

Director's Report

Project Name: 9101 Highland
 Description: Preliminary site plan approval recommendation & special land use approval
 Date on Agenda this packet pertains to: December 5, 2024

- | | |
|--|--|
| <input checked="" type="checkbox"/> Public Hearing | <input checked="" type="checkbox"/> Special Land Use |
| <input type="checkbox"/> Initial Submittal | <input type="checkbox"/> Rezoning |
| <input type="checkbox"/> Revised Plans | <input type="checkbox"/> Other: |
| <input checked="" type="checkbox"/> Preliminary Approval | |
| <input type="checkbox"/> Final Approval | |

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Community Development Director	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Based on comments from staff & consultants
Mike Leuffgen	DLZ	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 11/6/2024
Matteo Passalacqua	Carlisle Wortman Associates, Inc	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 11/25/24
Jason Hanifen	WLT Fire Marshal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 10/31/24



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

November 6, 2024

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

RE: 9101 Highland Road-Proposed Commercial Development- Preliminary Site Plan Review – 2nd Review

Ref: DLZ No. 2445-7696-06

Design Professional: Stonefield Engineering & Design

Dear Mr. O' Neil,

Our office has performed a Preliminary Site Plan review for the above-mentioned revised plan dated October 17, 2024. The plans were reviewed for feasibility based on general conformance with the Township Engineering Design Standards.

General Site Information

This 4.5 acre site is located south of M-59, east of Fisk Road, and west of Sunny Beach Boulevard.

Site Improvement Information:

- Construction of two (2) commercial retail/restaurant buildings. Building containing Suites 1-3 is proposed at 7,227 square feet and building containing Suites 4-6 is proposed at 6,418 square feet.
- Associated paved and curbed parking areas, including a total of six (6) ADA parking spaces.
- One (1) entrance off M-59/Highland Road.
- Water and sanitary sewer service.
- Storm water management facilities.

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

We note that comments from our September 24, 2024 review are in *italics*. Responses to those comments are in **bold**. New comments are in standard font.

- a) *Cover sheet C-1- Provide ALTA/NSPS Land Title Survey with next submittal. Comment addressed at the preliminary level and remains. The survey has now been provided. Please provide surveyor seal and signature on this sheet on the Final Site Plan/Final Engineering Plan.*
 - b) *Sheet C-2- Provide the two benchmarks shown on this plan sheet in list format. Provide BM descriptions and elevations. Benchmarks shall be on NAVD88 datum. Please indicate as such. Comment addressed. The benchmark descriptions, elevations, and NAVD88 designations have now been provided.*
 - c) *Any work within the existing two (2) watermain easements that run parallel to M-59 shall require permission from the Township. Comment remains as a notation.*
 - d) *Provide plan indicating standard length fire truck access and turning radii so as to demonstrate adequate fire truck accessibility to and within the site. Comment addressed. Fire truck turning analysis has now been provided.*
 - e) *Sheet C-3-Provide ADA space calculations. Comment addressed. ADA space calculations are now shown.*
 - f) *ADA parking spaces will need to meet ADA standards in terms of slopes and dimensions; further details will be required at the time of Final Site Plan/Final Engineering Plan submittal/review. Comment remains.*
 - g) *Sheet C-3-The existing sidewalk along M-59 appears to be in disrepair. In addition, the sidewalk does not meet the requirements of the current Township Zoning Ordinance Sections 5.20 and 5.21 in terms of required clear zones. We defer to the Township as to whether a new sidewalk meeting the Zoning Ordinance shall be required. Comment partially addressed and remains. A new 8' wide asphalt pathway is now proposed. The proposed pathway location continues to not meet the required clear zone dimensions. We continue to defer to the Township regarding the inadequacy of the required clear zones. In addition, a portion of the proposed pathway is now shown in a proposed sidewalk easement. The sidewalk easement exhibit(s) will be required to be reviewed by our office prior to execution and recording of the easement.*
 - h) *Sheet C-3- Provide dimensions for northeastern parking spaces. Comment addressed. Dimensions have been provided.*
 - i) *Sheet C-3-There is a recorded temporary construction easement shown. Please indicate if this easement has been vacated. If the easement has not been vacated, it shall be required to be vacated prior to FSP/FEP approval. Comment remains. Design engineer states that they will coordinate vacation of the easement with the Township prior to FSP/FEP submittal.*
 - j) *There is a recorded 20' wide easement for ingress and egress that runs semi parallel to Highland Road; this will be required to be vacated prior to FSP/FEP approval. Comment remains. Design engineer states that they will coordinate vacation of the easement with the Township prior to FSP/FEP submittal.*
 - k) *Sheet C-4- What is the grading intent for the northeastern greenspace area of the site? We note that there is an existing storm sewer end section which connects to the existing 12" diameter storm sewer that crosses M-59. It is assumed that this end section is to collect the drainage at the low point of approximately 966' and route the drainage to the north under M-59; however, the existing CB to the*
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north (#70140) shows a higher invert elevation than the existing ES elevation to the south. Please clarify. We also note that the site post- development runoff to this end section shall be $< \text{ or } =$ to the current runoff (Q) to this area. **Comment addressed at preliminary level and remains. The existing pipe shall be removed, and the area regraded such that the depression shall be filled. Per the design engineer, calculations are intended to be provided on the FSP/FEP to demonstrate post development runoff to the M-59 right of way be $< \text{ or } =$ to the current runoff.**

- l) *Sheet C-4- Grading Notes- Note 5-Minimum slope for concrete surfaces can be 0.50% as per WLT Engineering Standards.* **Comment addressed. Note has been updated.**
 - m) *Preliminary grading of the site has been proposed and demonstrates general drainage patterns mainly within the confines of the proposed impervious areas; please provide on the revised preliminary site plan general proposed grading for all greenspace areas. A more detailed grading review will be provided at the time of Final Engineering Plan submittal/review.* **Comment remains.**
 - n) *Sheet C-5- Remove duplicate proposed Water Quality Unit label (the label showing 15" diameter invert elevations).* **Comment addressed. Duplicate label has been removed.**
 - o) *Sheet C-5-Retention basin slope scales to 1:4, which would require a fence around basin. Is the intent to fence in the basin?* **Comment partially addressed and remains. A fence is now shown around the basin. A 10' wide basin access gate is now shown as well as 10 LF of mountable curbing at the parking space across from the gate. The parking space across from the basin access gate shall be designated as an 'Authorized Vehicles Only' space and /or striped so as to allow maintenance vehicle parking and access to the retention basin.**
 - p) *Sheet C-5- Provide/show retention basin spillway and pathway of overland flow. In addition, 1' of freeboard is required for the basin.* **Comment addressed at the PSP level and remains. A spillway and a general pathway of the overland flow are now shown. 1' of freeboard for basin is now shown. It will be required to be shown/demonstrated on the Final Engineering Plan that an overflow event from the retention basin shall not impact adjacent properties.**
 - q) *Sheet C-5- Based on basin capacity and storage elevation for a 2-100 year back to back storm event, there would be surcharging in upstream piping with what appears to be storage of stormwater above some of the upstream storm sewer rim elevations. It will be required to be demonstrated on the Final Engineering Plan that the HGL will be contained within or at 1' below storm rim elevations.* **Comment addressed at the PSP level and remains. The basin has been reconfigured and the top of storage of basin has been lowered to match the proposed CB grate/rim elevations. We continue to note that the second half of our above comment regarding HGL will be required to be addressed on the FSP/FEP.**
 - r) *We note that this property falls within a wellhead protection area. We defer to Township DPS regarding special requirements.* **Comment remains as a notation.**
 - s) *Sheet C-5- Provide SCS Soil Types. In addition, provide water table information to substantiate that water levels shall return to preexisting conditions at least one time per year.* **Comment addressed at PSP level and remains. SCS soil types are now shown. Design engineer notes that a geotechnical report will be provided prior to FSP/FEP submittal to confirm the water table level.**
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- t) *Sheet C-5-Demonstrate that the basin shall dewater a 100 year storm within 72 hours based on infiltration rates of soils present. **Comment addressed. Dewatering calculations have been provided showing that basin will dewater in 45 hours.***
- u) *Sheet C-5- Stormwater Management Calculations table- The incorrect property address is shown in this section. Please revise. **Comment addressed. Address has been corrected.***
- v) *Sheet C-6- Specify size of the proposed grease interceptor for the westernmost building. A minimum capacity of 1000 gallons is required. **Comment outstanding. Although a detail for the GB-75 grease trap has now been provided on plan, it appears that the capacities (liquid-125 gal, grease-118 gal, and solids-31 gal) fall significantly short of the 1000 gallon minimum volume requirement.***
- w) *Sheet C-6-Since the sanitary sewer leads are each contributing to a sanitary sewer grinder station, all leads shall be 6" diameter and shall have cleanouts at 75' intervals and at each change in direction. The gravity lead from the monitoring manhole to the grinder station shall also be 6" diameter. **Comment addressed. All leads are now 6" diameter and clean outs are shown every 75' and at directional changes in leads.***
- x) *Sheet C-6- Move duplex grinder pump outside of the existing watermain easement. **Comment addressed. Pump has been moved outside of existing watermain easement.***
- y) *We defer to the Township Fire Department regarding hydrant coverage. **Comment remains as a notation.***
- z) *Sheet C-6- Shift the westernmost water service line west away from influence of monument sign. **Comment addressed. Water service line horizontal separation between it and sign has now been optimized.***
- aa) *Sheet C-8- Show proposed sanitary sewer, water service, and storm sewer. Please provide a minimum of 10' horizontal separation between trees and these utilities and add a note to this effect on this sheet. **Comment addressed. Utilities are now shown on plan sheet.***
- bb) *Sheet C-8- There is an existing tree that is shown to remain in the area of the proposed retention basin. Tree will likely be required to be removed, or basin location revised so as to avoid tree in basin. **Comment partially addressed. Existing tree within the basin shall be removed per the design engineer; however, please cross out this tree on Sheet C-2.***

Recommendation

The majority of our above comments have been addressed. Any remaining comments can be addressed on the Final Site Plan/ Final Engineering Plan. We are now recommending approval of the Preliminary Site Plan.

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

Sincerely,

DLZ Michigan



INNOVATIVE IDEAS
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WLT-9101 Highland Road- PSP Review.02

November 6, 2024

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Michael Leuffgen, P.E.
Department Manager

Victoria Loemker, P.E.
Senior Engineer

Cc: Andrew Littman, Community Development, *via email*
Hannah Kennedy-Galley, Community Development, *via email*
Matteo Passalacqua, Carlisle Wortman, *via email*
Aaron Potter, DPS Director, White Lake Township, *via email*
Jason Hanifen, Fire Marshall, White Lake Township, *via email*

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Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

November 25, 2024

**Preliminary Site Plan / Special Land Use Review
for
White Lake Charter Township, Michigan**



Applicant:	Affinity 10 Investment, LLC
Project Name:	9101 Highland Road
Plan Date:	July 24, 2024
First Revision Date:	October 17, 2024
Location:	South side of Highland Road (M-59), West of Sunny Beach Boulevard. Parcel ID: 12-23-227-003
Action Requested:	Preliminary site plan and special land use review

PROJECT NARRATIVE

The applicant is requesting to rezone a 4.5-acre parcel along Highland Road (M-59) from R1-C, Single Family Residential District to RB, Restricted Business District for the purpose of constructing two (2) multi-tenant retail shopping centers. Both structures will provide suites with drive-thru amenities and outdoor patios. Restaurants with drive-thru’s and outdoor dining areas are a special land use and subject to the standards set forth in Sections 4.17, 4.18 and 6.10 of the zoning ordinance.

The applicant has commenced the rezoning process. Per Section 7.9 of the Zoning Ordinance, all proposed amendments to the provisions of the Ordinance or the Official Zoning Map shall be referred to the Planning Commission for public hearing and recommendation to the Township Board, prior to consideration thereof by the Township Board. This review will assess the preliminary site plan and special land use application under the premise that the rezoning has been approved.

The site contains one principal building and one accessory structure as well as a parking lot and fenced-in side yard. The principal structure is the Calvary Lutheran Church of White Lake. The current plan calls for the razing of all existing structures and improvements to accommodate the new use and proposed buildings. All existing utilities as well as some periphery trees are to remain and be protected during construction.

The proposed retail buildings would be approx. seven thousand two hundred twenty seven (7,227) sqft

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

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and six-thousand four-hundred eighteen (6,418) sqft. Both buildings would offer three (3) suites with both drive thru suites being at the east end of both buildings.

Sheet C-3 indicates the applicant is requesting a waiver for site access. We note later in this review that the Planning Commission may waive this requirement per certain criteria.

Preliminary site plans are reviewed by the Planning Commission with recommendations then provided to the Township Board for approval, approval with conditions or denial. Final site plan review and approval is conducted solely by the Planning Commission. The Planning Commission is the review and approval authority for special land uses.

Items to be Address: None.

SITE DESCRIPTION

Lot Area:	4.5 gross acres
Frontage:	Approx. 458 feet along Highland Road (M-59).
Address:	9101 Highland Road
Current Use:	Institutional (Place of Worship)

Aerial image of the site



Source: NearMap June 8, 2024

9101 Highland

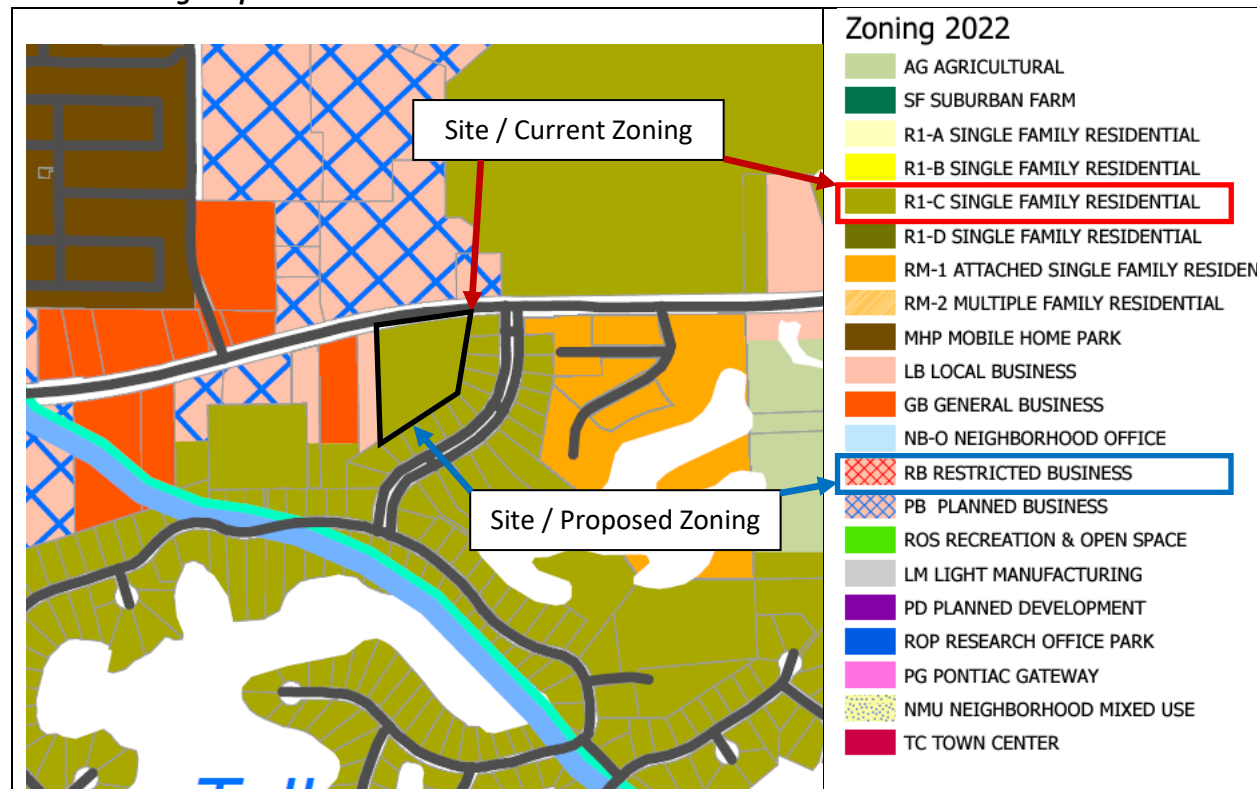
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	North	East	South	West
Surrounding Zoning	<i>PD, Planned Business</i>	<i>R1-C, Single Family Residential</i>	<i>R1-C, Single Family Residential</i>	<i>LB, Local Business</i>
Surrounding Land Uses	<i>Big Box Retail</i>	<i>Single Family Homes</i>	<i>Single Family Homes</i>	<i>Child Daycare</i>
Future Land-Use Map	<i>Commercial Corridor</i>	<i>Neighborhood Residential</i>	<i>Neighborhood Residential</i>	<i>Commercial Corridor</i>

Current Zoning	<p>RB, Restricted Business (IF REZONED FROM R1-C)</p> <p><i>The intent of the Restricted Business District is to provide a uniform set of regulations that will provide for and encourage retail and office development in accordance with the unique character of White Lake Township, with emphasis on preservation and enhancement of landscaping and natural areas. The Restricted Business District should contain diverse types of retail and office business, but it is not intended that the district become an intensive, high-volume commercial strip.</i></p>
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Current Zoning Map



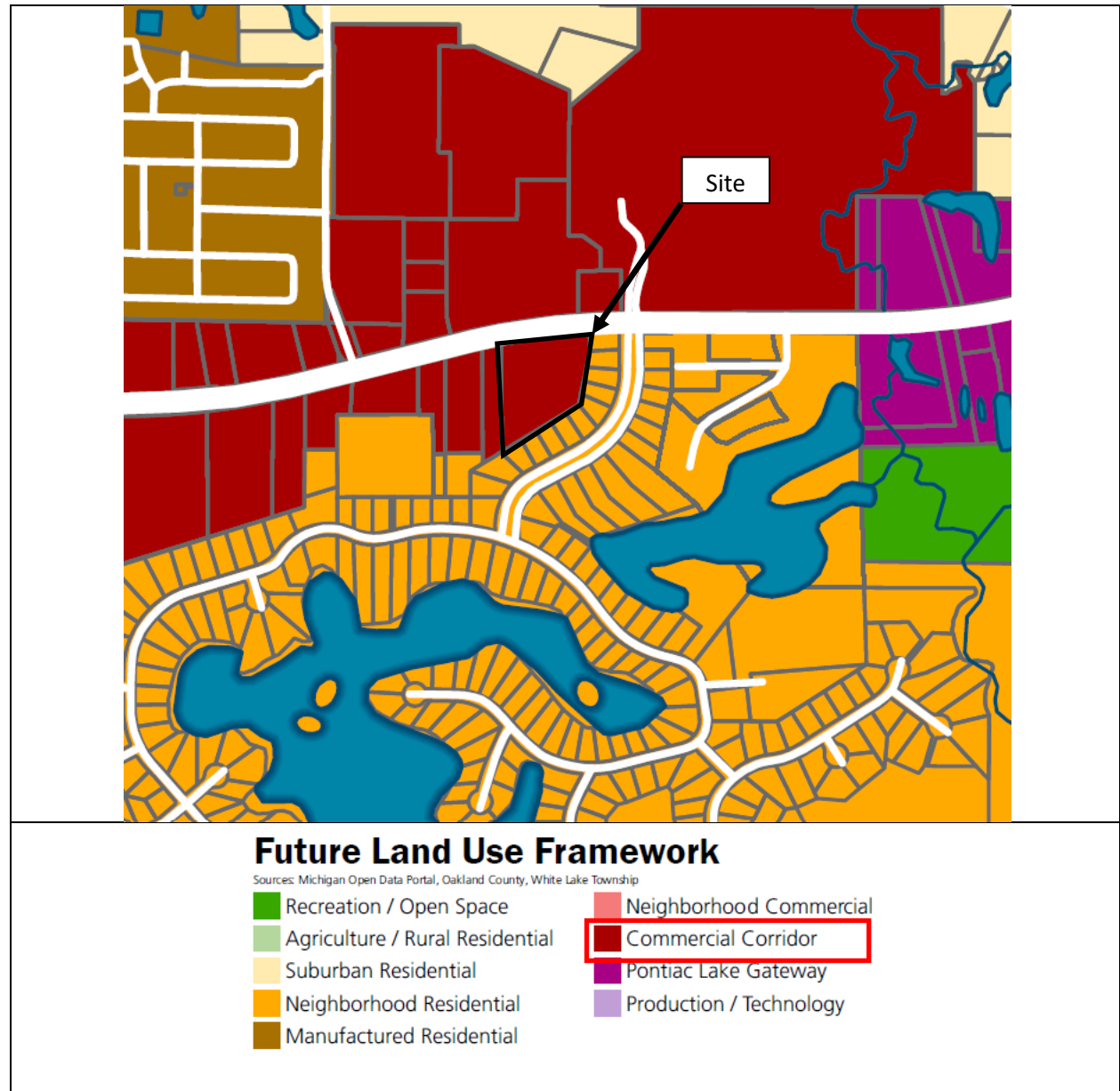
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Future Land Use	Commercial Corridor <i>Commercial Corridor: Provides regional goods and services to residents and non-residents. Includes large box stores and drive thrus.</i>
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Future Land Use Map



Item to be Addressed: None

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NATURAL RESOURCES

Topography: Sheet C-4 show existing site topography as well as the proposed grading. With the exception of a natural depression along Highland Road (M-59) on the east side of the site, the lot is predominantly flat. Minor grading will be required to support proposed structures and site improvements with more extensive excavation required for the proposed detention pond south of the development.

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

Wetlands: Per the Department of Environment, Great Lakes and Energy (EGLE), no wetlands are present onsite.

Woodland: The site is relatively clear of mature tree clusters. Individual mature trees are located along the periphery. It appears that approximately sixteen (16) of these trees are slated to be preserved and protected during construction.

Soils: Oshtemo, Boyer, Urban Land and Spinks soils are all present onsite and suitable for development.

Water: No waterbodies are present onsite.

General Notes: None.

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

AREA, WIDTH, HEIGHT, SETBACKS

Proposed building envelopes and setback standards are shown on Sheet C-3 as well as district bulk and lot regulations. Standard bulk and lot regulations for the RB zoning district are set forth in Section 3.1.14.

RB Restricted Business District Developmental Standards

RB, Restricted Business	Required:	Proposed:	Complies
Building Setbacks			
Front (Sec. 4.17.A)	60 foot minimum	103.8 feet	Yes
Side	15 feet on one side / 30 foot total of two sides	81 feet / 164.6 feet combined	Yes
Rear	20 feet	154.6 feet	Yes
Wetland	25 feet	N/A	N/A

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Building Height			
	35 feet or 2 stories (whichever is less)	1 story	Yes
Lot Standards			
Minimum Lot Area	1 acre	4.5 gross and net acres	Yes
Minimum Lot Width	120 feet	458.4 feet	Yes
Maximum Lot Coverage	TBD	6.75%	TBD
Depth to Width	4 to 1	Approx. 1 to 1	Yes

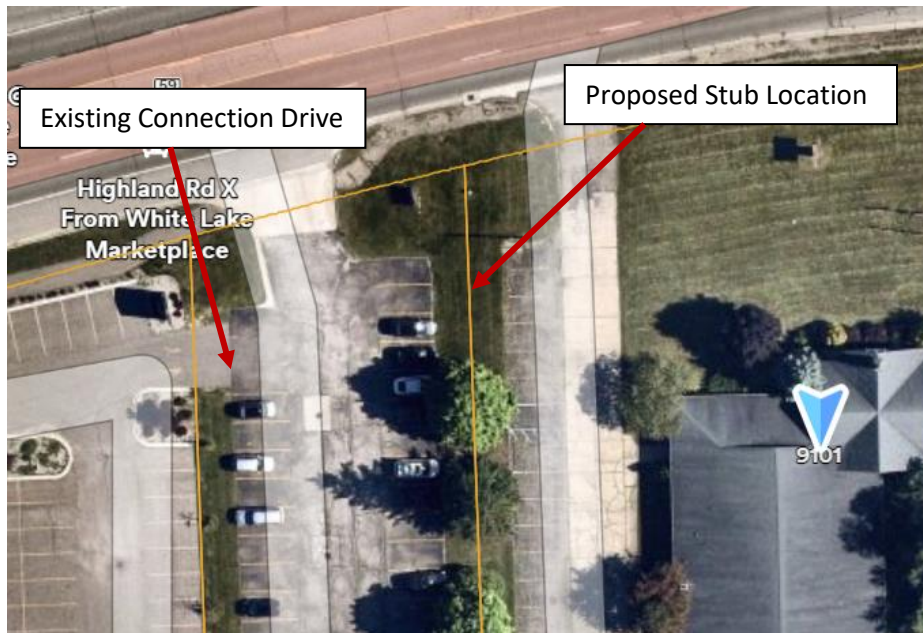
Items to be Addressed: None.

ACCESS & CIRCULATION

Vehicle Access & Circulation

Section 6.4 outlines site access requirements however the site’s sole access is from Highland Road (M-59) which is under jurisdiction of the Michigan Department of Transportation (MDOT).

Sheet C-3 shows a proposed stub access drive at the west end of the property. A note indicates the drive is a proposed twenty-four (24) foot access drive and easement to be stubbed at the property line. The aerial image below shows the neighboring site to the west does not currently have a stub to the subject property. However the neighboring property does share an internal drive with the adjacent property to the west. The applicant indicates the stub road will be connected to the neighboring site when that site is redeveloped. Concrete parking blocks are shown to detour vehicles from entering the temporary stub.



Source: NearMap June 8, 2024

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Page 7 of the traffic impact study (TIS) dated April 22nd, 2024 indicates the site's proposed driveway distance from existing driveways and/or intersections. The only distance requirement that is met relates to the Ross Drive entrance way to the shopping center opposite Highland Road (M-59). We defer to Engineering on their assessment of this deficiency but note the applicant has incorporated a dedicated left hand turn egress lane and deceleration lane to the site plan per MDOT requirements.

Non-Motorized Access and Circulation

Sections 5.20 and 5.21 provide requirements for site sidewalks and pathways. A sidewalk is present across the Highland Road (M-59) frontage of the site. The applicant is proposing to demolish the sidewalk and install an eight (8) foot wide asphalt pathway mostly within the ROW. Pathways along the corridor are required to be eight (8) feet wide with two (2) foot clear zones on each side and at least six (6) feet from the curb of the adjacent road. Dimensions on Sheet C-3 indicate the pathway will be no closer than two (2) feet to Highland Road (M-59). While this does not meet the requirements of the zoning ordinance, we cite dimensional constraints with meeting the requirement and defer to any concerns of MDOT for the pathways proposed location and design.

An easement will be provided for the portion of the pathway that occupies the applicant's property. Pedestrian access from the proposed pathway to the site is provided via a walkway in front of the west building that leads to a crosswalk. We recommend an additional pedestrian access be mirrored on the east end of the site to accommodate foot traffic attempting to access the site from the East.

Public Transit

Public Transit access is available via the SMART Bus Highland Road Route 759. The line runs east/west between Oakland University and Bogie Lake Road along Highland Road (M-59). The accessible Westbound stop is located at the Highland Road (M-59) and Sunny Beach Boulevard intersection. The accessible eastbound stop is located along Highland Road (M-59) at the White Lake Marketplace development. The route operates from approximately 6:00am until 11:00pm on weekdays and 9:00am until 6:00pm on Saturdays.

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

Items to be Addressed: 1.) Any concerns cited by Public Safety 2.) Any concerns cited by Engineering. 3.) MDOT will need to approve the pathway along Highland Road (M-59). 4.) A pedestrian connection from the sidewalk to the development's east building should be added to avoid foot traffic in the ingress/egress drive isle.

PARKING & LOADING

Section 5.11 outlines requirements for off-street parking. Sheet C-3 provides parking locations and calculations for the various retail and restaurant functions anticipated for the site. Parking is placed predominantly around the periphery of the two buildings with a limited number of spaces located between the structures. Parking lot and drive aisles will be constructed of asphalt. Concrete is proposed for limited portions of the drive thru and dumpster pads.

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Each building has drive thru facilities located at its eastern end. Stacking for these spaces commences at the western end of the structure and wraps around the rear of the building. Each stacking lane has bailout drives. A loading zone is located in rear of the property and the end of the central drive aisle. One loading zone is provided and meets the dimensional requirements of the ordinance.

The site plan indicates there will be three (3) retail users between both buildings totaling six thousand one hundred ninety-four (6,194) sqft. Two (2) restaurants with drive thrus are proposed totaling four thousand nine hundred forty-nine (4,949) sqft and one (1) restaurant that does not sell alcohol and has no drive thru is proposed utilizing two thousand five hundred two (2,502) sqft. Based on these uses, one hundred twenty-two (122) parking spaces are required. One hundred sixteen (116) are proposed, however the zoning ordinance allows for a parking reduction up to twenty-five (25%) percent of the required parking.

All spaces and dimensions for stacking lanes meet ordinance requirements.

Included in the provided parking are six (6) handicap accessible spaces. Count and dimension requirements for accessible spaces, as well as van accessibility space requirements, have been met.

We note that the site plan does not show dual white striped parking space paint however details on Sheet C-10 specify dual striped paint.

Items to be Addressed: None.

ESSENTIAL SERVICES & UTILITIES

Sheet C-5 and 6 provide information on existing and proposed utilities. Stormwater management is proposed to be directed into a ground infiltration detention pond. Gas, water, sewer and electric services are proposed underground. We defer to Township Engineering for any concerns with utility layouts and calculations.

We note underground electric routes along the eastern property line conflict with proposed landscaping. Over time, large tree roots can cause problems for underground utilities.

Fire lane locations are required for preliminary site plan review and should be shown on Sheet C-3 as well as proposed fire department building hookups and/or water sources to confirm corresponding locations. We defer to Township Public Safety for any utility capacity or locations concerns.

Items to be Addressed: 1.) Any cited concerns of Township Engineering. 2.) Any cited concerns of Township Public Safety.

LANDSCAPING & SCREENING

Landscape and screening information is required at final site plan review. The applicant has provided a detailed landscape plan on Sheet C-8. Per this information, we will provide a full review of the landscape plan. Any deficiencies noted should be addressed at final site plan review.

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Section 5.19.B outlines general provisions for site landscaping. We note that no trees are to be planted closer than four (4) feet from any property line. While distance dimensions were not provided, it appears several trees along the southern and eastern property line may encroach this setback requirement.

Section 5.19.D provides requirements for screening along property lines as it relates to adjacent districts. Those standards are reviewed below:

Greenbelts

Property Line	Required	Provided	Complaint
North (ROW)	Depth: 20 feet 14 large deciduous or evergreen trees AND 110 shrubs	Depth: 25.4 feet 14 large deciduous trees AND 110 shrubs	Yes
East & South (R1-C)	Depth: 20 feet 56 large deciduous or evergreen trees AND 223 shrubs 5 foot visual barrier	Depth: 30 feet 56 large deciduous trees (49 new / 7 existing) AND 223 shrubs 8 foot obscuring fence	Yes
West (LB)	None	N/A	N/A

We note that several areas along the perimeter of the site show existing tree canopies and cite that they will remain. An aerial of the site is provided below for reference.

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Source: NearMap June 8, 2024

Interior Landscaping

Interior landscaping areas are required to equal at least fifteen (15) percent of the total lot area. One (1) large deciduous, small ornamental deciduous, or evergreen tree and five (5) shrubs shall be planted for every three hundred (300) square feet of required interior landscaping area.

Standard	Required	Provided	Complaint
Lot Area	29,335 sqft (15%)	110,896 sqft (56%)	Yes
Deciduous Trees	97 trees	97 trees (81 new / 16 existing)	Yes
Shrubs	489 shrubs	489 shrubs	Yes

Parking Lot Landscaping

Any off-street parking areas containing ten (10) or more parking spaces shall have parking lot landscaping as prescribed in the table provided in Section 5.19.G. Additional standards require:

1. *One (1) large deciduous tree or small deciduous ornamental tree and three (3) shrubs for every one hundred (100) square feet of required parking lot landscaping area.*
2. *Parking lot landscaping areas shall be curbed with 6-inch concrete curbing. Planting islands containing trees shall not be less than fifty (50) square feet in area and not have any dimension across the island of less than five (5) feet.*

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Commercial Use	Required	Provided	Complaint
Lot Area	2,340 sqft	7,199 sqft	Yes
Deciduous or Ornamental Trees	23 trees	23 trees	Yes
Shrubs	70 shrubs	70 shrubs	Yes
Curbs	6 inch concrete	2'	Yes
Lot Islands	50 sqft area minimum and at least 5 feet wide	4 Islands	Yes

Minimum Plant Size

All tree and plant material meet size requirements.

Trash Receptacles

Trash enclosures are to be constructed of similar materials as the principal structure on the site. Brickform concrete or stained, decorative CMU block may be permitted where the principal building is not masonry, however, plain CMU block is not allowed. Details on Sheet C-13 indicate enclosure walls are constructed of split face block CMU but do not indicate a staining or decorative treatment. Sheet A-302 provides enclosure details that reference enclosure walls as CMU and gates materials as stained wooded with a metal frame. The applicant should remove the trash enclosure detail from Sheet C-13 and clarify the CMU enclosure wall decorative feature on Sheet A-302 for final site plan.

Mechanical Equipment Screening

Sheet A-400 provides an elevation showing the rooftop mechanical equipment and the parapet dimensions which provide screening. Other onsite mechanical equipment is screened via landscaping.

Fencing

Sheet C-3 shows a six (6) foot high vinyl fence around the detention basin. Per landscaping buffer requirements between specific zones, an eight (8) foot obscuring fence is proposed along the eastern and southern lot lines where the property abuts residential districts. Specification of screening materials are required for final site plan.

Items to be Addressed: 1.) Dimensions between trees and property lines should be included on Sheet C-8 and conform to the four (4) foot setback requirement. 2.) The applicant should remove the trash enclosure detail from Sheet C-13 and clarify the CMU enclosure wall decorative feature on Sheet A-302 for final site plan. 3.) Specification of screening materials proposed for the eight (8) foot property line fence are required for final site plan.

LIGHTING & NOISE

Lighting Requirements

The applicant has provided site lighting information on Sheets C-7 and 12. Lighting standards are provided in Section 5.18.G and required at final site plan review however this review will note any deficiencies with the proposed lighting plan.

Given the site will have multiple tenants, Sheet C-7 should have a note stating that there shall be no flashing, oscillating, moving or intermittent type of lighting or illumination on the site.

All site lighting is provided via LED fixtures mounted to twenty (20) foot poles. Footcandle requirements at the property lines and fixture height requirements are met. No building wall pack lighting is proposed at this time. Section 5.18.G.viii outlines footcandle maximums for specific areas of the site. The site plan offers measurements for the overall site and property lines but does not offer averages for the driveway, parking, walks, protective, building or loading areas. These will be required at final site plan.

Noise Requirements

Noise standards are provided in Section 5.18.A and required at final site plan review.

Items to be Addressed: *Additional area footcandle average information required for final site plan per Section 5.18.G.viii.*

SIGNAGE

Sheet C-3 provides the basic location of a proposed monument sign at the development's entrance. Basic dimension parameters are provided in the "Signage Requirements" table. We note the sign should complement both the design and construction materials of the principal structures on-site. Signs are approved administratively but complete sign information outlined in Section 5.9 is required at final site plan review.

Items to be Addressed: *None.*

ARCHITECTURE & LAYOUT

Sheets A100 through A301 provide general floorplans and elevations of the buildings. We do note that sheets are not stamped and sealed by a licensed architect.

Elevations of all building sides is required at preliminary site plan. Architectural information required at final site plan review includes the types of facing materials to be used on structures. Interior layouts are open to allow flexibility for potential user interior design but will be required to meet building codes during the permitting process.

9101 Highland

Preliminary Site Plan and Special Land Use Review (Revision 1)

November 25, 2024

Section 6.8.E provides architectural requirements for developments along the Highland Road (M-59) corridor. Proposed exterior materials for the buildings are fiber cement planes, metal coping, EFIS, brick veneer, prefinished aluminum and metal awnings. We recommend color renderings showing exterior construction materials in place for final site plan review. Window coverage along front facades must be at least 30%. These calculations should be added to the final site plan.

Exterior construction material boards will be required for Planning Commission review during final site plan as well as samples of furniture, fixtures or equipment to be located on the proposed patios.

Items to be Addressed: 1.) *Window coverage calculations should be added to exterior elevations facing Highland Road (M-59).* 2.) *Architectural drawings should be stamped and sealed by the professional that prepared them.*

SPECIAL LAND USE

Restaurants with drive-thru's and outdoor dining areas are a special land use and subject to the standards set forth in Sections 4.17, 4.18 and 6.10 of the zoning ordinance. Special land uses are reviewed and approved/denied by the Planning Commission.

General and special use requirements are provided in Section 6.10. Use standards specific to drive-in or drive-thru window services are outlined in Section 4.17. Use standards for eating establishments with outdoor dining are provided in Section 4.18. The following information is a review of each requirement for this use as prescribed in the Zoning Ordinance.

Section 4.17 / Drive-In or Drive-Thru Window Services

A. *A front yard setback of at least sixty (60) feet shall be required.*

CWA Comment: Standard met.

B. *Entrance and exit drives shall be at least one hundred (100) feet from any street intersection and two hundred (200) feet from any residential district.*

CWA Comment: Standard met.

C. *An outdoor lighting plan shall specify the type of fixtures to be used, light intensity, and method of shielding the fixtures so that light does not project onto adjoining properties or on any public or private street or right-of-way. Dropped fixtures shall not be allowed. The site plan shall include a photometric plan and catalog details for all proposed fixtures. Outdoor lights must meet the performance standards of Section 5.18.*

CWA Comment: Information is still required to assess conformance to lighting standards however footcandle measurements shown on Sheet C-7 do not indicate light spillover into residential areas.

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D. An obscuring fence, screen wall, or land form buffer shall be provided in accordance with the provisions of Section 5.19 on all sides abutting a residential district.

CWA Comment: Standard met.

E. Adequate off-street waiting space shall be provided to prevent drive-through customers from waiting on a public or private street. A minimum of four (4) spaces per drive-up window, including order windows or per ATM machine, shall be required. The Planning Commission may increase this requirement up to seven (7) spaces per window based on the circumstances of individual uses and sites.

CWA Comment: Standard met.

Section 4.18 / Eating Establishments with Entertainment and/or Outdoor Dining

These requirements are intended to regulate restaurants with large outdoor eating areas and possible entertainment. that the applicant has stated no outdoor entertainment is to occur onsite for restaurant patrons. For this reason, we have only applied the standards applicable to casual outdoor eating within the patio areas specified for each building.

i. The establishment may operate only during the following hours: Monday thru Thursday 8 am—12 midnight, Friday 8 am—2 am, Saturday 10 am—2 am, Sunday 10 am—10 pm.

CWA Comment: The applicant has provided a list of anticipated tenants for the site as well as their possible hours of operation. Some operating times are beyond the window permitted for outdoor dining however we do not anticipate the patrons of these potential tenants utilizing outdoor patios to a disruptive degree. The outdoor patio areas are modest in size and not meant for large amounts of customers.

ii. The use of exterior loudspeakers is prohibited where the site abuts a residential district or use. The noise level at the lot line shall not exceed 70 dB.

CWA Comment: No noise or speaker systems were included in the site plan. Applicant should be aware of this requirement when considering tenant types.

Section 6.10 / General SLU Standards

i. The proposed special land use shall be of such location, size and character that it will be in harmony with the appropriate and orderly development of the surrounding neighborhood and/or vicinity and applicable regulations of the zoning district in which it is to be located.

CWA Comment: The proposed use of the site is conducive with that found along the corridor and other major thoroughfares.

ii. The proposed use shall be of a nature that will make vehicular and pedestrian traffic no more hazardous than is normal for the district involved, taking into consideration vehicular turning movements in relation to routes of traffic flow, proximity and relation to intersections, adequacy

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of sight distances, location and access of off-street parking and provisions for pedestrian traffic, with particular attention to minimizing child-vehicle interfacing.

CWA Comment: Site access approval will be required from MDOT however the applicant has implemented a deceleration lane, dedicated left turn lanes, new roadside pathway and internal pedestrian paths to improve vehicle and pedestrian circulation.

iii. The proposed use shall be designed as to the location, size, intensity, site layout and periods of operation of any such proposed use to eliminate any possible nuisance emanating therefrom which might be noxious to the occupants of any other nearby permitted uses, whether by reason of dust, noise, fumes, vibration, smoke or lights.

CWA Comment: Per comments provided in the Special Land Use 4.18 requirements portion of this review, areas for outdoor dining are modest in size and the applicant should ensure tenants are aware of noise requirements.

iv. The proposed use shall be such that the proposed location and height of buildings or structures and location, nature and height of walls, fences and landscaping will not interfere with or discourage the appropriate development and use of adjacent land and buildings or unreasonably affect their value.

CWA Comment: Standard met.

v. The proposed use shall relate harmoniously with the physical and economic aspects of adjacent land uses as regards prevailing shopping habits, convenience of access by prospective patrons, continuity of development, and need for particular services and facilities in specific areas of the Township.

CWA Comment: The proposed food service and retail uses are conducive to major thoroughfares and are similar or complementary to other commercial uses in the area.

vi. The standards of density and required open spaces for the proposed special land use shall be at least equal to those required by this Ordinance in the Zoning District in which the proposed special land use is to be located.

CWA Comment: Standard met.

vii. The public services and facilities affected by a proposed special land use or activity shall be capable of accommodating increased service and facility loads caused by the land use or activity.

CWA Comment: We defer to Township Engineering and Township Public Safety relating to public facilities and service concerns.

viii. Protection of the natural environment and conservation of natural resources and energy.

CWA Comment: No items of concern.

ix. The proposed use is necessary for the public convenience at the proposed location.

9101 Highland

Preliminary Site Plan and Special Land Use Review (Revision 1)

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CWA Comment: The proposed use of the site is conducive with that found along the corridor and other major thoroughfares and will provide services to Township residents.

x. The proposed use is so designed, located, planned and to be operated that the public health, safety and welfare will be protected.

CWA Comment: No items of concern.

xi. The proposed use shall not cause substantial injury to the value of other property in the neighborhood in which it is to be located and will not be detrimental to existing and/or other permitted land uses in the zoning district.

CWA Comment: The proposed use is more intense than the current institutional use but not uncommon to major thoroughfares and/or proximity to residential uses. Appropriate landscaping and screening requirements have been met to ensure a buffer between the development and adjacent residential uses.

Community Impact Statement

Section 3.1.14 and 6.6 of the zoning ordinance outline the need for a Community Impact Statement (CIS) for special land uses, planned developments and the like. Given the proposed use is an increase in intensity from the current use as well as the adjacency to residential districts, the applicant has provided a CIS for the proposed development.

The CIS is dated November 12th, 2024 and was prepared by Stonefield Engineering and Design, LLC.

General

The CIS provides relevant information about the development regarding site layout, uses, and general hours of operation for tenants. Information provided is consistent with typical multi-tenant retail centers. As noted in the statement and this review, the use and zoning are consistent with the 2024 Master Plan. Surrounding uses are provided and are not uncommon when adjacent to retail along large thoroughfares (M-59).

Community Facilities and Services

The applicant states the site is anticipated to have a low to medium impact on police and fire services. No establishments are proposed to sell alcohol and fire department inspections are required to ensure the site is compliant with life safety standards. The fire department has provided preliminary approval of the site plan. No concerns are cited with the estimated demand on water and sewer systems.

Deliveries for tenants are expected to be once to twice per week. With the potential of up to six (6) tenants, this could generate six (6) to twelve (12) deliveries per week. Single axle box trucks are anticipated to provide the majority of deliveries to the site. Given the loading zone is located in the rear of the development, we suggest a possible condition that trucks not be allowed to idle while loading, unloading or staging.

9101 Highland

Preliminary Site Plan and Special Land Use Review (Revision 1)

November 25, 2024

Economics

The site is anticipated to generate approximately fifty (50) to sixty (60) temporary jobs (construction) and approximately fifty (50) permanent service jobs. It is estimated that the proposed development will contribute roughly \$70,000 per year to White Lake Township and local schools from annual property taxes.

Environment

The site is relatively free of major natural features such as clustered woodlands or bodies of water. The primary source of pollution to the site would be particulate matter during construction and personal vehicle operation once built. No major hazardous materials are expected to be kept onsite. The CIS does acknowledge that some tenants will likely be food service business that will generate kitchen odors from cooking operations. It should be discussed as to whether any mitigation is available to reduce the impact of odors generated from tenant activities.

Noise

The CIS notes that drive thru facilities in the east building will be pickup window only thus eliminating noise from order kiosks that utilize loudspeakers to communicate with drivers. This is a positive step to help reduce noise pollution. The stipulation that no order kiosk or loudspeaker system shall be constructed for the east building should be added to the site plan to avoid future tenants requesting installation of such equipment.

Traffic

Traffic information does indicate that levels of service are anticipated to remain relatively the same after the site is operating. The traffic impact study does indicate that vehicles attempting to make a left turn out of the site may find the maneuver difficult during peak PM hours.

Mapping

The overhead image provided in the CIS highlights the character of uses along the corridor. Retail uses are prevalent to the west of the site with varying densities of residential throughout the area.

Items to be Addressed: 1.) Condition that trucks not be allowed to idle during loading, unloading, or staging while onsite. 2.) Mitigation techniques to reduce the impact of kitchen odors should be implemented. 3.) No order kiosk or loudspeaker system shall be constructed for the east building should be added to the site plan to avoid future tenants requesting installation of such equipment.

9101 Highland

Preliminary Site Plan and Special Land Use Review (Revision 1)

November 25, 2024

SUMMARY

The preliminary site plan is substantially complete. We recommend a public hearing be noticed and the application be placed on the Planning Commission’s agenda.

Should the Planning Commission approve the preliminary site plan, special land use, and CIS, we recommend conditions listed below:

Potential Conditions of Approval

1. *Any cited concerns from Township Engineering are addressed.*
2. *Any cited concerns from Township Public Safety are addressed.*
3. *MDOT will need to approve the pathway along Highland Road (M-59)*
4. *A pedestrian connection from the sidewalk to the development’s east building should be added to avoid foot traffic in the ingress/egress drive isle.*
5. *Trucks not be allowed to idle during loading, unloading, or staging while onsite.*
6. *Mitigation techniques to reduce the impact of kitchen odors should be implemented.*
7. *No order kiosk or loudspeaker system shall be constructed for the east building should be added to the site plan to avoid future tenants requesting installation of such equipment.*

Waivers / Modifications / Determinations

Below is a list of waivers, modifications or determinations necessary from the Planning Commission for the current proposal to be approved.

1. *Planning Commission may grant/deny waiver request for placement of access drive per lot and placement restrictions however site access is under the jurisdiction of MDOT.*

Final Site Plan Items (Notations / Not Required for PSP Approval)

The items listed below are not required for preliminary site plan approval but will need to be addressed prior to final site plan consideration.

PLEASE NOTE: Should the Planning Commission grant approval or conditional approval of the preliminary site plan, these items should not be included in the motion.

1. *Additional area footcandle average information required for final site plan per Section 5.18.G.viii.*
2. *Dimensions between trees and property lines should be included on Sheet C-8 and conform to the four (4) foot setback requirement.*
3. *Specification of screening materials for the eight (8) foot property line fence are required for final site plan.*
4. *The applicant should remove the trash enclosure detail from Sheet 13 and clarify the CMU enclosure wall decorative feature on Sheet A-302 for final site plan. Exterior construction material boards will be required for Planning Commission review during final site plan as well as samples of furniture, fixtures or equipment to be located on the proposed patios.*


9101 Highland

Preliminary Site Plan and Special Land Use Review (Revision 1)

November 25, 2024

5. *Window coverage calculations should be added to exterior elevations facing Highland Road (M-59).*
6. *Architectural drawings should be stamped and sealed by the professional that prepared them.*
7. *Material specifications for the proposed eight (8) foot obscuring fence should be provided at final site plan review.*

Respectfully,



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



Fire Department
Charter Township of White Lake

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

Site / Construction Plan Review

To: Sean O'Neil, Planning Department Director

Date: 10-31-2024

Project: 9101 Highland Road

Job #: DET-230229

Date on Plans: 10-17-2024

The Fire Department has the following comments with regards to the 2nd review of preliminary site plans for the project known as 9101 Highland Road.

1. The access drive and parking lot shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all weather driving capabilities.
2. The required turning radius shall accommodate the largest Fire Department apparatus (40') and provide a turn radius profile showing apparatus on all future plans. **Needs to be shown throughout the entire site.**
3. The angle of approach/Departure to and from White Lake roads shall not exceed 8 degrees.
4. Wall mounted KNOX Box required, location to be determined.
5. One additional fire hydrant with bollard protection will be required on the south side of the of the buildings, centrally located, Possibly on the island east of the proposed loading zone.

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.



SOURCE: USGS MAPPING SYSTEM

LOCATION MAP

SCALE: 1" = 2,000'±

SITE DEVELOPMENT PLANS FOR 9101 HIGHLAND ROAD PROPOSED COMMERCIAL DEVELOPMENT

PID: 12-23-227-003

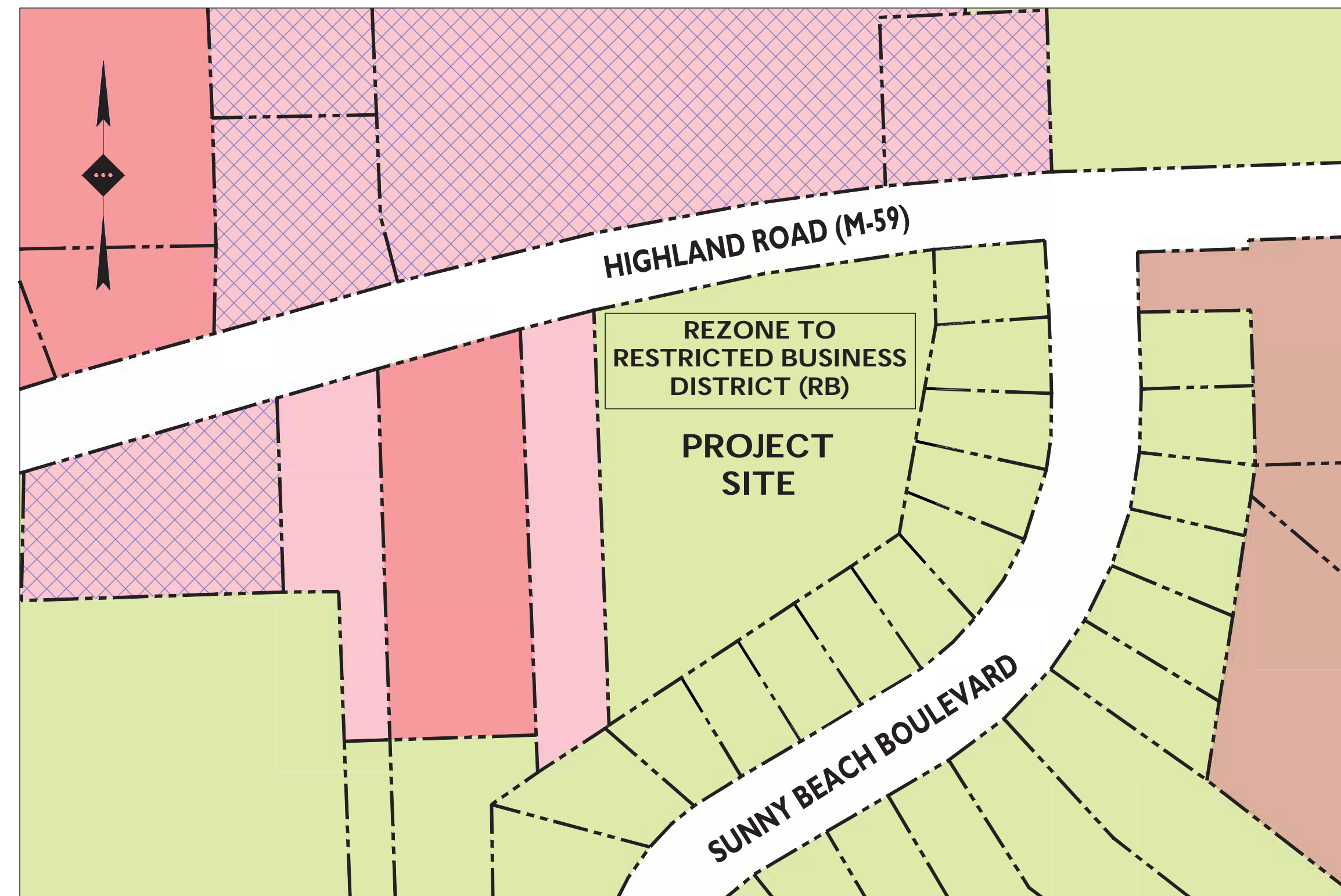
9101 HIGHLAND ROAD (M-59)
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN



SOURCE: GOOGLE EARTH PRO, DATE RETRIEVED 12/11/2023

AERIAL MAP

SCALE: 1" = 150'±



SOURCE: TOWNSHIP OF WHITE LAKE OFFICIAL ZONING MAP, DATED 10/10/2022

ZONING KEY

- R1-C SINGLE FAMILY RESIDENTIAL
- RM-1 ATTACHED SINGLE FAMILY RESIDENTIAL
- GB GENERAL BUSINESS
- PB PLANNED BUSINESS
- LB LOCAL BUSINESS

ZONING MAP

SCALE: 1" = 150'±

APPLICANT / OWNER

AFFINITY 10 INVESTMENT LLC
44512 SOUTH SHORE STREET
WATERFORD, MICHIGAN 48328
248-702-0624
THANNAWA@ENCOREIS.COM

ARCHITECT

BOWERS + ASSOCIATES, INC
2400 SOUTH HURON PARKWAY
ANN ARBOR, MICHIGAN 48104
734-975-2400
SUSANB@BOWERSARCH.COM

ISSUE	DATE	BY	DESCRIPTION
1	11/29/2023	JRC/JJP	SUBMISSION FOR REZONING
2	04/15/2024	EM	FOR PRELIMINARY MDOT REVIEW
3	04/22/2024	JRC/JJP	SUBMISSION FOR REVISED REZONING REQUEST
4	07/22/2024	EM/JJP	FOR SITE PLAN REVIEW
5	10/17/2024	EM	REVISED PER PRELIMINARY SITE PLAN REVIEW #1

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

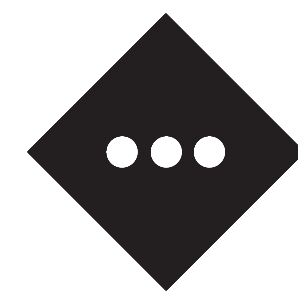
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PLANS PREPARED BY:



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Phone 248.247.1115

PLAN REFERENCE MATERIALS:

- THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
 - ALTA/NSPS LAND TITLE SURVEY PREPARED BY KEM-TEC ASSOCIATES DATED 09/28/2023
 - ARCHITECTURAL PLANS OBTAINED FROM BOWER & ASSOCIATES, INC DATED 10/17/2024
 - AERIAL MAP OBTAINED FROM GOOGLE EARTH PRO 10/10/2022
 - LOCATION MAP OBTAINED FROM USGS ONLINE MAPPER 08/07/2023
 - TRAFFIC STUDY OBTAINED FROM FLEIS & VANDENBRINK DATED 04/22/2024
- 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.

