

**WHITE LAKE TOWNSHIP
INTER-OFFICE MEMORANDUM
COMMUNITY DEVELOPMENT DEPARTMENT**

DATE: August 7, 2023

TO: Rik Kowall, Supervisor
Township Board of Trustees

FROM: Sean O'Neil, AICP
Community Development Director

**SUBJECT: Panera
Preliminary site plan approval**
Property described as parcel number 12-20-276-035, located north of Highland Road (M-59), west of Bogie Lake Road, southeast of Meijer consisting of approximately 1.63 acres.

The above request is now ready for Township Board Consideration. The matter was considered by the Planning Commission at their regular meeting of July 20, 2023, at which time the **Planning Commission recommended approval** of the preliminary site plan. The request is now ready to be considered by the Township Board.

Please find enclosed the following related documents:

- Draft minutes from the Planning Commission meeting held on July 20, 2023.
- Review letter prepared by Michael Leuffgen, Township Engineer, dated July 10, 2023.
- Review letter prepared by Justin Quagliata, Staff Planner, dated June 27, 2023.
- Review letter prepared by Jason Hanifen, Fire Marshal, dated June 22, 2023.
- Preliminary site plan and elevations.

Please place this matter on the next available Township Board agenda. Do not hesitate to contact me should you require additional information.

**WHITE LAKE TOWNSHIP
PLANNING COMMISSION
JULY 20, 2023**

CALL TO ORDER

Chairperson Seward called the meeting to order at 7:00 P.M. He then led the Pledge of Allegiance.

ROLL CALL

Present:

T. Joseph Seward, Chairperson
Scott Ruggles, Township Board Liaison
Matt Slicker
Steve Anderson
Merrie Carlock, Vice Chairperson
Pete Meagher
Robert Seeley

Absent:

Mark Fine
Debby Dehart

Others:

Sean O'Neil, Community Development Director
Justin Quagliata, Staff Planner
Mike Leuffgen, DLZ
Hannah Micallef, Recording Secretary

APPROVAL OF AGENDA

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

APPROVAL OF MINUTES

A. June 15, 2023

MOTION by Commissioner Meagher, seconded by Commissioner Ruggles to approve the minutes of June 15, 2023 as presented. The motion carried with a voice vote: (7 yes votes).

CALL TO THE PUBLIC

No public comment.

PUBLIC HEARING

A. Sunset Cove

Located on the north side of Pontiac Lake Road, north of Highland Road (M-59).
Identified as parcel number 12-13-451-011 (8300 Pontiac Lake Road).
Consisting of approximately 2.68 acres.
Currently zoned PG (Pontiac Lake Gateway).

Requests:

1) Preliminary site plan approval

2) Special land use approval

Applicant: White Lake JZ, LLC
30201 Orchard Lake Road, Ste 250
Farmington Hills, MI 48334

Staff Planner Quagliata gave a brief report on the applicant's requests.

Chairperson Seward asked staff how tall the trees on the property were. Staff Planner Quagliata said the applicant did not supply a tree survey. A mature pine tree averaged 150' in height.

Chairperson Seward asked staff how tall the condos were west of the subject site. Staff Planner Quagliata said the condos were 3 stories, or 45' tall.

Commissioner Slicker asked staff if the 2.6 acres provided on the plan was the net acreage of the site. Staff Planner Quagliata confirmed.

Chairperson Seward asked staff if there was a way to ensure the restaurant was constructed. Staff Planner Quagliata said amendments to the final site plan after approval would require the applicant to come back to the Planning Commission.

Mr. Leuffgen stated that the site was reviewed 3 times previously. The sidewalk connection to the south was challenging, but it needed to be coordinated. The applicant needed to document the floodplain areas of the property properly. OCWRC would need to approve the stormwater treatment methods of the site. The docks would need to be approved by their appropriate permitting agencies. The cross-access easement was modified for potential future connection. Staff Planner Quagliata stated that the ordinance required the cross-access easement. The easement would need to be reviewed by the Township Attorney and approved by the Township. The restaurant would be required to have an oil grease separator.

Commissioner Ruggles asked Mr. Leuffgen how the stormwater would work on this site. Mr. Leuffgen said he would imagine a mechanical separator would treat the water and filter particles before they reached the lake.

Commissioner Ruggles asked staff if the pad for the restaurant would be approved with the current site plan. Staff Planner Quagliata said yes, but the restaurant would be required to go through the planning process. Final approval of this plan did not include final approval of the restaurant.

Michael Zeer, applicant, was present to speak on behalf of his case. He said the proposed plan had an excess of five parking spaces. He said the restaurant would be built simultaneously with the development, most likely in Phase 1. He would comply with all of the permitting agencies regarding stormwater and sewer. One of the biggest items that needed clarification was the need for variances. He said he needed as many variances as he did due to the property being lakefront. He said he contacted Oakland County airport and obtained a letter from them stating they were ok with the height of the buildings. The sidewalk connection issue would be addressed.

Commissioner Ruggles asked Mr. Zeer why he didn't want to build both buildings at once. Mr. Zeer stated it was due to economic reasons.

Commissioner Anderson asked Mr. Zeer which building he would start construction. Mr. Zeer said he would begin with "Building 2".

Mr. Zeer clarified that Building 2 (the building closest to Pontiac Lake Road) and the restaurant would be constructed Phase 1.

Director O'Neil stated that the restaurant should be constructed along with the buildings.

Commissioner Slicker asked Mr. Zeer who would be the operator of the restaurant. Mr. Zeer said the owner be his partner, Mr. Mark DeGroff He was unsure who the operator would be.

Mark DeGroff, proposed restaurant investor, said he had a restaurateur who would operate the restaurant that would provide a great product for White Lake Township. Once the site plan was approved, he would initiate the design phase with his team.

Commissioner Meagher asked Mr. DeGroff if he had any restaurant experience. Mr. DeGroff said no. Commissioner Meagher asked Mr. DeGroff what type of restaurant he was envisioning. Mr. DeGroff said he was looking into Texas style BBQ, something similar to Salt Lake BBQ in Texas. He was also leaning towards a liquor license. He said the lower floor of the restaurant would be more rustic, and the upper floor would be like a lounge.

Chairperson Seward asked Mr. DeGroff if there were plans in place for Mr. DeGroff to own the restaurant property. Mr. DeGroff said he was looking into a land lease with option to own with Mr. Zeer.

Chairperson Seward stated he was concerned that there was no way to enforce the applicant to construct the restaurant. Director O'Neil said some sort of a performance guarantee for the building could be possible, but it would be more practical to have a performance guarantee for the infrastructure.

That way, something else with a different, similar use could be built in the restaurant's place and the new partner wouldn't be tied into only constructing a restaurant.

Commissioner Slicker asked Mr. Zeer if the shoreline seawall would be natural or reinforced. Mr. Zeer said he needed to speak with DNR, but wanted to replace or repair the current seawall.

Commissioner Meagher asked Mr. Zeer if the parking underneath the units would all accommodate the units. Mr. Zeer said the parking would accommodate each unit. Director O'Neil said those parking spaces would not accommodate the parking requirements per the ordinance. The additional parking provided on the plan was for visitors and the restaurant.

Chris Bowne, 9055 Gale, spoke in opposition to the applicant's request. He was concerned with the buildings proposed height and the number of docks proposed.

Mary Earley, 5925 Pineridge Court, spoke in opposition to the applicant's request. Her concerns were the proposed height of the building.

Andy Rybicki, 8226 Highland, spoke in opposition to the applicant's request. His concerns were building height, and obstruction of lake views.

Tracey McDonald, 9050 Pontiac Lake Road, spoke in opposition to the applicant's request. He was concerned with the building height, and the dam.

Jim Kabana, 8365 Pontiac Lake Road, spoke in opposition to the applicant's request. His concerns were building height and seawall noise.

Jeff Heath, 2267 Kingston, spoke in favor of the applicant's request.

Kimberley Didonato, 8385 Pontiac Lake Road, spoke in opposition of the applicant's request. She was concerned with overdevelopment in White Lake Township.

Mr. DeGroff said he appreciated all the comments, and the project would improve the property and be a nice addition to the community.

Mr. Zeer said it was always tough developing in a new community, and growth was tough. He said he obtained a letter from the DNR that stated the dock amount would not be an issue, and would have to adhere to whatever the permitting agency allowed. He lived on a lake himself, but said the developer's side should be respected as well. A property like his would only increase the home values in the area.

Commissioner Meagher asked Mr. Zeer how much density could be given up without losing a profit. Mr. Zeer said he originally proposed 56 units in three buildings, and he reduced the number of units.

Chairperson Seward asked Jason Emerine, Mr. Zeer's engineer, if he had taken into the stress the construction could play on the dam. Mr. Emerine said that would require a geotechnical engineer, since he was a civil engineer, he did not have the ability to speak on the dam. He added that he could speak to OCWRC about the dam.

Chairperson Seward asked Mr. Zeer if he could still make a profit without a 5-story high building. Mr. Zeer was unsure. He said he would be adding greenery, including trees, to the site. He said he had already scaled back from three to two buildings.

Commissioner Anderson stated that the density of the site was swapped for building height. Staff Planner Quagliata said the current density was now 16.8 units/acre, without including the restaurant. The density would be higher with the restaurant land removed.

Director O'Neil stated that the restaurant piece would need to be explored upon now. The restaurant piece would need to be separated from the residential units. The boundary lines for maintenance needed to be drawn out in such a way where the residential units would not be paying into the site maintenance for the restaurant. Director O'Neil said the motion tonight would need to be specific in regards to the detail of the restaurant. The applicant had not submitted anything in relation to the restaurant; staff and engineering had not reviewed anything regarding the restaurant either.

Commissioner Anderson asked Director O'Neil for clarification regarding approval for the restaurant. Director O'Neil said the Planning Commission did not have the details on the restaurant, and was a missing piece. If the Planning Commission wanted to move the project forward, the Planning Commission needed to give the applicant and staff direction as to what was to be done with the restaurant.

Commissioner Meagher stated that the restaurant was Mr. DeGroff's piece, so to speak, not Mr. Zeer's. Director O'Neil said the information needed to be furnished to the Planning Commission for the Planning Commission to grant approval. The Township Board would ask the same questions and require the same information.

Mr. Zeer said he wanted to make sure the plan was okay in regards to density. He asked the Planning Commission for preliminary site plan approval based on density subject to providing restaurant plans.

Commissioner Anderson said in his mind, Mr. Zeer had taken the recommendations from the Planning Commission to revise his plans positively.

Chairperson Seward stated that the buildings were too tall, and he didn't have information regarding the restaurant.

Commissioner Ruggles asked staff if the Fire Department's comments were all addressed. Director O'Neil said a new plan was submitted this week that may have satisfied the Fire Department's request, but those plans were not formally reviewed at this time. The building would have a suppression system.

Commissioner Anderson asked Mr. Zeer if it was feasible to add the third building back to reduce building height. Mr. Zeer said it would be expensive and cause more issues regarding parking and green space.

Commissioner Anderson said he was fine with the density. Chairperson Seward agreed. Commissioner Slicker said he wasn't bothered by the density either. Commissioner Ruggles did not take issue with the density, but he did not like the height of the buildings. The Pontiac Lake area would see changes as the Gateway District was an important area to the Township. Commissioner Carlock said the buildings were massive, and they wouldn't fit in with the style of the lake. She didn't like to see development so close to the shoreline. Commissioner Seeley said he was fine with everything because the applicant had taken all of the Planning Commission's recommendations and worked with them. Commissioner Meagher agreed with Commissioner Seeley, and the project would be a beautiful for the Gateway District.

MOTION by Chairperson Seward, seconded by Commissioner Carlock, to deny the special land use requested by White Lake JZ, LLC for parcel number 12-13-451-011 (8300 Pontiac Lake Road). The motion carried with a roll call vote: (4 yes votes).

(Seward/yes, Carlock/yes, Meagher/no, Anderson/no, Ruggles/yes, Slicker/yes, Seeley/no)

MOTION by Chairperson Seward, seconded by Commissioner Carlock to table the preliminary site plan approval requested by White Lake JZ, LLC for parcel number 12-13-451-011 (8300 Pontiac Lake Road). The motion carried with a roll call vote: (7 votes).

(Seward/yes, Carlock/yes, Meagher/yes, Anderson/yes, Ruggles/yes, Seeley/yes, Slicker/yes,)

The Planning Commission took a brief recess at 9:11 P.M. They returned from recess at 9:16 P.M.

B. Panera

Located on the north side of Highland Road (M-59) and west of Bogie Lake Road. Identified as parcel number 12-20-276-035.

Consisting of a project area on the parcel consisting of approximately 1.63 acres. Currently zoned PB (Planned Business District).

Requests:

1) Preliminary site plan approval

Applicant: White Retail II, LLC
30200 Telegraph Road, Ste 205
Bingham Farms, MI 48205

Staff Planner Quagliata gave a brief report.

Mr. Leuffgen said the plan demonstrated engineering feasibility overall. There was a required stormwater management agreement. There would be some coordination with drainage items that would be ironed out at final site plan.

Commissioner Anderson asked staff if this Panera would be different from other Panera's because of the hours listed in the staff report. Staff Planner Quagliata said no, the hours listed were in regards to outdoor dining.

Commissioner Carlock asked staff if the applicant would be requesting any variances. Staff Planner Quagliata said no.

Commissioner Anderson asked staff what the other proposed retail on the site was. Staff Planner Quagliata said the second user had not been identified yet.

Mitchell Harvey, Stonefield Engineering, said the site was fully self-parked and self-staked. The restaurant would have an outdoor patio, 45 trees and 150 shrubs would be planted on the site. The operation hours of Panera would be normal business hours of 6 A.M.— 9 P.M.

Commissioner Slicker asked Mr. Harvey if there could be a connection to the sidewalk on M-59. Mr. Harvey said it wouldn't be feasible due to the grade change on the site. There would be a sidewalk to the north of the site.

Commissioner Anderson said he felt that Panera should ask for the waiver to be able to open the outdoor dining at 6 A.M.

Chairperson Seward opened the public hearing at 9:32 P.M. Seeing none, he closed the public hearing at 9:32 P.M.

**MOTION by Commissioner Seeley, seconded Commissioner Anderson by to recommend approval of the preliminary site plan requested by White Retail II, LLC for parcel number 12-20-276-035 and to include waivers for the following: lighting, for the dumpster to be in the front of the building, for the required traffic study and community impact statement and the hours for the outdoor patio to be 6 A.M. to close. The motion carried with a roll call vote: (7 yes votes).
(Seeley/yes, Anderson/yes, Meagher/yes Seward/yes, Carlock/yes, Ruggles/yes, Slicker/yes)**

CONTINUING BUSINESS

None.

NEW BUSINESS

A. Alpine Valley

Located north of Highland Road (M-59) between Hill and Porter Roads.

Identified as parcel number 12-21-100-057 (6775 Highland Road).

Consisting of a subject site of approximately 26.9 acres.

Currently zoned PD (Planned Business).

Request:

1) Amended final site plan approval

Applicant: Wisconsin Resorts, Inc
43252 Woodward Avenue Ste 210
Bloomfield Hills, MI 48302

Staff Planner Quagliata gave a brief report.

Mr. Leuffgen said the plan demonstrated engineering feasibility, and the improvements were straightforward. The curbing may not be needed as it was a retrofitted site. There needed to be clarification on the grading of the ADA parking spots.

Commissioner Carlock advocated for box striping on the parking lot.

Commissioner Ruggles agreed with Mr. Leuffgen's statement of omitting curbing.

Joseph Kozik, applicant, said his family original built the ski hill. The site needed work to update and maintain the ski hill. The project was to relocate the kitchen area where the majority of the seating was. He said there would be future projects at his site in the future. He was asking for a waiver for the traffic study.

Commissioner Ruggles said it was great for the Township that the site was being modernized. Commissioner Carlock said it was great to see the investment in the site.

MOTION by Commissioner Seeley, seconded by Commissioner Ruggles, to approve the amended final site plan requested by Wisconsin Resorts, Inc identified parcel number 12-21-100-057 (6775 Highland Road) subject to addressing all staff and consultant concerns. The motion carried with a voice vote: (7 yes votes).

OTHER BUSINESS

- A. Discussion on Open House public hearing notice
The Master Plan Open House was scheduled for August 17th. A standard notice would be sent to the Oakland Press, even though it was not required. The invitation would be shared across the Township's social media channels, and emails were sent out to those who participated in the Master Plan survey.

LIAISON'S REPORT

The Board met earlier this evening to discuss schematic design for the new Township Hall and Public Safety buildings. Tuesday's regular Board meeting approved a part time position for the Senior Center, 5 Township owned lots on Gale Island had been reconfigured and would be put up for sale soon. Several sanitary sewer maintenance projects were approved. Suburban Knolls wellhouse was scheduled for demolition.

Rockin' the Farm would be held on August 5 at Fisk Farm; there would be food, alcoholic beverages, and

two concerts. More information could be found on the Township's Facebook page.

DIRECTOR'S REPORT

The draft CIP would be reviewed on August 3rd; the public hearing would be held on September 7th. West Valley would be requesting another site plan extension at the August 3rd meeting. Commissioner Anderson said he would not be at the August 3rd meeting.

COMMUNICATIONS

NEXT MEETING DATE: August 3, 2023

ADJOURNMENT

MOTION by Commissioner Meagher, seconded by Commissioner Anderson, to adjourn at 10:01 P.M. The motion carried with a voice vote: (7 yes votes).



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

July 10, 2023

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

RE: Panera Bread and Retail Development- Preliminary Site Plan Review – 3rd Review

Ref: DLZ No. 2345-7567-03 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 June 22, 2023. The plans were reviewed for feasibility based on general conformance with the Township Engineering Design Standards.

General Site Information

This approximately 1.624 acre site is located north of M-59, west of Bogie Lake Road, and southeast of Meijer.

Site Improvement Information:

- Construction of an approximately 3,206 square foot drive thru restaurant and approximately 2,662 square foot retail space.
- Associated paved and curbed parking area, including three (3) ADA parking spaces.
- One entrance off Meijer Drive.
- 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 June 20, 2023 review are in *italics*. Responses to those comments are in **bold**. New comments are in standard font.

- a) *The ALTA survey shows the existing storm sewer in the Meijer Drive as 12" diameter which is incorrect per Meijer Storm Sewer A/B plan dated 02/21/2006 (shown as 15" diameter); revise all existing storm sewer in Meijer Drive on the ALTA survey and all relevant plan sheets to reflect the correct pipe sizes. Comment partially addressed. A copy of the Meijer storm sewer plan has been attached. Please update the pipe size. **Comment addressed. Existing storm sewer diameter has been corrected.***
 - b) *The northeastern most end island and the end island to the east of the easternmost ADA parking space are required to be a minimum of 8' wide per Zoning Ordinance 5.11.M.i. The widths appear short by 0.5'. Comment remains. A variance shall be requested for the northeastern most end island width. The end island to the east of the easternmost ADA parking space is now 8' wide. **Comment addressed. The northeastern most end island is now 8' in width.***
 - c) *The parking layout does not lend itself to safe ingress and egress of pedestrians to the restaurant and/or retail space; most pedestrians will be required to cross the drive thru lanes to gain access to the restaurant and/or retail. Comment partially addressed. Please provide a note on Sheet C-3 that a 'Yield to Pedestrians in Cross Walk' sign shall be provided at the southernmost crosswalk. **Comment addressed. A note to provide a sign has been added to Sheet C-3.***
 - d) *The existing rim elevation for storm sewer structure number 10048 as shown on the manhole schedule on the plan sheets and in plan view (shown as 992.35') on Sheet C-5 shall be verified. Per the manhole schedule, the rim elevation is 997.66' and it is 998.70' per Meijer Storm Sewer A/B plan dated 02/21/2006. Comment partially addressed. A copy of the Meijer storm sewer plan has been attached. Please update the rim elevation. **Comment addressed. Rim elevation has been updated per the Meijer Storm Sewer as built plan.***
 - e) *All storm sewer proposed under pavement shall be RCP CLIV or better. Comment partially addressed. Pipe class has been updated with the exception of YD-1 (a new structure not shown on the previous plan) to proposed Cleanout. This segment of storm sewer shall be a minimum of 12" diameter, RCP CLIV, and end with a manhole structure where a cleanout is currently proposed. This segment must meet the above requirements per WLT Engineering Design Standards Section C.2.k. **Comment addressed. Pipe class and diameter have been updated to meet Township Engineering Standards.***
 - f) *The applicant will need to provide information detailing whether this site falls under the Meijer Storm Water Management Facilities Easement, Maintenance Agreement and Lien document or if a new agreement will be required for this development. Likely a new agreement will be required and supporting exhibits will need to be provided. Please refer to the Township DPS review letter dated March 2, 2023 for further information. Applicant provided a copy of an agreement related to the Meijer storm detention and retention basins. This agreement does not appear to apply to the outlots or future improvements on the outlots. DLZ recommends a new Storm Water Maintenance Facilities Easement, Maintenance Agreement, and Lien be provided for this development to cover the proposed stormwater devices that are part of this development. **Comment remains. Design engineers***
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indicates that a new agreement will be provided after Preliminary Site Plan approval and during Final Engineering Plan submittal/review.

- g) *Per the Meijer Storm District Map dated 05/23/2003, the southern portion of this site is proposed to drain to an inlet (38A) located to the southeast of the site (at northwest corner of M-59 and Bogie Lake Road). The Panera plan proposes to route all of the developed flow to the existing 15" storm sewer in Meijer Drive. Design engineer shall demonstrate that adequate capacity exists in the existing 15" storm sewer to the north such that the sewer can accept developed flow for the entire Panera site. Comment addressed for this level of review. Future submittals will need to look at downstream pipe capacity to the outlet because the project area is larger than the original drainage district anticipated. **Comment remains.***
 - h) *Based on grading shown, the proposed Cosmo's Car Wash catch basin proposed to the east will collect some of the drainage from the Panera Bread site (drainage from greenspace area east of Panera retaining wall). The design engineer for Panera will be required to verify that Cosmo's Car Wash Storm Sewer and pretreatment unit have the capacity to accommodate this off site flow. A drainage agreement and easement with Cosmo's Car Wash will be required. **Comment remains and has been addressed at this level of review. Design engineer response is that the drainage agreement and easement will be provided under separate cover when complete. The drainage agreement/easement as well as calculations to demonstrate Cosmo's storm sewer capacity shall be required prior to FSP/FEP approval.***
 - i) *ADA parking spaces will need to meet ADA standards in terms of slopes and dimensions; further details will be reviewed at the time of Final Site Plan/Final Engineering Plan submittal. **Comment remains. Design engineer states that additional grading details will be provided at the time FEP submittal.***
 - j) *Preliminary grading of the site has been proposed and demonstrates general drainage patterns; we note that the proposed 997 contour near the northwest corner of the site will result in ponding of water with no positive outlet. We further note that the wall grades on the south of the property are off in elevation with a top of wall grade 40 feet below the bottom. Please note that retaining walls over 30" in height will require a decorative railing. Please revise. Comment partially addressed. A yard inlet has been provided at the low point. In addition, proposed wall height elevations have now been adjusted. Please add a note regarding the requirement for decorative fencing at the top of the wall. **A note regarding the installation of a guide rail at the top of the retaining wall has been added to Sheet C-3. A detail of the guide rail shall be required at the time of FEP submittal.***
 - k) *Details regarding the proposed retaining wall shall be provided on the FSP/FEP; we note that it shall be demonstrated that the proposed retaining wall along the eastern side of the property shall provide the required support to manage the lateral and vertical stresses of a standard fire truck. Comment remains. Engineer notes that retaining wall design and specifications shall be provided under separate cover. We note that the design and specifications shall be signed and sealed by a structural*
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*Professional Engineer. In addition, calculations/report shall demonstrate that wall shall not impact proposed sanitary sewer at the point where the sewer crosses under the wall. **Comment remains. Per engineer, wall design and specifications will be provided at the time of FEP submittal.***

- l) *We defer to the Township Fire Department regarding hydrant coverage. **Comment addressed. Engineer states that all Fire Department comments have been addressed.***

Recommendation

A few comments remain; however, these comments can be addressed at the time of Final Site Plan/Final Engineering Plan submittal. We now recommend approval of the Preliminary Site Plan.

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

Sincerely,

DLZ Michigan



Michael Leuffgen, P.E.
Department Manager



Victoria Loemker, P.E.
Senior Engineer

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

WHITE LAKE TOWNSHIP PLANNING COMMISSION

REPORT OF THE COMMUNITY DEVELOPMENT DEPARTMENT

TO: Planning Commission

FROM: Sean O'Neil, AICP, Community Development Director
Justin Quagliata, Staff Planner

DATE: June 27, 2023

RE: Panera Bread
Preliminary Site Plan – Review #3

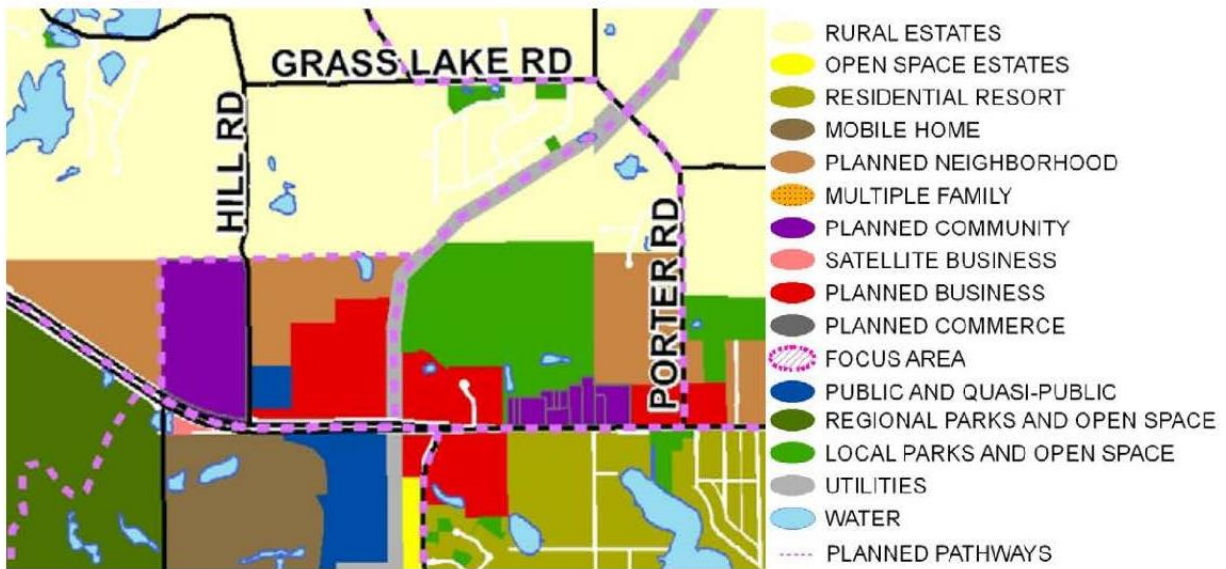
Staff reviewed the revised site plan prepared by Stonefield Engineering & Design (revision date June 22, 2023). The following comments from the first review dated February 27, 2023 and second review dated June 20, 2023 are listed below. Responses to those comments are provided in (purple).

White Lake Retail II, LLC has requested preliminary site plan approval to construct a 5,868 square foot two-tenant building consisting of a 3,206 square foot drive-thru Panera Bread restaurant and a 2,662 square foot retail space on 1.63 acres of Parcel Number 12-20-276-035. **The site plan review application lists the wrong address and parcel number, and a larger parcel size than proposed on the site plan. Revise accordingly. Additionally, the parcel number located in the Land Use and Zoning Table on Sheet C-3 is incorrect. Revise accordingly. Furthermore, the address listed in the title on the Coversheet and in the title blocks on all sheets in the plan set are incorrect. The subject parcel does not possess an address. Remove the incorrect address from the plan set. (Comments addressed. The parcel numbers and address have been corrected. Parcel size has also been corrected on the site plan application).** The subject site is part of a Meijer outlot, zoned PB (Planned Business), and located north of Highland Road (M-59) and south of the Meijer private drive. **Prior to final site plan submission, a land division application shall be submitted to the Assessing Department to separate the proposed outlot parcel from the remaining Meijer property. (Comment remains as a notation. This requirement has been acknowledged by the Applicant's engineer in the response letter provided to the first and second review).**

Master Plan

The Future Land Use Map from the Master Plan designates the subject site in the Planned Business category. All development in Planned Business is required to adhere to strict access management principles in order to minimize traffic conflict and maximize safety throughout the M-59 corridor. Connections to and segments of the Township community-wide pathway system are required as an integral part of all Planned Business development.

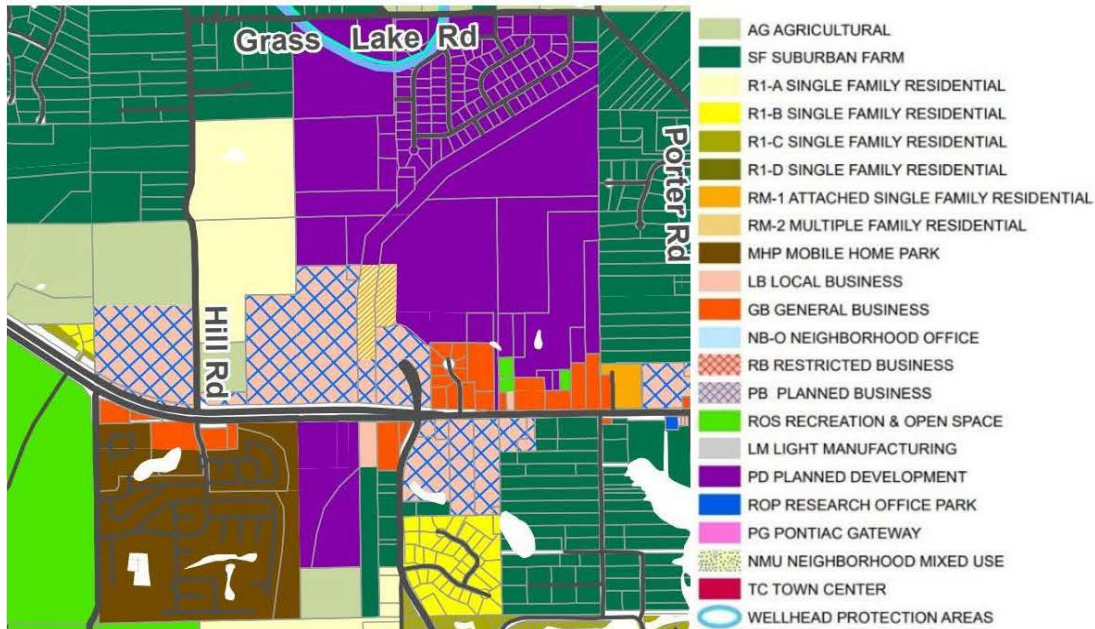
FUTURE LAND USE MAP



Zoning

Drive-thru restaurants and retail commercial uses are principal permitted uses with site plan review and approval in the PB zoning district. A minimum lot area of 10 acres is required in the PB District (the PB district does not have a minimum lot width requirement). **Label the dimensions of the proposed property lines on Sheet C-3.** (Comment addressed. All property lines have been dimensioned). The subject site (proposed parcel) contains 1.63 acres of lot area. While the lot area does not meet the minimum requirement, the Meijer outlots were contemplated at the time of the initial development. A waiver from the minimum area requirement is not necessary.

ZONING MAP



Physical Features

Currently the site is undeveloped. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Wetland Map and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map indicate neither wetlands nor floodplain are present on or near the site.

Access

The Meijer Development Agreement prohibits any outlot from having direct access and/or a curb-cut onto Highland Road (M-59). Two proposed driveways to the Meijer private drive would provide access to the site. Two-way undivided driveways must have a throat width of 25 feet. **The throat width shall be increased by one foot, from 24 feet to 25 feet (comment outstanding – driveway throat width shall exclude the gutter pan) (comment addressed – driveway throat width has been increased)** (throat length is the distance parallel to the centerline of a driveway from the public or private road right-of-way or access easement to the first on-site location at which a driver can make a right-turn or left-turn). The zoning ordinance states the number of driveways permitted for a site shall be the minimum number necessary to provide safe and efficient access for regular traffic and emergency vehicles. **The easterly driveway shall be eliminated. Revise accordingly. (Comment addressed. The easterly driveway has been removed).**

The Fire Truck Turning Exhibit (Sheet C-13) indicates a fire truck traversing over a curb, landscaping, a snow storage area, a sidewalk, and another curb to exit the site. Driving outside of designated fire lanes is not, pursuant to the zoning ordinance, acceptable for the efficient and effective use of fire apparatus (likely also noncompliant with the Fire Code). Sheet C-13 shall be revised to demonstrate fire apparatus can enter and exit the site by utilizing drive aisles/maneuvering lanes and the site driveway. (Comment addressed. The exhibit (now Sheet C-14) has been updated).

All dimensions for drive widths and parking space depth shall be revised. The site plan measures drive widths to the back or face of curb; road measurement surface is taken between the edges of the gutter pan (drive width shall be provided between the edges of the gutter pan). (Comment outstanding. Drive aisle width shall exclude the gutter pan). (Comment addressed. The site layout has been revised to remove gutter pans from all parking stall and drive aisle dimensions). **Furthermore, gutter pan shall not be included in the measurement of parking space depth. (Comment partially addressed. Excluding the gutter pan from stall dimensions results in a minimum proposed standard space of 9' x 18', which is compliant with the zoning ordinance. Revise the proposed column for Section 5.11.Q within the Off-Street Parking Requirements Table to reflect 9' x 18' spaces. (Comment addressed. The aforementioned table has been updated). The barrier-free spaces shall be revised to exclude gutter pan from the width of the spaces).** (Comment addressed. See response to first comment in this paragraph). **Provide a note on Sheet C-3 stating such. (Comment outstanding).** (Comment addressed. A note has been added to the parking table indicating gutter pans are excluded from the dimensions).

The zoning ordinance requires a minimum eight-foot-wide sidewalk along the Highland Road property frontage. Sidewalk along the aforementioned frontage was constructed by Meijer at the time of the initial development **(the width of the existing sidewalk shall be dimensioned on the site plan). (Comment addressed. Existing sidewalk width (six feet) has been dimensioned on the plans).** **The Applicant shall be required to repair/replace any broken sections of concrete within the frontage sidewalk adjacent to the site along Highland Road, as determined by the Township Engineering Consultant. This shall be noted on Sheet C-3. (Comment addressed. A note has been added as required).**

A six-foot-wide sidewalk is required along the Meijer private drive. The site plan shall be revised to provide a six-foot-wide concrete sidewalk (the width shall be dimensioned on the plan) extending across the entire northerly frontage; the concrete sections shall be constructed through the driveway. (Comment addressed. A six-foot-wide concrete sidewalk has been proposed along the northern frontage).

Utilities

Municipal water and sanitary sewer are available to serve the site. The Township Engineering Consultant will perform an analysis of utilities, stormwater, and grading to ensure compliance with all applicable ordinances as well as the Township Engineering Design Standards.

Staff Analysis

When reviewing the preliminary site plan, the Planning Commission should consider if the project meets the design standards for Planned Business developments found in Article 6, Section 7 of the zoning ordinance, the appropriateness of the requested waivers, and the site standards and development procedures for a PB development as outlined in Articles 5 and 6, respectively, of the zoning ordinance.

The Planned Business development review process is summarized by the following steps:

1. Preliminary Site Plan: During this review, the site layout and use(s) are established, the amount of open space is determined, and other project details are decided upon. The Planning Commission holds a public hearing, reviews the PB proposal, and makes a recommendation to the Township Board. The Township Board takes final action, approving or denying the preliminary site plan.
2. Final Site Plan: At this time building materials and colors, landscaping, and outdoor lighting are finalized and all conditions of preliminary site plan approval must be satisfied. The Planning Commission reviews and takes action to approve or deny the final site plan, and also reviews the proposed Development Agreement and makes a recommendation to the Township Board.
3. Development Agreement: Upon recommendation by the Planning Commission, the Township Board takes final action on the Development Agreement.

The following standards for drive-thrus found in Article 4, Section 17 of the zoning ordinance must also be utilized:

- A. *A front yard setback of at least sixty (60) feet shall be required.* The proposed front yard setback from the north property line is 116.50 feet. **The building setback from the south (front) property line shall be dimensioned on the site plan. The Land Use and Zoning Table shall also be revised to identify the rear setback as a front setback. The Required column in the aforementioned table is also incorrect and shall be revised; the 150-foot maximum front yard setback is not applicable (remove said line from Sheet C-3 and the row in the Land Use and Zoning Table). Per the Meijer Development Agreement, the Highland Road setback requirement for this outlot is 75 feet. Revise accordingly. (Comments addressed. Setbacks have been corrected and all dimensions included).**

The proposed column for the minimum front yard parking setback (Highland Road) within the Land Use and Zoning Table shows 50.3 feet, and the plan dimensions this setback as 50.2 feet. Revise for consistency. (Comment addressed. The setback (now 46 feet) has been corrected).

- 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. The nearest street intersection (Bogie Lake Road and Meijer private drive – to the east) is approximately 181 feet from the proposed easterly driveway (to be removed – see previous page). Additionally, the proposed driveway exceeds the minimum 200-foot setback from a residential zoning district.*
- 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. See the Outdoor Lighting section of this review.*
- 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. The property does not abut a residential district.*
- E. *Adequate off-street waiting space shall be provided to prevent drive-through customers from waiting on a public or private street. Fast food restaurants with indoor seating require minimum stacking (per lane) of eight (8) vehicles inclusive of the vehicle at the window. The site plan shows 19 waiting spaces for the ordering station, and there are a few additional waiting spaces not indicated prior to reaching the pick-up window.*

Building Architecture and Design

In accordance with the M-59 architectural character requirements, exterior building materials shall be comprised primarily of high quality, durable, low maintenance material, such as masonry, stone, brick, glass, or equivalent materials. Buildings should be completed on all sides with acceptable materials **consideration shall be given to the north facade design as it would be visible from a street. The north facade shall resemble a front facade, not a rear facade).** (Comment addressed. The north facade is now comprised of brick veneer with spandrel glazing to give the appearance of windows). The proposed materials for the 19-foot-tall building are a mix of EFIS (exterior insulation finishing system), aluminum wood-look cladding system, brick veneer, and fiberglass panels. **The building materials do not meet the architectural requirements of the Township, and the building is not designed to create a pleasing appearance. Aluminum cladding, EFIS, and fiberglass panels are not considered high-quality materials. Seventy (70) percent of all elevations of the building should be covered with some type of brick or cultured stone product.** (Comment addressed. The north, east, and west facades of the building are now primarily covered with brick veneer, and the north facade contains increased window coverage (the EIFS remains undesirable)).

All buildings shall have windows at eye level covering at least 30 percent of the front facade (north and south elevations of the building). The building elevations shall be revised to provide the required windows, and a window coverage calculation shall be provided on the building elevations. (Comments addressed. The north and south facades now contain the required window coverage, and such coverage has been noted on the exterior elevations).

Sheets A200, A201, and A101 reference sheets not provided in the plan set – provide the referenced sheets or remove references to sheets not provided. (Comment addressed. References to sheets not provided in the plan set have been removed).

A sample board of building materials to be displayed at the Planning Commission meeting and elevations in color are required by the zoning ordinance and must be submitted at final site plan. Additionally, the address (street number) location shall be shown on the building. Six-inch-tall numbers visible from the street shall be required. The address location is subject to approval of the Fire Marshal. (Comments remain as a notation).

Parking

In addition to the required stacking spaces (which must be provided as described on Page 5 of this review), one parking space per 75 square feet of gross floor area is required for the drive-thru restaurant (43 spaces) and one parking space per 200 square feet of gross floor area is required for the retail space (13 spaces). In total, 56 parking spaces are required and 56 parking spaces are proposed around the building. The required number of barrier-free parking spaces are also provided.

A snow storage plan was not provided. Information on method of snow storage shall be provided (denote snow storage areas on Sheet C-3). (Comment addressed. A snow storage area has been indicated on Sheet C-3). Winter maintenance of parking lot landscape islands shall be required where heavy applications of salt and de-icing products occur through the use of salt tarps which minimize soil absorption and ultimately reduce plant disorders. (Comment addressed. A maintenance note has been added to Sheet C-8).

Off-Street Loading Requirements

The zoning ordinance requires one loading space for a development of this size. Such loading and unloading space must be an area 10 feet by 50 feet, with a 15-foot height clearance. One loading space is proposed. General Note 13 on Sheet C-3 states any loading/unloading would occur off-hours as to not conflict with customer traffic flow.

Trash Receptacle Screening

The zoning ordinance requires dumpsters to be surrounded by a six-foot-tall wall on three sides and an obscuring wood gate on a steel frame on the fourth side, located on a six-inch concrete pad extending 10 feet in front of the gate, with six-inch concrete-filled steel bollards to protect the rear wall and gates. **Four-inch bollards are proposed. Revise accordingly. (Comment addressed. Trash enclosure bollards have been revised to six-inches).** The zoning ordinance also states dumpsters and trash storage enclosures shall be constructed of the same decorative masonry materials as the buildings to which they are accessory. Brickform concrete (simulated brick pattern) or stained, decorative CMU block are not permitted where the principal building contains masonry. Plain CMU block is also prohibited. **The dumpster enclosure shall be faced with the same brick veneer as the facade of the building with a steel-backed wood gate painted a complementary color to the brick/cultured stone. Revise the trash enclosure detail to show incorporation of the aforementioned design elements. (Comment addressed. A note has been added to the trash enclosure detail).**

The proposed enclosure is located northwest of the building. The zoning ordinance prohibits trash enclosures within a required front yard setback, and does not allow enclosures closer to the front lot line than the principal building. The proposed dumpster enclosure is located closer to the Meijer private drive than the building and within the front yard setback. **A waiver is required to allow the dumpster enclosure to project into the front yard and a waiver is required to allow the dumpster enclosure to encroach into the front yard setback. (Comment outstanding. Waivers have been requested by the Applicant).**

General Note 14 on Sheet C-3 states all trash pick-up would occur off-hours as to not conflict with customer traffic flow.

The trash enclosure detail on Sheet C-9 shall be revised to be consistent with Sheet C-3 which shows partitioning wall(s) separating the southerly third of the enclosure from the northerly two-thirds of the enclosure. Sheet C-3 shall include labels to note the type of bins to be placed in each portion of the enclosure. (Comment partially addressed. There are two separate trash enclosure details, a single and a double constructed side by side. The single enclosure detail has been added to the plans. However, four-inch bollards are proposed, and six-inch concrete-filled steel bollards are required – revise accordingly).

Landscaping and Screening

Landscaping must comply with the provisions of the zoning ordinance and should be designed to preserve existing significant natural features and to buffer service areas, parking lots, and dumpsters. A mix of evergreen and deciduous plants and trees are preferred, along with seasonal accent plantings. A landscape plan is not required as part of the preliminary site plan, but was provided for consideration and will be reviewed in detail during final site plan review if the preliminary site plan is approved. Following are initial comments on the landscape plan:

- All required landscape areas in excess of 200 square feet shall be irrigated to assist in maintaining a healthy condition for all plantings and lawn areas. **An irrigation plan shall be provided at final site plan.** (Comment remains as a notation. This requirement has been acknowledged by the Applicant’s engineer in the response letter provided to the first review).
- **No more than two planted trees in a row shall be of the same species.** (Comment addressed. Species have been revised).
- **Within the Highland Road greenbelt, evergreen trees shall be required.** (Comment outstanding. Nellie Stevens Holly is not an acceptable evergreen tree). (Comment outstanding. Green Giant Arborvitae is considered a shrub, not an evergreen tree. Examples of acceptable evergreen trees are Colorado Green Spruce and Blue Spruce).
- **The labels on Sheet C-8 stating “area to be lawn” shall be revised to include “sod lawn.”** (Comment addressed. Labels have been revised accordingly).
- **The tree and shrub planting details on Sheet C-10 mention mulch. The zoning ordinance states the mulch product itself shall be at least doubled-shredded quality. Revise accordingly.** (Comment addressed. Details have been updated to note double-shredded mulch).
- **A note on Sheet C-8 references a soil erosion plan on Sheet C-10 and such plan is not located on Sheet C-10.** (Comment addressed. Reference has been removed).
- **Unless waived by the Planning Commission, or the administrative staff reviewing the plan, a landscape plan shall be prepared by a landscape architect registered in the State of Michigan.** (Comment outstanding. Contrary to the response letter provided to the second review stating the landscape plan has been prepared and stamped by a registered landscape architect, the submitted plan is stamped by a professional engineer).

Outdoor Lighting

Site lighting is required to comply with the zoning ordinance. Information on site lighting was provided and will be reviewed in detail during final site plan review. Following are initial comments on the lighting (photometric) plan:

- Lighting shall be shielded from adjacent properties and designed to reflect continuity with the pedestrian orientation of the area. Floodlights, wall pack units, and other types of unshielded lights, and lights where the lens or bulb is visible outside of the light fixture are not permitted except in service areas where the lights will not generally be visible by the public or adjacent residential properties. Lights underneath canopies must be fully recessed into the canopy to minimize glare from the light source.

- Partial lighting fixture specifications were provided on the photometric plan. **Complete catalog details (lighting fixture specification sheets) for all proposed fixtures shall be provided. Light fixture selections and colors are subject to review and approval by the Township. (Comment outstanding. The wall pack housing color is not identified on Sheet C-11). (Comment addressed. Wall pack housing color (black) and color temperature (3000K) have been selected on Sheet C-12).**
- **Revise the Lighting Statistics Table to include footcandle information at the building. (Comment addressed. The table has been updated to include building information).**
- **The proposed overall parcel average footcandle level of 1.4 exceeds the allowable average of 0.5 footcandle. Therefore, a waiver is required. (Comment outstanding. A waiver has been requested by the Applicant).**

Signs

The site plan does not show the location of a monument sign. Per the Meijer Development Agreement, freestanding signs are prohibited from being located on any individual outlot. If allowed by Meijer, the tenants may be identified on the freestanding sign at the northwest corner of Bogie Lake Road and Highland Road.

A maximum of one wall sign is permitted for each principal building. In instances where a parcel has frontage on two streets, an additional wall sign may be permitted on the building facing the secondary thoroughfare, which is no greater than five percent of the wall area on which the sign is placed. Where permitted, wall signs must be located flat against the building's front facade or parallel to the front facade on a canopy. The building elevations show five wall signs on the building (north, south, and west facades). **The two wall signs on the west elevation shall be removed, or waivers are required. (Comment addressed. The aforementioned signs have been removed from the building). Additionally, one of the two wall signs shall be removed from the south elevation, or a waiver is required. (Comment addressed. The aforementioned signs are now proposed to be one sign).** Staff does not support signage waivers. The building elevations should be revised to comply with the sign standards.

Outdoor Dining

Outdoor dining is subject to the following standards found in Article 4, Section 18 of the zoning ordinance:

- A. The Planning Commission shall determine that the use is designed and will be operated so as not to create a nuisance to property owners adjacent to or nearby the eating establishment. As such, the proposed use shall meet the following minimum criteria:*

i. *The establishment may operate only during the following hours:*

- *Monday thru Thursday: 8:00 a.m. – 12:00 midnight*
- *Friday: 8:00 a.m. – 2:00 a.m.*
- *Saturday: 10:00 a.m. – 2:00 a.m.*
- *Sunday: 10:00 a.m. – 10:00 p.m.*

Panera Bread would be required to operate within the allowed hours.

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.*

Panera Bread would be required to adhere to said performance standard.

iii. *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.*

Information on site lighting was provided and will be reviewed in detail during final site plan if the preliminary site plan is approved. Initial comments on the lighting (photometric) plan were previously provided in this report.

B. Additional parking spaces must be provided according to the following:

i. *Outdoor dining areas for more than 30 people or which include either permanent or seasonal structures, such as awning, roofs, or canopies, may be required to provide additional parking according to the following:*

- a. *If the outdoor seating is 25% of the indoor seating or less, no additional parking is necessary.*
- b. *If the outdoor seating is 26%-50% of the indoor seating, the restaurant may be required to provide up to 125% of the parking required for the indoor space.*
- c. *If the outdoor seating is over 50% of the indoor seating capacity, the restaurant may be required to provide up to 150% of the parking required for the indoor space.*

An outdoor patio is proposed at the southwest corner of the building. **Label the size (square footage) of the patio, as well as the proposed number of tables and chairs, on Sheet C-3. (Comment outstanding. The square footage and number of seats have been added to the patio callout on Sheet C-3, but the proposed number of tables remains unidentified. Additionally, Sheet G131 of the architectural plans identifies the patio area as 813 square feet in size. Revise for consistency). (Comment addressed. The patio has been reduced to 394 square feet and a maximum of 28 seats. Tables have been shown on Sheet C-3. Sheet G131 has been updated accordingly).**

Community/Public Benefit

A waiver from the Community Impact Statement (CIS) requirement should be requested. (Comment outstanding. A waiver has been requested by the Applicant). While staff supports waiving submission of a CIS, **a community/public benefit must be provided to qualify for development in the PB district. (Comment addressed. In the response letter provided to the first review, the Applicant’s engineer indicated a \$20,000 donation to the Parks and Recreation Fund is proposed).** For PB developments, a public benefit(s) must be provided to offset the impact(s) of development on the Township. Community benefits are intended to be for the use and enjoyment of the public-at-large and must be commensurate with the waivers requested for the project. **A community/public benefit is not proposed. (Comment addressed. See response to previous comment).**

Planning Commission Options / Recommendation

The Planning Commission may recommend approval, approval with conditions, or denial of the preliminary site plan to the Township Board. ~~**Staff recommends the plans be revised and resubmitted to address the items identified in this memorandum. A response letter detailing changes made to the plan shall be provided upon resubmission. A revised list of requested waivers shall also be provided, along with a proposed community/public benefit.**~~ (Staff recommends the project is eligible for consideration by the Planning Commission. Any recommendation of approval of the preliminary site plan shall be conditioned on the Applicant addressing all staff and consultant review comments and recommendations).

Miscellaneous Comments

- **The building elevations and floor plan shall be sealed by the registered architect who prepared the plans. (Comment addressed. The aforementioned plans have been signed and sealed).**
- **The survey shall be sealed by the professional surveyor who prepared the plan. (Comment addressed. The survey has been signed and sealed).**
- **Sheet 02 of Exhibit A.1 misidentifies the Meijer private drive as Bogie Lake Road. Revise accordingly. (Comment outstanding. The aforementioned sheet did not accompany the second submittal. The Applicant shall verify in writing the intent to remove the sheet from the plan set as an architectural site plan is not needed and the prior sheet is no longer consistent with the prevailing site plan (Stonefield plan)). (Comment addressed. Verification of removal of the sheet from the plan set has been provided).**



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: 07/06/23

Project: Panera Bread 6001 Highland Rd. Outlet B

Job #: 2002-248A

Date on Plans: 06/22/23

The Fire Department has the following comments with regard to the 3rd review of preliminary plans for the project known as Panera Bread 6001 Highland Rd. Outlet B:

The Fire Dept. has no further comments at this time.

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.



LOCATION MAP

SCALE: 1" = 2,000'±

SITE DEVELOPMENT PLANS FOR HIGHLAND ROAD OUTLOT B PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN

APPLICANT

WHITE LAKE RETAIL II, LLC
30200 TELEGRAPH ROAD SUITE 205
BINGHAM FARMS, MI 48025

ZONING RELIEF TABLE			
RELIEF TYPE	CODE SECTION	REQUIRED	PROPOSED
WAIVER	§ 6.6	COMMUNITY IMPACT STATEMENT (CIS)	NONE
WAIVER	§ 5.19.N.I.C.	NO ENCLOSURES SHALL BE PERMITTED WITHIN A REQUIRED FRONT YARD (60 FT) OR STREET SIDE SIDE YARD SETBACK, NOR CLOSER TO THE FRONT LOT LINE THAN THE PRINCIPAL BUILDING (116.5 FT).	20.5 FT FROM FRONT LOT LINE
WAIVER	§ 5.18.G.viii	MAXIMUM AVERAGE WALKWAY ILLUMINATION: 1.0 FC	4.85 FC
WAIVER	§ 5.18.G.viii	MAXIMUM GENERAL ILLUMINATION: 0.5 FC	1.40 FC

NOT APPROVED FOR CONSTRUCTION



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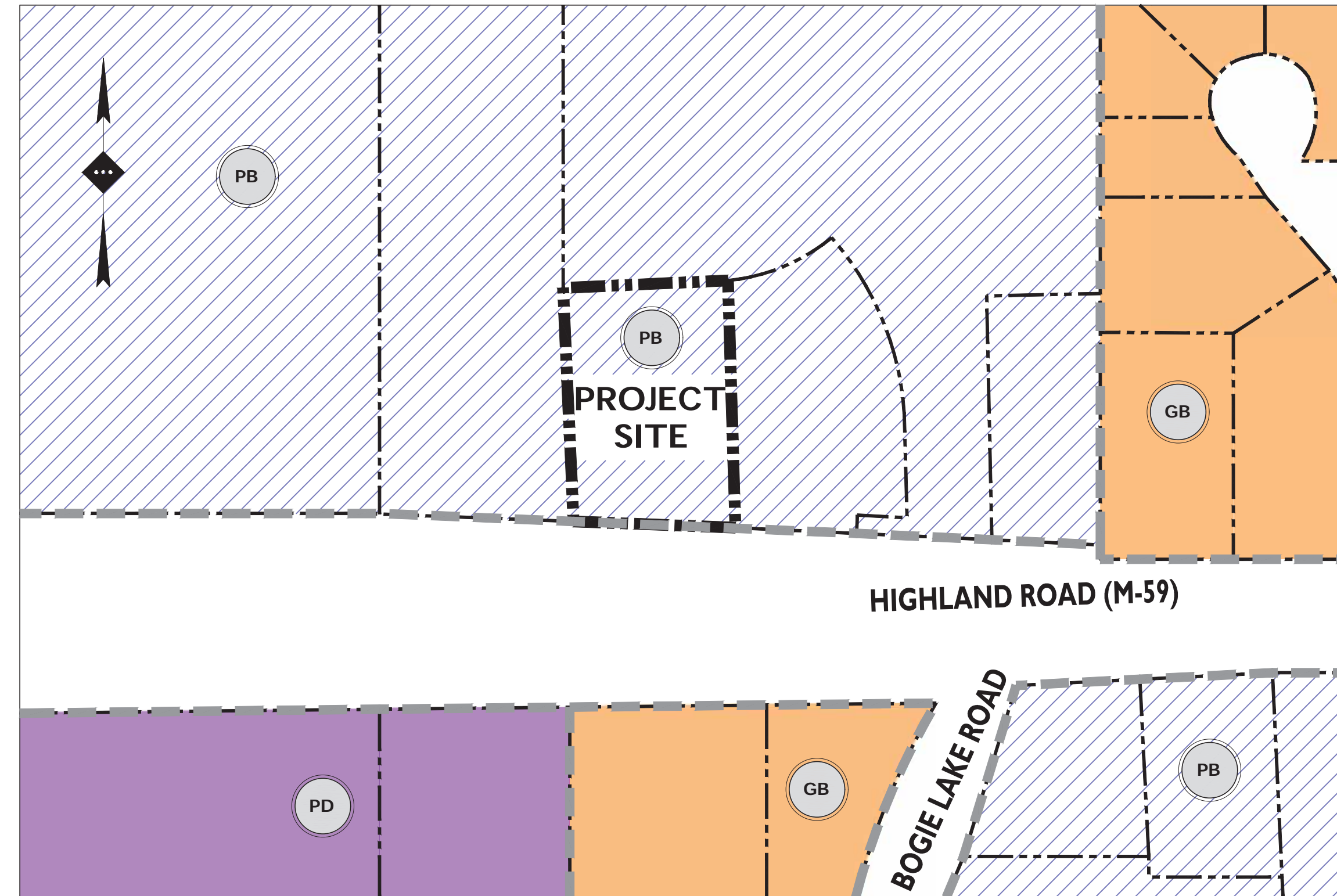
**HIGHLAND ROAD
MEIJER OUTLOT B
PROPOSED COMMERCIAL DEVELOPMENT**

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383



AERIAL MAP

SCALE: 1" = 150'±



ZONING MAP

SCALE: 1" = 150'±

**WHITE LAKE CHARTER TOWNSHIP
ENGINEERING NOTES:**

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

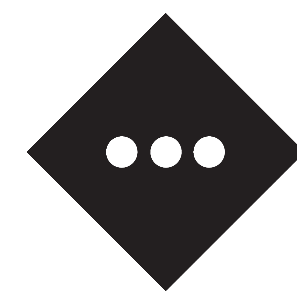
PLAN REFERENCE MATERIALS:

- THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
 - ALTA / NSPS LAND TITLE SURVEY PREPARED BY KEM-TEC & ASSOCIATES INC. DATED 06/21/2023
 - ARCHITECTURAL PLANS PREPARED BY ARCHVISION ARCHITECTS
 - GEOTECHNICAL REPORT PREPARED BY TBD CONSULTANTS DATED XX/XX/XXXX
 - AERIAL MAP OBTAINED FROM GOOGLE EARTH PRO
 - LOCATION MAP OBTAINED FROM USGS NATIONAL MAPPING SYSTEM
- 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.

