



PLANNING COMMISSION MEETING

LOCATION: TOWNSHIP ANNEX, 7527 HIGHLAND ROAD, WHITE LAKE, MI 48383
THURSDAY, MARCH 16, 2023 – 7:00 PM

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

AGENDA

1. CALL TO ORDER
2. ROLL CALL
3. PLEDGE OF ALLEGIANCE
4. APPROVAL OF AGENDA
5. APPROVAL OF MINUTES
 - A. [Minutes of March 2, 2023](#)
6. CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)
7. PUBLIC HEARING
8. CONTINUING BUSINESS
9. NEW BUSINESS
 - A. [Comfort Care White Lake](#)
[Property described as parcel number 12-36-176-002, located on the west side of Union Lake Road, between Hutchins Road and Cooley Lake Road, consisting of approximately 8.7 acres.](#)
[Request:](#)
[1\) Final site plan approval](#)
[2\) Planned development agreement approval](#)
[Applicant: Comfort Care, LLC](#)
[4180 Tittabawassee Road](#)
[Saginaw, MI 48604](#)
10. LIAISON'S REPORT
11. DIRECTOR'S REPORT
12. OTHER BUSINESS
 - A. [Master Plan Update Discussion](#)
13. COMMUNICATIONS
14. NEXT MEETING DATES: April 6, 2023 & April 20, 2023
15. ADJOURNMENT

Procedures for accommodations for persons with disabilities: The Township will follow its normal procedures for individuals with disabilities needing accommodations for effective participation in this meeting. **Please contact the Township Clerk's office at (248) 698-3300 X-164 at least two days in advance of the meeting.** An attempt will be made to make reasonable accommodations.

**WHITE LAKE TOWNSHIP
PLANNING COMMISSION
MARCH 2, 2023**

CALL TO ORDER

Chairperson Seward called the meeting to order at 7:00 P.M.

ROLL CALL

Present: T. Joseph Seward, Chairperson
Merrie Carlock, Vice Chairperson
Scott Ruggles, Township Board Liaison
Mark Fine
Steve Anderson
Robert Seeley

Absent: Debby Dehart, Secretary
Pete Meagher
Matt Slicker

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

5 Members of the public present

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

MOTION by Commissioner Seeley, seconded by Commissioner Carlock, to approve the agenda as presented. The motion CARRIED with a voice vote: (5 yes votes).

APPROVAL OF MINUTES

A. Minutes of January 19, 2023

MOTION by Commissioner Anderson, seconded by Commissioner Seeley, to approve the minutes of January 19, 2023 as presented. The motion CARRIED with a voice vote: (5 yes votes).

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

Patrice Rhul, 9500 Bonnie Briar, stated she was opposed to fireworks being ignited over Pontiac Lake and wanted to find a way to prohibit it.

The call to the public was closed at 7:04 P.M.

PUBLIC HEARING

A. Sunset Cove

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

Requests:

Preliminary site plan approval

Special land use approval

Applicant: White Lake JZ, LLC

30201 Orchard Lake Road, Ste 250

Farmington Hills, MI 48334

Chairperson Seward opened the public hearing at 7:23 P.M.

Mary Earley, 5925 Pineridge Court, spoke out in opposition to the project.

Patrice Ruhl, 9500 Bonnie Briar, spoke out in opposition of the project.

Becky Brennan, 8365 Pontiac Lake Road, wanted more information about the project.

Chairperson Seward closed the public hearing at 7:29 P.M.

The applicant was not present at tonight's meeting. The next meeting agenda the project would be eligible to be placed on would be in April.

MOTION by Commissioner Anderson, seconded by Commissioner Fine, to table the public hearing for the preliminary site plan approval and special land use approval for Sunset Cove and for the Planning Department to re-notice the public hearing, and charge the applicant for a refiling and public hearing fee per the Fee Ordinance. The motion CARRIED with a roll call vote: (5 yes votes).

(Anderson/yes Seeley/yes, Carlock/yes, Seward/yes, Fine/yes, Ruggles/yes)

CONTINUING BUSINESS

None.

NEW BUSINESS

None.

OTHER BUSINESS

A. Lakepointe & West Valley final site plan extension request

Director O'Neil said the reason West Valley and Lakepointe had not broken ground yet was due to the coordination of utilities between both projects and the Comfort Care project. He recommended for both Lakepointe and West Valley to receive four-month extensions.

Michael Furnari, JMF Properties, applicant, was present to speak on his case. He said he wanted to move forward with these projects, but wasn't sure if four months was long enough. He stated he did not have all his agency permits yet for water and sewer, and the interest rates from his lenders have increased. He wanted a year extension instead of four months. He added that redesigning the West Valley site plan to coordinate with Comfort Care took five to six months.

Director O'Neil suggested the applicant come back in four months and if it was not enough time an update could be given to the Planning Commission at that time. Director O'Neil proposed the dates for the update as follows: West Valley - Thursday, July 20, 2023 and Lakepointe - Thursday, September 7, 2023.

MOTION BY Commissioner Seeley to grant a four-month extension to both West Walley and Lakepointe with expiration dates of Thursday, July 20, 2023 and Thursday, September 7, 2023, respectively. Seconded by Commissioner Fine, and the motion CARRIED with a voice vote: (5 yes votes).

LIAISON'S REPORT

Trustee Ruggles said he requested an agenda item for the March Township Board meeting agenda to increase the meeting fee for Zoning Board of Appeals Members and Planning Commissioners from \$45.00 to \$75.00. At the February Township Board meeting, there was a motion to approve a SAD to help those with failing septic systems to connect into the Township sewer. There was an approved purchase of fire hoses for the Fire Department. The Township Board also approved lighting and bollards for Elizabeth Lake Road. A tree removal project was approved for Stanley Park, 50 trees would be removed to make way for a road. Maxon's was awarded the project. The Township Board also entered into the Tri Party agreement for the County's gravel program.

Staff Planner Quagliata said there was a presentation from the Huron River Watershed Council during the February Parks and Recreation meeting. Stanley Park construction was on schedule to start this year.

DIRECTOR'S REPORT

Director O'Neil said the Avalon project would be submitting their final site plan soon. Black Rock received 3 of their 13 request variances at the February Zoning Board of Appeals meeting. Comfort Care Assisted Living would be before the Planning Commission seeking final site plan and planned development agreement approval in April. Panera and Culver's had made application for site plan approval to the Planning Department. The first meeting of the Corridor Improvement Authority was this evening. The Master Plan update would be on the March 16 agenda. As of this morning, there was 1209 responses to the Master Plan survey. Three responses were received for the RFP for CMR for the Township Hall and Public Safety buildings, and interviews would be held on March 14.

COMMUNICATIONS

None.

NEXT MEETING DATES: March 16, 2023 & April 6, 2023

ADJOURNMENT

MOTION by Commissioner Anderson, seconded by Commissioner Fine to adjourn at 7:52 P.M. The motion CARRIED with a voice vote: (5 yes votes).

DRAFT

Director's Report

Project Name: Comfort Care

Description: Final site plan approval

Date on Agenda this packet pertains to: March 16, 2023

- Public Hearing

 Special Land Use
 Initial Submittal

 Rezoning
 Revised Plans

 Other:
 Preliminary Approval
 Final Approval

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Community Development Director	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Based on comments from staff and consultants
DLZ	Engineering Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 02/27/2023
Justin Quagliata	Staff Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 02/23/2023
Jason Hanifen	Fire Marshal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 02/13/2023



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February 27, 2023

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

RE: Comfort Care Assisted Living – Final Site Plan and Final Engineering Plan – 3rd Review

DLZ # 2145-7233-19

Dear Mr. O' Neil,

Our office has reviewed the above-mentioned revised plan prepared by Griggs Quaderer, Inc. and dated February 7, 2023. These plans were reviewed for conformance with the Township Engineering Design Standards. We offer the following comments for your consideration:

Preliminary Site Plan review letter dated May 12, 2022 comments:

Note that responses to the below Preliminary Site Plan comments are in **bold**.

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

- a) The plan proposes a future emergency access drive with connection to the emergency access drive stub for the West Valley development. DLZ notes the West Valley development is not constructed, thus rendering the proposed stub with no connection should the West Valley site not move forward. In addition, the proposed location of the Comfort Care stub as shown on the plan does not align with the proposed stub location shown on the previously approved West Valley Final Engineering Plan which would require modification of the West Valley plans and easement documents. We request a turning radius profile be provided for this proposed access route utilizing a 40-foot vehicle to demonstrate feasibility. Comment outstanding. While a turnaround radius profile for a 40' vehicle has been provided for the emergency access route, the design engineer still proposes the emergency access drive in a location that does not align with the stub shown on the approved West Valley engineering plan. Revisions to the West Valley plans/easements will be required for use of this access*

route. The design engineer in their response letter has stated that they are working with the designer of West Valley; West Valley is flexible on the final location of the emergency access drive. We find this acceptable at the Preliminary Site Plan level of review. However, final details shall be required at the time of Final Site Plan/Final Engineering Plan submittal. We also note that consideration of the emergency access drive location proposed on the West Valley site should be evaluated to determine if there are any setback requirements relative to the proposed adjacent residential structure. Comment is outstanding on the FSP/FEP. Provide details and a letter verifying that the location of the Comfort Care emergency access drive is acceptable with West Valley. The letter should also address our above comment concerning setback issues with the drive relative to the proposed West Valley building to the south of the Comfort Care property. **Comment addressed. The design engineer for West Valley has indicated that the emergency access drive for Comfort Care has been coordinated, graded, and engineered between the applicants for Comfort Care and West Valley. The emergency access drive is approximately 65 feet from Unit 39 of West Valley. We defer to the Township regarding whether this distance is acceptable from a setback perspective relative to the emergency access drive.**

- b) *Developer for Comfort Care will need to ensure that a means of access to the existing house to the west is maintained at all times during construction, especially during construction of the proposed drive and drive approach. A separate construction entrance for construction vehicles is recommended. Comment addressed and remains as a notation. A separate construction entrance is proposed. DLZ notes the existing grades in this area are steep and additional details will be required at the time of Final Site Plan/Final Engineering Plan submittal to demonstrate temporary grading. A separate construction entrance is now shown in an area of less steep grades. Additional details can be provided at the time of Final Site Plan/Final Engineering Plan. The construction entrance is shown but it is proposed directly over the area of water main (including bore and jack pit areas), gas, and electrical line installation. This seems impractical as it will not be accessible for a large portion of the construction period. **Comment addressed. Construction entrance has been moved further north and outside of utility construction areas.***
- c) *It will need to be clarified as to how the proposed retaining wall adjacent to the three existing trees on the residential property to the west shall be installed without damage (particularly root damage) to these trees. The proposed wall location is extremely close to these trees. Plans do not appear to address this concern; it should be noted by the Planning Department and Planning Commission that damage/loss of these trees is likely. Comment addressed at this level of review and remains as a notation. Design engineer has stated that wall has been moved back toward the curb to line up with*



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back of curb, which will provide an additional 3' of separation for a total of 12' of separation between the wall and the existing trees. A note indicating that any existing damaged trees shall be replaced by the responsible party shall be added to the Final Site/Final Engineering Plan. A note has been added to the plan; however, it is incomplete. Additional language shall be added to plan Sheets C200 and C300 stating that any damaged trees shall be replaced by the responsible party. **Comment addressed. Language regarding tree replacement has been added to above listed sheets.**

- d) *There is a concern regarding the proximity of the proposed storm sewer along the southwestern side of the site relative to the proposed retaining wall; the storm sewer will need to be located outside of the influence of the wall (at a minimum of 10' horizontal separation) with respect to lateral and vertical stresses. The storm sewer location has been adjusted slightly. There is still a concern near the south building corner where the proposed storm sewer is shown approximately 3' off of the decorative retaining wall.* The proposed wall has been moved further west and away from the proposed storm sewer. Note that off-site grading easements from the property to the west and from West Valley may be required for construction of the retaining wall as the proposed retaining wall is now shown 3' from the west property line. This item can be considered addressed for this level of review; however further revisions may be required at the time of Final Site/Final Engineering Plan review. The engineer shall provide close up grading detail for the wall relative to the west property line. In addition, it is highly likely that grading easements from the adjacent properties to the west will be required; the concrete footing of the retaining wall is proposed to extend 2' out from the center of wall and is proposed 3.5' subgrade. This would leave approximately 1' of horizontal distance from the footing to the property line to construct the wall which would not be feasible without additional offsite earthwork occurring on the adjacent western properties. Comment partially addressed. Design engineer has stated that the property owner to the west has provided verbal confirmation to allow entry on to his property for purposes of constructing the retaining wall and adjacent grading. We note that a written and signed agreement or off-site grading easement is required from the property owner to the west prior to FSP/FEP approval since construction of the wall as proposed is not feasible without going off-site. **The design engineer states that in Comfort Care's development agreement that a signed agreement from the westerly property owner to allow grading along the west property line for construction of the proposed retaining wall will be obtained during the Final Engineering Plan application and prior to a preconstruction meeting. We note that the property ID number and address of the property to the west shall be provided in the development agreement.**

- e) *The design for the detention basin proposes discharge into the future West Valley storm sewer. The existing West valley storm system will need to be redesigned to accommodate this additional discharge as the proposed West Valley system was at hydraulic capacity prior to accounting for these discharges. This additional discharge will require modification to the West Valley storm water discharge permit. Design engineer has stated the following in their response letter dated January 11, 2022: "West Valley will revise their storm water system to incorporate the additional runoff from this site. Should West Valley not be able to incorporate the additional runoff, we will revise the storm water management utilizing a retention basin. The soils for this site are sandy and suitable for a retention basin based on initial conversation with the geotechnical consultant. We will have the final soils report during final site plan review." DLZ notes that the change from detention to retention will require additional pond area and relocation of proposed landscaping. We defer to the Township as to whether such a change with respect to stormwater management on the Final Site/ Final Engineering Plan would require a revised Preliminary Site Plan to be submitted for administrative review. Comment remains as a notation. Design engineer has stated in their April 11, 2022 response letter that West Valley will revise their storm sewer system and incorporate the restricted runoff from the Comfort Care detention basin. The basin is now shown as a retention basin with an overflow weir facing southwest toward the West Valley development. A condition of approval will be that the offsite drainage course be demonstrated on the West Valley development plans and that it be constructed for beneficial use by the Comfort Care development. The overland flow route will need to demonstrate that the basin overflow shall not adversely impact any of the proposed buildings within the West Valley development. In addition, an off-site storm drainage easement from West Valley will be required for the emergency overland flow. Comment partially addressed. The design engineer for West Valley states "An emergency overflow easement from the Comfort Care retention basin spillway will be provided across the West Valley Site, over/ through the West Valley Basin, over through the West Valley Emergency Overflow Spillway and to the Cedar Island Right-of -way. Engineering calculations are being prepared showing that if the Comfort Care site should go to a storm water emergency overflow condition, the overflow flow rate from the Comfort Care Basin will not adversely effect the West Valley units." The calculations mentioned above and the executed drainage easement from West Valley shall be required prior to FSP/FEP approval as these items affect storm water drainage from the Comfort Care site. **We have contacted the design engineer for West Valley to set up a meeting to discuss the stormwater calculations for West Valley as well as the easement/maintenance agreement requirements; we have not received a response back from the engineer, Please reference Comment 1 under Storm Water Management of our West Valley review letter dated February 10, 2023.***



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- f) *The layout for the water main proposes a second connection to the watermain stub to the southwest provided by the future West Valley development. Note that West Valley has not been constructed so a second connection point for the watermain will not be feasible until West Valley has been constructed. This would result in a dead end main >600' in length which is not allowable per WLT Engineering and Design Standards. Note watermain easements are required to be 20' wide; plan currently proposes 15' wide easements. Wording on plan should also be revised on the Site Utility Plan from existing West Valley stub to proposed stub. Comment partially addressed. The proposed watermain is now shown in a 20' wide easement. The remaining portion of this comment remains outstanding. If the West Valley development is not available for connection, the proposed watermain extension would be a dead end of approximately 1,000 feet with the last 400 feet being stagnant, which is undesirable from a water quality standpoint. An alternate layout may need to be considered in the event West Valley is not constructed. An alternate route has been provided showing a secondary water main connection to the existing water main along Union Lake Road in the event that connection to the West Valley water main is not feasible. Further analysis will be required at the time of Final Site Plan submittal to determine pressure reducing valve requirements if the connection to West Valley is not feasible. The applicant needs to be prepared for the need for a second pressure reducing valve and vault at the second watermain connection. The design engineer has indicated that this site will tie into West Valley's watermain system as a secondary watermain connection. However, we continue to note that the connection is dependent on permitting and construction of the West Valley development. **Comment partially addressed. The design engineers for both Comfort Care and West Valley state "West Valley has agreed to connect to our water main system as shown and is in the process of applying for the Act399 permit from EGLE." And "The water main location between the two developments has been coordinated. It is noted that this connection is dependent on both projects proceeding. Permitting coordination between the Applicant, Comfort Care, White Lake Township, and EGLE will be required in order meet the requirements of local, county and state law."***
- g) A condition placed on the preliminary site plan (PSP) approval by the Township Board continues to remain unaddressed with the extension of the sidewalk to the south.

Final Site Plan/Final Engineering Plan Comments-

Note that comments from our review letter dated December 2, 2022 are in *italics* with responses in **bold**. New comments are in standard font.



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Paving/Grading

1. *The sidewalk around the building does not show ADA accessible ramps adjacent to the ADA parking spaces. Ramps will need to be shown on plan. In addition, provide blown up details for each ADA parking area and ramp with detailed grading to demonstrate that these areas meet ADA grading/slope requirements. Comment outstanding. Ramps have been shown; however, the northernmost ADA parking space (963.65 TP, 963.15) exceeds the maximum allowable slope of 1:48 as well as the south westernmost ADA space (963.55 TP, 963.00). Please revise grades to meet ADA acceptable standards. **Comment addressed. Both spaces have had grades adjusted to ensure ADA compliance.***
2. *The majority of the drainage for the proposed emergency access road appears to be draining off site and on to the West Valley development. Drainage will need to be contained on site or this discharge will need to be included in the offsite storm easement and shown to be accommodated by the West Valley development. Comment partially addressed. A spillway and trench drain have been shown to accommodate the vast majority of drainage. Please revise spillway detail reference on Sheet C302 to Sheet C600 and not C601. **Comment addressed. Sheet reference has been revised.***
3. *Sheet C301- Provide sheet and sheet number reference for drive approach and remaining drive entrance paving and grading. Currently there is no grading sheet provided for this area and the note on Sheet C301 references Sheet XXX. **Comment addressed. Sheet and sheet number have been provided.***
4. *Sheet C302- Curb Cut with Concrete Spillway note- Change reference Sheet number to Sheet C600. **Comment addressed. Sheet reference has been revised.***

Watermain

1. *Sheet C400- Provide Quantities Table for water main and associated appurtenances. Comment outstanding. Although a quantities table has now been provided, we calculate the following quantities: 1) 6" watermain: 38 LF, 2) 8" GV in 5" dia. MH: 2, 3) 8" X 6" tee: 2, 4) 3" curb stop: unable to locate on plan. **Comment partially addressed. Verify the quantity for the 8" X 6" tee; we count 3 instead of 2.***
2. *Hydrant, Station 6+37 is too close to the retaining wall. Relocate so 6' off drive B/C. The proposed hydrant has been shifted in location to now be 3' from retaining wall and 4' off B/C. There are a few concerns with this location that need to be addressed regarding thrust blocking and frost protection. As the proposed retaining wall behind the fire hydrant will be 6 feet high, the entire hydrant barrel will not have sufficient ground cover for frost protection. Also, the Township standard details call for*

*thrust blocking to be installed at the base of the hydrant back to undisturbed ground which will not be possible in this scenario. Additional bracing or rodding will be required to hold the hydrant base in place. **Comment addressed. Proposed hydrant near wall has been relocated away from wall.***

3. *Please provide a profile of the proposed 1" service lead to the west in order to clarify the intent and the relation to the wall. The service lead will need to be 6' deep at the property line and the curb stop should be located at the property line for future connection. As the end of the lead is only shown less than 3 feet from the end of the wall how will a future connection occur without undermining the retaining wall? Has any discussion with the adjacent property owner taken place to determine a good location for this service lead? Also see Comment 10 under Stormwater Management. **Comment partially addressed. Lead is now shown at 6' depth and is located at the property line; however, please address the remaining underlined questions/comments above.***
4. *Sheet C402- Profiles-There are several items on this sheet which will require revision. We have included a red lined plan sheet for the design engineer's use. **Comment addressed. Revisions have been made.***
5. *Sheet C402- 8" Watermain Station 20+00 to 22+52- Show storm sewer crossing (UC12) between the 11.25 degree bend and the 45 degree bend.*
6. *Sheet C402- 8" Watermain Station 20+00 to 22+52- Match stationing at 20+06 to plan (shown as 20+05).*
7. *Sheet C402- 8" Watermain Station 20+00 to 22+52- Pipe length of 252' should be 247'. The 5' of 6" was added to the 247' in error.*
8. *Sheet C402- Hydrant Lead at Station 03+40 – Add UC4 label to 12" storm sewer crossing.*

Sanitary Sewer

1. *The proposed sanitary sewer tap is located on an existing sewer stub with no existing manhole upstream which would not typically be allowed, however the West Valley development is proposing extension of this gravity sewer. If the West Valley development fails to extend the sanitary sewer this proposed sewer connection will need to be revised. **Comment remains as a notation.***

Stormwater Management

1. *Provide profiles for all storm sewer 12" diameter or greater with the following items on the profiles: **Comment outstanding.** Although profiles have now been provided, there are revisions required. We have provided the profiles sheets with red-lined comments. Please revise per comments on these sheets.*

- a) HGL
- b) All utility crossings- minimum of 18" vertical separation required.
- c) Rim elevations
- d) Invert elevations
- e) Location of CSB
- f) Pipe slopes
- g) Pipe diameter
- h) Linear footage of pipe
- i) Retaining wall locations over pipe

Comment partially addressed. Sheet C306- CSB is required between a) MH5-1 to CB5; b) Retaining wall and MH7.

2. *Placing ES2 in the location shown may present challenges relative to retaining wall installation. Comment partially addressed. Although a pipe detail is shown on Sheet C600, the detail does not appear accurate with respect to the actual ES invert elevation of 959.71 relative to the bottom of wall elevation. Please add note on Sheet C300 that also references detail on Sheet C600 and add accurate ES invert elevation and B/W elevations on Sheet C600 detail. **Comment addressed. Note has been added to Sheet C300 and elevations added to detail on Sheet C600.***
3. *Structural calculations prepared, signed, and sealed by a structural engineer shall be required to demonstrate that the integrity of any storm sewer proposed to cross under the retaining wall shall not be compromised due to the vertical and lateral stresses of the retaining wall. Comment partially addressed. Although structural calculations have been provided, we request a written statement from the structural engineer with regard to the above comment as well as for proposed water service lead proposed through or under wall to west property line. See Watermain comment 7 for water service comment relative to wall. **Comment addressed. A letter dated March 11, 2022 from Conn Engineering Consultants, Inc. has been provided.***
4. *Sheet C300- Verify that notes listed under 'Storm Sewer Notes' match White Lake Township Standard details for storm sewer. Comment outstanding. Notes/specifications for materials, etc. do not match that shown on WLT Storm Sewer Standard Details sheet. Please revise. **Comment addressed. Notes on Sheet C300 have been revised.***
5. *Sheet C304- Storm Design calculations will need to be updated. See attached red lined sheet for items requiring revision. **Comment addressed. Calculations have been updated.***



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6. Please coordinate location of proposed retention basin spillway with West Valley. The spillway measures 94' from the southwest corner of the Comfort Care site per the Comfort Care site plan and measures 90' from the southwest corner of the Comfort Care site per the West Valley site plan.
7. Sheet C300- Show proposed sanitary sewer in the background on this plan sheet.
8. Sheet C300- Provide utility crossing numbers in plan view on this sheet.

Landscape Plan

1. *Landscaping shall be revised such that proposed trees are located a minimum of 10' horizontal separation from all watermain, sanitary sewer, and storm sewer. Note that proposed trees appear too close to storm sewer along the western property line. Comment outstanding. Sheets C501 and C502 show several areas where trees are too close to storm sewer. We have enclosed the marked up landscape plan sheets showing the areas where the trees will be required to be located further away from proposed storm sewer to maintain 10' horizontal separation distance. Comment partially addressed. There are a couple of areas where trees will be required to be relocated. This was due to the change in layout of the storm sewer in some areas. We have attached a red lined copy of Sheet C501 for the designer's use. **Comment addressed. Trees/landscaping have been relocated.***

Required Permits and Approvals

The following permits and approvals will be required

1. Permit from the Road Commission for all work within the Union Lake Road Right-Of-Way.
2. SESC permit from OCWRC.
3. NPDES Permit
4. Sanitary Sewer Permit from OCWRC for work on and connection to the existing Sanitary Sewer system.
5. Stormwater Maintenance Agreement.
6. Water main permit from EGLE.
7. Off-site storm drainage easement from West Valley.
8. Off-site grading easements from West Valley and property owner to the west.



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Recommendation

We recommend the plans be revised to address the above referenced items, including any remaining Preliminary Site Plan comments. *We continue to note as in previous reviews that construction of this development is dependent on the West Valley development being modified and constructed in order to have the secondary water main connection and secondary emergency access.* **To help facilitate our review of the revised Final Site Plan/ Final Engineering Plan, please provide a detailed response letter addressing the above comments.**

Please 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*
Nick Spencer, Building Official, White Lake Township *via email*
John Holland, Fire Chief, White Lake Township, *via email*
Jason Hanifen, Fire Marshal, White Lake Township, *via email*

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WHITE LAKE TOWNSHIP PLANNING COMMISSION

REPORT OF THE COMMUNITY DEVELOPMENT DEPARTMENT

TO: Planning Commission

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

DATE: February 23, 2023

RE: Comfort Care
Final Site Plan – Review #3

Staff reviewed the final site plan (FSP) for the Comfort Care project. The Developer intends to construct a single-story 57,443 square foot independent living, assisted living, and memory care facility at Parcel Number 12-36-176-002, located on the west side of Union Lake Road, south of Preserve at Hidden Lake. The Township Board approved the preliminary site plan on June 21, 2022 and approved (final adoption) rezoning the 7.49-acre (net area) site from LB (Local Business) to PD (Planned Development) on July 19, 2022. Following is a list of items relevant to the FSP:

Building Architecture and Design

- The east and west exterior walls of the memory care courtyard (rear of building) and open courtyard (front of building) shall be finished with brick veneer. Exterior elevations of both aforementioned courtyards shall be provided. **(Comment outstanding. Only an east elevation for the memory care courtyard and only a west elevation for the assisted living courtyard were provided. Exterior elevations of both the east and west facades of the assisted living and memory care courtyards shall be provided. As shown on the architectural plan, at the base of the building an approximately 2.5-foot band of brick veneer with a rowlock sill surrounds the aforementioned courtyards. Most of the courtyard facades are clad with fiber cement siding, which results in an unattractive appearance not of the quality required for Planned Developments. As stated in previous correspondence, the east and west walls of the memory care courtyard (rear of building) and open courtyard (front of building) shall be finished with brick veneer. Also, the exterior elevations are no longer conceptual and all references to “conceptual” on Sheet A2 (including the sheet title) shall be removed. The previous comment is also applicable to the floor plan and removing references to “conceptual” on Sheet A1). (Comments addressed. The architectural plans were revised to address these matters).**

- As stated in previous correspondence, the Developer’s architect indicated there would be bay windows across the front of the building. Bay windows are not labeled on Sheet A1 or Sheet A2; clarify if bay windows are proposed and revise accordingly. **(Comment addressed. Bay windows are noted on Sheet A1).** **(Comment previously addressed).**
- As stated in previous correspondence, 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 FSP. **(Comment outstanding. Neither elevations in color or a sample board of building materials were submitted to staff. Placement on a Planning Commission agenda will not occur without submission of the aforementioned items).** **(Comment addressed. Elevations in color and a sample board of building materials have been provided).** Additionally, the address (street number) location shall be shown on the building. Six-inch tall numbers visible from the street are required. The address location is subject to approval of the Fire Marshal. **(Comment remains as a notation. On Sheet A2 street numbers are shown on the north elevation over the means of public access to the building).** **(Comment remains as a notation).**
- As stated in previous correspondence, details for the items to be located on the patio shall be provided at FSP. **(Comment outstanding. Placement on a Planning Commission agenda will not occur without submission of the aforementioned items).** **(Comment addressed. Product details have been provided).**
- As stated in previous correspondence, accessory items such as railings, benches, trash receptacles, outdoor seating (such as tables and chairs), or sidewalk planters located in the vicinity of sidewalks and/or outdoor seating areas are required to be of commercial quality and complement the building design and style. These details shall be provided. **(Comment outstanding. Placement on a Planning Commission agenda will not occur without submission of the aforementioned items).** **(Comment addressed. Product details have been provided).**

Access

- As stated in previous correspondence, curb and gutter shall be installed on each side of the secondary access drive. **(Comment addressed. Concrete curb and gutter are now indicated along the access drive).** **(Comment previously addressed).**
- As stated in previous correspondence, ‘No Parking’ signs shall be required along the secondary access drive. The sign locations along the drive shall be noted on the FSP. **(Comment partially addressed. ‘No Parking’ sign locations were added to Sheet C200. A sign detail shall be provided).** **(Comment addressed. A ‘No Parking’ sign detail has been added to Sheet C600).**

- As stated in previous correspondence, the frontage sidewalk along Union Lake Road shall be constructed through the driveway (concrete sections through the approach). There is an unlabeled/unmarked striping across the approach. A note stating the aforementioned requirement shall be provided on the FSP. **(Comment addressed. Concrete sidewalk is now shown through the approach).** (Comment previously addressed).

Landscaping

- As stated in previous correspondence, an irrigation plan is required at FSP. **(Comment addressed. An irrigation plan has been provided).** (Comment previously addressed).

Outdoor lighting

- It does not appear seven luminaire Type C and 19 luminaire Type E are provided. Verification of the quantities of the aforementioned luminaries shall be provided. **(Comment addressed. The photometric plan has been revised with verification of total number of Type C and Type E luminaries).** (Comment previously addressed).
- Complete catalog details (lighting fixture specification sheets) shall be provided for luminaire Type E. **(Comment addressed. The lighting fixture specification sheets for luminaire Type E have been provided).** (Comment previously addressed).

Community / Public Benefit

A public benefit must be provided, in part, to offset the impact(s) of development on the Township. When Comfort Care was last before the Planning Commission and Township Board, the Developer verbally offered \$20,000 to the Parks and Recreation Fund as a community/public benefit. In its approval of the preliminary site plan, the Township Board required the Developer evaluate the extension of sidewalk as far south down Union Lake Road as possible and present the sidewalk extension as part of the site plan and allocate funds for its construction in the development agreement. As submitted, the site plan does not address the condition of the Township Board. **(Comment outstanding. The Developer has not addressed the condition placed on the preliminary site plan by the Township Board. The Developer's engineer shall design an offsite sidewalk extension along Union Lake Road and submit said plan to the Township. The extent of offsite sidewalk to be designed shall have a construction cost estimate of \$20,000. While the Developer has offered \$20,000 as a community/public benefit, staff believes the contribution proposed is insufficient relative to the scale of the project and suggests the Township Board require an additional contribution to offset the impacts of development on the residents in the vicinity).** (Comment outstanding. The Developer stated a separate submittal is forthcoming to address this requirement). Also, a development agreement was not provided by the Developer for review by the Township. **(A development agreement was provided and review of the document is provided as a separate communication).** (See separate communication for development agreement review).

DLZ Comments

Item D, Page 3 of the DLZ review letter dated September 23, 2022 remains outstanding. Contrary to a statement in the response letter provided to the first review indicating the neighboring property owner has given the Developer verbal approval to enter his property for construction of the wall, a temporary construction/grading easement shall be obtained by the Developer for such purposes. The easement shall be drafted by the Developer, submitted to the Township for review and approval, and executed by the neighboring property owner prior to a pre-construction meeting being scheduled by the Community Development Department. (Comment partially addressed. Comfort Care has stated in its development agreement an executed temporary construction/grading easement from the adjoining property owner shall be obtained prior to scheduling a pre-construction meeting. The development agreement shall specify from what property the easement must be obtained).