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
UTILITY PLAN	C-6
LIGHTING PLAN	C-7
LANDSCAPING PLAN	C-8 & C-9
FIRE TRUCK TURNING ANALYSIS	C-10
REFUSE TRUCK TURNING ANALYSIS	C-11
CONSTRUCTION DETAILS	C-12 TO C-14

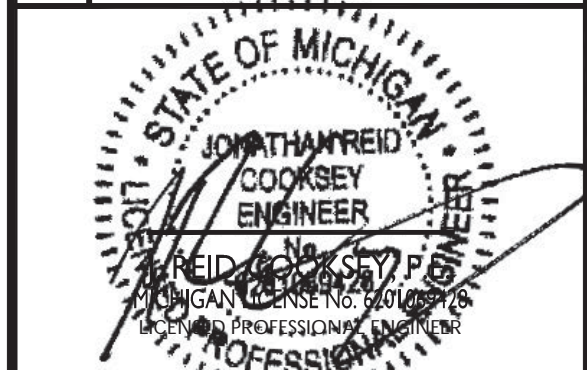
ADDITIONAL SHEETS

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
WHITE LAKE TWP SANITARY DETAILS	1 OF 1
OAKLAND COUNTY SOIL EROSION DETAILS	1 OF 1

9101 HIGHLAND ROAD

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-23-227-003
9101 HIGHLAND ROAD
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

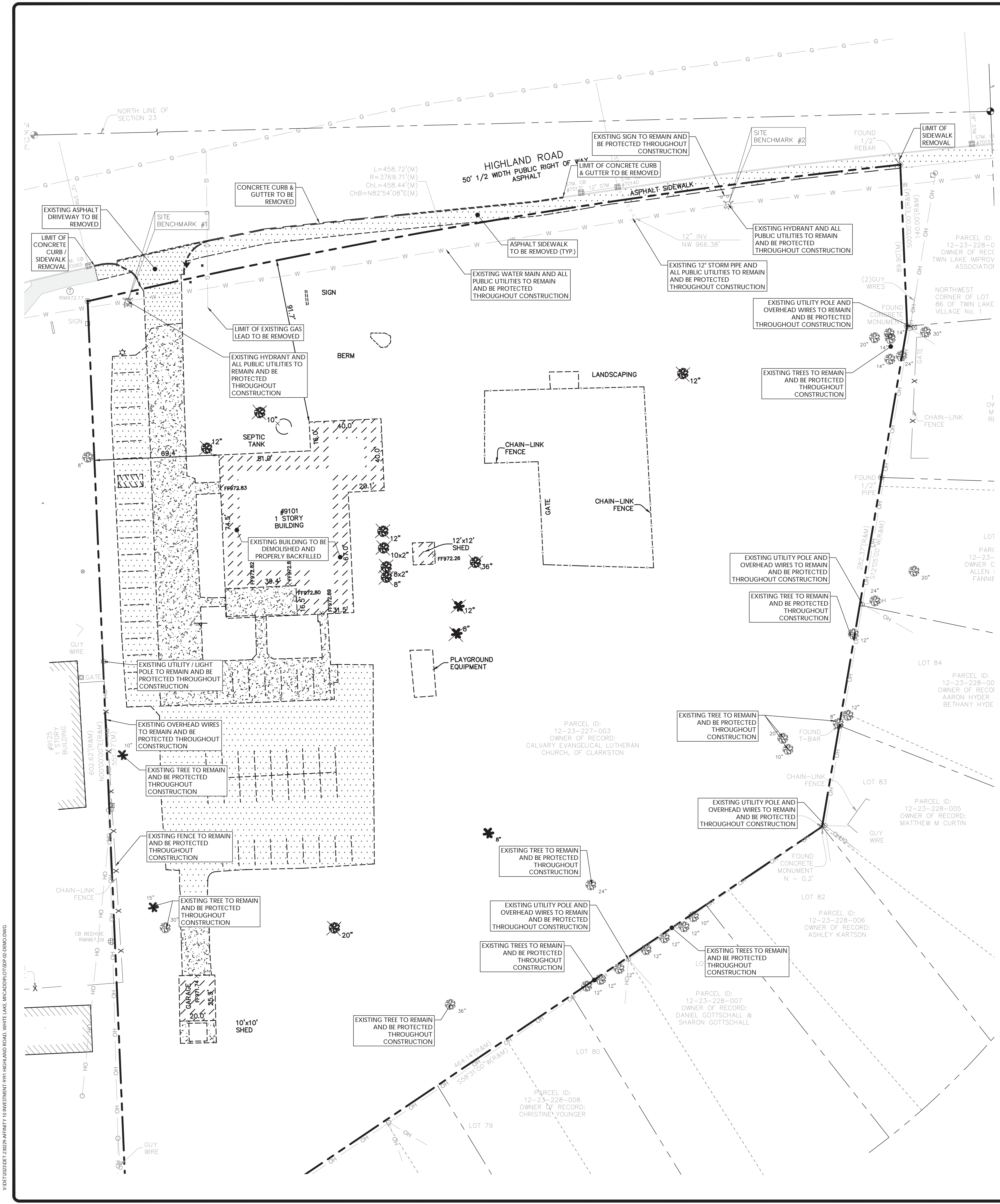


STONEFIELD engineering & design

SCALE: AS SHOWN PROJECT ID: DET-230229

TITLE: COVER SHEET

DRAWING: C-1



SYMBOL	DESCRIPTION
---	PROPERTY LINE
---	FEATURE TO BE REMOVED / DEMOLISHED

BENCHMARK

SITE BENCHMARK #1
ARROW ON HYDRANT, WEST SIDE OF ASPHALT ENTRANCE.
ELEVATION = 975.36 (NAVD 88)

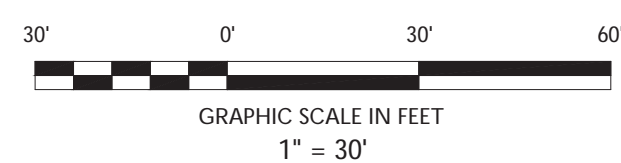
SITE BENCHMARK #2
ARROW ON TRAFFIC SIGNAL POST, EAST SIDE OF PROPERTY.
ELEVATION = 974.20 (NAVD 88)

ALL SITE FEATURES WITHIN THE PROPERTY LINE 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



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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.



REVISED PER PRELIMINARY SITE PLAN REVIEW #1	EM	BY	DESCRIPTION
FOR SITE PLAN REVIEW <td>EM/JEP <td></td> <td></td> </td>	EM/JEP <td></td> <td></td>		
SUBMISSION FOR REVISED REZONING REQUEST <td>JRC/JEP <td></td> <td></td> </td>	JRC/JEP <td></td> <td></td>		
FOR PRELIMINARY MDOT REVIEW <td>EM <td></td> <td></td> </td>	EM <td></td> <td></td>		
SUBMISSION FOR REZONING <td>JRC/JEP <td></td> <td></td> </td>	JRC/JEP <td></td> <td></td>		
ISSUE	DATE	BY	DESCRIPTION
5	10/17/2024	EM	
4	07/22/2024	JRC/JEP	
3	04/22/2024	JRC/JEP	
2	04/15/2024	EM	
1	11/29/2023	JRC/JEP	

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9101 HIGHLAND ROAD
PROPOSED COMMERCIAL DEVELOPMENT

811

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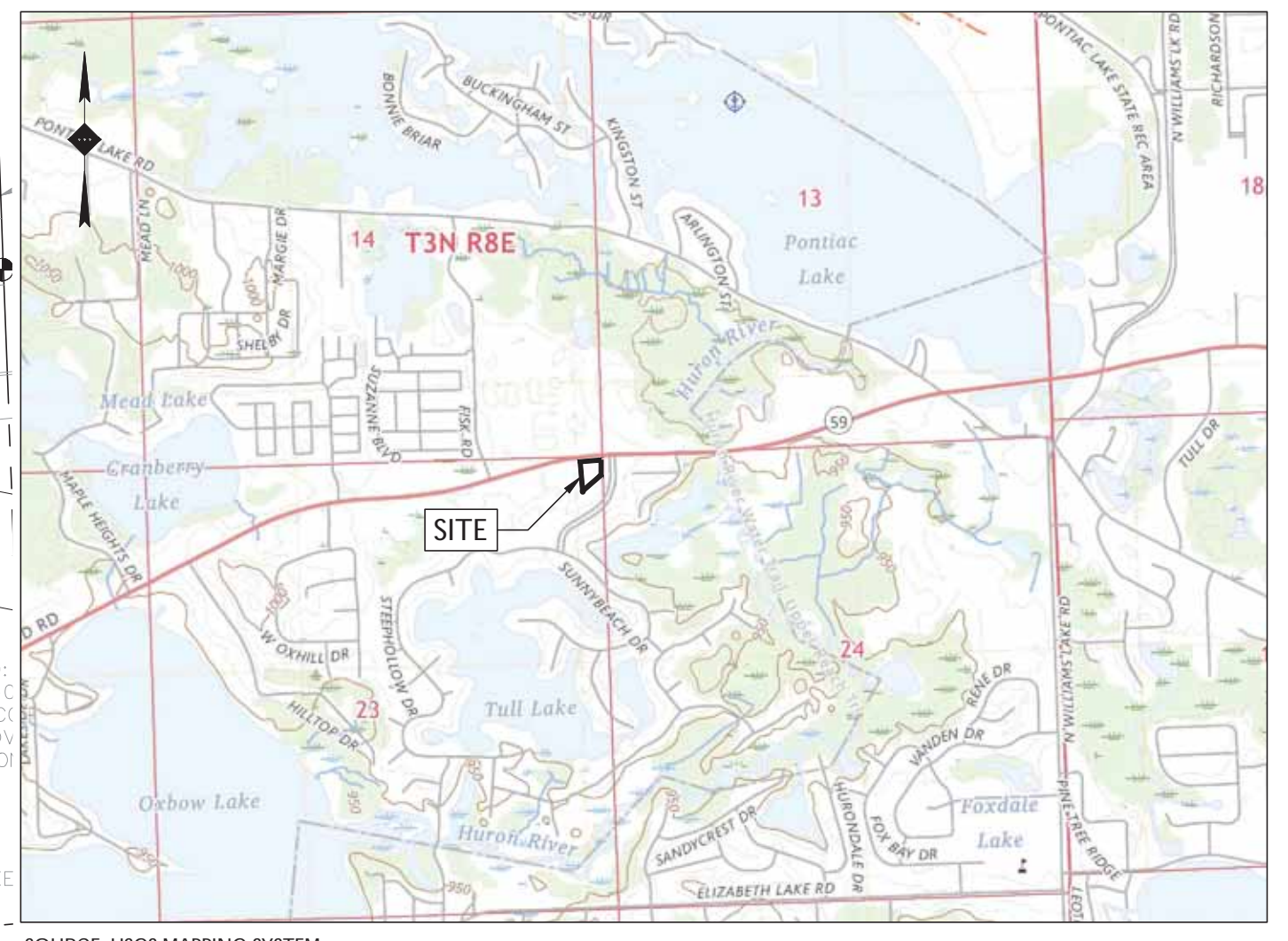
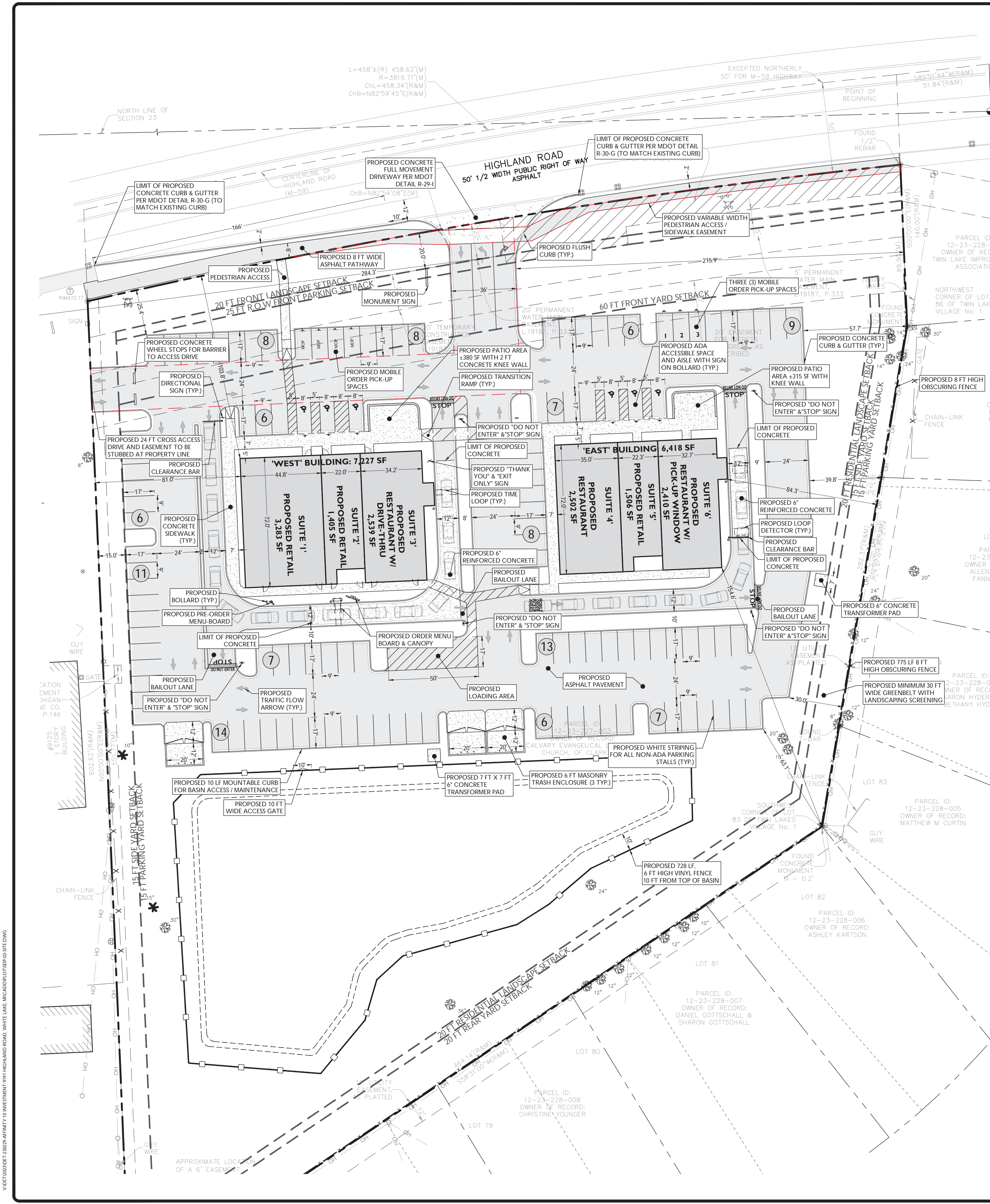
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engineering & design

SCALE: 1" = 30' PROJECT ID: DET-230229

TITLE:
DEMOLITION PLAN

DRAWING:
C-2

NOT TO SCALE. 12-2024. ALL RIGHTS RESERVED. 18 INVESTMENT. 18111 HIGHLAND ROAD, WHITE LAKE, MICHIGAN 48384. DET-230229



LAND USE AND ZONING

PID: 12-23-227-003
 EXISTING ZONE: R1-C SINGLE FAMILY RESIDENTIAL
 2024 MASTER PLAN: COMMERCIAL COORIDOR
 PROPOSED REZONE: RESTRICTED BUSINESS DISTRICT (RB)

PROPOSED USE	PERMITTED USE	PERMITTED USE
RESTAURANT OR FAST FOOD	RESTAURANT OR FAST FOOD	RESTAURANT OR FAST FOOD
DRIVE-THRU WINDOW	DRIVE-THRU WINDOW	DRIVE-THRU WINDOW
RETAIL STORE	RETAIL STORE	RETAIL STORE

ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT AREA	1 AC	195,568 SF (4.5 AC)
MINIMUM LOT WIDTH	200 FT	458.4 FT
MAXIMUM BUILDING HEIGHT	35 FT (2 STORIES)	<35 FT (1 STORY)
MINIMUM FRONT YARD SETBACK	60 FT ⁽¹⁾	103.8 FT
MINIMUM SIDE YARD SETBACK (ONE)	15 FT	81.0 FT
MINIMUM SIDE YARD SETBACK (BOTH)	20 FT	164.6 FT
MINIMUM REAR YARD SETBACK	20 FT	154.6 FT
MINIMUM DRIVEWAY FROM RESIDENTIAL	200 FT ⁽¹⁾	215.8 FT
MINIMUM FRONT LANDSCAPE SETBACK	20 FT	25.4 FT
MINIMUM R.O.W. PARKING SETBACK	25 FT ⁽²⁾	25.4 FT
INTERIOR LANDSCAPING AREA	15% (29,335 SF)	>15%
MINIMUM DRIVEWAY SPACING (HIGHLAND ROAD)	455 FT	>284.3 FT TO WEST (W)
TRASH ENCLOSURE SETBACK	103.8 FT ⁽³⁾	COMPLIES
MINIMUM SIDE PARKING SETBACK	15 FT	15.0 FT

(W) WAIVER
 (1) REQUIREMENT FOR RESTAURANT WITH DRIVE-THRU
 (2) NO PARKING STALL SHALL BE LOCATED ADJACENT TO R.O.W. LINE, STREET EASEMENT OR SIDEWALK WHICHEVER IS CLOSER
 (3) NO ENCLOSURES SHALL BE PERMITTED CLOSER TO THE FRONT LOT LINE THAN THE PRINCIPAL BUILDING

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
\$ 5.11.M	EAST FOOD PARKING: 1 SPACE PER 75 OF GFA (2,539 SF + 2,410 SF) = 4,949 SF (4,949 SF) (1 SPACE / 75 SF) = 66 SPACES RESTAURANT PARKING: 1 SPACE PER 100 SF OF GFA (2,502 SF) (1 SPACE / 100 SF) = 25 SPACES RETAIL PARKING: 1 SPACE PER 200 SF OF GFA (3,283 SF + 1,405 SF + 1,506 SF) = 6,194 SF (6,194 SF) (1 SPACE / 200 SF) = 31 SPACES TOTAL: 66 + 25 + 31 = 122 SPACES	116 SPACES
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN	ADA ACCESSIBLE PARKING: 101 TO 150 SPACES = 5 ACCESSIBLE SPACES	6 ACCESSIBLE SPACES
\$ 5.11.M	MINIMUM REQUIRED PARKING SPACES: (153 SPACES) (0.75) = 115 SPACES ⁽²⁾	116 SPACES
\$ 5.11.M	MAXIMUM ALLOWABLE PARKING: (122 SPACES) (1.25) = 153 SPACES	116 SPACES
\$ 5.11.M	STACKING (WEST DRIVE-THRU): 8 STACKING CARS (9 FT X 19 FT) (12 FT X 19 FT)	15 SPACES
\$ 5.11.M	STACKING (EAST DRIVE-THRU): 8 STACKING CARS (9 FT X 19 FT) (12 FT X 19 FT)	10 SPACES
\$ 5.11.Q	30' PARKING: 9 FT X 19 FT WITH 24 FT AISLE ⁽¹⁾	9 FT X 17 FT
\$ 5.19	LANDSCAPE REQUIREMENT: 20 FT WIDTH ALONG RESIDENTIAL 6-8 FT OBSCURING FENCE	30 FT WIDTH 8 FT FENCE
\$ 5.11.P	LOADING AREA: 10 FT X 50 FT WITH 15 FT CLEARANCE	17 FT X 50 FT

(1) PARKING SPACE LENGTH MAY BE REDUCED TO 17 FT WHERE 7 FT SIDEWALK OR LANDSCAPE IS PROVIDED.
 (2) AT LEAST 75% OF THE MAXIMUM ALLOWABLE NUMBER OF PARKING SPACES SHALL BE PROVIDED.

SYMBOL DESCRIPTION

- PROPERTY LINE
- SETBACK LINE
- PROPOSED CURB & GUTTER
- PROPOSED SIGNS / BOLLARDS
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED SCREEN WALL
- PROPOSED 8 FT OBSCURING FENCE

ANTICIPATED TENANTS / HOURS OF OPERATION

- CHIPOTLE: 10:45 AM TO 10 PM
- NOTHING BUNDT THE CAKE: 9:30 AM TO 8 PM
- FIVE GUYS: 11 AM TO 10 PM
- STARBUCKS: 5 AM TO 8 PM
- JERSEY MIKE'S: 10 AM TO 9 PM

SIGNAGE REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
\$ 5.9.1.B	MULTI-TENANT SIGN HEIGHT: 15 FT ⁽²⁾	<15 FT
\$ 5.9.1.I	SIGN AREA: 4 SF PER 1 FT OF SETBACK	<150 SF
\$ 5.9.1.I	MAXIMUM SIGN AREA: 150 SF ⁽³⁾	<150 SF
\$ 5.9.1.A	SIGN SETBACK: 10 FT	20.0 FT
\$ 5.9.1.A	RESIDENTIAL SETBACK: 100 FT	>200 FT

(1) MAXIMUM SIGN AREA SHALL NOT INCLUDE DECORATIVE ELEMENTS SUCH AS BASES, COLUMNS OR CAPS
 (2) MINIMUM HEIGHT OF A SIGN SHALL BE 2 FT IN HEIGHT
 (3) EACH INDIVIDUAL TENANT SIGN SHALL NOT EXCEED 4 FT IN HEIGHT

- GENERAL NOTES**
- 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.
 - 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.
 - ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC, AND ITS 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.
 - 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.
 - THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
 - 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.
 - 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 CONTRACTOR'S EXPENSE.
 - CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW BY STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
 - THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
 - 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.
 - THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
 - 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.

REVISION	DATE	ISSUE	DESCRIPTION
1	11/29/2023	IR/JP	SUBMISSION FOR REZONING
2	04/15/2024	EM	FOR PRELIMINARY MDT REVIEW
3	04/22/2024	IR/JP	SUBMISSION FOR REVISED REZONING REQUEST
4	07/22/2024	EM/JP	FOR SITE PLAN REVIEW
5	10/17/2024	EM	REVISED PER PRELIMINARY SITE PLAN REVIEW #1

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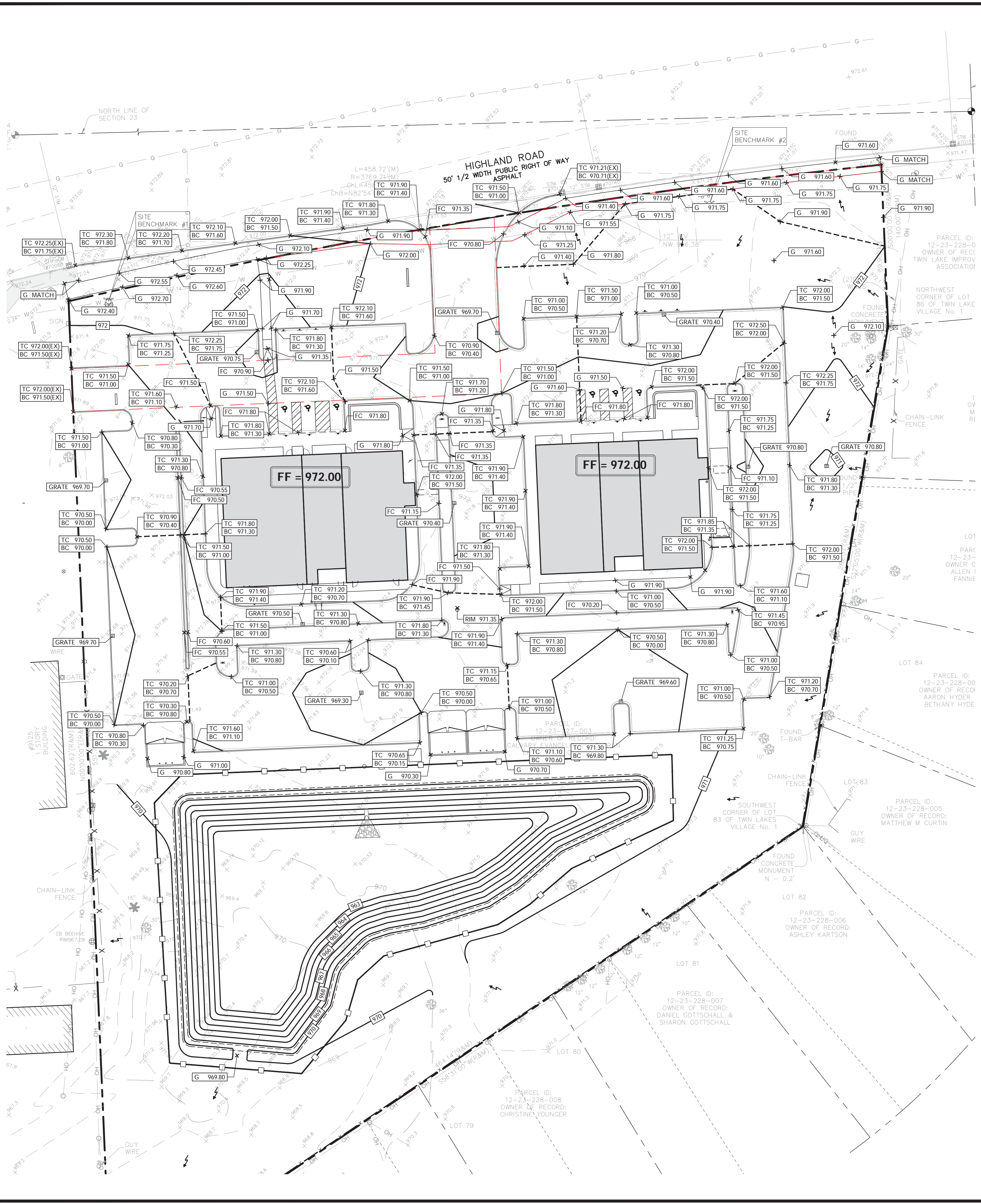
9101 HIGHLAND ROAD
 PROPOSED COMMERCIAL DEVELOPMENT

STONEFIELD
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SCALE: 1" = 30' PROJECT ID: DET-230229

TITLE: **SITE PLAN**

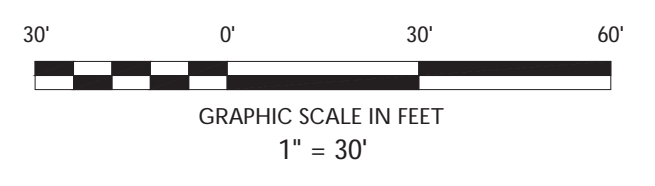
DRAWING: **C-3**



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

- GRADING NOTES**
- 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.
 - 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.
 - 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.
 - 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.
 - MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
 - CURB GUTTER: 0.50%
 - CONCRETE SURFACES: 0.50%
 - ASPHALT SURFACES: 1.00%
 - 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.
 - 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 AUTHORITY.

- ADA NOTES**
- THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
 - THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
 - 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.
 - 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.
 - 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 FLARE 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.
 - 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.
 - A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
 - THE CONTRACTOR SHALL ENSURE A MAXIMUM OF 1/8 INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN 1/8 INCHES AND 1/2 INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP 1/4 INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
 - THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN 1/4 INCH.



REVISED PER PRELIMINARY SITE PLAN REVIEW #1	EM	BY	DESCRIPTION
FOR SITE PLAN REVIEW	EM/JEP		
SUBMISSION FOR REVISED REZONING REQUEST	JRC/JJP		
FOR PRELIMINARY MDOT REVIEW	EM		
SUBMISSION FOR REZONING	JRC/JJP		
ISSUE		DATE	
		10/17/2024	
		07/22/2024	
		04/22/2024	
		04/15/2024	
		11/29/2023	

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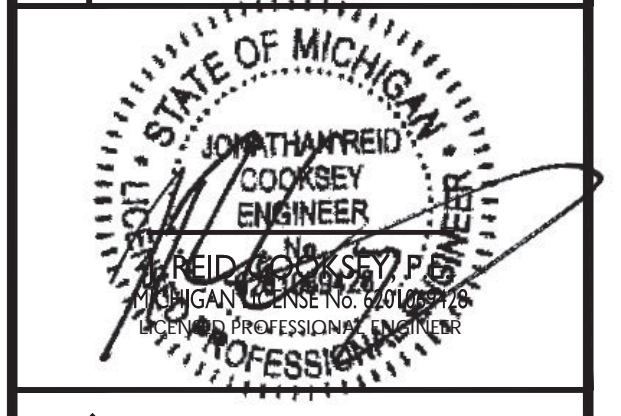
555 S Old Woodward Suite 12L Birmingham, MI 48009
Phone 248.247.1115

SITE DEVELOPMENT PLANS

9101 HIGHLAND ROAD

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-23-227-003
9101 HIGHLAND ROAD
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

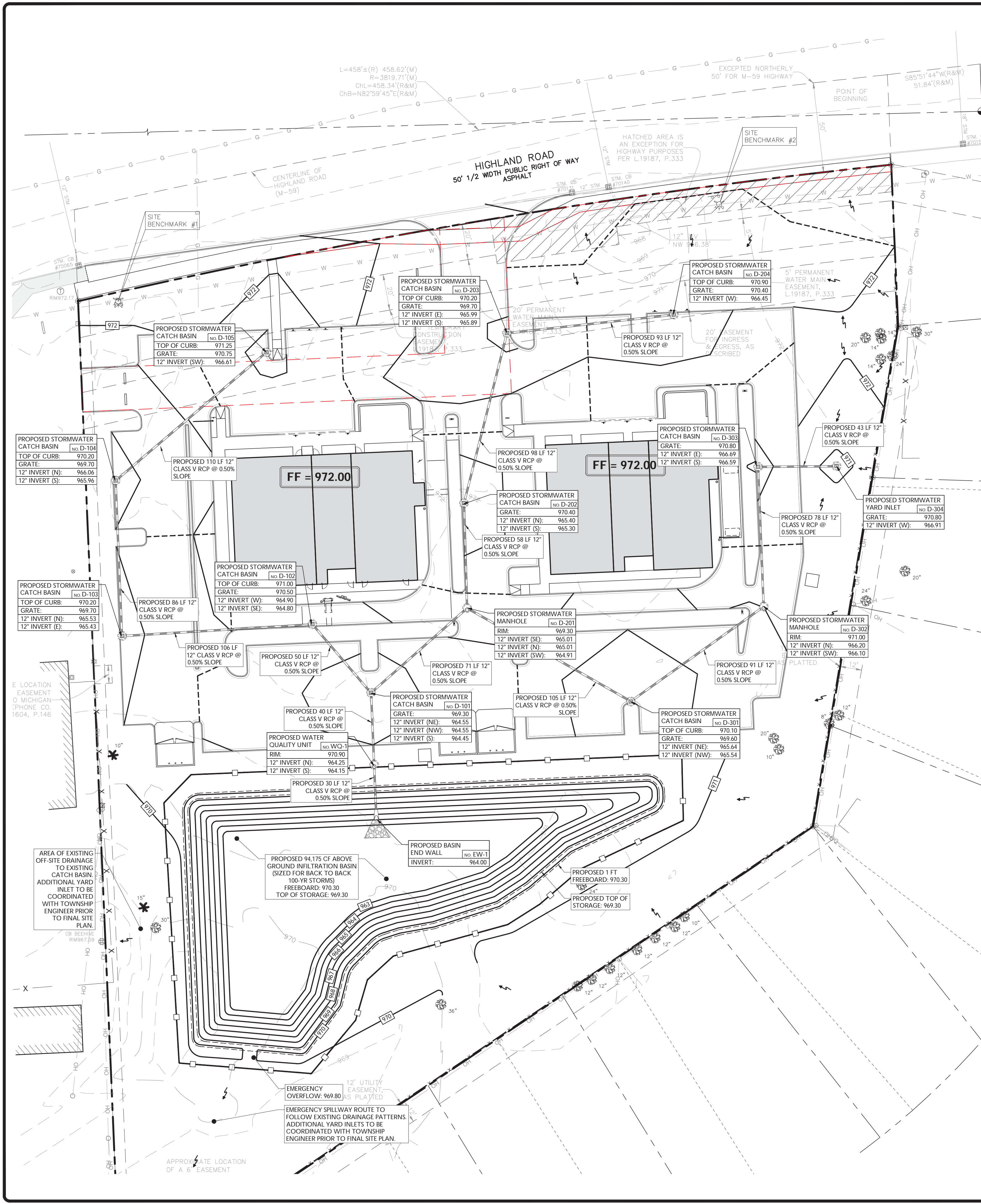


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SCALE: 1" = 30' PROJECT ID: DET-230229

TITLE: **GRADING PLAN**

DRAWING: **C-4**



WHITE LAKE DETENTION VOLUME REQUIREMENT

V = (33,000)(C)(A)

C (VALUE)	0.590
A (AREA)	195,568 SF (4.49 AC)
V =	87,413 CF

SOIL CHARACTERISTICS CHART

TYPE OF SOIL	OSHTOMO-BOYER LOAMY SANDS (L3B)	URBAN LAND-SPINKS COMPLEX
PERCENT OF SITE COVERAGE	68.3%	31.7%
HYDROLOGIC SOIL GROUP	A	A
DEPTH TO RESTRICTIVE LAYER	> 80 INCHES	> 80 INCHES
SOIL PERMEABILITY	1.98 TO 5.95 IN / HR	1.98 TO 5.95 IN / HR
DEPTH TO WATER TABLE	> 80 INCHES	> 80 INCHES

STORMWATER MANAGEMENT CALCULATIONS
(Based on Oakland County Stormwater Management Regulations (11-21-2021 ordinance))

Project: 9101 Highland Road White Lake Twp, MI Designer: JRC Date: 10/14/24

Determination of Surface Runoff

Landcover	Area (AC)	Area (SF)	C-Value*	Weighted Value
Building / Pavement	1.98	86,236	0.95	81,924
Basin Area	0.47	20,572	1.00	20,572
Landscaped Areas	HSG A	2.04	0.15	13,314
Subtotals	4.49	195,568		115,810

*C-values obtained from Oakland County Standards, Section 11 Part A'

Composite C Value, C: 0.590

Water Quality Intensity, I_{wq}: 2.76 IN/HR

Design Storm Period, P_d: 1 YEARS

Time of Concentration, T_c: 10.0 MINS

Detention Volume Requirement (White Lake)

V = 33,000 x C x A

Detention Volume Required, V_d: 87,412.97 CF

Proposed Basin Volume

Elevation	Surface Area (SF)	Total Volume (CF)
963.00	9315	0
964.00	10,887	10,101
965.00	12,617	21,853
966.00	14,470	35,397
967.00	16,451	50,857
968.00	18,502	68,334
969.00	20,605	87,887
969.30	21,317	94,175 Top of Storage Elevation
970.30	23,495	116,581 Freeboard

Basin volume calculated based on a trapezoidal prism

DEWATERING CALCULATIONS

Time (hours)	Inflow (cfs)	Storage (cubicfeet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	963.00	0.00
2.50	0.00	0	963.00	0.00
5.00	0.00	0	963.00	0.00
7.50	0.03	12	963.04	0.02
10.00	0.47	924	963.43	0.21
12.50	4.88	55,657	967.60	1.28
15.00	1.30	62,686	967.99	1.37
17.50	0.82	59,585	967.82	1.33
20.00	0.87	54,215	967.52	1.28
22.50	0.51	48,056	967.16	1.18
25.00	0.00	40,776	966.71	1.08
27.50	0.00	31,645	966.12	0.95
30.00	0.00	23,622	965.55	0.83
32.50	0.00	16,593	965.01	0.73
35.00	0.00	10,535	964.51	0.62
37.50	0.00	5,420	964.04	0.52
40.00	0.00	1,754	963.50	0.29
42.50	0.00	131	963.15	0.07
45.00	0.00	0	963.00	0.00
47.50	0.00	0	963.00	0.00
50.00	0.00	0	963.00	0.00
52.50	0.00	0	963.00	0.00
55.00	0.00	0	963.00	0.00
57.50	0.00	0	963.00	0.00
60.00	0.00	0	963.00	0.00
62.50	0.00	0	963.00	0.00
65.00	0.00	0	963.00	0.00
67.50	0.00	0	963.00	0.00
70.00	0.00	0	963.00	0.00
72.50	0.00	0	963.00	0.00
75.00	0.00	0	963.00	0.00
77.50	0.00	0	963.00	0.00
80.00	0.00	0	963.00	0.00

* PER HYDROCAD MODEL, STORMWATER BASIN DEWATERS IN 45 HOURS ASSUMING AN INFILTRATION RATE OF 2.00 IN / HR (INFILTRATION TO BE CONFIRMED WITH GEOTECHNICAL INVESTIGATION PRIOR TO FINAL SITE PLAN.)

SYMBOL DESCRIPTION

	PROPERTY LINE
	PROPOSED GRADING CONTOUR
	PROPOSED GRADING RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING
	PROPOSED UNDERGROUND OUTLET STRUCTURE

- DRAINAGE AND UTILITY NOTES**
- 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.
 - CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADE.
 - 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.
 - 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**
- THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION. THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
 - THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOLS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
 - THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL SHORING DESIGNER. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
 - 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.

- STORMWATER INFILTRATION BMP CONSTRUCTION NOTES**
- PRIOR TO THE START OF CONSTRUCTION, ANY AREA DESIGNATED TO BE USED FOR AN INFILTRATION BMP (E.G. BASIN, BIORETENTION AREA, ETC.) SHALL BE FENCED OFF AND SHALL NOT BE UTILIZED AS STORAGE FOR CONSTRUCTION EQUIPMENT OR AS A STOCKPILE AREA FOR CONSTRUCTION MATERIALS. NO ACTIVITY SHALL BE PERMITTED WITHIN THE INFILTRATION BASIN AREA UNLESS RELATED TO THE CONSTRUCTION OF THE INFILTRATION BASIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL SUBCONTRACTORS OF BASIN AREA RESTRICTIONS.
 - THE CONTRACTOR SHALL MAKE EVERY EFFORT, WHERE PRACTICAL TO AVOID SUBGRADE SOIL COMPACTION IN THE AREAS DESIGNATED TO BE USED FOR AN INFILTRATION BMP.
 - ALL EXCAVATION WITHIN THE LIMITS OF ANY INFILTRATION BMP SHALL BE PERFORMED WITH THE LIGHTEST PRACTICAL EXCAVATION EQUIPMENT. ALL EXCAVATION EQUIPMENT SHALL BE PLACED OUTSIDE THE LIMITS OF THE BASIN WHERE FEASIBLE. THE USE OF LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT (LESS THAN 8 PSI) APPLIED TO THE GROUND SURFACE IS RECOMMENDED WITHIN THE BASIN LIMITS.
 - THE SEQUENCE OF SITE CONSTRUCTION SHALL BE COORDINATED WITH BASIN CONSTRUCTION TO ADHERE TO SEQUENCING LIMITATIONS.
 - DURING THE FINAL GRADING OF AN INFILTRATION BASIN, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAW OR EQUIVALENT GRADING EQUIPMENT. ALL GRADING EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE BASIN BOTTOM WHERE FEASIBLE.
 - FOLLOWING CONSTRUCTION OF AN INFILTRATION BASIN, SOIL INFILTRATION TESTING BY A LICENSED GEOTECHNICAL ENGINEER IS REQUIRED TO CERTIFY COMPLIANCE WITH THE DESIGN INFILTRATION RATES IN ACCORDANCE WITH APPENDIX E OF THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BEST MANAGEMENT PRACTICES MANUAL, LATEST EDITION. IF THE FIELD INFILTRATION RATES ARE LOWER THAN THE RATE USED DURING DESIGN, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IN WRITING IMMEDIATELY TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
 - THE CONTRACTOR SHALL NOTIFY THE MUNICIPALITY TO DETERMINE IF WITNESS TESTING IS REQUIRED DURING INFILTRATION BASIN EXCAVATION AND/OR SOIL INFILTRATION TESTING.

REVISED PER PRELIMINARY SITE PLAN REVIEW #1	EM	10/17/2024	BY
FOR SITE PLAN REVIEW	EM/JRP	07/22/2024	DATE
SUBMISSION FOR REVISED REZONING REQUEST	JRC/JRP	04/22/2024	ISSUE
FOR PRELIMINARY PDOT REVIEW	EM	04/15/2024	DATE
SUBMISSION FOR REZONING	JRC/JRP	11/29/2023	ISSUE

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9101 HIGHLAND ROAD
PROPOSED COMMERCIAL DEVELOPMENT

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PARCEL ID: 12-23-227-003
9101 HIGHLAND ROAD
WHITE LAKE TOWNSHIP
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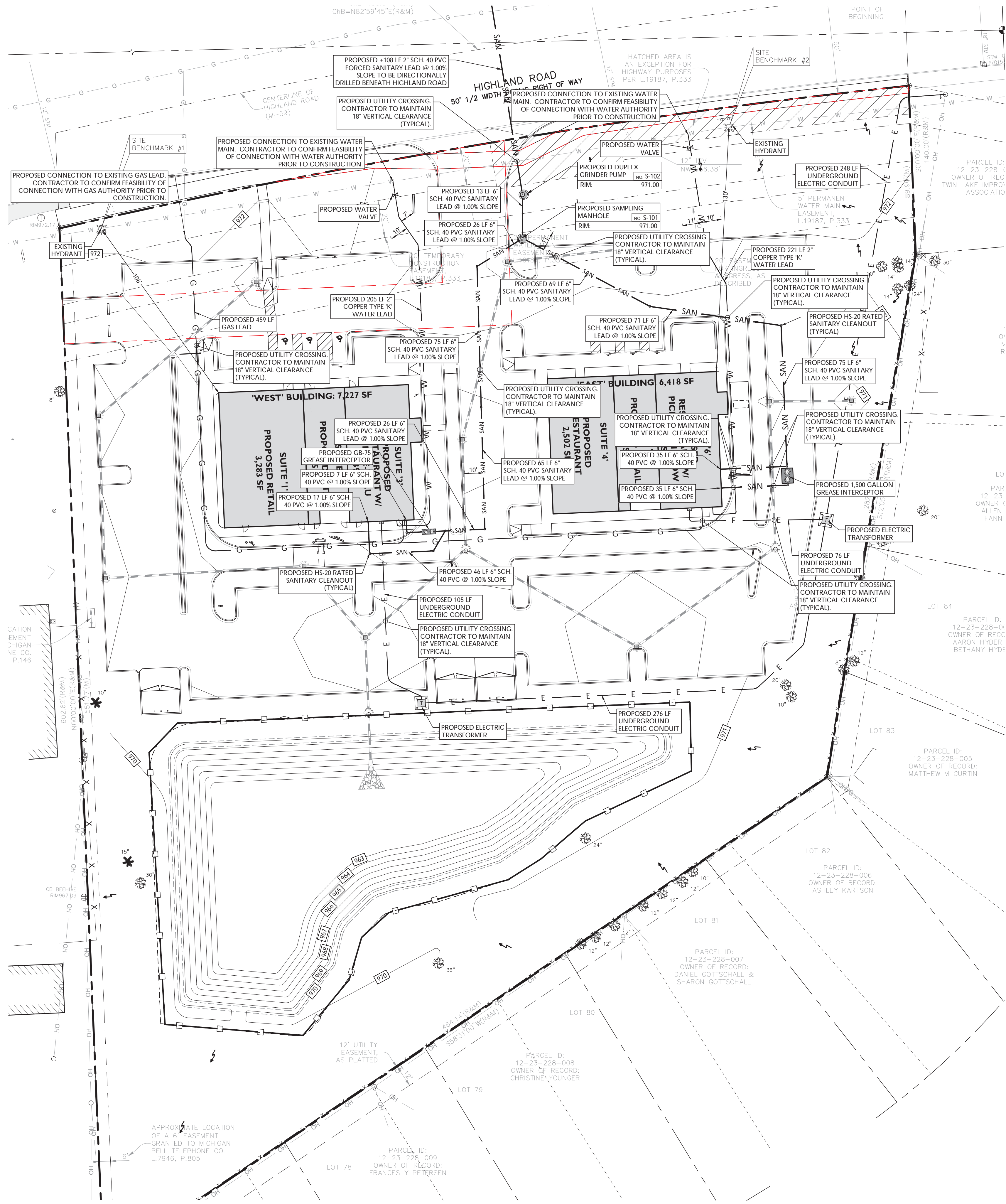
STATE OF MICHIGAN
JONATHAN REID
COOKSEY
ENGINEER
PROFESSIONAL

SCALE: 1" = 30' PROJECT ID: DET-230219

TITLE: STORMWATER MANAGEMENT PLAN

DRAWING: C-5

NOT TO BE USED FOR INVESTMENT OR CONSTRUCTION WITHOUT THE WRITTEN APPROVAL OF STONEFIELD ENGINEERING & DESIGN, LLC.

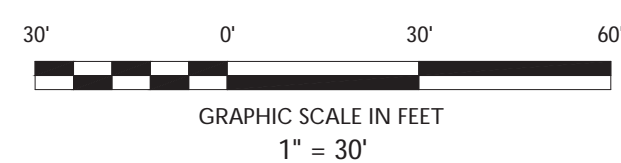


SYMBOL	DESCRIPTION
---	PROPERTY LINE
---	PROPOSED SANITARY LATERAL
---	PROPOSED DOMESTIC WATER SERVICE
---	PROPOSED ELECTRIC CONDUITS
---	PROPOSED GAS LINE
⊗	PROPOSED VALVE
○	PROPOSED CLEANOUT
T	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS

MANHOLE SCHEDULE

NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)
70065	CATCH BASIN	971.68	12	N	968.03
70131	CATCH BASIN	970.71	12	E	966.71
70140	CATCH BASIN	970.70	12	W	966.50
		970.70	12	N	966.45
		970.70	12	S	966.55
70157	CATCH BASIN	971.02	18	N	964.12

- DRAINAGE AND UTILITY NOTES**
- 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.
 - THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN IN OPERATION ALL UTILITIES NOT DESIGNATED TO BE REMOVED.
 - THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO ANY EXISTING UTILITY IDENTIFIED TO REMAIN WITHIN THE LIMITS OF THE PROPOSED WORK DURING CONSTRUCTION.
 - 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 ENCASUREMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
 - 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 ENCASUREMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
 - 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.
 - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING GAS, ELECTRIC AND TELECOMMUNICATION CONNECTIONS WITH THE APPROPRIATE GOVERNING AUTHORITY.
 - CONTRACTOR SHALL START CONSTRUCTION OF ANY GRAVITY SEWER AT THE LOWEST INVERT AND WORK UP-GRADE.
 - 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.
 - 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.



REVISED PER PRELIMINARY SITE PLAN REVIEW #1	EM	BY
FOR SITE PLAN REVIEW <td>EM/JEP <td></td> </td>	EM/JEP <td></td>	
SUBMISSION FOR REVISED REZONING REQUEST <td>JRC/JEP <td></td> </td>	JRC/JEP <td></td>	
FOR PRELIMINARY MDOT REVIEW <td>EM <td></td> </td>	EM <td></td>	
SUBMISSION FOR REZONING <td>JRC/JEP <td></td> </td>	JRC/JEP <td></td>	
ISSUE	DATE	DESCRIPTION

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9101 HIGHLAND ROAD
PROPOSED COMMERCIAL DEVELOPMENT

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PARCEL ID: 12-23-227-003
9101 HIGHLAND ROAD
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN



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SCALE: 1" = 30' PROJECT ID: DET-230229

TITLE: **UTILITY PLAN**

DRAWING: **C-6**

NOT TO SCALE. DATE: 12/2024. AUTHORITY: 18 INVESTMENT PLAN HIGHLAND ROAD, WHITE LAKE, MICHIGAN. LOT 78-84. MFLDING



SYMBOL	DESCRIPTION
A (XX)	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
XX	PROPOSED LIGHTING INTENSITY (FOOT-CANDLES)
[Symbol]	PROPOSED AREA LIGHT

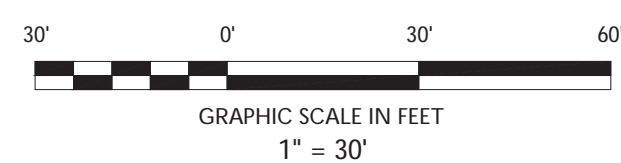
LIGHTING REQUIREMENTS		
CODE SECTION	REQUIRED	PROPOSED
§ 5.18.G.3	MAXIMUM FC AT PROPERTY LINE (NON-RESIDENTIAL) 1 FC	0.5 FT
§ 5.18.G.3	MAXIMUM FC AT PROPERTY LINE (RESIDENTIAL) 0.2 FC	0.0 FC
§ 5.18.G.7	MAXIMUM HEIGHT WITHIN 26 FT TO 60 FT OF PROPERTY LINE 20 FT	20 FT
§ 5.18.G.3	MINIMUM FIXTURE LIGHT FROM PROPERTY LINE 5 FT	27.0 FT
§ 5.18.G.8	AVERAGE FC ON PARKING 2.0 FC	PROVIDED
§ 5.18.G.8	AVERAGE FC IN LOADING AREAS 1.0 FC	PROVIDED

LIGHTING STATISTICS			
DESCRIPTION	AVERAGE	MINIMUM	MAXIMUM
OVERALL PARCEL	1.41 FC	0.00 FC	11.1 FC
PROPERTY LINE	0.03 FC	0.00 FC	0.5 FC

PROPOSED LUMINAIRE SCHEDULE								
SYMBOL	LABEL	QUANTITY	SECURITY LIGHTING	DISTRIBUTION	LLF	MANUFACTURER	CONTROL	IES FILE
[Symbol]	A	5	MIRADA MEDIUM-MRM OUTDOOR LED AREA LIGHT - SINGLE SHIELDED, 1 @ 90° ⁽¹⁾	FT	0.9	LSI INDUSTRIES	-	MRM-LED-30L-SIL-FIT-30-70CRI-LIES
[Symbol]	B	6	MIRADA MEDIUM-MRM OUTDOOR LED AREA LIGHT - DOUBLE, 2 @ 180° ⁽¹⁾	FT	0.9	LSI INDUSTRIES	-	MRM-LED-18L-SIL-FIT-30-70CRI-LIES



- GENERAL LIGHTING NOTES**
- 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 AS WEATHER, VOLTAGE SUPPLY, LAMP TOLERANCE, EQUIPMENT SERVICE LIFE AND OTHER VARIABLE FIELD CONDITIONS.
 - 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.
 - 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
 - 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. 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.



REVISED PER PRELIMINARY SITE PLAN REVIEW #1	EM	BY	DATE	ISSUE	DESCRIPTION
FOR SITE PLAN REVIEW <td>EM/JJP <td></td> <td>10/17/2024</td> <td>5</td> <td></td> </td>	EM/JJP <td></td> <td>10/17/2024</td> <td>5</td> <td></td>		10/17/2024	5	
SUBMISSION FOR REVISED REZONING REQUEST <td>JRC/JJP <td></td> <td>07/22/2024</td> <td>4</td> <td></td> </td>	JRC/JJP <td></td> <td>07/22/2024</td> <td>4</td> <td></td>		07/22/2024	4	
FOR PRELIMINARY MDOT REVIEW <td>EM <td></td> <td>04/22/2024</td> <td>3</td> <td></td> </td>	EM <td></td> <td>04/22/2024</td> <td>3</td> <td></td>		04/22/2024	3	
SUBMISSION FOR REZONING <td>JRC/JJP <td></td> <td>04/15/2024</td> <td>2</td> <td></td> </td>	JRC/JJP <td></td> <td>04/15/2024</td> <td>2</td> <td></td>		04/15/2024	2	
			11/29/2023	1	

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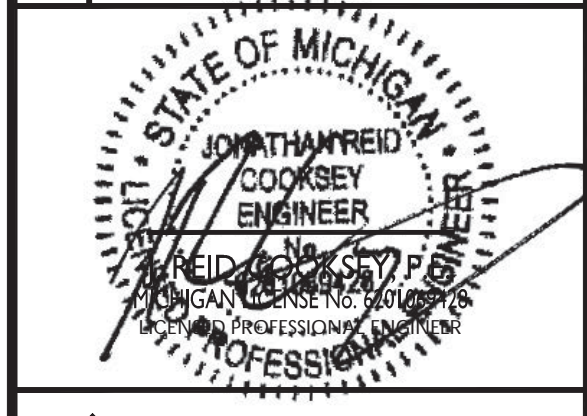
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Phone 248.247.1115

SITE DEVELOPMENT PLANS

9101 HIGHLAND ROAD

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-23-227-003
9101 HIGHLAND ROAD
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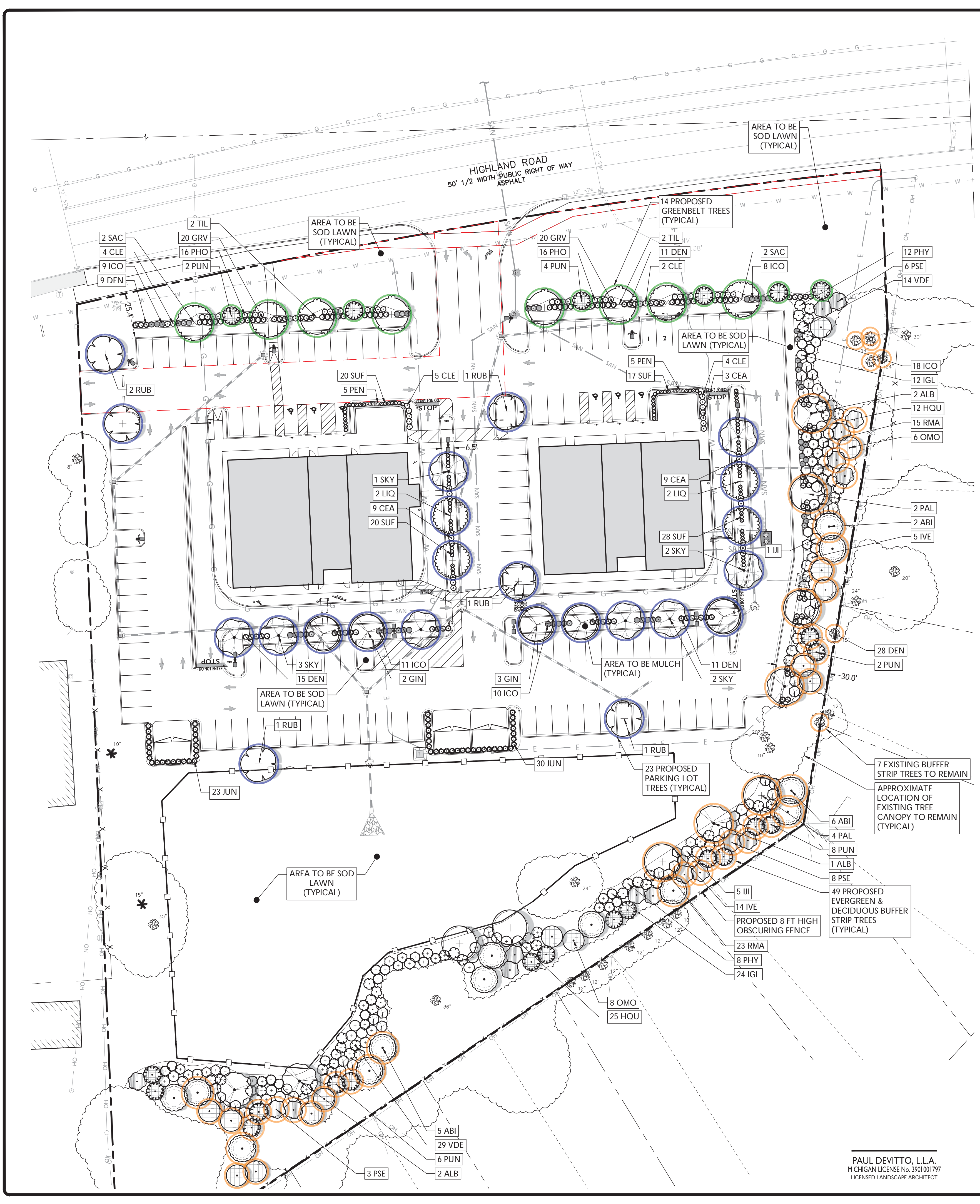


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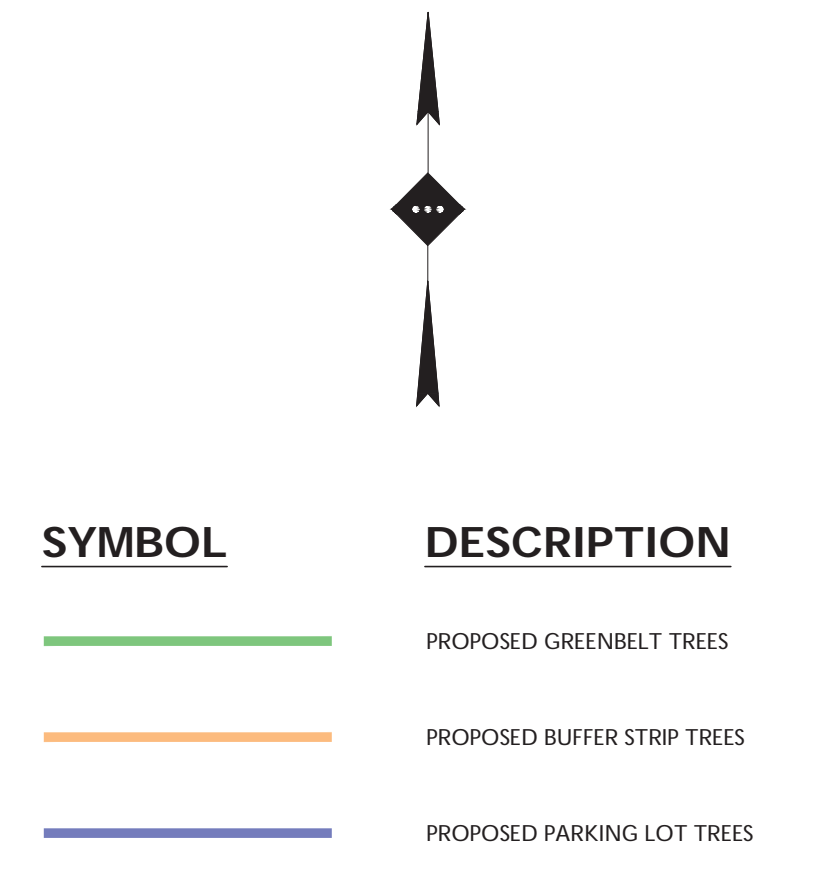
SCALE: 1" = 30' PROJECT ID: DET-230219

TITLE: LIGHTING PLAN

DRAWING: C-7



LANDSCAPING AND BUFFER REQUIREMENTS		
CODE SECTION	REQUIRED	PROPOSED
§ 5.19.C.I. TABLE 5.19	BUFFER STRIP STANDARDS (EAST PROPERTY LINE) MINIMUM WIDTH: 20 FT 5 FT HIGH VISUAL BARRIER REQUIRED 1 DECIDUOUS/EVERGREEN TREE & 4 SHRUBS FOR EVERY 15 LF EAST: 836 FT $(836 \text{ FT}) \div (1 \text{ TREE} / 15 \text{ LF}) = 56 \text{ TREES}$ $(836 \text{ FT}) \div (4 \text{ SHRUBS} / 15 \text{ LF}) = 223 \text{ SHRUBS}$	30.0 FT COMPLIES 7 EXISTING TREES 49 PROPOSED TREES 223 SHRUBS
	FENCE STANDARDS MINIMUM HEIGHT: 6-8 FT GREENBELT STANDARDS (HIGHLAND ROAD) MINIMUM WIDTH: 20 FT 1 DECIDUOUS/EVERGREEN TREE & 8 SHRUBS FOR EVERY 30 LF HIGHLAND ROAD: 414 FT $(414 \text{ FT}) \div (1 \text{ TREE} / 30 \text{ LF}) = 14 \text{ TREES}$ $(414 \text{ FT}) \div (8 \text{ SHRUBS} / 30 \text{ LF}) = 110 \text{ SHRUBS}$	8 FT 25.4 FT 14 TREES 110 SHRUBS
§ 5.19.D.I. TABLE 5.19.D	REQUIRED SCREENING RB ZONE ADJACENT TO R1-C: BUFFER STRIP & FENCE REQUIRED RB ZONE ADJACENT TO ROW: GREENBELT REQUIRED	COMPLIES COMPLIES
§ 5.19.E.	INTERIOR LOT LANDSCAPING MINIMUM LOT AREA LANDSCAPING: 15% $(195,568 \text{ SF}) \times (0.15) = 29,335 \text{ SF}$ 1 TREE & 5 SHRUBS PER 300 SF OF REQUIRED LANDSCAPING $(29,335 \text{ SF}) \div (1 \text{ TREE} / 300 \text{ SF}) = 97 \text{ TREES}$ $(29,335 \text{ SF}) \div (5 \text{ SHRUBS} / 300 \text{ SF}) = 489 \text{ SHRUBS}$	110,896 SF (6%) 16 EXISTING TREES 81 PROPOSED TREES 489 SHRUBS
§ 5.19.G.II	PARKING LOT LANDSCAPING 20 SF OF LANDSCAPING PER PARKING SPACE $(117 \text{ SPACES}) \times (20 \text{ SF} / 1 \text{ SPACE}) = 2,340 \text{ SF}$ 1 TREE & 3 SHRUBS PER 100 SF OF REQUIRED LANDSCAPING $(2,340 \text{ SF}) \div (1 \text{ TREE} / 100 \text{ SF}) = 23 \text{ TREES}$ $(2,340 \text{ SF}) \div (3 \text{ SHRUBS} / 100 \text{ SF}) = 70 \text{ SHRUBS}$ MINIMUM AREA (CONTAINING TREES): 50 SF MINIMUM WIDTH (CONTAINING TREES): 5 FT	7,199 SF 23 TREES 70 SHRUBS 50 SF 6.5 FT



PLANT SCHEDULE						
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
DECIDUOUS TREES						
X	SAC	4	ACER SACCHARUM 'CADD0'	CADD0 SUGAR MAPLE	2 1/2" - 3" CAL	B&B
○	GIN	5	GINKGO BILOBA 'AUTUMN GOLD'	AUTUMN GOLD MAIDENHAIR TREE	2 1/2" - 3" CAL	B&B
○	SKY	8	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE HONEY LOCUST	2 1/2" - 3" CAL	B&B
+	LIQ	4	LIQUIDAMBAR STYRACIFLLIA 'MORAIN'	MORAIN SWEET GUM	2 1/2" - 3" CAL	B&B
+	ALB	5	QUERCUS ALBA	WHITE OAK	2 1/2" - 3" CAL	B&B
+	PAL	6	QUERCUS PALUSTRIS	PIN OAK	2 1/2" - 3" CAL	B&B
+	RUB	6	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" - 3" CAL	B&B
+	TIL	4	TILIA CORDATA	LITTLELEAF LINDEN	2 1/2" - 3" CAL	B&B
EVERGREEN TREES						
○	ABI	13	ABIES CONCOLOR	WHITE FIR	7' - 8' HT	B&B
○	JUN	53	JUNIPERUS SCOPULORUM 'SKYROCKET'	SKYROCKET JUNIPER	7' - 8' HT	B&B
○	OMO	14	PICEA OMORIKA	SERBIAN SPRUCE	7' - 8' HT	B&B
○	PUN	22	PICEA PUNGENS	COLORADO SPRUCE	7' - 8' HT	B&B
○	PSE	17	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	7' - 8' HT	B&B
SHRUBS						
+	CEA	21	CEANOTHUS AMERICANUS	NEW JERSEY TEA	30" - 36"	POT
+	CLE	15	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	30" - 36"	POT
+	HQU	37	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	30" - 36"	POT
+	IVE	19	ILEX VERTICILLATA	WINTERBERRY	30" - 36"	POT
+	III	6	ILEX VERTICILLATA 'JIM DANDY'	JIM DANDY WINTERBERRY	30" - 36"	POT
+	PHY	20	PHYSOCARPUS OPULIFOLIUS	NINEBARK	30" - 36"	POT
+	PHO	32	PHYSOCARPUS OPULIFOLIUS 'LITTLE DEVIL'	LITTLE DEVIL DWARF NINEBARK	30" - 36"	POT
+	VDE	43	VIBURNUM DENTATUM	VIBURNUM	30" - 36"	POT
EVERGREEN SHRUBS						
○	SUF	85	BUXUS SEMPERVIRENS 'SUFFRUTICOSA'	SUFFRUTICOSA COMMON BOXWOOD	12" - 15"	POT
○	GRV	40	BUXUS X 'GREEN VELVET'	GREEN VELVET BOXWOOD	12" - 15"	POT
○	IGL	36	ILEX GLABRA	INKBERRY HOLLY	30" - 36"	POT
○	ICO	56	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	30" - 36"	POT
○	RMA	38	RHODODENDRON MAXIMUM	ROSEBAY RHODODENDRON	30" - 36"	POT
○	DEN	74	TAXUS X MEDIA 'DENSIFORMIS'	DENSE ANGL0-JAPANESE YEW	30" - 36"	POT
GRASSES						
○	PEN	10	PENNISETUM ALOPECUROIDES 'LITTLE BUNNY'	LITTLE BUNNY FOUNTAIN GRASS	1 GAL.	POT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.



