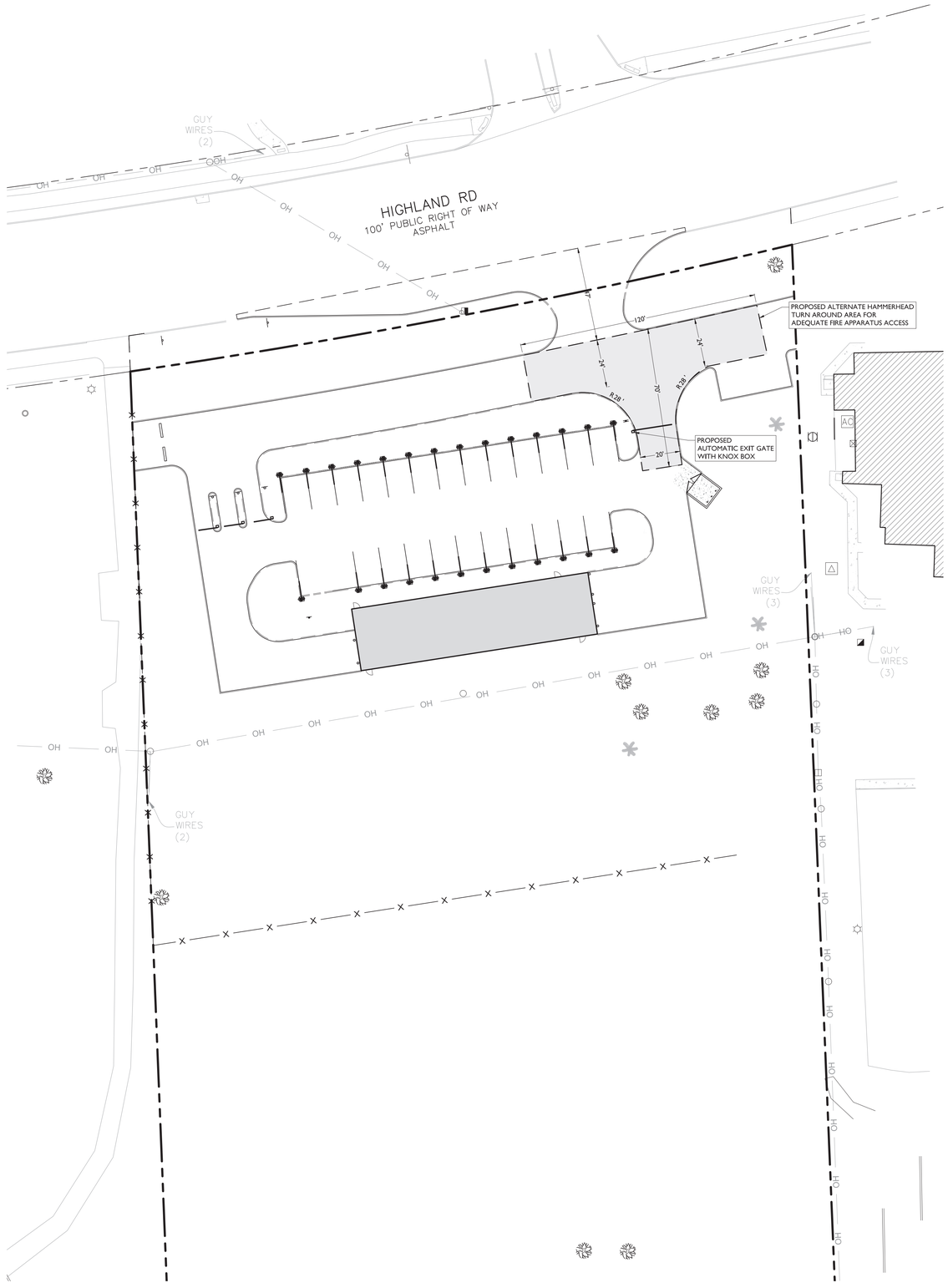
STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210462

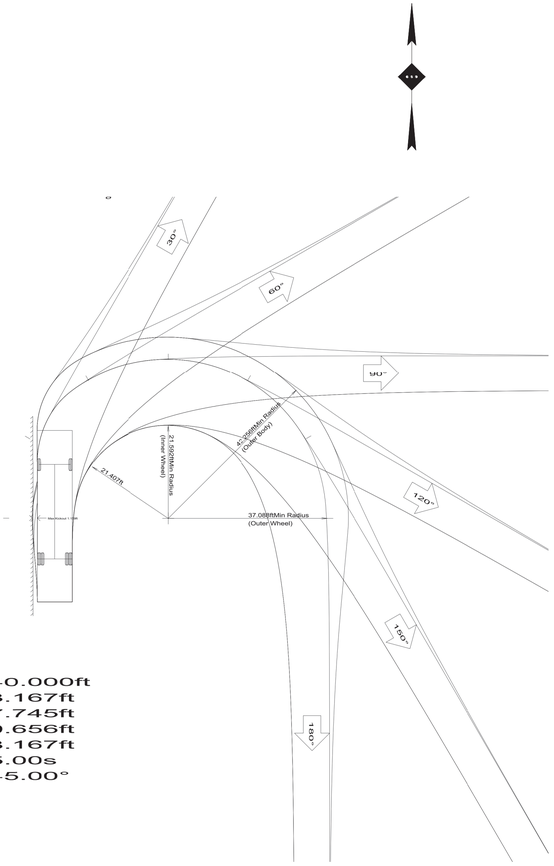
TITLE: CONSTRUCTION DETAILS

DRAWING: C-14

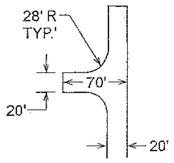
V:\DET\2021\DET-21462.BR\DP LAC PWI HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOTS\DP (1) 11 x 17 PLOTS.DWG



Pumper Fire Truck	
Overall Length	40.000ft
Overall Width	8.167ft
Overall Body Height	7.745ft
Min Body Ground Clearance	0.656ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°



PUMPER FIRE TRUCK
VECHICLE TURNING DATA



ACCEPTABLE ALTERNATIVE
TO 120' HAMMERHEAD

INTERNATIONAL FIRE CODE
ALTERNATIVE HAMMERHEAD

GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
7	06/13/2022	ECM	REVISED PER FINAL SITE PLAN REVIEW #1
6	05/24/2022	RAC/JRC	FOR FINAL SITE PLAN APPROVAL & PERMITTING
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NOT APPROVED FOR CONSTRUCTION

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HYPERSHINE

SITE DEVELOPMENT PLANS

HYPERSHINE
PROPOSED AUTO WASH

PARCEL ID: 12-22-302-006
9345 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
LICENSED PROFESSIONAL ENGINEER

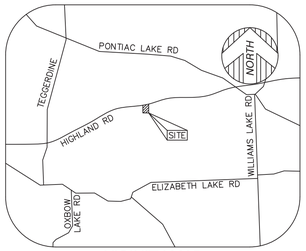
STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210462

TITLE:
FIRE TRUCK TURNING EXHIBIT

DRAWING:
C-15

V:\DET\2021\DET-21-0462.ERCP_LLC-PWI-HIGHLAND ROAD, WHITE LAKE TOWNSHIP, MI\CAD\PLOTS\SP-11-TRCK.DWG



VICINITY MAP
(NOT TO SCALE)

PARKING
NO MARKED PARKING ON SITE.

PARCEL AREA
211,476± SQUARE FEET = 4.854± ACRES

BASIS OF BEARING
SOUTH 75°05'00" WEST, BEING THE SOUTHERLY LINE OF SUBJECT PARCEL, AS DESCRIBED.

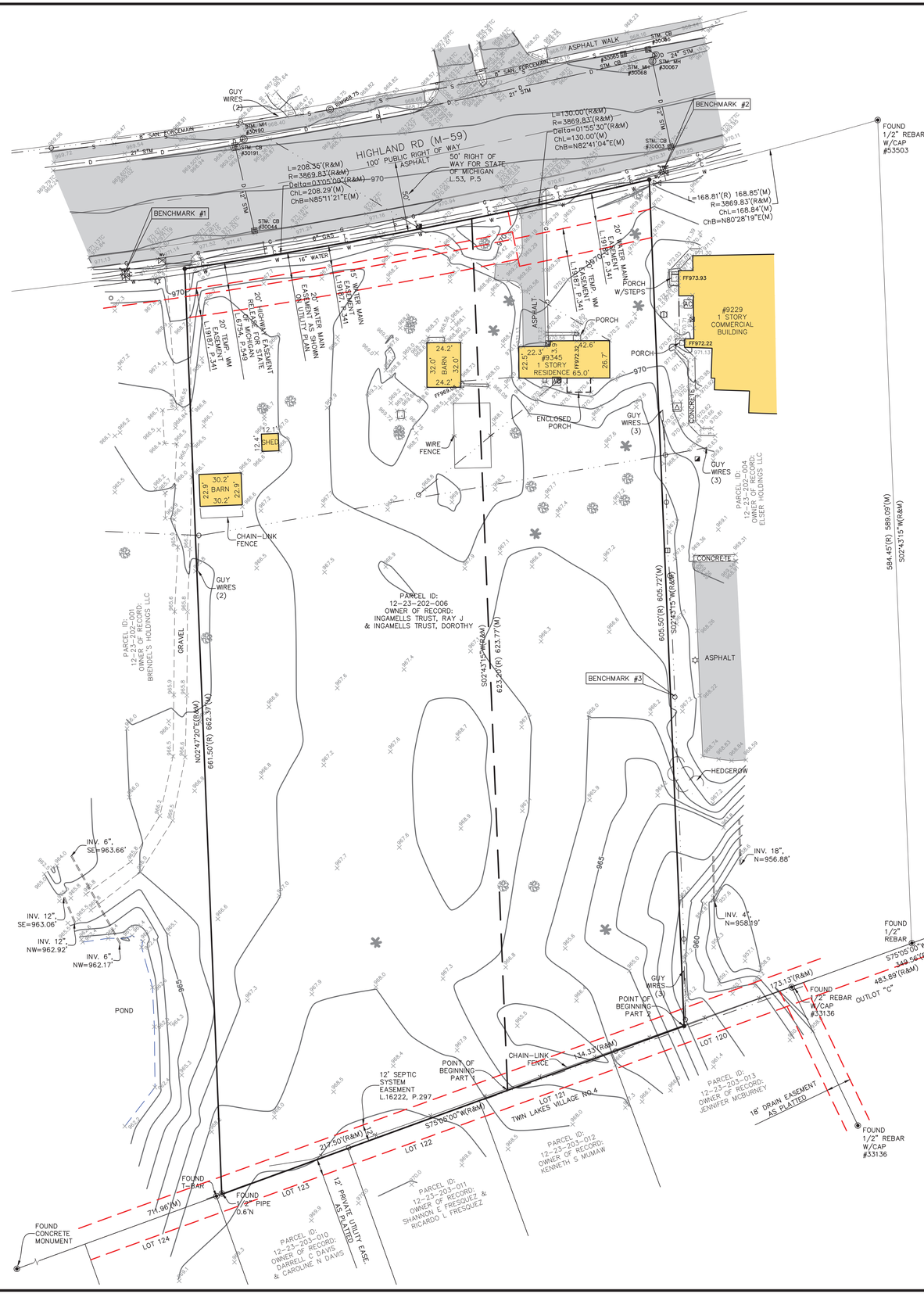
BENCHMARK
SITE BENCHMARK #1
ARROW ON FIRE HYDRANT, ±42' WEST OF NW PROPERTY CORNER.
ELEVATION = 973.53' (NAVD 88)

SITE BENCHMARK #2
ARROW ON FIRE HYDRANT, ±12' EAST OF NE PROPERTY CORNER
ELEVATION = 972.98' (NAVD 88)

SITE BENCHMARK #3
MAG NAIL IN 3RD UTILITY POLE NORTH OF FENCE, E. OF E. LINE OF PROPERTY.
ELEVATION = 968.56' (NAVD 88)

LEGEND

●	SET 1/2" REBAR WITH CAP P.S. 47976
◉	FOUND MONUMENT (AS NOTED)
◔	FOUND SECTION CORNER (AS NOTED)
(R&M)	RECORD AND MEASURED DIMENSION
(R)	RECORD DIMENSION
(M)	MEASURED DIMENSION
0.00	GROUND ELEVATION
⊠	ELECTRIC METER
▣	ELECTRIC PANEL
△	TRANSFORMER
○	UTILITY POLE
○	GAS LINE MARKER
⊠	GAS METER
◨	TELEPHONE RISER
◪	CABLE TV RISER
Ⓢ	SANITARY MANHOLE
▦	SQUARE CATCH BASIN
Ⓓ	STORM DRAIN MANHOLE
	FIRE HYDRANT
	WATER VALVE
	WELL
AC	AIR CONDITIONING UNIT
	LIGHTPOST/LAMP POST
	SINGLE POST SIGN
	DECIDUOUS TREE (AS NOTED)
	CONIFEROUS TREE (AS NOTED)
	PARCEL BOUNDARY LINE
	PLATTED LOT LINE
	ADJOINER PARCEL LINE
	SECTION LINE
	EASEMENT (AS NOTED)
	BUILDING
	CONCRETE CURB
	RAISED CONCRETE
	EDGE OF CONCRETE (CONC.)
	EDGE OF ASPHALT (ASPH.)
	EDGE OF GRAVEL
-X-	FENCE (AS NOTED)
	TREE / BRUSH LINE (AS NOTED)
	OVERHEAD UTILITY LINE
G	GAS LINE
S	SANITARY LINE
D	STORM LINE
W	WATER LINE
C	UNDERGROUND CABLE
T	COMMUNICATION LINE
	UNDERGROUND PIPE (AS NOTED)
	EDGE OF WATER (AS NOTED)
	MINOR CONTOUR LINE
	MAJOR CONTOUR LINE
	BUILDING AREA
	ASPHALT
	CONCRETE



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROPERTY DESCRIPTION
LAND SITUATED IN THE TOWNSHIP OF WHITE LAKE, COUNTY OF OAKLAND AND STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

PART OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23 TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT, SAID POINT BEING DISTANT NORTH 02 DEGREES 24 MINUTES 30 SECONDS EAST, 1731.78 FEET, AND SOUTH 75 DEGREES 05 MINUTES WEST, 483.89 FEET, FROM THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION; THENCE RUNNING SOUTH 75 DEGREES 05 MINUTES WEST, 217.5 FEET, TO A POINT; THENCE NORTH 02 DEGREES 47 MINUTES 20 SECONDS EAST, 661.50 FEET, TO A POINT ON THE SOUTHERLY LINE OF M-59 HIGHWAY; THENCE NORTHEASTERLY ALONG SAID HIGHWAY LINE AND ALONG THE ARC OF CURVE TO LEFT (RADIUS BEING 3869.83 FEET, AND CENTRAL ANGLE BEING 03 DEGREES 05 SECONDS) 208.35 FEET, TO A POINT; THENCE SOUTH 02 DEGREES 43 MINUTES 15 SECONDS WEST, 623.2 FEET, TO THE POINT OF BEGINNING.

AND

PART OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT, SAID POINT BEING DISTANT NORTH 02 DEGREES 24 MINUTES 30 SECONDS EAST, 1731.73 FEET, AND SOUTH 75 DEGREES 05 MINUTES WEST, 349.56 FEET, FROM THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION; THENCE RUNNING SOUTH 75 DEGREES 05 MINUTES WEST, 134.33 FEET TO A POINT; THENCE NORTH 02 DEGREES 43 MINUTES 15 SECOND EAST, 623.2 FEET TO A POINT ON THE SOUTHERLY LINE OF M-59 HIGHWAY; THENCE NORTHEASTERLY ALONG SAID HIGHWAY LINE AND ALONG THE ARC OF A CURVE TO THE LEFT (RADIUS BEING 3869.83 FEET, AND CENTRAL ANGLE BEING 01 DEGREE 55 MINUTES 30 SECONDS) 130.00 FEET, TO A POINT; THENCE SOUTH 02 DEGREES 43 MINUTES 15 SECONDS WEST, 605.5 FEET, TO THE POINT OF BEGINNING.

TITLE REPORT NOTE
ONLY THOSE EXCEPTIONS CONTAINED WITHIN THE FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT No. GLT2101033, DATED OCTOBER 04, 2021, AND RELISTED BELOW WERE CONSIDERED FOR THIS SURVEY. NO OTHER RECORDS RESEARCH WAS PERFORMED BY THE CERTIFYING SURVEYOR.

10. RIGHT OF WAY IN FAVOR OF STATE OF MICHIGAN RECORDED ON MARCH 26, 1937 IN LIBER 53 OF MISCELLANEOUS RECORDS, PAGE 5. (AS SHOWN)

11. HIGHWAY EASEMENT RELEASE IN FAVOR OF STATE OF MICHIGAN RECORDED ON SEPTEMBER 16, 1976 IN LIBER 6754, PAGE 549. (AS SHOWN)

12. DECLARATION OF EASEMENT RECORDED ON APRIL 29, 1996 IN LIBER 16222, PAGE 297. (AS SHOWN)

13. EASEMENT FOR WATER MAIN IN FAVOR OF CHARTER TOWNSHIP OF WHITE LAKE RECORDED ON NOVEMBER 18, 1998 IN LIBER 19187, PAGE 341. (AS SHOWN)

SURVEYOR'S NOTE
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN THE STRUCTURE INVENTORY SHOWN HEREON.

MANHOLE SCHEDULE

#	TYPE	RIM (FT)	SIZE (IN)	DIRECTION	INVERT (FT)
30003	CATCH BASIN	969.98	12	N	963.48
30044	CATCH BASIN	970.93	12	N	962.93
30065	CATCH BASIN	967.54	12	E	962.74
30066	CATCH BASIN	967.63	12	W	962.63
			12	SE	962.63
30067	STORM MANHOLE	967.78	12	SW	962.03
			12	NW	962.28
			24	E	959.38
			21	W	959.43
30068	STORM MANHOLE	967.89	12	S	962.39
			12	NE	962.29
30190	STORM MANHOLE	969.35	12	SW	961.53
			21	E	960.97
			21	W	960.90
30191	CATCH BASIN	968.78	12	NE	962.08
			12	S	962.28

SURVEYOR'S CERTIFICATION
TO EROP LLC, AN ILLINOIS LIMITED LIABILITY COMPANY; AND FIDELITY NATIONAL TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 4, 5, 7A, 8, 11A, AND 11B OF TABLE A, THEREOF. THE FIELD WORK WAS COMPLETED ON 12/20/21.

DATE OF PLAT OR MAP: 12/22/21

ANTHONY T. SYCKO, JR., P.S.
PROFESSIONAL SURVEYOR
MICHIGAN LICENSE NO. 47976
22556 GRATIOT AVE., EASTPOINTE, MI 48021
TSycko@kemtec-survey.com

STATE OF MICHIGAN
ANTHONY T. SYCKO, JR.
PROFESSIONAL SURVEYOR
NO. 47976
LICENSED PROFESSIONAL SURVEYOR

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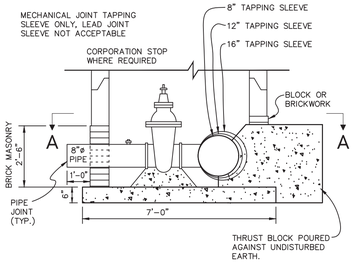
www.kemtecgroupofcompanies.com

ALTA / NSPS LAND TITLE SURVEY
PREPARED FOR: STONEFIELD ENGINEERING AND DESIGN
9345 HIGHLAND RD, WHILE LAKE, MICHIGAN,
PART OF SECTION 23,
TOWN 3 NORTH, RANGE 8 EAST

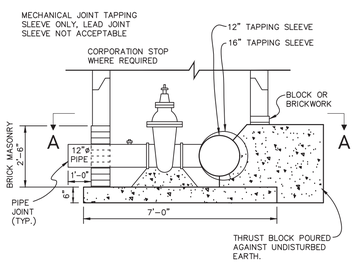
NO.	REVISION	DATE	BY	DESCRIPTION
1		01/13/22	JDM	PER NEW TITLE WORK

DRAWN BY: MRJ 12/22/21
CHECKED BY: ATS 12/22/21
DATE: DECEMBER 22, 2021
SCALE: 1" = 40'
PROJECT NO. 21-03795

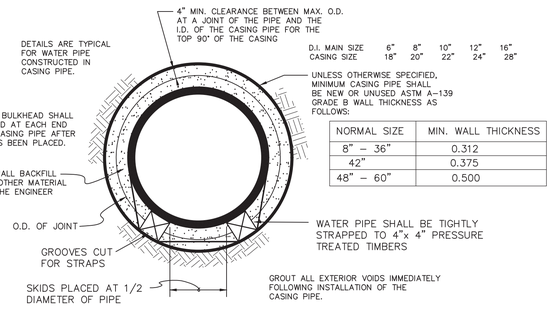
1
1 OF 1 SHEETS



16" X 8", 12" X 8", 8" X 8"
TAPPING SLEEVE, VALVE & WELL
(B–B)



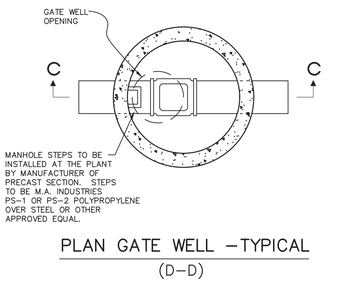
16" X 12", 12" X 12"
TAPPING SLEEVE, VALVE & WELL
(B–B)



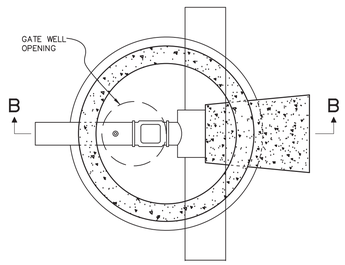
NORMAL SIZE	MIN. WALL THICKNESS
8" – 36"	0.312
42"	0.375
48" – 60"	0.500

Drawing not to scale.

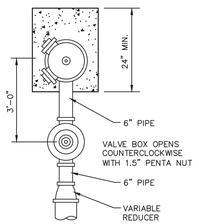
PIPE BARREL SUPPORT FOR WATER MAIN
CONSTRUCTED IN CASING

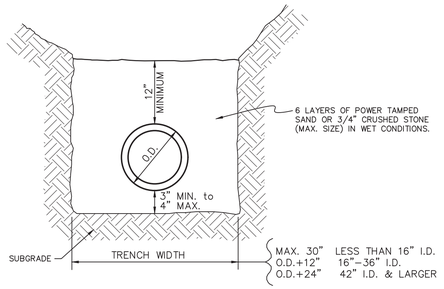


PLAN GATE WELL –TYPICAL
(D–D)

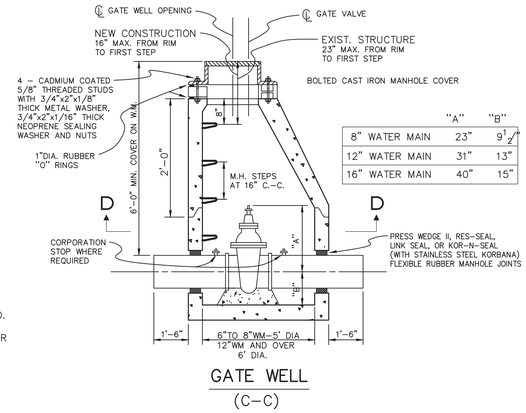


PLAN TAPPING SLEEVE, VALVE & WELL –TYPICAL
(A–A)





Drawing not to scale.
STANDARD BEDDING
FOR WATER PIPE



	"A"	"B"
8" WATER MAIN	23"	9 1/2"
12" WATER MAIN	31"	13"
16" WATER MAIN	40"	15"

GATE WELL
(C–C)

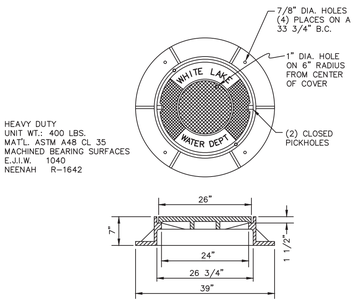
WATER MAIN NOTES

1. All construction procedures and materials used on this project shall conform to White Lake Township current standards and specifications.
2. All hydrants shall be East Jordan Iron Works 5BR–250 traffic model. Self–draining hydrants shall not be used. Valve shall have 1–1/2" pentagon nut and shall open counter–clockwise. Provide two 4.5" pumper outlets with 5" Storz quick connect nozzles (Harrington Integral Hydrant Storz, Model HIHS) as manufactured by Harrington, Inc. of Erie, PA.
3. All hydrants shall be field painted with a heavy coat of bright safety red polyurethane or alkyd gloss enamel, except for the Storz fittings and caps, which shall be left unpainted.
4. Johnson and Anderson, Inc. field personnel will affix to the fixed collar of each Storz connection 1" wide 3M Scotch reflective tape, color coded per NFPA 291 guidelines flow capacity.
5. All water mains shall be ductile iron pipe Class 54, cement lined with push on joints. Mechanical joints allowed only for tapping sleeves, hydrants & hydrant valves. Only Cor–Blue bolts shall be used for assembling mechanical joints. All bends, tees, valves and hydrant tees shall have a poured concrete thrust block as detailed on this sheet. Joints which have thrust blocks bearing on soil of questionable stability shall be fully restrained utilizing Tyler swivel ells and adapters or a system approved by the Township Engineer. HDPE pipe for directional boring, if approved by the Township Engineer, shall meet all of the requirements of the MDEQ and shall be DR9 (200 psi), and shall have two #8 tracer wires, terminated in the nearest gate well at the highest step.
6. Tapping sleeve shall be mechanical joint or approved equal. Ductile Iron or Stainless steel are allowed.
7. Specifications shall include direction of operation of all valves. All valves shall be counter clockwise open.
8. All necessary easements shall be provided in the name of White Lake Township before acceptance of the water distribution system.
9. The design engineer shall furnish White Lake Township with one reproducible sets of "As–Built" water main plans or an AutoCAD file upon completion of the job.
10. All required cross–connection devices shall be installed as required by the local plumbing inspector and in accordance with the standards of the Michigan Department of Public Health.
11. Gate well frame and cover shall be as follows: East Jordan heavy manhole cover, base flange type #1040 or Neenah Foundry heavy duty #R–1642 Manhole frame, solid lid cover shall be non–rocking and marked "White Lake Water Department"
12. Gate valves shall be AWWA approved and of a double disc or resilient wedge design with push on joints, 16" gate valves may be mechanical joint provided Cor–Blue bolts are used. All gate valves with operating nuts greater than 5' below ground surface shall be provided with an extension stem. The length of the extension shall be such that it will be within 5' of the ground surface when an extension is used it shall be held in place by an extension stem guide suitably fastened to the wall of the gate well.
13. 1" corporation stops are to placed on the main at each side of each main line gate valve and at such other locations as may be required by the engineer.
14. All pipe and fittings shall be subjected to a hydro–static pressure test of 150 PSI for a 2 hour duration; Township Engineer must be present. Maximum segment 2000 feet except that longer segments may be tested with allowable leakage based on 2000 feet.
15. 2 consecutive safe bacteria samples shall be taken from the water system approx. 24 hours apart at points established by the Township Engineer. Samples shall be taken by the Township Engineer.
16. Filling, flushing and sampling of water main can only be performed with a "Jumper" Line, the jumper shall be equipped with an approved RPZ type of backflow preventer.
17. Adjustments on gate wells shall be limited to 23" maximum from top of rim to first step in accordance with MIOSHA Rule 341.
18. All new water service lines shall have a minimum nominal size of 1". Services from 1" to 2" may be type K copper tubing or plastic DR–9 (200 PSI rated) meeting ASTM D2737–03 (Standard Specification for Polyethylene (PE) plastic tubing). ASTM Designation and pressure rating shall be stamped on the pipe by the manufacturer. Plastic pipe shall also meet AWWA C–901 Specifications. All sizes shall relate to the copper tubing outside diameter standard size (CTS). Copper pipe joints shall be flared. Fittings shall adapt to the plastic pipe with compression to iron pipe thread adapter. Plastic pipes shall be either compression style with a steel insert or may be fusion welded in the larger sizes.

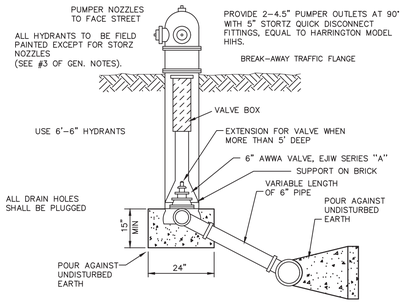
    Plastic water service pipes shall be traced with two #10 copper tracer wires or two #12 copper coated steel or stainless steel wires insulated with a minimum of 30 mils of polyethylene insulation. The tracer wires shall be terminated to supply line so as to be locatable at the building and the curb box without digging.

    Water services sizes 3" and greater shall be Class 54 cement lined ductile iron with push on joints or HDPE DR–9 (200 PSI rated) with fusion welded joints and fittings, DIPS (Ductile Iron Pipe Size).

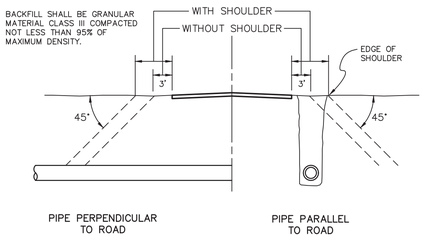
    A stop box shall be installed at the property or easement line and shall be equivalent to an A.Y. McDonald Mfg. 6100 flare regular pattern ball valve. The curb box shall have a 1" riser pipe with an Erie 2–hole pattern cover equivalent to A.Y. McDonald Mfg. 5601L. Stop box shall be protected with a 2"x4" painted blue extending 4 feet above ground.
19. Standard pipe cover shall be 6'–0".
20. Air release manholes shall consist of a standard 5' diameter gate well style structure with a ValMatic Model 25C air release valve mounted on a 1" corporation stop. Air release shall be equipped with the vacuum check option. A 1/2" diameter galvanized pipe air discharge shall be extended to within 12" of the top of the structure. A gooseneck trap shall be installed at the top of the riser to prevent debris & water from entering the valve.

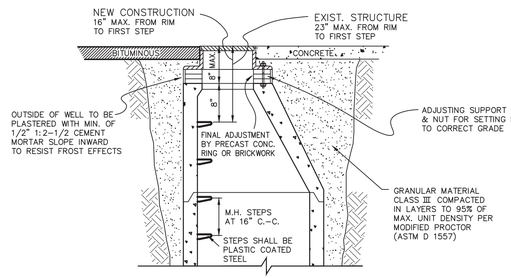


GATE WELL COVER & FRAME

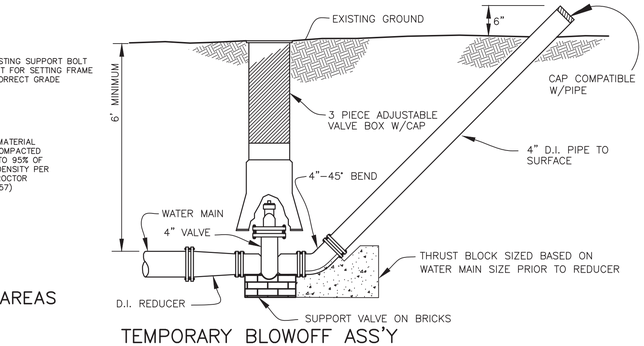


BACKFILL IN THE AREA OF STREETS,
ALLEYS, SIDEWALKS, DRIVES & PARKING AREAS

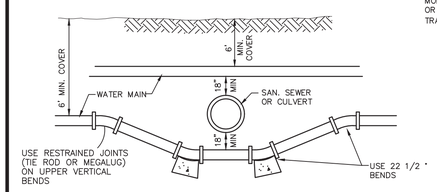




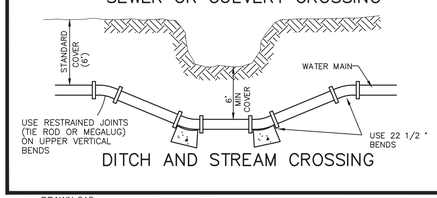
GATE WELL TOPS WITHIN PAVEMENT AREAS



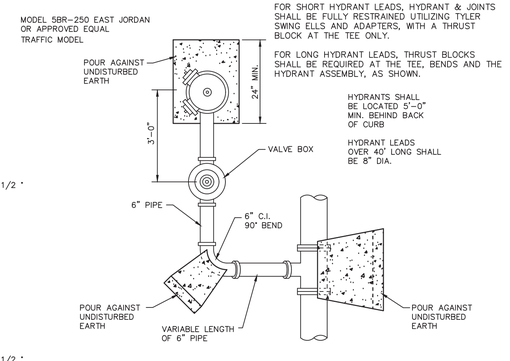
TEMPORARY BLOWOFF ASS'Y



SEWER OR CULVERT CROSSING

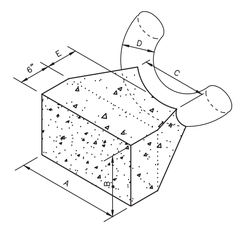


DITCH AND STREAM CROSSING



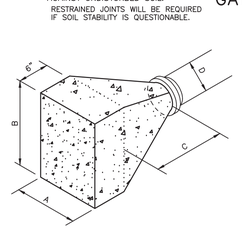
DETAIL OF HYDRANT SETTINGS

NOTE: 3000 PSI CONCRETE TO BE USED. THRUST BLOCK TO ABUT & REST AGAINST UNDISTURBED SOIL. RESTRAINED JOINTS WILL BE REQUIRED IF SOIL STABILITY IS QUESTIONABLE.



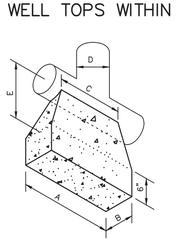
FOR 90° BENDS OR SMALLER

D	A	B	C	E MIN
20"	8"	6.5'	3.5'	2.5"
16"	6"	4'	2.5'	2"
12"	4"	3'	2'	1.75"
10"	3'	3'	2'	1.75"
8"	3'	2'	2'	1.5"
6"	2"	1.5'	2"	1.25"



FOR PLUGS

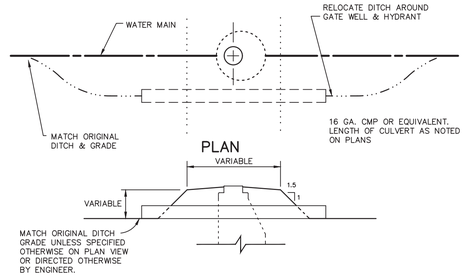
D	A	B	C MIN
20"	7"	5'	2.5"
16"	4.8"	4.8'	2"
12"	4.3'	3'	1.75"
10"	3'	2'	1.5"
8"	2.8'	2.5'	1.5"
6"	1.5'	1.5'	0.25'



FOR TEES

D	A	B	C	E MIN
20"	6.5'	4.5'	3.5'	3"
16"	4.7'	4.7'	2.5'	2.75"
12"	4'	3'	2.5'	2.5"
10"	3'	2'	2'	2.25"
8"	2.7'	2'	2'	2.25"
6"	2'	2'	2'	2.25"

THRUST BLOCK DETAILS



PROFILE
DITCH ENCLOSURE AT GATE WELL

DRAWN: CAD
DESIGN: OA
CHECKED: –

SCALE: VERT. –
HORZ. AS NOTED

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
		GENERAL REVISION TO CAD	12/29/95		GW & NUT SIZE	07/23/98		CLARIFY HYD. SPEC	02/07/01		REV. HYD, THRUST, AIR REL.	03/29/04
		ADD NOTE 17	11/04/97		PIPE CIVER & FLANGE TAPE	05/12/99		5–BR HYD, WS STAKE	02/27/02		HDPE, HYD, VALVES	07/18/05
		REVISE HYD. & THRUSTING	05/18/98		ADD BLOWOFF	07/06/99		ADD NOTE 19	07/23/03		UPDATED TITLE BLOCK	04/30/13

Johnson&Anderson
4494 Elizabeth Lake Road
Waterford, Michigan 48328
tel (248) 681-7800 fax (248) 681-2660

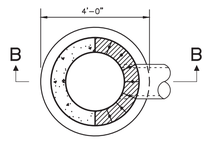
1060 W. Norton Avenue, Suite 7
Muskegon, Michigan 49441
tel (231) 780-3100 fax (231) 780-3115

2291 Water Street, Suite 6
Port Huron, Michigan 48060
tel (810) 987-7820 fax (810) 987-7895

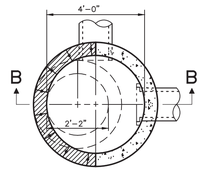
White Lake Township
7525 Highland Road (M-59)
White Lake, Michigan 48383
248-698-3300

WATER MAIN STANDARD DETAILS

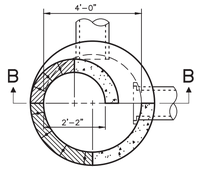
JOB NO.
DATE ISSUED
SHEET NO.



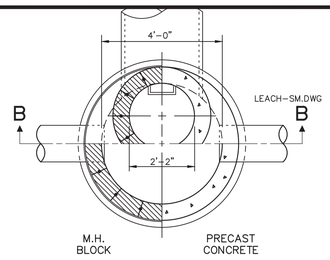
SECTION A–A



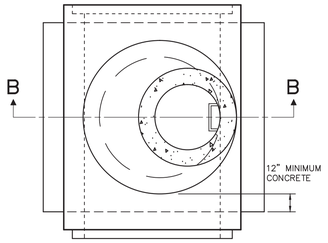
SECTION A–A



SECTION A–A

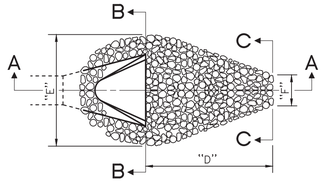


SECTION A–A



SECTION A–A

PIPE DIA.	"D"	"E"	"F"	S.Y.
12"	5'–0"	6'–6"	3'–0"	4
15"	5'–0"	7'–0"	3'–0"	4
18"	5'–0"	7'–6"	3'–6"	4
21"	5'–6"	8'–0"	4'–0"	5
24"	6'–0"	8'–6"	4'–6"	6
27"	6'–6"	9'–0"	5'–0"	7
30"	7'–0"	9'–9"	5'–6"	8
33"	7'–6"	10'–3"	5'–6"	9
36"	8'–0"	10'–9"	6'–0"	10
42"	9'–0"	11'–9"	6'–6"	12
48"	10'–0"	13'–0"	7'–0"	14



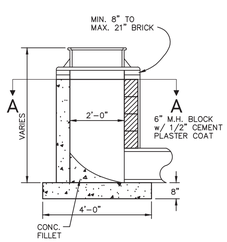
PLAN VIEW

STORM SEWER NOTES

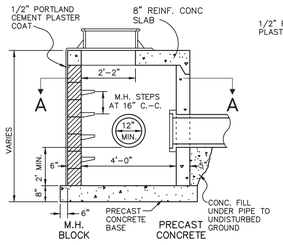
1. PRECAST CONC. RISERS SHALL MEET A.S.T.M. C478
2. DIAMETER OF CONC. BASE: I.D. + 2(WALL) + 8"
3. MANHOLE STEP SPACING SHALL MEET MIOSHA REQUIREMENTS. NO MORE THAN 21" FROM RIM TO FIRST STEP. MAX. 16" O.C. STEPS SHALL BE CAST POLYPROPYLENE REINFORCED WITH A 1/2" STEEL ROD.
4. WALL THICKNESS OF BLOCK STRUCTURES SHALL BE:

DEPTH	THICKNESS
0–8'	6"
8–15'	8"
OVER 15'	12"

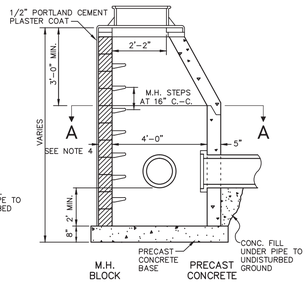
5. MINIMUM I.D. OF STRUCTURE FOR: 36"to 42" = 5'–0"
   48"to 54" = 6'–0"
   LARGER DIAMETER STRUCTURES MAY BE REQUIRED DEPENDING ON PIPING CONFIGURATION.
6. ALL LIFTING HOLES AND VOIDS IN INTERIOR JOINTS SHALL BE FILLED BY MORTAR.
7. THE FINGER DRAIN DETAIL SHALL BE USED AT ALL LOW POINT CATCH BASINS IN PAVEMENT AREAS. THE DETAIL MAY BE OMITTED WITH THE APPROVAL OF THE TOWNSHIP ENGINEER IN AREAS WITH VERY POROUS SOILS AND NO GROUNDWATER PROBLEMS.
8. PRECAST ONE PIECE BASES AND RISERS ARE ACCEPTABLE FOR INLETS, CATCH BASINS AND MANHOLES
9. FRAMES & COVERS WITH INLET CAPACITY (1.0 CFS/90 SQ IN)
   –TRAFFIC AND PARKING AREAS: MDOT "D" (EJIW 5105) 1.9 CFS*
   –REAR YARD AND DITCH INLETS: (EJIW 1040–02) 2.1 CFS*
   –MANHOLES: MDOT "A" (EJIW 1060)
   –CURB AND GUTTER INLETS: MDOT "K" (EJIW 7045) 1.8 CFS*
   –MOUNTABLE CURB & GUTTER: (EJIW 7065) 2.2 CFS*
   –*MAY VARY DUE TO MANUFACTURER CHANGES
10. CONTACT THE TOWNSHIP ENGINEER 48 HOURS PRIOR TO CONSTRUCTION TO SCHEDULE INSPECTION. FULL TIME INSPECTION WILL BE REQUIRED FOR ALL UNDERGROUND STORM SEWER CONSTRUCTION. PHONE (248) 334–9901
11. THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (800) 482–7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
12. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY WHITE LAKE TOWNSHIP.
13. A 2' DEEP SUMP SHALL BE USED IN ANY STRUCTURE SUBJECT TO A WATER DROP GREATER THAN 2.0' FROM AN INLET PIPE.
14. ALLOWABLE STORM SEWER PIPE TYPES:
   –12" AND UP: RCP ASTM C–76 MIN. CLASS 3, MIN CLASS 4 UNDER TRAFFIC AREAS, RUBBER JOINT
   –6" TO 15": SCH 40 PVC OR SDR 23.5 PVC WITH RUBBER OR GLUE JOINT
   –6" TO 48": SMOOTH BORE CORRUGATED HIGH DENSITY POLYETHYLENE WITH NEOPRENE LINED JOINTS OR BETTER
15. THE MINIMUM PIPE SIZE IN PUBLIC RIGHT–OF–WAY OR EASEMENTS AND FOR PIPES CARRYING OFF–SITE STORM WATER SHALL BE 12"
16. ALL PIPE ENDS NOT WITHIN A STRUCTURE SHALL HAVE A CONCRETE OR METAL FLARE END SECTION (FES) WITH A BAR SCREEN ON PIPES 18" AND LARGER EXCEPT THOSE WITHIN A SECURE FENCED AREA NEED NO BAR SCREEN.
17. ALL DRAINAGE STRUCTURES WITHIN THE ROAD SHALL BE SEALED WITH WRAPPED GEOTEXTILE PER RCOC STANDARDS



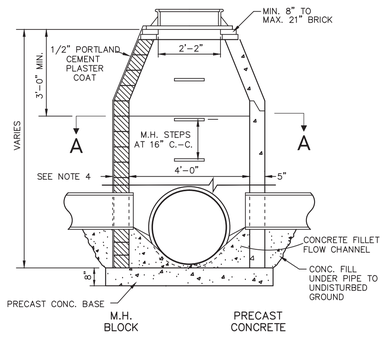
SECTION B–B
24" INLET



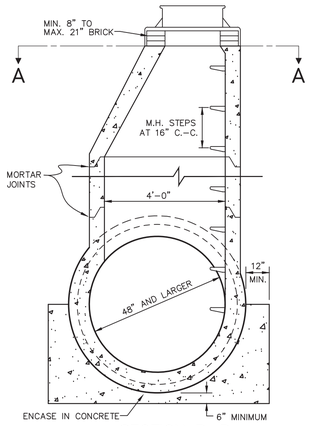
SECTION B–B
STRUCTURE WITH SLAB COVER
(CATCH BASIN SHOWN)



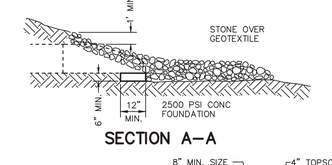
SECTION B–B
STANDARD CATCH BASIN



SECTION B–B
STANDARD STORM MANHOLE

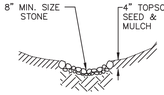


SECTION B–B
STANDARD PRECAST CONCRETE MANHOLE TEE



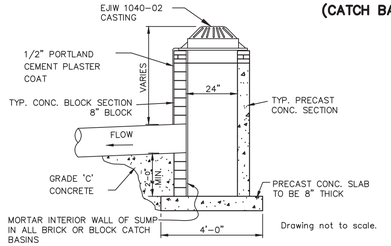
SECTION A–A

SECTION B–B

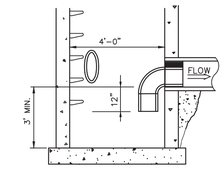


SECTION C–C

PLAIN STONE RIP–RAP



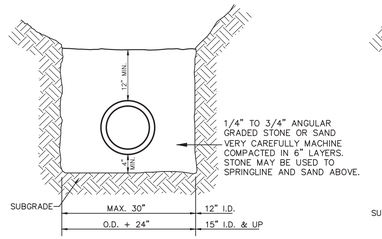
STANDARD REAR YARD CATCH BASIN



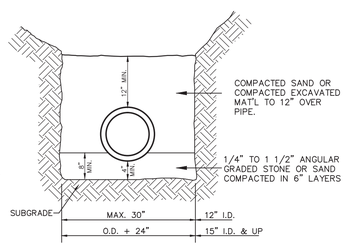
TRAP SHALL BE BULKHEADED IN OUTLET PIPE AND SHALL BE A SCH 40 PVC ASSY WITH A PIPE AREA NO LESS THAN 50% OF THE OUTLET PIPE.

ALTERNATE: USE "THE SNOUT" BASIN TRAP SYSTEM

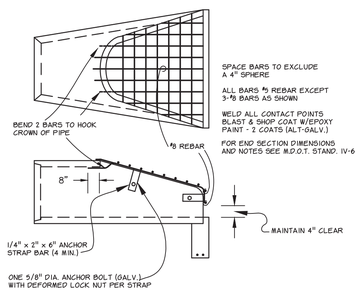
TRAPPED CATCH BASIN



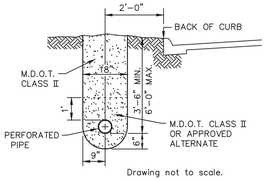
PIPE BEDDING
FOR PLASTIC PIPE



CLASS "B" BEDDING
FOR SEWER PIPE
LESS THAN 48"

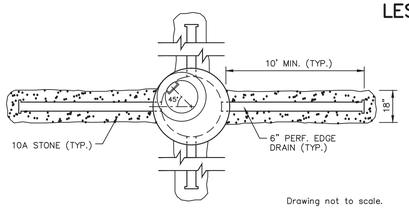


BAR SCREEN DETAIL



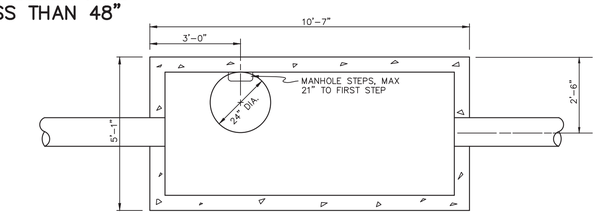
Drawing not to scale.

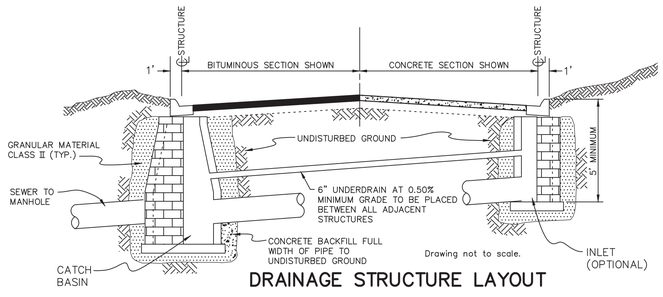
EDGE DRAIN DETAIL



Drawing not to scale.

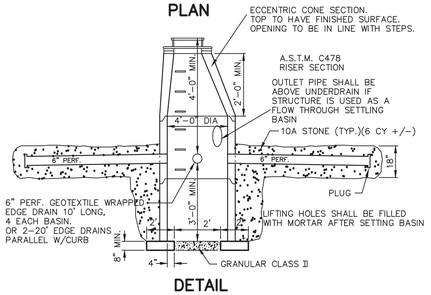
PLAN



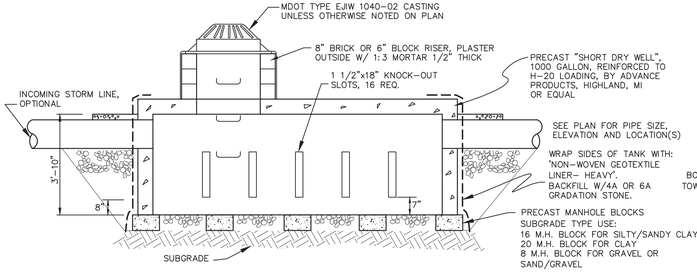


Drawing not to scale.

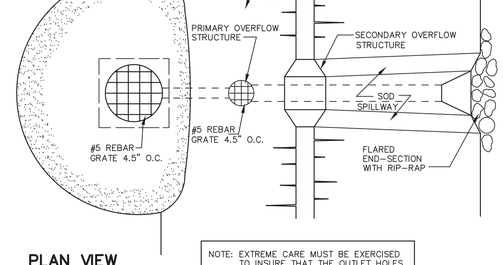
DRAINAGE STRUCTURE LAYOUT



DETAIL
STANDARD LEACHING BASIN

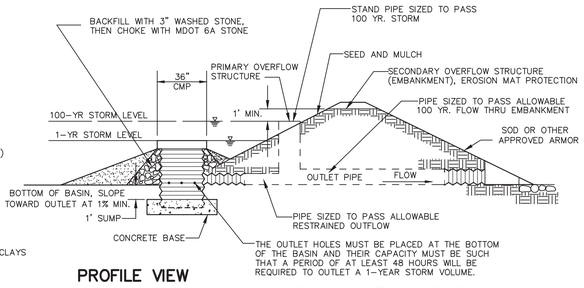


1000 GALLON LEACHING/SETTLING BASIN



PLAN VIEW

NOTE: EXTREME CARE MUST BE EXERCISED TO INSURE THAT THE OUTLET HOLES IN THE STANDPIPE, DO NOT BECOME CLOGGED WITH SEDIMENT.



PROFILE VIEW

SO–2 DETENTION BASIN OUTLET FILTER (CMP)

(SEE OCDC STANDARD DETAILS FOR SEDIMENT BASIN OR FOREBAY OUTLET STRUCTURE)

DRAWN: CAD
DESIGN: OA
CHECKED: –

SCALE: VERT. –
HORZ. AS NOTED

REVISIONS

MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
	FIRST ISSUE	08/16/95		REVISE	10–03–02		REVISE	06–01–07
	ADD SO–1	06–17–96		REVISE	12–17–03		UPDATED TITLE BLOCK	04/30/13
	NEW BAR GRATE	11–03–97		SEC REFERENCE	05–17–05			

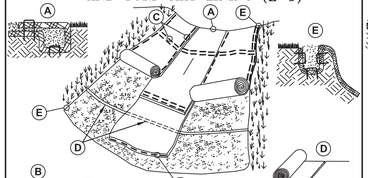
Johnson&Anderson
4494 Elizabeth Lake Road, Waterford, Michigan 48328, tel (248) 681-7800 fax (248) 681-2660
1060 W. Norton Avenue, Suite 7, Muskegon, Michigan 49441, tel (231) 780-3100 fax (231) 780-3115
3910 Lapeer Road, Port Huron, Michigan 48060, tel (810) 987-7820 fax (810) 987-7895
White Lake Township
7525 Highland Road (M-59)
White Lake, Michigan 48383
248-698-3300

STORM SEWER
STANDARD DETAILS

JOB NO.
DATE ISSUED 08/16/95
SHEET NO.

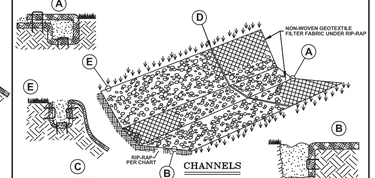
Item A.

EROSION CONTROL BLANKETS AND TURF MAT LINING (E-9)



DEPENDING ON THE VELOCITY, SLOPE, SOILS, USE PROPER BLANKET OR TURF MAT LINING PER MANUFACTURER'S SPECIFICATIONS TO HANDLE THE SHEER STRESSES OF THE SLOPE/CHANNEL.

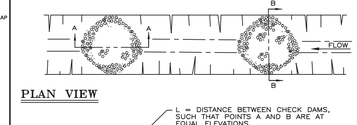
RIP-RAP: CHANNELS AND SLOPES (E-10)



VELOCITY	AVG. ROCK SIZE
6 fps	5 IN.
8 fps	10 IN.
10 fps	14 IN.
12 fps	20 IN.

DEPENDING ON THE VELOCITY, SLOPE AND SOILS, USE THE PROPER SIZED RIP-RAP AND NON-WOVEN GEOTEXTILE FABRIC TO HANDLE THE SHEER STRESS OF THE SLOPE/CHANNEL.

CHECK DAMS (E-3)



VELOCITY	AVG. ROCK SIZE
6 fps	5 IN.
8 fps	10 IN.
10 fps	14 IN.
12 fps	20 IN.

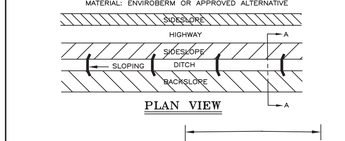
NOTE: CHECK DAMS GREATER THAN TWO FEET IN DEPTH MAY SERIOUSLY IMPACT THE FLOW CHARACTERISTICS OF THE DITCH.

-DEPENDING ON THE VELOCITY, SLOPE AND SOILS, USE THE PROPER SIZED RIP-RAP TO HANDLE THE SHEER STRESS OF THE SLOPE/CHANNEL.

-FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THIS SHEET OR IN THE WRC SOIL EROSION MANUAL.

CHECK DAMS ALTERNATIVE "A" (E-3A)

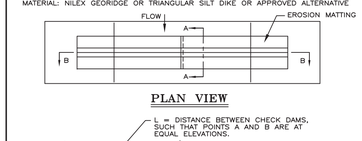
MATERIAL: ENVIROBERM OR APPROVED ALTERNATIVE



-FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THIS SHEET OR IN THE WRC SOIL EROSION MANUAL.

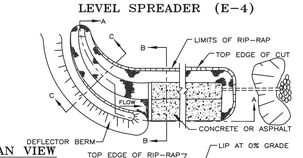
CHECK DAMS ALTERNATIVE "B" (E-3B)

MATERIAL: NILEX GEORIDGE OR TRIANGULAR SILT DIKE OR APPROVED ALTERNATIVE

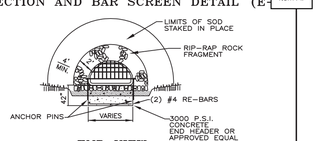


-FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THIS SHEET OR IN THE WRC SOIL EROSION MANUAL.

LEVEL SPREADER (E-4)



RIP-RAP, END SECTION AND BAR SCREEN DETAIL (E-

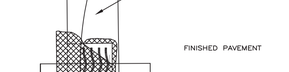


NOTE:
-BAR SCREEN DETAILS PER MDOT ROAD & BRIDGE STANDARD PLANS, STEEL GRATES FOR END SECTIONS. BARS ARE TO BE CUT OFF AT EDGE OF END SECTION.
-FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THIS SHEET OR IN THE WRC SOIL EROSION MANUAL.

VEGETATIVE BUFFER ZONE (SP-1)

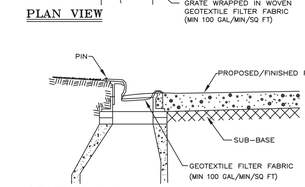
THE GRAPH SHOWN BELOW IS USED TO DETERMINE THE ADEQUACY OF AN EXISTING VEGETATIVE BUFFER ZONE FOR USE AS A SEDIMENT FILTER. THIS GRAPH IS ONLY APPLICABLE IF THE VEGETATION IS 90% DENSE AND AT LEAST 1" IN LENGTH OVER EVERY SQUARE FOOT OF DISTURBED SOIL. AN AREA COVERED WITH WEEDS, OR BUSHES AND TREES WITHOUT A GOOD GROUND COVER IS NOT ACCEPTABLE.

EXAMPLE



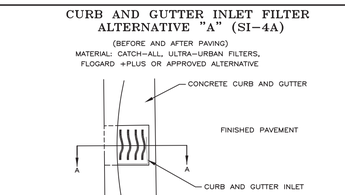
LENGTH OF BUFFER ZONE = ?
% OF SLOPE OF BUFFER ZONE = 5%
WHAT IS THE ACCEPTABLE LENGTH OF THE BUFFER ZONE?

PLOT IN GRAPH BELOW
BUFFER ZONE IS ACCEPTABLE AT 65'



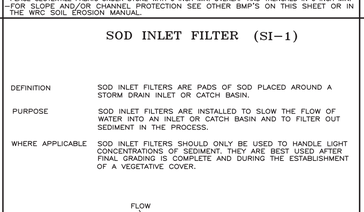
SILT FENCE (SP-2)

(MATERIAL: AMOCO PRO PEX 2130 OR APPROVED EQUIVALENT)

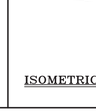


SILT FENCE ALTERNATIVE "A" (SP-2A)

(MATERIAL: SILT SHIELD OR APPROVED EQUIVALENT)



2% GRADE MAXIMUM SLOPE

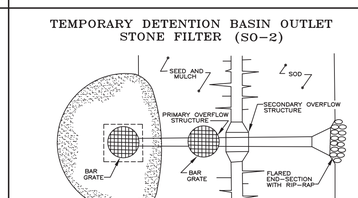


Splicing Procedure:
Splicing EXTRUDED SEDIMENT FILTER FENCE is achieved beginning with an overlap of a min. of 8" of the EXTRUDED SEDIMENT FILTER FENCE ends being joined. Then use plastic retainer type push-in fasteners. Locate these every six inches vertically, at least 2" from each edge of the splice.

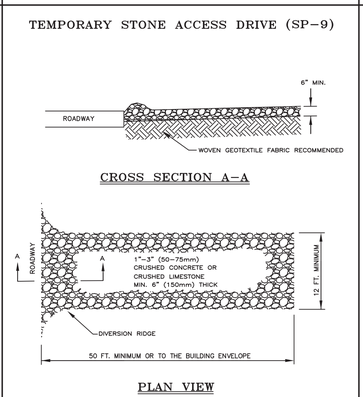
Optional Heat Splicing:
Overlap a minimum of eight inches. Melt a thin layer of EXTRUDED SEDIMENT FILTER FENCE with torch from top to bottom. Immediately press both layers together for a minimum of 5 second. Check for total lamination from top to bottom of material. (Do not apply heat to filter)

WINTER/FROZEN GROUND SILT FENCE (SP-2W)

(MATERIAL: AMOCO PRO PEX 2130 OR APPROVED EQUIVALENT)

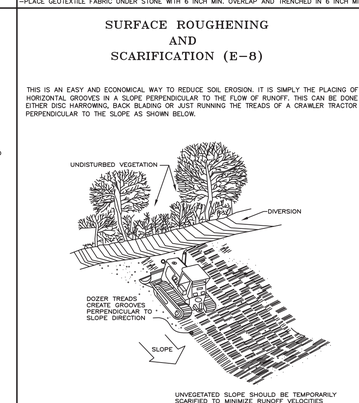


RYCB INLET FILTER (SI-3)



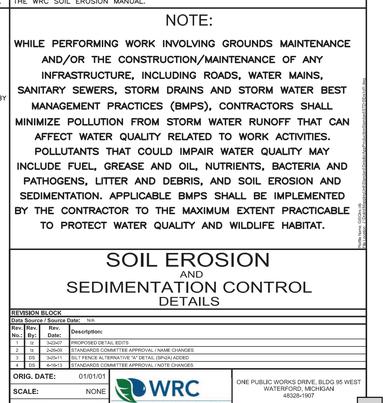
NOTE: MATERIAL IS NOT SILT FENCE MATERIAL

RYCB INLET FILTER ALTERNATIVE "A" (SI-3A)



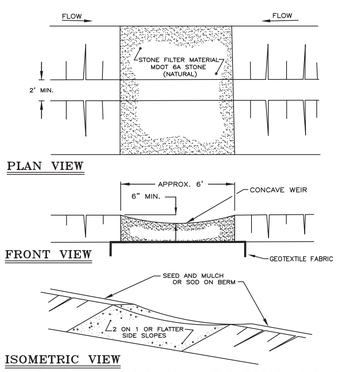
RYCB INLET FILTER ALTERNATIVE "B" (SI-3B)

MATERIAL: SILT SAVER OR APPROVED ALTERNATIVE



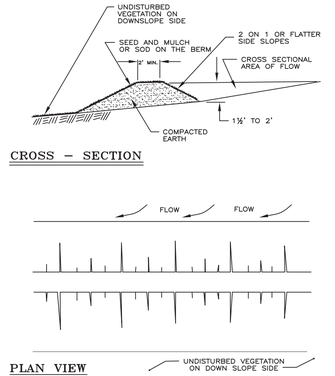
(NOTE: NO PIT REQUIRED WHEN FRAME AND COVER OR GRATE AND COVER ARE IN PLACE.)

EARTH DIVERSION BERM WITH STONE OUTLET FILTER (SP-4)

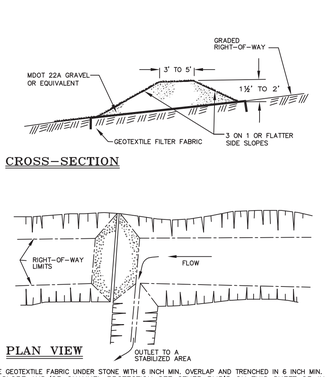


-PLACE GEOTEXTILE FABRIC UNDER STONE WITH 6 INCH MIN. OVERLAP AND TRENCHED IN 6 INCH MIN.

EARTH DIVERSION BERM (E-2)



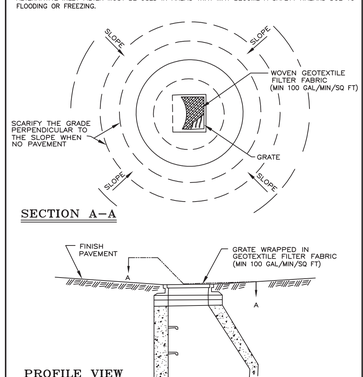
GRAVEL INTERCEPTOR DIKE (SP-6)



-PLACE GEOTEXTILE FABRIC UNDER STONE WITH 6 INCH MIN. OVERLAP AND TRENCHED IN 6 INCH MIN.
-FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THIS SHEET OR IN THE WRC SOIL EROSION MANUAL.

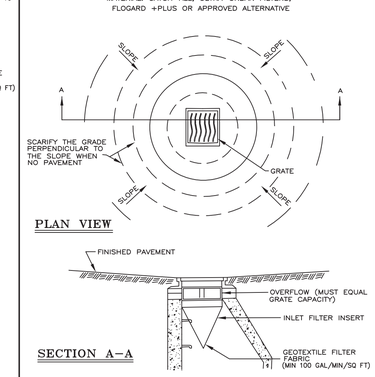
LOW POINT INLET FILTER (SI-2)

ALTERNATIVE INLET FILTER MUST BE USED IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING.

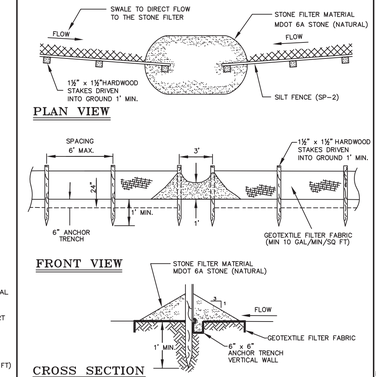


LOW POINT INLET FILTER ALT. "A" (SI-2A)

MATERIAL: CATCH-ALL, ULTRA-URBAN FILTERS, FLOGARD +PLUS OR APPROVED ALTERNATIVE

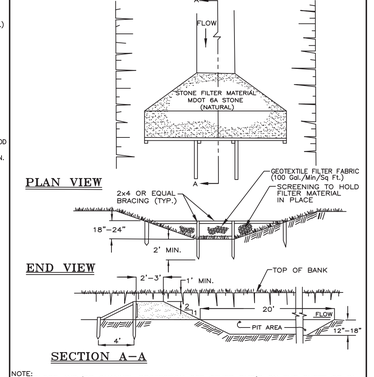


SILT FENCE GRAVEL FILTER (SP-3)



-PLACE GEOTEXTILE FABRIC UNDER STONE WITH 6 INCH MIN. OVERLAP AND TRENCHED IN 6 INCH MIN.