PLANS PREPARED BY:



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Phone 248.247.1115

PROPERTY DESCRIPTION (PARENT PARCEL):

LAND SITUATED IN THE TOWNSHIP OF WHITE LAKE, COUNTY OF OAKLAND, STATE OF MICHIGAN, DESCRIBED AS: PART OF THE NORTHEAST 1/4 OF SECTION 20, TOWN 3 NORTH, RANGE 8 EAST, BEGINNING AT A POINT DISTANT N 00°31'08" E 198.92 FEET AND NORTH 89°58'09" E 519.78 FEET AND S 87°30'16" E 513.36 FEET FROM CENTER OF SECTION 20; THENCE N 00°39'06" E 981.32 FEET; THENCE N 90°00'00" E 156.11 FEET; THENCE N 63°45'10" E 76.30 FEET; THENCE N 83°08'44" E 68.91 FEET; THENCE S 73°02'19" E 100.53 FEET; THENCE S 50°34'37" E 136.92 FEET; THENCE S 50°09'11" E 120.23 FEET; THENCE S 50°21'46" E 66.40 FEET; THENCE S 32°53'46" E 42.85 FEET; THENCE N 90°00'00" E 49.43 FEET; THENCE S 00°19'28" W 474.21 FEET; THENCE N 89°40'32" W 147.67 FEET; THENCE ALONG A CURVE TO THE RIGHT, RADIUS 533.50 FEET, CHORD BEARING S 05°00'27" E 94.46 FEET, A DISTANCE OF 94.59 FEET; THENCE S 00°01'09" E 236.61 FEET; THENCE ALONG A CURVE TO THE RIGHT, RADIUS 5637.58 FEET, CHORD BEARING N 85°18'14" W 118.86 FEET, A DISTANCE OF 118.86 FEET; THENCE N 84°42'00" W 51.36 FEET; THENCE N01°30'56" E 30.03 FEET; THENCE S 88°29'04" E 63.50 FEET; THENCE N 03°10'30" W 150.32 FEET; THENCE ALONG A CURVE TO THE LEFT, RADIUS 966.50 FEET, CHORD BEARING N 19°25'09" W 233.59 FEET, A DISTANCE OF 234.17 FEET; THENCE S 60°22'37" W 36.86 FEET; THENCE ALONG A CURVE TO THE RIGHT, RADIUS 233 FEET, CHORD BEARING S 75°11'17" W 119.13 FEET, A DISTANCE OF 120.47 FEET; THENCE S 90°00'00" W 15.98 FEET; THENCE S 01°30'56" W 332.20 FEET; THENCE N 84°42'00" W 189.40 FEET; THENCE ALONG A CURVE TO THE LEFT, RADIUS 5821.58 FEET, CHORD BEARING N 84°52'11" W 28.38 FEET, A DISTANCE OF 28.38 FEET TO THE POINT OF BEGINNING.

PROPERTY DESCRIPTION (PARCEL 'A'):

LAND SITUATED IN THE TOWNSHIP OF WHITE LAKE, COUNTY OF OAKLAND, STATE OF MICHIGAN, DESCRIBED AS: PART OF THE NORTHEAST 1/4 OF SECTION 20, TOWN 3 NORTH, RANGE 8 EAST, BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 31 MINUTES 08 SECONDS EAST 198.92 FEET AND NORTH 89 DEGREES 58 MINUTES 09 SECONDS EAST 519.78 FEET AND SOUTH 87 DEGREES 30 MINUTES 16 SECONDS EAST 513.36 FEET FROM CENTER OF SECTION 20; THENCE NORTH 00 DEGREES 39 MINUTES 06 SECONDS EAST 312.07 FEET; THENCE SOUTH 90 DEGREES 00 MINUTES 00 SECONDS EAST (DUE EAST) 222.10 FEET; THENCE SOUTH 01 DEGREE 30 MINUTES 56 SECONDS WEST 332.20 FEET; THENCE NORTH 84 DEGREES 42 MINUTES 00 SECONDS WEST 189.40 FEET; THENCE ALONG A CURVE TO THE TO THE LEFT, RADIUS 5821.58 FEET, CHORD BEARING NORTH 84 DEGREES 52 MINUTES 11 SECONDS WEST 28.38 FEET, A DISTANCE OF 28.38 FEET TO THE POINT OF BEGINNING.

SHEET INDEX

DRAWING TITLE	SHEET #
COVER SHEET	C-1
DEMOLITION PLAN	C-2
SITE PLAN	C-3
GRADING PLAN	C-4
STORMWATER MANAGEMENT PLAN	C-5
UTILITY PLAN	C-6
LIGHTING PLAN	C-7
LANDSCAPING PLAN	C-8
CONSTRUCTION DETAILS	C-9 TO C-13
FIRE TRUCK TURNING EXHIBIT	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

SITE DEVELOPMENT PLANS

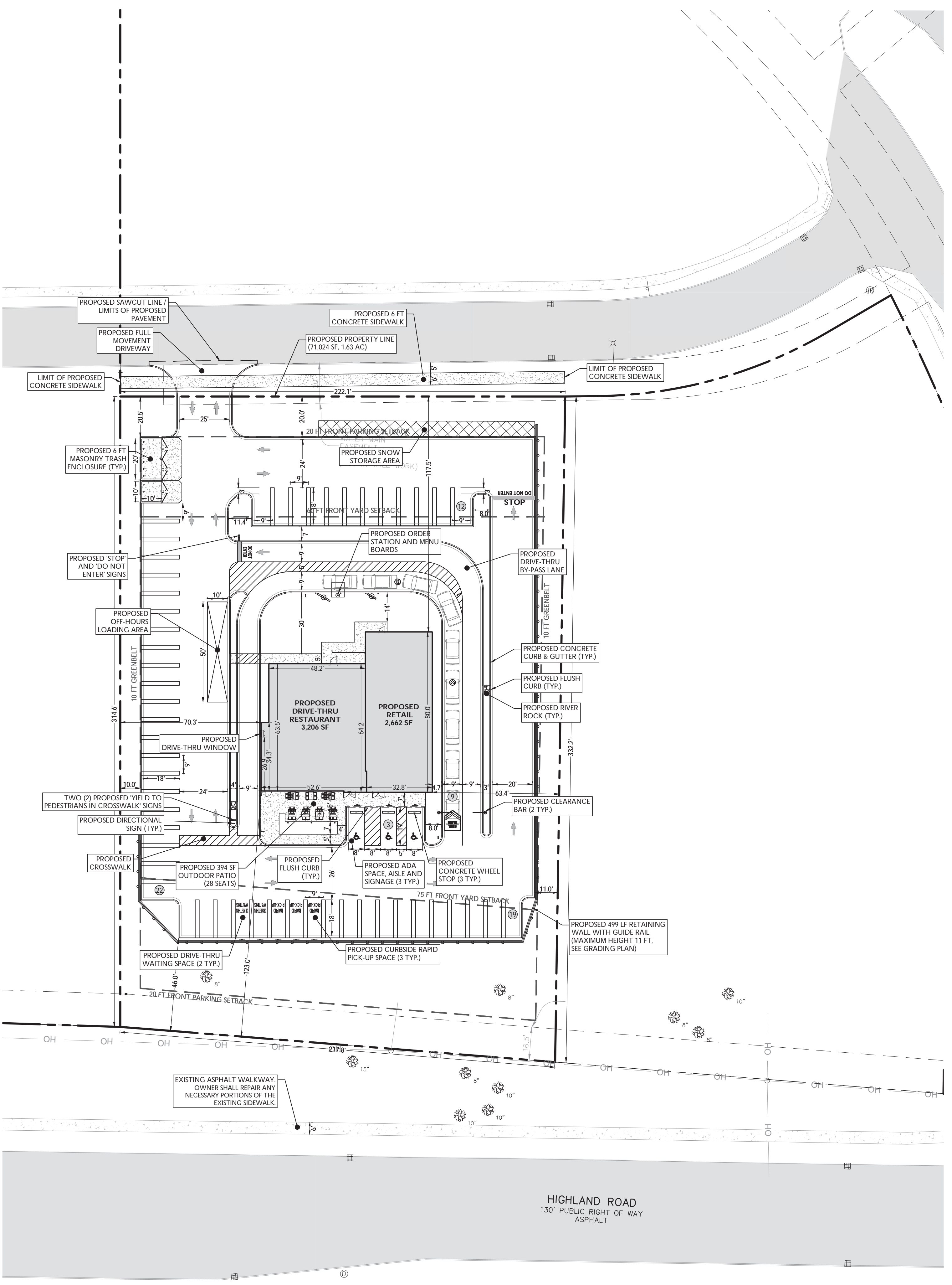


SCALE: AS SHOWN PROJECT ID: DET-22100

TITLE:
COVER SHEET

DRAWING:

C-1



LAND USE AND ZONING		
PID: 12-20-276-035		
PLANNED BUSINESS DISTRICT (PB)		
PROPOSED USE	PERMITTED USE	PROPOSED USE
RESTAURANT WITH DRIVE-THRU	PERMITTED USE	
RETAIL STORE	PERMITTED USE	
ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT AREA	10 ACRES (1)	71,024 SF (1.63 AC)
MAXIMUM BUILDING HEIGHT	35 FT / 2 STORIES	19.0 FT / 1 STORY
MINIMUM FRONT YARD SETBACK (SERVICE DRIVE)	60 FT (2)	117.5 FT
MINIMUM FRONT YARD SETBACK (HIGHLAND ROAD)	75 FT (3)	123.0 FT
MINIMUM SIDE YARD SETBACK	N/A	63.4 FT
MINIMUM REAR YARD SETBACK	N/A	N/A
MINIMUM GREENBELT BUFFER	10 FT FROM ADJACENT PROPERTIES	10.0 FT
MINIMUM FRONT YARD PARKING SETBACK (SERVICE DRIVE)	20 FT	20.0 FT
MINIMUM FRONT YARD PARKING SETBACK (HIGHLAND ROAD)	20 FT	46.0 FT

- (1) § 3.11(x): A SMALLER PARCEL MAY BE PERMITTED BY PLANNING COMMISSION
- (2) § 4.17: A FRONT YARD SETBACK OF AT LEAST SIXTY (60) FT REQUIRED FOR DRIVE-THRU
- (3) PER THE MEIER DEVELOPMENT AGREEMENT, THE HIGHLAND ROAD SETBACK REQUIREMENT FOR THIS OUTLOT IS 75 FEET

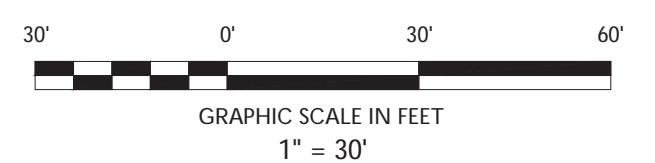
OFF-STREET PARKING REQUIREMENTS		
CODE SECTION	REQUIRED	PROPOSED
§ 5.11 (m)	DRIVE-THRU PARKING: 1 SPACE PER 75 SF GROSS FLOOR AREA (3,206 SF) (1 SPACE / 75 SF) = 43 SPACES	56 SPACES
§ 5.11 (m)	RETAIL PARKING: 1 SPACE PER 200 SF GROSS FLOOR AREA (2,642 SF) (1 SPACE / 200 SF) = 13 SPACES	
	TOTAL: 43 + 13 = 56 SPACES	
§ 5.11 (q)	90° PARKING: 9 FT X 18 FT W/ 24 FT AISLE	9 FT X 18 FT (1) W/ 24 FT AISLE
§ 5.11 (m)	DRIVE-THRU STACKING: 8 VEHICLES	19 VEHICLES
§ 5.11 (m)	DRIVE-THRU STACKING DIMENSIONS: 9 FT X 20 FT W/ 25 FT MIN RADIUS	10 FT X 20 FT W/ 25 FT RADIUS
§ 5.22 (p)	LOADING ZONE: 10 FT X 50 FT	10 FT X 50 FT
§ 5.11 (o)	ADA REQUIRED PARKING SPACES: 51-70 TOTAL SPACES = 3 ADA SPACES	3 ADA SPACES

- (1) GUTTER PANS ARE NOT TO BE INCLUDED WITHIN THE SHOWN PARKING AND DRIVE AISLE DIMENSIONS

SYMBOL	DESCRIPTION
---	PROPERTY LINE
---	SETBACK LINE
---	SAWCUT LINE
---	PROPOSED CURB & GUTTER
---	PROPOSED FLUSH CURB
---	PROPOSED SIGNS / BOLLARDS
---	PROPOSED BUILDING
---	PROPOSED CONCRETE
---	PROPOSED BUILDING DOORS
---	PROPOSED RETAINING WALL WITH GUIDE RAIL

- MDOT NOTES:**
- NO LANE CLOSURES PROPOSED
 - M-59 TO BE KEPT FREE AND CLEAR OF DIRT/DEBRIS
 - DAILY SWEEPING MAY BE REQUIRED

- 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. 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.
 - ANY LOADING/UNLOADING TO OCCUR OFF-HOURS AS TO NOT CONFLICT WITH CUSTOMER TRAFFIC FLOW.
 - ALL TRASH PICKUP TO OCCUR OFF-HOURS AS TO NOT CONFLICT WITH CUSTOMER TRAFFIC FLOW.



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3	04/11/2023	EM	FOR CLIENT REVIEW
2	03/16/2023	EM	FOR CLIENT REVIEW
1	02/14/2023	EM	SUBMISSION FOR SITE PLAN APPROVAL

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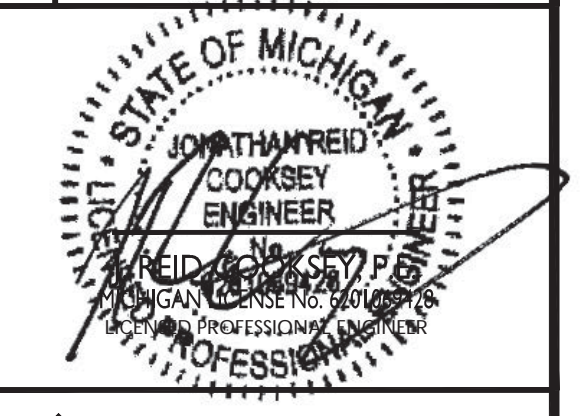
SITE DEVELOPMENT PLANS

HIGHLAND ROAD

MEIJER OUTLOT B

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383



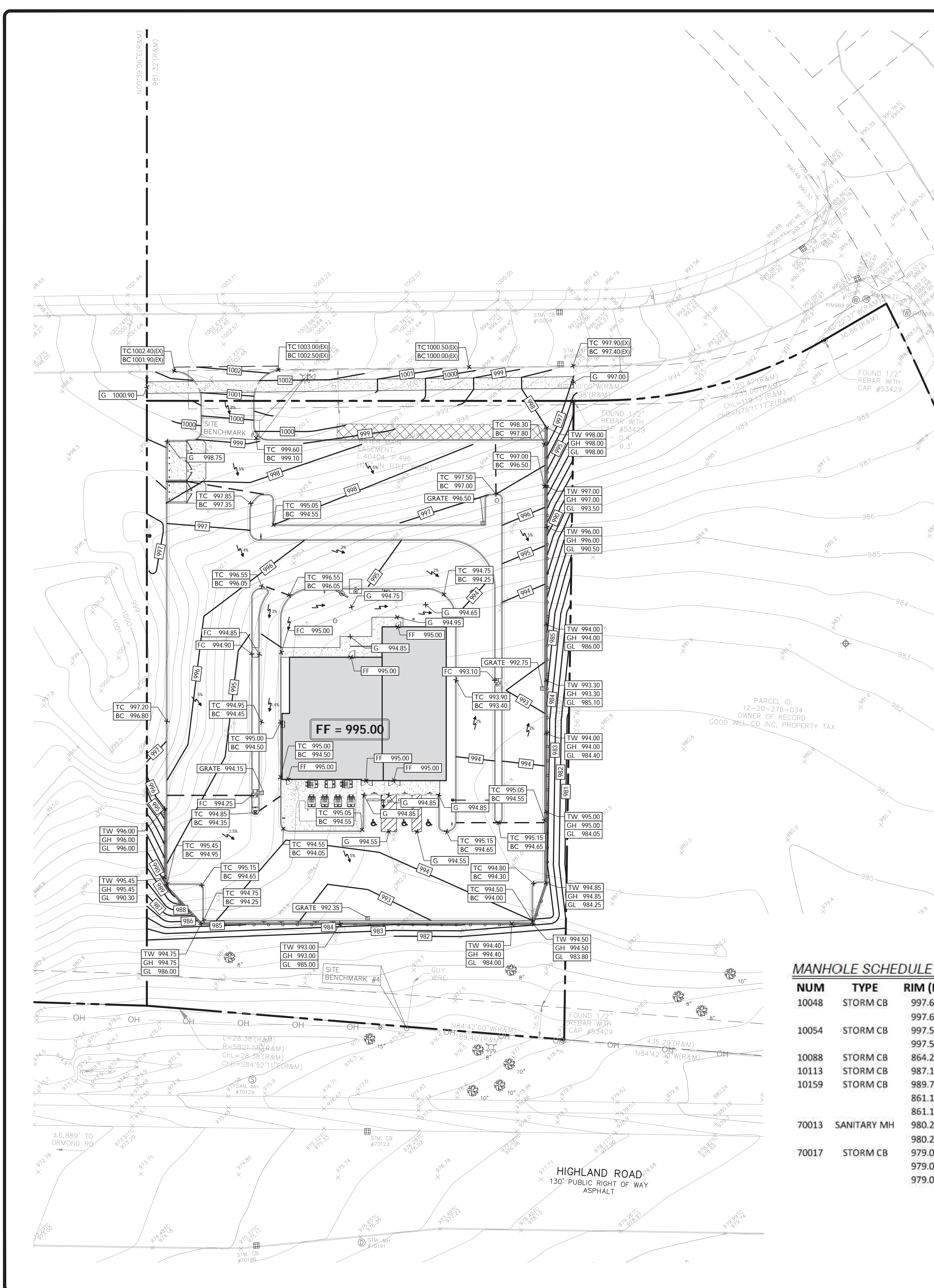
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SCALE: 1" = 30' PROJECT ID: DET-22100

TITLE: **SITE PLAN**

DRAWING: **C-3**

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

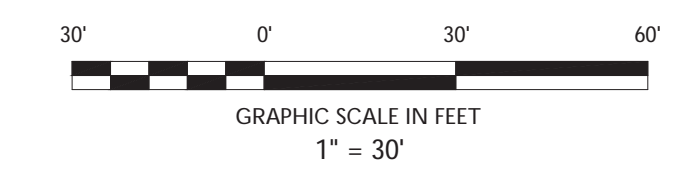


MANHOLE SCHEDULE

NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)	NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)
10048	STORM CB	997.66	12	N	984.91	70046	STORM CB	979.24	18	W	974.04
		997.66	12	S	985.06			979.24	18	E	973.89
10054	STORM CB	997.53	12	S	984.93	70095	SANITARY MH	980.49	15	NE	951.09
		997.53	12	NE	984.78			980.49	15	W	951.29
10088	STORM CB	864.24	12	NW	859.94	70101	STORM CB	979.37	12	S	975.77
10113	STORM CB	987.10	12	E	982.55	70122	STORM CB	975.46	12	S	971.46
10159	STORM CB	989.73	12	SE	983.48	70129	SANITARY MH	975.17	15	E	951.07
		861.11	12	SW	854.86			975.17	15	W	951.17
		861.11	12	NW	854.81	70182	STORM CB	980.28	12	N	975.03
70013	SANITARY MH	980.27	8	N	970.67			980.28	12	S	975.08
		980.27	8	SE	970.47	70191	STORM MH	976.75	12	S	971.15
		979.08	18	W	973.68			976.75	12	N	971.20
70017	STORM CB	979.08	18	N	973.53	70196	STORM CB	975.22	12	SE	971.22
		979.08	12	NE	974.18	70211	STORM BEEHIVE	978.23	18	E	974.53

SYMBOL	DESCRIPTION
---	PROPERTY LINE
—100—	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: 1.00%
 - 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 SYSTEM 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 100% 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. CURB 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 1/4 INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH, WHERE A CHANGE IN LEVEL BETWEEN 1/4 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.



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3	04/11/2023	EM	FOR CLIENT REVIEW
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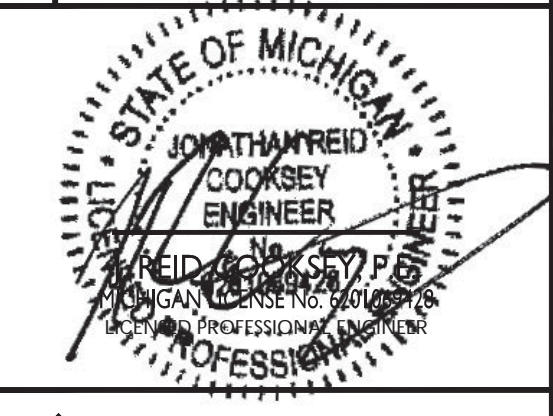
SITE DEVELOPMENT PLANS

HIGHLAND ROAD

MEIJER OUTLOT B

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383

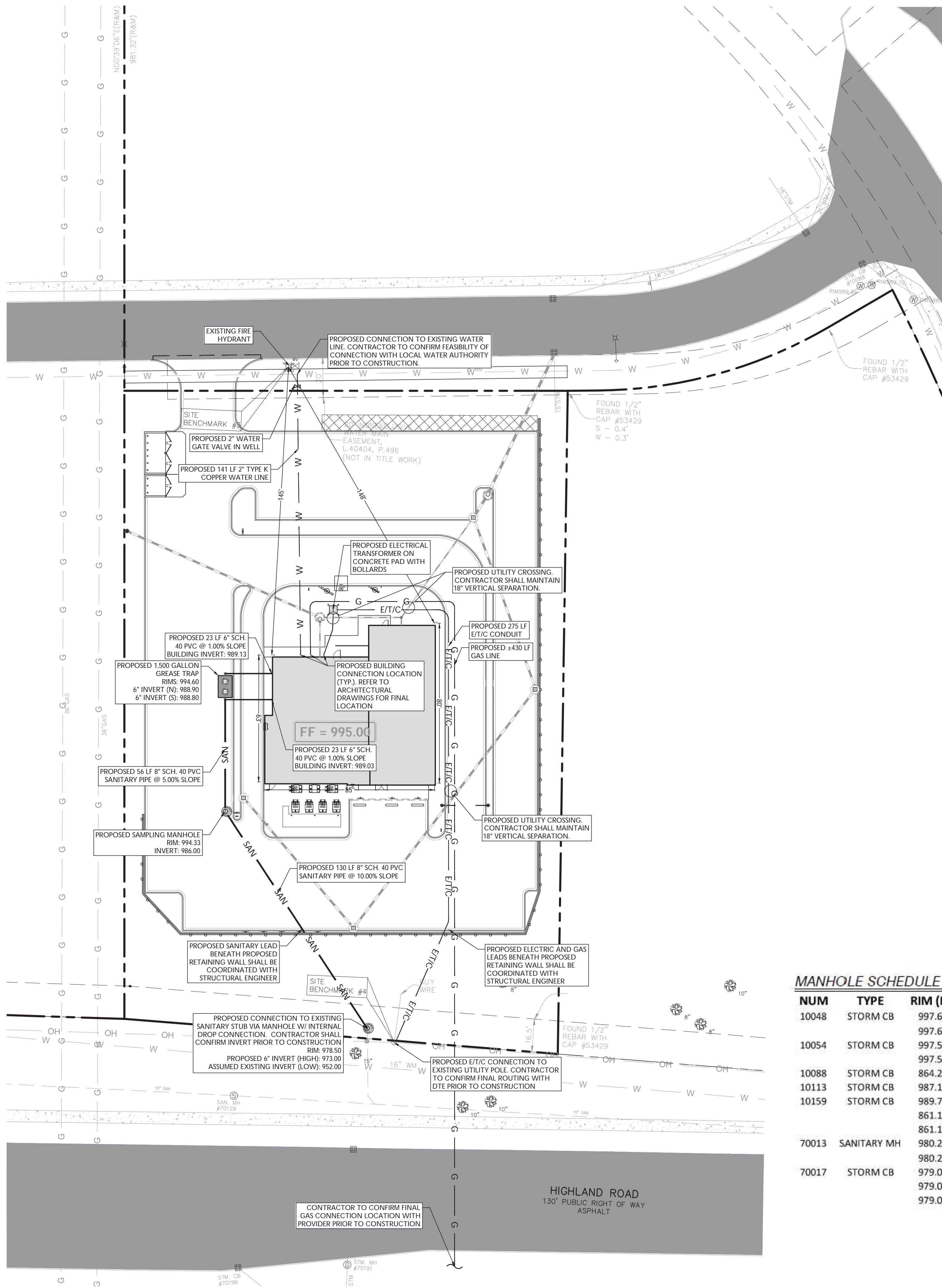


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SCALE: 1" = 30' PROJECT ID: DET-22100

TITLE: **GRADING PLAN**

DRAWING: **C-4**

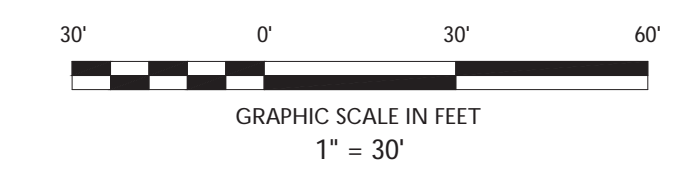


SYMBOL	DESCRIPTION
---	PROPERTY LINE
— SAN —	PROPOSED SANITARY LATERAL
— W —	PROPOSED DOMESTIC WATER SERVICE
— E/T/C —	PROPOSED E/T/C CONDUITS
— G —	PROPOSED GAS LINE
⊗	PROPOSED VALVE
⊙	PROPOSED SANITARY MANHOLE / CLEANOUT
⊠	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS

- 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.

MANHOLE SCHEDULE

NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)	NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)
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		997.53	12	NE	984.78			980.49	15	W	951.29
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		979.08	18	N	973.53	70196	STORM CB	975.22	12	SE	971.22
		979.08	12	NE	974.18	70211	STORM BEEHIVE	978.23	18	E	974.53



ISSUE	DATE	BY	DESCRIPTION
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1	02/14/2023	EM/RC	SUBMISSION FOR SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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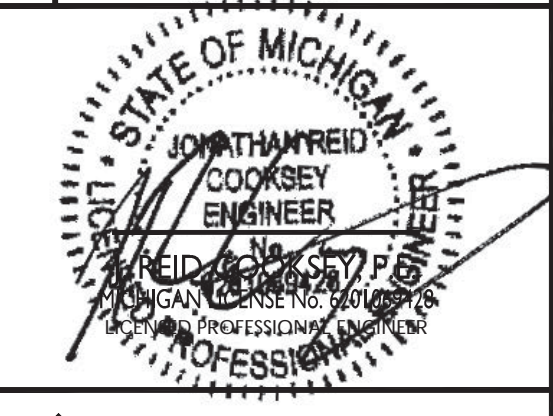
SITE DEVELOPMENT PLANS

HIGHLAND ROAD

MEIJER OUTLOT B

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
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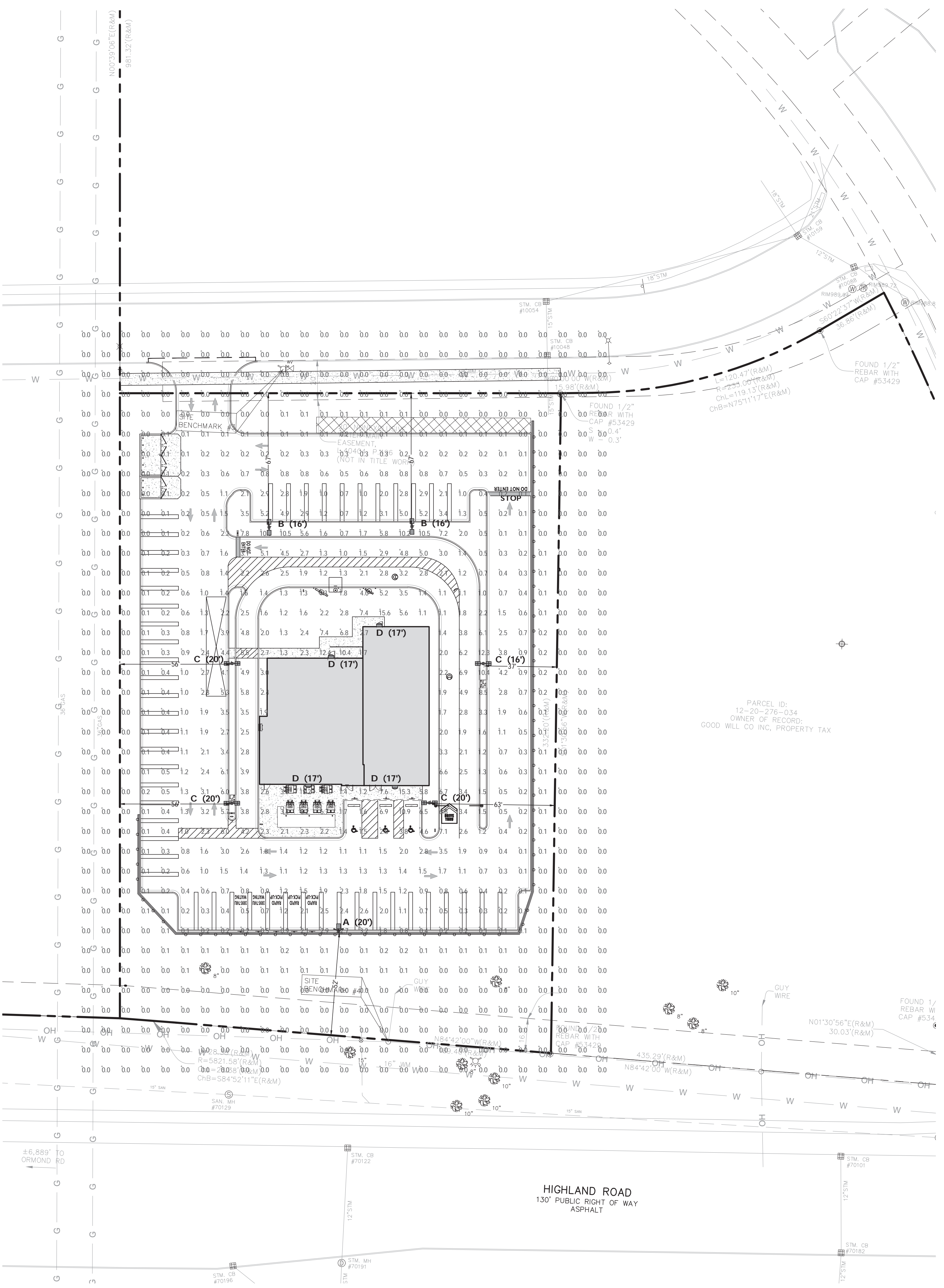
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SCALE: 1" = 30' PROJECT ID: DET-2210180

TITLE: **UTILITY PLAN**

DRAWING: **C-6**

NOT TO SCALE. SEE PLAN SET FOR ALL DIMENSIONS. HIGHLAND ROAD, CENTER TOWNSHIP OF WHITE LAKE, MICHIGAN 48383. DATE: 06/22/2023.



PARCEL ID:
12-20-276-034
OWNER OF RECORD:
GOOD WILL CO INC, PROPERTY TAX

SYMBOL	DESCRIPTION
A (XX)	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
+X.X	PROPOSED LIGHTING INTENSITY (FOOT CANDLES)
[Symbol]	PROPOSED AREA LIGHT
[Symbol]	PROPOSED BUILDING MOUNTED LIGHT

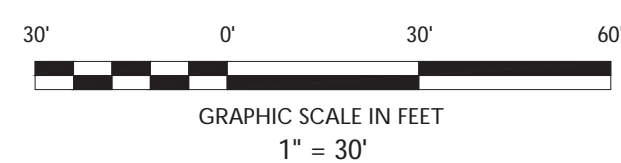
PROPOSED LUMINAIRE SCHEDULE							
SYMBOL	LABEL	QUANTITY	LIGHTING SPECIFICATION	DISTRIBUTION	LLF	MANUFACTURER	IES FILE
[Symbol]	A	1	PPRV PREVAIL POLE AND FIXTURE COMBO - LED SINGLE WITH HOUSE SIDE SHIELD	IV	0.9	EATON	PRV-C40-D-UNV-T4-BZ-7030-HSS.ies
[Symbol]	B	2	PPRV PREVAIL POLE AND FIXTURE COMBO - LED 2 @ 180°	IV	0.9	EATON	PRV-C40-D-UNV-T4-BZ-7030-HSS.ies
[Symbol]	C	4	PPRV PREVAIL POLE AND FIXTURE COMBO - LED 2 @ 180°	III	0.9	EATON	PRV-C40-D-UNV-T3-BZ-7030-HSS.ies
[Symbol]	D	4	XTOR CROSSTOUR MAXX LED WALLPACK	N/A	0.9	LSI LIGHTING	XTOR68.ies

LIGHTING REQUIREMENTS		
CODE SECTION	REQUIRED	PROPOSED
§ 5.18.G	LIGHT FIXTURES SHALL BE FULL CUT OFF AT 90°	PROVIDED
§ 5.18.G.iii	MINIMUM PROPERTY LINE SETBACK: 5 FT	36 FT
§ 5.18.G.viii.a	MAXIMUM FIXTURE HEIGHTS: WITHIN 25 FT OF PROPERTY LINE: 16 FT WITHIN 26-60 FT OF PROPERTY LINE: 20 FT WITHIN 61-100 FT OF PROPERTY LINE: 25 FT > 100 FT OFF PROPERTY LINE: 30 FT	N/A 20 FT 20 FT N/A
§ 5.18.G.iii	PERMITTED GLARE: ALL PROPERTY LINES: 0 FC	0.0 FC
§ 5.18.G.viii	FOOT CANDLE LIMITS (MAXIMUM AVERAGE): GENERAL: 0.5 FC DRIVEWAY: 2.0 FC PARKING: 2.0 FC WALKS: 1.0 FC PROTECTIVE: 1.0 FC BUILDING: 5.0 FC LOADING AREAS: 1.0 FC	1.40 FC (W) 1.68 FC 1.68 FC 4.85 (W) N/A 4.85 FC N/A

LIGHTING STATISTICS			
DESCRIPTION	AVERAGE	MINIMUM	MAXIMUM
OVERALL PARCEL	1.40 FC	0.0 FC	15.6 FC
DRIVEWAY & PARKING AREAS	1.67 FC	0.0 FC	15.6 FC
BUILDING	4.85 FC	1.2 FC	15.3 FC
PROPERTY LINE	0.00 FC	0.00 FC	0.00 FC

(1) ALL CALCULATIONS MEASURED 6 FT ABOVE GRADE

- 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.



ISSUE	DATE	BY	DESCRIPTION
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1	02/14/2023	EM/RC	SUBMISSION FOR SITE PLAN APPROVAL

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SITE DEVELOPMENT PLANS

**HIGHLAND ROAD
MEIJER OUTLOT B**

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383



STONEFIELD
engineering & design

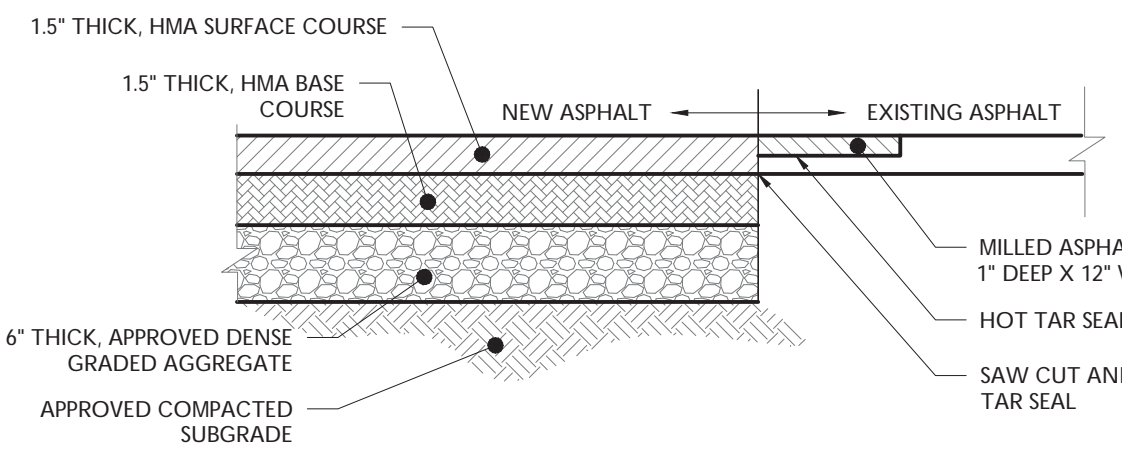
SCALE: 1" = 30' PROJECT ID: DET-220180

TITLE:
LIGHTING PLAN

DRAWING:

C-7

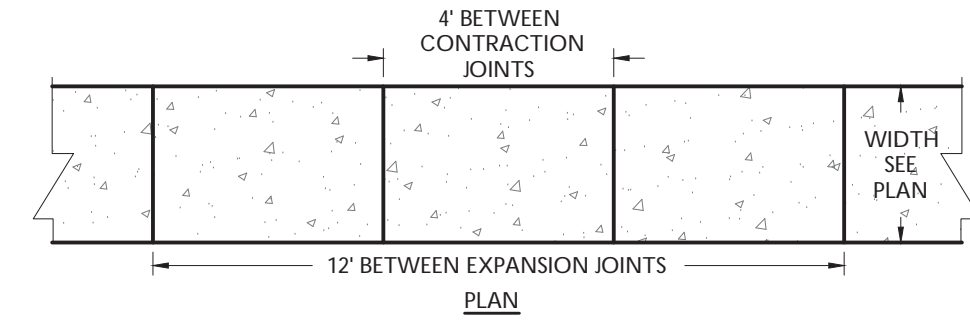
NOT TO SCALE. DIMENSIONS ARE APPROXIMATE. DIMENSIONS OF WHITE LAKE, MICHIGAN (DET-220180) LIGHTING



FULL DEPTH ASPHALT PAVEMENT DETAIL

NOT TO SCALE

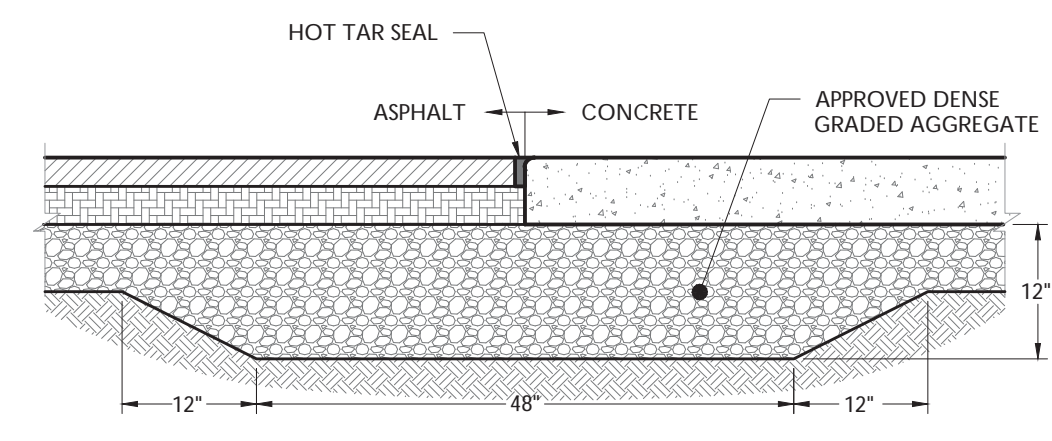
NOTE:
HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.



CONCRETE WALKWAY

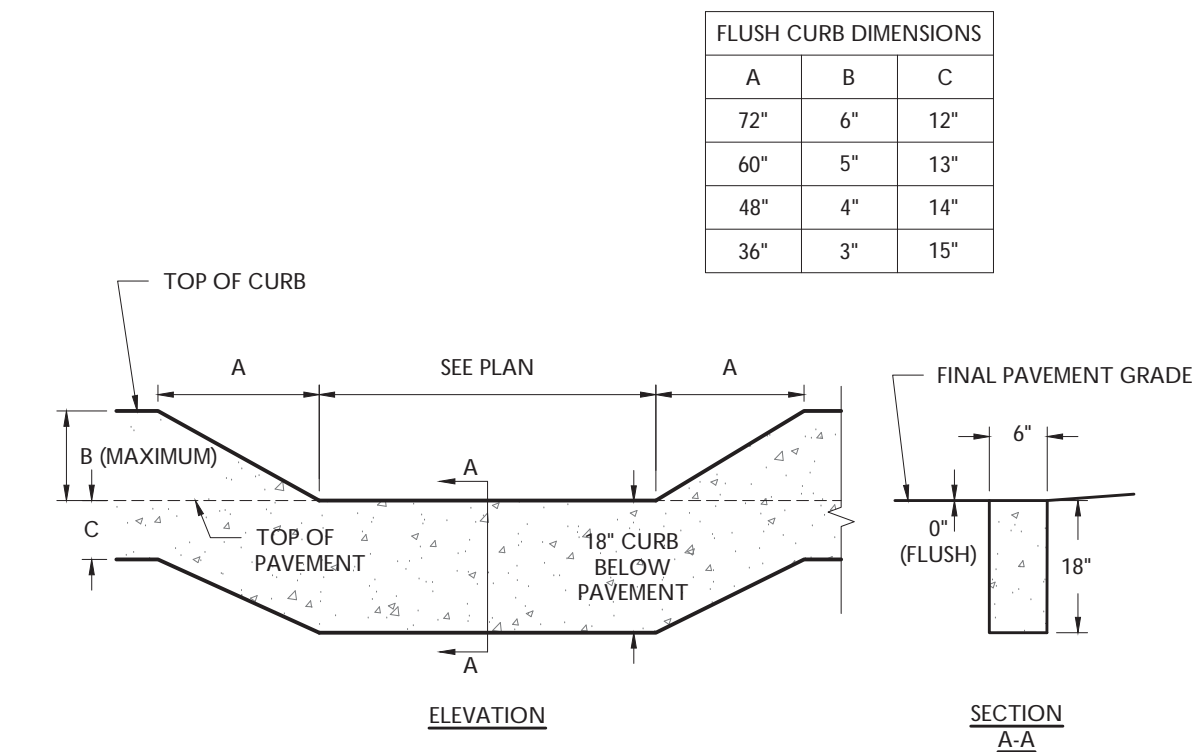
NOT TO SCALE

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 1/4" 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.



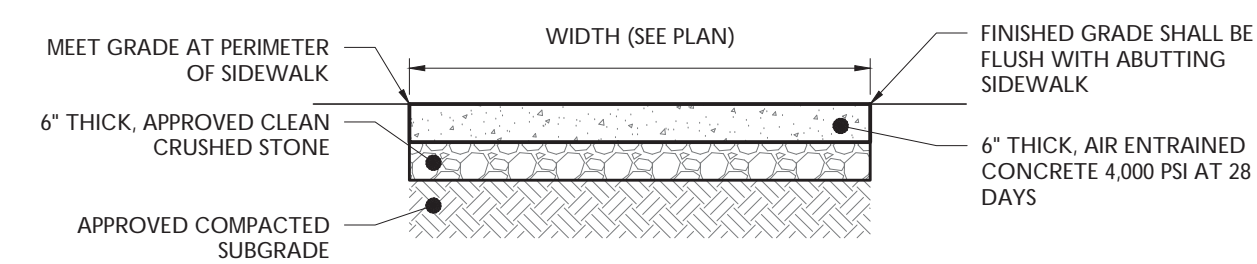
CONCRETE TO ASPHALT TRANSITION

NOT TO SCALE



FLUSH CURB

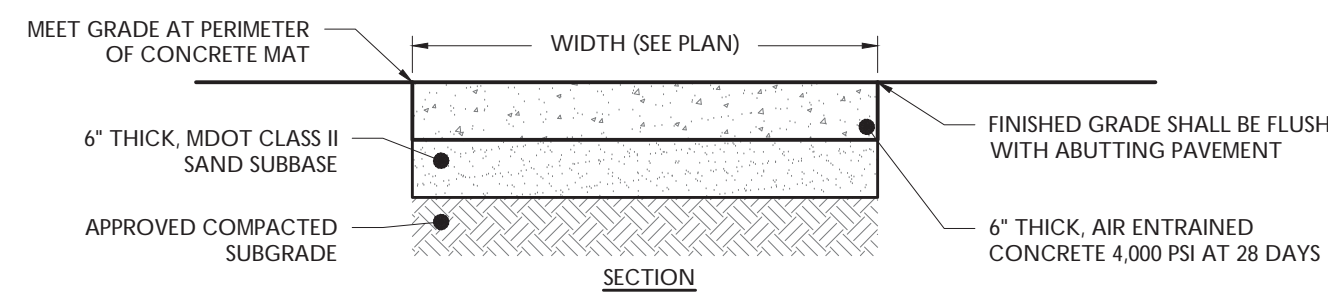
NOT TO SCALE



CONCRETE PAVEMENT

NOT TO SCALE

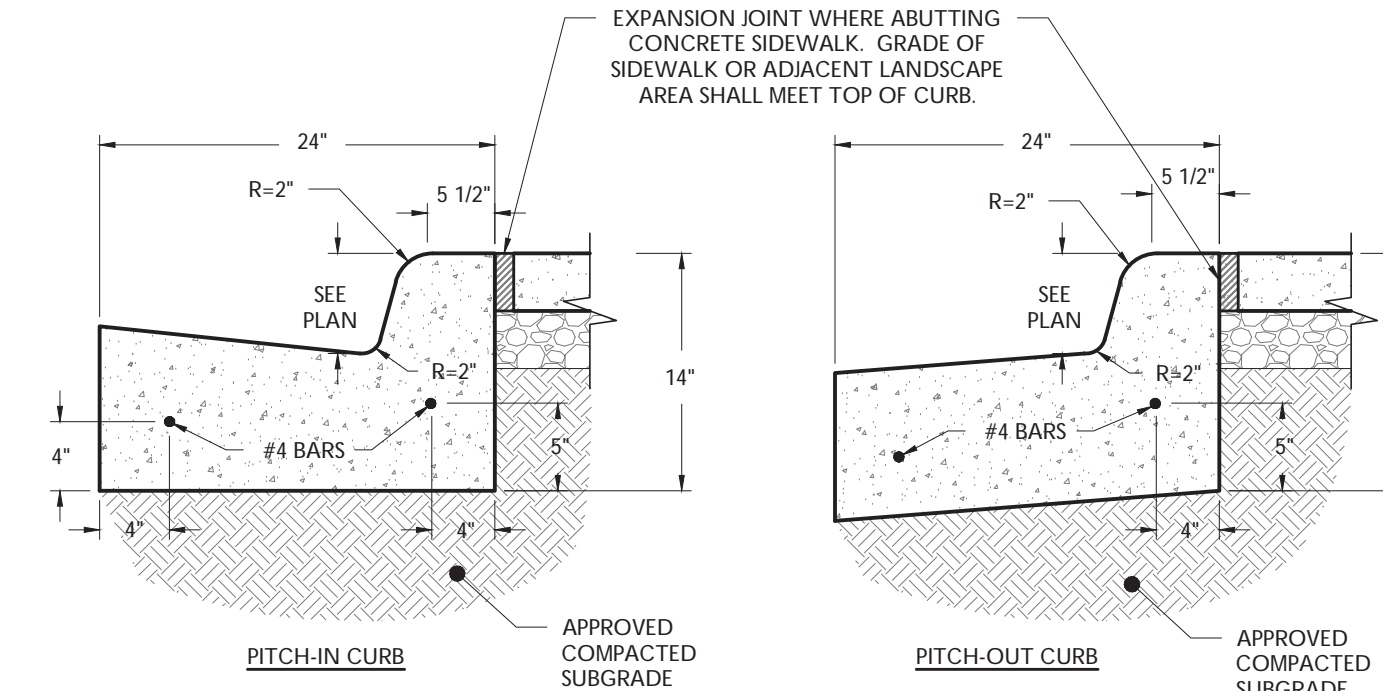
NOTES:
1. 1/2" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED 1/4" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY 1/2" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION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



CONCRETE MAT

NOT TO SCALE

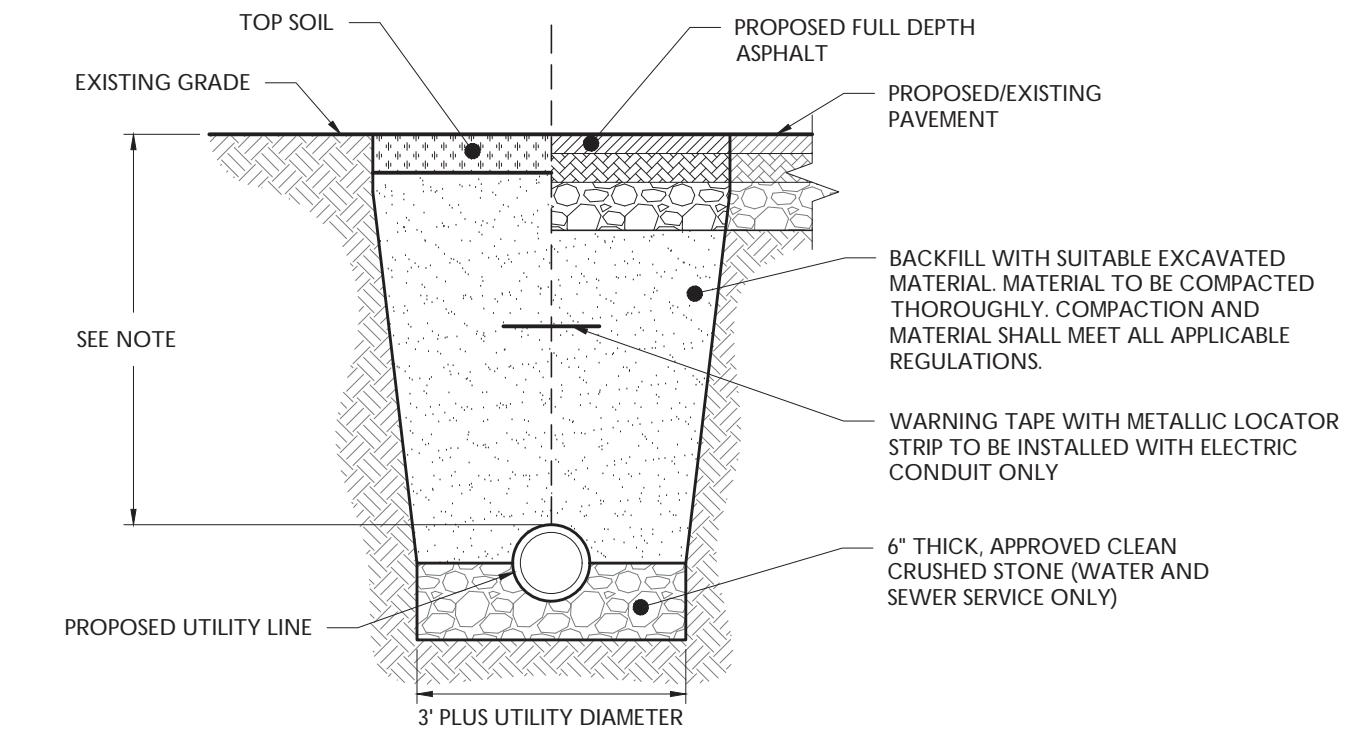
NOTES:
1. 1/2" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED 1/4" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY 1/2" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION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