Miscellaneous Comments

- It appears the site plan measures drive widths to the 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). Furthermore, gutter pan shall not be included in the measurement of parking space depth. (Comment rescinded).
- Snow storage areas shall be indicated on the site plan. (Comment addressed. Snow storage areas are now indicated on Sheet C200).
- The parking stall paint striping detail on Sheet C600 shall be revised to indicate the stripes shall be painted white.

Planning Commission Options / Recommendation

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

The following notations summarize the final site plan review:

- Recommendation of approval is in accordance with the plans prepared by Griggs Quaderer, Inc. (revision date February 7, 2023), subject to revisions as required. Grading, storm drainage, and utility plans are subject to approval of the Township Engineering Consultant and shall be completed in accordance with the Township Engineering Design Standards.
- Recommendation of approval is in accordance with the overall floor plan and exterior elevations prepared by John K. Costa, AIA dated June 1, 2021 (revision date December 15, 2022), subject to revisions as required. **These plans shall be sealed by the Registered Architect who prepared the plans.**



Fire Department
Charter Township
of White Lake

Site / Construction Plan Review

To: Sean O'Neil, Planning Department Director

Date: 02/13/2023

Project: Comfort Care Senior Living

Job #: 210303

Date on Plans: 02/07/2023

The Fire Department has the following comments with regards to the 7th review of preliminary site plans for the project known as Comfort Care Senior Living.

The Fire Department 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.

COMFORT CARE

NEW ASSISTED LIVING & MEMORY CARE

SITE PLAN APPROVAL PACKAGE

PROPERTY DESCRIPTION (MEASURED): (PARCEL ID# 12-36-176-002)

PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST; SAID POINT OF BEGINNING ALSO BEING THE SOUTHEAST CORNER OF THE "PRESERVE AT HIDDEN LAKE" CONDOMINIUM AS RECORDED AT THE OAKLAND COUNTY REGISTER OF DEEDS;

THENCE FROM SAID POINT OF BEGINNING AND ALONG THE SOUTH EAST LINE OF SAID CONDOMINIUM, NORTH 14 DEGREES 39 MINUTES 35 SECONDS EAST 445.59 FEET TO A POINT OF THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID CENTERLINE ON A CURVE TO THE RIGHT WITH RADIUS 2,852.97 FEET, A CENTRAL ANGLE OF 02 DEGREES 53 MINUTES 04 SECONDS AND WHOSE CHORD BEARS SOUTH 38 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 143.61 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 37 DEGREES 31 MINUTES 27 SECONDS EAST, 170.04 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 58 MINUTES 19 SECONDS EAST, 473.41 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 31 MINUTES 19 SECONDS EAST, 385.43 FEET; THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST, 347.60 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST, 340.64 FEET; THENCE SOUTH 89 DEGREES 54 MINUTES 33 SECONDS EAST, 4.87 FEET; THENCE NORTH 37 DEGREES 41 MINUTES 37 SECONDS WEST, 559.50 FEET TO SAID POINT OF BEGINNING; SAID PARCEL CONTAINS 8.37 GROSS ACRES OF LAND.

UNION LAKE ROAD
WHITE LAKE TWP., MI 48386

PART OF THE NORTHWEST 1/4 OF SECTION 36
TOWNSHIP 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP, COUNTY OF OAKLAND, STATE OF MICHIGAN

DRAWING INDEX:

02-07-2023	C000	COVER SHEET
02-07-2023	C100	BOUNDARY & TOPOGRAPHIC SURVEY
02-07-2023	C200	SITE LAYOUT PLAN
02-07-2023	C300	STORM SEWER PLAN
02-07-2023	C301	SITE GRADING PLAN (NORTHWEST)
02-07-2023	C302	SITE GRADING PLAN (SOUTHEAST)
02-07-2023	C303	SOIL EROSION CONTROL PLAN
02-07-2023	C304	DRAINAGE AREA MAP & STORM CALCULATIONS
02-07-2023	C305	STORM SEWER PROFILES
02-07-2023	C306	STORM SEWER PROFILES
02-07-2023	C400	SITE UTILITY PLAN
02-07-2023	C401	SITE PHOTOMETRIC PLAN
02-07-2023	C402	WATER MAIN PROFILES
02-07-2023	C500	SITE LANDSCAPE PLAN
02-07-2023	C501	SITE LANDSCAPE PLAN (NORTH DETAIL)
02-07-2023	C502	SITE LANDSCAPE PLAN (SOUTH DETAIL)
02-07-2023	C600	SITE DETAILS
02-07-2023	C601	SITE DETAILS
02-07-2023	C700	DRIVE APPROACH - REMOVAL & LAYOUT PLAN
02-07-2023	C701	DRIVE APPROACH - GRADING PLAN & DETAILS
02-07-2023	A1	FLOOR PLAN
02-07-2023	A2	EXTERIOR ELEVATIONS
02-07-2023	IR-1	IRRIGATION PLAN
02-07-2023		SANITARY SEWER DETAILS (WHITE LAKE TWP.)
02-07-2023		WATER MAIN DETAILS (WHITE LAKE TWP.)
02-07-2023		STORM SEWER DETAILS (WHITE LAKE TWP.)
02-07-2023		WRC SOIL EROSION CONTROL DETAILS

OWNER: DOUG BOEHM
COMFORT CARE
4180 TITTABAWASSEE ROAD
SACINAW, MI 48604
PH: (248) 930-7875
EMAIL: DOUG@COMFORTCARES.L.COM

ARCHITECT: JOHN COSTA, AIA
ARCHITECTURAL DESIGN & CONSULTATION, PLLC
417 OLD MILL DRIVE
FLUSHING, MI 48433
PHONE: (810) 659-5275
EMAIL: JNL.COSTA@SBCGLOBAL.NET

ENGINEER: RUDY QUADERER, PE
GRIGGS QUADERER, INC.
8308 OFFICE PARK DR.
GRAND BLANC, MI 48439
PH: (810) 695-0154
EMAIL: RQUADERER@GOINCORP.COM

STANDARD LEGEND	
DESCRIPTION	EXISTING
BUILDING	[Symbol]
STORM SEWER	[Symbol]
SANITARY SEWER	[Symbol]
WATER	[Symbol]
GAS LINE	[Symbol]
ELECTRIC LINE	[Symbol]
TELEPHONE LINE	[Symbol]
MANHOLE	[Symbol]
CATCH BASIN	[Symbol]
FIRE HYDRANT	[Symbol]
VALVE	[Symbol]
UTILITY POLE W/GUY WIRE	[Symbol]
UTILITY RISER	[Symbol]
LIGHT POLE	[Symbol]
SIGN	[Symbol]
CURB & GUTTER	[Symbol]
FENCE	[Symbol]
GUARD RAIL	[Symbol]
INVERT ELEVATION	IE 6" 750.00
CONTOUR	--- 750 ---
SPOT ELEVATION	#750.00
ASPHALT SURFACE	ASPH.
CONCRETE SURFACE	[Symbol]
GRAVEL SURFACE	GRAV.
TREE LINE	[Symbol]
TREE	[Symbol]

GENERAL NOTES:

- STANDARD SPECIFICATIONS: ALL MATERIALS AND CONSTRUCTION METHODS FOR THIS PROJECT SHALL CONFORM WITH THE REQUIREMENTS OF ALL GOVERNING AGENCIES HAVING JURISDICTION (LOCAL, COUNTY, STATE), UNLESS OTHERWISE NOTED. CONSTRUCTION MATERIALS SHALL COMPLY WITH THE LATEST EDITION OF THE STATE OF MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND PROJECT SPECIFICATIONS. IN CASE OF DISCREPANCIES BETWEEN REQUIREMENTS, THE MOST STRINGENT SHALL APPLY.
- EXISTING BACKGROUND INFORMATION: THE EXISTING FEATURES SHOWN ON THESE DOCUMENTS ARE FROM AN ACTUAL TOPOGRAPHIC SURVEY PERFORMED BY GRIGGS QUADERER, INC. IN JUNE OF 2021. THE UNDERGROUND UTILITIES SHOWN WERE EITHER VERIFIED BY THIS SURVEY OR WERE OBTAINED FROM THE BEST AVAILABLE DOCUMENT INFORMATION. NO GUARANTEES ARE GIVEN TO THE ACCURACY OF ALL UTILITY INFORMATION SHOWN OR THAT ALL UTILITIES ARE INDICATED ON THIS DOCUMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS BEFORE COMMENCING WORK AND TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- MISS DIG UTILITY PROTECTION SERVICE: THE CONTRACTOR SHALL CONTACT MISS DIG UTILITY SERVICES (811) THREE (3) WORKING DAYS PRIOR TO BEGIN CONSTRUCTION TO VERIFY LOCATIONS OF UTILITIES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ANY UTILITY DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH THE IDENTICAL MATERIAL IN ACCORDANCE WITH THE UTILITY OWNERS REQUIREMENTS. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
- SUBSURFACE SOIL CONDITIONS: A SOIL INVESTIGATION FOR THIS SITE IS AVAILABLE FOR REVIEW. THE CONTRACTOR IS RESPONSIBLE TO ACQUAINT HIMSELF WITH CURRENT SOIL AND GROUNDWATER CONDITIONS FOR HIS OWN INFORMATION PRIOR TO BIDDING. NO MODIFICATIONS TO UNIT PRICES OR FINAL BID WILL BE MADE DUE TO VARIABLE SUBSURFACE CONDITIONS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION COST OF UTILITIES OR STRUCTURES.
- PERMITS: THE CONTRACTOR IS RESPONSIBLE FOR SECURING ALL PERMITS REQUIRED TO PERFORM ALL WORK SHOWN ON THESE DOCUMENTS. THE CONTRACTOR SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL OR PRIVATE AGENCIES INCLUDING REQUIRED BONDS. COSTS INSPECTION AND TESTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
- SOIL EROSION CONTROL: CONTRACTOR SHALL OBTAIN SOIL EROSION CONTROL PERMIT PRIOR TO BEGIN OF CONSTRUCTION. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF ACT 451, PART 91 FOR SOIL EROSION & SEDIMENTATION CONTROL, AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE UNTIL THE FINAL ACCEPTANCE OF THE PROJECT. CONTRACTOR SHALL PROTECT ALL EXISTING AND PROPOSED STORM WATER FACILITIES ON SITE DURING CONSTRUCTION.
- MISHA SAFETY REQUIREMENTS: ALL WORK, CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL SAFETY, OCCUPATIONAL, HEALTH AND ENVIRONMENTAL REGULATIONS AS WELL AS NFPA AND ANSI CODES AS APPLICABLE.
- PRE-CONSTRUCTION MEETING: CONTRACTOR SHALL ATTEND PRE-CONSTRUCTION MEETING FOR COORDINATION WITH MUNICIPALITY, AGENCIES AND UTILITY COMPANIES. ITEMS FOR DISCUSSION WILL INCLUDE SCHEDULE, INSPECTION SERVICES, TESTING OF PUBLIC UTILITIES AND FINAL AS-BUILT DOCUMENTS.
- CONSTRUCTION INSPECTIONS & FINAL TESTING: CONTRACTOR IS RESPONSIBLE TO NOTIFY ALL INSPECTION AGENCIES THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION AND ARRANGE FOR ON-SITE INSPECTION. PUBLIC UTILITIES SHALL BE TESTED PER LOCAL AND COUNTY AGENCY REQUIREMENTS WITH INSPECTORS FROM BOTH AGENCIES PRESENT. THE CONTRACTOR SHALL NOT CONNECT TO THE EXISTING PUBLIC UTILITY UNTIL THE NEW UTILITY IS TESTED AND APPROVED BY THE AGENCIES.

WHITE LAKE TOWNSHIP STANDARD 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, WATER MAINS AND APPURTENANCES AS WELL AS PRIVATE STREET CURBING AND PAVING CONSTRUCTION. INTERVIEWS WILL BE MADE FOR SITE GRADING, PARKING LOT CURBING AND PAVING, RETAINING WALL CONSTRUCTION AND OTHER SURFACE ACTIVITY.

DATE	MOST RECENT ISSUE / REVISION DATE
	FILLED CIRCLE INDICATES SUBMITTED DRAWING

BENCHMARKS (NAVD88 DATUM):

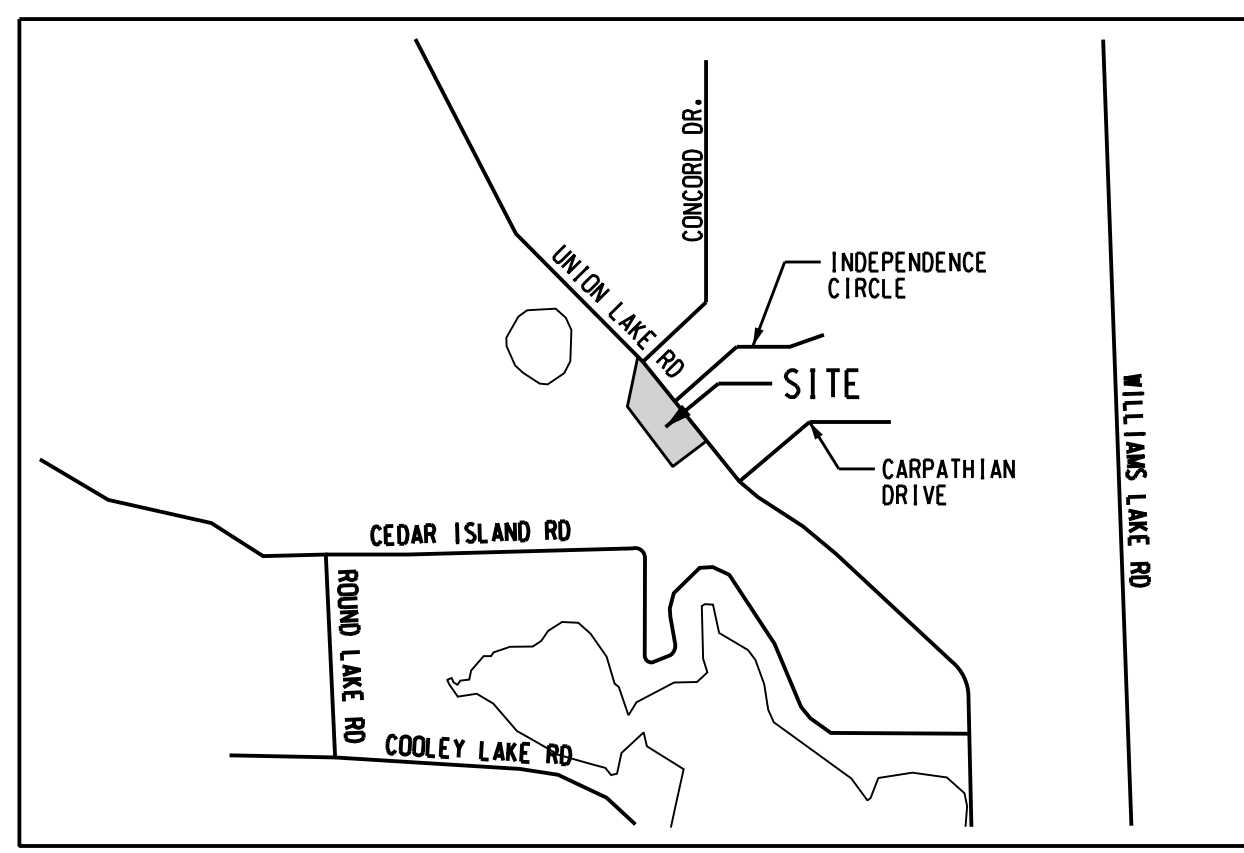
- BM #1 TOP ARROW ON FIRE HYDRANT LOCATED APPROXIMATELY 5' EAST OF SAWGRASS LANE, 230' SOUTH OF HOUSE #8605 SAWGRASS LN AND 380' WEST OF UNION LAKE ROAD. ELEVATION = 964.69
- BM #2 TOP ARROW ON FLANGE OF FIRE HYDRANT LOCATED APPROXIMATELY 75' SOUTH OF CONCORD DRIVE AND 52' EAST OF UNION LAKE ROAD. ELEVATION = 968.21
- BM #3 TOP BENCHMARK MARKER ON WEST FACE OF UTILITY POLE LOCATED APPROXIMATELY 650' SOUTH OF INDEPENDENCE CIRCLE, 34' EAST OF UNION LAKE ROAD AND 107' SOUTH OF FIRE HYDRANT. ELEVATION = 983.51

NPDES STATEMENT:

THE OWNER WILL NEED TO OBTAIN AN NPDES STORM WATER DISCHARGE PERMIT FROM EGLE. TOTAL DISTURBED AREA: 7.84 ACRES.

TOPOGRAPHIC SURVEY STATEMENT:

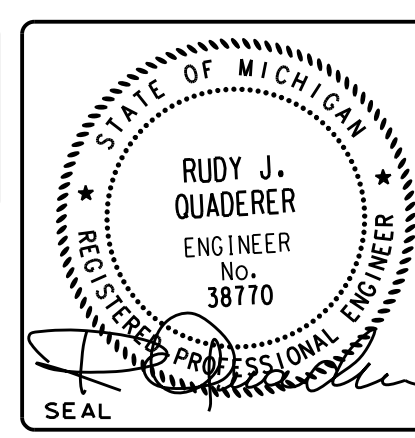
THE EXISTING FEATURES SHOWN ON THIS PLAN ARE FROM AN ACTUAL TOPOGRAPHIC SURVEY PERFORMED BY GRIGGS QUADERER, INC. IN JUNE OF 2021. THE UNDERGROUND UTILITIES SHOWN WERE EITHER VERIFIED BY THIS SURVEY OR WERE PLOTTED IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE. NO EXISTING UTILITIES WERE EXPOSED FOR VERIFICATION OF LOCATION AND ELEVATION. NO GUARANTEES ARE GIVEN THAT THE LOCATIONS ARE ABSOLUTELY ACCURATE OR THAT UTILITIES OTHER THAN THOSE SHOWN ARE NOT PRESENT.



LOCATION MAP
NOT TO SCALE

NO.	DATE	SUBJECT
	02-07-23	REISSUED TO WHITE LAKE TWP.
	11-10-22	REISSUED TO WHITE LAKE TWP.

DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK



NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
COVER SHEET

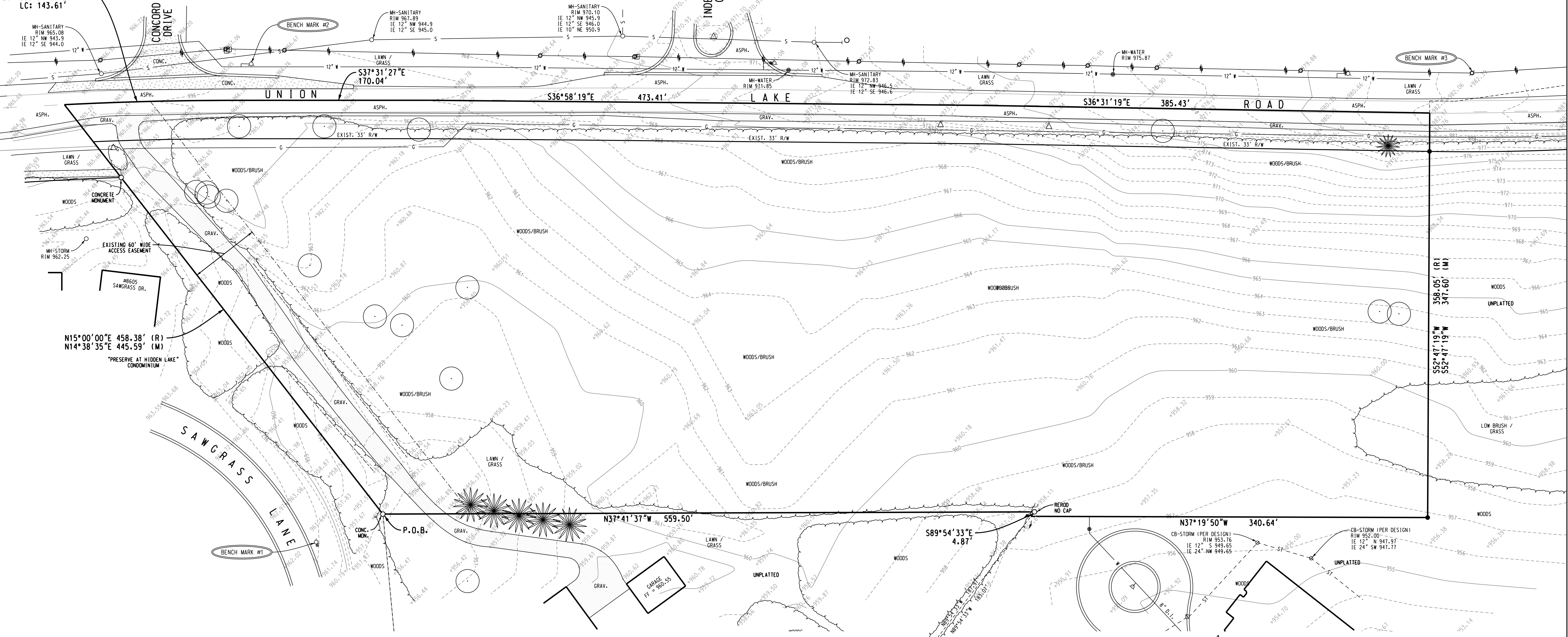


Griggs Quaderer Inc.
CIVIL ENGINEERING · LAND SURVEYING · SITE PLANNING

8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PH: (810) 695-0154
FX: (810) 695-0158
WWW.GOINCORP.COM

PROJECT NUMBER	210303	SHEET	C000
PROJECT PHASE	FINAL SPA		

CA: 02°53'04"
RAD: 2852.97'
LC: S38°57'59"E
LC: 143.61'



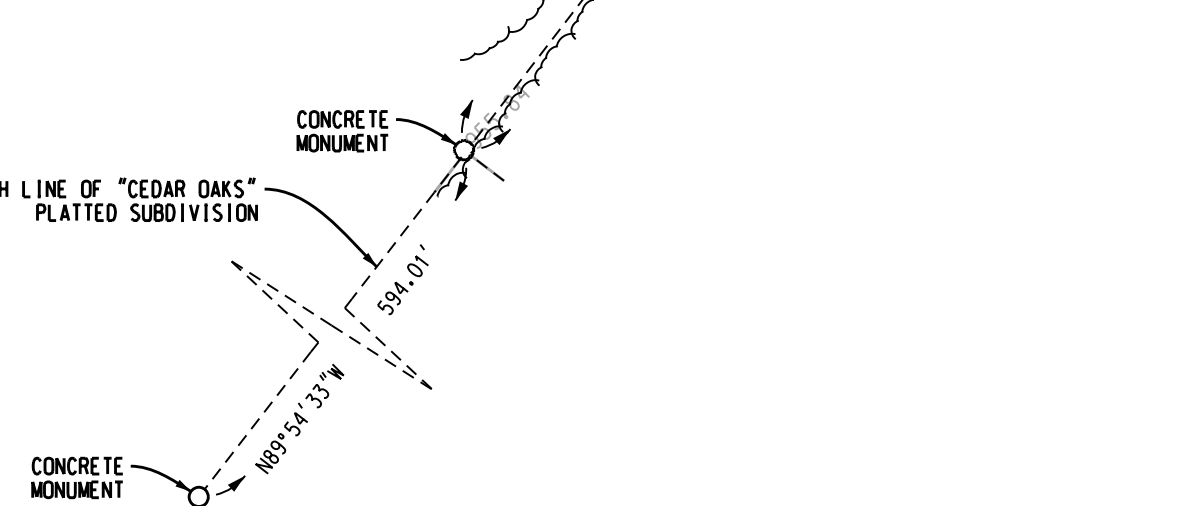
STANDARD LEGEND	
DESCRIPTION	EXISTING
BUILDING	—
STORM SEWER	—
SANITARY SEWER	—
WATER	—
GAS LINE	—
ELECTRIC LINE	—
TELEPHONE LINE	—
MANHOLE	○
CATCH BASIN	□
FIRE HYDRANT	△
VALVE	●
UTILITY POLE W/GUY WIRE	—
UTILITY RISER	□
LIGHT POLE	☆
STON	△
CURB & CUTTER	—
FENCE	—
GUARD RAIL	—
INVERT ELEVATION	1E 6" 750.00
CONTOUR	— 750
SPOT ELEVATION	750.00
ASPHALT SURFACE	ASPH.
CONCRETE SURFACE	CONC.
GRAVEL SURFACE	GRAV.
TREE LINE	—
TREE	○

GENERAL UTILITY NOTE:
THE UTILITIES AS SHOWN ON THIS DOCUMENT WERE EITHER VERIFIED BY AN ACTUAL FIELD SURVEY OR WERE PLOTTED IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE. GRIGGS QUADERER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN INCLUDE ALL POSSIBLE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, GRIGGS QUADERER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH GRIGGS QUADERER DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE UNDERGROUND UTILITY PIPE SIZES AS SHOWN ON THIS DOCUMENT WERE OBTAINED EITHER BY RECORD PLAN INFORMATION OR BY FIELD MEASUREMENTS. GRIGGS QUADERER CAN NOT GUARANTEE THE ACCURACY OF THE PIPE SIZES OR THEIR LOCATIONS EITHER BY FIELD MEASUREMENT OR BY RECORD DATA AND SHALL NOT BE HELD RESPONSIBLE FOR ANY DISCREPANCIES REGARDING THESE UTILITIES.

BENCHMARKS (NAVD88 DATUM):
 BM #1 TOP ARROW ON FIRE HYDRANT LOCATED APPROXIMATELY 5' EAST OF SAWGRASS LANE, 230' SOUTH OF HOUSE #8605 SAWGRASS LN AND 380' WEST OF @ UNION LAKE ROAD. ELEVATION = 964.69
 BM #2 TOP ARROW ON FLANGE OF FIRE HYDRANT LOCATED APPROXIMATELY 75' SOUTH OF CONCORD DRIVE AND 52' EAST OF @ UNION LAKE ROAD. ELEVATION = 968.21
 BM #3 TOP BENCHMITE MARKER ON WEST FACE OF UTILITY POLE LOCATED APPROXIMATELY 650' SOUTH OF @ INDEPENDENCE CIRCLE, 34' EAST OF @ UNION LAKE ROAD AND 107' SOUTH OF FIRE HYDRANT. ELEVATION = 983.51

PROPERTY DESCRIPTION (RECORDED):
PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, AND PROCEEDING THENCE NORTH 15 DEGREES 00 MINUTES 00 SECONDS EAST 458.38 FEET; THENCE ALONG A CURVE TO THE RIGHT RADIUS 2,864.93 FEET, CENTRAL ANGLE 03 DEGREES 35 MINUTES 36 SECONDS, AN ARC DISTANCE OF 179.67 FEET, AND WHOSE CHORD BEARS SOUTH 38 DEGREES 46 MINUTES 05 SECONDS EAST A DISTANCE OF 179.64 FEET; THENCE SOUTH 36 DEGREES 58 MINUTES 20 SECONDS EAST 615.98 FEET; THENCE SOUTH 36 DEGREES 31 MINUTES 20 SECONDS EAST 385.35 FEET, (THE LAST THREE COURSES BEING ALONG THE CENTERLINE OF UNION LAKE ROAD); THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST 358.05 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST 900.00 FEET TO THE POINT OF BEGINNING, CONTAINING 8.6977 ACRES MORE OR LESS.
 SAID PARCEL BEING SUBJECT TO THE RIGHTS OF THE PUBLIC FOR UNION LAKE ROAD OVER THE EASTERLY 33.00 FEET THEREOF.

ALSO SAID PARCEL BEING SUBJECT TO EASEMENTS FOR MICHIGAN BELL TELEPHONE COMPANY AS RECORDED IN LIBER 5157, PAGES 872, 873 AND 874, OAKLAND COUNTY RECORDS AND TO ANY OTHER EASEMENTS THAT MAY BE OF RECORD OVER SAID PARCEL.
 ALSO SAID PARCEL BEING SUBJECT TO A 60 FOOT EASEMENT FOR INGRESS AND EGRESS DESCRIBED AS PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, AND PROCEEDING THENCE NORTH 15 DEGREES 00 MINUTES 00 SECONDS EAST 458.38 FEET TO A POINT ON THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID LINE, ALONG A CURVE TO THE RIGHT, RADIUS 2,864.93 FEET, AN ARC DISTANCE OF 173.46 FEET; THENCE SOUTH 15 DEGREES 00 MINUTES 00 SECONDS WEST 462.47 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST 75.80 FEET TO THE POINT OF BEGINNING.



PROPERTY DESCRIPTION (MEASURED):
PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST; SAID POINT OF BEGINNING ALSO BEING THE SOUTHWEST CORNER OF THE "PRESERVE AT HIDDEN LAKE" CONDOMINIUM AS RECORDED AT THE OAKLAND COUNTY REGISTER OF DEEDS;
 THENCE FROM SAID POINT OF BEGINNING AND ALONG THE SOUTH EAST LINE OF SAID CONDOMINIUM, NORTH 14 DEGREES 38 MINUTES 35 SECONDS EAST 445.59 FEET TO A POINT OF THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID CENTERLINE ON A CURVE TO THE RIGHT WITH RADIUS 2,852.97 FEET, A CENTRAL ANGLE OF 02 DEGREES 53 MINUTES 04 SECONDS AND WHOSE CHORD BEARS SOUTH 38 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 143.61 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 37 DEGREES 31 MINUTES 27 SECONDS EAST, 170.04 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 58 MINUTES 19 SECONDS EAST, 473.41 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 31 MINUTES 19 SECONDS EAST, 385.43 FEET; THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST, 347.60 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST, 340.64 FEET; THENCE SOUTH 89 DEGREES 54 MINUTES 33 SECONDS EAST, 4.87 FEET; THENCE NORTH 37 DEGREES 41 MINUTES 37 SECONDS WEST, 559.50 FEET TO SAID POINT OF BEGINNING; SAID PARCEL CONTAINS 8.37 GROSS ACRES OF LAND.