Know what's below
Call before you dig.

IRRIGATION NOTE:
 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.

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 SEED.
 3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH.
 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 LANDSCAPED AREAS.



REVISED PER PRELIMINARY SITE PLAN REVIEW #1	EM	10/17/2024	EM	5		
FOR SITE PLAN REVIEW	EM	07/22/2024	EM	4		
SUBMISSION FOR REVISED REZONING REQUEST	JRC/JJP	04/22/2024	JRC/JJP	3		
FOR PRELIMINARY MDOT REVIEW	EM	04/15/2024	EM	2		
SUBMISSION FOR REZONING	JRC/JJP	11/29/2023	JRC/JJP	1		
ISSUE	DATE	BY	DESCRIPTION			

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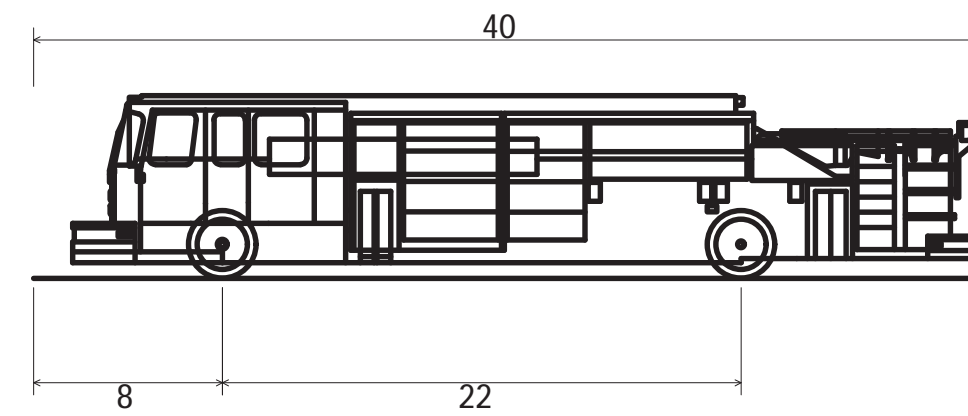
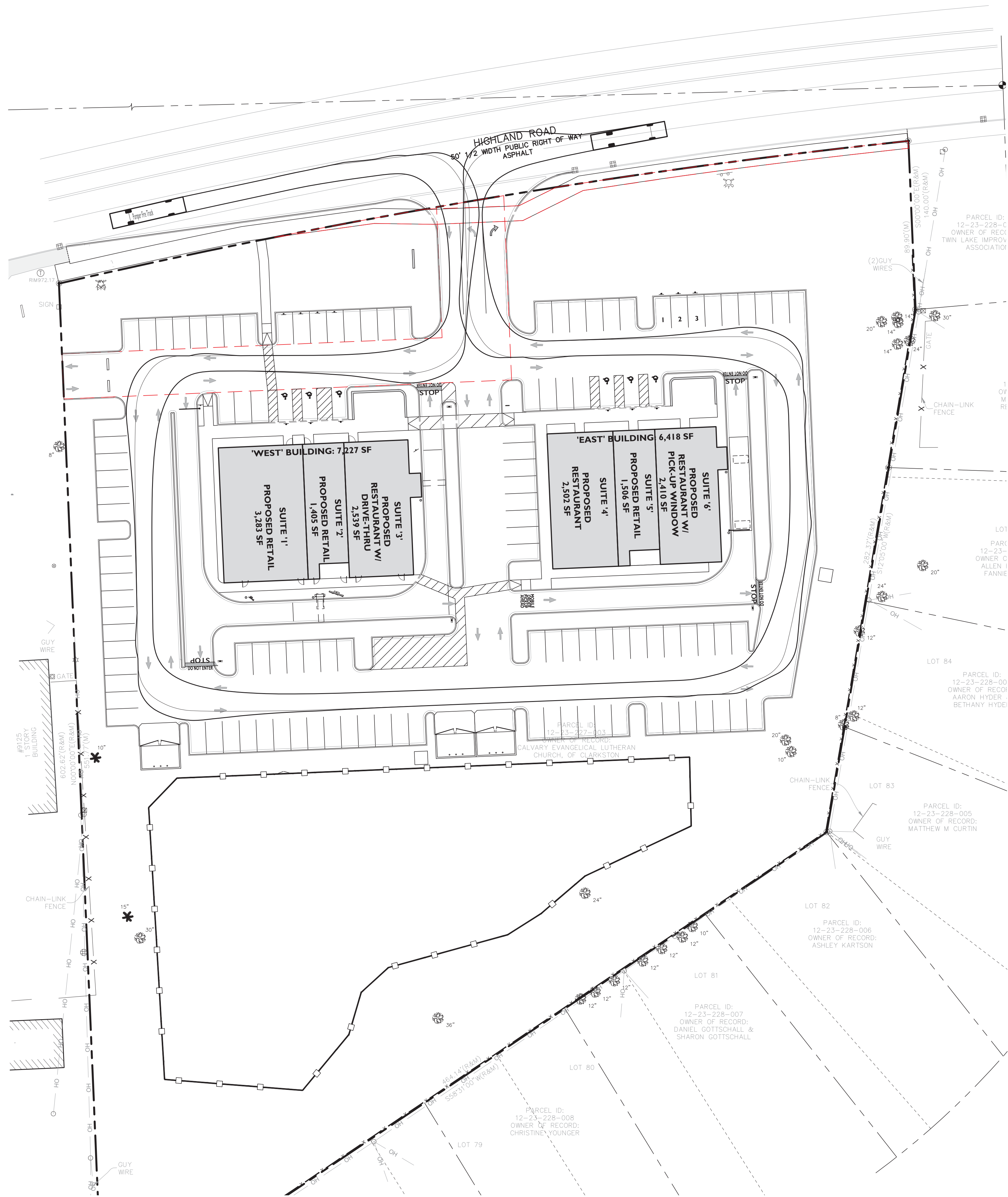
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PROPOSED COMMERCIAL DEVELOPMENT

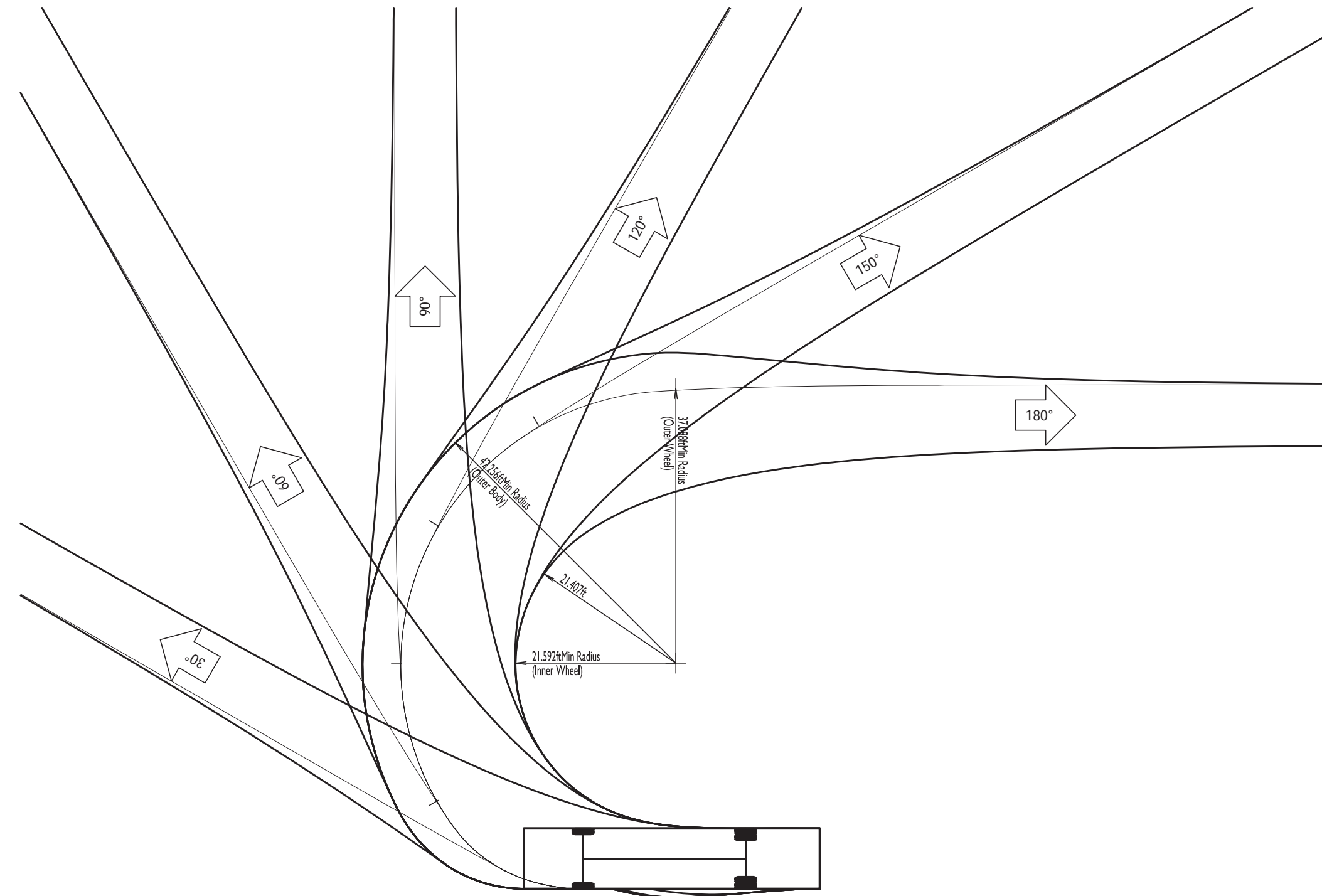
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SCALE: 1" = 30' PROJECT ID: DET-230219
 TITLE: LANDSCAPING PLAN
 DRAWING: C-8

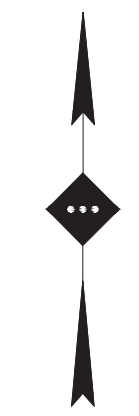
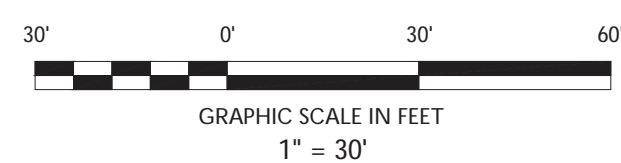
NOT TO SCALE. SEE PLAN FOR DIMENSIONS. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.



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°



VEHICLE PROFILE AND TURN TEMPLATE
 NOT TO SCALE



ISSUE	DATE	BY	DESCRIPTION
5	10/17/2024	EM	REVISED PER PRELIMINARY SITE PLAN REVIEW #1
4	07/22/2024	JRC/JJP	FOR SITE PLAN REVIEW
3	04/22/2024	JRC/JJP	SUBMISSION FOR REVISED REZONING REQUEST
2	04/15/2024	EM	FOR PRELIMINARY HDOT REVIEW
1	11/29/2023	JRC/JJP	SUBMISSION FOR REZONING

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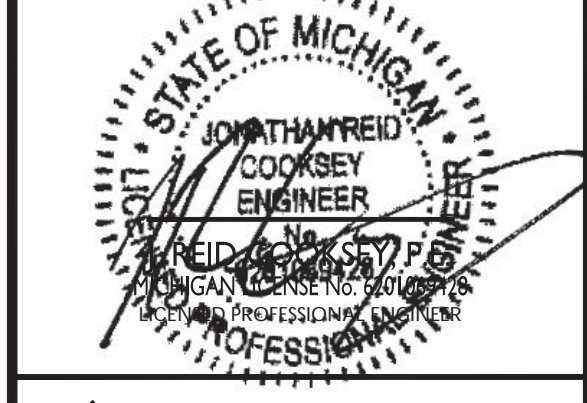
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SITE DEVELOPMENT PLANS

9101 HIGHLAND ROAD

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-23-227-003
 9101 HIGHLAND ROAD
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

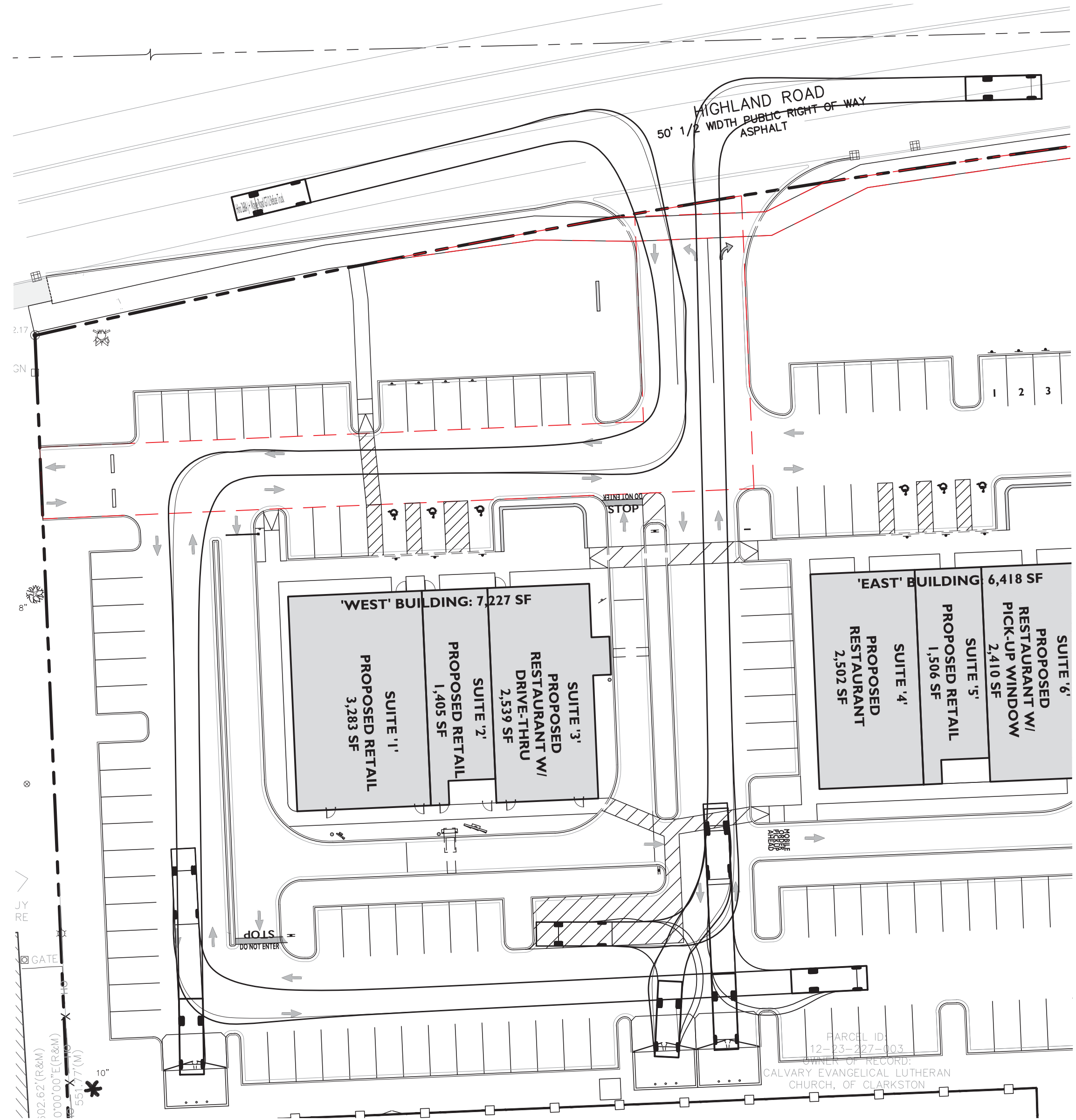


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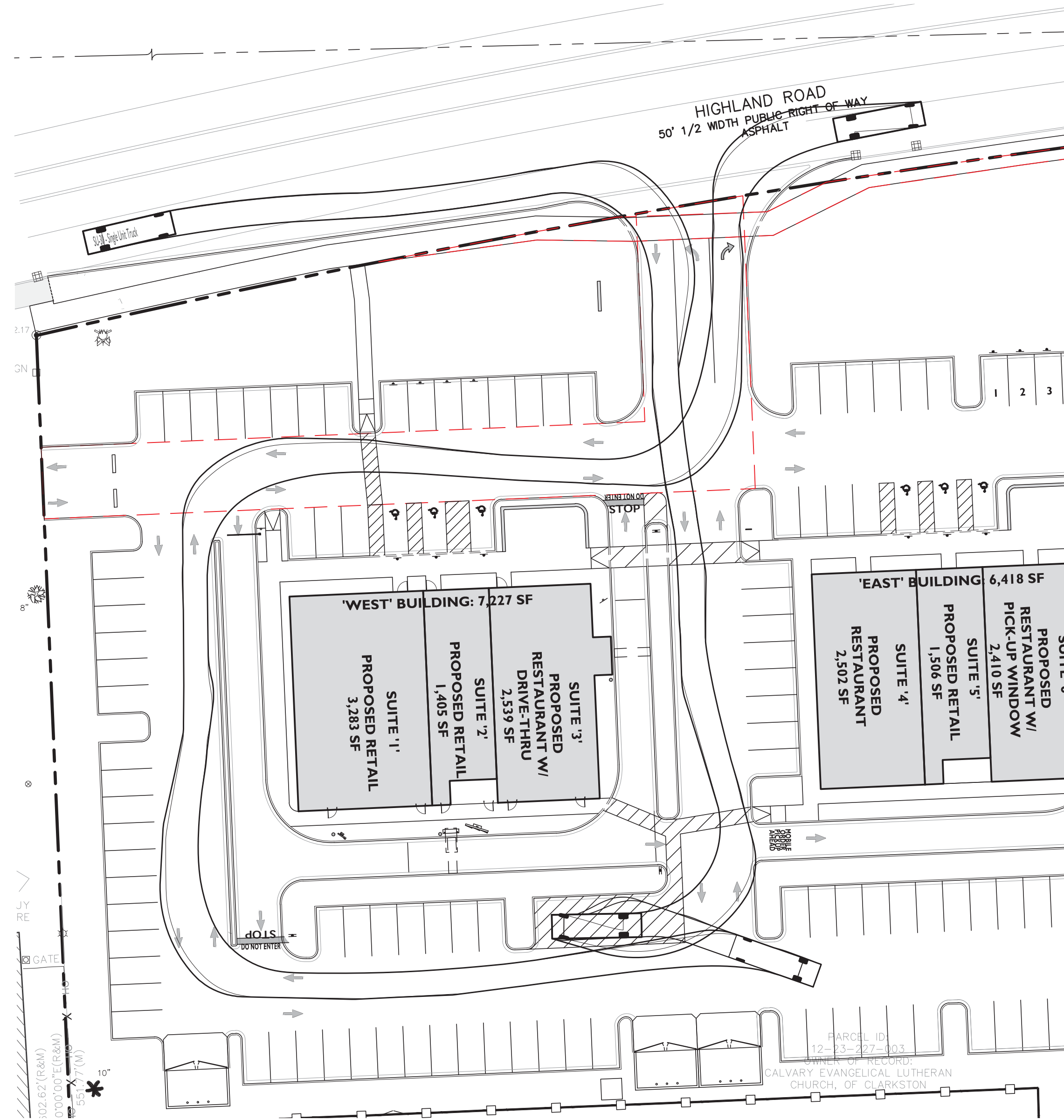
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TITLE:
FIRE TRUCK TURNING ANALYSIS

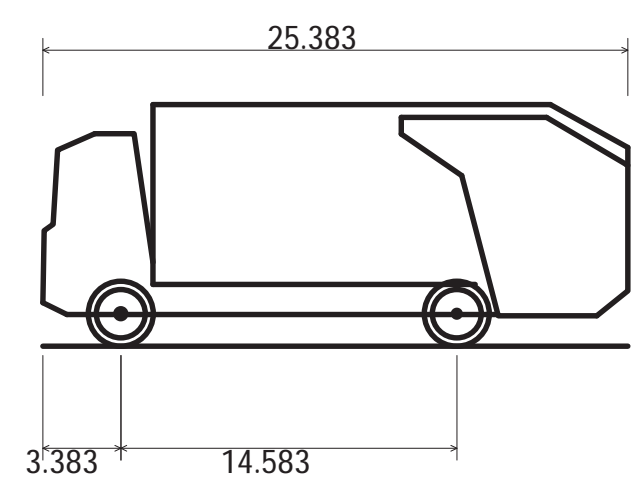
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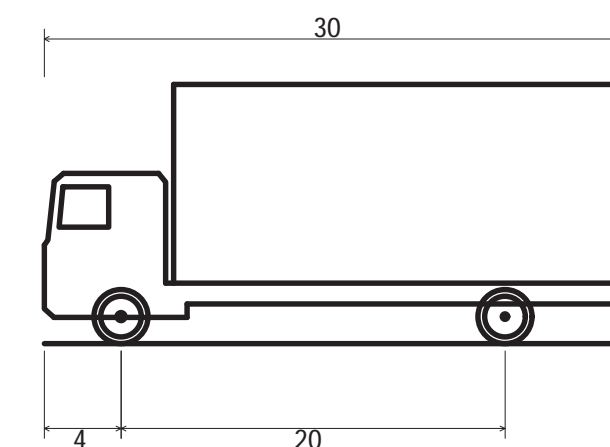
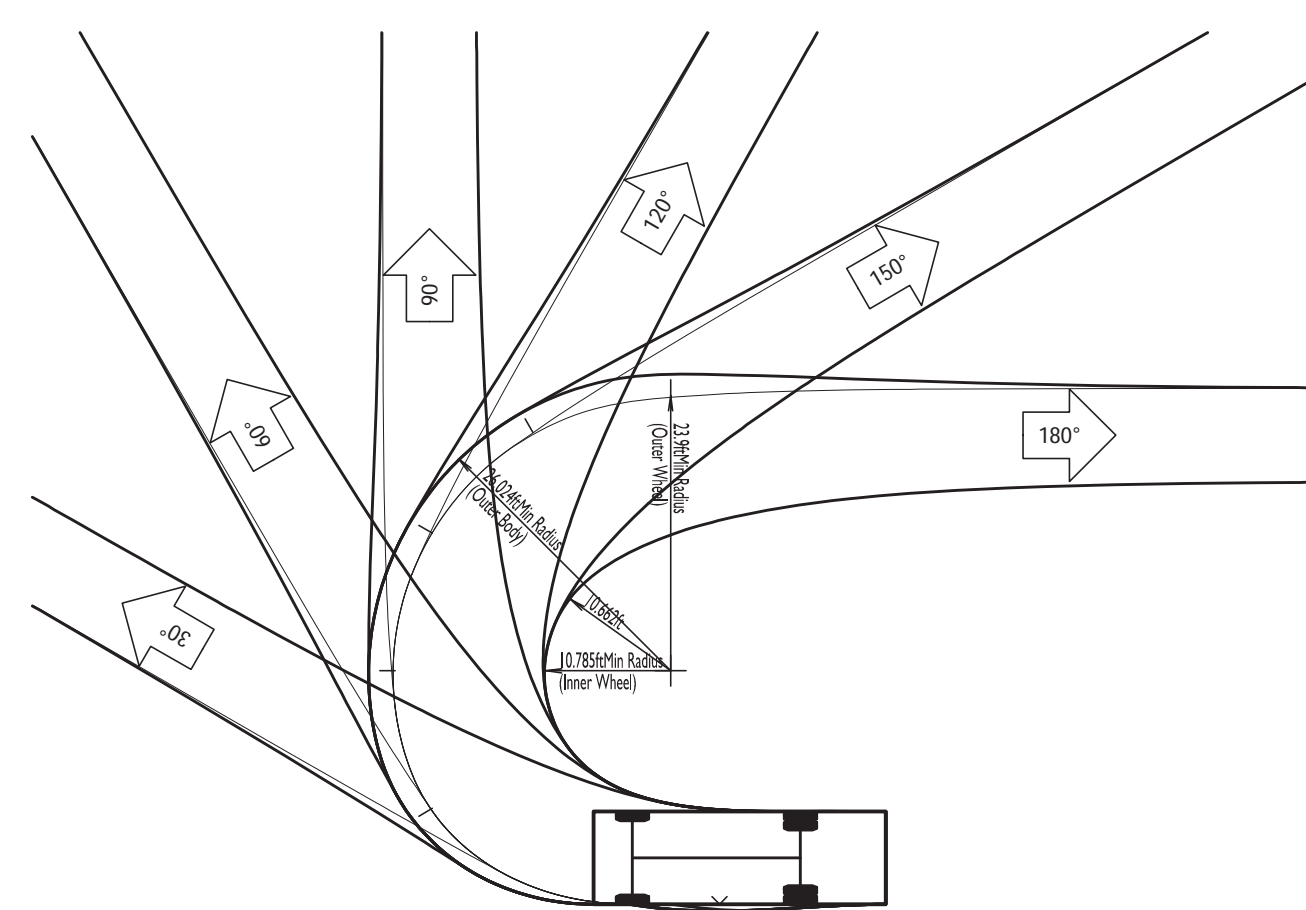
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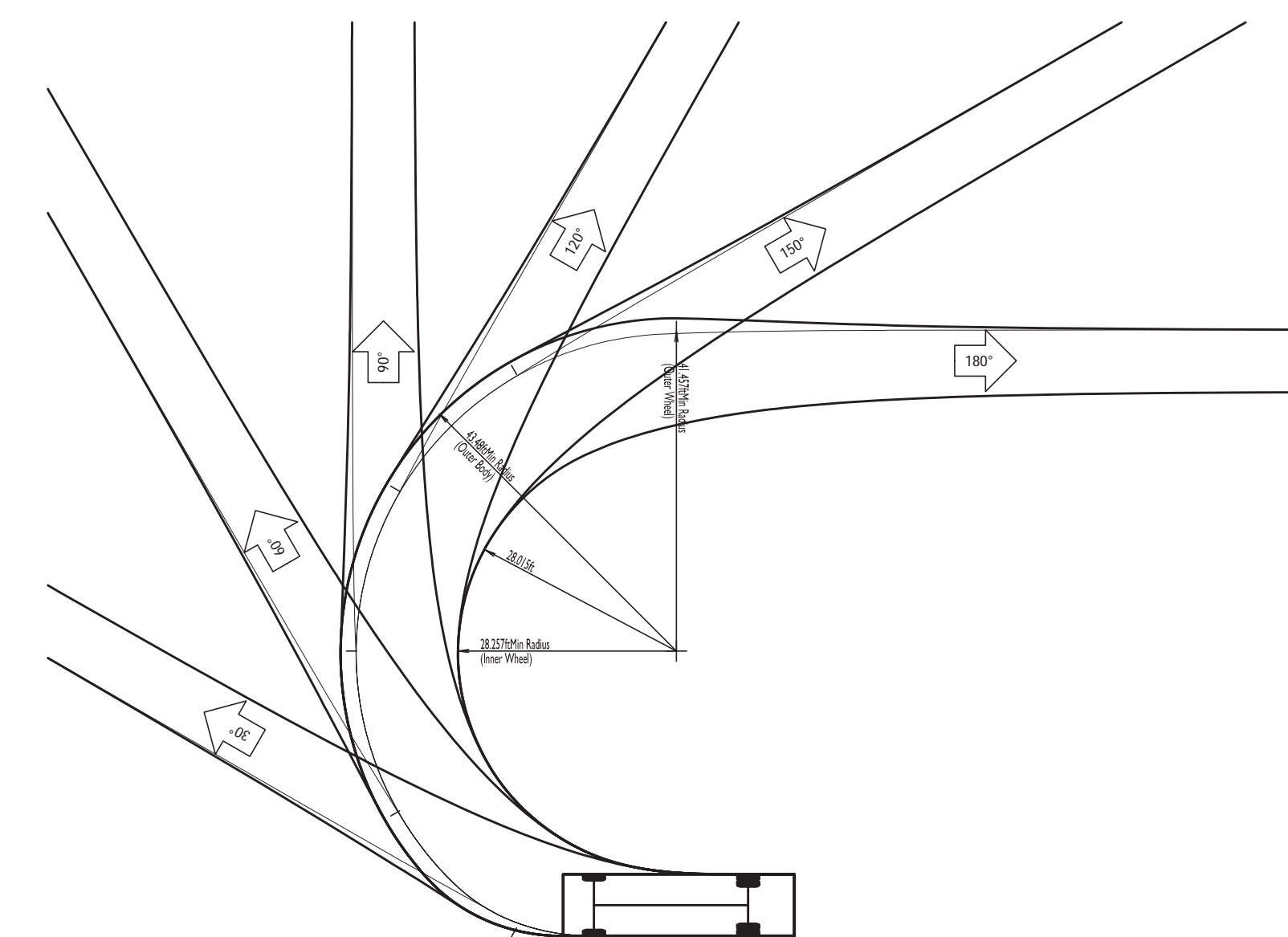
LOADING VEHICLE TURN ANALYSIS



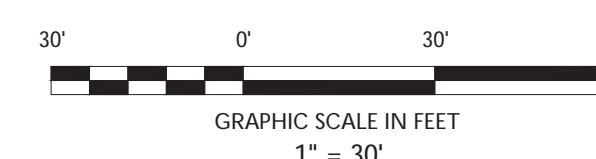
Hino 268A J + Wayne Royal GT12 Refuse Truck
 Overall Length 25.383ft
 Overall Width 8.042ft
 Overall Body Height 10.488ft
 Min Body Ground Clearance 1.318ft
 Track Width 8.042ft
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 23.900ft



SU-30 - Single Unit Truck
 Overall Length 30.000ft
 Overall Width 8.000ft
 Overall Body Height 13.500ft
 Min Body Ground Clearance 1.367ft
 Track Width 8.000ft
 Lock-to-lock time 5.00s
 Max Steering Angle (Virtual) 31.80°



VEHICLE PROFILE AND TURN TEMPLATES
 NOT TO SCALE



ISSUE	DATE	BY	DESCRIPTION
5	10/17/2024	EM	REVISED PER PRELIMINARY SITE PLAN REVIEW #1
4	07/22/2024	EM/JJP	FOR SITE PLAN REVIEW
3	04/22/2024	JRC/JJP	SUBMISSION FOR REVISED REZONING REQUEST
2	04/15/2024	EM	FOR PRELIMINARY MDOT REVIEW
1	11/29/2023	JRC/JJP	SUBMISSION FOR REZONING

NOT APPROVED FOR CONSTRUCTION

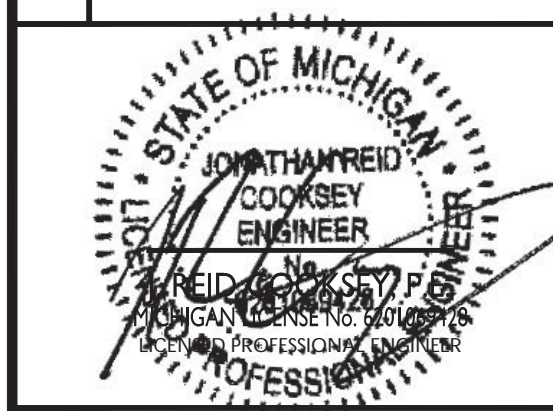
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SITE DEVELOPMENT PLANS
9101 HIGHLAND ROAD
 PROPOSED COMMERCIAL
 DEVELOPMENT

PARCEL ID: 12-23-227-003
 9101 HIGHLAND ROAD
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN



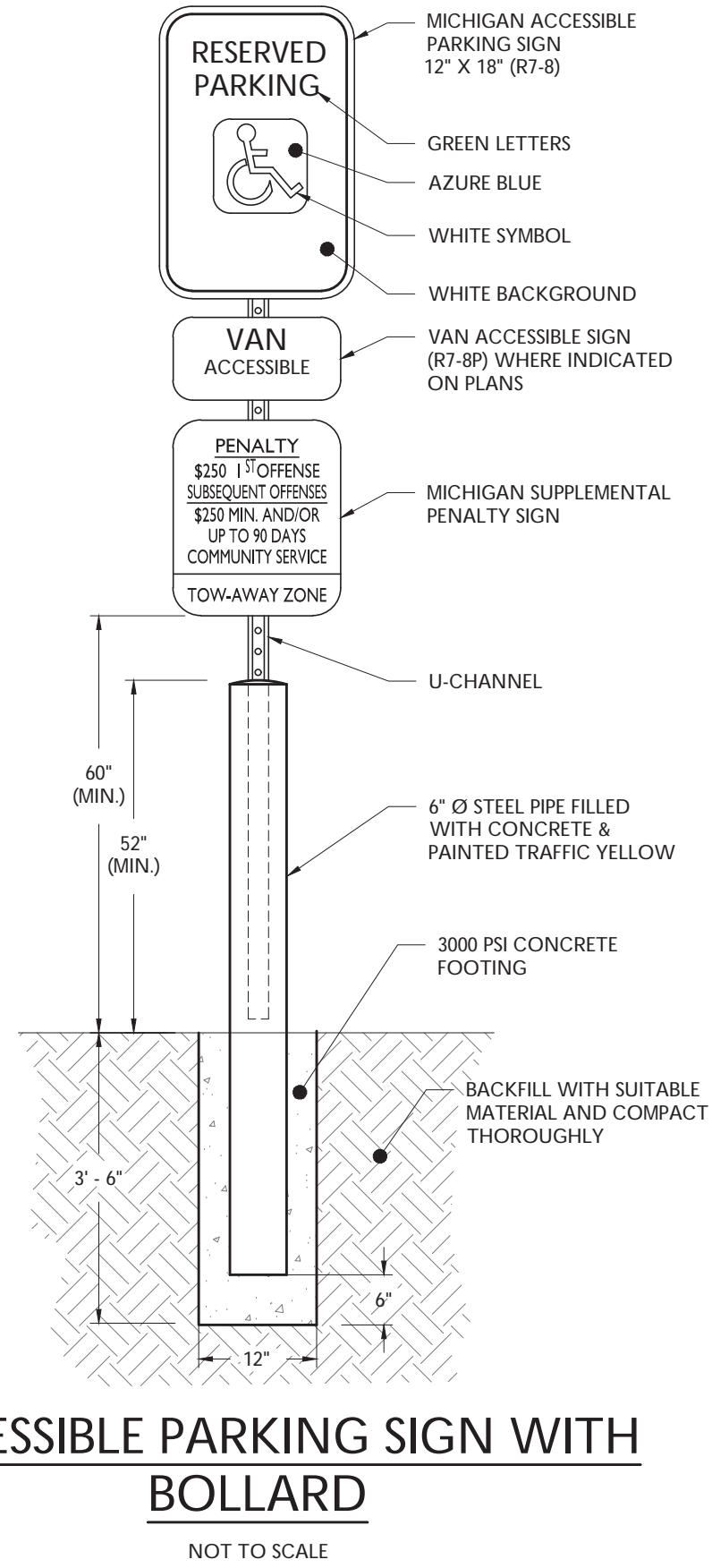
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SCALE: 1" = 30' PROJECT ID: DET-230229

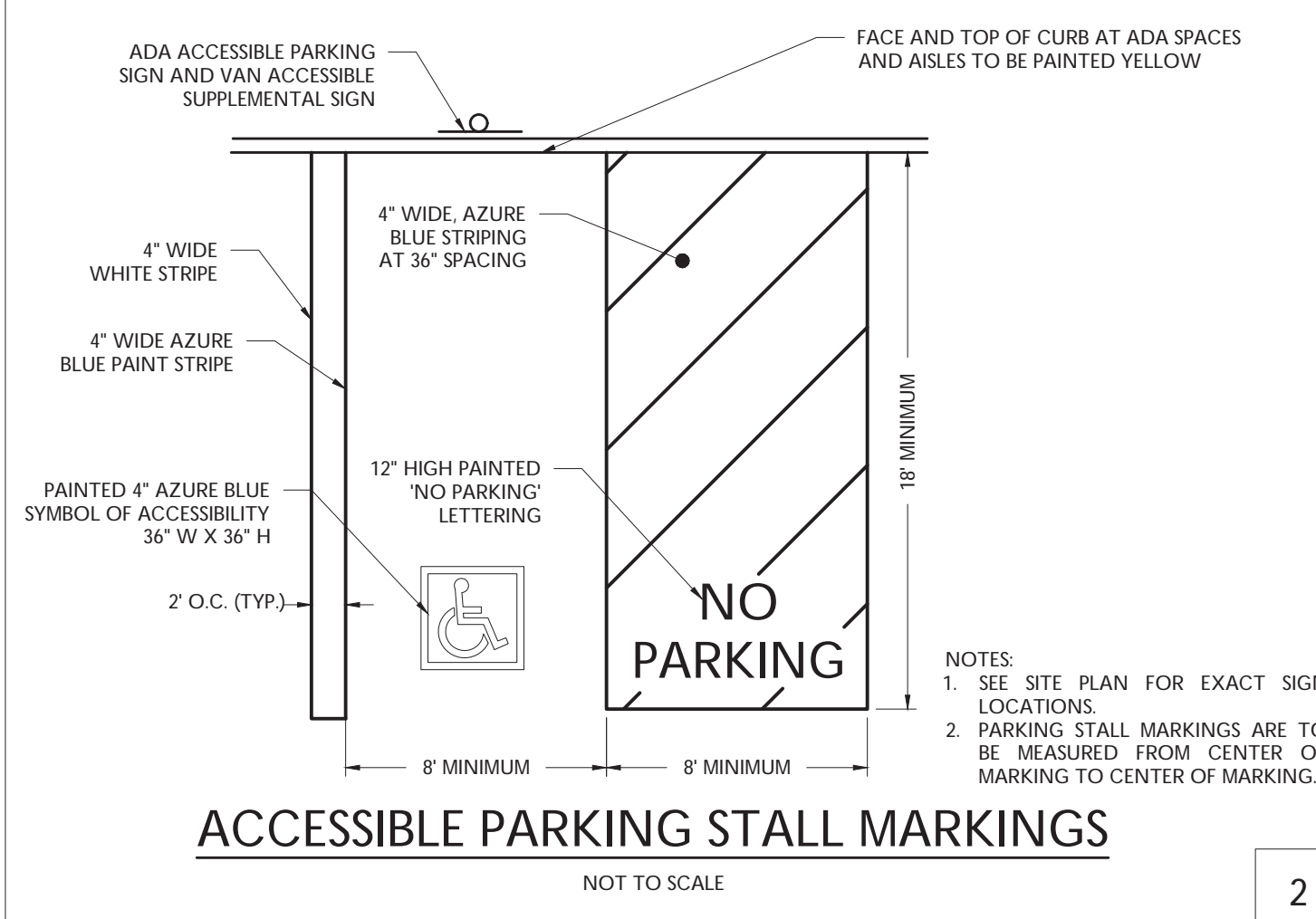
TITLE:
 COMMERCIAL TRUCK
 TURNING ANALYSIS

DRAWING:

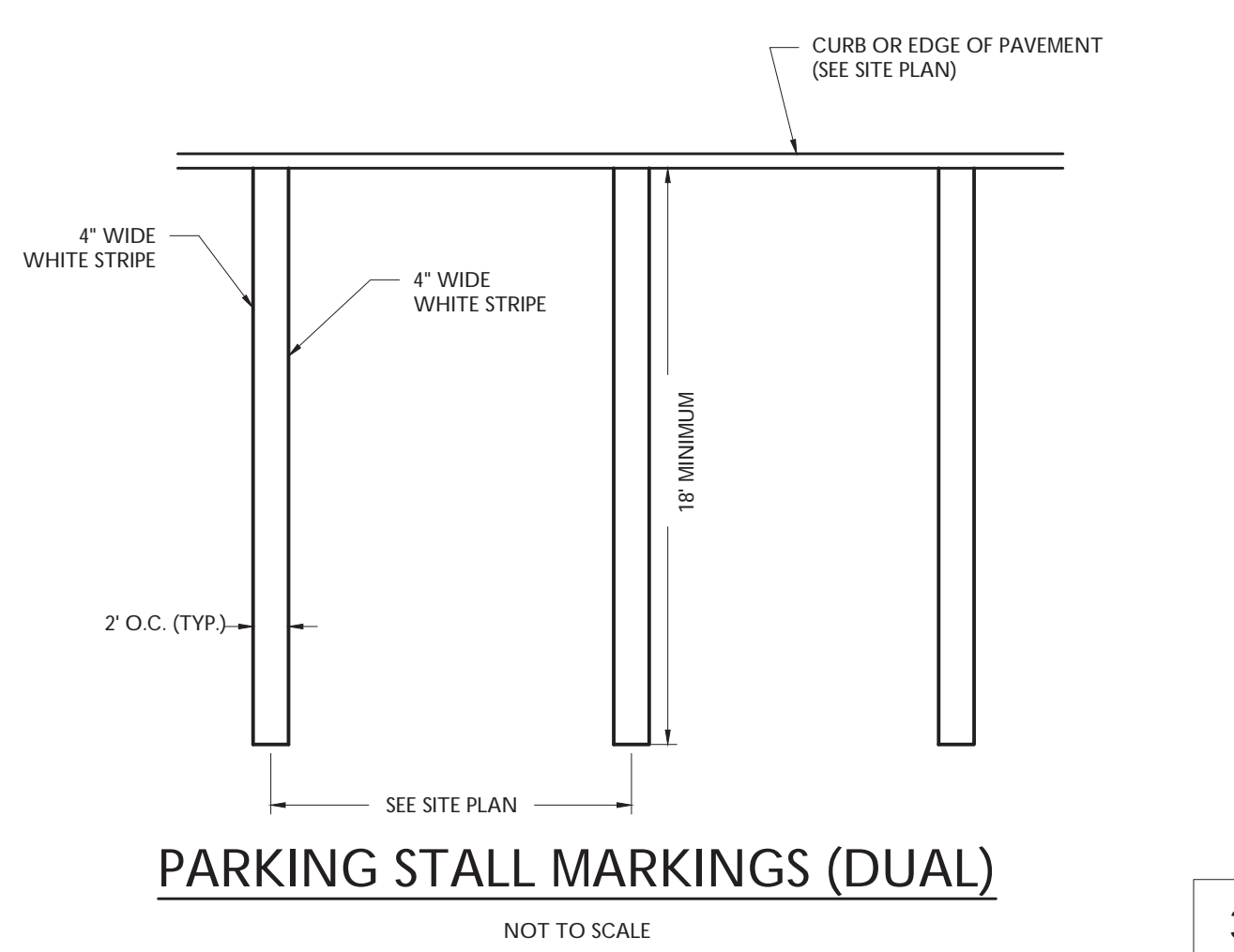
C-11



ACCESSIBLE PARKING SIGN WITH BOLLARD
NOT TO SCALE

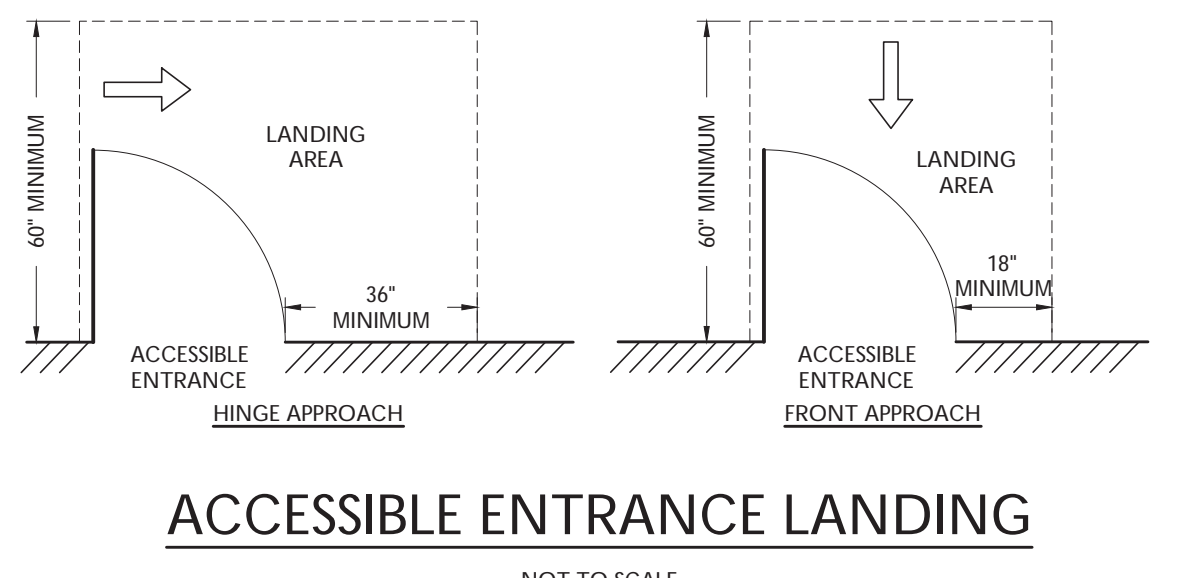


ACCESSIBLE PARKING STALL MARKINGS
NOT TO SCALE



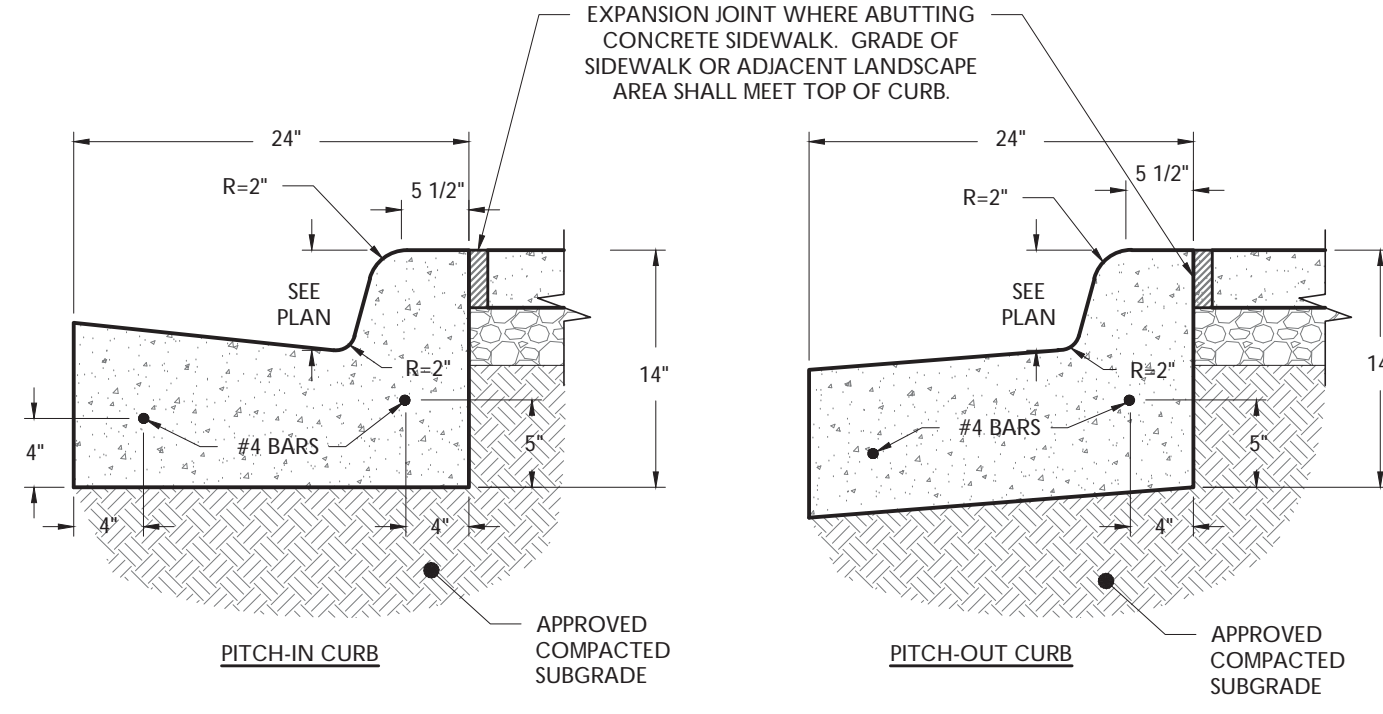
PARKING STALL MARKINGS (DUAL)
NOT TO SCALE

- 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.



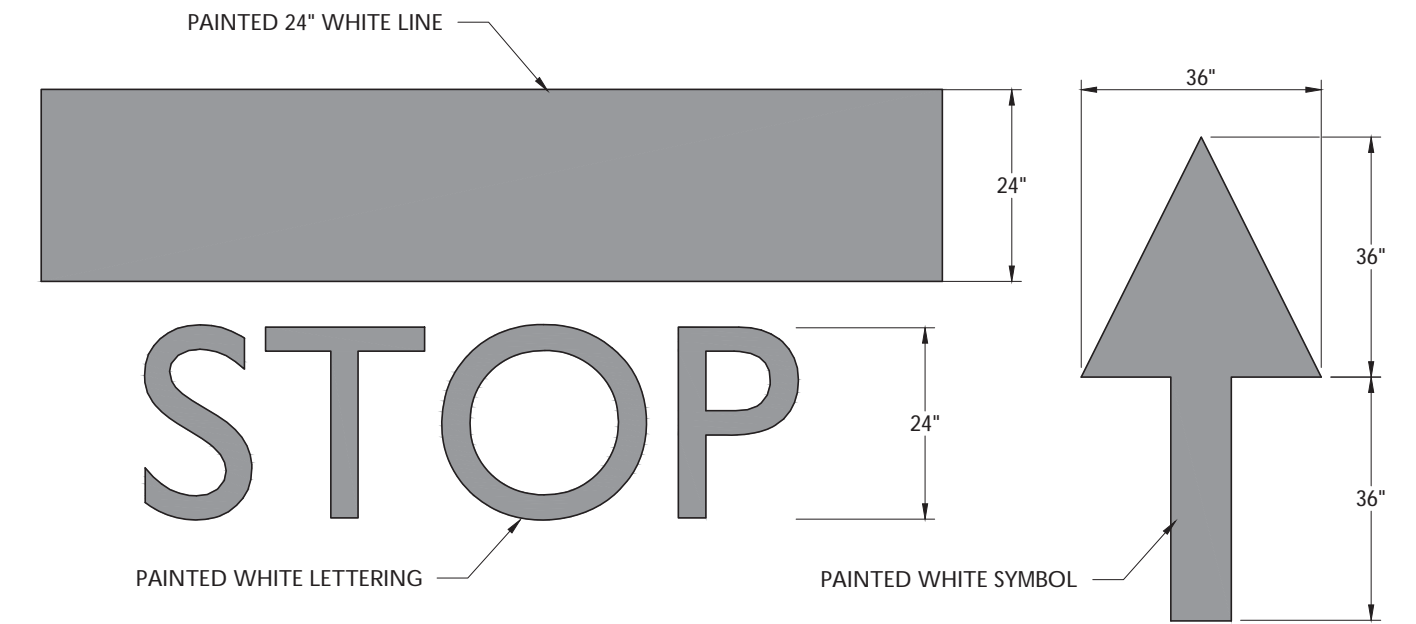
ACCESSIBLE ENTRANCE LANDING
NOT TO SCALE

- 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.

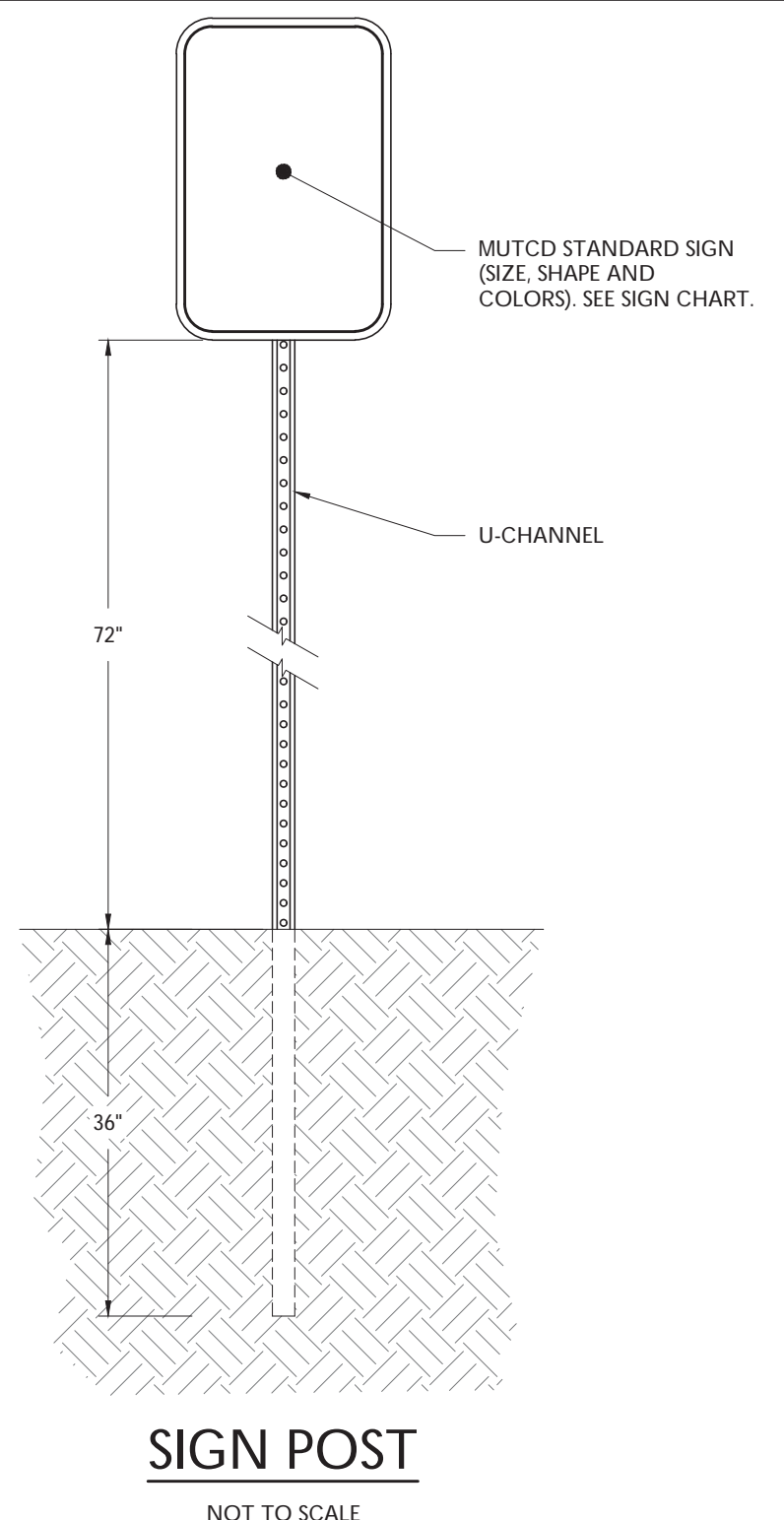


CONCRETE CURB AND GUTTER DETAIL (ON-SITE)
NOT TO SCALE

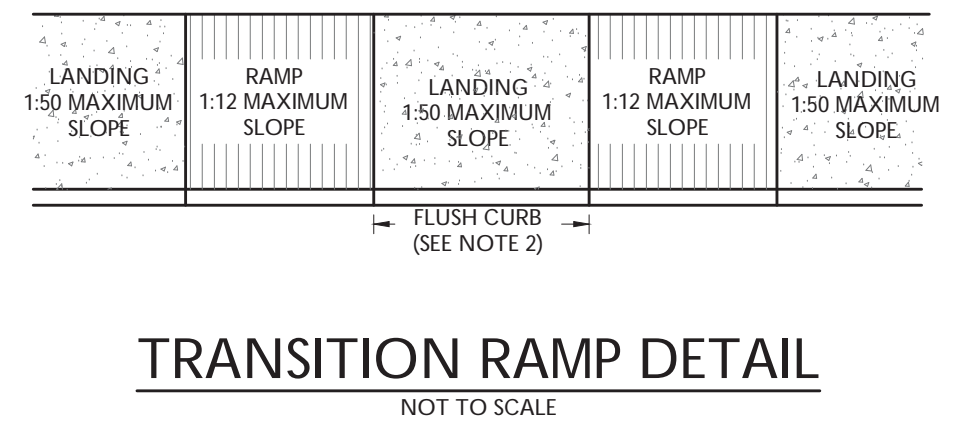
- NOTES:**
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
 2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED 1/2" FROM SURFACE.
 3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
 4. 14" CURB DEPTH SHALL BE MAINTAINED AT DEPRESSED OR FLUSH CURBED AREAS.