DITCH SEDIMENT TRAP (SO-4)



NOTE:
FOR SLOPE AND/OR CHANNEL PROTECTION SEE OTHER BMP'S ON THE SHEET OR IN THE WRC SOIL EROSION MANUAL.

CURB AND GUTTER INLET FILTER (SI-4)

(BEFORE AND AFTER PAVING)

ALTERNATIVE INLET FILTER MUST BE USED IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING.

CURB AND GUTTER INLET FILTER ALTERNATIVE "A" (SI-4A)

(BEFORE AND AFTER PAVING)

MATERIAL: CATCH-ALL, ULTRA-URBAN FILTERS, FLOGARD +PLUS OR APPROVED ALTERNATIVE

SOD INLET FILTER (SI-1)

DEFINITION	SOD INLET FILTERS ARE PADS OF SOD PLACED AROUND A STORM DRAIN INLET OR CATCH BASIN.
PURPOSE	SOD INLET FILTERS ARE INSTALLED TO SLOW THE FLOW OF WATER INTO AN INLET OR CATCH BASIN AND TO FILTER OUT SEDIMENT IN THE PROCESS.
WHERE APPLICABLE	SOD INLET FILTERS SHOULD ONLY BE USED TO HANDLE LIGHT CONCENTRATIONS OF SEDIMENT. THEY ARE BEST USED AFTER FINAL GRADING IS COMPLETE AND DURING THE ESTABLISHMENT OF A VEGETATIVE COVER.

TEMPORARY DETENTION BASIN OUTLET STONE FILTER (SO-2)

TEMPORARY STONE ACCESS DRIVE (SP-9)

SURFACE ROUGHENING AND SCARIFICATION (E-8)

THIS IS AN EASY AND ECONOMICAL WAY TO REDUCE SOIL EROSION. IT IS SIMPLY THE PLACING OF HORIZONTAL GROOVES IN A SLOPE PERPENDICULAR TO THE FLOW OF RUNOFF. THIS CAN BE DONE BY EITHER DISC HARROWING, BACK BLADING OR JUST RUNNING THE TREADS OF A CRAWLER TRACTOR PERPENDICULAR TO THE SLOPE AS SHOWN BELOW.

UNVEGETATED SLOPE SHOULD BE TEMPORARILY SCARIFIED TO MINIMIZE RUNOFF VELOCITIES

NOTE:

WHILE PERFORMING WORK INVOLVING GROUNDS MAINTENANCE AND/OR THE CONSTRUCTION/MAINTENANCE OF ANY INFRASTRUCTURE, INCLUDING ROADS, WATER MAINS, SANITARY SEWERS, STORM DRAINS AND STORM WATER BEST MANAGEMENT PRACTICES (BMPS), CONTRACTORS SHALL MINIMIZE POLLUTION FROM STORM WATER RUNOFF THAT CAN AFFECT WATER QUALITY RELATED TO WORK ACTIVITIES. POLLUTANTS THAT COULD IMPAIR WATER QUALITY MAY INCLUDE FUEL, GREASE AND OIL, NUTRIENTS, BACTERIA AND PATHOGENS, LITTER AND DEBRIS, AND SOIL EROSION AND SEDIMENTATION. APPLICABLE BMPS SHALL BE IMPLEMENTED BY THE CONTRACTOR TO THE MAXIMUM EXTENT PRACTICABLE TO PROTECT WATER QUALITY AND WILDLIFE HABITAT.

SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

REVISION BLOCK				
Data Source / Source Date: N/A				
Rev. No.	Rev. By:	Rev. Date:	Description:	
1	K	3-22-07	PROPOSED DETAIL EDITS	
2	LK	2-26-09	STANDARDS COMMITTEE APPROVAL / NAME CHANGES	
3	DS	3-25-13	SILT FENCE ALTERNATIVE "A" DETAIL (SP-2A) ADDED	
4	DS	4-15-13	STANDARDS COMMITTEE APPROVAL / NOTE CHANGES	

ORIG. DATE:	01/01/01	WRC WATER RESOURCES COMMISSIONER Jim Nash	ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERFORD, MICHIGAN 48328-1907
SCALE:	NONE		
DESIGNED BY:	WRC		SHEET NO.: 1 of 1
DRAWN BY:	Mapping		

WHITEWATER CARWASH

9345 Highland Road
White Lake, MI 48386

Owner:

EROP, LLC
3130 N. Kandy Lane
Decatur, IL 62526

Project Data

Code Information

Design Code	2015 Michigan Building Code
Occupancy Classification:	(B) Business-Car Wash
Construction Type:	2B*
Building Height:	24'-0", 1 Story
Building Hgt Allowed:	55', 3 Story
Building Area:	3,760 Gross SF
Building Area Allowed:	23,000 Gross SF
Fire Suppression:	None Req'd./None Provided
Fire Detection:	None Req'd./None provided
Occupancy Load	2 persons actual (37 Persons calc.)**
Minimum # of Exits:	
Maximum Travel Distance:	200' allowable(non-sprinkled)
Exit Separation:	
Design Code:	2015 Michigan Plumbing Code
Min. # of Req'd Plumbing Fixtures:	(1) WC, (1) Lav, (1) Drink. Fountain, (1) Service Sink
Plumbing Fixtures Provided:	(1) WC, (1) Lav, (1) Service Sink, Bottled Water***

Additional Codes:

2015 Michigan Mechanical Code
2015 International Fuel Gas Code
NFPA 70-2017 National Electrical Code
2012 International Energy Conservation Code
NFPA Life Safety Code
2010 ADA Standards for Accessible Design & ICC/ANSI A117.1-2009

* Non-combustible load bearing cmu exterior walls w/ non-combustible concrete hollow core roof structure. Interior walls: cmu walls and steel stud walls. blocking/wood based sheathing used shall be fire treated.

** 3,760 sf @ 100sf/occupant = 37 persons. Actual condition is unoccupied, except for (2) employees.

*** Bottled water shall be provided in lieu of water cooler.

Bid Alternates

Permit Set: 03/25/2022

Revision List

NO.	DATE	DESCRIPTION
--	---	---

Inspection Scheduling

1. Work may not begin until a permit has been issued - for that trade work.
2. Contractors are responsible for setting up inspection throughout the project a day in advance, inspections are scheduled until 4:45pm for the following day.
   a) If a time is needed for inspection, the contractor shall call the office between 8:00-9:00am to speak with the inspector.
   b) Special circumstances for inspection may be pre-arranged and scheduled in advance.

Required Inspections

1. Required inspections. [A] 110.3.9 For special inspections, see Chapter 17 - (if applicable)
2. Footing Inspection - [A]110.3.1 After forms and re-bar are in place and on-site, soil testing by approved company has been done (if required)
3. Grounding/Ufer inspection - if required. Is done at same time as footing inspection - NEC
4. Wall-rebar inspection - [A]110.3.8 - If walls/foundation have re-bar reinforcement.
5. Concrete Slab Inspection - [A]110.3.2 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories, and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.
6. Rough Framing Inspection - [A]110.3.4 is required after ALL other rough inspections have been approved.
7. Insulation Inspection - [A]110.3.7 energy Efficiency inspections.
8. Final Building Inspection for C-of-O - [A]110.3.10 Final inspection. The final inspection shall be made after all work required by the building permit is completed.
   a) Final Zoning inspection and Fire Inspection may be required.

REB ARCHITECTS
103 WIND HAVEN DR, STE 101
NICHOLASVILLE KY 40356
859.523.1500

STATE OF MICHIGAN
ROBERT E. BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

WHITEWATER CARWASH 9345 Highland Rd. White Lake, MI 48386

Architectural Symbols

- ELEVATION INDICATOR
- STRUCTURAL LINE
- WOOD OR METAL STUD WALL (LARGE SCALE)
- CONCRETE BLOCK
- BRICK
- CONCRETE
- NEW CONSTRUCTION
- PERIMETER OR RIGID INSULATION
- BATT INSULATION (LARGE SCALE)
- EXTERIOR ELEVATION (A/A200)
- DOOR NUMBER (105)
- WINDOW MARK (A)
- ROOM NAME & NUMBER (STORAGE 102)
- DETAIL INDICATOR (A A501)
- MAJOR SECTION INDICATOR (A A104)
- WALL/ PARTITION TYPE (1)
- SIGNAGE NOTES (2)
- CODED NOTES (2)
- CEILING HEIGHT & TYPE (9'-0" A)
- FIRE RESISTANCE RATING (1 HOUR)
- INTERIOR ELEVATION (A A105)
- NORTH ARROW (N)
- ADDENDUM INDICATOR (2)
- BID ALTERNATE INDICATOR (2)

Abbreviations

A
APPROX. APPROXIMATE
@ - AT

B
BLK. - BLOCK
BM. - BEAM
BM. - BENCH MARK
BOTT. - BOTTOM
BR'G. - BEARING

C
C.B. - CATCH BASIN
C.J. - CONTROL JOINT
CL'G. - CEILING
C.O. - CLEAN OUT
CONC. - CONCRETE
CONST. - CONSTRUCTION
CONT. - CONTINUOUS
CONTR. - CONTRACTOR
CSK. - COUNTERSUNK

D
DET. - DETAIL
DIA. - DIAMETER
D.W. - DRYWALL
DWG. - DRAWING

E
EA. - EACH
EL. - ELEVATION
ELEC. - ELECTRIC
EW. - EACH WAY
E.W.C. - ELECTRIC WATER COOLER
EXIST. - EXISTING
EXPN. B. - EXPANSION BOLT
EXPN. JT. EXPANSION JOINT

F
F.D. - FLOOR DRAIN
F.E. - FIRE EXTINGUISHER
FIN. - FINISH
FL. - FLOOR
FT'G. - FOOTING
FT. - FOOT

G
GA. - GAUGE
GALV. - GALVANIZE
GL. - GLASS

H
H.B. - HOSE BIBB
HDWE. - HARDWARE
H.M. - HOLLOW METAL
HORIZ. - HORIZONTAL
HT. - HEIGHT
H.C. - HOLLOW CORE

I
I.D. - INSIDE DIAMETER
INSUL. - INSULATION
INV. - INVERT

J
JT. - JOINT

LAM. - LAMINATE
LAV. - LAVATORY
LONG. - LONGITUDINAL

M
MAT'L. - MATERIAL
MAX. - MAXIMUM
MECH. - MECHANICAL
MANF. - MANUFACTURER
MIN. - MINIMUM
MISC. - MISCELLANEOUS
M.O. - MASONRY OPENING
MT'L. - METAL

N
N.I.C. - NOT IN CONTRACT
NO. - NUMBER

O
O.C. - ON CENTER
O.D. - OUTSIDE DIAMETER
OPN'G. - OPENING

P
P.L. - PROPERTY LINE
P.S.I. - POUNDS PER SQUARE INCH
PL - PLATE

Q

R
R - RADIUS
REF. - REFRIGERATOR
REINF. - REINFORCING
REQ'D. - REQUIRED
RM. - ROOM
R.O. - ROUGH OPENING

S
SECT. - SECTION
S.F. - SQUARE FOOT
SHT. - SHEET
SPEC. - SPECIFICATION
SQ. - SQUARE
S.S. - STAINLESS STEEL
ST'L. - STEEL
SUSP. - SUSPENDED
SVS. - SERVICE SINK

T
THK. - THICK
TYP. - TYPICAL

U

V
VERT. - VERTICAL
V.I.F. - VERIFY IN FIELD
V.T.R. - VENT THROUGH ROOF

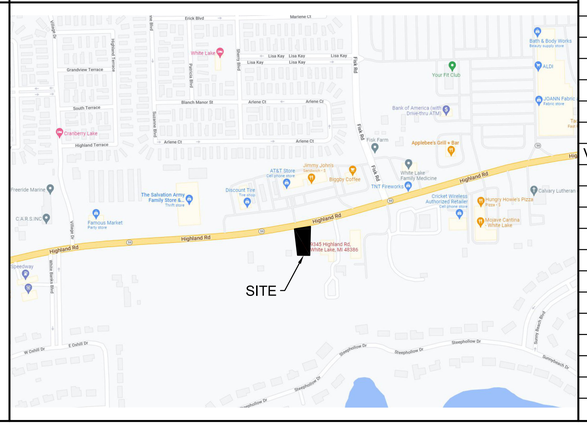
W
W/ - WITH
WD. - WOOD
W.C. - WATER CLOSET
WDW. - WINDOW
W.W.F. - WELDED WIRE FABRIC

REFER TO MPE SHEETS FOR MECHANICAL, PLUMBING, AND ELECTRICAL LEGENDS

General Requirements Notes

1. PRIOR TO STARTING CONSTRUCTION THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION OF ANY ITEM SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED ALL REGULATORY AUTHORITIES. FAILURE OF THE CONTRACTOR TO FOLLOW THIS PROCEDURE SHALL CAUSE THE CONTRACTOR TO ASSUME FULL RESPONSIBILITY FOR ANY SUBSEQUENT MODIFICATION OF THE WORK MANDATED BY ANY REGULATORY AUTHORITY.
2. DUE TO THE NATURE OF THE WORK, ALL DIMENSIONS SHOWN SHALL BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO BEGINNING CONSTRUCTION.
3. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION OF ANY ITEM. FAILURE TO ADHERE TO THIS PROCEDURE SHALL PLACE FULL RESPONSIBILITY FOR ANY ERRORS DIRECTLY UPON THE CONTRACTOR.
4. CALL TOLL FREE 1-800-752-6007 TWO (2) WORKING DAYS BEFORE YOU DIG.
5. DUE TO THE NATURE OF THE WORK THE CONTRACTOR WILL NEED TO EXAMINE THE EXISTING SITE CONDITIONS PRIOR TO BIDDING.
6. WHEN 'INSTALL' IS USED ON THIS DOCUMENT, IT IS TO MEAN: PROVIDE ITEM AND PLACE INTO USEABLE SERVICE WHILE OBSERVING ALL APPLICABLE CODES AND CONTRACT DOCUMENTS.
7. SEED ALL AREAS, NOT OTHER WISE INDICATED, WHICH HAVE BEEN DISTURBED BY THIS CONSTRUCTION OR DAMAGED BY CONTRACTORS WORK FORCES DURING THE COURSE OF THIS CONSTRUCTION.
8. ALL HVAC, PLUMBING AND ELECTRICAL WORK SHALL BE PERFORED BY CONTRACTORS LICENSED IN THE STATE OF MICHIGAN AND REGISTERED WITH THE LOCAL AUTHORITY OF JURISDICTION (IF REQ'D BY LOCAL AUTHORITY)
9. A MECHANICAL PERMIT IS REQUIRED FOR THE ROOFTOP & CEILING MOUNTED HVAC EQUIPMENT.
10. SPECIAL INSPECTIONS: THE GENERAL CONTRACTOR AND /OR OWNER SHALL BE RESPONSIBLE TO PROVIDE SPECIAL INSPECTIONS AND TESTING BY AN APPROVED INDEPENDENT QUALITY CONTROL TESTING FIRM. SPECIAL INSPECTIONS AND TESTING SHALL INCLUDE THE FOLLOWING:
    a. COMPACTION OF STRUCTURAL FILL
    b. BUILDING CONCRETE STRENGTH AND QUALITY
    c. CONCRETE ROOF PLANKS STRENGTH AND QUALITY.

Vicinity Map (N.T.S.)



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STATE OF MICHIGAN
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REVISION	DATE

3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

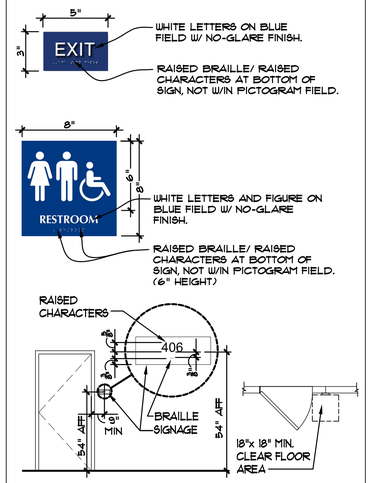
Hypershine Carwash
9345 Highland Road
White Lake MI 48386
General Information

SHEET NUMBER
G-1

GENERAL PROJECT NOTES

1. THE CONTRACTORS SHALL REFER TO ALL ARCHITECTURAL DRAWINGS FOR DETAILS OF BUILDING CONSTRUCTION TO INSURE SPACE AND SATISFACTORY ARRANGEMENT FOR THEIR WORK. THE VARIOUS DRAWINGS COMPRISING THE SET ARE INTERDEPENDENT AND MUST BE USED JOINTLY AT ALL TIMES. EACH CONTRACTOR SHOULD REFER TO THE GENERAL REQUIREMENTS OF THE CONTRACT. THESE NOTES ARE FOR THE GUIDANCE OF ALL TRADES INVOLVED IN THE PROJECT AND MUST BE FOLLOWED TO EXECUTE THE WORK AS INTENDED. IF DISCREPANCIES OCCUR, CONTACT THE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING.
   A. IF A PARTICULAR ITEM OR ITEMS WITHIN THE CONTRACT DOCUMENTS ARE AT VARIANCE WITH ONE ANOTHER, THE CONTRACTOR SHALL BRING THIS TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION. CONTRACTOR SHALL BASE HIS PROPOSAL ON THE BETTER QUALITY OR MORE EXPENSIVE OF THE CONDITIONS INDICATED OR NOTED. CONSTRUE AN ITEM OR EQUIPMENT SPECIFIED UNDER ONE TRADE AS BINDING AS IF SPECIFIED UNDER ALL APPLICABLE TRADES.
   B. SCALING OF DRAWINGS IS PROHIBITED. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. CLARIFICATIONS OR INFORMATION REQUIRED BY THE CONTRACTOR SHALL BE FURNISHED, UPON REQUEST BY THE ARCHITECT. WRITTEN CONFIRMATION OF ALL CLARIFICATIONS SHALL BE FURNISHED BY THE CONTRACTOR SHOULD THE CLARIFICATION CHANGE THE CONTRACT AMOUNT OR THE SCHEDULE.
   C. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL REVIEW THE CONTRACT DOCUMENTS TO FAMILIARIZE HIMSELF WITH THE REQUIREMENTS AND INTENT OF THE SCOPE OF THE WORK PRIOR TO BID. ANY DEFICIENCIES OR DISCREPANCIES DISCOVERED SHALL BE REPORTED TO THE ARCHITECT FOR REVIEW AND CLARIFICATION.
   D. THESE DRAWINGS REPRESENT THE DESIGN INTENT OF THE ARCHITECT AND IN NO WAY ARE THEY MEANT TO DIRECT THE CONTRACTOR'S PERFORMANCE.
   E. THE CONTRACTOR IS RESPONSIBLE FOR THE STRUCTURAL STABILITY OF ALL BUILDING COMPONENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS AND COORDINATION OF WORK.
2. THE CONTRACTOR SHALL REVIEW AND COORDINATE THE SCHEDULING OF ALL CONSTRUCTION WITH THE OWNER AND/OR OWNER'S REPRESENTATIVE AND SHALL SUBMIT A COMPLETION SCHEDULE FOR THE WORK WITH THE BID PROPOSAL.
   A. EACH CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF HIS WORK WITH THE WORK OF SUBCONTRACTORS OR OTHER CONTRACTORS.
   B. THE CONTRACTOR SHALL SUBMIT SAMPLES OF ALL OWNER SELECTED FINISHES FOR OWNER'S REVIEW AND APPROVAL PRIOR TO PURCHASING AND/OR INSTALLATION.
   C. CONTRACTOR SHALL SUBMIT PRODUCT LITERATURE ON ALL FIXTURE TYPES TO OWNER FOR APPROVAL.
   D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL APPLICABLE MANUFACTURER'S PRODUCT GUARANTEES AND/OR WARRANTIES AND SHALL SUBMIT COPIES OF EACH TO THE OWNER.
   E. CONTRACTOR SHALL SUBMIT CERTIFICATES TO THE ARCHITECT EVIDENCING THAT ALL REQUIRED INSURANCE HAS BEEN OBTAINED AT LEAST FIVE DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
   F. CONSTRUCTION SHALL NOT COMMENCE UNTIL BUILDING PERMITS HAVE BEEN SECURED AND CERTIFICATE OF INSURANCE DELIVERED TO THE ARCHITECT.
   G. CONTRACTORS SHALL NOT PROCEED WITH ANY WORK, ORDERING OF ANY MATERIAL, OR AWARDING OF ANY CONTRACTS FOR WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT WITHOUT WRITTEN AUTHORIZATION FROM THE ARCHITECT. THE FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.
   H. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING AND RECEIVE APPROVAL BEFORE ORDERING OR INSTALLING ITEMS OR MATERIALS WHICH ARE PROPOSED EQUALS. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED WITH THE BID PROPOSAL WITH ADD OR DEDUCT PRICING FOR THE ITEMS OR SYSTEMS SPECIFIED IN THE CONTRACT DOCUMENTS.
   I. AREAS FOR MATERIAL STORAGE, TRASH DISPOSAL, WORKMAN'S PARKING, ETC. SHALL BE COORDINATED WITH THE OWNER'S REP.
   J. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR ITEMS FURNISHED AND/OR INSTALLED BY OTHERS FOR EXACT LOCATIONS, PROPER FITTINGS, REQUIRED MEP (UTILITIES) AND SCHEDULE THEM FOR WORK.
   K. PRIOR TO PREPARING BID SUBMISSION, THE CONTRACTOR SHALL INCLUDE ARRANGEMENTS AND PAYMENT FOR ALL COSTS ASSOCIATED WITH TEMPORARY WATER, PLUMBING, POWER, LIGHTING, HEATING AND VENTILATION CONTRACTOR DEEMS NECESSARY TO PROPERLY CONDUCT HIS WORK. THE CONTRACTOR SHALL INCLUDE THIS COST.
   L. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE OWNER THE LOCATION FOR ALL ELECTRICAL OUTLETS, TELEPHONE OUTLETS, AND MODIFY THE MECHANICAL AND PLUMBING SYSTEMS AS REQUIRED.
3. THE WORK SHALL BE GOVERNED BY THE 2017 A.I.A. DOCUMENT A-201 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION UNLESS OTHERWISE DETERMINED BY OWNER.
4. ALL WORK SHALL CONFORM WITH LOCALLY ADOPTED BUILDING CODES, LOCALLY ADOPTED MUNICIPAL CODES/ORDINANCES AND REGULATIONS OF ALL OTHER AGENCIES HAVING JURISDICTION, INCLUDING OSHA. REFER TO COVER SHEET FOR ADOPTED CODES.
   A. THE CONTRACTOR SHALL COMPLY WITH ALL AUTHORITIES AND SHALL SECURE ALL NECESSARY INSPECTIONS, TESTS AND APPROVALS FOR ALL TRADES, AS WELL AS PAY FOR SUCH COSTS.
   B. CONTRACTOR SHALL FORWARD ALL TRANSACTION INFORMATION TO THE OWNER'S REPRESENTATIVE.
   C. THE CONTRACTOR SHALL FILE AND OBTAIN BUILDING DEPARTMENT APPROVALS, PERMITS, CONTROLLED INSPECTIONS, OTHER AGENCY APPROVAL AND PERMITS WHERE REQUIRED AND FINAL WRITE OFFS FOR PROJECT COMPLETION. COPIES OF ALL TRANSACTIONS TO BE FORWARDED TO THE OWNER'S REPRESENTATIVE. COMPLETE DOCUMENTATION OF FINAL WRITE-OFFS FOR PROJECT COMPLETION AND CONTROLLED INSPECTION REPORTS ARE TO BE SUBMITTED TO THE OWNER'S REPRESENTATIVE DURING OR PRIOR TO FINAL PAY-OUT REQUEST.
   D. THE CONTRACTOR OR HIS SURETIES SHALL REMEDY ANY DEFECTS IN THE WORK AND PAY FOR ANY DAMAGE OR OTHER WORK RESULTING THERE FROM WHICH SHALL APPEAR WITHIN A PERIOD OF ONE (1) YR. FROM THE DATE OF FINAL ACCEPTANCE UNLESS A LONGER PERIOD IS OTHERWISE SPECIFIED OR A DIFFERENT WARRANTY PERIOD HAS BEEN ESTABLISHED IN THE SUBSTANTIAL COMPLETION CERTIFICATION.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SUPERVISION AND DIRECTING OF THE WORK AND SHALL USE HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, AND FOR THE COORDINATION OF ALL PORTION OF THE WORK. ADDITIONALLY, THE CONTRACTOR SHALL BE SOLEY RESPONSIBLE FOR MAINTAINING SAFE CONDITIONS AT THE PROJECT SITE AND FOR THE SAFETY OF HIS SUBS AND ALL OTHERS UNDER HIS EMPLOY. THE ARCHITECT HAS NO STOP WORK AUTHORITY.
   A. THE CONTRACTOR SHALL DO ALL CUTTING, FITTING, AND PATCHING THAT MAY BE REQUIRED TO MAKE THE SEVERAL PARTS OF THE WORK TO RECEIVE OR THE RECEIVED BY THE WORK OF OTHERS OR OUTSIDE VENDORS AS SHOWN UPON OR REASONABLY IMPLIED BY THE DRAWINGS AND SPECIFICATIONS.
   B. THE CONTRACTOR SHALL PATCH ALL HOLES AND CHASES, BOTH ABOVE AND BELOW THE CEILING CREATED BY THE WORK OF ALL THE TRADES INSTALLATION.
   C. THE CONTRACTOR SHALL BE RESPONSIBLE, AT HIS OWN COSTS FOR STORAGE OF ALL OFF SITE MATERIALS TO BE INSTALLED UNDER THIS CONTRACT.
   D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING AND PROTECTING OWNER FURNISHED ITEMS.
   E. CONTRACTOR SHALL PROVIDE FOR ALL CHARGES ASSOCIATED WITH HOISTING AND/OR CARTING (CRANES AND THE LIKE).
   F. CONTRACTOR SHALL PROVIDE FOR ALL CHARGES ASSOCIATED WITH REFUSE DUMPSTER SERVICE. THE CONTRACTOR SHALL HAVE ALL REMOVALS AND DEBRIS CARTED FROM THE BUILDING PREMISES.
6. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR ALL ARRANGEMENTS AND MAINTENANCE OF TEMPORARY WATER AND PLUMBING, POWER, LIGHTING, AND HEATING OR VENTILATION AS MAY BE REQUIRED TO PROPERLY CONDUCT THE WORK. ALL HOISTING CHARGES, IF ANY, SHALL BE INCLUDED IN THE BASE BID.
7. THE CONTRACTOR SHALL COORDINATE WITH THE TELEPHONE INSTALLATION COMPANY AND THE OWNER'S REPRESENTATIVE CONCERNING ARRANGEMENTS AND PAYMENT FOR ALL COSTS ASSOCIATED WITH TELEPHONE INSTALLATION. THE CONTRACTOR SHALL INCLUDE THIS COST (IF APPLICABLE) IN HIS BID SUBMISSION AFTER COORDINATING THE ARRANGEMENTS WITH THE OWNER.
8. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FOR THE ENTIRE LENGTH OF THE WORK ALL EXITS, EXIT LIGHTING , FIRE PROTECTION DEVICES AND ALARMS TO CONFORM TO LOCAL BUILDING CODE REQUIREMENTS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE, AT HIS OWN COSTS, FOR STORAGE OF ALL MATERIALS TO BE INSTALLED UNDER THIS CONTRACT.
10. THE CONTRACTOR SHALL BE SOLEY RESPONSIBLE FOR PROTECTING THE BUILDING PREMISES AND ALL OCCUPANTS OF THE PROJECT SITE. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY COVERINGS, BOARDS, TEMPORARY PARTITIONS AND DOORS AS REQUIRED TO PROTECT ALL MATERIALS EXISTING ON THE JOB, EXISTING WORK, FINISHES TO REMAIN AT THE JOB SITE AND ALL AREAS OF THE BUILDING AFFECTED BY THE WORK.
   L. ALL NEW WORK AND CONSTRUCTION OPERATIONS SHALL NOT UNDERMINE THE STRUCTURAL INTEGRITY OF THE BUILDING.
   M. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND MAINTAIN APPROPRIATE TEMPORARY SHORING AS REQUIRED (WHEN NECESSARY.).
   N. CONTRACTOR AND ALL SUBCONTRACTORS SHALL HOLD HARMLESS THE ARCHITECT, HIS EMPLOYEES, AGENTS, AND THE OWNER AGAINST LOSS, DAMAGE, LIABILITY, OR ANY EXPENSE ARISING IN ANY MANNER FROM THE WRONGFUL ACTS, OR NEGLIGENCE OF CONTRACTOR OR HIS SUBCONTRACTORS AND THEIR RESPECTIVE EMPLOYEES.
   O. CONTRACTORS SHALL BE RESPONSIBLE FOR CONTAINING THEIR WORK WITHIN THE WORK AREA AND TO PROTECT THE PUBLIC FROM INJURIES AT ALL TIMES. CONTRACTOR SHALL SECURE THE WORK AT THE END OF EACH WORK DAY AND SHALL NOT PERMIT UNAUTHORIZED PERSONNEL TO CIRCULATE IN THE SPACE. ADDITIONALLY, THE CONTRACTOR SHALL RESTRICT HIS CREWS/PERSONNEL TO ACCESSING ONLY THE CONTRACTORS CONTROLLED WORK AREA. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY COVERINGS, BARRIERS, TEMPORARY PARTITIONS AND DOORS AS REQUIRED TO PROTECT ALL MATERIALS EXISTING ON THE JOB, EXISTING WORK, FINISHES TO REMAIN AT THE JOB SITE AND ALL AREAS OF THE BUILDING AFFECTED BY THE WORK.
   P. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FOR THE ENTIRE LENGTH OF THE WORK ALL EXITS, EXIT LIGHTING, FIRE PROTECTION DEVICES AND ALARMS TO CONFORM TO LOCAL BUILDING CODE REQUIREMENTS.
   Q. CONTRACTOR SHALL KEEP PREMISES CLEAN AND SHALL NOT LET DEBRIS, RUBBISH AND EXCESS CONSTRUCTION MATERIAL ACCUMULATE NOR OBSTRUCT EXITS AND EXIT PASSAGEWAYS.
   R. THE CONTRACTOR SHALL SECURE AND LOCK UP THE PREMISES AT THE END OF EACH WORK DAY, AND SHALL NOT PERMIT UNAUTHORIZED PERSONNEL TO CIRCULATE IN THE SPACE.
11. JUST PRIOR TO THE OWNER'S OCCUPANCY, CONTRACTOR SHALL CLEAN ALL SURFACES OF DIRT, LOOSE CONSTRUCTION MATERIALS AND EQUIPMENT AND LEAVE ALL FLOORS VACUUMED CLEAN. REMAINING CONSTRUCTION MATERIAL AND EQUIPMENT, IF ANY, SHALL BE MOVED AND TEMPORARILY SECURED IN AN AREA DIRECTED BY THE OWNER.
   A. WINDOWS SHALL BE WASHED AFTER CLEAN-UP AND JUST PRIOR TO FINAL COMPLETION MOVE-IN.
12. ALL PLUMBING SHALL BE INSTALLED BY A PLUMBER LICENSED BY THE STATE OF MICHIGAN.
   A. THE PLUMBING SYSTEM SHALL BE INSPECTED AND TESTED PER MICHIGAN PLUMBING CODE.
13. ALL WOOD BLOCKING AND FRAMING TO BE NONCOMBUSTIBLE. ALL WOOD TO BE FLAME RETARDANT WITH MAX FLAME SPREAD INDEX OF 25. COMBUSTIBLE MATERIAL NOT PERMITTED BY CONTRACTOR.
14. THE ARCHITECT HAS INFORMED THE OWNER OF ALL REQUIREMENTS AND REGULATIONS REGARDING THE AMERICANS WITH DISABILITIES ACT. THE OWNER IS RESPONSIBLE FOR COMPLIANCE WITH THESE REGULATIONS. THEREFORE THE ARCHITECT ACCEPTS NO RESPONSIBILITY FOR NON COMPLIANCE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GEO TECHNICAL TESTING TO VERIFY SOIL CONDITIONS AND ASSUMED SOIL BEARING PRESSURES CAN BE ACHIEVED.
   A. IF UNUSUAL SOIL CONDITIONS ARE PRESENT, NO WORK SHALL BE PERFORMED AND THE OWNER SHALL BE IMMEDIATELY NOTIFIED.
16. CONTRACTOR TO CONTACT "BEFORE YOU DIG" BEFORE ANY EXCAVATION BEGINS.

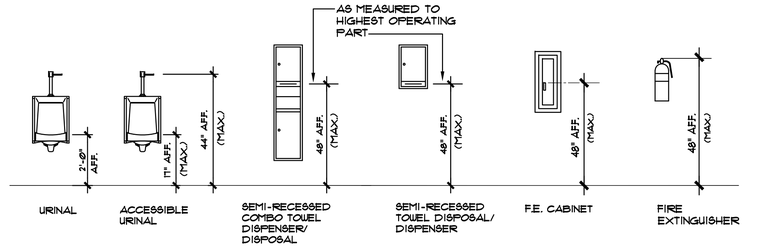
ADA RESTROOM SIGNAGE

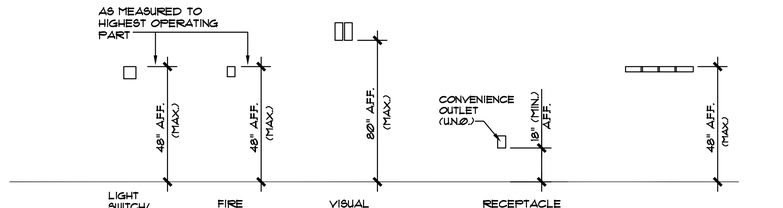


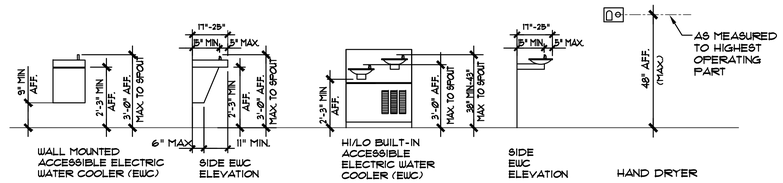
INTERIOR SIGNAGE REQUIREMENTS:

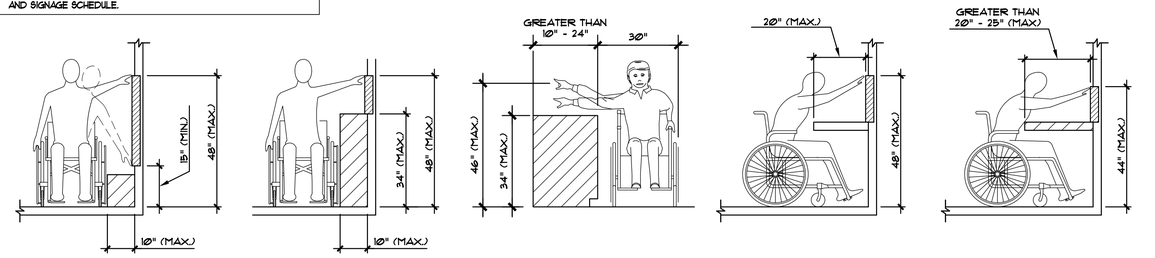
1. WHERE PERMANENT IDENTIFICATION IS PROVIDED FOR ROOMS AND SPACES, RAISED LETTERS SHALL BE PROVIDED AND SHALL BE ACCOMPANIED BY BRAILLE IN CONFORMANCE WITH 2010 ADA STANDARDS.
2. SIGNAGE SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH OUTSIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE, INCLUDING AT DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT. MOUNTING HEIGHT SHALL BE 48" MIN. TO BASELINE OF LOWERMOST TEXT AND 60" MAX. TO BASE LINE OF UPPERMOST TEXT.
3. SIGNS SHALL BE LOCATED SO THAT A CLEAR FLOOR AREA 18"X18" MIN. CENTERED ON THE RAISED CHARACTERS IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN CLOSED AND 45° OPEN
4. RAISED LETTERS SHALL BE PROVIDED, SAN SERIF, RAISED 1/32", 5/8" MIN-2" MAX. IN HEIGHT RAISED LETTERS SHALL BE ACCOMPANIED BY BRAILLE IN CONFORMANCE W/ 2010 ADAAG STANDARDS. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THE BACKGROUND. CHARACTERS SHALL BE UPPERCASE.
5. BRAILLE SHALL BE INSTALLED BELOW THE CORRESPONDING TEXT AND A MINIMUM OF 3/8" AWAY FROM RAISED LETTERS OR RAISED BORDERS OR DECORATIVE ELEMENTS OF A SIGN.

NOTE: SEE SHEET A1 FOR TYPICAL LOCATIONS OF SIGNAGE AND SIGNAGE SCHEDULE.



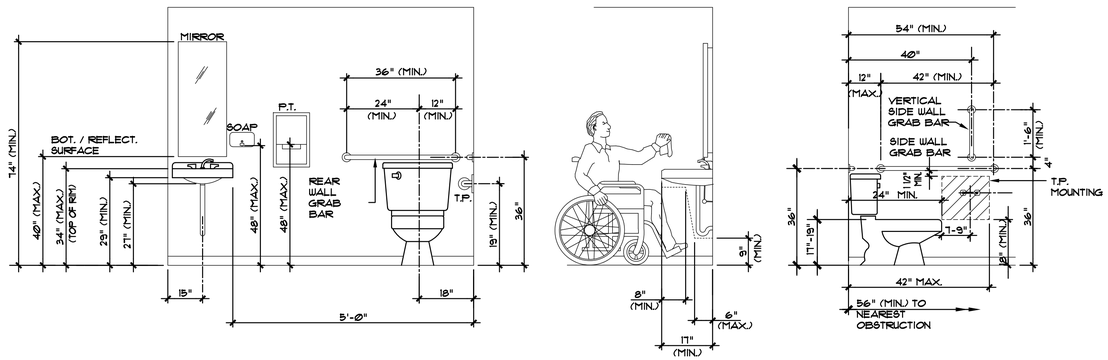






HANDICAP ACCESSIBLE REACH SCHEDULE

SCALE: NOT TO SCALE



TOILET FIXTURE AND ACCESSORY MOUNTING SCHEDULE

SCALE: NOT TO SCALE

PROVIDE SOLID 2X BLOCKING AS REQUIRED FOR MOUNTING ACCESSORIES.

STATE OF MICHIGAN
ROBERT E BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

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REVISION	DATE

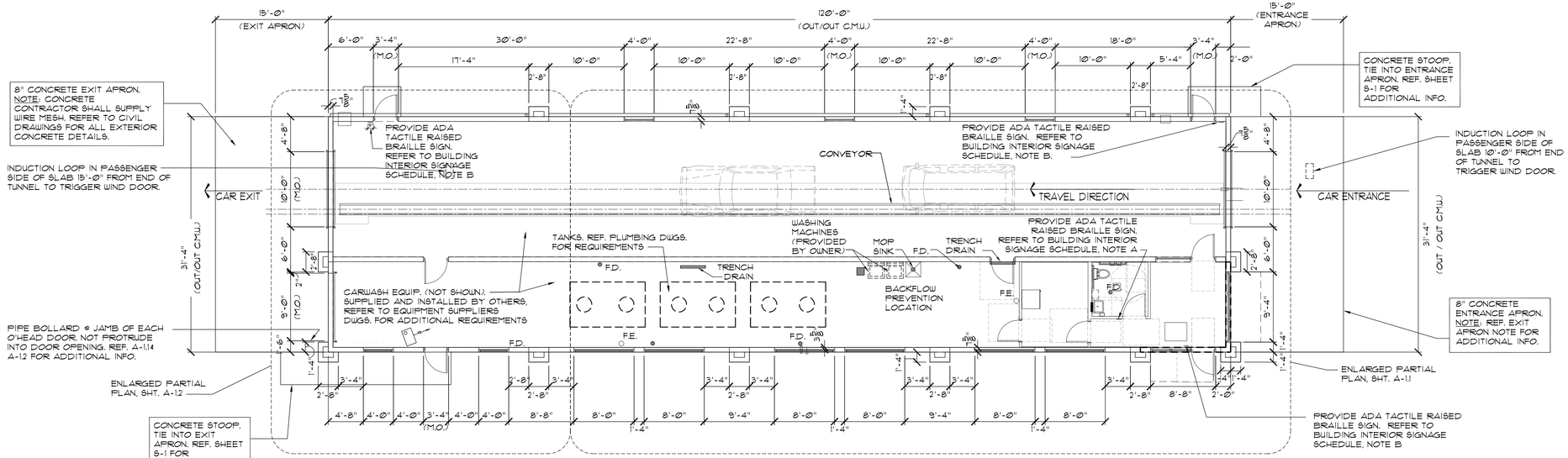
3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
General Project Notes & General ADA Requirements

SHEET NUMBER
G-2



OVERALL FLOOR PLAN

(REFER TO SHEETS A-1.1 AND A-1.2 FOR PARTIAL ENLARGED FLOOR PLANS, SEE SHEET A-1.3 FOR INTERIOR ELEVATIONS)

SCALE: 1/8" = 1'-0"

GENERAL FLOOR PLAN NOTES:

1. ALL DIMENSIONS ARE TAKEN TO FACE OF C.M.U. OR STUD UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL PROVIDE AND INSTALL FIRE TREATED WOOD SUPPORT BLOCKING OR 16 GA. STEEL PLATE BLOCKING IN ALL WALLS RECEIVING ANCHORS OF CASEWORK, SHELVING, GRAB BARS AND THE LIKE. REFER TO PLANS AND COORDINATE W/ OWNER PRIOR TO CONCEALING WALLS. ADDITIONALLY, COORDINATE WITH ALL OTHER TRADES TO DETERMINE LOCATIONS OF ADDITIONAL STEEL STUDS.
3. NEW TOILET ROOM SHALL BE CONSTRUCTED IN ACCORDANCE WITH 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (ADAAG) INCLUDING BUT NOT LIMITED TO GRAB BARS, FIXTURE HEIGHTS, CLEAR FLOOR ACCESS, AND 60" DIAMETER TURN AROUND.
4. CONTRACTOR SHALL INSTALL NEW GYPSUM BOARD INSTALLATIONS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR LOCATING GYPSUM BOARD CONTROL AND EXPANSION JOINTS. EXPANSION JOINTS SHALL NOT EXCEED 30'-0" O.C.
5. ALL INTERIOR WALLS (EXCEPT PLUMBING WALLS) SHALL BE ASSUMED TO BE 3 5/8" STEEL STUDS (NON COMBUSTIBLE) @ 16" O.C. WITH 5/8" WATER RESISTANT GYP. BD. EACH SIDE UNLESS OTHERWISE NOTED. PLUMBING WALLS SHALL BE 6" STEEL STUDS.
6. ALL DOORS SHALL BE EQUIPPED WITH LEVER STYLE LATCH (UNLESS NOTED OTHERWISE) IN ACCORDANCE WITH ADAAG (ACCESSIBILITY) GUIDELINES. ALL LOCK SETS SHALL BE PUSHBUTTON TYPE LOCKING MECHANISMS OR EQUIVALENT. INTERIOR KEYED LOCKS ARE NOT ALLOWED.
7. CONTRACTORS SHALL COORDINATE THEIR RESPECTIVE WORK WITH OTHER TRADES AND SHALL PROVIDE REQUIRED SUB SLAB PIPING, CONDUIT, PLUMBING, PIPE SLEEVES, FLOOR DRAINS AND THE LIKE AS REQUIRED PRIOR TO POURING NEW INTERIOR CONCRETE SLAB.
8. ALL WOOD BLOCKING AND/OR PLYWOOD/OSB INSTALLED IN CONCEALED PLACES SHALL BE OF THE FRTW TYPE (FIRE TREATED).
9. ALL NEW INSULATION SHALL HAVE A MAXIMUM FLAME SPREAD OF 25. SMOKE DEVELOPMENT RATINGS FOR ALL NEW INSULATION SHALL NOT EXCEED 450 (TYP.).
10. TENANT SHALL FURNISH BOTTLED WATER IN LIEU OF A WATER COOLER.
11. FIRE EXTINGUISHERS:
    A. PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED ON SITE FOR THE DURATION OF CONSTRUCTION. EXTINGUISHERS SHALL BEAR THE LABEL OF AN APPROVED AGENCY.
    B. PERMANENT FIRE EXTINQUISHER (F.E.): PORTABLE FIRE EXTINGUISHER(S) SHALL BE PROVIDED ON SITE ON A PERMANENT BASIS, BEARING THE LABEL OF AN APPROVED AGENCY. EXTINGUISHER(S) SHALL BE WALL HUNG W/ MFR'S STANDARD WALL BRACKET. LOCATIONS INDICATED ON PLANS ARE SCHEMATIC AND SUBJECT TO CHANGE PER LOCAL AUTHORITY'S REQUIREMENTS/DIRECTION.
    C. THE MAXIMUM TRAVEL DISTANCE TO A PERMANENT FIRE EXTINGUISHER SHALL NOT EXCEED 75 FEET. ADDITIONALLY, FIRE EXTINGUISHERS SHALL BE LOCATED WHERE THEY WILL BE READILY ACCESSIBLE AND IMMEDIATELY AVAILABLE FOR USE AND SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW. THESE LOCATIONS SHALL BE AMONG NORMAL PATHS OF TRAVEL.
12. TEMPERED SAFETY GLAZING SHALL BE PROVIDED IN ACCORDANCE WITH CODE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
    A. WITHIN 24 INCH ARC ALONG THE VERTICAL EDGE OF A DOOR.
    B. IN ANY GLASS PANEL THAT IS 18 INCHES OR LESS ABOVE AN ADJACENT WALKING SURFACE AND IS (9) SQUARE FEET OR LARGER IN AREA.
13. ANY TRANSACTION AND/OR SERVICE COUNTERS USED FOR TRANSACTION OF SELLING MERCHANDISE, MAKING PAYMENTS OR OTHER SIMILAR TYPES OF TRANSACTIONS SHALL HAVE A 3'-0" (MINIMUM) SECTION OF SAID COUNTER NOT EXCEEDING 2'-10" AFF. FOR USE BY THE PHYSICALLY DISABLED.
14. ALL INTERIOR FINISHES SHALL COMPLY WITH THE MICHIGAN BUILDING CODE (MBC) FOR FLAME SPREAD AND SMOKE DEVELOPMENT RATINGS FOR (B) BUSINESS USE GROUP AS FOLLOWS:
    A. CORRIDORS = "B": FLAME SPREAD OF 26-75; SMOKE DEVELOPMENT = 0-450
    B. ENCLOSED ROOMS/SPACES = "C": FLAME SPREAD OF 76-200; SMOKE DEVELOPMENT = 0-450
15. ALL CAR WASH EQUIPMENT SHOWN IN ARCHITECTURAL PLANS AND/OR NOTED IN WASH BAY AND MECHANICAL ROOM SHOULD BE CONSIDERED SCHEMATIC AND ONLY FOR REFERENCE. CONTRACTOR SHALL REFER TO AND COORDINATE WITH CAR WASH EQUIPMENT DRAWINGS FURNISHED BY OTHERS FOR FINAL EQUIPMENT LAYOUT.

BUILDING INTERIOR SIGNAGE SCHEDULE:

PROVIDE THE FOLLOWING INTERIOR SIGNAGE:

A. TOILET ROOM: PROVIDE ADA TACTILE RAISED BRAILLE UNISEX RESTROOM SIGN, ADJACENT TO DOOR. REFER TO DETAIL ON SHEET G-2.
B. BUILDING EGRESS (EXIT) DOORS: PROVIDE ADA TACTILE RAISED BRAILLE SIGN STATING "EXIT" AND COMPLYING WITH ICC A117.1 ADJACENT TO EACH BUILDING EXIT DOOR. REFER DETAIL ON SHEET G-2.

STATE OF MICHIGAN
ROBERT E BYRGE
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No. 1301070219
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REVISION	DATE

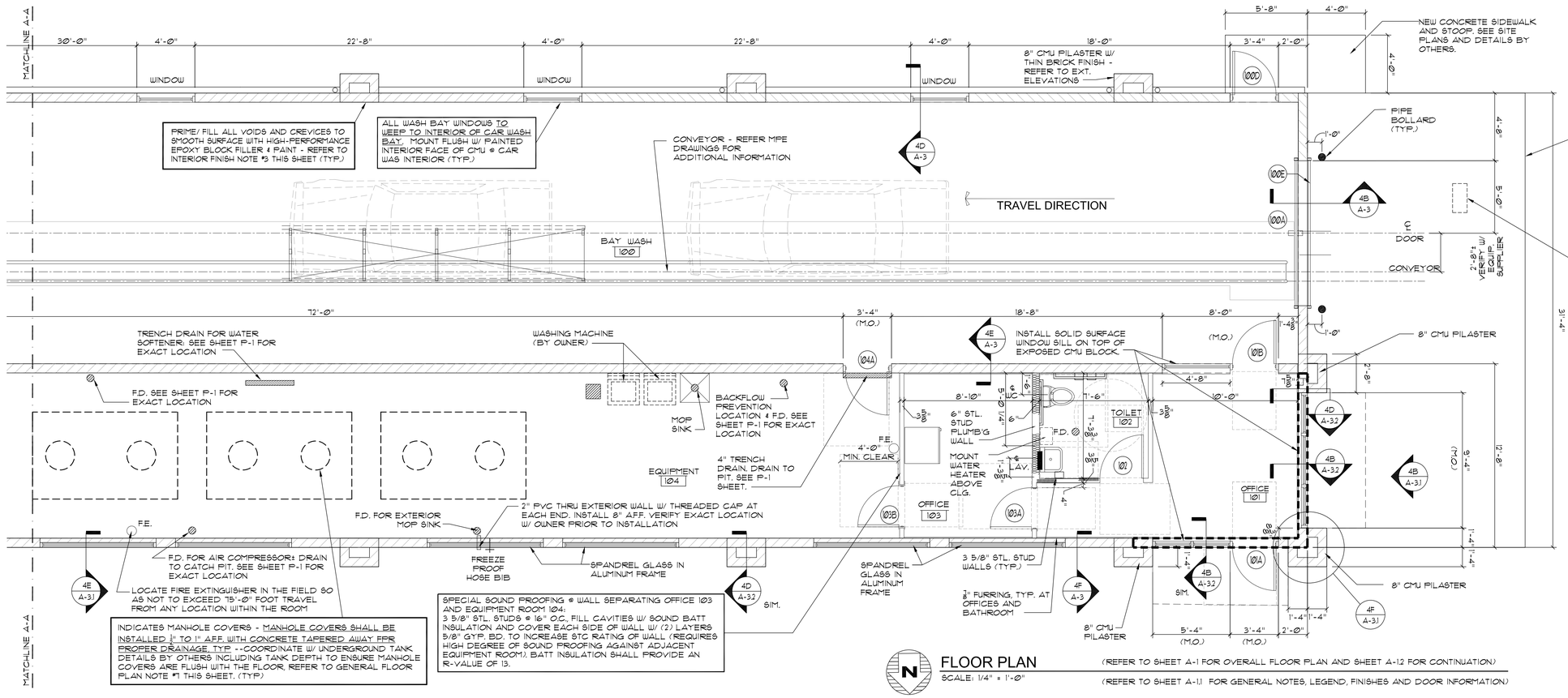
3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Overall Floor Plan

SHEET NUMBER
A-1



FLOOR PLAN

SCALE: 1/4" = 1'-0"

(REFER TO SHEET A-1 FOR OVERALL FLOOR PLAN AND SHEET A-1.2 FOR CONTINUATION)

(REFER TO SHEET A-1.1 FOR GENERAL NOTES, LEGEND, FINISHES AND DOOR INFORMATION)

GENERAL FLOOR PLAN NOTES:

1. ALL DIMENSIONS ARE TAKEN TO FACE OF STUD OR C.M.U. UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL PROVIDE AND INSTALL FOUNDATION INSULATION AND INSULATE ALL CMU CELLS ON ALL EXTERIOR WALLS 4 THE ENTIRE LENGTH OF THE CMU WALL DIVIDING THE WASHBAY AND EQUIPMENT ROOM/OFFICES.
3. CONTRACTOR SHALL PROVIDE AND INSTALL WOOD BLOCKING IN ALL WALLS REQUIRED, TO RECEIVE ANCHORS OF CASEWORK, SHELVING, GRAB BARS, DOORS AND THE LIKE. REFER TO PLANS FOR LOCATIONS OF FIXTURES AND COORDINATION OF THESE VARIOUS ITEMS (TYP.). COORDINATE WITH ALL OTHER TRADES TO DETERMINE LOCATIONS OF WOOD BLOCKING AND ADDITIONAL STEEL STUDS.
4. TOILET ROOM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2010 ADAAG INCLUDING BUT NOT LIMITED TO GRAB BARS, FIXTURE HEIGHTS, CLEAR FLOOR ACCESS, AND 60" DIAMETER TURN AROUND.
5. ALL WOOD BLOCKING USED WITHIN BUILDING SHALL BE FIRE TREATED.
6. F.E. = WALL MOUNTED FIRE EXTINGUISHER
7. ALL EQUIPMENT SHOWN AND/OR NOTED IN WASH BAY AND MECHANICAL ROOM TO BE COORDINATED WITH MPE DRAWINGS.
8. PROVIDE TOILET ROOM EXHAUST + (MIN.) 75 CFM VENTED DIRECTLY TO THE OUTDOORS IN ACCORDANCE WITH INTERNATIONAL MECHANICAL CODE (TYP.)
9. ALL TOILET ACCESSORIES SHALL BE PROVIDED BY CONTRACTOR: PAPER TOWEL DISPENSER- ASI MODEL #0210 , TOILET TISSUE DISPENSER- ASI MODEL #1402, SOAP DISPENSER- ASI MODEL #9343, ADA MIRROR - ASI MODEL #0600-1836. BOTTOM EDGE OF REFLECTIVE SURFACE OF MIRROR NOT TO EXCEED 40" AFF.

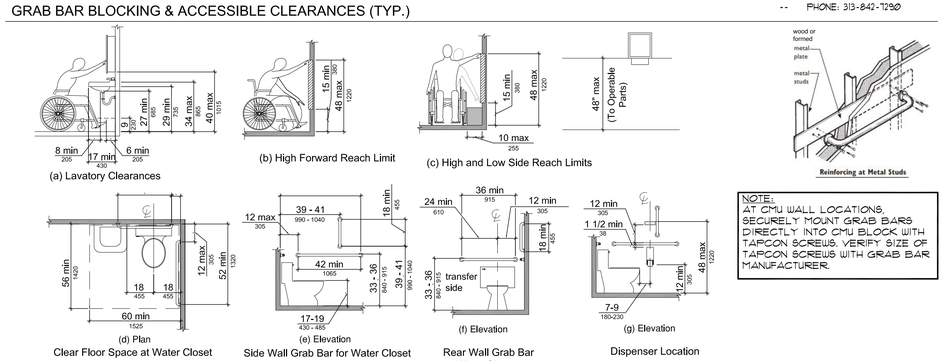
INTERIOR FINISH NOTES:

1. OFFICE ØØ1 + ØØ3: FURNISH ALL LABOR AND MATERIAL TO INSTALL 7/8" METAL FURRING STRIPS @ 24" O.C. @ ALL CMU WALLS AND COVER WITH GYPSUM BOARD. RUN GYP. BD. FROM FLOOR TO UNDERSIDE OF SUSPENDED ACOUSTICAL CEILING SYSTEM ABOVE (APPROX. 9'-Ø" IN HEIGHT AT OFFICE ØØ1 + OFFICE ØØ3.). FIRE TAPE ABOVE CEILING. KANOPI BY ARMSTRONG, 2x4, FINE FISSURED. SEE SHEET A-1.2 FOR ENLARGED REFLECTED CEILING PLAN. PAINT ALL WALLS WITH SHERWIN WILLIAMS, ENAMEL, GLOSS, COLOR: Ø055 LIGHT FRENCH GRAY. INSTALL CERAMIC TILE FLOORING (DALTILE: HAUT MONDE, 12x12, COLOR: ELITE GREY HM05) WITH TILE BASE (DALTILE: HAUT MONDE, 6x12, COLOR: ELITE GREY HM05.) W/ MAPEI ULTRA COLOR PLUS FA - NAVAJO BROWN #35 GROUT. THINSET TO BE SCI KERAFLEX PLUS - BAG. TRANSITION/TILE CAP SCHLUTER TO BE RENO-U - SATIN AND AL. ALL GROUT IS TO BE SEALED AFTER INSTALLATION.
2. TOILET ØØ2: FURNISH ALL LABOR AND MATERIAL TO INSTALL 7/8" METAL FURRING STRIPS @ 24" O.C. @ ALL CMU WALLS WITHIN TOILET ØØ2, INSTALL CERAMIC TILE FLOORING (DALTILE: HAUT MONDE, 12x12, COLOR: ELITE GREY HM05) WITH TILE BASE (DALTILE: HAUT MONDE, 6x12, COLOR: ELITE GREY HM05.) W/ MAPEI ULTRA COLOR PLUS FA - NAVAJO BROWN #35 GROUT. THINSET TO BE SCI KERAFLEX PLUS - BAG. TRANSITION/TILE CAP SCHLUTER TO BE RENO-U - SATIN AND AL. ALL GROUT IS TO BE SEALED AFTER INSTALLATION. RUN GYP. BD AT ALL WALLS FROM FLOOR TO UNDERSIDE OF SUSPENDED CEILING ABOVE (APPROX. 8'-Ø" IN HEIGHT.). FIRE TAPE ABOVE CEILING. FURNISH ALL LABOR AND MATERIAL TO INSTALL SUSPENDED ACOUSTICAL CEILING SYSTEM (KANOPI BY ARMSTRONG, 2x4, FINE FISSURED.). SEE SHEET A-1.2 FOR ENLARGED REFLECTED CEILING PLAN.
3. WASH BAY/ EQUIPMENT ØØ4: FURNISH ALL LABOR TO PRIME/ FILL ALL VOIDS AND CREVICES TO SMOOTH SURFACE WITH HIGH-PERFORMANCE EPOXY BLOCK FILLER : SW KEMCATI H5 PRIMER 4 FINISH: MACROPOXY 646 FORMULA. PAINT WITH SHERWIN WILLIAMS: ENAMEL, GLOSS, COLOR: 7Ø71 GRAY SCREEN. SEE SHT. S11 FOR CONC FLOOR FINISHES.

EXTERIOR FINISH NOTES:

- THIN BRICK: HENRY BRICK CO. QUEEN BRICK: COLOR - HENRY MARKET STREET
- CULTURED STONE: PARAGON CATALPA LEDGESTONE W/ MFR. STANDARD CAP.
- MORTAR COLOR: TRUE TONE MC 58 BLEND ADDED TO BRIXMENT.
- EIFS: SIERRA TAN FINE FINISH BY STO
- ALUMINUM CLAD MTL (PARAPET CAP, GUTTERS, DWNSPTS): SIERRA TAN BY FIRE STONE
- AWNING: ADOBE (COLOR) BY GENERAL AWNING CO.
- CANOPIES: SLATE GREY (COLOR) BY GENERAL AWNING CO.
- WINDOW/DOOR FRAMES: GALVANIZED ALUMINUM
  - STOREFRONTS: ALUMINUM MFG, YKK CLEAR ANODIZED, GLASS MFG, ALDORA
  - WINDOWS: YKK, CLEAR ANODIZED WITH SOLAR GREY LOW E, TEMPERED INSULATED
- SPANDREL GLASS: COOL SOLAR GRAY W/ ALUMINUM FRAME
- GARAGE DOORS: BASIC INDUSTRIAL WHITE, PRE-FINISHED COILS BY OVER HEAD DOOR CORP. (POLIDER COAT FINISH: RAL*9003)
- SEE C.M.U. SPECS ON SHEET A-3 FOR ADDITIONAL INFO
- BOLLARD COVERS: IDEAL SHIELD PPP-402 GRAY-06-060-SLEEVE (OR EQUAL APPROVED BY OWNER).
  - IDEAL SHIELD, LLC
  - 2525 CLARK STREET, DETROIT, MI. 48208
  - PHONE: 313-842-7200

GRAB BAR BLOCKING & ACCESSIBLE CLEARANCES (TYP.)



NOTE:
AT CMU WALL LOCATIONS, SECURELY MOUNT GRAB BARS DIRECTLY INTO CMU BLOCK WITH TAPCON SCREWS. VERIFY SIZE OF TAPCON SCREWS WITH GRAB BAR MANUFACTURER.

HARDWARE GROUPS

HARDWARE GENERAL NOTE: ALL DOOR LATCHES SHALL BE LEVER DESIGN AND SHALL BE PUSHBUTTON OR EQUIVALENT ON THE EGRESS SIDE IN ACCORDANCE WITH THE ACCESSIBILITY CODE.

GROUP 1:
PROVIDE ALUMINUM DOOR MANUFACTURER'S STANDARD HARDWARE INCLUDING CONTINUOUS HINGES W/ 1½" REFLECTIVE SAFETY GLAZING, STANDARD OVERHEAD SURFACE CLOSERS, WEATHERSTRIPPING, DOOR BOTTOMS, THRESHOLD, FULL HANDLES, AND RIM PANIC PUSH BAR HARDWARE. EGRESS DOORS ARE TO OPEN IN THE DIRECTION OF EGRESS WITHOUT SPECIAL KNOWLEDGE OR USE OF KEY IN ACCORDANCE WITH CODE.

GROUP 2:
(3) DOOR MUTES
(1) LEVER STYLE LATCH W/ CLASSROOM LOCKSET

GROUP 3:
(3) HINGES
(1) WALL STOP
(1) LEVER STYLE LATCH W/ PRIVACY LOCKSET

GROUP 4:
(3) OFFSET HINGES
(3) DOOR MUTES
(1) DOOR CLOSER
(1) LEVER STYLE LATCH W/ CLASSROOM LOCKSET

GROUP 5:
(3) HINGES
(3) DOOR MUTES
(1) LEVER STYLE LATCH PASSAGE SET
(1) ALUMINUM THRESHOLD
(1) DOOR SWEEP - RUBBER (BAY WASH SIDE)

HARDWARE NOTE:

NOTE! ALL MAN DOOR HARDWARE AT DOORS SUBJECT TO WET CONDITIONS (I.E. DIRECT CONNECTION TO WASH BAY TUNNEL) SHALL BE STAINLESS STEEL OR OTHER ONLY AS APPROVED BY OWNER SO AS TO RESIST TO RUSTING AND/OR CORROSION.