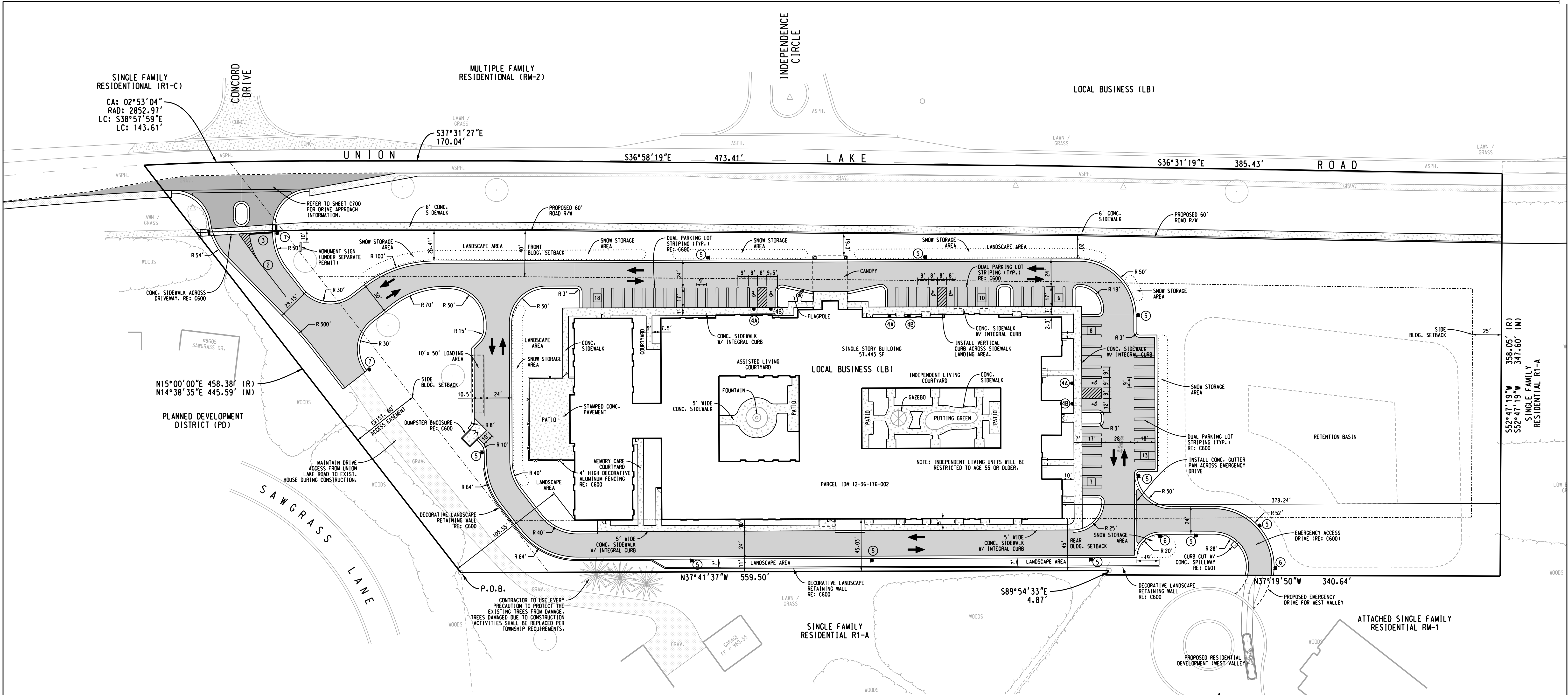
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SCALE: 1"=40'
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NO.	DATE	SUBJECT
02-07-23	REISSUED TO WHITE LAKE TWP.	
11-10-22	REISSUED TO WHITE LAKE TWP.	
REVISION OR ISSUE		

NORTHWEST 1/4 SECTION 36 T-3N, R-8E
COMFORT CARE
 UNION LAKE ROAD WHITE LAKE TWP., OAKLAND COUNTY STATE OF MICHIGAN
 DRAWING TITLE
BOUNDARY AND TOPOGRAPHIC SURVEY
 PROJECT NUMBER 210303 SHEET C100
 PROJECT PHASE FINAL SPA



PARKING DATA:

USE	REQUIREMENTS	PARKING REQUIRED	PARKING PROVIDED
NURSING HOME	1 SPACE/4 BEDS + 1 SPACE/EMPLOY. 44 BEDS/4 + 10 EMPLOY. =	21 SPACES	62 SPACES
INDEPENDENT LIVING	1 SPACE/UNIT + 1 SPACE/EMPLOY. 30 UNITS + 5 EMPLOY. =	35 SPACES	
BARRIER FREE	51 - 75 SPACES	3 SPACES	6 SPACES
TOTAL		56 SPACES	62 SPACES

PAVEMENT LEGEND:

	ASPHALT PAVEMENT SECTION (ON-SITE) RE: C600
	ASPHALT PAVEMENT SECTION (WITHIN ROAD R/W) RE: C600
	CONCRETE PAVEMENT SECTION RE: C600

LAND USE INFORMATION:

CURRENT ZONING: LOCAL BUSINESS (LB)
 PROPOSED ZONING: PLANNED DEVELOPMENT DISTRICT (PD) (REZONE APPROVED)
 CURRENT USE: VACANT
 PROPOSED USE: NURSING HOME/INDEPENDENT LIVING
 MIN. SITE AREA: 10.0 AC.
 ACTUAL SITE AREA: 8.37 AC. GROSS (VARIANCE OBTAINED)
 NET SITE AREA: 7.49 AC. 326,268 SF
 TOTAL BUILDING AREA: 57,443 SF
 LOT COVERAGE BY BLDG: 17.6%
 TOTAL NO. OF UNITS: 60
 UNIT DENSITY: 8 UNITS/AC.
 MAX. BLDG. HEIGHT: 30 FT
 PROPOSED BLDG. HEIGHT: 22 FT

YARD SETBACKS:

BUILDING	ART. 4, SECT. 16
FRONT YARD 40LF	75LF
SIDE YARD 25LF (TOTAL 50LF)	75LF
REAR YARD TO BE DETERMINED BY PLANN. COMM. (45LF PROVIDED)	75LF

- REQUESTED WAIVERS:**
- BUILDING SETBACK: 19 FOOT FRONT CANOPY SETBACK (56 FEET WAIVER)
 - PER CODE, THREE (3) LOADING SPACES REQUIRED. MOST DELIVERIES MADE BY SMALL DELIVERY VEHICLES. LARGER VEHICLES WILL VISIT SITE ONLY ONCE OR TWICE A WEEK. ONE LOADING SPACE PROVIDED. ASKING TO WAIVE THE ADDITIONAL TWO (2) LOADING SPACES.
 - A TWO FOOT WAIVER FROM THE REQUIRED SCREEN WALL GREENBELT WIDTH IS REQUIRED.

- MARKING / SIGNAGE LEGEND:**
- ① STOP SIGN (R1-1)
 - ② 4" SINGLE SOLID LINE, YELLOW
 - ③ 24" WIDE STOP LINE, WHITE
 - ④ ACCESSIBLE SIGN (R7-8)
 - ⑤ ACCESSIBLE SIGN (R7-VAN) ACCESSIBLE (R7-B & R7-BA)
 - ⑥ NO PARKING - FIRE LANE
 - ⑦ STOP EMERGENCY VEHICLES ONLY
 - ⑧ PRIVATE DRIVE - "NO OUTLET OR TRESPASSING"
- NO PARKING / NO DRIVING AREAS
 4" WIDE WHITE PAINT STRIPING
 2" ON CENTER @ 45° - REFER TO PAVEMENT MARKING NOTE #2 FOR BARRIER FREE PARKING

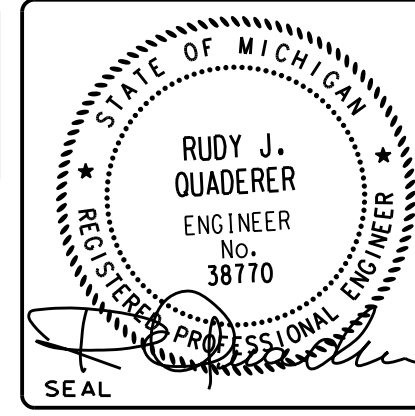
- PAVEMENT MARKING & SIGNAGE NOTES:**
- PARKING STALL WIDTH DIMENSIONS ARE TO CENTERLINE OF STRIPING.
 - ALL PAVEMENT MARKINGS FOR PARKING SPACES SHALL BE 4" WIDE DUAL WHITE PAINT STRIPING. ALL BARRIER FREE STRIPING SHALL BE COLORED BLUE AND IN ACCORDANCE WITH THE LATEST ADA STANDARDS FOR ACCESSIBLE DESIGN.
 - CONTRACTOR SHALL NOT APPLY TRAFFIC MARKING PAINT ON NEW ASPHALT UNTIL PAVEMENT HAS CURED A MINIMUM OF SEVEN (7) DAYS.
 - PAINT SHALL BE APPLIED WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES TO PROVIDE MINIMUM 10.0 TO 15.0 MILS WET THICKNESS.
 - ALL TRAFFIC CONTROL SIGNS SHALL CONFORM WITH ALL REQUIREMENTS AS STIPULATED IN THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - NUMBER OF PARKING SPACES (FOR INFORMATION ONLY)

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SCALE: 1"=40'

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NO.	DATE	SUBJECT
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11-10-22	RE ISSUED TO WHITE LAKE TWP.	

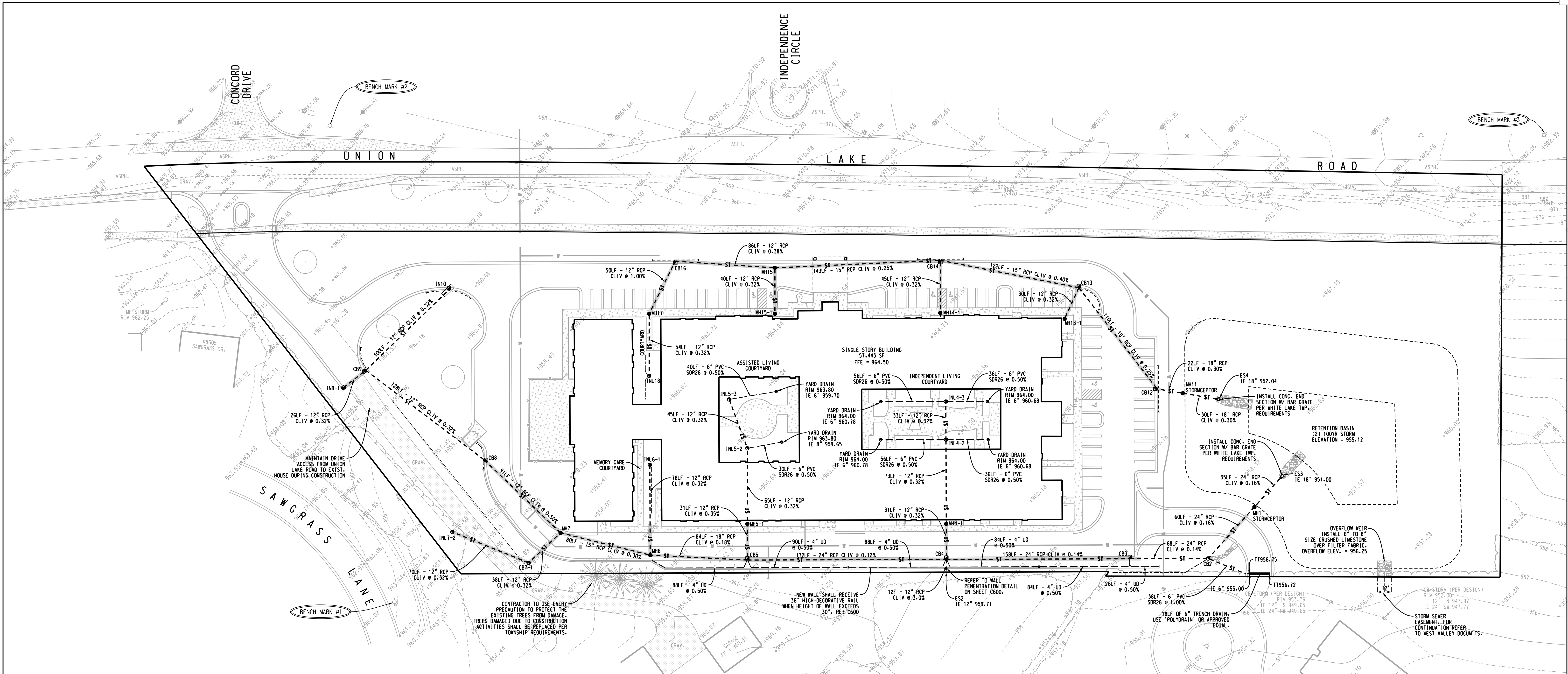
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
 WHITE LAKE TWP.,
 OAKLAND COUNTY
 STATE OF MICHIGAN

DRAWING TITLE
SITE LAYOUT PLAN

PROJECT NUMBER	210303	SHEET	C200
PROJECT PHASE	FINAL SPA		



DRAINAGE STRUCTURE SCHEDULE:

MH1 (STORMCEPTOR) RIM 956.80 IE 24" E 951.06 IE 24" W 951.06	MH6 (4" DIA.) RIM 963.05 IE 18" SE 951.94 IE 15" NW 952.04 IE 12" W 958.00	MH13-1 (4" DIA.) RIM 964.20 IE 12" E 958.48 IE 12" W 958.00
CB2 (4" DIA.) RIM 956.50 IE 24" E 951.16 IE 24" W 951.16 IE 6" SE 954.62	MH7 (4" DIA.) RIM 963.40 IE 15" SE 952.28 IE 12" W 952.38 IE 12" NW 951.26	CB14 (4" DIA.) RIM 963.00 IE 15" SE 957.17 IE 15" NW 957.17 IE 12" W 958.62
CB3 (4" DIA.) RIM 961.60 IE 24" SE 951.26 IE 24" NW 951.26	MH14-1 (4" DIA.) RIM 963.80 IE 12" SE 958.76 IE 12" W 958.00	MH15-1 (4" DIA.) RIM 964.25 IE 12" NE 959.36 IE 12" W 958.06
CB4 (4" DIA.) RIM 962.90 IE 24" SE 951.48 IE 24" NW 951.48 IE 12" NE 957.50 IE 12" SW 959.35	MH17 (4" DIA.) RIM 963.45 IE 15" SE 957.53 IE 12" NW 957.73 IE 12" SW 959.23	MH18 (2" DIA.) RIM 963.50 IE 12" NE 959.23
MH4-1 (4" DIA.) RIM 964.40 IE 12" SW 957.60 IE 12" NE 957.60	INL7-2 (2" DIA.) RIM 956.70 IE 12" SE 952.50 IE 12" NW 952.50	MH19-1 (2" DIA.) RIM 961.50 IE 12" E 957.11 IE 12" NW 951.79 IE 12" NE 957.50
INL4-2 (2" DIA.) RIM 964.00 IE 12" SW 957.83 IE 12" NE 957.83 IE 6" NW 960.50 IE 6" SE 960.50	CB8 (4" DIA.) RIM 962.00 IE 12" SW 956.62 IE 12" N 956.62	INL10 (2" DIA.) RIM 962.30 IE 12" W 957.35
INL4-3 (2" DIA.) RIM 964.00 IE 12" SW 957.94 IE 6" NW 960.50 IE 6" SE 960.50	CB9 (4" DIA.) RIM 961.50 IE 12" S 957.03 IE 12" E 957.03 IE 12" W 957.03	MH21 (STORMCEPTOR) RIM 957.10 IE 18" SE 952.13 IE 18" NW 952.13
CB5 (4" DIA.) RIM 962.25 IE 24" SE 951.69 IE 18" NW 951.79 IE 12" NE 957.50	IN9-1 (2" DIA.) RIM 961.50 IE 12" E 957.11 IE 12" NW 951.79 IE 12" NE 957.50	CB12 (4" DIA.) RIM 962.40 IE 18" SE 952.20 IE 18" NW 952.20
MH5-1 (4" DIA.) RIM 964.20 IE 12" SW 957.61 IE 12" NE 957.61	INL10 (2" DIA.) RIM 962.30 IE 12" W 957.35	
INL5-2 (2" DIA.) RIM 963.80 IE 12" SW 957.81 IE 8" NW 958.00 IE 6" SE 959.50		

STORM SEWER NOTES:

- ALL MATERIALS SHALL COMPLY WITH MDT STANDARD SPECIFICATIONS AND/OR WHITE LAKE TOWNSHIP STANDARD DETAILS. REFER TO WHITE LAKE TOWNSHIP STANDARD STORM SEWER DETAIL SHEET ATTACHED WITH THIS SET OF DOCUMENTS FOR DETAILS AND STANDARD NOTES.
- CONTACT TOWNSHIP ENGINEER 48 HOURS PRIOR TO CONSTRUCTION TO SCHEDULE INSPECTION. FULL TIME INSPECTION WILL BE REQUIRED FOR ALL UNDERGROUND STORM SEWER CONSTRUCTION. PHONE: (248) 334-9901.
- THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (800) 482-7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
- PRIOR TO CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY WHITE LAKE TOWNSHIP.
- FOR MATERIAL NOTES, SIZING AND CONSTRUCTION PRACTICES, CONTRACTOR SHALL REFER TO WHITE LAKE TOWNSHIP STANDARD STORM SEWER DETAIL SHEET.

GRADING NOTES: (REFER TO SHEETS C301 & C302)

- ALL PROPOSED SPOT ELEVATIONS IN PAVED AREAS ARE TO TOP OF PAVEMENT UNLESS NOTED OTHERWISE.
- CONTOURS SHOWN ARE FOR REFERENCE ONLY. BASE CONSTRUCTION EFFORTS ON PROPOSED SPOT ELEVATIONS ONLY.
- "BARRIER FREE" PARKING AND SIDEWALK RAMP SHALL CONFORM IN ALL RESPECTS TO THE MICHIGAN ADA (AMERICANS WITH DISABILITIES ACT) REQUIREMENTS.
- CONTRACTOR SHALL ADJUST ANY UTILITY ELEMENT/STRUCTURE MEANT TO BE FLUSH WITH GRADE (CLEAN OUT, VALVE BOXES, MANHOLES, CATCH BASINS, INLETS, ETC.) WHICH ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT, NO ADDITIONAL COSTS FOR THIS WORK WILL BE ACCEPTED. THE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS FOR ADJUSTMENT AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR IS RESPONSIBLE FOR CUT AND FILL QUANTITIES. ADDITIONAL COMPENSATION WILL NOT BE ACCEPTED FOR HAULING OF EXCESS AND BORROW MATERIAL TO AND FROM SITE AS WELL AS LABOR COSTS FOR PLACEMENT AND/OR REMOVAL. OFF-SITE BORROW MATERIAL MUST BE CLEAN COMPACTIBLE STRUCTURAL FILL MATERIAL (NO ORGANIC MATERIAL) WHICH WILL BE INSPECTED PRIOR TO USE FOR ON-SITE FILL MATERIAL.
- SITE CONTRACTOR IS RESPONSIBLE TO PROVIDE A STABLE SUBGRADE AT DESIGN ELEVATIONS. ALL PAVED AREAS INCLUDING BUILDING PAD SHALL BE PROFILESSED & COMPACTED TO MEET 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ANSI/ASTM D1557.
- CONTRACTOR SHALL STORE SUFFICIENT TOPSOIL MATERIAL ON-SITE FOR RE-USE IN ALL DISTURBED GREEN AREAS AND NEW LANDSCAPE AREAS.
- PROVIDE POSITIVE DRAINAGE AT ALL TIMES TO ENSURE NO STANDING WATER. MAINTAIN A MINIMUM SLOPE OF 1.00% IN ALL NEW BITUMINOUS AREAS.
- SAND BACKFILL (MOT CLASS II) COMPACTED TO 95% DENSITY

NORTH

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RUDY J. QUADERER
ENGINEER
No. 38770

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FX: (810) 695-0158
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NO.	DATE	SUBJECT
02-07-23		RE ISSUED TO WHITE LAKE TWP.
11-10-22		RE ISSUED TO WHITE LAKE TWP.
REVISION OR ISSUE		

NORTHWEST 1/4
SECTION 36
T-3N, R-8E

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE STORM SEWER PLAN	
PROJECT NUMBER 210303	SHEET C300
PROJECT PHASE FINAL SPA	

UNION

LAKE

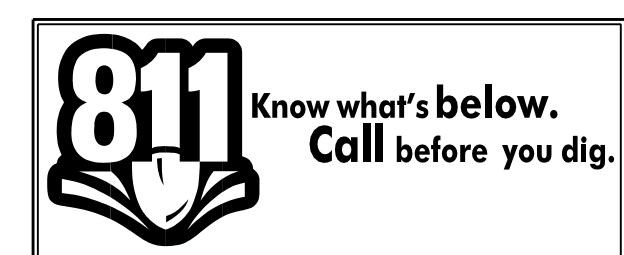
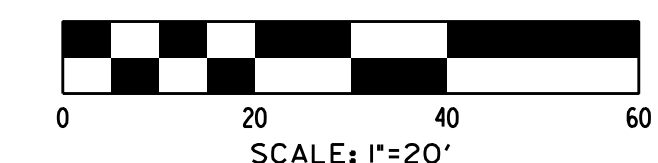
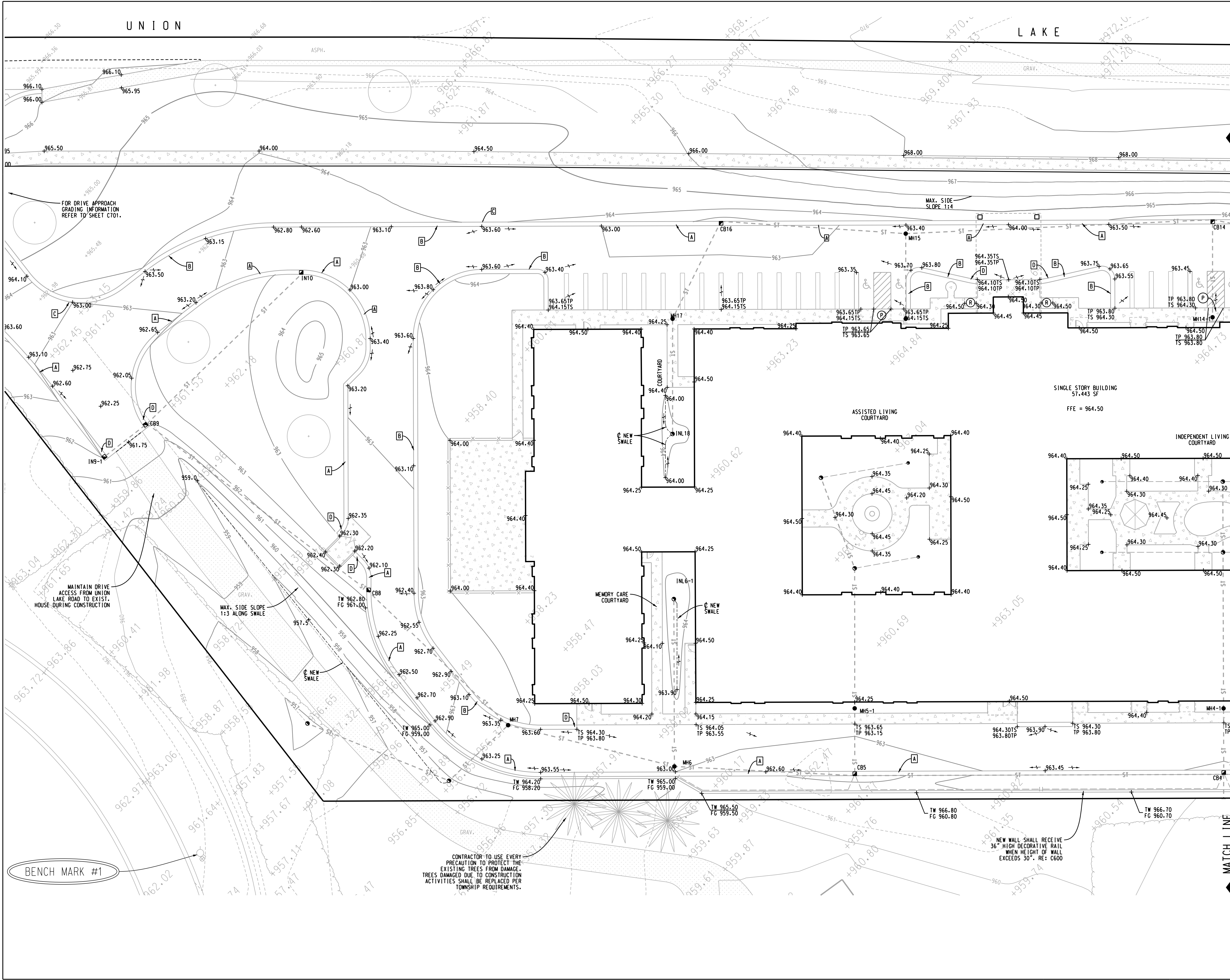
CURB, GRADING & SIDEWALK RAMP NOTATIONS:

- A STANDARD CURB AND GUTTER
- B STANDARD CURB AND GUTTER WITH REVERSE SLOPE
- C 10 FOOT TRANSITION BETWEEN TYPE A AND TYPE B
- D 5 FOOT CURB END TRANSITION.
- E MATCH EXISTING PAVEMENT OR CURB ELEVATION.
- F TYPE F RAMP. PER MDT DETAIL R-28-J
- R TYPE R RAMP. PER MDT DETAIL R-28-J

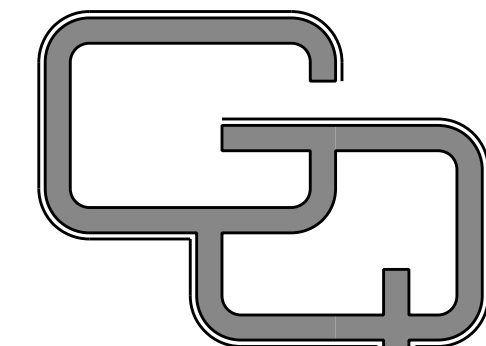
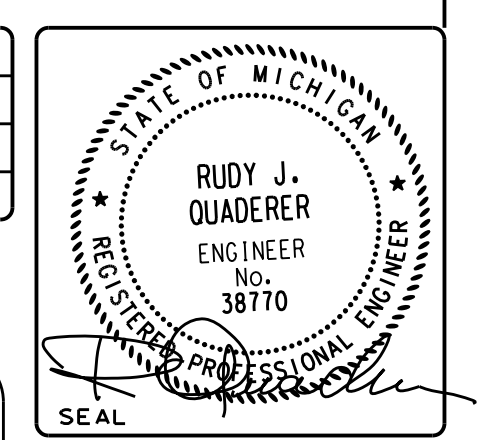
ABBREVIATIONS:

- FG FINISHED GRADE
- TP TOP OF PAVEMENT
- TS TOP OF SIDEWALK
- TT TOP OF TRENCH DRAIN
- TW TOP OF WALL

REFER TO SHEET C300 FOR GRADING NOTES.



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NO.	DATE	SUBJECT

NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
 WHITE LAKE TWP.,
 OAKLAND COUNTY
 STATE OF MICHIGAN

PROJECT NUMBER	210303	SHEET	
PROJECT PHASE	FINAL SPA		
		C301	

FOR DRIVE APPROACH GRADING INFORMATION REFER TO SHEET C301.

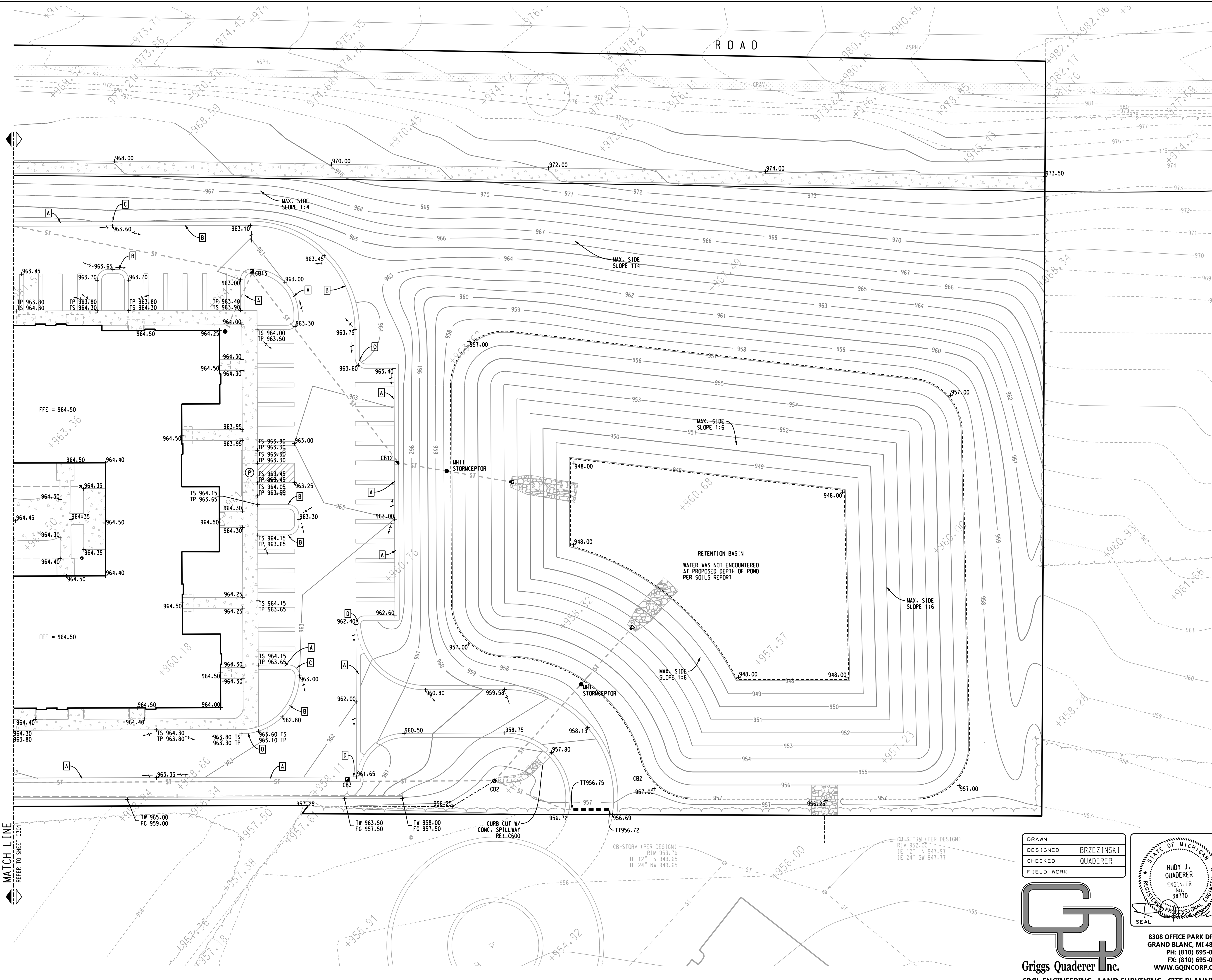
MAINTAIN DRIVE ACCESS FROM UNION LAKE ROAD TO EXIST. HOUSE DURING CONSTRUCTION

BENCH MARK #1

CONTRACTOR TO USE EVERY PRECAUTION TO PROTECT THE EXISTING TREES FROM DAMAGE. TREES DAMAGED DUE TO CONSTRUCTION ACTIVITIES SHALL BE REPLACED PER TOWNSHIP REQUIREMENTS.

NEW WALL SHALL RECEIVE 36" HIGH DECORATIVE RAIL WHEN HEIGHT OR WALL EXCEEDS 30". RE: C600

MATCH LINE
 REFER TO SHEET C302



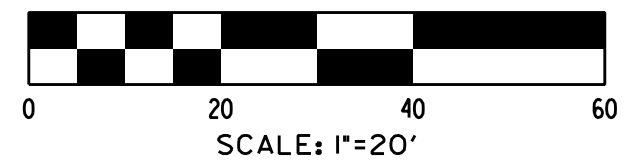
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- [A] STANDARD CURB AND GUTTER
- [B] STANDARD CURB AND GUTTER WITH REVERSE SLOPE
- [C] 10 FOOT TRANSITION BETWEEN TYPE [A] AND TYPE [B]
- [D] 5 FOOT CURB END TRANSITION.
- [E] MATCH EXISTING PAVEMENT OR CURB ELEVATION.
- (P) TYPE F RAMP. PER MDT DETAIL R-28-J
- (R) TYPE R RAMP. PER MDT DETAIL R-28-J

ABBREVIATIONS:

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REFER TO SHEET C300 FOR GRADING NOTES.