CONCRETE CURB AND GUTTER DETAIL

NOT TO SCALE

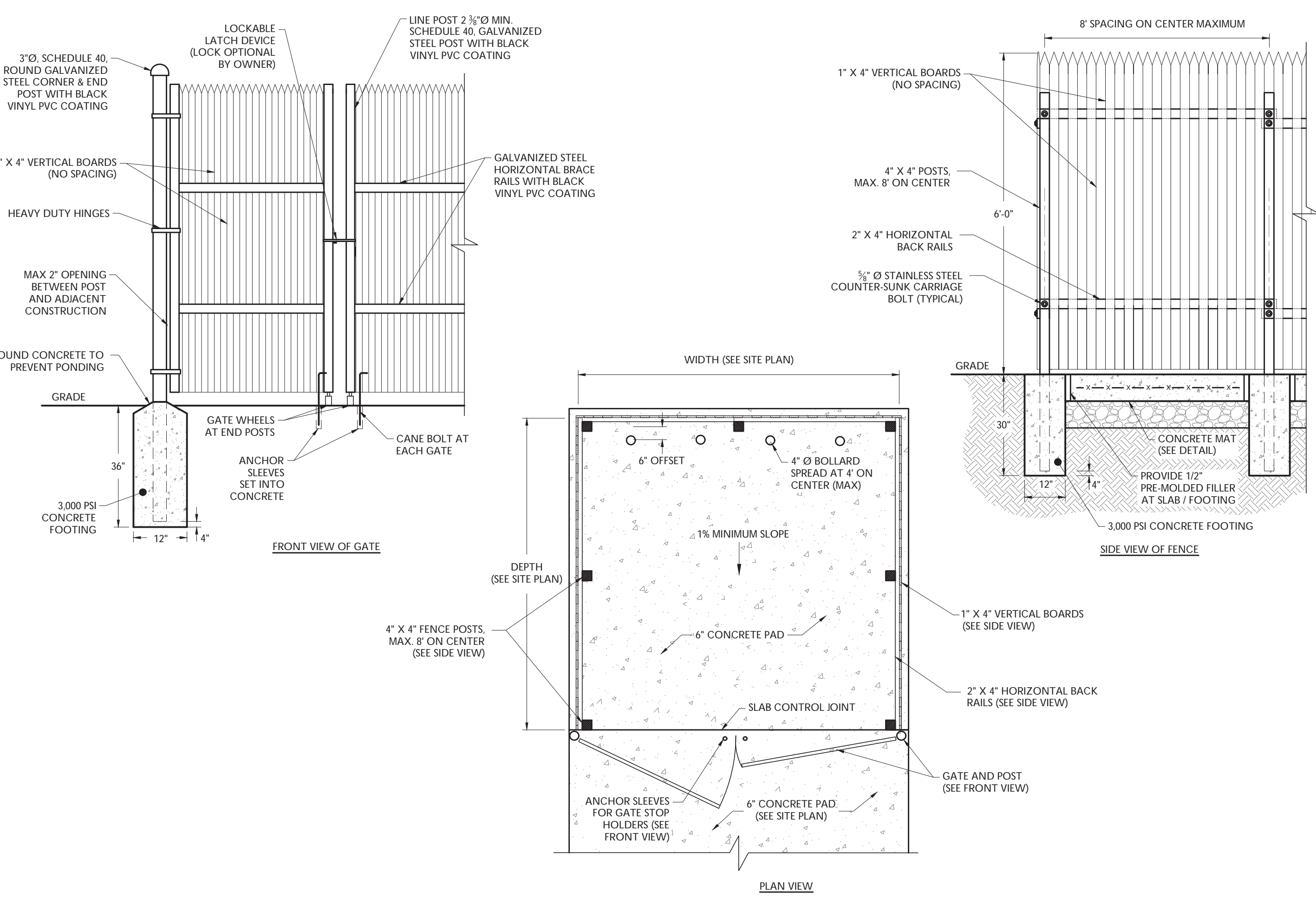
NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED 1/4" FROM SURFACE.
3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
4. 14" CURB DEPTH SHALL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



UTILITY TRENCH

NOT TO SCALE

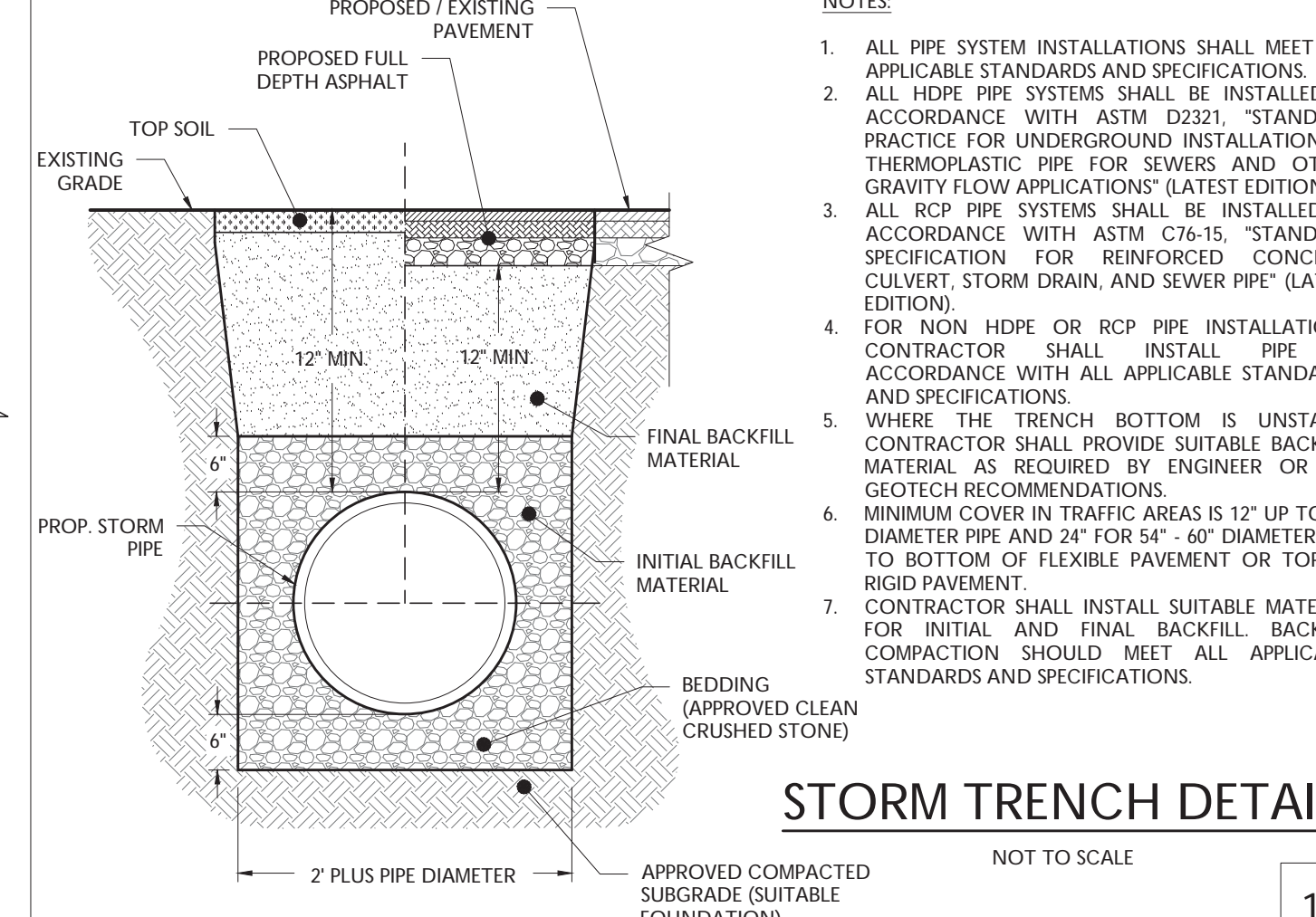
NOTE:
MINIMUM PIPE COVER SHALL BE AS FOLLOWS:
• ELECTRIC SERVICE - PER APPLICABLE UTILITY AUTHORITY
• GAS SERVICE - PER APPLICABLE UTILITY AUTHORITY
• SEWER SERVICE - 36" MINIMUM
• WATER SERVICE - 48" MINIMUM



SINGLE TRASH ENCLOSURE DETAIL

NOT TO SCALE

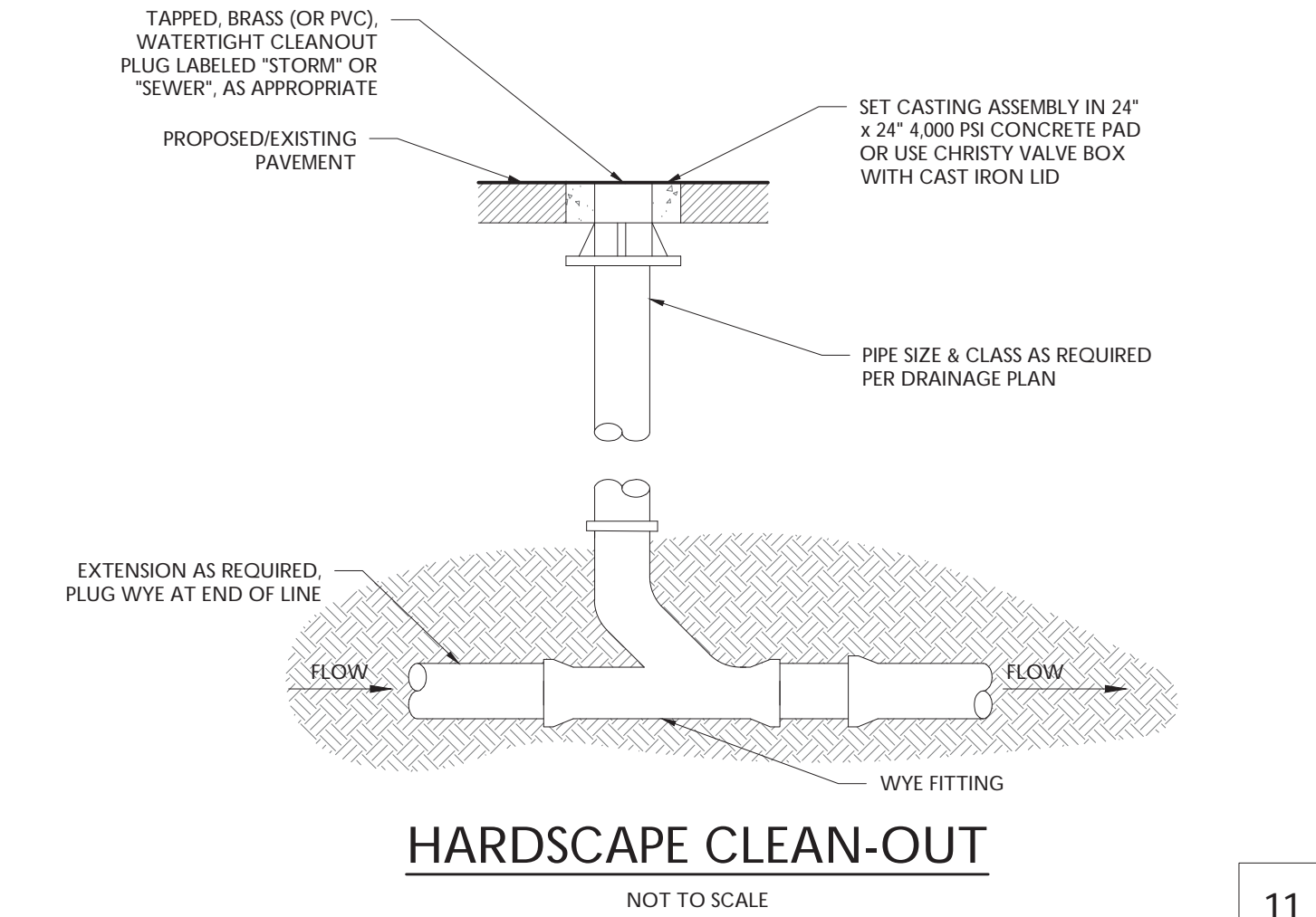
NOTE:
ALL LUMBER SHALL BE PRESSURE TREATED.



STORM TRENCH DETAIL

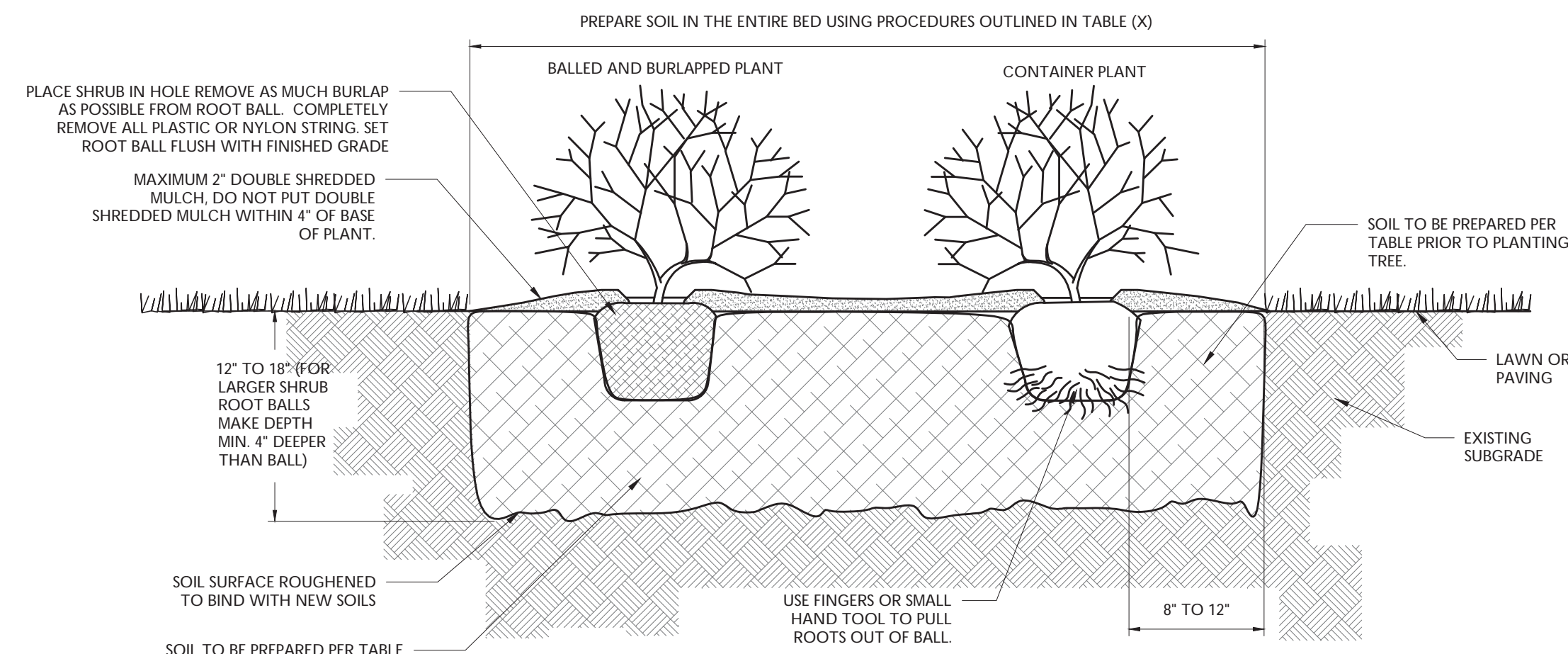
NOT TO SCALE

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



HARDSCAPE CLEAN-OUT

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE

NO.	DATE	ISSUE	BY	DESCRIPTION
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SITE DEVELOPMENT PLANS

HIGHLAND ROAD
MEIJER OUTLOT B
PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383

STATE OF MICHIGAN
JONATHAN REID
COOKSEY
ENGINEER
PROFESSIONAL ENGINEER
LICENSE NO. 94087

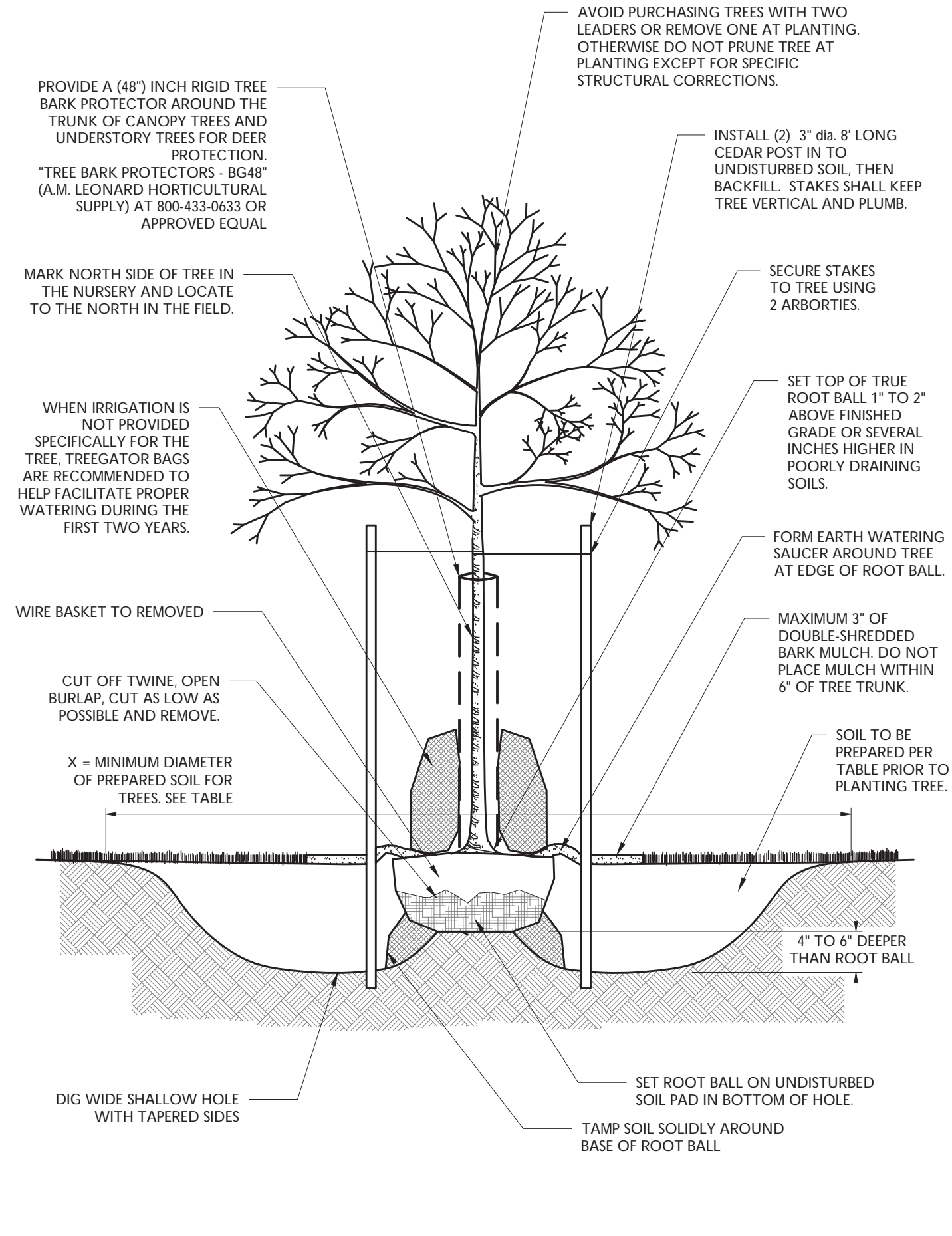
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SCALE: AS SHOWN PROJECT ID: DET-220180

TITLE:
CONSTRUCTION DETAILS

DRAWING:
C-10

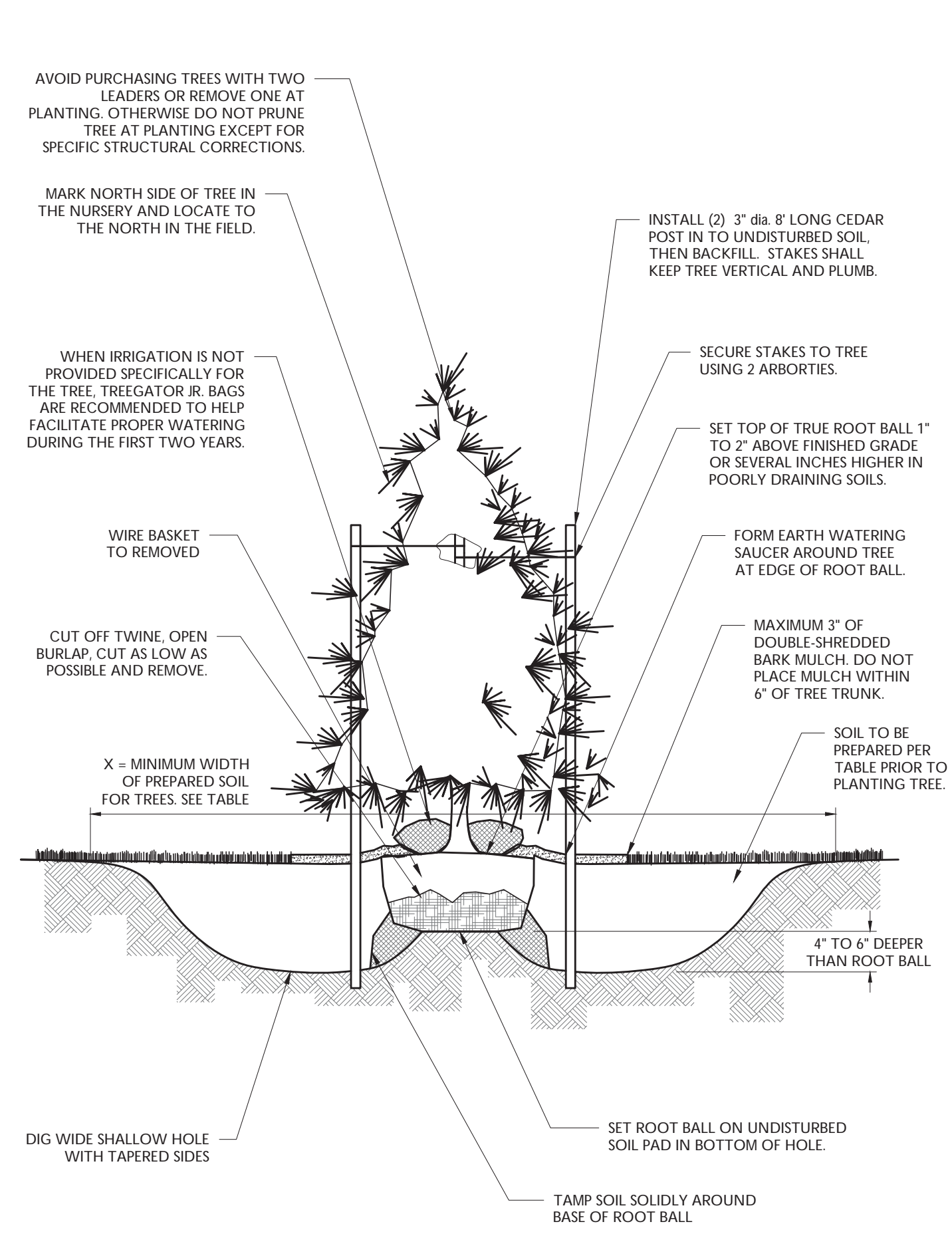
V:\01\2021\22018-ALB-600-HIGHLAND ROAD, CHARTER TOWNSHIP OF WHITE LAKE, MICHIGAN\20210619\110111.DWG



DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

1



CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

2

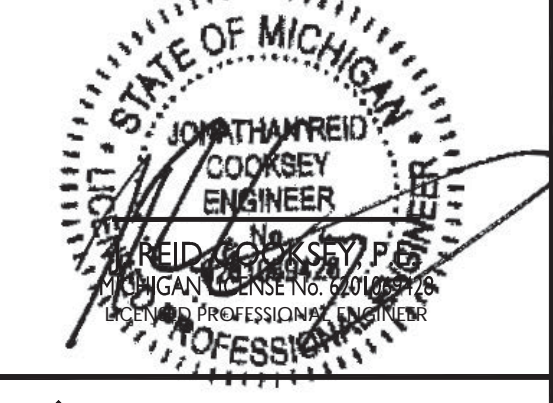
ISSUE	DATE	BY	DESCRIPTION
5	06/22/2023	EM	RESUBMISSION FOR SITE PLAN APPROVAL
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SITE DEVELOPMENT PLANS
HIGHLAND ROAD
MEIJER OUTLOT B
PROPOSED COMMERCIAL DEVELOPMENT
PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383



SCALE: AS SHOWN PROJECT ID: DET-220180

TITLE:
CONSTRUCTION DETAILS

DRAWING:
C-11

Lumark

DESCRIPTION
The Preval™ LED pole and fixture combination makes selection and installation of poles and fixtures simple. Included is the die-cast Preval arm, site and roadway luminaire with standard mounting arm, square straight steel pole, anchor bolts, base cover, template and hardware. Stock configurations are available in single and dual fixture combinations. The Preval luminaire delivers a new level of versatility and value in patent pending, architectural design that delivers energy savings greater than 80% and replaces 150-450W metal halide fixtures. The Preval fixture and pole combo is ideal for general ambient lighting applications.

SPECIFICATION FEATURES
Construction
Construction is comprised of a heavy-duty, single-piece die-cast aluminum housing in dark bronze powder-coated finish. The die-cast aluminum door is tethered to provide easy access to the driver if replacement is required. The optics is mounted on a versatile, aluminum plate that dissipates heat from the LEDs resulting in longer life of the fixture. The fixture is IP65 and 30 vibration rated (ANSI C136.31).

Electrical
Available in 120-277V 50/60Hz, 15W/100A surge protection standard. 0-10V dimming driver is standard with heads available for the fixture to accommodate controls capability such as dimming and occupancy. Suitable for ambient temperatures from -40°C to 40°C.

Pole
Shaft is one-piece construction ASTM A500 grade "B" steel, shot blasted and finished in dark bronze powder-coated finish. Anchor bolts are fabricated from ASTM grade steel. ASTM A306 steel full base cover is provided to enclose base plate and anchor bolts. Anchor bolts are per ASTM A576 with two nuts, two flat washers, and one lock washer. Hardware and threaded portion of bolt are hot dip galvanized. 3" hook for 3/4" hook for 1" hook.

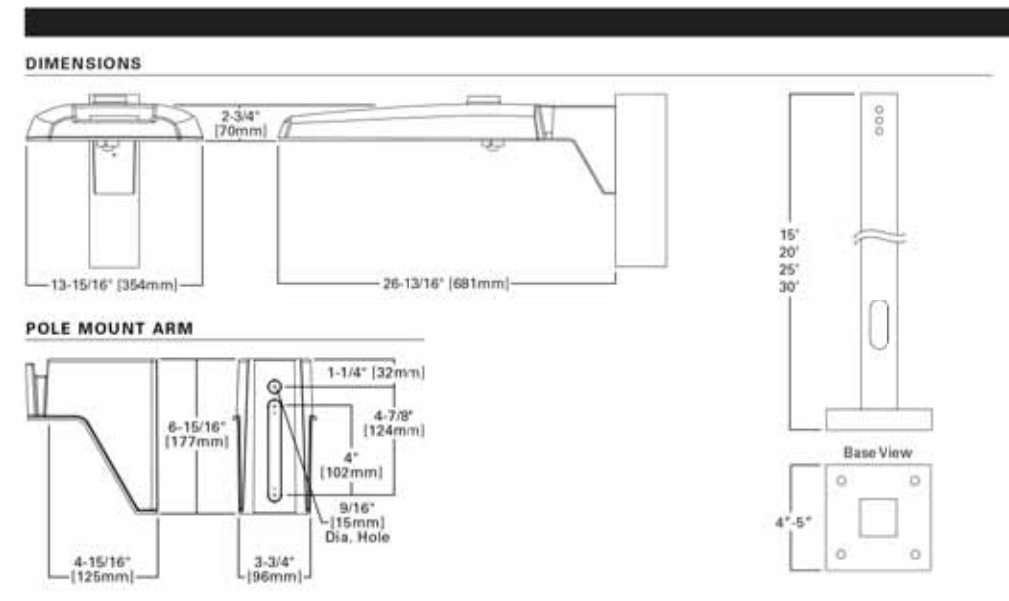
Mounting
The versatile, patent pending, standard mounting arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the standard mounting arm enables round pole mounting.

Finish
Housing and cast parts finished in five-stage super TOIC polyester bronze powder coat paint. 2.5 mil nominal thickness for superior protection against fade and wear.

Warranty
Five-year warranty.

LED
Available in Type III and IV distributions with lumen packages ranging from 7,000 to 20,000 nominal lumens. Light engine configurations consist of 1 or 2 high-efficiency LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life up to L70/L50,000 hours at 25°C per IESNA TM-21. For the ultimate level of spill light control, an optional house shield accessory can be field or factory installed.

PPFRV PREVAL POLE AND FIXTURE COMBO



CERTIFICATION DATA
UL and ETL Wet Location Listed
IP65 Rating
30 Vibration Rated
ISO 9001

ENERGY DATA
Dimmable LED Driver
0.9 Power Factor
<2% Total Harmonic Distortion
120-277V/50 and 60Hz
30/100V, 400V/500V
40°C Maximum Temperature Rating
40°C Ambient Temperature Rating

EPA
Effective Projected Area (Sq. Ft.) 0.75 (1 Fixture)

SHIPPING DATA
Approximate Net Weight:
20lbs. (9.09 kg.) (1 Fixture)

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October 15, 2019 11:09 AM

PPFRV PREVAL POLE AND FIXTURE COMBO

CONTROL OPTIONS
0-10V (DI)
This fixture is offered standard with 0-10V dimming wire leads for use with a lighting control panel or other control method.
Photocontrol (PER and PER7)
Photocontrol receptacles provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.
Dimming Occupancy Sensor (MSPDM-1-XX)
These sensors are factory installed in the luminaire housing. When a sensor for dimming operation (DIMM) is selected, the luminaire will dim down to approximately 50 percent power after five minutes of no activity detected. When activity is detected, the luminaire returns to full light output. These occupancy sensors include an integral photocell that can be activated or inactivated with the programming remote (configuration tool for "dusk-to-dawn" control or "daylight harvesting"). Note: For MSP sensors, the fixture preset is ON (Enabled). The programming remote / tool is a wireless tool that can be utilized to change the dimming level, time delay, sensitivity and other parameters. A variety of sensor lenses are available to optimized the coverage pattern for mounting heights from 8' to 30'.

These occupancy sensors include an integral photocell that can be activated or inactivated with the programming remote (configuration tool for "dusk-to-dawn" control or "daylight harvesting"). Note: For MSP sensors, the fixture preset is ON (Enabled). The programming remote / tool is a wireless tool that can be utilized to change the dimming level, time delay, sensitivity and other parameters. A variety of sensor lenses are available to optimized the coverage pattern for mounting heights from 8' to 30'.

For mounting heights from 12' to 30' (L:30)

For mounting heights from 8' to 12' (L:12)

POWER AND LUMENS

Light Engine	CIS	CIS	C40	C60	
Nominal Power (Watts)	57W	87W	142W	163W	
Input Current @ 120V (A)	0.43	0.80	1.08	1.32	
Input Current @ 277V (A)	0.19	0.35	0.48	0.57	
Lumens	7,111	13,183	12,144	20,050	
Type III	BUS Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	
Type IV	Lumens	7,088	13,140	12,087	19,884
BUS Rating	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
25°C	>= 91.30%	>= 184,000
40°C	>= 87.95%	>= 134,000

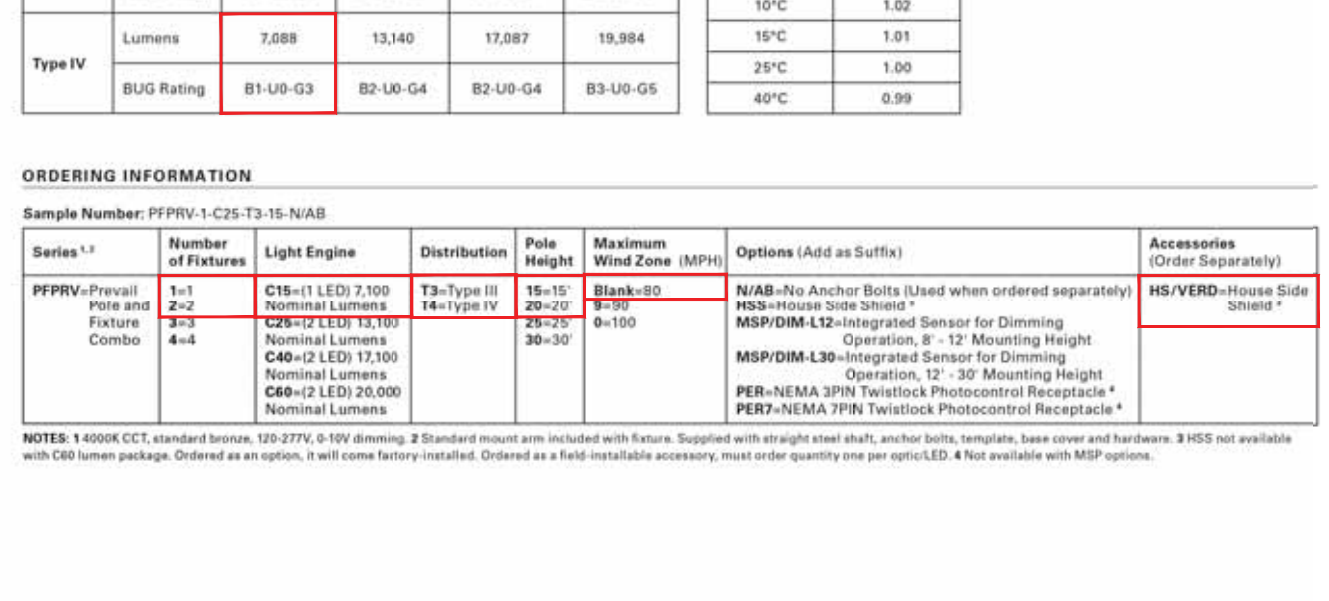
LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
20°C	1.00
40°C	0.99

ORDERING INFORMATION
Sample Number: PPFRV-1-C26-TS-NA-B

Series	Number of Fixtures	Light Engine	Distribution	Pole Height	Maximum Wind Zone (MPH)	Options (Add as Suffix)	Accessories (Order Separately)
PPFRV-Preval Pole and Fixture Combo	4-4	Custom LED 7,000 Nominal Lumens	7-1/2' (230mm) 12-1/2' (381mm) 17-1/2' (533mm) 22-1/2' (688mm) 27-1/2' (843mm) 30-3/4' (940mm)	8-10	15-30	None-Also Anchor Bolts (Ordered when ordered separately) MSPDM-1-XX-Integrated Sensor for Dimming MSPDM-1-XX-Integrated Sensor for Dimming Operation, 12' - 30' Mounting Height PER-NA-1-XX-Permitted Photocontrol Receptacle PER-NA-1-XX-Permitted Photocontrol Receptacle PER-NA-1-XX-Permitted Photocontrol Receptacle	REVERD-Reverse Side Mount

NOTES: 1. 4000 CCT, standard beam, 100-277V, 0-10V dimmer. 2. Standard mount arm included with fixture. 3. Support with straight steel shaft, anchor bolts, template, base cover and hardware. 4. REVERD not available with 0-10V dimmer package. 5. Optional as options, field or factory installed. 6. Ordered as a field-installed accessory, must order quantity per pole and fixture. 7. Not available with MSP sensors.



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October 15, 2019 11:09 AM

SPECIFICATIONS FOR FIXTURES 'A' 'B' & 'C'

XTOR CROSSTOUR MAXX LED

POWER AND LUMENS BY FIXTURE MODEL

LED Information	XTORB8	XTORB8L	XTORB8-W	XTORB8L-W	XTORB8V	XTORB8LV
Delivered Lumens	6,129	6,225	6,036	6,133	6,511	6,826
B.U.O. Rating	B1-U0-G1	B2-U0-G3	B1-U0-G1	B2-U0-G3	B1-U0-G1	B2-U0-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	50W	50W	50W	50W	50W	50W

XTORB8 Series

LED Information	XTORB8	XTORB8L	XTORB8-W	XTORB8L-W	XTORB8V	XTORB8LV
Delivered Lumens	8,502	8,635	8,373	8,504	7,848	8,079
B.U.O. Rating	B2-U0-G1	B2-U0-G3	B2-U0-G1	B2-U0-G3	B2-U0-G1	B2-U0-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	81W	81W	81W	81W	81W	81W

XTORB8L Series

LED Information	XTORB8L	XTORB8LV
Delivered Lumens	12,228	12,298
B.U.O. Rating	B2-U0-G3	B2-U0-G3
CCT (Kelvin)	5000K	5000K
CRI (Color Rendering Index)	70	70
Power Consumption (Watts)	102W	102W

XTORB8LV Series

LED Information	XTORB8LV
Delivered Lumens	11,881
B.U.O. Rating	B2-U0-G3
CCT (Kelvin)	5000K
CRI (Color Rendering Index)	70
Power Consumption (Watts)	102W

XTORB8LV Series

LED Information	XTORB8LV
Delivered Lumens	11,881
B.U.O. Rating	B2-U0-G3
CCT (Kelvin)	5000K
CRI (Color Rendering Index)	70
Power Consumption (Watts)	102W

XTORB8LV Series

LED Information	XTORB8LV
Delivered Lumens	11,881
B.U.O. Rating	B2-U0-G3
CCT (Kelvin)	5000K
CRI (Color Rendering Index)	70
Power Consumption (Watts)	102W

XTORB8LV Series

LED Information	XTORB8LV
Delivered Lumens	11,881
B.U.O. Rating	B2-U0-G3
CCT (Kelvin)	5000K
CRI (Color Rendering Index)	70
Power Consumption (Watts)	102W

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
25°C	>= 90%	246,000
40°C	>= 86%	213,000
50°C	>= 88%	201,000

XTORB8LV Model

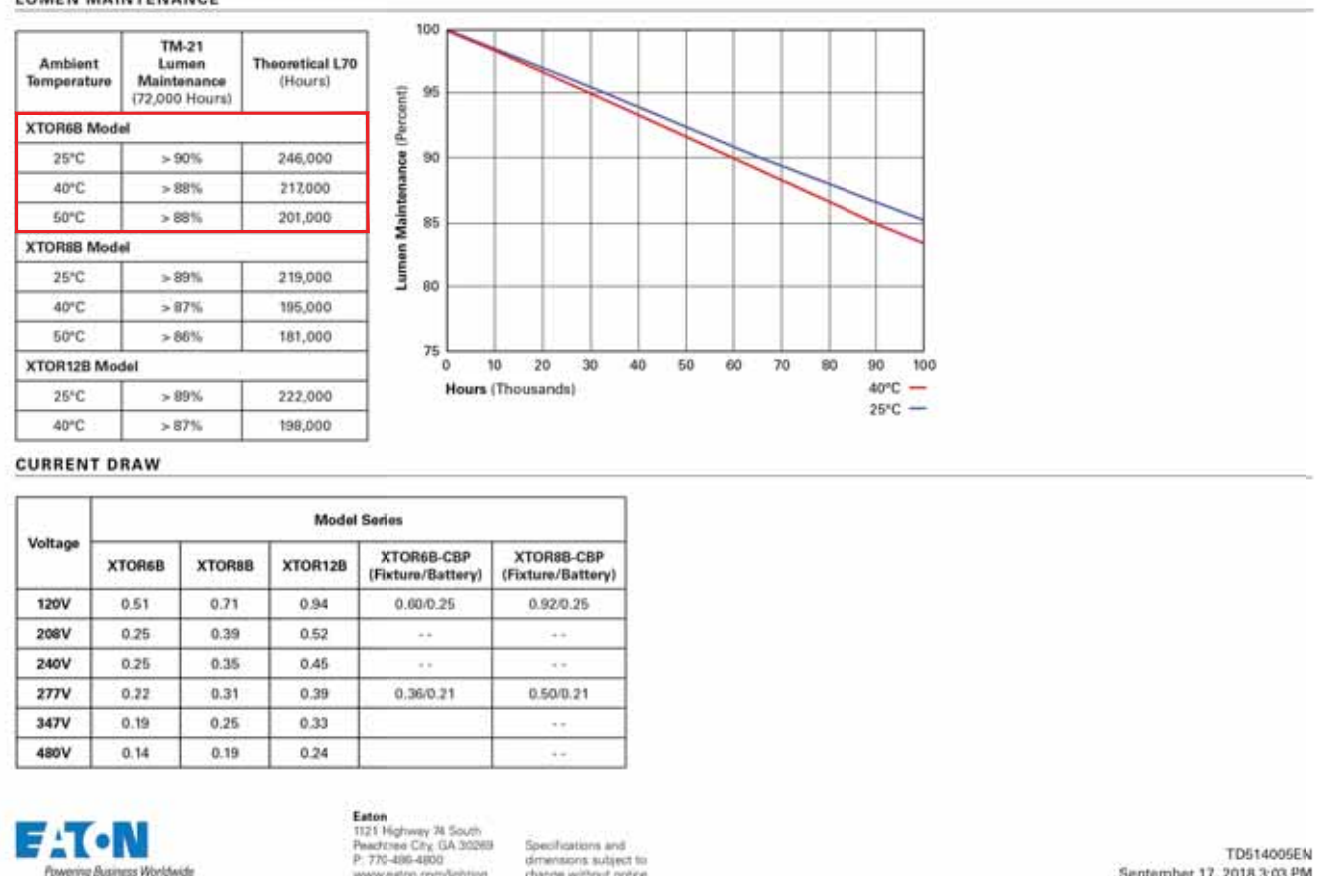
Ambient Temperature	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
25°C	>= 89%	213,000
40°C	>= 87%	185,000
50°C	>= 86%	181,000

XTORB8LV Model

Ambient Temperature	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
25°C	>= 89%	222,000
40°C	>= 87%	198,000

CURRENT DRAW

Voltage	XTORB8	XTORB8L	XTORB8LV	XTORB8LV (Fixture/Battery)	XTORB8LV (Fixture/Battery)
120V	0.51	0.71	0.94	0.60/0.25	0.92/0.25
240V	0.25	0.39	0.52	-	-
240V	0.25	0.39	0.45	-	-
277V	0.22	0.31	0.39	0.36/0.21	0.50/0.21
347V	0.19	0.25	0.33	-	-
480V	0.14	0.19	0.24	-	-



SPECIFICATIONS FOR FIXTURE 'D'

PPFRV PREVAL POLE AND FIXTURE COMBO

INCLUDED POLE REFERENCE TABLES

1 Fixture (EPA-0.75)

Pole Height (Feet)	Wind Zone (MPH)
80	SS5A15SPM*
90	SS5A20SPM*
15	SS5A15SPM*
20	SS5A20SPM*
25	SS5A25SPM*
30	SS5A30SPM*

2 Fixtures (EPA-1.50)

Pole Height (Feet)	Wind Zone (MPH)
80	SS5A15SPM*
90	SS5A20SPM*
15	SS5A15SPM*
20	SS5A20SPM*
25	SS5A25SPM*
30	SS5A30SPM*

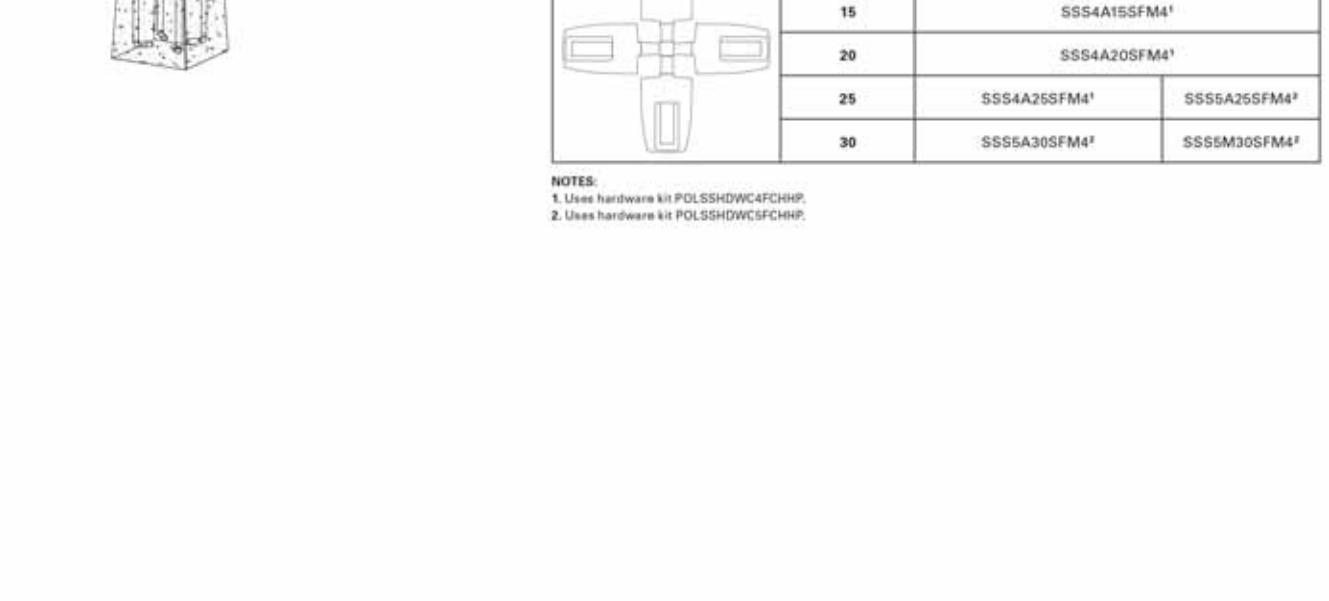
3 Fixtures (EPA-2.25)

Pole Height (Feet)	Wind Zone (MPH)
80	SS5A15SPM*
90	SS5A20SPM*
15	SS5A15SPM*
20	SS5A20SPM*
25	SS5A25SPM*
30	SS5A30SPM*

4 Fixtures (EPA-3.00)

Pole Height (Feet)	Wind Zone (MPH)
80	SS5A15SPM*
90	SS5A20SPM*
15	SS5A15SPM*
20	SS5A20SPM*
25	SS5A25SPM*
30	SS5A30SPM*

NOTES: 1. Use hardware kit POL50MDC40HP. 2. Use hardware kit POL50MDC50HP.



TDS000026N
October 15, 2019 11:09 AM

SPECIFICATIONS FOR FIXTURE 'E'

XTOR CROSSTOUR MAXX LED

ORDERING INFORMATION
Sample Number: XTORB8-W-WT-PC1

Series	LED Kelvin Color	Mounting Color	Options (Add as Suffix)
Full Cutoff	(Black)-Bright White (Standard)	(Black)-Carbon Bronze (Standard)	347V-347V1+1+1
XTORB8-50W	5000K	(Black)-Carbon Bronze (Standard)	480V-480V1+1+1
XTORB8-81W	5000K	(Black)-Carbon Bronze (Standard)	PC1-Photocontrol 120V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC2-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC3-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC4-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC5-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC6-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC7-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC8-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC9-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC10-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC11-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC12-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC13-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC14-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC15-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC16-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC17-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC18-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC19-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC20-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC21-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC22-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC23-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC24-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC25-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC26-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC27-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC28-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC29-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC30-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC31-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC32-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC33-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC34-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC35-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC36-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC37-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC38-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC39-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC40-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC41-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC42-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC43-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC44-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC45-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC46-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC47-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC48-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC49-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC50-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC51-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC52-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC53-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC54-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC55-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC56-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC57-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC58-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC59-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC60-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC61-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC62-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC63-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC64-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC65-Photocontrol 208-277V
XTORB8-102W	5000K	(Black)-Carbon Bronze (Standard)	PC66-Photocontrol 208-277V
XTORB8-102W	5000K		

Project: 6001 Highland Rd.
Location: White Lake, MI



Purpose: To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall.

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

Structure Name	A (acres)	A (miles ²)	Runoff Coefficient	Percent Imp. (%)	t _c (min)	t _c (hr)
WQ-1	1.63	0.00255	0.58	46.67	15.0	0.250

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

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

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

$$WQV = P \cdot R$$

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

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (cf)
WQ-1	46.67	0.470	1	0.750	4438

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

$$CN = 1000 / (10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{0.5})$$

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

Structure Name	Q (in)	CN
WQ-1	0.750	97.54

First Flush Calculation (Page 1 of 2)
3/15/2023

Project: 6001 Highland Rd.
Location: White Lake, MI



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

Structure Name	I _a (in)	I _a /P
WQ-1	0.041	0.041

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

Structure Name	t _c (hr)	A (miles ²)
WQ-1	0.250	0.00255

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

Structure Name	t _c (hr)	I _a /P	q _u (csm/in)
WQ-1	0.250	0.041	731

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

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

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

Structure Name	q _u (csm/in)	A (miles ²)	Q (in)	WQF (cfs)
WQ-1	731	0.00255	0.750	1.40

First Flush Calculation (Page 2 of 2)
3/15/2023

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

**Kril Sports Complex
Pinckney
WQU**

AREA	1.63 acres	CASCADE MODEL	CS-4
WEIGHTED C	0.58	PARTICLE SIZE	110 microns
TC	15.00 minutes	RAINFALL STATION	78

Rainfall Intensity (in/hr)	Percent Rainfall	Cumulative Rainfall Volume	% Rainfall Volume Treated	Total Flowrate (cfs)	Removal Efficiency (%)	Incremental Removal (%)
0.02	13.13%	13.1%	13.1%	0.02	100.0	13.1
0.04	11.36%	24.5%	11.4%	0.04	100.0	11.4
0.06	10.08%	34.6%	10.1%	0.06	100.0	10.1
0.08	7.49%	42.1%	7.5%	0.08	100.0	7.5
0.10	7.01%	49.1%	7.0%	0.09	100.0	7.0
0.12	5.37%	54.4%	5.4%	0.11	100.0	5.4
0.14	4.73%	59.2%	4.7%	0.13	100.0	4.7
0.16	4.13%	63.3%	4.1%	0.15	100.0	4.1
0.18	3.53%	66.8%	3.5%	0.17	100.0	3.5
0.20	2.99%	69.8%	3.0%	0.19	100.0	3.0
0.25	5.50%	75.3%	5.5%	0.24	100.0	5.5
0.30	4.47%	79.8%	4.5%	0.28	100.0	4.5
0.35	3.85%	83.6%	3.9%	0.33	100.0	3.9
0.40	2.16%	85.8%	2.2%	0.38	99.2	2.1
0.45	2.09%	87.9%	2.1%	0.43	97.6	2.0
0.50	1.31%	89.2%	1.3%	0.47	96.0	1.3
0.75	5.07%	94.3%	5.1%	0.71	88.1	4.5
1.00	2.58%	96.9%	2.6%	0.95	80.2	2.1
1.50	2.50%	99.4%	2.5%	1.42	64.3	1.6
2.00	0.51%	99.9%	0.5%	1.89	48.4	0.2
2.54	0.15%	100.0%	0.1%	2.40	37.3	0.1
						97.5

Removal Efficiency Adjustment¹ = 6.5%
Predicted % Annual Rainfall Treated = 93.5%
Predicted Net Annual Load Removal Efficiency = 91.0%

1 - Based on 5.5 years of 15 minute precipitation data from NCDC station 2102 at Detroit City Airport in Detroit, MI
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

REVISION	DATE	BY	DESCRIPTION
5	06/22/2023	EM	RESUBMISSION FOR SITE PLAN APPROVAL
4	05/05/2023	EM	RESUBMISSION FOR SITE PLAN APPROVAL
3	04/11/2023	EM	FOR CLIENT REVIEW
2	03/16/2023	EM	FOR CLIENT REVIEW
1	02/14/2023	EM/RC	RESUBMISSION FOR SITE PLAN APPROVAL

NOT APPROVED FOR CONSTRUCTION

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COUNT	DESCRIPTION	INSTALLED BY
1	CS-5 FIBERGLASS CYLINDER INSERT, STD.	CONTECH
4	CS-5 ALUMINUM INSTALLATION BRACKET	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	30"Ø x 4" FRAME AND COVER, EJM41600483, OR EQUIV.	CONTRACTOR

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.conteches.com
- CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0'-2" AND GROUNDWATER ELEVATION AT OR BELOW THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M59 AND BE CAST WITH THE CONTECH LOGO.
- CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-475 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

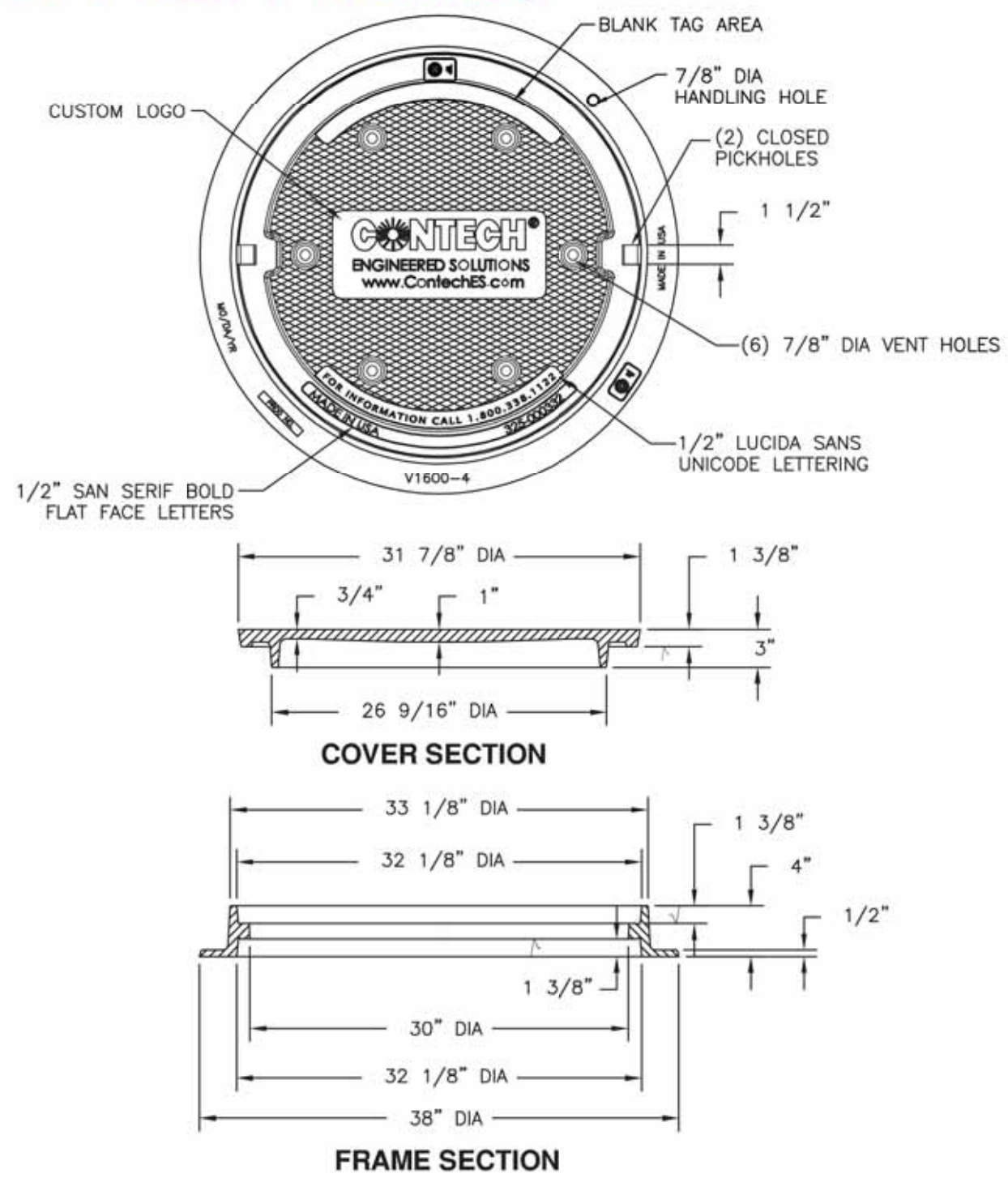
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
- CONTRACTOR TO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

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 9500 LBS.
OF 4 PIECES

MAXIMUM FOOTPRINT = 6'Ø

CONTECH
PROPOSAL
DRAWING

1810B4 V1600-4 Assembly



Product Number
41600483

Design Features

- Materials
 - Cover: Gray Iron (CL35B)
 - Frame: Gray Iron (CL35B)
- Design Load: Heavy Duty
- Open Area: 91%
- Coating: Undipped
- Designates Machined Surface

Certification

- ASTM A48
- H25
- Country of Origin: USA

Major Components

00180783
41600410

Drawing Revision

S/9/2007 Designer: SMH
2/14/2022 Revised By: DAE

Disclaimer

Weights (in kg) dimensions (inches) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

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Contact

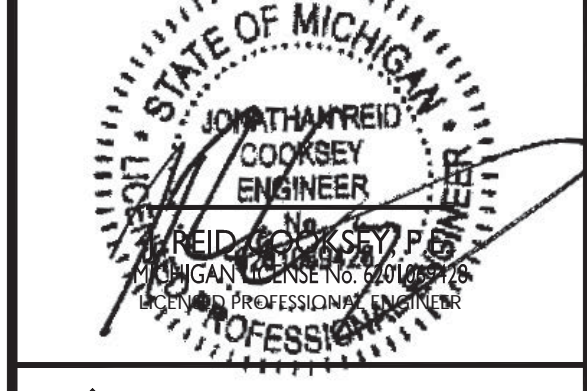
800.626.4653
ejco.com

SITE DEVELOPMENT PLANS

HIGHLAND ROAD MEIJER OUTLOT B

PROPOSED COMMERCIAL DEVELOPMENT

PARCEL ID: 12-20-276-035
HIGHLAND ROAD (M-59) - OUTLOT B
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN 48383



STONEFIELD
engineering & design

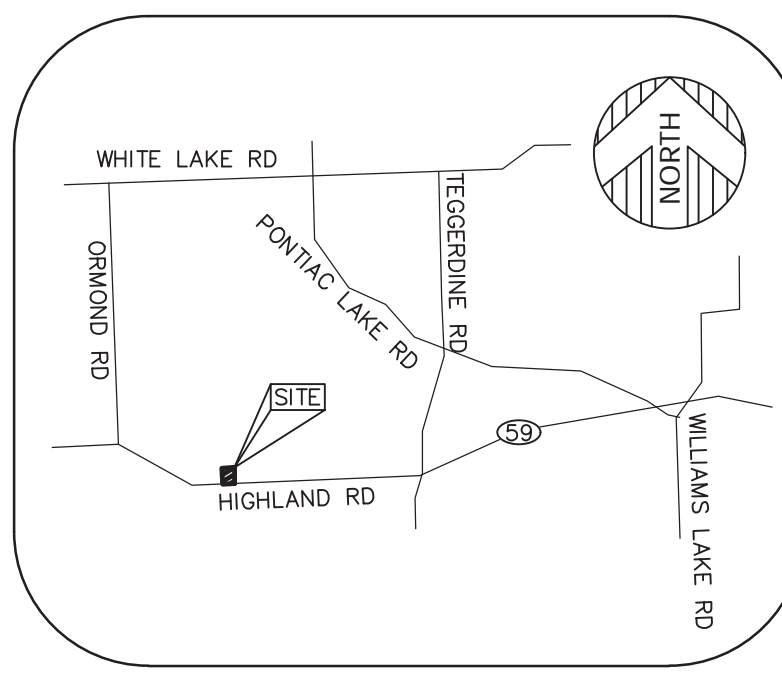
SCALE: AS SHOWN PROJECT ID: DET-220180

TITLE:
**CONSTRUCTION
DETAILS**

DRAWING:
C-13

WATER QUALITY UNIT CALCULATIONS & SPECIFICATIONS

NOT TO SCALE



VICINITY MAP
(NOT TO SCALE)

PARKING

NO MARKED PARKING ON SITE.