DOOR SCHEDULE - REFER TO SHEETS A-1.1, A-1.2 AND A-1.3

NO.	ROOM NAME	DOOR SIZE	DOOR MAT	DOOR FIN	DOOR TYPE	FRAME MAT	FRAME FIN	FRAME TYPE	UL LABEL	DETAILS	HRDWR. GROUP	REMARKS
ØØA	ØØ - WASH BAY	1Ø'-Ø"H X 1Ø'-Ø"W	DOOR, FRAME, AND HARDWARE SUPPLIED BY AND INSTALLED BY G.C.									RI, OVHEAD DOOR
ØØB	ØØ - WASH BAY	1Ø'-Ø"H X 1Ø'-Ø"W	DOOR, FRAME, AND HARDWARE SUPPLIED BY AND INSTALLED BY G.C.									RI, OVHEAD DOOR
ØØC	ØØ - WASH BAY	7'-Ø"H X 3'-Ø"W	ALUM.	-	-	ALUM.	-	-	-	NARROW STILE, 10" BOTT. RAIL	1	R2, R3, R4, R7
ØØD	ØØ - WASH BAY	7'-Ø"H X 3'-Ø"W	ALUM.	-	-	ALUM.	-	-	-	NARROW STILE, 10" BOTT. RAIL	1	R2, R3, R4, R7
ØØE	ØØ - WASH BAY	1Ø'-Ø"H X 1Ø'-Ø"W	VINYL SPEED DOOR PROVIDED BY OWNER.									RII, OVHEAD DOOR
ØØF	ØØ - WASH BAY	1Ø'-Ø"H X 1Ø'-Ø"W	VINYL SPEED DOOR PROVIDED BY OWNER.									RII, OVHEAD DOOR
ØØ1A	ØØ1 - FRONT OFFICE	7'-Ø"H X 3'-Ø"W	ALUM.	-	-	ALUM.	-	-	-	NARROW STILE, 10" BOTT. RAIL	1	R2, R3, R4, R7, R9
ØØ1B	ØØ1 - FRONT OFFICE	7'-Ø"H X 3'-Ø"W	ALUM.	-	-	ALUM.	-	-	-	NARROW STILE, 10" BOTT. RAIL	1	R2, R3, R5, R7, R9
ØØ2	ØØ2 - TOILET	7'-Ø"H X 3'-Ø"W	INSUL. H.M.	PRE-FIN.	FLUSH	INSUL. H.M.	PRE-FIN.	-	-		3	R8
ØØ3A	ØØ3 - BACK OFFICE	7'-Ø"H X 2'-10"W	H.M.	PRE-FIN.	FLUSH	H.M.	PRE-FIN.	-	-		2	R8
ØØ3B	ØØ3 - BACK OFFICE	7'-Ø"H X 3'-Ø"W	INSUL. H.M.	PRE-FIN.	FLUSH	INSUL. H.M.	PRE-FIN.	-	-		4	R6, R8, RIØ
ØØ4A	ØØ4 - EQUIPMENT	7'-Ø"H X 3'-Ø"W	PVC DOOR, FRAME, AND HARDWARE SUPPLIED AND INSTALLED BY G.C. - COOR. W/ OWNER AT BIDDING								5	RI2
ØØ4B	ØØ4 - EQUIPMENT	7'-Ø"H X 3'-Ø"W	PVC DOOR, FRAME, AND HARDWARE SUPPLIED AND INSTALLED BY G.C. - COOR. W/ OWNER AT BIDDING								5	RI2
ØØ4C	ØØ4 - EQUIPMENT	9'-4"H X 9'-Ø"W	STEEL	PRE-FIN.		-	-	-	-			R8, INSUL. OVHEAD DOOR
ØØ4D	ØØ4 - EQUIPMENT	7'-Ø"H X 3'-Ø"W	INSUL. H.M.	PRE-FIN.	FLUSH	INSUL. H.M.	PRE-FIN.	-	-		4	R8, RIØ

CONTRACTOR AND HARDARE SUPPLIER NOTE! THE CONTRACTOR AND HARWARE SUPPLIER SHALL PROVIDE ALL HARDWARE THAT IS CORROSION RESISTANT (ALUMINUM/STAINLESS, ETC.) G.C. TO PROVIDE DOCUMENTATION THAT HARDWARE WILL MEET THIS CRITERIA PRIOR TO PROVIDING BID AND PRIOR TO ORDERING. FAILURE TO DO SO WILL RESULT IN G.C. REPLACING HARDWARE AT HIS OWN COST. A DETAILED HARDWARE SUBMITTAL INCLUDING SHOP DRAWINGS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO ORDERING OF ANY MATERIAL.

DOOR SCHEDULE REMARKS:
- RI = FULL LITE OVERHEAD DOOR SUPPLIED AND INSTALLED BY CONTRACTOR CONTRACTOR (FULL-CHAIN CONTROLLED).
- R2 = THIS DOOR IS EMERGENCY EGRESS DOOR AND AS SUCH MUST SWING IN THE DIRECTION OF EGRESS WITHOUT SPECIAL KNOWLEDGE OR KEY IN ACCORDANCE WITH BUILDING CODE.
- R3 = PROVIDE 1" INSULATED, TEMPERED SAFETY GLASS @ EXTERIOR DOORS/SIDELITES AND 1/4" TEMPERED SAFETY GLASS @ INTERIOR DOORS/SIDELITES.
- R4 = REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR DOOR/STOREFRONT DESIGN.
- R5 = NOTE INTERIOR DOOR ØØ1B IS TO BE SIMILAR IN APPEARANCE TO EXTERIOR DOOR ØØ1A (REFER TO INTERIOR ELEVATION A FOR ADDITIONAL INFORMATION OF ADJACENT SIDELIGHT WINDOW. SIDE LIGHT TO BE 1/2" TEMPERED GLASS).
- R6 = THIS DOOR IS LOCATED IN WALL WITH ADDITIONAL LAYERS OF GYPSUM BOARD FOR INCREASED STC RATING. THUS, WIDER DOOR FRAME THROAT IS REQUIRED. VERIFY THROAT SIZE PRIOR TO ORDERING MATERIAL.
- R7 = THIS DOOR TO HAVE A NARROW STILE RAIL W/ 10" BOTTOM RAIL.
- R8 = DOOR AND FRAME TO BE SHOP PRIMED AND PAINTED (COLOR - BASIC INDUSTRIAL WHITE, PRE-FINISHED COILS).
- R9 = STOREFRONT ENTRANCE DOOR AT THIS LOCATION SHALL PROVIDE A U-VALUE OF Ø.74 MAX, AND A SHGC VALUE OF Ø.36 MAX.
- RIØ = PROVIDE A U-VALUE OF Ø.32 MAX AT THIS DOOR LOCATION.
- RII = CONTRACTOR TO PROVIDE ELECTRICAL CIRCUIT AND CONNECT CONTROLS TO MCC FOR OVERHEAD VINYL OVERHEAD DOOR. VINYL OVERHEAD DOOR SUPPLIED BY + INSTALLED BY OWNER AT FUTURE DATE.
- RI2 = SEE SHEET A-1.3 FOR ROUGH OPENING DIMENSIONS. DOOR FRAME: PHOENIX DOOR SYSTEMS - OSPREY FRP FRAME W/ WIRE MASONRY ANCHOR , DOOR: PHOENIX DOOR SYSTEMS - 1-3/4" ALL FRP CORROSION PROOF DOOR, TYPE F DOOR

STATE OF MICHIGAN
ROBERT E BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

REB ARCHITECTS
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859.523.1500

REVISION	DATE

3/25/2022
Permit Set

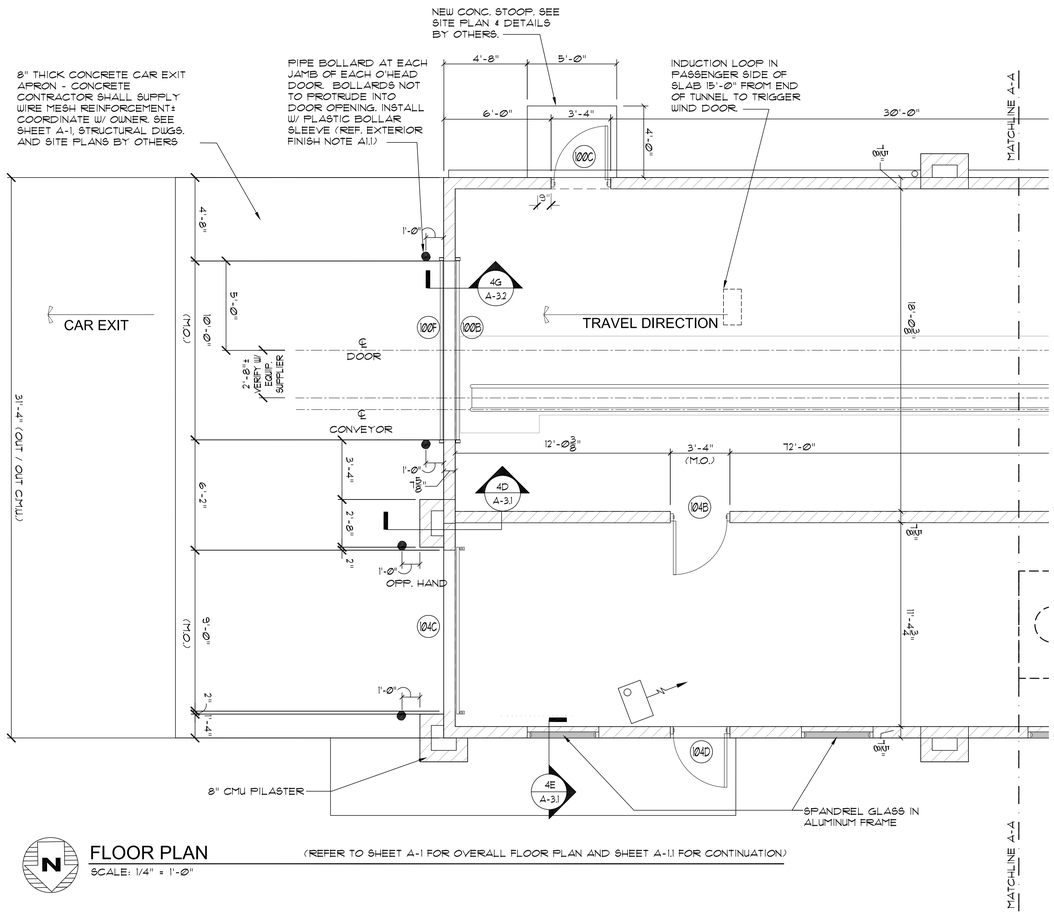
PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Enlarged Partial Floor Plan

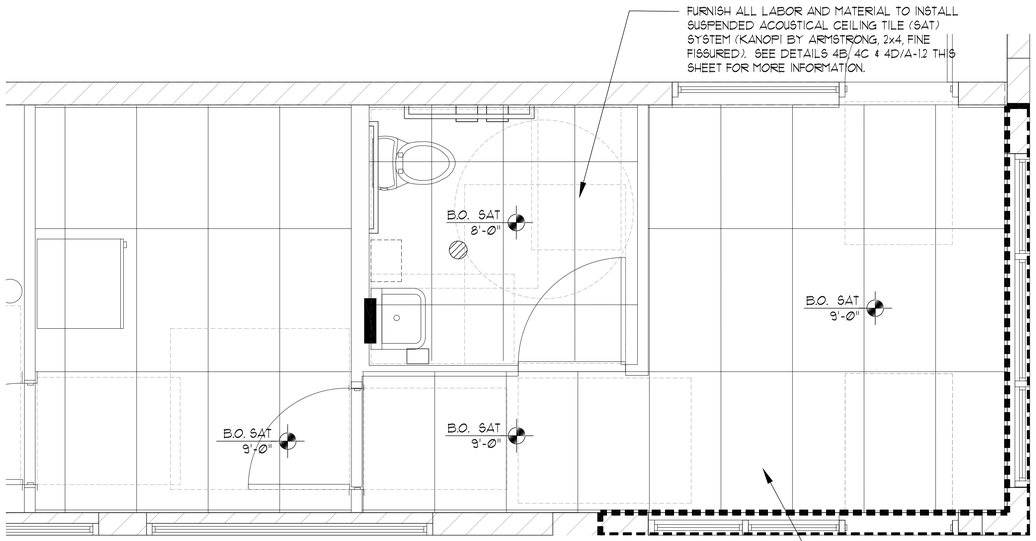
SHEET NUMBER
A-1.1



FLOOR PLAN

SCALE: 1/4" = 1'-Ø"

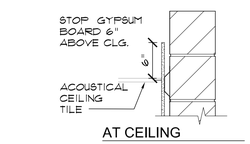
(REFER TO SHEET A-1 FOR OVERALL FLOOR PLAN AND SHEET A-1.1 FOR CONTINUATION)



ENLARGED REFLECTED CEILING PLAN (OFFICE AREA)

SCALE: 1/2" = 1'-Ø"

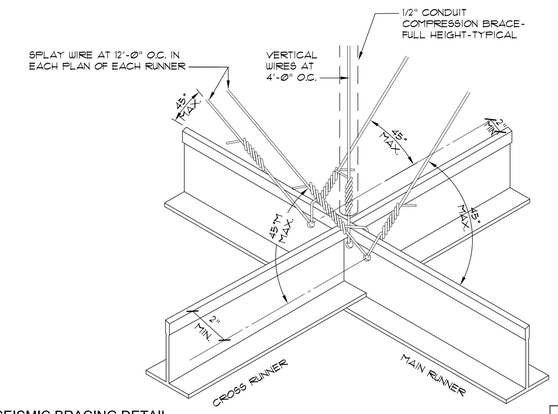
(REFER TO SHEET E-2 FOR ELECTRICAL FIXTURES LAYOUT)



WALL MOULDING REQUIREMENTS

SCALE: NO SCALE

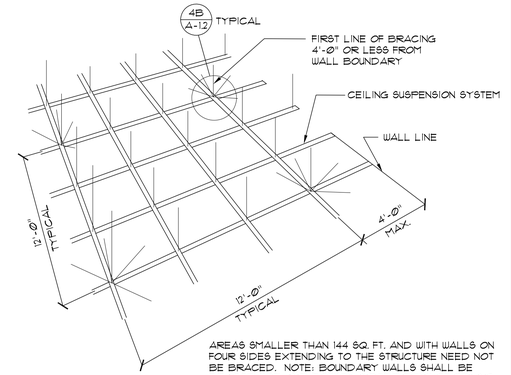
4F A-1.2



SEISMIC BRACING DETAIL

SCALE: NO SCALE

4B A-1.2

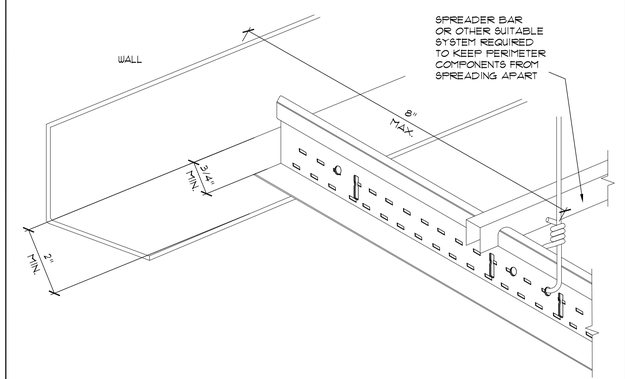


AREAS SMALLER THAN 144 SQ. FT. AND WITH WALLS ON FOUR SIDES EXTENDING TO THE STRUCTURE NEED NOT BE BRACED. NOTE: BOUNDARY WALLS SHALL BE BRACED TOP AND BOTTOM INDEPENDENT OF CEILING.

CEILING SUSPENSION SYSTEM BRACING DETAIL

SCALE: NO SCALE

4C A-1.2



WALL MOULDING REQUIREMENTS

SCALE: NO SCALE

4D A-1.2

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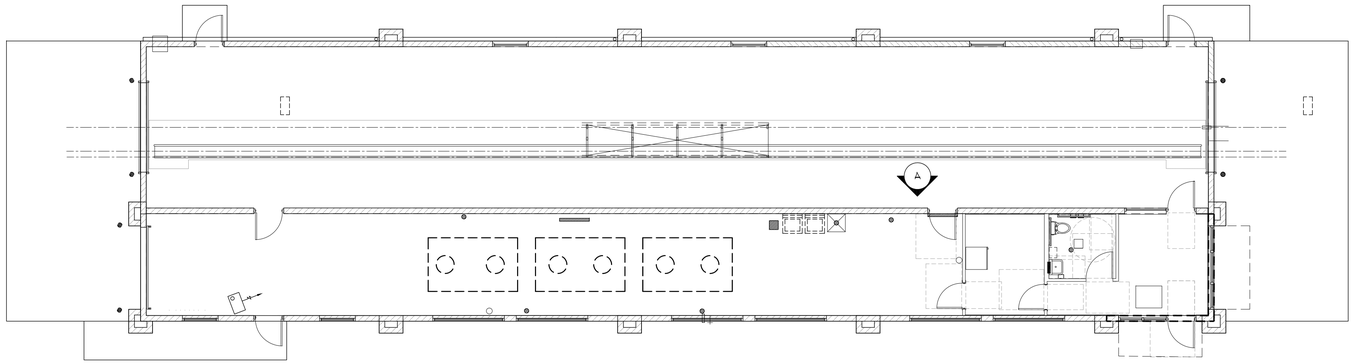
9345 Highland Road
White Lake MI 48386

Enlarged Partial Floor Plan

SHEET NUMBER
A-1.2



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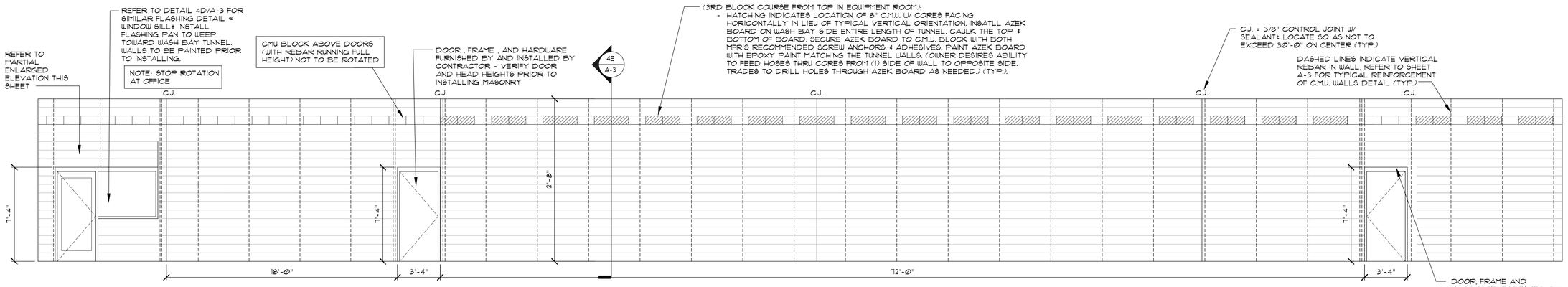
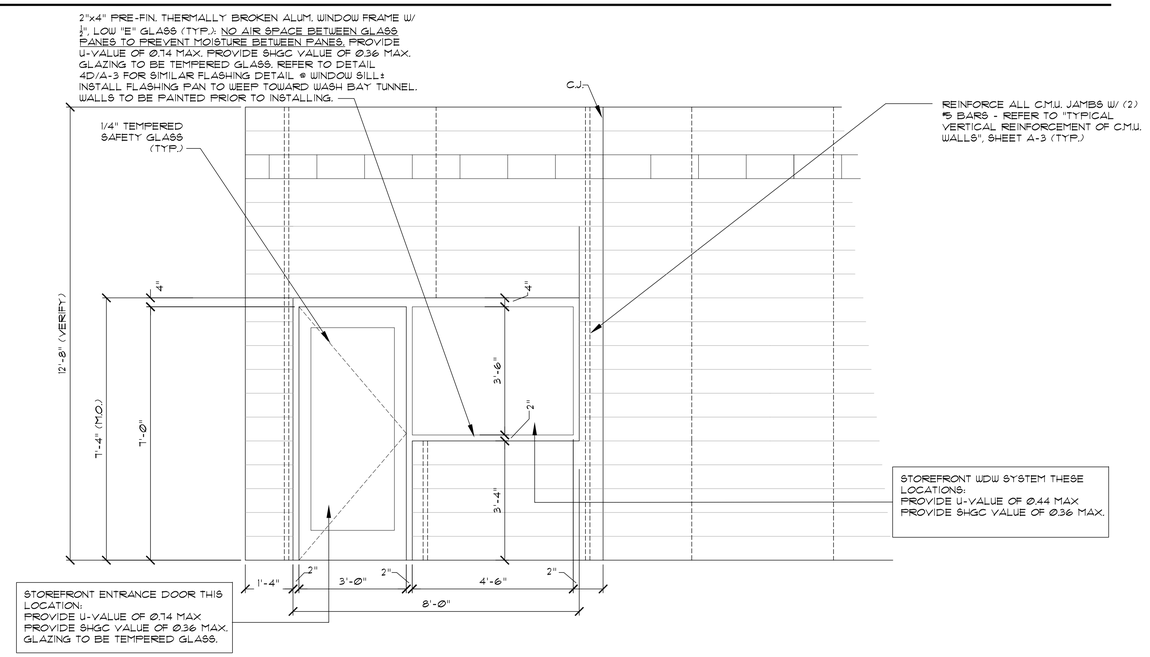
INTERIOR ELEVATION KEY PLAN

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



INTERIOR ELEVATION "A"

SCALE: 1/4" = 1'-0"



PARTIAL ENLARGED INTERIOR ELEVATION (REFER TO ELEVATION "A" THIS SHEET)

SCALE: NOT TO SCALE

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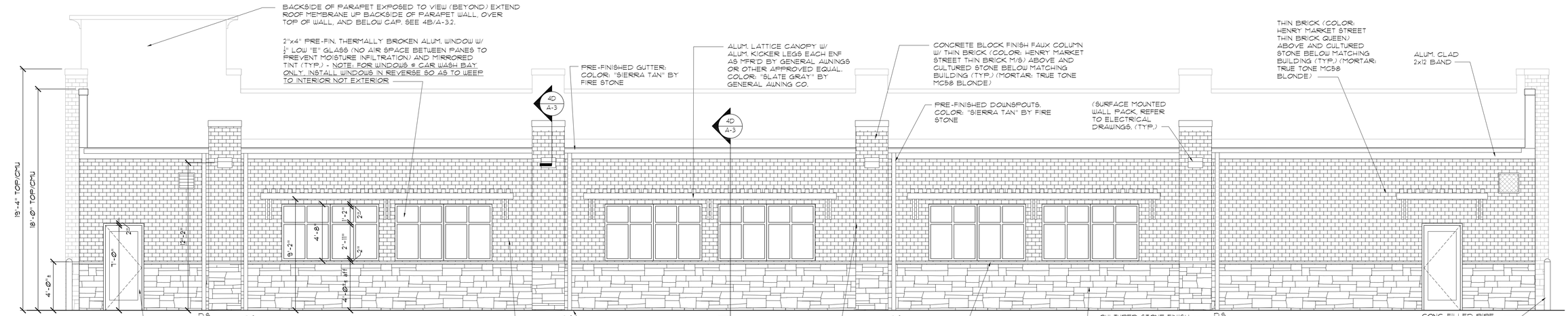
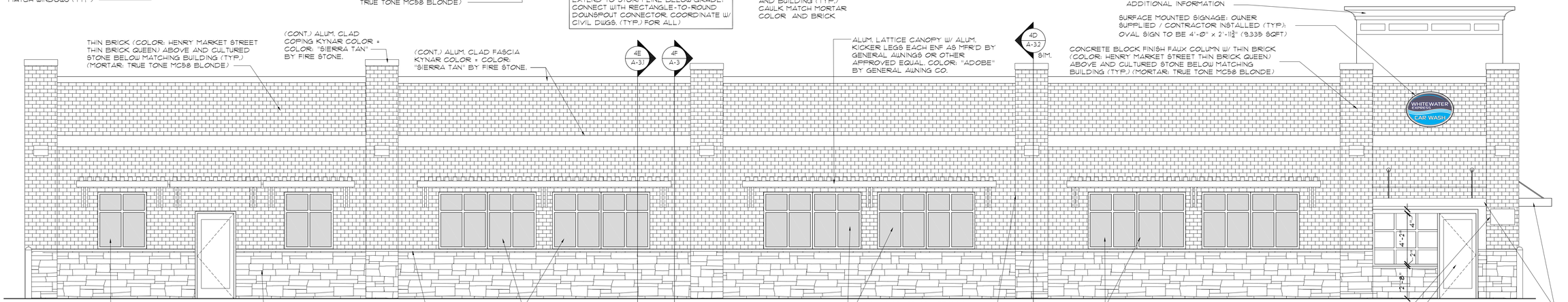
Interior Elevations

SHEET NUMBER
A-1.3



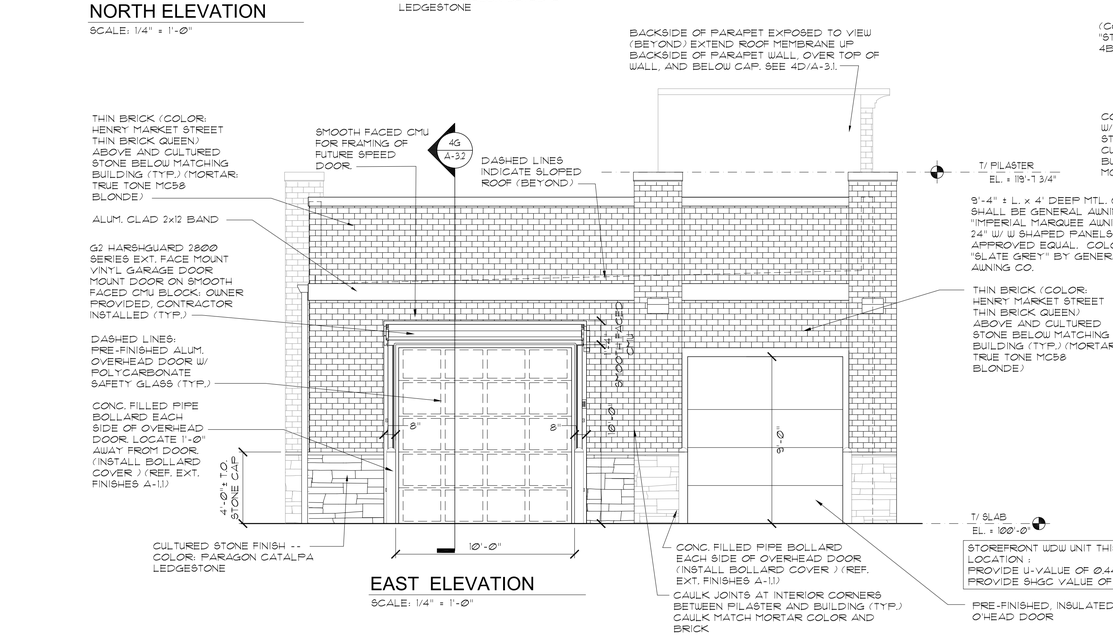
SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



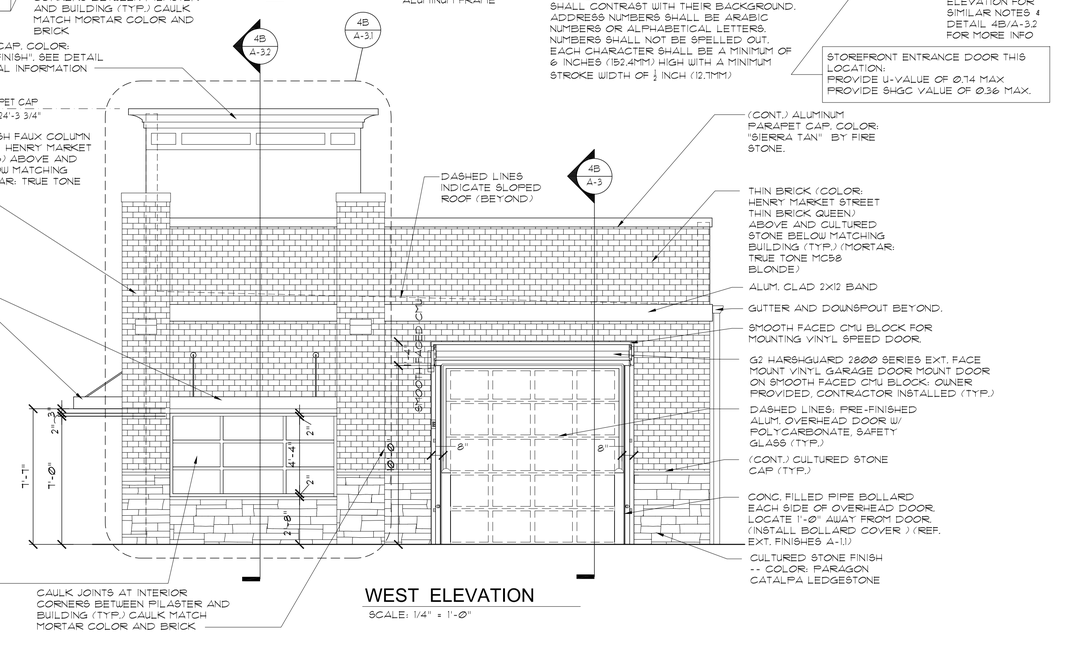
NORTH ELEVATION

SCALE: 1/4" = 1'-0"



EAST ELEVATION

SCALE: 1/4" = 1'-0"



WEST ELEVATION

SCALE: 1/4" = 1'-0"

STATE OF MICHIGAN
ROBERT E. BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

REB ARCHITECTS
103 WIND HAVEN DR, STE 101
NICHOLASVILLE KY 40356
859.523.1500

REVISION	DATE

3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Exterior Elevations

SHEET NUMBER
A-2

COLD WEATHER MASONRY CONSTRUCTION:

COLD WEATHER MASONRY CONSTRUCTION AND ITS QUALITY CONTROL REQUIRE ADDITIONAL ATTENTION TO CONSTRUCTION PRACTICES AND PROTECTION. ATTENTION SHOULD BE DIRECTED TO THE FOLLOWING DETAILS AS WELL AS THOSE NORMALLY ATTENDED:

1. CONSTRUCTION MATERIALS SHOULD BE RECEIVED, STORED, AND PROTECTED IN WAYS THAT PREVENT WATER FROM ENTERING THE MATERIALS.

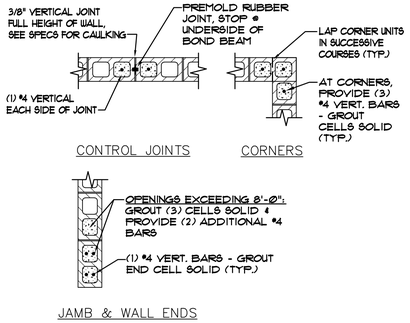
2. IF CLIMATIC CONDITIONS WARRANT, TEMPERATURES OF CONSTRUCTION MATERIALS SHOULD BE MEASURED. FROZEN SAND AND WET MASONRY UNITS MUST BE THAWED. MASONRY UNITS BELOW 20°F MUST BE HEATED ABOVE 20°F WITHOUT OVERHEATING.

3. SUFFICIENT MORTAR INGREDIENTS SHOULD BE HEATED TO PRODUCE MORTAR TEMPERATURES BETWEEN 40°F AND 120°F. EVERY EFFORT SHOULD BE MADE TO PRODUCE CONSECUTIVE BATCHES OF MORTAR WITH THE SAME TEMPERATURES BEFORE USE SHOULD BE ABOVE 40°F, MAINTAINABLE EITHER BY AUXILIARY HEATERS UNDER THE MORTAR BOARD OR BY MORE FREQUENT MIXING OF MORTAR BATCHES. HEATED MORTAR ON MORTAR BOARDS SHOULD NOT BECOME EXCESSIVELY HOT (GREATER THAN 120°F).

4. DURING BELOW-NORMAL TEMPERATURES, MASONRY SHOULD BE PLACED ONLY ON A SOUND UNFROZEN FOUNDATIONS. MASONRY SHOULD NEVER BE PLACED ON A SNOW OR ICE-COVERED SURFACE, BECAUSE OF THE DANGER OF MOVEMENT WHEN THE BASE THAWS AND THE POSSIBILITY OF VERY LITTLE BOND BEING DEVELOPED BETWEEN THE MORTAR AND THE SUPPORTING SURFACE.

5. AT THE END OF THE DAY, THE TOP SURFACE OF ALL MASONRY SHOULD BE PROTECTED TO PREVENT MOISTURE, AS FROM RAIN, SNOW OR SLEET, FROM ENTERING THE MASONRY. THIS PROTECTION MUST COVER THE TOP SURFACE AND SHOULD EXTEND A MINIMUM OF 2 FEET DOWN ALL SIDES OF THE MASONRY.

WORK DAY TEMPERATURE	CONSTRUCTION REQUIREMENT	PROTECTION REQUIREMENT
ABOVE 40°F	NORMAL MASONRY PROCEDURES.	COVER WALLS WITH PLASTIC OR CANVAS AT END OF WORK DAY
40°F - 32°F	HEAT MIXING WATER TO PRODUCE MORTAR TEMPERATURES BETWEEN 40°F - 120°F.	COVER WALLS AND MATERIALS TO PREVENT WETTING AND FREEZING. COVERS SHALL BE WITH PLASTIC OR CANVAS
32°F - 25°F	HEAT MIXING WATER AND SAND TO PRODUCE MORTAR TEMPERATURES BETWEEN 40°F - 120°F.	IF WIND VELOCITY EXCEEDS (15) MPH, PROVIDE WIND BREAKS DURING WORK DAY AND COVER WALLS/MATERIALS AT END OF WORK DAY
25F - 20F	MORTAR ON BOARDS SHOULD BE MAINTAINED ABOVE 40°F.	MAINTAIN MASONRY ABOVE FREEZING FOR (16) HOURS USING AUXILIARY HEAT OR INSULATED BLANKETS
20°F - 0°F	HEAT MIXING WATER AND SAND TO GET MORTAR TEMPERATURES BETWEEN 40°F - 120°F.	PROVIDE ENCLOSURES AND SUPPLY SUFFICIENT HEAT MAINTAINING ENCLOSURE ABOVE 32° FOR (24) HOURS



TYPICAL VERT. REINFORCEMENT OF C.M.U. WALLS

SCALE: NOT TO SCALE

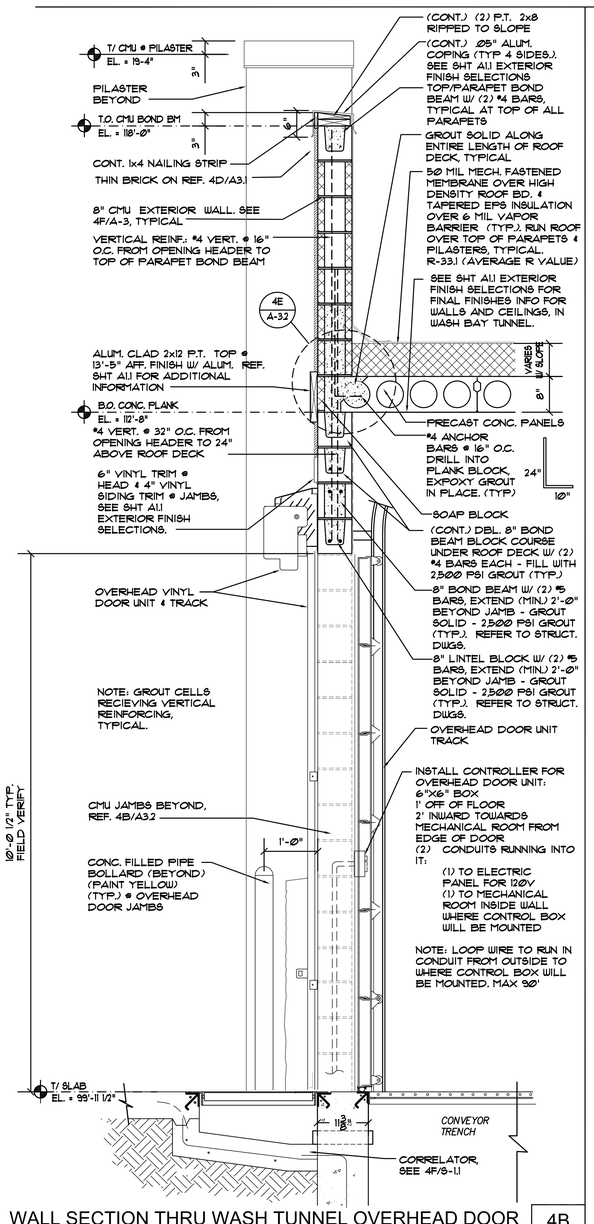
C.M.U. SPECS:

1. MATERIALS SHALL CONFORM TO:
   - a.) HOLLOW LOAD BEARING C.M.U. SHALL BE ASTM C90, GR. N, TYPE I STD. WT., MIN. COMP. STRENGTH 1,500 PSI.
   - b.) MORTAR MIX ASTM C270 TYPE S.
   - c.) GROUT MIX ASTM C476 TYPE FINE.
   - d.) STEEL REINFORCING:
     1. COLD DRAWN WIRE ASTM A82 W/ CLASS 3 ASTM A116 ZINC COATING.
     2. DEFORMED BARS ASTM A615 GRADE 60.
   - e.) MASONRY SEALING:
     1. ALL EXTERIOR BLOCKS ARE TO BE MANUFACTURED WITH SEALANT.
        1) ADMIXTURE: BASF-MASTERPEL 240
     2. ALL MORTAR IS TO HAVE SEALANT ADDED.
        1) ADMIXTURE: BASF-MASTERPEL 240MA
     3. THE ENTIRE EXTERIOR IS TO BE CLEANED AND SEALED AGAIN.
        1) SPRAY ON: TK-BRIGHT SEAL WB

C.M.U. NOTES:

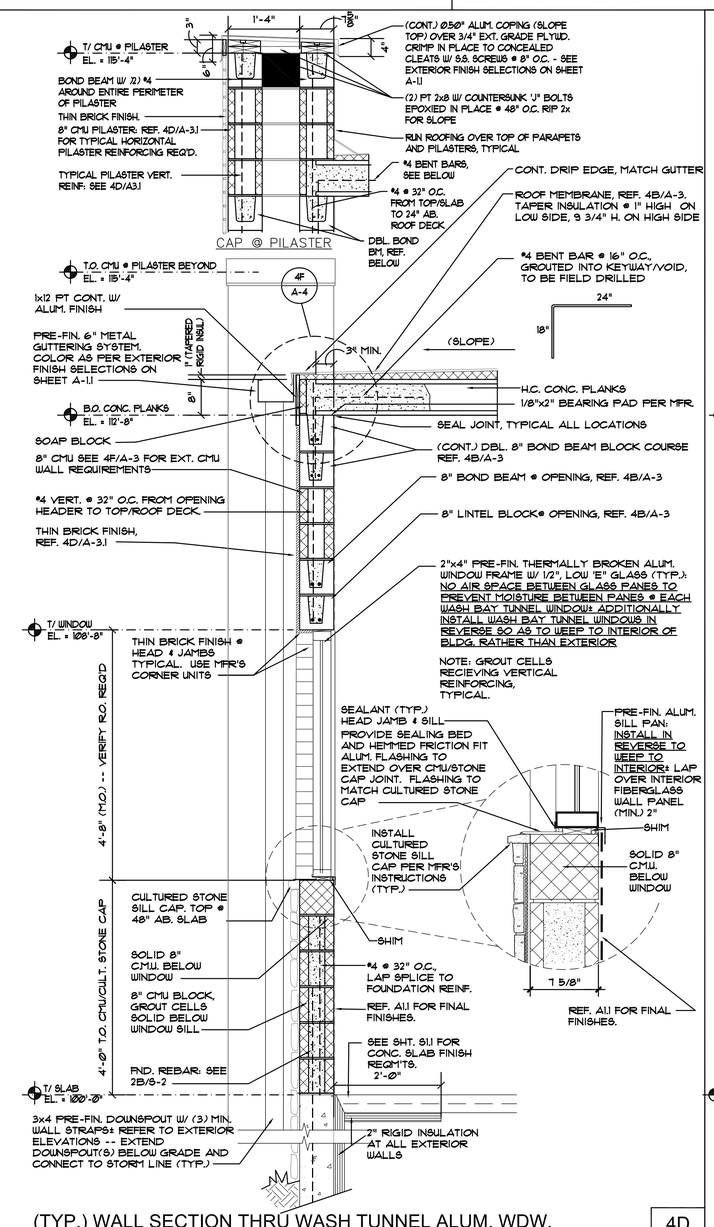
METHOD OF DESIGN = STRENGTH DESIGN: IBC 2101.2.2

1. ALL C.M.U. WALLS TO HAVE VERTICAL AND HORIZONTAL REINFORCING AS NOTED IN THE WALL SECTIONS AND DETAILS
2. PROVIDE (2) #6 BARS IN 8" DEEP CONTINUOUS GROUTED BOND BEAM AT ALL ROOF LINES AS SHOWN ON DRAWINGS.
3. PLACE BOND BEAM REINFORCING AT ALL ROOF LINES CONTINUOUS THROUGH EXPANSION AND CONTROL JOINTS, WRAPPING BARS WITH 1/8" THICK BOND BREAKING TAPE 2'-0" BOTH SIDES OF JOINT. DO NOT SPLICE BEAM REINFORCING WITHIN 6'-0" OF AN EXPANSION OR CONTROL JOINT.
4. PROVIDE ANCHORING FOR HOLLOW CORE PRECAST CONCRETE PANELS AS NOTED IN THE DRAWINGS.
5. PROVIDE VERTICAL CONTROL JOINTS AT 40 FEET ON CENTER (MAX.), AND AT ALL OFFSETS, RETURNS, AND ONE SIDE OF OPENINGS. (UNLESS OTHERWISE NOTED)
6. VERTICAL EXPANSION OR CONTROL JOINTS SHALL BE AT LEAST 2'-0" FROM A BEARING PLATE.
7. VERTICAL GROUT LIFTS SHALL NOT EXCEED 5'-0".
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY BRACE MASONRY WALLS DURING ERECTION, BRACING SHALL BE DESIGNED FOR WIND AND CONSTRUCTION LOADS. BRACING SHALL NOT SCAR OR DEFORM MASONRY EXPOSED TO VIEW.



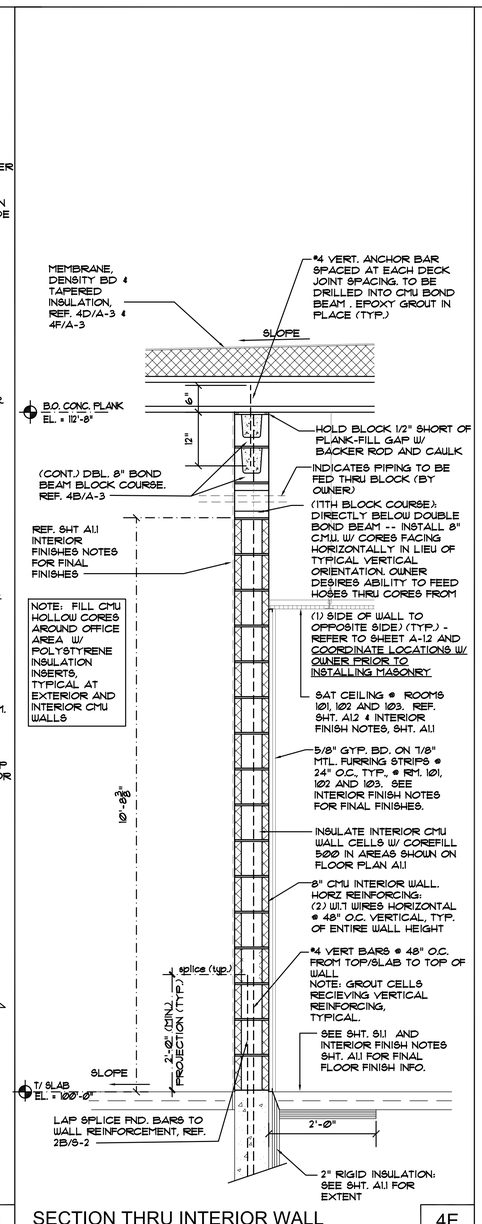
WALL SECTION THRU WASH TUNNEL OVERHEAD DOOR — 4B

SCALE: 3/4" = 1'-0" — A-3



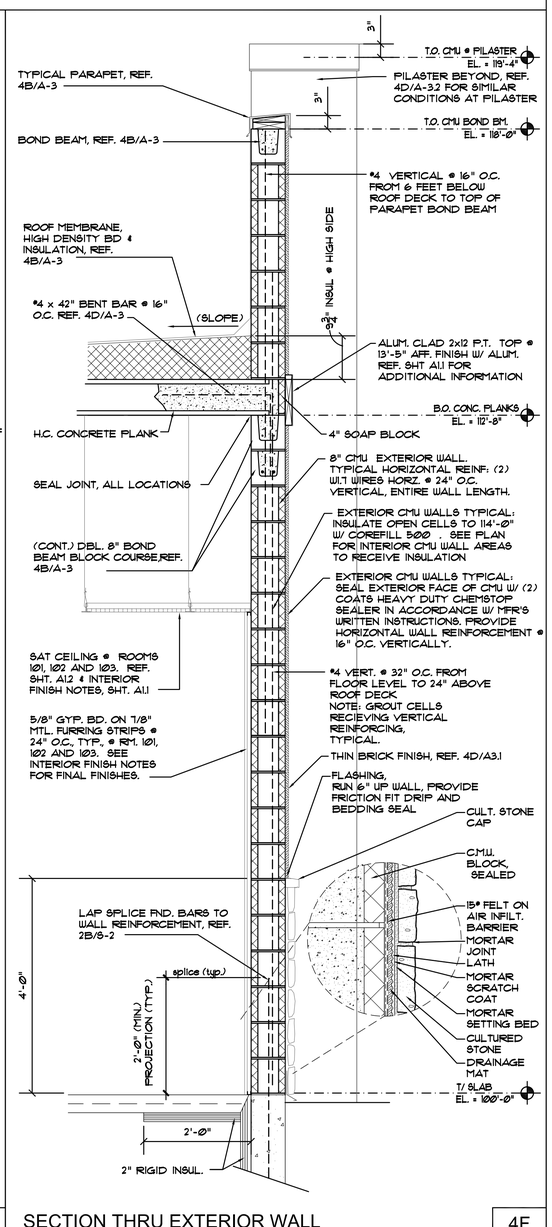
(TYP.) WALL SECTION THRU WASH TUNNEL ALUM. WDW. — 4D

SCALE: 3/4" = 1'-0" — A-3



SECTION THRU INTERIOR WALL — 4E

SCALE: 3/4" = 1'-0" — A-3



SECTION THRU EXTERIOR WALL — 4F

SCALE: 3/4" = 1'-0" — A-3

ROBERT E. BYRGE, ARCHITECT
No. 130170219
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STATE OF MICHIGAN

REB ARCHITECTS
103 WIND HAVEN DR. STE 101
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859.523.1500

REVISION	DATE

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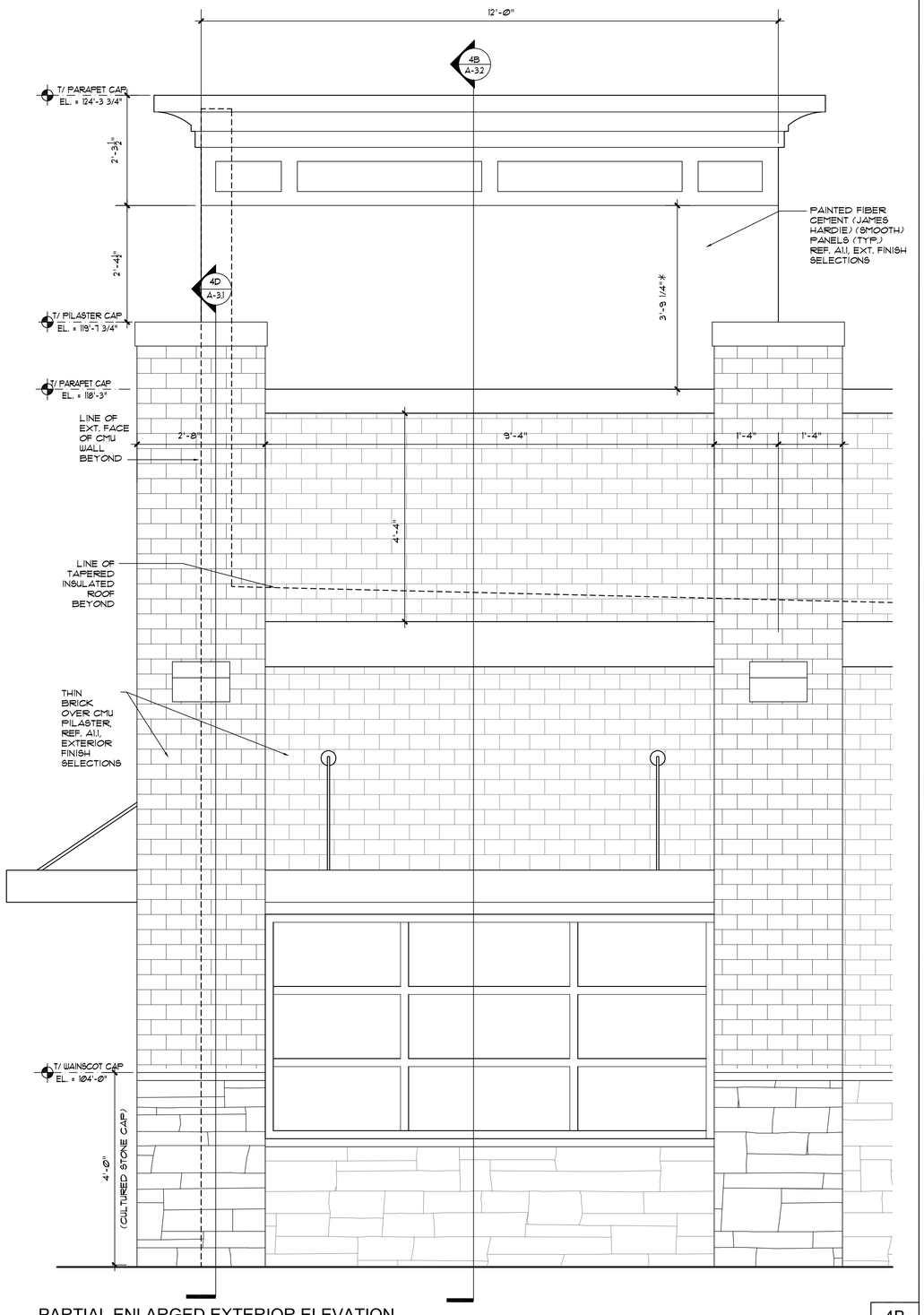
White Lake MI 48386
Wall Sections

SHEET NUMBER
A-3

* NOTE:

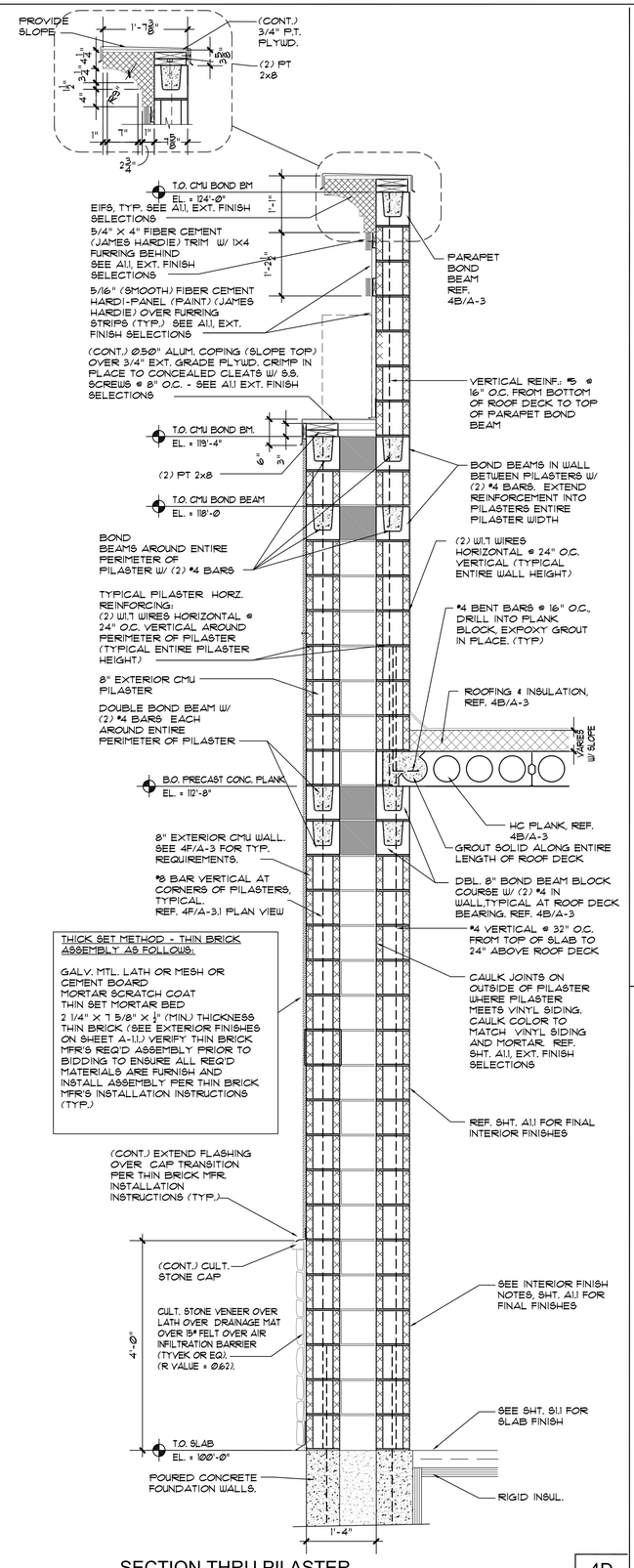
CONTRACTOR NOTE! THIS DIMENSION MUST BE VERIFIED PRIOR TO CONSTRUCTION AND COORDINATED WITH SIZE (HEIGHT) OF OWNER'S SIGNAGE VERIFY OWNER'S SIGNAGE AND COORDINATE ACCORDINGLY PRIOR TO INSTALLATION OF ANY EXTERIOR MATERIALS. ANCHORS FOR SIGNAGE MUST PENETRATE C.M.U. AS THE IX FURRING WILL NOT OFFER ENOUGH "GRAB" FOR SIGNAGE ANCHORS



PARTIAL ENLARGED EXTERIOR ELEVATION

SCALE: 3/4" = 1'-0"

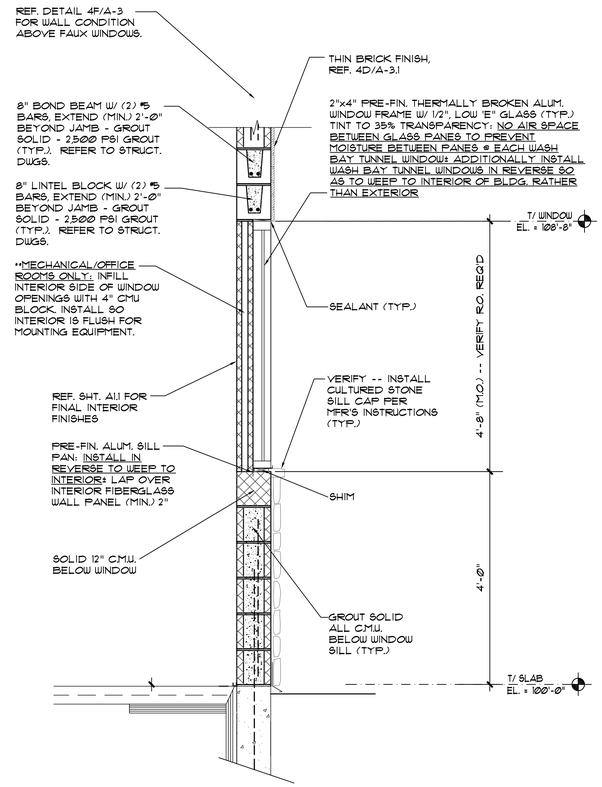
4B
A-3.1



SECTION THRU PILASTER

SCALE: 3/4" = 1'-0"

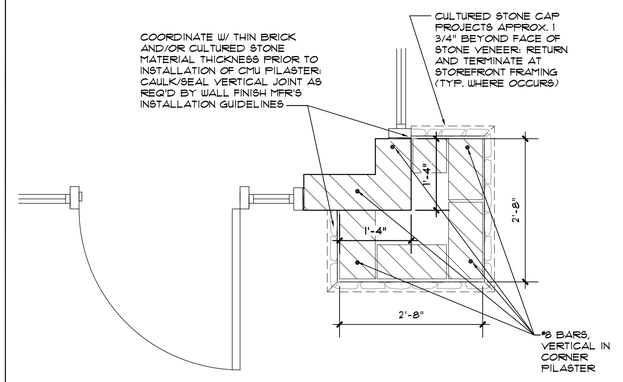
4D
A-3.1



SECTION THRU EXTERIOR WALL @ FAUX WINDOW

SCALE: 3/4" = 1'-0"

4E
A-3.1



PLAN VIEW

SCALE: 3/4" = 1'-0"

4F
A-3.1

STATE OF MICHIGAN
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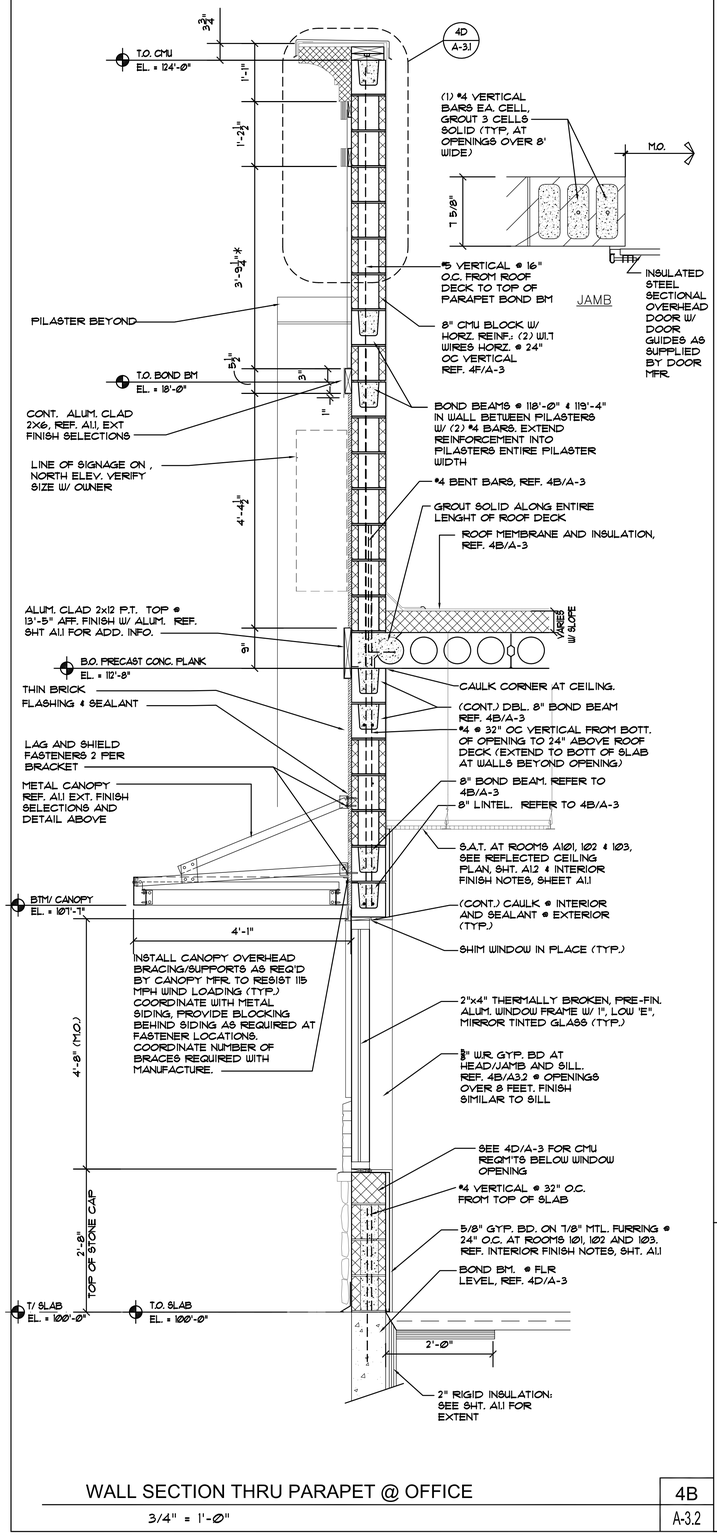
9345 Highland Road
White Lake MI 48386

Wall Sections

SHEET NUMBER
A-3.1

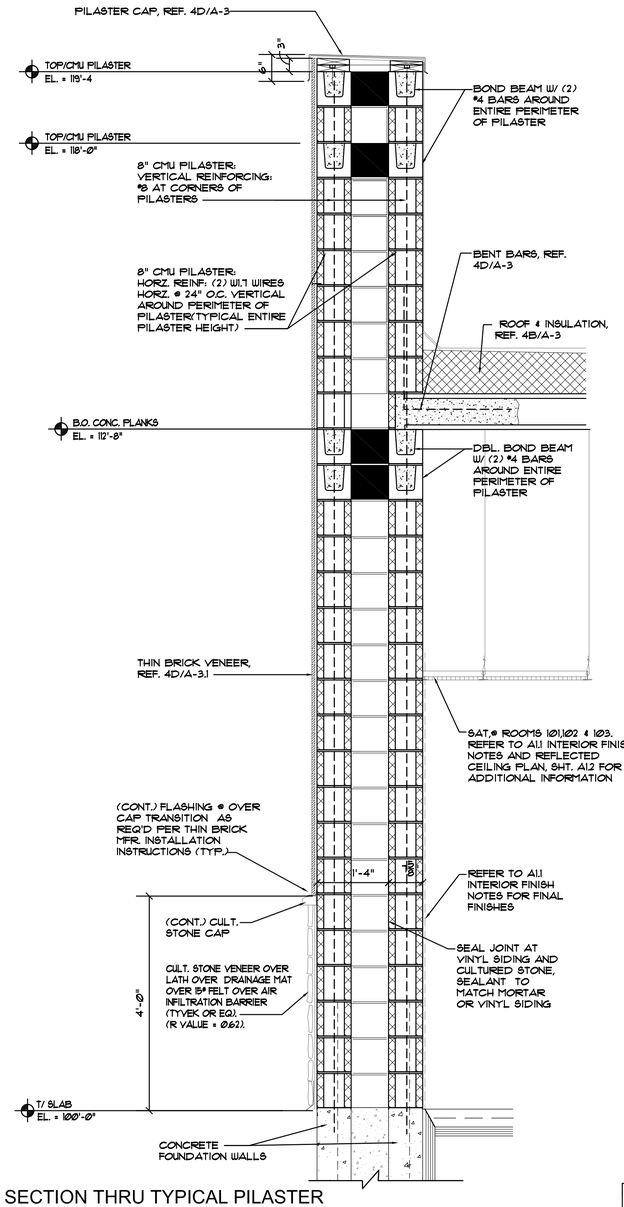


WALL SECTION THRU PARAPET @ OFFICE

3/4" = 1'-0"

4B

A-3.2

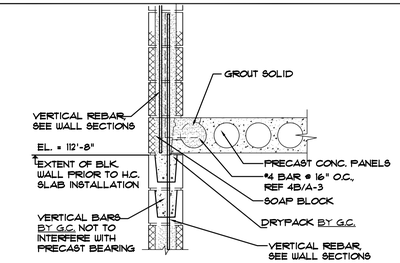


SECTION THRU TYPICAL PILASTER

3/4" = 1'-0"

4D

A-3.2

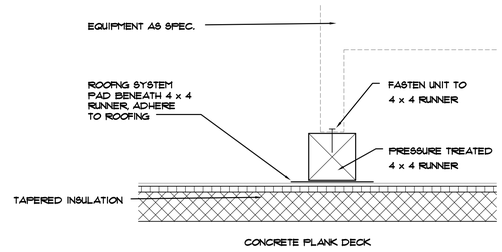


DETAIL : WALL/ROOF PLANK CONNECTION

3/4" = 1'-0"

4E

A-3.2

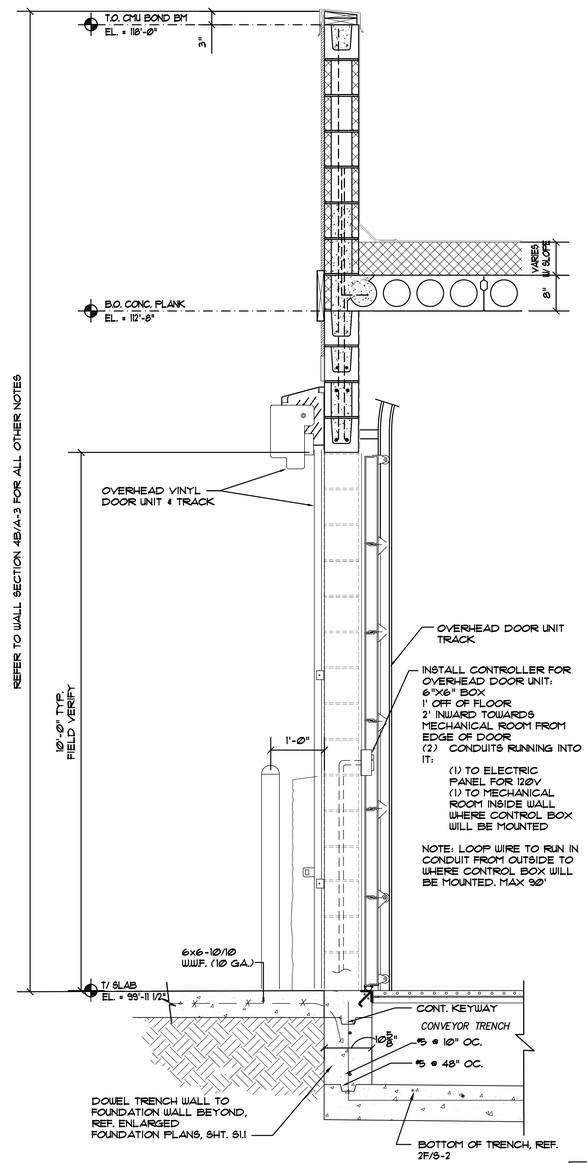


DETAIL : CONDENSOR SUPPORT

NOT TO SCALE

4F

A-3.2



WALL SECTION THRU WASH TUNNEL OVERHEAD DOOR @ EXIT

3/4" = 1'-0"

4G

A-3

Item A.