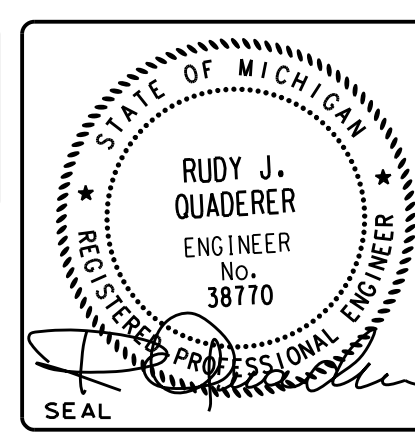
NO.	DATE	SUBJECT

NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
 WHITE LAKE TWP.,
 OAKLAND COUNTY
 STATE OF MICHIGAN

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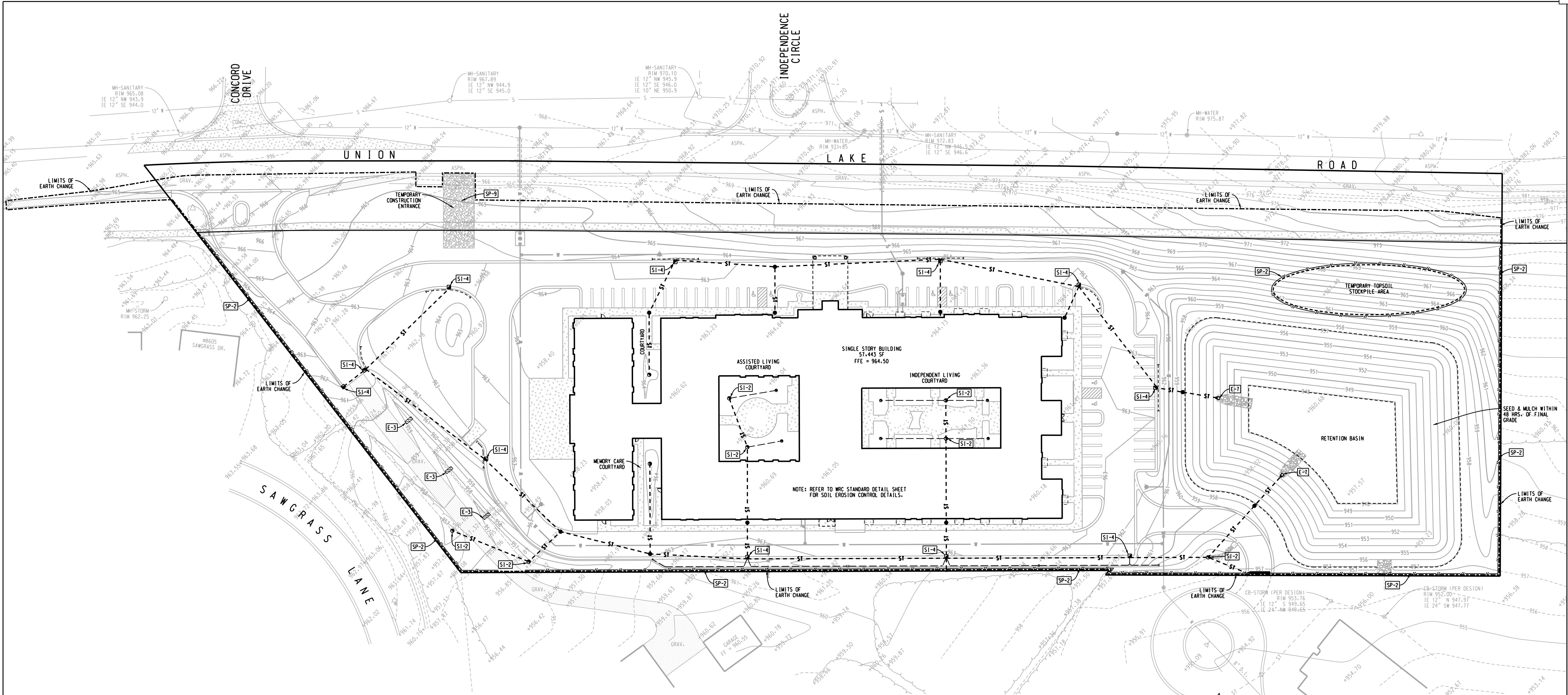


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DRAWING TITLE
**SITE GRADING PLAN
 (SOUTHEAST)**

PROJECT NUMBER 210303 SHEET C302
 PROJECT PHASE FINAL SPA

MATCH LINE
 REFER TO SHEET C301



CONSTRUCTION SEQUENCE:

1. PROVIDE EROSION CONTROL MEASURES THAT WILL BE USED AS PART OF THIS WORK. INSTALL ADDITIONAL MEASURES AS REQUIRED BY THESE DRAWINGS AND AS FIELD CONDITIONS DICTATE IN ACCORDANCE WITH OAKLAND COUNTY DRAIN COMMISSION STANDARDS AND SPECIFICATIONS.
2. REMOVE WOODED AREA AND STRIP TOPSOIL. STOCKPILE ON SITE FOR LATER REUSE.
3. PERFORM MASS GRADING OPERATIONS.
4. BEGIN CONSTRUCTION OF BUILDING PAD AND FOUNDATION.
5. CONSTRUCT STORM SEWER SYSTEM COMPLETE. IMMEDIATELY INSTALL STONE FILTERS ON ALL CATCH BASINS AND INLETS.
6. INSTALL ALL UTILITIES.
7. INSTALL ALL PAVEMENT AND CURBING.
8. DAILY, OR AS REQUIRED, CONSTRUCT AND MAINTAIN TEMPORARY BERMS, DRAINS, SILT FENCE, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
9. FINISH GRADE, REDISTRIBUTE AND/OR PROVIDE TOPSOIL AND ESTABLISH VEGETATION ON ALL DISTURBED GROUND AREAS.
10. COMPLETE INSTALLATION OF PERMANENT EROSION CONTROL MEASURES, INCLUDING SEEDING OPERATIONS AND PAVEMENT INSTALLATION.
11. CLEAN PAVEMENT AND STORM SEWERS OF ALL SEDIMENT.
12. REMOVE SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED AS DIRECTED.
13. INSTALL LANDSCAPING.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED.
15. THE OAKLAND COUNTY DRAIN COMMISSION SHALL INSPECT ALL SOIL EROSION CONTROL MEASURES. ADDITIONAL MEASURES SHALL BE CONSTRUCTED AND MAINTENANCE WORK SHALL BE PERFORMED IF REQUESTED BY OAKLAND COUNTY DRAIN COMMISSION.

SESC MAINTENANCE SCHEDULE NOTES:

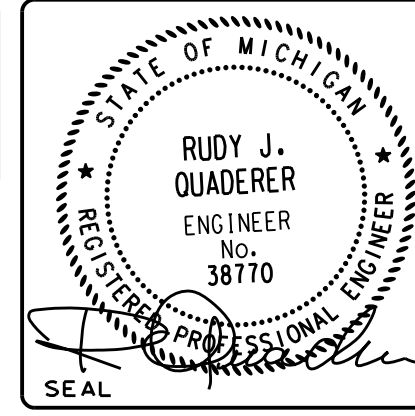
1. THE CONTRACTOR SHALL INSPECT THE SOIL EROSION AND SEDIMENT CONTROL DEVICES EACH WEEK AND WITHIN TWENTY-FOUR (24) HOURS OF A PRECIPITATION EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. A LOG OF INSPECTION REPORTS SHALL BE MAINTAINED AND ACCESSIBLE IN ACCORDANCE WITH WORKS REQUIREMENTS. IMPLEMENT THE FOLLOWING STEPS IF ANY DAMAGE HAS RESULTED FROM CONSTRUCTION OR WEAR.
2. CONSTRUCTION ACCESS ROADS (CLEAN STONE EXITS) MUST BE MAINTAINED AS NECESSARY. ADD ADDITIONAL STONE WHEN ACCESS ROAD BECOMES INEFFECTIVE DUE TO LOSS OF STONE OR COVERED WITH MUD.
3. SILTATION CONTROL FENCE SHOULD BE TRENCHED IN, BACKFILLED, AND STAPLED OR STAKED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. MAINTENANCE INCLUDES THE REMOVAL OF BUILT-UP SEDIMENT WHEN THE SEDIMENT ACCUMULATES TO 1/3 OF THE HEIGHT OF THE FENCE. CONTRACTOR MAY HAVE TO REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE FENCE IF IT FAILS. IT WOULD ALSO BE NECESSARY TO REINSTALL IF ANY PORTION OF THE FENCING WAS DAMAGED BY CONSTRUCTION MACHINERY.
4. INSPECT INLET FILTERS FOR BUILD-UP OF SILT AND OTHER DEBRIS. EXCESSIVE BUILD-UP IS EVIDENT IF GEOTEXTILE / STONE STRUCTURE IS CAUSING FLOODING. MAINTENANCE CONSISTS OF REMOVING ALL SEDIMENT WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTER IS BEYOND THIS LEVEL OF REPAIR, IT MAY BE NECESSARY TO REPLACE BOTH THE STONE AND GEOTEXTILE FILTER FABRIC.
5. PREPARE EROSION CONTROL SEEDING ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR / INSPECTOR SHALL INSPECT THE AREA AFTER SEEDING IS COMPLETED. REPAIR AREAS THAT ARE BARE OR NOT MULCHED PROPERLY BY SPOT SEEDING AND / OR RE-MULCHING.
6. MAINTAIN DUST CONTROL AT ALL TIMES DURING CONSTRUCTION. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES AND USED ON HAUL ROADS, ON-SITE DISTURBED AREAS, OR OTHER PLACES WHERE DUST BECOMES A PROBLEM AS A RESULT OF CONSTRUCTION EFFORTS.
7. PROMPTLY REMOVE ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE.
8. REMOVE SILT DEPOSITS FROM TEMPORARY SEDIMENT TRAPS WHEN TRAP IS HALF FULL.
9. THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM BY THE SITE SUPERINTENDENT.

SOIL EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE OAKLAND COUNTY DRAIN COMMISSION REQUIREMENTS AND SPECIFICATIONS.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. ANY EROSION OR SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MANMADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
4. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAVE BEEN ESTABLISHED.
5. DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTOR. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES TO BE USED ON HAUL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.
6. ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR NO LESS THAN ON A DAILY BASIS. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES (E-7) SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
7. SP-2 & SI-4 REFER TO OAKLAND COUNTY STANDARD DETAIL SHEET FOR EROSION CONTROL AND SEDIMENTATION DETAILS.
8. PROVIDE EROSION CONTROL BLANKET FOR SIDE SLOPES 1:3 AND GREATER TO ESTABLISH VEGETATION. USE NORTH AMERICAN GREEN 5150 OR APPROVED EQUAL, (IF APPLICABLE).
9. THIS PROJECT WILL CONTINUOUSLY BE INSPECTED FOR SOIL EROSION AND SEDIMENT CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR WITH 24 HOURS.
10. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE THROUGH SWALES OR OVERLAND SHEET FLOW FOR THE ENTIRE SITE. SEDIMENT SHALL BE REMOVED PRIOR TO DISCHARGE FROM LIMITS OF CONSTRUCTION. NO STANDING WATER SHALL BE PERMITTED ON SITE.
11. ALL GREEN AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED PER MICHIGAN UNIFIED KEY #6 IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED.
12. DISTANCE TO NEAREST LAKE, STREAM POND, OPEN DRAIN, OR WETLAND: REGULATED WETLAND APPROXIMATELY 150 FT NORTHEAST FROM NORTHEAST CORNER OF SITE.
13. [SI-4] MRC KEY SYSTEM FOR SOIL EROSION CONTROL MEASURES. REFER TO MRC SESC DETAIL SHEET.

NORTH

DRAWN
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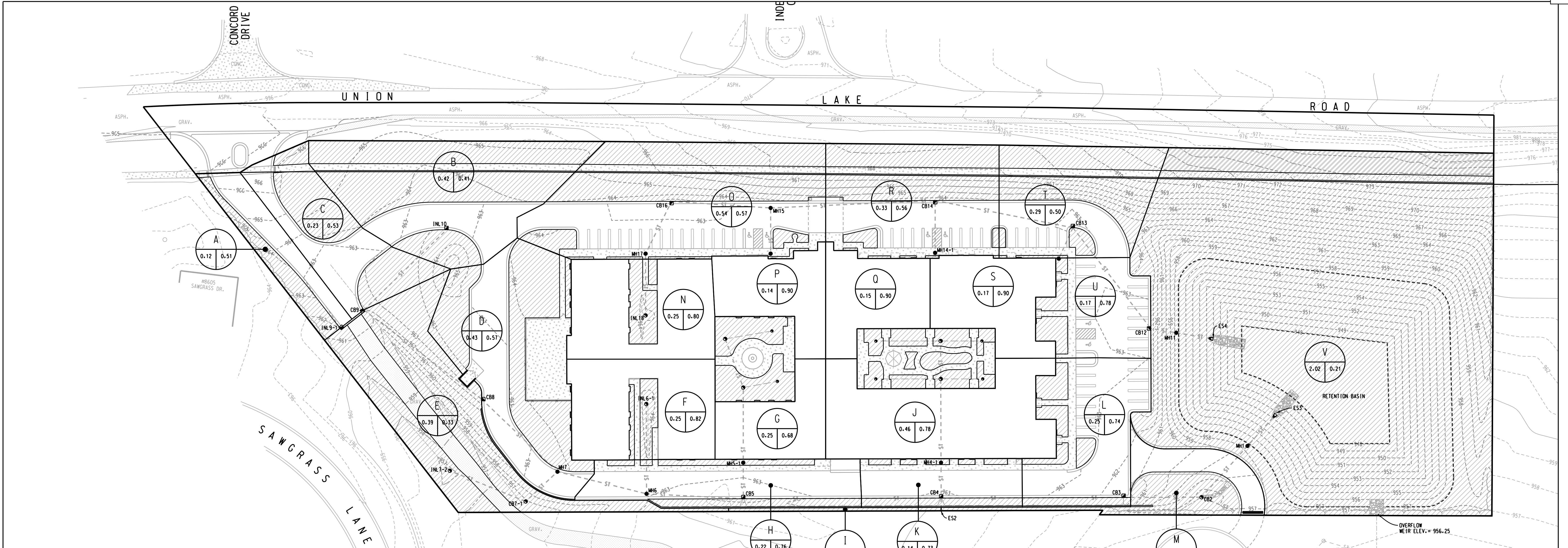
NO.	DATE	SUBJECT
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11-10-22		REISSUED TO WHITE LAKE TWP.
REVISION OR ISSUE		

COMFORT CARE
NORTHWEST 1/4 SECTION 36 T-3N, R-8E
UNION LAKE ROAD
WHITE LAKE TWP., OAKLAND COUNTY STATE OF MICHIGAN

DRAWING TITLE
SOIL EROSION CONTROL PLAN

PROJECT NUMBER 210303
PROJECT PHASE FINAL SPA

SHEET
C303



Runoff Coefficient Calculations

Drainage Area	Pervious			Impervious			Roof Top			Runoff			Drainage Area
	Area (ft²)	Area (Acre)	C	Area (ft²)	Area (Acre)	C	Area (ft²)	Area (Acre)	C	Area (ft²)	Area (Acre)	C	
A	2961.0	0.07	0.20	2303.0	0.05	0.90	0.0	0.00	0.90	5284.0	0.12	0.51	A
B	12703.0	0.29	0.20	5567.0	0.13	0.90	0.0	0.00	0.90	18270.0	0.42	0.41	B
C	5198.0	0.12	0.20	4617.0	0.11	0.90	0.0	0.00	0.90	9815.0	0.23	0.53	C
D	8830.0	0.20	0.20	9881.0	0.23	0.90	0.0	0.00	0.90	18711.0	0.43	0.57	D
E	13970.0	0.32	0.20	3211.0	0.07	0.90	0.0	0.00	0.90	17181.0	0.39	0.33	E
F	1220.0	0.03	0.20	4468.0	0.10	0.90	0.0	0.00	0.90	5688.0	0.14	0.82	F
G	3468.0	0.08	0.20	1654.0	0.04	0.90	5774.0	0.13	0.90	10984.0	0.25	0.68	G
H	1969.0	0.05	0.20	7658.0	0.18	0.90	0.0	0.00	0.90	9627.0	0.22	0.76	H
I	553.0	0.01	0.20	9.0	0.00	0.90	0.0	0.00	0.90	553.0	0.01	0.20	I
J	3485.0	0.08	0.20	2759.0	0.06	0.90	13592.0	0.31	0.90	19836.0	0.46	0.78	J
K	1450.0	0.03	0.20	4468.0	0.10	0.90	0.0	0.00	0.90	5916.0	0.14	0.73	K
L	2502.0	0.06	0.20	8577.0	0.20	0.90	0.0	0.00	0.90	11079.0	0.25	0.74	L
M	3896.0	0.09	0.20	3038.0	0.07	0.90	0.0	0.00	0.90	6934.0	0.16	0.51	M
N	1820.0	0.04	0.20	174.0	0.00	0.90	9039.0	0.21	0.90	10833.0	0.25	0.80	N
O	11100.0	0.25	0.20	12410.0	0.28	0.90	0.0	0.00	0.90	23510.0	0.54	0.57	O
P	0.0	0.00	0.20	0.0	0.00	0.90	8229.0	0.14	0.90	8229.0	0.14	0.90	P
Q	0.0	0.00	0.20	0.0	0.00	0.90	6475.0	0.15	0.90	6475.0	0.15	0.90	Q
R	6957.0	0.16	0.20	7574.0	0.17	0.90	0.0	0.00	0.90	14531.0	0.33	0.56	R
S	0.0	0.00	0.20	0.0	0.00	0.90	7457.0	0.17	0.90	7457.0	0.17	0.90	S
T	7282.0	0.17	0.20	5361.0	0.12	0.90	0.0	0.00	0.90	12643.0	0.29	0.50	T
U	1395.0	0.17	0.20	6248.0	0.12	0.90	0.0	0.00	0.90	7643.0	0.20	0.50	U
V	86043.0	1.98	0.20	1743.0	0.04	0.90	0.0	0.00	0.90	87786.0	2.02	0.21	V
Total	176510.0	4.19	0.20	87241.0	1.98	0.90	89295.0	1.34	0.90	322046.0	7.51	0.51	Total

Storm Design

Manhole No.	Area Designated For Address Area	Increment of Area (Acres)	Imperviousness	Equivalent Area	Accumulative Area of Equivalent Area	Time of Concentration (min)	Rainfall Rate (Intensity)	Quantity of Rainfall (cfs)	Chamber (cfs) of Pipe Out of Manhole	Slope (%) of Individual Gradient	Length (ft) of Line Between M.H.'s	Velocity (ft/s) Flowing Full	Time (min) of Flow To Next M.H.	Discharge Capacity (cfs)
INL9-1	CB9	A	0.12	0.51	0.06	15.00	4.38	0.26	12 in.	0.32%	26	2.57	0.7	2.02
INL10	CB9	B	0.42	0.41	0.17	15.00	4.38	0.74	12 in.	0.32%	180	2.57	0.65	2.02
CB9	CB8	C	0.23	0.53	0.12	15.00	4.31	1.51	12 in.	0.32%	128	2.57	0.83	2.02
CB8	MH7	D	0.43	0.57	0.24	15.00	4.22	2.49	12 in.	0.50%	91	3.22	0.47	2.53
IN7-2	CB7-1	E	0.39	0.33	0.13	15.00	4.38	0.57	12 in.	0.32%	70	2.57	0.45	2.02
CB7-1	MH7	-	-	-	0.13	15.45	4.33	0.56	12 in.	0.32%	38	2.57	0.25	2.02
MH7	MH6	-	-	-	0.85	16.95	4.17	3.55	15 in.	0.30%	80	2.89	0.46	3.55
INL6-1	MH6	F	0.25	0.82	0.21	15.00	4.38	0.92	12 in.	0.32%	78	2.57	0.51	2.02
MH6	CB5	-	-	-	1.06	17.41	4.13	4.37	18 in.	0.18%	84	2.53	0.55	4.47
MH5-1	CB5	G	0.25	0.68	0.17	17.41	4.38	0.74	12 in.	0.35%	31	2.69	0.19	2.11
CB5	CB4	H	0.22	0.76	0.17	17.96	4.07	5.70	24 in.	0.12%	172	2.50	1.15	7.86
MH4-1	CB4	J	0.46	0.78	0.35	15.00	4.38	1.53	12 in.	0.32%	31	2.57	0.20	2.02
ES2	CB4	I	0.01	0.20	0.00	15.00	4.38	0.00	12 in.	3.00%	12	7.88	0.03	6.19
CB4	CB3	K	0.14	0.73	0.10	18.11	3.97	7.34	24 in.	0.14%	158	2.70	0.97	8.49
CB3	CB2	L	0.25	0.74	0.19	20.04	3.88	7.92	24 in.	0.14%	68	2.70	0.42	8.49
CB2	MH1	M	0.16	0.51	0.08	21.20	3.85	8.15	24 in.	0.10%	60	2.89	0.35	9.07
MH1	ES4	-	-	-	2.12	20.85	3.82	8.09	24 in.	0.10%	35	2.89	0.20	9.07

IN18	MH17	N	0.25	0.80	0.20	0.20	15.00	4.38	0.88	12 in.	0.32%	54	2.57	0.35	2.02
MH17	CB16	-	-	-	0.20	15.35	4.34	0.87	12 in.	1.00%	50	4.55	0.18	3.57	
CB16	MH15	O	0.54	0.57	0.31	15.53	4.32	2.20	12 in.	0.38%	66	2.80	0.51	2.20	
MH15-1	MH15	P	0.14	0.90	0.13	15.00	4.38	0.57	12 in.	0.32%	40	2.57	0.26	2.02	
MH15	CB14	-	-	-	0.64	16.04	4.26	2.73	15 in.	0.25%	143	2.64	0.90	3.24	
MH14-1	CB14	Q	0.15	0.90	0.13	15.00	4.38	0.57	12 in.	0.32%	45	2.57	0.29	2.02	
CB14	CB13	R	0.33	0.56	0.19	16.95	4.17	4.01	15 in.	0.40%	122	3.34	0.61	4.10	
MH13-1	CB13	S	0.17	0.90	0.15	15.00	4.38	0.66	12 in.	0.32%	30	2.57	0.19	2.02	
CB13	CB12	T	0.29	0.50	0.14	12.5	17.56	4.11	5.14	18 in.	0.25%	110	2.88	0.62	5.27
CB12	MH11	U	0.17	0.78	0.13	1.38	18.17	4.05	5.59	18 in.	0.30%	22	3.26	0.11	5.77
MH11	ES4	-	-	-	1.38	18.28	4.04	5.58	18 in.	0.30%	30	3.26	0.15	5.77	

100yr Retention Requirement

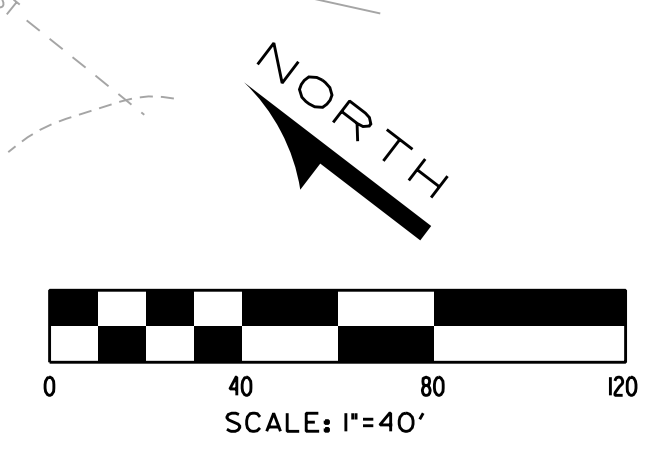
Site Information
 Design Return Period = 100 yrs
 Site Area (A) = 7.51 acre
 C = 0.51
 Allowable Outlet = 0.20 cfs/acre
 Allowable Outlet (Q_o) = 1.50 cfs
 Outlet Provided = 0.00 cfs

Storage Computations
 $V_{100} = (18995 \cdot C \cdot A \cdot 2) - V_c$
 VRB = 145291 Total retention basin volume
 C = 0.51 Composite runoff coefficient
 A = 7.51 Area
 Vc = 0 Volume of 100% BMP Credit

Retention Capacity

Average End Method

Contour	Area (ft²)	Volume (ft³)	Total Volume (ft³)
948	9142.5		0
Average	10447.7	10448	
949	11752.8		10448
Average	13202.1	13202	
950	14651.3		23650
Average	16245.4	16245	
951	17839.5		39895
Average	19579.5	19579	
952	21319.4		59475
Average	23206.4	23206	
953	25093.4		82881
Average	27108.1	27108	
954	29122.8		109789
Average	31250.6	31251	
955	33378.4		141040
Average	35619.3	35619	
956	37860.2		176659
Average	39632.4	7726	
956.2	39404.5		184385
Total Detention Capacity			184385
Retention (Volume)			145291
Retention (Elevation)			955.12



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

NO.	DATE	SUBJECT
	02-07-23	REISSUED TO WHITE LAKE TWP.
	11-10-22	REISSUED TO WHITE LAKE TWP.

NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
 WHITE LAKE TWP.,
 OAKLAND COUNTY,
 STATE OF MICHIGAN

DRAWING TITLE
 DRAINAGE AREA MAP
 & STORM CALCULATIONS

PROJECT NUMBER: 210303
 PROJECT PHASE: FINAL SPA

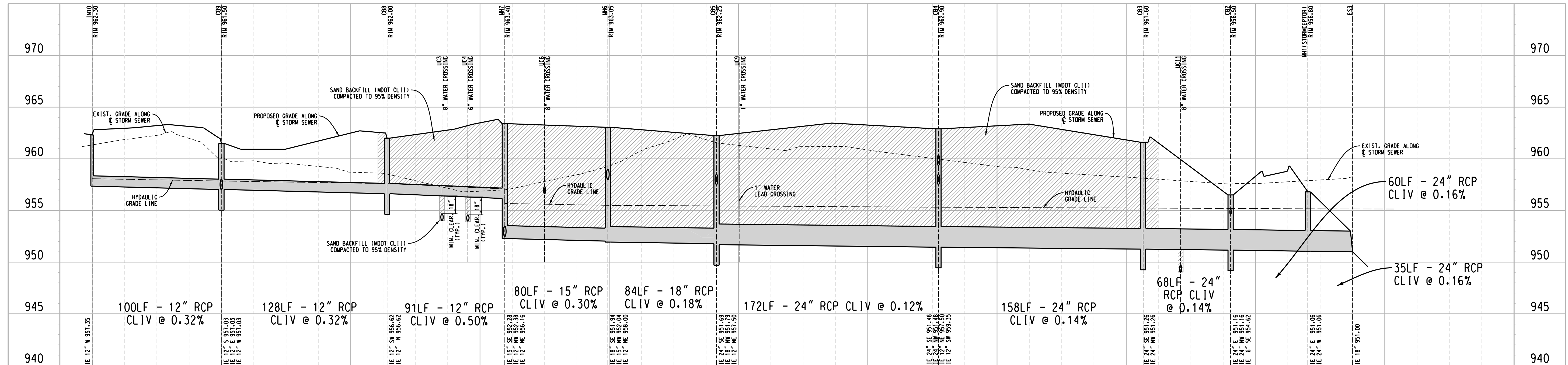
SHEET: C304

DRAWN: BRZEZINSKI
 DESIGNED: BRZEZINSKI
 CHECKED: QUADERER
 FIELD WORK: QUADERER

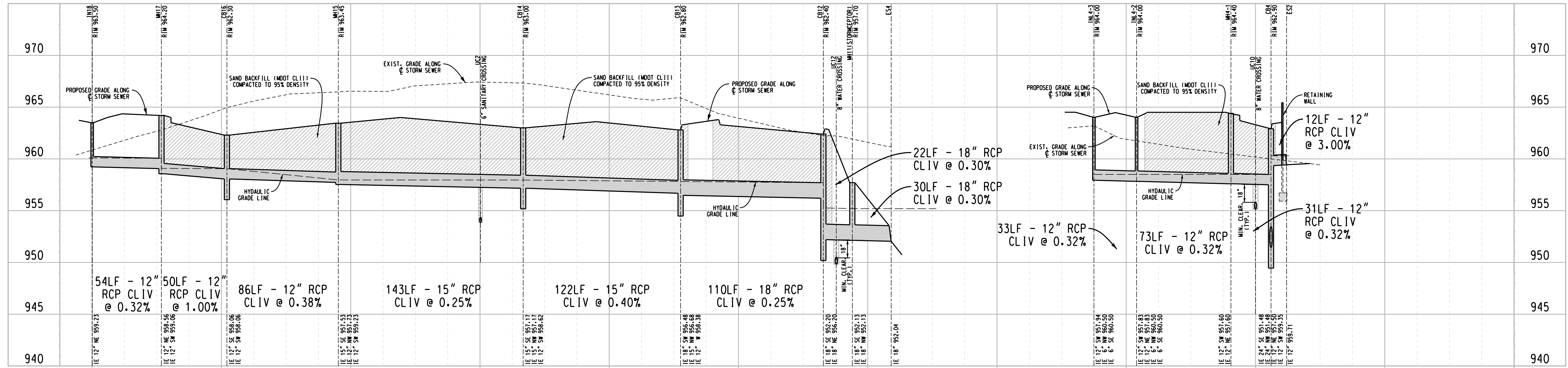
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RUDY J. QUADERER
 ENGINEER
 No. 38770



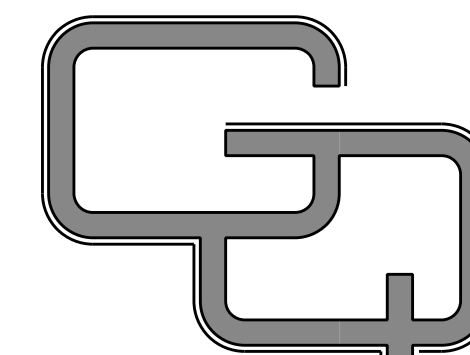
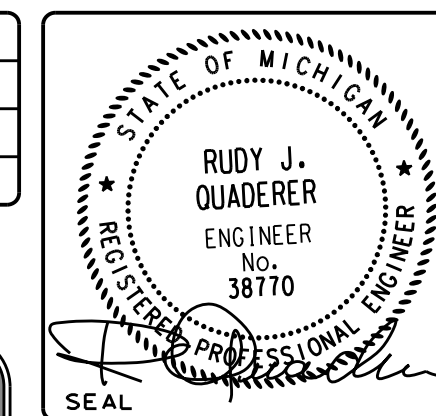
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VER: 1" = 5'



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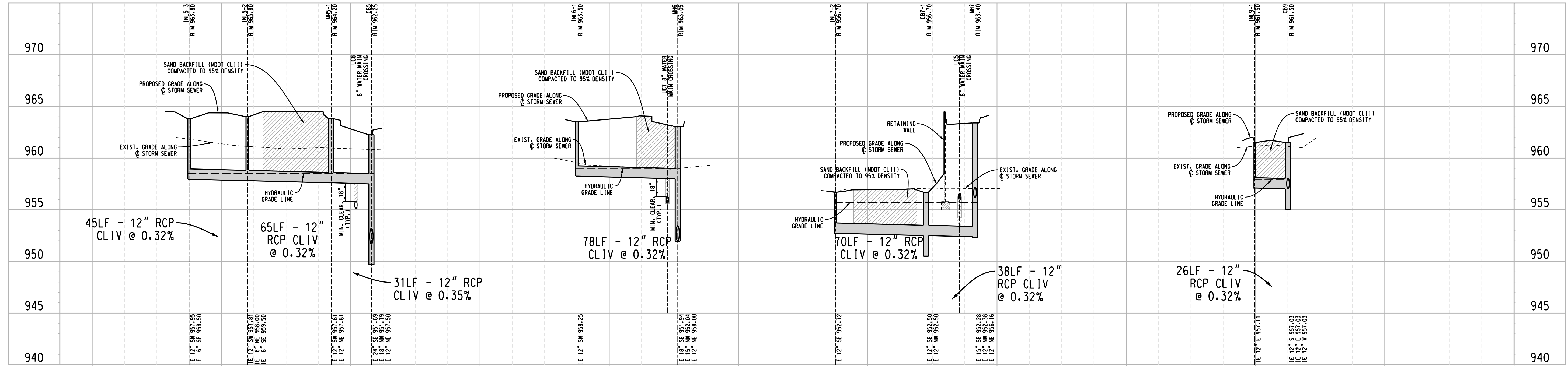
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