PARCEL AREA

PARENT PARCEL (12-20-276-035)
561,271± SQUARE FEET = 12.885± ACRES
PARCEL A
70,752± SQUARE FEET = 1.624± ACRES

BASIS OF BEARING

NORTH 00°31'08" EAST, BEING THE NORTH & SOUTH 1/4 LINE OF SECTION 20, AS DESCRIBED.

BENCHMARK

- BENCHMARK #1**
TURN ARROW ON HYDRANT, FIRST HYDRANT ALONG WEST SIDE OF BOGIE LAKE ROAD NORTH OF HIGHLAND ROAD.
ELEVATION = 982.44' (NAVD 88)
- BENCHMARK #2**
TURN ARROW ON HYDRANT, FIRST HYDRANT ALONG NORTH SIDE OF HIGHLAND ROAD EAST OF BOGIE LAKE ROAD (NOT SHOWN; OFFSITE).
ELEVATION = 985.56' (NAVD 88)
- BENCHMARK #3**
ARROW ON TOP OF HYDRANT ON SOUTH SIDE OF ACCESS ROAD TO MEIJER.
ELEVATION = 1004.57' (NAVD 88)
- BENCHMARK #4**
MAG NAIL IN NORTH FACE OF UTILITY POLE ON SOUTH SIDE OF SITE.
ELEVATION = 977.89' (NAVD 88)

SURVEYOR'S NOTES

- 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.
- THERE IS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.
- THE SURVEYOR IS UNAWARE OF ANY PROPOSED CHANGES IN STREET RIGHT OF WAY LINES. THERE IS NO OBSERVED EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.

LEGEND

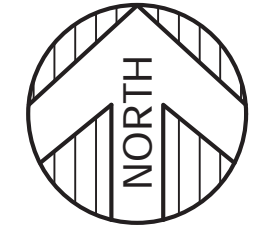
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- (R&M) FOUND SECTION CORNER (AS NOTED)
- (R) RECORD AND MEASURED DIMENSION
- (M) RECORD DIMENSION
- (M) MEASURED DIMENSION
- GROUND ELEVATION
- ELECTRIC PANEL
- TRANSFORMER
- UTILITY POLE
- GAS LINE MARKER
- LIGHT POLE WITH STREET LAMP
- CABLE TV RISER
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL MANHOLE
- SANITARY MANHOLE
- ROUND CATCH BASIN
- SQUARE CATCH BASIN
- STORM DRAIN MANHOLE
- FIRE HYDRANT
- WATER GATE MANHOLE
- WATER VALVE
- WELL
- LIGHTPOST/LAMP POST
- SINGLE POST SIGN
- SOIL BORING
- DECIDUOUS TREE (AS NOTED)
- PARCEL BOUNDARY LINE
- ADJOINER PARCEL LINE
- EASEMENT (AS NOTED)
- CONCRETE CURB
- EDGE OF CONCRETE (CONC.)
- FENCE (AS NOTED)
- WALL (AS NOTED)
- OVERHEAD UTILITY LINE
- ELECTRIC LINE
- GAS LINE
- SANITARY LINE
- STORM LINE
- WATER LINE
- MINOR CONTOUR LINE
- MAJOR CONTOUR LINE
- ASPHALT
- CONCRETE

MANHOLE SCHEDULE

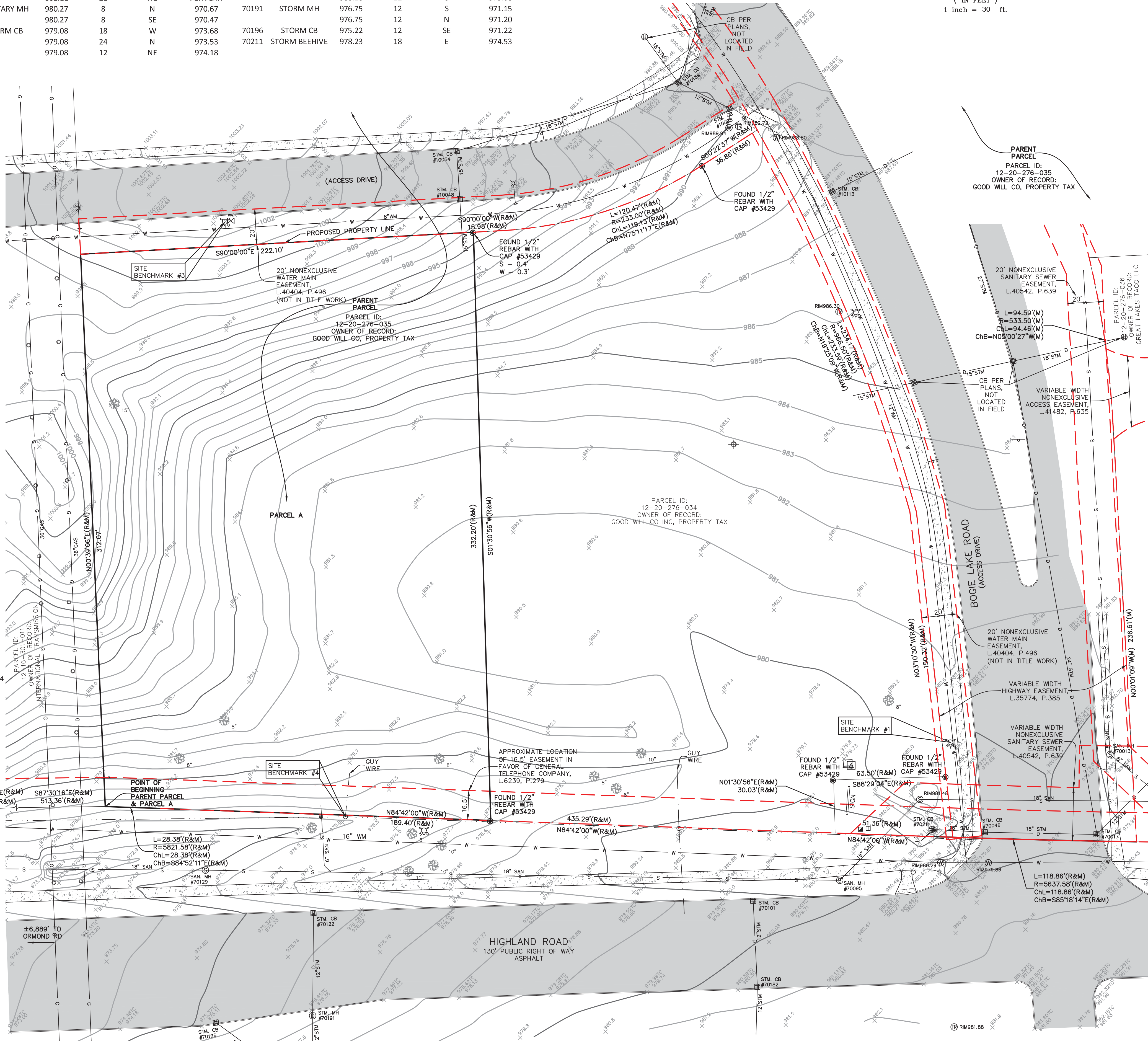
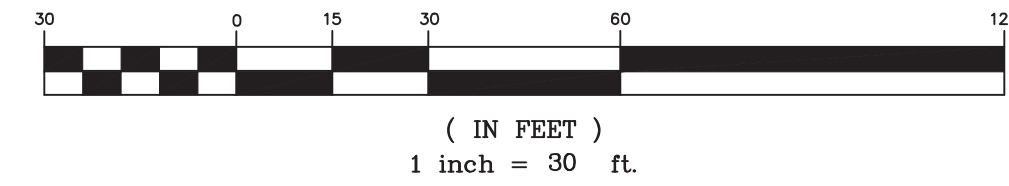
NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)	NUM	TYPE	RIM (FT)	SIZE (IN)	DIR	INV ELEV (FT)
10048	STORM CB	998.70	15	N	985.95	70046	STORM CB	979.24	18	W	974.04
		998.70	15	S	986.10			979.24	18	E	973.89
10054	STORM CB	997.53	15	S	984.93	70095	SANITARY MH	980.49	18	NE	951.09
		997.53	18	NE	984.78			980.49	18	W	951.29
10088	STORM CB	864.24	12	NW	859.94	70101	STORM CB	979.37	12	S	975.77
10113	STORM CB	987.10	12	E	982.55	70122	STORM CB	975.46	12	S	971.46
10159	STORM CB	989.73	12	SE	983.48	70129	SANITARY MH	975.17	18	E	951.07
		861.11	18	SW	854.86			975.17	18	W	951.17
		861.11	18	NW	854.81	70182	STORM CB	980.28	12	N	975.03
		861.11	21	NE	PER PLAN	70191	STORM MH	976.75	12	S	971.15
70013	SANITARY MH	980.27	8	N	970.67			976.75	12	N	971.20
		980.27	8	SE	970.47	70196	STORM CB	975.22	12	SE	971.22
70017	STORM CB	979.08	18	W	973.68			975.22	12	E	974.53
		979.08	24	N	973.53	70211	STORM BEEHIVE	978.23	18	E	974.53
		979.08	12	NE	974.18						

ZONING REGULATIONS

- PB - PLANNED BUSINESS DISTRICT
 - *MINIMUM LOT AREA - 10 ACRES
 - *MINIMUM LOT WIDTH - TO BE DETERMINED BY PLANNING COMMISSION
 - *MINIMUM LOT COVERAGE - GOVERNED BY PARKING, LOADING, LANDSCAPING, ETC.
 - *REQUIRED MINIMUM SETBACK - FRONT - 50 FEET
 - *SIDE - TO BE DETERMINED BY PLANNING COMMISSION
 - *REAR - TO BE DETERMINED BY PLANNING COMMISSION
 - *MAXIMUM HEIGHT - 35 FEET/2 STORIES
- NOTE: ALL ZONING INFORMATION IS TAKEN FROM THE TOWNSHIP OF WHITE LAKE WEBSITE. ALL ZONING INFORMATION MUST BE VERIFIED FOR COMPLETENESS WITH CURRENT ZONING REGULATIONS.



GRAPHIC SCALE



PROPERTY DESCRIPTION

LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF OAKLAND, TOWNSHIP OF WHITE LAKE,

PARCEL A:

A PART OF THE NORTHEAST 1/4 OF SECTION 20, TOWN 3 NORTH, RANGE 8 EAST, BEGINNING AT A POINT DISTANT NORTH 00 DEG. 31' 08" EAST 198.91 FEET AND NORTH 89 DEG. 58' 09" EAST 519.78 FEET AND SOUTH 87 DEG. 30' 16" EAST 513.36 FEET FROM THE CENTER OF SECTION 20, THENCE NORTH 00 DEG. 39' 06" EAST 312.07 FEET; THENCE SOUTH 90 DEG. 00' 00" EAST (DUE EAST) 222.10 FEET; THENCE SOUTH 01 DEG. 30' 56" WEST 332.20 FEET; THENCE NORTH 84 DEG. 42' 00" WEST 189.40 FEET; THENCE ALONG A CURVE TO THE LEFT, RADIUS 5821.58 FEET, CHORD BEARING NORTH 84 DEG. 52' 11" WEST, 28.38 FEET, A DISTANCE OF 28.38 FEET TO THE POINT OF BEGINNING, (ACCORDING TO THE SURVEY BY KEM-TEC PROFESSIONAL ENGINEERING, SURVEYING & ENVIRONMENTAL SERVICES, PROJECT NO. 22-02031 DATED AUGUST 25, 2022 AND LAST REVISED MARCH 31, 2023)

TOGETHER WITH NONEXCLUSIVE DRIVEWAY ACCESS EASEMENT AGREEMENT BY AND BETWEEN AND MEIJER, INC. AND WHITE LAKE RETAIL MANAGEMENT II LLC DATED _____ 2023 AND RECORDED _____ 2015 IN LIBER PAGE _____

TITLE REPORT NOTE

ONLY THOSE EXCEPTIONS CONTAINED WITHIN THE FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT No. GL12300196, DATED MAY 1, 2023, AND LISTED BELOW WERE CONSIDERED FOR THIS SURVEY. NO OTHER RECORDS RESEARCH WAS PERFORMED BY THE CERTIFYING SURVEYOR.

- AN OIL AND GAS LEASE FOR THE TERM THEREIN PROVIDED WITH CERTAIN COVENANTS, CONDITIONS AND PROVISIONS, TOGETHER WITH EASEMENTS, IF ANY, AS SET FORTH THEREIN DATED: NOVEMBER 23, 1985 LESSOR: WOOD CRAFT HOMES, INC., A MICHIGAN CORPORATION LESSEE: BUCKEYE PIPE LINE COMPANY RECORDING DATE: JANUARY 12, 1986 RECORDING NO: LIBER 4835, PAGE 150 (A 20' EASEMENT CENTERED ON THE PIPELINE WITHIN THE PART OF PARCEL ID 12-20-276-035 AS SURVEYED; EXACT LOCATION OF SAID PIPELINE IS UNKNOWN)
- RIGHT(S) OF WAY AND/OR EASEMENT(S) AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT: IN FAVOR OF: GENERAL TELEPHONE COMPANY OF MICHIGAN, A MICHIGAN CORPORATION RECORDING NO: LIBER 6239, PAGE 278 (AS SHOWN)
- MEMORANDUM OF DEVELOPMENT AGREEMENT EXECUTED BY: TOWNSHIP OF WHITE LAKE AND GOOD WILL CO, INC, A MICHIGAN CORPORATION RECORDING DATE: JULY 28, 2003 RECORDING NO: LIBER 30118, PAGE 166 MEMORANDUM OF AMENDED DEVELOPMENT AGREEMENT RECORDING DATE: OCTOBER 8, 2015 RECORDING NO: LIBER 48677, PAGE 714 (SEE DOCUMENT FOR TERMS AND CONDITIONS)
- TOGETHER WITH NONEXCLUSIVE DRIVEWAY ACCESS EASEMENT AGREEMENT BY AND BETWEEN AND MEIJER, INC AND WHITE LAKE RETAIL MANAGEMENT II LLC DATED _____ 2023 AND RECORDED _____ 2015 IN LIBER PAGE _____

FLOOD NOTE

SUBJECT PARCEL LIES WITHIN:
OTHER AREA (ZONE X): AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.
AS SHOWN ON FLOOD INSURANCE RATE MAP: MAP NUMBER 26125C0319F, DATED 9/29/2006, PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

ADDITIONAL SURVEYOR'S NOTES

- SUBJECT PROPERTY ADJUTS HIGHLAND ROAD, BUT HAS NO DIRECT VEHICULAR ACCESS TO HIGHLAND ROAD, A PUBLIC RIGHT OF WAY. ACCESS TO SUBJECT PROPERTY VIA VARIABLE WIDTH HIGHWAY EASEMENT (BOGIE LAKE ROAD ACCESS DRIVE) LIBER 35774 PAGE 385, AND VIA ACCESS DRIVE (NO CURRENT EASEMENT AT TIME OF SURVEY).
- UTILITIES (WATER, GAS, ELECTRIC, TELEPHONE, SEWER, AND STORM DRAINAGE) ARE AVAILABLE AND SERVICE THE PROPERTY AND ALL UTILITY LINES ENTER THE PREMISES THROUGH ADJOINING PUBLIC STREETS OR THROUGH APPURTENANT EASEMENTS WHICH ARE SHOWN ON THE SURVEY.
- THERE IS NO OBSERVED EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

SURVEYOR'S CERTIFICATION

TO ALRIG USA; WHITE LAKE RETAIL MANAGEMENT II LLC; AND FIDELITY NATIONAL TITLE INSURANCE COMPANY:
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6A, 7A, 8, 9, 11A, 11B, 13, 14, 16, 17, AND 18 OF TABLE A, THEREOF. THE FIELD WORK WAS COMPLETED ON 08/01/22.
DATE OF PLAT OR MAP: 08/10/22

Anthony T. Sycko, Jr.

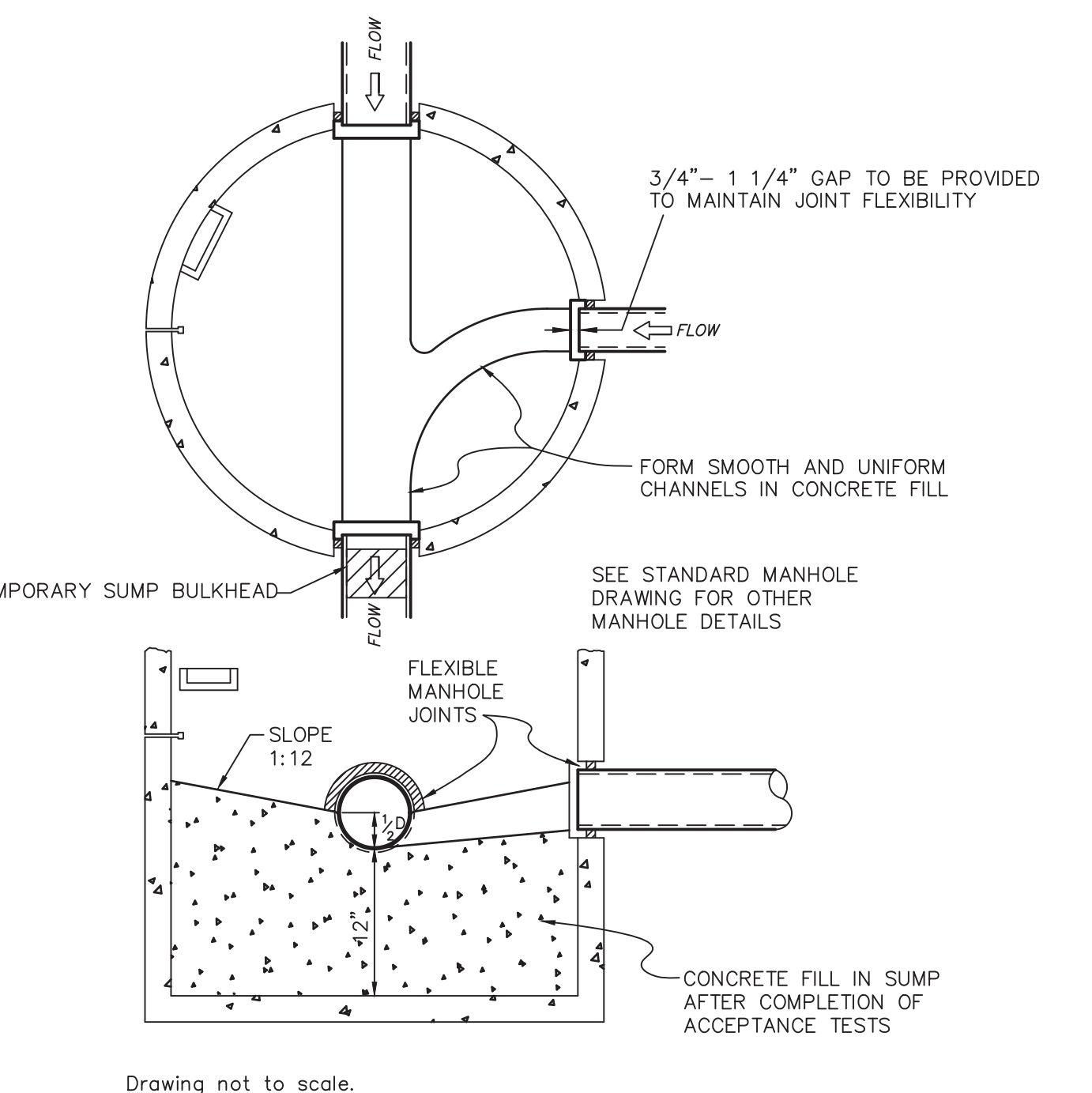
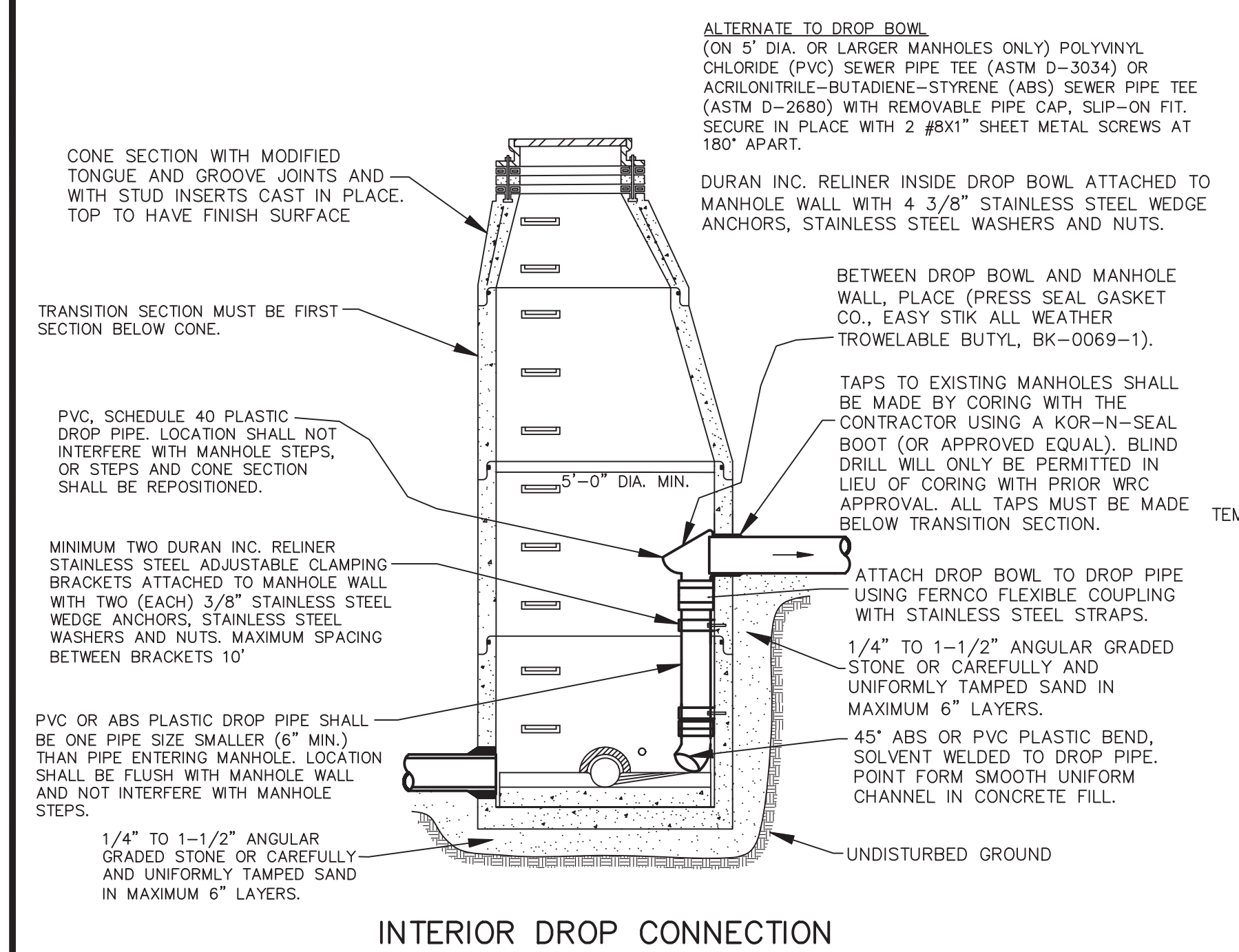


ANTHONY T. SYCKO, JR., P.S.
PROFESSIONAL SURVEYOR
MICHIGAN LICENSE NO. 47976
22556 GRATIOT AVE., EASTPOINTE, MI 48021
TSycko@kemttec-survey.com

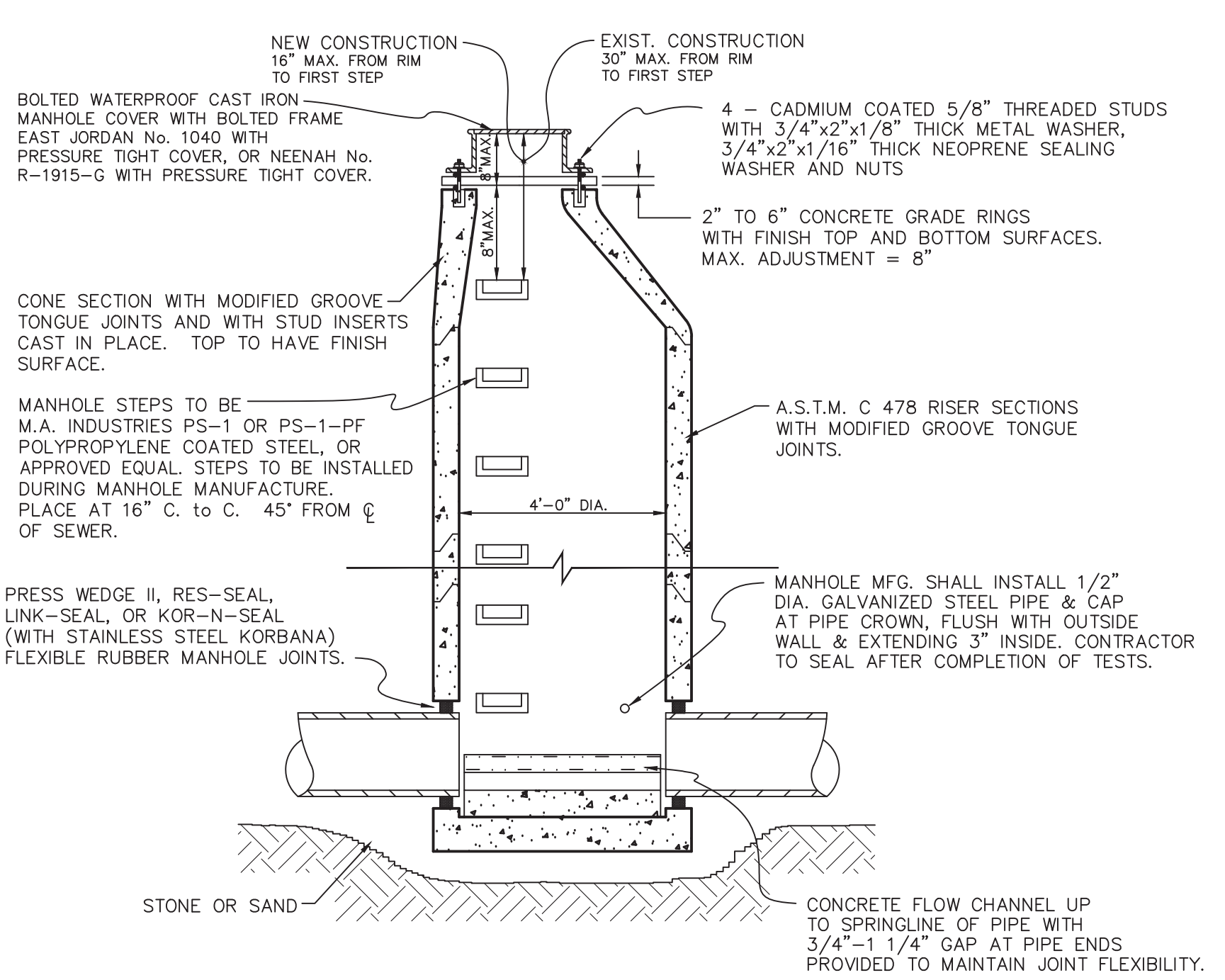
KEM-TEC
PROFESSIONAL ENGINEERING, SURVEYING & ENVIRONMENTAL SERVICES
A GROUP OF COMPANIES
Grand Blanc, MI
Ann Arbor, MI
Eastpointe, MI
Detroit, MI
www.kemttecgroupofcompanies.com

ALTA / NSPS LAND TITLE SURVEY
PREPARED FOR: ALRIG USA
HIGHLAND RD, WHITE LAKE, MICHIGAN,
PART OF SECTION 20,
TOWN 3 NORTH, RANGE 8 EAST

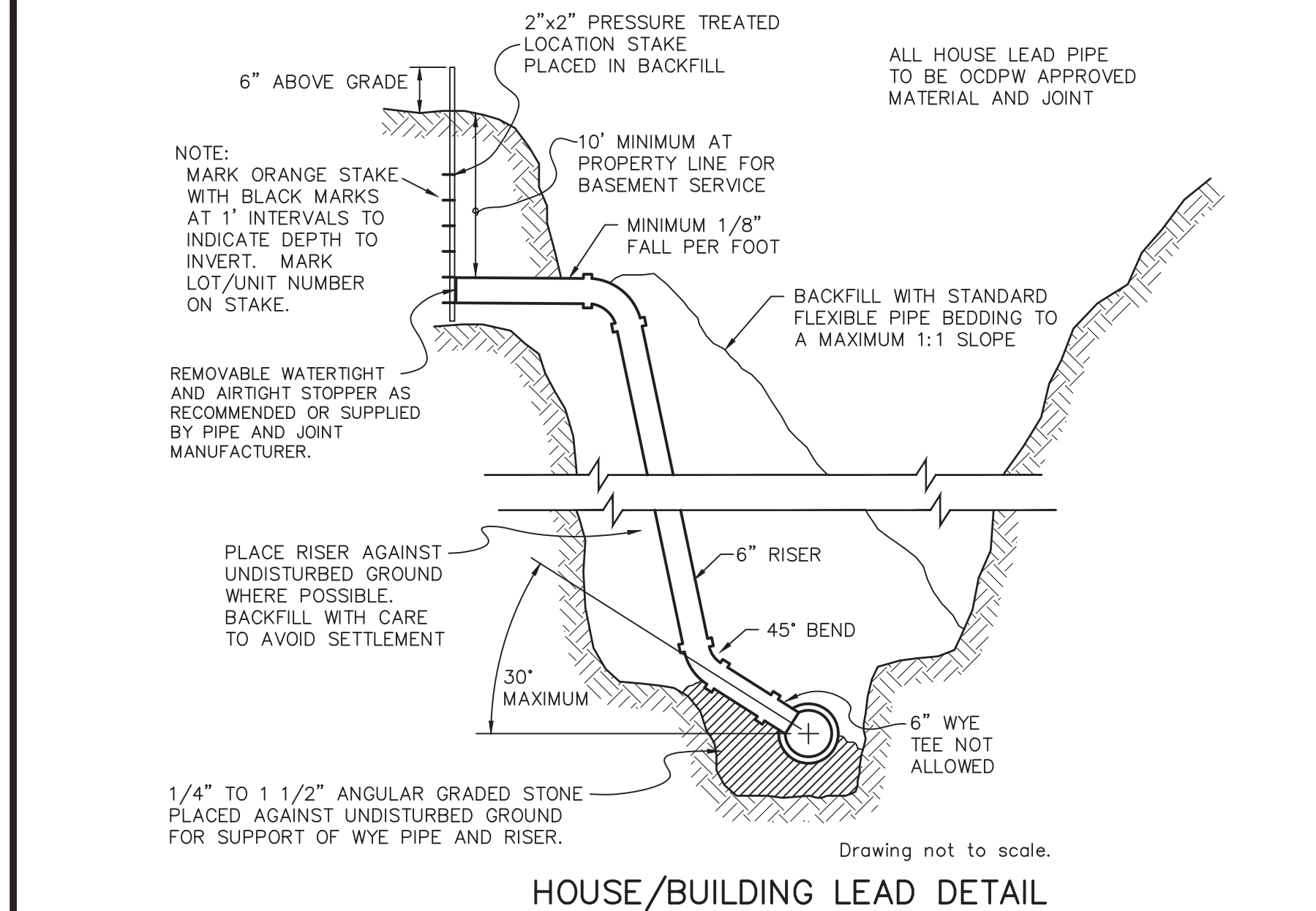
NO.	DATE	BY	REVISION	DESCRIPTION
1	08/22/23	MRJ	REVISED STORM	
2	05/29/23	MRJ	REVISED TITLE WORK & PER REVIEW COMMENTS	
3	03-31-23	JDM	ADDED CERTIFICATION PARTIES	
4	03-29-23	JDM	ADDED PARCEL A DESCRIPTION	
5	03-29-23	JDM	ADDED PROPOSED PARCEL	
6	08-20-22	JV	RECEIVED TITLE WORK	
7	08-20-22	JV	DATE	



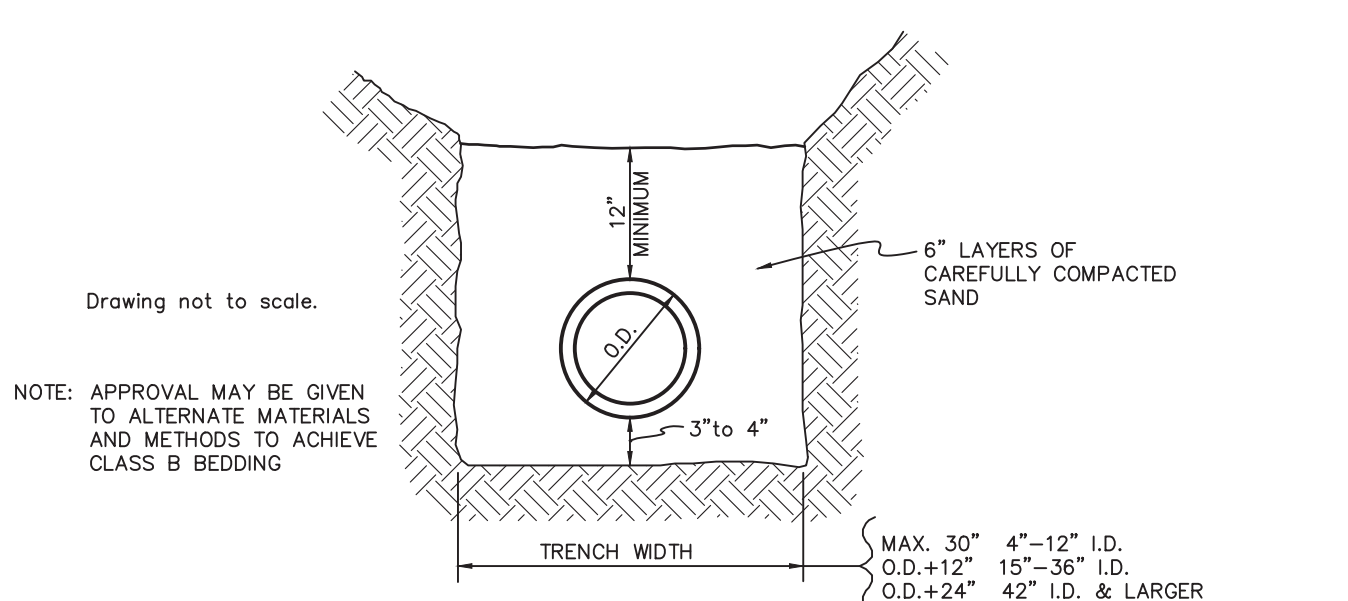
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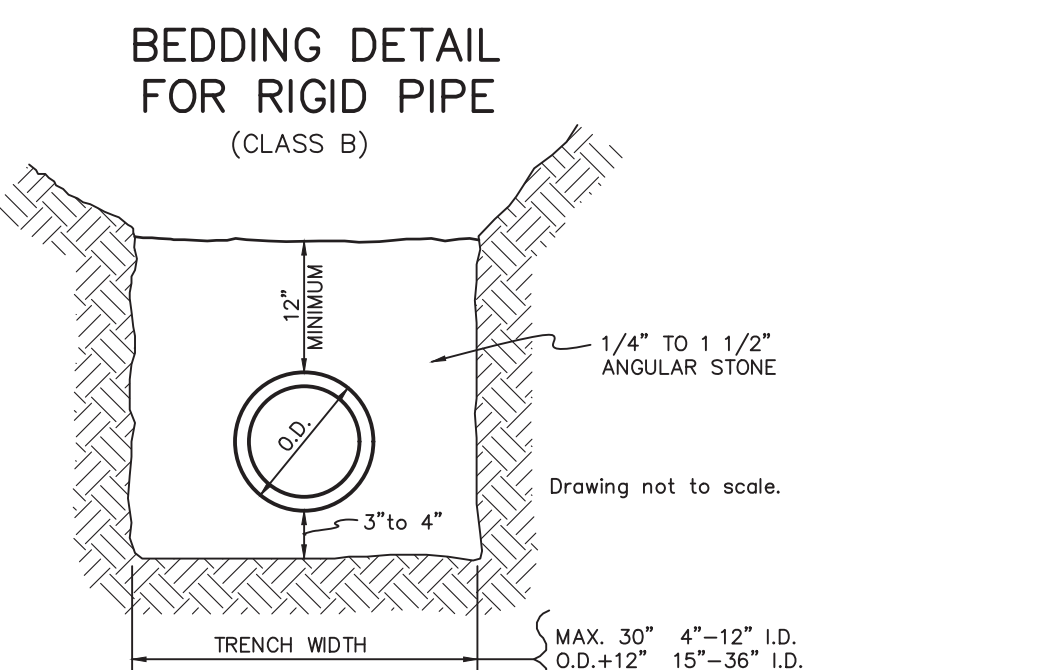
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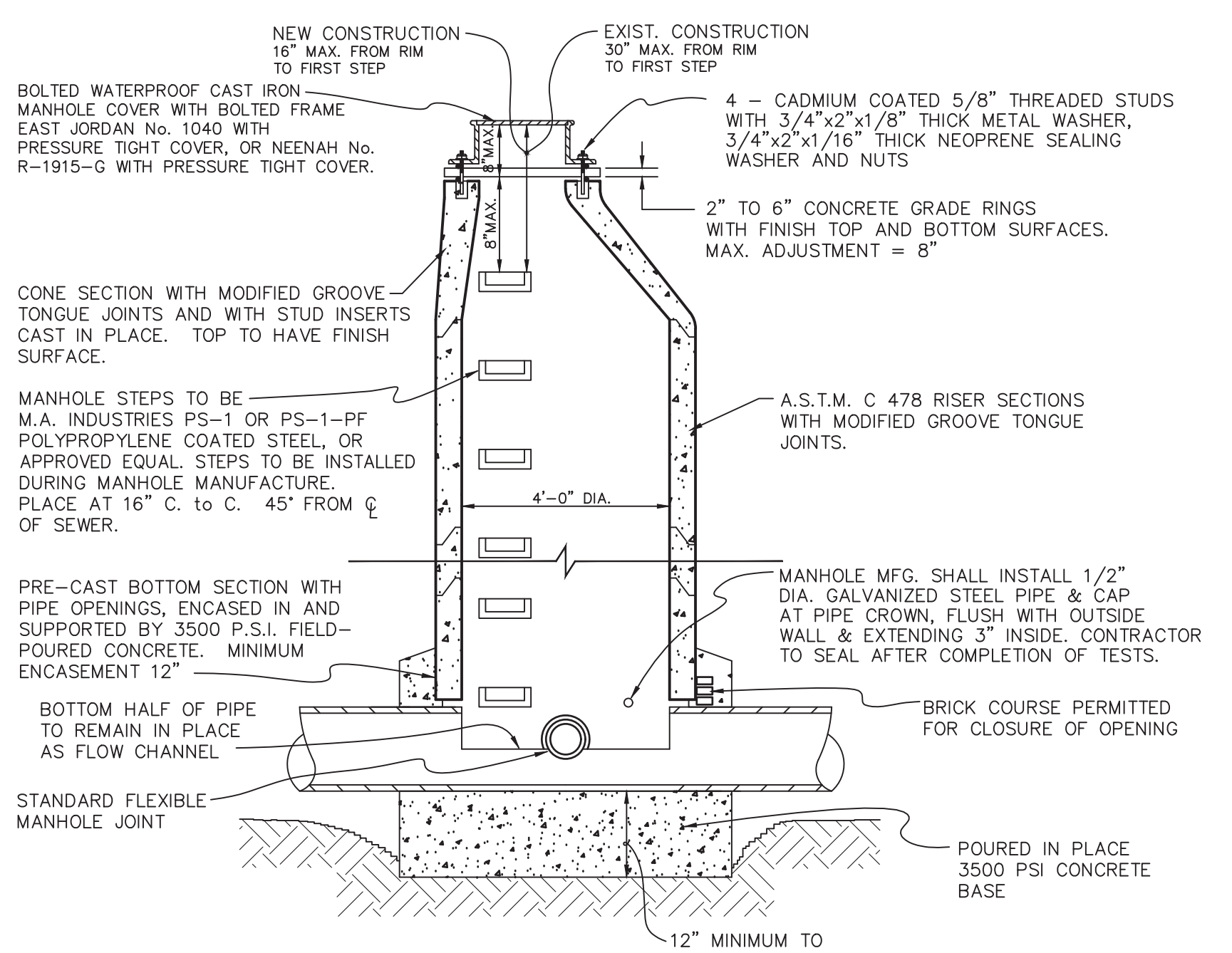
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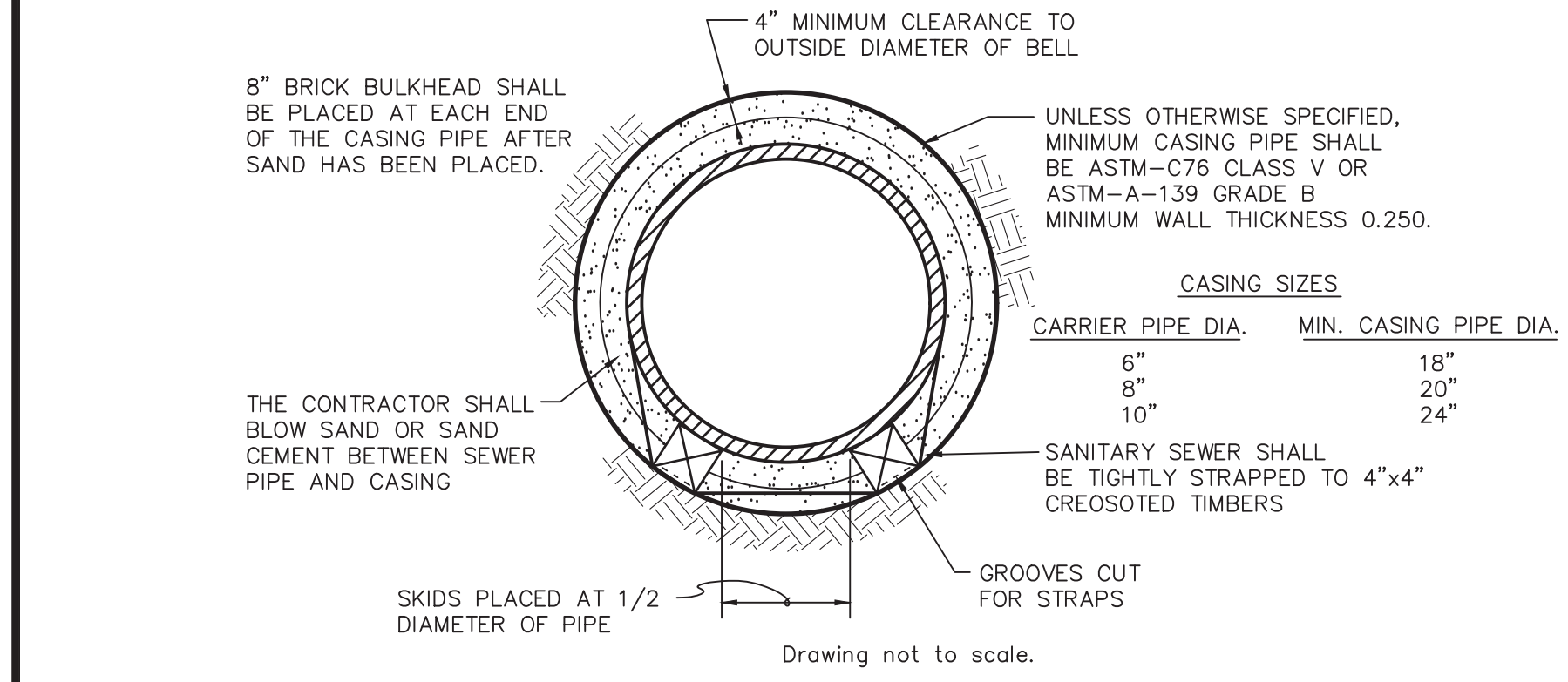
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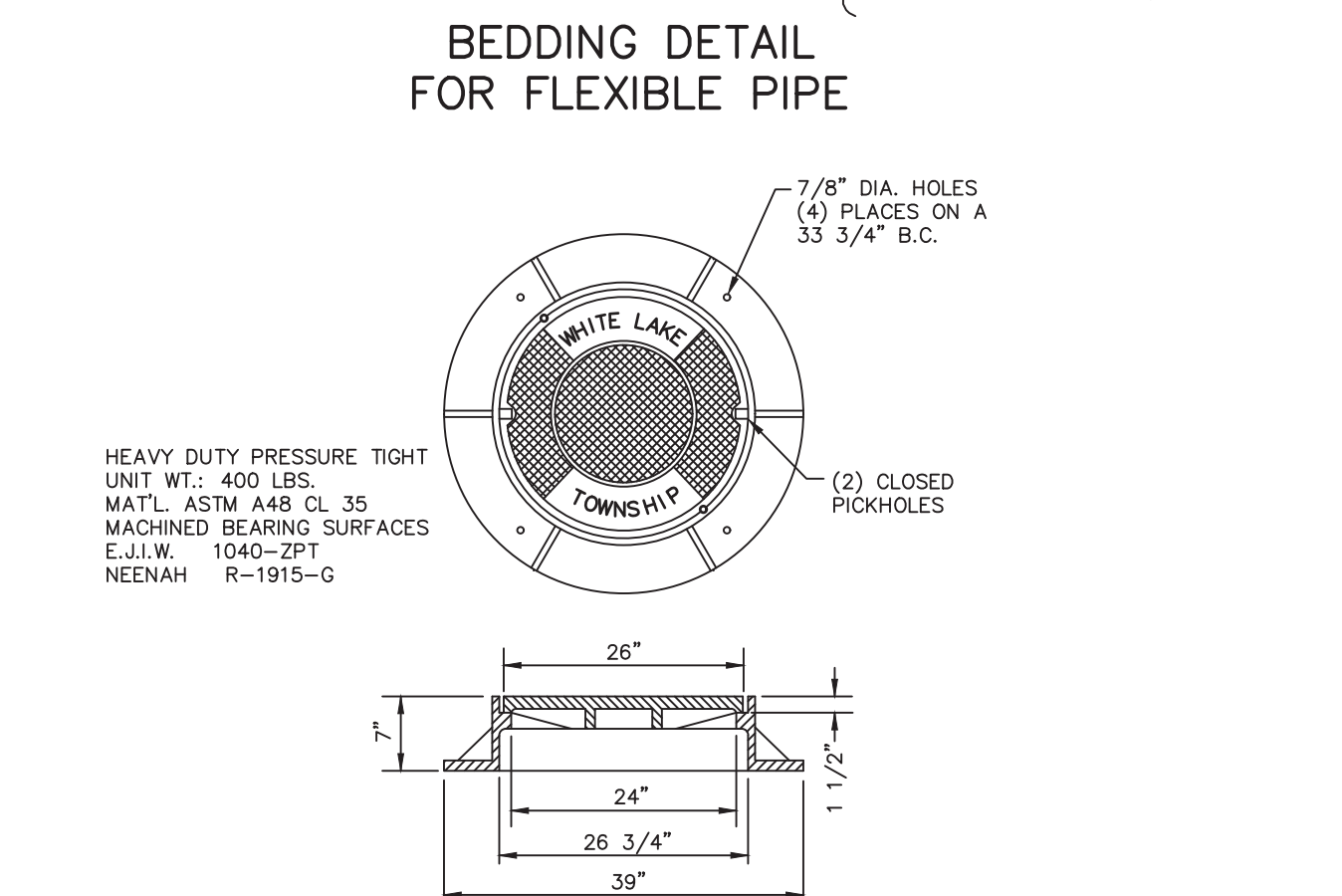
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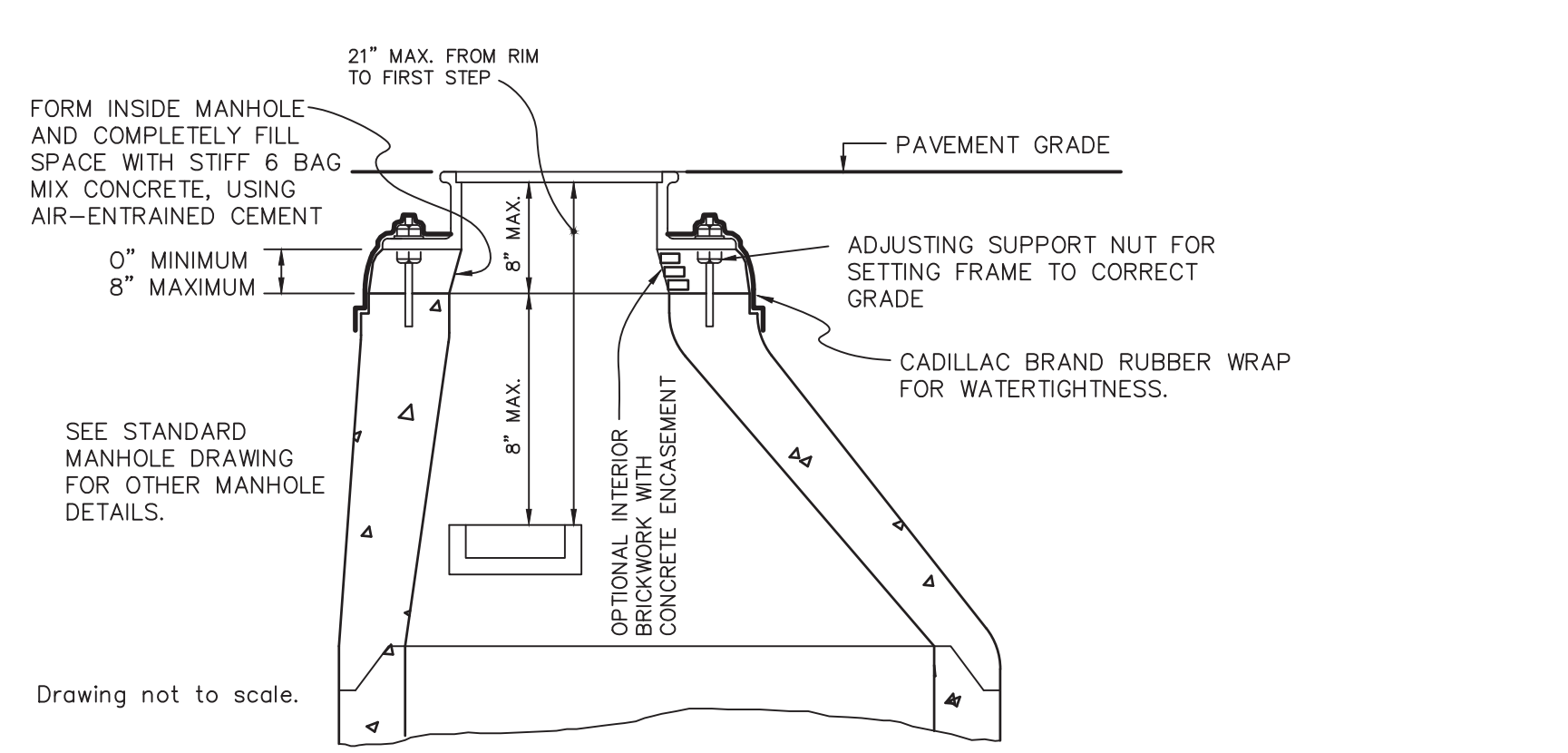
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Drawing not to scale.