STATE OF MICHIGAN
ROBERT E. BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

REB ARCHITECTS

103 WIND HAVEN DR. STE 101
NICHOLASVILLE KY 40356
859.523.1500

REVISION	DATE

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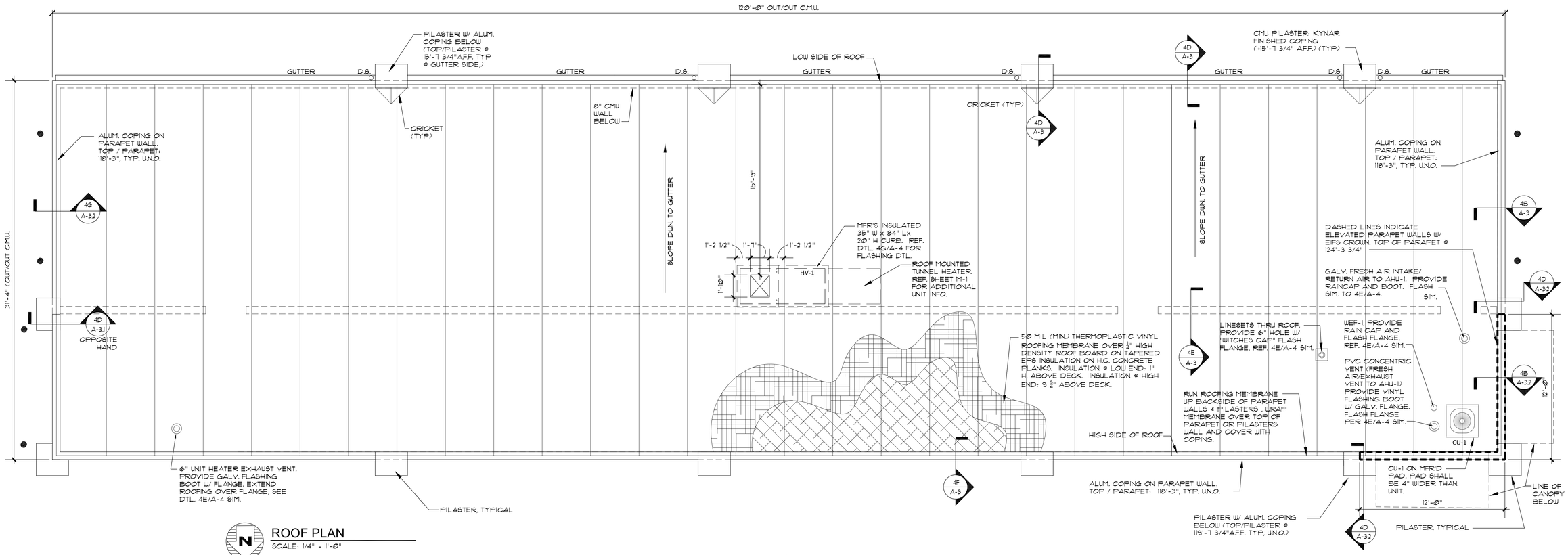
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Wall Sections

SHEET NUMBER
A-3.2



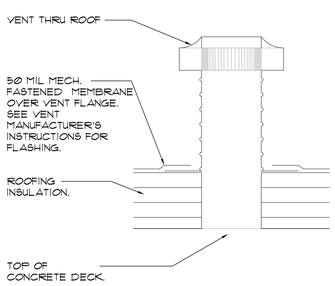
ROOF PLAN

SCALE: 1/4" = 1'-0"

ROOFING SCOPE OF WORK

1. THIS ROOF PLAN IS SCHEMATIC IN NATURE ONLY TO PROVIDE DESIGN INTENT. IT IS THE RESPONSIBILITY OF THE ROOFING CONTRACTOR TO FURNISH ALL LABOR AND INSTALL ALL MATERIAL REQUIRED (WHETHER INDICATED ON THIS DRAWING OR NOT) TO PROVIDE A COMPLETE NEW ROOFING SYSTEM IN A LEAK FREE MANNER AND IN ACCORDANCE WITH ROOFING MEMBRANE MFR'S WARRANTY REQUIREMENTS. PRIOR TO COMMENCING WITH WORK, THE ROOFING CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES AFFECTING HIS WORK.
2. FURNISH AND INSTALL (50) MIL (MIN.) MECHANICALLY FASTENED (WHITE) THERMOPLASTIC, VINYL ROOFING MEMBRANE WITH FLASHINGS AND ALL OTHER INCIDENTAL AND ACCESSORY ITEMS TO COMPRISE A LEAK FREE AND FULLY WARRANTED ROOFING SYSTEM AS MANUFACTURED BY "DURO-LAST" OR OTHER OWNER APPROVED EQUAL.
   - A. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH DETAIL / INSTALLATION DRAWINGS AND SPECIFICATIONS ISSUED BY ROOF MFR.
   - B. INSTALLER SHALL BE APPROVED BY DUROLAST. ALL MATERIALS, COMPONENTS AND/OR ACCESSORIES FURNISHED SHALL CONFORM TO DUROLAST'S SPECIFICATION REQUIREMENTS AND SHALL BE COMPATIBLE WITH EACH OTHER, THE ROOF SUBSTRATE, AND RELATED WORK.
   - C. INSTALL ROOF MEMBRANE AND ALL RELATED FLASHINGS IN ACCORDANCE WITH NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA) ROOFING AND WATERPROOFING MANUAL, LATEST EDITION.
   - D. PROVIDE ROOFING SYSTEM THAT CAN BE INSTALLED TO COMPLY WITH UL REQUIREMENTS FOR "FIRE CLASSIFIED" AND "CLASS 115" WIND UPLIFT.
3. DUROLAST CONTACT REPRESENTATIVE:
   - A. SCOTT CROWDER - PHONE: 270-731-9460
   - B. TOM ALLEN - PHONE: 563-732-4003
4. WARRANTY

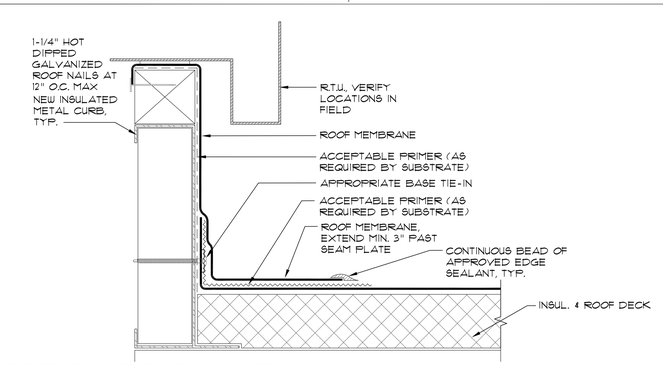
   CONTRACTOR'S WARRANTY: PROVIDE FOR CORRECTION OF ALL APPLICATION FAILURES.
   - A. CONTRACTOR'S WARRANTY PERIOD: TWO (2) YEARS.
   - B. MANUFACTURER'S WARRANTY PERIOD: FIFTEEN (15) YEARS. PROVIDE PREVIOUS TO FINAL PAYMENT.
5. ROOF INSULATION
   - A. FURNISH/INSTALL 1 LB. DENSITY EPS TAPERED INSULATION AND COVER W/ 1/4" HIGH DENSITY ROOF BOARDS IN ACCORDANCE WITH DUROLAST ROOF MEMBRANE MFR'S WARRANTY REQUIREMENTS.
   - B. REFER TO DUROLAST REPRESENTATIVE CONTACT INFORMATION HEREIN FOR QUESTIONS.
   - C. INSULATION SHALL BE INSTALLED OVER 6 MIL VISQUEEN VAPOR BARRIER OR OTHER AS REQ'D BY ROOF MFR.



VENT THRU ROOF

SCALE: N.T.S.

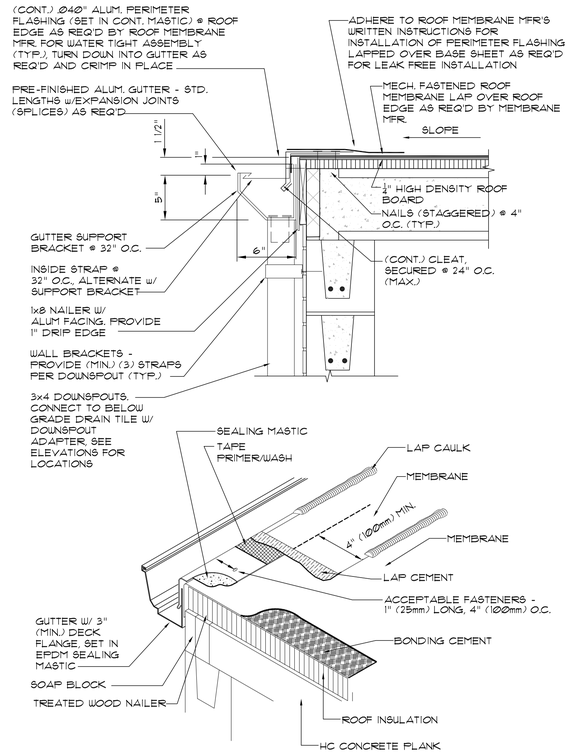
4E / A-4



ROOFTOP UNIT FLASHING DETAIL

SCALE: N.T.S.

4G / A-4



GUTTER DETAIL

SCALE: 3/4" = 1'-0"

4F / A-4

STATE OF MICHIGAN
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REB ARCHITECTS
103 WIND HAVEN DR, STE 101
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REVISION	DATE

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Permit Set

PROJECT NUMBER
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DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Roof Plan

SHEET NUMBER
A-4

REINFORCED CONCRETE GENERAL NOTES:

A. DESIGN CODES: BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI-318), LATEST ADOPTION.

B. MATERIAL STRENGTHS:

1) CONCRETE COMPRESSIVE STRENGTH (f'c) AT 28 DAYS.
- a) FOOTINGS - 3,000 PSI
- b) INTERIOR SLABS ON GRADE - 4,000 PSI
- c) WALLS - 3,000 PSI
- d) EXTERIOR SLABS ON GRADE (5-% ENTRAINED AIR) - 4,000 PSI
- e) ALL OTHER CONCRETE - 3,5000 PSI

2) REINFORCING STEEL:
- a) BARS: ASTM A615, GRADE 60.
- b) TIES: ASTM A615, GRADE 60.
- c) WELDED WIRE FABRIC: ASTM A185.

C. NOTES:

1) PLACEMENT OF CONCRETE AND REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI AND CRSI STANDARDS.

2) FURNISH THE FOLLOWING CONCRETE COVER ON REINFORCING BARS UNLESS SHOWN OTHERWISE ON THE DRAWINGS:
SLABS ON GRADE: PLACE MESH IN CENTER OF SLAB.
PIERS: 1 1/2" COVER ON TIES.
FOOTINGS: 3" COVER ON BOTTOM AND SIDES.

INSPECTION SCHEDULING

1. WORK MAY NOT BEGIN UNTIL A PERMIT HAS BEEN ISSUED - FOR THAT TRADE WORK.
2. CONTRACTORS ARE RESPONSIBLE FOR SETTING UP INSPECTION THROUGHOUT THE PROJECT A DAY IN ADVANCE, INSPECTIONS ARE SCHEDULED UNTIL 4:45PM FOR THE FOLLOWING DAY.
   a) IF A TIME IS NEEDED FOR INSPECTION, THE CONTRACTOR SHALL CALL THE OFFICE BETWEEN 8:00-9:00AM TO SPEAK WITH THE INSPECTOR.
   b) SPECIAL CIRCUMSTANCES FOR INSPECTION MAY BE PRE-ARRANGED AND SCHEDULED IN ADVANCE.

REQUIRED INSPECTIONS

1. REQUIRED INSPECTIONS, 2015 MICHIGAN BUILDING CODE FOR SPECIAL INSPECTIONS, SEE CHAPTER 17 (IF APPLICABLE)
2. FOOTING INSPECTION - SECTION 1103.1 AFTER FORMS AND RE-BAR ARE IN PLACE AND ON-SITE, SOIL TESTING BY APPROVED COMPANY HAS BEEN DONE (IF REQUIRED)
3. GROUNDING/UFER INSPECTION - IF REQUIRED. IS DONE AT SAME TIME AS FOOTING INSPECTION - NEC
4. WALL-REBAR INSPECTION - SECTION1103.8 - IF WALLS/FOUNDATION HAVE RE-BAR REINFORCEMENT.
5. CONCRETE SLAB INSPECTION - SECTION 1103.2: CONCRETE SLAB AND UNDER-FLOOR INSPECTION. CONCRETE SLAB AND UNDER-FLOOR INSPECTIONS SHALL BE MADE AFTER IN-SLAB OR UNDER-FLOOR REINFORCING STEEL, AND BUILDING SERVICE EQUIPMENT, CONDUIT, PIPING ACCESSORIES, AND OTHER ANCILLARY EQUIPMENT ITEMS ARE IN PLACE, BUT BEFORE ANY CONCRETE IS PLACED OR FLOOR SHEATHING INSTALLED, INCLUDING THE SUBFLOOR.
6. ROUGH FRAMING INSPECTION -SECTION 1103.4: IS REQUIRED AFTER ALL OTHER ROUGH INSPECTIONS HAVE BEEN APPROVED.
7. INSULATION INSPECTION - SECTION 1103.7: ENERGY EFFICIENCY INSPECTIONS.
8. FINAL BUILDING INSPECTION FOR C-OF-O - SECTION 1103.10: FINAL INSPECTION. THE FINAL INSPECTION SHALL BE MADE AFTER ALL WORK REQUIRED BY THE BUILDING PERMIT IS COMPLETED.
   A) FINAL ZONING INSPECTION AND FIRE INSPECTION MAY BE REQUIRED.

STRUCTURAL BASIS OF DESIGN:

2015 MICHIGAN BUILDING CODE

II. DESIGN LOADS:

ROOF - SEE SHEET S-3

WIND LOADS:

BASIC WIND SPEED -	115 MPH
EXPOSURE -	C
IMPORTANCE FACTOR -	1.0

SNOW LOADS:

GROUND SNOW LOAD (Pg) -	30 PSF
FLAT ROOF SNOW LOAD (Pf) -	20 PSF
THERMAL FACTOR -	1.0
IMPORTANCE FACTOR -	1.0
EXPOSURE FACTOR (Ce) -	1.0

D. SEISMIC:

1. IMPORTANCE FACTOR (I) = 1.0
   SEISMIC USE GROUP = II
2. MAPPED SPECTRAL RESPONSE ACCELERATIONS:
   Ss = 0.140g S1 = 0.074g
3. SITE CLASS = C
4. SPECTRAL RESPONSE COEEFICIENTS:
   Sms = 0.168 Sm1 = 0.1258
   Sds = 0.112 Sd1 = 0.083867
5. SEISMIC DESIGN CATEGORY = B
6. BASIC SEISMIC FORCE RESISTING SYSTEM:
   ORDINARY REINFORCED MASONRY
7. DESIGN BASE SHEAR = .014w
8. SEISMIC RESPONSE COEFFICIENT (Cs) = .14
9. SEISMIC RESPONSE MODIFICATION FACTOR (R) = 2
10. ANALYSIS PROCEDURE:
    SIMPLIFIED ANLYSIS (1613.3) (ASCE 7)

E. SOIL:

1. NET ALLOWABLE SOIL BEARING PRESSURE: 3,000 PSF
2. FROST DEPTH = 42" TOP OF FOOTING

F. THE STRUCTURE IS STABLE ONLY IN ITS COMPLETE STATE. TEMPORARY BRACING AND SUPPORTS REQUIRED TO STABLILIZE THE STRUCTURE DURING ERECTION UNDER ALL LOADING CONDITIONS SHALL BE DESIGNED, FURNISHED, AND INSTALLED BY THE GENERAL CONTRACTOR AND SHALL REMAIN IN PLACE UNTIL ALL PERMANENT WALL SURFACES AND CONCRETE DECKING HAS BEEN INSTALLED.

STATE OF MICHIGAN
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LICENSED ARCHITECT

REB ARCHITECTS
103 WIND HAVEN DR, STE 101
NICHOLASVILLE KY 40356
859.523.1500

REVISION	DATE

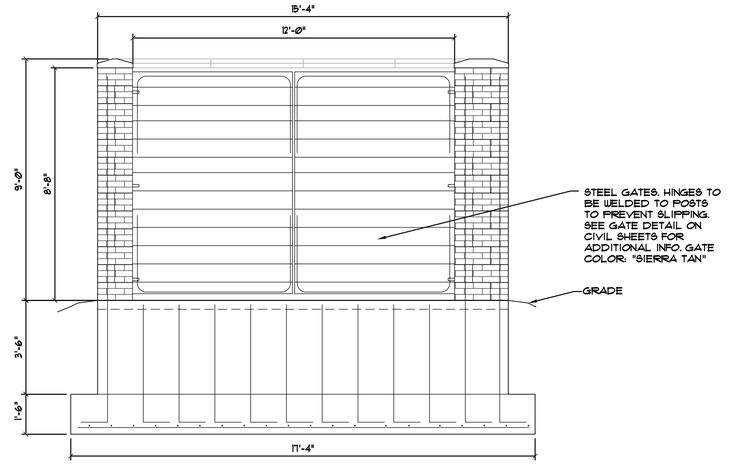
3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

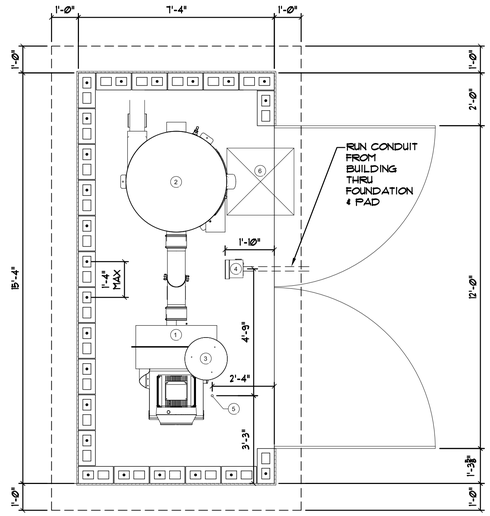
DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Structural Calcs

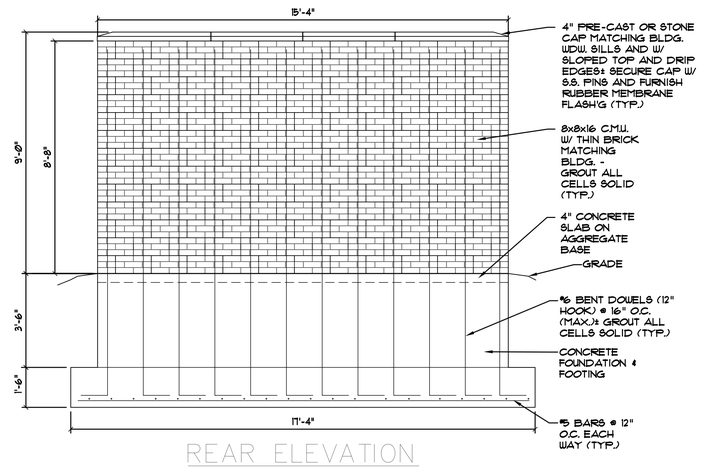
SHEET NUMBER
S-0



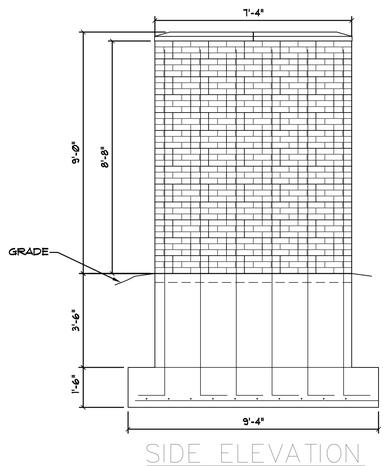
FRONT ELEVATION



PLAN VIEW



REAR ELEVATION



SIDE ELEVATION

VACUUM ENCLOSURE DETAIL

SCALE: 3/8" = 1'-Ø"

REFER TO SITE PLAN FOR LOCATION

item A.

STATE OF MICHIGAN
ROBERT E BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

REB ARCHITECTS
103 WIND HAVEN DR, STE 101
NICHOLASVILLE KY 40356
859.523.1500

REVISION	DATE

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Permit Set

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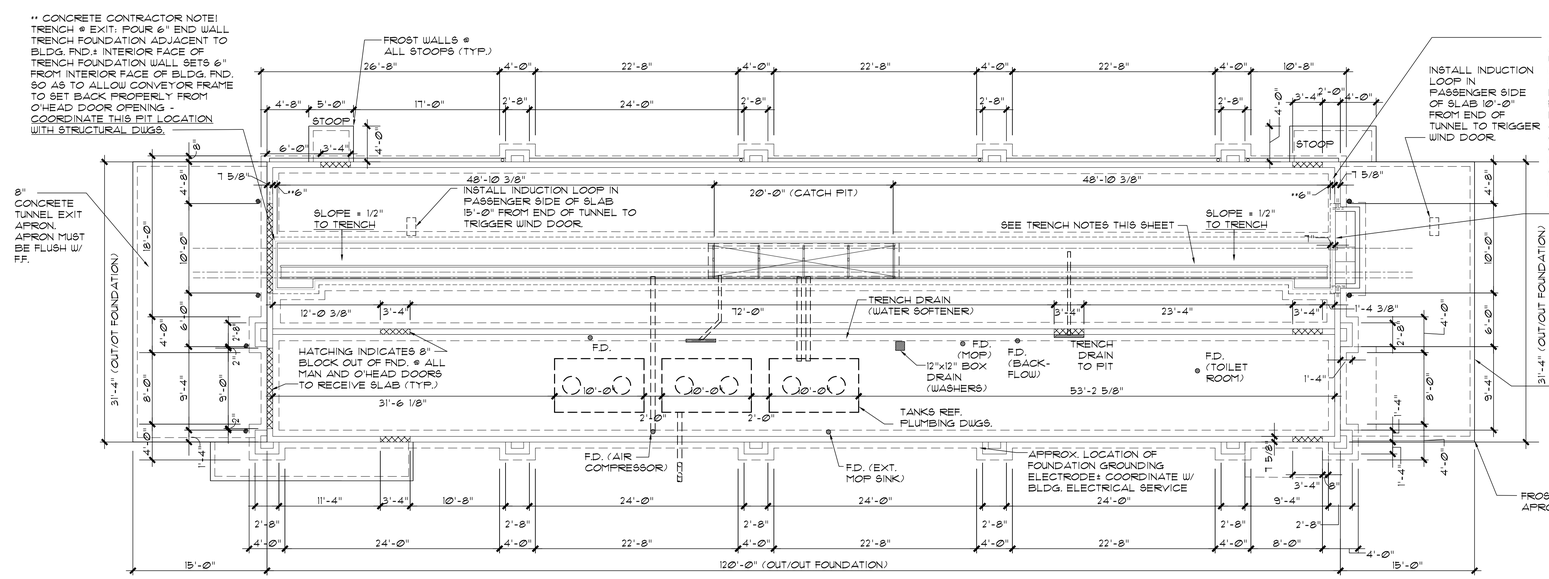
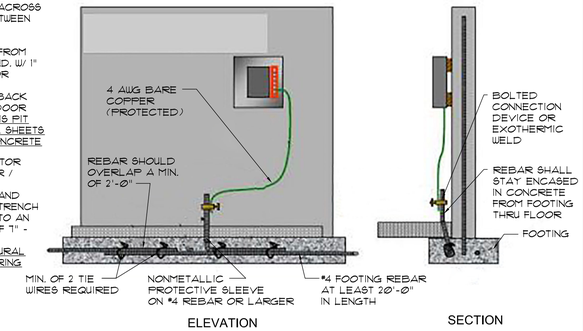
Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Monument Sig & Vac. Enclosure Details

SHEET NUMBER
S0.1





UFER GROUNDING DETAIL.

SCALE: N.T.S.

TRENCH NOTE:
TOP TRENCH ANGLE ELEVATION SHALL BE 1/2" BELOW FINISHED FLOOR THUS DROPPING ALL MEASUREMENTS IN THE TRENCH AREA BY 1/2". G.C. TO COORDINATE EQUIPMENT LAYOUT WITH TRENCH LAYOUT PRIOR TRENCH INSTALLATION. TOP OF CONCRETE TO TOP OF TRENCH FLOOR TO BE 21" @ START OF TRENCH & 29" @ TRENCH PIT.

OVERALL FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

REFER TO ENLARGED FOUNDATION PLAN SHEETS S-1.1 AND S-1.2 FOR ADDITIONAL DIMENSIONAL DATA AND INFORMATION (TYP.)

REFER TO CIVIL DETAILS FOR FOUNDATION DETAIL PERTAINING TO POLE MOUNTED PARKING LOT LIGHTS. REFER TO CIVIL SITE DWGS. AND SITE PHOTOMETRIC PLAN BY OTHERS FOR QUANTITY AND LOCATIONS.

REFER TO CIVIL DETAILS FOR TRASH ENCLOSURE CONSTRUCTION (INCLUDING REQ'D FOUNDATIONS AND CONCRETE SLAB). REFER TO CIVIL SITE DWGS. BY OTHERS FOR ITS LOCATION.

REFER TO CIVIL SITE DWGS. BY OTHERS FOR CONCRETE SCOPE OF WORK REQUIRED FOR INSTALLATION OF VACUUM STATIONS OUTSIDE OF BUILDING ON SITE.

REFER TO SHEET S-0.1 FOR FOUNDATION DETAIL PERTAINING TO MONUMENT SIGN FOUNDATION. REFER TO CIVIL SITE DWGS. BY OTHERS FOR LOCATION. COORDINATE WITH SIGNAGE DWGS. BY OTHERS

REFER TO CIVIL DWGS. FOR FOUNDATION DETAIL PERTAINING TO PAY STATION POLE MOUNTED CANOPIES INSTALLED OUTSIDE OF BUILDING ON SITE. REFER TO CIVIL SITE DWGS. BY OTHERS FOR QUANTITY AND LOCATIONS.

EARTHWORK NOTES:

1. FOUNDATION DESIGN IS BASED ON FOOTINGS BEING PLACED ON NATIVE LOOSE TO MEDIUM COMPACT CLAYEY SAND, SILTY SAND, SAND, AND/OR GRAVELLY SAND TYPE SOILS WITH TOP OF FOOTINGS AT MIN. 42" ADJACENT TO SURROUNDING FINISH GRADE FOR AN ASSUMED SOIL BEARING CAPACITY OF 3,000 PSF.
2. ALL EXCAVATIONS TO BE PER O.S.H.A. CONSTRUCTION STD. FOR EXCAVATION, FOR THE TYPE OF SOIL INDICATED AT SITE. (29 CFR PART 1926.650 THRU 652, SUBPART P)
3. BEFORE EXCAVATING, NOTIFY "BEFORE YOU DIG", 72 HOURS BEFORE DIGGING, 3 WORKING DAYS (TELE: 811).
4. ALL SITE MATERIAL CONSIDERED SUITABLE FOR EXTERIOR LANDSCAPING ONLY (NON-STRUCTURAL BACKFILL), FREE OF DEBRIS, ROOTS, ORGANIC, STONES OR FROZEN MATERIAL, COMPACTED TO 90% STD. PROCTOR DRY DENSITY TEST ASTM D-698.
5. STRUCTURAL FILL AND BACKFILL:
   A. STRUCTURAL BACKFILL MATERIAL TO BE UNWEATHERED OR SLIGHTLY WEATHERED GLACIAL TILL HAVING A LIQUID LIMIT LESS THAN 25 AND A PLASTICITY INDEX BETWEEN 1 AND 12, OR A CRUSHED NATURAL STONE CONFORMING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) COARSE AGGREGATE GRADATION CA-6, OR A CLEAN MEDIUM SAND CONFORMING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION MDOT) FINE AGGREGATE GRADATION FA-9.
   B. ALL COMPACTED FILL MATERIALS ARE TO BE TESTED BEFORE PROCEEDING WITH PLACEMENT. 50 LBS. SAMPLES OF EACH MATERIAL USED ARE TO BE FORWARDED TO A GEOTECHNICAL ENGINEER BY THE CONTRACTOR FOR LABORATORY TESTING AND SUBMITTED TO OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL.
   C. STRUCTURAL BACKFILL MATERIAL IS TO BE PLACED IN MAXIMUM 12" LAYERS AND COMPACTED TO MINIMUM OF 95% OF THE STANDARD PROCTOR DRY DENSITY TEST ASTM D-698.
   D. NO FILL SHALL BE PLACED ON FROZEN GROUND AND NO FILL WORK TO BE DONE WHEN TEMPERATURE IS LESS THAN 25°F.
6. AT LOCATION OF WALL STRIP FOOTINGS A GEOTECHNICAL ENGINEER SHALL INSPECT BEARING SURFACE TO DETERMINE THAT FOOTINGS WILL BE SUPPORTED ON ADEQUATE BEARING.
7. STRIP MINIMUM 6" TOP SOIL AND ALL ORIGINAL MATTER TO ITS ENTIRE DEPTH FROM AREAS TO BE COVERED BY BUILDING SLAB-ON-GRADE.
8. AFTER ALL EARTHWORK FOR CUT AND FILL OPERATIONS IS DONE FOR THE ENTIRE BUILDING SITE, COMPACT ENTIRE AREA OF BUILDING SLAB-ON-GRADE TO A MIN. OF 95% OF THE STD. PROCTOR DRY DENSITY TEST ASTM D-698. ALL SPOTS INDICATED AS LOOSE ZONES ARE TO BE REMOVED TO THE DEPTH INSTRUCTED AND REPLACED WITH A COMPACTED STRUCTURAL FILL.
9. GRANULAR BASE:
   A. A CLEAN MEDIUM SAND CONFORMING TO MDOT FINE GRADATION FA-9, OR A CLEAN FREE DRAINING GRAVEL CONFORMING TO MDOT COARSE GRADATION CA-6 WITH LESS THAN 10% MATERIAL PASSING A #200 SIEVE.
   B. GRANULAR SUB-BASE TO BE PLACED IN A SINGLE LAYER WITH THICKNESS SHOWN AND COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DRY DENSITY TEST ASTM D-698.
10. COMPACTION TESTING: TO VERIFY COMPACTION EFFORTS, A GEOTECHNICAL ENGINEER SHALL PERFORM FIELD DENSITY TESTS AS FOLLOWS:
   I. AT AREAS TO BE COVERED BY BUILDING SLAB-ON-GRADE, ESTABLISH A GRID OF 2,500 SF. FOR EACH AREA, PROVIDE ONE TEST PER EACH 1 FOOT, OR FRACTION THEREOF, DEPTH OF COMPACTED MATERIAL.
   J. SUBMIT TO THE OWNER'S REPRESENTATIVE ALL COMPACTION TESTING FOR REVIEW AND APPROVAL.
11. FIELD AND LABORATORY TESTING AND INSPECTION OF EARTHWORK BY THE GEOTECHNICAL ENGINEER TO BE CONTRACTOR'S EXPENSE.
12. SPECIAL CONDITIONS:
   A. EXCAVATION BELOW INDICATED FROST BEARING OR PAVEMENT SUBBASE ELEVATIONS SHALL BE DONE TO REMOVE ANY UNSUITABLE MATERIAL. REPLACE UNSUITABLE MATERIAL WITH STRUCTURAL FILL COMPACTED OR FLOWABLE MATERIAL (CLSM). PAYMENT FOR EXCAVATING AND REPLACING AND COMPACTING UNSUITABLE MATERIAL TO BE AN EXTRA COST TO THE CONTRACT BASED UPON AN AGREED COST PER CUBIC YARD BEFORE REMOVAL.
   B. ACCIDENTAL EXCAVATION OF SUITABLE MATERIAL TO BE REPLACED BY SAME TYPE OF CONCRETE AS FOOTING CONCRETE AT NO ADDITIONAL COST TO OWNER.
   C. WHERE CONDITIONS ARE APPROVED BY THE OWNER'S REPRESENTATIVE, A FLOWABLE FILL MATERIAL MAY BE USED TO REPLACE FILL AND BACKFILL REQUIREMENTS. FLOWABLE FILL MATERIAL TO BE CONTROLLED LOW STRENGTH MATERIAL (CLSM) CONSISTING OF A CEMENTITIOUS BACKFILL WHICH FLOWS LIKE A LIQUID, SUPPORTS LIKE A SOLID AND IS SELF LEVELING WITHOUT TAMPING OR COMPACTION. MIX STRENGTH DESIGN AT 28 DAYS TO BE 50-100 PSI TO ALLOW EXCAVATION BY A 3/4 CUBIC YARD POWER SHOVEL.
13. CONVEYOR TRENCH CONSTRUCTION
   A. EXCAVATE TRENCH TO A POINT AT OR JUST BELOW THE BOTTOM OF TRENCH SLAB SHOWN. SLOPE EXCAVATION TO MATCH SLOPE OF TRENCH. COMPACT SOIL UNDER TRENCH IN ACCORDANCE WITH SOIL ENGINEERS'S RECOMMENDATION. FORM AND POUR TRENCH BOTTOM SLAB COORDINATING PLACEMENT OF VERT. REINF. WITH PLACEMENT OF BLOCK SO THAT VERT. REINF. IS CENTERED IN THE BLOCK CELLS. LAY BLOCK AND FILL CELLS AND TIE COLUMNS WITH CONCRETE TO A POINT JUST BELOW THE SLAB OVER POUR SHOWN. AFTER ADEQUATE CURING TIME, BACK FILL AND COMPACT CLEAN SOIL BEHIND TRENCH WALLS IN ACCORDANCE WITH SOILS ENGINEER'S DIRECTION. COMPLETE TRENCH BY FORMING AND POURING CONVEYOR SHELF, COORELATOR PIT BOTTOM, AND SURROUNDING SLAB.

FOUNDATION CONCRETE NOTES:

1. ALL CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE PUBLICATION SP-15, LATEST EDITION, INCLUDING BUT NOT LIMITED TO:
   A. ACI-301, SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
   B. ACI-305R, HOT WEATHER CONCRETING.
   C. ACI-306R, COLD WEATHER CONCRETING.
   D. ACI-347, RECOMMENDED PRACTICE FOR CONCRETE FORMWORK.
2. CONCRETE FOR WALLS & FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, WITH AIR ENTRAINMENT OF 1-3%, A MAXIMUM AGGREGATE SIZE OF 1 1/2", AND A SLUMP OF 6".
3. ALL REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60 WITH A MINIMUM YIELD STRENGTH OF 60,000 PSI.
4. ALL STRUCTURAL STEEL HOT ROLLED SHAPES AND PLATES SHALL BE ASTM A36 WITH A MINIMUM IELD STRESS OF 36 KSI. ALL STEEL SHALL CONFORM TO AISC STANDARDS AND SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL.
5. ALL ANCHOR BOLTS TO BE ASTM A-307 BOLTS U.N.O.
6. CONSTRUCTION JOINTS:
   A. CONSTRUCTION AND CONTROL JOINTS NOT SHOWN ON DRAWINGS ARE TO BE APPROVED BY THE OWNER'S REPRESENTATIVE BEFORE PLACEMENT.
   B. DO NOT CAST FOUNDATION WALLS IN LENGTHS OVER 60'-0", UNLESS A CONTROL JOINT IS USED, SEE TYP. DETAIL. CONTROL JOINTS TO BE LOCATED AS SHOWN ON DRAWINGS.
7. LAP SPLICES IN CONCRETE: UNLESS OTHERWISE NOTED ON DRAWINGS, LAP SPLICES TO BE 44 TIMES BAR DIAMETER AND STAGGERED.
7. NO ADMIXTURES TO BE ADDED WITHOUT WRITTEN APPROVAL FROM ENGINEER.
8. CONCRETE FORMED SURFACES TO BE AS-CAST SMOOTH FORM FINISH. TIE HOLES AND DEFECTS SHALL BE PATCHED.
9. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR THE OWNER'S REPRESENTATIVE APPROVAL. INDICATE ALL REINFORCING BARS SIZE, SHAPE, AND SPACING. ALL BAR SCHEDULES AND BENDING DETAILS SHALL BE ATTACHED TO THE SHOP DRAWINGS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE DESIGN MIX TO MEET THE CONCRETE DESIGN REQUIREMENTS AND SHALL SUBMIT COPIES OF EACH DESIGN MIX TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO POURING CONCRETE. CONCRETE TO BE READY-MIX USING TYPE I PORTLAND CEMENT PER ASTM C94.
11. THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED SUFFICIENTLY IN ADVANCE OF THE SCHEDULED CONCRETE PLACEMENT TO PERMIT HIS REVIEW OF FORMS, REINFORCEMENT, AND EMBEDDED ITEMS. NO CONCRETE MAY BE POURED UNTIL AFTER ANY DEFICIENCY HAS BEEN CORRECTED.
12. GROUT FOR ALL BEARING PLATES TO BE NONSHRINK, NATURAL AGGREGATE, MASTER BUILDERS (MASTERFLOW 713 GROUT OR EQUAL).
13. ALL MASONRY SHALL BE LAID WITH FULL MORTAR COVERAGE OF THE FACE SHELLS AND WEBS AND FULL END JOINTS USING TYPE M OR S MORTAR. ALL MORTAR USED IN THE HOLLOW CONCRETE MASONRY UNIT WALLS SHALL CONFORM TO ASTM 270 (LATEST EDITION).
14. ALL FILLED CELLS OF MASONRY UNITS SHALL BE FILLED WITH CONCRETE GROUT HAVING A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AND A MAXIMUM SLUMP OF 9".
15. ALL CELLS TO BE FILLED WITH CONCRETE SHALL BE AS STRAIGHT AS POSSIBLE. THE BLOCK SHOULD NOT BE STAGGERED SO AS TO CONSTRICT THE FLOW OF CONCRETE IN ANY WAY. THIS SHALL BE DONE BY STRATEGICALLY PLACING PIECES OF BLOCK VERTICALLY BETWEEN FILLED CELLS IN NON MODULAR SECTIONS OF WALL AND ABOVE AND BELOW NON MODULAR MASONRY OPENINGS.
16. CAST-IN-PLACE CONCRETE WALLS TO BE CURED BY LEAVING FORMWORK IN PLACE, MINIMUM 3 DAYS IN HOT WEATHER AND SEVEN DAYS IN COLD WEATHER.
17. FOUNDATION WALL PERIMETER INSULATION TO BE STYRENE CONFORMING TO ASTM C578 TYPE IV.
18. CONTRACTOR TO REFERENCE ARCHITECTURAL SHEETS FOR CONCRETE APPROACH AND EXIT SLABS EXTENDING AT EITHER END OF THE TRENCH. THESE SLABS SHALL BE ALIGNED WITH AND LEVEL ALONG THE DIRECTION OF TRAVEL THROUGH THE CAR WASH. SLIGHT SLOPING OF THE SLABS PERPENDICULAR TO THE DIRECTION OF TRAVEL TO ALLOW DRAINAGE IS ACCEPTABLE.

SLAB ON GRADE NOTES:

1. PLACING AND FINISHING OF SLAB-ON-GRADE TO BE PER ACI 302.1R "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" FOR A CLASS 4 FLOOR CLASSIFICATION. NORMAL STEEL TROWEL FINISH (FLOAT AND TWO TROWELINGS). DEPRESSIONS IN FLOORS BETWEEN HIGH SPOTS SHALL NOT BE GREATER THAN 1/4" BELOW A 10 FT. STRAIGHTEDGE.
2. SAW CUTTING OF SLABS TO BE DONE AS SOON AS CONCRETE HAS SET AND MUST BE DONE ON SAME DAY. UNDER NO SITUATION WILL SLABS BE ALLOWED TO BE SAW CUT THE NEXT DAY.
3. TUNNEL SLAB, ALL CONCRETE SIDEWALKS, AND CONCRETE APRONS TO RECEIVE WELDED WIRE FABRIC. ALL WELDED WIRE FABRIC SHALL BE ASTM A-185, MIN. TENSILE STRENGTH OF 70000 PSI, FLAT SHEETS ONLY, NO ROLLS ALLOWED. LAP SPLICES IN WWF TO BE MESH SPACING PLUS 2 IN, BUT NOT LESS THAN 8 IN.
4. CAST SLAB-ON-GRADE WITH CONSTRUCTION, CONTRACTION AND ISOLATION JOINTS ONLY AS SHOWN ON DRAWINGS.
5. CURING PROCEDURES SHALL BEGIN IMMEDIATELY AFTER CONCRETE HAS BEEN FINISHED BY APPLYING TWO COATS (APPLIED 90° TO EACH OTHER FOR EVEN COVERAGE) OF CURING AND SEALING COMPOUND CONFORMING TO ASTM C-309 TYPE 1 NON-YELLOWING.
6. ISOLATION BOARD FOR JOINTS NOT TO BE SEALED: FIBER EXPANSION JOINT FILLER ASTM D-1751, FULL DEPTH OF SLAB.
7. AT AREAS OF SLAB-ON-GRADE INDICATED TO BE EXTERIOR, THE CONCRETE SHALL HAVE A MIN. AIR CONTENT OF 4-6% AIR ENTRAINMENT AND A LIGHT BROOM FINISH.
8. ISOLATION BOARD FOR JOINTS TO BE SEALED: SPONGE RUBBER EXPANSION JOINT FILLER ASTM D-1752 TYPE II. JOINT SEALANT TO BE A POURABLE URETHANE, ASTM C920 TYPE 5, (MAMECO VULKEM 45 OR EQUAL). PROVIDE ISOLATION BOARD WITH REMOVABLE CAP FOR A MAXIMUM SEALANT DEPTH OF 1/2".
9. VERIFY WITH ARCHITECTURAL FLOOR PLANS AND ROOM FINISH SCHEDULE ALL AREAS TO RECEIVE CERAMIC TILE FLOORING. AREAS RECEIVING CERAMIC TILE FLOORING SHALL RECEIVE A HARD TROWEL FINISH.
10. ALL CAR WASH VEHICULAR SLABS SHALL BE FINISHED WITH ROUGH NON-SKID SURFACE (LIGHT BROOM FINISH), BRUSH LINES IN THE FINISH SHALL BE PARALLEL TO THE DIRECTION OF SLOPE. SLOPE ON PASSENGER SIDE OF THE WASH TUNNEL SHOULD HAVE A CONTINUOUS DOWNWARD SLOPE FROM WALL TO TRENCH OF ¼".
11. ALL CAST IN PLACE CONCRETE SHALL BE CONSOLIDATED BY MEANS OF MECHANICAL VIBRATORS. THE CONTRACTOR SHALL USE PROPERLY TRAINED PERSONNEL TO ASSURE THAT THE CONCRETE IS NOT OVER OR UNDER VIBRATED, RESULTING IN OVER OR UNDER CONSOLIDATION OF THE CONCRETE.
12. FINISHING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 (LATEST EDITION)

CONCRETE TESTING NOTES:

1. CONCRETE CYLINDERS:
   A. A MINIMUM OF 6 CYLINDERS SHALL BE PREPARED FOR EACH 50 CUBIC YARDS OF CONCRETE PER DAYS PLACING FOR EACH COMPRESSIVE STRENGTH OF CONCRETE.
   B. 2 CYLINDERS SHALL BE TESTED AT 7 DAYS AFTER PLACEMENT, 2 CYLINDERS SHALL BE TESTED 28 DAYS AFTER PLACEMENT. 2 CYLINDERS ARE TO BE HELD IN RESERVE.
   C. CYLINDERS SHALL BE MADE AND CURED PER ASTM C-31 AND TESTED PER ASTM C-39. ALL CYLINDERS SHALL MEET OR EXCEED THE 28 DAY COMPRESSIVE STRENGTH SPECIFIED.
   D. ANY CONCRETE WHICH FAILS TO MEET THE COMPRESSIVE STRENGTH SPECIFIED SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
2. SLUMP TESTS:
   A. SLUMP TESTS SHALL BE MADE FOR EACH CONCRETE BATCH TO CONFIRM THE REQUIRED SLUMP. SLUMP TESTS SHALL BE PER ASTM C-172 AND C-143.
   B. UNLESS NOTED OR APPROVED OTHERWISE, THE MAXIMUM SLUMP ALLOWABLE FOR CONCRETE SHALL BE FOUR (4) INCHES. IF HIGHER SLUMP IS DESIRED TO INCREASE WORKABILITY, THE CONTRACTOR SHOULD CONSULT WITH THE CONCRETE SUPPLIER ABOUT USING A CONCRETE ADDITIVE THAT WILL INCREASE SLUMP WITHOUT INCREASING THE WATER CEMENT RATIO OF THE CONCRETE. THE CONTRACTOR SHALL VERIFY THAT ANY CONCRETE ADDITIVES SHALL NOT HAVE ANY DETRIMENTAL EFFECTS ON EMBEDDED ITEMS, FINISHES INDICATED ON THE PLANS OR LIKELY FUTURE FINISHES.
   C. CONCRETE BATCHES WHICH FAIL TO MEET THE MAXIMUM SLUMP SPECIFIED SHALL BE REJECTED AT NO COST TO THE OWNER.
3. AIR ENTRAINMENT TEST:
   A. AIR CONTENT SHALL BE DETERMINED AT LEAST ONE TIME DURING EACH FOUR HOURS OR LESS OF EACH POURING INTERVAL, UNLESS OTHERWISE APPROVED. AIR CONTENT TEST SHALL BE PER ASTM C-231.
   B. ANY CONCRETE FAILING TO MEET THE SPECIFIED AIR CONTENT SHALL BE REJECTED AT NO COST TO THE OWNER.
4. TESTING:
   A. THE CONTRACTOR SHALL RETAIN AT HIS EXPENSE AN INDEPENDENT TESTING FIRM TO TEST CYLINDERS, SLUMP, AND AIR CONTENT FOR ALL CONCRETE PLACED BY THE CONTRACTOR.
   B. THE NAME OF THE TESTING FIRM CHOSEN BY THE CONTRACTOR SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO BEGINNING CONCRETE WORK. OWNER RESERVES THE RIGHT TO REJECT THE TESTING FIRM AT ANY TIME DURING CONSTRUCTION, AND THAT ANOTHER TESTING FIRM BE RETAINED.
   C. NO CONCRETE SHALL BE PLACED UNLESS INDEPENDENT TESTING FIRM IS ON SITE READY TO PERFORM REQUIRED TESTS UNLESS OTHERWISE APPROVED BY THE OWNER.
   D. COPIES OF ALL CONCRETE TEST RESULTS SHALL BE SENT DIRECTLY TO THE OWNER AND OWNER'S REPRESENTATIVE.

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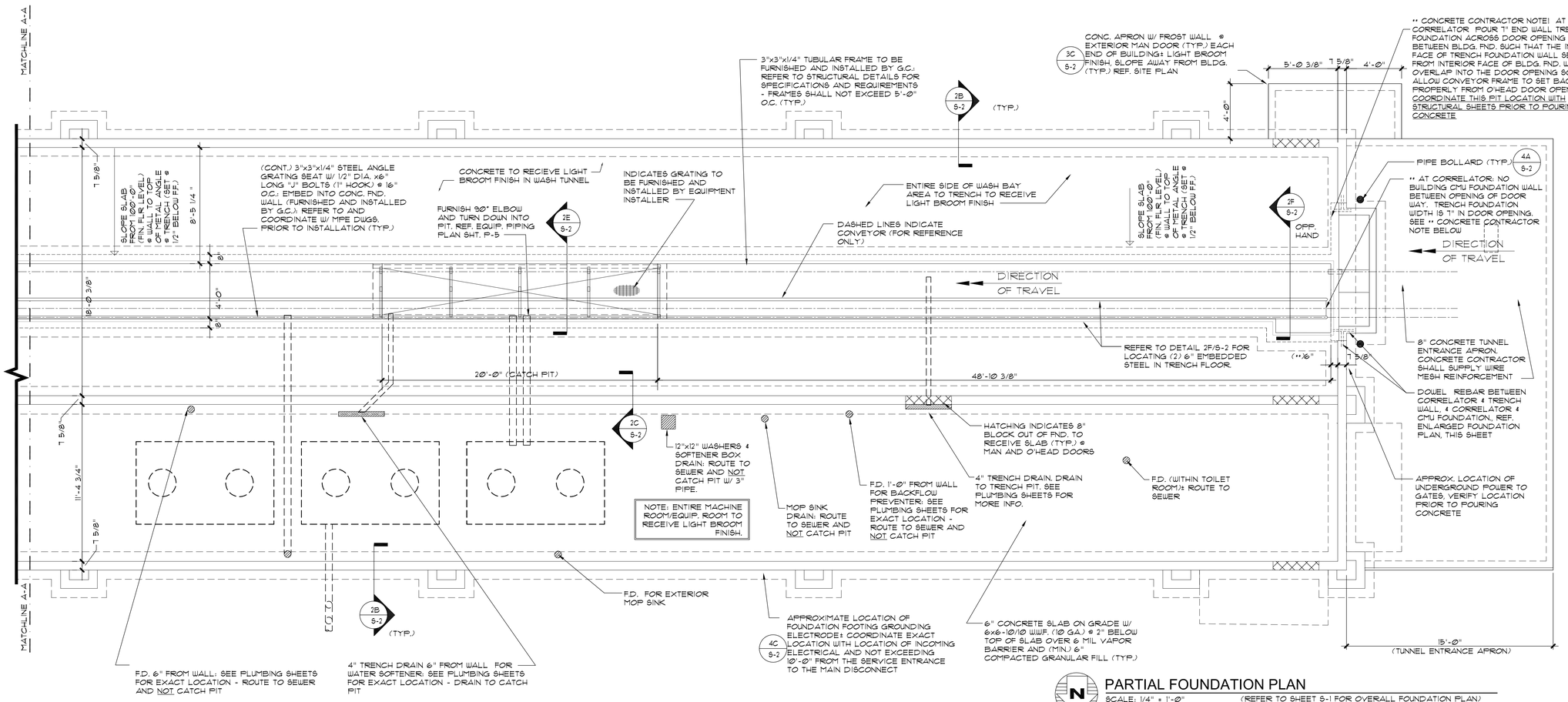
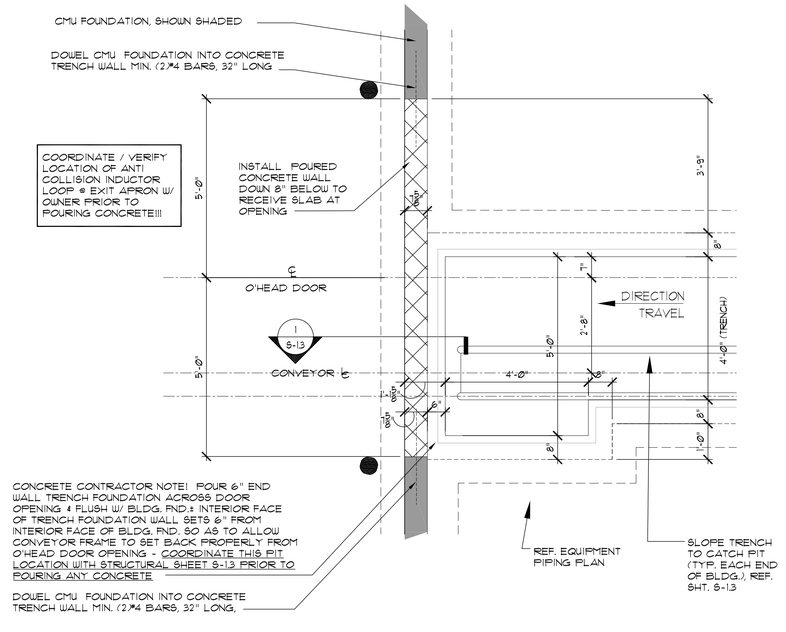
Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Overall Foundation Plan

SHEET NUMBER
S-1



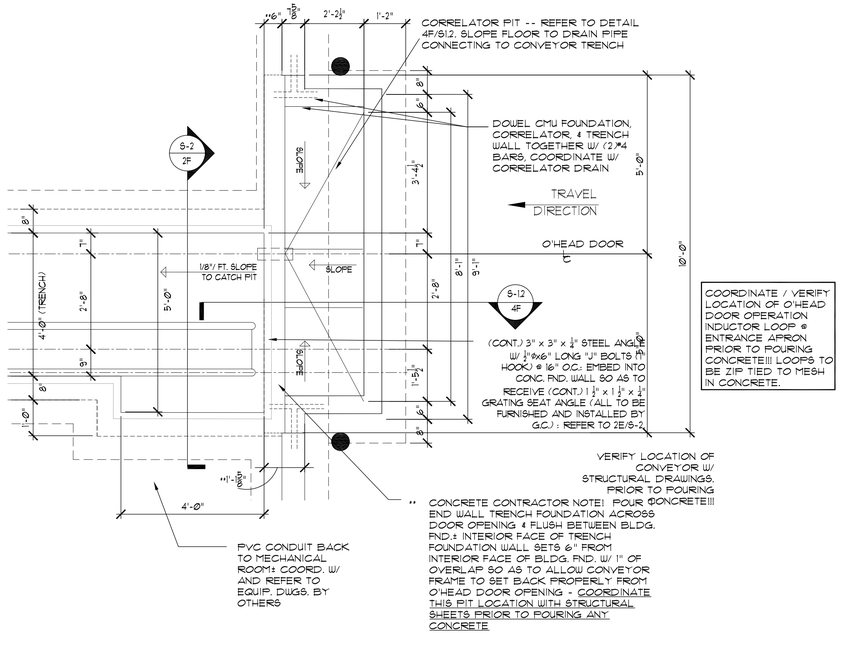
PARTIAL FOUNDATION PLAN

SCALE: 1/4" = 1'-Ø" (REFER TO SHEET S-1 FOR OVERALL FOUNDATION PLAN)



PARTIAL ENLARGED FOUNDATION PLAN @ TUNNEL EXIT

SCALE: 1/2" = 1'-Ø"



PARTIAL ENLARGED FOUNDATION PLAN @ TUNNEL ENTRANCE

SCALE: 1/2" = 1'-Ø"

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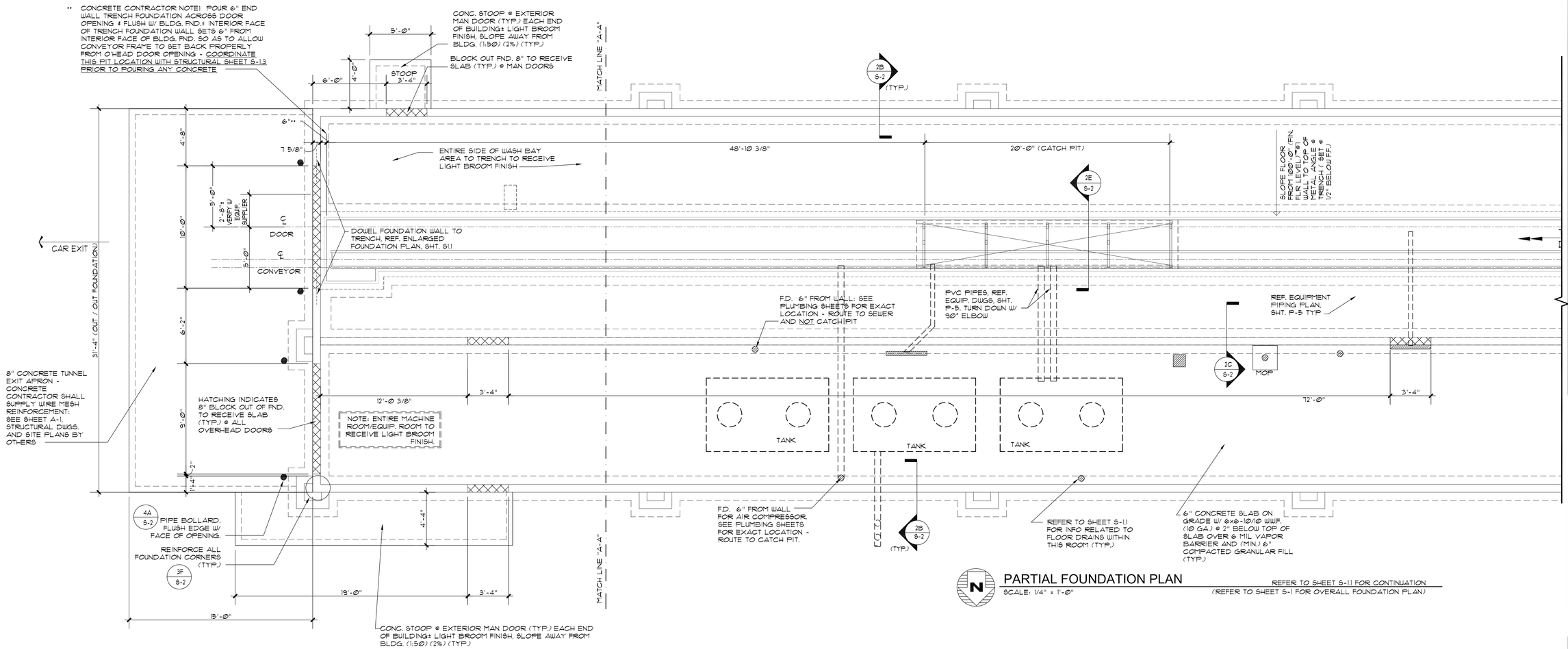
Enlarged Partial Foundation Plan

SHEET NUMBER
S-1.1

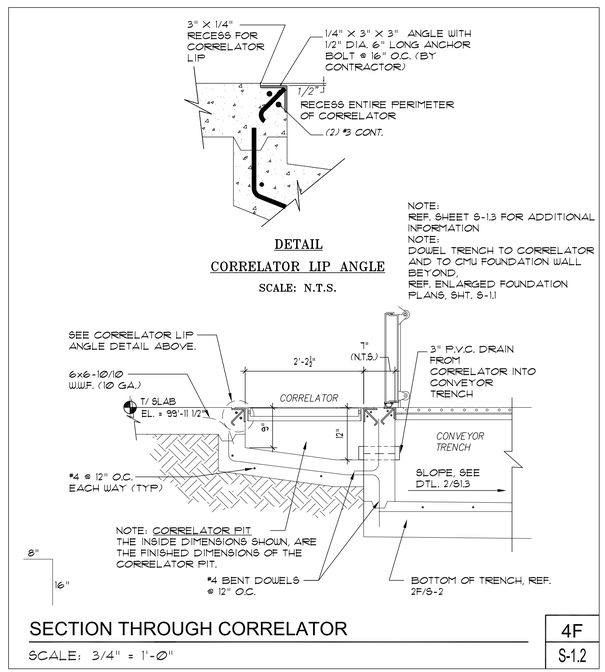


N

PARTIAL FOUNDATION PLAN

SCALE: 1/4" = 1'-Ø"

REFER TO SHEET S-1.1 FOR CONTINUATION
(REFER TO SHEET S-1 FOR OVERALL FOUNDATION PLAN)



DETAIL
CORRELATOR LIP ANGLE
SCALE: N.T.S.

SECTION THROUGH CORRELATOR

SCALE: 3/4" = 1'-Ø"

4F
S-1.2

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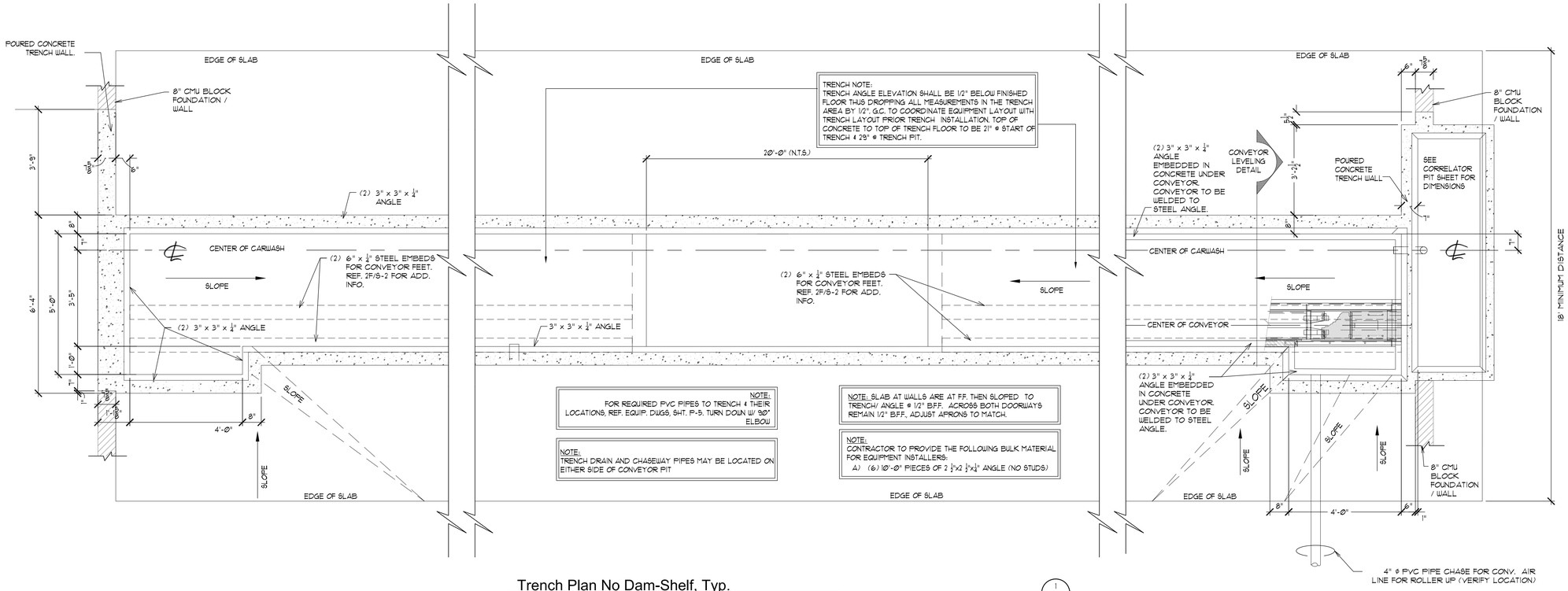
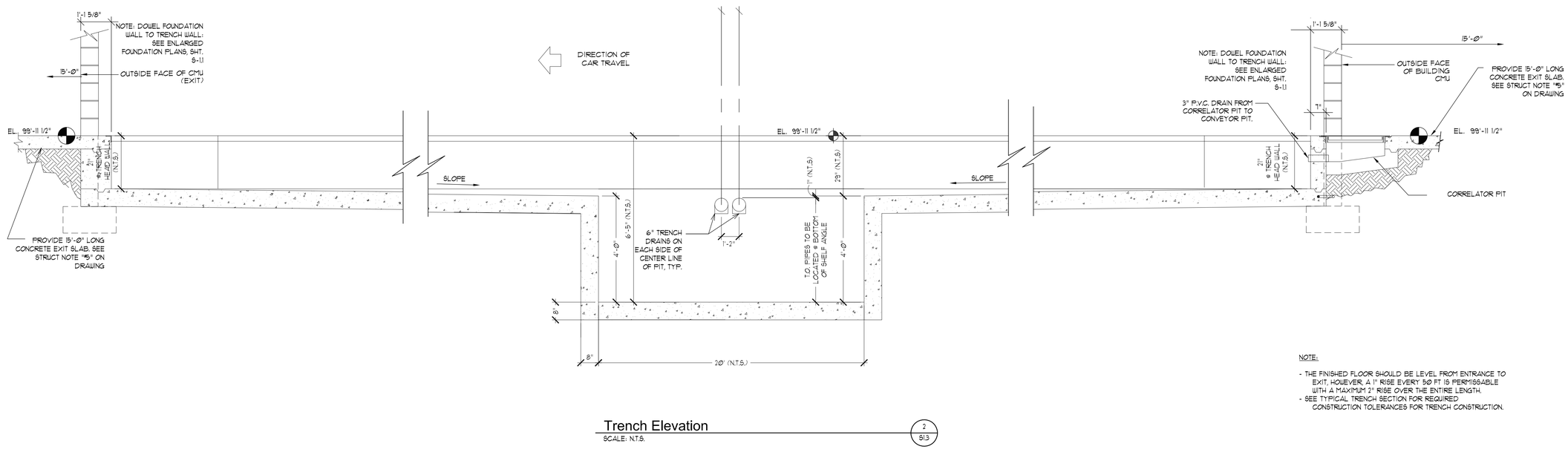
SHEET NUMBER
S1.2



Trench Plan No Dam-Shelf, Typ.