STOP BAR & ARROW
NOT TO SCALE

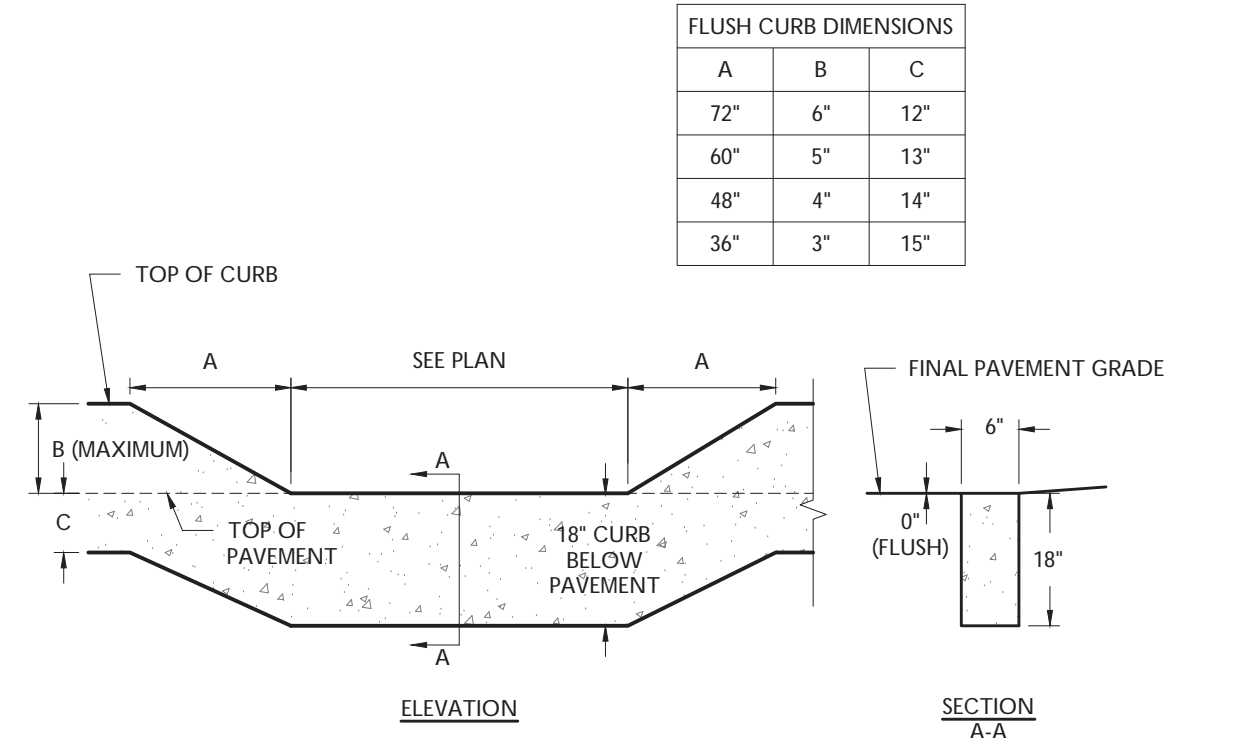


SIGN POST
NOT TO SCALE



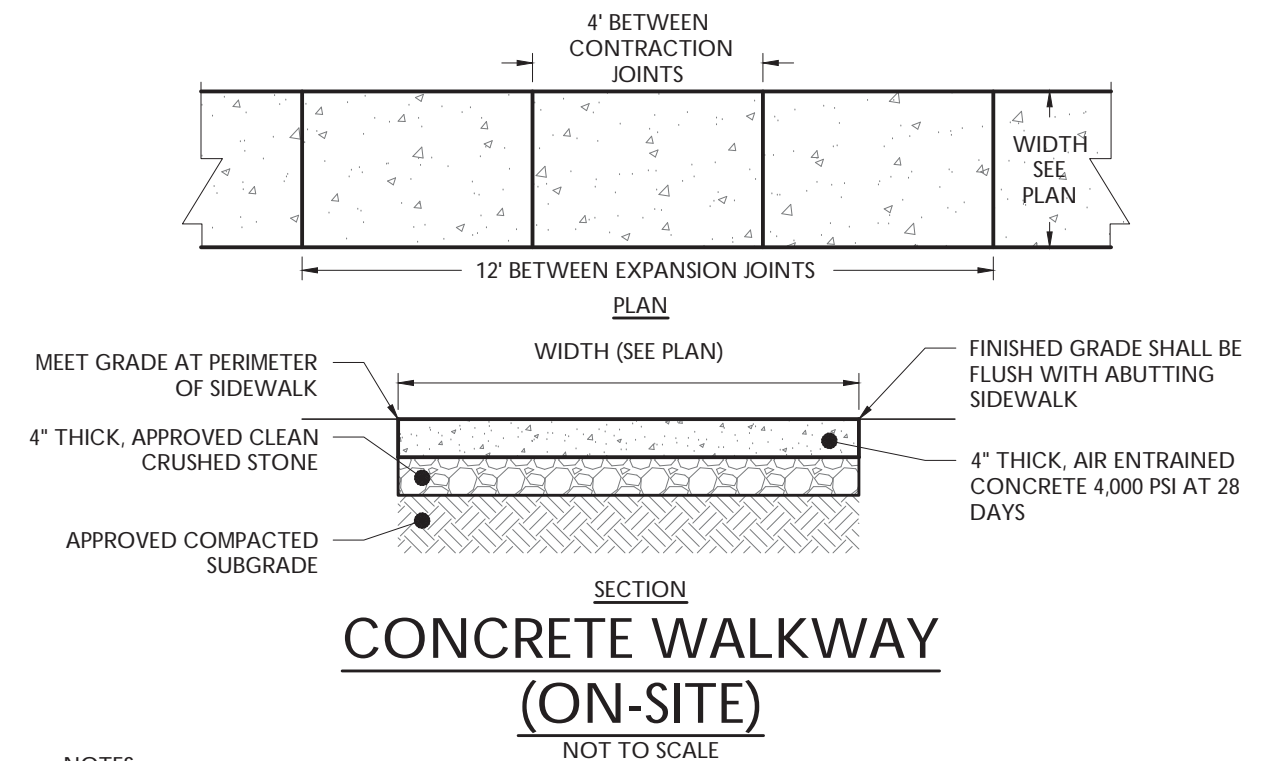
TRANSITION RAMP DETAIL
NOT TO SCALE

- 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.



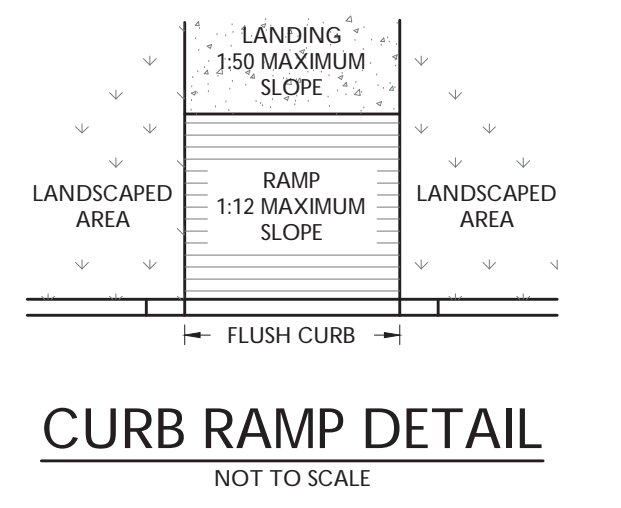
FLUSH CURB
NOT TO SCALE

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



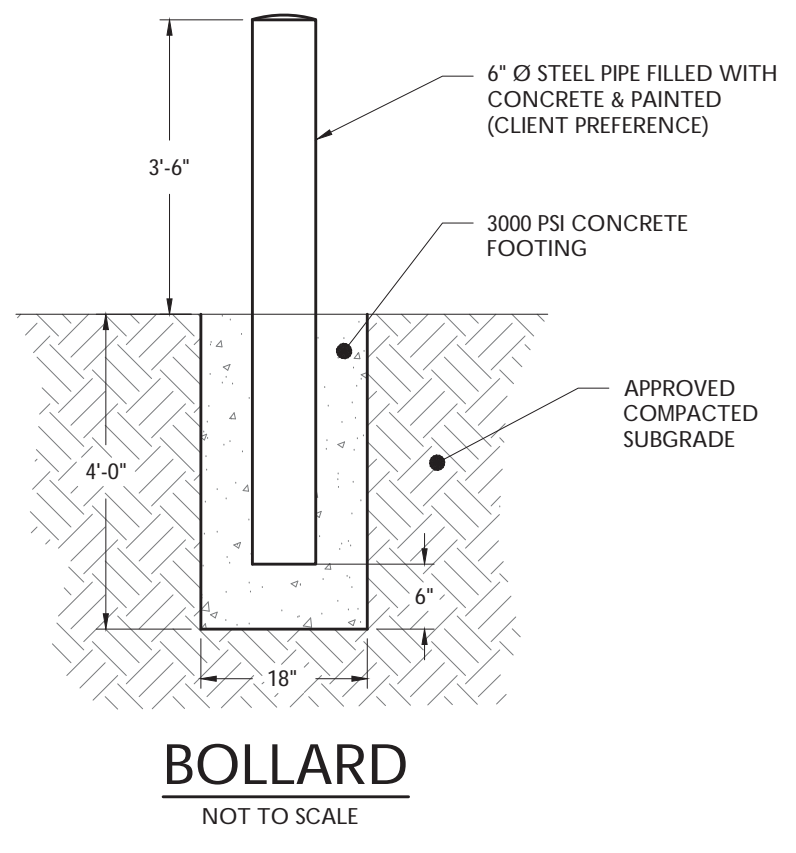
CONCRETE WALKWAY (ON-SITE)
NOT TO SCALE

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

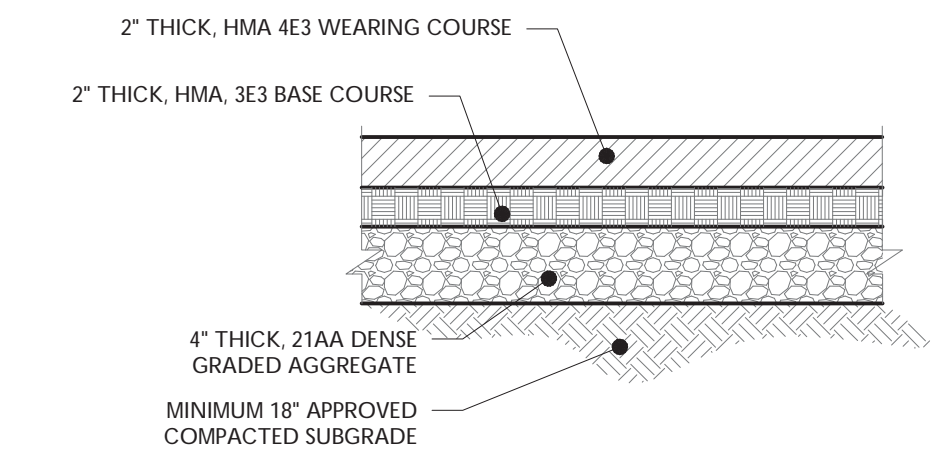


CURB RAMP DETAIL
NOT TO SCALE

- 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.



BOLLARD
NOT TO SCALE



ASPHALT WALKWAY DETAIL (FOR USE WITHIN MDOT ROW)
NOT TO SCALE

- NOTES:**
1. HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

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

SIGN DATA TABLE
NOT TO SCALE

- 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.

8

12

13

14

REVISION	DATE	ISSUE	BY	DESCRIPTION
5	10/17/2024	EM	JR	REVISED PER PRELIMINARY SITE PLAN REVIEW #1
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9101 HIGHLAND ROAD
PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-23-227-003
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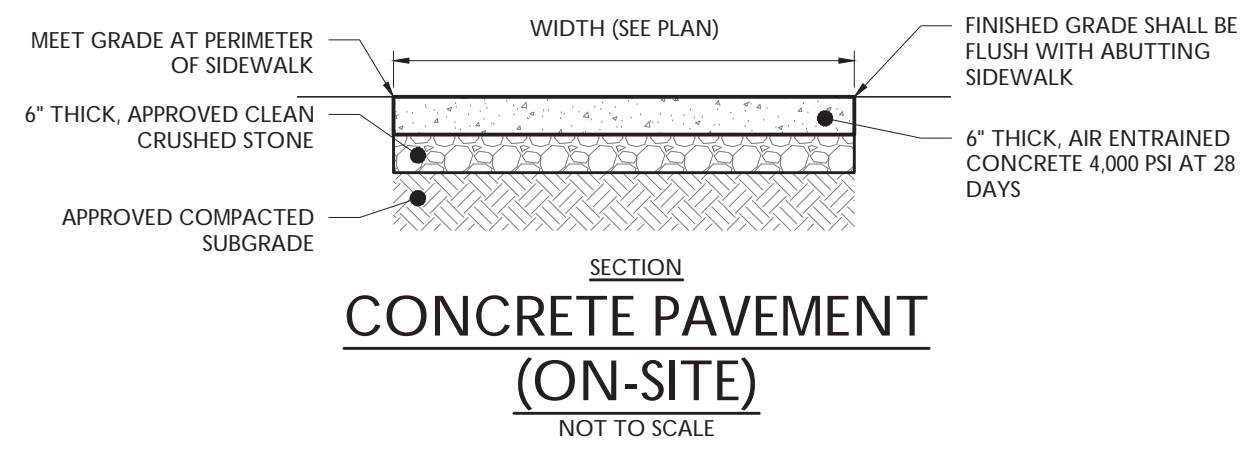
STATE OF MICHIGAN
JONATHAN REID
COOKSEY
ENGINEER

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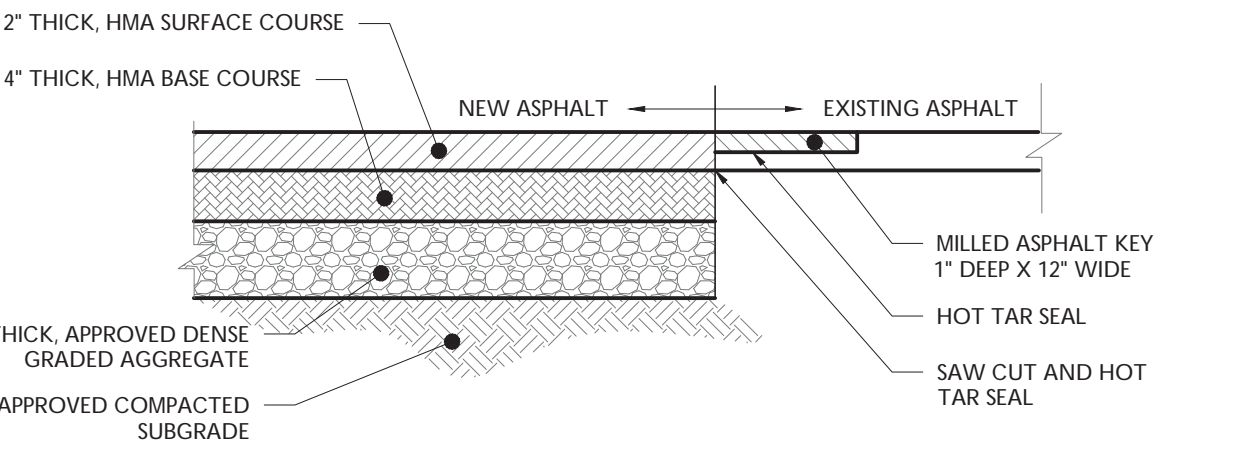
SCALE: AS SHOWN PROJECT ID: DET-230229

TITLE:
CONSTRUCTION DETAILS

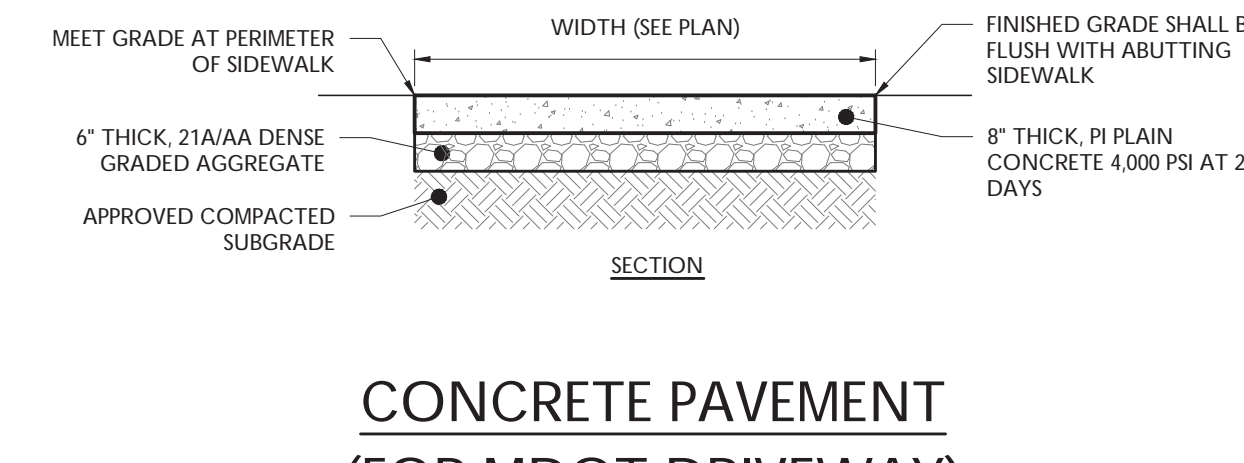
DRAWING:
C-12



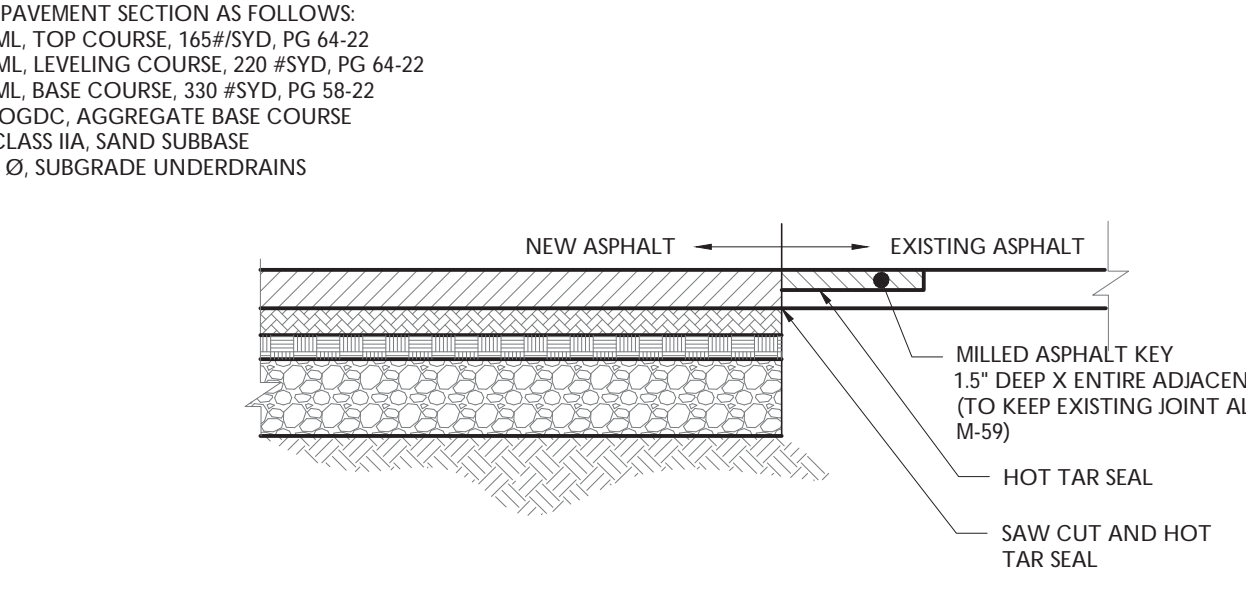
- NOTES:
- 1/2" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED 1/4" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
 - 1" DEEP BY 1/2" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION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



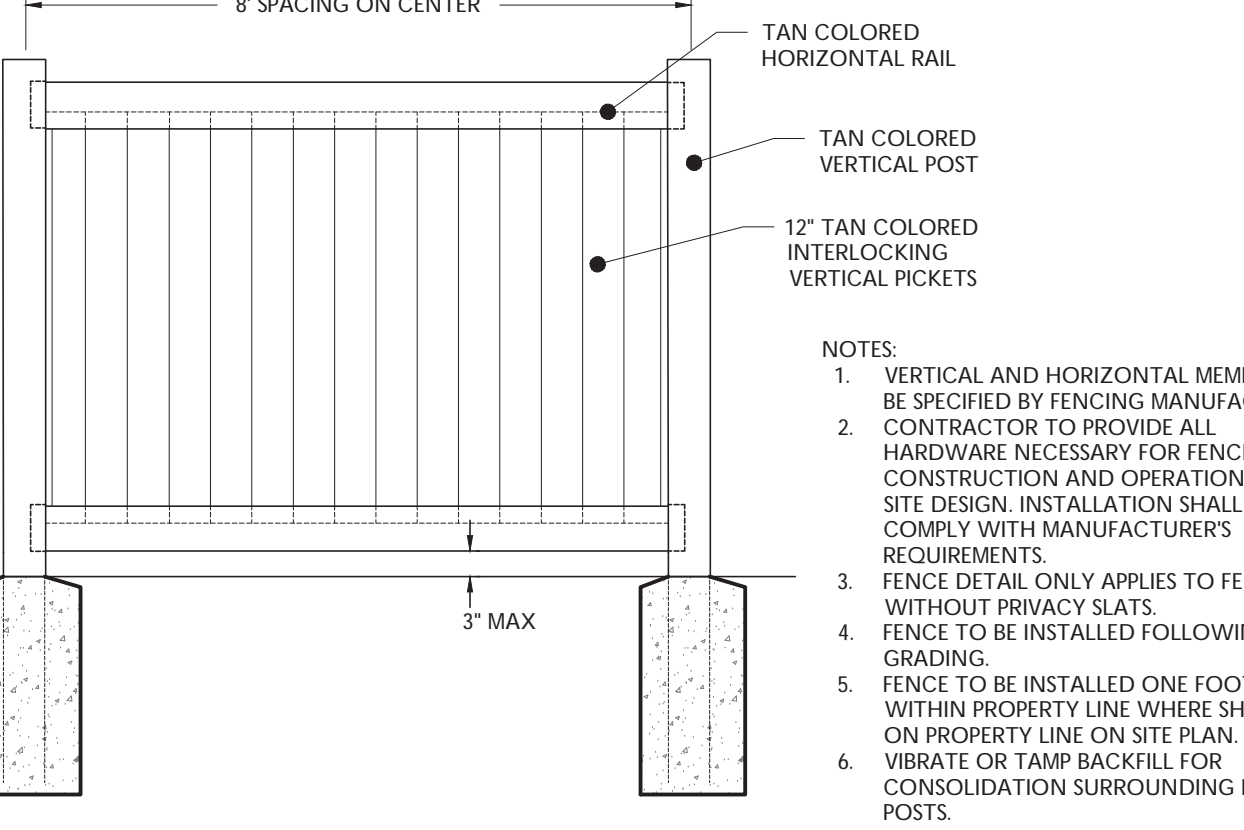
- NOTE:
- HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.



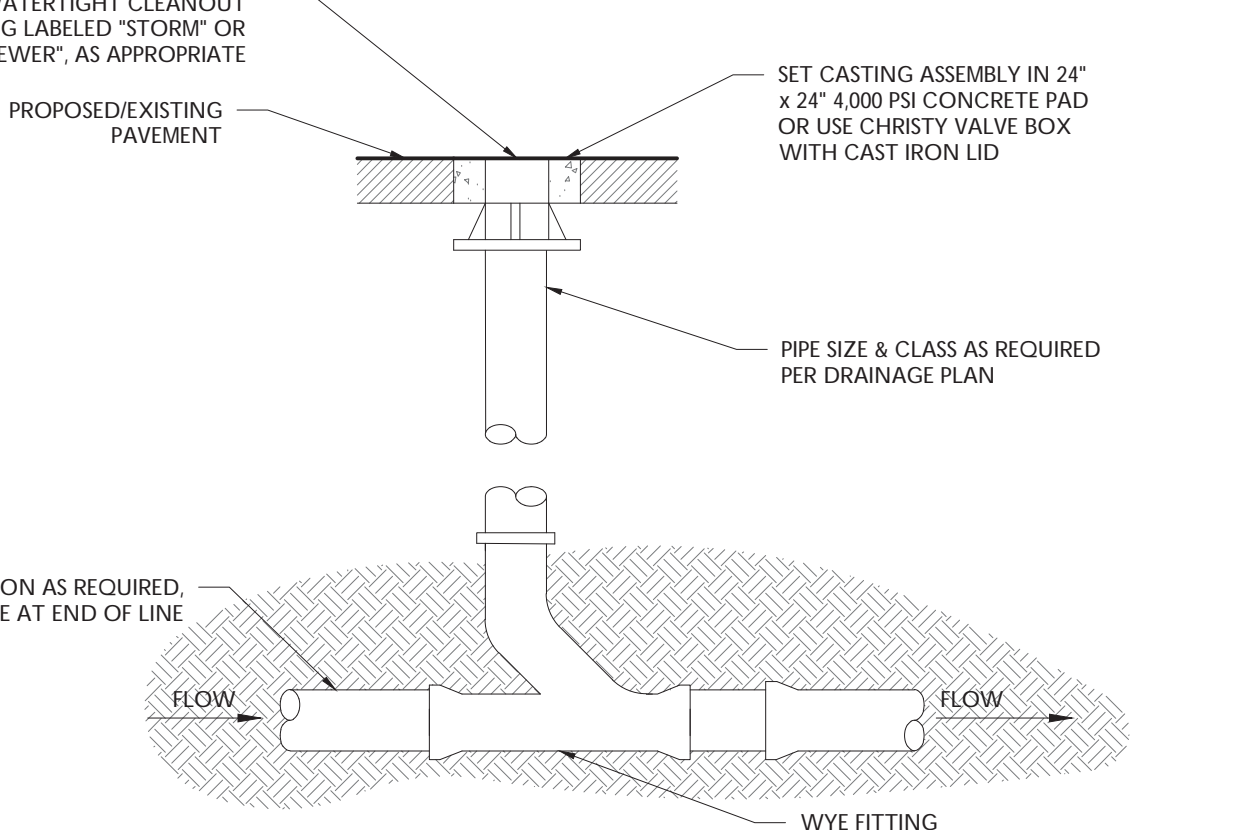
- NOTES:
- 1/2" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED 1/4" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
 - 1" DEEP BY 1/2" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION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



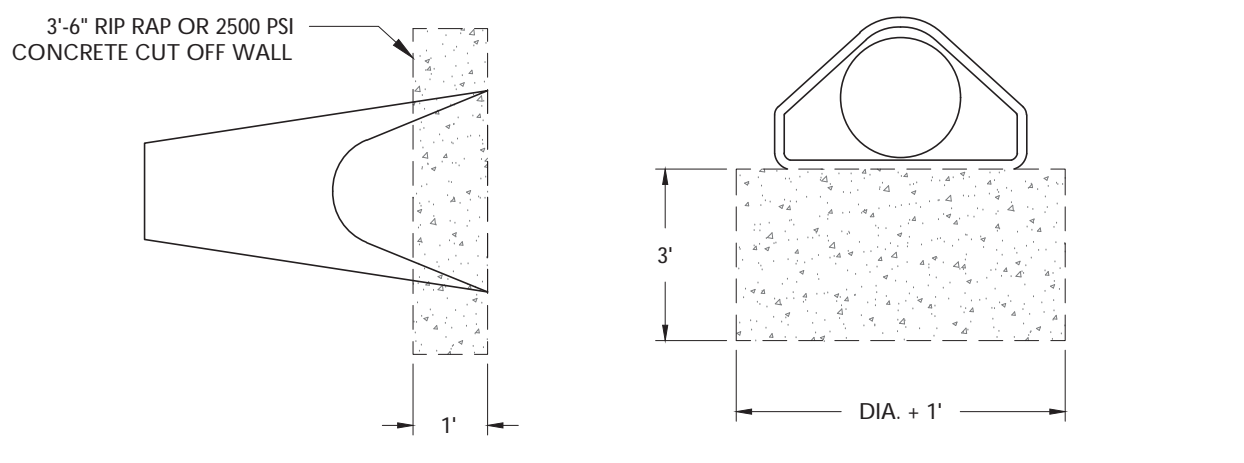
- NOTES:
- HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
 - IF EXISTING PAVEMENT THICKNESS IS GREATER, CONTRACTOR SHALL MATCH EXISTING CONDITIONS.



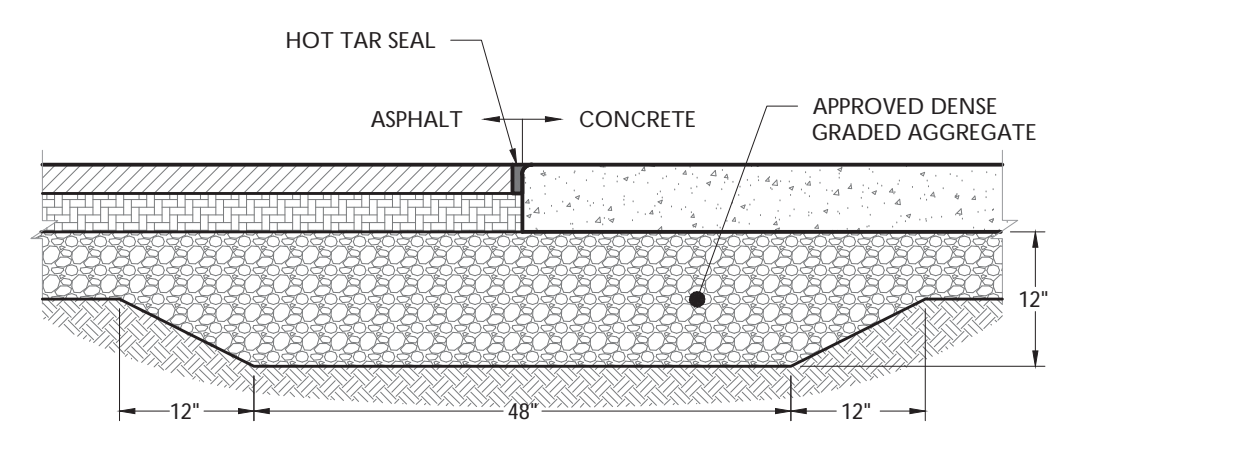
- NOTES:
- VERTICAL AND HORIZONTAL MEMBER TO BE SPECIFIED BY FENCING MANUFACTURER.
 - CONTRACTOR TO PROVIDE ALL HARDWARE NECESSARY FOR FENCE CONSTRUCTION AND OPERATION, PER SITE DESIGN. INSTALLATION SHALL COMPLY WITH MANUFACTURER'S REQUIREMENTS.
 - FENCE DETAIL ONLY APPLIES TO FENCE WITHOUT PRIVACY SLATS.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



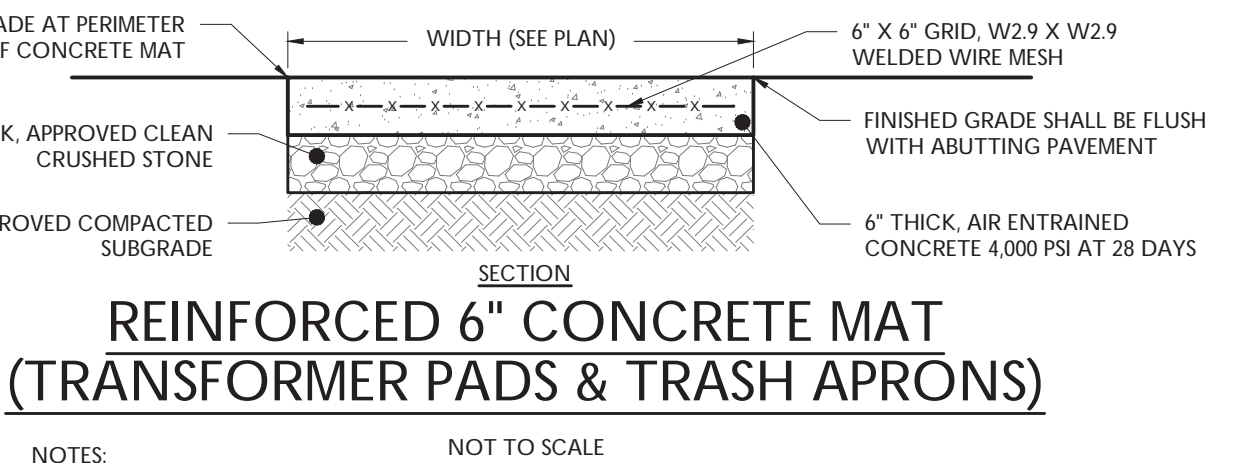
- EXTENSION AS REQUIRED, PLUG WYE AT END OF LINE



- NOT TO SCALE



- NOT TO SCALE



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

PANELS & GATE STYLES

71" Fence Panel (available in six heights)

- 36" (914mm)
- 42" (1067mm)
- 48" (1219mm)
- 54" (1372mm)
- 60" (1524mm)
- 72" (1829mm)

Flat and Arched Gates

Walk Gates 4' & 5'

Drive Gates 6'

*2 & 3 Rail options available
Meets ICC Pool Code (2 Rail Option Only)

HARDWARE & ACCESSORIES

Post + Post Accessories

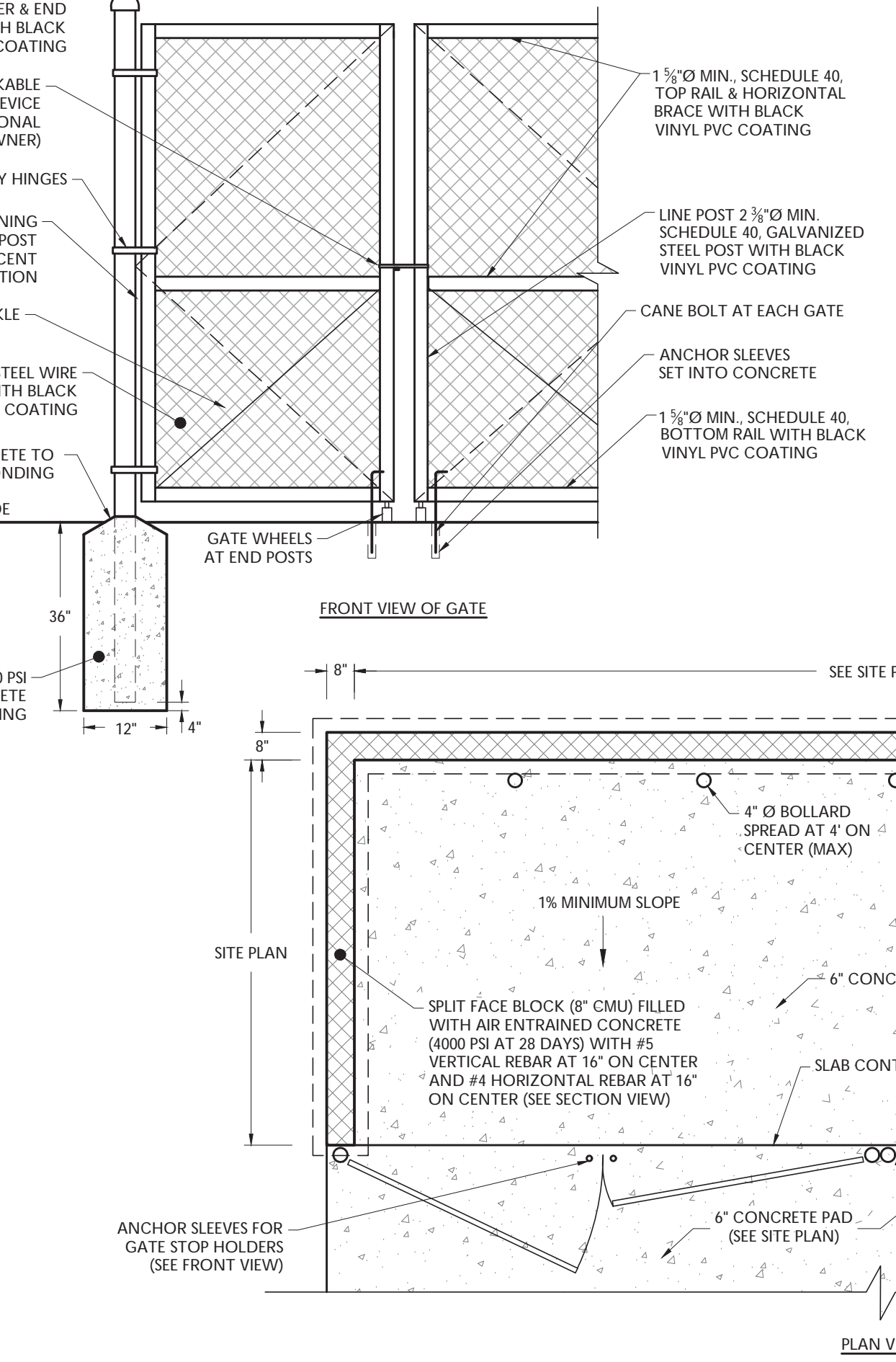
- 60" (1524mm)
- 66" (1676mm)
- 72" (1829mm)
- 78" (1981mm)
- 84" (2134mm)
- 96" (2439mm)

Punched 2" (50mm) and 2.5" (63mm)

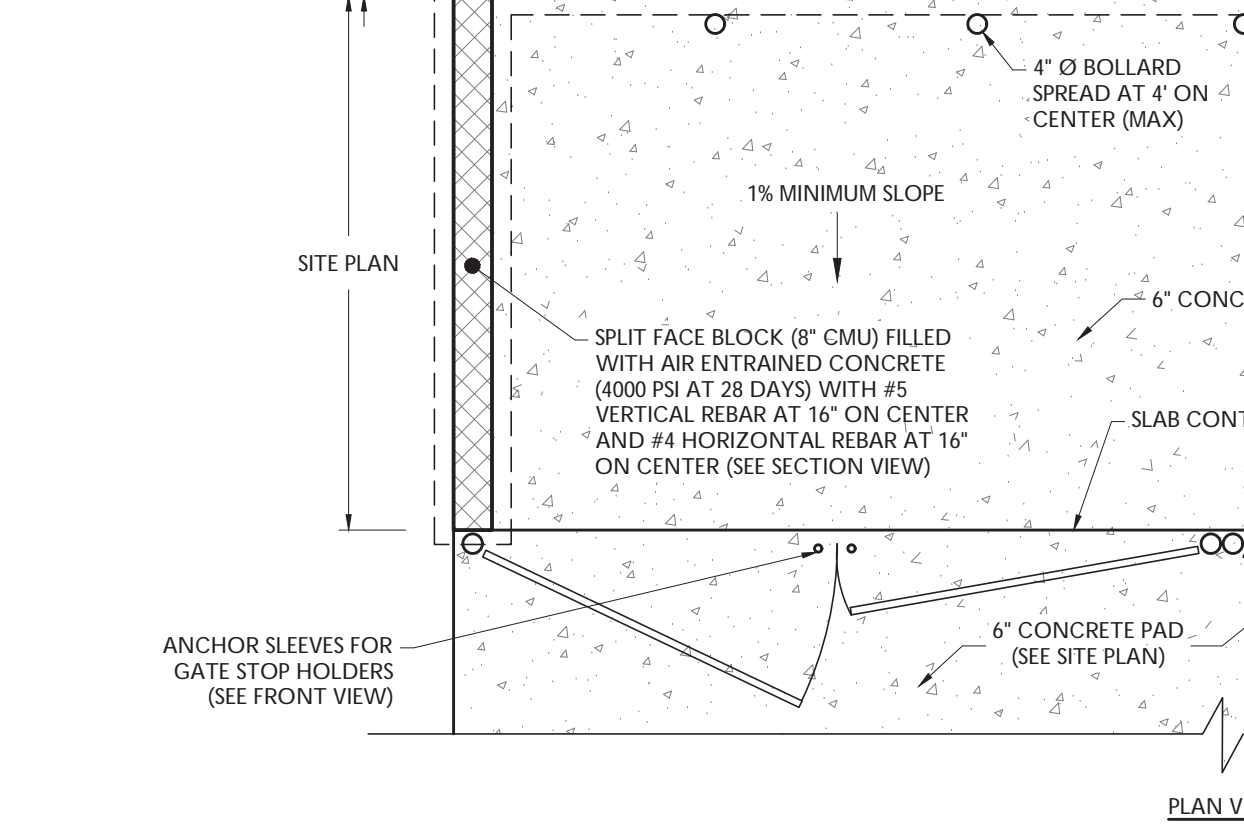
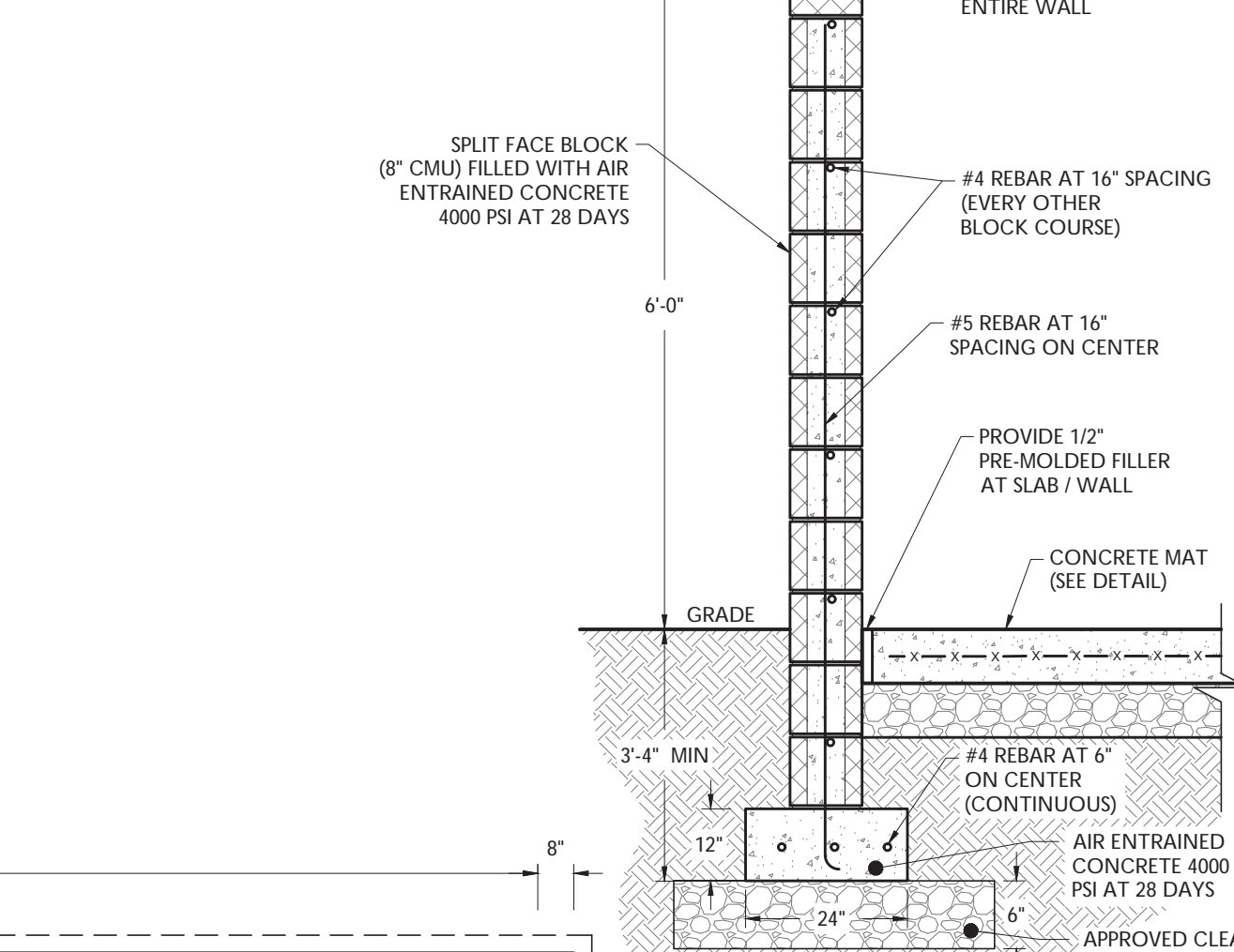
Posts (End, Line, Corner and Blank) .060 and .125

4 FT ALUMINUM FENCE SPECIFICATIONS

NOT TO SCALE



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



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NOT APPROVED FOR CONSTRUCTION

9101 HIGHLAND ROAD
PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-23-227-003
9101 HIGHLAND ROAD
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

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SCALE: AS SHOWN PROJECT ID: DET-230229

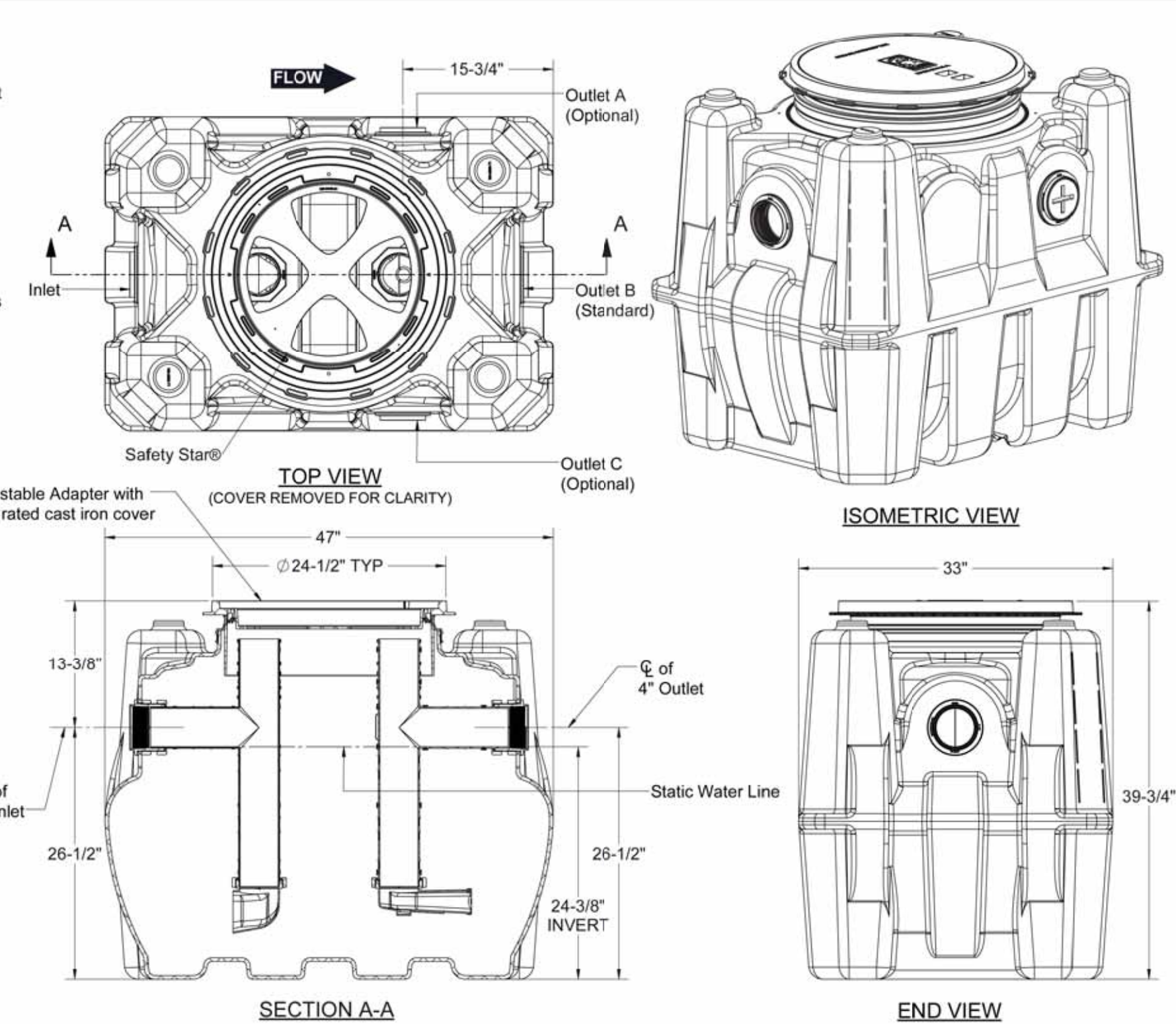
TITLE: CONSTRUCTION DETAILS

DRAWING: C-13

NOT TO SCALE

SPECIFICATIONS

- Notes:
- 4" FPT inlet/outlet with 4" plain end adapters, single inlet and triple outlet.
 - Unit weight - w/ cast iron covers: 190 lbs. (For wet weight add 1,043 lbs.)
 - Maximum operating temperature: 150° F continuous
 - Capacities - Liquid: 125 gal.
Grease: 861 lbs. (118 gal.) @75 GPM
Solids: 31 gal.
 - For gravity drainage applications only.
 - Do not use for pressure applications.
 - Cover placement allows full access to tank for proper maintenance.
 - Vent not required unless per local code.
 - Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
 - Integral air relief / Anti-siphon / Sampling access.
 - Adjustable cover adapter provides up to 4" of additional height.
 - Designed for below-grade, above-grade, indoor and outdoor installations.
 - Safety Star®, access restrictor built into cover adapter, prevents accidental entry to tank (450 lb rating).





ENGINEER SPECIFICATION GUIDE
Schier Great Basin™ grease interceptor model # GB-75 shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene with minimum 3/16" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapter, Safety Star® access restrictor built into each cover adapter, and three outlet options. Interceptor shall be certified to ASME A112.14.3 (Type D) and CSA B481.1. Interceptor flow rate shall be 75 GPM. Interceptor grease capacity shall be 861 lbs. Cover shall provide water/gas-tight seal and have minimum 16,000 lbs. load capacity.

CERTIFIED PERFORMANCE
Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.

Type D certification does not require a flow control

SPECIFICATION SHEET

MODEL NUMBER: GB-75	PART NUMBER: 4045-007-02
DESCRIPTION: GB-75 GREASE INTERCEPTOR 75 GPM, 4" INLET/OUTLET, H-20 RATED CAST IRON COVER	
<small>PROPRIETARY AND CONFIDENTIAL</small> <small>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SCHIER PRODUCTS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SCHIER PRODUCTS IS PROHIBITED.</small>	
DWG BY: C. BUSENITZ	DATE: 4/14/2022
REV: -	ECO: -





SCHIER
6455 Woodland Dr
Shawnee, KS 66218
Tel: 913-951-3300
Fax: 913-951-3399
schierproducts.com

GB-75 GREASE TRAP SPECIFICATIONS (WEST BUILDING)

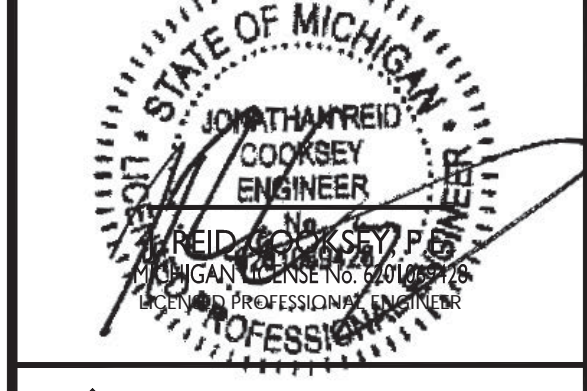

ISSUE	DATE	BY	DESCRIPTION
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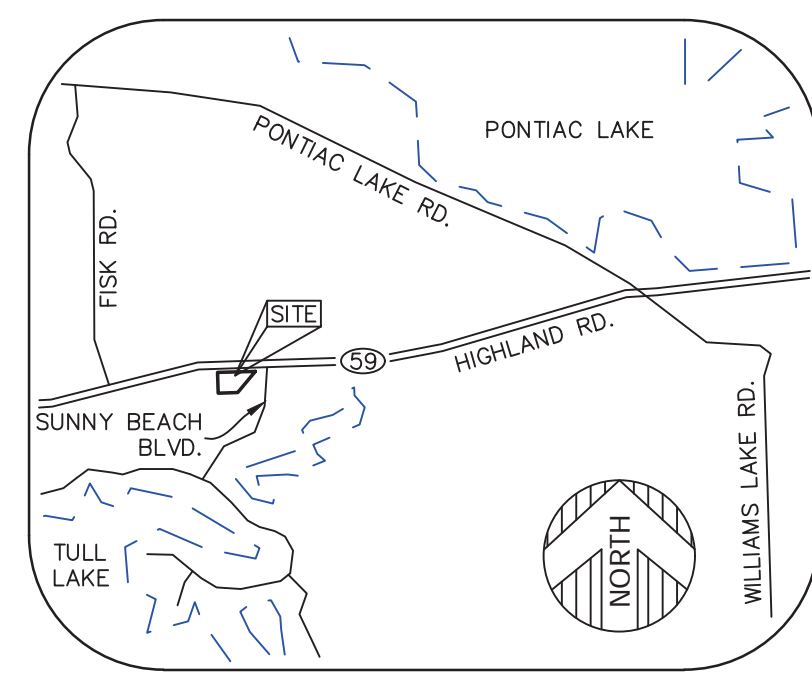


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SITE DEVELOPMENT PLANS
9101 HIGHLAND ROAD
PROPOSED COMMERCIAL DEVELOPMENT
PARCEL ID: 12-23-227-003
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OAKLAND COUNTY, MICHIGAN

SCALE: AS SHOWN PROJECT ID: DET-230229
TITLE:
CONSTRUCTION DETAILS
DRAWING:
C-15



VICINITY MAP
(NOT TO SCALE)

PARKING
 HANDICAP PARKING = 2 STALLS
 STANDARD PARKING = 50 STALLS

PARCEL AREA
 195,568± SQUARE FEET = 4.49± ACRES

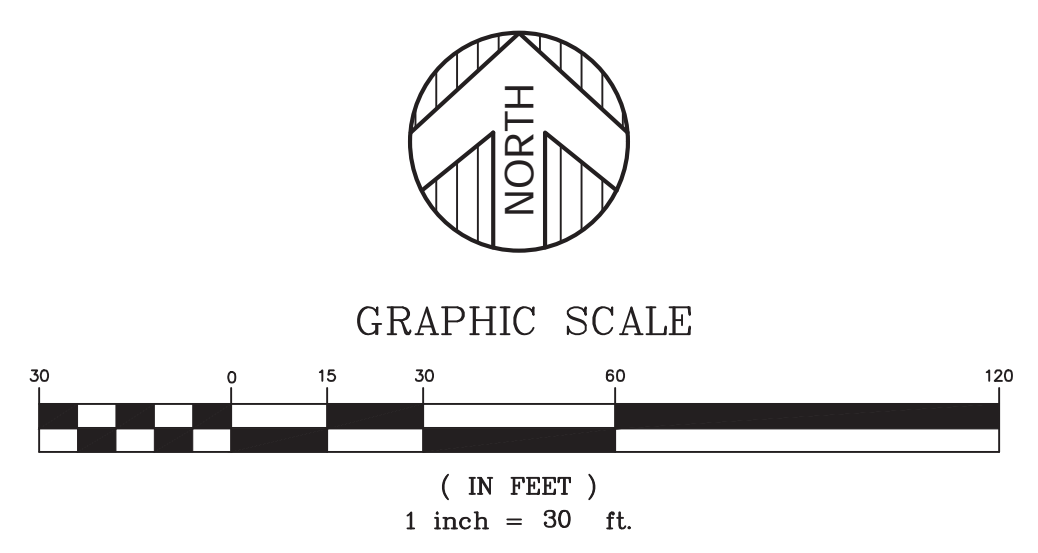
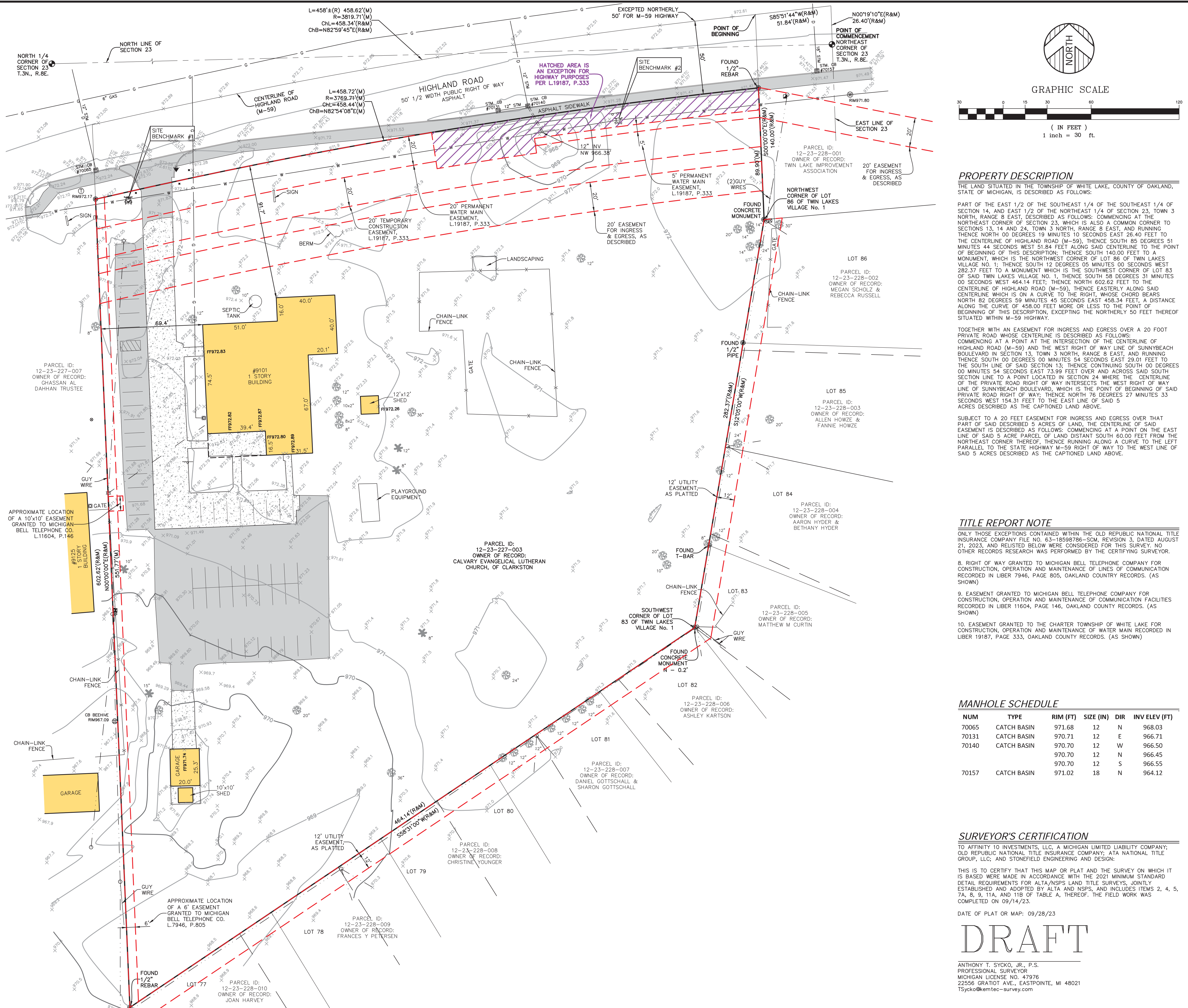
BASIS OF BEARING
 SOUTH 85°51'44" WEST, BEING THE CENTERLINE OF HIGHLAND ROAD (M-59), AS DESCRIBED.