Drawing not to scale.



Drawing not to scale.

- 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."

DRAWN:CAD
DESIGN:OA
CHECKED:--

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
		FIRST ISSUE	09/11/97		OCWRC COMMENTS	11/06/15			
		UPDATED TITLE BLOCK	04/30/13						
		UPDATED NOTES	02/17/15						

Johnson & Anderson

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

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

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

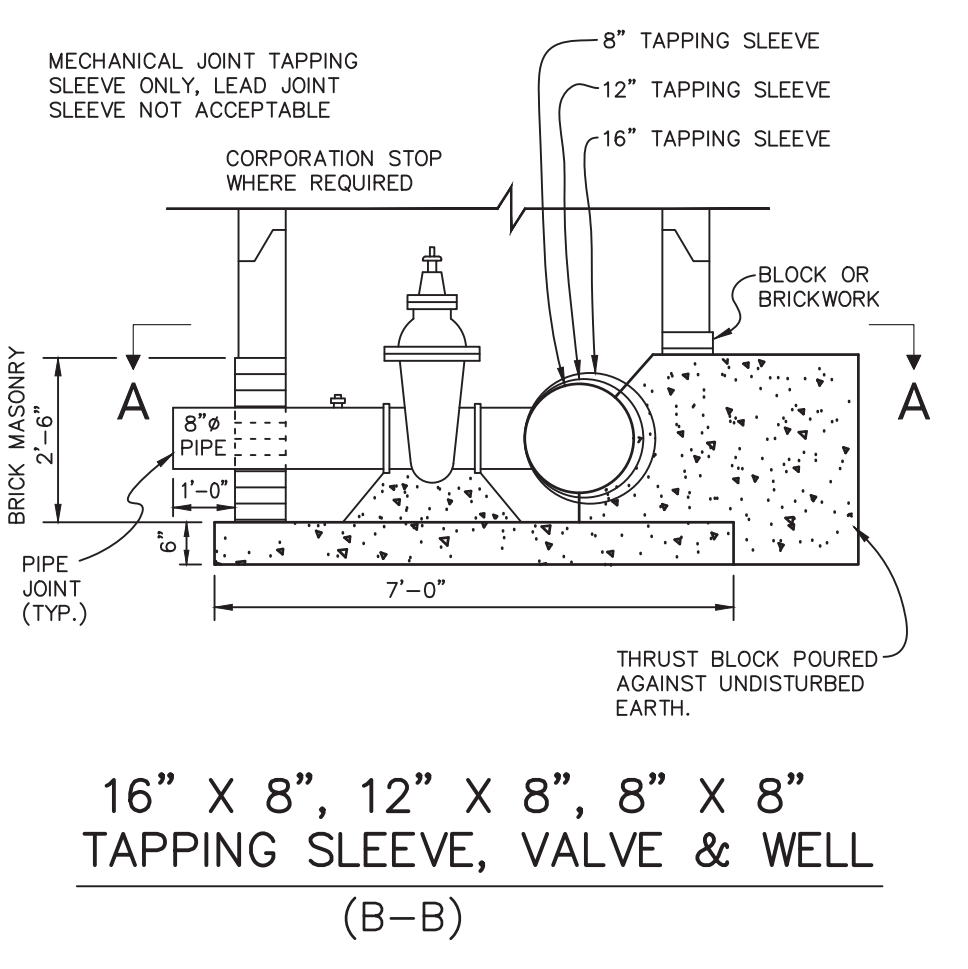
White Lake Township

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

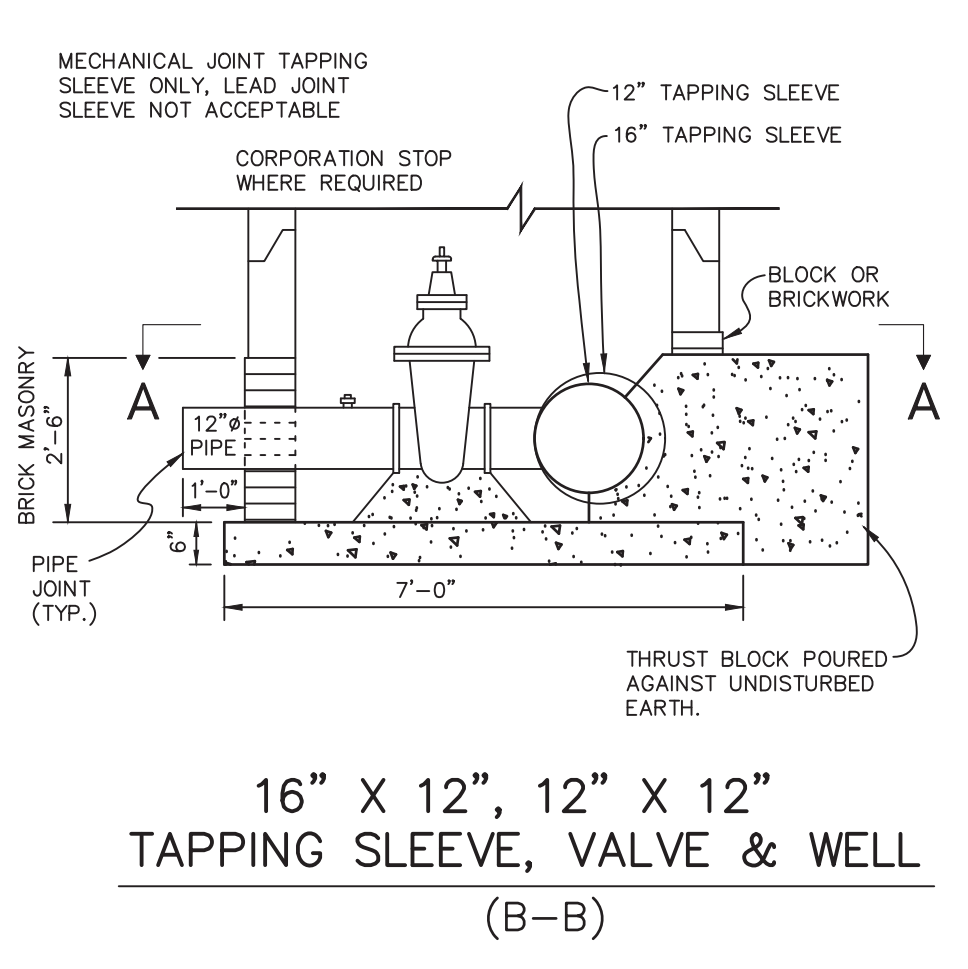
SANITARY SEWER STANDARD DETAILS

VERT. -
SCALE: HORZ. AS NOTED

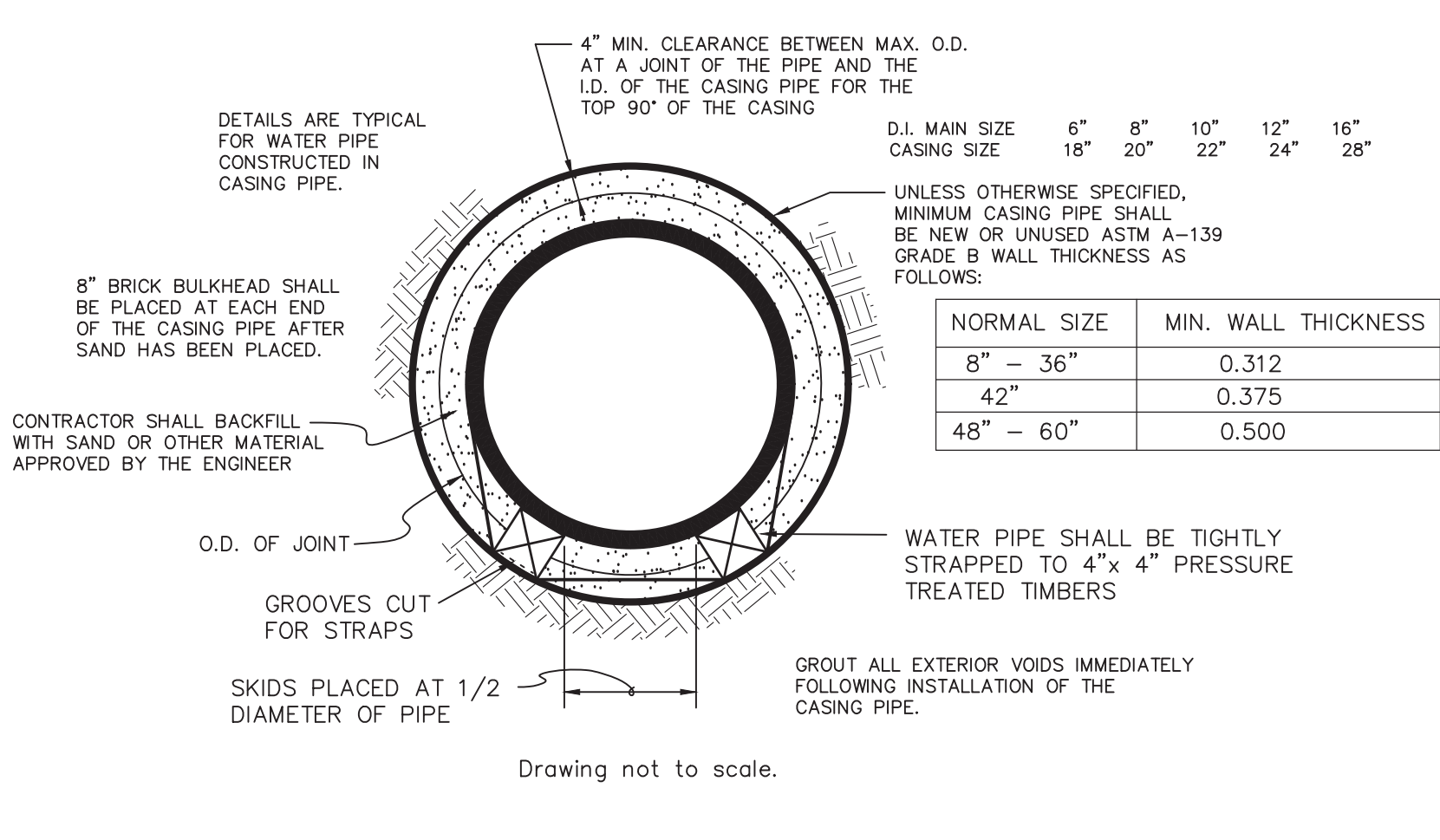
JOB NO.
DATE ISSUED
SHEET NO.



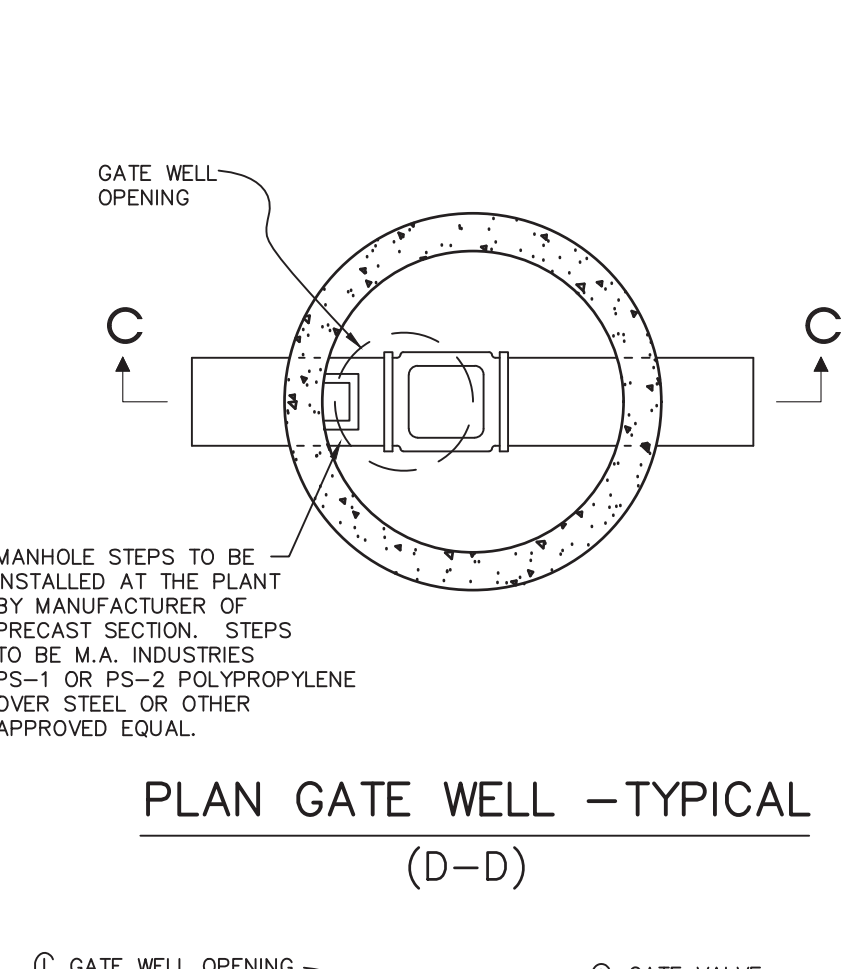
16" X 8", 12" X 8", 8" X 8" TAPPING SLEEVE, VALVE & WELL (B-B)



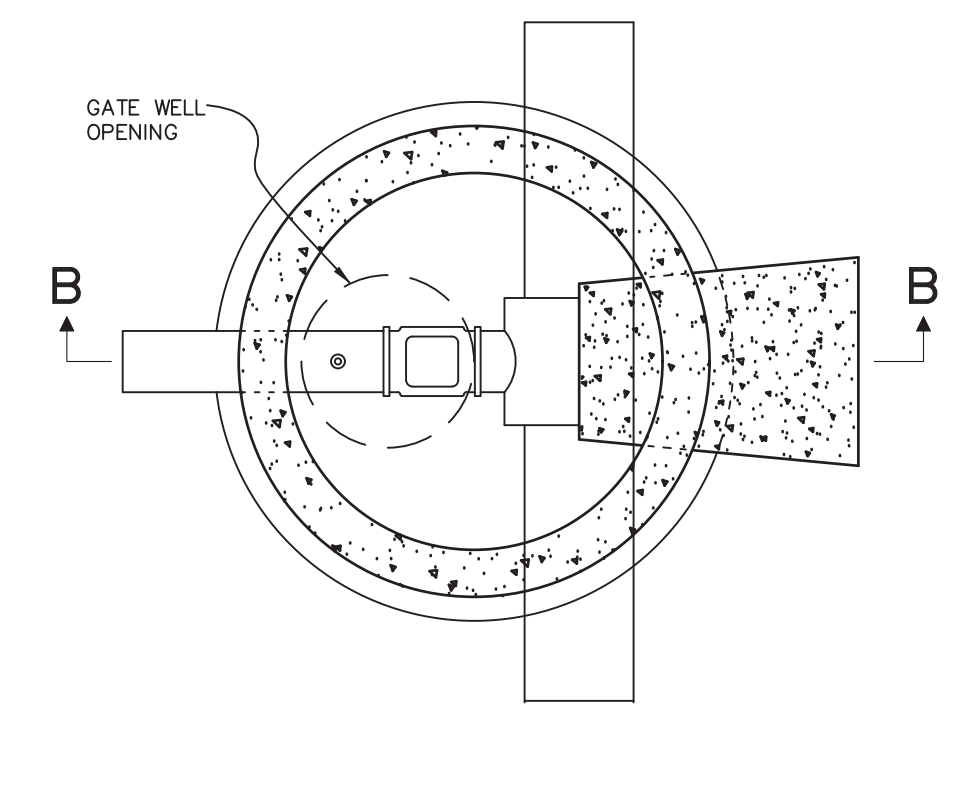
16" X 12", 12" X 12" TAPPING SLEEVE, VALVE & WELL (B-B)



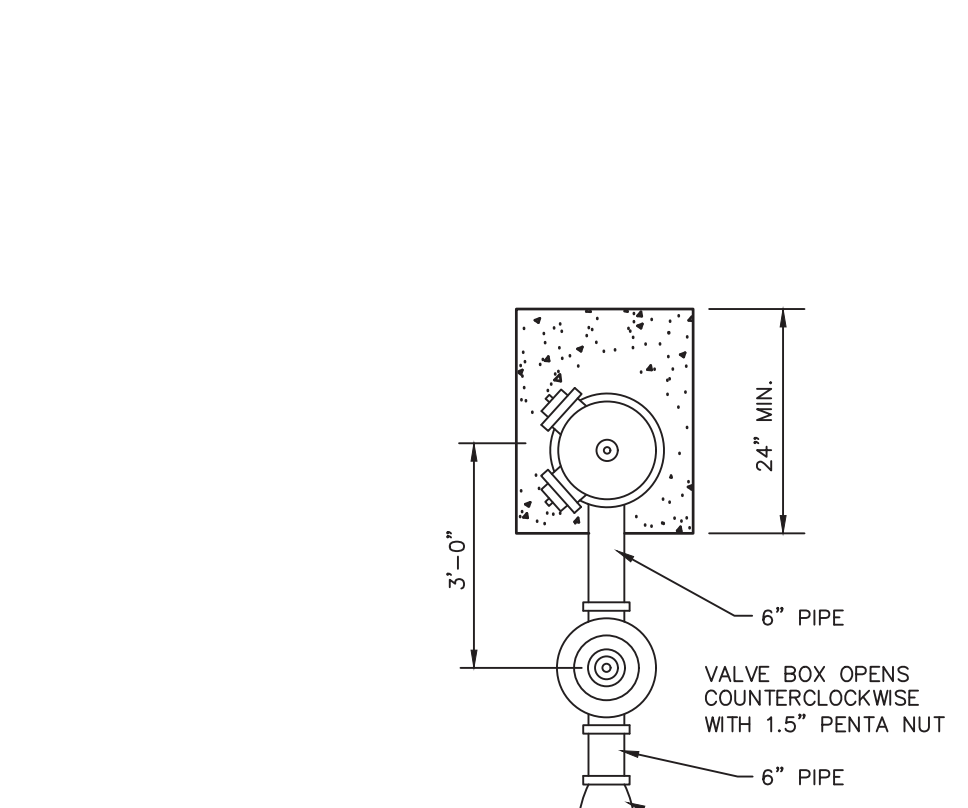
PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING



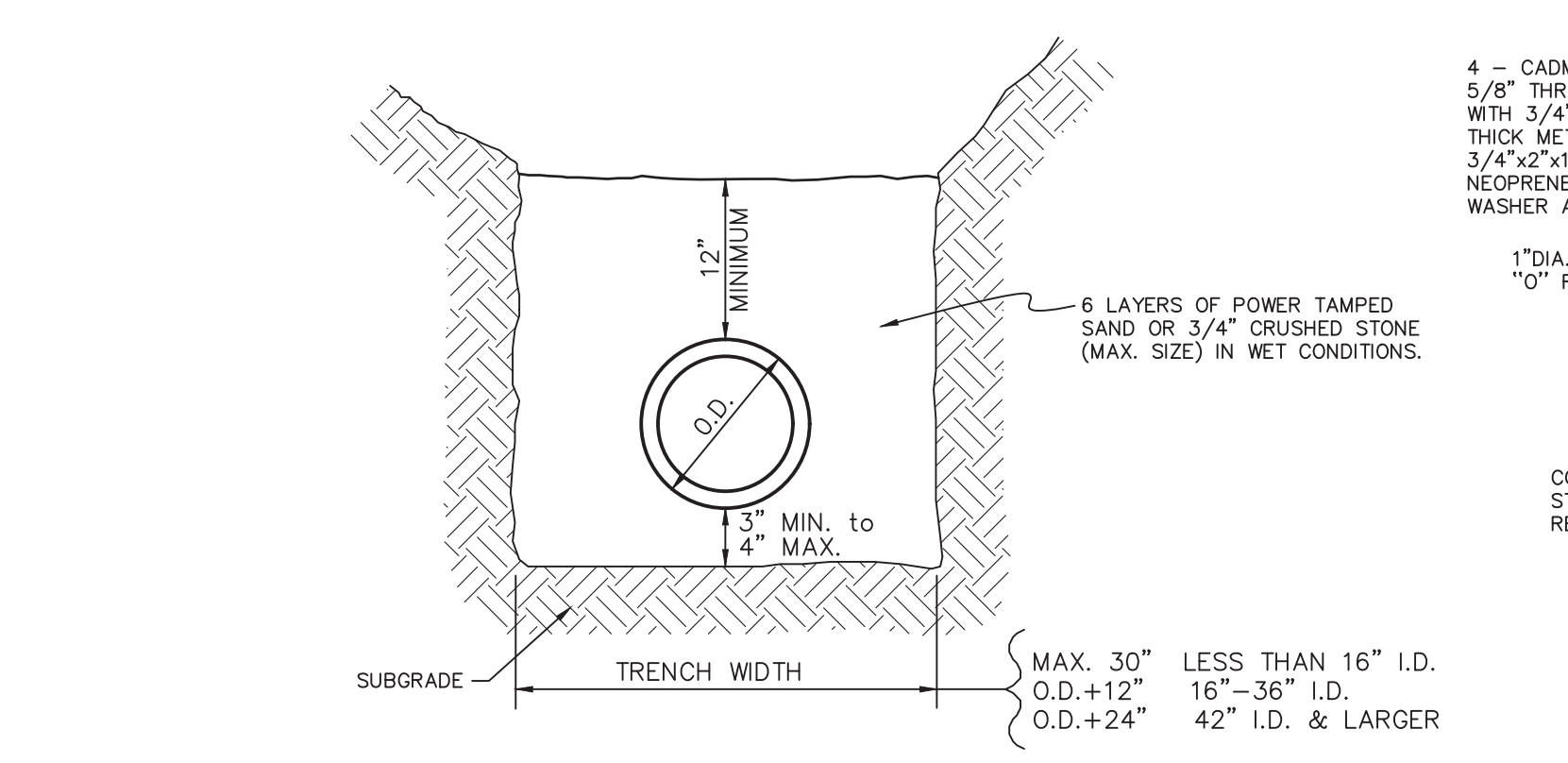
PLAN GATE WELL - TYPICAL (D-D)



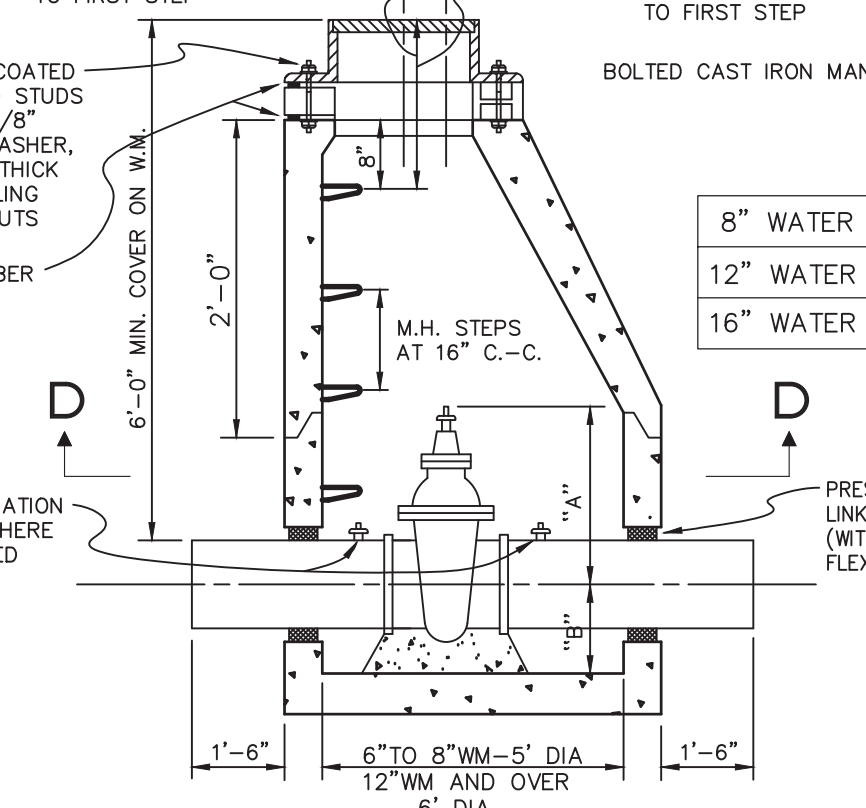
PLAN TAPPING SLEEVE, VALVE & WELL - TYPICAL (A-A)



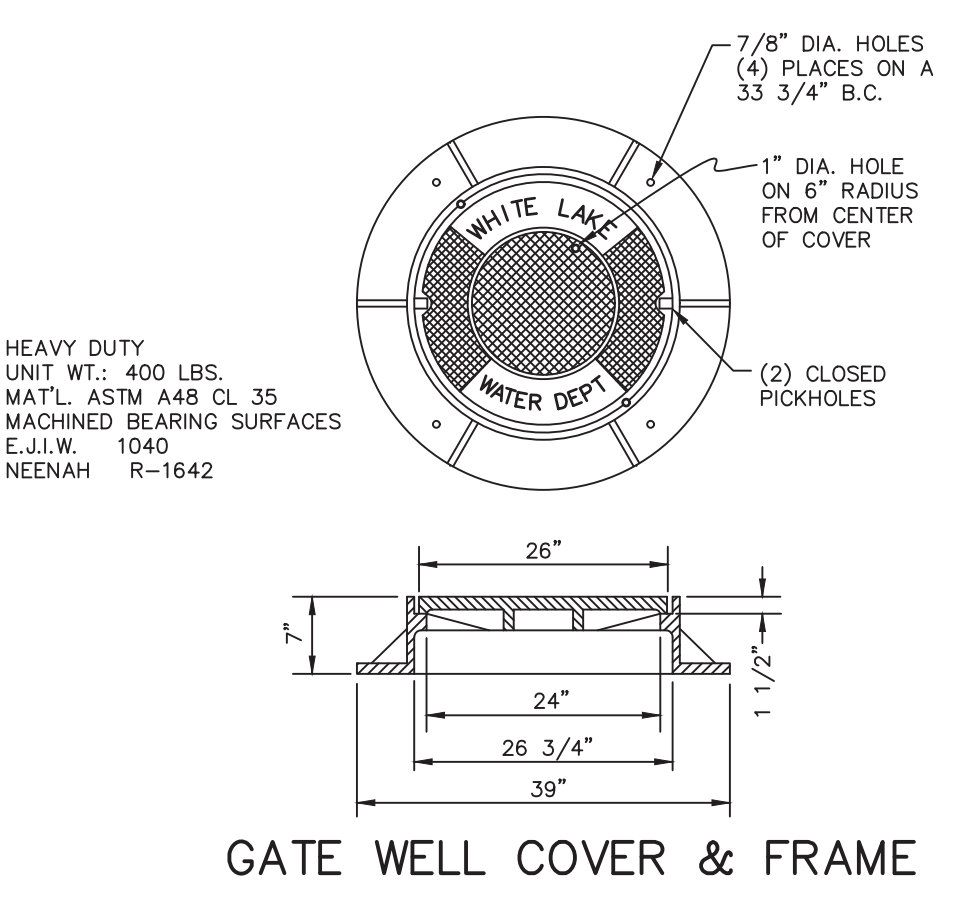
16" X 12", 12" X 12" TAPPING SLEEVE, VALVE & WELL (B-B)



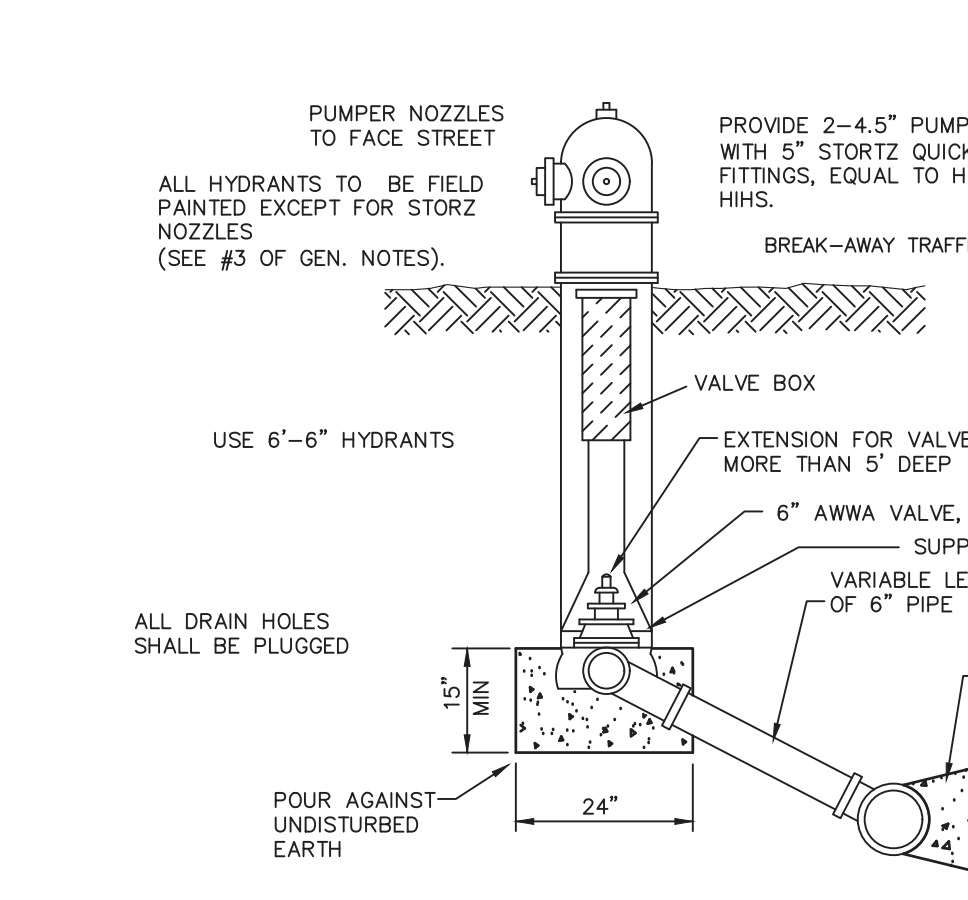
PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING



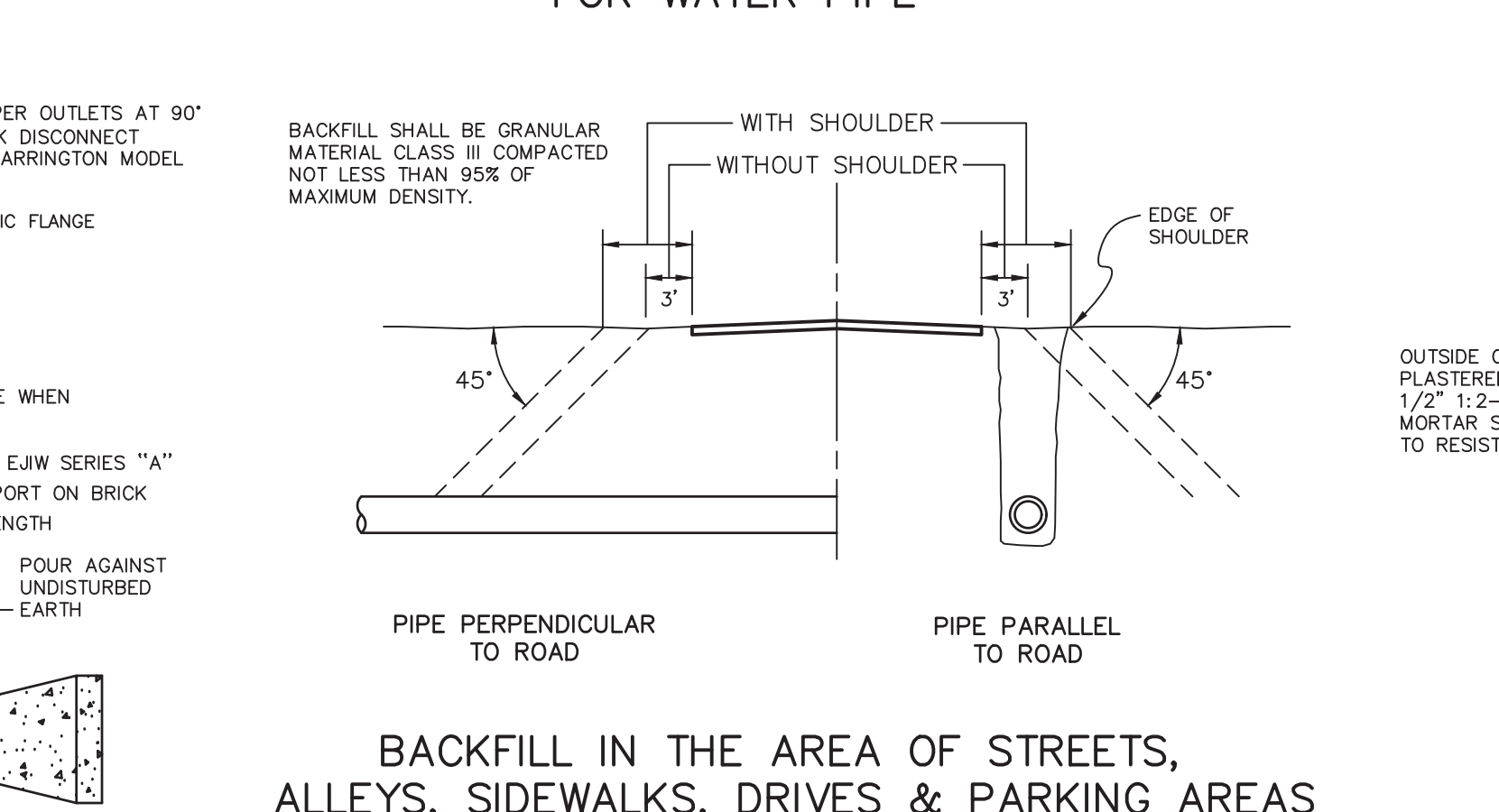
GATE WELL (C-C)



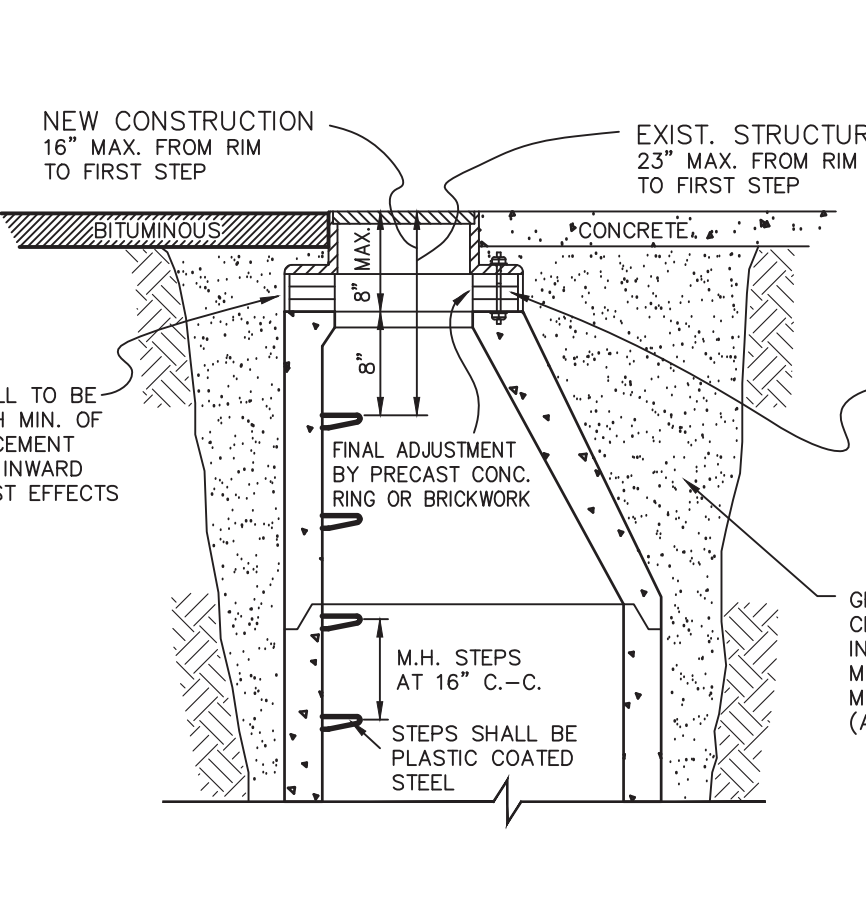
GATE WELL COVER & FRAME



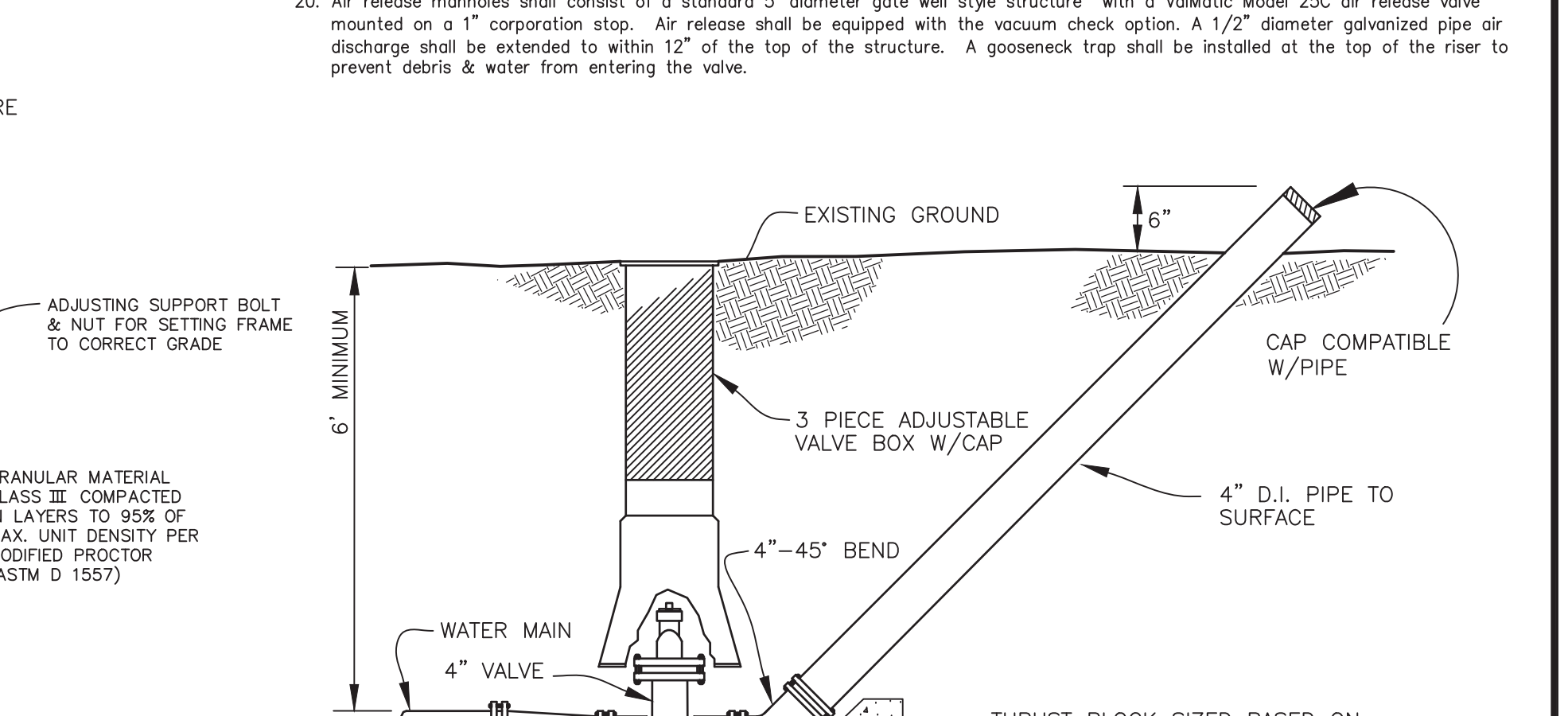
GATE WELL COVER & FRAME



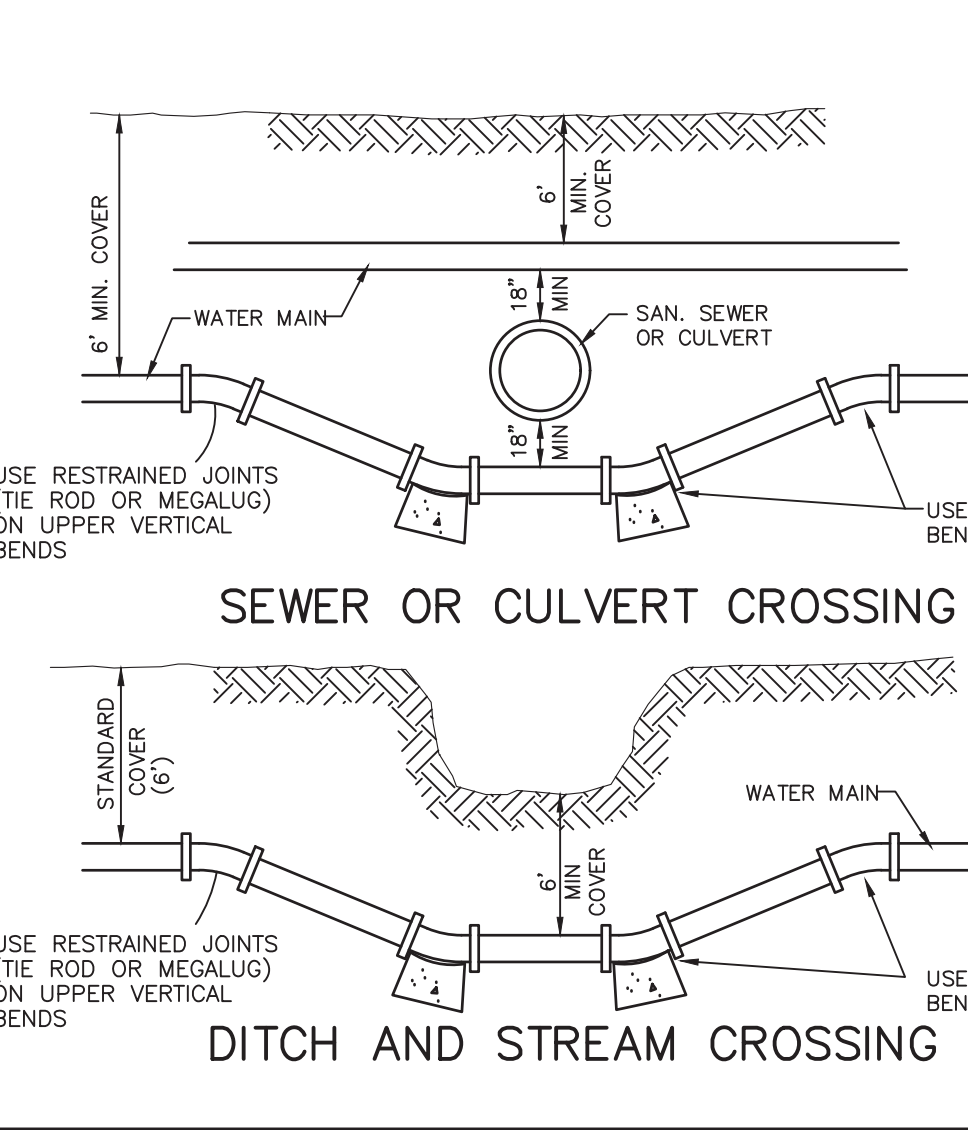
STANDARD BEDDING FOR WATER PIPE



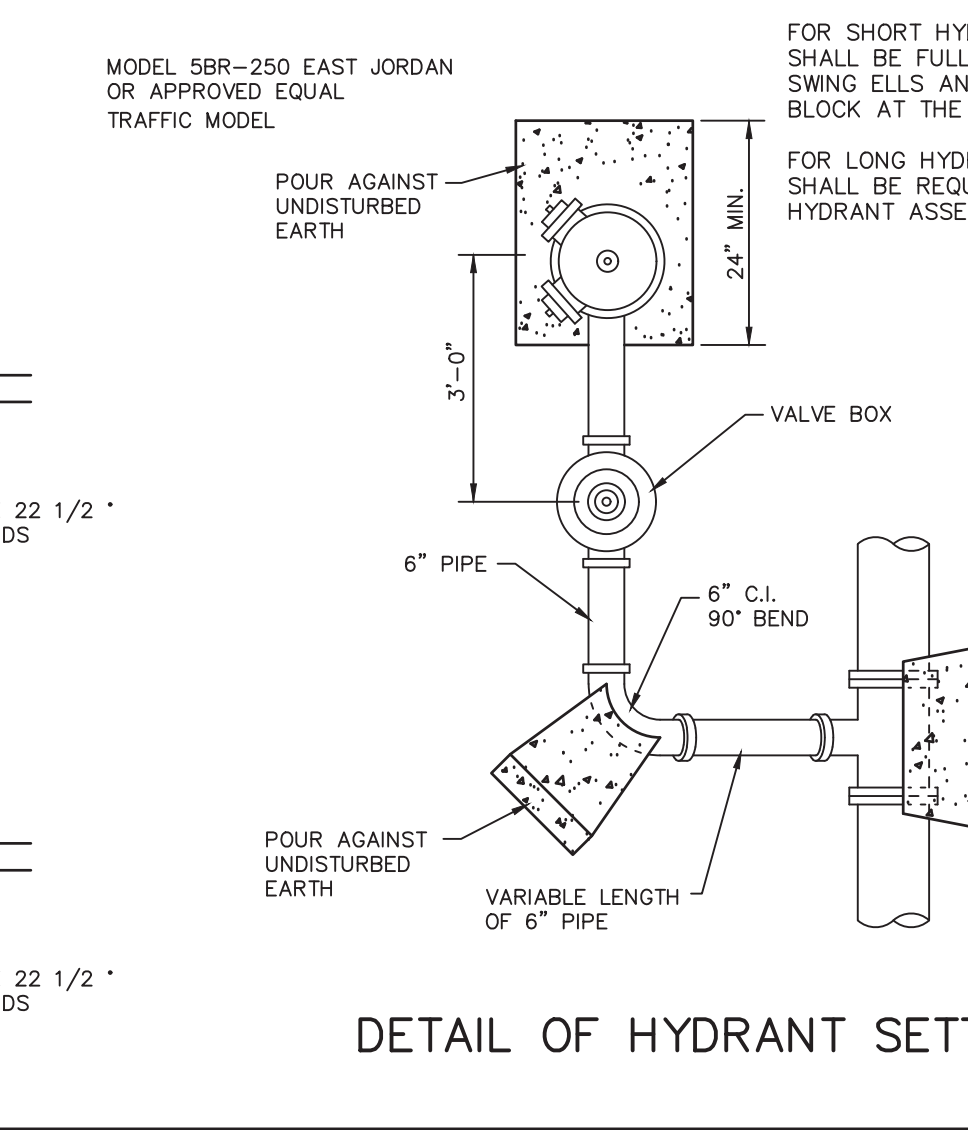
GATE WELL TOPS WITHIN PAVEMENT AREAS



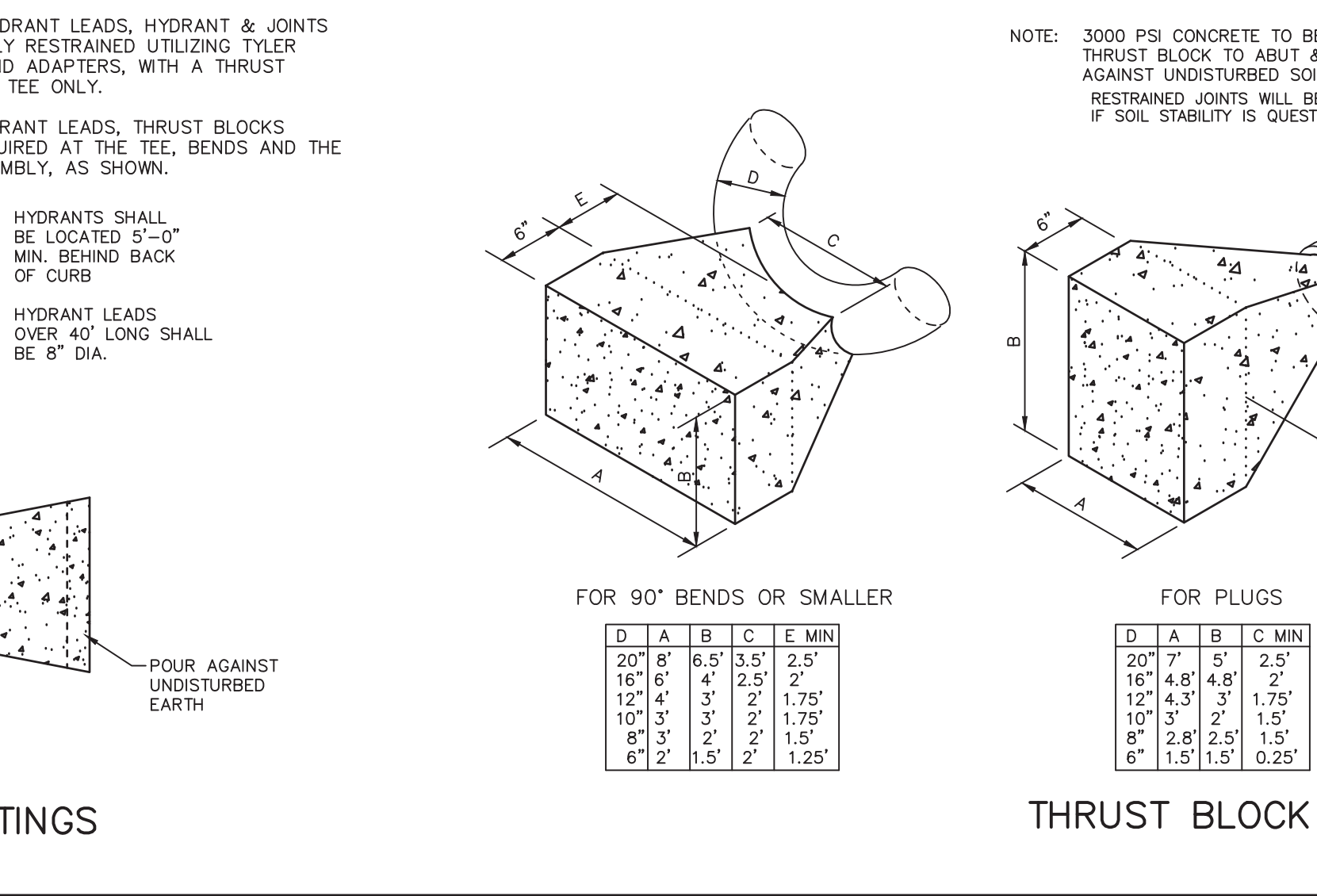
TEMPORARY BLOWOFF ASS'Y



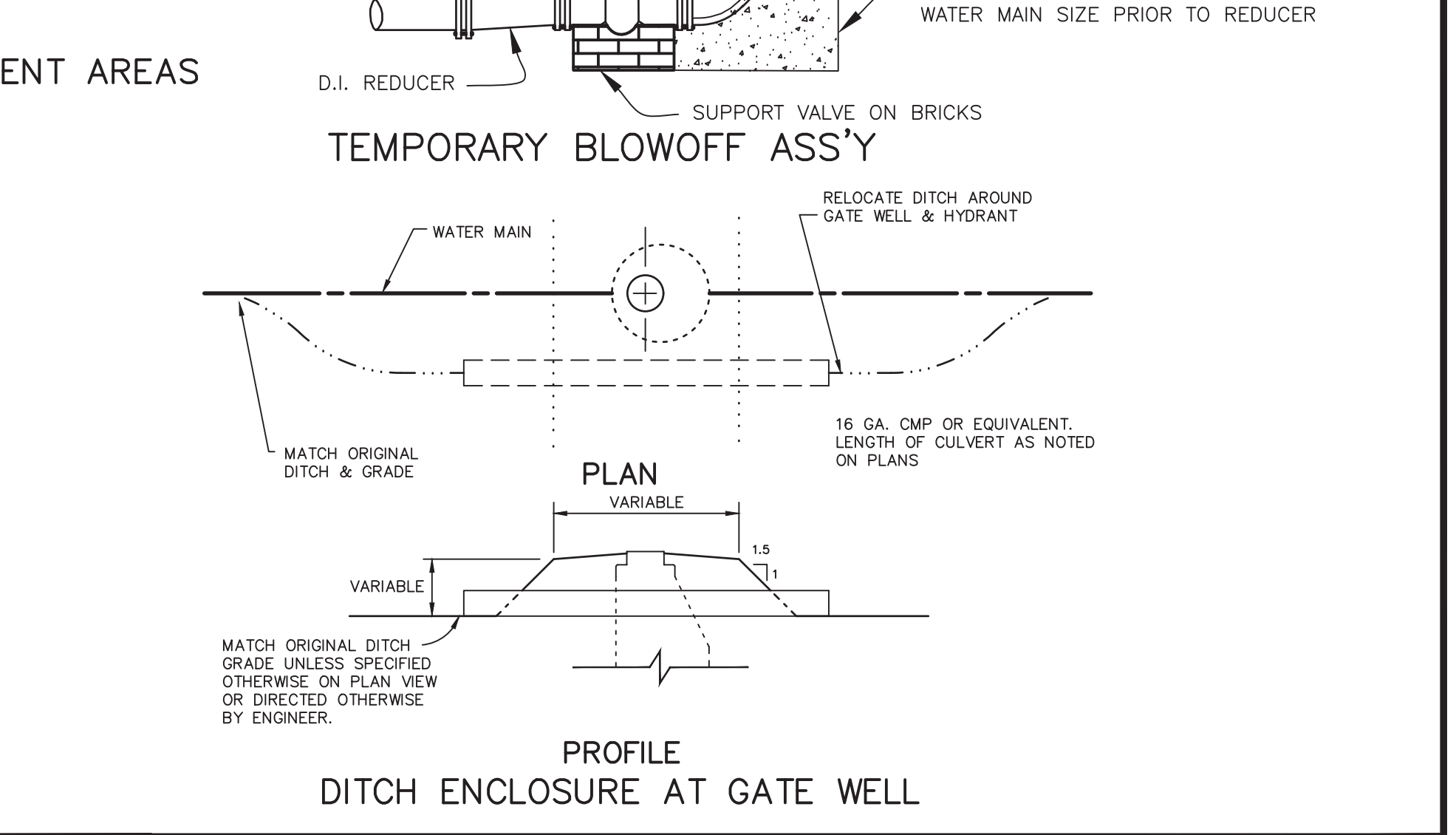
SEWER OR CULVERT CROSSING



DETAIL OF HYDRANT SETTINGS



THRUST BLOCK DETAILS



DITCH ENCLOSURE AT GATE WELL

- 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 #1642 Manhole frame, 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. - HORZ. AS NOTED

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
	GENERAL	REVISION TO CAD	12/29/95	GW & NUT SIZE	07/23/98	CLARIFY HYD. SPEC	02/07/01	REV. HYD., THRUST, AIR REL.	03/29/04
	ADD NOTE	17	11/04/97	PIPE 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
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2291 Water Street, Suite 6 Port Huron, Michigan 48060
 tel (810) 987-7620 fax (810) 987-7895