SCALE: N.T.S.

1
S1.3



Trench Elevation

SCALE: N.T.S.

2
S1.3

NOTE:

- THE FINISHED FLOOR SHOULD BE LEVEL FROM ENTRANCE TO EXIT, HOWEVER, A 1" RISE EVERY 50 FT IS PERMISSABLE WITH A MAXIMUM 2" RISE OVER THE ENTIRE LENGTH.
- SEE TYPICAL TRENCH SECTION FOR REQUIRED CONSTRUCTION TOLERANCES FOR TRENCH CONSTRUCTION.

STATE OF MICHIGAN
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No. 1301070219
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859.523.1500

REVISION	DATE

3/25/2022
Permit Set

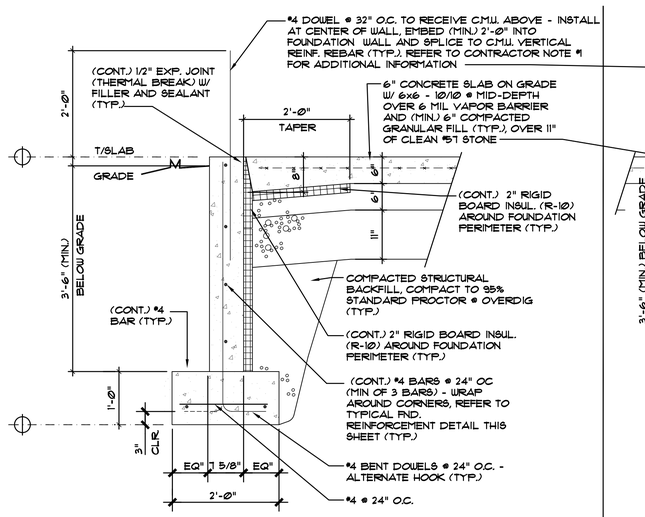
PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Trench Plan Section & Conveyor Pit

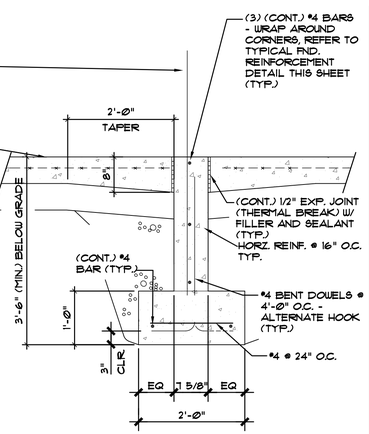
SHEET NUMBER
S-1.3



(TYP.) FOUNDATION DETAIL

SCALE: 3/4" = 1'-0"

2B / S-2

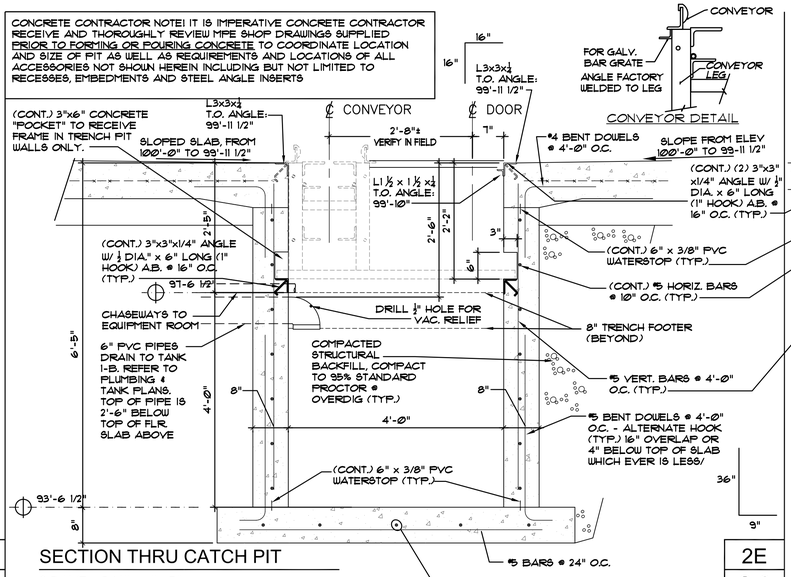


INTERIOR FOUNDATION DTL.

SCALE: NOT TO SCALE

2C / S-2

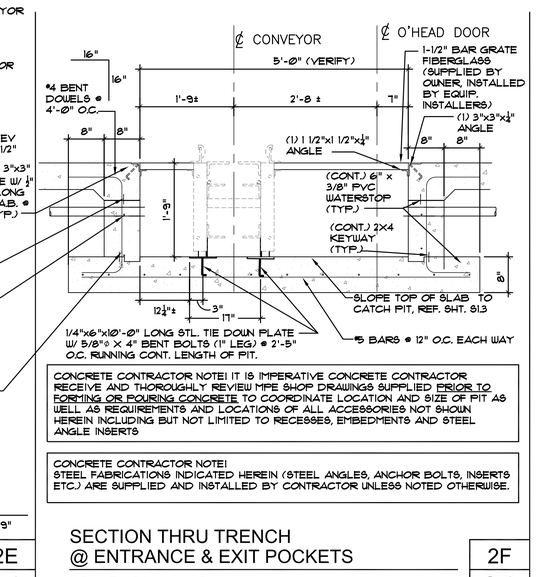
CONCRETE CONTRACTOR NOTE! IT IS IMPERATIVE CONCRETE CONTRACTOR RECEIVE AND THOROUGHLY REVIEW MPE SHOP DRAWINGS SUPPLIED PRIOR TO FORMING OR POURING CONCRETE TO COORDINATE LOCATION AND SIZE OF PIT AS WELL AS REQUIREMENTS AND LOCATIONS OF ALL ACCESSORIES NOT SHOWN HEREIN INCLUDING BUT NOT LIMITED TO RECESSES, EMBEDMENTS AND STEEL ANGLE INSERTS



SECTION THRU CATCH PIT

SCALE: 3/4" = 1'-0"

2E / S-2



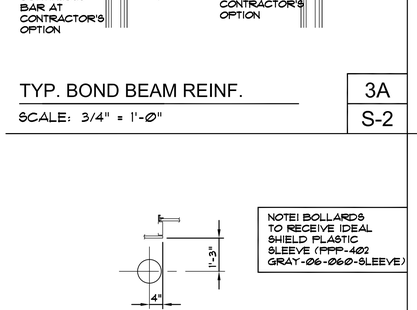
CONCRETE CONTRACTOR NOTE! IT IS IMPERATIVE CONCRETE CONTRACTOR RECEIVE AND THOROUGHLY REVIEW MPE SHOP DRAWINGS SUPPLIED PRIOR TO FORMING OR POURING CONCRETE TO COORDINATE LOCATION AND SIZE OF PIT AS WELL AS REQUIREMENTS AND LOCATIONS OF ALL ACCESSORIES NOT SHOWN HEREIN INCLUDING BUT NOT LIMITED TO RECESSES, EMBEDMENTS AND STEEL ANGLE INSERTS

CONCRETE CONTRACTOR NOTE!
STEEL FABRICATIONS INDICATED HEREIN (STEEL ANGLES, ANCHOR BOLTS, INSERTS ETC.) ARE SUPPLIED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE.

SECTION THRU TRENCH @ ENTRANCE & EXIT POCKETS

SCALE: 3/4" = 1'-0"

2F / S-2



TYP. BOND BEAM REINF.

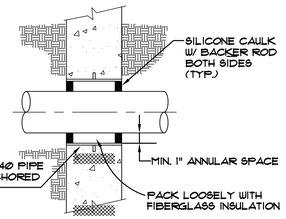
SCALE: 3/4" = 1'-0"

3A / S-2

(TYP.) MAN DOOR BLOCKOUT / STOOP

SCALE: 3/4" = 1'-0"

3C / S-2

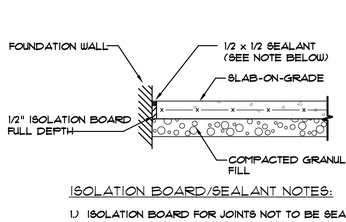


PRIOR TO POURING CONCRETE FOUNDATIONS, PLUMBING CONTRACTOR SHALL COORDINATE WITH CONCRETE INSTALLER ON LOCATION AND SIZE OF ALL REQUIRED SLEEVES

PIPE SLEEVE THRU FND.

SCALE: NOT TO SCALE

3D / S-2



ISOLATION BOARD/SEALANT NOTES:

1.) ISOLATION BOARD FOR JOINTS NOT TO BE SEALED, FIBER EXPANSION JOINT FILLER ASTM D 1751.

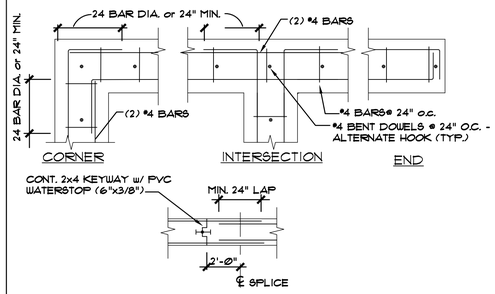
2.) ISOLATION JOINTS TO BE SEALED, SPONGE RUBBER EXPANSION JOINT FILLER ASTM D 1752 TYPE I.

3.) JOINT SEALANT, POURABLE URETHANE FED. SPEC. TT-S-00230C, TYPE I, CLASS A (MAMECO VULKAN 45).

WALL ISOLATION JOINT DTL.

SCALE: NOT TO SCALE

3E / S-2



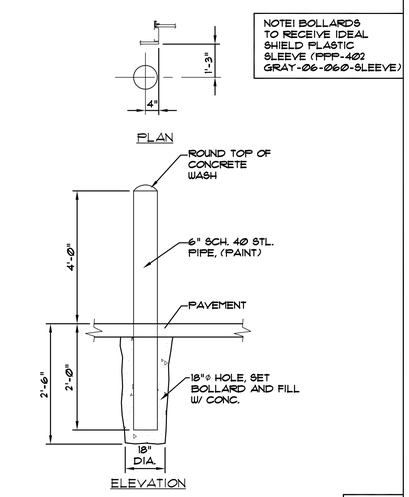
CONSTRUCTION JOINT

MAX. LENGTH OF FOOTING POUR TO BE 60'-0" SUBMIT PROPOSED CONSTRUCTION JOINT PLACEMENT FOR OWNER'S REVIEW PRIOR TO POURING WALLS.

(TYP.) FOOTING REINFORCEMENT

SCALE: NOT TO SCALE

3F / S-2

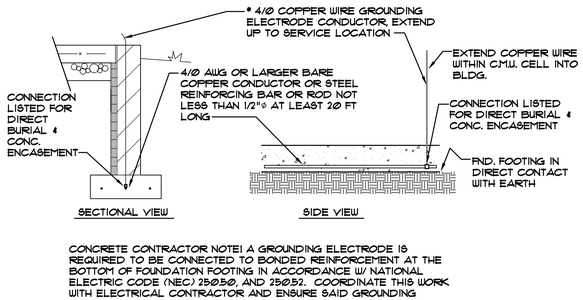


NOTE! BOLLARDS TO RECEIVE IDEAL SHIELD PLASTIC SLEEVE (PPP-402 GRAY-06-060-SLEEVE)

(TYP.) PIPE BOLLARD

SCALE: NOT TO SCALE

4A / S-2



CONCRETE CONTRACTOR NOTE! A GROUNDING ELECTRODE IS REQUIRED TO BE CONNECTED TO BONDED REINFORCEMENT AT THE BOTTOM OF FOUNDATION FOOTING IN ACCORDANCE W/ NATIONAL ELECTRIC CODE (NEC) 250.50, AND 250.52. COORDINATE THIS WORK WITH ELECTRICAL CONTRACTOR AND ENSURE SAID GROUNDING ELECTRODE HAS BEEN INSTALLED AND INSPECTED BY THE LOCAL AUTHORITY OF JURISDICTION PRIOR TO POURING CONCRETE.

CONCRETE ENCASED ELECTRODE DETAIL

SCALE: NOT TO SCALE

4C / S-2

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859.523.1500

REVISION	DATE

3/25/2022
Permit Set

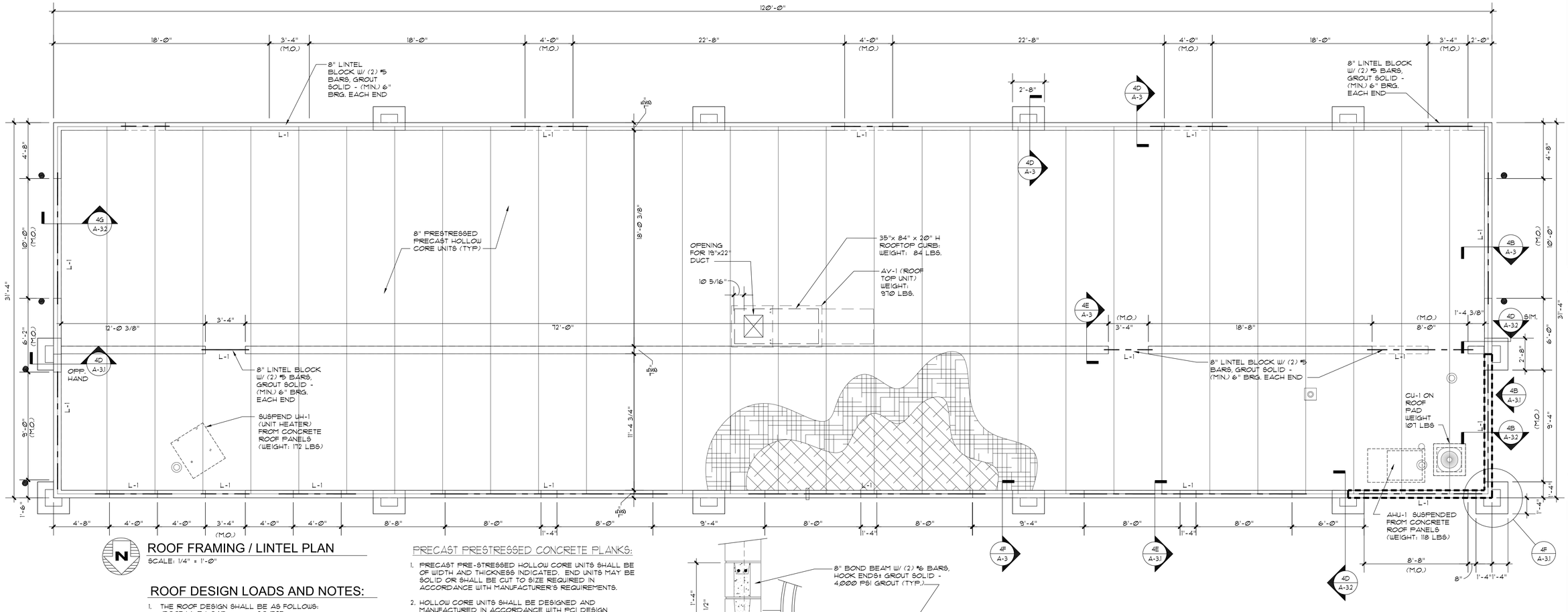
PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Foundation Details

SHEET NUMBER
S-2



ROOF FRAMING / LINTEL PLAN

SCALE: 1/4" = 1'-0"

ROOF DESIGN LOADS AND NOTES:

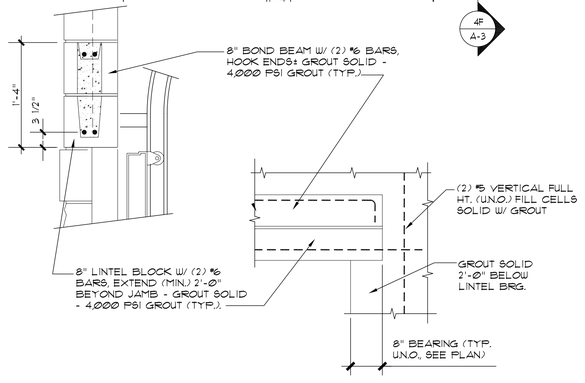
1. THE ROOF DESIGN SHALL BE AS FOLLOWS:

ROOF LIVE LOAD	- 20 PSF
BUR AND INSUL	- 8 PSF
PLANKS DEAD LOAD	- 60 PSF (MAX.)
MECH. EQUIP.	- 2 PSF
TOTAL ROOF LOAD	- 90 PSF

2. WIND LOAD = 115 MPH. (EXPOSURE C).
3. GROUND SNOW LOAD = 30 PSF.
4. SHOP DRAWINGS OF PROPOSED PRECAST CONCRETE PLANK DESIGN SHALL BE PROVIDED TO THE OWNER AS WELL AS THE LOCAL AUTHORITY OF JURISDICTION FOR REVIEW AND APPROVAL PRIOR TO THEIR FABRICATION. THESE SHOP DRAWINGS ARE REQUIRED TO BE SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF MICHIGAN.

PRECAST PRESTRESSED CONCRETE PLANKS:

1. PRECAST PRE-STRESSED HOLLOW CORE UNITS SHALL BE OF WIDTH AND THICKNESS INDICATED. END UNITS MAY BE SOLID OR SHALL BE CUT TO SIZE REQUIRED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
2. HOLLOW CORE UNITS SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH PCI DESIGN HANDBOOK, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST AND PRE-STRESSED CONCRETE PRODUCTS" MNL-116 AND SHALL BE CAPABLE OF CARRYING DESIGN LOADS INDICATED. DEAD LOAD SHALL INCLUDE SELF WEIGHT.
3. ANCHOR HOLLOW CORE UNITS TO SUPPORTING WALLS AND BEAMS AS SHOWN OR BY MANUFACTURER APPROVED METHODS. SUBMIT DETAILED SHOP DRAWINGS STAMPED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN MICHIGAN TO THE LOCAL BUILDING INSPECTION DIVISION FOR REVIEW.
4. CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-2002.
5. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING AND SHORING OF MASONRY WALLS AGAINST WIND LOADS, CONSTRUCTION LOADS, AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE MASONRY WALLS AND HOLLOW CORE PLANKS.



CONTRACTOR NOTE:
AT LOCATIONS W/O CONTROL JOINT PROVIDE ADDITIONAL HORIZ. JOINT REINF. @ FIRST TWO COURSES ABOVE LINTEL. EXTEND JOINT REINF. A MIN. OF 2'-0" BEYOND OPENING.

(L-1) DBL. BOND BEAM LINTEL

SCALE: NOT TO SCALE

DESIGN INTENT IS TO MINIMIZE USE OF STEEL LINTELS AT ALL WET AREAS SUBJECT TO FUTURE RUST

STATE OF MICHIGAN
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859.523.1500

REVISION	DATE

3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

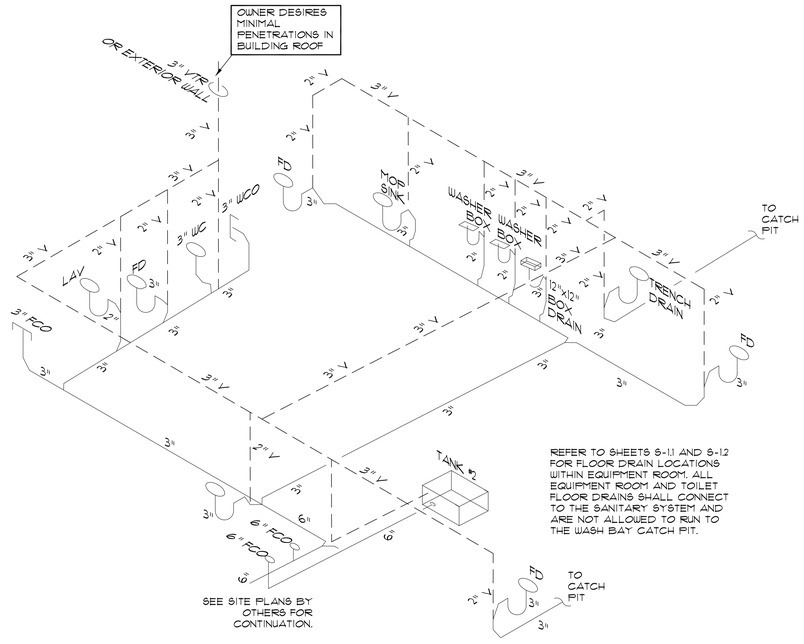
DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Enlarged Roof Framing/ Lintel Plan

SHEET NUMBER
S-3

GENERAL PLUMBING NOTES:

1. THESE DRAWINGS HAVE BEEN DEVELOPED FROM THE BEST AVAILABLE INFORMATION. PLUMBING CONTRACTOR SHALL FIELD VERIFY ALL FIELD CONDITIONS, DIMENSIONS, CLEARANCES, LOCATION OF EXISTING UTILITIES, ETC. PRIOR TO BIDDING, FABRICATION, OR INSTALLATION. DO NOT SCALE FROM DRAWINGS. COORDINATE INSTALLATION OF MATERIALS AND CONNECTIONS W/ MANUFACTURER INSTALLATION DATA.
2. ALL PLUMBING WORK SHALL CONFORM TO ALL APPLICABLE STATE AND LOCALLY ADOPTED CODES AND/OR ORDINANCES.
3. COORDINATE ALL PLUMBING INSTALLATION W/ OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES.
4. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE AS PART OF HIS CONTRACT WORK, TO PROVIDE ALL WATER, WASTE AND VENT PIPING REQUIRED TO MAKE A COMPLETE AND FULLY OPERATIONAL PLUMBING SYSTEM IN COMPLIANCE WITH MICHIGAN PLUMBING CODE WHETHER OR NOT SPECIFIC ITEMS ARE INDICATED OR OMITTED FROM THE DRAWINGS.
5. PROVIDE PLUMBING FIXTURES FOR PUBLIC RESTROOM IN COMPLIANCE WITH FEDERAL AND STATE HANDICAP ACCESSIBILITY REQUIREMENTS. REFER TO SHEET G-2 FOR ADDITIONAL INFORMATION.
6. INSTALL POTABLE WATER EXPANSION TANK ON THE SYSTEM'S INCOMING COLD WATER LINE IN ACCORDANCE WITH CODE AND THE MANUFACTURERS RECOMMENDATIONS.
7. VERIFY EXACT LOCATION OF ALL EQUIPMENT BEFORE INSTALLATION OR ROUGH IN OF WORK.
8. INSTALL ALL FIXTURES SECURELY SUPPORTED WITH PLUMBING HANGERS, ANCHORS, AND SUPPORTS SECURELY ATTACHED TO THE BUILDING CONSTRUCTION AT SUPPORT SPACING PER CODE WITH PROVISIONS FOR EXPANSION, CONTRACTION, AND VIBRATION SUCH THAT NO STRAIN IS PLACED ON THE CONNECTED PIPING. FOLLOW MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
9. PLUMBING FIXTURES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND MINIMUM ROUGH IN SIZE RECOMMENDATIONS AS WELL AS IN ACCORDANCE WITH MICHIGAN PLUMBING CODE. INSTALL EACH FIXTURE WITH EASILY REMOVABLE TRAP, CHROME PLATED SUPPLY STOPS AND ESCUTCHEONS, AND CAULK ALL FIXTURES TO WALL SURFACES WITH SILICONE SEALANT.
10. CHLORINATE ALL NEW WATER DISTRIBUTION SYSTEMS INCLUDING DOMESTIC COLD AND HOT WATER SYSTEMS, BEFORE BEING PLACED IN SERVICE. USE METHOD AS SET FORTH IN THE LOCAL ADOPTED PLUMBING CODE.
11. MARK ALL MECHANICAL PIPING W/ COLOR CODED, LAMINATED, DIRECTION OF FLOW, PIPE MARKERS.
12. PROVIDE SHUT-OFF VALVES AT EACH PLUMBING FIXTURE FOR LOCAL POSITIVE SHUT-OFF.
13. ALL EXPOSED DRAIN PIPES AND HOT WATER SUPPLY AT HANDICAP ACCESSIBLE LAVATORIES TO BE INSULATED PVC COVERS.
14. SANITARY DWV PIPING TO BE PVC SCHEDULE 40. PROVIDE VENT STACK THRU ROOF. DWV SEWER MAINS TO BE INSTALLED WITH MINIMUM 1/8" PER FOOT SLOPE. BUILDING SANITARY SEWER MATERIALS SHALL ONLY BE PVC SCHEDULE 40 WITH CEMENTED JOINTS OR PVC SCHEDULE 21-SDR SLIP JOINT SEWER PIPE.
15. UPON COMPLETION OF HIS WORK, PLUMBING CONTRACTOR SHALL LEAVE THE INSTALLATION IN A CLEAN, NEAT, AND UNDAMAGED CONDITION, WITH ALL FIXTURES OPERATING PROPERLY.
16. ALL TRENCHES INSIDE BUILDING SHALL BE SAND BACKFILLED AND COMPACTED.
17. USE DIELECTRIC UNIONS (EPCO OR EQUAL) TO MAKE STEEL TO COPPER PIPING AND EQUIPMENT CONNECTIONS.
18. ALL ROOF PENETRATIONS FOR PLUMBING PIPING SHALL BE MADE IN ACCORDANCE WITH ROOF SYSTEM MANUFACTURER GUIDELINES.
19. ALL VENTS THROUGH ROOF SHALL EXTEND A MINIMUM OF 12 INCHES ABOVE ROOF AND BE MAINTAINED A MINIMUM OF 10 FEET FROM ALL OUTSIDE AIR INTAKES. PROVIDE 110 DEGREE THERMOSTATIC MIXING VALVE (TMV) TO TEMPER ALL HOT WATER SUPPLIED TO TOILET ROOMS AND HAND WASH SINKS AS REQ'D PER CODE FOR WALL PENETRATIONS.
20. ANY WATER SERVICE FOR FIRE, DOMESTIC AND COMBINATION SERVICES SHALL BE INSTALLED AND TESTED FROM THE MAIN TO THE INTERIOR OF THE BUILDING BY SAME PLUMBING CONTRACTOR.
21. IF CHEMICAL DISPENSERS ARE INSTALLED, THEY SHALL BE INSTALLED ON A DEDICATED WATER SUPPLY WITH THE APPROPRIATE BACK FLOW PREVENTION.
22. REFER TO SHEET M-1 (MECHANICAL/ELECTRICAL PLAN) FOR GAS PIPING INFORMATION.
23. THE PLUMBING SYSTEM INSTALLED ON THIS PROJECT SHALL BE IN CONFORMANCE WITH THE 2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC).
24. BOTTLED WATER SHALL BE PROVIDED IN LIEU OF A DRINKING FOUNTAIN IF ALLOWED BY AHJ. IF A DRINKING FOUNTAIN IS REQUIRED BY MICHIGAN BUILDING CODE AND BOTTLED WATER IS REJECTED BY AHJ AS AN ALTERNATIVE, PLUMBING CONTRACTOR SHALL INCLUDE IN HIS BID (AND SCOPE OF WORK) TO FURNISH AND INSTALL SAID DRINKING FOUNTAIN. THIS MUST BE VERIFIED W/ AHJ PRIOR TO SUBMITTING FINAL PLUMBING BID SO AS TO ENSURE WORK IS INCLUDED IN PLUMBER'S BID ACCORDINGLY.
25. A SAMPLING MANHOLE SHALL BE INSTALLED IN THE SANITARY BUILDING SEWER PER LOCAL REQUIREMENTS.
26. G.C. SHALL PROVIDE/INSTALL ALL PLUMBING LINES AND FINAL HOOK-UPS TO CARWASH EQUIPMENT. REFER TO CAR WASH EQUIPMENT DRAWINGS FOR PLUMBING REQUIREMENTS. CARWASH EQUIPMENT SHALL BE SUPPLIED/INSTALLED BY OTHERS, UNLESS NOTED OTHERWISE.



TOILET ROOM DMV PIPING ISOMETRIC

N.T.S.

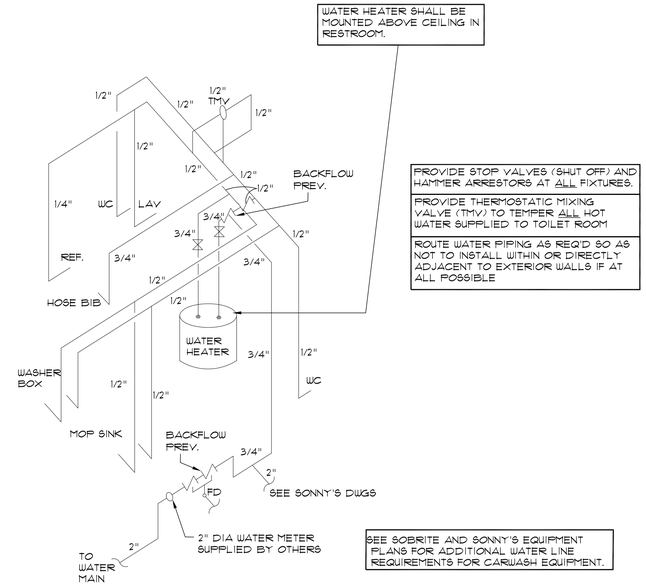
FIELD LOCATE FLOOR CLEANOUTS ON SITE

TOILET ROOM PLUMBING FIXTURE SCHEDULE:

MARK	QUANTITY	DESCRIPTION
WC	1	HANDICAP ACCESSIBLE, TANK TYPE, FLOOR MOUNTED MANSFIELD 137-160 WHITE WATER CLOSET, #SB1175 ELONGATED WHITE TOILET SEAT.
LAV	1	HANDICAP ACCESSIBLE, AMERICAN STANDARD 0356.041.020 VITREOUS CHINA WHITE LAVATORY. FURNISH COMPATIBLE DRAIN FITTING COMPLETE WITH ADA COMPLIANT WRIST BLADE FAUCET, HANDICAPPED MOUNTING HEIGHT AT 2'-10" AFF.
FD	1	ZURN #Z415 FLOOR DRAINS
WH	1	ELECTRIC WATER HEATER, ARISTON #GL4, 3.85 GALLON, 120V PLUG IN TYPE. WATER HEATER TO BE MOUNTED ABOVE CEILING IN RESTROOM. FURNISH MOUNTING BRACKETS AS REQ'D. WATER HEATER TO BE HARDWIRED, TYP.
HB-1	1	NON FREEZE HOSE BIB - WOODFORD 65C12 OR OTHER APPROVED EQUAL: BUIL IN VACUUM BREAKER, BRASS CASING, 3/4" HOSE THREAD OUTLET, 18" ABOVE GRADE. REFER TO SANITARY PLAN THIS SHEET FOR LOCATION.

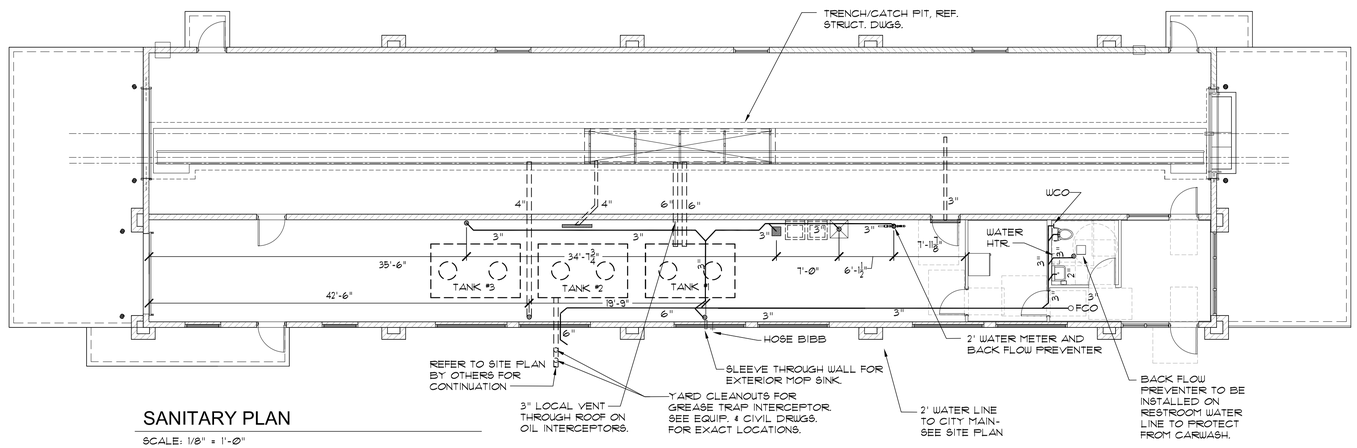
- PLUMBING CONTRACTOR MAY FURNISH ALTERNATIVE FIXTURES FROM THOSE INDICATED WITHIN SCHEDULE PROVIDED THEY MEET OR EXCEED MINIMUM ADA, HANDICAP ACCESSIBILITY REQUIREMENTS AND ARE APPROVED BY THE OWNER.
- SEE SHEET A1.1 FOR PLUMBING ACCESSORIES.

PEAK WATER DEMAND:
THE PEAK WATER DEMAND FOR THIS BUILDING IS 60 GALLONS PER MINUTE.



TOILET ROOM CW & HW PIPING SCMEMATIC

N.T.S.



SANITARY PLAN

SCALE: 1/8" = 1'-0"

SEE TANK LAYOUT ON SHEET P-2 FOR TANK CONNECTIONS AND GREASE INTERCEPTOR DETAILS

THIS SANITARY PLAN IS SCHEMATIC IN NATURE ONLY AND MUST BE VERIFIED WITH ACTUAL SITE CONDITIONS PRIOR TO INSTALLING UNDERGROUND PLUMBING. FLOOR / WALL / YARD CLEANOUTS SHALL BE LOCATED AND INSTALLED IN ACCORDANCE WITH CODE

STATE OF MICHIGAN
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REVISION	DATE

3/25/2022
Permit Set

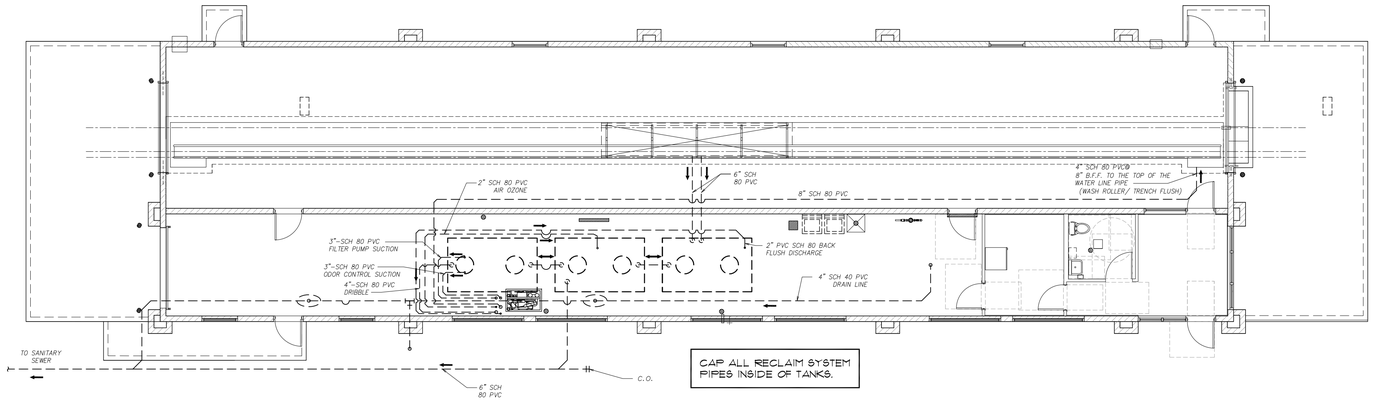
PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Toilet Room Plumbing Details

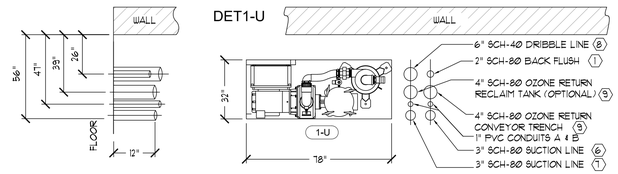
SHEET NUMBER
P-1



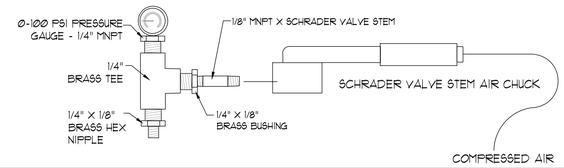
RECLAIM SYSTEM PLAN

SCALE: 1/8" = 1'-0"

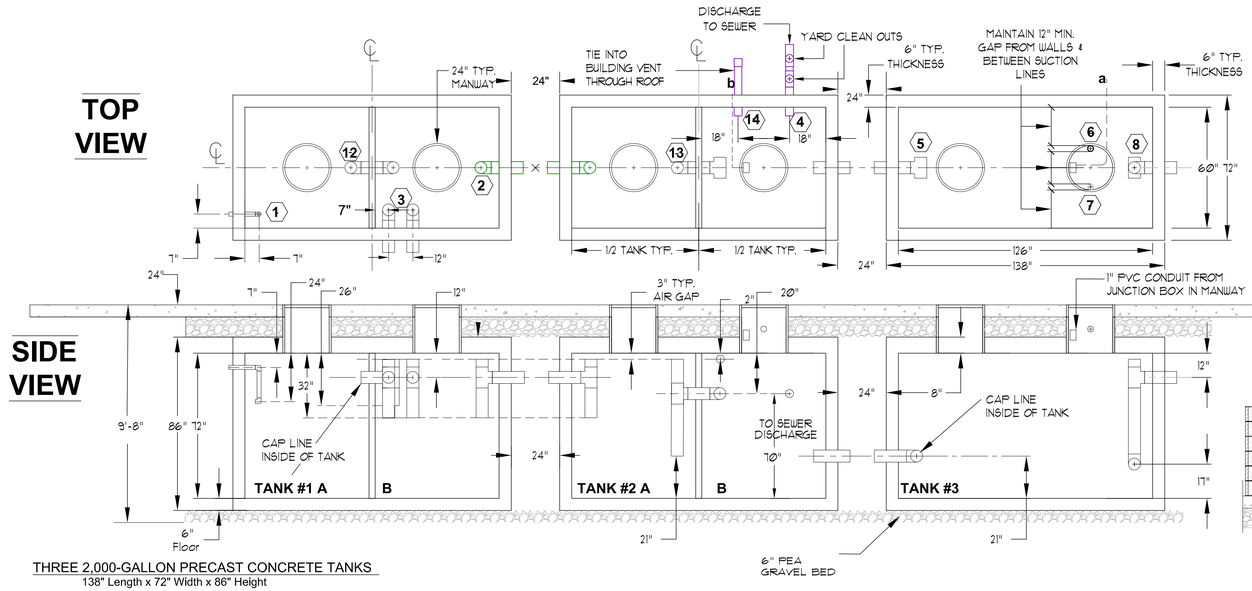
STANDARD RECLAIM SYSTEM STUB-UP DETAIL



PRESSURE TESTING PUMP SUCTION LINES



Three 2,000 Gallon Precast Concrete Tanks



THREE 2,000-GALLON PRECAST CONCRETE TANKS
138" Length x 72" Width x 86" Height

TANK #1 - 1A UNDERFLOW - 1B PRIMARY SETTLEMENT
TANK #2 - SECONDARY SETTLEMENT W/ BAFFLE
TANK #3 - FUTURE USE

PLUMBING LEGEND

1 - 2" SCH 80 PVC PIPE - UNDERFLOW DISCHARGE - TO TANK 1A
2 - 6" SCH 40 PVC PIPE - EXTERNAL CROSSOVER - FROM TANK 1B TO TANK 2A
3 - TWO 6" SCH 40 PVC PIPES - CENTER TRENCH - TO TANK 1B
4 - 6" SCH 40 PVC PIPE - DISCHARGE TO SEWER - FROM TANK 2B
5 - 6" SCH 40 PVC PIPE - EXTERNAL CROSSOVER - FROM TANK 2B TO TANK 3
6 - 3" SCH 80 PVC PIPE - FILTER PUMP SUCTION LINE - FROM TANK 3
7 - 3" SCH 80 PVC PIPE - EXTRA SUCTION LINE - FROM TANK 3
8 - 6" SCH 40 PVC PIPE - AQUAPREP DISCHARGE - TO TANK 3
12 - 6" SCH 40 PVC PIPE - INTERNAL CROSSOVER - FROM TANK 1A TO TANK 1B
13 - 6" SCH 40 PVC PIPE - INTERNAL CROSSOVER - FROM TANK 2A TO TANK 2B
14 - 3" SCH 40 PVC PIPE - LOCAL VENT - FROM TANK 2B, TIE INTO BUILDING VENT AND EXIT THROUGH ROOF

ELECTRICAL LEGEND

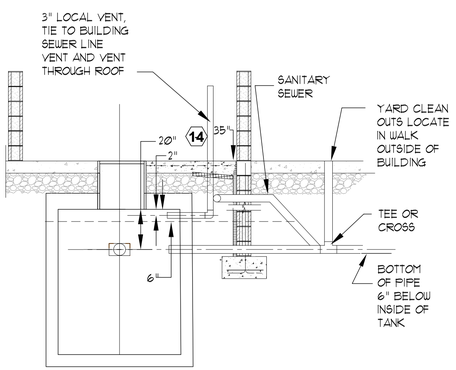
A - 1" PVC CONDUIT - LOW WATER PROTECTION FLOAT SWITCH (FS-2) - TANK 3
B - 1" PVC CONDUIT - FOR FUTURE USE - TANK 2B

NOTES:

- ALL UNDERGROUND PLUMBING & TANKS BY OTHER.
- ACTUAL TANK DIMENSIONS MAY VARY.
- PLUMBING SHOULD BE PLACED AS SHOWN REGARDLESS OF WHAT TANKS ARE USED.
- ALL PIPES MUST BE SET BELOW FROST LINE.
- SUCTION LINES MUST BE SCH 80 PVC.
- DO NOT INSTALL SCREENS ON FOOT VALVE.
- ALL TANK BOTTOMS SHOULD BE SAME ELEVATION.
- CONSULT ENGINEER FOR ELEVATIONS.

(IF FOOT VALVE IS RAISED, THE FLOAT SWITCH ALSO NEEDS TO BE RAISED)
KEEP A 10" DISTANCE BETWEEN THEM!

DRAWING NOT TO SCALE

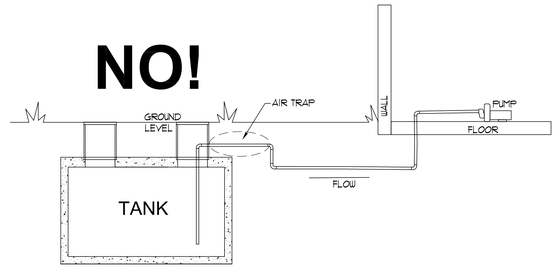


TANK #2 B
Section through end

SECTION VIEW

BOTTOM OF TANK TOPS @ 32" B.F.F., TYP.

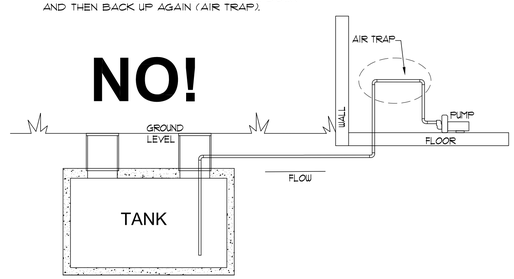
NO!



BELOW GROUND TANKS

ALL SUCTION LINES MUST NEVER SLOPE DOWN AND THEN BACK UP AGAIN (AIR TRAP).

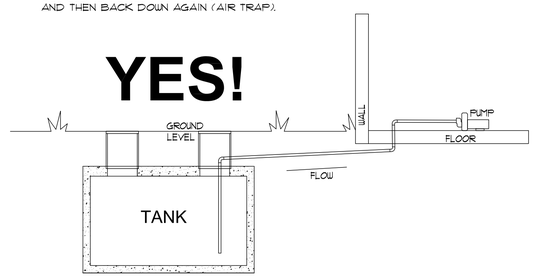
NO!



BELOW GROUND TANKS

ALL SUCTION LINES MUST NEVER SLOPE UP AND THEN BACK DOWN AGAIN (AIR TRAP).

YES!



BELOW GROUND TANKS

ALL SUCTION LINES REQUIRE A CONTINUOUS UPWARD SLOPE TO THE EQUIPMENT ROOM.

STATE OF MICHIGAN
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859.523.1500

REVISION	DATE

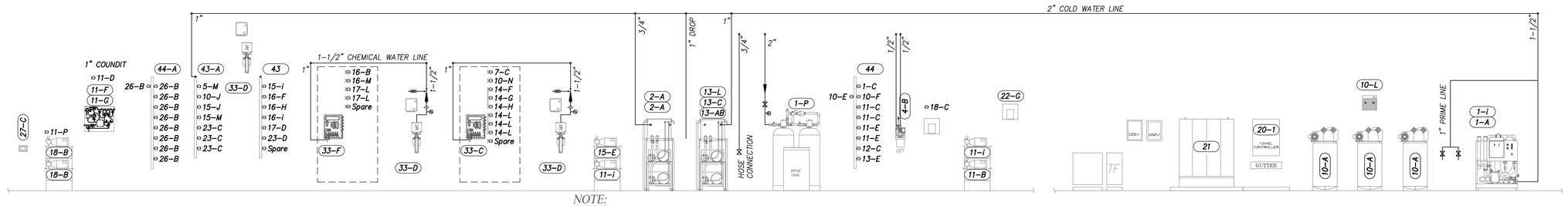
3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Tank details & Stub up locations future sys.

SHEET NUMBER
P-2

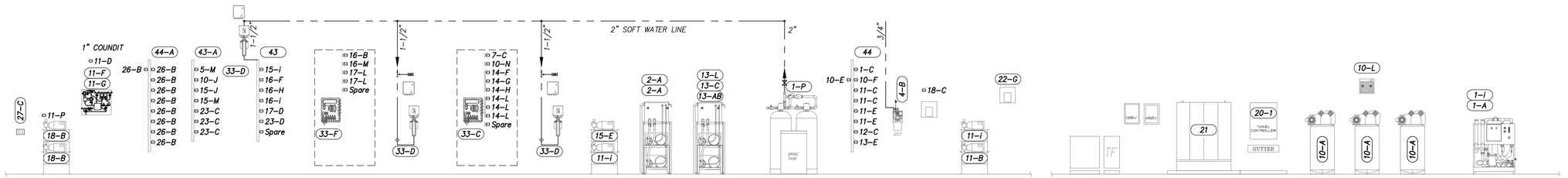


NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

COLD WATER/CHEMICAL DISTRIBUTION

TUNNEL WALL EQUIPMENT ROOM

DRY WALL EQUIPMENT ROOM



NOTE:
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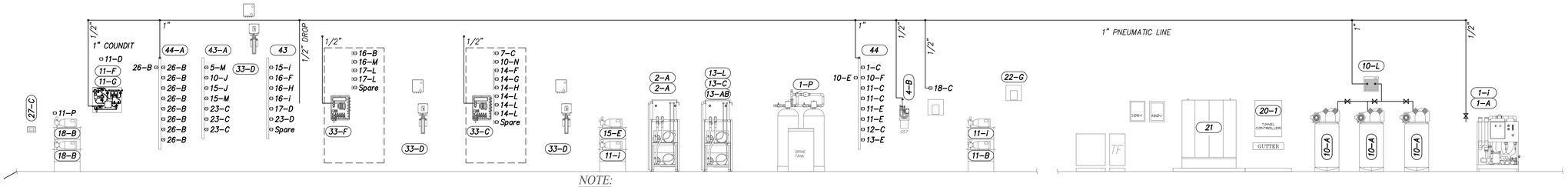
SOFT WATER

TUNNEL WALL EQUIPMENT ROOM

DRY WALL EQUIPMENT ROOM

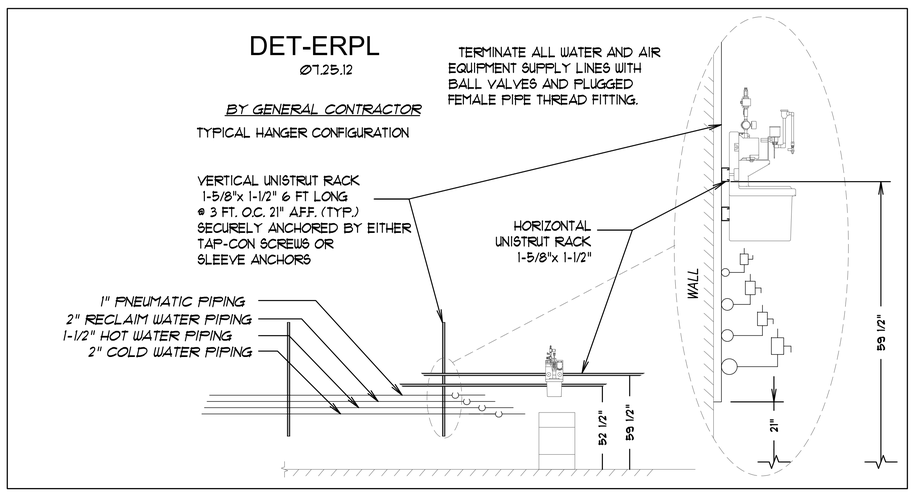


NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

PNEUMATIC

TUNNEL WALL EQUIPMENT ROOM

DRY WALL EQUIPMENT ROOM



STATE OF MICHIGAN
ROBERT E BYRGE
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REVISION	DATE

3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Air, Water, Pneumatic Lines and Details

SHEET NUMBER
P-3

GC= GENERAL CONTRACTOR
SCWI = SONNY'S (CARWASH INSTALLER)

DET-PLUMBING

10.21.15

PLUMBING & MECHANICAL SPECIFICATIONS
GENERAL CONTRACTOR

A. GENERAL PROVISIONS

1. THE WORK SHALL CONSIST OF FURNISHING LABOR, EQUIPMENT, AND MATERIALS TO PROVIDE THE COMPLETE INTEGRATED AND PROPER FUNCTIONING SYSTEMS AS SHOWN ON THE DRAWINGS.

2. SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO, FURNISHING, INSTALLING AND TERMINATING PER THESE DRAWINGS, AND SONNY'S INSTALLATION MANUALS.

4. THE GENERAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES SO AS TO AVOID INTERFERENCE.

5. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL LAYOUT OF PLUMBING SYSTEMS. FIELD VERIFICATIONS OF DIMENSIONS IS DIRECTED.

6. SECURE PERMITS AND INSPECTIONS REQUIRED BY STATE AND LOCAL LAWS AND ORDINANCES.

8. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER CERTIFICATES OF FINAL INSPECTIONS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION.

9. ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.

1.0 DESCRIPTION

A. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO OBTAIN COMPLETE SYSTEMS TESTED, ADJUSTED AND READY FOR OPERATION.

B. CHECK, VERIFY AND COORDINATE THE INSTALLATION WITH THE WORK OF OTHER TRADES, INCLUDE MODIFICATIONS, RELOCATIONS OR ADJUSTMENTS NECESSARY TO COMPLETE WORK OR TO AVOID INTERFERENCES.

1.1 RECORD DRAWINGS

MAINTAIN AND PROVIDE, ON REQUEST, COMPLETE UP-TO-DATE RECORD DRAWINGS.

1.2 GUARANTEE

GUARANTEE FOR ONE YEAR AFTER OWNER ACCEPTANCE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP, REPAIR, REPLACE OR ALTER SYSTEMS FOUND DEFECTIVE. RESTORE WORK DISTURBED WHICH IS GUARANTEED UNDER CONTRACT.

1.3 CERTIFICATES AND INSPECTIONS

OBTAIN AND PAY FOR ALL REQUIRED INSTALLATION INSPECTIONS AND DELIVER CERTIFICATES APPROVING INSTALLATION TO THE OWNER.

1.4 UTILITY SERVICE

DETERMINE UTILITY REQUIREMENTS, INCLUDING TEMPORARY, AND INCLUDE ALL COSTS.

1.5 SHOP DRAWINGS

SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT AND SYSTEMS.

1.6 EQUIPMENT ACCESS

INSTALL ALL WORK TO PERMIT ACCESS TO EQUIPMENT FOR MAINTENANCE.

1.7 CUTTING AND PATCHING

ALL CUTTING AND PATCHING IS BY THIS CONTRACTOR INCLUDING NECESSARY MATERIALS REQUIRED, UNLESS OTHERWISE NOTED.

1.8 HOUSEKEEPING AND CLEANUP

PERIODICALLY REMOVE WASTE MATERIALS AND LEAVE AREAS OF WORK ROOM CLEAN.

2.0 PLUMBING SYSTEMS

2.1 PROHIBITED LOCATIONS

WATER CARRYING PIPE SHALL NOT BE INSTALLED OVER SWITCH GEAR OR ELECTRICAL EQUIPMENT.

2.2 PROTECTIVE CHASES

A. PIPE AND FITTINGS

1. ABOVE AND BELOW GRADE: SCHEDULE-40 PVC DWV CONFORMING TO ASTM D2665-82.

2.3 WATER DISTRIBUTION

A. PIPE AND FITTINGS

COPPER TUBE, TYPE-K , BELOW GROUND. TYPE-L , ABOVE GROUND, WROUGHT COPPER OR BRONZE SWEAT FITTINGS WITH LEAD FREE SOLDER.
COPPER PIPING SHALL NOT COME IN CONTACT WITH CONCRETE. PROVIDE INSULATING MATERIAL BETWEEN THE PIPE AND CONCRETE AT ALL REQUIRED LOCATIONS.

B. VALVES

1. *BALL VALVES TWO INCHES (2") AND SMALLER BY*

MILWAUKEE (OR APPROVED EQUAL) MODEL #BA-150 RATED AT 150 SWP, 600 CWP. BODY OF ASTM B-584 BRONZE WITH CHROME PLATED ASTM B-16 BRASS BALL WITH GLASS REINFORCED PTFE SEATS AND STERN SEAL. FULL PORT FLOW AND ADJUSTABLE PACKING NUT.

2. *GATE VALVES TWO INCHES (2") AND SMALLER: NRS, MSS*

SP-80: CLASS 125 (125 SWP/200 CWP). BODY BONNET AND STEM OF ASTM B-62 BRONZE, THREADED ENDS TO ANSI B1.20.1, SOLDER ENDS TO ANSI B16.18, SOLID WEDGE DISC, GLAND PACKED WITH NON-ASBESTOS PACKING AND MALLEABLE IRON HANDWHEEL.

3. GATE VALVES TWO AND ONE-HALF INCHES (2-1/2") AND

LARGER: NRS, MSS SP-70± CLASS 125 (125 SWP/200 CWP). BODY AND BONNET OF ASTM A126 CLASS B CAST IRON, ASTM B-16 BRASS STERN AND ASTM B-62 BRONZE SEAT AND DISC FACE. FLANGED ENDS TO ANSI B16.1. NON-ASBESTOS PACKING.

C. DISSIMILAR METALS

INSTALL APPROVED DIELECTRIC UNIONS BETWEEN ALL CONNECTIONS OF DISSIMILAR METALS.

2.4 CAR WASH CHASE WAY, DRAINS AND SUPPLY LINES

A. RECLAMATION DRAINAGE PIPE, SECTION LINES AND OZONE TREATMENT LINES AND FITTINGS.

1. (IF PERMITTED BY LOCAL OR APPLICABLE CODES) ALL RECLAIM DRAINAGE LINES, SUCTION LINES, OZONE TREATMENT LINES AND RELATED FITTINGS SHALL BE SCHEDULE-80 POLYVINYL CHLORIDE (PVC) PIPING CONFORMING TO ASTM D-1785-83.
2. MECHANICAL ENGINEER TO VERIFY LOCAL OR APPLICABLE CODES AND SPECIFY ALTERNATE MATERIAL IF PVC IS NOT PERMITTED.

2.5 PNEUMATIC LINES

A. PNEUMATIC SUPPLY LINES

1. ALL PNEUMATIC SUPPLY LINES SHALL BE TYPE-K COPPER TUBE WITH WROUGHT COPPER OR BRONZE SWEAT FITTINGS ABOVE GRADE. NO FITTINGS SHALL BE ALLOWED BELOW GRADE.
2. ALL PNEUMATIC SUPPLY LINES BELOW GRADE SHALL BE ENCASED IN SCHEDULE-40 CHASEWAYS.

2.6 HYDRAULIC HOSE

A. PIPE AND FITTINGS

1. ALL HYDRAULIC HOSE SHALL BE SAE-100R7 BY SYNFLEX (OR APPROVED EQUAL) WITH 2,000 PSI WORKING PRESSURE± 10,000 PSI BURST PRESSURE.
2. ALL HYDRAULIC SUPPLY LINES BELOW GRADE SHALL BE ENCASED IN SCHEDULE-40 PVC CHASEWAYS.

2.7 *PRESSURE TEST*

LEAVE UNCOVERED AND UNCONCEALED ALL WATER DISTRIBUTION PIPING UNTIL IT HAS TESTED AND APPROVED. EXPOSE ALL SUCH WORK FOR TESTING THAT HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED.

CAP AND SUBJECT THE PIPING SYSTEM TO A STATIC WATER PRESSURE OF 150 PSIG WITHOUT EXCEEDING THE PRESSURE RATING OF THE PIPING SYSTEM MATERIALS. ISOLATE THE TEST SOURCE AND ALLOW TO STAND FOR A PERIOD OF FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS WHICH MUST BE REPAIRED. REPAIR ALL LEAKS AND DEFECTS USING NEW MATERIAL AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.

TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

2.8 WATER HEATING

A. SONNY'S PROVIDED EQUIPMENT
GENERAL CONTRACTOR OR HIS DESIGNATED SUBCONTRACTOR SHALL OBTAIN A BILL OF MATERIALS FROM SONNY'S FOR EQUIPMENT BEING SUPPLIED BY SONNY'S.

B. INSTALLATION & CONNECTIONS
GENERAL CONTRACTOR OR HIS DESIGNATED SUBCONTRACTOR SHALL INSTALL ALL TUBING, MANIFOLDS, VALVES, VALVES BOXES, HEATERS, BOILERS, STORAGE TANKS, PUMPS, AND RELATED EQUIPMENT FURNISHED BY SONNY'S. ALSO, G.C. SHALL PROVIDE AND INSTALL, AS NECESSARY, ALL GAS SUPPLY PIPING AND CONNECTIONS, VENTING AND ANY INTERCONNECTING PIPING FROM MANIFOLDS, BOXES, PUMP, HEATERS OR RELATED EQUIPMENT W/SUITABLE SPEC. MATERIALS.

Item A.

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859.523.1500

REVISION	DATE

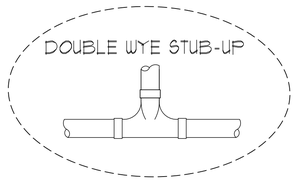
3/25/2022
Permit Set

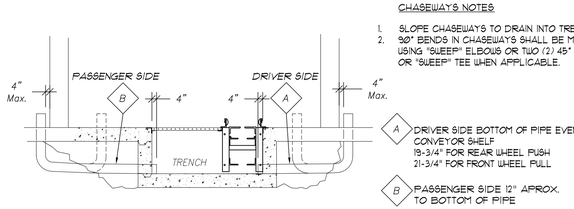
PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Plumbing Specifications

SHEET NUMBER
P-4





CHASEWAYS NOTES

1. SLOPE CHASEWAYS TO DRAIN INTO TRENCH
2. 90° BENDS IN CHASEWAYS SHALL BE MADE USING "SWEEP" ELBOWS OR TWO (2) 45° ELBOWS OR "SWEEP" TEE WHEN APPLICABLE.

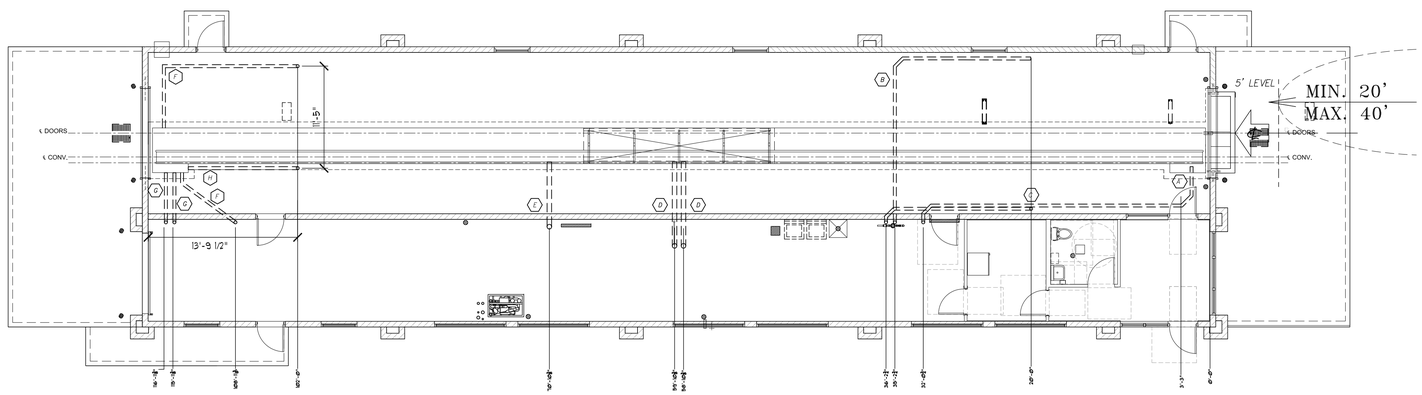
A DRIVER SIDE BOTTOM OF PIPE EVEN WITH CONVEYOR SHELF
19-3/4" FOR REAR WHEEL PUSH
21-3/4" FOR FRONT WHEEL PULL

B PASSENGER SIDE 12" APPROX. TO BOTTOM OF PIPE

A	4" PVC PIPE	ROLLER UP	PNEUMATIC
B	4" PVC PIPE	PHOTO EYE	ELECTRIC
C	4" PVC PIPE	CTA	CHEMICAL DISTRIBUTION
D	6" PVC PIPE	DRAIN	
E	4" PVC PIPE	UNDERBODY WASH CHASEWAY	
F	4" PVC PIPE	TSA	CHEMICAL
G	4" PVC PIPE	CONVEYOR	HYDRAULIC
H	4" PVC PIPE	DS TSA CHASEWAY	

TYPICAL SHELF CHASEWAY INSTALLATION DETAIL

NOT TO SCALE



EQUIPMENT PIPING PLAN

SCALE: 1/8" = 1'-0"

STATE OF MICHIGAN
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859.523.1500

REVISION	DATE

3/25/2022
Permit Set

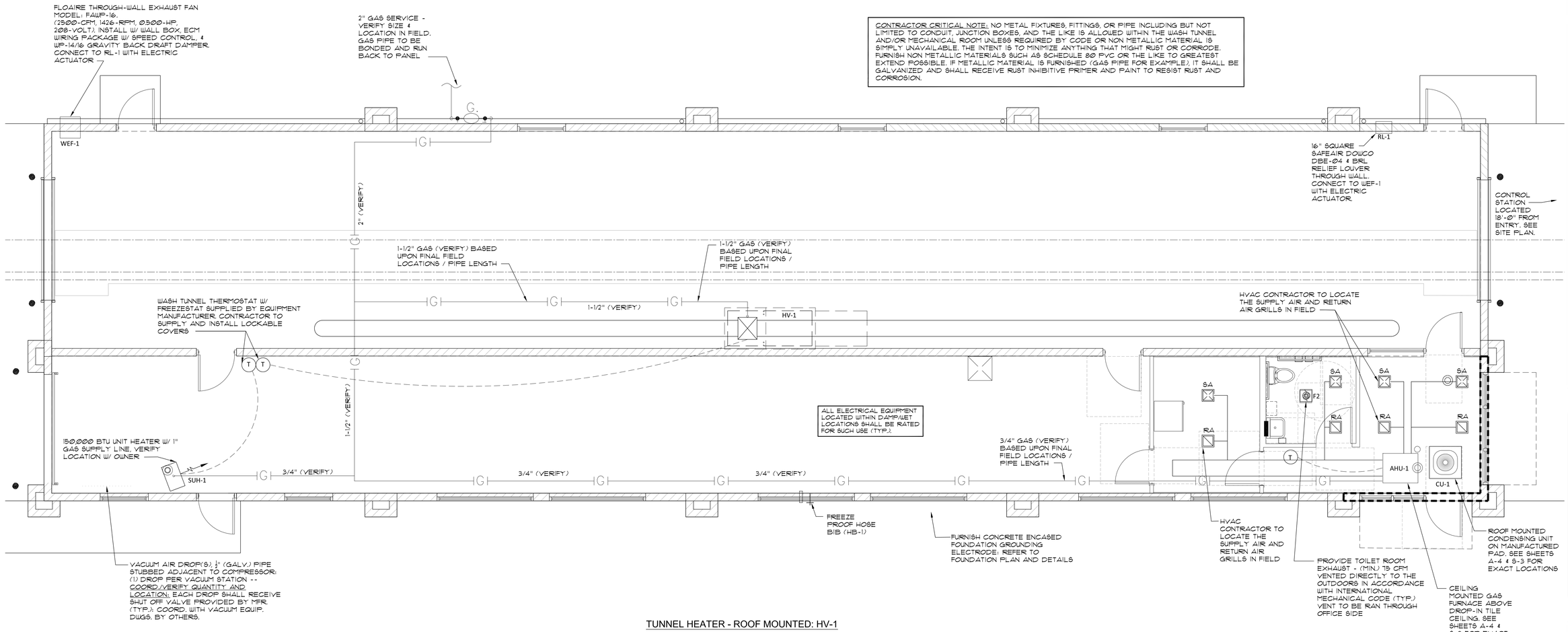
PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Equipment Piping conduits

SHEET NUMBER
P-5



MECHANICAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

MECH. NOTES:

AN OPERATOR QUALIFIED (OQ) CONTRACTOR MUST INSTALL THE GAS SERVICE FROM THE CURB VALVE TO THE METER.