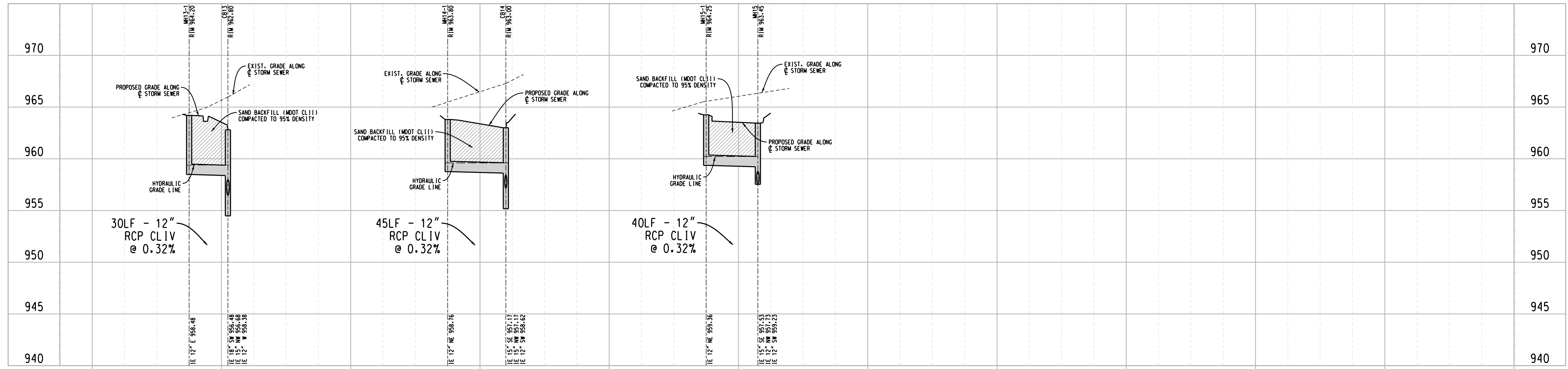
UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
STORM SEWER PROFILES

PROJECT NUMBER	210303	SHEET	C305
PROJECT PHASE	FINAL SPA		



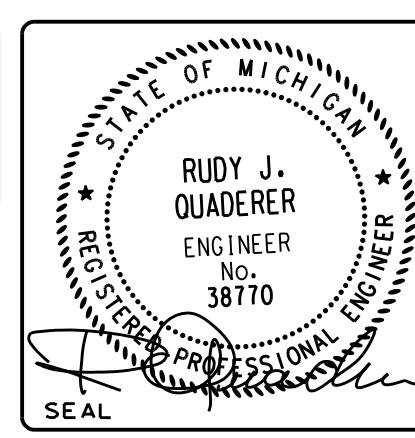
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COMFORT CARE

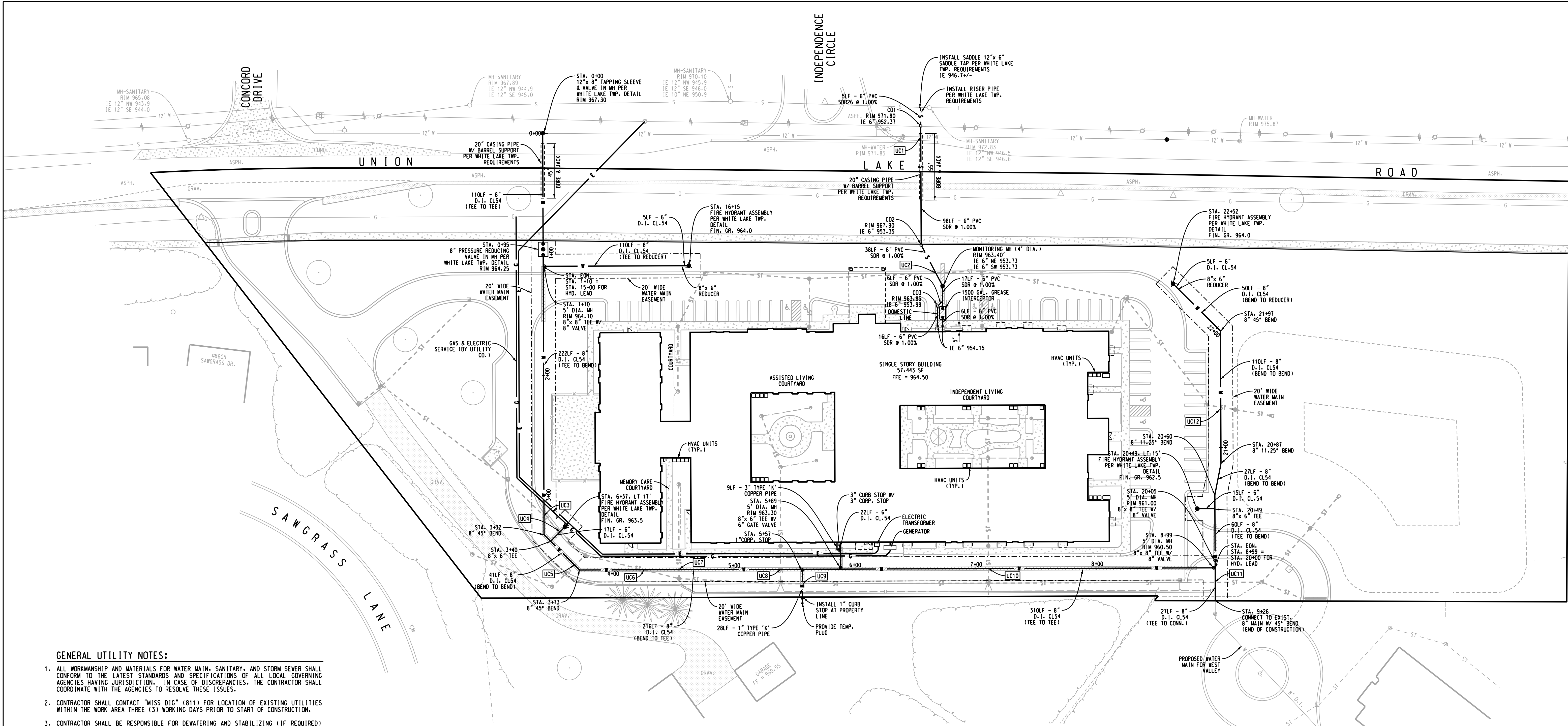
UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
STORM SEWER PROFILES

PROJECT NUMBER
210303

PROJECT PHASE
FINAL SPA

SHEET
C306



GENERAL UTILITY NOTES:

1. ALL WORKMANSHIP AND MATERIALS FOR WATER MAIN, SANITARY, AND STORM SEWER SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF ALL LOCAL GOVERNING AGENCIES HAVING JURISDICTION. IN CASE OF DISCREPANCIES, THE CONTRACTOR SHALL COORDINATE WITH THE AGENCIES TO RESOLVE THESE ISSUES.
2. CONTRACTOR SHALL CONTACT "MISS DIG" (811) FOR LOCATION OF EXISTING UTILITIES WITHIN THE WORK AREA THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND STABILIZING (IF REQUIRED) ALL TRENCH EXCAVATIONS TO ACCOMPLISH WORK INDICATED ON PLANS AND TO ACHIEVE REQUIRED COMPACTION OPERATIONS AS INDICATED IN THE PROJECT SPECIFICATIONS OR ON THESE DOCUMENTS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION COST OF UTILITIES OR STRUCTURES.
4. UTILITY SERVICE LEADS SHALL END 5 FEET FROM THE BUILDING UNLESS NOTED OTHERWISE. COORDINATE WITH BUILDING CONTRACTOR (IF NECESSARY).
5. PROTECT AND MAINTAIN 18 INCH CLEARANCE AT ALL UTILITY CROSSINGS.
6. REFER TO TRENCH DETAIL(S) SHOWN ON THESE DOCUMENTS FOR BEDDING AND BACKFILL MATERIAL REQUIREMENTS.
7. TRENCH EXCAVATIONS SHALL BE COMPACTED IN CONTINUOUS LAYERS NOT EXCEEDING 8 INCH LOOSE LIFTS, COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ANSI/ASTM D 1557 MODIFIED PROCTOR.
8. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
9. CONTRACTOR SHALL COORDINATE INSTALLATION OF GAS, ELECTRIC, AND TELEPHONE WITH THE APPROPRIATE UTILITY COMPANIES.
10. TESTING PROCEDURES FOR SANITARY AND WATER MAIN SHALL BE IN ACCORDANCE WITH LOCAL GOVERNING AGENCY REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH ALL GOVERNING AGENCIES AND HAVE INSPECTORS PRESENT DURING THE TESTING PROCEDURES. ALL TESTING MUST BE APPROVED BY ALL GOVERNING AGENCIES PRIOR TO CONNECTION INTO EXISTING UTILITIES.
11. CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER.
12. CONTRACTOR SHALL ADJUST ANY UTILITY ELEMENT MEANT TO BE FLUSH WITH NEW GRADE (CLEAN OUT, VALVE BOXES, MANHOLES, CATCH BASINS, INLETS, ETC.) THAT ARE AFFECTED BY SITE WORK OR GRADE CHANGES. WHETHER SPECIFICALLY NOTED ON PLANS OR NOT, THE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS FOR ADJUSTMENT AT THE CONTRACTOR'S EXPENSE (IF APPLICABLE).
13. THE CONTRACTOR SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL, OR PRIVATE AGENCIES AND PAY ALL CHARGES FOR INSPECTION AND TESTING.
14. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONSTRUCTION LAYOUT AND GRADE ELEVATIONS FOR THEIR WORK IN ACCORDANCE WITH DATA SHOWN ON THESE DOCUMENTS.
15. THE CONTRACTOR SHALL CONTROL NOISE AND LIMIT WORKING HOURS TO TIMES AS ESTABLISHED BY THE LOCAL MUNICIPALITY.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN-UP OF WORK AREA AT COMPLETION OF THE PROJECT AND LEAVE THE SITE IN AN ACCEPTABLE CONDITION AS DETERMINED BY THE ENGINEER/INSPECTOR AND/OR OWNER.

SANITARY SEWER NOTES:

1. MATERIAL AND CONSTRUCTION METHODS FOR THE INSTALLATION OF SANITARY SEWER SHALL BE IN ACCORDANCE WITH WHITE LAKE TOWNSHIP STANDARD DETAILS FOR SANITARY SEWER ATTACHED TO THIS SET OF DOCUMENTS FOR REFERENCE.
2. ALL SANITARY SEWER PIPE SHALL BE PVC SDR 26 AND MEET OR EXCEED ASTM D-3034 FOR HEAVY WALL PIPE UNLESS OTHERWISE NOTED.
3. TESTING PROCEDURE OF NEW SANITARY LINE SHALL BE IN ACCORDANCE WITH WHITE LAKE TOWNSHIP REQUIREMENTS. CONTRACTOR TO COORDINATE INSPECTIONS WITH AGENCIES.
4. CONTACT MISS DIG (811) 72 HOURS BEFORE CONSTRUCTION FOR LOCATION OF ALL UNDERGROUND UTILITIES.

WATER MAIN NOTES:

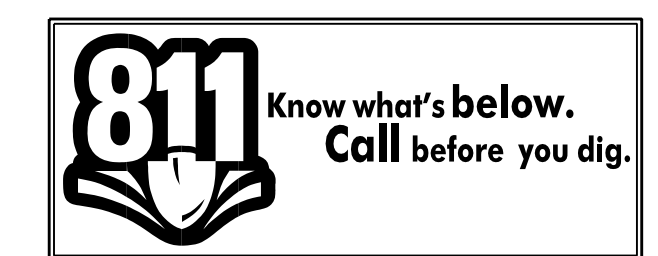
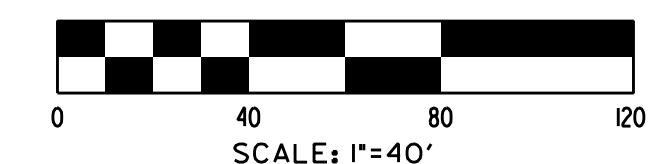
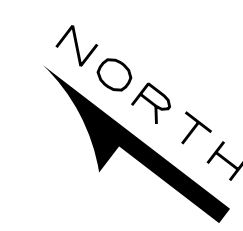
1. MATERIAL AND CONSTRUCTION METHODS FOR THE INSTALLATION OF WATER MAIN SHALL BE IN ACCORDANCE WITH WHITE LAKE TOWNSHIP STANDARD DETAILS FOR WATER MAIN ATTACHED TO THIS SET OF DOCUMENTS FOR REFERENCE.
2. INSTALL WATER MAIN WITH A MINIMUM OF 6' OF COVER.
3. PROVIDE A MINIMUM OF 18" OF VERTICAL SEPARATION AND 10" OF HORIZONTAL SEPARATION BETWEEN WATERMAIN AND ALL SANITARY AND STORM SEWERS.
4. PROVIDE THRUST BLOCKS AT ALL WATER MAIN BENDS, PLUGS, AND TEES PER WHITE LAKE TOWNSHIP DESIGN STANDARDS.
5. THE WATER MAIN SHALL BE TESTED IN ACCORDANCE WITH WHITE LAKE TOWNSHIP REQUIREMENTS. THE INSPECTOR OF THE MUNICIPALITY SHALL BE PRESENT DURING THE TESTING PROCEDURE. CONTRACTOR SHALL COORDINATE INSPECTIONS WITH AGENCIES.
6. CONTRACTOR SHALL PROVIDE AS-BUILT NOTES FOR LOCATION AND MATERIAL OF ALL UNDERGROUND WATER MAIN AND PROVIDE THIS INFORMATION TO THE DESIGN ENGINEER FOR FINAL PREPARATION OF AS-BUILT DOCUMENTS.

WATER MAIN QUANTITIES:

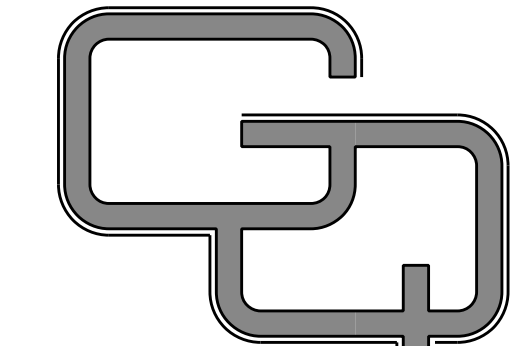
ITEM	UNIT	QUANTITY
8" WATER MAIN PIPE	LF	1,283
6" WATER MAIN PIPE	LF	64
12"x 8" TAPPING SLEEVE & VALVE	EA	1
8" PRESSURE REDUCING VALVE IN MH	EA	1
8"x 8" TEE	EA	2
8" GATE VALVE IN 5' DIA. MH	EA	3
8"x 6" TEE	EA	2
6" GATE VALVE & BOX	EA	1
8"x 6" REDUCER	EA	2
FIRE HYDRANT ASSEMBLY	EA	4
3" TYPE "K" COPPER PIPE	LF	9
3" CORPORATION STOP	EA	1
3" CURB STOP	EA	1
1" CORPORATION STOP	EA	1
1" CURB STOP	EA	1
1" TYPE "K" COPPER PIPE	LF	28

UTILITY CROSSING SCHEDULE:

UC1	TOP SAN 953.00 BOT WATER 965.00	UC6	TOP STORM 954.80 BOT WATER 956.80	UC11	TOP WATER 949.60 BOT STORM 951.10
UC2	TOP SAN 954.35 BOT STORM 955.90	UC7	TOP WATER 956.30 BOT STORM 957.80	UC12	TOP WATER 950.50 BOT STORM 952.00
UC3	TOP WATER 954.65 BOT STORM 956.15	UC8	TOP WATER 955.80 BOT STORM 957.30		
UC4	TOP WATER 954.60 BOT STORM 956.10	UC9	TOP STORM 953.70 BOT WATER 955.80		
UC5	TOP STORM 954.45 BOT WATER 956.60	UC10	TOP WATER 955.80 BOT STORM 957.30		



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	11-10-22	REISSUED TO WHITE LAKE TWP.

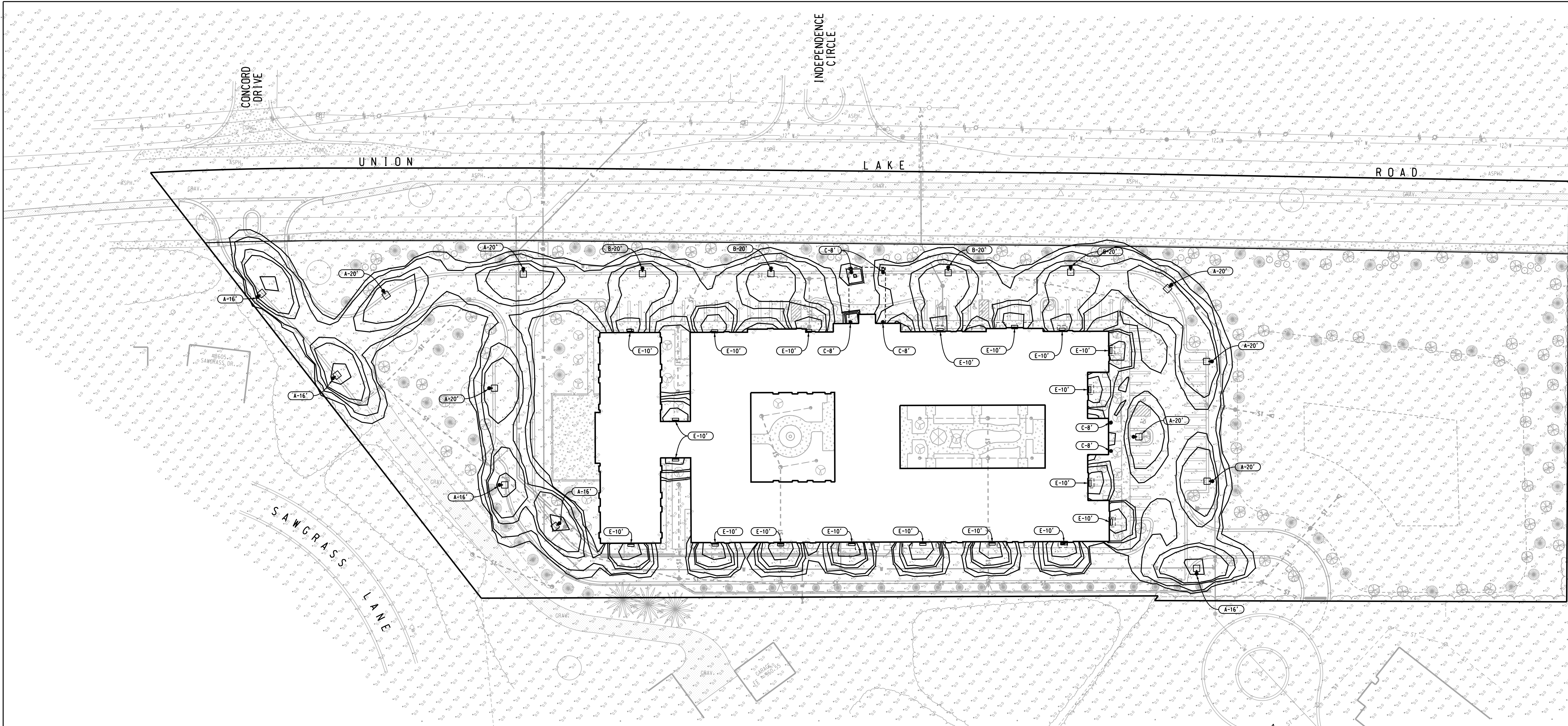
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

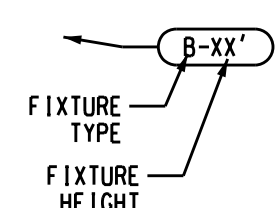
DRAWING TITLE
SITE UTILITY PLAN

PROJECT NUMBER	210303	SHEET	C400
PROJECT PHASE	FINAL SPA		

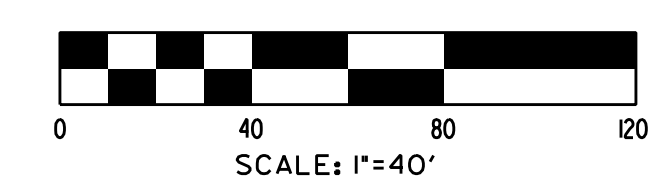
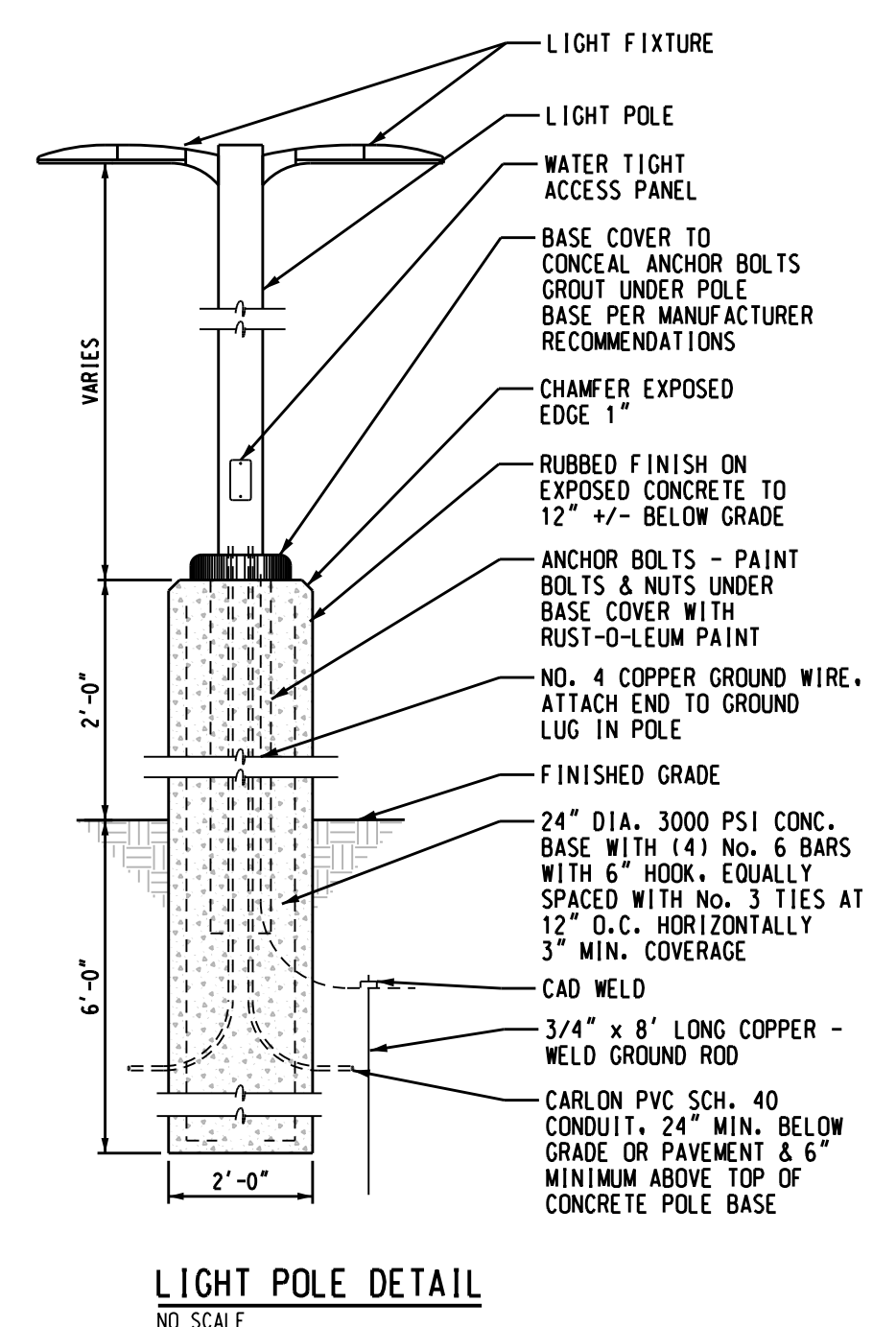
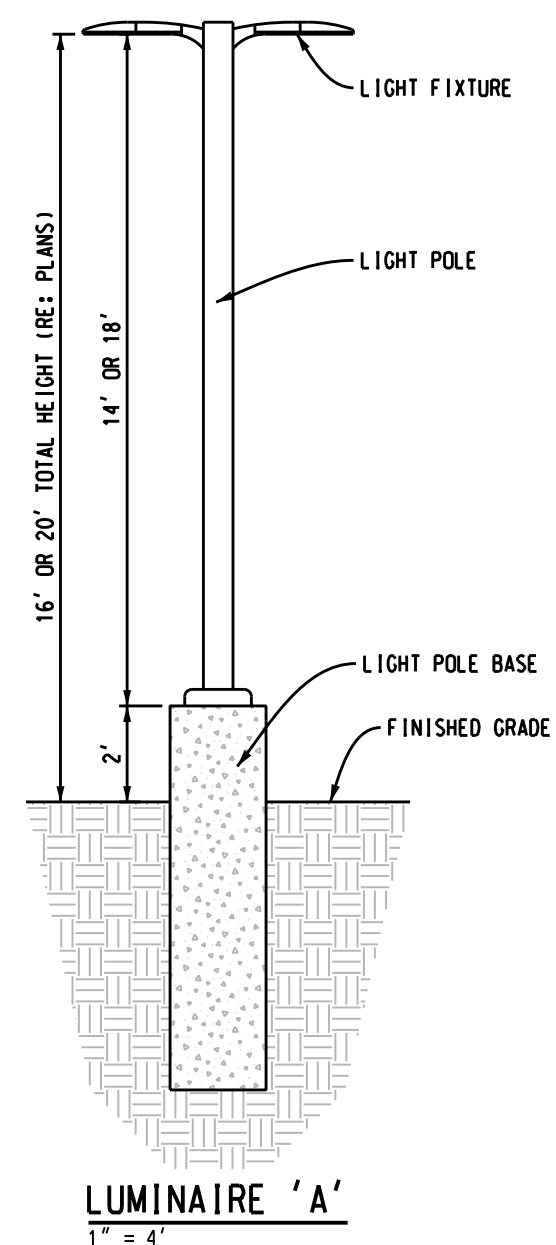
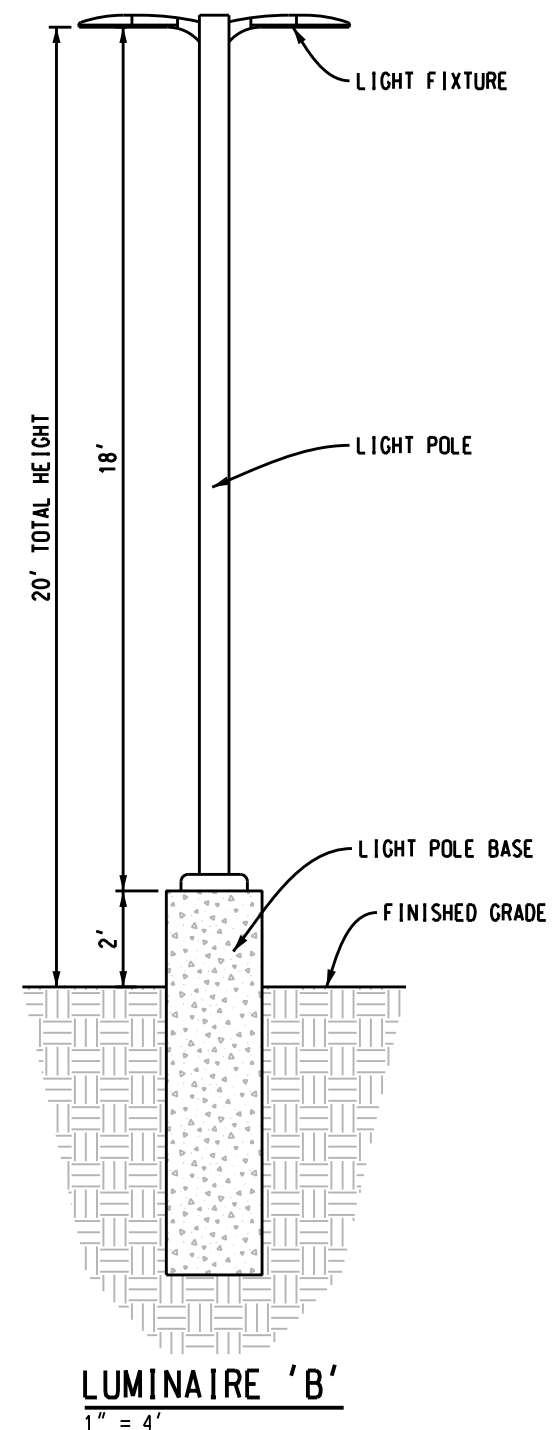


LIGHTING NOTES:
 - THE FOOTCANDLES SHOWN HEREON HAVE BEEN CALCULATED AT APPROXIMATELY SIX FEET ABOVE GRADE.
 - THE CATALOG DETAILS OF THE LIGHTING FIXTURE HAVE BEEN PROVIDED IN FULL BUT SEPARATELY FROM THESE SITE PLAN DOCUMENTS.