BENCHMARK
SITE BENCHMARK #1
 ARROW ON HYDRANT, WEST SIDE OF ASPHALT ENTRANCE.
 ELEVATION = 975.36' (NAVD 88)
SITE BENCHMARK #2
 ARROW ON TRAFFIC SIGNAL POST, EAST SIDE OF PROPERTY.
 ELEVATION = 974.20' (NAVD 88)

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.

LEGEND

●	FOUND MONUMENT (AS NOTED)
⊙	FOUND SECTION CORNER (AS NOTED)
(R&M)	RECORD AND MEASURED DIMENSION
(R)	RECORD DIMENSION
(M)	MEASURED DIMENSION
X 0.00	GROUND ELEVATION
⊕	ELECTRIC METER
⊕	ELECTRIC RISER
⊕	UTILITY POLE
⊕	TELEPHONE MANHOLE
⊕	TELEPHONE RISER
⊕	CABLE TV RISER
⊕	CLEANOUT
⊕	ROUND CATCH BASIN
⊕	SQUARE CATCH BASIN
⊕	FIRE HYDRANT
⊕	WATER GATE MANHOLE
⊕	WATER VALVE
⊕	FENCE POST
⊕	FLOOD LIGHT
⊕	SINGLE POST SIGN
⊕	DOUBLE POST SIGN
⊕	HANDICAP PARKING
⊕	DECIDUOUS TREE (AS NOTED)
⊕	CONIFEROUS TREE (AS NOTED)
---	PARCEL BOUNDARY LINE
---	PLATTED LOT LINE
---	ADJOINER PARCEL LINE
---	SECTION LINE
---	EASEMENT (AS NOTED)
---	BUILDING
---	BUILDING OVERHANG
---	CONCRETE CURB
---	RAISED CONCRETE
---	PARKING
---	EDGE OF CONCRETE (CONC.)
---	EDGE OF ASPHALT (ASPH.)
---	FENCE (AS NOTED)
---	OVERHEAD UTILITY LINE
---	GAS LINE
---	STORM LINE
---	WATER LINE
---	MINOR CONTOUR LINE
---	MAJOR CONTOUR LINE
---	BUILDING AREA
---	ASPHALT
---	CONCRETE



PROPERTY DESCRIPTION

THE LAND SITUATED IN THE TOWNSHIP OF WHITE LAKE, COUNTY OF OAKLAND, STATE OF MICHIGAN, IS DESCRIBED AS FOLLOWS:
 PART OF THE EAST 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 14, AND EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 23, TOWN 3 NORTH, RANGE 8 EAST, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SECTION 23, WHICH IS ALSO A COMMON CORNER TO SECTIONS 13, 14 AND 24, TOWN 3 NORTH, RANGE 8 EAST, AND RUNNING THENCE NORTH 00 DEGREES 19 MINUTES 10 SECONDS EAST 26.40 FEET TO THE CENTERLINE OF HIGHLAND ROAD (M-59), THENCE SOUTH 85 DEGREES 51 MINUTES 44 SECONDS WEST 51.84 FEET ALONG SAID CENTERLINE TO THE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE SOUTH 140.00 FEET TO A MONUMENT, WHICH IS THE NORTHWEST CORNER OF LOT 86 OF TWIN LAKES VILLAGE NO. 1; THENCE SOUTH 12 DEGREES 05 MINUTES 00 SECONDS WEST 282.37 FEET TO A MONUMENT WHICH IS THE SOUTHWEST CORNER OF LOT 83 OF SAID TWIN LAKES VILLAGE NO. 1, THENCE SOUTH 58 DEGREES 31 MINUTES 00 SECONDS WEST 464.14 FEET; THENCE NORTH 602.62 FEET TO THE CENTERLINE OF HIGHLAND ROAD (M-59), THENCE EASTERLY ALONG SAID CENTERLINE WHICH IS ON A CURVE TO THE RIGHT, WHOSE CHORD BEARS NORTH 82 DEGREES 59 MINUTES 45 SECONDS EAST 458.34 FEET, A DISTANCE ALONG THE CURVE OF 458.00 FEET MORE OR LESS TO THE POINT OF BEGINNING OF THIS DESCRIPTION, EXCEPTING THE NORTHERLY 50 FEET THEREOF SITUATED WITHIN M-59 HIGHWAY.
 TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS OVER A 20 FOOT PRIVATE ROAD WHOSE CENTERLINE IS DESCRIBED AS FOLLOWS: COMMENCING AT A POINT AT THE INTERSECTION OF THE CENTERLINE OF HIGHLAND ROAD (M-59) AND THE WEST RIGHT OF WAY LINE OF SUNNYBEACH BOULEVARD IN SECTION 13, TOWN 3 NORTH, RANGE 8 EAST, AND RUNNING THENCE SOUTH 00 DEGREES 00 MINUTES 54 SECONDS EAST 29.01 FEET TO THE SOUTH LINE OF SAID SECTION 13; SAID SECTION 13; THENCE CONTINUING SOUTH 00 DEGREES 00 MINUTES 54 SECONDS EAST 73.99 FEET OVER AND ACROSS SAID SOUTH SECTION LINE TO A POINT LOCATED IN SECTION 24 WHERE THE CENTERLINE OF THE PRIVATE ROAD RIGHT OF WAY INTERSECTS THE WEST RIGHT OF WAY LINE OF SUNNYBEACH BOULEVARD, WHICH IS THE POINT OF BEGINNING OF SAID PRIVATE ROAD RIGHT OF WAY; THENCE NORTH 76 DEGREES 27 MINUTES 33 SECONDS WEST 154.31 FEET TO THE EAST LINE OF SAID 5 ACRES DESCRIBED AS THE CAPTIONED LAND ABOVE.
 SUBJECT TO A 20 FEET EASEMENT FOR INGRESS AND EGRESS OVER THAT PART OF SAID DESCRIBED 5 ACRES OF LAND, THE CENTERLINE OF SAID EASEMENT IS DESCRIBED AS FOLLOWS: COMMENCING AT A POINT ON THE EAST LINE OF SAID 5 ACRE PARCEL OF LAND DISTANT SOUTH 60.00 FEET FROM THE NORTHEAST CORNER THEREOF, THENCE RUNNING ALONG A CURVE TO THE LEFT PARALLEL TO THE STATE HIGHWAY M-59 RIGHT OF WAY TO THE WEST LINE OF SAID 5 ACRES DESCRIBED AS THE CAPTIONED LAND ABOVE.

TITLE REPORT NOTE

ONLY THOSE EXCEPTIONS CONTAINED WITHIN THE OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY FILE NO. 63-18598786-SQM, REVISION 3, DATED AUGUST 21, 2023, AND RELISTED BELOW WERE CONSIDERED FOR THIS SURVEY. NO OTHER RECORDS RESEARCH WAS PERFORMED BY THE CERTIFYING SURVEYOR.
 8. RIGHT OF WAY GRANTED TO MICHIGAN BELL TELEPHONE COMPANY FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF LINES OF COMMUNICATION RECORDED IN LIBER 7946, PAGE 805, OAKLAND COUNTY RECORDS. (AS SHOWN)
 9. EASEMENT GRANTED TO MICHIGAN BELL TELEPHONE COMPANY FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF COMMUNICATION FACILITIES RECORDED IN LIBER 11604, PAGE 146, OAKLAND COUNTY RECORDS. (AS SHOWN)
 10. EASEMENT GRANTED TO THE CHARTER TOWNSHIP OF WHITE LAKE FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF WATER MAIN RECORDED IN LIBER 19187, PAGE 333, OAKLAND COUNTY RECORDS. (AS SHOWN)

MANHOLE SCHEDULE

NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)
70065	CATCH BASIN	971.68	12	N	968.03
70131	CATCH BASIN	970.71	12	E	966.71
70140	CATCH BASIN	970.70	12	W	966.50
		970.70	12	N	966.45
		970.70	12	S	966.55
70157	CATCH BASIN	971.02	18	N	964.12

SURVEYOR'S CERTIFICATION

TO AFFINITY 10 INVESTMENTS, LLC, A MICHIGAN LIMITED LIABILITY COMPANY;
 OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY; A NATIONAL TITLE GROUP, LLC, AND STONEFIELD ENGINEERING AND DESIGN;
 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 2, 4, 5, 7A, 8, 9, 11A, AND 11B OF TABLE A, THEREOF. THE FIELD WORK WAS COMPLETED ON 09/14/23.
 DATE OF PLAT OR MAP: 09/28/23

DRAFT

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

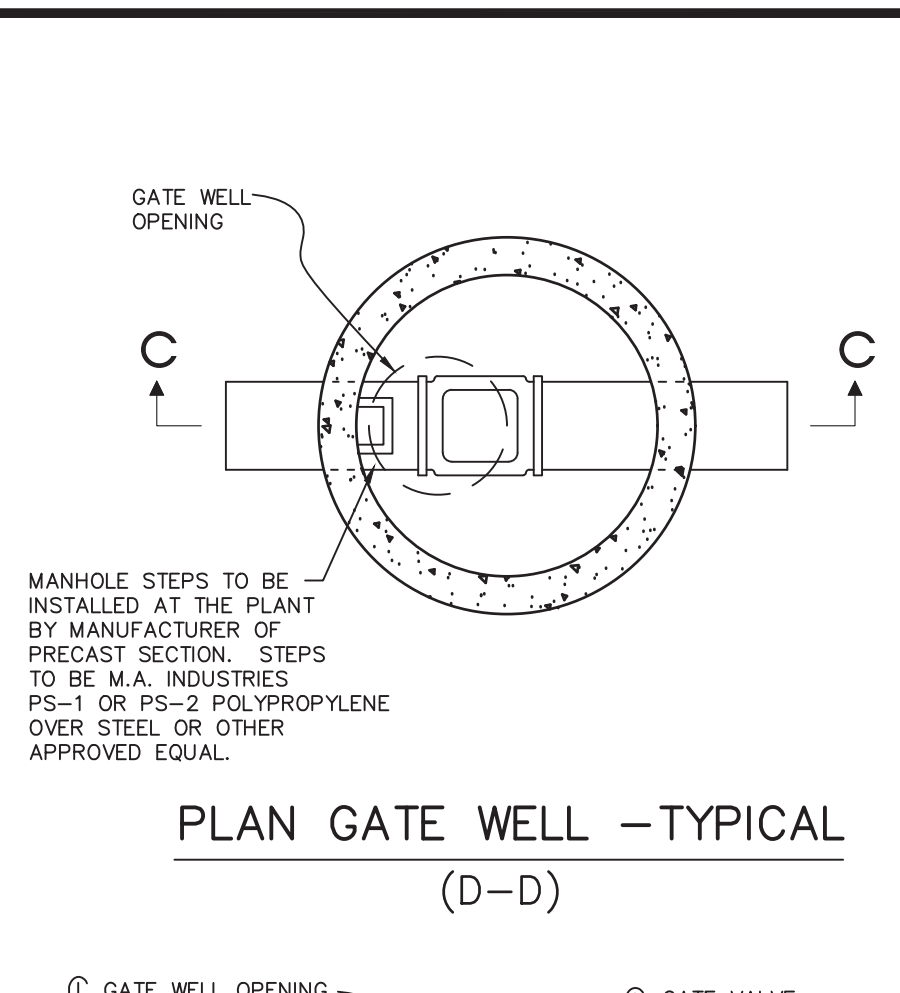
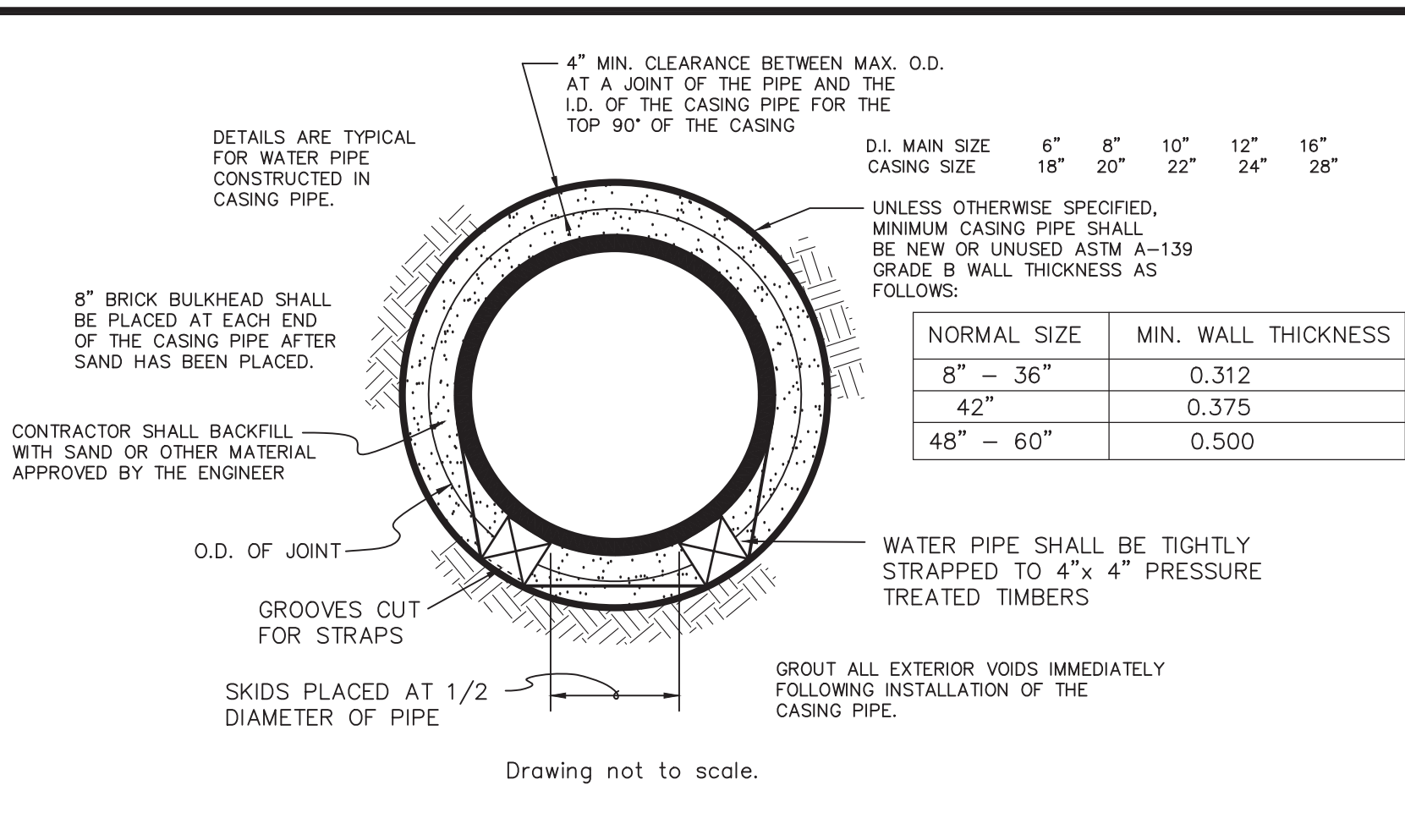
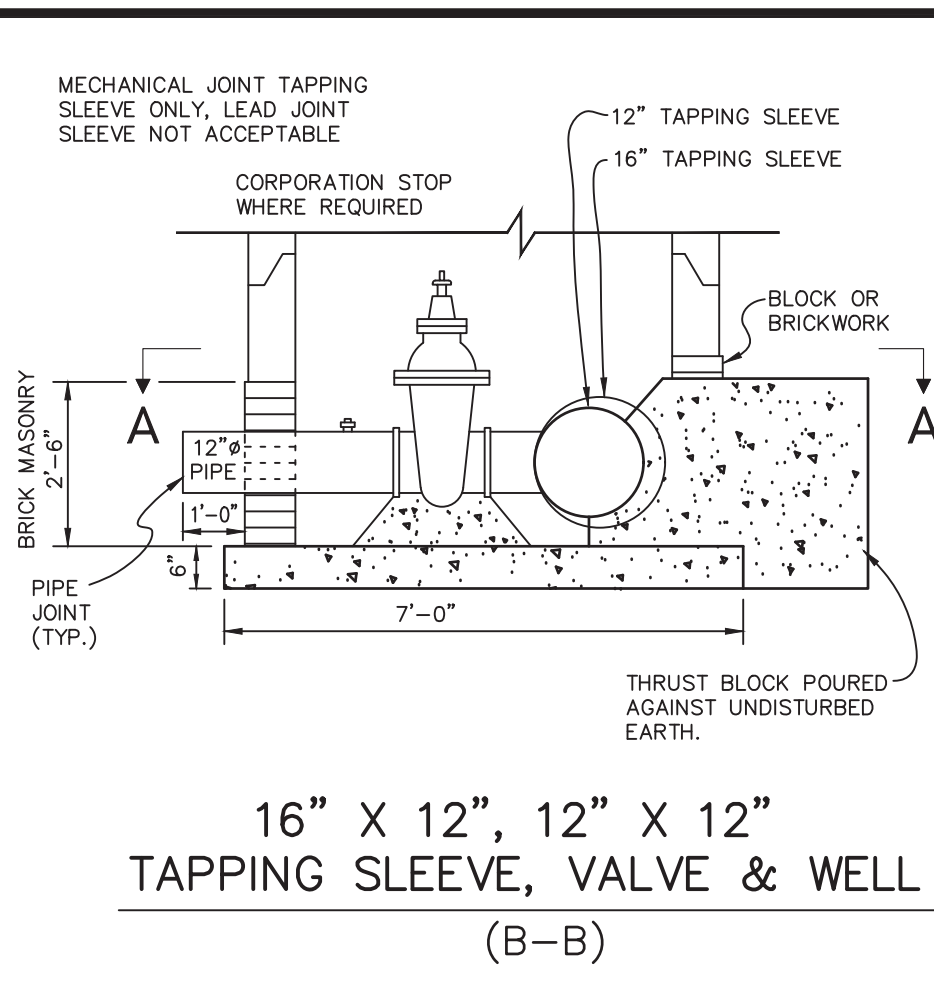
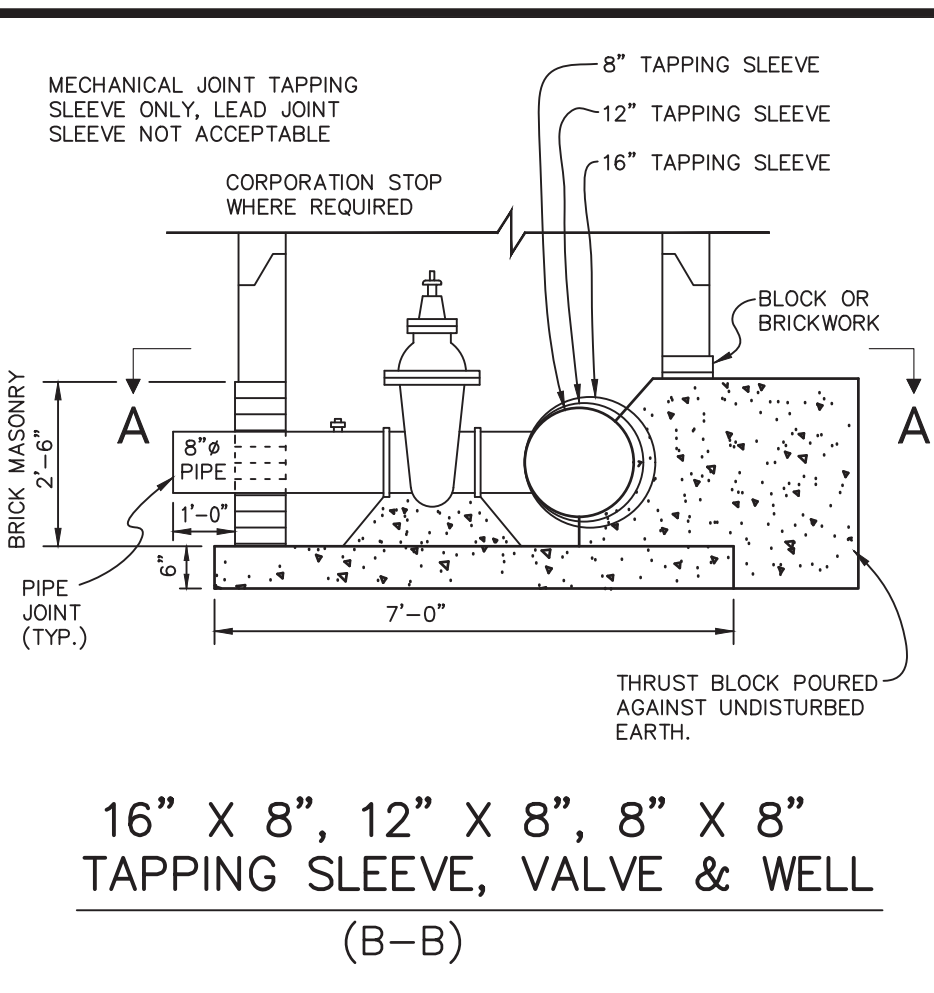
PROFESSIONAL ENGINEERING, SURVEYING & ENVIRONMENTAL SERVICES
KEM-TEC
 A GROUP OF COMPANIES
 Eastpointe, MI 48021
 Ann Arbor, MI 48106
 Detroit, MI 48226
 (800) 255-7222 (517) 758-9977 (734) 954-0888 (888) 654-0001
 www.kemttecgroupofcompanies.com

ALTA / NSPS LAND TITLE SURVEY
 PREPARED FOR: STONEFIELD ENGINEERING AND DESIGN
 9101 HIGHLAND ROAD, WHITE LAKE, MICHIGAN,
 PART OF SECTION 23,
 TOWN 3 NORTH, RANGE 8 EAST

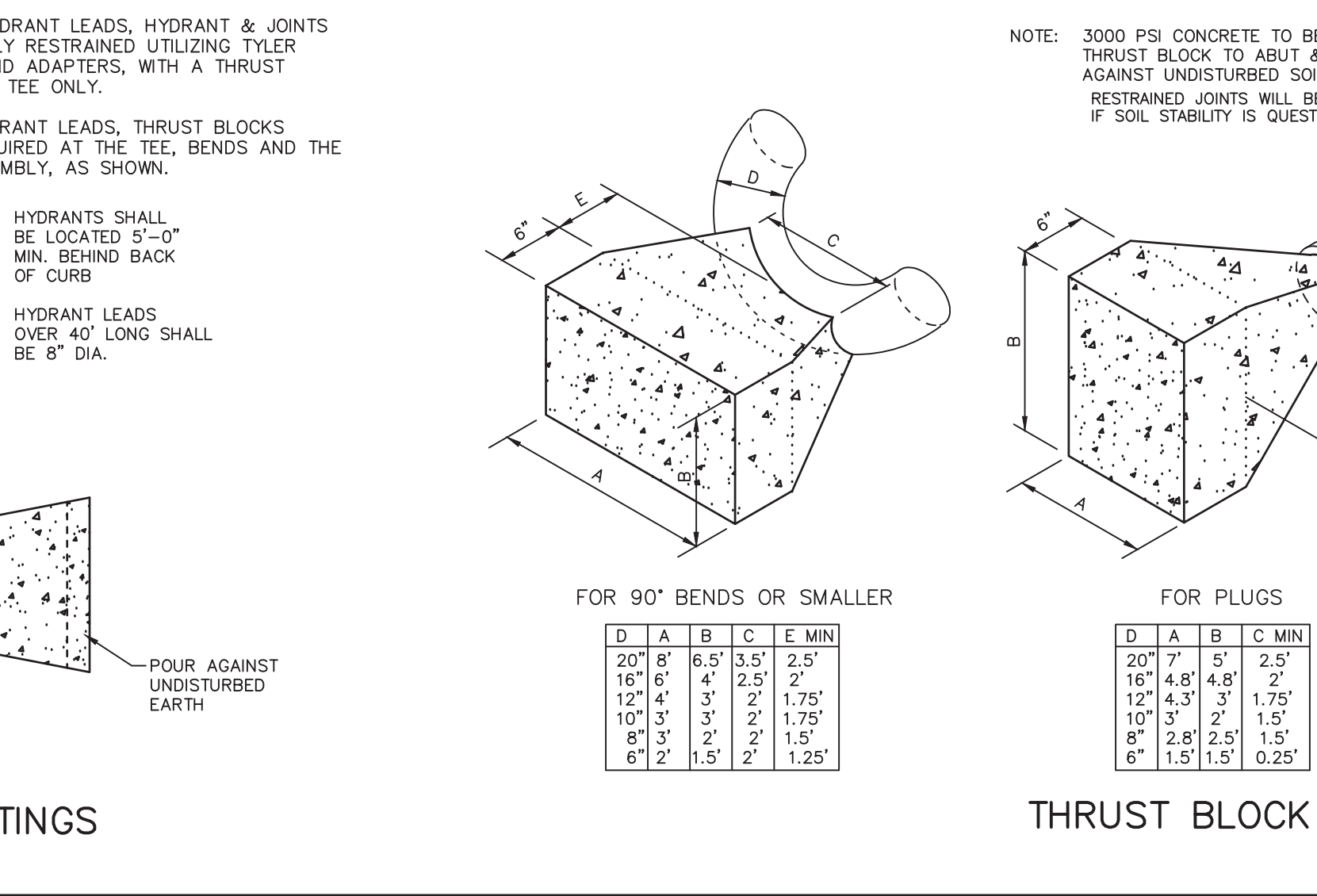
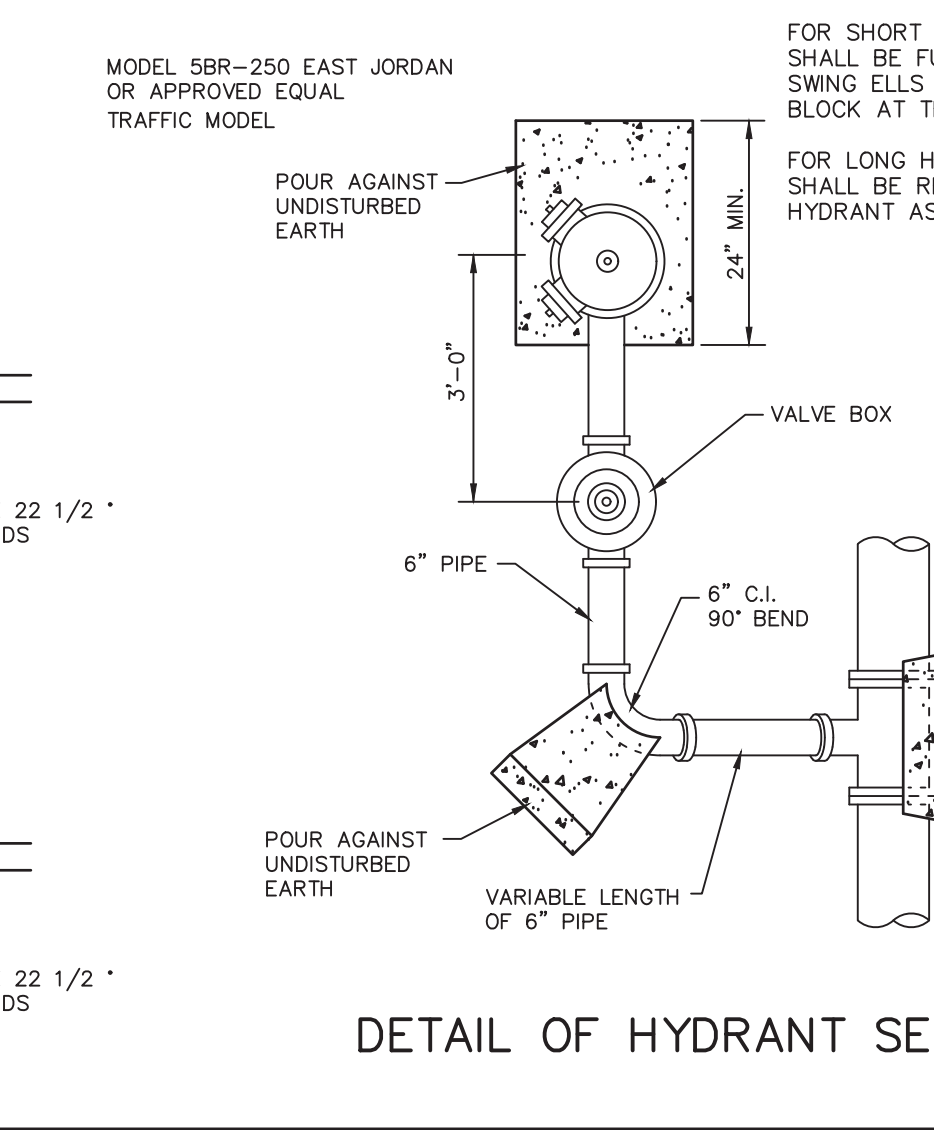
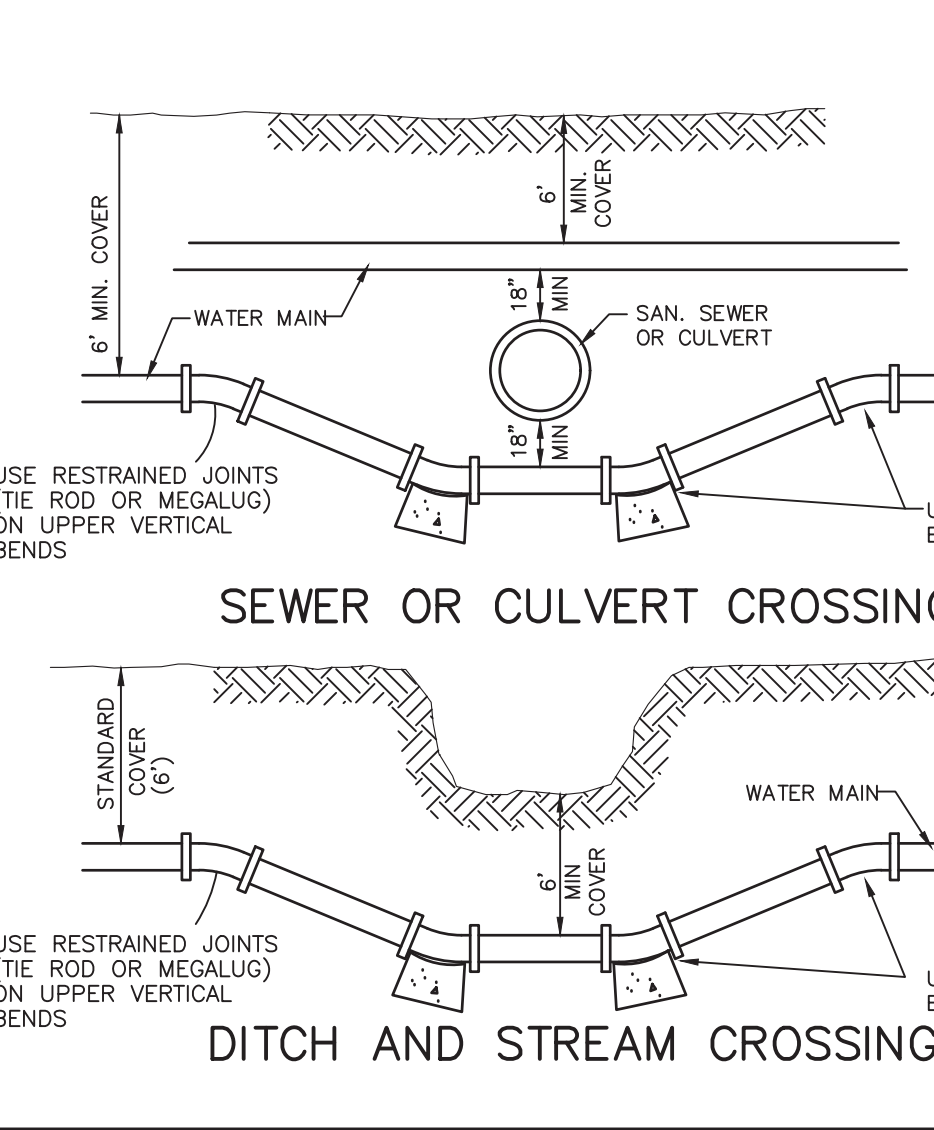
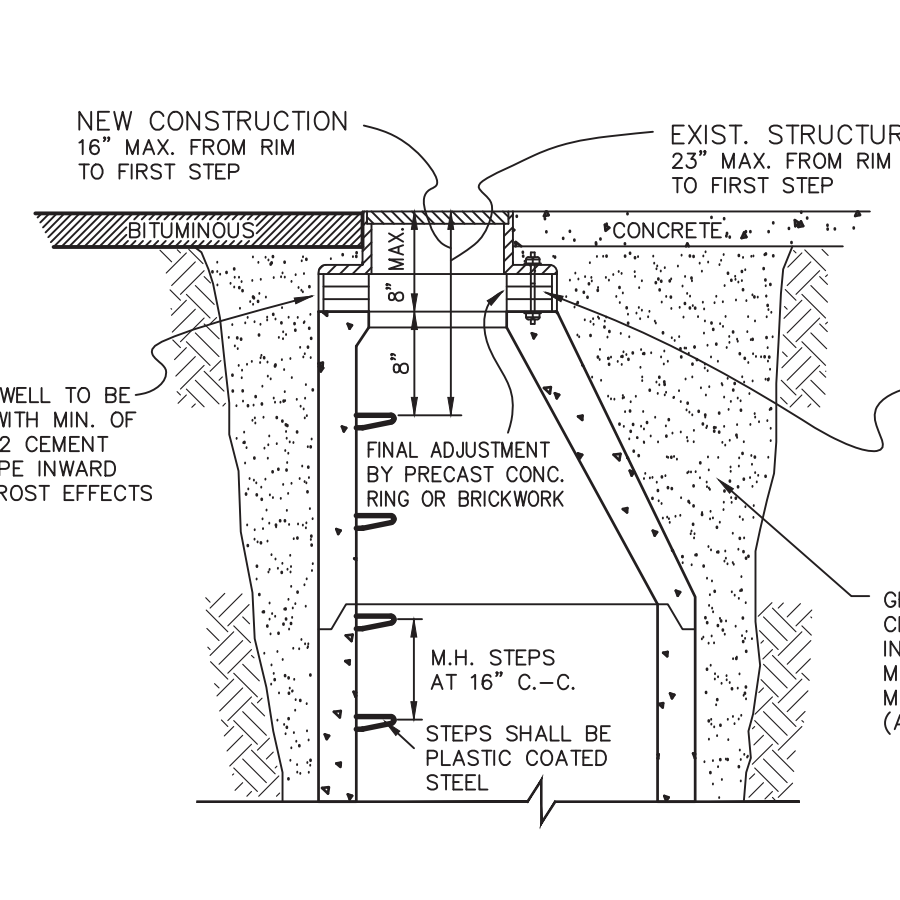
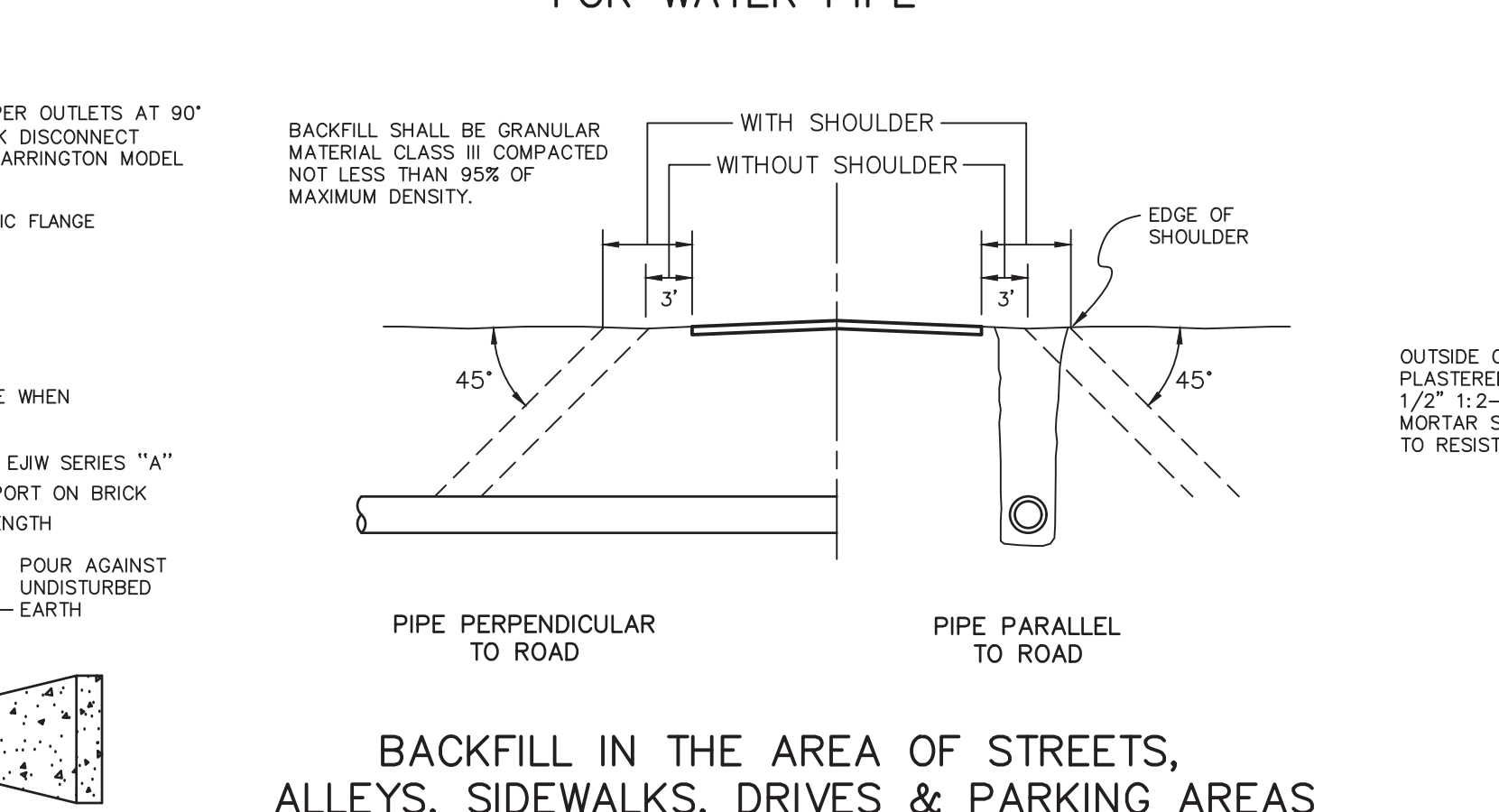
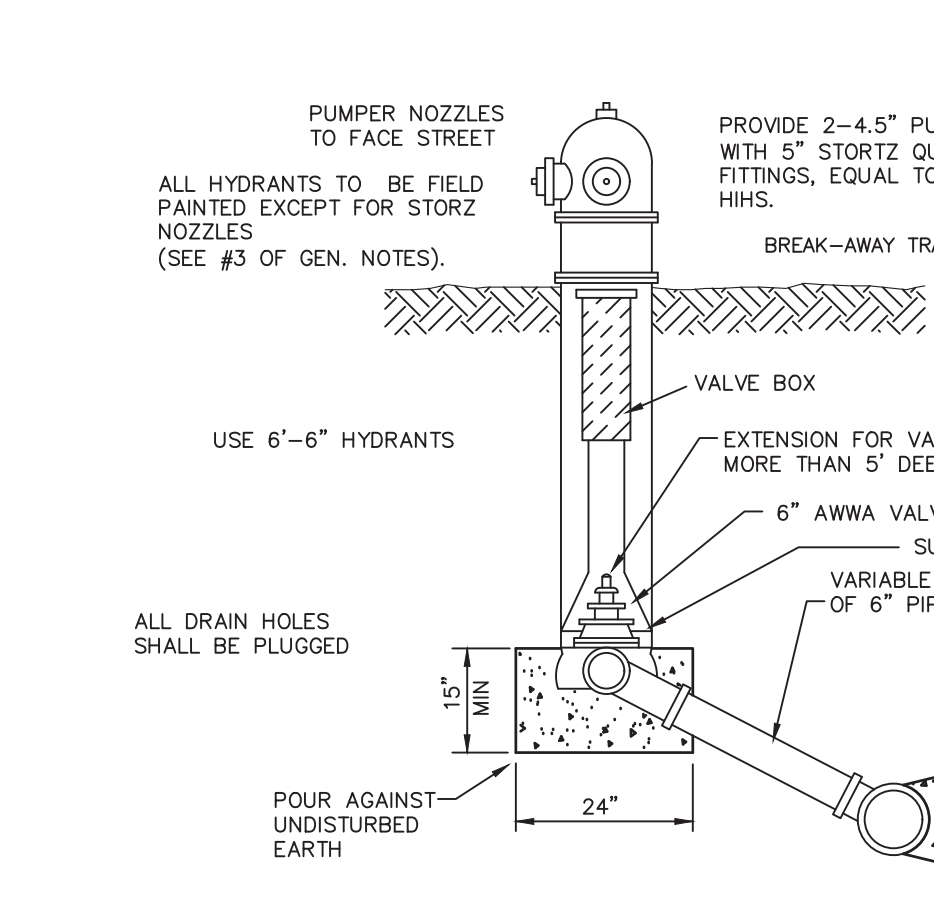
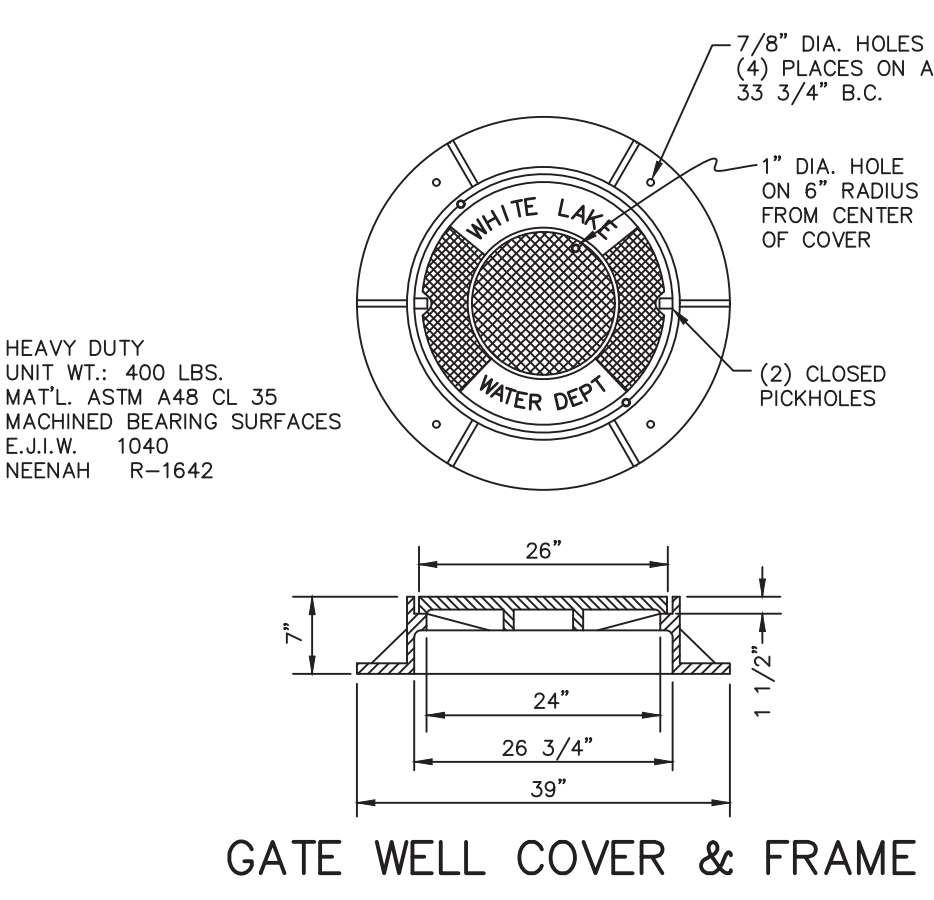
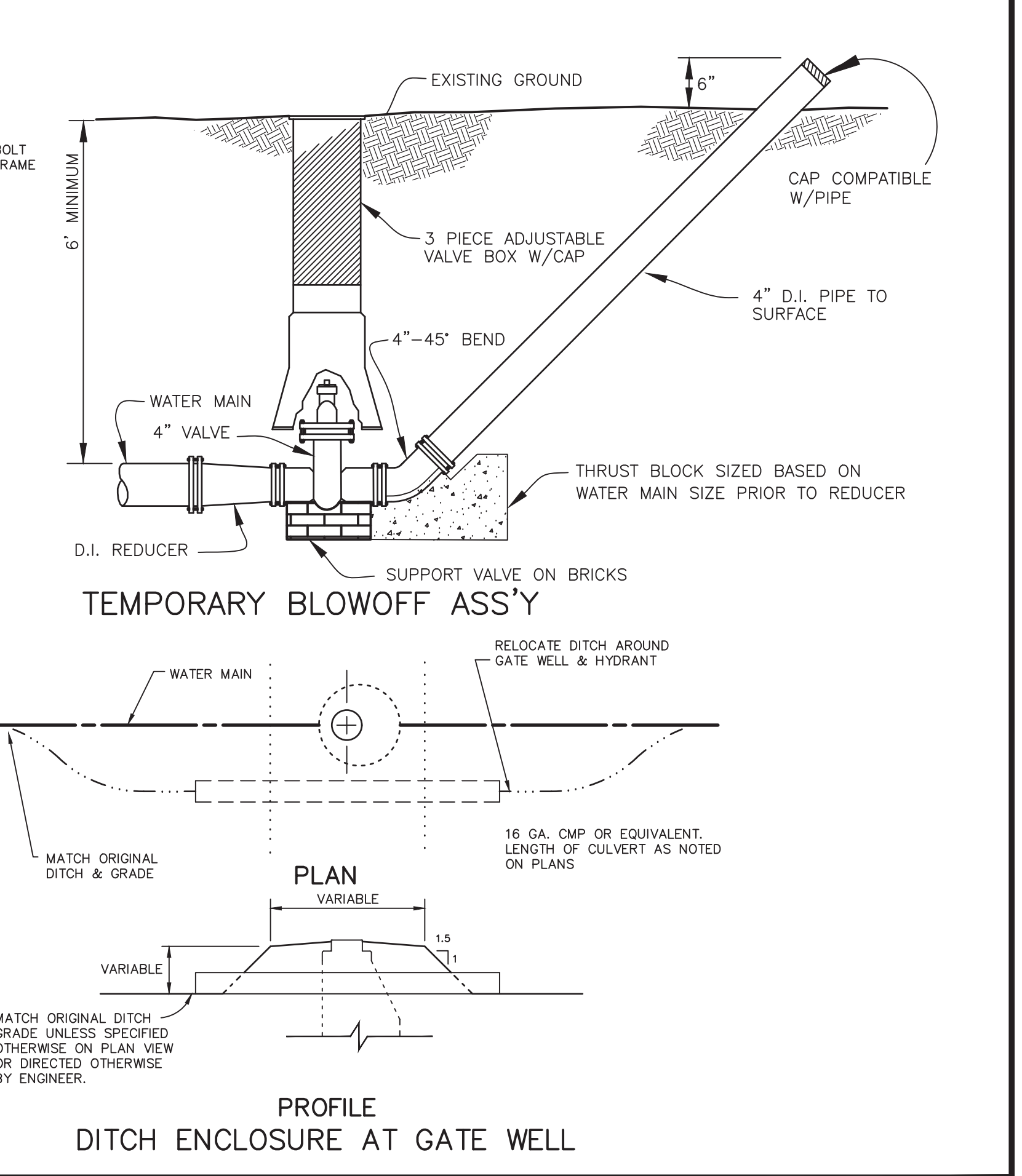
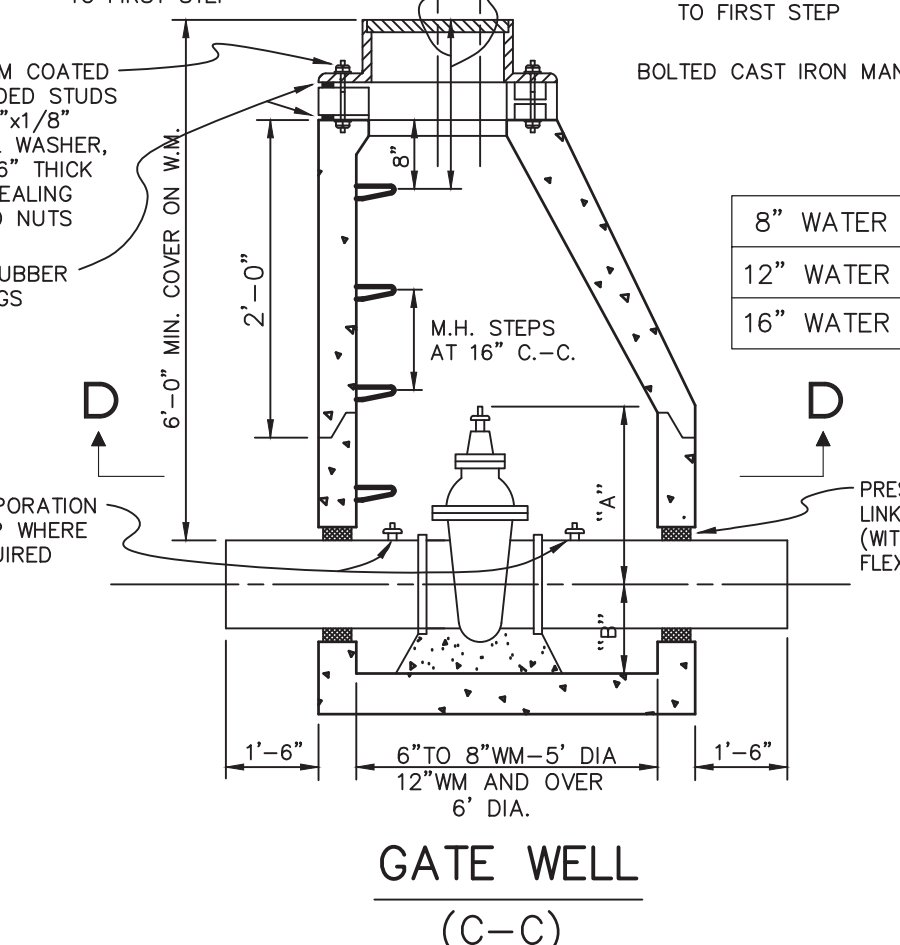
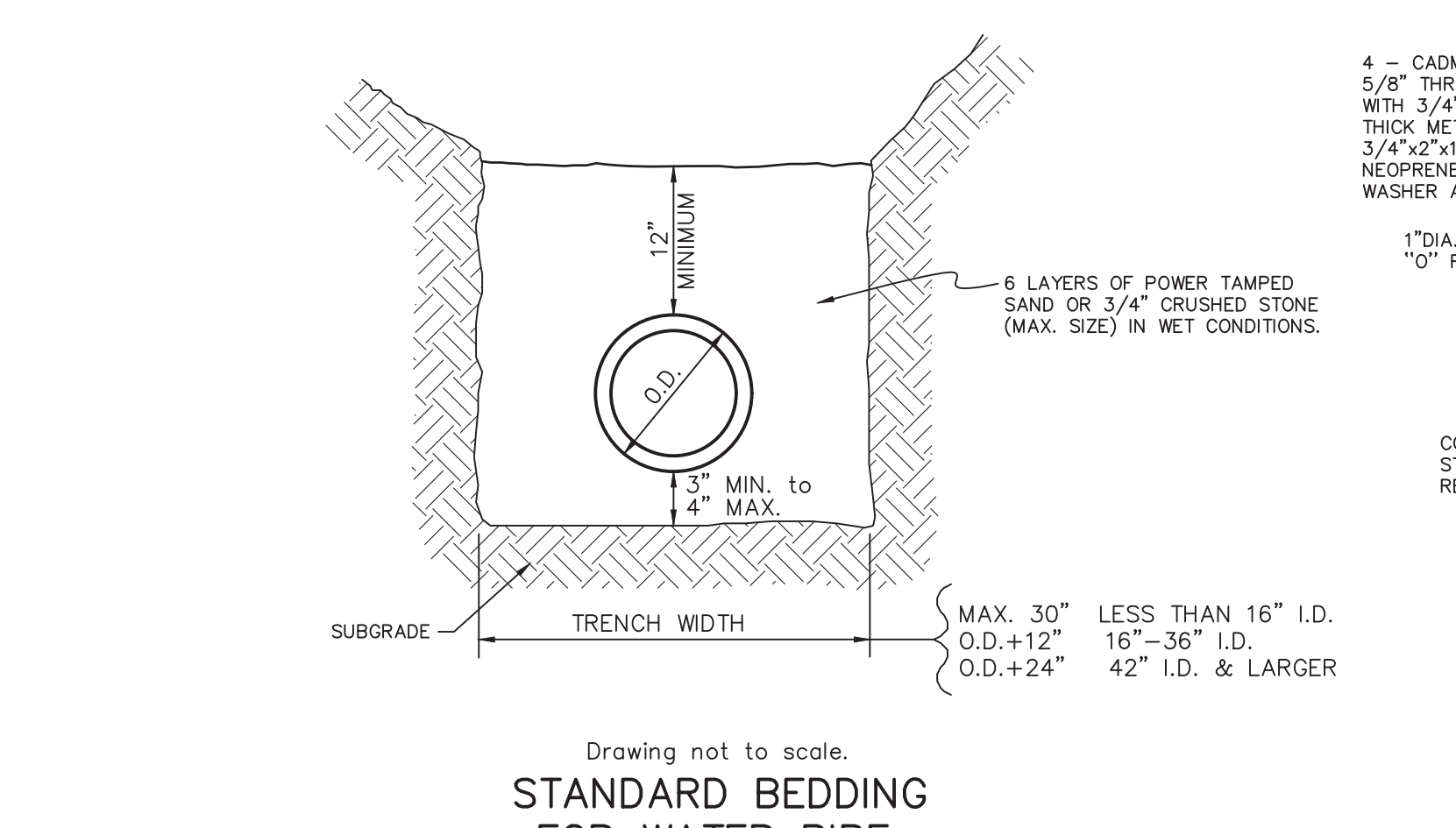
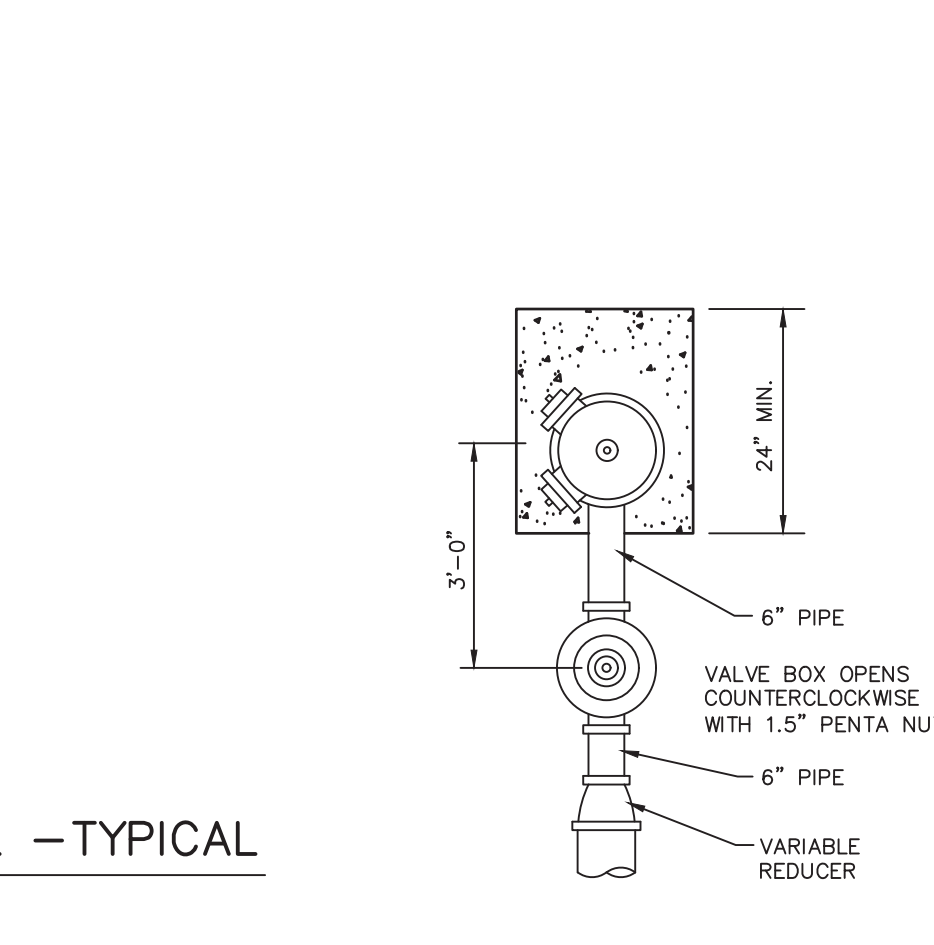
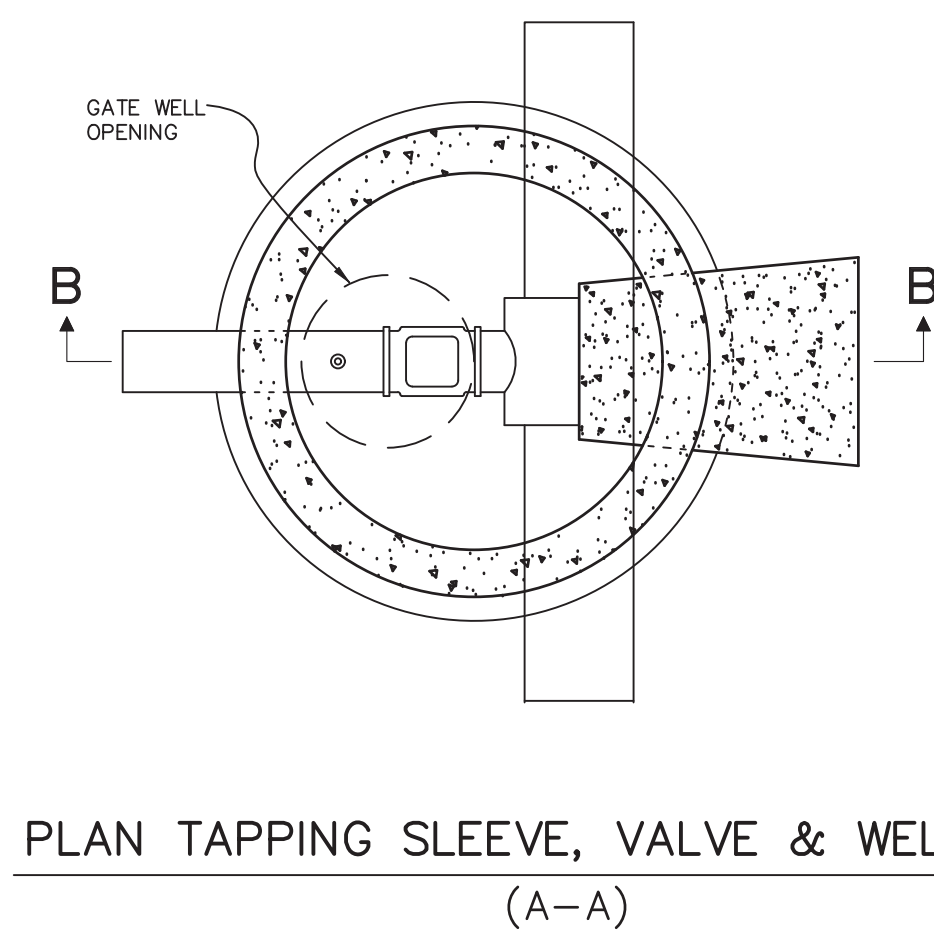
DATE	REVISION	BY	DESCRIPTION
09/28/23			
09/28/23			
SEPTEMBER 28, 2023			
23-01922			

SCALE: 1" = 30'

1 OF 1 SHEETS



- WATER MAIN NOTES**
- All construction procedures and materials used on this project shall conform to White Lake Township current standards and specifications.
 - 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" Storz quick connect nozzles (Harrington Integral Hydrant Storz, Model HHS) as manufactured by Harrington, Inc. of Erie, PA.
 - All hydrants shall be field painted with a heavy coat of bright safety red polyurethane or alkyl glass enamel, except for the Storz fittings and caps, which shall be left unpainted.
 - 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.
 - 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 bands, 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.
 - Tapping sleeve shall be mechanical joint or approved equal. Ductile iron or Stainless steel are allowed.
 - Specifications shall include direction of operation of all valves. All valves shall be counter clockwise open.
 - All necessary easements shall be provided in the name of White Lake Township before acceptance of the water distribution system.
 - The design engineer shall furnish White Lake Township with one reproducible set of "As-Built" water main plans or an AutoCAD file upon completion of the job.
 - 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.
 - 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 cover, solid lid cover shall be non-rocking and marked "White Lake Water Department"
 - 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.
 - 1" corporation stops are to be 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.
 - 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.
 - 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.
 - 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.
 - Adjustments on gate wells shall be limited to 23" maximum from top of rim to first step in accordance with MIOSHA Rule 341.
 - 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 D2277-03 (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-301 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.
- Standard pipe cover shall be 6'-0".
 - 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 or discharge shall be extended to within 12" of the top of the structure. A goose-neck trap shall be installed at the top of the riser to prevent debris & water from entering the valve.