GAS PIPING AND FITTINGS SHALL BE SCHEDULE 40 BLACK STEEL OF APPROVED TYPE FOR GAS SUPPLY, SIZED AND INSTALLED IN ACCORDANCE WITH ANSI Z2130 AND NFPA 54. GAS SUPPLY LINES SHALL HAVE MANUAL SHUTOFF VALVES, DRIP LEGS, AND GROUND UNION JOINTS. ALL GAS SUPPLY LINES SHALL BE TESTED FOR LEAKAGE BY AN APPROVED METHOD.

GAS PIPING INSTALLED OUTDOORS AND/OR WITHIN THE WASH BAY SHALL BE PRIMED AND PAINTED OR OTHERWISE PROTECTED USING AN APPROVED BY CODE AND/OR THE LOCAL AHJ.

SUPPORT UNIT HEATERS FROM ROOF JOISTS RECOMMENDED BY THE UNIT HEATER MANUFACTURER. COORDINATE LOCATIONS AND MOUNTING REQUIREMENTS WITH THE OWNER'S REPRESENTATIVE.

PROVIDE CLASS B DOUBLE WALL FLUES WITH WEATHER-PROOF TERMINATIONS AT UNIT HEATERS.

CONTRACTOR SHALL VERIFY GAS PRESSURE AT SITE AND GAS REQUIREMENTS AT UNIT HEATERS PRIOR TO SIZING AND INSTALLING GAS PIPING. ALL GAS PIPING SHALL BE PRESSURE TESTED BY THE INSTALLING CONTRACTOR AND SHALL BE WITNESSED BY THE LOCAL AHJ AT TIME OF TESTING.

PROVIDE UNIT MOUNTED THERMOSTATS WITH UNIT HEATERS.

CONTRACTOR SHALL PROVIDE GAS PRESSURE REGULATORS AT UNIT HEATERS AS REQUIRED.

ALL HVAC WORK SHALL COMPLY WITH ALL APPLICABLE / LOCALLY ADOPTED CODES AND THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC).

TUNNEL HEATER - ROOF MOUNTED: HV-1

FURNISH ALL LABOR, MATERIAL, AND REQ'D ACCESSORIES TO INSTALL MODEL #F3-D150-HLB, 123364 BTU, BY FLOAIRE. (3500/6000 CFM VAV SPACE PRESSURE CONTROL, 150 MBH MODULATION BURNER INPUT, 7.5 HP W/ 3-PHASE BLOWER W/ VFD, FILTERED INLET WEATHER HOOD, POLYFABRIC SUPPLY LINE, FLAT ROOF CURB INSULATED 18"H, AND HEAT/VENT CONTROLS.) OR OTHER APPROVED EQUAL. UNIT REQUIRES 3 POLE 45A BREAKER AND 6-20 P PLUG TYPE. INCLUDE ONE (1)-16" SQUARE SAFEAIR DOWCO DBE-Ø4 & BRL, AND ONE (1)-FAUP-16, Ø.5 HP 1PH (120 OR 208) W/ WALL BOX, GRAVITY DAMPER, AND SPEED CONTROL. REQUIRED INPUT GAS PRESSURE 7" W.C.-14" W.C. UNIT MUST HAVE 100% EXTERIOR FRESH AIR SERVICE TO AVOID CORROSION FROM INSIDE TUNNEL AIR FILLED WITH MOISTURE & CHEMICALS. UNIT MUST BE A MINIMUM OF 95% EFFICIENCY.

OVERHEAD GAS FURNACE: AHU-1

FURNISH ALL LABOR, MATERIAL, AND REQ'D ACCESSORIES (INCLUDING ADD ON ACCESSORIES) TO INSTALL MODEL #9155B3Ø0126E14 GAS FURNACE, 26,000 BTU, SINGLE PHASE, 115V HEATER W/ CENTRAL RETURN DUCT SYSTEM, TRANSFER GRILL, LAY IN GRILL, STEP DOWN DIFFUSERS, AND THERMOSTAT AS MFR'D BY BRYANT OR OTHER APPROVED EQUAL. ENSURE GAS FURNACE MAINTAINS MINIMUM CLEARANCES FROM COMBUSTIBLE MATERIALS IN ACCORDANCE WITH MFR'S INSTALLATION GUIDELINES AND PRODUCT DATA. INSTALL CASED COIL #CNPVP2414ALA BY BRYANT AND ASSOCIATED ACCESSORIES TO REMOVE CONDENSATION. INSTALL FROM CEILING ABOVE THE SUSPENDED CEILING TILES W/ 6" B-VENT THROUGH ROOF FOR FRESH AIR & RETURN AIR, AND A 6" B-VENT FOR FURNACE EXHAUST. INSTALL CONCENTRIC VENT THROUGH ROOF FOR FRESH AIR TO FURNACE BURNER. UNIT MUST BE A MINIMUM OF 95% EFFICIENCY.

CONDENSING UNIT - ROOF MOUNTED: CU-1

FURNISH ALL LABOR, MATERIAL, AND REQ'D ACCESSORIES (INCLUDING ADD ON ACCESSORIES) TO INSTALL MODEL #13ANA024BN0, 208/230, SINGLE PHASE CONDENSING UNIT AS MFR'D BY BRYANT OR OTHER APPROVED EQUAL. ENSURE CONDENSING UNIT MAINTAINS MINIMUM CLEARANCES FROM COMBUSTIBLE MATERIALS IN ACCORDANCE WITH MFR'S INSTALLATION GUIDELINES AND PRODUCT DATA.

SUSPENDED EQUIPMENT ROOM UNIT HEATER: SUH-1

FURNISH ALL LABOR, MATERIAL, AND REQ'D ACCESSORIES (INCLUDING ADD ON ACCESSORIES) TO INSTALL MODEL #UDAP-150 (150,000 BTU, SUSPENDED UNIT HEATER AS MFR'D BY REZNOR) OR OTHER APPROVED EQUAL. ENSURE UNIT HEATER MAINTAINS MINIMUM CLEARANCES FROM COMBUSTIBLE MATERIALS IN ACCORDANCE WITH MFR'S INSTALLATION GUIDELINES AND PRODUCT DATA. FURNISH AB TYPE FLUE OR AS REQ'D BY MFR. VENTED DIRECTLY TO THE BUILDING EXTERIOR. VERIFY GAS PIPING SIZE PRIOR TO ORDERING MATERIALS AND/OR INSTALLATION. INSTALL UNIT 18" FROM THE CEILING & VENT THROUGH ROOF WITH A 6" DIAMETER B-VENT.

TOTAL GAS LOAD (BTU)

893,364 BTU/H SPLIT BETWEEN THE ROOF MOUNTED TUNNEL HEATER, OVERHEAD GAS FURNACE HEATER FOR OFFICE & THE SUSPENDED UNIT HEATER IN EQUIPMENT ROOM.

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REVISION	DATE

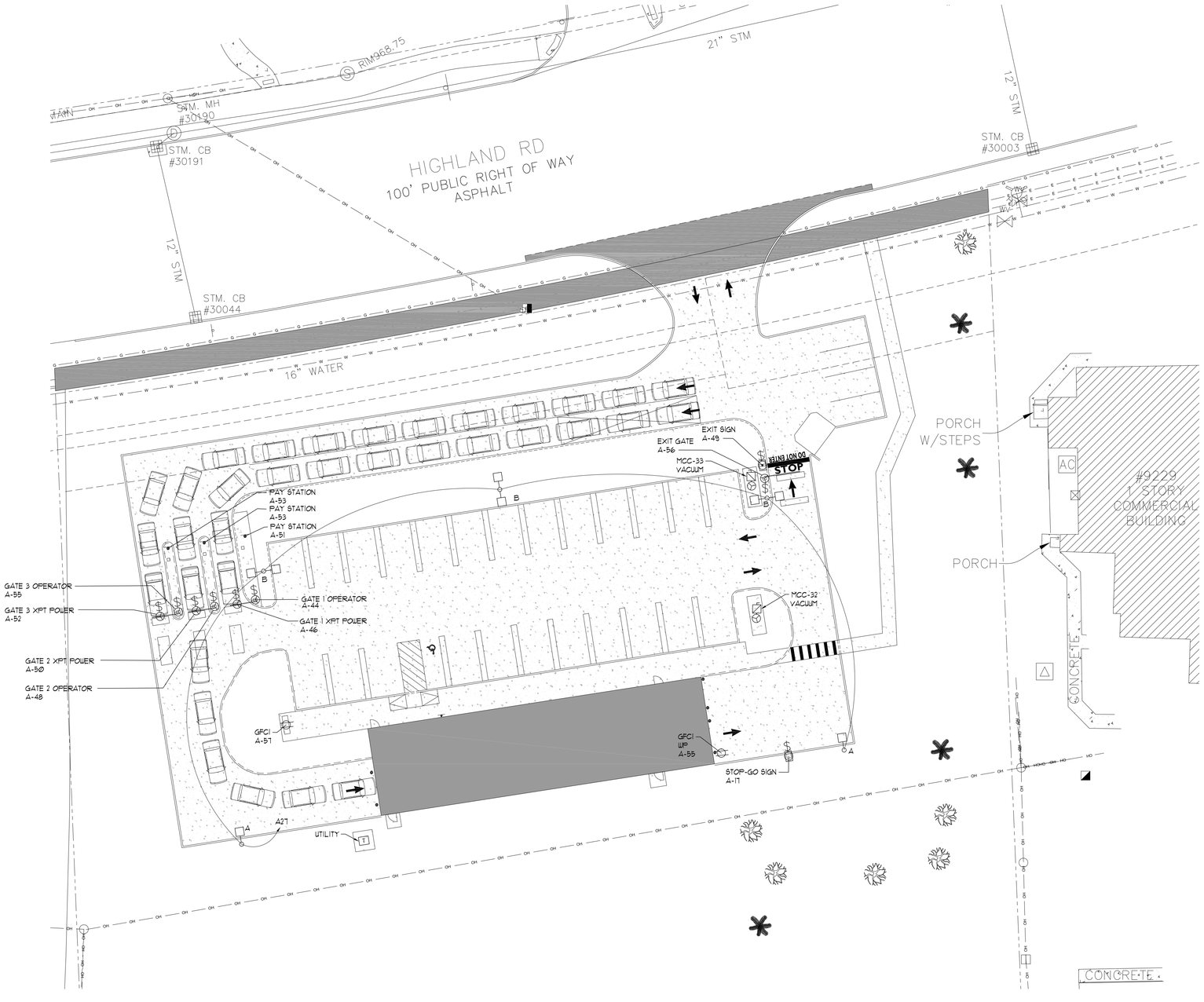
3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Mechanical Floor Plan

SHEET NUMBER
M-1



ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

GENERAL NOTES - SITE

A. ALL EQUIPMENT LOCATED OUTDOORS SHALL BE LABELED NEMA 3R.

B. PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR THE INSTALLATION OF THIS WORK. ALL BACKFILL SHALL BE BROUGHT TO FINISHED GRADE AND MATCH SURROUNDING CONDITIONS. RESTORE ALL DISTURBED PAVING AND LANDSCAPING TO ORIGINAL CONDITIONS. PULL BOXES SHALL BE PROVIDE OF A TYPE MEETING THE REQUIREMENTS AND CONDITIONS OF THE USE INTENDED.

C. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SITE WORK WITH GENERAL CONTRACTOR AND OTHER BUILDING TRADES.

D. SEE SINGLE LINE DIAGRAM FOR FEEDER WIRE AND CONDUIT SIZE. ALL UNDERGROUND FEEDERS IN PVC SHALL HAVE AN EQUIPMENT GROUND WIRE SIZED PER NEC 250.

E. COORDINATE ALL UNDERGROUND UTILITY WORK INCLUDING BUT NOT LIMITED TO THE FOLLOWING: EC RESPONSIBLE FOR ALL PRIMARY/SECONDARY UG CONDUITS INSTALLED FROM UTILITY DEMARC TO PAD OR NEW POLE-MOUNT TRANSFORMER LOCATION, (WHEN REQUIRED). CONFIRM ALL UTILITY WORK WITH OWNER, ARCH, GC, UTILITY REPRESENTATIVE, ETC PRIOR TO CONSTRUCTION.

F. AS-BUILT DRAWINGS SHALL INCLUDE AN OVERALL SITE PLAN SHOWING ROUTING OF ALL CIRCUITRY AND LOCATIONS OF ALL TRANSFORMERS, ETC. AND PULL BOXES,ETC.

G. PROVIDE APPROPRIATE POWER AND GFCI PROTECTION FOR ALL ABOVE GROUND PIPING HEAT TRACE. COORDINATE VOLTAGE/PHASE WITH CONTRACGTOR FURNISHING HEAT TRACE.

SCOPE OF WORK

THIS PROJECT IS THE CONSTRUCTION OF A NEW CARWASH. WORK TO INCLUDE NEW POWER, LIGHTING AND POWER DISTRIBUTION. SEE SINGLE LINE AND PANEL SCHEDULES FOR MORE INFORMATION.

SITE LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	MODEL
A	○—□	(1) 175W LED	SINGLE HEAD POLE LIGHT	LSI - MRM-LED-12L-SIL-FT-50-70CRI-ILIES
B	□—○—□	(1) 175W LED	DUAL HEAD POLE LIGHT	LSI - MRM-LED-12L-SIL-FT-50-70CRI-ILIES

NOTE:

1) CONTRACTOR TO REFERENCE CIVIL DRAWINGS FOR LOCATION OF CAMERA'S MOUNTED ON ALL LIGHT POLES.

STATE OF MICHIGAN
ROBERT E BYRGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

REB ARCHITECTS

REVISION	DATE

3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

Hypershine Carwash
9345 Highland Road
White Lake MI 48386

Electrical Site Plan

SHEET NUMBER
E-0.1

HYPERSHINE SITE LIGHT FIXTURE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	MODEL	INPUT VA
PL1	o-□	(1) 166W LED	SINGLE HEAD POLE LIGHT	LITHONIA LIGHTING - DSX0-LED-P7-40K-T5W-MVOLT-SPA-DDBXD-SSS-20-4C-DM19AS-DDBXD	166
PL2	o-□	(1) 166W LED	SINGLE HEAD POLE LIGHT	LITHONIA LIGHTING - DSX0-LED-P7-40K-T2M-MVOLT-SPA-DDBXD-SSS-20-4C-DM19AS-DDBXD	166
PL3	o-□	(1) 166W LED	SINGLE HEAD POLE LIGHT	LITHONIA LIGHTING - DSX0-LED-P7-40K-TFTM-MVOLT-SPA-DDBXD-SSS-20-4C-DM19AS-DDBXD	166

SITE ELECTRICAL EQUIPMENT

50HP VAC MCC-32
60HP VAC MCC-33
GATE 1 OPERATOR A-44
MONUMENT SIGN A-47
GATE 1 XPT POWER A-46
PKG RECEIVED SIGN (30-G) A-49
GATE 2 OPERATOR A-48
PAY STATION A-51
GATE 2 XPT POWER A-50
PAY STATION A-53
GATE 3 OPERATOR A-52
PAY STATION A-55
GATE 3 XPT POWER A-54
WP GFCI A-57

VERIFY LOCATIONS IN FIELD

SCOPE OF WORK

PROTOTYPE OF NEW CAR WASH. COORDINATE ELECTRICAL UTILITY WITH LOCAL UTILITY PROVIDER. PROVIDE NEW ELECTRICAL DISTRIBUTION, POWER, AND LIGHTING. SEE SINGLE LINE DIAGRAM FOR MORE DETAILS.

GENERAL NOTES-OVERALL PROJECT

A. EBS DRAWINGS INDICATE DESIGN INTENT AND REQUIRED OUTCOMES. IF CONDITIONS ARISE IN THE FIELD THAT REQUIRE DEVIATIONS FROM THE DRAWINGS IT IS ASSUMED THAT THE CONTRACTOR WILL DETERMINE THE APPROPRIATE DEVIATION WITH APPROVAL FROM THE OWNER. EBS IS AVAILABLE TO ASSIST WHEN REQUIRED IF ISSUES ARISE.

GENERAL NOTES - SITE

A. ALL EQUIPMENT LOCATED OUTDOORS SHALL BE LABELED NEMA 3R.

B. PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR THE INSTALLATION OF THIS WORK. ALL BACKFILL SHALL BE BROUGHT TO FINISHED GRADE AND MATCH SURROUNDING CONDITIONS. RESTORE ALL DISTURBED PAVING AND LANDSCAPING TO ORIGINAL CONDITIONS. PULL BOXES SHALL BE PROVIDE OF A TYPE MEETING THE REQUIREMENTS AND CONDITIONS OF THE USE INTENDED.

C. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SITE WORK WITH GENERAL CONTRACTOR AND OTHER BUILDING TRADES.

D. SEE SINGLE LINE DIAGRAM FOR FEEDER WIRE AND CONDUIT SIZE. ALL UNDERGROUND FEEDERS IN PVC SHALL HAVE AN EQUIPMENT GROUND WIRE SIZED PER NEC 250.

E. COORDINATE ALL UNDERGROUND UTILITY WORK INCLUDING BUT NOT LIMITED TO THE FOLLOWING: EC RESPONSIBLE FOR ALL PRIMARY/SECONDARY UG CONDUITS INSTALLED FROM UTILITY DEMARC TO PAD OR NEW POLE-MOUNT TRANSFORMER LOCATION, (WHEN REQUIRED). CONFIRM ALL UTILITY WORK WITH OWNER, ARCH, GC, UTILITY REPRESENTATIVE, ETC PRIOR TO CONSTRUCTION.

F. AS-BUILT DRAWINGS SHALL INCLUDE AN OVERALL SITE PLAN SHOWING ROUTING OF ALL CIRCUITRY AND LOCATIONS OF ALL TRANSFORMERS, ETC. AND PULL BOXES,ETC.

G. PROVIDE APPROPRIATE POWER AND GFCI PROTECTION FOR ALL ABOVE GROUND PIPING HEAT TRACE. COORDINATE VOLTAGE/PHASE WITH CONTRACGTOR FURNISHING HEAT TRACE.

GENERAL NOTES-POWER

A. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT/CABLE ROUTING. COORDINATE ROUTING WITH ALL OTHER TRADES AND BUILDING CONDITIONS.

B. SEE SINGLE LINE DIAGRAM FOR FEEDER WIRE AND CONDUIT SIZE. ALL CIRCUITS NOT SIZED ON DRAWING SHALL BE INSTALLED TO MEET MINIMUM SIZE REQUIRED BY NEC.

C. PROVIDE MOTOR STARTERS FOR EQUIPMENT AS INDICATED ON DRAWINGS. COORDINATE ANY INTERLOCKING WIRING WITH HVAC CONTRACTOR AND PROVIDE WIRING, COILS, AND AUXILIARY CONTACTS AS NECESSARY. SIZE ALL CIRCUITS FOR ACTUAL EQUIPMENT TO BE CONNECTED.

D. ALL PANELS AND DISCONNECTS LOCATED OUTDOORS SHALL BE LABELED NEMA 3R.

E. ROOF MOUNTED AND OUTDOOR EQUIPMENT SHALL HAVE 120V RECEPTACLE MOUNTED WITHIN 25' OF EACH PIECE. RECEPTACLES SHALL BE IN WEATHER PROOF BOX AND HAVE GFCI PROTECTION.

F. FOR ITEMS FURNISHED BY OTHER TRADES, ELECTRICAL CONTRACTOR TO FULLY COORDINATE BREAKER AND WIRE SIZES WITH ACTUAL EQUIPMENT BEING CONNECTED PRIOR TO ROUGH-IN, OR INSTALLATION. THE SIZES ON PANEL SCHEDULES REFER TO BASIS OF DESIGN SELECTIONS, AND ACTUAL ITEMS MAY DEVIATE FROM BASIS OF DESIGN. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CONFIRM REQUIRED WIRE AND BREAKER SIZES WITH THE CONTRACTOR FURNISHING THE EQUIPMENT.

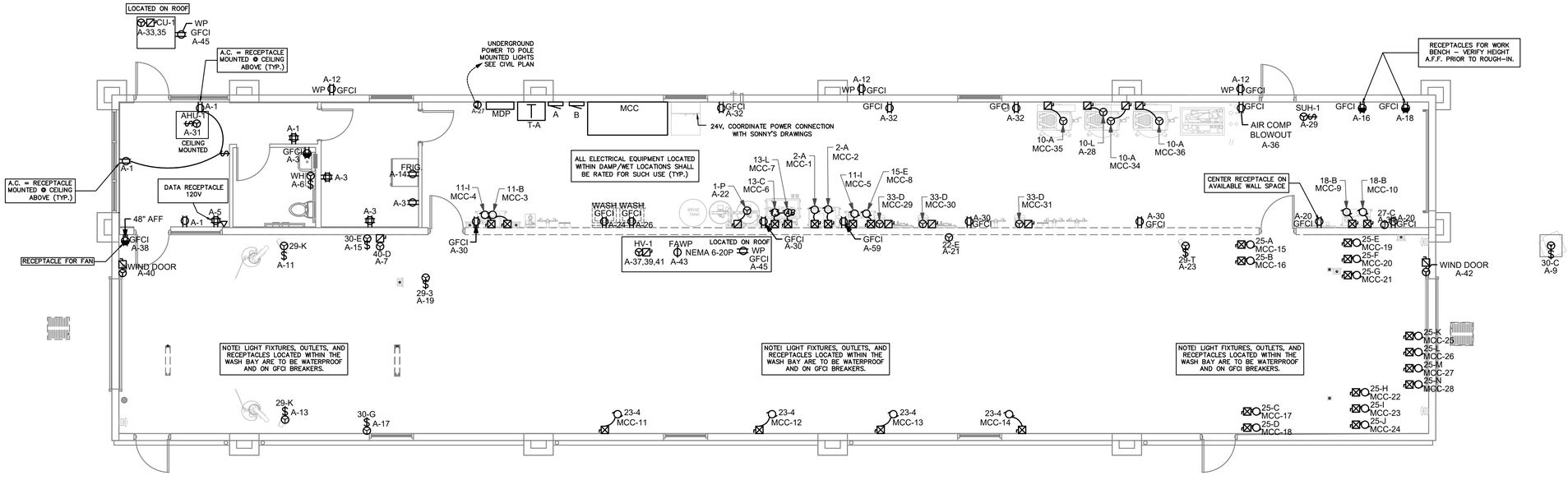
G. REFER TO ARCHITECT'S PLANS AND ELEVATIONS FOR ALL DEVICE MOUNTING HEIGHTS.

H. CONTRACTOR TO PROVIDE GROUNDING AND BONDING AS REQUIRED FOR ELECTRICAL SYSTEMS. GROUNDING AND BONDING IS CONSIDERED MEANS AND METHODS OF CONSTRUCTION, AND SHOULD BE COMPLETED BY THE ELECTRICAL CONTRACTOR IN ACCORDANCE WITH NEC 250. GAS PIPING SYSTEMS MUST BE BONDED PER UTILITY PROVIDER'S INSTALLATION GUIDELINES WHERE REQUIRED.

I. PHOTO EYE NEEDS SHIELDED CONDUCTOR.

J. 12" X 12" ATTENDANT COMPUTER BOX 17'-0" FROM INSIDE OF THE ENTRANCE BLOCK WALL 16" ABOVE FF CONTAINING A 120 V RECEPTACLE AND A DATA CABLE FROM THE DATA CLOSET. REF. SHEET VIDEO-1 FOR ADDITIONAL INFO. THIS WILL BE LOCATED 17'-0" INSIDE THE TUNNEL ON THE DRIVER SIDE OF THE CAR SO THEY CAN MOUNT A COMPUTER SCREEN ON THIS BOX FOR THE ATTENDANT LOADING VEHICLES TO OBSERVE THE PROGRESS OF CARS IN THE TUNNEL AND FOR OTHER REASONS.

K. IF TRACK PIPE FOR GAS LINE IS INSTALLED BOND PIPE BACK TO PANEL.



1 / E100 ELECTRICAL POWER FLOOR PLAN

SCALE: 3/16" = 1'-0"

STATE OF MICHIGAN
PAUL R. SPRONG
ENGINEER
No. 6201081071
LICENSED PROFESSIONAL ENGINEER

ISSUANCES

NO.	DESCRIPTION	DATE
	PERMIT	04-11-2022

HYPERSHINE CARWASH

9345 Highland Road
White Lake, Michigan 48386

PR-09685
ENGINEERED BUILDING SYSTEMS INC.
Shared Success Through Collaboration and Efficiency
515 Monmouth Street, Suite 204
Newport, KY 41071 (859) 261-0585
MEP Consulting Services, Inc. in OH

DRAWN BY	CHECKED BY
AJW	PRS

PROJECT NO.: 9685

SCALE: AS NOTED

DATE: 03-30-2022

DRAWING TITLE
ELECTRICAL POWER FLOOR PLAN

SHEET NO.
E100

HYPERSHINE LIGHT FIXTURE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	MODEL	INPUT VA	NOTE
EM		(2) 1.7W LED	EMERGENCY LIGHTING UNIT W/ 90 MIN. BATTERY	LITHONIA - EU2L-M12	3.4	
EM-W		(2) 1.7W LED	EMERGENCY LIGHTING UNIT W/ 90 MIN. BATTERY	MULE LIGHTING - WLEM-LED-G	3.4	
ER		(2) LED	REMOTE HEAD (EXTERIOR EGRESS ILLUMINATION)	LITHONIA LIGHTING - ERE-GY-T-WP-SQ-M12		POWERED FROM LOCAL EXIT SIGN BATTERY
EX		(1) 1.1W LED	EXIT/EMERGENCY COMBO W/ 90 MIN. BATTERY (PROVIDE REMOTE CAPIBILITY WHERE NEEDED)	LITHONIA - ECRG-HO-SQ-M6	2.2	
EX-W		(1) 1.1W LED	EXIT/EMERGENCY COMBO W/ 90 MIN. BATTERY (PROVIDE REMOTE CAPIBILITY WHERE NEEDED)	MULE LIGHTING - WLMX-C-R	2.2	
F		(1) 58W LED	LIGHT BAR	COLORED LED LIGHT BAR	58	PROVIDED AND INSTALLED BY EQUIPMENT INSTALLER
F1		(1) 35W LED	4' SURFACE LED STRIP	MULE LIGHTING - BLCSLEDSS-4FT-35-5KVMV-ET	35	
F1-W		(1) 40W LED	4' SURFACE LED STRIP	MULE LIGHITNG - LXBVTPLED-40-5KVMVET	40	
WP-1		(1) 19.56W LED	LED WALL PACK - STANDARD	LITHONIA - WSR-LED-P1-40K-SR4-MVOLTS-PE-DARK BRONZE	19.56	
WP-2		(1) 26.2W LED	LED WALL PACK - SLIM/LO-PROFILE	LITHONIA - DSXW1-LED-10C-700-40K-TFTM-120-PE-DARK BRONZE	26.2	

NL = EGRESS ILLUMINATION

SCOPE OF WORK

PROTOTYPE OF NEW CAR WASH, COORDINATE ELECTRICAL UTILITY WITH LOCAL UTILITY PROVIDER. PROVIDE NEW ELECTRICAL DISTRIBUTION, POWER, AND LIGHTING. SEE SINGLE LINE DIAGRAM FOR MORE DETAILS.

GENERAL NOTES-OVERALL PROJECT

A. EBS DRAWINGS INDICATE DESIGN INTENT AND REQUIRED OUTCOMES. IF CONDITIONS ARISE IN THE FIELD THAT REQUIRE DEVIATIONS FROM THE DRAWINGS IT IS ASSUMED THAT THE CONTRACTOR WILL DETERMINE THE APPROPRIATE DEVIATION WITH APPROVAL FROM THE OWNER. EBS IS AVAILABLE TO ASSIST WHEN REQUIRED IF ISSUES ARISE.

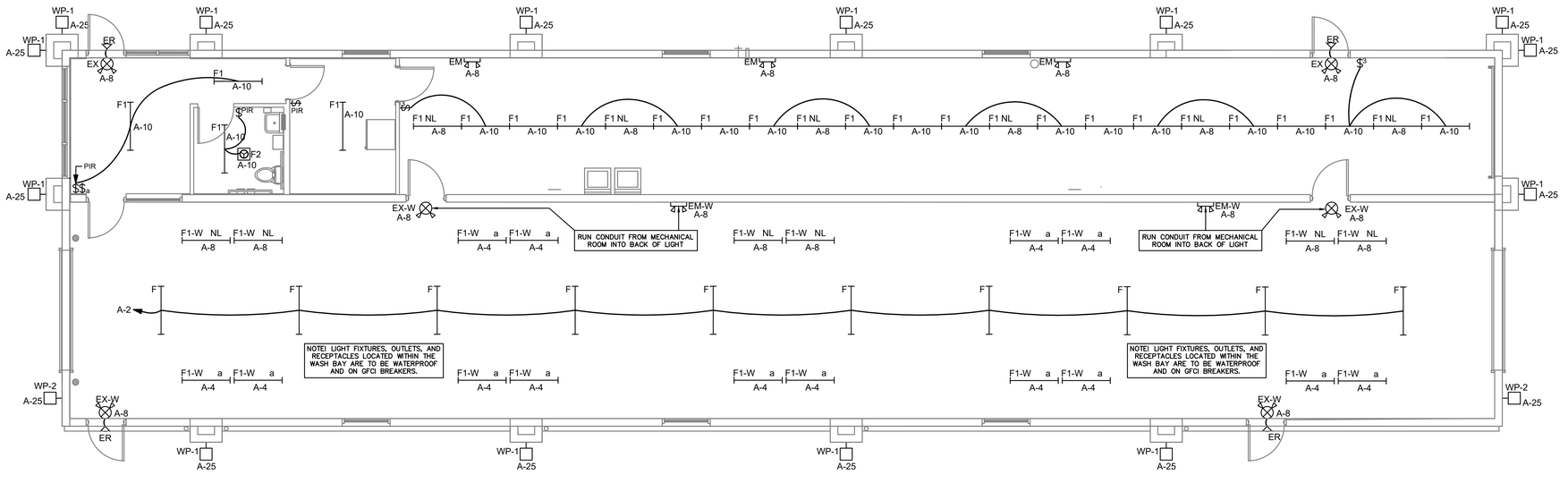
GENERAL NOTES-LIGHTING

A. REFER TO ARCHITECT'S PLANS AND ELEVATIONS FOR DIMENSIONED LOCATIONS OF LIGHT FIXTURES.

B. PROVIDE HOLD-ON-TYPE BREAKERS FOR EGRESS/EMERGENCY LIGHTING CIRCUITS. WIRE ALL EGRESS/EMERGENCY FIXTURES AHEAD OF ANY LOCAL SWITCHING.

C. LIGHT FIXTURES CONTROLLED BY SWITCH IN SAME ROOM UNLESS OTHERWISE NOTED.

D. WHERE DIMMERS AND/OR DIMMING SYSTEMS ARE REQUIRED, CONTRACTOR TO FURNISH DIMMERS THAT ARE COMPATIBLE WITH FIXTURE SOURCE AND RATED FOR THE WATTAGE OF THE DIMMING ZONE. PROVIDE ADDITIONAL DIMMERS AS REQUIRED TO MEET ZONE LOAD REQUIREMENTS.



1 / E200 ELECTRICAL LIGHTING FLOOR PLAN

SCALE: 3/16" = 1'-0"

STATE OF MICHIGAN
PAUL R. SPRONG
ENGINEER
No. 6201061071
LICENSED PROFESSIONAL ENGINEER

ISSUANCES

NO	DESCRIPTION	DATE
	PERMIT	03-30-2022

HYPERSHINE CARWASH

9345 Highland Road
White Lake, Michigan 48386

PR-09685
ENGINEERED BUILDING SYSTEMS INC.
Shared Success Through Collaboration and Efficiency
515 Monmouth Street, Suite 204
Newport, KY 41071 (859) 261-0585
MEP Consulting Services, Inc. in OH

DRAWN BY	CHECKED BY
AJW	PRS

PROJECT NO.: 9685

SCALE: AS NOTED

DATE: 03-30-2022

DRAWING TITLE
ELECTRICAL LIGHTING PLAN

SHEET NO.
E200

ELECTRICAL LEGEND

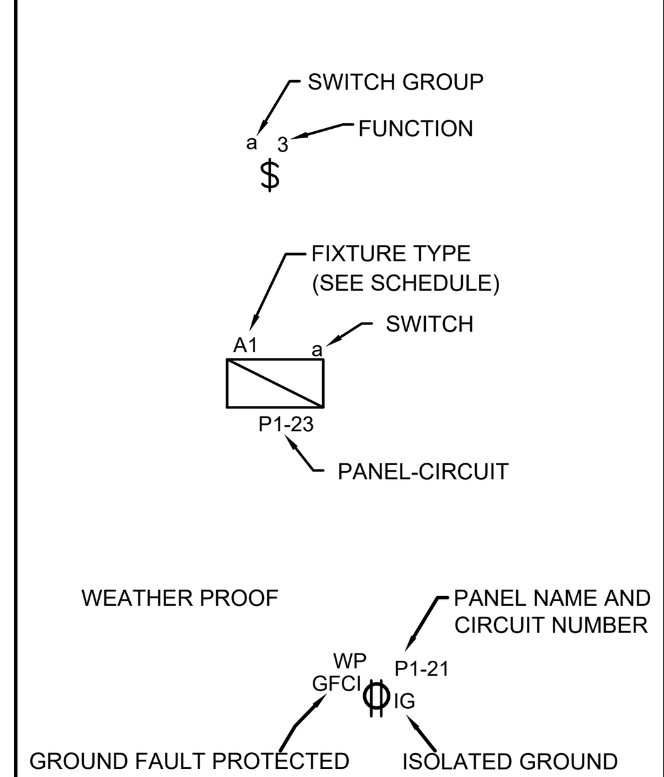
*SEE LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPES.

Symbol	Description
$	SINGLE POLE LIGHT SWITCH
$3	THREE WAY LIGHT SWITCH
$4	FOUR WAY LIGHT SWITCH
$D	DIMMER SWITCH
$FS	FAN SPEED CONTROL
OS DT	OCC SENSOR - CEILING - DUAL TECHNOLOGY
OS PIR	OCC SENSOR - CEILING - PASSIVE INFRARED
$DT	OCC SENSOR - WALL - DUAL TECHNOLOGY
$PIR	OCC SENSOR - WALL - PASSIVE INFRARED
	OCC SENSOR POWER PACK
	OCC SENSOR POWER PACK - 2 CKT
	DUPLEX RECEPTACLE
USB	DUPLEX RECEPTACLE W/USB JACKS
	COUNTER HEIGHT DUPLEX RECEPTACLE
	QUAD RECEPTACLE
	COUNTER HEIGHT QUAD RECEPTACLE
(CLNG)	CEILING (SHOW WINDOW) RECEPTACLE
GFCI	DUPLEX - GFCI RECEPTACLE
GFCI	COUNTER HEIGHT DUPLEX - GFCI RECEPTACLE
	SPLIT-WIRED (SWITCHED) RECEPTACLE
WP GFCI	WEATHER PROOF - GFCI RECEPTACLE
DW GFCI	DISHWASHER - GFCI RECEPTECLE
DISP.	GARBAGE DISPOSAL
MW	MICROWAVE RECEPTACLE
FRIG	REFRIGERATOR RECEPTACLE
RANGE	RANGE - 208-240V/ 1-PHASE 50 AMP RECEPTACLE
WASH GFCI	WASHER - GFCI RECEPTACLE
DRYER	DRYER - 208-240V/ 1-PHASE 30 AMP RECEPTACLE
W/D	STACKED WASHER/DRYER - 208-240V/ 1-PHASE 30 AMP RECEPTACLE
	DUPLEX - MONUMENT FLOOR BOX
	DUPLEX - RECESSED FLOOR BOX
	PANELBOARD
	PANELBOARD W/ BUS (MCB OR MLO) - SINGLE LINE DIAGRAM
	TRANSFORMER - SINGLE LINE DIAGRAM
	TRANSFORMER W/ GROUND - SINGLE LINE DIAGRAM
	PADMOUNT TRANSFORMER - SINGLE LINE DIAGRAM
	AUTOMATIC TRANSFER SWITCH (ATS) - SINGLE LINE DIAGRAM
	STANDBY/EMERGENCY GENERATOR - SINGLE LINE DIAGRAM
	METER BASE - SINGLE LINE DIAGRAM
	FUSED DISCONNECT - SINGLE LINE DIAGRAM
	CT CABINET - SINGLE LINE DIAGRAM
L5-20R	LOCKING 125V/20 AMP - RECEPTACLE
L6-20R	LOCKING 250V/20 AMP (1-PHASE) - RECEPTACLE
L5-30R	LOCKING 125V/30 AMP - RECEPTACLE
L6-30R	LOCKING 250V/20 AMP (1-PHASE) - RECEPTACLE
PP	FURNITURE POWER POLE - RECEPTACLE
RFF	FURNITURE RECESSED FLOOR FEED
WFF	FURNITURE WALL FEED
FB	RECESSED FLOOR BOX - MULTI-SERVICE (POWER/DATA)
AV	RECESSED FLOOR BOX - MULTI-SERVICE W/AV
PT	RECESSED MULTI-SERVICE POKE THRU
	SPECIAL CONNECTION
	SIMPLEX RECEPTACLE
	EQUIPMENT CONNECTION
$M	MANUAL MOTOR STARTER
	NON-FUSED DISCONNECT
	FUSED DISCONNECT
	FUSED DISCONNECT W/MAGNETIC MOTOR STARTER
J	JUNCTION BOX
HNE	HOME NETWORK ENCLOSURE
	SECURITY CAMERA
	DATA LOCATION (RING & STRING, U.N.O)
	VOICE DROP - LOCATION
	VOICE/DATA DROP - LOCATION
TV	CABLE TV (COAX) - LOCATION
CR	CARD READER
DR	DOOR RELEASE - ACCESS CONTROL
DS	DOOR STRIKE - ACCESS CONTROL
ML	MAG-LOCK - ACCESS CONTROL
PS	POSITION SWITCH
PR	PROXY READER
RE	REQUEST TO EXIT SWITCH
WAP	WIRELESS INTERNET ACCESS POINT
	DOOR HOLD - FIRE ALARM
DSD	DUCT SMOKE DETECTOR
FABP	FIRE ALARM BOOSTER PANEL
FACP	FIRE ALARM CONTROL PANEL
FARA	FIRE ALARM REMOTE ANNUNCIATOR
FS	SPRINKLER FLOW SWITCH
H	HEAT DETECTOR - FIRE ALARM
	HORN - FIRE ALARM
	HORN/STROBE - FIRE ALARM
PIV	POST INDICATOR VALVE - (PIV)
PRE-A	PRE-ACTION PANEL
PS	PRESSURE SWITCH
F	PULL STATION - FIRE ALARM
SD	SMOKE DAMPER
SD	SMOKE DETECTOR
CO SD	COMBINATION SMOKE/CO2 DETECTOR
SP	SPEAKER - FIRE ALARM
SP	SPEAKER/STROBE - FIRE ALARM
	STROBE - FIRE ALARM

ABBREVIATIONS:

Abbr.	Meaning
#	Number
Ω	Ohm
Φ	Phase
A	Amperes
AC	Alternating Current
A/C	Air Conditioning
AFCI	Arc Fault Current Interrupter
AHU	Air Handling Unit
AIC	Ampere Interrupting Capacity
AL	Aluminum
ATS	Automatic Transfer Switch
ATC	Automatic Temperature Control
AWG	American Wire Gauge
C	Conduit
CATV	Cable Television
CB	Critical Branch
C/B	Circuit Breaker
CKT	Circuit
CCTV	Closed Circuit Television
CT	Current Transformer
CU	Condensing Unit
DC	Direct Current
DIA	Diameter
EC	Electrical Contractor
EF	Exhaust Fan
ELEV	Elevator
EM	Emergency
EMT	Electrical Metallic Tubing
EPO	Emergency Power Off
EWC	Electric Water Cooler
EWH	Electric Water Heater
FA	Fire Alarm
FAA	Fire Alarm Annuciator
FLA	Full Load Amperes
FMC	Flexible Metal Conduit
GF	Gas Furnace
GFCI	Ground Fault Current Interrupter
GND	Ground
GWH	Gas Water Heater
HOA	Hand-Off-Automatic Switch
HVAC	Heating, Ventilation, Air Conditioning
HP	Heat Pump
HZ	Hertz
IG	Isolated Ground
IMC	Intermediate Metal Conduit
KCMIL	Thousand Circular Mils
KVA	Kilovolt-Amperes
LFMC	Liquid Tight Metal Conduit
LTG	Lighitng
LRA	Locked Rotor Amperes
MC	Metal Clad Cable
MCB	Main Circuit Breaker
MCC	Motor Control Center
MLO	Main Lug Only
NC	Normally Closed
NEC	National Electrical Code
NEMA	National Electrical Manufactures Association
NFPA	National Fire Protection Association
NL	Night Lighting (Egress Illumination)
NO	Normally Open
NTS	Not To Scale
P	Pole
PB	Push Button or Panic Button or Pull Box
PNL	Panel
PWR	Power
QTY	Quantity
REQ	Required
RMC	Rigid Metal Conduit
RNC	Rigid Non-Metallic Conduit
RTU	Roof Top Unit
ST	Shunt Trip
SW	Switch
TSTAT	Thermostat
TYP	Typical
UG	Underground
UL	Underwriters Labratory
UNO	Unless Noted Otherwise
V	Volt
VA	Volt-Amperes
W	Watt or Wire
WP	Weather Proof
XFMR	Transformer

EXAMPLES:



NOTE: ALL ITEMS MAY NOT BE USED.

ELECTRICAL SPECIFICATIONS

1. GENERAL DEMOLITION
   a. REFER TO ARCHITECTURAL DRAWINGS, GENERAL NOTES, INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS, BASE BUILDING SPECIFICATIONS AND DRAWINGS, SHOP DRAWING MANUALS AND AS-BUILT PLANS, EXCEPT AS NOTED HEREIN, WHICH APPLY IN ALL RESPECTS TO THIS SECTION. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS PRIOR TO BIDDING THE WORK
2. USE OF DRAWINGS AND SPECIFICATIONS
   a. EBS DRAWINGS AND SPECIFICATIONS ARE INTENDED TO CONVEY DESIGN INTENT ONLY. ALL MEANS AND METHODS SEQUENCES, TECHNIQUES, AND PROCEDURES OF CONSTRUCTION AS WELL AS ANY ASSOCIATED SAFETY PRECAUTIONS AND PROGRAMS, AND ALL INCIDENTAL AND TEMPORARY DEVICES REQUIRED TO CONSTRUCT THE PROJECT, AND TO PROVIDE A COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. STANDARDS
   a. MATERIALS EQUIPMENT AND MATERIALS SHALL CONFORM WITH APPROPRIATE PROVISIONS OF NEC, ASTM, UL, ETL, NEMA, ANSI, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.
4. CODES
   a. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS/SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE ELECTRICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO OWNER.
5. PERMITS AND FEES
   a. THE ELECTRICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES AND INSPECTIONS NECESSARY TO COMPLETE THE ELECTRICAL WORK.
6. WARRANTY
   a. THE ELECTRICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.
7. SITE EXAMINATION
   a. THE ELECTRICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS OF WORK WHERE EQUIPMENT WILL BE INSTALLED AND SHALL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE ELECTRICAL WORK PRIOR TO BID. HE SHALL ALSO EXAMINE THE DRAWINGS AND SPECIFICATIONS OF OTHER BRANCHES OF WORK MAKING REFERENCE TO THEM FOR DETAILS OF NEW OR EXISTING BUILDING CONDITIONS.
   b. ALL WORK SHALL BE DONE AT TIMES CONVENIENT TO THE OWNER AND ONLY DURING NORMAL WORKING HOURS, UNLESS SPECIFIED OTHERWISE.
   c. ELECTRICAL CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AND BE RESPONSIBLE FOR THEM.
   d. ACCESS PANELS ARE NOT SHOWN ON DRAWINGS. DURING SITE EXAMINATION, CONTRACTOR SHALL IDENTIFY ALL AREAS WHERE ACCESS PANELS ARE REQUIRED, AND REPORT TO GENERAL CONTRACTOR. DESIGNATION OF WHO FURNISHES AND WHO INSTALLS ACCESS PANELS MUST BE COORDINATED WITH GENERAL CONTRACTOR PRIOR TO STARTING WORK.
8. CONTRACTOR COORDINATION
   a. THE ELECTRICAL DRAWINGS AND SPECIFICATIONS CONVEY DESIGN INTENT ONLY. MEANS AND METHODS, SEQUENCES, TECHNIQUES, AND PROCEDURES OF CONSTRUCTION AS WELL AS ANY ASSOCIATED SAFETY PRECAUTIONS AND PROGRAMS, AND ALL INCIDENTAL AND TEMPORARY DEVICES REQUIRED TO CONSTRUCT THE PROJECT ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
   b. COORDINATION DRAWINGS SHOWING SYSTEM AND COMPONENT INSTALLATION LAYOUT, ROUTING, DETAILS, ETC. SHALL BE PRODUCED BY THE ELECTRICAL CONTRACTOR AND UNDER THE SUPERVISION OF THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER, OR APPROPRIATE PARTY AS APPLICABLE.
   c. ALL SYSTEMS INSTALLED BY EACH SUB-CONTRACTOR SHALL BE COORDINATED WITH ONE ANOTHER AND APPROVED BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER, ETC. PRIOR TO INSTALLATION AND/OR FABRICATION. WHERE THE ELECTRICAL CONTRACTOR IS MAKING A CONNECTION TO EQUIPMENT/COMPONENTS THAT ARE FURNISHED BY OTHERS, ELECTRICAL CONTRACTOR TO VERIFY ALL CONNECTION REQUIREMENTS WITH ACTUAL EQUIPMENT BEING CONNECTED, INCLUDING BUT NOT LIMITED TO OCP SIZE, MEANS OF DISCONNECT, SPECIAL CONNECTION REQUIREMENTS, OR OTHER ITEMS INDICATED ON SHOP DRAWINGS, OR MANUFACTURER'S INSTALLATION INSTRUCTIONS AND/OR INSTALLATION DIAGRAMS, AND FURNISH ALL LABOR AND MATERIALS REQUIRED FOR THE INSTALLATION AND OPERATION OF THE EQUIPMENT. NO ALLOWANCES WILL BE MADE FOR FAILURE TO COORDINATE, AFTER ELECTRICAL CONNECTIONS HAVE BEEN INSTALLED.
   d. IF QUESTIONS CONCERNING DESIGN INTENT ARISE DURING COORDINATION, EBS CAN ASSIST WHERE APPROPRIATE.
   e. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS; USE ACTUAL BUILDING DIMENSIONS.
   f. COORDINATION DRAWINGS SHOWING SYSTEM AND COMPONENT INSTALLATION LAYOUT, ROUTING, DETAILS, ETC. SHALL BE PRODUCED BY THE ELECTRICAL CONTRACTOR AND UNDER THE SUPERVISION OF THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER, OR APPROPRIATE PARTY AS APPLICABLE. ALL SYSTEMS INSTALLED BY EACH SUB-CONTRACTOR SHALL BE COORDINATED WITH ONE ANOTHER AND APPROVED BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER, ETC. PRIOR TO INSTALLATION AND/OR FABRICATION. IF QUESTIONS CONCERNING DESIGN INTENT ARISE DURING COORDINATION, EBS CAN ASSIST WHERE APPROPRIATE.
9. SUBMITTALS
   a. PRODUCTS INSTALLED BY THE ELECTRICAL CONTRACTOR AND PROVIDED BY OTHERS MUST BE SUBMITTED FOR REVIEW PRIOR TO PURCHASING. PRODUCTS SHALL NOT BE SELECTED BASED ON PERMIT DRAWINGS WITHOUT EXPRESS PERMISSION - PRODUCTS SHALL BE SELECTED BASED ON CONSTRUCTION DRAWINGS.
10. RECORD DRAWING
   a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CREATING RECORD DRAWINGS WHERE REQUIRED. DRAWINGS SHALL BE PRODUCED IN AUTOCAD 2004 FORMAT OR LATER.
11. SHOP DRAWINGS
   a. SUBMIT TO THE ARCHITECT PDF FILE COPIES OF COMPLETE & CERTIFIED SHOP DRAWINGS, DESCRIPTIVE DATA, PERFORMANCE DATA & RATINGS, DIAGRAMS AND SPECIFICATIONS ON ALL SPECIFIED EQUIPMENT, INCLUDING ACCESSORIES, AND MATERIALS FOR REVIEW.
   b. THE MAKE, MODEL NUMBER, TYPE, FINISH & ACCESSORIES OF ALL EQUIPMENT AND MATERIALS SHALL BE REVIEWED & APPROVED BY THE ELECTRICAL CONTRACTOR & GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE ARCHITECT FOR THEIR REVIEW & APPROVAL.
   c. REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR/VENDOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS & APPLICABLE CODES.
12. TESTING
   a. ALL ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. BALANCE ALL BRANCH CIRCUIT LOADS BETWEEN THE PHASES OF THE SYSTEM TO WITHIN 10% OF THE HIGHEST PHASE LOAD IN EACH PANELBOARD.
13. TEMPORARY POWER
   a. THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRICAL WIRING FOR CONSTRUCTION. THE TEMPORARY SERVICE SHALL BE A MINIMUM OF 60 AMPS, SINGLE PHASE, THREE WIRE, 120/208 VOLTS FUSED AT MAIN DISCONNECT. ALL RECEPTACLES ON THIS TEMPORARY SERVICE SHALL BE PROTECTED BY A GFI BREAKER.
14. MECHANICAL EQUIPMENT
   a. ALL FINAL CONNECTIONS TO MECHANICAL EQUIPMENT SHALL BE DONE BY THE ELECTRICAL CONTRACTOR.
15. DEMOLITION
   a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEENERGIZING CIRCUITS IN DEMOLITION AREAS TO INSURE A SAFE CONDITION. ELECTRICAL DEVICES AND ASSOCIATED WIRING LOCATED WITHIN THE DEMOLITION AREA THAT WILL NO LONGER BE USED SHALL BE REMOVED AND PROPERLY DISPOSED OF AT CONTRACTOR'S EXPENSE UNLESS OTHERWISE NOTED.
16. POWER OUTAGES
   a. THE ELECTRICAL CONTRACTOR SHALL SCHEDULE ALL ELECTRICAL SYSTEM(S) OUTAGES WITH THE GENERAL CONTRACTOR AND OWNER AT LEAST 24 HOURS IN ADVANCE. UNLESS APPROVED OTHERWISE ALL OUTAGES SHALL OCCUR BETWEEN 11:00PM AND 5:00AM.
17. GROUNDING AND BONDING
   a. CONTRACTOR TO PROVIDE GROUNDING AND BONDING AS REQUIRED FOR ELECTRICAL SYSTEMS. GROUNDING AND BONDING IS CONSIDERED MEANS AND METHODS OF CONSTRUCTION, AND SHOULD BE COMPLETED BY THE ELECTRICAL CONTRACTOR IN ACCORDANCE WITH NEC 250.
   b. ANY GAS PIPING SYSTEMS MUST BE BONDED PER UTILITY PROVIDER'S INSTALLATION GUIDELINES WHERE REQUIRED.
18. MATERIALS
   a. PROVIDE ALL NEW MATERIAL AND EQUIPMENT UNLESS NOTED OTHERWISE. ALL EQUIPMENT SHALL BE UL APPROVED AND LABELED, OR OTHER APPROVED TESTING ORGANIZATION WHICH HAS ACCEPTANCE BY THE LOCAL JURISDICTION, FOR THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS. NO SUBSTITUTION TO MATERIALS SPECIFIED WILL BE ALLOWED UNLESS APPROVED BY THE OWNER.
   b. ELECTRICAL CONTRACTOR SHALL NOT ORDER OR PURCHASE ANY MATERIALS OR EQUIPMENT UNTIL PERMIT DRAWINGS HAVE BEEN APPROVED. NO ALLOWANCES WILL BE MADE FOR ANY CHANGES THAT OCCUR IF PERMIT DRAWINGS HAVE NOT BEEN APPROVED PRIOR TO ORDERING.
19. CUTTING AND FITTING
   a. PERFORM CUTTING, CORING, FITTING, REPAIRING AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBER SHALL BE DONE WITHOUT THE CONSENT OF THE OWNER. PROPERLY FILL, SEAL, FIREPROOF, AND WATERPROOF ALL OPENINGS, SLEEVES, AND HOLES IN SLABS, WALLS, AND CASEWORK.
20. WIRING METHODS
   a. PROVIDE CODE APPROVED WIRING METHODS FOR BRANCH CIRCUITING INDOORS, SUCH AS NM CABLE (ONLY WHERE PERMITTED BY NEC 334), EMT CONDUIT, OR MC CABLE FOR MECHANICAL EQUIPMENT, LIGHTING, AND POWER.
   b. CONDUIT RUNS ON EXTERIOR OF BUILDING SHALL BE RIGID STEEL CONDUIT WITH WEATHER TIGHT, CORROSION-RESISTANT FITTINGS. SCHEDULE 40 PVC IS ACCEPTABLE WHERE PERMITTED BY CODE AND OR UNDERGROUND RUNS OR CONCRETE ENCASEMENT WHERE NOT EXPOSED TO PHYSICAL DAMAGE.
   c. THE MINIMUM SIZE OF CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED. CONDUIT CONNECTORS SHALL BE DOUBLE LOCKNUT TYPE, UL LISTED AND LABELED, WITH COMPRESSION OR SET SCREW FITTINGS.
   d. RIGID CONDUIT SHALL BE HOT DIPPED GALVANIZED.
   e. WHERE RACEWAYS ARE INSTALLED FOR OTHERS TO USE, OR FOR FUTURE USE, PROVIDE NYLON PULL STRING.
   f. PENETRATIONS THROUGH FIRE RATED CONSTRUCTION SHALL BE SEALED USING 3M FIRE BARRIER CAULK, NELSON ELECTRIC FLAMESEAL OR T&B FLAMESAFE OR OTHER APPROVED METHOD.
21. CONDUCTORS AND TERMINATIONS
   a. BRANCH CONDUCTORS SHALL BE COPPER, FEEDERS AS INDICATED ON RISER DIAGRAM. CONDUCTORS SHALL BE INSULATED FOR 600V NUMBER 12 AWG MINIMUM. PROVIDE WIRES AND CABLES AS INDICATED LISTED AND SUITABLE FOR TEMPERATURE, CONDITIONS, AND LOCATION WHERE INSTALLED.
22. MOTORS AND OTHER WIRING
   a. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED CONDUIT, WIRING, AND SAFETY SWITCHES FOR ALL MOTORS, AND OTHER ELECTRICAL EQUIPMENT, EVEN THOUGH THE MOTORS AND ELECTRICAL EQUIPMENT MAY BE SUPPLIED BY OTHERS. THE ELECTRICAL CONTRACTOR SHALL INCLUDE ALL WORK AND CONNECTIONS REQUIRED TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL. PROVIDE MAGNETIC STARTERS FOR EQUIPMENT AS INDICATED ON THE DRAWINGS.
   b. THE ELECTRICAL EQUIPMENT MAY INCLUDE BUT NOT BE LIMITED TO SUCH ITEMS AS GRILLE MOTORS AND INTERLOCKS, EXTERIOR AND INTERIOR SIGNAGE, STARTING DEVICES, MOTOR CONTROLLERS, FLOAT SWITCHES, ALARM DEVICES OR SYSTEMS, PUSH BUTTONS, EXHAUST FANS, DATA SYSTEMS, INTERCOMS AND STEREO SYSTEMS. THE ELECTRICAL CONTRACTOR SHALL VERIFY EQUIPMENT LOCATION AND SIZES WITH THE TRADE SUPPLYING THE EQUIPMENT BEFORE INSTALLING THE CONDUIT OR OUTLETS.
23. DEVICES
   a. HUBBELL, LEVITON, OR APPROVED EQUAL WITH MATCHING COVERPLATES.
   b. PROVIDE SPECIFICATION GRADE WIRING DEVICES, IN TYPES, CHARACTERISTICS, GRADES, COLORS, AND ELECTRICAL RATINGS FOR APPLICATIONS INDICATED, WHICH ARE UL-LISTED AND WHICH COMPLY WITH NEMA WD1 AND OTHER APPLICABLE UL AND NEMA STANDARDS. VERIFY COLOR SELECTIONS WITH ARCHITECT. PROVIDE DEVICE PLATES TO MATCH DEVICE COLORS.
   c. PROVIDE GFCI PROTECTION FOR ALL KITCHEN 15 AND 20-AMP RECEPTACLES. WHERE THE RECEPTACLE IS RENDERED INACCESSIBLE BY EQUIPMENT PROVIDE GFCI PROTECTION AT THE CIRCUIT BREAKER.
24. SERVICE ENTRANCE AND DISTRIBUTION EQUIPMENT
   a. ELECTRICAL CONTRACTOR MUST SUBMIT DRAWINGS FOR PERMIT AND RECEIVE APPROVAL PRIOR TO ORDERING EQUIPMENT. NO ALLOWANCES WILL BE MADE FOR EQUIPMENT CHANGES THAT OCCUR PRIOR TO RECEIPT OF APPROVED PLANS.
25. TRANSFORMERS
   a. DRY TYPE TRANSFORMERS - 15KVA TO 500 KVA - 600 VOLTS OR LESS, SINGLE AND THREE- PHASE. CONCRETE PADS FOR TRANSFORMERS, PROPERLY SLEEVED FOR TRANSFORMER TAP COMPARTMENTS.
   b. ALL APPLICABLE MATERIAL SHALL CONFORM TO NEMA STANDARDS. ALL APPLICABLE MATERIAL SHALL BEAR UL LABELS.
   c. TRANSFORMERS SHALL BE VENTILATED TYPE, SINGLE AND/OR THREE-PHASE, 60 HERTZ, DRY TYPE, AIR COOLED, TWO WINDING, INSULATED, HIGH EFFICIENCY, LOW SOUND LEVEL, AS LISTED ON THE DRAWINGS. PROVIDE TRANSFORMERS OF SAME MANUFACTURER AS SWITCHBOARDS AND PANELBOARDS.
   d. COILS SHALL UTILIZE AN UNDERWRITERS' LABORATORY APPROVED, 220 (C INSULATION SYSTEM AND THE AVERAGE TEMPERATURE RISE SHALL NOT EXCEED 115°C ABOVE A 40°C MAXIMUM AMBIENT. ALL UNITS SHALL HAVE NEMA STANDARD TAPS. 2-2 1/2% AN AND 4-2 1/2% BN.
   e. CORES SHALL BE MANUFACTURED WITH A HIGH GRADE, NON-AGING SILICON STEEL STACKED WITHOUT GAPS AND FIRMLY CLAMPED. THE CORE AND COIL ASSEMBLY SHALL BE MOUNTED ON VIBRATION PADS AND BOLTED TO THE ENCLOSURE. THE ENCLOSURE FOR SEPARATELY MOUNTED TRANSFORMERS SHALL BE PROVIDED WITH LIFTING EYES OR BRACKETS NEMA-3R OUTDOOR, TO PREVENT ACCESS TO LIVE PARTS. TOP OF CASE TEMPERATURES SHALL NOT EXCEED UL ACCEPTABLE LEVELS.
   f. TRANSFORMERS SHALL BE INSTALLED ON MINIMUM 3-1/2" CONCRETE PADS, PLUMB AND LEVEL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND APPLICABLE CODES.
   g. TERMINATE PRIMARY AND SECONDARY CONDUCTOR WITH COMPRESSION CONNECTORS. GROUNDING TO BE PER NEC.
   h. VERIFY INCOMING VOLTAGE TO TRANSFORMER AND SET TAPS AT THE VOLTAGE LEVEL.
   i. PROVIDE LOCKABLE BREAKERS FOR FEEDERS SUPPLYING TRANSFORMERS THAT ARE NOT LOCATED WITHIN SITE OF THE OVER-CURRENT PROTECTION. TRANSFORMERS SHALL BE FIELD MARKED WITH THE LOCATION OF THE OVER-CURRENT PROTECTION DEVICE.
26. DISCONNECTS AND FUSED SWITCHES
   a. HEAVY DUTY TYPE, HORSEPOWER RATED WITH INTERLOCKING COVER. NEMA 1 TYPICAL. OUTDOOR AND WET LOCATION SWITCHES SHALL BE RAINTIGHT TYPE NEMA 3RR. ALL SWITCHES SHALL BE LOCKABLE. FUSES IN CIRCUITS RATED AT 600 AMPERES OR LESS SHALL BE UL CLASS RK1 DUAL-ELEMENT, TIME-DELAY, CURRENT LIMITING FUSES. FUSES IN CIRCUITS RATED AT 601 AMPERES OR LARGER SHALL BE UL CLASS L TIME-DELAY, CURRENT LIMITING FUSES.
27. NAMEPLATES
   a. PROVIDE PERMANENT NAMEPLATE LABELING ON ALL DISCONNECTS. INCLUDE LOAD SERVED, VOLTAGE, PHASE, HORSEPOWER, FUSE SIZE, AND TYPE.
28. MOUNTING
   a. MOUNT INDEPENDENT OF THE MECHANICAL UNIT HOUSING UNLESS SPECIFICALLY ACCEPTED BY THE LOCAL CODE AUTHORITY. PROVIDE UNISTRUT SUPPORT CHANNELS MOUNTED IN COORDINATION WITH ROOF PENETRATION AND PATCHING WORK. COORDINATE WITH GENERAL CONTRACTOR.
29. GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS AND EQUIPMENT
   a. PROVIDE GROUNDING AND BONDING FOR ELECTRICAL SERVICE IN ACCORDANCE WITH NEC ARTICLE 250.
   b. ALL MAJOR PARTS NOT CARRYING CURRENT, INCLUDING BUT NOT LIMITED TO, SECONDARY FEEDER CIRCUIT, EQUIPMENT AND PANELBOARD ENCLOSURES, PULL AND JUNCTION BOXES, SHALL BE PROPERLY GROUNDED. METALLIC RACEWAYS SHALL UTILIZE DOUBLE LOCKNUTS AND OTHER FITTINGS AS REQUIRED TO PROVIDE GROUND CONTINUITY.
30. LIGHTING CONTACTORS
   a. PROVIDE LIGHTING CONTACTORS AS INDICATED ON DRAWINGS. 30A, 12-POLE LIGHTING CONTACTOR IN NEMA 1 ENCLOSURE.
31. SWITCHBOARDS
   a. SWITCHBOARDS SHALL BE OF THE SAME MANUFACTURER AS THE PANELBOARDS. THE ASSEMBLY SHALL BE RATED TO WITHSTAND MECHANICAL FORCES EXERTED DURING SHORT CIRCUIT CONDITIONS WHEN CONNECTED DIRECTLY TO A POWER SOURCE.
   b. PROVIDE NEMA 1 ENCLOSURE WHERE LOCATED INDOORS IN DRY LOCATIONS. PROVIDE NEMA 3R ENCLOSURES WHERE LOCATED OUTDOORS. ALL EXTERIOR AND INTERIOR STEEL SURFACES OF THE SWITCHBOARD SHALL BE PROPERLY CLEANED AND PROVIDED WITH A RUST-INHIBITING PHOSPHATIZED COATING. COLOR SHALL BE ANSI 61 LIGHT GRAY. PROVIDE 3.5" HOUSEKEEPING PAD FOR ALL SWITCHBOARDS.
32. PANELBOARDS
   a. PROVIDE BRANCH CIRCUIT PANELBOARD(S) AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN. PANELBOARDS SHALL HAVE BOLTED, THERMAL AND MAGNETIC BREAKERS WITH MAIN LUGS ONLY OR MAIN BREAKERS AS REQUIRED. PANELBOARDS SHALL BE CUTLER HAMMER, SQUARE D, GE BY ABB, OR EQUAL, AND BE ENCLOSED IN NEMA 1 TYPE HOUSING UNLESS NOTED OTHERWISE. ENCLOSURE(S) SHALL BE COMPLETE WITH A HINGED DOOR, CYLINDER LOCK, AND A NEATLY TYPED DIRECTORY UNDER PLASTIC COVER IN EACH PANEL DOOR. ALL MULTIPLE POLE BREAKERS SHALL HAVE A COMMON TRIP HANDLE. ALL PANELS AND BREAKERS SHALL BE RATED TO WITHSTAND AVAILABLE FAULT CURRENT.
33. LIGHTING
   a. PROVIDE A NEW LIGHTING SYSTEM COMPLETE AND FULLY OPERATIONAL AND IN CONFORMANCE WITH CODE AND UL LISTING REQUIREMENTS. CLEAN ALL FIXTURES AT TIME OF JOB COMPLETION UTILIZING MANUFACTURERS APPROVED OR RECOMMENDED CLEANING SOLUTIONS. ALL FIXTURES AND LAMPS ARE PROVIDED BY THIS CONTRACTOR AS SCHEDULED UNLESS NOTED OTHERWISE. CONTRACTOR SHALL FURNISH ALL BOXES, MOUNTING KITS, TRANSFORMERS, CONTROLLERS, AND OTHER COMPONENTS NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL INSTALLATION.
   b. WHERE DIMMERS AND/OR DIMMING SYSTEMS ARE REQUIRED, CONTRACTOR TO FURNISH DIMMERS THAT ARE COMPATIBLE WITH FIXTURE SOURCE AND RATED FOR THE WATTAGE OF THE DIMMING ZONE. PROVIDE ADDITIONAL DIMMERS AS REQUIRED TO MEET ZONE LOAD REQUIREMENTS.
34. TELEPHONE SYSTEM
   a. TELEPHONE WIRING AND SYSTEM PROVIDED BY OWNER. VERIFY SYSTEM REQUIREMENTS AND ROUGH-IN LOCATIONS WITH OWNER PRIOR TO START OF CONSTRUCTION. ELECTRICAL CONTRACTOR SHALL PROVIDE PLASTER RING AND PULL STRING FROM EACH DEVICE LOCATION TO ABOVE ACCESSIBLE CEILING.
35. SECURITY SYSTEM NOTES
   a. SECURITY WIRING AND SYSTEM PROVIDED BY OWNER. VERIFY SYSTEM REQUIREMENTS AND ROUGH-IN LOCATIONS WITH OWNER PRIOR TO START OF CONSTRUCTION. PROVIDE POWER FOR OWNER'S HEAD-END EQUIPMENT AND REMOTE POWER FOR SECURE DOORS AS REQUIRED.
36. DATA/POS/A-V/SYSTEM NOTES
   a. DATA, POS AND/OR A-V WIRING AND SYSTEMS PROVIDED BY OWNER. VERIFY SYSTEM REQUIREMENTS AND ROUGH-IN LOCATIONS WITH OWNER PRIOR TO START OF CONSTRUCTION. ELECTRICAL CONTRACTOR SHALL PROVIDE PLASTER RING AND PULL STRING FROM EACH DEVICE LOCATION TO ABOVE ACCESSIBLE CEILING.