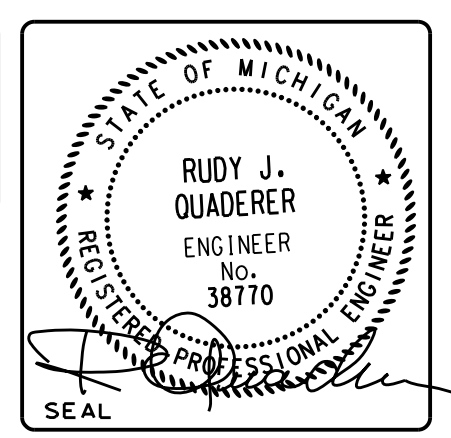
STATISTICAL AREA SUMMARY				
AVG	MAX	MIN	AVG/MIN	MAX/MIN
0.7	11.7	0.1	7.0 / 1	117 / 1



LUMINAIRE SCHEDULE						
QTY	LABEL	ARRANGEMENT	MANUFACTURER	CATALOG NO.	DESCRIPTION	LAMP WATTAGE
12	A	SINGLE	LITHONIA	DSXO LED P1 30K T2M MVOLT HS	D-SERIES AREA SIZE 0. POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE W/ HOUSE SIDE SHIELD	LED 38
4	B	SINGLE	LITHONIA	DSXO LED P1 30K T4M MVOLT HS	D-SERIES AREA SIZE 0. POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE W/ HOUSE SIDE SHIELD	LED 38
6	C	SINGLE	LITHONIA	OLLWD LED P1 40K MVOLT	WALL MOUNTED, DOWN LIGHT ONLY, CYLINDRICAL	LED 9
19	E	SINGLE	LITHONIA	DSXW1 LED 10C 700 30K TFTM MVOLT	DSXW1 WITH (1) 10 LED LIGHT ENGINES, WALL MOUNTED, SINGLE (ONE) LIGHT FIXTURE	LED 26.2



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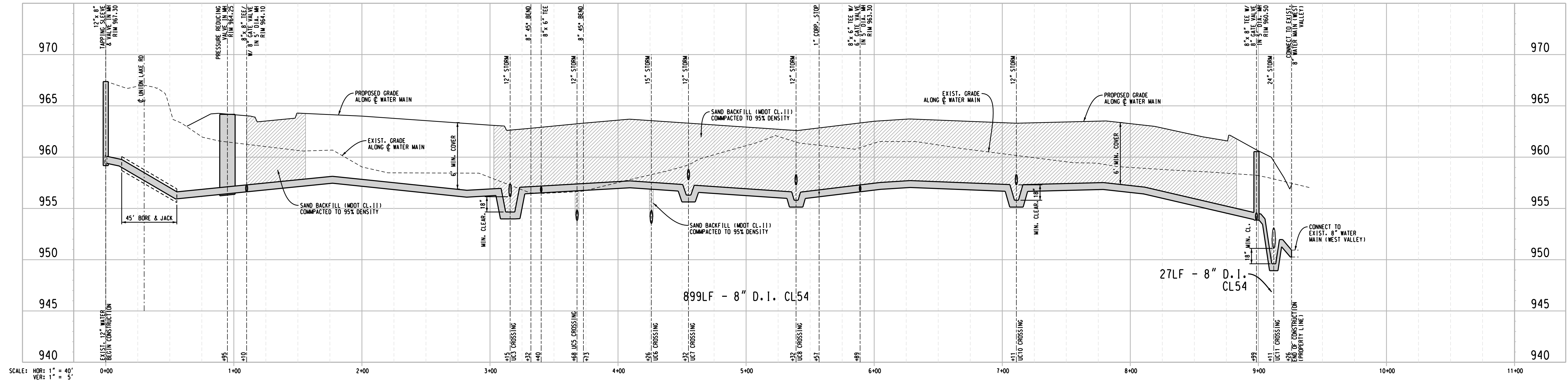
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REVISION OR ISSUE		

NORTHWEST 1/4 SECTION 36 T-3N, R-8E
COMFORT CARE
 UNION LAKE ROAD
 WHITE LAKE TWP.,
 OAKLAND COUNTY
 STATE OF MICHIGAN

DRAWING TITLE
SITE PHOTOMETRIC PLAN

PROJECT NUMBER 210303
 PROJECT PHASE FINAL SPA

SHEET
C401



SCALE: HOR: 1" = 40'
VER: 1" = 5'

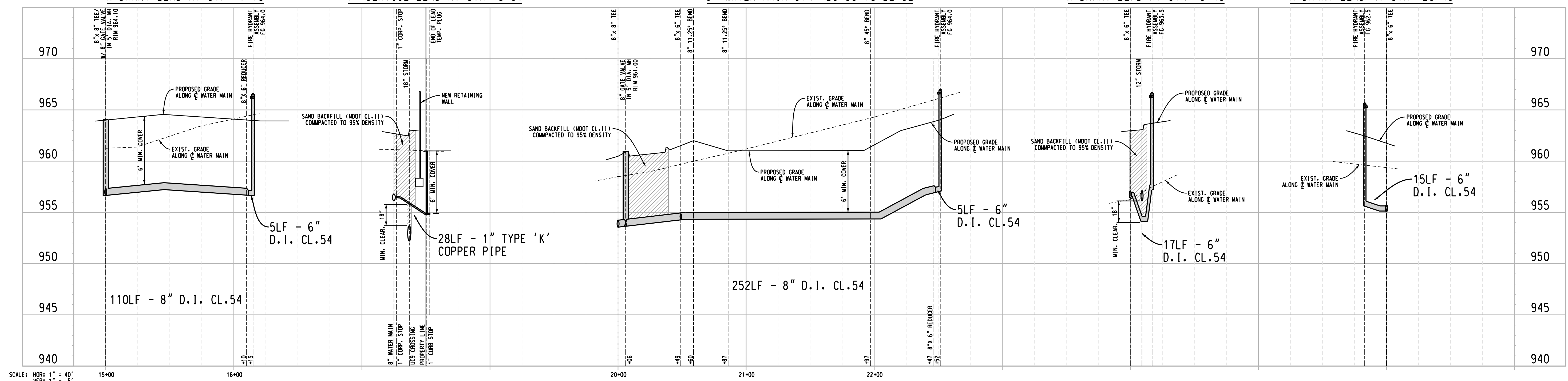
HYDRANT LEAD AT STA. 1+10

1" SERVICE LEAD AT STA. 5+57

8" WATER MAIN STA. 20+00 TO 22+52

HYDRANT LEAD AT STA. 3+40

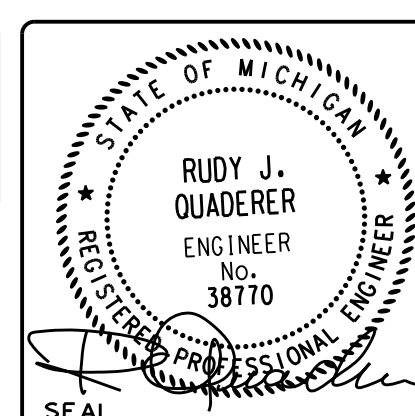
HYDRANT LEAD AT STA. 20+49



SCALE: HOR: 1" = 40'
VER: 1" = 5'

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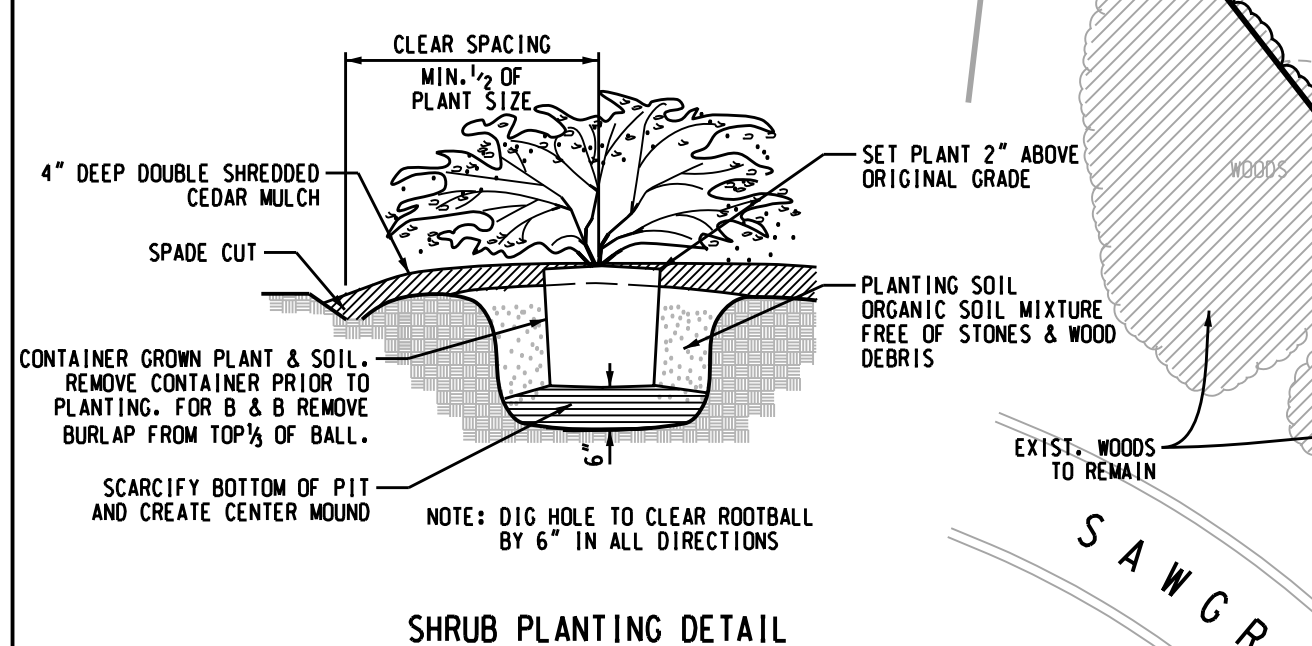
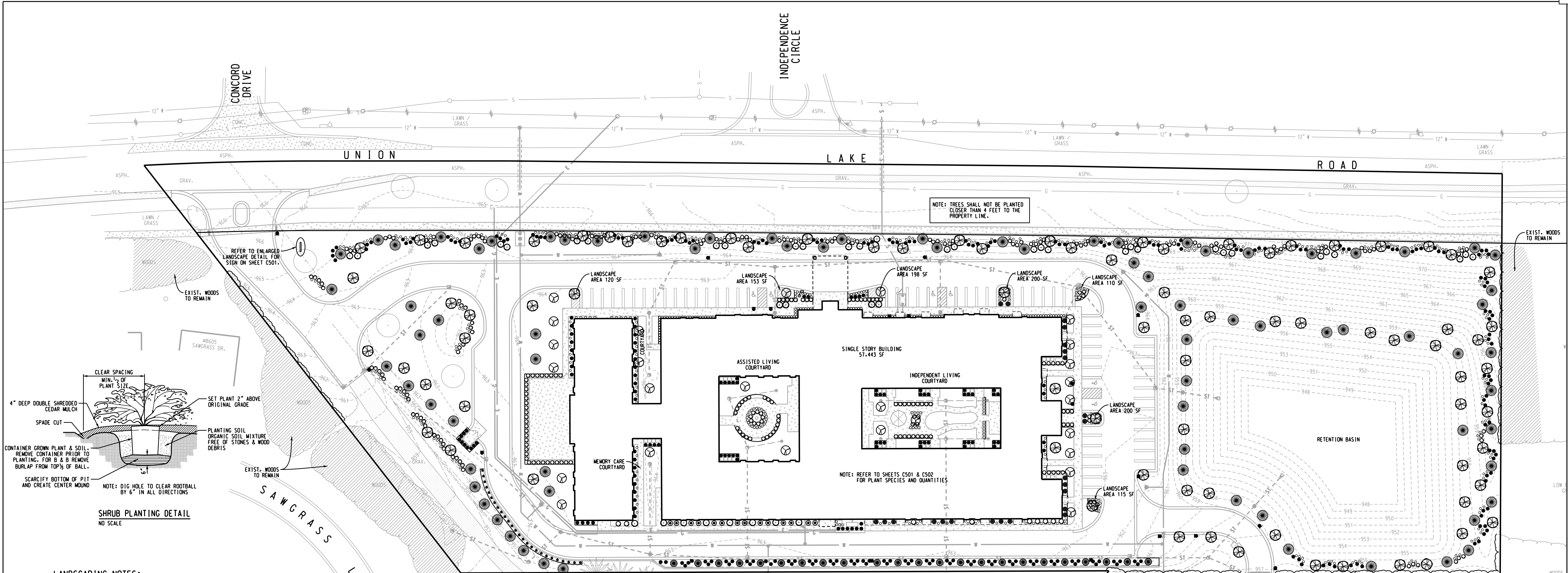
UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
WATER MAIN PROFILES

PROJECT NUMBER
210303

PROJECT PHASE
FINAL SPA

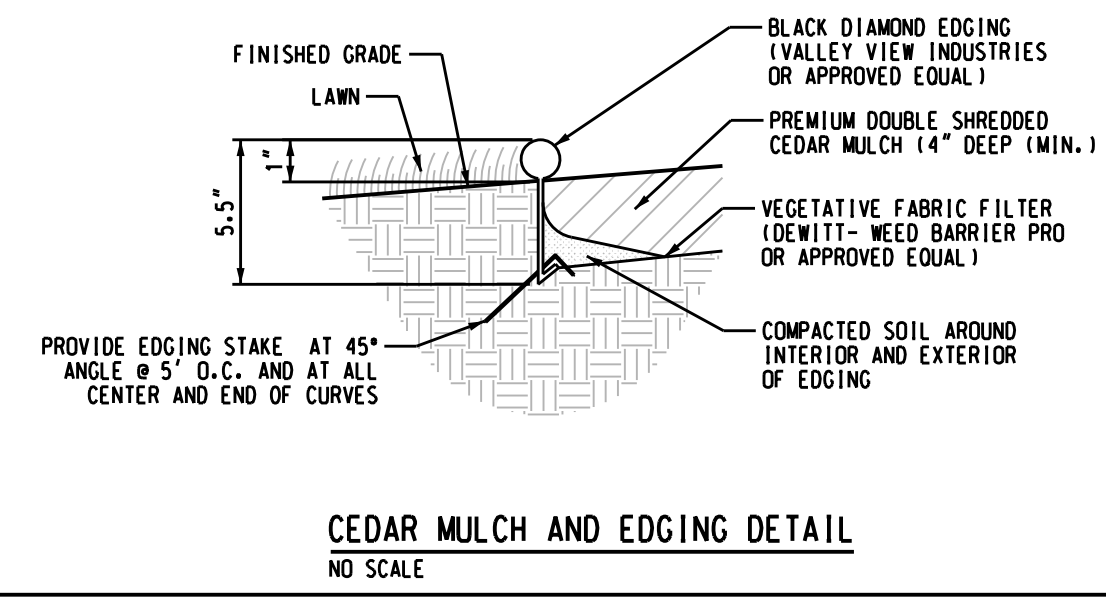
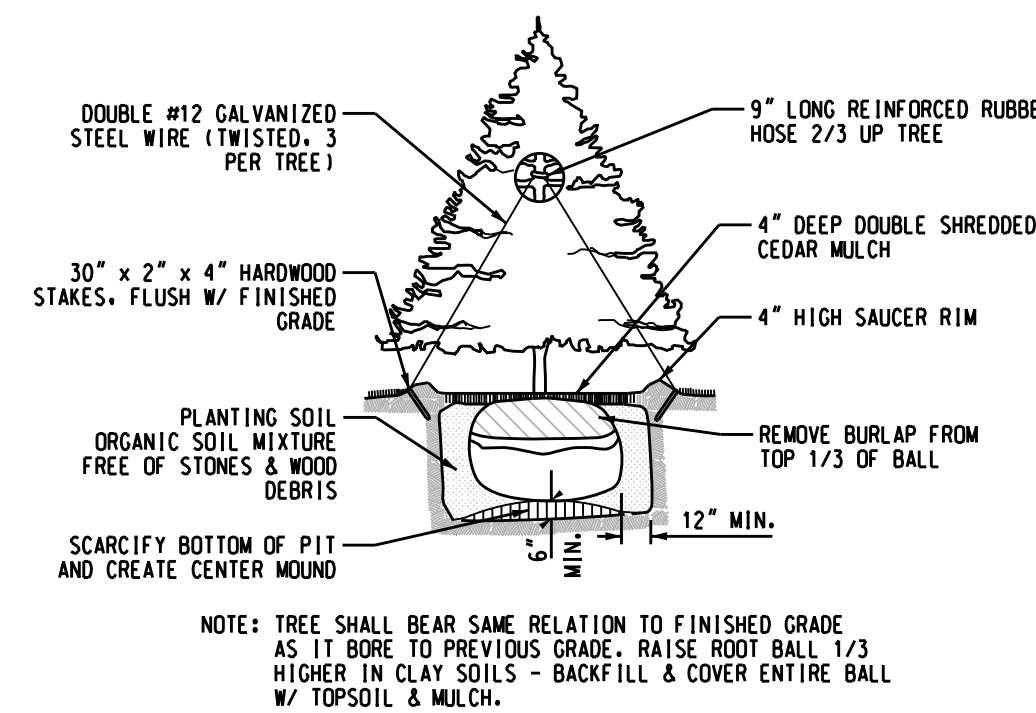
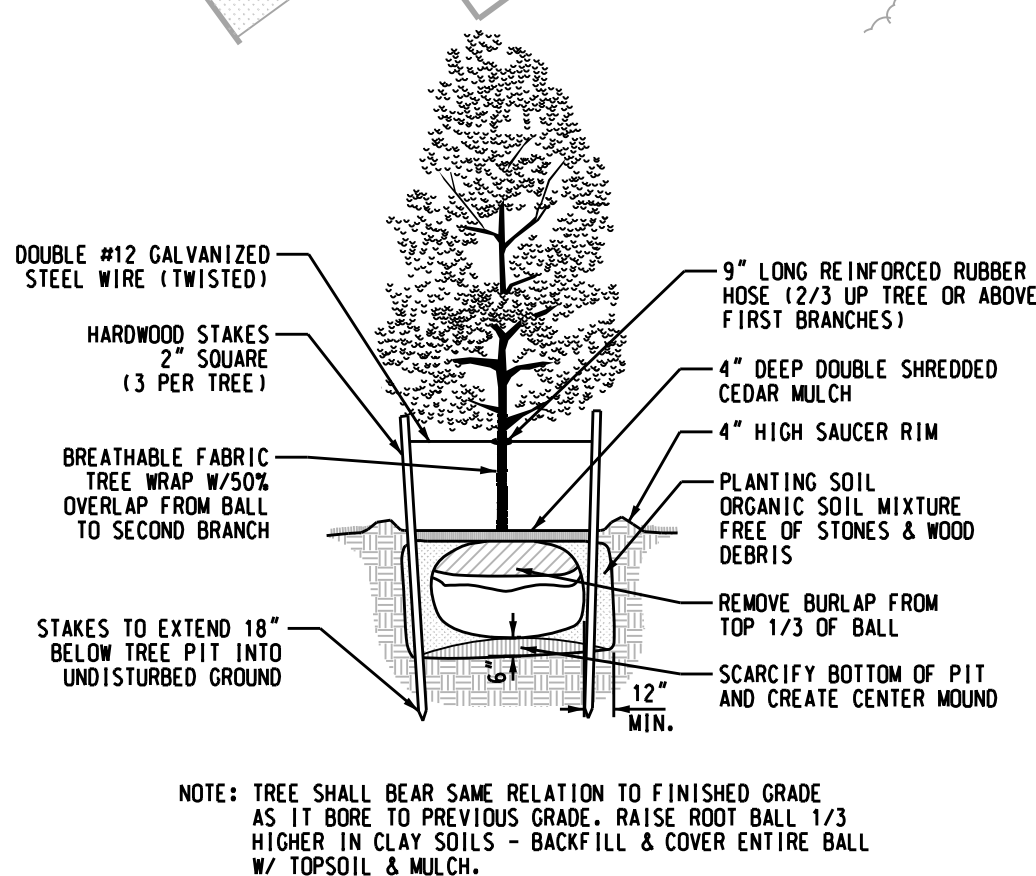
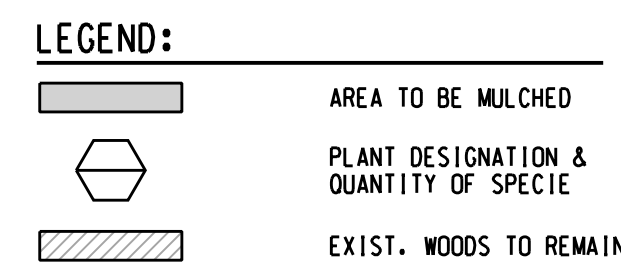
SHEET
C402



LANDSCAPING NOTES:

- INSTALLATION OF PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS LATEST EDITION.
- PRIOR TO BEGIN OF LANDSCAPE WORK, CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES. CONTRACTOR SHALL CONTACT MISS DIG (811) FOR LOCATIONS OF ALL PRIVATE UTILITIES. ANY DAMAGE OR INTERRUPTIONS OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATE ALL RELATED WORK ACTIVITIES WITH OTHER TRADES AND REPORT ANY UNACCEPTABLE WORK CONDITIONS TO OWNER PRIOR TO COMMENCING WORK.
- NUMERICAL VALUE OF PLANT MATERIAL SHOWN SHALL TAKE PRECEDENCE OVER GRAPHIC REPRESENTATION. VERIFY AND REPORT ANY DISCREPANCIES WITH LANDSCAPE ARCHITECT.
- SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY THE MUNICIPALITY AND/OR GOVERNING AGENCY PRIOR TO COMMENCING.
- NEW LANDSCAPE BEDS WITHIN PREVIOUS BUILDING AND PAVEMENT AREAS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND POOR SOILS TO A MINIMUM DEPTH OF 24" AND BACKFILLED WITH GOOD MEDIUM TEXTURED ORGANIC PLANTING SOIL FREE OF ROCKS LARGER THAN 1".
- PROTECT EXISTING TREES TO REMAIN WITH TEMPORARY FENCING PLACED AT THE DRIP LINE. NO GROUND DISTURBANCE OR STORAGE OF MATERIAL SHALL OCCUR WITHIN THE DRIP LINE LIMITS.
- COORDINATE PLACEMENT OF PLANTS WITH UNDERGROUND UTILITY LOCATIONS. MAKE ADJUSTMENTS AS REQUIRED TO AVOID PLANTING OVER THE UTILITIES. DO NOT PLANT SHADE OR EVERGREEN TREES BELOW OVERHEAD WIRES. IF CONFLICT OCCURS, CONTACT LANDSCAPE ARCHITECT TO ADJUST LOCATION OF TREES.
- BACKFILL ISLANDS FROM SUBGRADE TO THE TOP OF CURB WITH ON-SITE TOPSOIL UNLESS OTHERWISE NOTED ON PLAN. FINISHED GRADE IN CENTER OF ISLAND SHALL BE 4" TO 6" HIGHER THAN TOP OF CURB TO PROVIDE POSITIVE DRAINAGE TO PERIMETER OF CURB ISLAND.
- PLACE 4" THICK BY 4" DIAMETER DOUBLE SHREDDED CEDAR OR CYPRESS BARK MULCH RING AT THE BASE OF ALL NEW TREES IN LAWN AREA. CUT LAWN AREA IN A SMOOTH UNIFORM CIRCULAR LINE.
- ALL GREEN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH SIDE SLOPES LESS THAN 3:1, SHALL BE GRADED AND TOPPED WITH MINIMUM 4" DEEP TOPSOIL AND SEEDED & MULCHED. REFER TO PLAN FOR SEED MIXTURE AND APPLICATION RATE.
- ALL EXISTING TREES AND SHRUBS NOTED TO REMAIN SHALL BE PROPERLY PRUNED, TRIMMED, THINNED AND SHAPED BY A QUALIFIED NURSERYMAN OF ARBORIST. ALL DEAD LIMBS AND BRANCHES SHALL BE REMOVED FROM SITE.
- UNLESS NOTED OTHERWISE, LANDSCAPE BEDS ADJACENT TO LAWN AREAS SHALL RECEIVE LANDSCAPE EDGING AS DETAILED ON PLAN.
- ALL LANDSCAPING SHALL BE COMPLETED WITHIN 6 MONTHS OF COMPLETION OF BUILDING.
- ALL STAKING MATERIALS AND WRAPPING SHALL BE REMOVED OFF SITE WITHIN ONE YEAR AFTER INSTALLATION.
- LANDSCAPING ITEMS SHALL NOT INTERFERE WITH THE CLEAR VISION AREAS. TREES WITHIN PARKING LOT ISLANDS SHALL HAVE A CLEAR VIEW OF 4'-6" MINIMUM TO THE FIRST BRANCH AT MATURITY.
- ALL PLANT MATERIALS INCLUDING LAWN AREAS SHALL BE WATERED, FERTILIZED, TRIMMED, MOWED AND GENERALLY MAINTAINED BY THE CONTRACTOR IN A HEALTHY GROWING CONDITION FOR A PERIOD OF 30 DAYS AFTER FINAL COMPLETION AND AFTER LAWN IS CUT FOR FIRST TIME. CONTRACTOR SHALL SUBMIT A ONE (1) YEAR WARRANTY FROM COMPLETION DATE AND BE RESPONSIBLE TO REPLACE ANY DISKASSED OR DEAD PLANT MATERIAL WITHIN THAT PERIOD OF TIME WITHOUT ANY COST TO THE OWNER.
- ALL LANDSCAPING SHALL BE IRRIGATED AND SHALL INCLUDE A RAIN SENSOR. REFER TO SHEET IR-1 FOR INFORMATION.

PLANTING REQUIREMENTS		
LOCATION	MINIMUM REQUIREMENT	PROVIDED
ROAD R/W GREENBELT	20' WIDE GREENBELT: 1 DECIDUOUS OR EVERGREEN TREE + 8 SHRUBS / 30LF = 1,127/30 = 38 TREES + 304 SHRUBS	57 TREES - 358 SHRUBS
PARKING LOT AREA	15SF PER PARKING SPACE = 62 SPAC.(15) = 930 SF	1,096 SF OF LANDSCAPE AREA
RESIDENTIAL BUFFER (SOUTH SIDE)	LAND FORM BUFFER A-2 = 6' HIGH WALL 1 TREE + 8 SHRUBS PER 30LF = 288/30 = 10 TREES + 80 SHRUBS	17 TREES - 74 SHRUBS, EXIST. WOODS
RESIDENTIAL BUFFER (WEST SIDE)	LAND FORM BUFFER A-2 = 6' HIGH WALL 1 TREE + 8 SHRUBS PER 30LF = 372/30 = 13 TREES + 104 SHRUBS	18 TREES, EXIST. TREES & WOODS, NEW WALL 82 SHRUBS
INTERIOR LANDSCAPING	15% OF THE TOTAL LOT AREA 1 TREE / 300 SF + 5 SHRUBS TOTAL AREA = 364,931 SF -PAVED AREA = 58,100 SF NET AREA = 306,497 SF 15% NET AREA = 45,975 SF 45975/300 = 153 TREES + 766 SHRUBS	208 TREES, 6 EXIST. TREES 1,089 SHRUBS



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

SCALE: 1"=40'

0 40 80 120

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RUDY J. QUADERER
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PH: (810) 695-0154
FX: (810) 695-0158
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NORTHWEST 1/4 SECTION 36 T-3N, R-8E

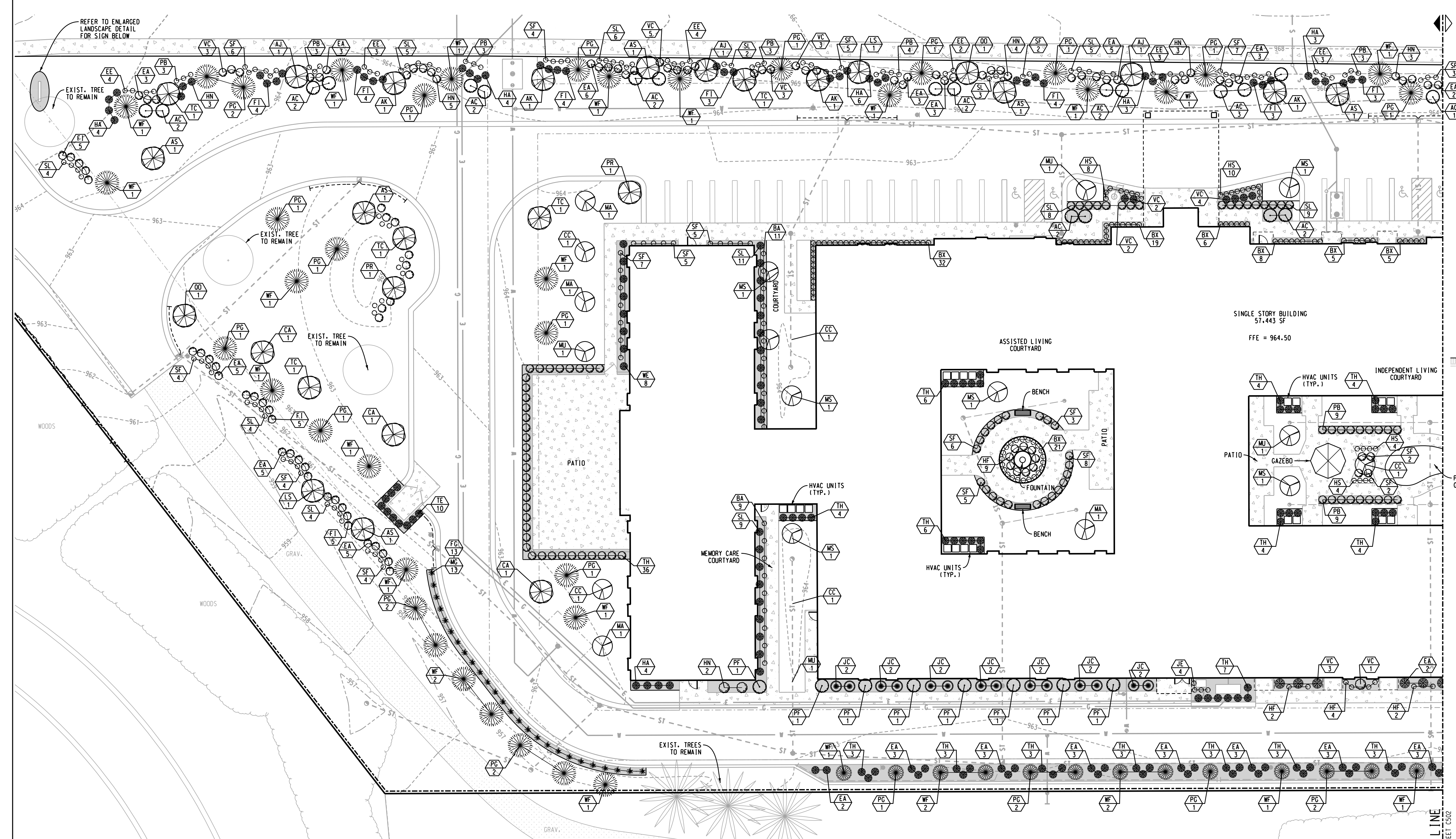
COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

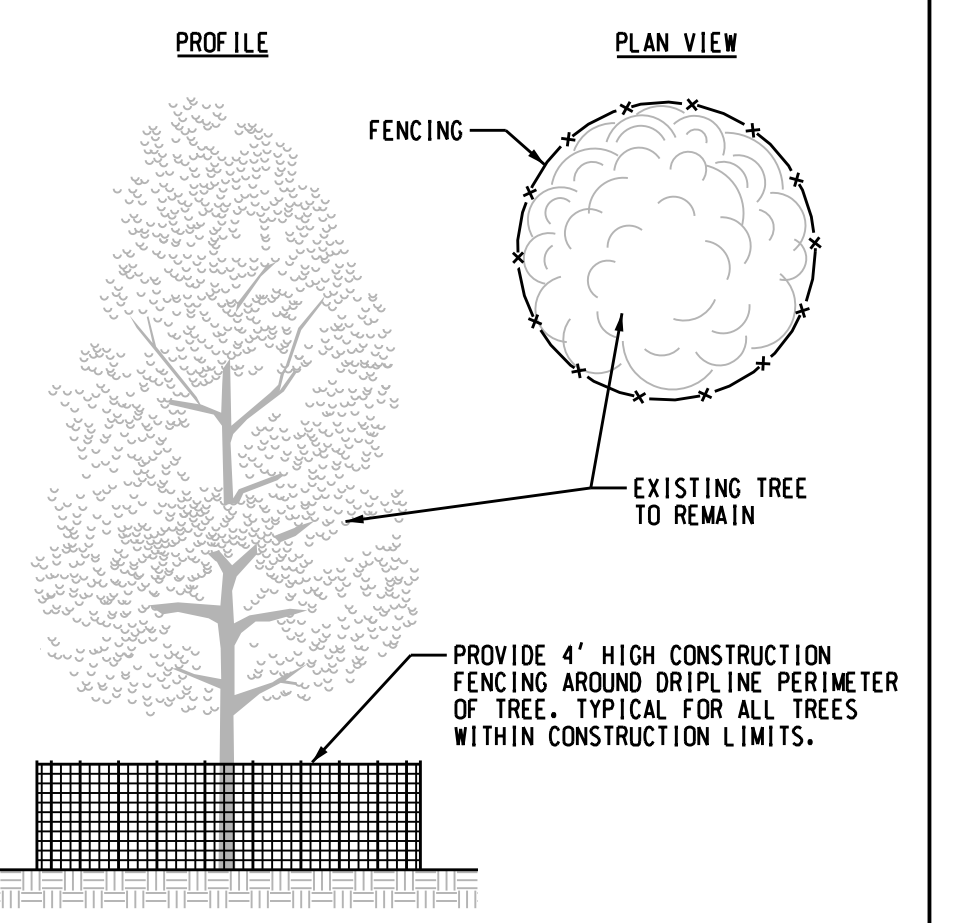
DRAWING TITLE
OVERALL SITE LANDSCAPE PLAN

PROJECT NUMBER 210303
PROJECT PHASE FINAL SPA

SHEET C500



NOTE: FOR PLANTING REQUIREMENTS AND LANDSCAPE DETAILS REFER TO SHEET C500.



NOTE: NO CONSTRUCTION SHALL OCCUR UNTIL TREES TO REMAIN ARE PROTECTED.