DRAWN: CAD DESIGN: OA CHECKED: -

SCALE: VERT. - HORIZ. AS NOTED

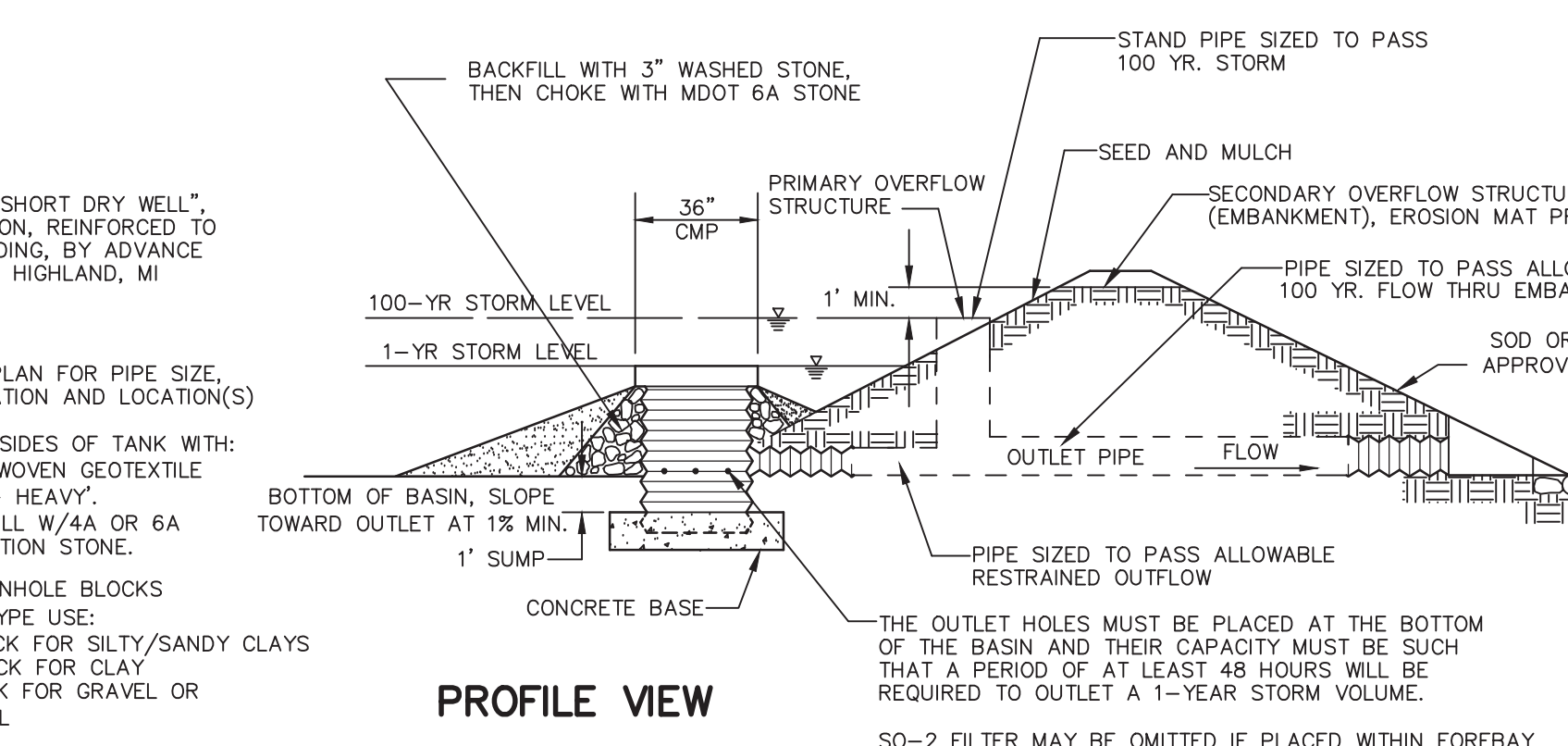
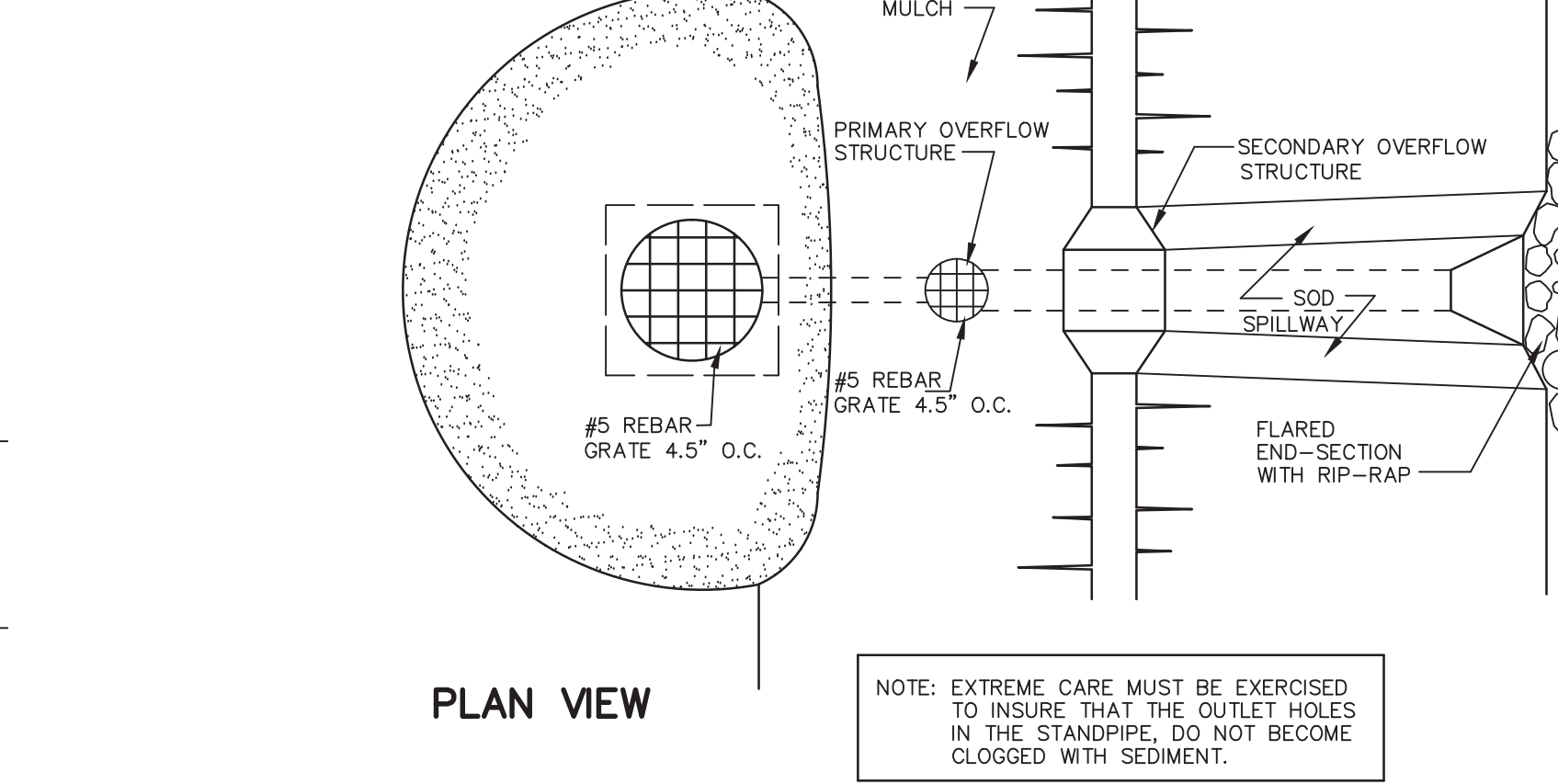
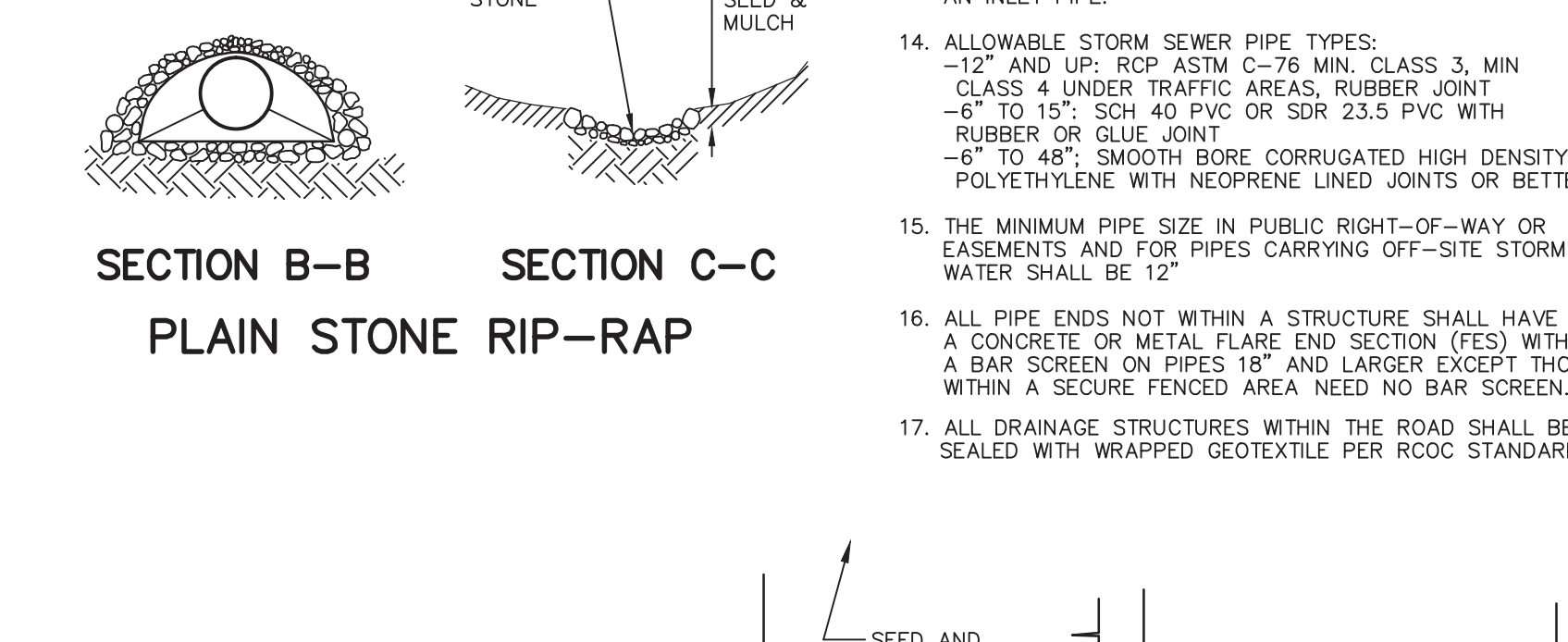
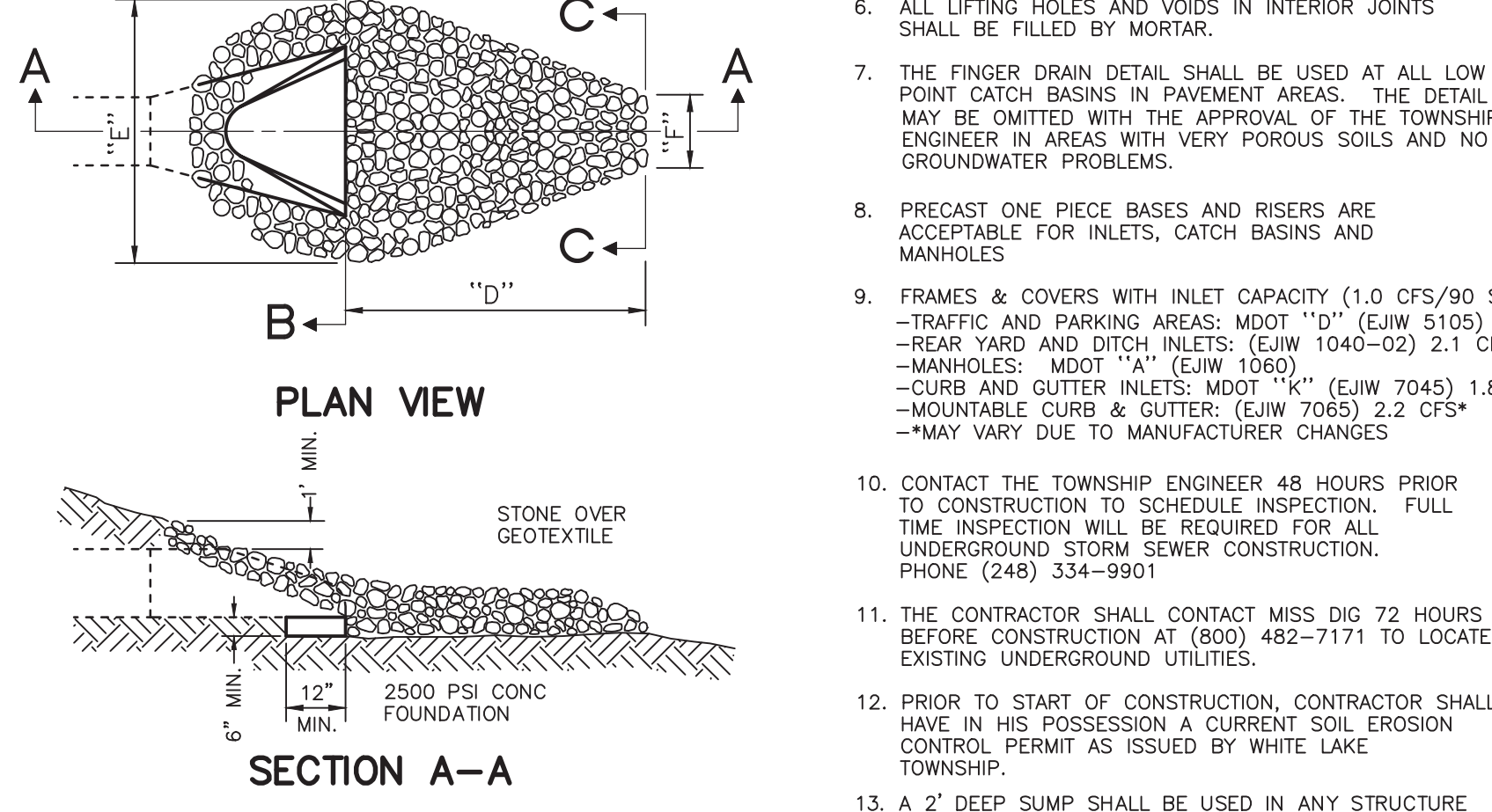
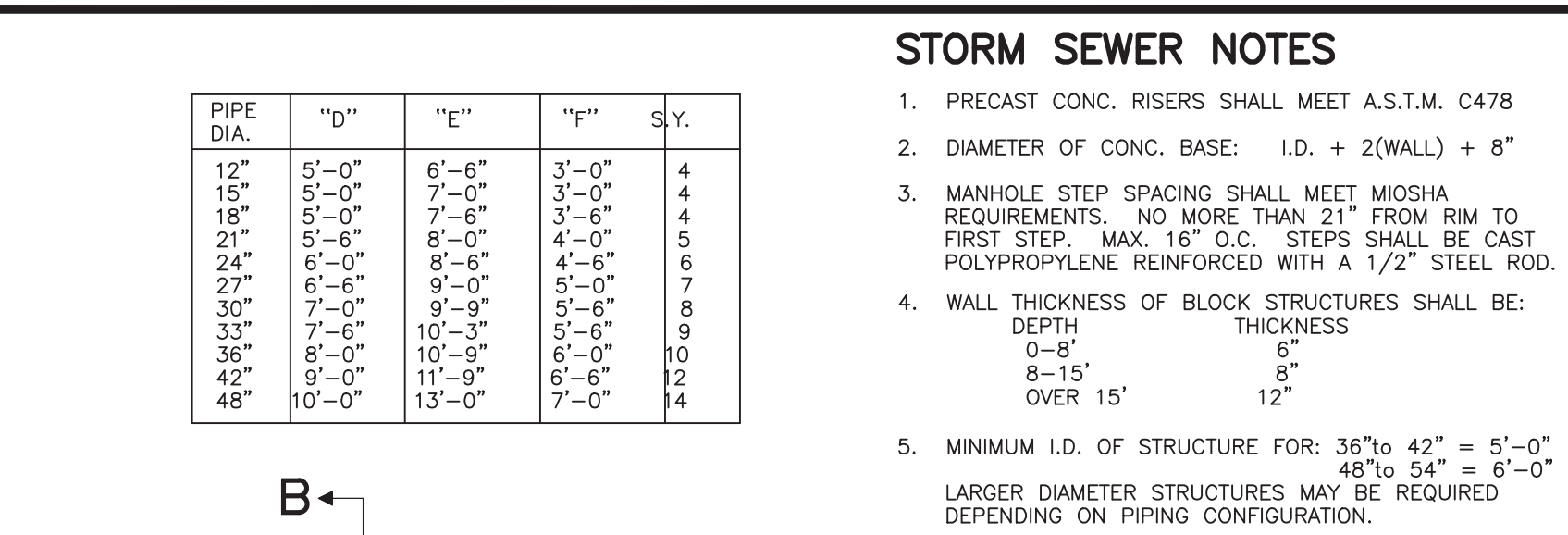
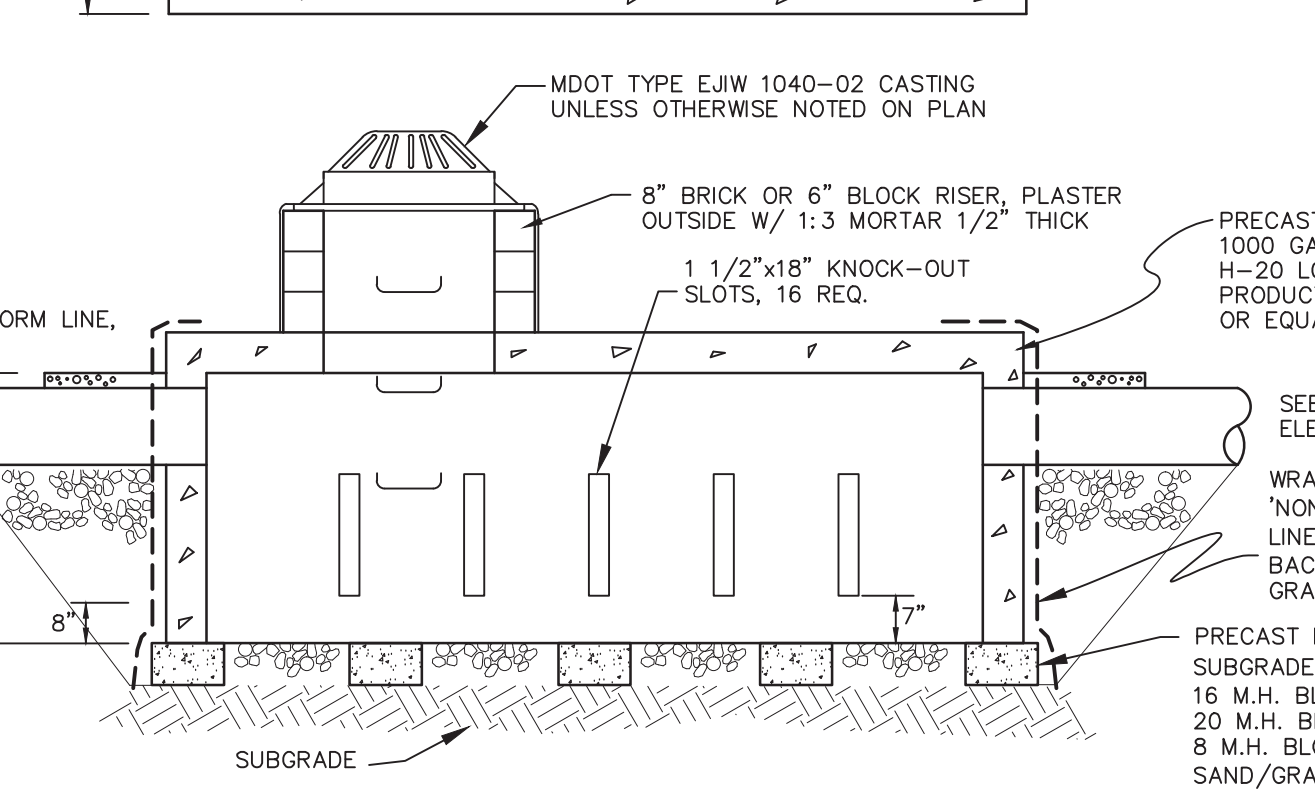
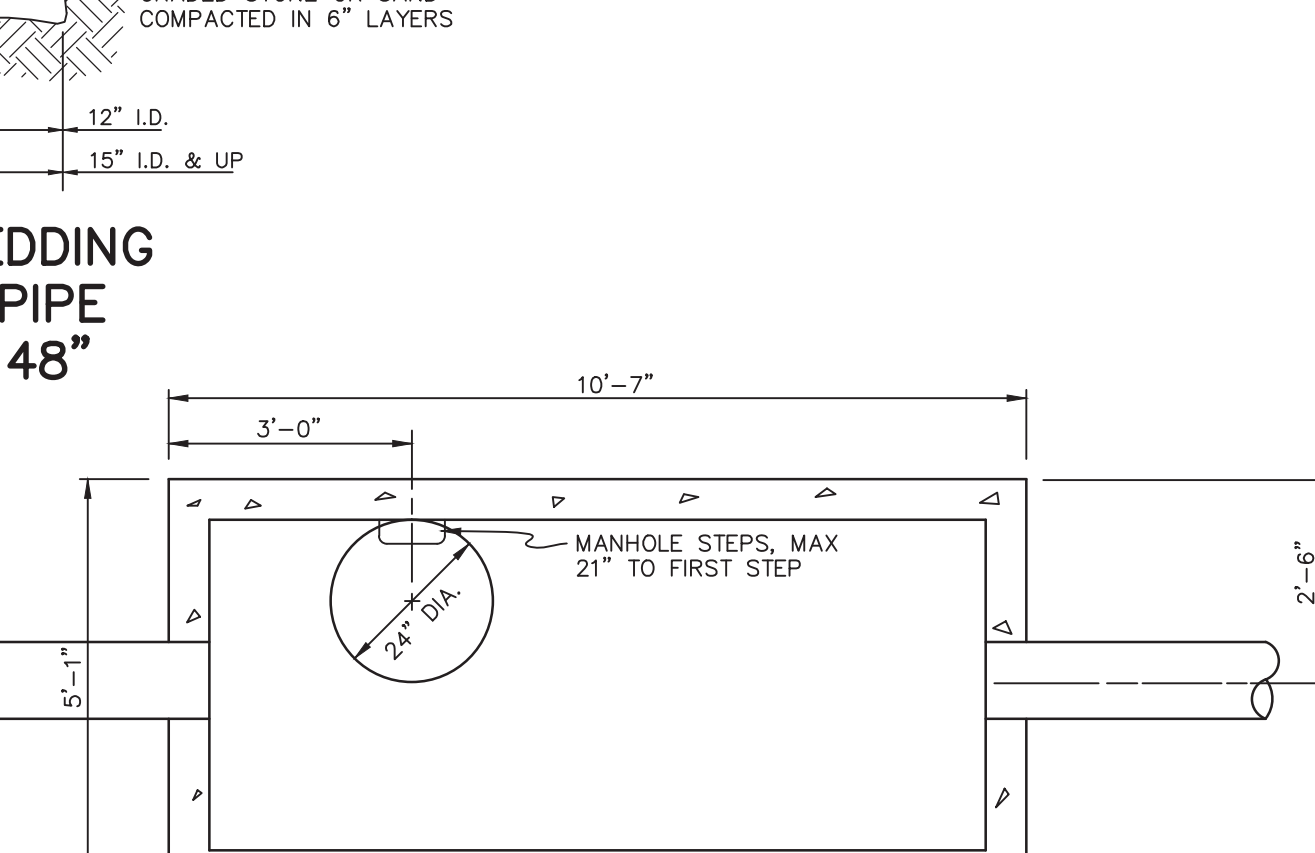
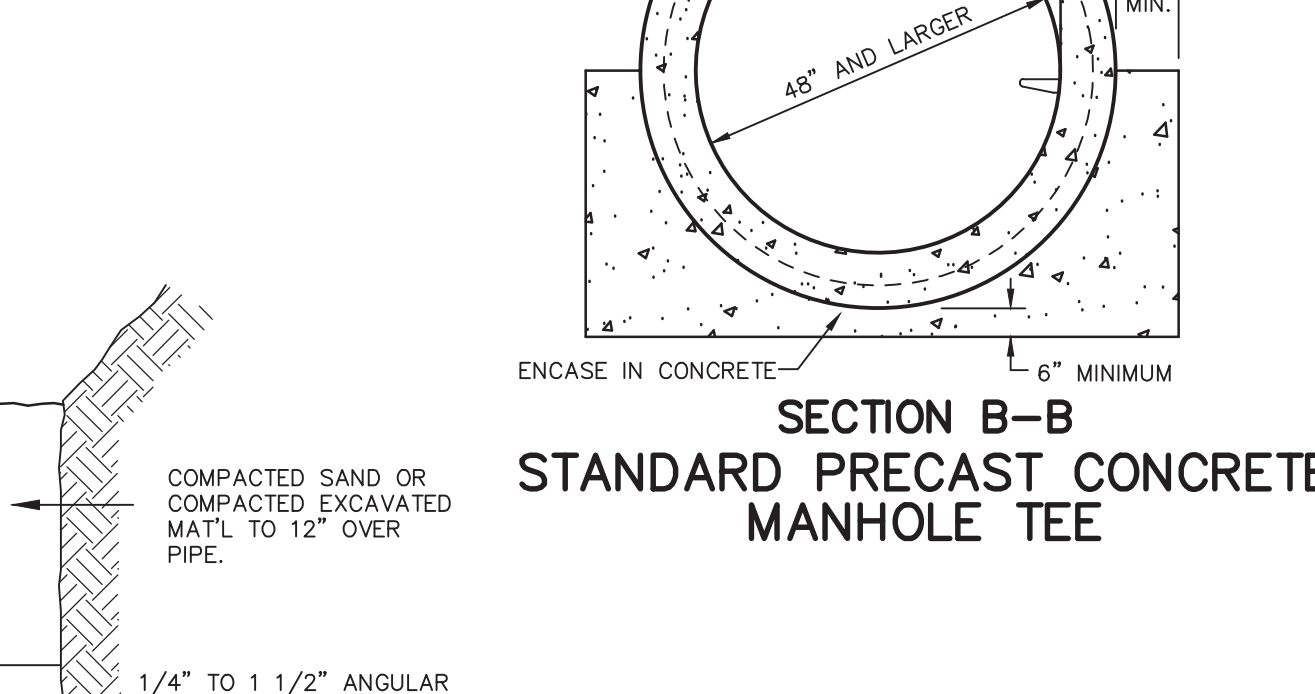
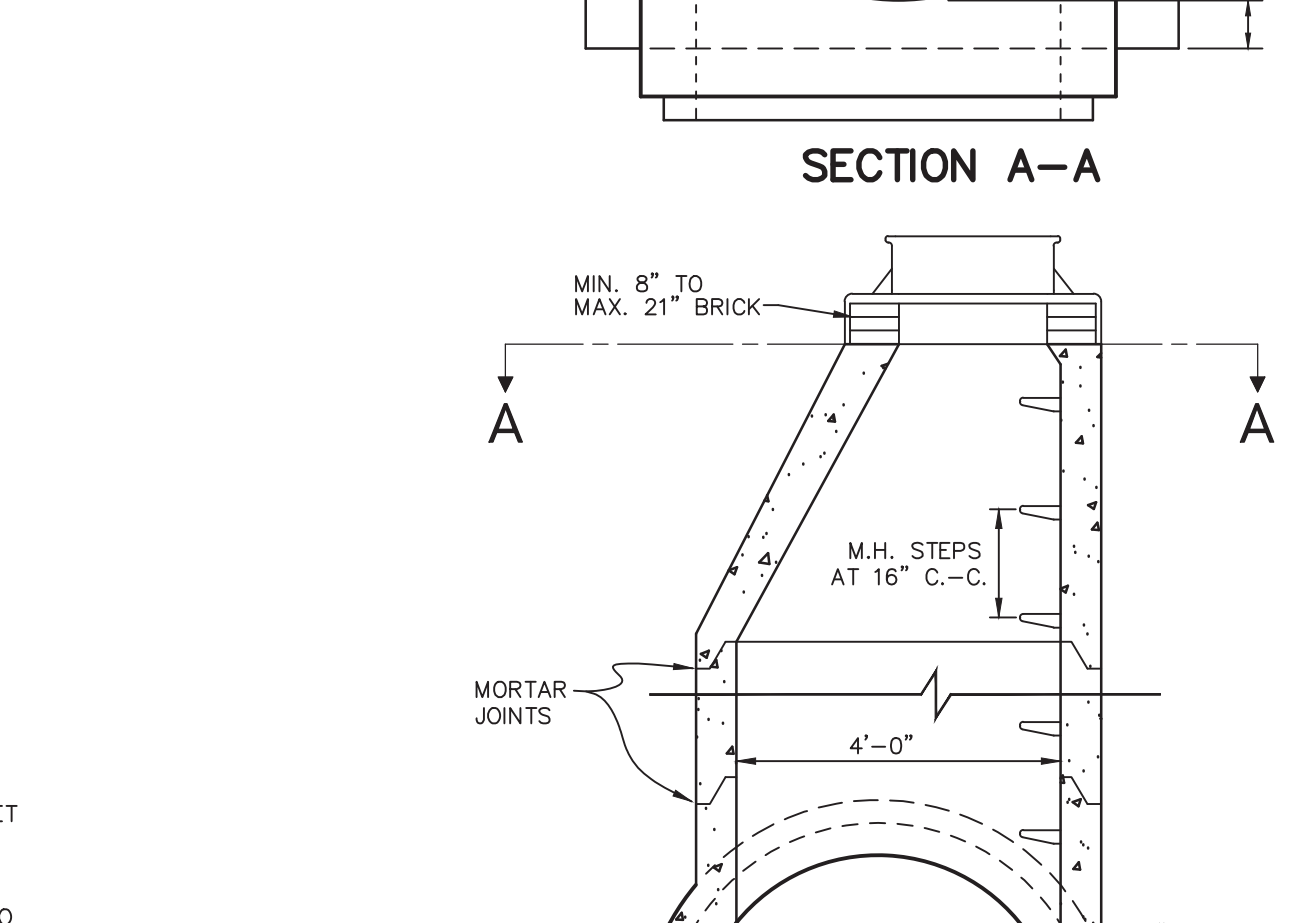
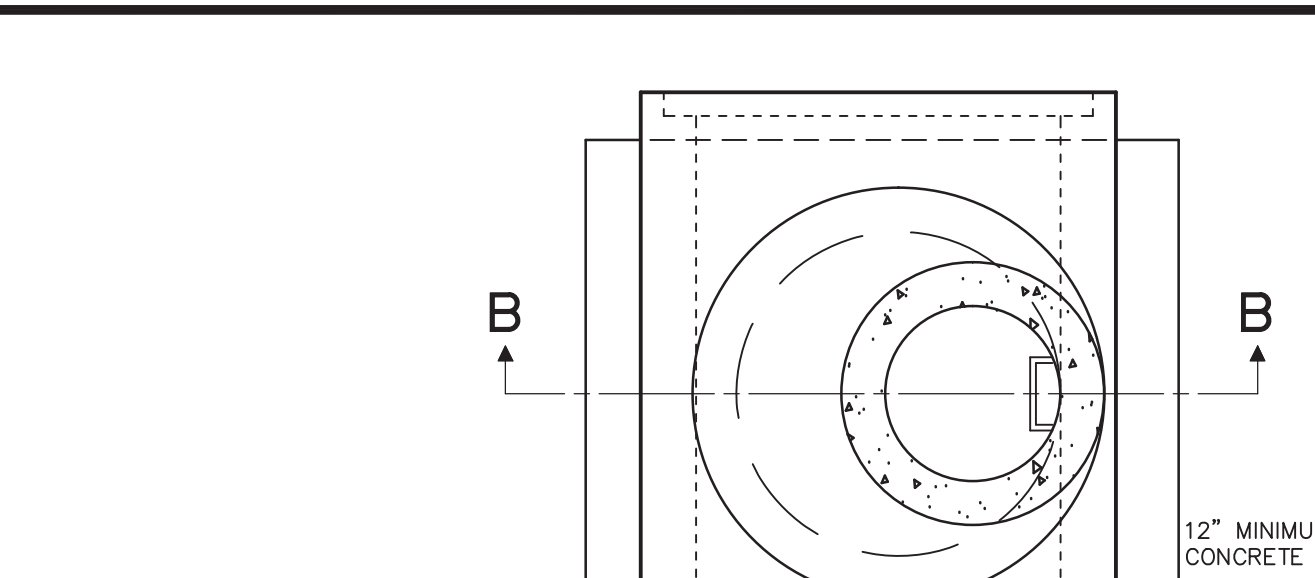
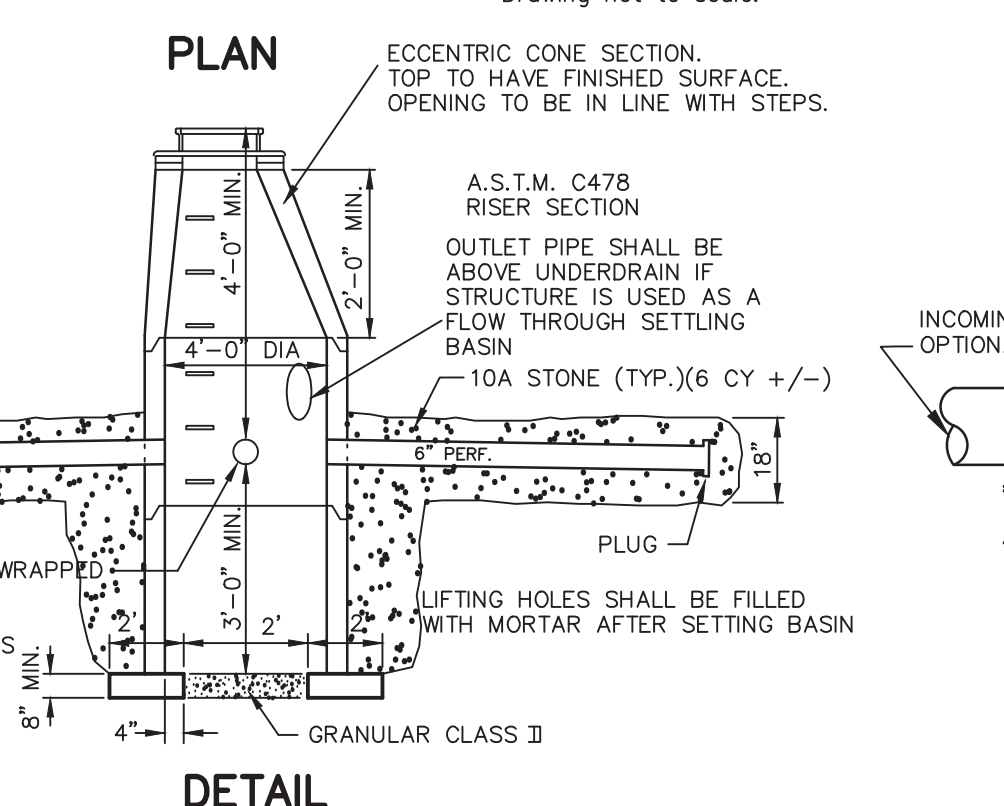
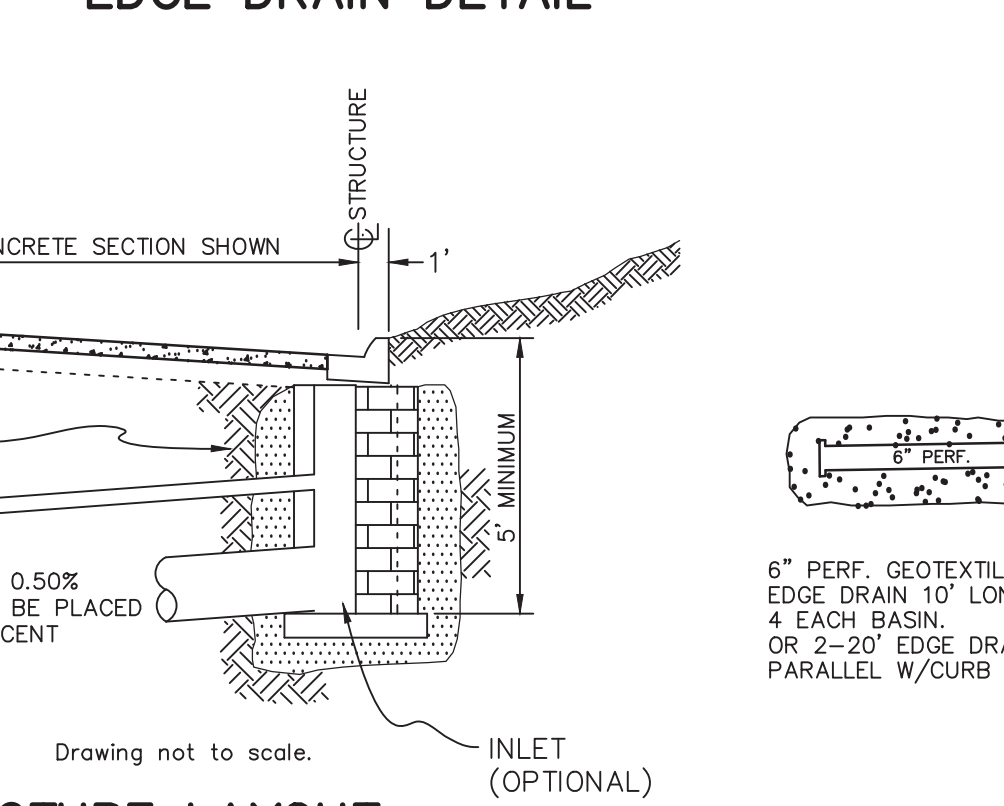
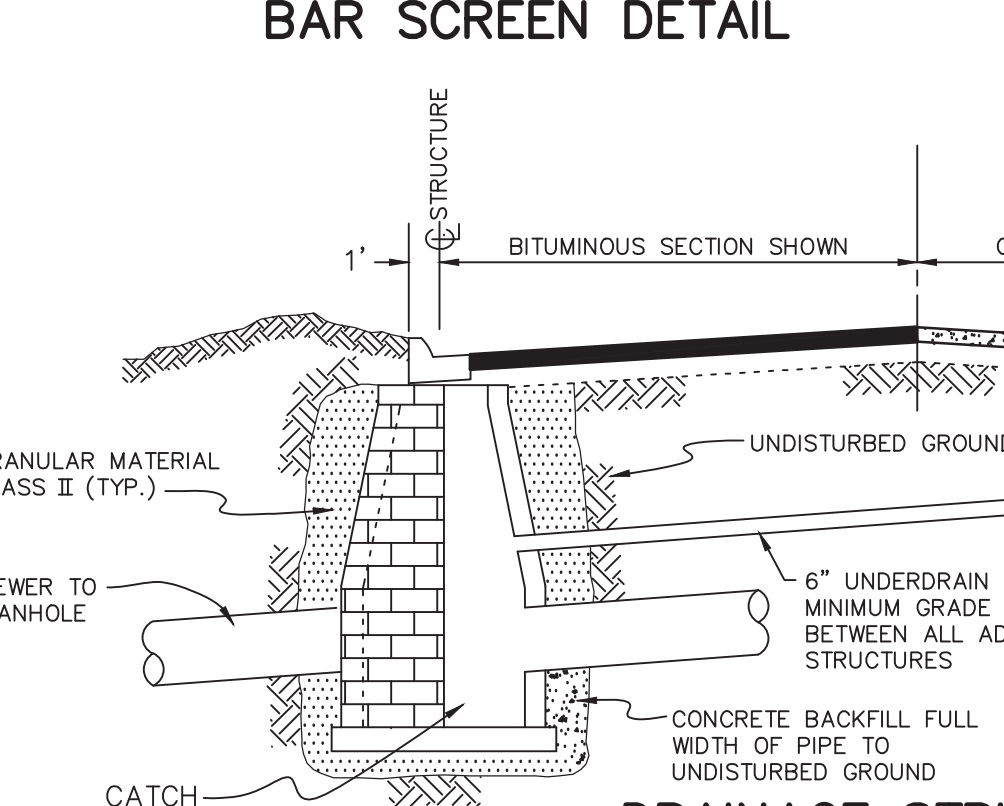
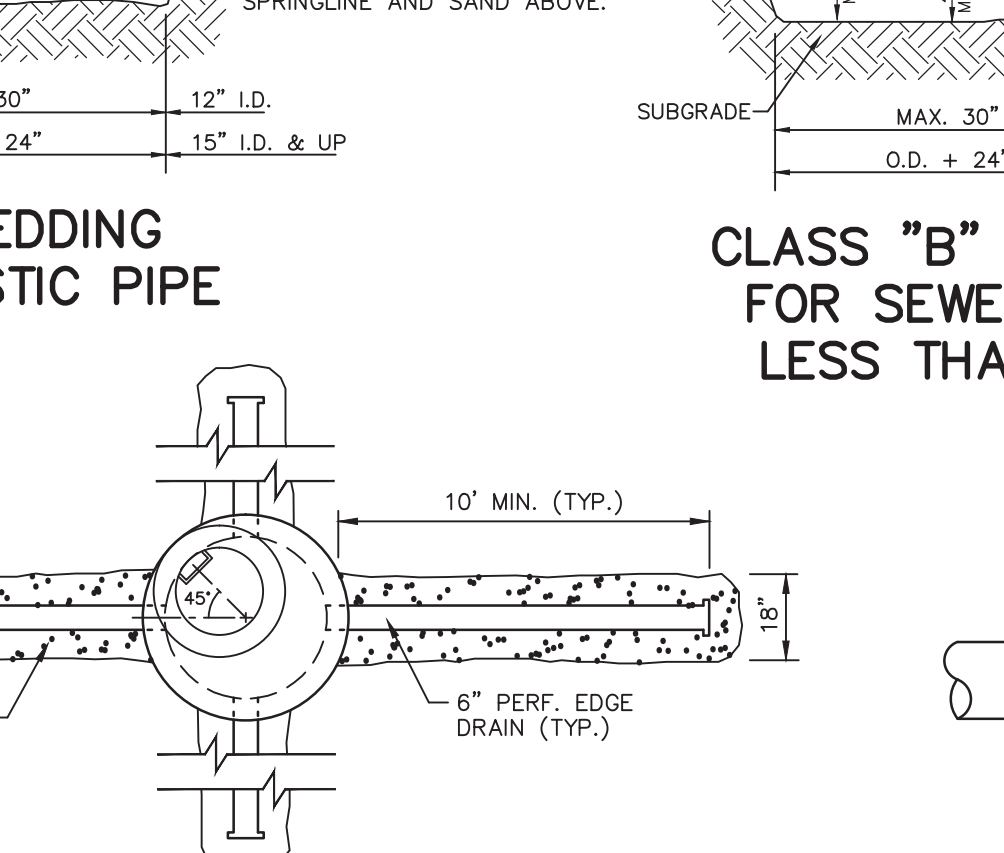
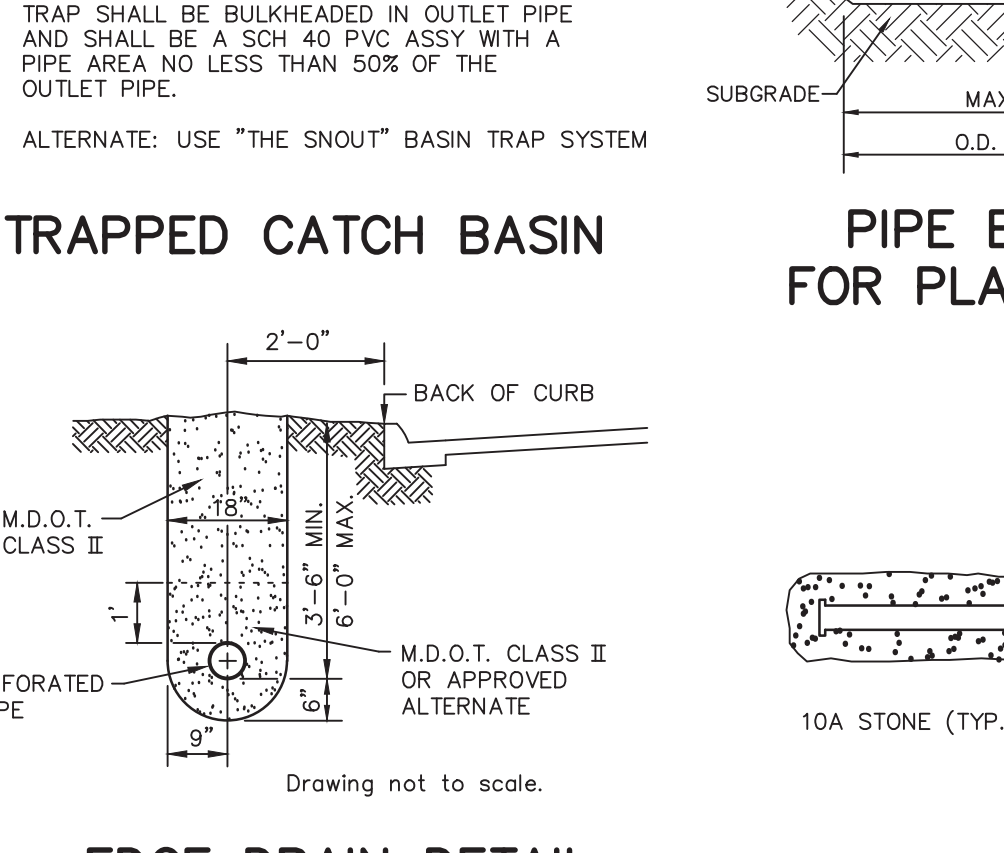
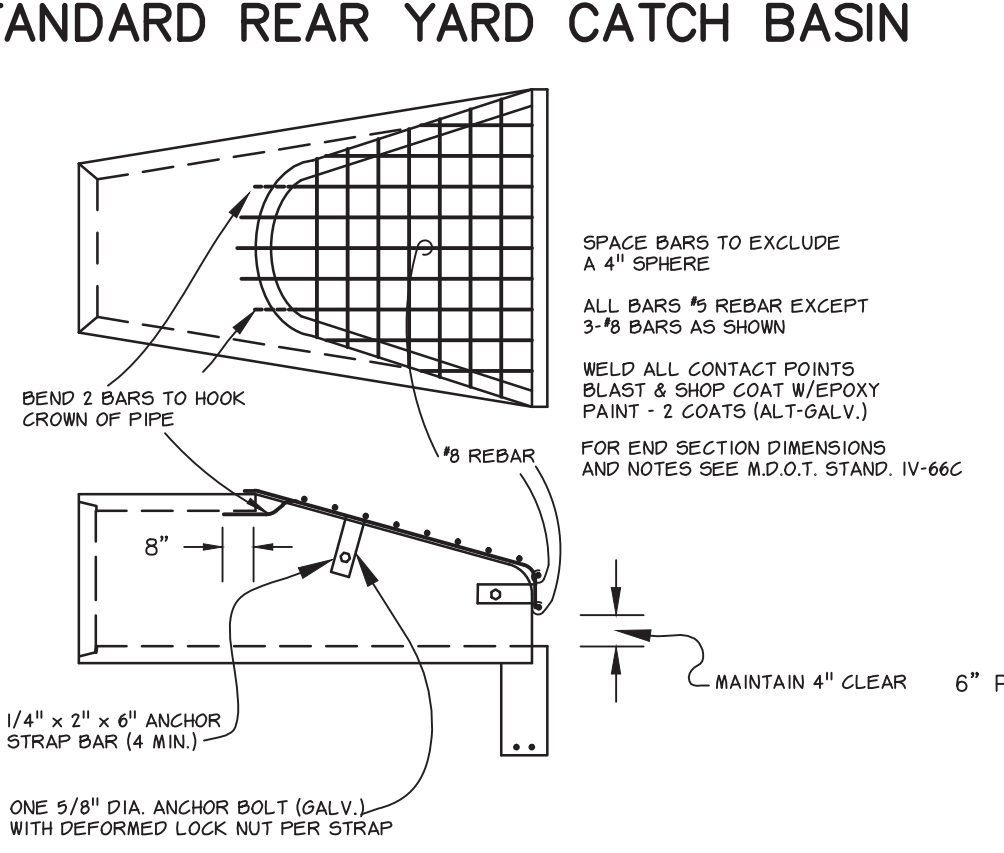
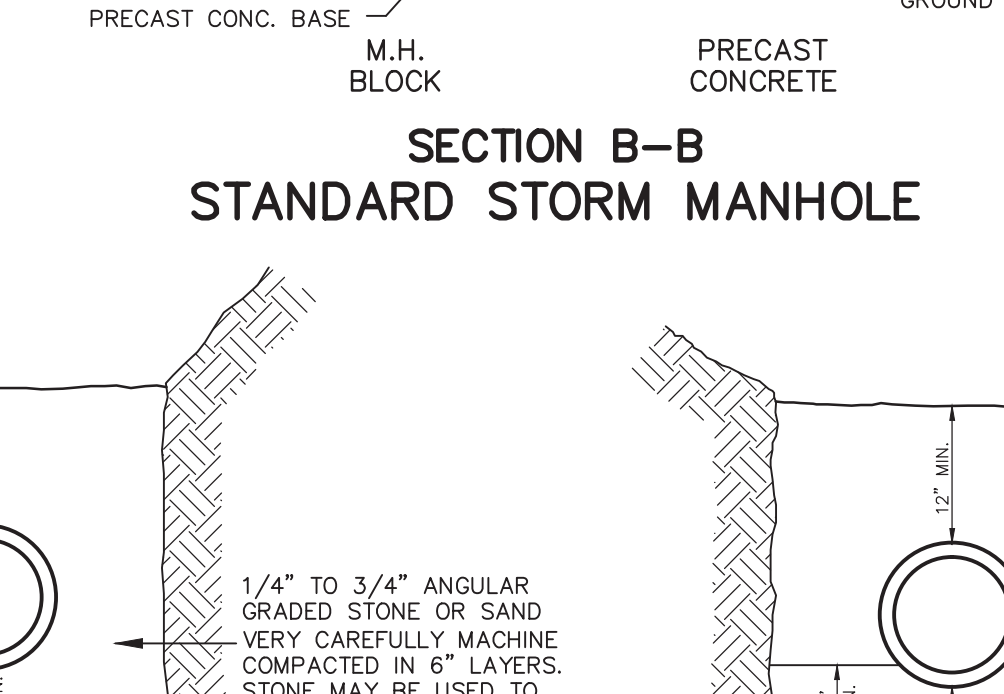
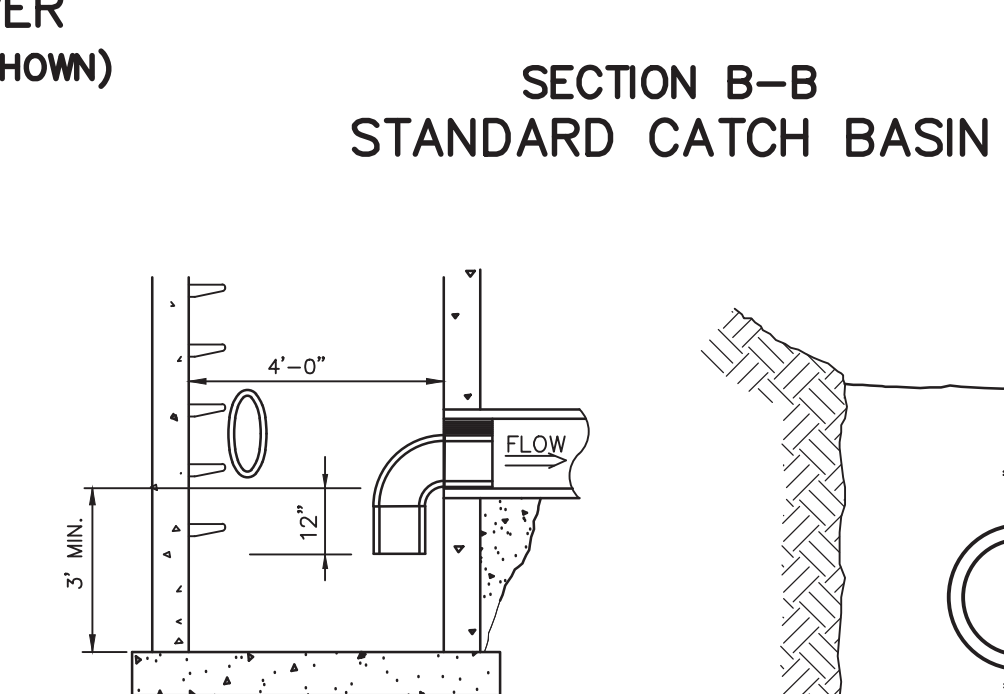
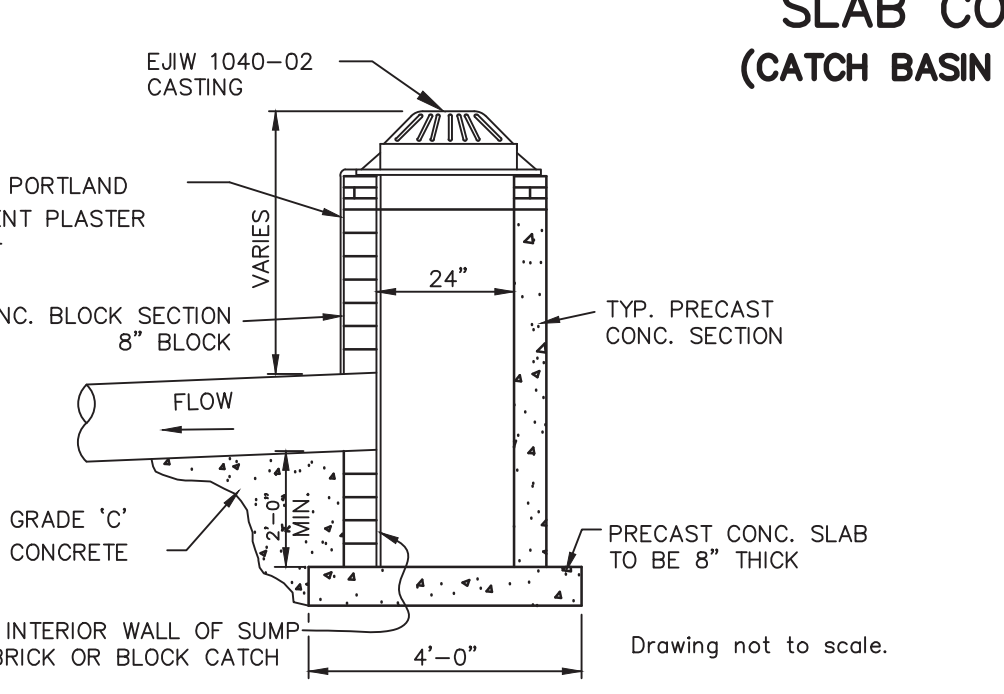
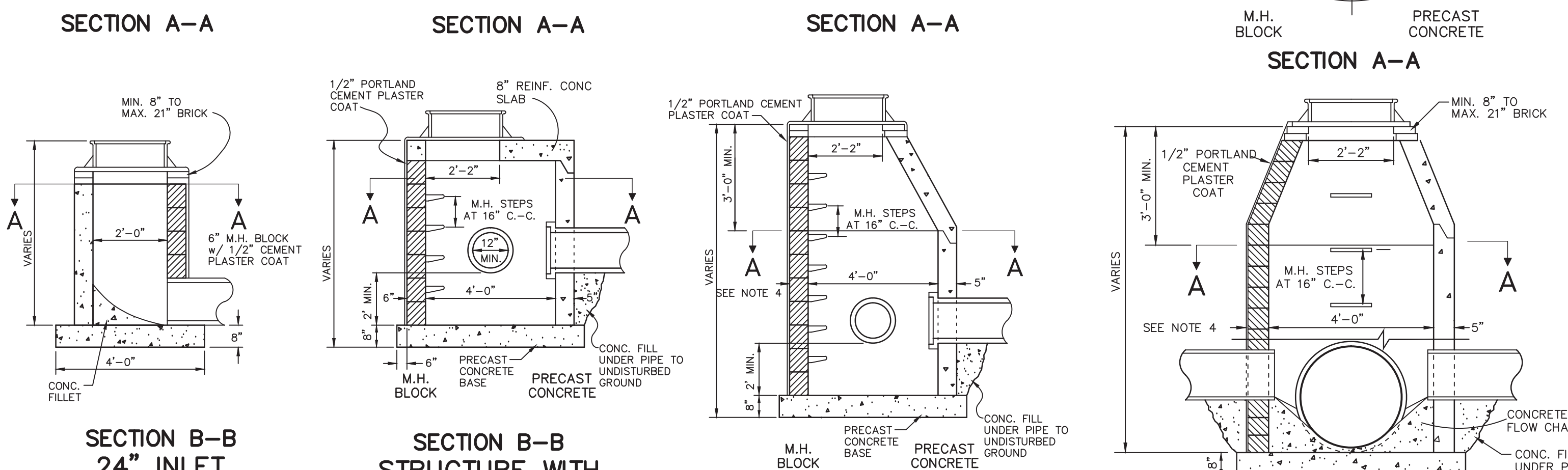
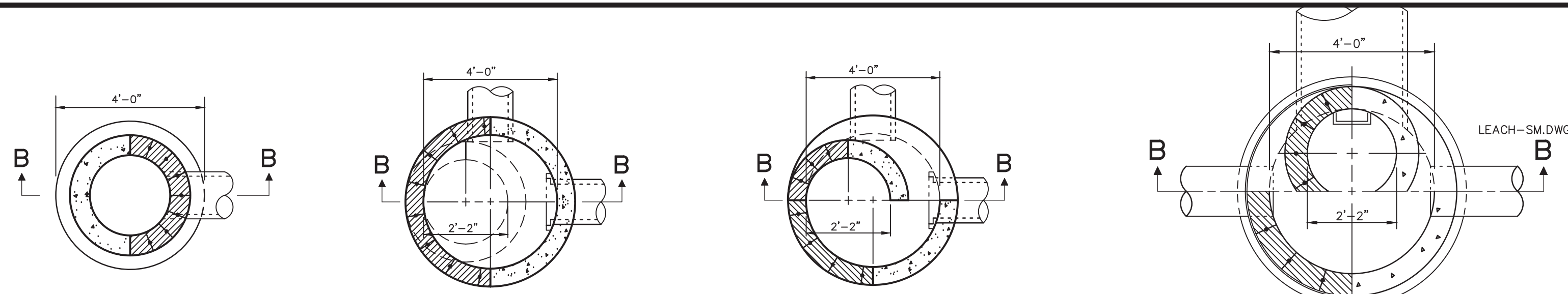
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	GENERAL	REVISION TO CAD	12/29/95	GW & NUT SIZE	07/23/98	CLARIFY HYD. SPEC	02/07/01	REV. HYD., THRUST, AIR REL.	03/29/04
	ADD NOTE	17	11/04/97	PIPE COVER & FLANGE TAPE	05/12/99	5-BR HYD, WS STAKE	02/27/02	HDPE, HYD, VALVES	07/18/05
	REVISE	HYD. & THRUSTING	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
 2291 Water Street, Suite 6 Port Huron, Michigan 48060
 (248) 881-7800 (248) 881-2660 (231) 780-3100 (231) 780-3115 (810) 987-7820 (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. _____