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

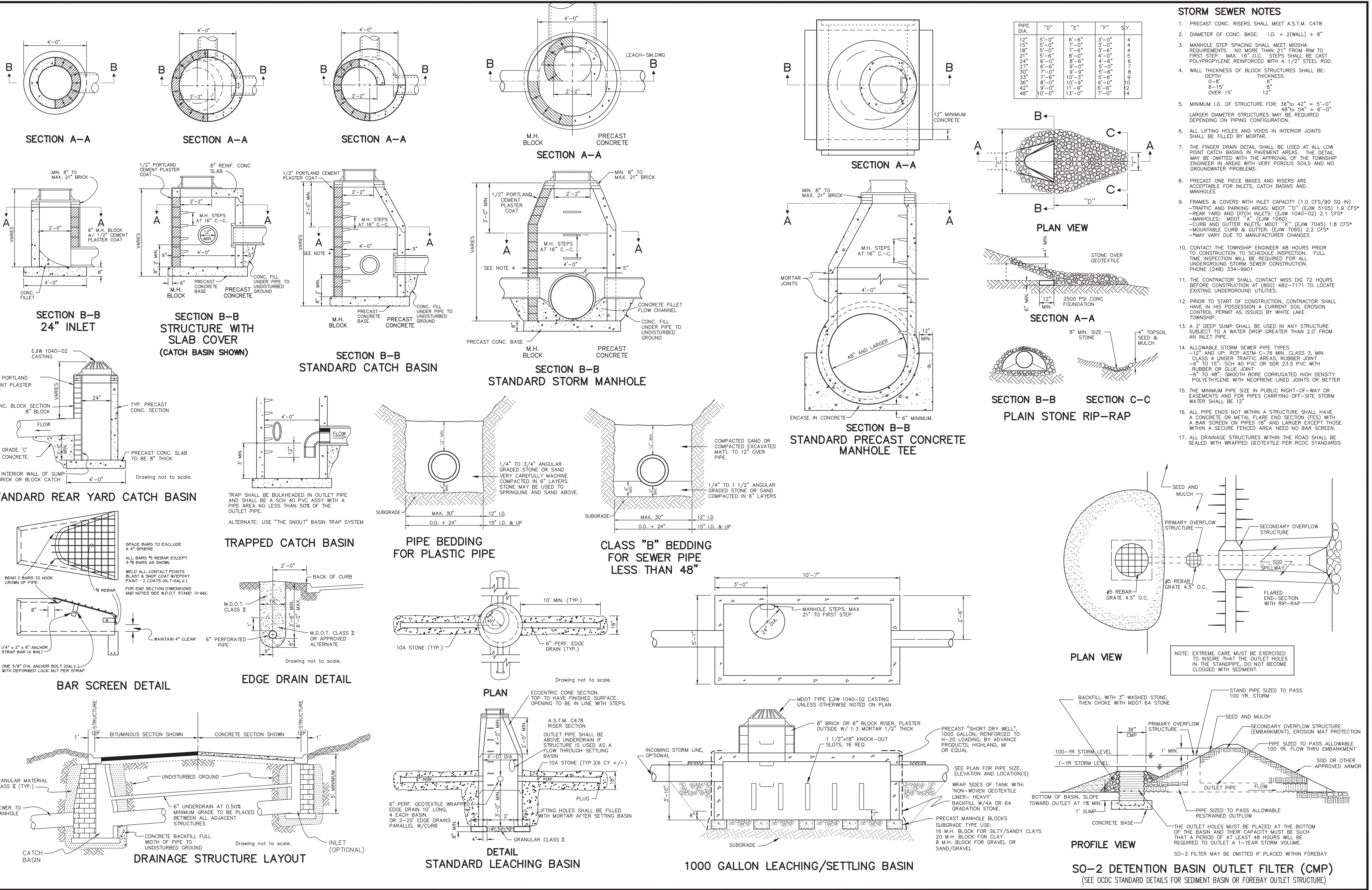
WATER MAIN STANDARD DETAILS

JOB NO. _____
 DATE ISSUED _____
 SHEET NO. _____

STORM SEWER NOTES

1. PRECAST CONC. RISERS SHALL MEET A.S.T.M. C478
2. DIAMETER OF CONC. BASE: I.D. + 2(WALL) + 8"
3. MANHOLE STEP SPACING SHALL MEET MIOSHA REQUIREMENTS. NO MORE THAN 21" FROM RIM TO FIRST STEP. MAX. 16" O.C. STEPS SHALL BE CAST POLYPROPYLENE REINFORCED WITH A 1/2" STEEL ROD.
4. WALL THICKNESS OF BLOCK STRUCTURES SHALL BE:
DEPTH THICKNESS
0-8' 6"
8-15' 8"
OVER 15' 12"
5. MINIMUM I.D. OF STRUCTURE FOR: 36" to 42" = 5'-0"
48" to 54" = 6'-0"
LARGER DIAMETER STRUCTURES MAY BE REQUIRED DEPENDING ON PIPING CONFIGURATION.
6. ALL LIFTING HOLES AND VOIDS IN INTERIOR JOINTS SHALL BE FILLED BY MORTAR.
7. THE FINGER DRAIN DETAIL SHALL BE USED AT ALL LOW POINT CATCH BASINS IN PAVEMENT AREAS. THE DETAIL MAY BE OMITTED WITH THE APPROVAL OF THE TOWNSHIP ENGINEER IN AREAS WITH VERY POROUS SOILS AND NO GROUNDWATER PROBLEMS.
8. PRECAST ONE PIECE BASES AND RISERS ARE ACCEPTABLE FOR INLETS, CATCH BASINS AND MANHOLES
9. FRAMES & COVERS WITH INLET CAPACITY (1.0 CFS/90 SQ IN) -TRAFFIC AND PARKING AREAS: MDOT "D" (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
10. CONTACT THE TOWNSHIP ENGINEER 48 HOURS PRIOR TO CONSTRUCTION TO SCHEDULE INSPECTION. FULL TIME INSPECTION WILL BE REQUIRED FOR ALL UNDERGROUND STORM SEWER CONSTRUCTION. PHONE: (248) 334-9901
11. THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (800) 482-7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
12. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY WHITE LAKE TOWNSHIP.
13. A 2' DEEP SUMP SHALL BE USED IN ANY STRUCTURE SUBJECT TO A WATER DROP GREATER THAN 2.0' FROM AN INLET PIPE.
14. ALLOWABLE STORM SEWER PIPE TYPES:
-12" AND UP: RCP ASTM C-76 MIN CLASS 3, MIN CLASS 4 UNDER TRAFFIC AREAS, RUBBER JOINT
-6" TO 15": SCH 40 PVC OR SDR 23.5 PVC WITH RUBBER OR GLUE JOINT
-6" TO 48": SMOOTH BORE CORRUGATED HIGH DENSITY POLYETHYLENE WITH NEOPRENE LINED JOINTS OR BETTER
15. THE MINIMUM PIPE SIZE IN PUBLIC RIGHT-OF-WAY OR EASEMENTS AND FOR PIPES CARRYING OFF-SITE STORM WATER SHALL BE 12"
16. ALL PIPE ENDS NOT WITHIN A STRUCTURE SHALL HAVE A CONCRETE OR METAL FLARE END SECTION (FES) WITH A BAR SCREEN ON PIPES 18" AND LARGER EXCEPT THOSE WITHIN A SECURE FENCED AREA NEED NO BAR SCREEN.
17. ALL DRAINAGE STRUCTURES WITHIN THE ROAD SHALL BE SEALED WITH WRAPPED GEOTEXTILE PER ROC STANDARD

PIPE DIA.	"D"	"E"	"F"	S.Y.
12"	5'-0"	6'-6"	3'-0"	4
15"	5'-0"	7'-0"	3'-0"	4
18"	5'-0"	7'-6"	3'-6"	4
21"	5'-6"	8'-0"	4'-0"	5
24"	6'-0"	8'-6"	4'-6"	6
27"	6'-6"	9'-0"	5'-0"	7
30"	7'-0"	9'-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



DRAWN: CAD
DESIGN: OA
CHECKED: --

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

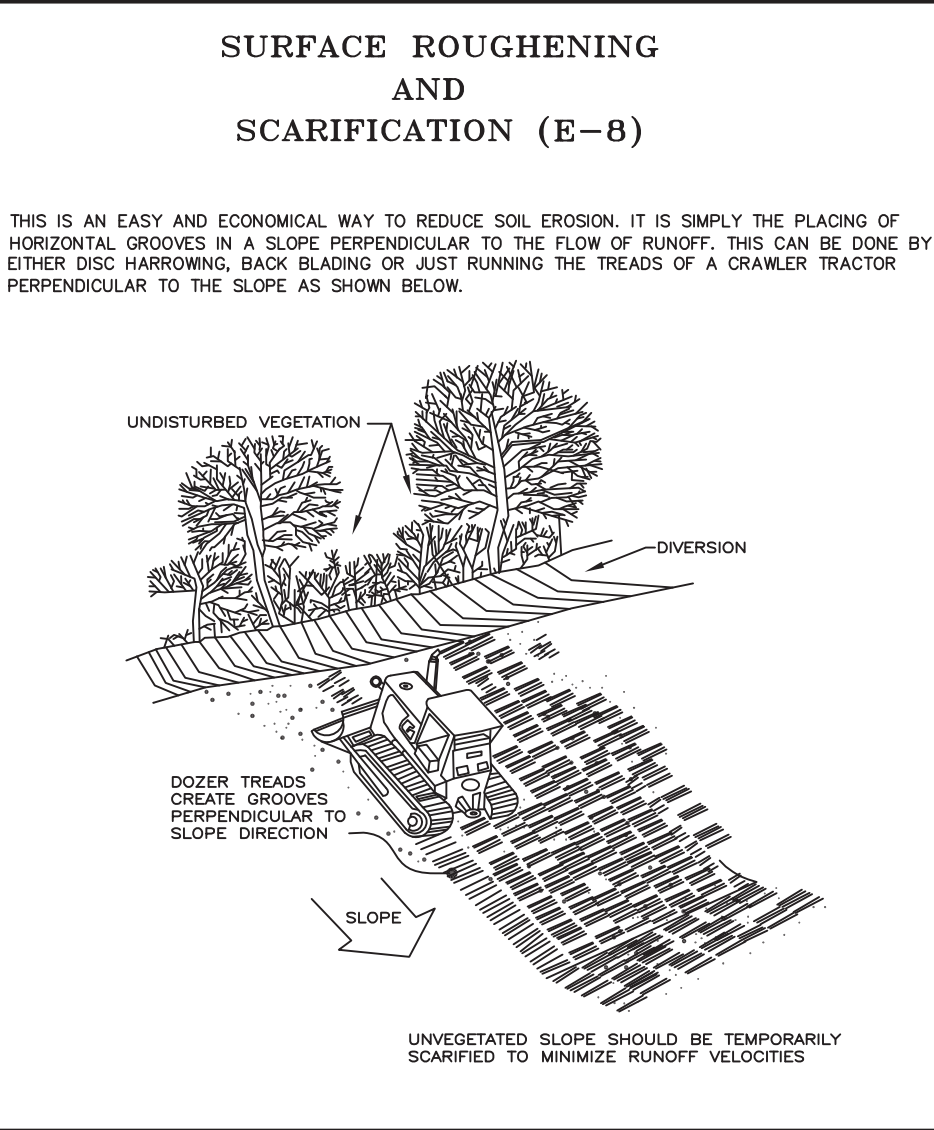
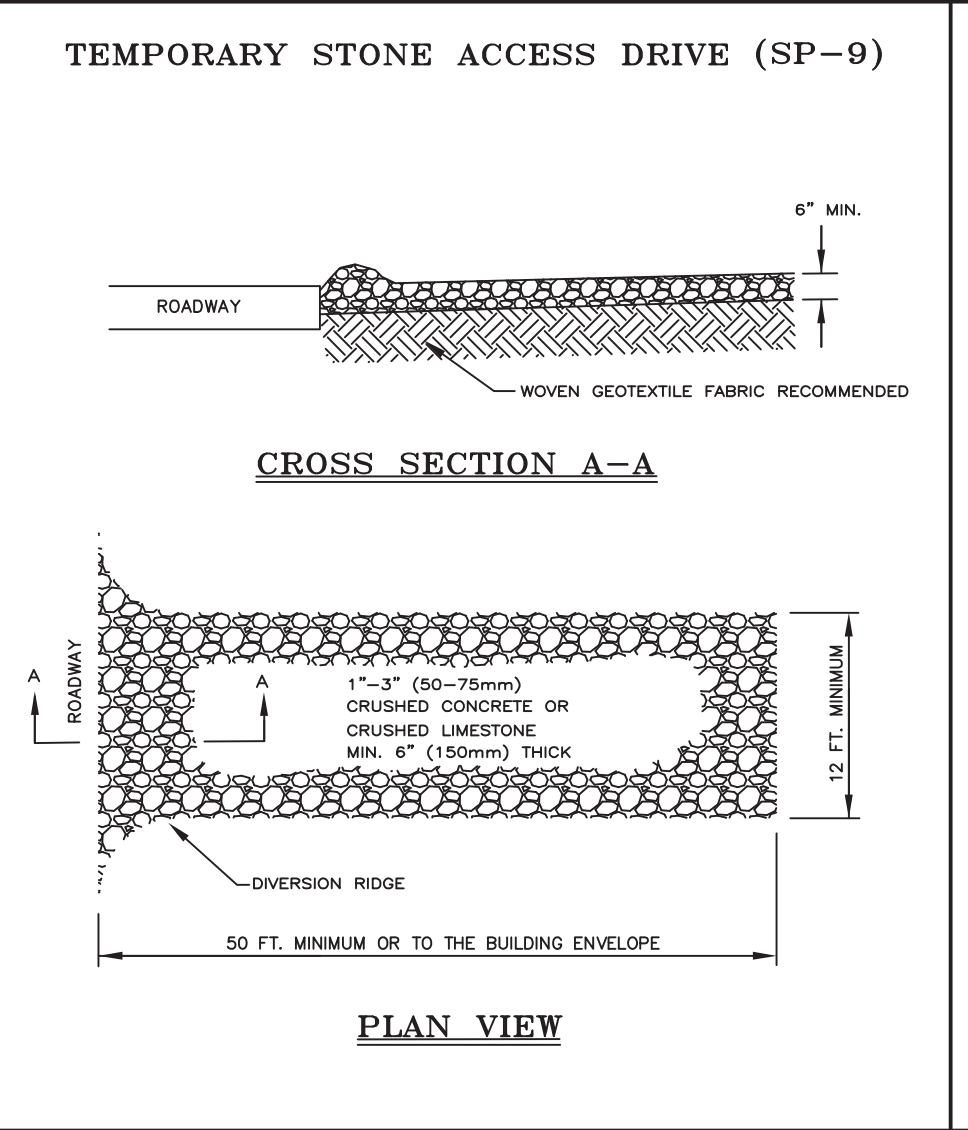
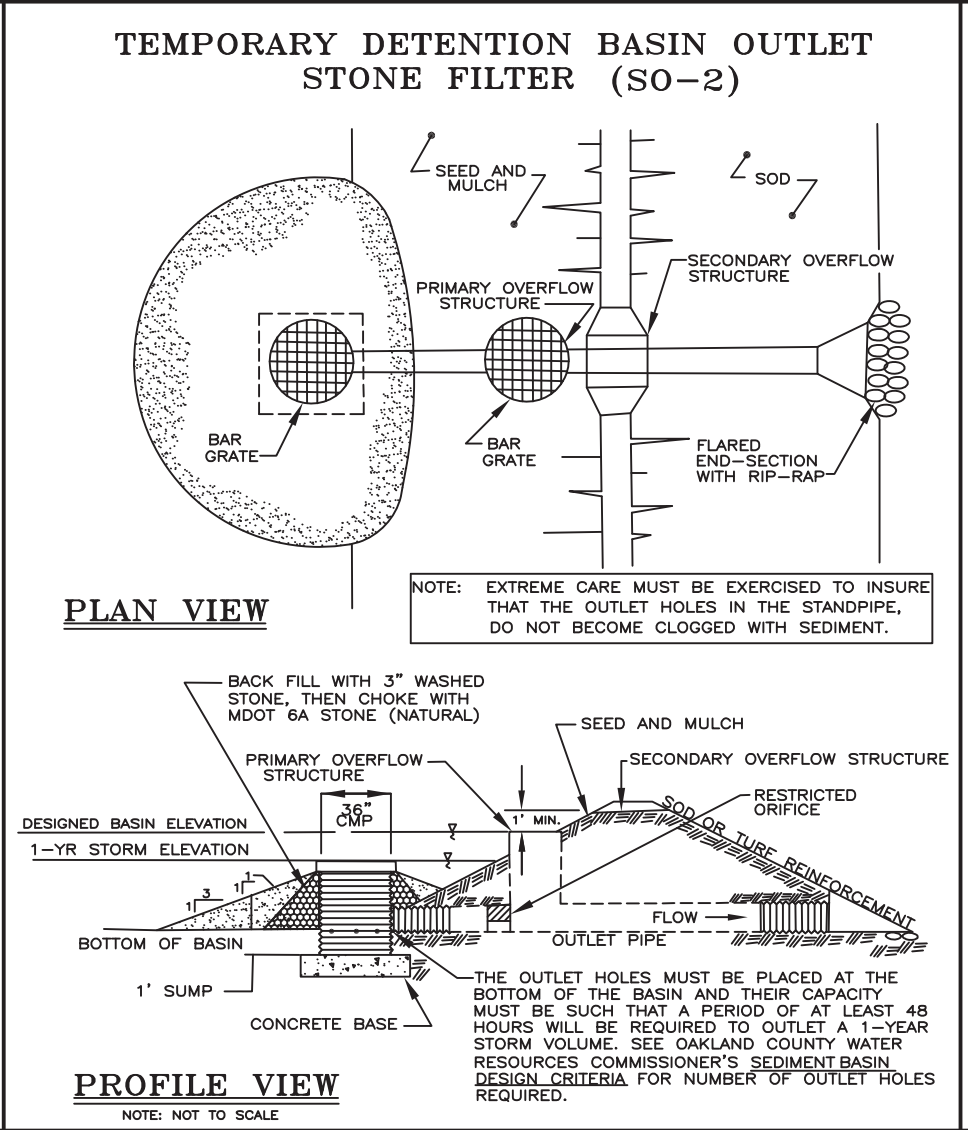
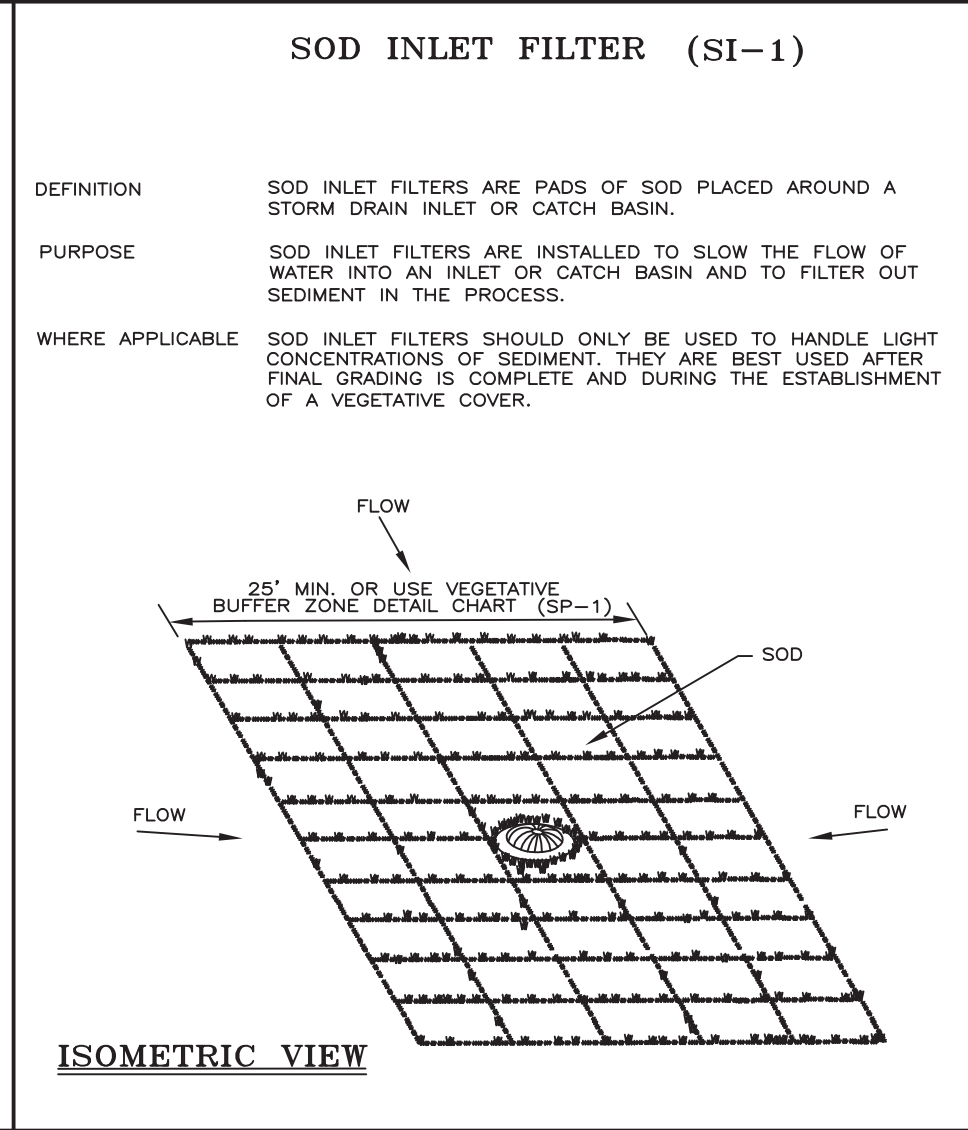
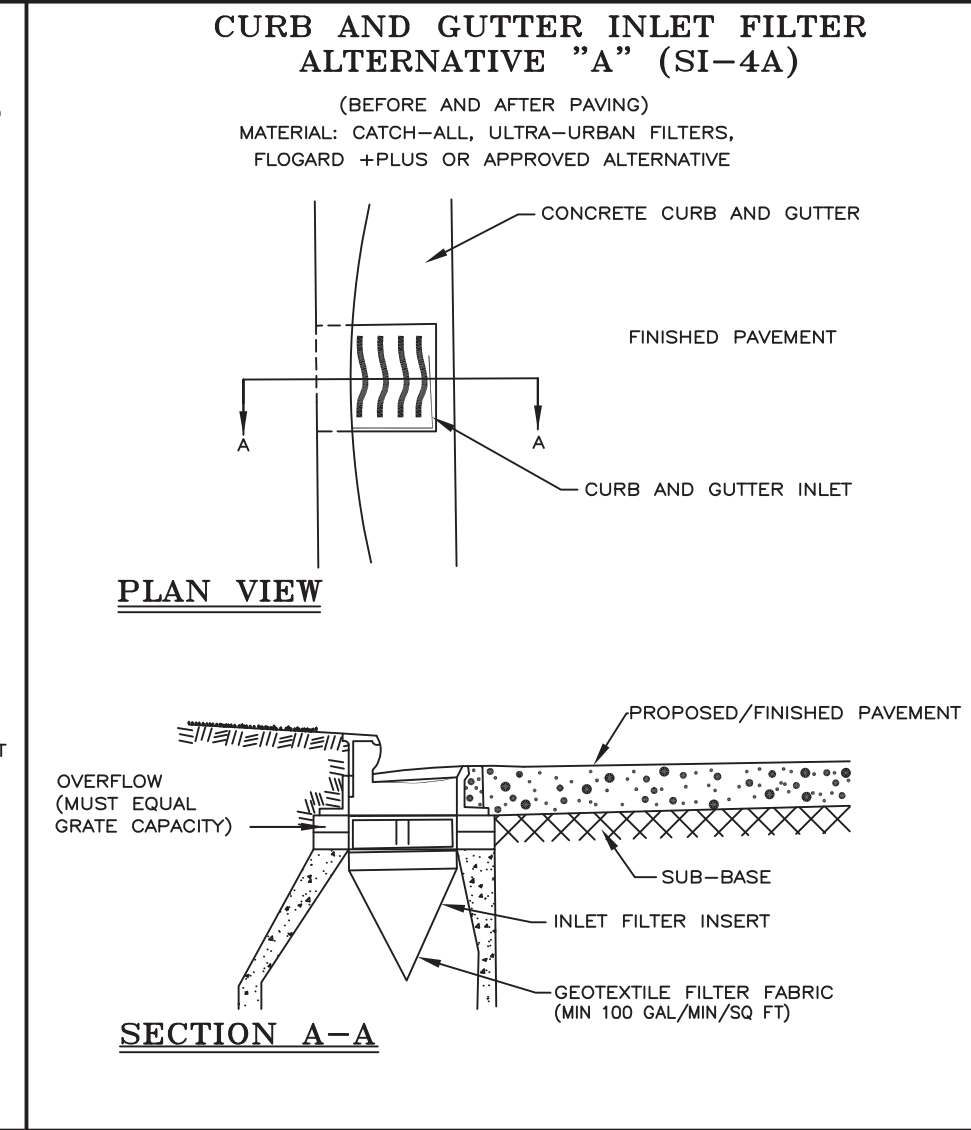
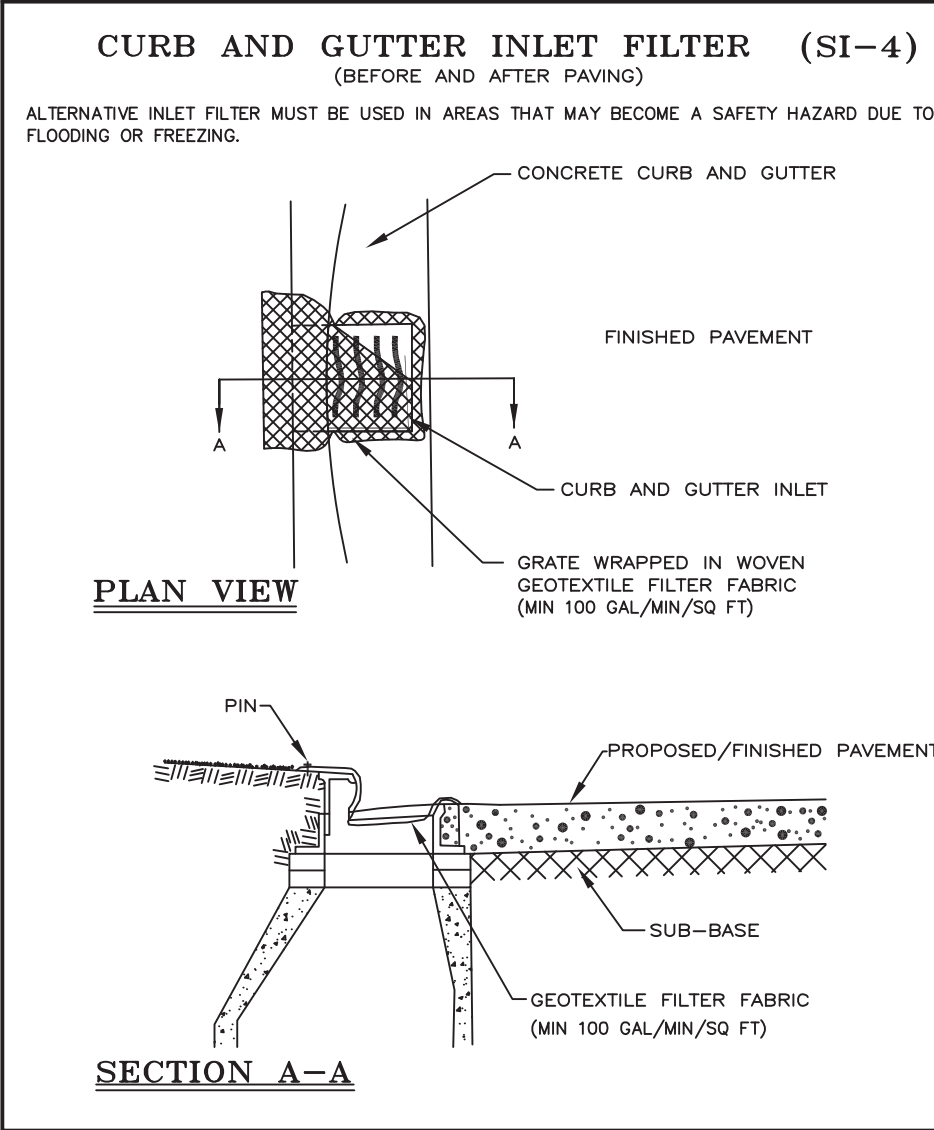
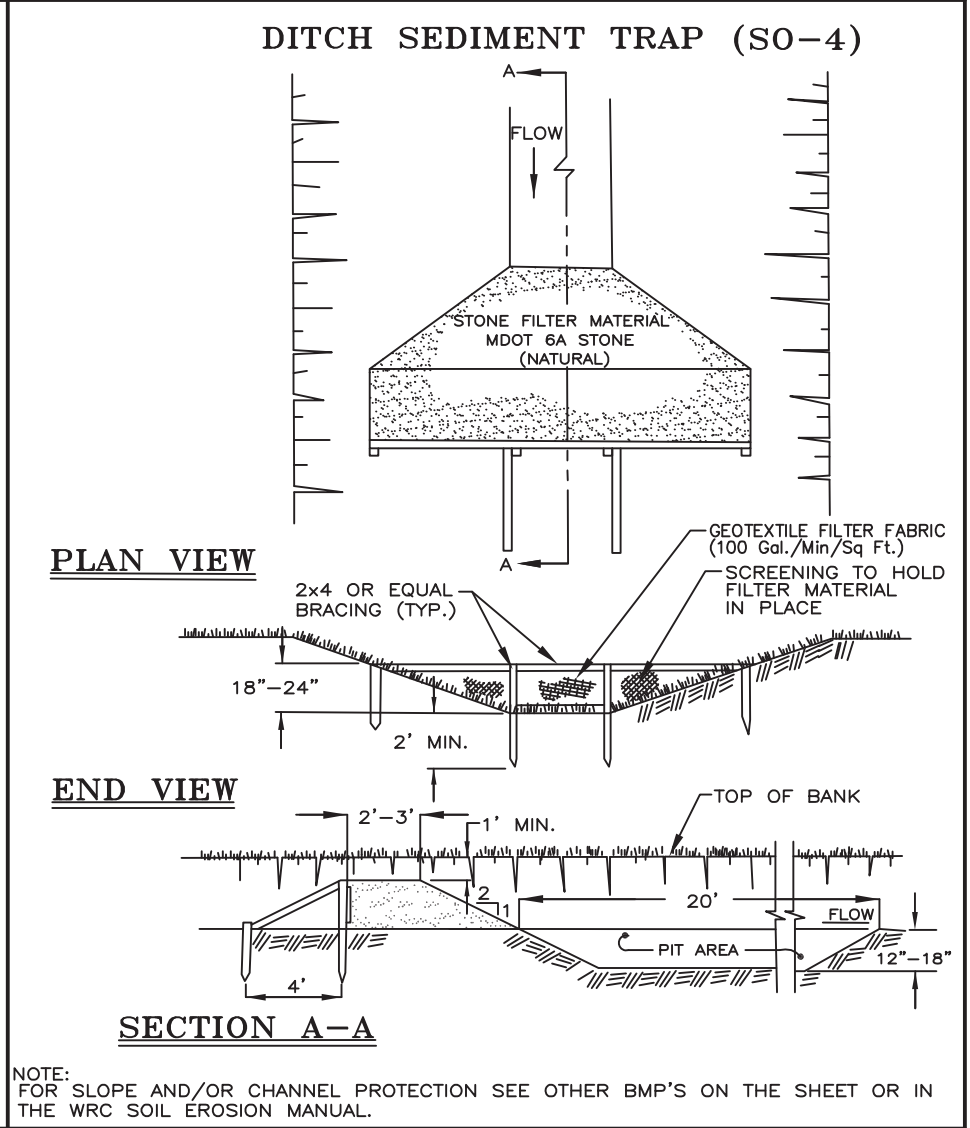
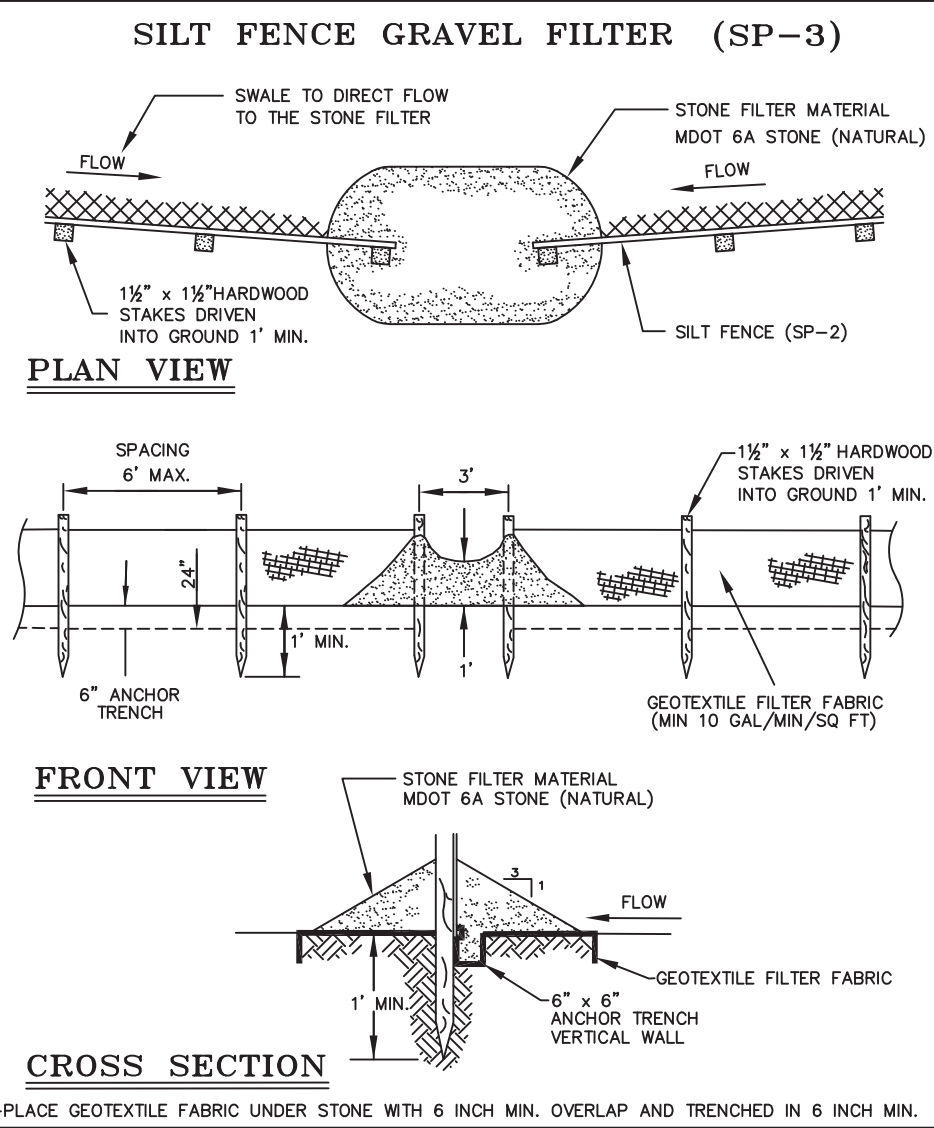
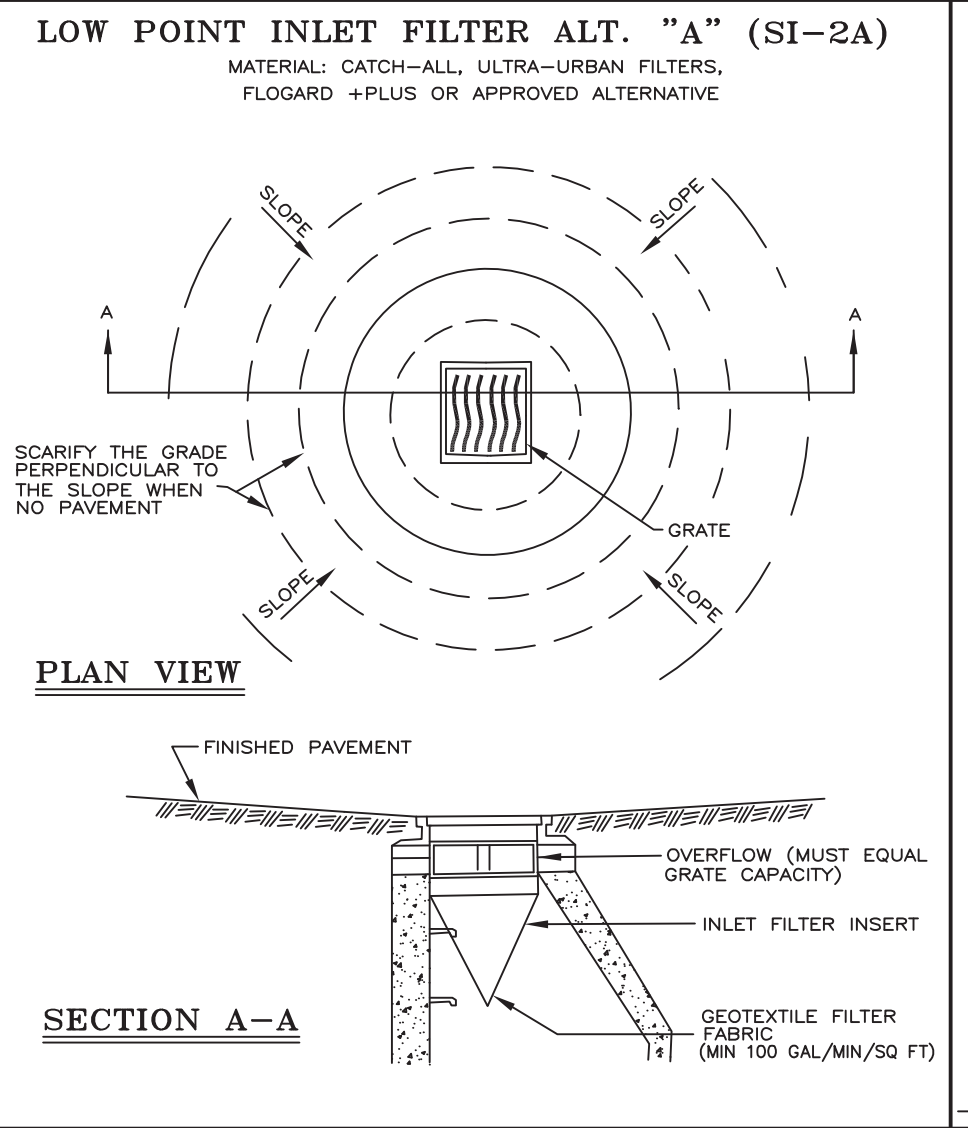
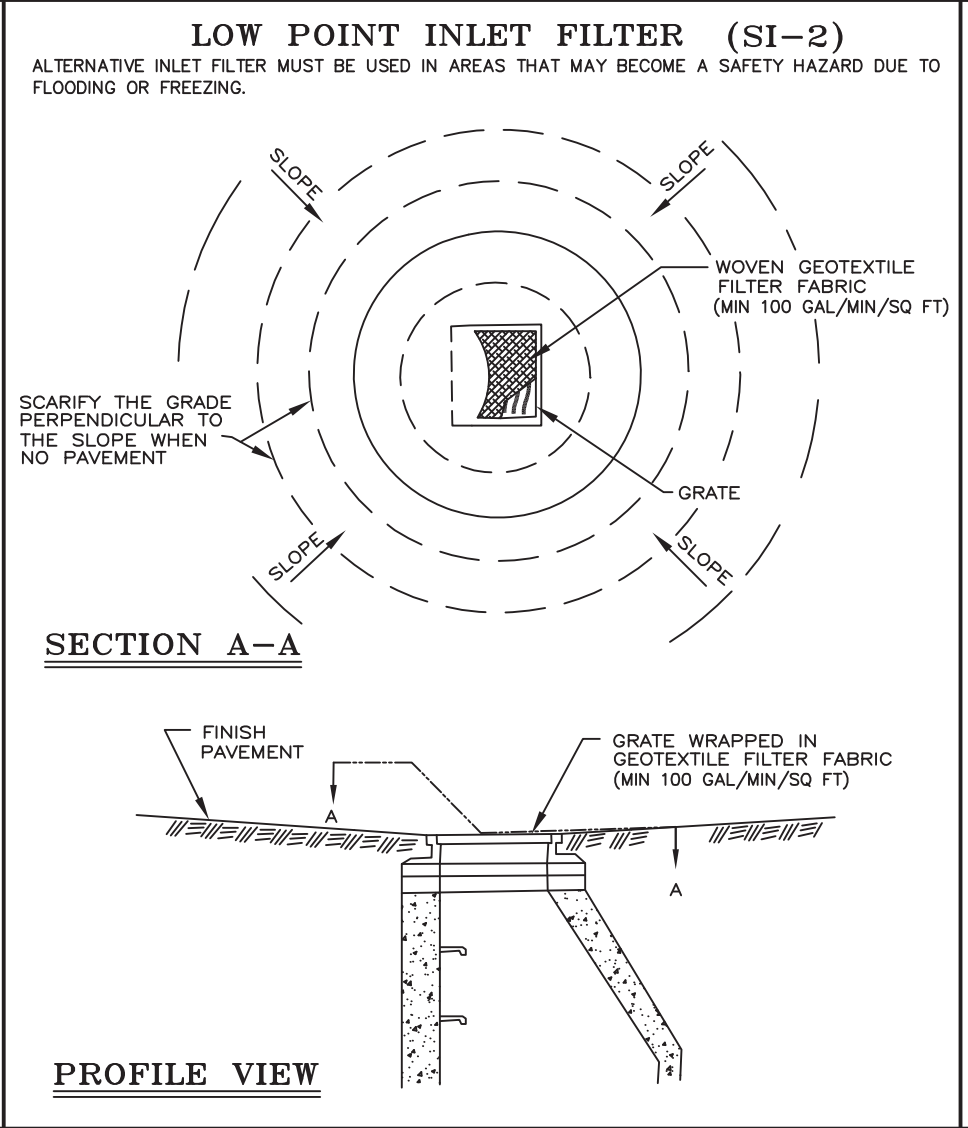
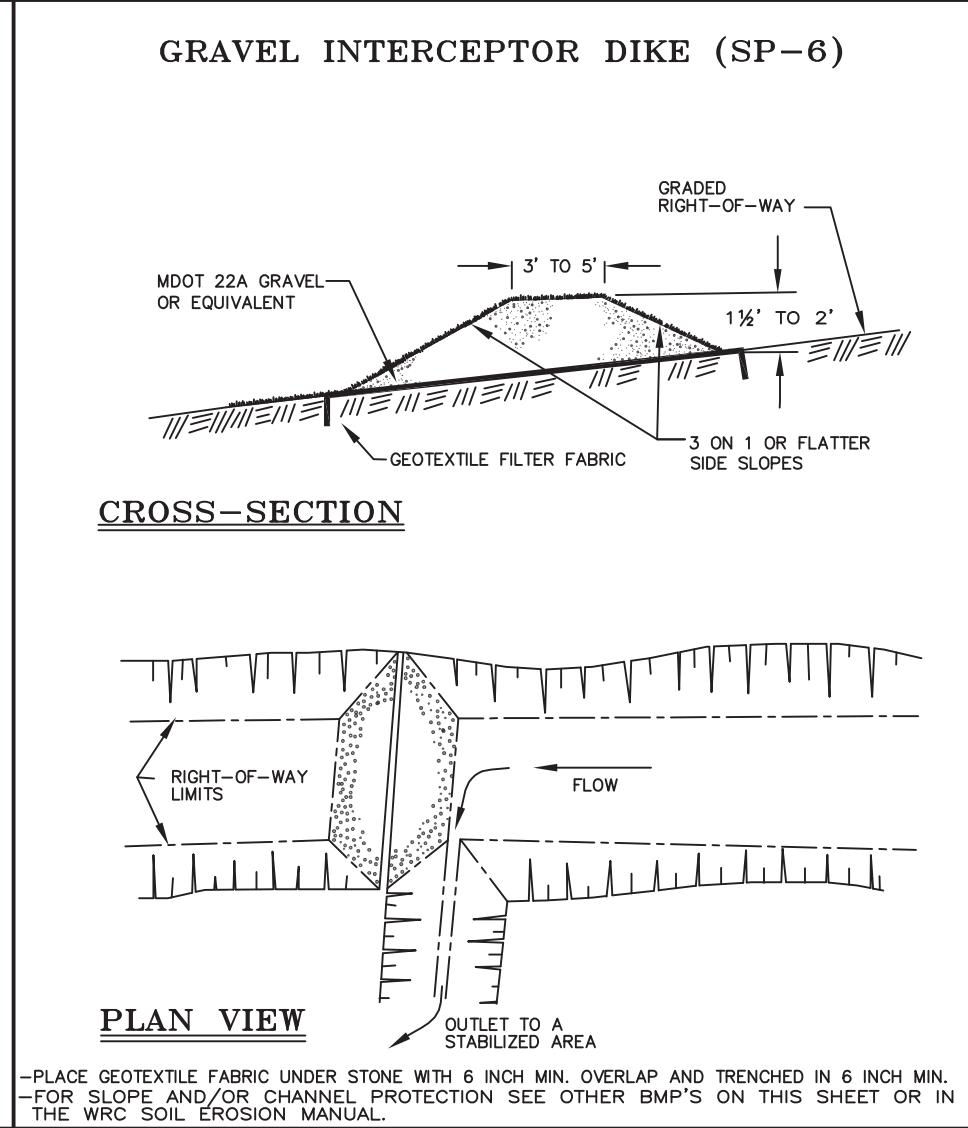
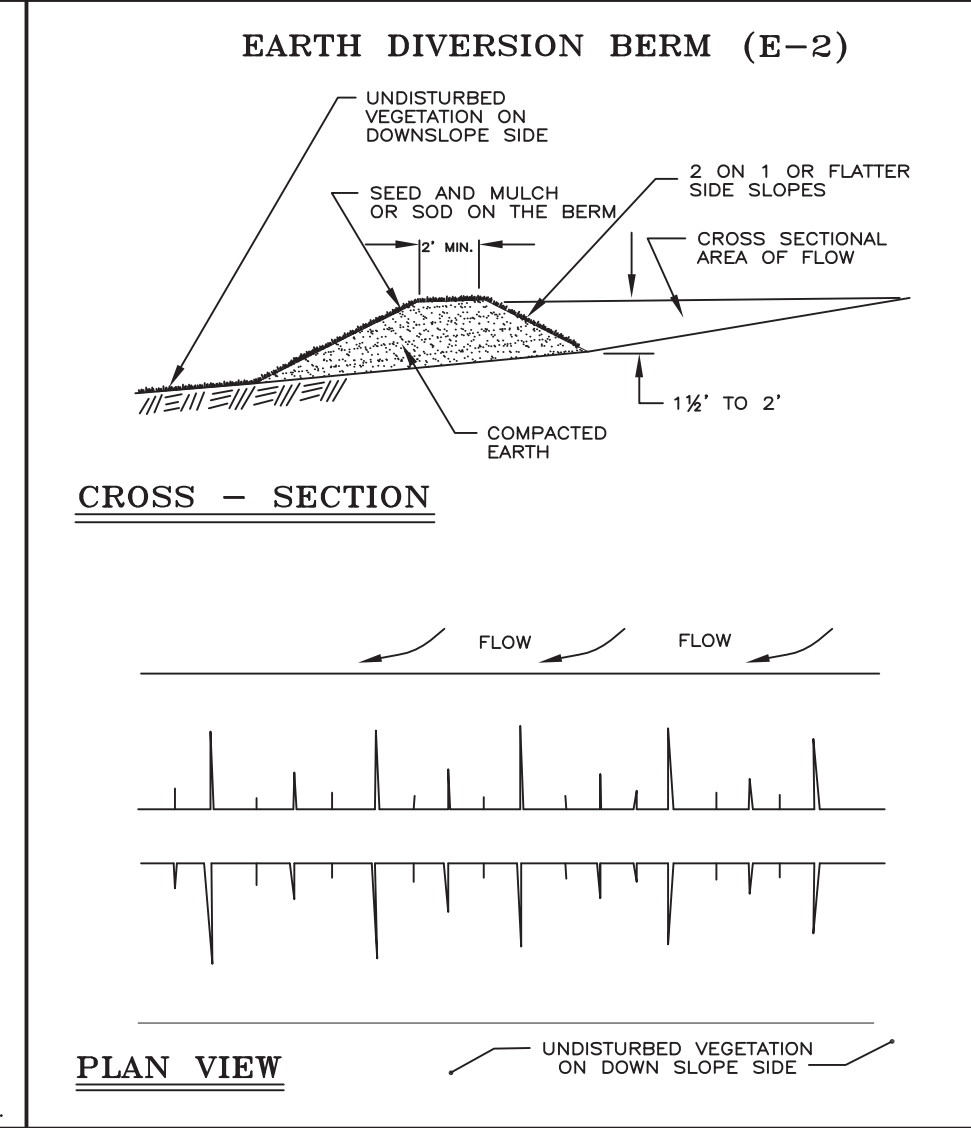
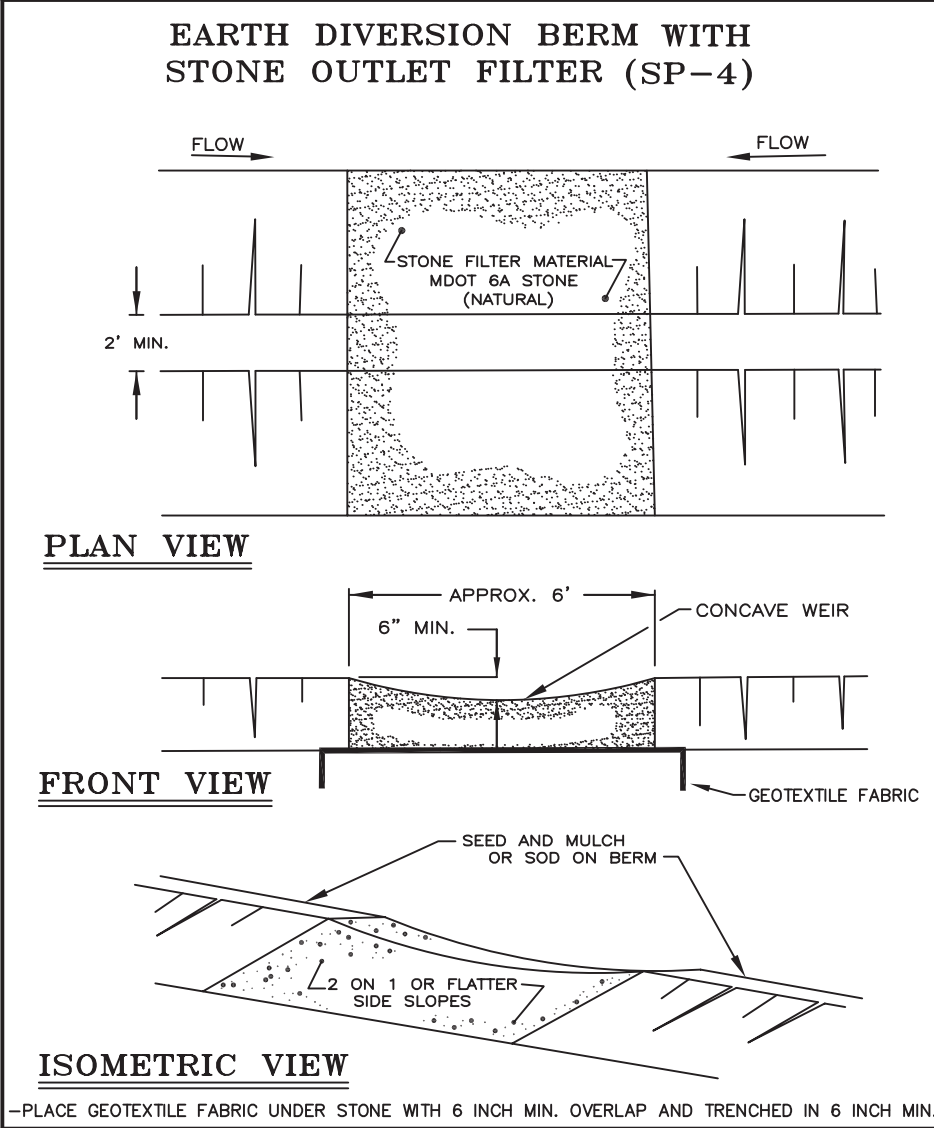
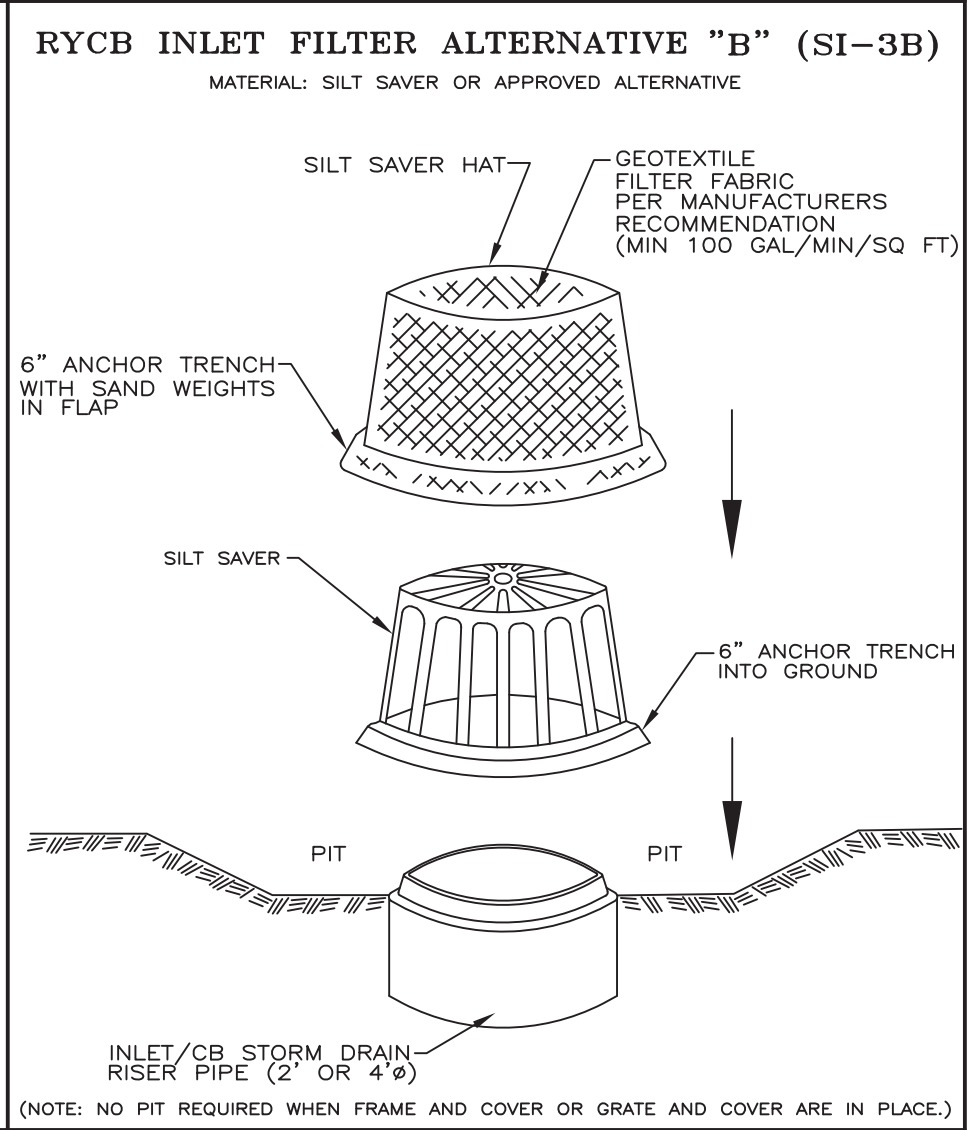
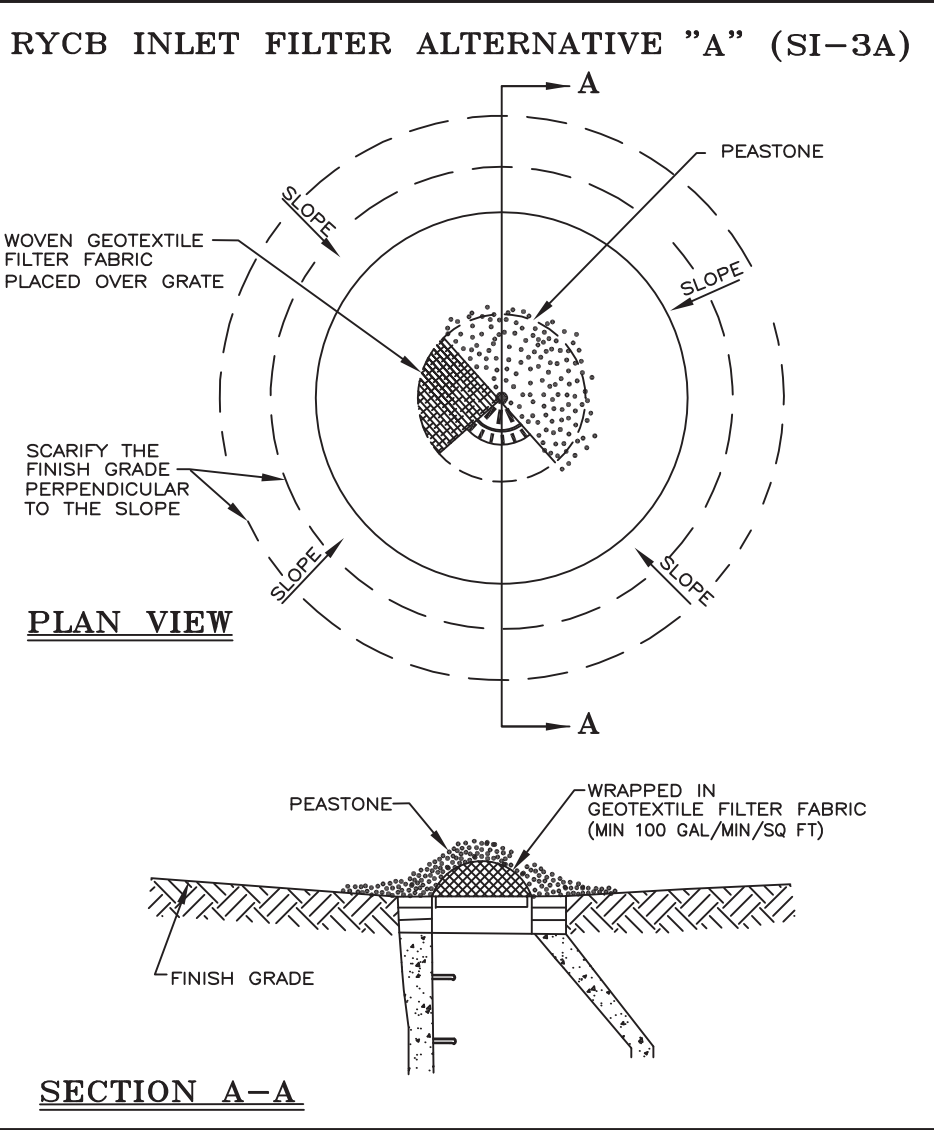
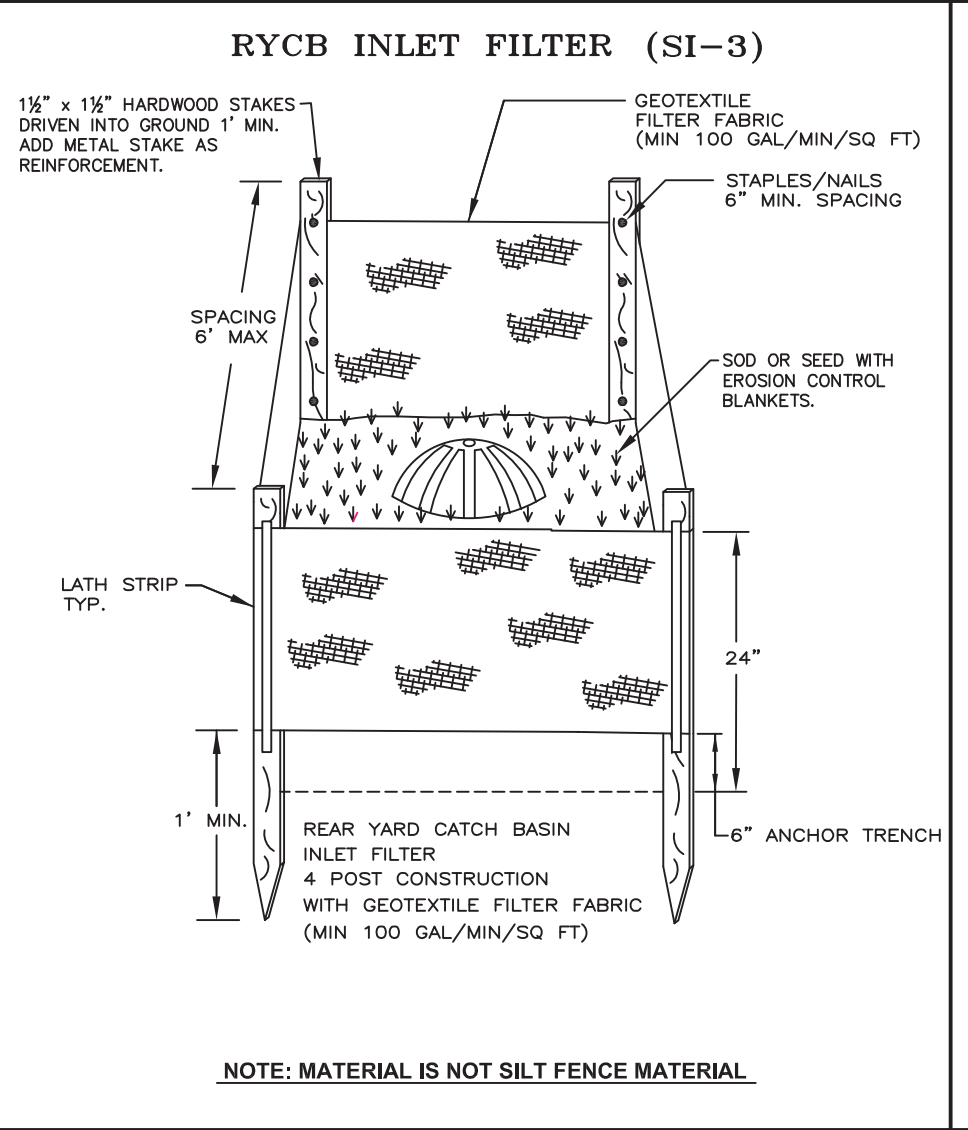
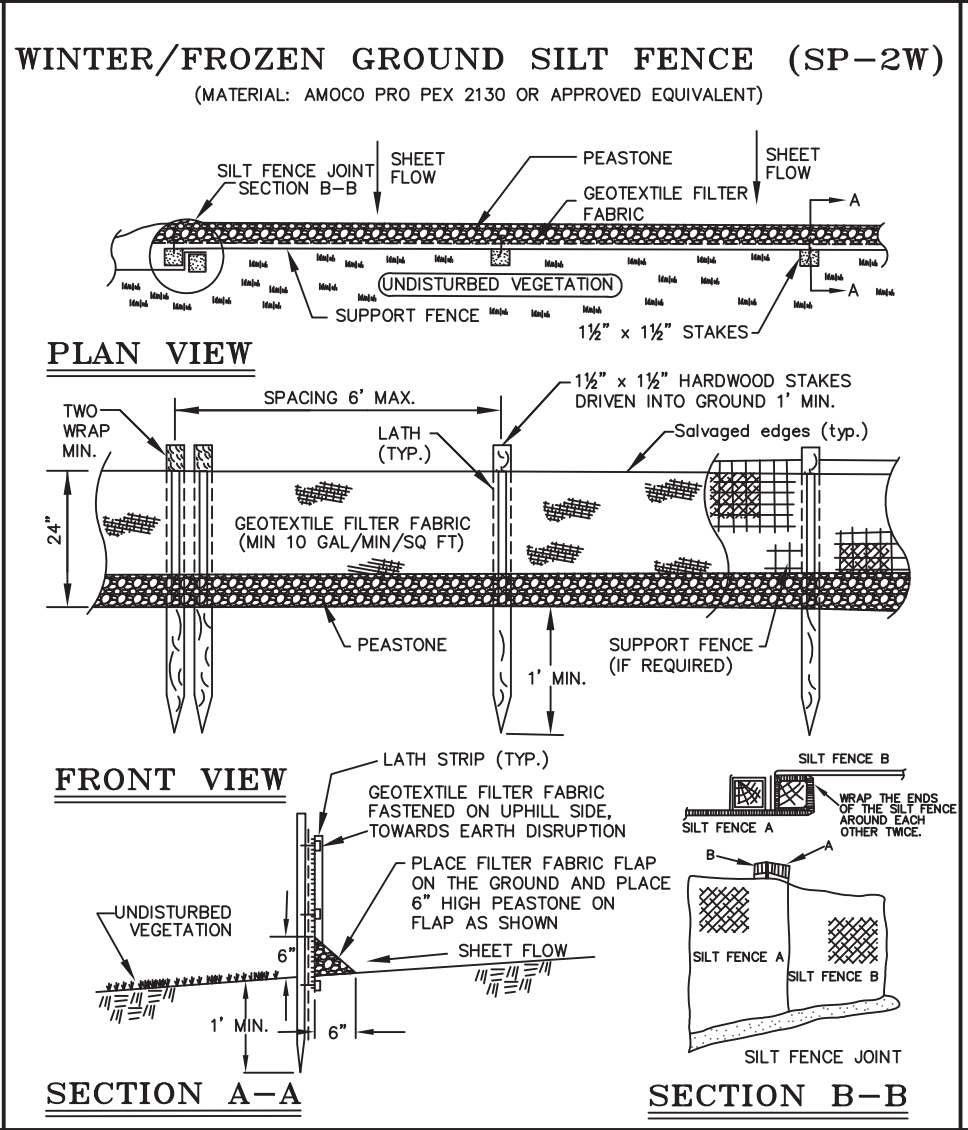
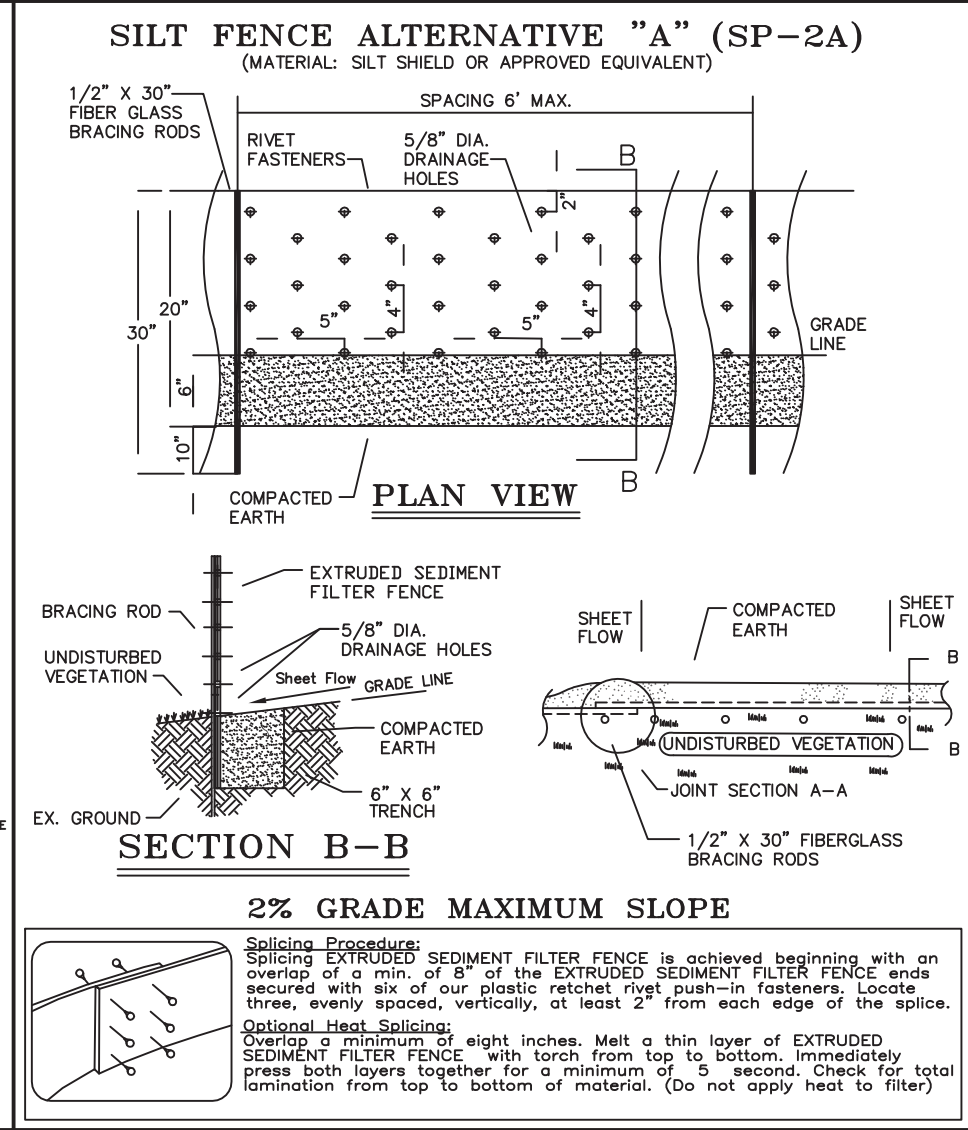
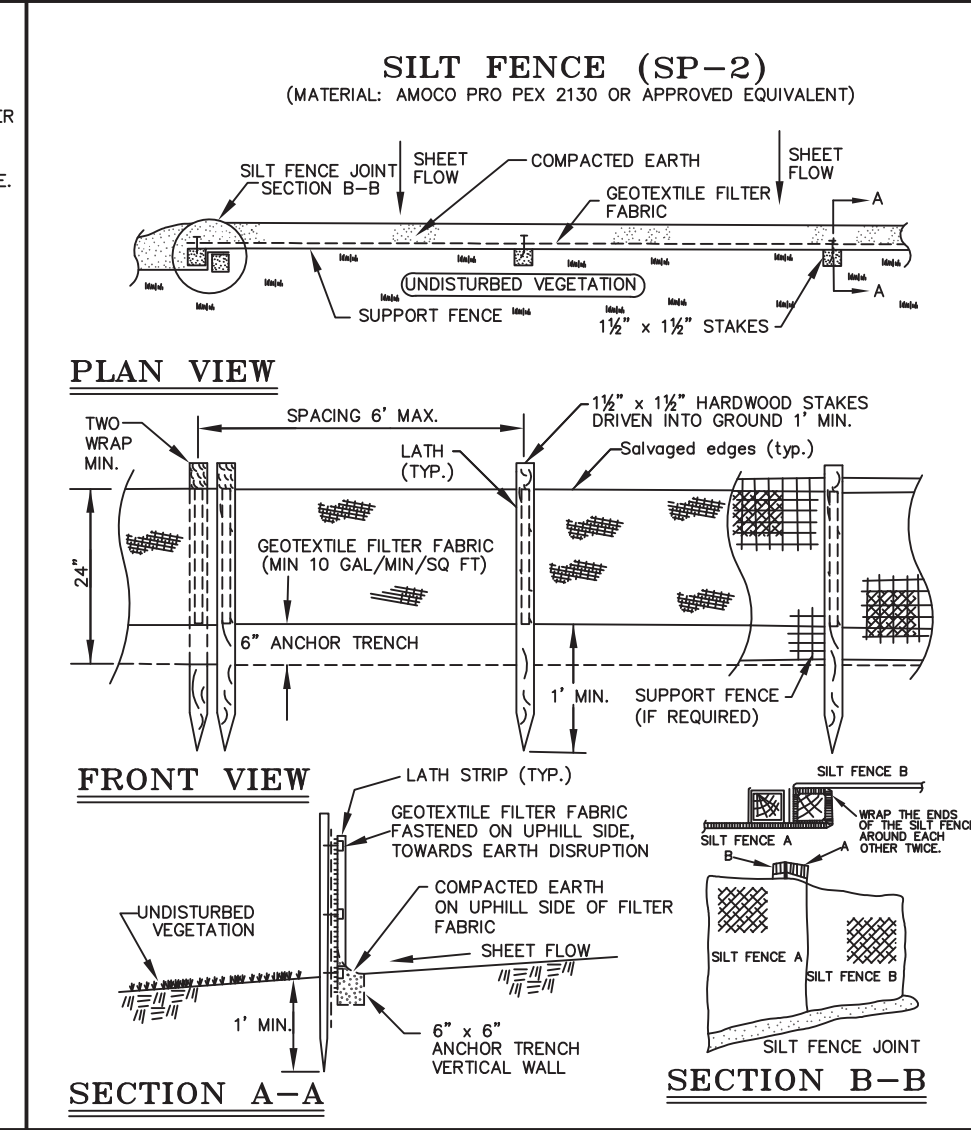
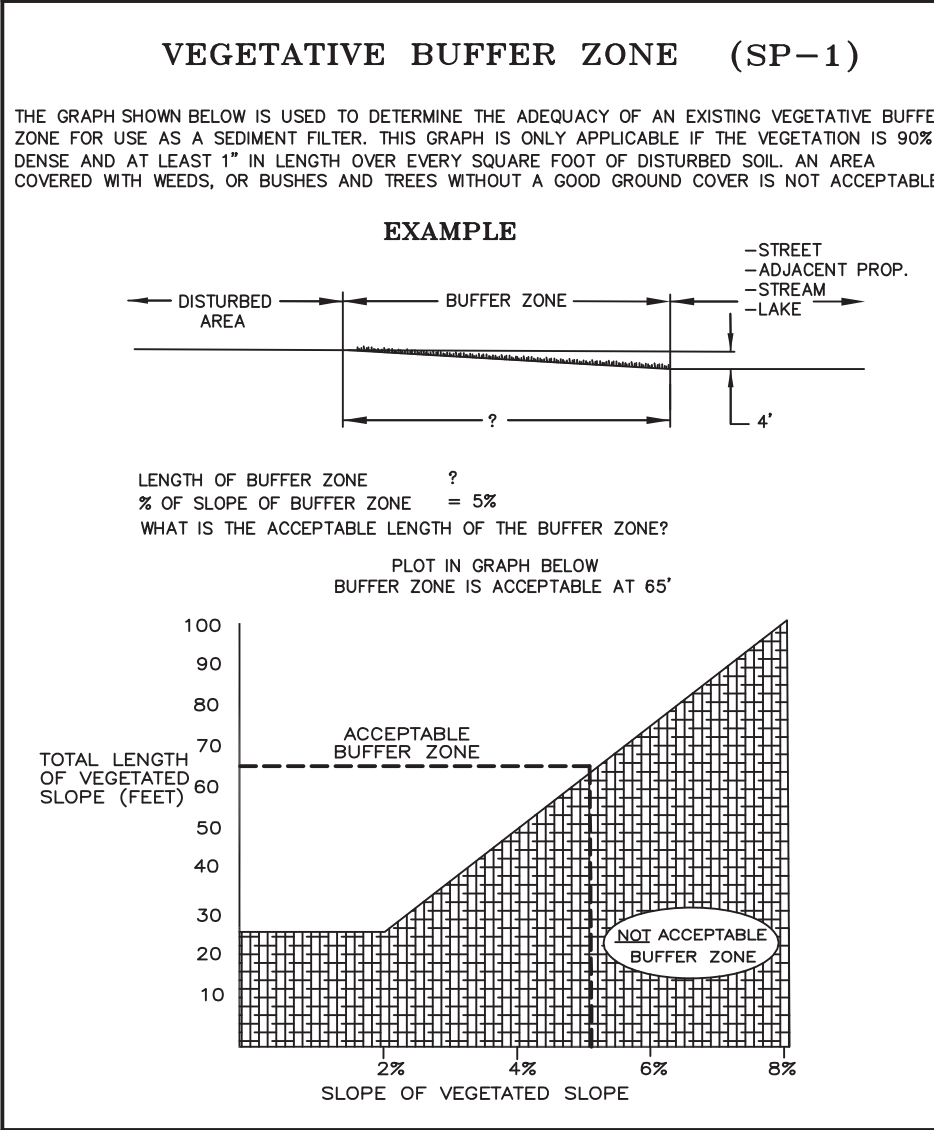
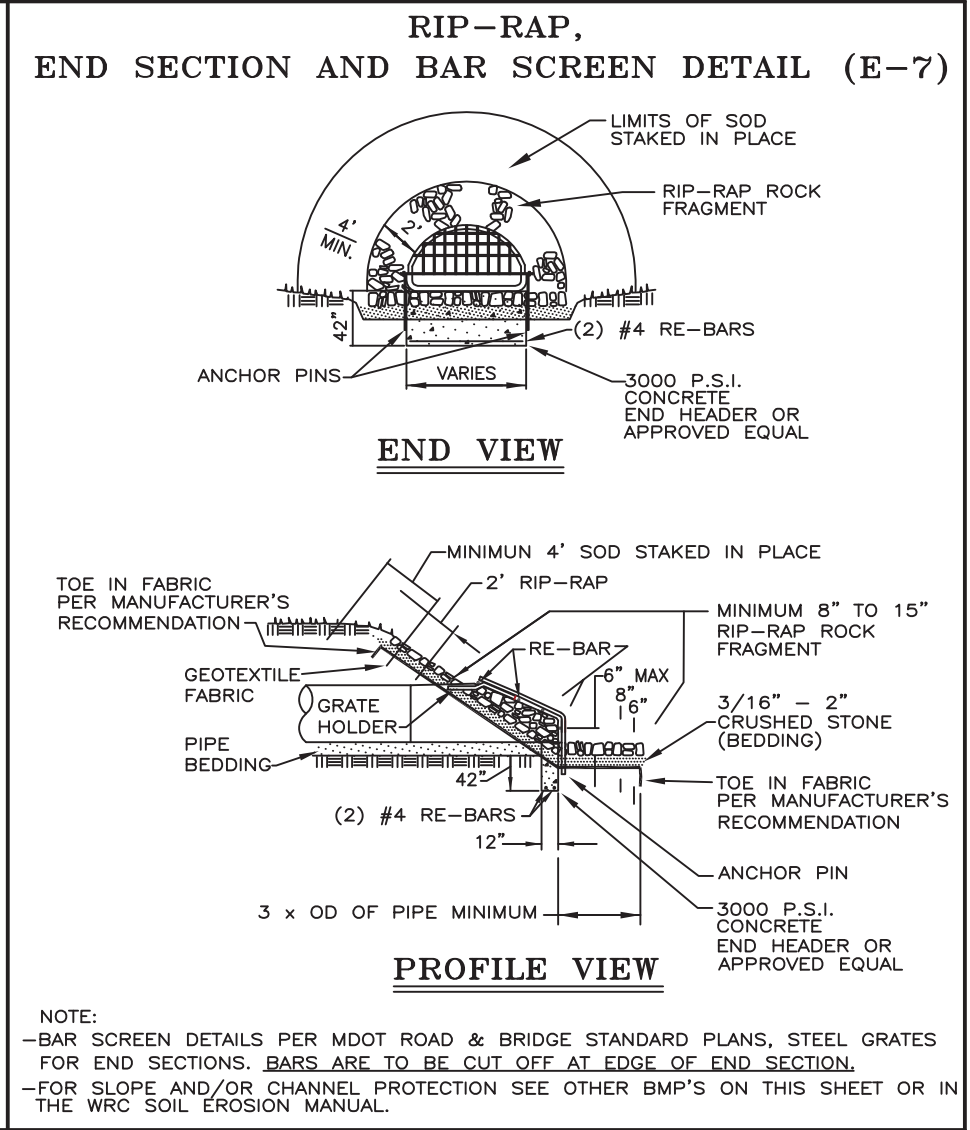
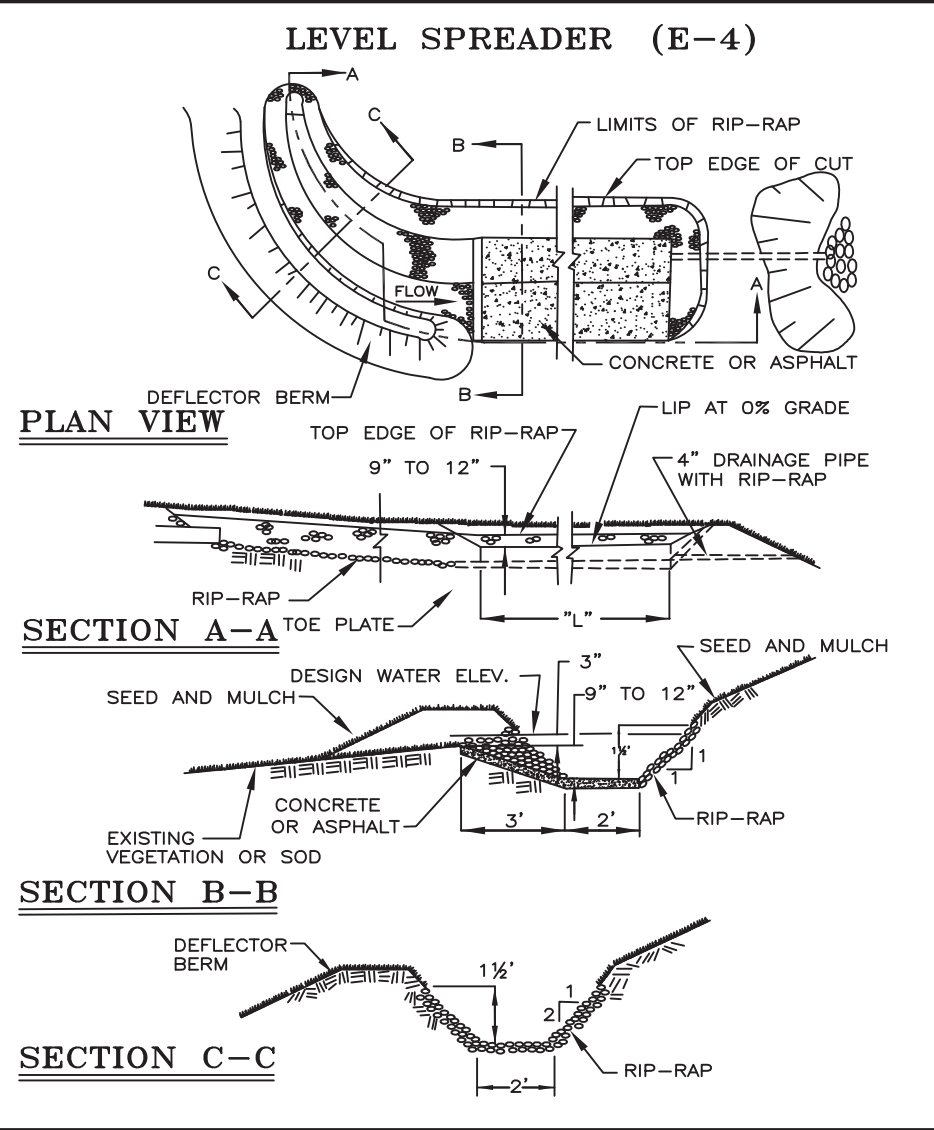
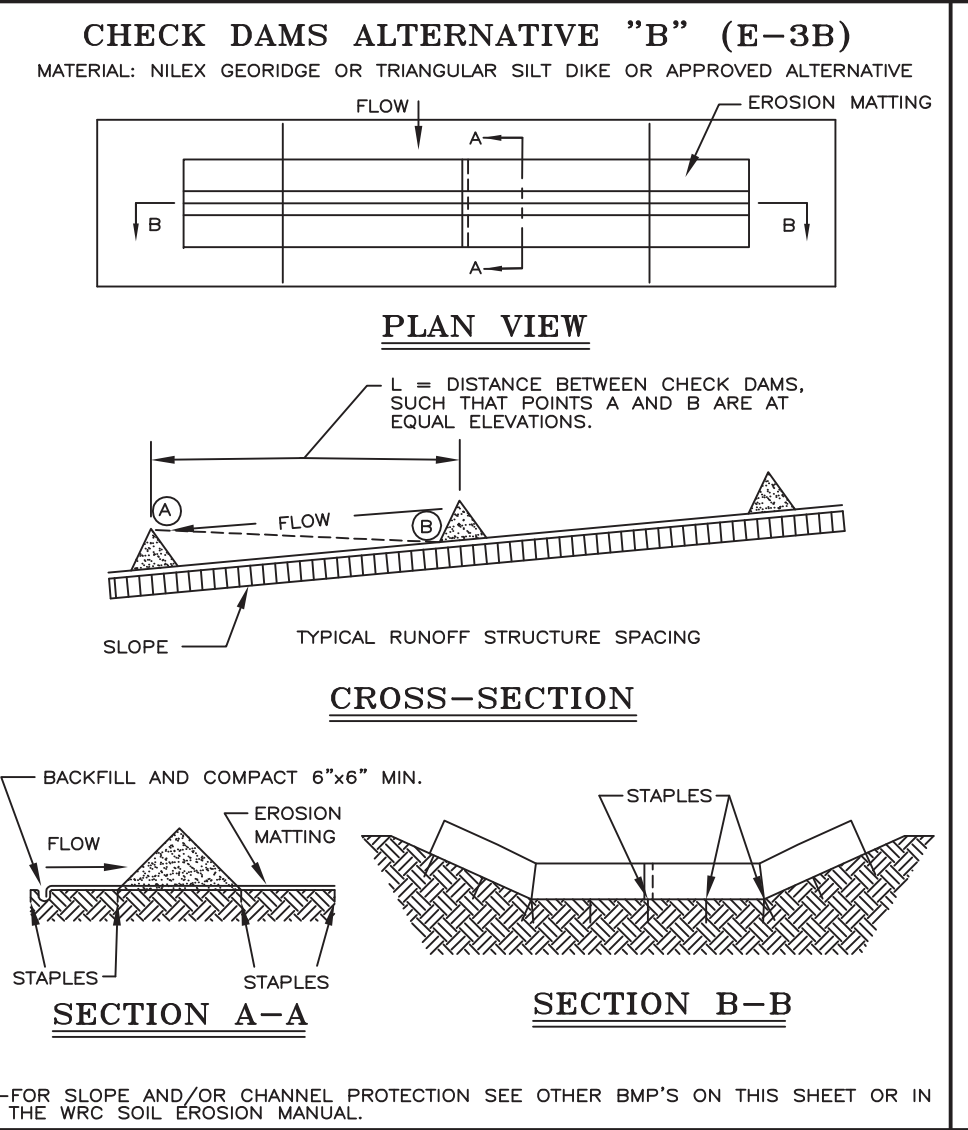
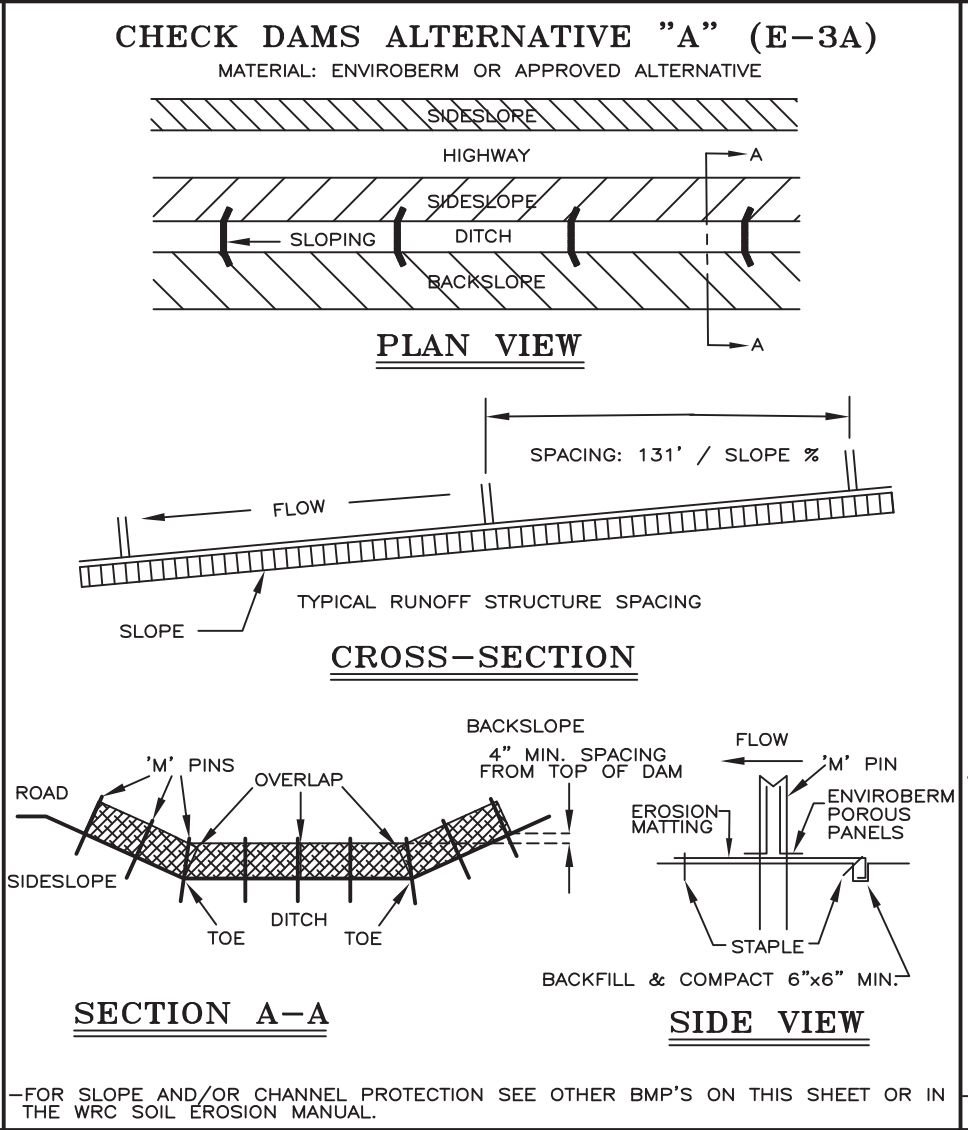
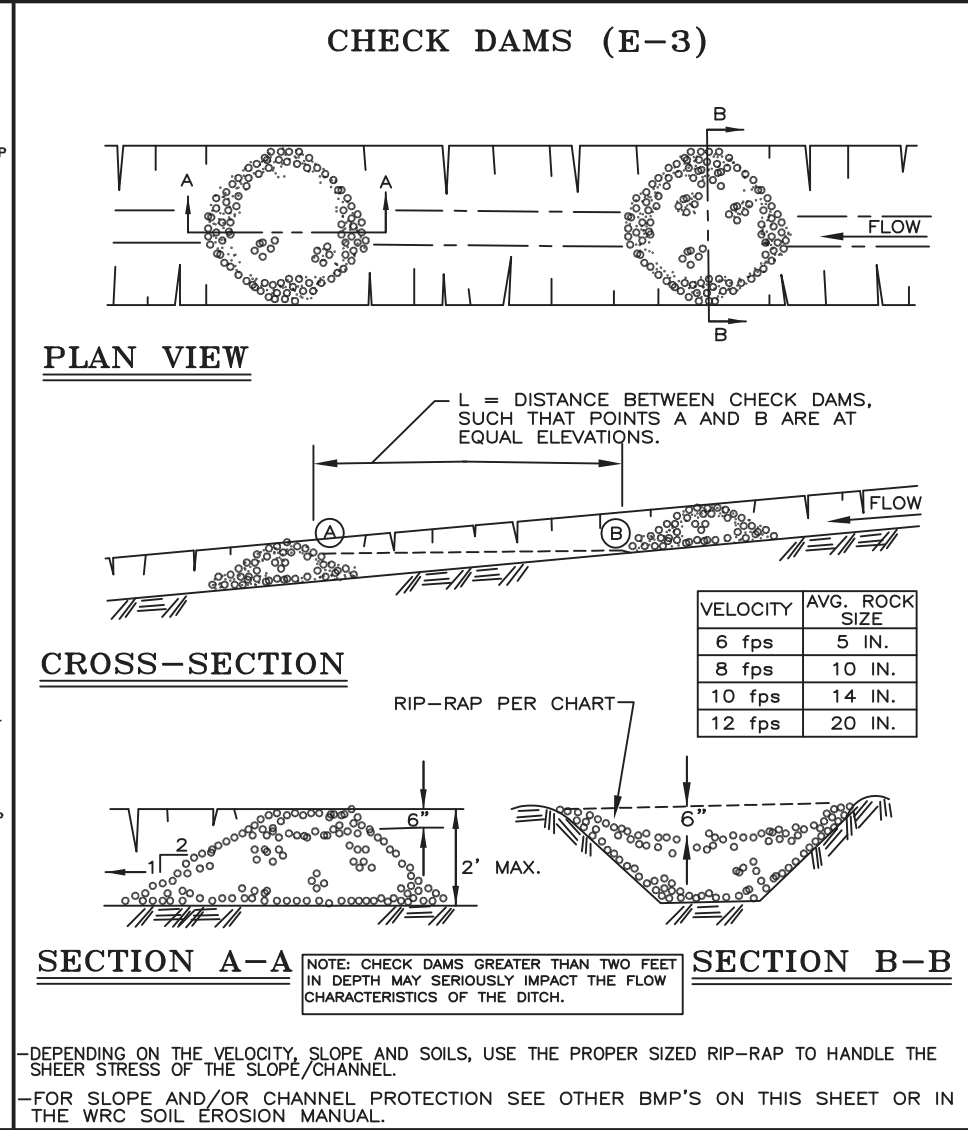
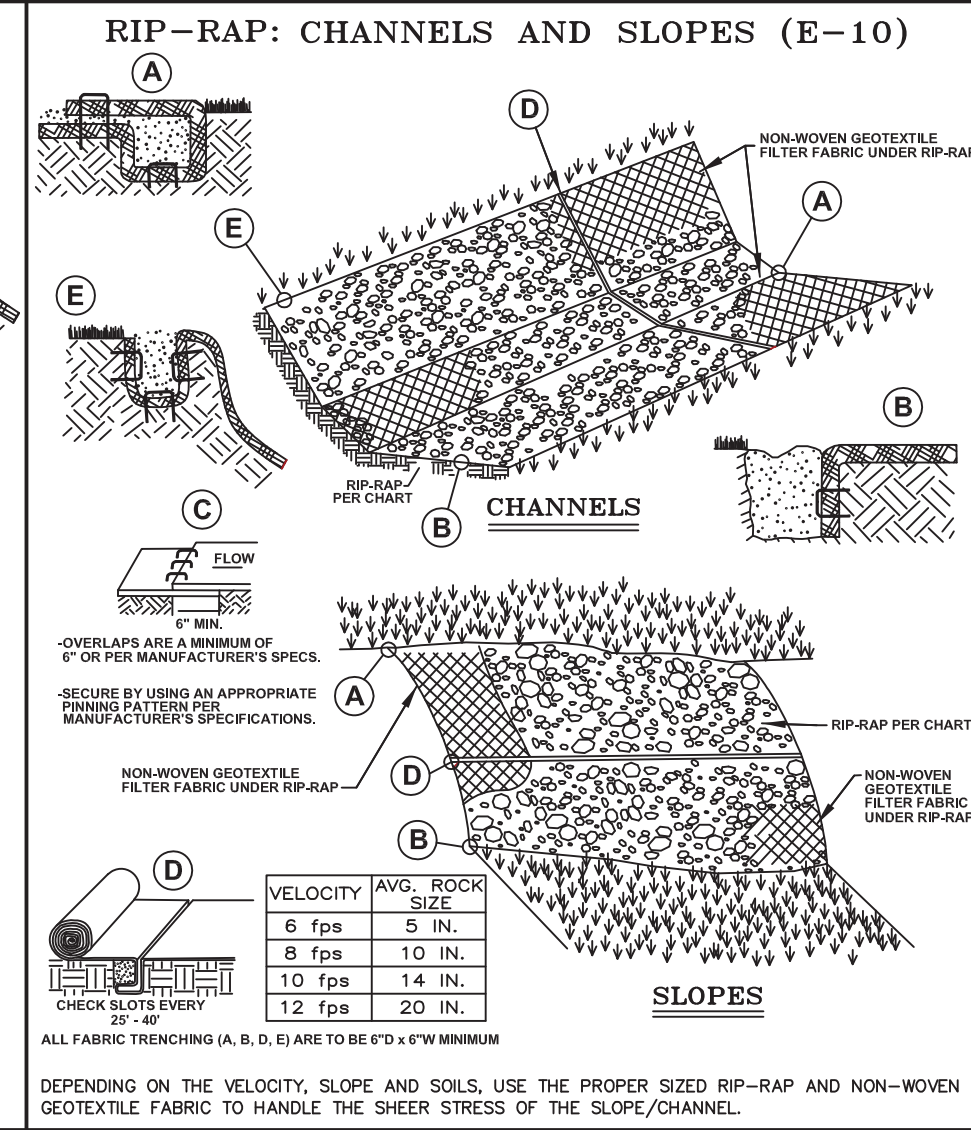
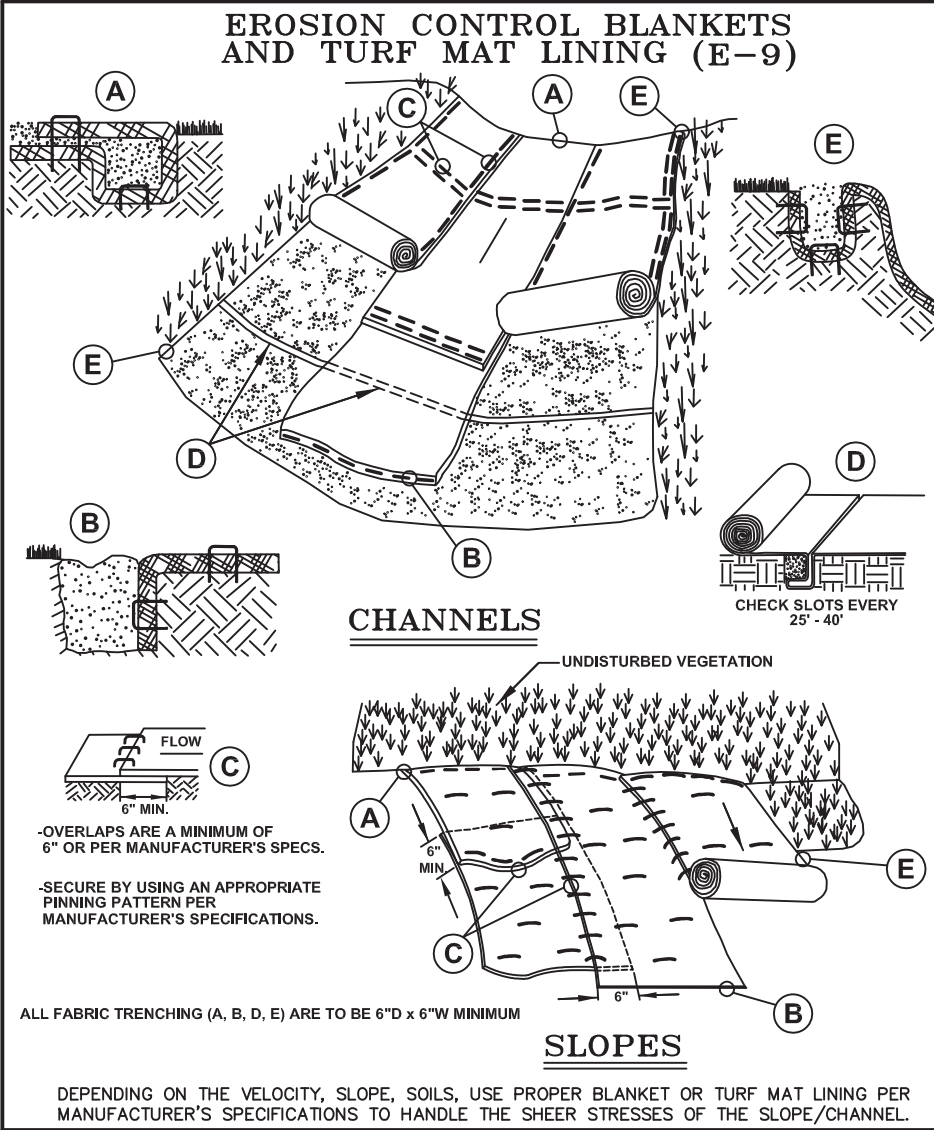
Johnson & Anderson
 4494 Elizabeth Lake Road Waterford, Michigan 48328 tel (248) 681-7800 fax (248) 681-2660
 1060 W. Norton Avenue, Suite 7 Muskegon, Michigan 49441 tel (231) 780-3100 fax (231) 780-3115
 3910 Lapeer Road Port Huron, Michigan 48060 tel (810) 987-7820 fax (810) 987-7895