TREE PRESERVATION DETAIL
NO SCALE



NO.	DATE	SUBJECT

NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
SITE LANDSCAPE PLAN (NORTH DETAIL)

PROJECT NUMBER	210303	SHEET	C501
PROJECT PHASE	FINAL SPA		

TREE SCHEDULE

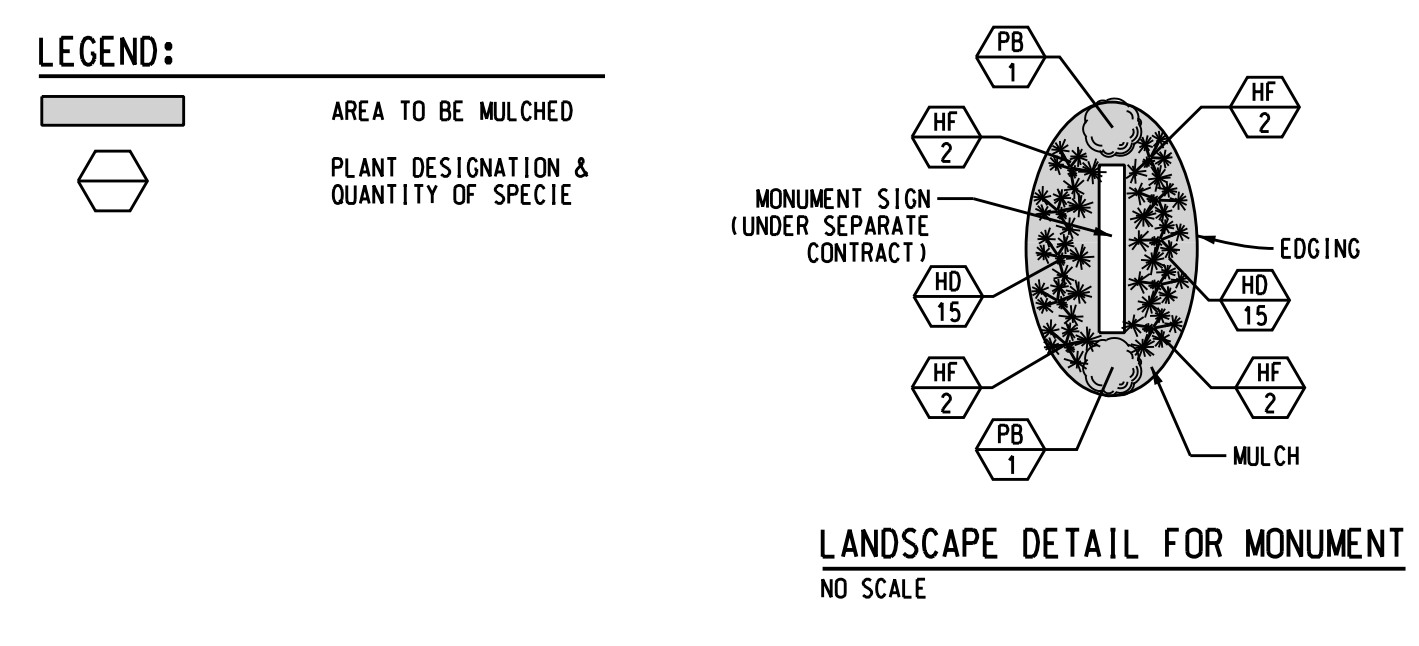
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AF	ACER PALMATUM 'FIREGLOW'	FIREGLOW JAPANESE MAPLE	4' HT	-
AK	ACER PLATANOIDES 'CRIMSON KING'	CRIMSON KING NORWAY MAPLE	2.5" CAL	4
AJ	ACER X FREEMANTII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2.5" CAL	3
AS	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION SUGAR MAPLE	2.5" CAL	6
BC	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	8" HT	-
CA	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2.5" CAL	2
CC	CERCIS CANADENSIS	EASTERN REDBUD	2" CAL	5
LS	LIGULIDAMBAR STYRACIFLUA 'GODUZAM'	GOLD DUST AMERICAN SWEETGUM	2.5" CAL	2
MA	MAGNOLIA ACUMINATA 'GOLDSTAR'	GOLD STAR MAGNOLIA	2" CAL	3
MS	MALUS 'SNOWDRIFT'	SNOWDRIFT CRABAPPLE	2" CAL	6
MJ	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	2" CAL	4
PG	PICEA GLAUCA	WHITE SPRUCE	8' HT	24
PR	PYRUS CALLARYANA 'REDSPIRE'	REDSPIRE PEAR	2.5" CAL	2
OO	QUERCUS RUBRA	NORTHERN RED OAK	2.5" CAL	1
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2.5" CAL	5
WF	ABIES CONCOLOR	CONCOLOR WHITE FIR	8' HT	25

SHRUB SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AC	AMELANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY	4' HT	20
BA	BERBERIS ATROPURPUREA 'CRIRUZAM'	CRIMSON RUBY BARBERRY	18" HT	20
BX	BUXUS X 'GREEN GEM'	GREEN GEM BOXWOOD	NO. 3 CONT	96
CB	CORNUS ALBA 'BAILHALD'	IVORY HALD RED TWIG DOGWOOD	18" HT	-
EE	EUONYMUS ALATUS 'COMPACTUS'	COMPACT BURNING BUSH	24" HT	43
EA	EUONYMUS FORTUNEI 'EMERALD CAIETY'	EMERALD CAIETY EUONYMUS	NO. 3 CONT	19
FI	FORSYTHIA INTERMEDIA	NORTHERN GOLD FORSYTHIA	24" HT	40
HA	HAMAMELIS VERNALIS	VERNAL WITCHHAZEL	24" HT	24
HN	HIBISCUS SYRIACUS 'NOTWOODONE'	LAV. CHIFFON ROSE OF SHARON	24" HT	20
HS	HYDRANGEA MAC. H. SERRATA 'PREZIOSA'	PINK BEAUTY HYDRANGEA	24" HT	26
JC	JUNIPERUS CHINENSIS 'GOLD COAST'	GOLD COAST JUNIPER	24" SPR.	14
JE	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN JUNIPER	24" SPR.	4
PF	PICEA ABIES 'MIDIFORMIS'	BIRD'S NEST SPRUCE	18" HT	8
PB	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA	NO. 3 CONT	36
SF	SPIREA JAPONICA 'GOLDMOUND'	GOLD MOUND SPIREA	NO. 3 CONT	69
SL	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	NO. 3 CONT	65
TE	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	5' HT	10
TH	TAXUS X MEDIA 'HICKSII'	HICKS COLUMNAR YEW	24" HT	85
VC	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM	NO. 5 CONT	24
WE	WEIGELA FLORIDA 'ELVERA'	MIDNIGHT WINE WEIGELA	NO. 3 CONT	8

PERENNIALS & GRASSES SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
FG	CALAMAGROSTIS ACUTIFLORA	FEATHER REED GRASS	NO. 2 CONT	13
HD	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILLY	NO. 2 CONT	30
HF	HOSTA 'FRANCEE'	FRANCEE HOSTA	NO. 2 CONT	25
MG	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	NO. 2 CONT	13

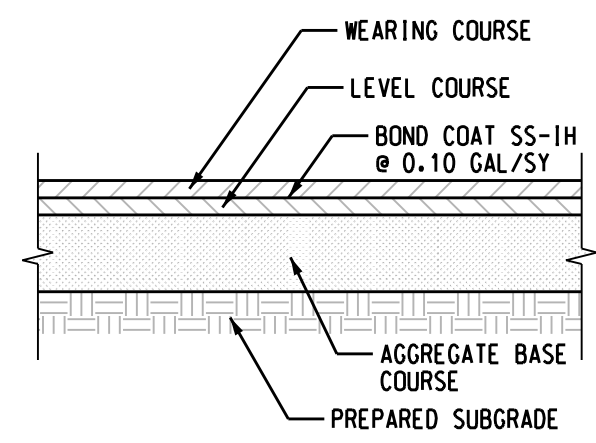


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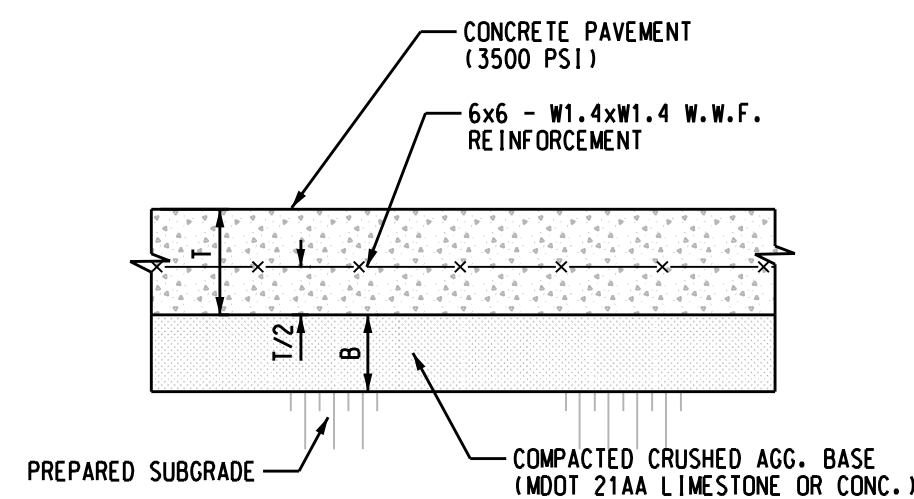
ON-SITE PAVEMENT SECTION

- WEARING COURSE - 1.5" MDOT 13A
- LEVEL COURSE - 3" MDOT 3C
- AGGREGATE BASE - 8" MDOT 21AA CRUSHED LIMESTONE

NOTE: AS AN ALTERNATE, CONTRACTOR IS ALLOWED TO SUBSTITUTE MDOT 21AA CRUSHED CONCRETE FOR ON-SITE AGGREGATE BASE.

ROAD R/W PAVEMENT SECTION

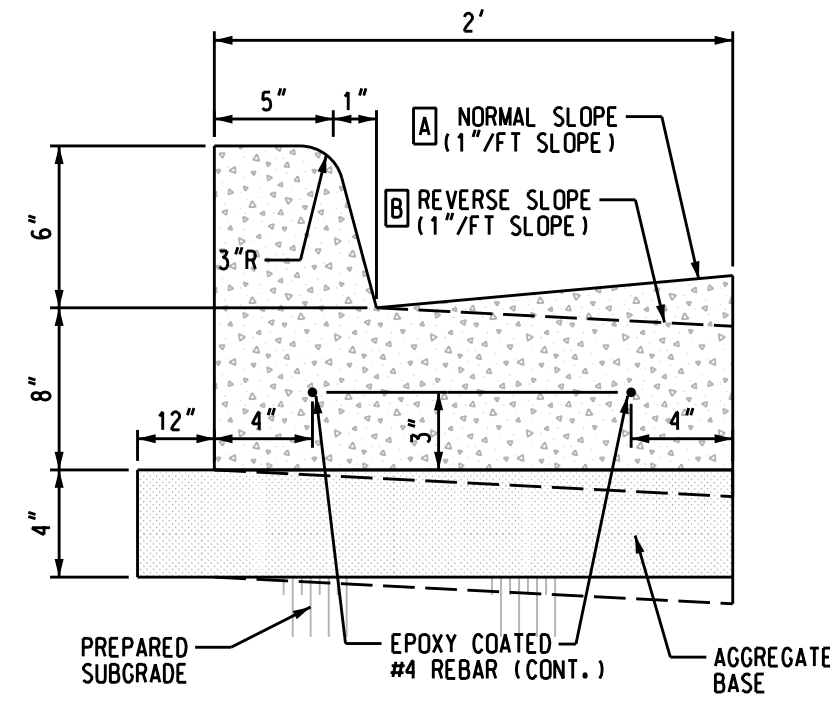
- (9" OF DEEP STRENGTH ASPHALT SECTION)
- WEARING COURSE - 2" MDOT 4C
- LEVEL COURSE - 3" MDOT 3C
- LEVEL COURSE - 4" MDOT 2C (FIRST LIFT)



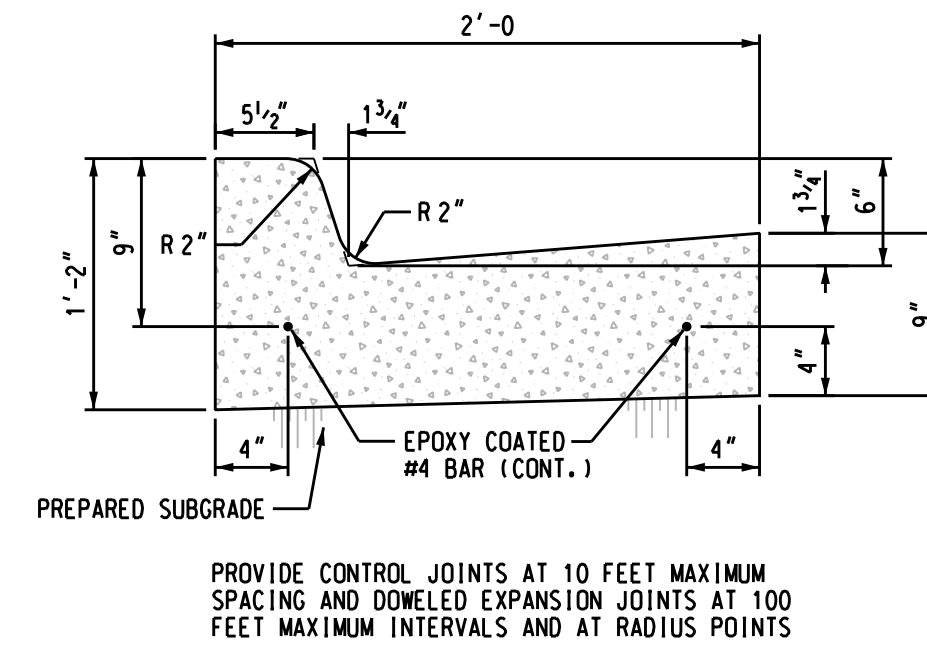
DESIGN:

PAD UNDER CANOPY	8"	8"	YES
DUMPSTER ENCLOSURE	8"	8"	YES
SIDEWALK	4"	6"	YES

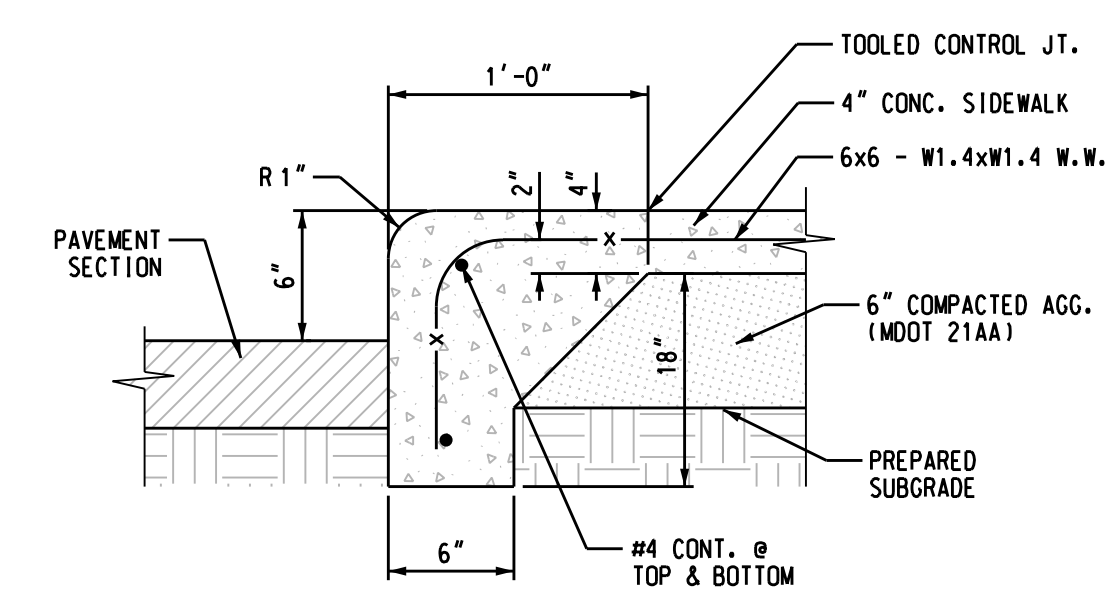
CONCRETE PAVEMENT SECTION
NO SCALE



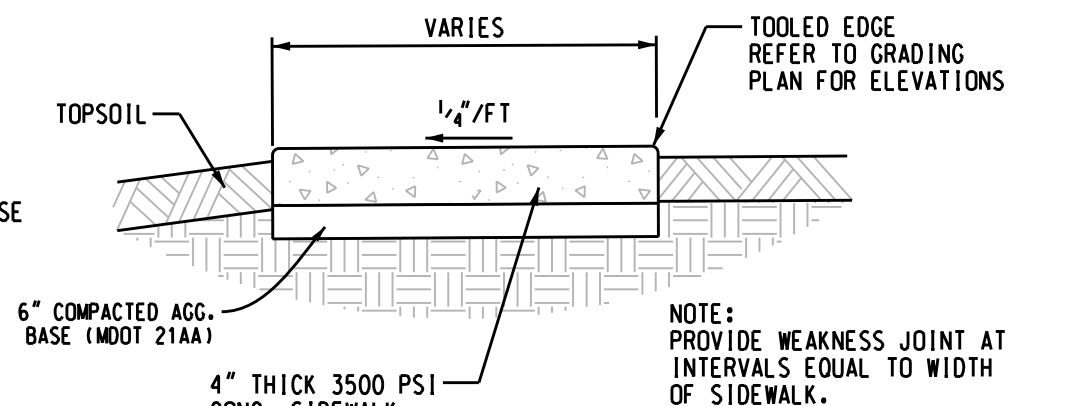
CURB & GUTTER DETAIL
NO SCALE



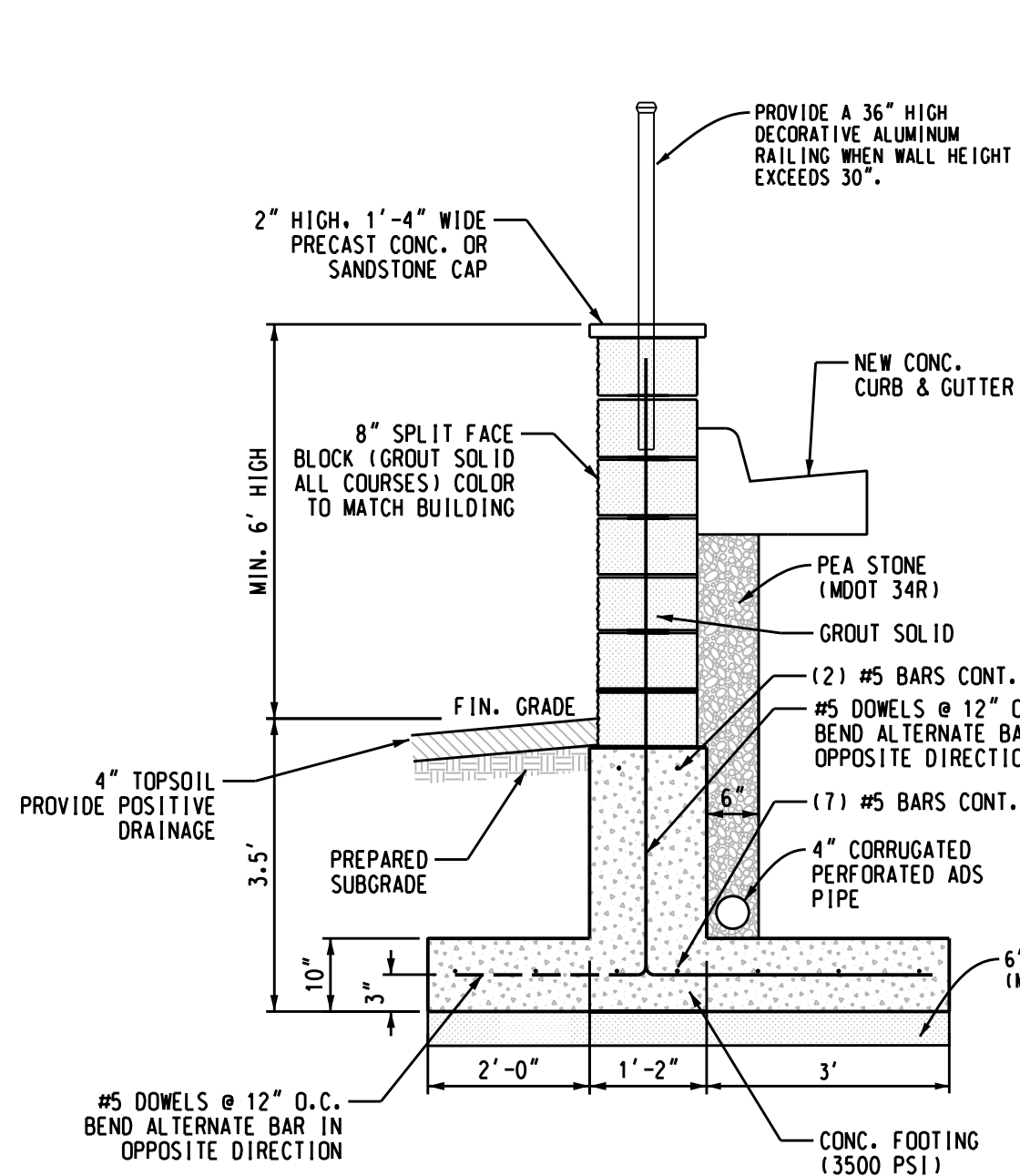
CURB & GUTTER DETAIL
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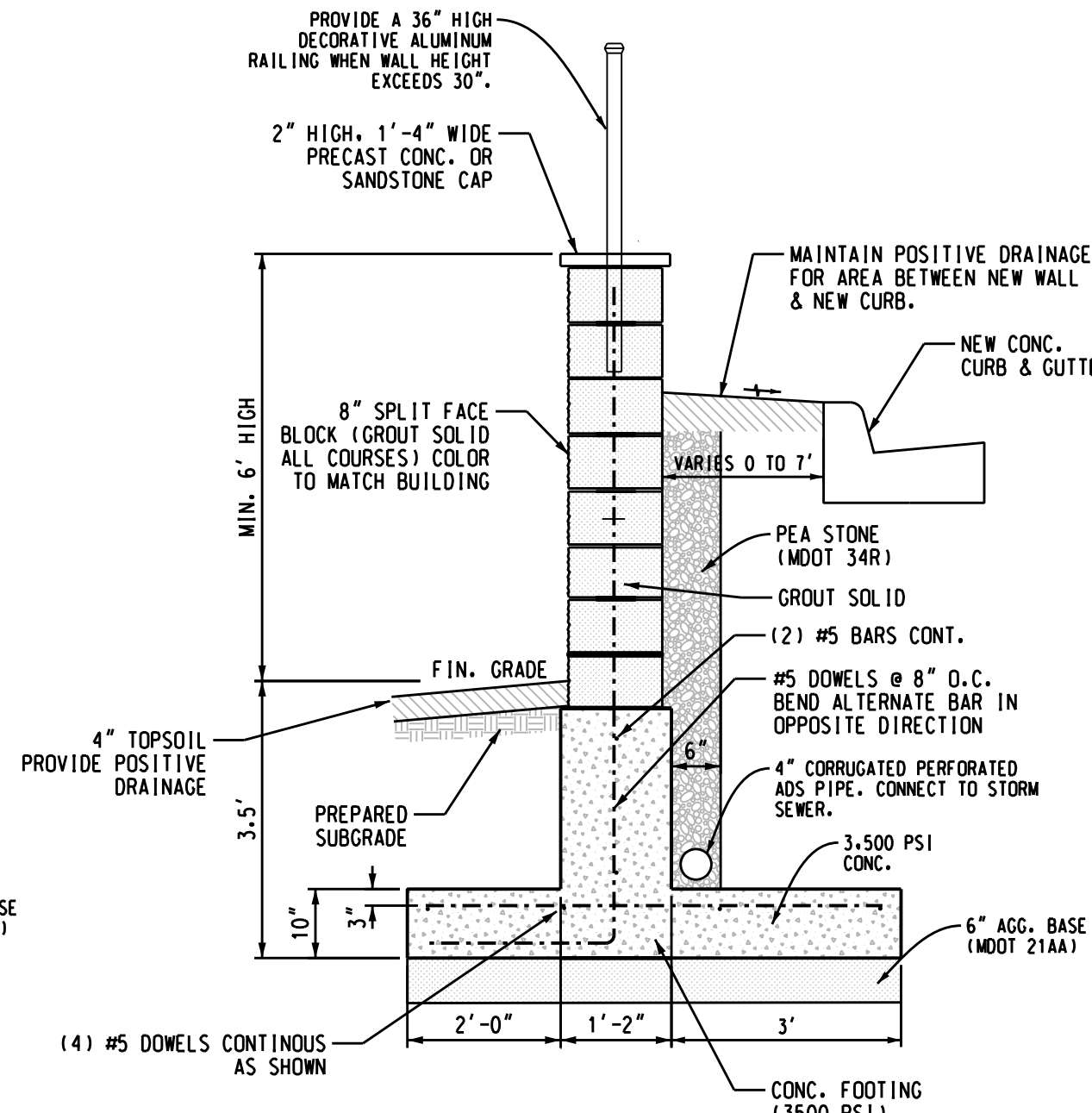
INTEGRAL CURB & SIDEWALK DETAIL
NO SCALE



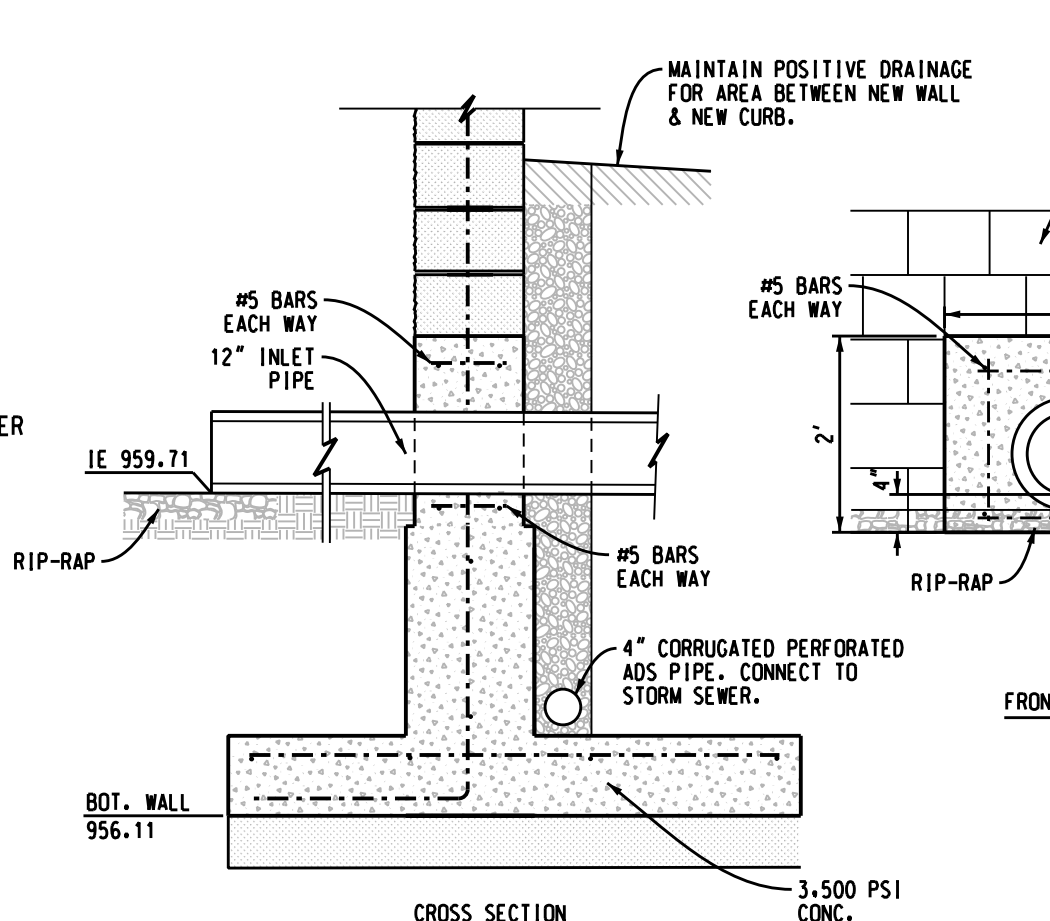
TYP. SIDEWALK DETAIL
NO SCALE



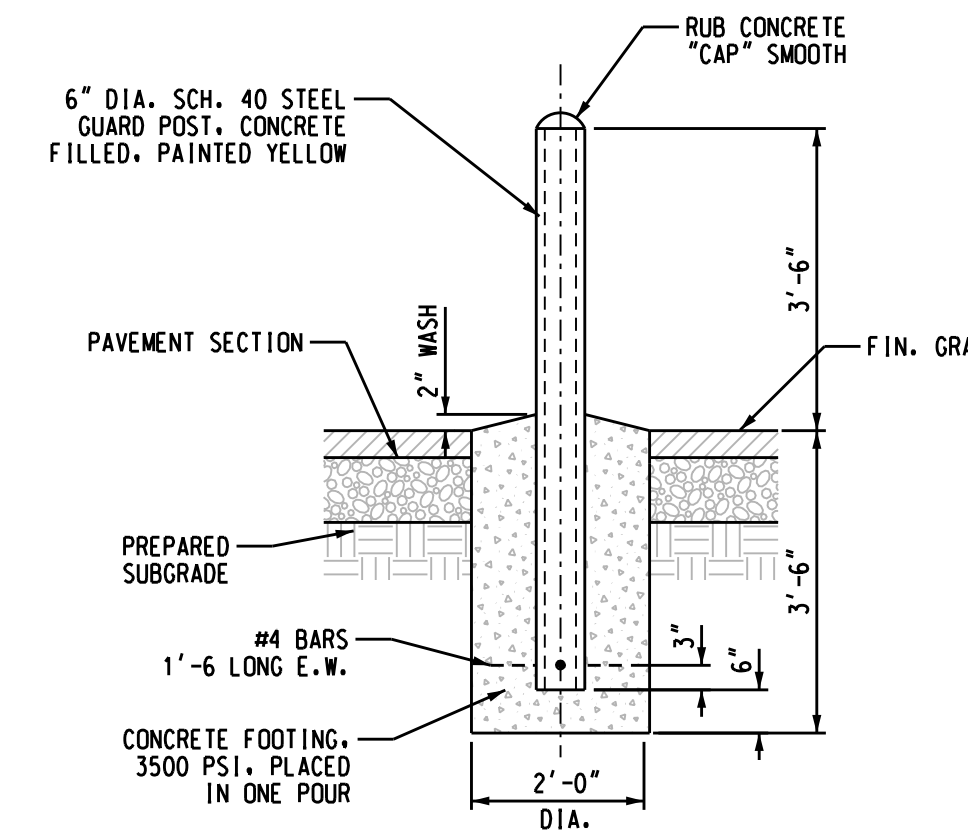
CROSS SECTION MASONRY WALL SW CORNER
NO SCALE



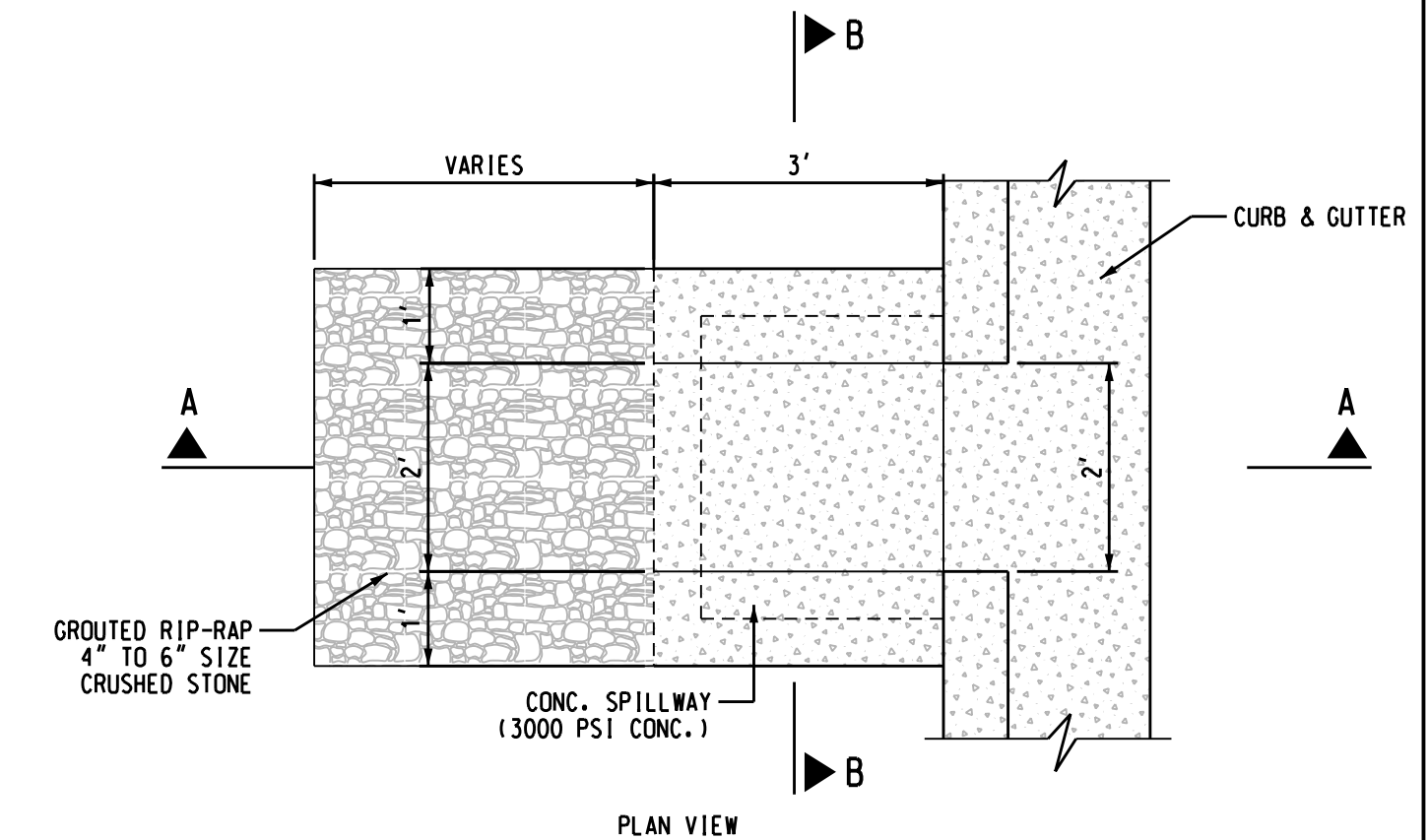
CROSS SECTION MASONRY WALL SE CORNER
NO SCALE