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'-0"	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'-6"	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

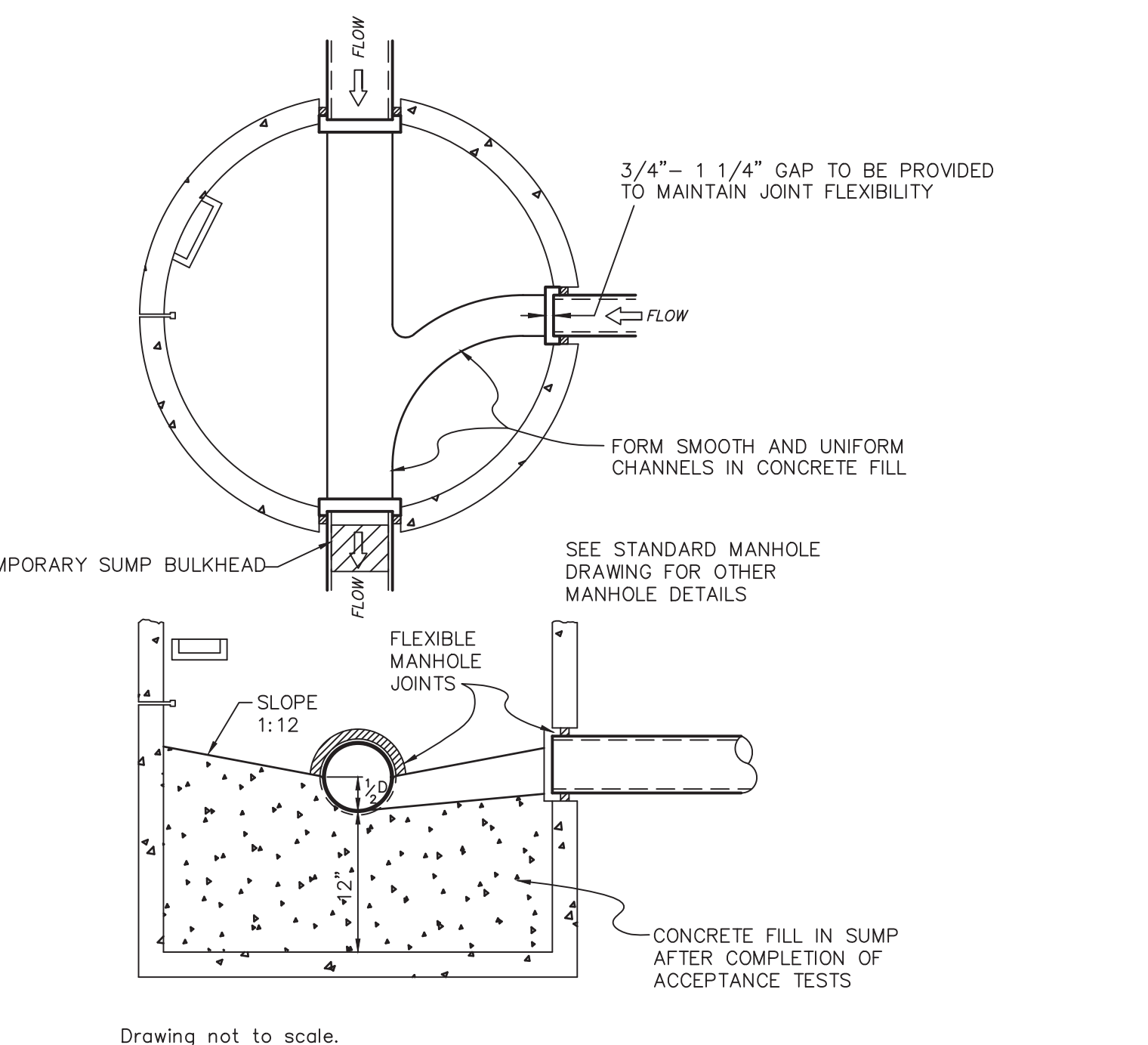
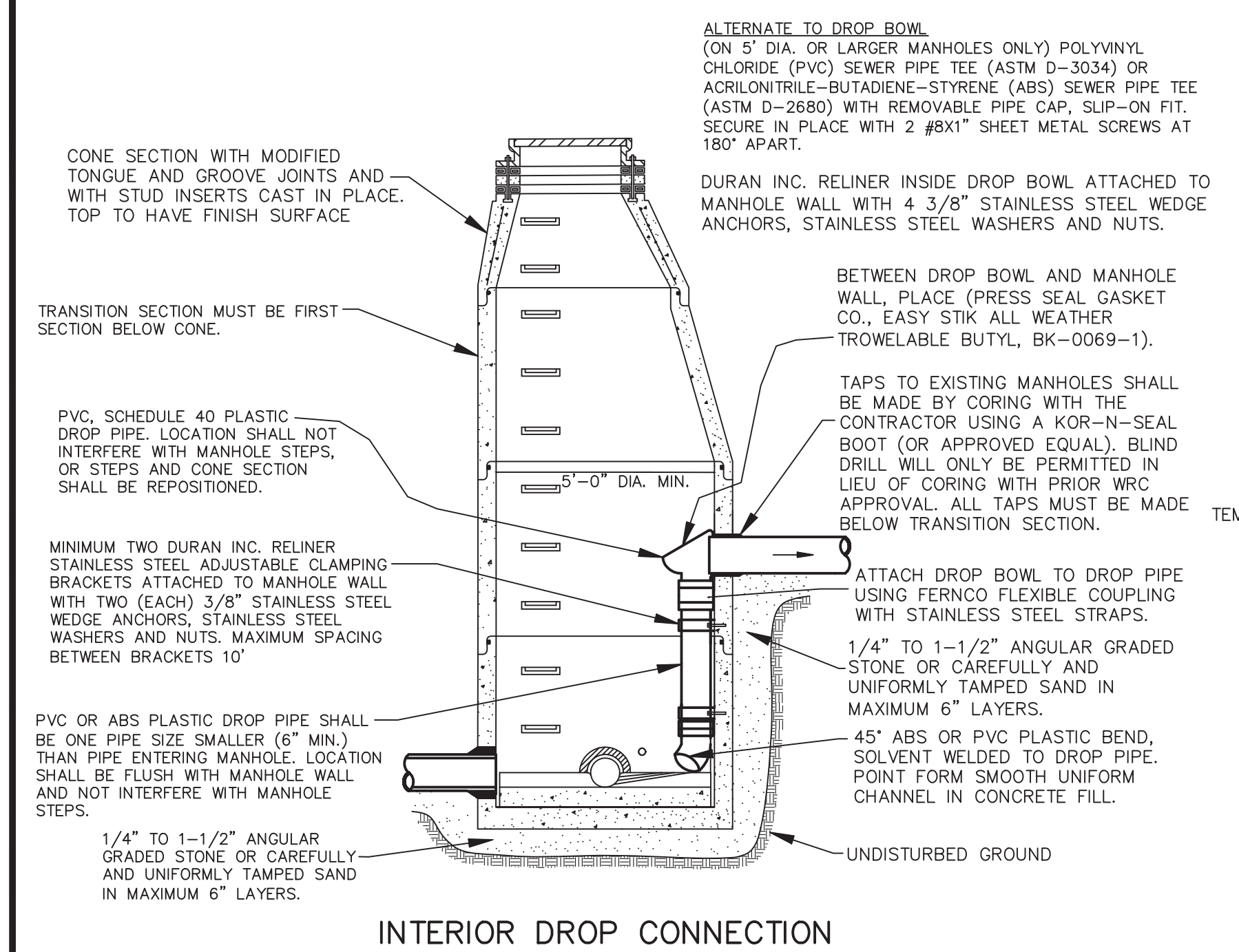
- STORM SEWER NOTES**
- PRECAST CONC. RISERS SHALL MEET A.S.T.M. C478
 - DIAMETER OF CONC. BASE: I.D. + 2(WALL) + 8"
 - MANHOLE STEP SPACING SHALL MEET MIOSHA REQUIREMENTS. NO MORE THAN 21" FROM RIM TO FIRST STEP. MAX. 16" O.C. STEPS SHALL BE CAST POLYPROPYLENE REINFORCED WITH A 1/2" STEEL ROD.
 - WALL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

DEPTH	THICKNESS
0-8'	6"
8-15'	8"
OVER 15'	12"
 - 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.
 - ALL LIFTING HOLES AND VOIDS IN INTERIOR JOINTS SHALL BE FILLED BY MORTAR.
 - 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.
 - PRECAST ONE PIECE BASES AND RISERS ARE ACCEPTABLE FOR INLETS, CATCH BASINS AND MANHOLES
 - FRAMES & COVERS WITH INLET CAPACITY (1.0 CFS/90 SQ IN) -TRAFFIC AND PARKING AREAS: MDOT "D" (EJW 5105) 1.9 CFS* -REAR YARD AND DITCH INLETS: (EJW 1040-02) 2.1 CFS* -MANHOLES: MDOT "A" (EJW 1060) -CURB AND GUTTER INLETS: MDOT "K" (EJW 7045) 1.8 CFS* -MOUNTABLE CURB & GUTTER: (EJW 7065) 2.2 CFS* *MAY VARY DUE TO MANUFACTURER CHANGES
 - 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
 - THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (800) 482-7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
 - PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY WHITE LAKE TOWNSHIP.
 - A 2' DEEP SUMP SHALL BE USED IN ANY STRUCTURE SUBJECT TO A WATER DROP GREATER THAN 2.0' FROM AN INLET PIPE.
 - 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
 - THE MINIMUM PIPE SIZE IN PUBLIC RIGHT-OF-WAY OR EASEMENTS AND FOR PIPES CARRYING OFF-SITE STORM WATER SHALL BE 12"
 - 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.
 - ALL DRAINAGE STRUCTURES WITHIN THE ROAD SHALL BE SEALED WITH WRAPPED GEOTEXTILE PER ROC STANDARD

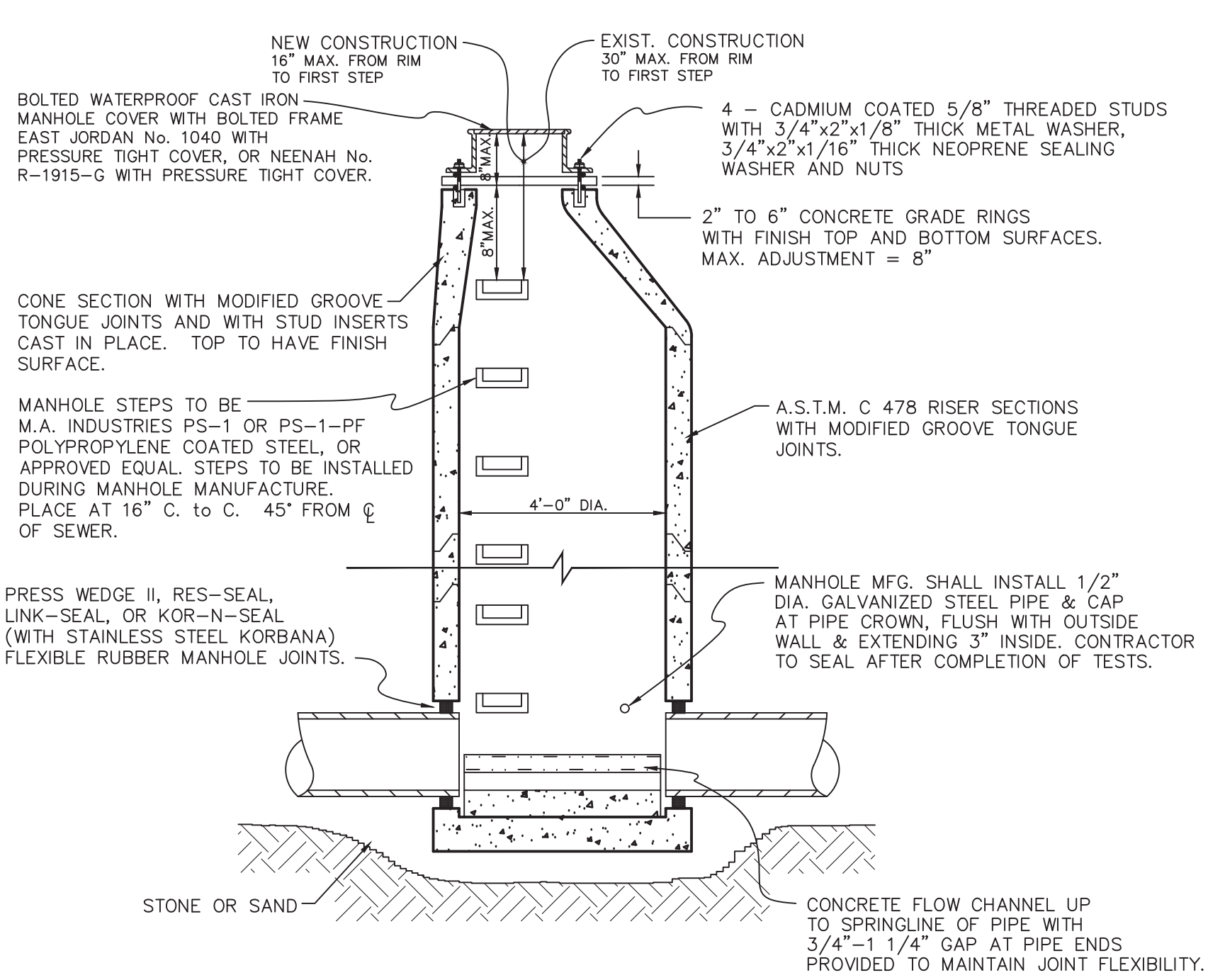
<p>REVISIONS</p> <table border="1"> <tr><th>MARK</th><th>ADDENDUM/CHANGE ORDER</th><th>DATE</th><th>MARK</th><th>ADDENDUM/CHANGE ORDER</th><th>DATE</th><th>MARK</th><th>ADDENDUM/CHANGE ORDER</th><th>DATE</th></tr> <tr><td></td><td>FIRST ISSUE</td><td>08/16/95</td><td></td><td>REVISE</td><td>10-03-02</td><td></td><td>REVISE</td><td>06-01-07</td></tr> <tr><td></td><td>ADD SO-1</td><td>06-17-96</td><td></td><td>REVISE</td><td>12-17-03</td><td></td><td>UPDATED TITLE BLOCK</td><td>04/30/13</td></tr> <tr><td></td><td>NEW BAR GRATE</td><td>11-03-97</td><td></td><td>SEC REFERENCE</td><td>05-17-05</td><td></td><td></td><td></td></tr> </table>	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				<p>Johnson & Anderson</p> <p>4494 Elizabeth Lake Road Waterford, Michigan 48328 tel (248) 681-7800 fax (248) 681-2660</p> <p>1060 W. Norton Avenue, Suite 7 Muskegon, Michigan 49441 tel (231) 780-3100 fax (231) 780-3115</p> <p>3910 Lapeer Road Port Huron, Michigan 48060 tel (810) 987-7820 fax (810) 987-7895</p>	<p>White Lake Township 7525 Highland Road (M-59) White Lake, Michigan 48383 248-698-3300</p>		<p>STORM SEWER STANDARD DETAILS</p> <p>DATE ISSUED 08/16/95</p> <p>SHEET NO.</p>	<p>JOB NO.</p> <p>DATE ISSUED</p> <p>08/16/95</p> <p>SHEET NO.</p>
MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE																																	
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	NEW BAR GRATE	11-03-97		SEC REFERENCE	05-17-05																																				

SANITARY SEWER CONSTRUCTION NOTES

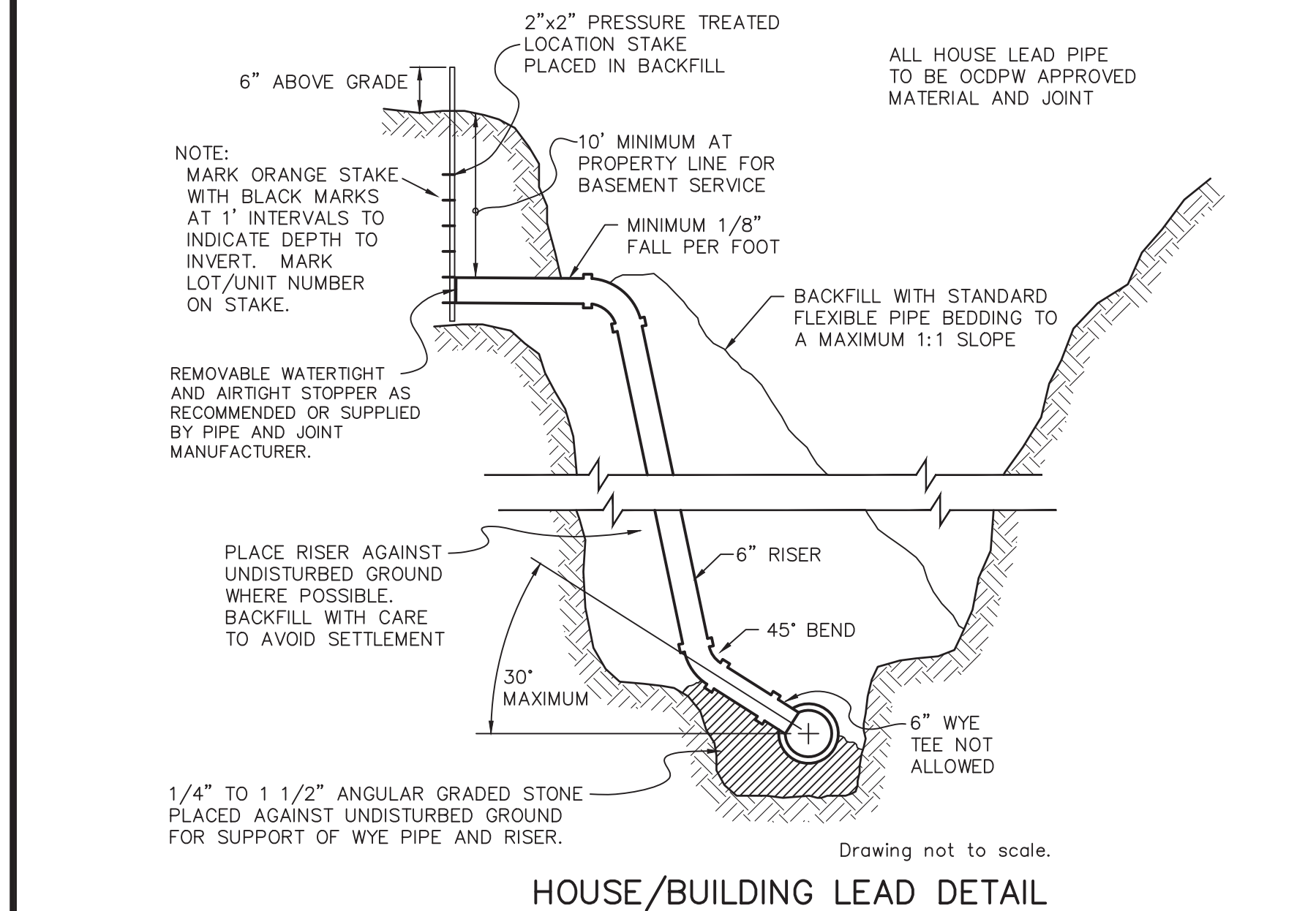
- All construction shall conform to the current standards and specifications of the local unit of government and the Oakland County Water Resources Commissioner (OCWRC). All sanitary sewer construction shall have full time inspection supervised by a professional engineer provided by or caused to be provided by the local unit of government.
- At all connections to Oakland County Water Resources Commissioner's sewers or extensions, and before start of construction, the Contractor must obtain a Sewer Inspection Permit issued by the OCWRC. Gravity sewer permit charges are \$250.00 for each connection plus \$25.00 for each manhole constructed. Pressure sewer permit charges are \$250.00 per 2460 L.F. of force main with a minimum permit fee of \$250.00. Failure to pass any test segment will result in an additional charge to the Contractor for each retest, in accordance with the above price schedule. The Contractor shall also have posted with the OCWRC a \$5,000.00 surety bond and \$500.00 cash deposit. The Contractor shall notify the local unit of government and the OCWRC (248-858-1110) 24 hours prior to the beginning of any construction. Final acceptance tests must be witnessed by County personnel and must be scheduled by Municipality or its consultant in advance with 24 hour notice at 248-858-1110.
- No sewer installation shall have an infiltration or exfiltration exceeding 100 gallons per inch diameter per mile of pipe in a 24 hour period, and no single run of sewer between manholes shall exceed 100 gallons per inch diameter per mile. Air tests in lieu of infiltration tests shall be as specified in the OCWRC "Acceptance Tests", dated September, 1972. Only pipe and pipe joints approved by the Oakland County Water Resources Commissioner may be used for sanitary sewer construction.
- Located in the first manhole upstream from the point of all connections to an existing OCWRC sewer, or extension thereto, a temporary 12-inch deep sump shall be provided in the first manhole above the connection which will be filled in after such successful completion of any acceptance test up to the standard fill provided for the flow channel. A watertight bulkhead shall be provided on the downstream of the sump manhole.
- All building leads and risers shall be 6-inch S.D.R. 23.5 ABS OR PVC pipe with chemically fused joints, or an approved equal pipe and joint. Sewer pipe wye shall contain factory installed premium joint material of an approved type compatible with that of the building lead pipe used. Building leads to be furnished with removable air tight and water-tight stoppers.
- All rigid sewer pipe shall be installed in Class "B" bedding or better. All flexible, semi-flexible or composite sewer pipe shall be installed in conformance to the Oakland County Water Resources Commissioner specifications.
- All new manholes shall have Oakland County Water Resources Commissioner approved flexible, water-tight seals where pipes pass through walls. Manholes shall be of precast sections with modified groove tongue and rubber gasket type joints. Precast manhole cone sections shall be Oakland County Water Resources Commissioner approved modified eccentric cone type. All manholes shall be provided with bolted, water-tight covers.
- At all connections to manholes on Oakland County Water Resources Commissioner's sewers or extensions thereto drop connections will be required when the difference in invert elevations exceeds 18-inches. Outside drop connections only will be approved.
- Taps to existing manholes shall be made by coring. The Contractor shall place a KOR-N-SEAL boot (or OCWRC approved equal) after coring is completed. Blind drilling will not be permitted in lieu of coring.
- New manholes constructed directly on Oakland County Water Resources Commissioner's sewers shall be provided with covers reading "Oakland County - Sanitary" in raised letters. New manholes built over an existing sanitary sewer shall have monolithic poured bottoms.
- No ground water, storm water, construction water, downspout drainage or weep tile drainage shall be allowed to enter any sanitary sewer installation.
- Prior to excavation, the Contractor shall telephone MISS DIG (647-7344) for the location of underground pipeline and cable facilities, and shall also notify representatives of other utilities located in the vicinity of the work.
- 18" minimum vertical separation and 10' minimum horizontal separation must be maintained between sanitary sewer and water main.
- Manhole 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 TOWNSHIP SEWER DEPARTMENT."



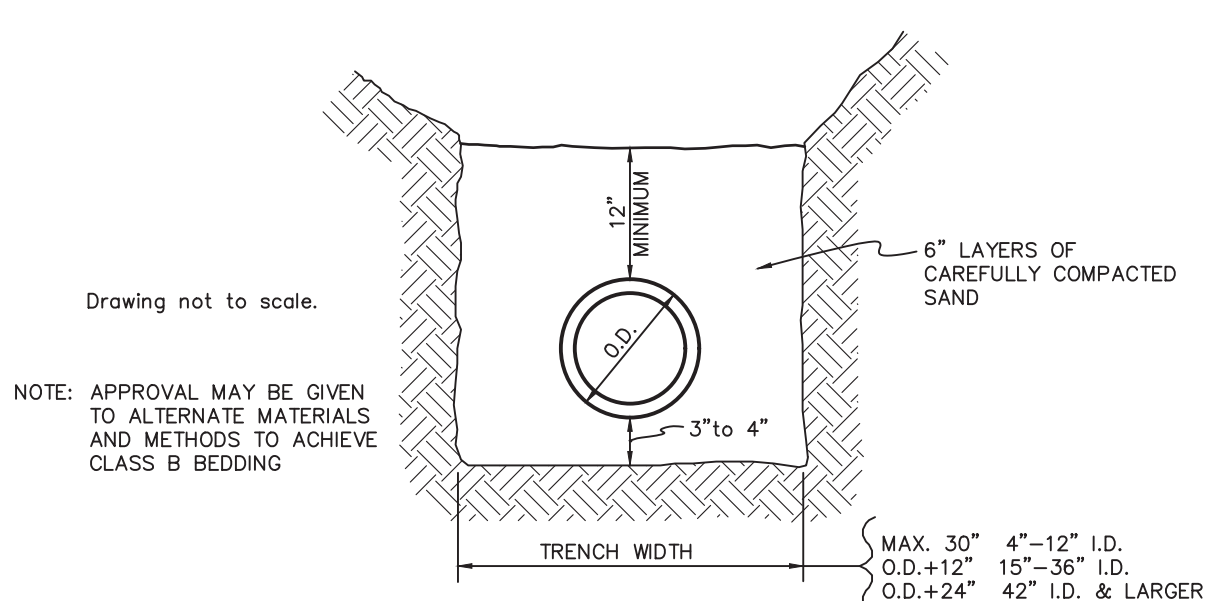
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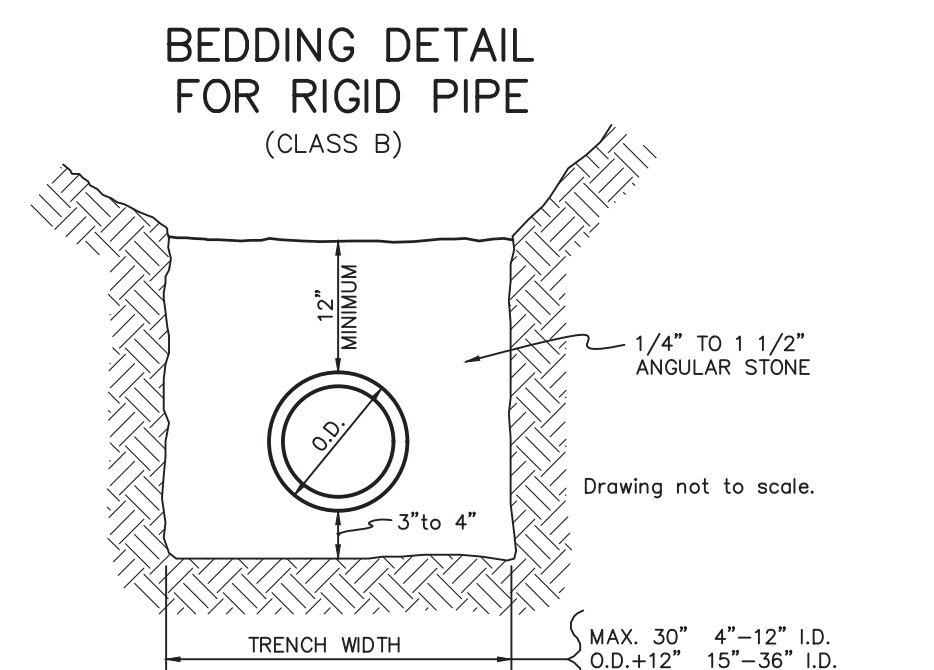
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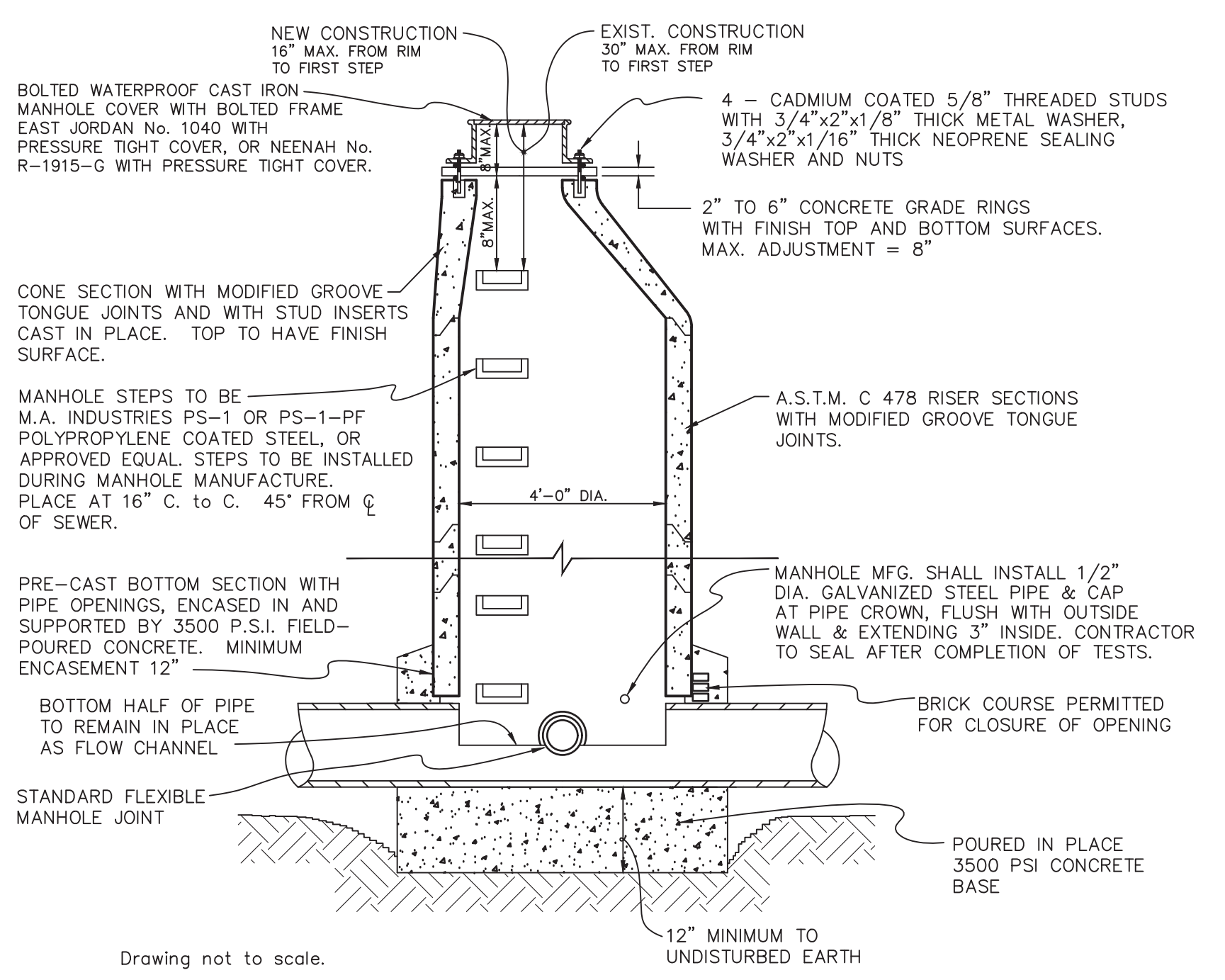
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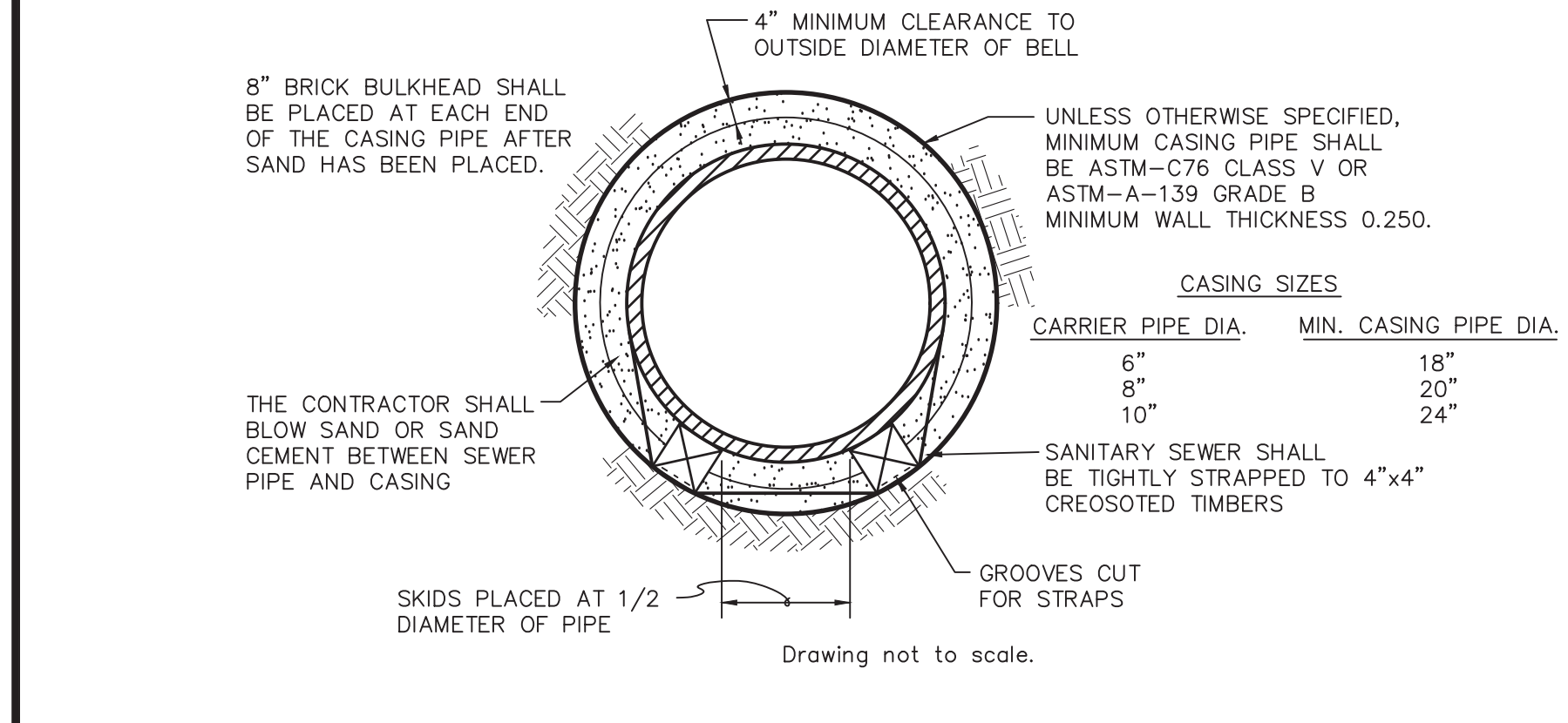
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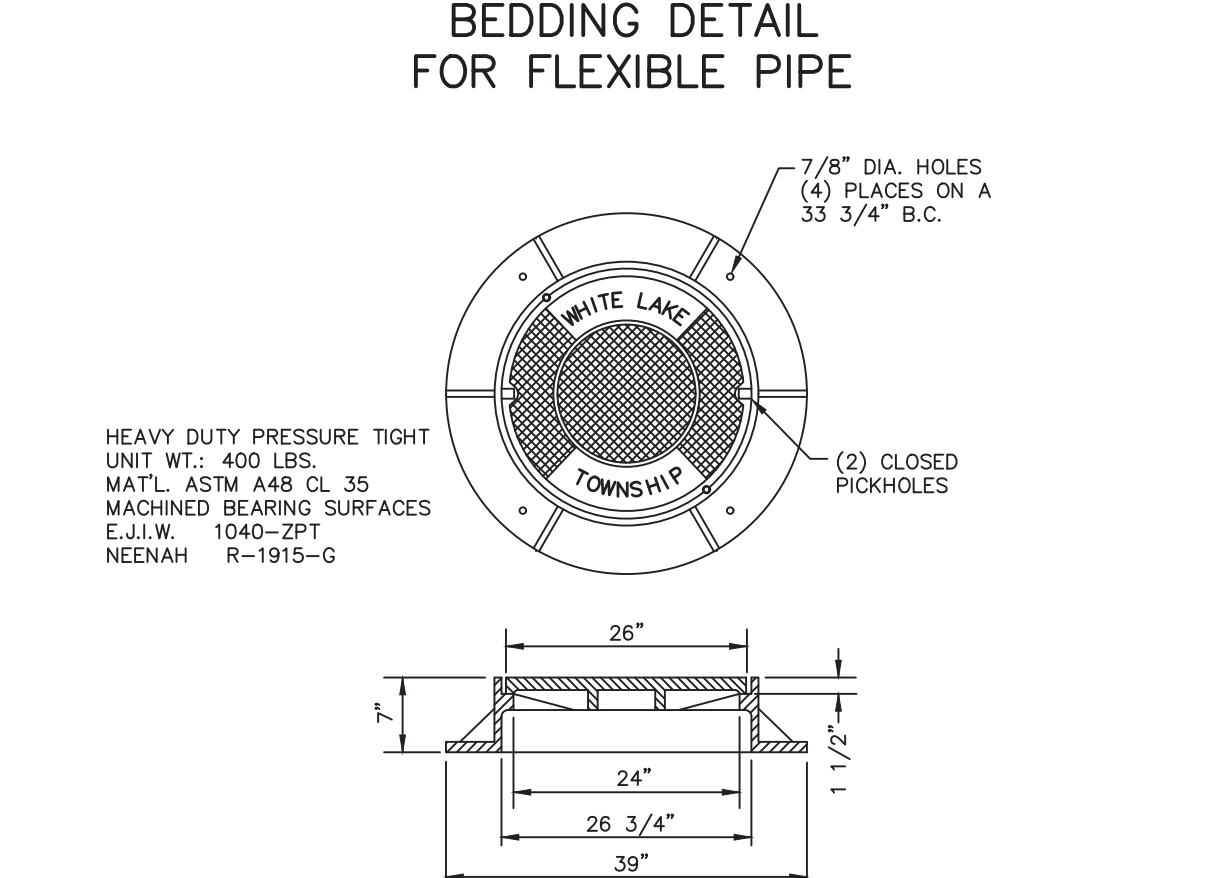
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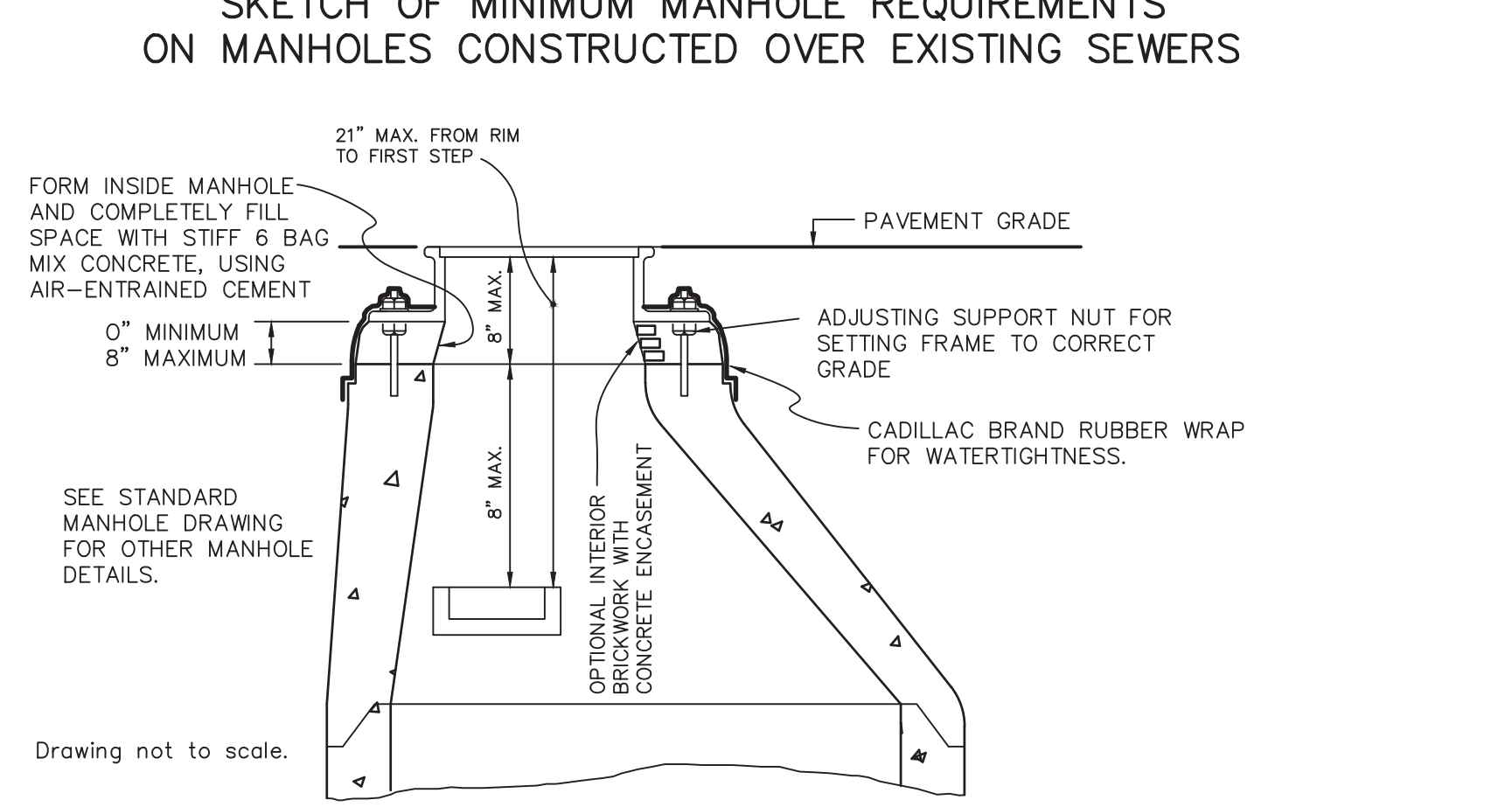
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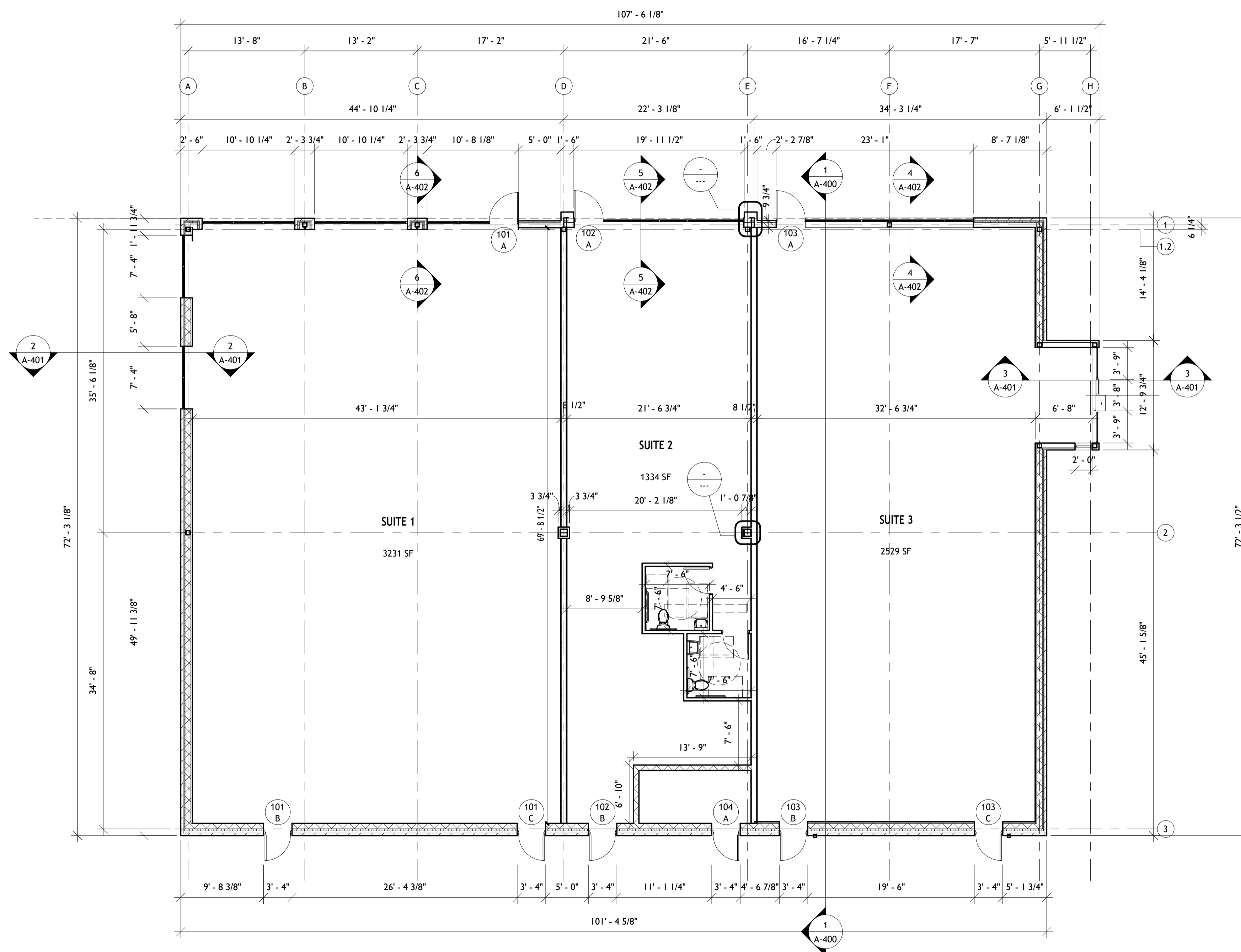
SHEET + TITLE

FLOOR PLANS - WEST
 BUILDING

SHEET + NUMBER

A-100

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I FLOOR PLAN - WEST BUILDING
 A-100 A-300 SCALE: 1/8" = 1'-0"



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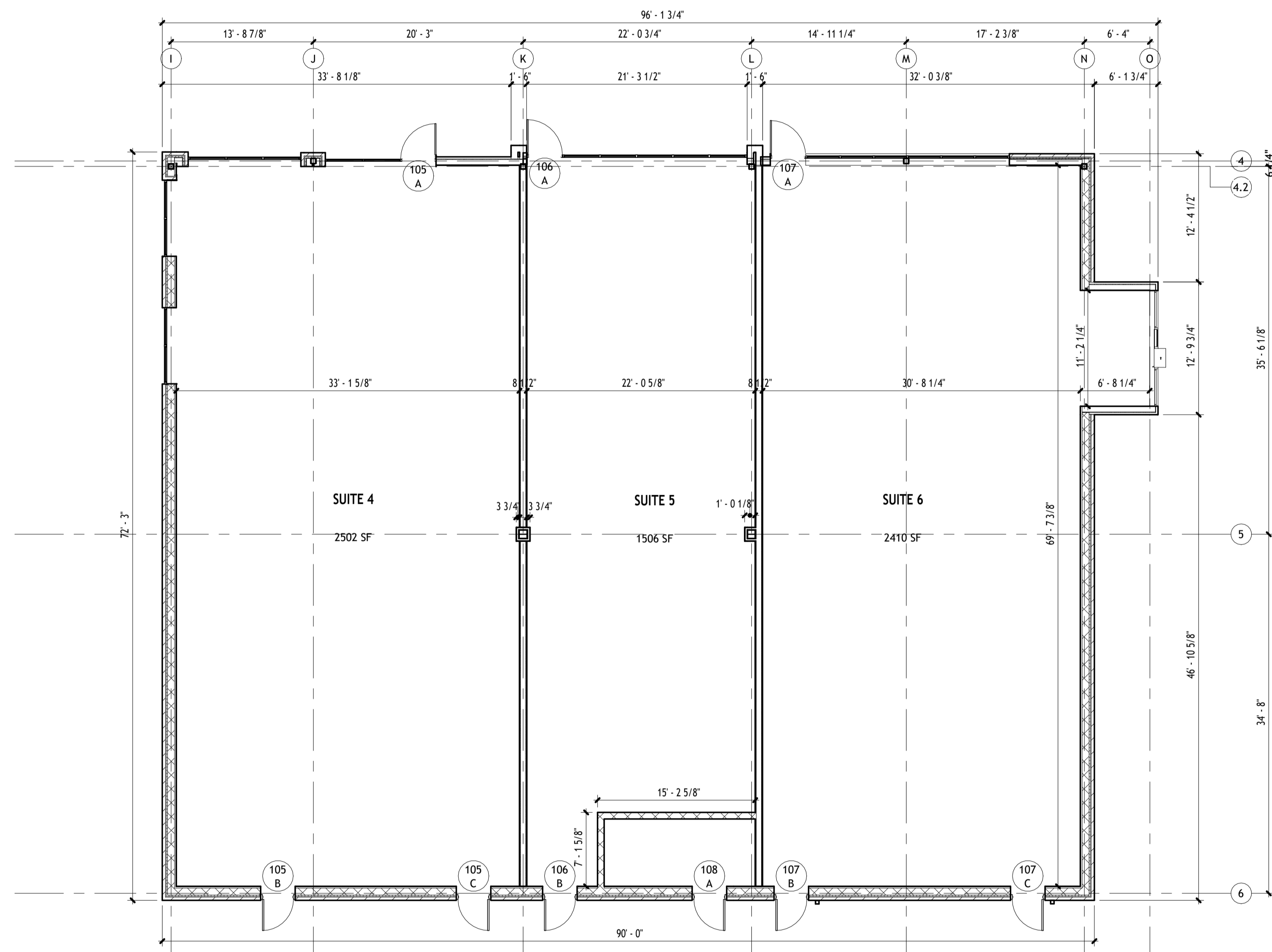
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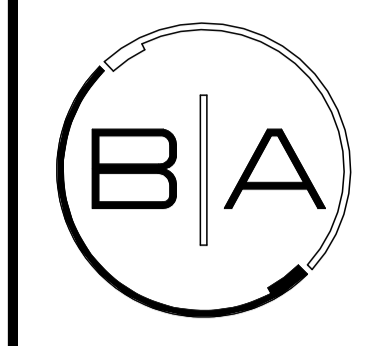
SHEET + NUMBER