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

STORM SEWER STANDARD DETAILS

DATE ISSUED: 08/16/95
 SHEET NO. []

VERT. -
SCALE: HORZ. AS NOTED



NOTE:

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

SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

Rev.	Date	Description
1	01/01/01	PROPOSED DETAIL REVISIONS
2	02/02/02	FOR CONSTRUCTION APPROVAL, NAME CHANGES
3	03/03/03	FOR CONSTRUCTION APPROVAL, NAME CHANGES
4	04/04/04	FOR CONSTRUCTION APPROVAL, NAME CHANGES

ORIG. DATE: 01/01/01

SCALE: NONE

DESIGNED BY: WRC

DRAWN BY: Mapping

WRC WATER RESOURCES COMMISSIONERS

ONE PUBLIC WORKS DRIVE, BLDG 905 WEST WATERFORD MICHIGAN 48320-1907

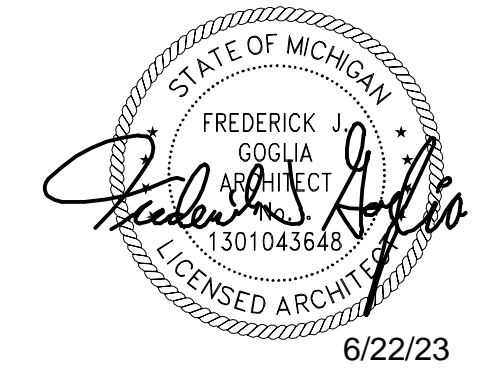
SHEET NO.: 1 of 1



KEYED NOTES

- 3.02 PRE-FINISHED METAL 2-PIECE SNAP-ON COMPRESSION COPING BY DUROLAST OR SIMILAR | COLOR: CHARCOAL TO MATCH RAL 7043
3.02A PRE-FINISHED METAL 2-PIECE SNAP-ON COMPRESSION COPING BY DUROLAST OR SIMILAR | COLOR: PANTONE PMS 2307 C.
3.04 MAIN ENTRANCE/EXIT
3.05 SECONDARY ENTRANCE/EXIT
3.07 DRIVE-THRU WINDOW | MFR: QUIKSERV | MODEL: FM42E | TO BE INSTALLED AS PART OF SHELL CONSTRUCTION IN STOREFRONT SURROUND. COLOR TO MATCH STOREFRONT.
3.08 ALUMINUM STOREFRONT SYSTEM WITH 1" INSULATED GLAZING BY LANDLORD.
3.10 CONTROL JOINT WHERE INDICATED. REFER TO DETAILS FOR FURTHER INFORMATION.
3.11 PRE-MANUFACTURED ALUMINUM CANOPY W/ TIE RODS WITH FINISHED UNDERSIDE. PROVIDED/INSTALLED BY LANDLORD | MANF: AMERICAN PRODUCTS, INC. | COLOR: DARK GREEN, PMS 2411C. CANOPOY TO INCLUDE LIGHTING, INTERNAL DRAIN (TO TIE INTO STORM), CANOPY UNDERSIDE TO HAVE FINISH TO MATCH [SF2].
3.14 4" DIA. CONCRETE BOLLARD | FINISH: PAINT TO MATCH ADJACENT P285
3.15 6" DIA. CONCRETE BOLLARD | FINISH: PAINT TO MATCH ADJACENT P285
3.16 FIRE DEPARTMENT ACCESS BOX | INSTALLED ADJACENT ENTRY DOOR. COORDINATE LOCATION WITH LOCAL FIRE DEPARTMENT.
3.21 BUILDING ADDRESS SIGN | VERIFY SIZE, LOCATION, AND STYLE WITH LOCAL FIRE DEPARTMENT
3.37 CONTROL JOINT / JOINER REVEAL COVER WITHIN ALUM. CLADDING SYSTEM PER MFR RECOMMENDATIONS. JOINER PIECE TO ALIGN WITH STOREFRONT MULLION BELOW AS INDICATED.
BR1 BRICK MASONRY WALL SYSTEM | MFR: MODULAR BRICK, COMMON BOND PATTERN [5 COURSE RUNNING + 1 COURSE HEADER] COLOR: MCNEAR - SANTIAGO CREATE MATERIALS CUSTOM BLEND
BR2 BRICK MASONRY WALL SYSTEM | MFR: MODULAR BRICK, STACKED, HORIZONTAL PATTERN | COLOR: MCNEAR - SANTIAGO CREATE MATERIALS CUSTOM BLEND
BR3 BRICK MASONRY WALL SYSTEM | MFR: MODULAR BRICK, STACKED, VERTICAL PATTERN | COLOR: MCNEAR - SANTIAGO CREATE MATERIALS CUSTOM BLEND
BR4 BRICK MASONRY WALL SYSTEM | MFR: MODULAR BRICK, STACKED, VERTICAL PATTERN | COLOR: MCNEAR - TAN BLEND TBD
FRPX REINFORCED FIBERGLASS PANEL | MANF: FORMGLAS | PATTERN: CUSTOM VERTICAL RIBBED | COLOR: PANTONE PMS 2307 C. FINISH: PRIMER - BM HIGH-HIDING ALL PURPOSE PRIMER (046) | TOPCOAT - BM ULTRA-SPEC HP D.T.M. ACRYLIC LOW LUSTRE (HP25)
G1 ALUMINUM STOREFRONT | MFR: KAWNEER TRIFAB VERRSAGLAZE 451T [COLOR: ANODIZED ALUMINUM | 2" x 4 1/2" PROFILE | THERMAL BREAK | 1" CLEAR INSULATED GLAZING: PPG SOLARBAN 70 (OR APPROVED EQUAL)]
PX1 EIFS SYSTEM | PRODUCT: DRYVIT OUTSULATION PLUS MD w/ MOISTURE DRAINAGE SYSTEM | TEXTURE: DRYVIT LYMESTONE | PAINTED COLOR: #105 SUEDE
SF1 SPECIALTY FINISH: PREFABRICATED ALUMINUM WOOD GRAIN CLADDING SYSTEM | MFR: KNOTWOOD CLADDING | COLOR: WHITE ASH

Professional Seal:



Project Title:

TBD HIGHLAND RD
WHITE LAKE, MI 46383

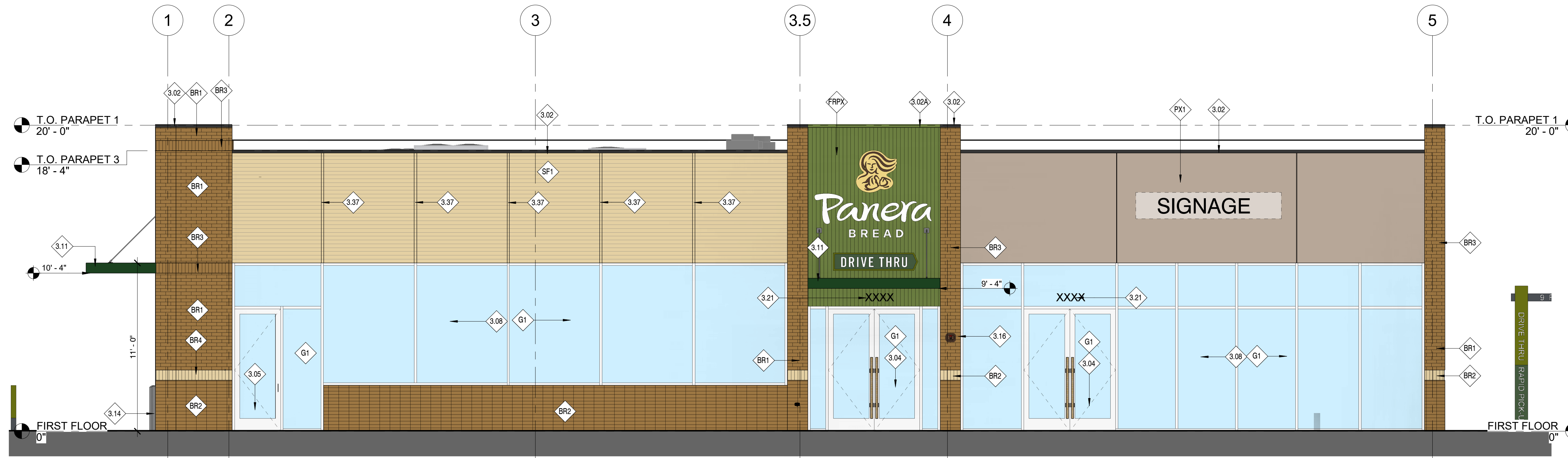
PROTOTYPE - NEW CONSTRUCTION

Consultant Copyright Placeholder

Table with 3 columns: No., Description, Date

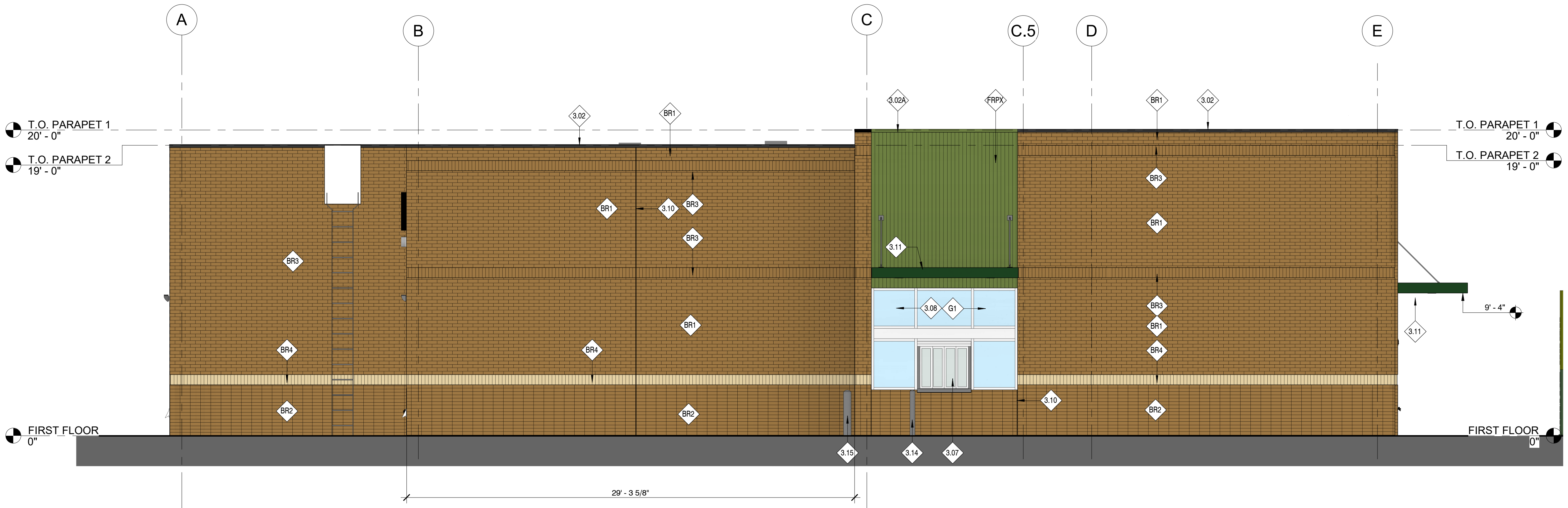
EXTERIOR ELEVATIONS

Project Number: 230094
Sheet Number: A200
Issue Date: XX.XX.XX
DPM: DM CPM: CPM



22 SOUTH ELEVATION

1/4" = 1'-0"

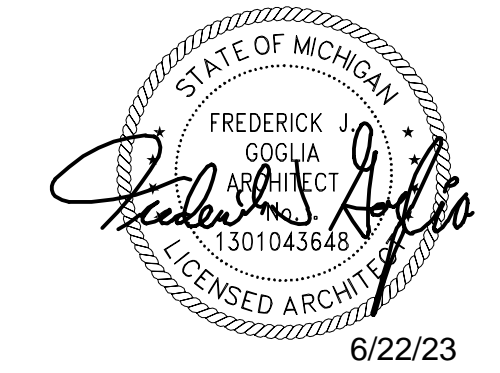


24 WEST ELEVATION

1/4" = 1'-0"

6/22/2023 11:16:28 AM

PR 2022 04 V1



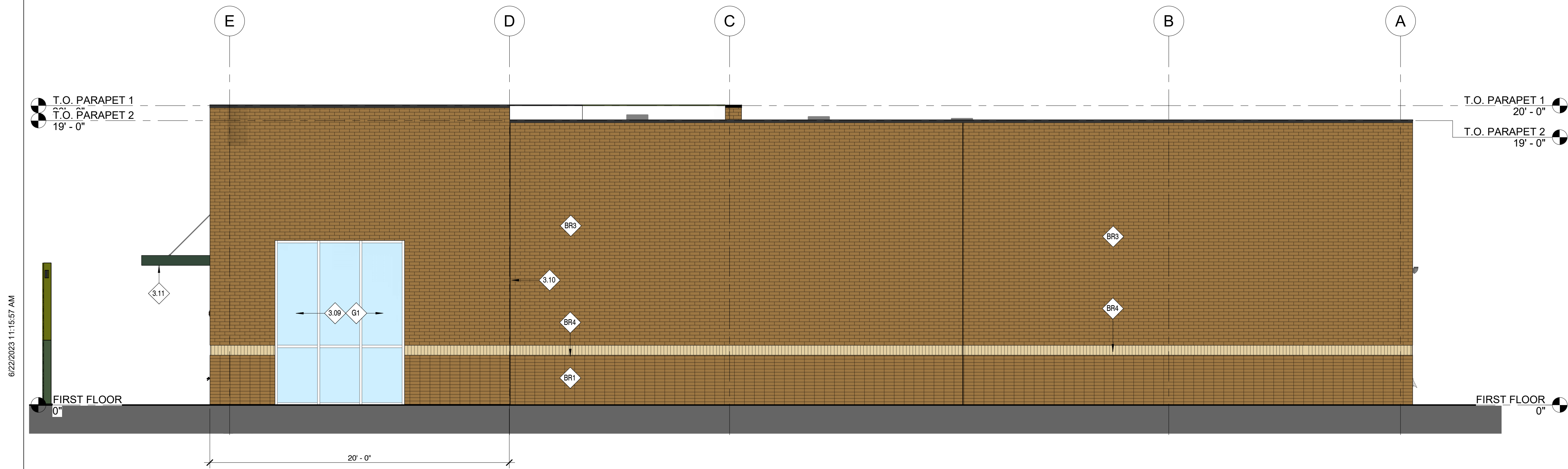
TBD HIGHLAND RD
WHITE LAKE, MI 46383

PROTOTYPE - NEW CONSTRUCTION

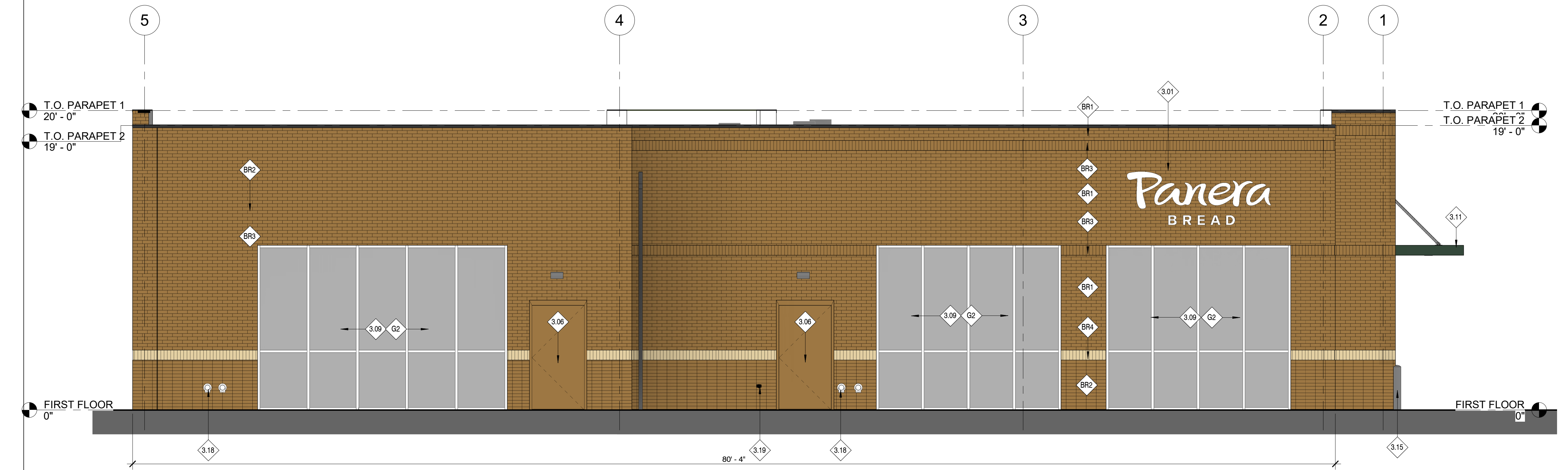
No.	Description	Date

EXTERIOR ELEVATIONS

Project Number:	Sheet Number:
230094	A201
Drawn By:	CAO
Issue Date:	XX.XX.XX
DPM:	DM: CPM:
DPM	DM CPM



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

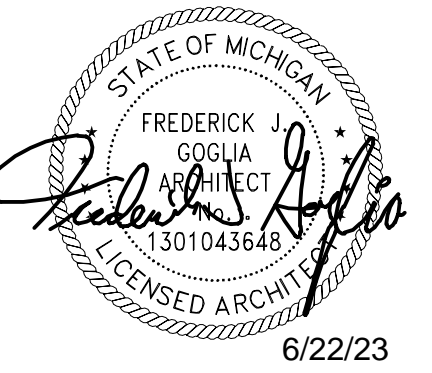


24 NORTH ELEVATION
1/4" = 1'-0"

NORTH ELEVATION = 1526.33 SQUARE FOOT
REQUIRED 30% STOREFRONT = 457.9 SF
PROVIDED STOREFRONT = 458 SF

6/22/2023 11:15:57 AM

PR 2022 04 V1



PROTOTYPE - NEW CONSTRUCTION
**TBD HIGHLAND RD
 WHITE LAKE, MI 46383**

No.	Description	Date

**FLOOR PLAN -
 DIMENSIONED**

Project Number: 230094 Sheet Number:

Drawn By: CAO

Issue Date: XX.XX.XX

DPM: DM: CPM:

DPM DM CPM

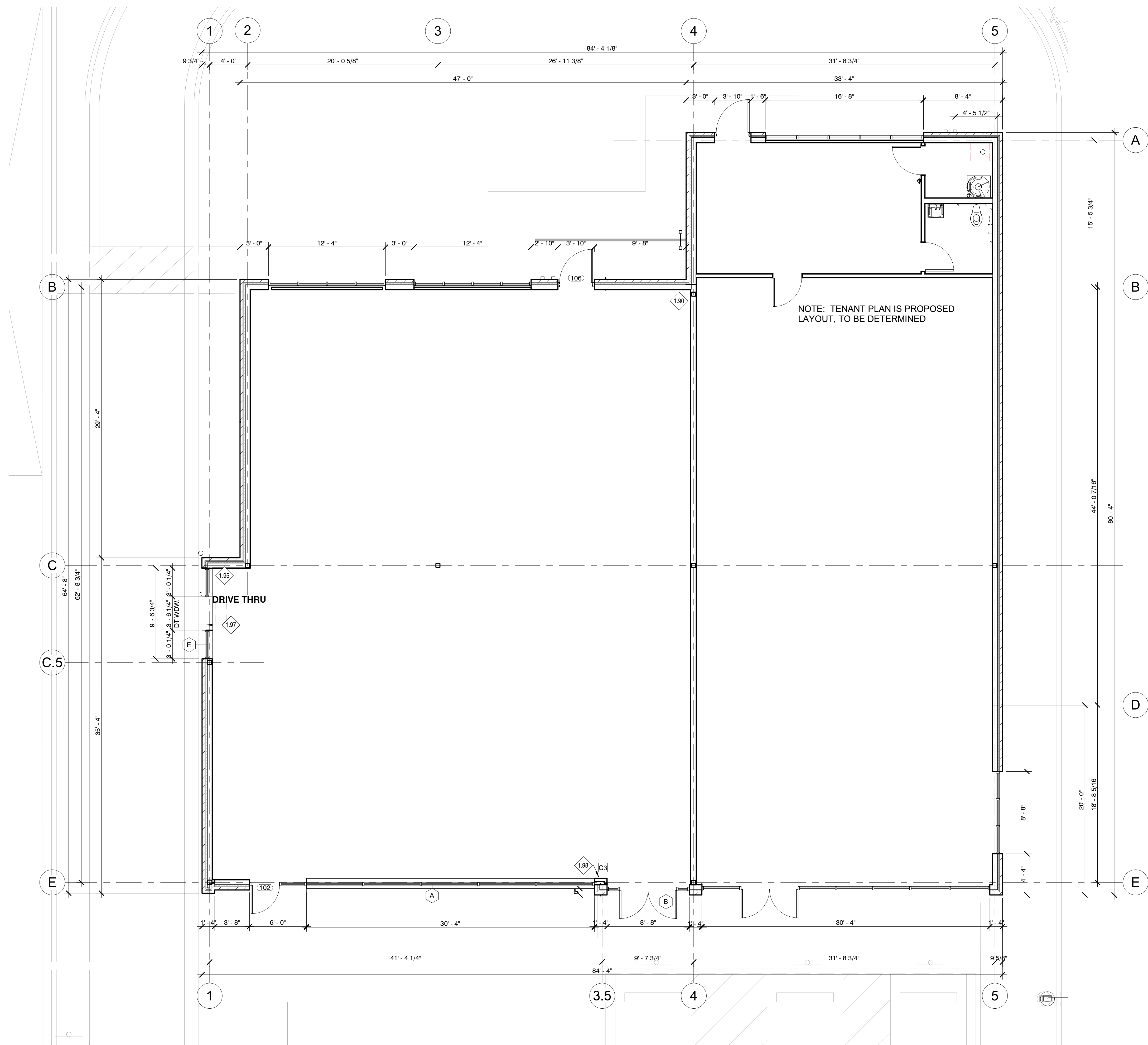
A101

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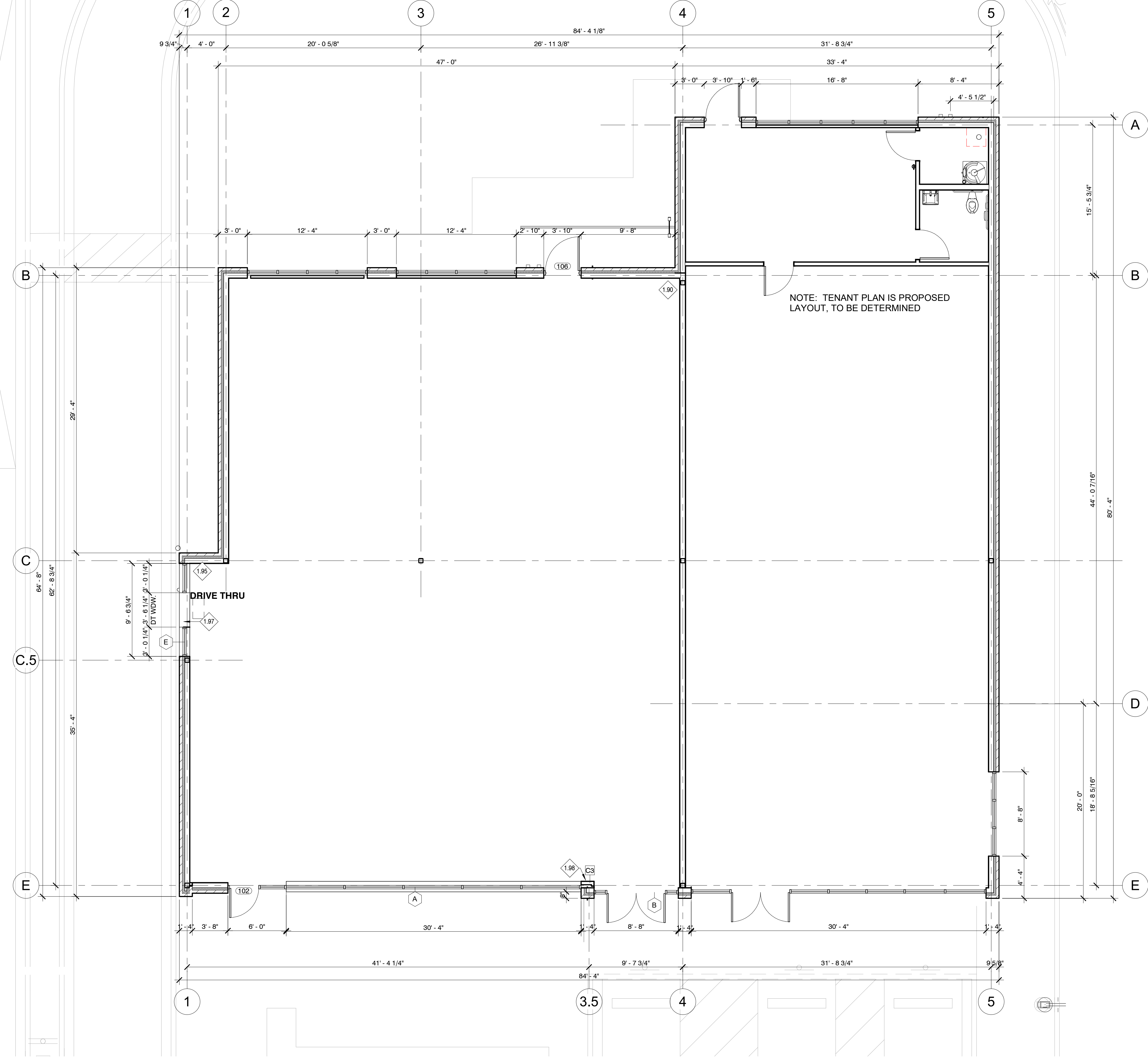
24 FLOOR PLAN - DIMENSIONED

3/16" = 1'-0"



NOTE: TENANT PLAN IS PROPOSED LAYOUT, TO BE DETERMINED

DRIVE THRU

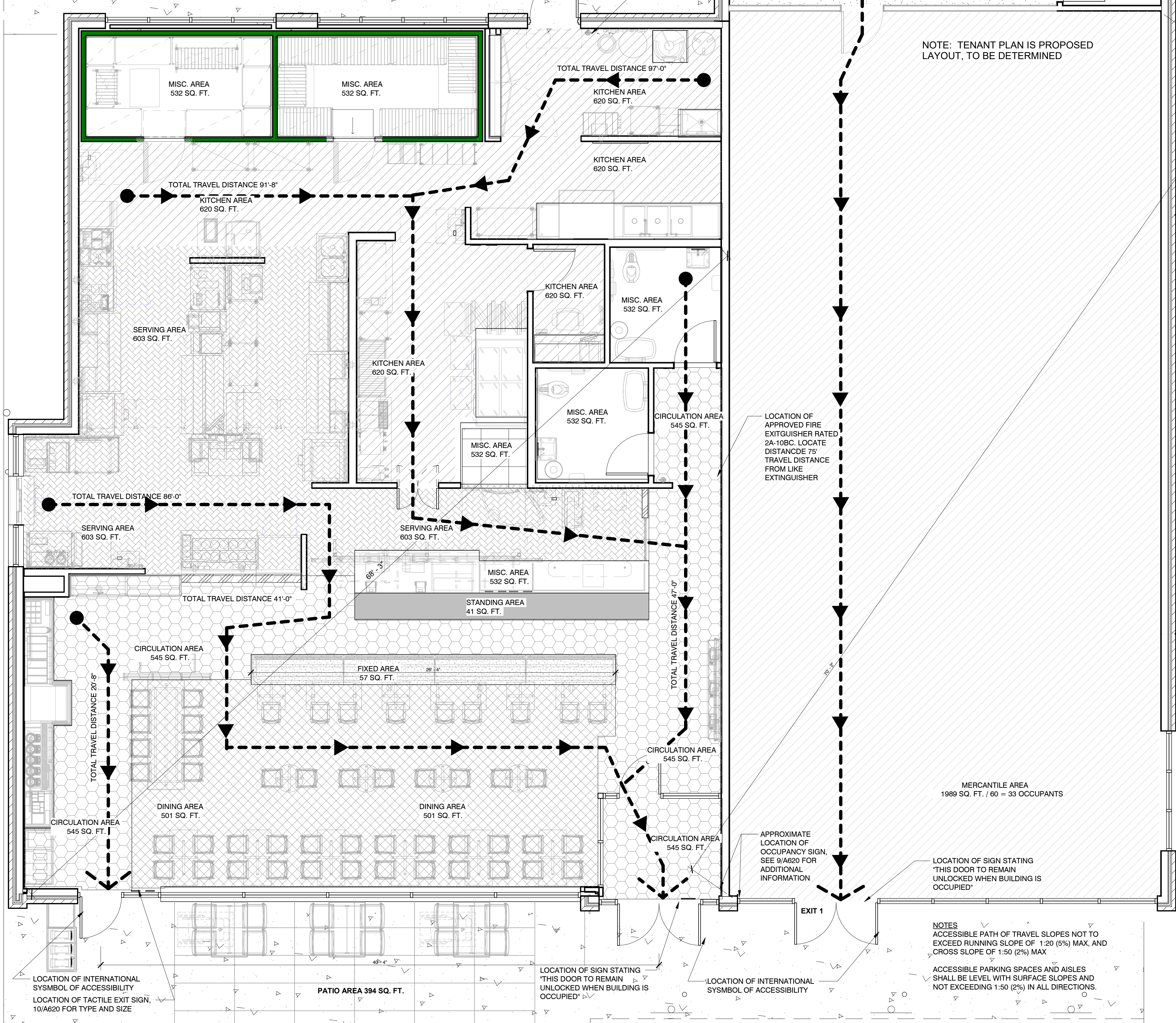


CODE INFORMATION:

APPLICABLE CODES & REGULATIONS:
 BUILDING CODE: 2015 MICHIGAN BUILDING CODE, 2015 IBC
 PLUMBING CODE: 2018 MICHIGAN PLUMBING CODE, 2018 IPC
 ELECTRICAL CODE: 2017 NEC
 MECHANICAL CODE: 2015 MICHIGAN MECHANICAL CODE, 2015 IMC
 FIRE PROTECTION: 2015 MICHIGAN FIRE CODE, 2012 NFPA 101
 ENERGY CODE: 2015 MECC, ASHRAE 90.1 2007
 ACCESSIBILITY CODE: 2009 ANSI A117.1

CODE CLASSIFICATION:
 A. OCCUPANCY GROUP: M TENANT | A-2 PANERA
 B. CONSTRUCTION CLASSIFICATION: TYPE V-B
 C. AUTOMATIC FIRE SUPPRESSION SYSTEM INSTALLED: YES

TRAVEL DISTANCE:
 ALLOWED TRAVEL DISTANCE: 250 FT
 ACTUAL TRAVEL DISTANCE: 120'-0" FT MAX



PANERA BUILDING INFORMATION

CONSTRUCTION TYPE: TYPE V - B
 SPRINKLERED: BUILDING IS SPRINKLERED

LEGEND - PANERA
 CIRCULATION AREA: 545 SQ. FT.
 KITCHEN AREA: 620 SQ. FT.
 MISC. AREA (OVENS, COOLERS, FREEZER AREA): 532 SQ. FT.
 FIXED SEATING AREA: 57 SQ. FT.
 SERVING AREA: 603 SQ. FT.
 DINING AREA & CAFE AREA: 501 SQ. FT.
 STANDING ROOM: AREA 47 SQ. FT.
 PATIO AREA: 394 SQ. FT.
 INTERIOR AREA (NET): 2,904 SQ. FT.
 PATIO AREA: 394 SQ. FT.

ALLOWABLE AREA PER 2015 IBC
 TENANT OCCUPANCY: A-2 | ASSEMBLY
 MAXIMUM ALLOWABLE BUILDING: 6000 SF, ACTUAL PANERA 3,170 SF AREA
 TRAVEL DISTANCE (PER 2015 IBC TABLE 1016.2.1): 250 FT ALLOWED (SPRINKLED) | 97 FT ACTUAL

OCCUPANT LOAD OCCUPANT LOAD COUNT TABLE PER 2015 IBC TABLE 1004.1.2

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR	AREA (SQFT)	OCCUPANTS
DINING AREA	UNCONCENTRATED	15	501
CIRCULATION AREA	UNCONCENTRATED	15	545
KITCHEN	KITCHEN: COMMERCIAL	200	620
SERVICE AREA	KITCHEN: COMMERCIAL	200	603
STANDING AREA	STANDING AREA	5	47

FIXED SEATING
 BOOTH LENGTHS: 316" COUNT: 1 TOTAL LINEAL LENGTH: 26'-4" LINEAL IN. PER OCC.: 24 TOTAL LINEAL INCHES/ LINEAL IN. PER OCC.: 13
 PATIO SEAT COUNT: 28
 TOTAL INTERIOR OCCUPANTS: 63
 TOTAL OCCUPANTS (INCLUDING PATIO): 91

EXIT REQUIREMENTS PER 2015 IBC SECTION 1005.3.2
 LONGEST INTERIOR DIAGONAL DIMENSION: 68'-3"
 MIN. DISTANCE BETWEEN DOORWAYS (SPRINKLED): 68'-3"/3 = 22'-9"
 ACTUAL DISTANCE BETWEEN CLOSEST DOORWAYS: 40'-4"

ALLOWABLE EGRESS WIDTH PER 2015 IBC SECTION 1005.3.2

	OCCUPANTS	FACTOR (IN.)	(IN.)
INTERIOR W/ SPRINKLER SYSTEM	65	0.15	9.75
EXTERIOR PATIO SPACE W/OUT SPRINKLER	22	0.20	4.40
MINIMUM EGRESS OPENING WIDTH REQUIRED			14.15
MINIMUM DOOR SIZE (PER 1008.1.1) [CLEAR OPENING]			32.00
ACTUAL EGRESS OPENING WIDTH PROVIDED	33.625	33.625	67.25

PLUMBING CALCULATIONS PER 2018 INTERNATIONAL PLUMBING CODE, TABLE 403.1

BUILDING OCCUPANCY (TOTAL)	MALE	FEMALE	MALE	FEMALE	OTHER
91	1.75	1.75	1.200	1.200	1 SERVICE SINK
REQUIRED	1	1	1	1	1
PROVIDED	1	1	1	1	1

Bakery-Cafe #:
6348

SYSTEM: NEXT-GEN
 Project Team:

ARCVISION
 INCORPORATED
 ARCHITECTURE • ENGINEERING • STORE PLANNING
 1950 CRAIG ROAD, SUITE 300 ST. LOUIS, MO 63146
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Professional Seal:

Project Title:
**TBD HIGHLAND RD
 WHITE LAKE, MI 46383**

PROTOTYPE - NEW CONSTRUCTION

BUILDING INFORMATION - ADJACENT MERCANTILE

CONSTRUCTION TYPE: TYPE V - B
 SPRINKLERED: BUILDING IS SPRINKLERED

LEGEND - ADJACENT TENANT
 SALES: 1989 SQ. FT.
 MISC. AREA: 52 SQ. FT.
 STORAGE AREA: 365 SQ. FT.
 INTERIOR AREA (NET): 2,406 SQ. FT.

ALLOWABLE AREA PER 2015 IBC
 TENANT OCCUPANCY: M | MERCANTILE
 MAXIMUM ALLOWABLE BUILDING: 6000 SF, ACTUAL ADJ TENANT 2,573 SF AREA
 TRAVEL DISTANCE (PER 2015 IBC TABLE 1016.2.1): 250 FT ALLOWED (SPRINKLED) | 87 FT ACTUAL

OCCUPANT LOAD OCCUPANT LOAD COUNT TABLE PER 2015 IBC TABLE 1004.1.2

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR	AREA (SQFT)	OCCUPANTS
SALES	UNCONCENTRATED	60	1989
STORAGE AREA	UNCONCENTRATED	300	365

TOTAL INTERIOR OCCUPANTS: 34

EXIT REQUIREMENTS PER 2015 IBC SECTION 1005.3.2

	OCCUPANTS	FACTOR (IN.)	(IN.)
INTERIOR W/ SPRINKLER SYSTEM	34	0.15	5.10
MINIMUM EGRESS OPENING WIDTH REQUIRED			5.10
MINIMUM DOOR SIZE (PER 1008.1.1) [CLEAR OPENING]			32.00
ACTUAL EGRESS OPENING WIDTH PROVIDED	65.625	33.625	99.25

PLUMBING CALCULATIONS PER 2018 INTERNATIONAL PLUMBING CODE, TABLE 403.1

BUILDING OCCUPANCY (TOTAL)	UNISEX	UNISEX	OTHER
34	1:500	1:750	1 SERVICE SINK
OCCUPANCY LESS THAN 100 PER 403.2, EXCEPTION 3 (1) UNISEX RESTROOM PROVIDED	1	1	1
REQUIRED	1	1	1
PROVIDED	1	1	1

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No.	Description	Date

LIFE SAFETY PLAN

Project Number: 230094
 Drawn By: CAO
 Issue Date: XX.XX.XX
 DPM: DM CPM: CPM

G131

6/22/2023 11:13:39 AM
 PR 2023 04 V1
 24 LIFE SAFETY PLAN
 1/4" = 1'-0"

WASTE ROUGH-IN SCHEDULE				
PLAN MARK	ITEM NAME	ROUGH-IN	ROUGH-IN LOCATION	REMARKS
11	MOP SINK 36" X 24"	3" WASTE	@ FLOOR	DIRECT CONNECTION
12A	3 COMP SINK REDUCED SIZE (SS)	FLOOR SINK	@ FLOOR	CONN. 3 COMPARTMENTS WITH 2" COPPER WASTE PIPE WITH TO INDIRECT CONNECTION
13B	2 COMP SINK REDUCED SIZE (SS)	FLOOR SINK	@ FLOOR	EXTEND 1 1/2" WASTE TO INDIRECT CONNECTION TO FLOOR SINK
46ER	DROP-IN SINK (COFFEE)	1 1/2" WASTE	@ 18" A.F.F.	DIRECT CONNECTION PROVIDE W/ COPPER DRAIN LINE
18B	DROP-IN SINK (ESPRESSO)	FLOOR SINK SHARED W/#61	NEARBY	EXTEND COPPER 1 1/2" WASTE TO INDIRECT CONNECTION TO FLOOR SINK
21C	WALL MTD SS HAND SINK (KNEE OPERATED)	1 1/2" WASTE	@ 24" A.F.F.	DIRECT CONNECTION
23B	ICE MACHINE (W/ REMOTE CONDENSER)	FLOOR SINK SHARED W/#54	@ FLOOR	EXTEND 1" CONDENSATE AND 1" WASTE TO INDIRECT CONN. TO FLOOR SINK
23F	ICE MACHINE (AIR COOLED/ SELF CONTAINED)	HUB DRAIN SHARED W/#24D	@ FLOOR	EXTEND 1" CONDENSATE AND 1" WASTE TO INDIRECT CONN. TO HUB DRAIN
23H	ICE MACHINE (W/ REMOTE CONDENSER)	FLOOR SINK SHARED W/#54D	@ FLOOR	EXTEND 1" CONDENSATE AND 1" WASTE TO INDIRECT CONN. TO FLOOR SINK
24D	ICE STORAGE BIN	HUB DRAIN SHARED W/#23F	@ FLOOR	EXTEND 1" WASTE TO INDIRECT CONNECTION TO HUB DRAIN
25C (ALTERNATE)	ELGE BOTTLE SOFTNER W/ STAND	3/4" CW	PER MANUFACTURER'S RECOMMENDATIONS	EXTEND 3/4" CW FROM ROUGH-IN TO EQUIPMENT CONNECTION
25D	WATER SOFTENER	3" FLOOR DRAIN	NEARBY	COORDINATE ROUTING OF DRAIN LINE WITH EQUIPMENT SUPPLIER
27A	DISHWASHER (UPRIGHT)	FLOOR SINK	@ FLOOR	EXTEND 2" COPPER WASTE PIPE TO INDIRECT CONNECTION TO FLOOR SINK
44.2B.BR	DOUBLE WIDE PROOFER/RETARDER	FLOOR DRAIN	NEARBY	EXTEND 1" DRAIN TO INDIRECT CONNECTION TO FLOOR DRAIN
48A	SINGLE RACK OVEN/GAS	FLOOR DRAIN	NEARBY	EXTEND 1" DRAIN TO INDIRECT CONNECTION TO FLOOR DRAIN
54	SODA/ICE DISP. (8 HD)	FLOOR SINK SHARED W/#23B	@ FLOOR	EXTEND 1" DRAIN TO INDIRECT TO FLOOR SINK
54D	SODA/ICE DISP. (6 HD)	FLOOR SINK SHARED W/#23H	@ FLOOR	EXTEND 1" DRAIN TO INDIRECT TO FLOOR SINK
61	ESPRESSO MACHINE (AUTOMATIC)	FLOOR SINK SHARED W/#18B	NEARBY	EXTEND 1" DRAIN TO INDIRECT CONNECTION TO FLOOR SINK
68A	SOUP RETHERMALIZER	HUB DRAIN	@ FLOOR	EXTEND 1 1/2" COPPER DRAIN PIPE WITH INDIRECT CONNECTION TO HUB DRAIN
71A	COOLER EVAPORATOR	HUB DRAIN	NEARBY	EXTEND 1" DRAIN TO INDIRECT CONNECTION TO HUB DRAIN
72A	FREEZER EVAPORATOR	HUB DRAIN	NEARBY	EXTEND 1" DRAIN TO INDIRECT CONNECTION TO HUB DRAIN

PLUMBING FIXTURE SCHEDULE				
PLAN MARK	MANUFACTURER	MODEL	ACCESSORIES	NOTES
FLOOR DRAINS (TYPICAL)	WADE OR EQUAL	1103STD6 W/6" STRAINER	P-TRAP TRAP PRIMER PRECISION PLUMBING PRODUCTS MODEL PP-500	FURNISH FULL GRATE AND 4" HIGH FUNNEL FOR INDIRECT DRAIN FIXTURES
FLOOR CLEANOUT	WADE OR EQUAL	6000		NICKEL BRONZE SECURED TOP
FLOOR SINK	WATTS	FS-740	1/2 GRATE	12"x12"x8" W/PORCELAIN GRATE
FLOOR SINK	WATTS	FS-710	1/2 GRATE	8"x8"x8" W/PORCELAIN GRATE HIGH CAPACITY SOUP STATION ONLY
LAV	KOHLER	SOHO K-2084-R	1-1/4x1-1/2 P-TRAP STOP VALVES	MOUNTING HGT PER ADA. SEE ARCH PLANS
FAUCET (FOR LAV)	TOTO	TEL105-D10EM	SENSOR FAUCET WITH MIXING VALVE	CHROME. PROVIDE MANUFACTURER'S OR EQUIVALENT 0.5 AERATOR
WC (ADA)	AMERICAN STD.	3043.001	WHITE-OPEN FRONT SEAT. NO COVER	W/ SLOAN ROYAL # 111-1.28 FLUSH VALVE PER ADA
FFPB (FREEZERPROOF HOSEBIBB)	JAY R. SMITH	5609QT OR EQUAL	KEY OPERATED INTEGRAL VACUUM BREAKER	1/2" FEMALE INLET 3/4" HOSE CONNECTION
GREASE INTERCEPTOR	SCHIER PRODUCTS	GB-250		100 GPM: BUILT-IN FLOW CONTROL VALVE, CAPACITIES: LIQUID: 277 GAL; GREASE: 1,895 LBS @ 100 GPM; SOLIDS: 69 GAL. PROVIDE TRAFFIC RATED MANHOLES AND MANHOLE EXTENSIONS
WATER HEATER	A. O. SMITH	BTH-199	DIRECT VENT SEALED COMBUSTION	100 GALLON. 199 MBH. 230 GPH RECOVERY. PROVIDE EXPANSION A.O. SMITH TANK MODEL TW-12-5

DOMESTIC WATER ROUGH-IN SCHEDULE				
PLAN MARK	ITEM NAME	ROUGH-IN	ROUGH-IN LOCATION	REMARKS
11	36" X 24" MOP SINK	1/2" 140" HW & CW	@ 36" A.F.F.	SEE PLUMBING FIXTURE SCHEDULE FOR FAUCET MODEL NUMBER W/BFP
12A	3 COMP SINK REDUCED SIZE (SS)	(2) FAUCETS WITH 1/2" 140" HW & 1/2" CW	@ 14" A.F.F.	SEE EQUIPMENT SCHEDULE. SHEET EQ4.1, FOR FAUCET MODEL NUMBER
13B	2 COMP SINK REDUCED SIZE (SS)	1/2" HW & CW	@ 14" A.F.F.	SEE EQUIPMENT SCHEDULE. SHEET EQ4.1, FOR FAUCET MODEL NUMBER
46ER	DROP-IN SINK (COFFEE)	1/2" HW & FCW	@ 18" A.F.F.	SEE EQUIPMENT SCHEDULE. SHEET EQ4.1, FOR FAUCET MODEL NUMBER
18B	INTEGRAL SINK FOR EQ. #403A (ESPRESSO)	1/2" HW & CW	@ 18" A.F.F.	SEE EQUIPMENT SCHEDULE. SHEET EQ4.1, FOR FAUCET MODEL NUMBER
19D	POT FILL FAUCET	1/2"HW & FCW	@ 45" A.F.F.	SEE EQUIPMENT SCHEDULE. SHEET EQ4.1, FOR FAUCET MODEL NUMBER
21C	WALL MTD SS HAND SINK (KNEE OPERATED)	1/2" HW & CW	@ 24" A.F.F.	SEE EQUIPMENT SCHEDULE. SHEET EQ4.1, FOR FAUCET MODEL NUMBER
23B	ICE MACHINE (W/ REMOTE CONDENSER)	1/2" DFCW	@ 96" A.F.F.	EXTEND 1/2" DFCW FROM ROUGH-IN TO EQUIPMENT CONNECTION W/BFP
23F	ICE MACHINE (AIR COOLED/ SELF CONTAINED)	1/2" DFCW	@ 72" A.F.F.	EXTEND 1/2" DFCW FROM ROUGH-IN TO EQUIPMENT CONNECTION W/BFP
23H	ICE MACHINE (W/ REMOTE CONDENSER)	1/2" DFCW	@ 96" A.F.F.	EXTEND 1/2" DFCW FROM ROUGH-IN TO EQUIPMENT CONNECTION W/BFP
25B	WATER FILTER (4-POD)	3/4" SCW	@ 96" A.F.F.	SEE DETAIL ON SHEET P4.1
25C (ALTERNATE)	ELGE BOTTLE SOFTNER W/ STAND	3/4" CW	PER MANUFACTURER'S RECOMMENDATIONS	EXTEND 3/4" CW FROM ROUGH-INS TO EQUIPMENT CONNECTIONS
25D	WATER SOFTNER	1-1/2" CW INLET & 1-1/2" SW OUTLET	@ 90" A.F.F.	EXTEND 1-1/2" CW FROM ROUGH-INS TO EQUIPMENT CONNECTIONS
27A	DISHWASHER (UPRIGHT)	3/4" 140" HW	@ 72" A.F.F.	EXTEND 3/4" 140" HW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
42C	CARBONATOR	1/2" DFCW SHARED W/#54	@ 24" A.F.F.	EXTEND 1/2" DFCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/S.S. BFP
44.2B.BR	DOUBLE WIDE PROOFER/RETARDER	1/2" FCW	@ 84" A.F.F.	EXTEND 1/2" FCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
48A	SINGLE RACK OVEN/GAS	1/2" FCW	@ 105" A.F.F.	EXTEND 1/2" FCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
54	SODA/ICE DISP. (8 HD)	1/2" DFCW SHARED W/#42C	@ 24" A.F.F.	EXTEND 1/2" DFCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
54D	SODA/ICE DISP. (6 HD)	1/2" DFCW SHARED W/#42C	@ 24" A.F.F.	EXTEND 1/2" DFCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
56A	TEA BREWER	1/2" FCW	@ 46" A.F.F.	EXTEND 1/2" FCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
58F	COFFEE MAKER	1/2" FCW	@ 46" A.F.F.	EXTEND 3/8" FCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
61	ESPRESSO MACHINE (AUTOMATIC)	1/2" FCW	RUN IN CASEWORK	EXTEND 3/8" FCW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
68A	SOUP RETHERMALIZER	1/2" HW	@ 12" A.F.F.	EXTEND 1/2" HW FROM ROUGH-IN TO CONNECTION TO EQUIPMENT W/BFP
77A	CHEMICAL DISPENSER @ MOP SINK	1/2" 140" HW	@ 48" A.F.F.	INSTALL 1/2" 140" HW HOSEBIBB W/ VACUUM BREAKER & BFP
77B	CHEMICAL DISPENSER @ 3-COMP SINK	1/2" 140" HW & CW	@ 10" A.F.F.	INSTALL 1/2" 140 DEG. HW & CW ROUGH-INS BELOW SINK W/VACUUM BREAKERS & BFPs. PROVIDE SHUT OFF VALVES AND TEMPERING VALVE PER ECOLAB TEMPERING VALVE INSTALLATION GUIDE. INSTALL TEMPERING VALVE BELOW SINK AND PROVIDE SHUT-OFF VALVE ON TEMPERED LINE. DELIVERY WATER TEMPERATURE TO DISPENSER AFTER TEMPERING VALVE SHALL BE BETWEEN 70 DEG. AND 120 DEG. F
77C	CHEMICAL DISPENSER @ DISHWASHER	1/2" 140" HW	@ 48" A.F.F.	INSTALL 1/2" 140" HW HOSEBIBB W/ VACUUM BREAKER & BFP

CROSS CONNECTION CONTROL SCHEDULE			
FIXTURE	MAKE	MODEL	ASSE, ASME OR ANSI STANDARD
MOP SINK (FAUCET CONTAINS INTEGRAL BACKFLOW DEVICE)	INTEGRAL	-	ASSE A112.18.1 ANSISF 61/9
DISHWASHER	WATTS	LF008PCQT	ASSE 1056
ICE MAKER (ABOVE SODA)	AIR GAP	INTERNAL	ASSE A112.1.2
ICE MACHINE	AIR GAP	INTERNAL	ASSE A112.1.2
CARBONATOR	WATTS	SD-3	ASSE 1022
COFFEE BREWER	WATTS	SD-3	ASSE 1022
TEA BREWER	WATTS	SD-3	ASSE 1022
SOUP RETHERMALIZER	AIR GAP	-	ASSE A112.1.2
ESPRESSO	WATTS	SD-3	ASSE 1022
BOTTLE SOFTNER	WATTS	LF009QT	ASSE 1013
WATER FILTER SYSTEM	WATTS	LF009QT	ASSE 1013
RACK OVEN	WATTS	LF007QT	ASSE 1015
DECK OVEN	WATTS	LF007QT	ASSE 1015
PROOFER	WATTS	LF007QT	ASSE 1015
CHEMICAL DISPENSER	WATTS	LF009 W/ AIR GAP FITTING LF909AGA	-
FREEZERPROOF HOSEBIBB	WATTS	-	ASSE 1011
3-COMPARTMENT SINK	AIR GAP	-	ASSE A112.1.2
VEGETABLE PREP SINK	AIR GAP	-	ASSE A112.1.2
HAND SINKS	AIR GAP	-	ASSE A112.1.2
DROP-IN SINKS	AIR GAP	-	ASSE A112.1.2
LAVATORIES	AIR GAP	-	ASSE A112.1.2
WATER CLOSETS (FLUSH VALVE)	INTEGRAL	-	ASSE 1001
URINAL (FLUSH VALVE)	INTEGRAL	-	ASSE 1001
WATER HEATER	WATTS	LFN360	ANSI Z21.22

PROVIDE APPROPRIATE BACK FLOW PREVENTER AT OTHER EQUIPMENT AS REQUIRED BY CODE.

PLUMBING SPECIFICATIONS

- GENERAL:**
 - ALL PLUMBING WORK INCLUDING INSTALLATION, EQUIPMENT, FIXTURES AND PIPING SHALL BE INSTALLED IN STRICT COMPLIANCE WITH LOCAL CODE AND ADOPTED ORDINANCES AND REGULATIONS SET FORTH BY THE AJH (AUTHORITY HAVING JURISDICTION).
 - ROUTING OF ALL SANITARY PLUMBING, DOMESTIC WATER PIPING AND GAS PIPING AS SHOWN ON THE PLANS IS SHOWN WITH THE INTENTION OF INDICATING THE APPROXIMATE LOCATION OF EXISTING CONDITIONS, AND NEW ITEMS. PLUMBING CONTRACTORS SHALL VISIT THE JOB SITE CONDITIONS PRIOR TO SUBMITTING BIDS OR STARTING WORK. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF HIS WORK WITH THE WORK OF ALL OTHER TRADES TO AVOID INTERFERENCE. CONTRACTORS MAY DEVIATE FROM THE LOCATION OF PIPING SHOWN IF INSTALLATION COMPLIES WITH LOCAL CODES AND INDUSTRIAL PRACTICES, AND IF THE AJH AND OWNER'S REPRESENTATIVE APPROVE. ITEMS NOT SHOWN ON THE PLANS OR SHOWN IN CONFLICT WITH AND CODE, REGULATION OR EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL WORK IN ACCORDANCE WITH LOCAL CODES.
 - PRIOR TO SUBMISSION OF THE CONTRACTORS COST ESTIMATE FOR WORK INCLUDED UNDER THIS PROJECT, THE CONTRACTOR SHALL VISIT THE JOB SITE TO EXAMINE ALL EXISTING CONDITIONS RELATED TO HIS WORK, AND UPON FINAL EXAMINATION OF SUCH A FINAL PROPOSAL AS EVIDENCE THAT THIS CONTRACTOR HAS VISITED SAID SITE AND VERIFIED ALL EXISTING CONDITIONS. CLAIM OF ADDITIONAL WORK OR ADDENDUMS DUE TO NON-VERIFICATION OF EXISTING CONDITIONS WILL NOT BE CONSIDERED BY THE OWNER. ALL ADDITIONAL WORK WHICH IS NOT CLEARLY APPROVED PRIOR TO PERFORMANCE OF SUCH WORK WILL BE CHARGED TO THE CONTRACTOR, AND IF NOT SETTLED WILL BE HELD FROM HIS FINAL PAYMENT.
- MATERIALS:**
 - DOMESTIC WATER PIPING:
 - WATER PIPING SHALL BE TYPE-L COPPER WITH WROUGHT FITTINGS. LEAD FREE SOLDER OR SILVER SOLDER SHALL BE USED AT ALL POINTS OF CONNECTION. HANGERS SHALL BE CLEVIS TYPE HANGERS AND SHALL BE USED ON ALL PIPING AT INTERVALS AS REQUIRED BY CODE. THE CONTRACTOR SHALL ALLOW ADDITIONAL CLEARANCE FOR EXPANSION AND CONTRACTION FOR INSULATION AND NON-INSULATED PIPING. AT THE CONTRACTORS OPTION CROSS LINKED ALL POLYETHYLENE (PEX) PIPING MAY BE USED WHERE ALLOWED BY AUTHORITY JURISDICTION. IF PEX IS USED CONTRACTOR BEARS SEISMIC SUBMISSION REQUIRED. COMPONENTS OF THE POTABLE WATER SYSTEM SHALL COMPLY WITH LEAD FREE REQUIREMENTS AS NOTED IN SECTION 1417 OF THE SAFE DRINKING ACT.
 - DRAIN, WASTE AND VENT PIPING:
 - DRAIN, WASTE, AND VENT PIPING SHALL BE SCHEDULE 40 PVC, AS REQUIRED. PVC SHALL NOT BE USED IN RETURN AIR PLenums WHERE PROHIBITED BY CODE. WHERE FLOOR OR HUB DRAINS AS SHOWN AS CAST IRON THE CONTRACTOR SHALL PROVIDE A SUITABLE COUPLING WHICH IS APPROVED BY CODE.
 - ALL CAST IRON SOIL PIPE/FITTINGS BELOW OR ABOVE GROUND SHALL BEAR THE COLLECTIVE TRADEMARK OF CISPI AND/OR BE "NSF INTERNATIONAL".
 - ALL STANDARD COUPLINGS SHALL BE IN COMPLIANCE TO CISPI 310 (LATEST EDITION), BEARING THE MARK OF NSF CISPI 310 (LATEST EDITION), BEARING THE MARK OF NSF INTERNATIONAL.
 - OR
 - AT THE CONTRACTOR'S OPTION AND WHERE ALLOWED BY CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION SCHEDULE 40 PVC-DWV MAY BE USED. CONDENSATE DRAIN LINES FOR COOLERS AND FREEZER SHALL BE COPPER.
- VALVES:**
 - SHUT OFF VALVES SHALL BE EITHER GATE-TYPE OF BALL VALVES BY "CRANE", "STOCKHAM" OR "POWELL". MIXING VALVES SHALL BE BY "LAWLER" OR APPROVED EQUAL. BACKWATER VALVES SHALL BE BY "ZURE" OR APPROVED EQUAL.
- PLUMBING SPECIALTIES:**
 - AIR CHAMBERS: SHALL BE CONSTRUCTED OF (LEAD FREE) TYPE-L COPPER. AIR CHAMBERS SHALL BE ONE SIZE LARGER THAN THE SUPPLY PIPING, AND SHALL BE 18 INCHES LONG, PROPERLY CAPPED AND SUPPORTED. FACTORY MANUFACTURED ITEMS CAN BE SUBSTITUTED AT THE CONTRACTORS OPTION BY "NIBCO", "WADE" OR EQUAL.
 - CLEAN OUTS: WALL CLEAN OUTS SHALL HAVE STAINLESS STEEL COVERS AS MANUFACTURED BY "WADE" OR APPROVED EQUAL. FLOOR CLEAN OUTS SHALL HAVE SATIN FINISHED TOP, IN FINISHED AREAS AND SATIN BRONZE CAP IN AREAS WHICH ARE NOT FINISHED. CLEAN-OUTS SHALL BE MANUFACTURED BY "WADE" OR APPROVED EQUAL.
 - FIXTURES: PLUMBING FIXTURES SHALL BE AS SPECIFIED ON THESE PLANS OR ON THE ARCHITECTURAL PLANS. ALL FIXTURES SHOULD MEET ADA REQUIREMENTS WHERE APPLICABLE. FIXTURES SHOULD BE OF THE HIGHEST QUALITY BY "AMERICAN STANDARD", "KOHLER" OR APPROVED EQUAL AND SHALL MEET THE LEAD FREE REQUIREMENTS AS NOTED IN SECTION 1417 OF THE SAFE DRINKING WATER ACT.
 - WATER HEATERS: IF NEW WATER HEATER(S) ARE TO BE INSTALLED THEY SHALL BE AS SPECIFIED ON THE PLANS, AND SHALL BE OF COMMERCIAL GRADE, AND AGA APPROVED IF GAS FIRED AND UL APPROVED IF ELECTRIC. HEATERS SHALL HAVE A 150 PSI WORKING PRESSURE RATING. WATER HEATERS AND ALL COMPONENTS SHALL MEET THE LEAD FREE REQUIREMENTS AS NOTED IN SECTION 1417 OF THE SAFE DRINKING WATER ACT. WATER HEATER INSTALLATION MANUALS SHALL BE GIVEN TO THE OWNER. SEE PLUMBING FIXTURE SCHEDULE.
 - GAS PIPING: ALL GAS PIPING SHALL BE SIZED, INSTALLED, TESTED, AND LABELED IN ACCORDANCE WITH LOCAL CODE. GAS PIPING SHALL BE SCHEDULE 40 BLACK IRON. BUSHINGS ARE PROHIBITED. BELL REDUCERS SHALL BE INSTALLED AT REDUCTION IN PIPE SIZE. GROUND JOINTS UNIONS AND SHUT-OFF VALVES SHALL BE INSTALLED AT ALL GAS PIPING APPLIANCES. FLEXIBLE GAS LINES ARE PROHIBITED ON STATIONARY APPLIANCES AND SHALL BE ATTACHED TO ANY FLEXIBLE CONNECTOR AND THE FLOOR SUCH THAT THE FLEXIBLE CONNECTOR CANNOT BE OVER EXTENDED. PAINT EXPOSED PIPING GOING TO OR ON ROOF WITH (ZINC RICH GALVANIZED) PAINT FOR CORROSION PROTECTION. IF REQUIRED BY LOCAL JURISDICTION USE: HOT DIPPED, ZINC COATED (GALVANIZED) ASTM A53 PIPE.
- EXECUTION:**
 - ALL PLUMBING FIXTURES, EQUIPMENT AND PIPING SHALL BE INSTALLED PER LOCAL CODE AND ESTABLISHED INDUSTRY PRACTICES. LOCATE ALL PIPING, AS SHOWN ON PLANS.
 - COORDINATE WITH ALL OTHER TRADES TO AVOID INTERFERENCES, AND ADHERE TO ALL SPECIFICATIONS AND MANUFACTURERS GUIDELINES.
 - RUN ALL DOMESTIC WATER PIPING AS HIGH AS POSSIBLE. INSTALL HANGERS AND STRAPPING, ALLOWING FOR EXPANSION AND CONTRACTION OF PIPING. DO NOT HANG OR SUPPORT OTHER EQUIPMENT OR PIPING FROM WATER LINES. SEPARATE HOT AND COLD WATER LINES A MINIMUM OF SIX (6) INCHES. INSULATE ALL PIPING WITH INSULATION WHICH MEETS OR WITH INSULATION WHICH MEETS OR EXCEEDS 25/50 RATINGS.
 - INSTALL SOIL, WASTE AND VENT PIPING WITH A MINIMUM SLOPE OF 1/4" PER FOOT IN THE DIRECTION OF FLOW FOR DRAINS AND AGAINST THE FLOW OF VENT GASES. NO FIXTURE SHALL HAVE AN S-TRAP OR BE DOUBLED TRAPPED.
- VALVES:**
 - LOCATED VALVES SO AS TO BE ACCESSIBLE AND SO THAT SEPARATE SUPPORT CAN BE PROVIDED WHEN NECESSARY. INSTALL ALL STEMS UPRIGHT. DO NOT INSTALL VALVES OF DISSIMILAR COMPOSITION WITHOUT AN APPROVED DIELECTRIC FITTINGS.
- TEST AND STERILIZATION:**
 - TEST AND STERILIZE ALL PLUMBING PIPING INCLUDING DRAINS, WASTE, VENTS AND WATER PIPING PER LOCAL CODES AND REGULATIONS.

Bakery-Cafe:

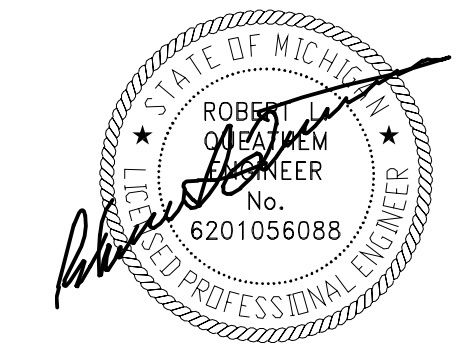
6348

SYSTEM: G4 (ARIA)

Project Team:



Professional Seal:



5/5/23

Project Title:

PROTOTYPE - NEW CONSTRUCTION
Bakery Cafe 6348
 HWY 50 # BOGIE ROAD
 WHITE LAKE, MI 46383



Consultant Copyright Placeholder

No.	Description	Date

PLUMBING SPECIFICATIONS AND SCHEDULES

Project Number: Sheet Number:

230093

Drawn By:

Author:

Issue Date:

XX.XX.XX

DPM: DMI: CPM:

JUSTIN K. ALLISON M. CHARLES T.

P402