SCOPE OF WORK

PROTOTYPE OF NEW CAR WASH. COORDINATE ELECTRICAL UTILITY WITH LOCAL UTILITY PROVIDER. PROVIDE NEW ELECTRICAL DISTRIBUTION, POWER, AND LIGHTING. SEE SINGLE LINE DIAGRAM FOR MORE DETAILS.

GENERAL NOTES-OVERALL PROJECT

A. EBS DRAWINGS INDICATE DESIGN INTENT AND REQUIRED OUTCOMES. IF CONDITIONS ARISE IN THE FIELD THAT REQUIRE DEVIATIONS FROM THE DRAWINGS IT IS ASSUMED THAT THE CONTRACTOR WILL DETERMINE THE APPROPRIATE DEVIATION WITH APPROVAL FROM THE OWNER. EBS IS AVAILABLE TO ASSIST WHEN REQUIRED IF ISSUES ARISE.

FEEDER SCHEDULE

ID	CONDUIT AND FEEDER
2	1-1/4"C,3#2 CU,#4 AL G
3	2-1/2"C,3#4/0 CU,#4/0 CU N,#2 CU G
4	(3)3"C,3#350kcmil AL,#350kcmil AL N,#3/0 AL G
5	(3)4"C,3#350kcmil AL,#350kcmil AL N

SIZING METHOD: COMPACT AL 75°C 100A AND ABOVE, CU 75°C BELOW 100A

GENERAL NOTES-SINGLE LINE DIAGRAM

A. ALL BREAKERS SHALL BE RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT AT THEIR LOCATION. WHERE SERIES- RATED COMBINATIONS ARE USED IN ACCORDANCE WITH NEC 240.86 (B) AND (C) THE CONTRACTOR AND/OR HIS EQUIPMENT SUPPLIER MUST PROVIDE APPROPRIATE DOCUMENTATION AND LABELING.

B. WHERE BREAKERS WITH ADJUSTABLE SETTINGS ARE FURNISHED TO THE PROJECT. THE MANUFACTURER'S REP SHALL IDENTIFY AND PROVIDE THE APPROPRIATE SETTINGS TO THE ELECTRICAL CONTRACTOR FOR HIS USE IN INSTALLATION.

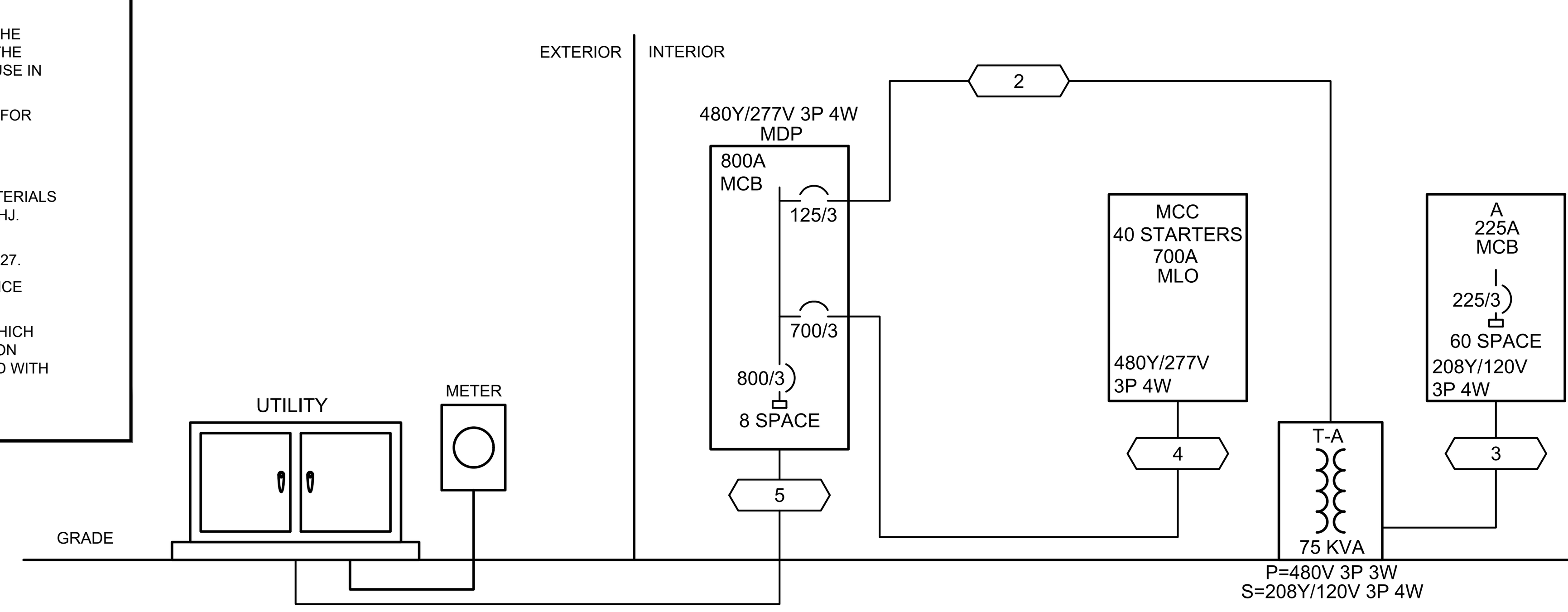
C. PANEL SCHEDULES MAY NOT INDICATE SPECIFIC NEC REQUIREMENTS FOR AFCI AND/OR GFCI TPYE BREAKERS. CONTRACTOR TO ENSURE THAT EQUIPMENT SUPPLIERS INCLUDE APPROPRIATE BREAKERS IN THEIR EQUIPMENT PACKAGE.

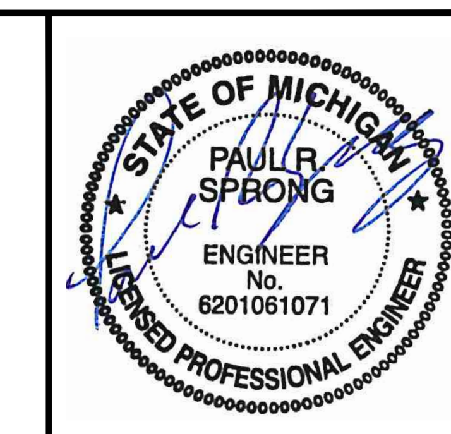
D. ELECTRICAL CONTRACTOR SHALL NOT ORDER OR PURCHASE ANY MATERIALS OR EQUIPMENT UNTIL PERMIT DRAWINGS HAVE BEEN APPROVED BY AHJ.

E. PROVIDE SELECTIVE COORDINATION FOR EMERGENCY SYSTEM OVERCURRENT PROTECTION DEVICES IN ACCORDANCE WITH NEC 700.27.

F. PROVIDE GROUND-FAULT PROTECTION FOR EQUIPMENT IN ACCORDANCE WITH NEC 240.13 AND NEC 230.95.

G. OVERCURRENT PROTECTION DEVICES SUPPLYING TRANSFORMERS WHICH ARE NOT LOCATED WITHIN SIGHT OF THEIR OVERCURRENT PROTECTION SHALL BE LOCKABLE AND THE TRANSFORMER SHALL BE FIELD MARKED WITH THE LOCATION OF THE OVERCURRENT PROTECTION DEVICE.





ISSUANCES		
DATE	NO.	DESCRIPTION
04-11-2022		PERMIT

HYPERSHINE CARWASH
9345 Highland Road
White Lake, Michigan 48386

PR-09685
ENGINEERED BUILDING SYSTEMS INC.
Shared Success Through Collaboration and Efficiency
515 Monmouth Street, Suite 204
Newport, KY 41071 (859) 261-0585
MEP Consulting Services, Inc. in OH

DRAWN BY	CHECKED BY
AJW	PRS

PROJECT NO.: 9685
SCALE:AS NOTED
DATE: 03-30-2022
DRAWING TITLE
ELECTRICAL DETAILS
SHEET NO.
E300

A

ROOM
MOUNTING **SURFACE**
FED FROM **T-A**
NOTE

VOLTS **208Y/120V 3P 4W**
BUS AMPS **225**
NEUTRAL **100%**

AIC **T.B.D.**
MAIN BKR **225**
LUGS **STANDARD**

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION		CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	20/1	0.9	RECEPTACLE	a	2	20/1	0.58	TUNNEL LIGHTING
3	20/1	1.08	RECEPTACLE	b	4	20/1	0.56	TUNNEL LIGHTING
5	20/1	0.36	RECEPTACLE	c	6	20/1	1.5	(WH) WATER HEATER
7	20/1	0.3	(40-D) GRAND ARCH (MR. FOAMER)	a	8	20/1	0.48	EGRESS LIGHTING
9	20/1	0.3	(30-C) (WAIT & GO') INSTRUCTIONAL SIGN	b	10	20/1	0.8	F2, LIGHTING
11	20/1	0.3	(29-K) BUG ARCH (SIGN)	c	12	20/1	0.54	RECEPTACLE
13	20/1	0.3	(29-K) BUG ARCH (SIGN)	a	14	20/1	0.5	FRIG.
15	20/1	0.3	(30-E) ENTRANCE INSTRUCTIONAL CABINET	b	16	20/1	0.18	RECEPTACLE
17	20/1	0.3	(30-G) PKG. RECEIVED SIGN	c	18	20/1	0.18	RECEPTACLE
19	20/1	0.068	(29-3) PIPE LIGHT, LED IP69K (SIGN)	a	20	20/1	0.36	RECEPTACLE
21	20/1	0.18	(22-E) WARNING HORN	b	22	15/1	0.48	(1-P) WATER SOFTENER SYSTEM
23	20/1	0.3	(29-T) BLOWER (SIGN)	c	24	20/1	1.5	WASHER
25	20/1	0.326	EXTERIOR BUILDING LIGHTING	a	26	20/1	1.5	WASHER
27	20/1	0.664	EXTERIOR SITE LIGHTING	b	28	15/1	0.696	(10-L) AIR DRYER 50 CFM
29	20/1	0.696	SUH-1	c	30	20/1	0.72	RECEPTACLE
31	15/1	0.876	AHU-1	a	32	20/1	0.54	RECEPTACLE
33	25/2	2.97	CU-1	b	34	20/1	0.03	(27-C) CONVEYOR PULSE CONTROL BOX
35	|			c	36	20/1	1.8	AIR COMPRESSOR BLOWOUT RECEPTACLE
37	45/3	9.15	HV-1	a	38	20/1	0.18	RECEPTACLE
39	|			b	40	40/1	3.84	WND DOOR
41	|			c	42	40/1	3.84	WND DOOR
43	20/1	1.18	FAWP	a	44	20/1	0.6	GATE 1 OPERATOR
45	20/1	0.36	RECEPTACLE	b	46	20/1	0.6	GATE 1 XPT POWER
47	20/1	0.5	MONUMENT SIGN	c	48	20/1	0.6	GATE 2 OPERATOR
49	20/1	0.3	PKG RECEIVED SIGN (30-G)	a	50	20/1	0.6	GATE 2 XPT POWER
51	20/1	1	PAY STATION	b	52	20/1	0.6	GATE 3 OPERATOR
53	20/1	1	PAY STATION	c	54	20/1	0.6	GATE 3 XPT POWER
55	20/1	1	PAY STATION	a	56	20/1	0	SPACE
57	20/1	0.18	RECEPTACLE	b	58	20/1	0	SPACE
59	20/1	0.18	RECEPTACLE	c	60	20/1	0	SPACE

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	3.81	4.76	(125%)	RECEPTACLES	8.74	8.74	(50%>10)
LARGEST MOTOR	3.84	0.96	(25%)	NONCONTINUOUS	10.4	10.4	(100%)
MOTORS	12.9	12.9	(100%)	HEATING	10.6	10.6	(100%)
				COOLING	2.97	0	(0%)
				TOTAL LOAD		48.4	
				BALANCED 3-PHASE LOAD		134 A	
				PHASE A		82.6%	
				PHASE B		99.4%	
				PHASE C		118%	

MCC

ROOM
MOUNTING **SURFACE**
FED FROM **MDP**
NOTE

VOLTS **480Y/277V 3P 4W**
BUS AMPS **700**
NEUTRAL **100%**

AIC **T.B.D.**
MAIN BKR **MLO**
LUGS **STANDARD**

CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	NEMA SIZE	FEEDER RACEWAY AND CONDUCTORS	STARTER DESCRIPTION
1	15/3	(2-A) PREP. GUN PUMP	2.11	2.11	2.11		1/2"C,3#12 CU,#12 CU G	
2	15/3	(2-A) PREP. GUN PUMP	2.11	2.11	2.11		1/2"C,3#12 CU,#12 CU G	
3	20/3	(11-B) WRAP BRUSH POWER PACK	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU G	
4	20/3	(11-I) TBG-SFB POWER PACK	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU G	
5	20/3	(11-I) TBG-SFB POWER PACK	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU G	
6	40/3	(13-C) H-25 OMNI PUMP TOP #1	5.82	5.82	5.82		3/4"C,3#8 CU,#10 CU G	
7	40/3	(13-L) H-25 WHEEL CLEANERS PUMP	5.82	5.82	5.82		3/4"C,3#8 CU,#10 CU G	
8	20/3	(15-E) COMBINATION POWER PACK	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU G	
9	25/3	(18-B) CONVEYOR POWER UNIT	3.88	3.88	3.88		1/2"C,3#10 CU,#10 CU G	
10	25/3	(18-B) CONVEYOR POWER UNIT	3.88	3.88	3.88		1/2"C,3#10 CU,#10 CU G	
11	20/3	(23-4) MITTER/MOTOR SFM901 (FB)	0.942	0.942	0.942		1/2"C,3#12 CU,#12 CU G	
12	20/3	(23-4) MITTER/MOTOR SFM901 (FB)	0.942	0.942	0.942		1/2"C,3#12 CU,#12 CU G	
13	20/3	(23-4) MITTER/MOTOR SFM901 (FB)	0.942	0.942	0.942		1/2"C,3#12 CU,#12 CU G	
14	20/3	(23-4) MITTER/MOTOR SFM901 (FB)	0.942	0.942	0.942		1/2"C,3#12 CU,#12 CU G	
15	40/3	(25-A) BLOWER MOTOR NO.1	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
16	40/3	(25-B) BLOWER MOTOR NO.2	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
17	40/3	(25-C) BLOWER MOTOR NO.3	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
18	40/3	(25-D) BLOWER MOTOR NO.4	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
19	40/3	(25-E) BLOWER MOTOR NO.5	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
20	40/3	(25-F) BLOWER MOTOR NO.6	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
21	40/3	(25-G) BLOWER MOTOR NO.7	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
22	40/3	(25-H) BLOWER MOTOR NO.8	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
23	40/3	(25-I) BLOWER MOTOR NO.9	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
24	40/3	(25-J) BLOWER MOTOR NO.10	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
25	40/3	(25-K) BLOWER MOTOR NO.11	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
26	40/3	(25-L) BLOWER MOTOR NO.12	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
27	40/3	(25-M) BLOWER MOTOR NO.13	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
28	40/3	(25-N) BLOWER MOTOR NO.14	4.71	4.71	4.71		3/4"C,3#8 CU,#10 CU G	
29	20/3	(33-D) GRUNDFOS PUMP_20GPM	2.11	2.11	2.11		1/2"C,3#12 CU,#12 CU G	
30	20/3	(33-D) GRUNDFOS PUMP_20GPM	2.11	2.11	2.11		1/2"C,3#12 CU,#12 CU G	
31	20/3	(33-D) GRUNDFOS PUMP_20GPM	2.11	2.11	2.11		1/2"C,3#12 CU,#12 CU G	
32	100/3	VACUUM (50HP)	18	18	18		1-1/4"C,3#2 CU,#8 CU G	
33	100/3	VACUUM (60HP)	21.3	21.3	21.3		1-1/4"C,3#2 CU,#8 CU G	
34	20/3	(10-A) AIR COMPRESSOR	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU N,#12 CU G	
35	20/3	(10-A) AIR COMPRESSOR	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU N,#12 CU G	
36	20/3	(10-A) AIR COMPRESSOR	3.05	3.05	3.05		1/2"C,3#12 CU,#12 CU N,#12 CU G	
37	20/3	SPACE	0	0	0			
38	20/3	SPACE	0	0	0			
39	20/3	SPACE	0	0	0			
40	20/3	SPACE	0	0	0			
		TOTAL CONNECTED KVA BY PHASE	160	160	160			

	CONN KVA	CALC KVA			CALC KVA
LARGEST MOTOR	64	16	(25%)	TOTAL LOAD	497
MOTORS	481	481	(100%)	BALANCED 3-PHASE LOAD	598 A

*REFER TO SONN'Y DRAWINGS FOR FURTHER COORDINATION AND EQUIPMENT LIST AND SCHEDULES

MDP

ROOM
MOUNTING **SURFACE**
FED FROM **UTILITY**
NOTE

VOLTS **480Y/277V 3P 4W**
BUS AMPS **800**
NEUTRAL **100%**

AIC **22,000**
MAIN BKR **800**
LUGS **STANDARD**

CKT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	FEEDER RACEWAY AND CONDUCTORS
1	700/3	MCC MCC	160	160	160	(3)3"C,3#350kcmil AL,#350kcmil AL N,#3/0 AL G
2	125/3	XFMR T-A	16.5	15	17.9	1-1/4"C,3#2 CU,#4 AL G
3	30/3	SPACE	0	0	0	
4	20/3	SPACE	0	0	0	
5	20/3	SPACE	0	0	0	
6	20/3	SPACE	0	0	0	
7	20/3	SPACE	0	0	0	
8	20/3	SPACE	0	0	0	
		TOTAL CONNECTED KVA BY PHASE	177	175	178	

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	3.81	4.76	(125%)	RECEPTACLES	8.74	8.74	(50%>10)
LARGEST MOTOR	64	16	(25%)	NONCONTINUOUS	10.4	10.4	(100%)
MOTORS	494	494	(100%)	HEATING	10.6	10.6	(100%)
				COOLING	2.97	0	(0%)
				TOTAL LOAD		544	
				BALANCED 3-PHASE LOAD		655 A	

STATE OF MICHIGAN
PAUL R. SPRONG
ENGINEER
No. 6201061071
LICENSED PROFESSIONAL ENGINEER

ISSUANCES

NO.	DESCRIPTION	DATE
	PERMIT	04-11-2022

HYPERSHINE CARWASH
9345 Highland Road
White Lake, Michigan 48386

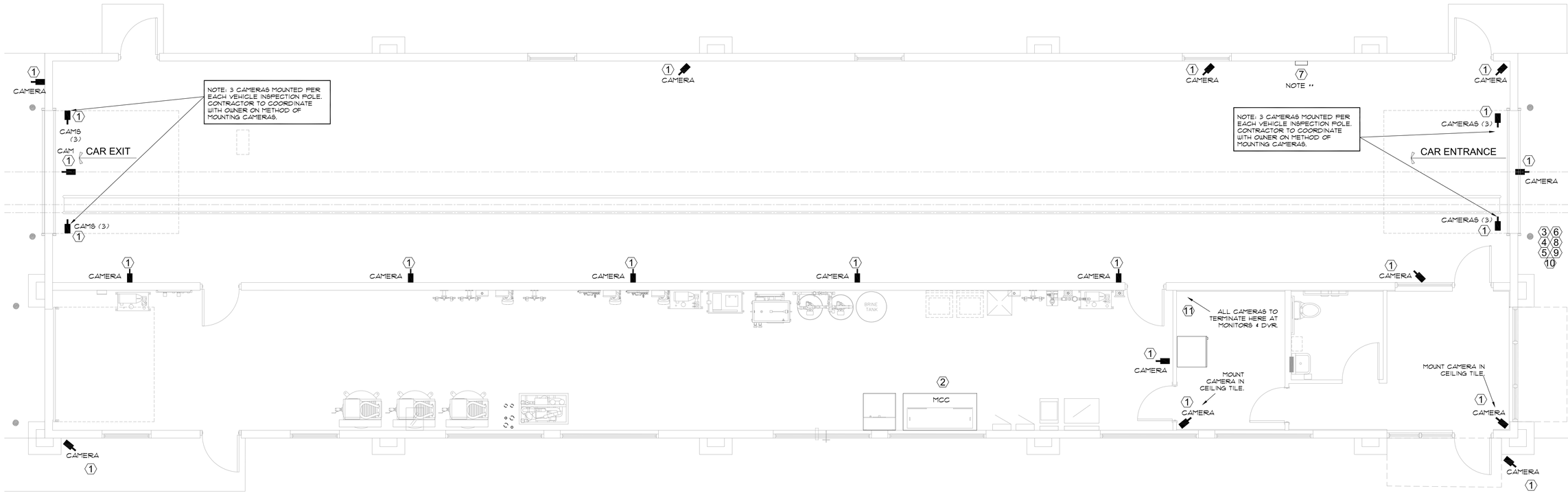
PR-09685

ENGINEERED BUILDING SYSTEMS INC.
Shared Success Through Collaboration and Efficiency
515 Monmouth Street, Suite 204
Newport, KY 41071 (859) 261-0585
MEP Consulting Services, Inc. in OH

DRAWN BY	CHECKED BY
AJW	PRS

PROJECT NO.: 9685
SCALE: AS NOTED
DATE: 03-30-2022
DRAWING TITLE
ELECTRICAL DETAILS

SHEET NO.
E301



STATE OF MICHIGAN
ROBERT E BYRGE
ARCHITECT
No 1301070219
LICENSED ARCHITECT

REB ARCHITECTS

103 WIND HAVEN DR, STE 101
NICHOLASVILLE KY 40356
859.523.1500

REVISION	DATE

3/25/2022
Permit Set

PROJECT NUMBER
9345 Highland Rd.

DRAWN BY: REB

SECURITY CAMERA LAYOUT FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTES:

A. CONTRACTOR TO COORDINATE WITH LOCAL CODES AND REQUIREMENTS FOR ELECTRICAL PERMITS FOR LOW VOLTAGE WORK.

B. OWNER WILL PROVED THE CAMERA SYSTEM, GC IS RESPONSIBLE FOR MOUNTING AND WIRING AND PROVIDING ANY EXTRA WIRE NEEDED. THE CAMERAS ARE "POWER OVER ETHERNET" SO THEY WILL REQUIRE CAT-5 RAN TO A HUB (A HUB CAN SUPPORT 5 CAMERAS) WITH CAT-5 FROM THE HUB TO EACH CAMERA. LOREX 4K ULTRA HD IP NVR SYSTEM WITH 8 ACTIVE DETERRENCE SECURITY CAMERAS, 130FT NIGHT VISION IS THE MODEL OF SYSTEM TO BE USED. G.C. SHALL ASSUME NO LESS THAN (3) SEPARATE DVRS. FINALIZE / VERIFY SCOPE OF WORK WITH OWNER PRIOR TO SUBMITTING FINAL BID AND / OR ROUGH-IN.

C. ALL CAMERAS TO BE MOUNTED AT 10'-0" FROM F.F. UNLESS OTHERWISE NOTED. CONTRACTOR TO CONSULT WITH OWNER FOR METHOD OF MOUNTING CAMERAS

D. MONITOR AND DVR'S WILL BE LOCATED IN BACK OFFICE WHERE THE DATA PANEL IS LOCATED.

E. SERVICE LOOPS TO BE INSTALLED IN GROUND BOXES.

F. RE-TIGHTEN ELECTRICAL CONNECTIONS IN MCC.

G. ALL CAMERAS TO HAVE ¾" CONDUIT WITH PULL STRINGS INSTALLED AT EACH CAMERA LOCATION BY G.C.

DATA CABLE NOTES:

1. DATA CABLE TO DATA CLOSET
2. DATA CABLE TO DATA CLOSET
3. DATA CABLE XPT-1 TO DATA CLOSET
4. DATA CABLE XPT-2 TO DATA CLOSET
5. DATA CABLE XPT-1 TO DATA CLOSET
6. DATA CABLE XPT-2 TO DATA CLOSET
7. DATA CABLE ATTENDANT COMPUTER BOX TO DATA CLOSET
8. DATA CABLE XPT-1 CAMERA TO DATA CLOSET
9. DATA CABLE XPT-2 CAMERA TO DATA CLOSET
10. DATA CABLE FROM LIGHT POLES TO DATA CLOSET
11. DATA CABLE FROM DATA CLOSET TO MCC
12. SEE CIVIL PLAN C500 FOR LOCATION OF CAMERAS ON LIGHT POLES.

NOTE:
- * XPT = PAYSTATION COMPUTER
- ** 12"x12" ATTENDANT COMPUTER BOX 17'-0" FROM INSIDE OF ENTRANCE BLOCK WALL, 16" ABOVE F.F. THAT NEEDS 120V RECEPTACLE AND A DATA CABLE FROM THE DATA CLOSET TO THIS 12"x12" BOX.

Hypershine Carwash
9345 Highland Road
White Lake MI 48386
Security Camera Layout

SHEET NUMBER
VIDEO-1

MTC MATERIALS TESTING CONSULTANTS

January 28, 2022
Project No. 211544

Stonefield Engineering and Design
607 Shelby Street, Suite 200
Detroit, MI 48226

Attention: J. Reid Cooksey, P.E.

Reference: Report of Geotechnical Investigation
Hypershine Carwash
White Lake Township, Michigan

Dear Mr. Cooksey:

MATERIALS TESTING CONSULTANTS, INC. has completed a geotechnical investigation for the above-referenced project. The findings of the study along with recommendations for the design of foundations and earth-related structures are presented in the attached report.

We appreciate this opportunity to provide foundation engineering services and express our interest in providing continuing services in the areas of subgrade verification, special inspections and quality testing on various construction materials. Please contact our office should you have any questions or require further assistance.

Sincerely,

MATERIALS TESTING CONSULTANTS, INC.

Ryan D. Starcher, E.I.T.
Project Engineer

Robert J. Warren, P.E.
Project Manager

att: Report

MATERIALS TESTING CONSULTANTS

REPORT OF GEOTECHNICAL INVESTIGATION

HYPERSHINE CARWASH
WHITE LAKE TOWNSHIP, MICHIGAN

Prepared For:

STONEFIELD ENGINEERING AND DESIGN
Detroit, Michigan

Prepared By:

MATERIALS TESTING CONSULTANTS, INC.

January 2022
MTC Project No. 211544

TABLE OF CONTENTS

REPORT OF GEOTECHNICAL INVESTIGATION
HYPERSHINE CARWASH

1.0 INTRODUCTION

MATERIALS TESTING CONSULTANTS, INC. (MTC) has completed a geotechnical investigation for the Hypershine Carwash, located in White Lake Township, Michigan. This work has been performed as described in our proposal, number 16118 and dated December 9, 2021. Authorization to proceed was received from Mr. J. Reid Cooksey, P.E. in an email dated December 10, 2021. The scope of this study was described in an RFP email dated December 6, 2021.

The scope of this study in general includes the following:

- performance of a field investigation including soil test borings and field engineering reconnaissance;
- review of recovered samples by one of our engineers and assignment of technical soil classifications;
- performance of laboratory testing on selected soil samples;
- performance of infiltration testing within the proposed stormwater infiltration area;
- engineering evaluation of encountered conditions with respect to the proposed construction; and
- preparation of this report.

Presented herein are descriptions of our understanding of the design considerations, the investigation program, encountered conditions and engineering recommendations. The Appendix contains the report limitations, boring log terminology, soil classification chart, boring logs and infiltration test logs.

2.0 DESIGN CONSIDERATIONS

2.1 Available Information

We have been provided the following documents and information for use in this investigation:

- A site plan prepared by Stonefield and overall floor plan for the proposed carwash prepared by REB Architects, provided by Mr. J. Reid Cooksey, P.E. of Stonefield on December 6, 2021.
- Telephone and email conversations with Mr. J. Reid Cooksey, P.E. of Stonefield regarding the proposed construction, design loads and scope of geotechnical investigation.

2.2 Location and Type of Structure

The proposed construction will be located in plan as shown on the attached Boring Location Plan, Figure No. 1. The site is located at address 9345 Highland Road in White Lake Township, Michigan. The property is on the south side of M-59, south of Fisk Corners Shopping Plaza, and located to the west of The Art of Dance studio.

The construction will in general consist of a new single-story carwash structure, approximately 3,300 sq ft in plan, with associated concrete pavement, vacuum facilities and stormwater management structures. We have considered that the structure will be slab-on-grade and that the lowest finish floor elevation will be within 1 ft of el. 968.0 ft. The building's structural frame will be of load-bearing concrete block construction. We understand that no column loads are expected and have considered maximum wall loads of 3 kips per lineal foot.

Concrete drives and pavement areas are planned to the north, east and west of the proposed carwash, with a future cross access drive expected to the east. Traffic is expected to consist of relatively light passenger vehicles with only occasional heavier axle wheel loadings from trucks for deliveries, refuse pickup, etc. We have considered an estimated maximum traffic volume on the order of 450 vehicles per day.

We should be informed of any changes between the actual design conditions and those described herein as this information may affect our recommendations.

3.0 INVESTIGATION METHODOLOGY

3.1 Field Investigation

Subsurface conditions were investigated by 8 conventional soil test borings. Borings B-1 and B-2 were extended to depths of 15 ft below the ground surface in the area of the proposed carwash. Borings B-1 and B-2 were shifted south in the field in order to maintain a safe working distance from overhead power lines. Borings B-3 to B-5 were extended to 5 ft below the ground surface in proposed concrete drive and parking areas. Borings B-6 to B-8 were extended to a depth of 10 ft in the area of proposed stormwater infiltration structures. Boring locations are shown on the attached plan, Figure No. 1.

Infiltration tests were performed at Borings B-6 to B-8 at depths ranging from 4.7 to 5.5 ft below existing grades (els 962.5 to 964.7 ft). The infiltration test depths were chosen in consultation with Mr. J. Reid Cooksey, P.E. of Stonefield. The infiltration tests were performed using the double ring method outlined in the Southeast Michigan Council of Governments (SEMCOG) Low Impact Development Manual for Michigan.

MTC staked the approximate boring locations in the field. Boring elevations were approximated by GPS. The elevations used in this report are given in feet and are based on NAVD 88 datum, with boring coordinates based on the Michigan State Plane South coordinate system. If more precise location and elevation data are desired, a registered professional land surveyor should be retained to locate the borings and determine their ground elevations.

The drilling was performed using conventional hollow-stem auger methods to advance the boreholes. The boreholes were backfilled to the original ground surface after drilling completion.

Soil samples were recovered on regular intervals by means of the Standard Penetration Test (SPT), ASTM D1586. The SPT test involves the use of a 140-lb hammer with a 30-inch drop to drive a standard 2.0-inch O.D. split spoon sampler. The number of hammer blows required to drive the sampler 12 inches, after seating 6 inches, is termed the soil N-value and provides an indication of the soil's relative density and strength parameters at the sample location. SPT blow counts in 6-inch increments are recorded on the boring logs. The drill rig was

equipped with an automatic hammer system which delivers a more consistent driving energy to the sampler compared to the rope and cathead system.

The recovered soil samples were reviewed by an engineer and technically classified according to the methods of ASTM D2488 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)". A copy of the test boring logs along with a description of the terminology used on the logs and a chart of the ASTM D2488 group symbol names are provided in the Appendix. The ASTM D2488 classifications are included on the boring logs.

Recovered samples were sealed, labeled and transported to our laboratory. All soil samples will be discarded after sixty days unless a longer hold time is specifically requested.

Borings were drilled and other sampling was conducted solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.

4.0 INVESTIGATION RESULTS

4.1 Regional Geology

The *Map of the Surface Formations of the Southern Peninsula of Michigan*, published by the State of Michigan, indicates the site is in an area of outwash and glacial channels. Soil conditions typically are found to be sandy or gravelly, with possible rich loam cover soil, in this type of geologic area. The *Map of Bedrock Topography of the Southern Peninsula of Michigan* indicates bedrock to be between 700 to 750 ft, on the order of 200 to 250 ft below existing grades.

4.2 Site Conditions

At the time of our field work, the area of investigation contained an existing single-story residence, a detached garage and barn structures and was covered with cut grass. We understand that the structures will be demolished prior to construction. The existing structures are generally located on the north side of the site and their footprints are generally

within the area of the proposed concrete drives and parking areas. There were no obvious signs of structural distress, such as readily-visible settlement or cracking, on the exterior of the existing buildings. The site, in general, sloped down towards the southeast extent of the site, away from Highland Road, with elevations ranging from 961 to 970 ft.

4.3 Subsurface Conditions

The investigation, in general, encountered 2 to 6 inches of sandy topsoil at the surface. Beneath the surficial material, Borings B-1 to B-8 generally encountered very loose to medium dense poorly graded sand (SP) with varying amounts of clayey fines to the explored depths of 5.0 to 15.0 ft (els 952.5 to 964.2 ft). Borings B-6 to B-8 encountered poor recovery due to possible coarse gravel or cobble at depths up to 5.0 ft (el 963.3 ft). Difficult drilling conditions were noted in Borings B-6 and B-7 at depths ranging from 5.0 to 5.5 (els 961.9 to 962.8 ft). Very loose poorly graded sand (SP) was encountered in Borings B-1 to B-6 and B-8 at depths of up to 10.0 ft (el 957.0 ft).

The relative density of granular soil is based on recorded SPT N-values. Difficult drilling or poor sampler recovery due to possible coarse gravel or cobble were noted in the borings at various depths. Boulders may be present where cobble is noted on the boring logs.

Groundwater was encountered during the drilling activities in Borings B-1, B-2 and B-6 to B-8 at depths ranging from 7.5 to 10.5 ft (els 958.3 to 959.8 ft). Groundwater levels may fluctuate due to seasonal variations such as precipitation, snowmelt, nearby river or lake levels and other factors that may not be evident at the time of measurement. Groundwater levels may be different at the time of construction.

This section has provided a generalized description of the encountered subsurface soil conditions. The boring logs located in the Appendix should be reviewed for detailed soil descriptions. Some variation between boring locations may be expected.

Infiltration Testing

Double ring infiltration tests, per the SEMCOG method, were performed at Borings B-6 to B-8 from 4.7 to 5.5 ft below existing grades (els 962.5 to 964.7 ft). Two concentric rings were

used to perform the test, with an 8-inch outer ring diameter and 4-inch inner ring diameter. The purpose of the outer ring is to prevent divergent flow of water from the inner ring while water level in the inner ring is monitored to calculate a one-dimensional infiltration rate. For the test, readings were taken at 10- or 30-minute intervals until a stabilized infiltration rate was achieved. A summary of the stabilized infiltration rates for each test are listed in Table 1, below. An appropriate factor of safety should be applied to the results. The infiltration test reports are attached.

Table 1 – Infiltration Test Results

Test	Test Elevation (ft)	Stabilized Infiltration Rate (in/hr)
IT-6	962.8	3
IT-7	964.7	60
IT-8	962.5	18

5.0 CONCLUSIONS AND RECOMMENDATIONS

In the vicinity of the footprint of the proposed carwash, the investigation encountered very loose poorly graded sand (SP) with varying amounts of clayey fines to depths of up to 10.0 ft (el 957.0 ft). Within the proposed pavement areas, very loose poorly graded sand (SP) was encountered at the surface to depths of 1.5 ft (els 964.9 to 967.7 ft).

To reduce the risk of structural settlement from sand consolidation, where very loose sand is encountered beneath foundations and floor slabs, we recommend compacting the material to 95 percent of the soil's maximum ASTM D1557 dry density.

Proof rolling and compaction of pavement subgrade is recommended prior to paving, as described further in section 5.2 of this report.

5.1 Foundations

A conventional shallow continuous and spread foundation system is recommended for support of the proposed structure. It is important that the recommendations of this report, in-particular those pertaining to subgrade preparation, construction observation and testing, be implemented during design and construction.

The following parameters are recommended for foundation design:

Table 5.1.1 - Foundation Design Parameters

Bearing pressure for continuous foundations, maximum net allowable, psf	2000
Minimum width of continuous foundations, inches	18
Minimum embedment depth for frost protection, inches	42

Foundations are expected to bear on the native loose to medium dense granular soil as encountered in the borings or on approved engineered fill. Where very loose granular soil is encountered beneath foundations, it should be compacted to 95 percent of the soil's maximum ASTM D1557 dry density. Subgrade preparation recommendations are contained in the following section.

Foundation recommendations presented herein are based on a safety factor to resist bearing capacity failure of at least 3.0 and a maximum anticipated total foundation settlement of 1 inch or less.

5.2 Site and Subgrade Preparation

All topsoil, vegetation, roots and any other miscellaneous debris should be removed from within the proposed construction areas. The limits of the proposed construction area, prior to the placement of any structures or engineered fill material, should be proof-rolled by the contractor and, where granular soil is present compacted to at least 95 percent of the soil's maximum ASTM D1557 dry density. Proof-rolling is defined as the passing of relatively heavy construction equipment over the soil subgrade under observation by the Geotechnical Engineer. The response of the soil, when subjected to the applied load, is subjectively

evaluated by qualified geotechnical staff with respect to its ability to support the overlying soil or structure. In areas where excessive deflection is observed, special subgrade preparation measures may be recommended to provide an acceptable subgrade condition. These measures may consist of compaction of the subgrade at moisture contents close to the optimum value, undercutting affected areas and replacing with engineered fill, use of a geotextile separation fabric or some combination of these measures.

Very loose poorly graded granular material was encountered in Borings B-1 to B-6 and B-8 at depths up to 10.0 ft (el 957.0 ft). Due to the very loose granular material encountered in the field investigation and due to variations that may exist between borings, it is expected that some form of subgrade improvement will be required over portions of the building area to provide suitable foundation bearing conditions. Subgrade improvement may include, but not be necessarily limited to, densification of existing soil in-place or excavation of all unsuitable material to an approved subgrade and replacement with engineered fill. If overexcavation is selected, it should encompass soil within the stress influence region of the foundation, defined as a region bordered by 2V:1H planes extending down and away from the bottom edge of the foundation to the approved bearing stratum.

The foundation subgrade should be inspected and tested by qualified geotechnical personnel. As part of the inspection and testing, the subgrade at each individual bearing element should be verified to be consistent with the conditions encountered in this investigation and the indicated recommended allowable bearing pressures. This testing should include a dynamic cone penetrometer (ASTM STP 399) to verify minimum relative densities and equivalent N-values in granular soil.

Engineered fill is approved on-site or imported soil placed in uniform layers and compacted to a minimum required density. Generally, on-site soil with a group symbol of SP is expected to be suitable for engineered fill. Imported engineered fill should meet the requirements for MDOT Class II granular material. MDOT Class II soil or approved on-site soil meeting the requirements of SP should be used as backfill against below-grade walls and foundations.

Granular engineered fill and backfill should be compacted to at least 95 percent of the soil's maximum dry density as determined by the Modified Proctor test (ASTM D1557). Vibratory compaction methods are typically found to be most effective in granular soils. The fill should be placed and compacted in horizontal layers not exceeding 9 inches. Field density tests should be taken on each lift, as the fill is being placed, to verify compliance with compaction specifications. If the earthwork takes place during winter months, fill must not be placed on frozen ground and fill with frozen conglomerations of soil must not be used.

Because the site has been previously developed, there may be buried items not encountered in our borings, such as a septic tank, well, or utility conduit, which may cause settlement problems. The contract documents should reflect that it is necessary to remove or relocate such structures and to fill the excavation with engineered fill.

5.3 Groundwater

Groundwater was encountered during the drilling activities in Borings B-1, B-2 and B-6 to B-8 at depths ranging from 7.5 to 10.5 ft (els 958.3 to 959.8 ft), below the anticipated depth of excavation for foundation construction, but may be near or above the base of trenches for utility installation. Groundwater may be encountered during construction and suitable control of groundwater should be anticipated and planned for accordingly before the start of construction. The contractor should be responsible for selecting and implementing an appropriate groundwater control system. The contractor should have previous dewatering experience on sites with similar conditions. Suitable silt and sediment traps should be incorporated into the dewatering system. A perimeter footing drain is recommended in all areas where the building's floor slab is at or below the adjacent exterior elevation.

5.4 Slopes and Temporary Excavations

The owner and the contractor should make themselves aware of and become familiar with applicable local, state, and federal safety regulations, including current OSHA excavation and trench safety standards. Construction site safety generally is the sole responsibility of the contractor. The contractor shall also be solely responsible for the means, methods, techniques, sequences and operations of construction operations. We are providing the following information solely as a service on this project and, under no circumstances, should

our provision of the following information be construed to mean that we are assuming responsibility for construction site safety or the contractor's activities; such responsibility is not implied and should not be inferred.

The contractor should be aware that slope height, slope inclination, and excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, or federal safety regulations; e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations. For this site, the overburden soil encountered in our exploratory program is predominantly a granular soil. We anticipate that OSHA will classify these materials as Type C. OSHA recommends a maximum slope inclination of 1½H:1V for this type of soil under ideal conditions.

As an alternative to temporary slopes, vertical excavations can be temporarily shored. The contractor or the specialty subcontractor should be responsible for the design of the temporary shoring in accordance with applicable regulatory requirements.

5.5 Concrete Floor Slabs and Rigid Pavements

Subgrade preparation in floor slab areas should be as described in the "Site and Subgrade Preparation" section of this report. For design of the concrete floor slabs and rigid pavements supported on-grade, a modulus of subgrade reaction value, $K_{30,}$ of 100 psi/inch is recommended. We recommend placement of at least 4 inches of MDOT Class II fill directly beneath the floor slab. Design of concrete slabs should be in accord with ACI and the applicable building code recognized design guidelines. If a vapor sensitive covering will be placed over the floor slab or the slab will be in a humidity-controlled area, a vapor retarder/barrier is recommended following ACI 302.1R-15 guidelines and the floor covering manufacturer's guidelines.

In consideration of concrete pavement where average daily traffic of 450 vehicles or less will be present, a minimum concrete pavement thickness of 6 inches is recommended. A plain jointed (unreinforced) concrete pavement with proper spacing of control joints is recommended. Load transfer devices (dowel bars) are not expected to be necessary given the expected axle loadings from primarily passenger vehicles. A minimum 6-inch base of MDOT Class II sand should be placed underneath the concrete. The concrete strength should

be designed for a minimum modulus of rupture, S'c, of 600 psi and the concrete should be air- entrained with a minimum 28-day strength of 4000 psi. The pavement should be properly jointed (sawcut) with the joints sealed. A jointing plan should be prepared as part of the design. Typically, joints are spaced every 12 to 15 ft with the sawcut extending approximately 1/4 of the pavement depth.

It is recommended that cracks that may develop in the pavement be quickly and properly sealed through a regular maintenance program. Also, the subgrade should be sufficiently sloped to provide drainage within the sand subbase and underdrains should be provided within the subbase, at catch basins and pavement edges, to facilitate drainage. At each catch basin, four underdrains with a watertight connection should extend out radially at least 20 ft.

5.6 MBC Seismic Considerations

The seismic design category can be determined with noted exceptions following Section 1613 of the 2015 Michigan Building Code. The Risk Category under Section 1613.3.5 shall be determined by a licensed structural engineer. Based on the subsurface conditions identified in the soil borings, our experience with the geological conditions in the site vicinity and the procedures outlined in Section 1613 of the 2015 Michigan Building Code and Chapter 20, Table 20.3-1 of ASCE 7, we recommend assigning a Site Class D to this site. A Site Class D designates a stiff soil profile in the upper 100 ft with average SPT uncorrected N-values between 15 and 50 in granular soil and average undrained shear strengths, s_u, between 1,000 and 2,000 psf in cohesive soil. Recommended seismic ground motion values are provided in Table 5.6.1.

Table 5.6.1 - Recommended Seismic Ground Motion Values

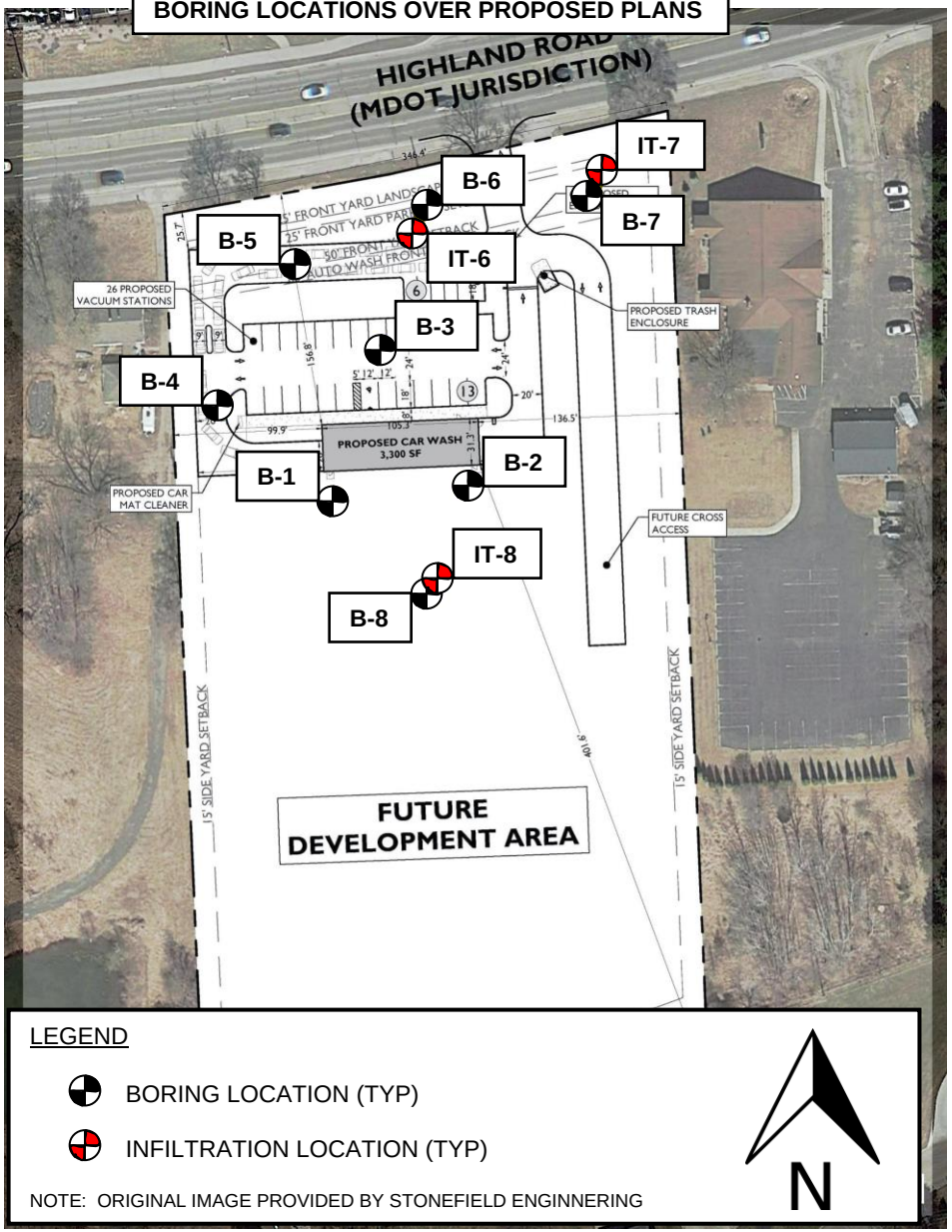
2015 Michigan Building Code Values	Short Period (0.2 sec)	Long Period (1 sec)
Spectral Response Acceleration, Figure 1613.3.1(1 and 2), %g	S_s = 9	S_l = 5
Seismic Site Coefficient, Table 1613.3.3(1 and 2)	F_a = 1.6	F_v = 2.4
Maximum Considered Spectral Response Acceleration, Equation 16-37 and 16-38	S_{MS} = 0.144g	S_{MI} = 0.120g
5% Damped Spectral Response Acceleration, Equation 16-39 and 16-40	S_{DS} = 0.096g	S_{DI} = 0.080g

6.0 CLOSURE

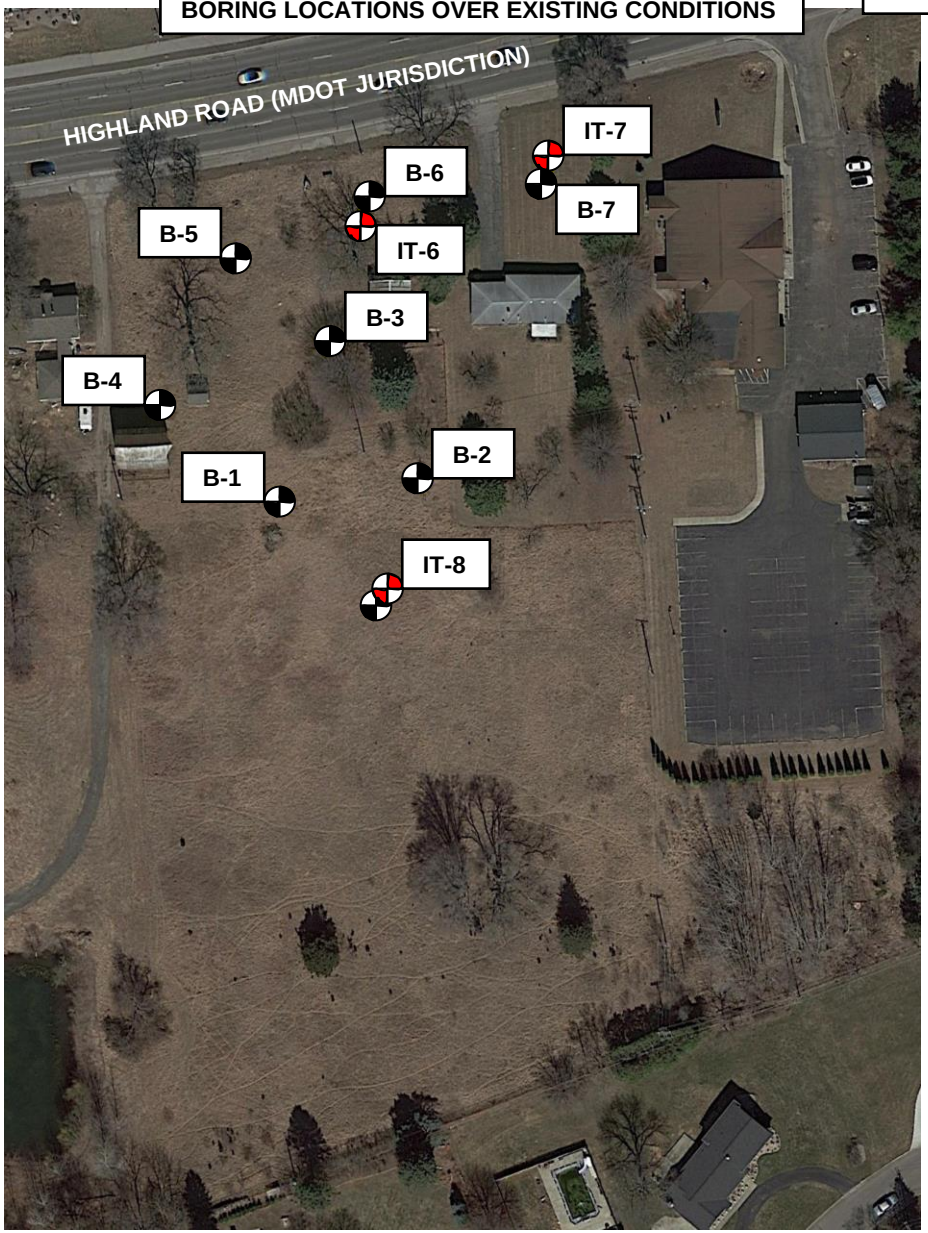
In this report, descriptions of the geotechnical investigation, encountered conditions and recommendations for the design of foundations and earth-related structures have been provided. The limitations of this study are described in the Appendix.

The recommendations presented in this report are based upon a limited number of subsurface samples obtained from various sampling locations. The samples may not fully indicate the nature and extent of the variations that actually exist between sampling locations. For that reason, among others, we strongly recommend that a qualified geotechnical firm be retained to observe earthwork construction. If variations or other latent conditions become evident during construction, it will be necessary for us to review these conditions and our recommendations as appropriate.

BORING LOCATIONS OVER PROPOSED PLANS



BORING LOCATIONS OVER EXISTING CONDITIONS



TITLE: BORING LOCATION PLAN		PROJECT: HYPERSHINE CARWASH	
SCALE: NS	DATE: 01/28/2022	PROJECT NO.: 211544	MTC MATERIALS TESTING CONSULTANTS
FIG. NO.: 1	DR. BY: KLV	REV. BY: RS	

APPENDIX

- Limitations
- Test Drilling and Sampling Procedures
- Boring Log Terminology and Classification Outline
- Boring Logs
- Infiltration Test Logs

LIMITATIONS

Soil Variations

The recommendations in this report are based upon the data obtained from the soil borings. This report does not reflect variations which may occur between these borings, and which would not become evident until construction. If variations then become evident, it would be necessary for a re-evaluation of recommendations of this report, after performing on-site observations.

Warranties

We have prepared this report in accordance with generally accepted soil and foundation engineering practices. We make no other warranties, either expressed or implied, as to the professional advice provided under the terms of our agreement and included in this report. This report is prepared exclusively for our client and may not be relied upon by other parties without written consent from our office.

Boring Logs

In the process of obtaining and testing samples and preparing this report, we follow reasonable and accepted practice in the field of soil engineering. Field logs maintained during drilling describe field occurrences, sampling locations, and other information. The samples obtained in the field are subjected to additional testing in the laboratory and differences may exist between the field logs and the final logs. The engineer reviews the field logs and laboratory test data, and then prepares the final boring logs. Our recommendations are based on the contents of the final logs.

Review of Design Plans and Specifications

In the event that any changes in the design of the building or the location, however slight, are planned, our recommendations shall not be considered valid unless modified or approved in writing by our office. We recommend that we be provided the opportunity to review the final design and specifications in order to determine whether changes in the original concept may have affected the validity of our recommendations, and whether our recommendations have, in fact, been implemented in the design and specifications.

TEST DRILLING AND SAMPLING PROCEDURES

Test Drilling Methods:

- [X] Hollow stem auger, ASTM D6151
- [ ] Mud rotary, ASTM D5783
- [ ] Casing advancer, ASTM D5872
- [ ] Rock coring, ASTM D2113
- [ ] Core/Hand Auger

Note: Cone penetration test data can be used to interpret subsurface stratigraphy and can provide data on engineering properties of soils. The ASTM procedure does not include a procedure for determining soil classification from CPT testing. Soil classifications shown on CPT logs are based on published procedures and are not based on physical ASTM soil classification tests.

Sampling Methods:

- [X] SPT, ASTM D1586, Auto hammer (140 lb., 30" drop, 2" OD split spoon sampler)
- [ ] Thin-walled tube sampler (Shelby), ASTM D1587

Note: The number of hammer blows required to drive the SPT sampler 12 inches, after seating 6 inches, is termed the soil N-value and provides an indication of the soil's relative density and strength parameters at the sample location. SPT blow counts in 6 inch increments are recorded on the boring logs.

Drill Rig:

- [ ] CME 55 LC (ATV)
- [ ] CME 750 Rubber tired (ATV)
- [ ] CME 95 Truck
- [X] Geoprobe 7822 (ATV)
- [ ] Geoprobe Rotary Sonic

Boreholes Backfilled With:

- [X] Excavated soil
- [ ] Cement bentonite grout
- [ ] Piezometer or Monitoring Well (see notes on logs)
- [ ] Concrete or asphalt patch where appropriate

Sample Handling and Disposition:

- [X] Samples labeled, placed in jars, returned to MTC Laboratory
- [X] Discard after 60 days

BORING LOG TERMINOLOGY AND ASTM D 2488 CLASSIFICATION OUTLINE

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 5
Loose	15 to 35 %	5 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

Per ASTM D2487, the following conditions must be met based on laboratory testing to justify the label 'well graded' in a soil description.

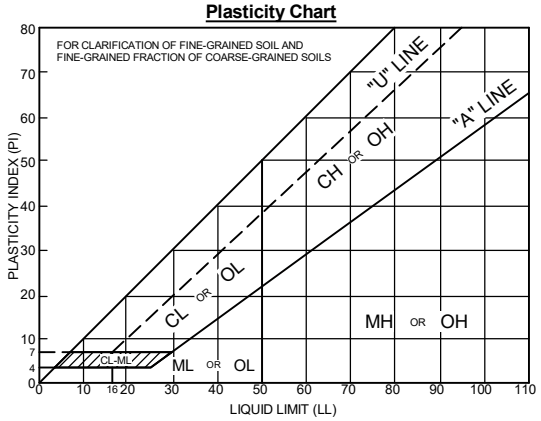
Gravel: $C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

Sand: $C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Descriptive Terms	Unconfined Compressive Strength TSF	SPT Blow Count
Very soft	< 0.25	< 2
Soft	0.25 to 0.5	2 to 4
Medium stiff	0.5 to 1.0	4 to 8
Stiff	1.0 to 2.0	8 to 15
Very stiff	2.0 to 4.0	15 to 30
Hard	> 4.0	> 30

Plasticity Chart



MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW		WELL-GRADED GRAVELS WITH OR WITHOUT SAND
			GP		POORLY-GRADED GRAVELS WITH OR WITHOUT SAND
		GRAVELS WITH 15% OR MORE FINES	GM		SILTY GRAVELS WITH OR WITHOUT SAND
			GC		CLAYEY GRAVELS WITH OR WITHOUT SAND
	SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	SW		WELL-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP		POORLY-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP-SM		POORLY-GRADED SANDS WITH SILT WITH OR WITHOUT GRAVEL
		SANDS WITH 15% OR MORE FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OL		ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
HIGHLY ORGANIC SOILS			PT/OL		PEAT AND OTHER HIGHLY ORGANIC SOILS

GENERAL NOTES

1. Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.

2. "Grades with" or "Grades without" may be used to describe soil when characteristics vary within a stratum.

3. Preserved soil samples will be discarded after 60 days unless alternate arrangements have been made.

GROUNDWATER OBSERVATIONS:

During - indicates water level encountered during the boring
End- indicates water level immediately after drilling
Date and Depth - Measurements at indicated date

SAMPLE TYPES AND NUMBERING

S	SPT, split barrel sample, ASTM D1586
U	Shelby tube sample, ASTM D1587
R	Rock core run
*S	Other than 2" split barrel sample
L	SPT with liner, ASTM D1586
A	Auger cuttings
G	Geoprobe liner

MINOR COMPONENT QUANTIFYING TERMS

Less than 5%	TRACE
5 to 10%	FEW
15 to 25%	LITTLE
30 to 40%	SOME
50 to 100%	MOSTLY

GRAIN SIZE

BOULDER	>12"
COBBLE	12" to 3"
COARSE GRAVEL	3" to 0.75"
FINE GRAVEL	0.75" to No. 4
COARSE SAND	No. 4 to No. 10
MEDIUM SAND	No. 10 to No.40
FINE SAND	No. 40 to No. 200

LOG OF BORING

Project No.: 211544
Boring No.: B-1
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: RS Rev. By: RW
Coordinates: N=422451.1 E=13364387.0 (MI South ift)
Elevation: 967.5 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled with excavated soil. Cave in at 10.0 ft.

Date Begin: 01/04/2022 Date End: 01/04/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	8.6
Sampler	SPT	2"	End	8.6
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 15.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
966.5	1	S-1	1.5	1/12"-1	SP-SC	3" Sandy Topsoil (0.3) Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, moist (2.5)				
965.5	2									
964.5	3									
963.5	4	S-2	1.5	1-1-1 N=2	SP	Brown poorly graded SAND; mostly coarse to fine sand, trace clayey fines, moist (5.5)				
962.5	5									
961.5	6									
960.5	7	S-3	1.5	2-2-3 N=5	SP-SC	Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, moist				
959.5	8									
958.5	9	S-4	1.5	3-2-2 N=4		Grades wet (12.0)				
957.5	10									
956.5	11									
955.5	12									
954.5	13	S-5	1.5	5-5-5 N=10	SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, wet (15.0)				
953.5	14									
952.5	15					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-2
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: RS Rev. By: RW
Coordinates: N=422463.3 E=13364476.0 (MI South ift)
Elevation: 968.8 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled with excavated soil. Cave in at 10.9 ft.