A-101

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I FLOOR PLAN - EAST BUILDING
 A-101 | A-300 SCALE: 1/8" = 1'-0"



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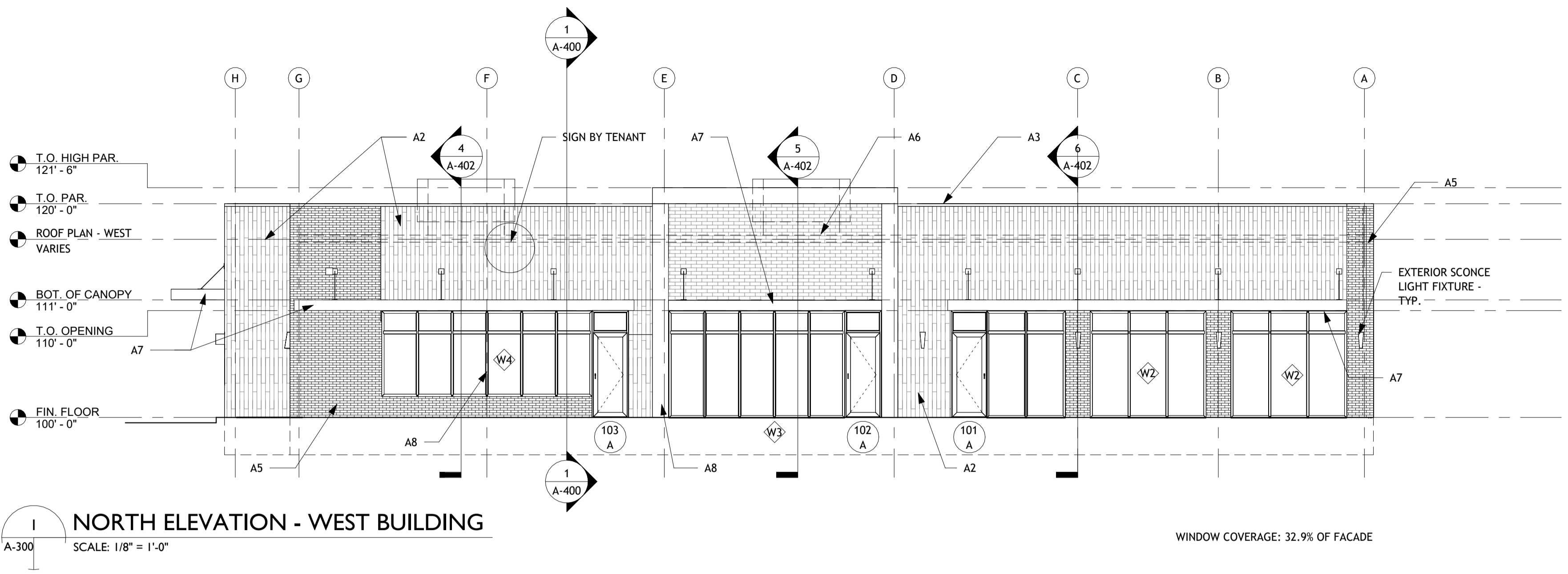
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SHEET + TITLE
 ELEVATIONS - WEST
 BUILDING

SHEET + NUMBER

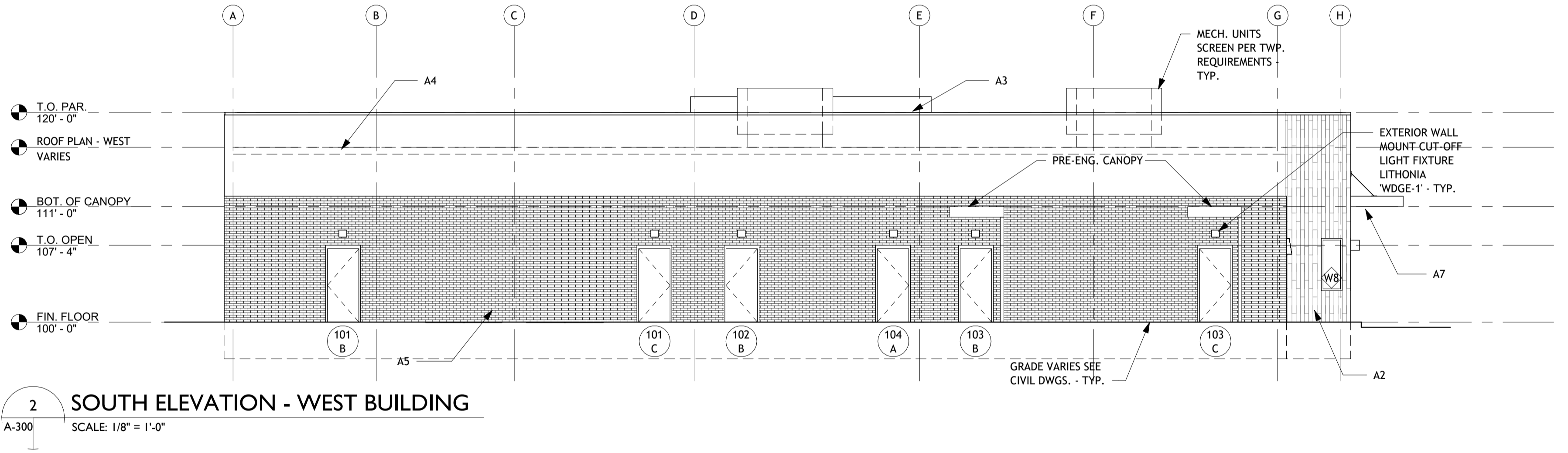
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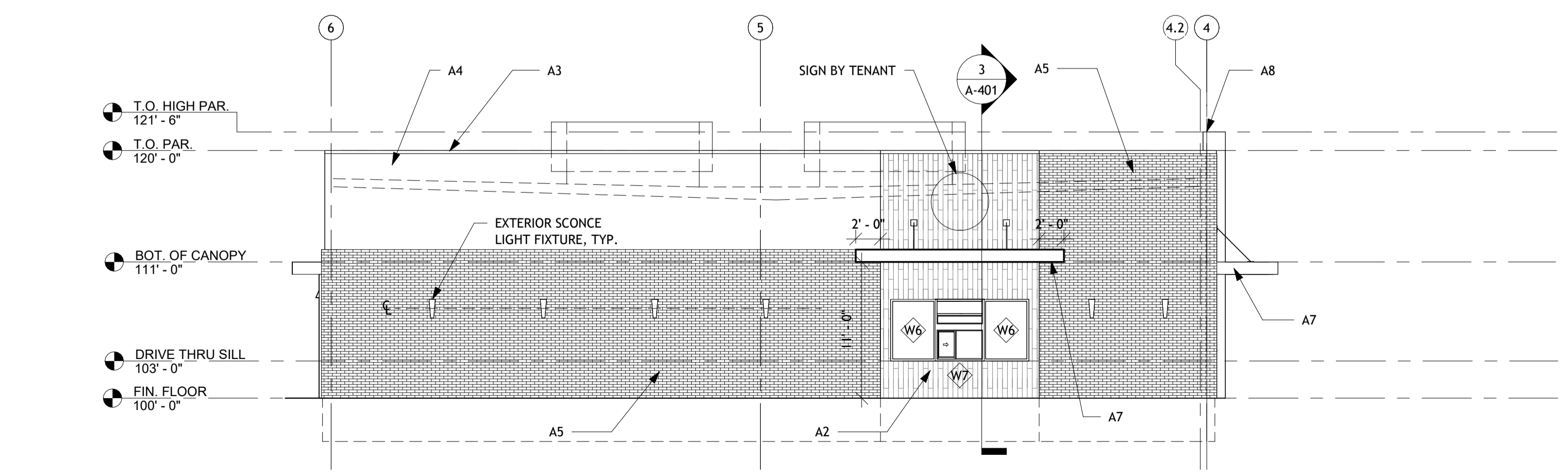


EXTERIOR FINISHES LEGEND					
TAG	MATERIAL	MANUF/STYLE	COLOR	FINISH / STYLE	FASTENER TYPE
A1	FIBER CEMENT PANELS	NICHIHA			
A2	FIBER CEMENT PANELS	NICHIHA			
A3	PREFIN. METAL COPING	PAC-CLAD OR EQUAL TO MATCH	TO MATCH RAL #7021 MATTE BLACK STEEL - MTO028 - FLAT ROCK	ANODIZED	
A4	EXTERIOR INSULATION FINISH SYSTEM (EIFS)	DRYVIT	COLOR TO MATCH SW 7030 ANEW GRAY	SANDBLAST TEXTURE	
A5	BRICK VENEER	BELDEN BRICK			
A6	BRICK VENEER	GLEN-GERY	ASPEN WHITE		
A7	PREFIN. METAL AWNING	TBD	TO MATCH RAL #7021	PRE-FINISHED	
A8	PREFIN. ALUM	TBD	TO MATCH RAL #7021	PRE-FINISHED	

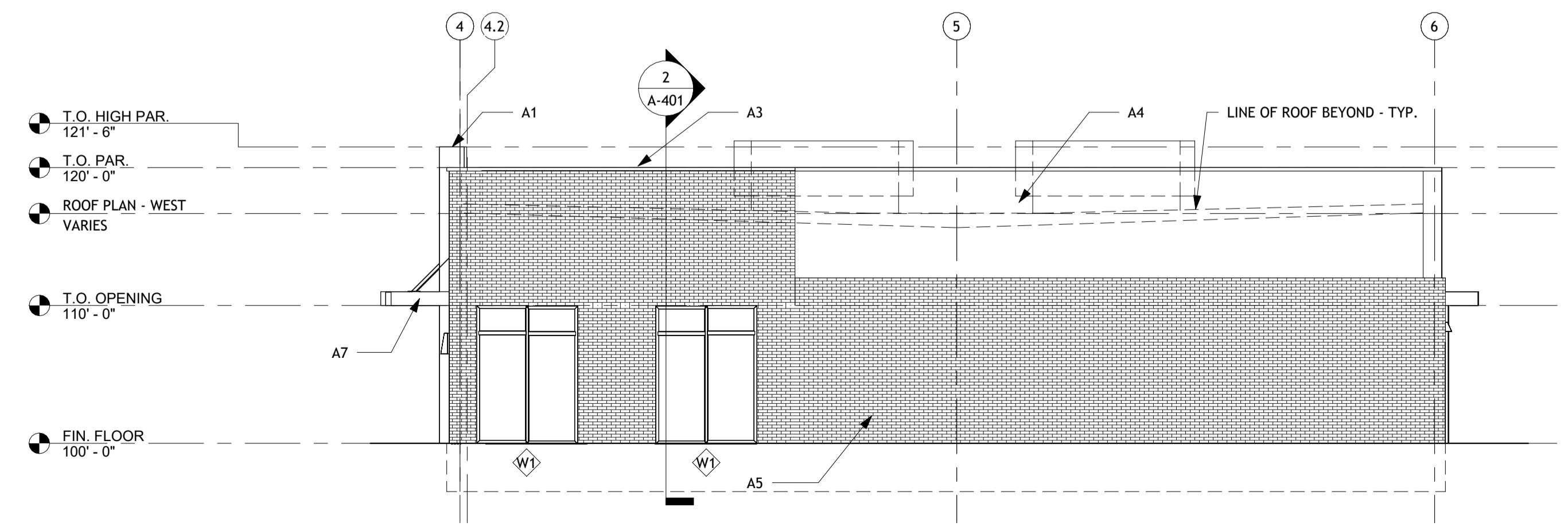
WINDOW COVERAGE: 32.9% OF FACADE



2 SOUTH ELEVATION - WEST BUILDING
 SCALE: 1/8" = 1'-0"



3 EAST ELEVATION - WEST BUILDING
 SCALE: 1/8" = 1'-0"



4 WEST ELEVATION - WEST BUILDING
 SCALE: 1/8" = 1'-0"



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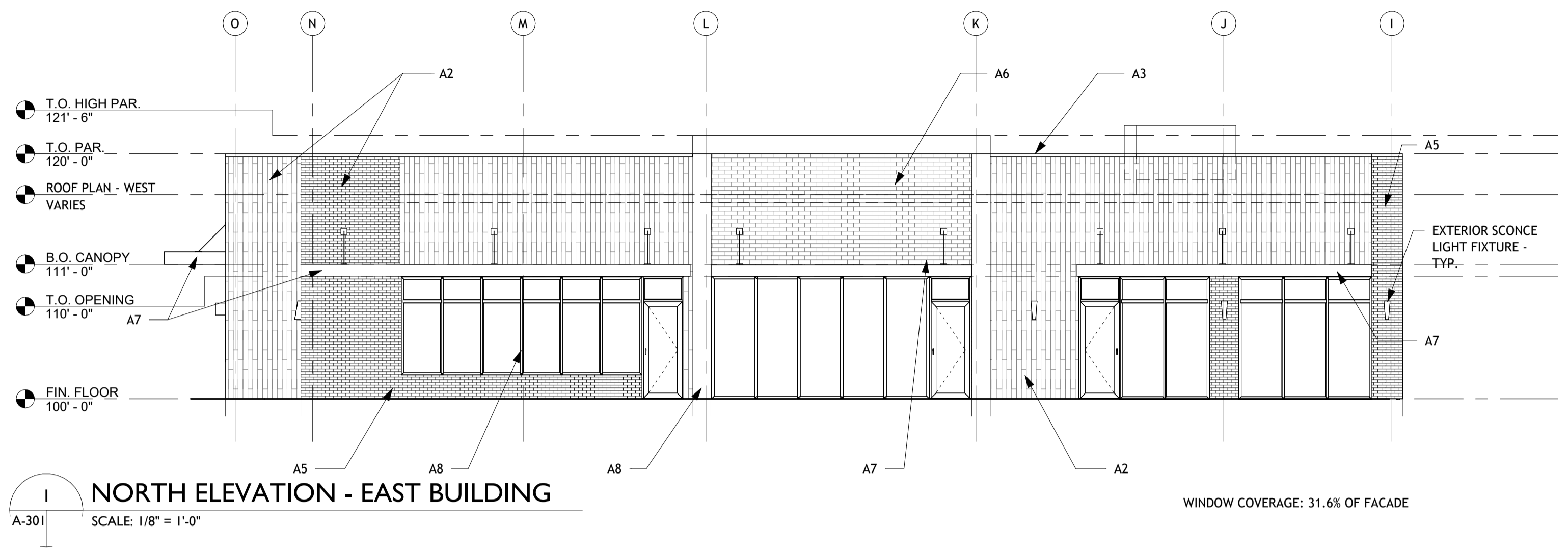
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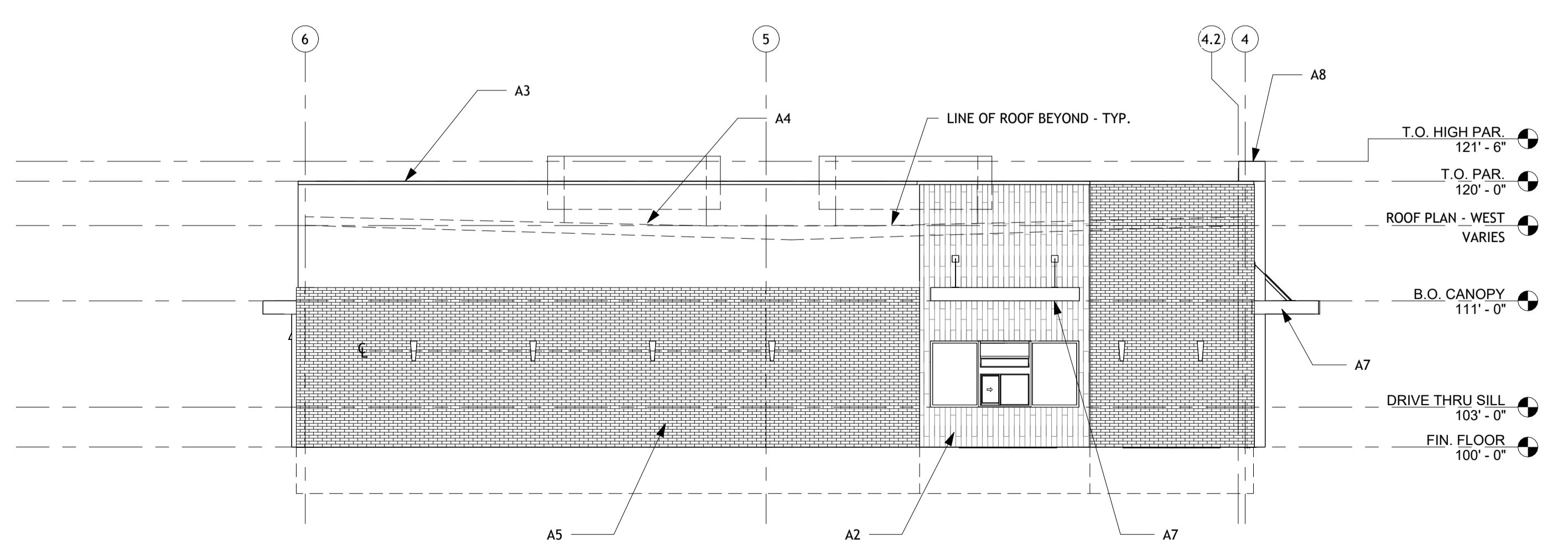
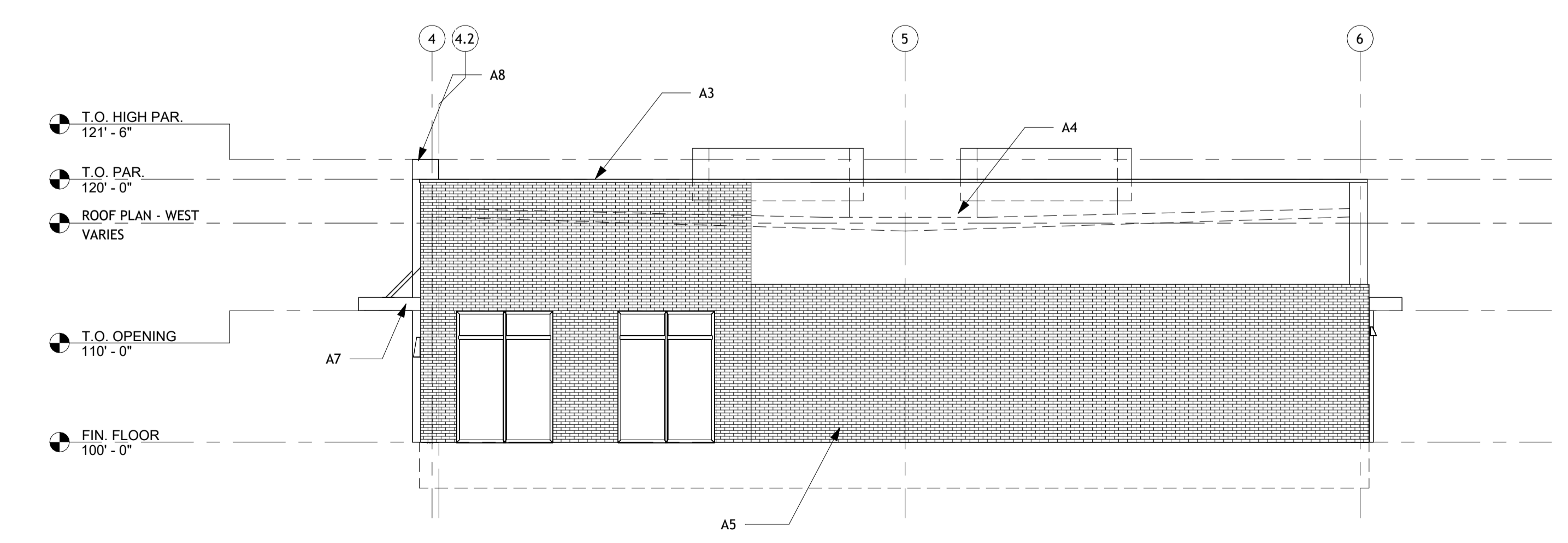
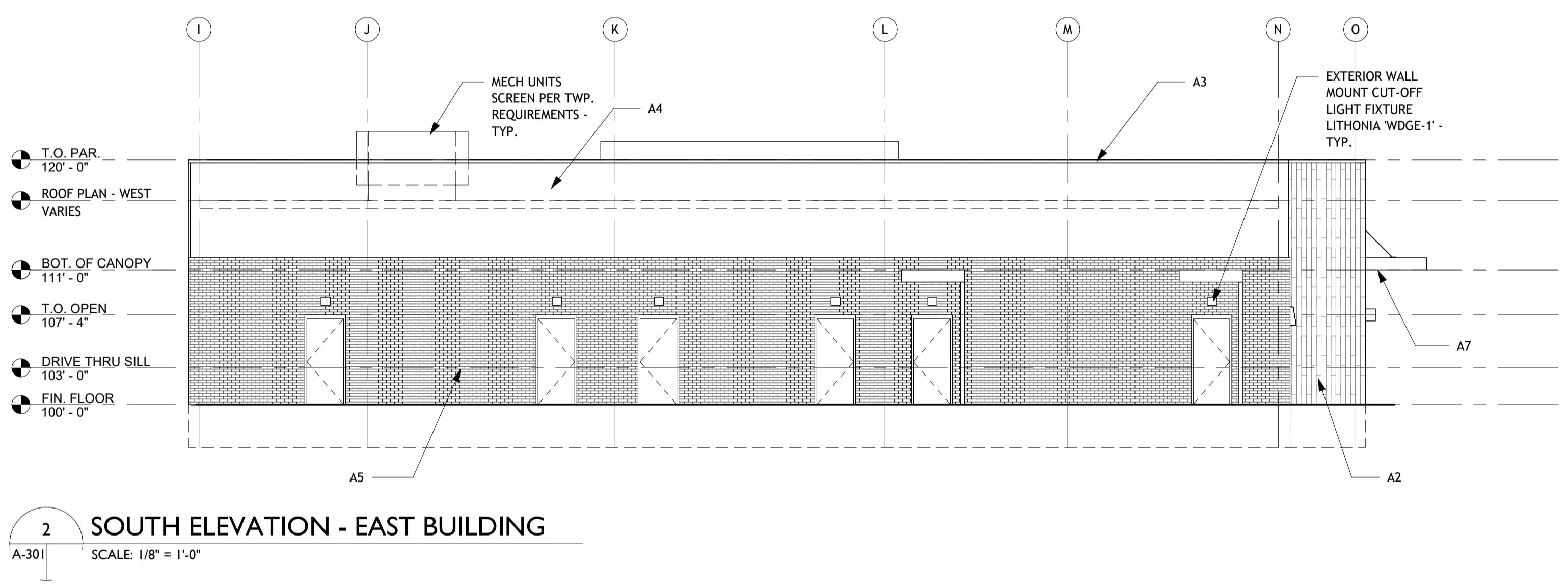
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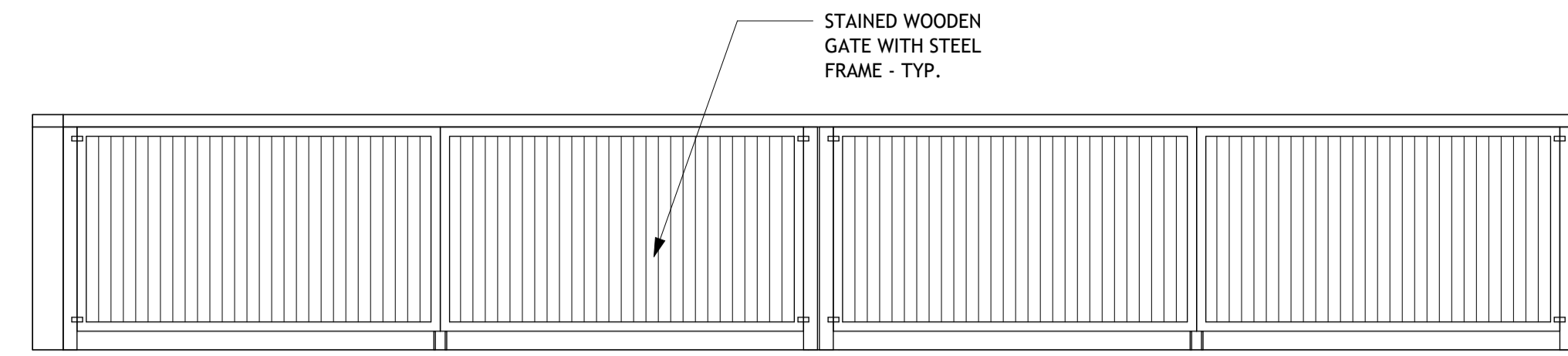


EXTERIOR FINISHES LEGEND					
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A1	FIBER CEMENT PANELS	NICHIHA			
A2	FIBER CEMENT PANELS	NICHIHA			
A3	PREFIN. METAL COPING	PAC-GLAD OR EQUAL TO MATCH	TO MATCH RAL #7021 MATTE BLACK STEEL - MT0028 - FLAT ROCK COLOR TO MATCH SW 7030 ANEW GRAY	ANODIZED	
A4	EXTERIOR INSULATION FINISH SYSTEM (EIFS)	DRYVIT		SANDBLAST TEXTURE	
A5	BRICK VENEER	BELDEN BRICK			
A6	BRICK VENEER	GLEN-GERY	ASPEN WHITE		
A7	PREFIN. METAL AWNING	TBD	TO MATCH RAL #7021	PRE-FINISHED	
A8	PREFIN. ALUM	TBD	TO MATCH RAL #7021	PRE-FINISHED	

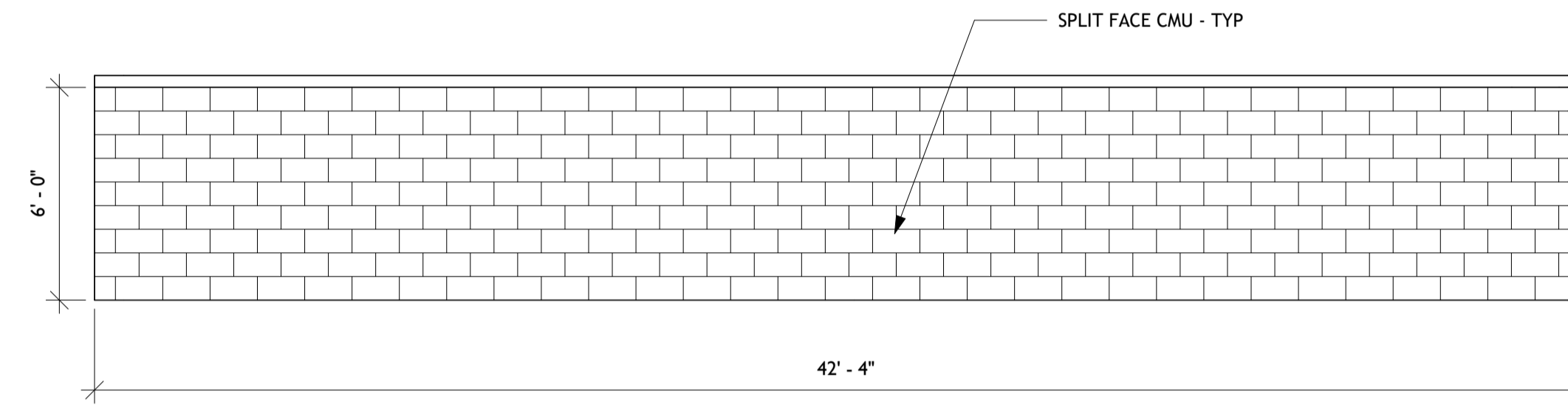


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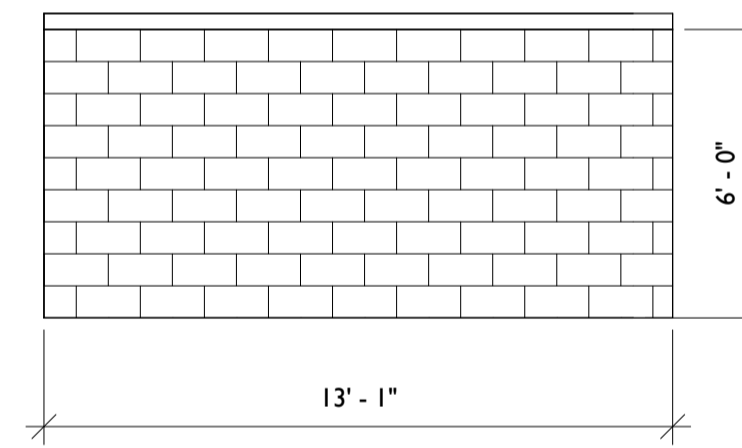
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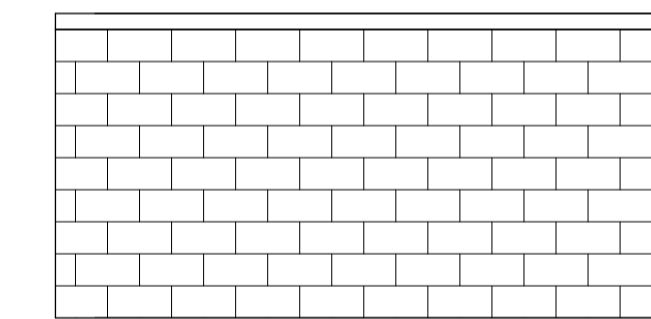
1 DUMPSTER GATE ELEV
 A-302 SCALE: 1/4" = 1'-0"



2 DUMPSTER REAR ELEV
 A-302 SCALE: 1/4" = 1'-0"



3 DUMPSTER EAST ELEV
 A-302 SCALE: 1/4" = 1'-0"



4 DUMPSTER WEST ELEV
 A-302 SCALE: 1/4" = 1'-0"



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SHEET + TITLE
 DUMPSTER ENCLOSURE
 ELEVATIONS

SHEET + NUMBER

A-302



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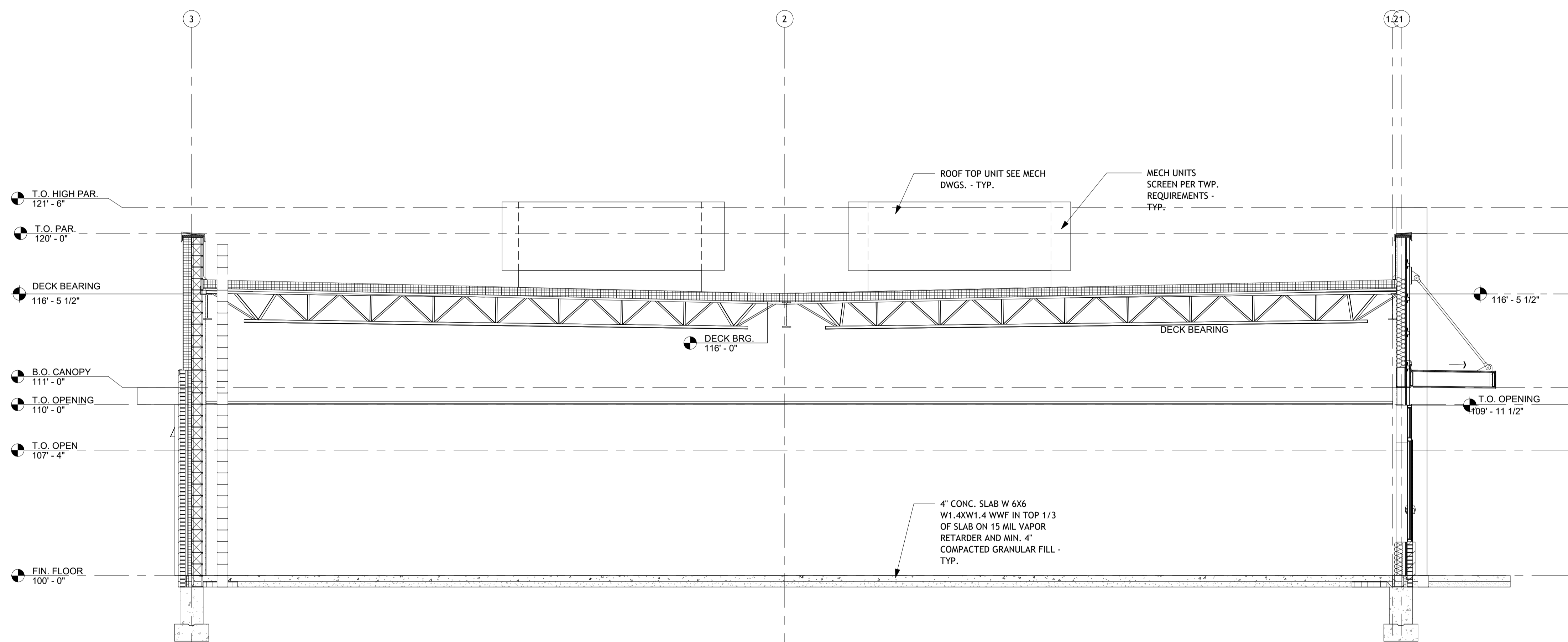
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BUILDING SECTION - WEST
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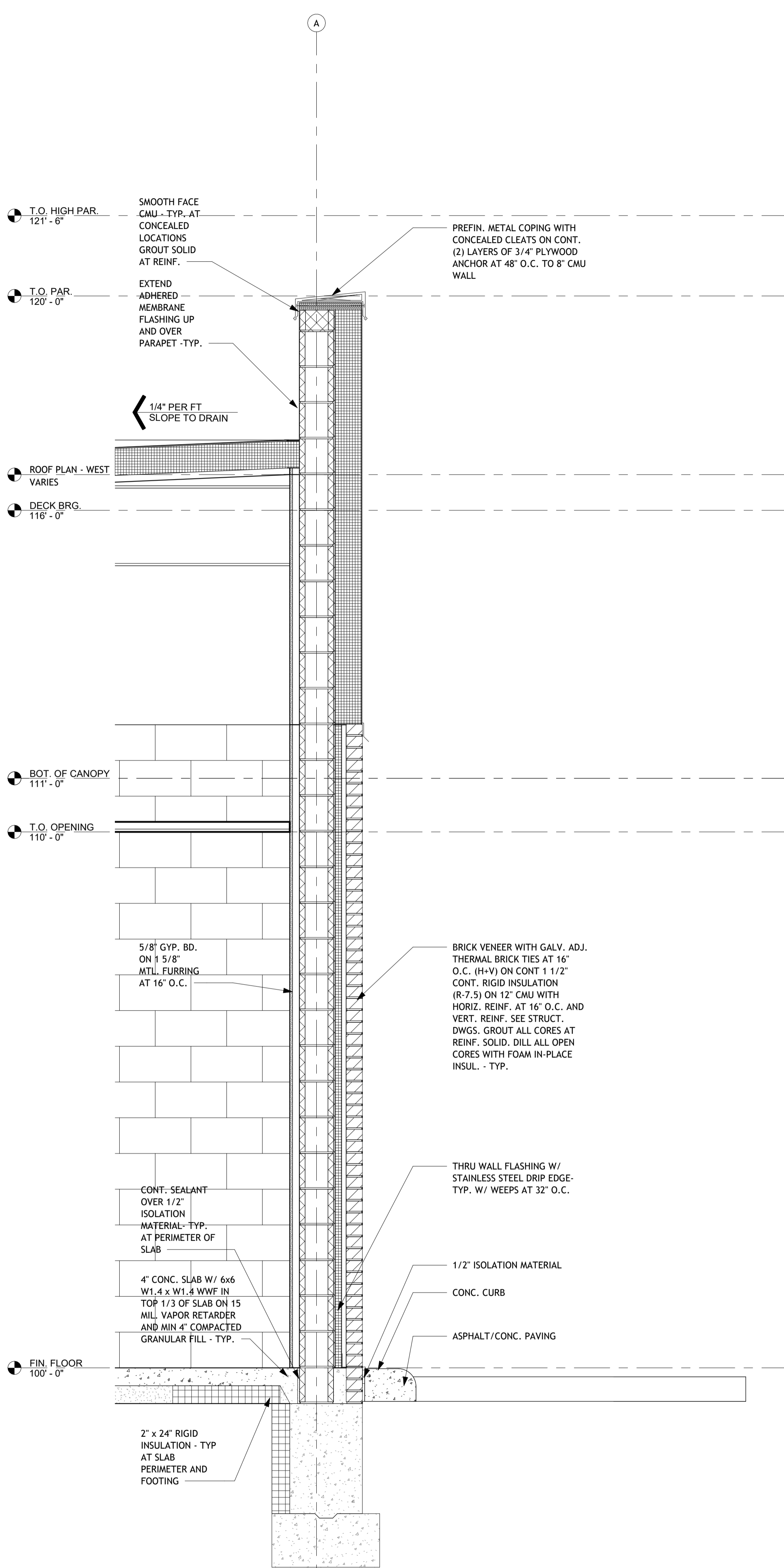
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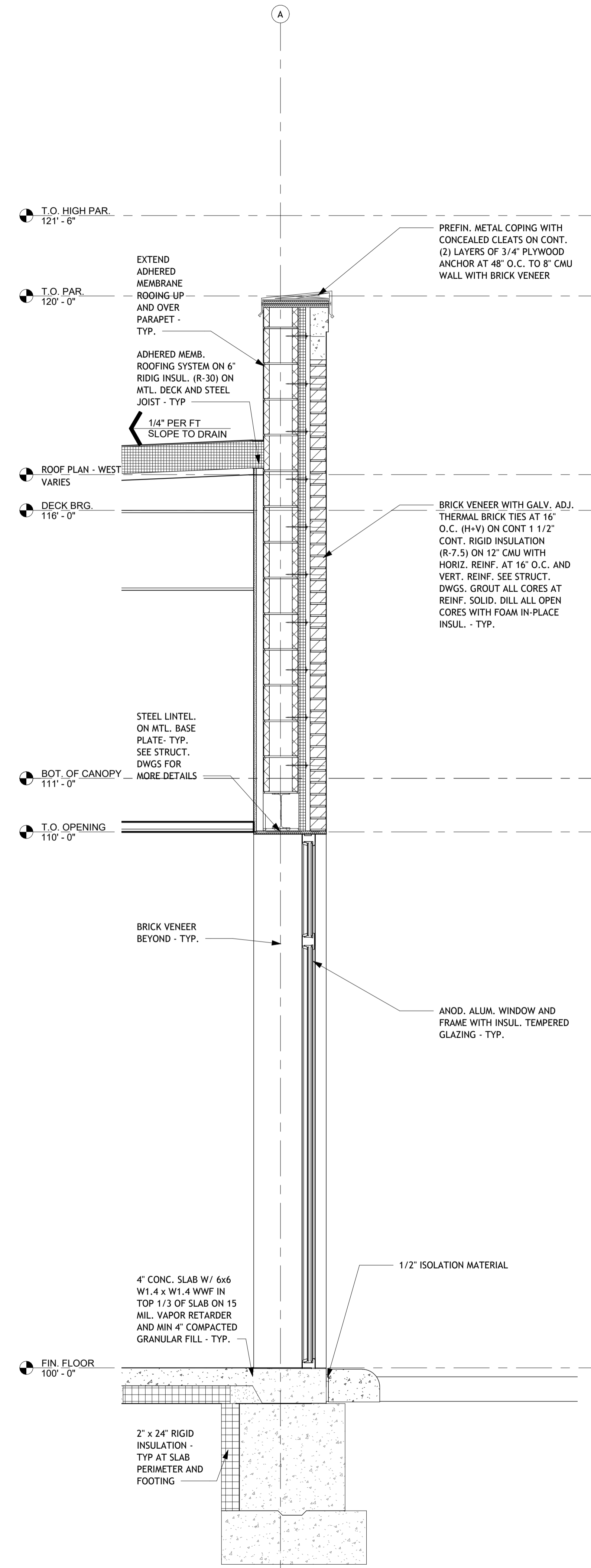
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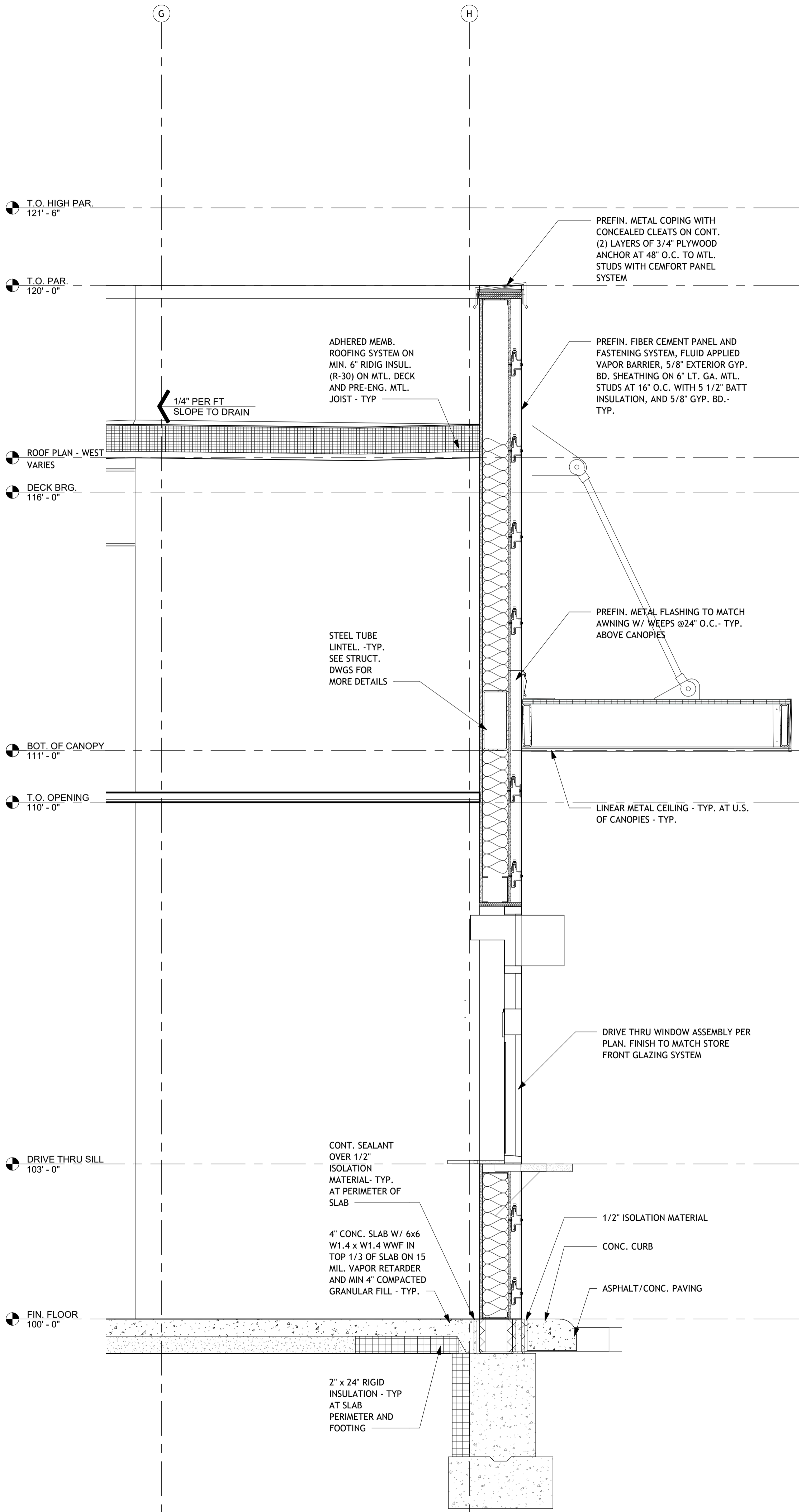
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1 WALL SECTION - 1
A-401 SCALE: 3/4" = 1'-0"



2 WALL SECTION - 2
A-401/A-100 SCALE: 3/4" = 1'-0"



3 WALL SECTION - 3
A-401/A-100 SCALE: 3/4" = 1'-0"



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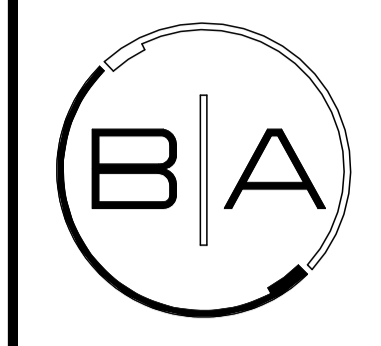
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SHEET + TITLE
WALL SECTION

SHEET + NUMBER

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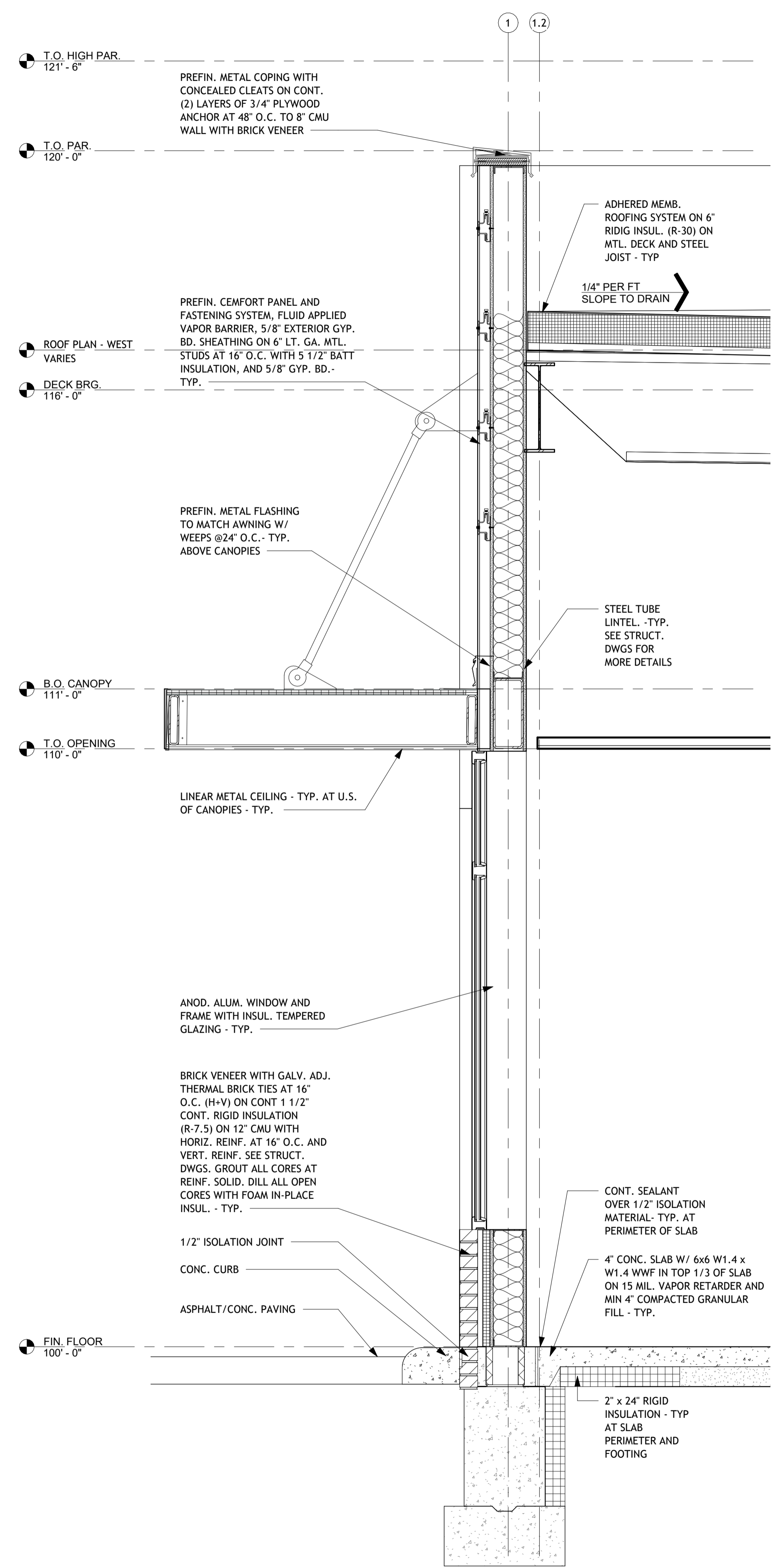
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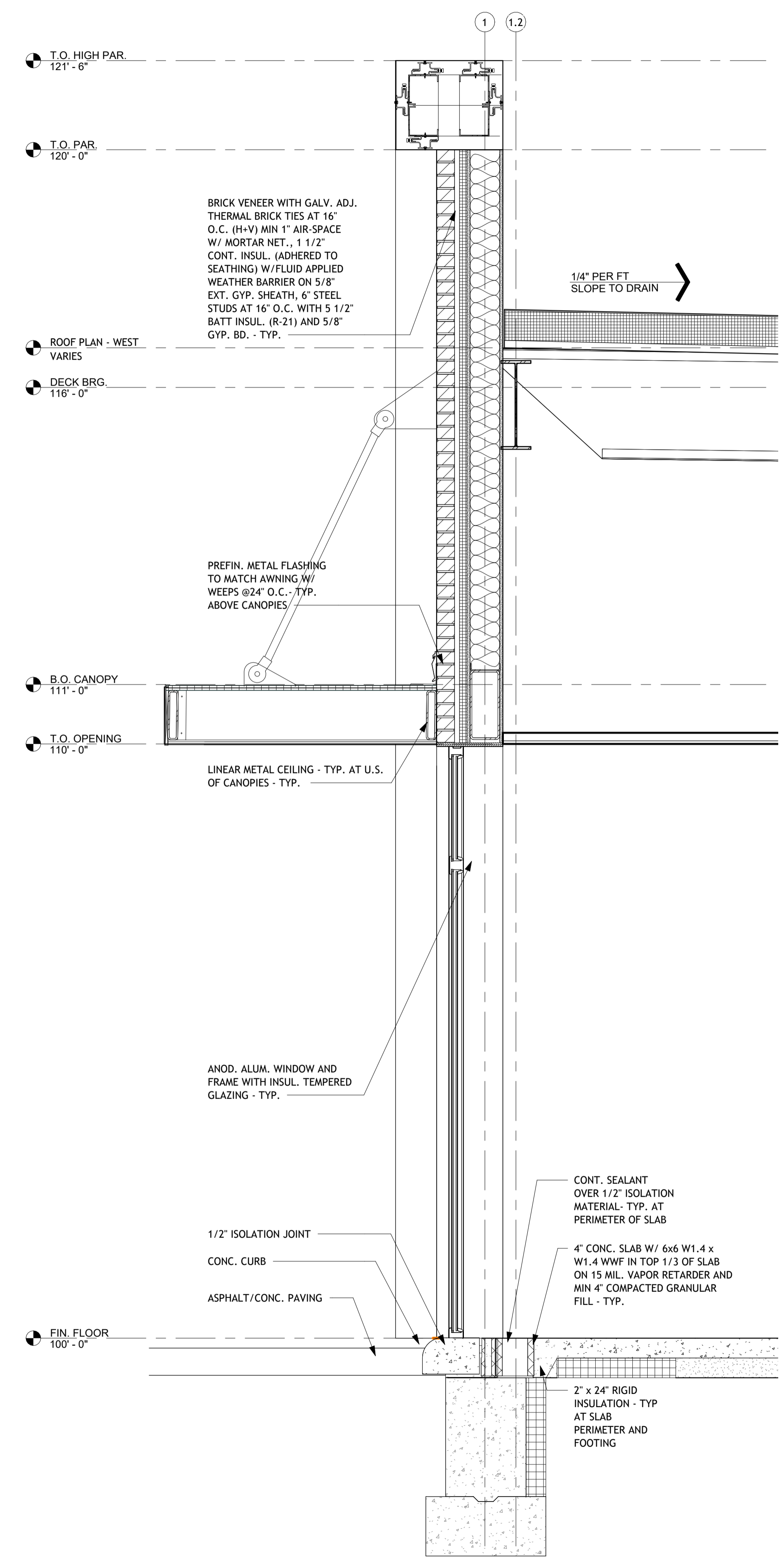
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SHEET + NUMBER
A-402

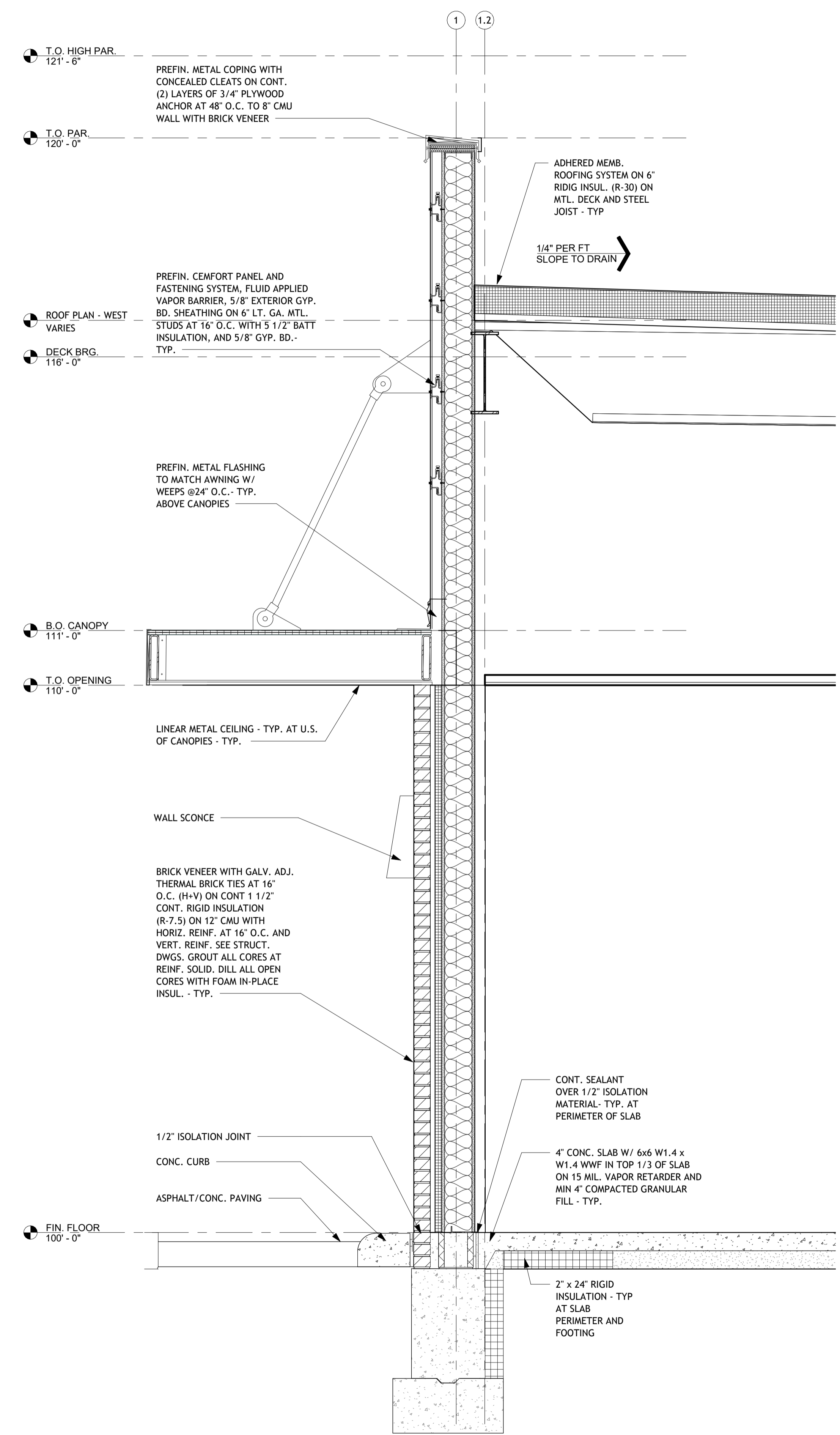
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4 WALL SECTION - 4
 A-402 A-100 SCALE: 3/4" = 1'-0"



5 WALL SECTION - 5
 A-402 A-100 SCALE: 3/4" = 1'-0"



6 WALL SECTION - 6
 A-402 A-100 SCALE: 3/4" = 1'-0"

WHITE LAKE TOWNSHIP NOTICE OF PUBLIC HEARING

Notice is hereby given the Planning Commission of the Charter Township of White Lake will hold a public hearing on **Thursday, December 5, 2024 at 6:30 P.M.** at the Township Annex, 7527 Highland Road, White Lake, Michigan 48383, to consider the following request for Special Land Use Approval, under Zoning Ordinance No. 58 – Article 4 Section 17 Drive-in or Drive-Thru Window Service and Article 4, Section 18, Eating Establishments with Entertainment and/or Outdoor Dining.

Property described as 9101 Highland Road, identified as parcel number 12-23-227-003, located south of Highland Road, west of Sunnybeach Boulevard, consisting of approximately 5.02 acres.

Applicant is requesting to **construct two restaurants with drive-thru windows as well as outdoor dining.**

Persons interested are requested to be present. Pertinent information relative to this special land use request is on file at the Community Development Department and may be examined at any time during regular business hours of 8:00 a.m. to 5:00 p.m. Persons interested may visit the Community Development Department, contact the Community Development Department by telephone at 248-698-3300, ext. 5, or attend the Public Hearing on the date specified. Written comments are also welcome at 7525 Highland Road, White Lake, MI 48383. Individuals with disabilities requiring auxiliary aids or services should contact the Clerk's Office at least 5 days before the hearing.

Sean O'Neil, AICP
Community Development Director