Date Begin: 01/04/2022 Date End: 01/04/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	10.5
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 15.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
967.8	1	S-1	1.5	1/18"	SP	3" Sandy Topsoil (0.3) Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, moist				
966.8	2									
965.8	3									
964.8	4	S-2	1.5	2-2-2 N=4						
963.8	5					(5.5)				
962.8	6				SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, moist				
961.8	7	S-3	1.5	4-5-7 N=12						
960.8	8									
959.8	9	S-4	1.5	6-7-7 N=14		Grades with some coarse to fine gravel, trace clayey fines, wet				
958.8	10									
957.8	11									
956.8	12					(12.0)				
955.8	13				SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, wet				
954.8	14	S-5	1.5	6-5-5 N=10						
953.8	15					(15.0)				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-3
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: RS Rev. By: RW
Coordinates: N=422551.8 E=13364417.8 (MI South ift)
Elevation: 969.2 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled with excavated soil. Cave in at 3.4 ft.

Date Begin: 01/04/2022 Date End: 01/04/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
968.2	1	S-1	1.5	2-1-1 N=2	SP	5" Sandy Topsoil 0.4 Brown poorly graded SAND; mostly coarse to fine sand, moist				
967.2	2									
966.2	3									
965.2	4	S-2	1.5	1-3-3 N=6						
964.2	5					5.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-4
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: RS Rev. By: RW
Coordinates: N=422513.7 E=13364309.4 (MI South ift)
Elevation: 966.4 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled with excavated soil. Cave in at 3.8 ft.

Date Begin: 01/04/2022 Date End: 01/04/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
965.4	1	S-1	1.5	WOH	SP	4" Sandy Topsoil 0.3 Brown poorly graded SAND; mostly coarse to fine sand, trace clayey fines, moist				WOH: Weight of Hammer
964.4	2									
963.4	3									
962.4	4	S-2	1.5	2-3-3 N=6		Grades with trace coarse to fine gravel 5.0				
961.4	5					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-5
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: RS Rev. By: RW
Coordinates: N=422607.5 E=13364360.1 (MI South ift)
Elevation: 966.9 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled with excavated soil.

Date Begin: 01/04/2022 Date End: 01/04/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
965.9	1	S-1	1.5	WOH-1-1 N=2		6" Sandy Topsoil 0.5				WOH: Weight of Hammer
964.9	2				SP	Brown poorly graded SAND; mostly coarse to fine sand, moist				
963.9	3									
962.9	4	S-2	1.5	2-3-3 N=6		Grades with few coarse to fine gravel 5.0				
961.9	5					End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-6
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: JV Rev. By: RW
Coordinates: N=422641.0 E=13364443.7 (MI South ift)
Elevation: 968.3 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 7.2 ft.

Date Begin: 01/03/2022 Date End: 01/03/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	8.5
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
967.3	1	S-1	1.2	2-1-1 N=2		4" Sandy Topsoil 0.3				
966.3	2					Brown poorly graded SAND; mostly coarse to fine sand, moist				S-1 and S-2: Poor recovery; possible coarse gravel / COBBLE
965.3	3									
964.3	4	S-2	1.2	4-4-4 N=8	SP	Grades with few coarse to fine gravel				
963.3	5									
962.3	6									
961.3	7	S-3	1.5	3-3-4 N=7						Hard drilling due to possible coarse gravel / COBBLE at 5.5'
960.3	8									
959.3	9	S-4	1.5	3-4-5 N=9		Grades wet at 8.5'				
958.3	10					10.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-7
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: JV Rev. By: RW
Coordinates: N=422663.0 E=13364559.1 (MI South ift)
Elevation: 966.9 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 7.0 ft.

Date Begin: 01/03/2022 Date End: 01/03/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	8.5
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
965.9	1					3" Sandy Topsoil 0.3				
964.9	2	S-1	0.5	2-5-12 N=17		Brown poorly graded SAND; mostly coarse to fine sand, trace coarse gravel, moist				S-1: Poor recovery; possible coarse gravel / COBBLE
963.9	3									
962.9	4									
961.9	5	S-2	1.5	6-7-7 N=14	SP					
960.9	6									Hard drilling due to possible coarse gravel / COBBLE at 5.0'
959.9	7	S-3	1.5	9-12-12 N=24		Grades with few coarse to fine gravel				
958.9	8									
957.9	9									
956.9	10	S-4	1.5	5-6-16 N=22		Grades wet at 8.5' 10.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 211544
Boring No.: B-8
Sheet: 1 of 1

Project: Hypershine Carwash
Client: Stonefield Engineering and Design
Location: White Lake, Michigan
Drill Type: Geoprobe 7822
Crew Chief: MS Field Eng.: RS Rev. By: RW
Coordinates: N=422390.3 E=13364449.9 (MI South ift)
Elevation: 967.0 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled with excavated soil. Cave in at 6.0 ft.

Date Begin: 01/04/2022 Date End: 01/04/2022

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	7.5
Sampler	SPT	2"	End	7.5
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
966.0	1	S-1	0.5	1-1-1 N=2		2" Sandy Topsoil 0.2				S-1: Poor recovery; possible coarse gravel / COBBLE
965.0	2					Brown poorly graded SAND; mostly coarse to fine sand, moist				
964.0	3									
963.0	4	S-2	1.5	3-3-4 N=7	SP					
962.0	5									
961.0	6									
960.0	7	S-3	1.5	1-1-1 N=2		Grades wet with trace clayey fines				
959.0	8									
958.0	9	S-4	1.5	1/18"						
957.0	10					10.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

mtc-test.com 800.968.8378

Double Ring Infiltration Test

Item A.

Client:
Stonefield Engineering and Design
607 Shelby Street, Suite 200
Detroit, M 48226

Project:
211544G
Hypershine Carwash, White Lake
9345 Highland Road

Activity Information

Weather: Sunny
Low / High Temp, °F: 19 / 34
Activity Date: 01/04/2022
Tested By: VanZalen, Jake
Test No.: IT-6

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60
Inner Diameter (in): 4
Outer Diamter (in): 8
Ground Surface Elev. (ft): 968.3
Test Elev. (ft): 962.8
Groundwater Elev. (ft): 959.8

Soil Description: Brown poorly graded SAND

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
30:00	1 1/2	30	3
60:00	1 1/2	30	3
90:00	1 1/2	30	3
120:00	1 1/2	30	3

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Coordinates: N= 422633.8, E= 13364441.3
Initial Head: 36"

mtc-test.com 800.968.8378

Double Ring Infiltration Test

Item A.

Client:
Stonefield Engineering and Design
607 Shelby Street, Suite 200
Detroit, M 48226

Project:
211544G
Hypershine Carwash, White Lake
9345 Highland Road

Activity Information

Weather: Sunny
Low / High Temp, °F: 3 / 27
Activity Date: 01/03/2022
Tested By: VanZalen, Jake
Test No.: IT-7

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60
Inner Diameter (in): 4
Outer Diamter (in): 8
Ground Surface Elev. (ft): 970.2
Test Elev. (ft): 964.7
Groundwater Elev. (ft): 961.5

Soil Description: Brown poorly graded SAND

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
10:00	10	10	60
20:00	10	10	60
30:00	10	10	60
40:00	10	10	60

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Coordinates: N= 422658.6, E= 13364558.3
Initial Head: 32"

mtc-test.com 800.968.8378

Double Ring Infiltration Test

Client:
Stonefield Engineering and Design
607 Shelby Street, Suite 200
Detroit, M 48226

Project:
211544G
Hypershine Carwash, White Lake
9345 Highland Road

Activity Information

Weather: Sunny
Low / High Temp, °F: 19 / 34
Activity Date: 01/04/2022
Tested By: Starcher, Ryan
Test No.: IT-8

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60
Inner Diameter (in): 4
Outer Diamter (in): 8
Ground Surface Elev. (ft): 967.2
Test Elev. (ft): 962.5
Groundwater Elev. (ft): 959.5

Soil Description: Brown poorly graded SAND

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
10:00	3	10	18
20:00	3	10	18
30:00	3	10	18
40:00	3	10	18

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Coordinates: N= 422393.5, E= 13364451.5
Initial Head: 32"

Catalog #: _____ Project: _____

Prepared By: _____ Date: _____ Type: _____

Item A.

Mirada Wall Sconce (XWM)

Outdoor LED Wall Sconce

OVERVIEW	
Lumen Range	3,000 - 12,000
Wattage Range	23 - 102
Efficacy Range (LPW)	107 - 140
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Hinged die-cast aluminum wiring access door located underneath.
- Galvanized-steel universal wall mount bracket comes standard with hinging mechanism to easily access the junction box wire connections without removing the luminaire.
- Optional pole-mounting bracket (XPMA) permits mounting to standard poles.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP65 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in Types 2, 3, and Forward Throw (FT) distributions.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K and 3000K color temperatures per ANSI C78.377.
- Minimum CRI of 70.

Electrical

- High-performance programmable driver features over-voltage, under-voltage, short-circuit and over temperature protection. Custom lumen and wattage packages available.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F).
- Power factor: >.90
- Input power stays constant over life.
- Optional 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed via hinged door.
- Optional integral emergency battery pack provides 90-minutes of constant power to the LED system, ensuring code compliance. A test switch/indicator button is installed on the housing for ease of maintenance. The fixture delivers 1500 lumens during emergency mode.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 5 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 5 for more details).

Installation

- Universal wall mounting plate easily mounts directly to 4" octagonal or square junction box.
- 2 fasteners secure the hinged door underneath the housing and provide quick & easy access to the electrical compartment for installing/servicing.
- Optional terminal block accepts up to 12 ga wire.

Warranty

- LSI LED Fixtures carry a 5-year warranty.
- 1 Year warranty on Battery Back-up option.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K or lower color temperature selection.
- State of California Title 24 Compliant
- Suitable for wet Locations.
- IP65 rated luminaire per IEC 60598.
- 3G rated for ANSI C136.31 high vibration applications when pole mounted (using optional XPMA bracket) or wall mounted.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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Mirada Wall Sconce (XWM)

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: **XWM 2 LED 03L 30 UE BRZ ALSC**

Luminaire Prefix	Distribution	LED Technology	Lumen Package	Color Temperature	Voltage
XWM - Mirada Wall Sconce	**2** - Type 2 **3** - Type 3 **FT** - Type 4 Forward Throw	**LED**	**3L** - 3,000 lms **4L** - 4,000 lms **6L** - 6,000 lms **8L** - 8,000 lms **12L** - 12,000 lms **Custom Lumen Packages**[6]	**30** - 3000K **40** - 4000K **50** - 5000K	**UE** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)

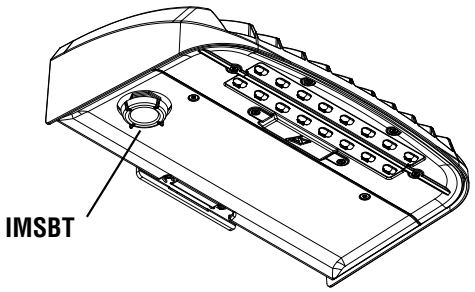
Finish	Controls (Choose One)	Options
BRZ - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**Wireless Controls** **ALSC** - Airlink Synapse Control System[2] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor[2] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor [2] **ALBCS1** - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[2] **ALBCS2** - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[2] **Standalone Controls** **DIM** - 0-10v Dimming leads extended to housing exterior **IMSBT1-** Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [2,4] **IMSBT2-** Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [2,4] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V **Lutron Limelight Controls** **LLC** – LimeLight Integral Wireless Radio Control by Lutron[2] **LLCS1** – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 8-15' mt height[2] **LLCS2** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 16-30' mt height[2] **LLCS3** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 31-40' mt height[2]	**BB** - Battery Back-up[2] **CWBB** - Cold Weather Battery Backup[2] **XPMA** - Pole Mounting Bracket **SP1** - 10kV Surge Protection **TB** - Terminal Block

ACCESSORY ORDERING INFORMATION[6]

Description	Order Number	Description	Order Number
XWM SW BLK - Surface Wiring Box (Available in black only)	356915BLK	DFK - Double Fusing	DFK208[6]
FK120 - Single Fusing	FK120[5]	DFK - Double Fusing (240V)	DFK240[6]
FK277 - Single Fusing	FK277[5]	DFK - Double Fusing (480V)	DFK480[6]
FK347 - Single Fusing	FK347[5]	10' Linear Bird Spike Kit (2' Recommended per Luminaire)	736795

FOOTNOTES:
1. Consult Factory for availability.
2. Not available in HV.
3. Consult Factory for Site Layout.
4. IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5. Fusing must be located in a hand hole for pole or in the junction box.
6. Custom lumen and wattage packages available consult factory. Values are within industry standard tolerances but not DLC listed.

Luminaire Shown with IMSBT



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Mirada Wall Sconce (XWM)

PERFORMANCE

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DELIVERED LUMENS*

Lumen Package	Distribution	CRI	3000K			4000K			5000K			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
03L	2	70	2822	125	B1-U0-G1	3088	137	B1-U0-G1	3088	137	B1-U0-G1	22.6
	3	70	2873	127	B1-U0-G1	3144	139	B1-U0-G1	3144	139	B1-U0-G1	
	FT	70	2838	126	B1-U0-G1	3105	137	B1-U0-G1	3105	137	B1-U0-G1	
04L	2	70	3702	125	B1-U0-G1	4051	137	B1-U0-G1	4051	137	B1-U0-G1	29.5
	3	70	3769	128	B1-U0-G1	4124	140	B1-U0-G1	4124	140	B1-U0-G1	
	FT	70	3722	126	B1-U0-G1	4073	138	B1-U0-G1	4073	138	B1-U0-G1	
06L	2	70	5506	123	B2-U0-G2	6025	135	B2-U0-G2	6025	135	B2-U0-G2	44.7
	3	70	5606	125	B1-U0-G1	6134	137	B1-U0-G2	6134	137	B1-U0-G2	
	FT	70	5536	124	B1-U0-G2	6058	136	B1-U0-G2	6058	136	B1-U0-G2	
08L	2	70	7304	118	B2-U0-G2	7993	129	B2-U0-G2	7993	129	B2-U0-G2	62.0
	3	70	7437	120	B1-U0-G2	8138	131	B2-U0-G2	8138	131	B2-U0-G2	
	FT	70	7345	118	B2-U0-G2	8037	130	B2-U0-G2	8037	130	B2-U0-G2	
12L	2	70	10979	107	B3-U0-G3	12014	118	B3-U0-G3	12014	118	B3-U0-G3	102.2
	3	70	11178	109	B2-U0-G2	12232	120	B2-U0-G2	12232	120	B2-U0-G2	
	FT	70	11040	108	B2-U0-G3	12080	118	B2-U0-G3	12080	118	B2-U0-G3	

*LEDs are frequently updated therefore values are nominal.

ELECTRICAL DATA*

Lumen Package	Watts	120V	208V	240V	277V	347V	480V
03L	22.6	0.19	0.11	0.09	0.08	0.07	0.05
04L	29.5	0.25	0.14	0.12	0.11	0.09	0.06
06L	44.7	0.37	0.21	0.19	0.16	0.13	0.09
08L	62.0	0.52	0.30	0.26	0.22	0.18	0.13
12L	102.2	0.85	0.49	0.43	0.37	0.29	0.21

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

RECOMMENDED LUMEN MAINTENANCE (3L-6L)[1]

Ambient Temperature C	Initial [2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	98%	95%	93%	90%
10 C	100%	98%	95%	93%	90%
20 C	100%	98%	95%	93%	90%
25 C	100%	98%	95%	93%	90%
30 C	100%	98%	95%	93%	90%
40 C	100%	98%	95%	93%	90%
50 C	100%	98%	96%	94%	91%

RECOMMENDED LUMEN MAINTENANCE (8L-12L)[1]

Ambient Temperature C	Initial [2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	97%	94%	90%	87%
10 C	100%	97%	94%	90%	87%
20 C	100%	97%	94%	90%	87%
25 C	100%	97%	93%	90%	86%
30 C	100%	97%	93%	90%	85%
40 C	100%	97%	93%	88%	84%
50 C	100%	96%	91%	87%	83%

1 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2 - In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing times the IESNA LM-80-08 total test duration for the device under testing

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Mirada Wall Sconce (XWM)

PHOTOMETRICS

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All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Mirada Wall Sconce (XWM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.

XWM-2-LED-6L-40

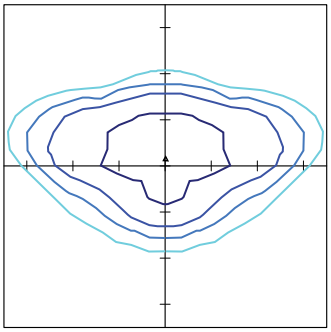
LUMINAIRE DATA

Type 2 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	6,025
Watts	44.7
Efficacy	135
IES Type	Type III - Medium
BUG Rating	B2-U0-G2

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	807.1	13.4%
Medium (30-60)°	3301.0	54.8%
High (60-80)°	1847.4	30.7%
Very High (80-90)°	69.2	1.1%
Uplight (90-180)°	0.0	0.0%
Total Flux	6024.7	100%

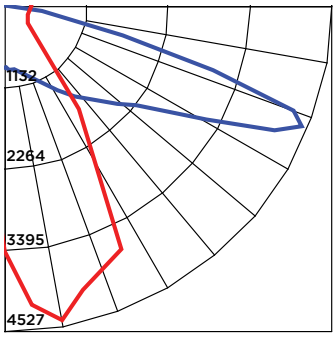
ISO FOOTCANDLE PLOT



15' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



XWM-3-LED-6L-40

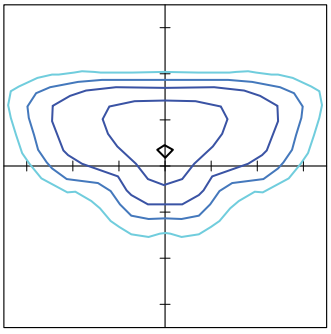
LUMINAIRE DATA

Type 3 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	6,133
Watts	44.7
Efficacy	137
IES Type	Type III - Medium
BUG Rating	B1-U0-G2

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	567.4	9.3%
Medium (30-60)°	3106.3	50.6%
High (60-80)°	2368.8	38.6%
Very High (80-90)°	90.7	1.5%
Uplight (90-180)°	0.0	0.0%
Total Flux	6133.2	100%

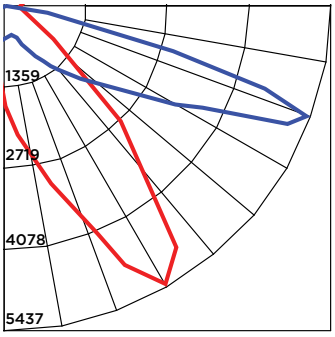
ISO FOOTCANDLE PLOT



10' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



XWM-FT-LED-6L-40

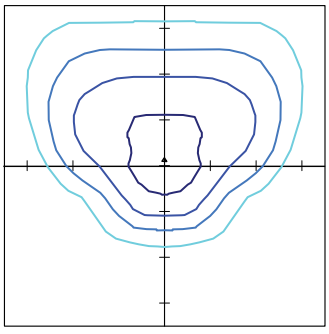
LUMINAIRE DATA

Type FT Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	6,058
Watts	44.7
Efficacy	136
IES Type	Type IV - Short
BUG Rating	B1-U0-G2

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	779.0	12.9%
Medium (30-60)°	2584.4	42.7%
High (60-80)°	2523.2	41.7%
Very High (80-90)°	170.8	2.8%
Uplight (90-180)°	0.0	0.0%
Total Flux	6057.4	100.0%

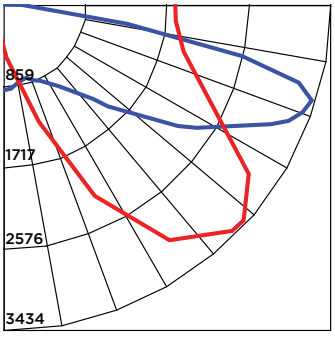
ISO FOOTCANDLE PLOT



10' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



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PRODUCT DIMENSIONS

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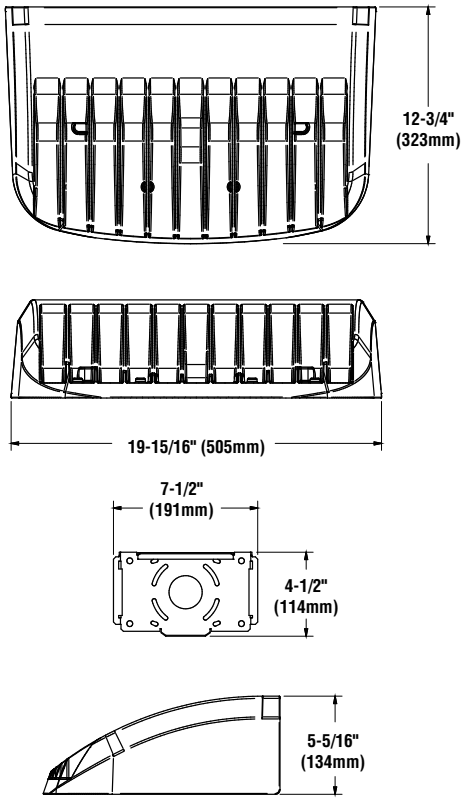

CONTROLS

AirLink Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click here to learn more about AirLink.

Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click here to learn more about IMSBT.

AirLink Blue

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click here to learn more about AirLink Blue.

Catalog #: _____ Project: _____

Prepared By: _____ Date: _____ Type: _____

Item A.

Mirada Medium (MRM)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	7,000 - 48,000
Wattage Range	53 - 401
Efficacy Range (LPW)	93 - 148
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 5W, FT, FTA and AM.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral louver (IL) and house-side shield (IH) options available for improved backlight control without sacrificing street side performance. See page 3 for more details.

Electrical

- High-performance programmable driver features over-voltage, under-voltage, short-circuit and over temperature protection. Custom lumen and wattage packages available.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 5)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L and 48L lumen packages rated to +40ºC.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 9 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 9 for more details.

Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 9)

Warranty

- LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598.
- 3G rated for ANSI C136.31 high vibration applications are qualified.

Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

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TYPICAL ORDER EXAMPLE: **MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[2]	Voltage	Driver
MRM - Mirada	**LED**	**7L** - 7,000 lms **9L** - 9,000 lms **12L** - 12,000 lms **18L** - 18,000 lms **24L** - 24,000 lms **30L** - 30,000 lms **36L** - 36,000 lms **42L** - 42,000 lms **48L** - 48,000 lms **Custom Lumen Packages**[1]	**SIL** - Silicone	**2** - Type 2 **3** - Type 3 **5W** - Type 5 Wide **FT** - Forward Throw **FTA** - Forward Throw Automotive **AM** - Automotive Merchandise	**(blank)** - standard **L**- Optics rotated left 90° **R** - Optics rotated right 90°	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**DIM** - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Finish	Options
50 - 5,000 CCT **40** - 4,000 CCT **30** - 3,000 CCT **AMB** - Phosphor Converted Amber[12]	**70CRI** - 70 CRI	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**(Blank)** - None **IH** - Integral Houseside Shield[2] **IL** - Integral Louver (Sharp Spill Light Cutoff)[2]

Controls (Choose One)

(Blank) - None

Wireless Controls System
ALSC - AirLink Synapse Control System
ALSCH - AirLink Synapse Control System Host / Satelite[3]
ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor
ALSCHS02 - AirLink Synapse Control System Host / Satelite with 12-20' Motion Sensor[3]
ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor
ALSCHS04 - AirLink Synapse Control System Host / Satelite with 20-40' Motion Sensor[3]
ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[4]
ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[4]

Stand-Alone Controls
EXT - 0-10v Dimming leads extended to housing exterior
CR7P - 7 Pin Control Receptacle ANSI C136.41[6]
IMSBT1- Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height[4,5]
IMSBT2- Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height[4,5]

Button Type Photocells
PCI120 - 120V
PCI208-277 - 208 -277V
PCI347 - 347V

(Lutron Limelight Controls
LLC – LimeLight Integral Wireless Radio Control by Lutron[4]
LLCS1 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 8-15' mt height[4]
LLCS2 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 16-30' mt height[4]
LLCS3 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 31-40' mt height[4]

Accessory Ordering Information[7]

Controls Accessories	
Description	**Order Numberr**[10]
PC120 Photocell for use with CR7P option (120V)[8]	122514
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[8]	122515
Twist Lock Photocell (347V) for use with CR7P[8]	122516
Twist Lock Photocell (480V) for use with CR7P[8]	1225180
AirLink 5 Pin Twist Lock Controller[8]	661409
AirLink 7 Pin Twist Lock Controller[8]	661410
PMOS24-24V Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

Fusing Accessories[11]	
Description	**Order Number**
Single Fusing (120V)	FK120
Single Fusing (120V)	FK277
Double Fusing (208V, 240V)	DFK240
Double Fusing (480V)	DFK480
Double Fusing (347V)	DFK347

Mounting Accessories[9]	
Description	**Order Number**[10]
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Wood Pole Bracket (6" Minimum Pole Diameter)	751219CLR

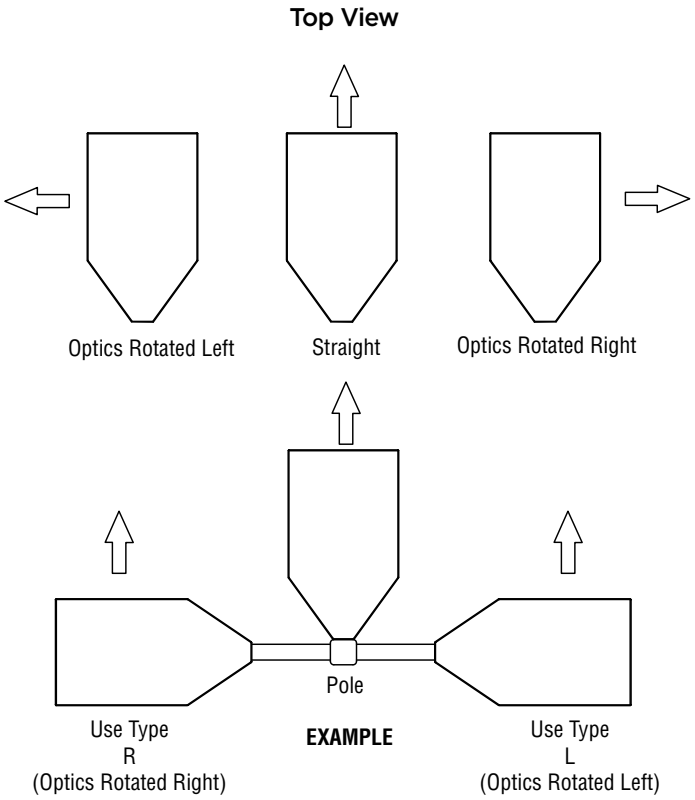
Miscellaneous Accessories	
Description	**Order Number**
IL - Integral Louver/Shield[2]	690981
IH - Integral House Side Shield[2]	743415
10' Linear Bird Spike Kit (3' Recommended per Luminaire)	736795

FOOTNOTES:
1. Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2. Not available with 5W distribution
3. Consult Factory for availability.
4. Not available in HV.
5. IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store
6. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
7. Accessories are shipped separately and field installed.
8. Factory installed CR7P option required. See Options.
9. "CLR" denotes finish. See Finish options.
10. Only available with ALSC/ALSCH control options.
11. Fusing must be located in hand hole of pole.
12. Only available in 9L and 12L Lumen Packages. Consult factory for lead time and availability.

LSI Industries Inc. 10000 Alliance Rd. Cincinnati, OH 45242 • www.lsicorp.com
(513) 372-3200 •

Mirada Medium Outdoor LED Area Light

OPTICS ROTATION

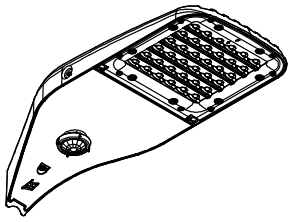


ACCESSORIES/OPTIONS

Integral Louver (IL) and House-Side Shield (IH)

Accessory louver and shield available for improved backlight control without sacrificing street side performance. LSI's Integral Louver (L) and Integral House-Side Shield (IH) options deliver backlight control that significantly reduces spill light behind the poles for applications with pole locations close to adjacent properties. The design maximizes forward reflected light while reducing glare, maintaining the optical distribution selected, and most importantly eliminating light trespass. Both options rotate with the optical distribution.

Luminaire Shown with Integral Louver (IL)

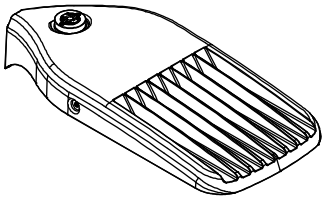


Luminaire Shown with IMSBT Option

7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with PCR 7P



Mirada Medium Outdoor LED Area Light

Delivered Lumens*

Lumen Package	Distribution	CRI	3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
7L	2	70	6711	127	B2-U0-G1	7208	137	B2-U0-G2	7596	144	B2-U0-G2	53
	3		6889	130	B1-U0-G2	7400	140	B1-U0-G2	7798	148	B1-U0-G2	
	5W		6557	124	B3-U0-G1	7043	133	B3-U0-G2	7422	141	B3-U0-G2	
	FT		6701	127	B1-U0-G2	7197	136	B1-U0-G2	7584	144	B2-U0-G2	
	FTA		6799	129	B2-U0-G1	7303	138	B2-U0-G1	7696	146	B2-U0-G1	
	AM		7225	136	B1-U0-G1	7922	149	B2-U0-G1	8239	155	B2-U0-G1	
9L	2	70	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	68
	3		8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	5W		8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B3-U0-G2	
	FT		8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FTA		8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	AM		9432	137	B2-U0-G1	10342	150	B2-U0-G2	10755	156	B2-U0-G2	
12L	2	70	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	93
	3		11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	5W		11199	119	B4-U0-G2	12269	131	B4-U0-G2	12775	136	B4-U0-G2	
	FT		11444	122	B2-U0-G2	12538	133	B2-U0-G3	13055	139	B2-U0-G3	
	FTA		11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	AM		12582	134	B2-U0-G2	13796	147	B2-U0-G2	14348	153	B2-U0-G2	
18L	2	70	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	149
	3		17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	5W		16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT		17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FTA		17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	AM		18863	127	B3-U0-G2	20683	149	B3-U0-G2	21511	149	B3-U0-G2	
24L	2	70	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	189
	3		23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	5W		22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT		23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FTA		23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	AM		24522	131	B3-U0-G3	26227	140	B3-U0-G3	26751	143	B3-U0-G3	
30L	2	70	28900	117	B4-U0-G3	30905	125	B4-U0-G3	31551	128	B4-U0-G3	249
	3		30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	5W		28557	116	B5-U0-G3	30538	124	B5-U0-G4	3117	126	B5-U0-G4	
	FT		29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FTA		29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	AM		31061	126	B3-U0-G3	33221	134	B3-U0-G3	33885	137	B3-U0-G3	
36L	2	70	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	318
	3		36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	5W		34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT		36251	114	B3-U0-G5	38766	122	B4-U0-G5	39557	125	B4-U0-G5	
	FTA		36058	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G3	
	AM		37429	118	B3-U0-G3	40030	126	B3-U0-G3	40831	129	B3-U0-G3	

Mirada Medium Outdoor LED Area Light

PERFORMANCE (CONT.)

Delivered Lumens*

Lumen Package	Distribution	CRI	3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
42L	2	70	3994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	393
	3		41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	5W		39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT		41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FTA		41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	AM		43021	109	B3-U0-G3	46012	117	B4-U0-G3	46932	119	B4-U0-G3	
48L	2	70	48795	122	B5-U0-G4	48795	122	B5-U0-G4	48795	122	B5-U0-G4	401
	3		49156	123	B4-U0-G5	49156	123	B4-U0-G5	49156	123	B4-U0-G5	
	5W		47066	117	B5-U0-G4	47066	117	B5-U0-G4	47066	117	B5-U0-G4	
	FT		48809	122	B4-U0-G5	48809	122	B4-U0-G5	48809	122	B4-U0-G5	
	FTA		49021	122	B5-U0-G4	49021	122	B5-U0-G4	49021	122	B5-U0-G4	
	AM		49615	124	B4-U0-G3	49615	124	B4-U0-G3	49615	124	B4-U0-G3	

ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
7L	53	0.4A	0.3A	0.2A	0.2A	0.2A	0.1A
9L	69	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	94	0.8A	0.5A	0.4A	0.3A	0.3A	0.2A
18L	150	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	187	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	247	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	390	3.2A	1.9A	1.6A	1.4A	1.1A	0.8A
48L	401	3.4A	1.9A	1.7A	1.5A	1.2A	0.8A

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

RECOMMENDED LUMEN MAINTENANCE[1] (7-18L)

Ambient	Intial[2]	25h[2]	50hr[2]	75hr[2]	100hr[2]
0-50 C	100%	96%	92%	88%	84%

RECOMMENDED LUMEN MAINTENANCE[1] (24-48L)

Ambient	Intial[2]	25h[2]	50hr[2]	75hr[2]	100hr[2]
0-40 C	100%	100%	97%	94%	92%

1. Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing.

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610mm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5848	80	B2-U0-G2	74
	2 - IL	3644	50	B0-U0-G1	
	3	6018	82	B1-U0-G2	
	3 - IL	4468	61	B0-U0-G2	
	5W	5471	74	B3-U0-G1	
	FT	5801	79	B1-U0-G2	
	FT - IL	3649	50	B0-U0-G1	
	FTA	5924	81	B1-U0-G1	
	FTA - IL	4243	58	B1-U0-G1	
12L	2	7530	74	B2-U0-G2	102
	2 - IL	4692	46	B0-U0-G1	
	3	7749	76	B1-U0-G2	
	3 - IL	5753	57	B0-U0-G2	
	5W	7045	69	B3-U0-G2	
	FT	7470	73	B2-U0-G2	
	FT - IL	4699	46	B0-U0-G2	
	FTA	7628	75	B2-U0-G2	
	FTA-IL	5464	54	B1-U0-G1	

*LEDs are frequently updated therefore values are nominal.

Mirada Medium Outdoor LED Area Light

PHOTOMETRICS

Back to Quick Links

Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

See http://www.lsicorp.com/products/led-lighting-solutions.aspx for detailed photometric data.

MRM-LED-30L-SIL-2-40-70CRI

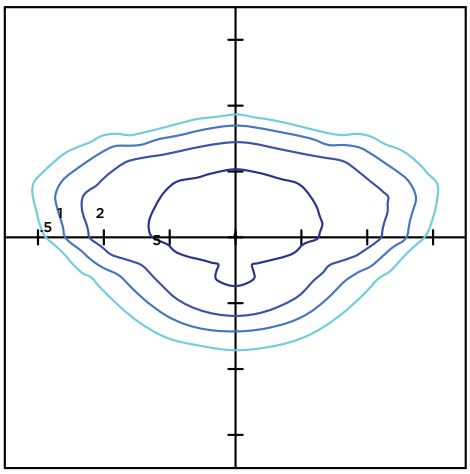
LUMINAIRE DATA

Type 2 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	30,905
Watts	247
Efficacy	125
IES Type	Type II - Short
BUG Rating	B4-U0-G3

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	4392	14%
Medium (30-60)°	18894	61%
High (60-80)°	7359	24%
Very High (80-90)°	260	1%
Uplight (90-180)°	0	0%
Total Flux	30905	100%

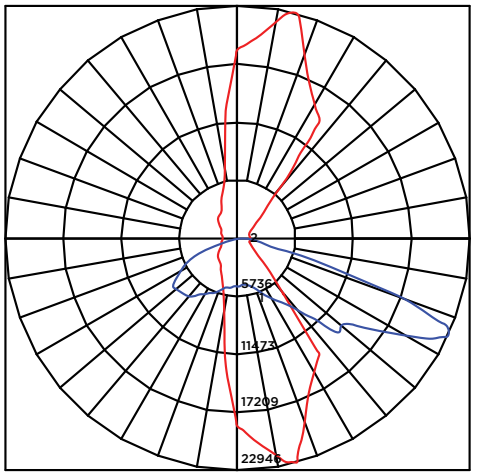
ISO FOOTCANDLE



25' Mounting Height/ 25' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



MRM-LED-30L-SIL-3-40-70CRI

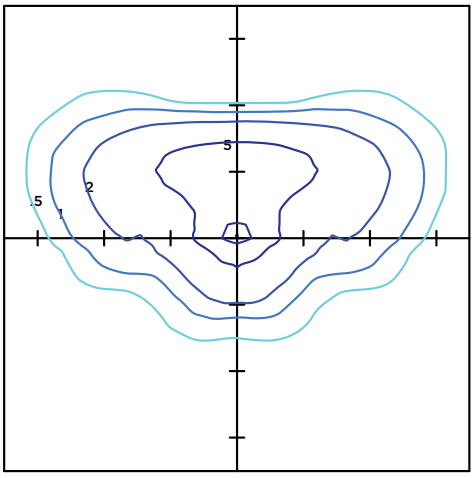
LUMINAIRE DATA

Type 3 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	32,176
Watts	247
Efficacy	130
IES Type	Type III - Short
BUG Rating	B3-U0-G4

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	2970	9%
Medium (30-60)°	16127	50%
High (60-80)°	12779	40%
Very High (80-90)°	301	1%
Uplight (90-180)°	0	0%
Total Flux	32176	100%

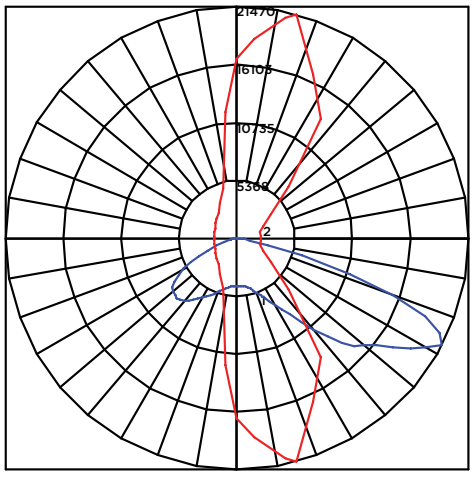
ISO FOOTCANDLE



25' Mounting Height/ 25' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



Mirada Medium Outdoor LED Area Light

PHOTOMETRICS (CONT)

MRM-LED-30L-SIL-FT-40-70CRI

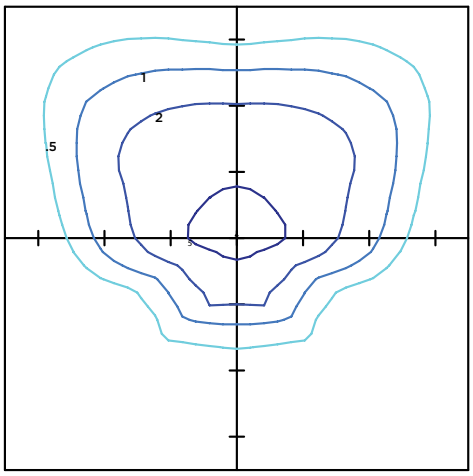
LUMINAIRE DATA

Type FT Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	31,987
Watts	247
Efficacy	130
IES Type	Type IV - Short
BUG Rating	B3-U0-G4

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	4126	13%
Medium (30-60)°	13479	42%
High (60-80)°	13768	43%
Very High (80-90)°	614	2%
Uplight (90-180)°	0	0%
Total Flux	31987	100%

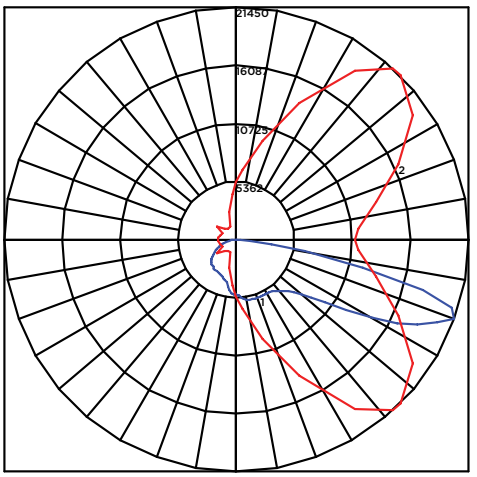
ISO FOOTCANDLE



25’ Mounting Height/ 25’ Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



MRM-LED-30L-SIL-5W-40-70CRI

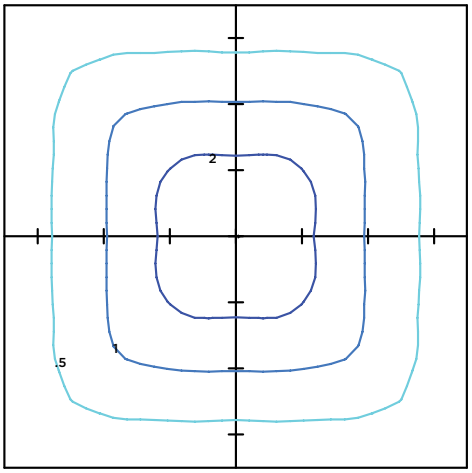
LUMINAIRE DATA

Type 5W Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	30,538
Watts	247
Efficacy	124
IES Type	Type VS - Short
BUG Rating	B5-U0-G4

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	2862	9%
Medium (30-60)°	12032	39%
High (60-80)°	15328	50%
Very High (80-90)°	315	1%
Uplight (90-180)°	0	0%
Total Flux	30538	100%

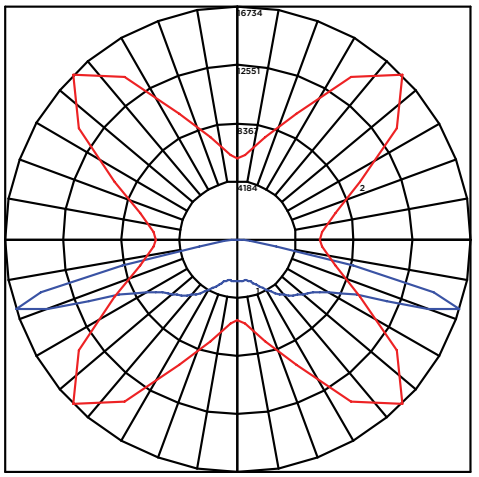
ISO FOOTCANDLE



25’ Mounting Height/ 25’ Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



Mirada Medium Outdoor LED Area Light

PHOTOMETRICS (CONT)

MRM-LED-30L-SIL-FTA-40-70CRI

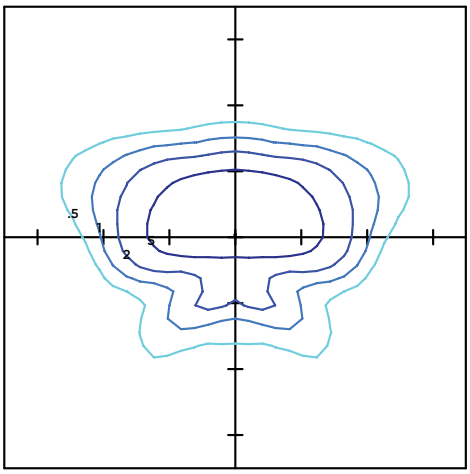
LUMINAIRE DATA

Type FTA Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	31,816
Watts	247
Efficacy	129
IES Type	Type II - Short
BUG Rating	B4-U0-G3

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	6758	21%
Medium (30-60)°	18845	59%
High (60-80)°	5872	18%
Very High (80-90)°	341	1%
Uplight (90-180)°	0	0%
Total Flux	31816	100%

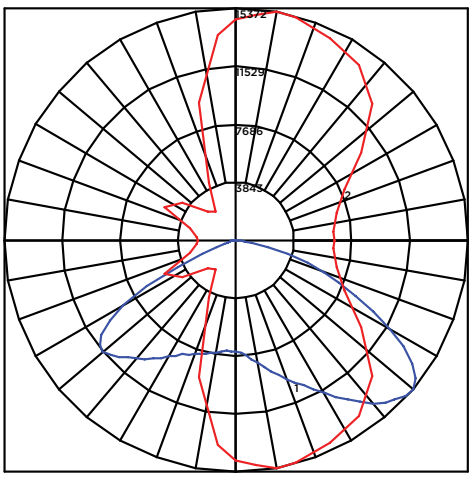
ISO FOOTCANDLE



25' Mounting Height/ 25' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

POLAR CURVE



MRM-LED-30L-SIL-AM-40-70CRI

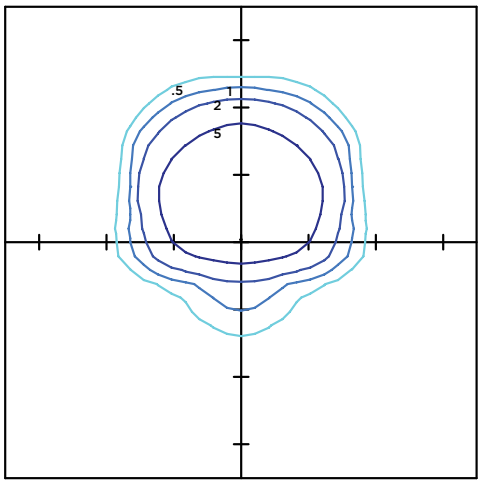
LUMINAIRE DATA

Type AM Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	33,221
Watts	247
Efficacy	134
IES Type	Type III - Very Short
BUG Rating	B3-U0-G3

Zonal Lumen Summary

Zone	Lumens	%Luminaire
Low (0-30)°	5550	17%
Medium (30-60)°	21354	64%
High (60-80)°	5881	18%
Very High (80-90)°	435	1%
Uplight (90-180)°	0	0%
Total Flux	33221	100%

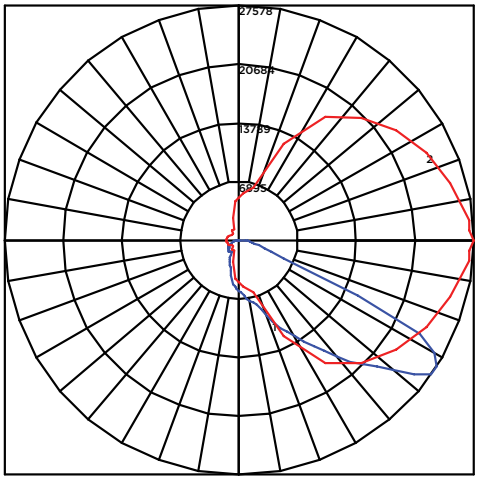
ISO FOOTCANDLE



25' Mounting Height/ 25' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

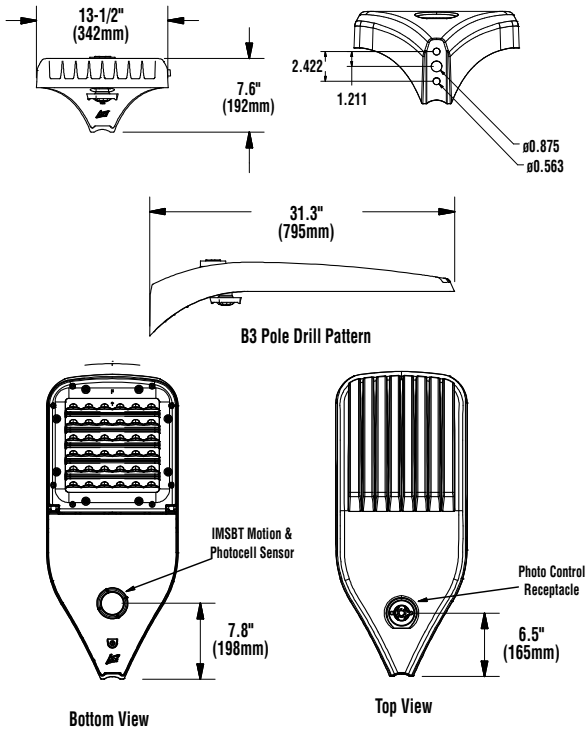
POLAR CURVE



Mirada Medium Outdoor LED Area Light

Back to Quick Links

PRODUCT DIMENSIONS



LUMINAIRE EPA CHART - MRM

Tilt Degree		0°	30°	45°
	Single	0.5	1.5	1.9
	D180°	1.0	1.5	1.9
	D90°	0.8	1.9	2.3

Tilt Degree		0°	30°	45°
	T90°	1.0	2.5	2.8
	TN120°	1.0	3.3	3.9
	Q90°	1.0	2.5	2.8

CONTROLS

AirLink Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click the link below to learn more details about AirLink.

https://www.lsicorp.com/wp-content/uploads/documents/products/airlink-outdoor-specsheet.pdf

Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click the link below to learn more details about IMSBT.

https://www.lsicorp.com/wp-content/uploads/documents/products/imsbt-specsheet.pdf

AirLink Blue

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click the link below to learn more details about AirLink Blue.

https://www.lsicorp.com/product/airlink-blue/

LSI Industries Inc. 10000 Alliance Rd. Cincinnati, OH 45242 • www.lsicorp.com
(513) 372-3200 •

Mirada Medium Outdoor LED Area Light

POLES & BRACKETS

LSI offers a full line of poles and mounting accessories to complete your lighting assembly. Aluminum and steel in both square and round shafts. In addition, LSI offers round tapered, fluted and hinge based poles. Designed and engineered for durability and protected with our oven baked DuraGrip Protection System. Also available with our DuraGrip+ Protection system for unmatched corrosion resistance and an extended warranty. American made in our Ohio facility with industry leading lead times.

Click the link below to learn more details about poles & brackets.

https://www.lsicorp.com/products/poles-brackets/

BKA UMB CLR

The 3G rated UMB allows for seamless integration of LSI luminaires onto existing/ retrofit or new construction poles. The UMB was designed for square or round (tapered or straight) poles with two mounting hole spacings between 3.5" – 5".

BKA ASF CLR

The adjustable Slip Fitter is a 3G rated rugged die cast aluminum adapter to mount LSI luminaires onto a onto a 2" iron pipe , 2 3/8 OD tenon. The Adjustable Slip Fitter can be rotated 180° allowing for tilting LSI luminaires up to 45° and 90° when using a vertical tenon.

BKS PQM15 CLR

The Pole Quick Mount Bracket allows for preset 15° uptilt of LSI luminaires for greater throw of light and increased vertical illumination as well as fast installation onto poles with LSI's 3" or 5" bolt pattern.

BKS PQMH CLR

The Pole Quick Mount Bracket allows for lightning fast installation of LSI luminaires onto existing and new construction poles with LSI's B3 or B5 standard pole bolt patterns.

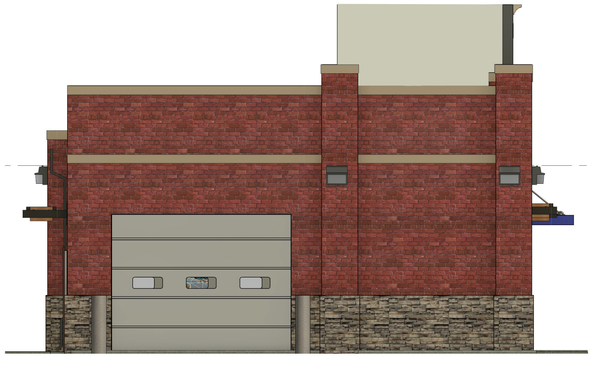
Square Pole
14'-39'

Round Pole
10'-30'

Tapered Pole
20'-39'

4 South Elevation

3 North Elevation



2 East Elevation

1 West Elevation

STATE OF MICHIGAN
ROBERT E RYDGE
ARCHITECT
No. 1301070219
LICENSED ARCHITECT

REB ARCHITECTS

103 WIND HAVEN DR, STE 101
NICHOLASVILLE KY 40356
859.523.1500

REVISION	DATE

PROJECT NUMBER

3/25/2022
Permit Set

BB/JH

Rainstorm
9345 Highland Rd, White Lake, MI

Elevations

Hill Top Residential Community

Dear Planning Commission and Planning Department,

Hello, this is regarding Property ID: 1223152001 & Property ID: 1223152002

We would appreciate some input and feedback on rezoning these properties to the attached single-family residential.

We would like to apply to rezone the properties to RM-1 Attached single-family residential, which is consistent with the intent master plan for the site.

We would like to build an attached single-family community that is either single-story or two-story. Attached is a rough concept of a way that an attached single-family community could be laid out on the site.

I have also provided some background and images of past residential projects.

We welcome any input; thank you for your time. In the meantime, if you have any questions, always feel free to reach out.

Sincerely,
Arban Stafa

Management & Development Team

Safet (Sam) Stafa, *President*

Sam Stafa is a licensed builder and has been involved in the construction industry in Michigan since 1997, and involved in the new construction of custom homes since 2006. Sam oversees all of Sterling's operational activities, including on-site supervision and management of development and construction projects. Over the course of his career Sam has been responsible for initiating and/or leading numerous real estate development projects. Prior to founding his own development companies which include Sterling Construction Inc., Tollbrook LLC, Tollbrook Auburn LLC, Livernois LLC and E & S properties LLC. Sam was involved in a wide range of real estate design and development projects for Michigan-focused companies.

Arban Stafa, *Director*

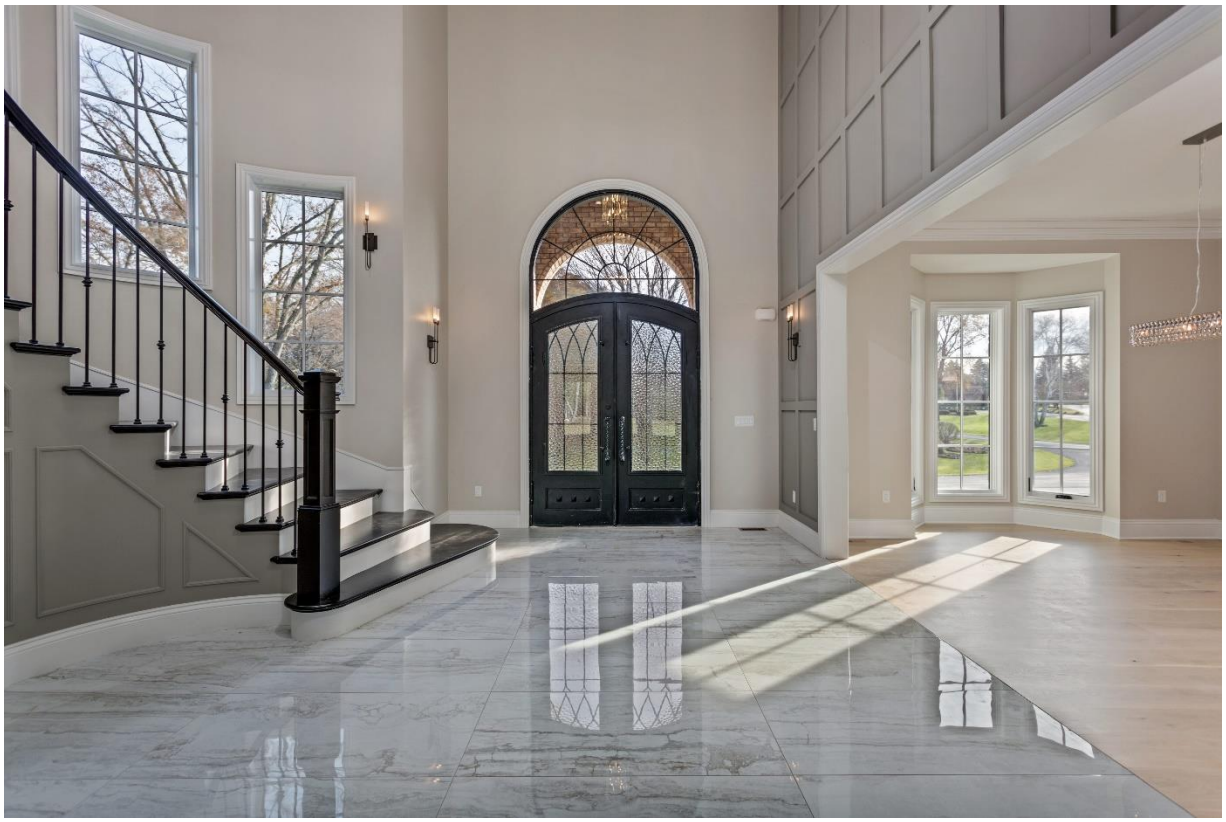
Arban Stafa has worked in the new construction sales industry in Michigan since 2011. He is a licensed real estate broker focused primarily on new construction homes. Arban was the exclusive broker for Tisbury Square Townhomes in Troy, a 43-unit condominium complex, which successfully sold 100 percent of its units in two years. Arban established Tollbrook Brokerage, the real estate sales brokerage arm of Tollbrook LLC. Prior to Tollbrook, he held a variety of roles with Blue Cross Blue Shield of Michigan. Arban earned a Bachelor of Science degree in Finance from Oakland University School of Business Administration and is pursing his Juris Doctor degree at Western Michigan University Cooley Law School.

Tisbury Square Townhomes – Troy, Michigan

43 Condominiums, 2019

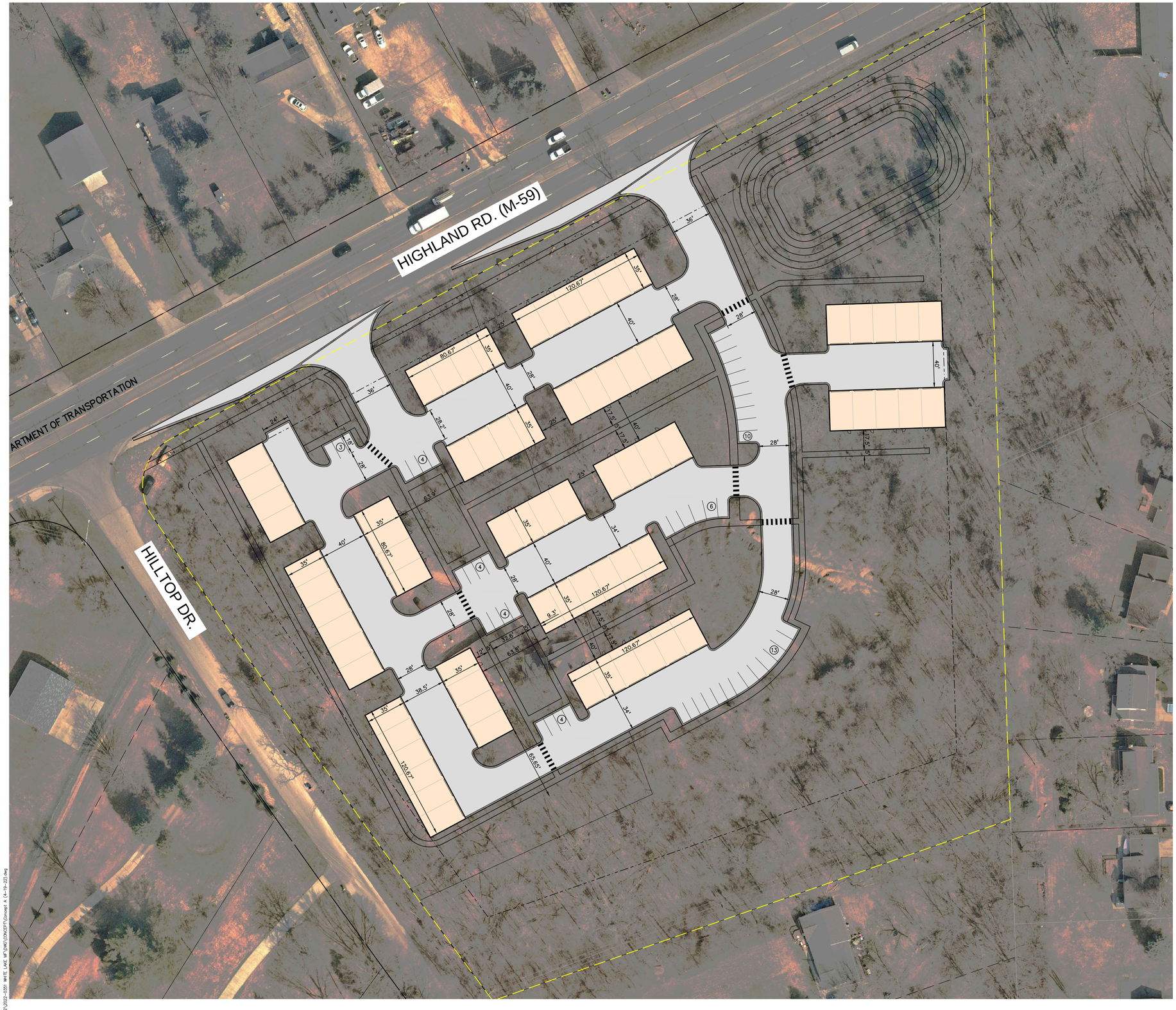
The Charnwood - Charnwood Hills, Troy Michigan

5 Luxury Residences, 2017



Hunt Club - Bloomfield Hills, Michigan

Contemporary Luxury Residence, 2019



LEGEND:

–OH–ELEC–∿∿–○<	EX. OH, ELEC, POLE & GUY WIRE
–UG–CATV–TV–	EX. U.G. CABLE TV & PEDESTAL
–UG–COMM–⊠–Ⓒ–	EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
–UG–ELEC–Ⓔ[E]Ⓔ–	EX. U.G. ELEC.MANHOLE, METER & HANDHOLE
– – – – –	EX. GAS LINE
⊙ GAS	EX. GAS VALVE & GAS LINE MARKER
T T	EX. TRANSFORMER & IRRIGATION VALVE
– – – – –	EX. WATER MAIN
W	EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
W	EX. WATER VALVE BOX & SHUTOFF
——— ———	EX. SANITARY SEWER
S	EX. SANITARY CLEANOUT & MANHOLE
C	EX. COMBINED SEWER MANHOLE
——— – – ———	EX. STORM SEWER
ST	EX. CLEANOUT & MANHOLE
	EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
Y.D.	EX. YARD DRAIN & ROOF DRAIN
?	EX. UNIDENTIFIED STRUCTURE
M	EX. MAILBOX, SIGN & LIGHTPOLE
——X——	EX. FENCE
o o o o o	EX. GUARD RAIL
+696.37'	EX. SPOT ELEVATION
1270'	EX. CONTOUR
	EX. WETLAND
	IRON FOUND / SET
	NAIL FOUND / NAIL & CAP SET
	BRASS PLUG SET
	MONUMENT FOUND / SET
	SECTION CORNER FOUND
R M C	RECORDED / MEASURED / CALCULATED

MULTI–FAMILY SITE DATA TABLE:

SITE AREA: 9.26 ACRES (NET OF R.O.W.)

ZONING: EXISTING: PB, PLANNED BUSINESS

PROPOSED: RM–2, MULTIPLE–FAMILY RESIDENTIAL DISTRICT

PROPOSED USE: 74 MULTI–FAMILY UNITS (FOR LEASE) (~8 UNITS PER ACRE)

SCHEDULE OF DEVELOPMENT: FALL 2022 – FALL 2024

BUILDING INFORMATION:
MAXIMUM ALLOWABLE BUILDING HEIGHT = 35 FEET (2 STORIES)

BUILDING FOOTPRINT AREA:
6–UNIT BUILDING = 4,200 SF (6)
5–UNIT BUILDING = 3,500 SF (2)
4–UNIT BUILDING = 2,800 SF (7)
TOTAL = 51,800 SF (1.189 AC)

BUILDING LOT COVERAGE = 1.189/9.26 = 12.8%

SETBACKS:	REQUIRED:	PROVIDED:
FRONT:	40'	40'
SIDE:	70'	70'
REAR:	45'	45'

PARKING CALCULATIONS:
REQUIRED:
MULTI–FAMILY = 2 PER DWELLING UNIT + 1/4 SPACE PER BEDROOM FOR GUEST PARKING

UNIT PARKING REQUIRED = 74 x 2 = 148 SPACES
GUEST PARKING REQUIRED = 74 x 2 / 4 = 37 SPACES
TOTAL = 185 SPACES

PROVIDED:
TOTAL PROPOSED PARKING SPACES = 195 (148 RESIDENT PARKING IN GARAGE)
(47 GUEST SPACES)

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING–FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON–SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON–SITE SIDEWALK RAMP DETAILS

NOTE:

NO DECK OR PATIO WILL ENCROACH INTO ANY SETBACK

TRASH COLLECTION NOTE:

ALL UNITS WILL BE SERVED BY INDIVIDUAL TRASH CARTS PROVIDED BY WASTE COLLECTION COMPANY

PEA GROUP
t: 844.813.2949
www.peagroup.com

NORTH

0 20 40 80
SCALE: 1" = 40'

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

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

LOCATION MAP

CLIENT

PROJECT TITLE
WHITE LAKE MULTI-FAMILY
M-29 AND HILLTOP DRIVE
WHITE LAKE, MI

REVISIONS
- -

ORIGINAL ISSUE DATE:
APRIL 19, 2022

DRAWING TITLE
CONCEPT PLAN (20x35 UNIT)

PEA JOB NO.	2022-0351
P.M.	GMB
DN.	JKS
DES.	JKS

DRAWING NUMBER:
A

NOT FOR CONSTRUCTION

S:\PROJECTS\2022\2022-0351 WHITE LAKE, MI\DWG\CONCEPT\Concept A (4-19-22).dwg