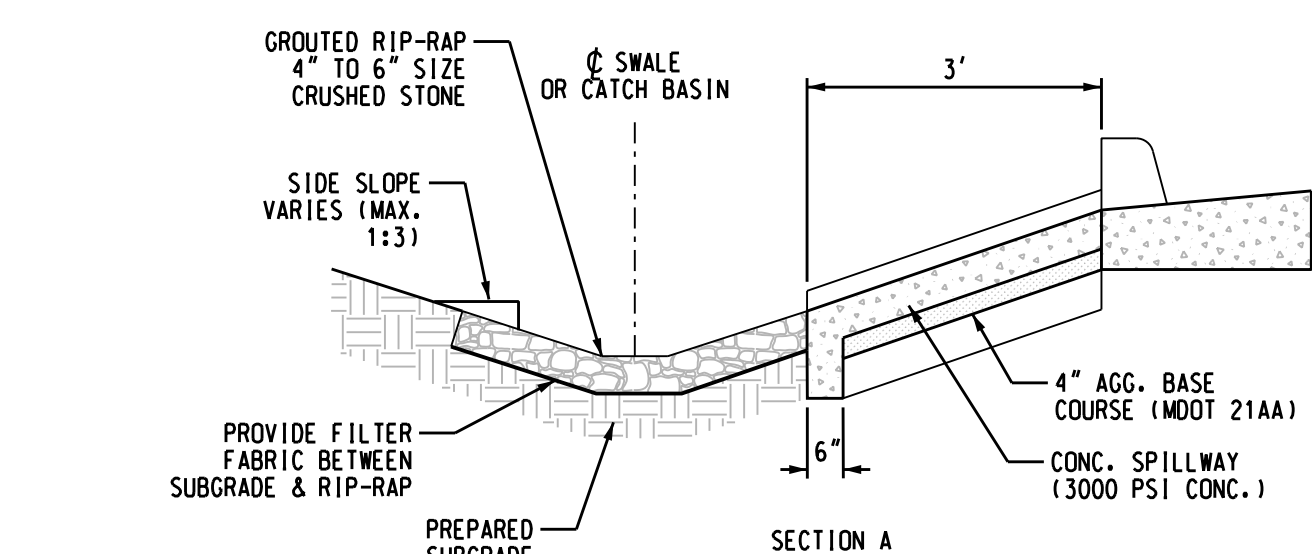
PIPE PENETRATION WALL DETAIL
NO SCALE



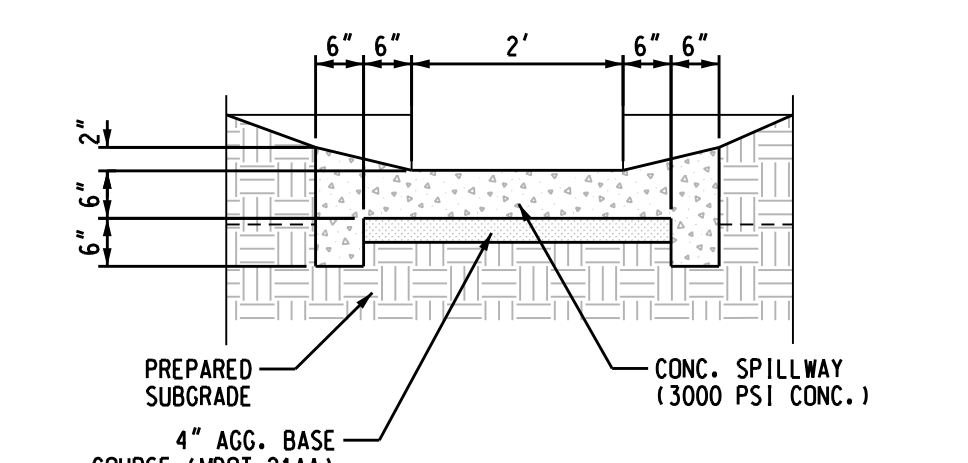
GUARD POST DETAIL
NO SCALE



PLAN VIEW

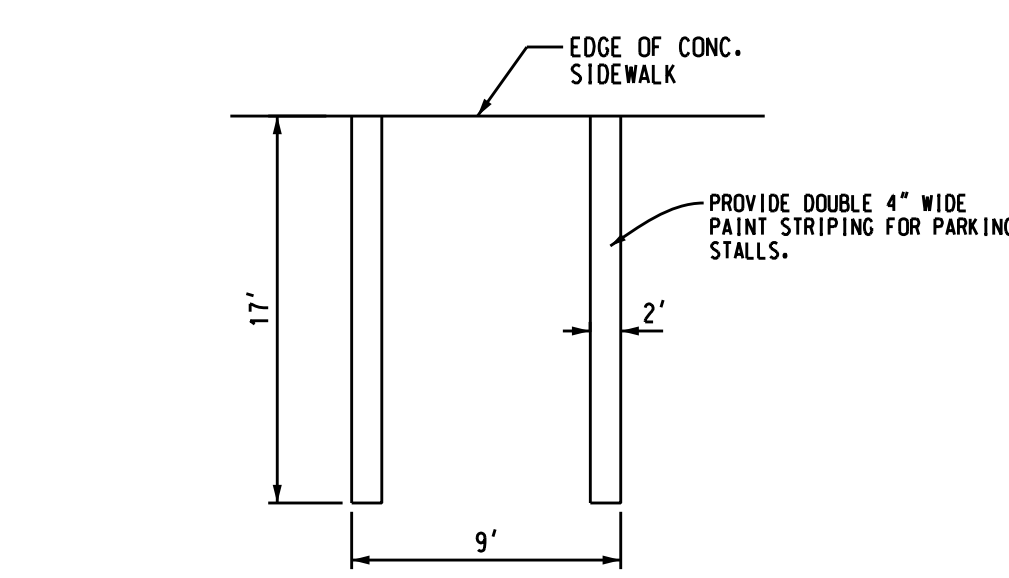


SECTION A

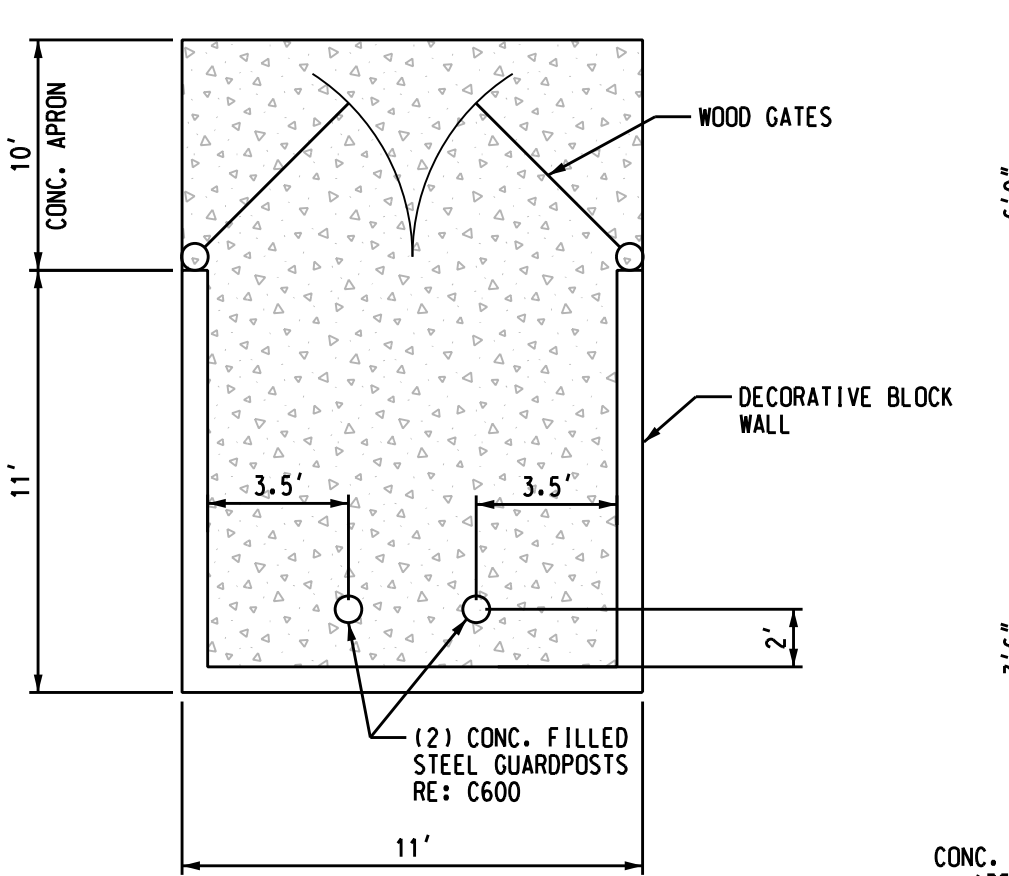


SECTION B

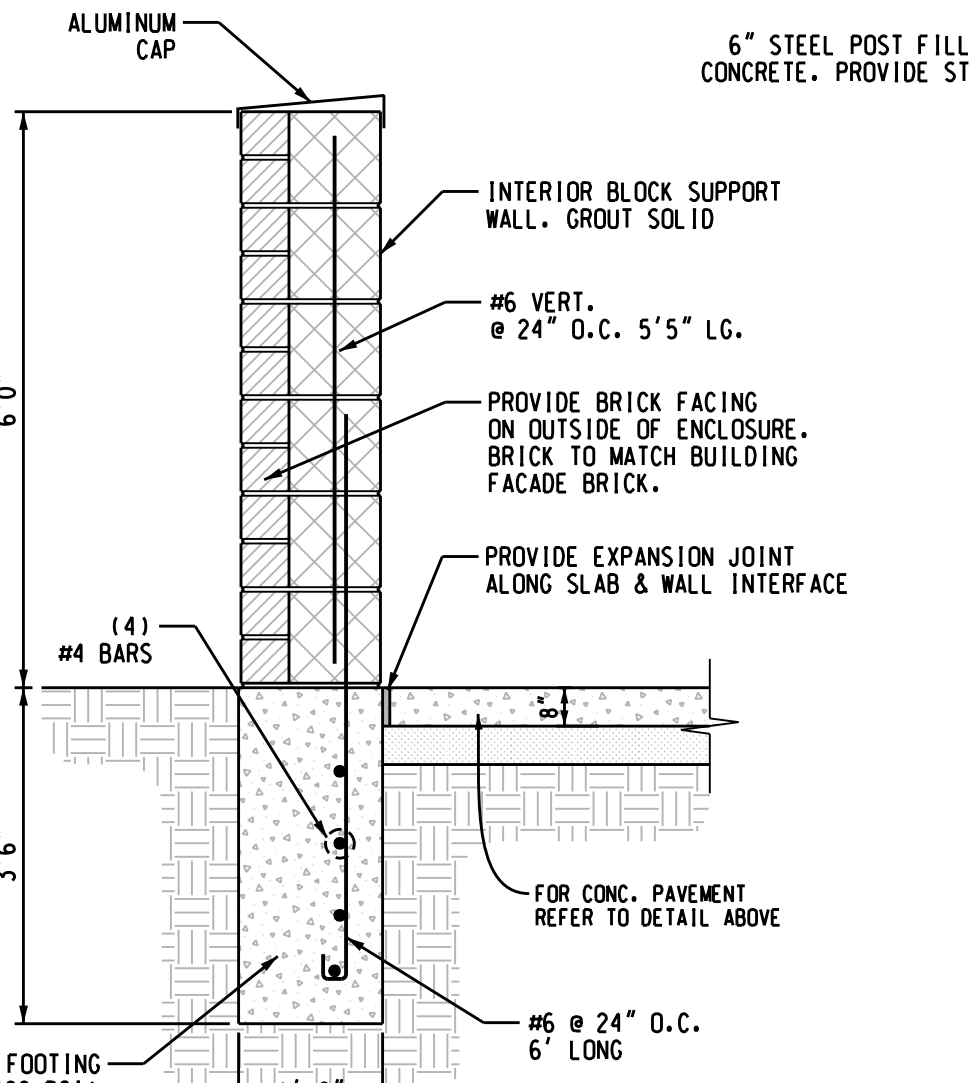
CURB CUT & SPILLWAY DETAIL
NO SCALE



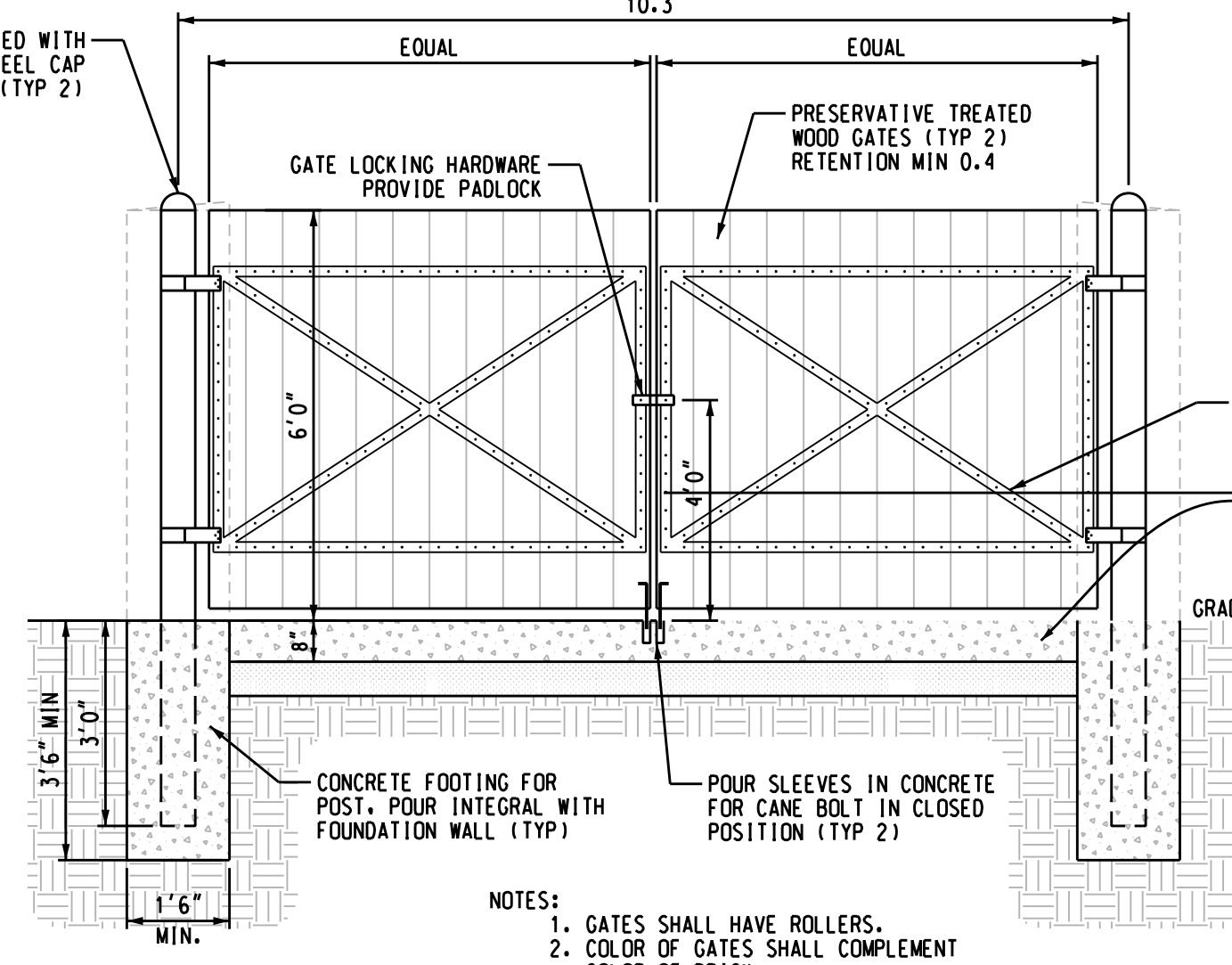
PARKING STALL PAINT STRIPING DETAIL
NO SCALE



PLAN VIEW



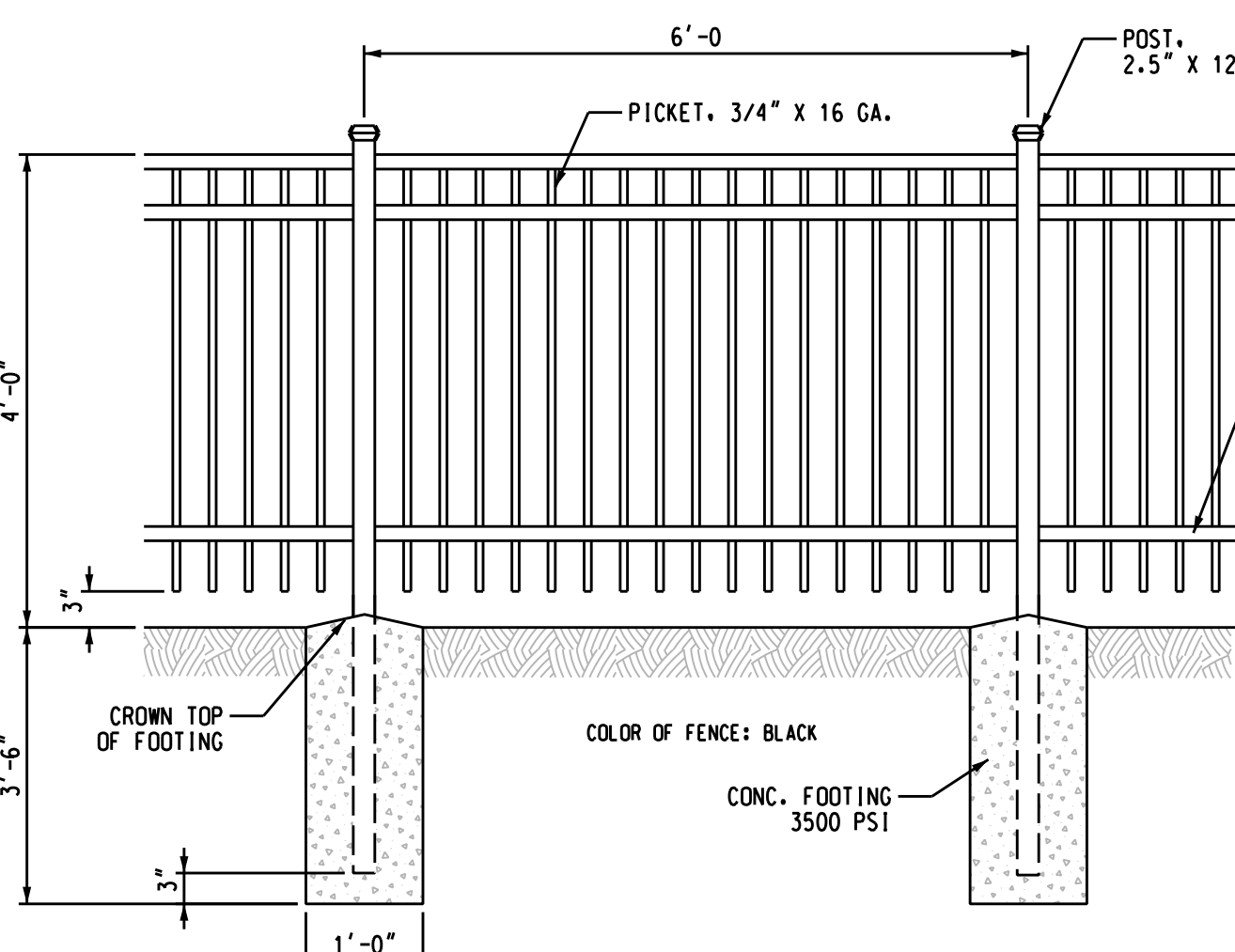
WALL SECTION



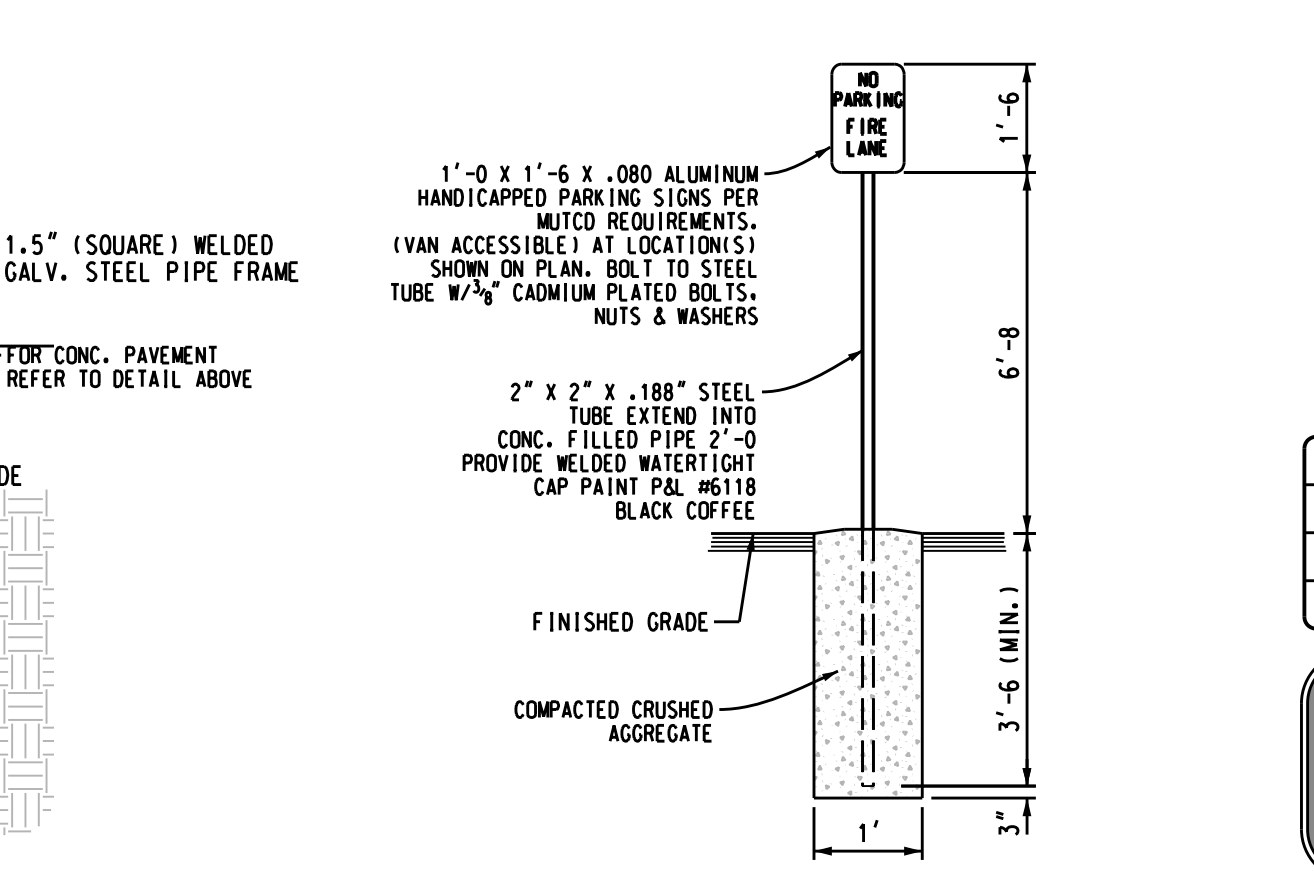
FRONT ELEVATION

NOTES:

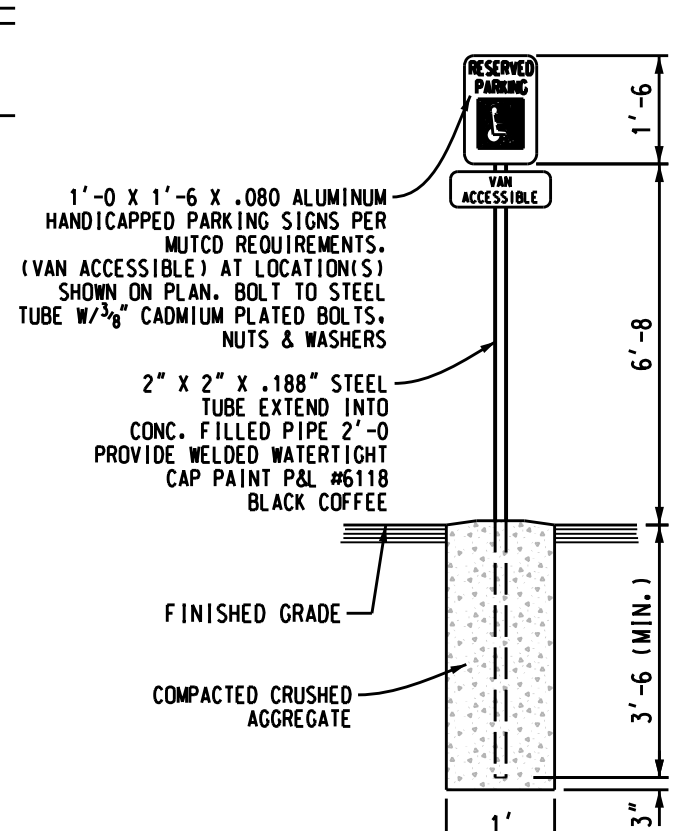
- GATES SHALL HAVE ROLLERS.
- COLOR OF GATES SHALL COMPLEMENT COLOR OF BRICK.



DECORATIVE ALUMINUM FENCE DETAIL
NO SCALE

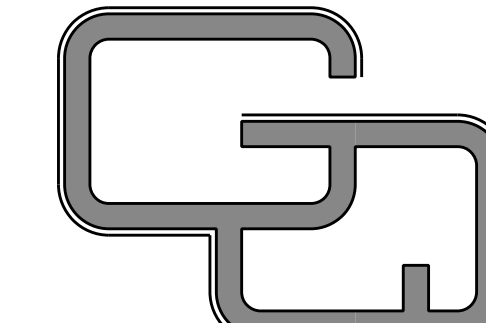


NO PARKING SIGN DETAIL
NO SCALE

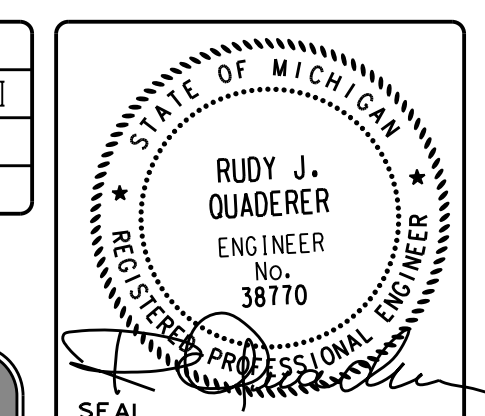


BARRIER FREE PARKING SIGN
NO SCALE

DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK



Griggs Quaderer Inc.
CIVIL ENGINEERING · LAND SURVEYING · SITE PLANNING



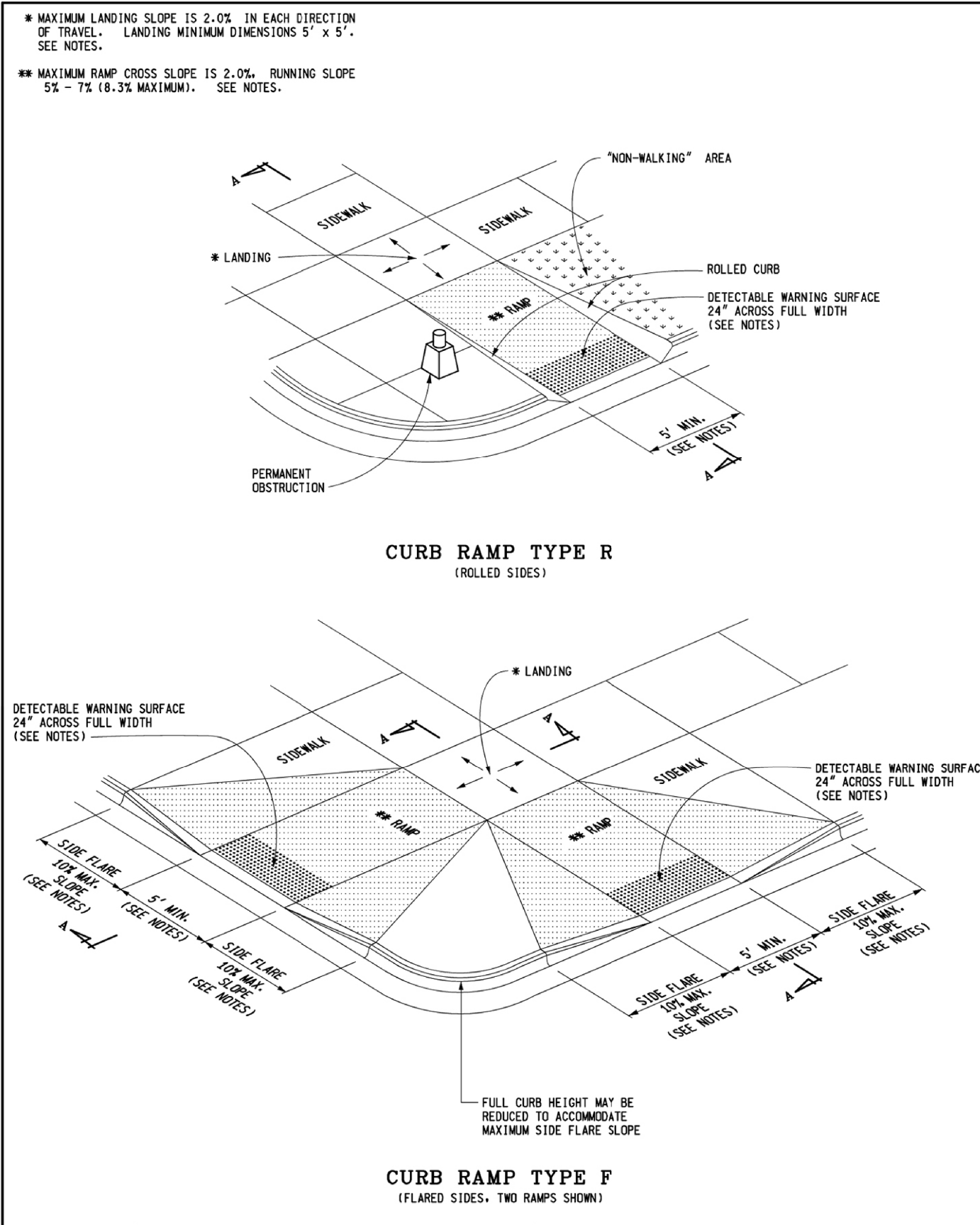
8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PH: (810) 695-0154
FX: (810) 695-0158
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NO.	DATE	SUBJECT
	02-07-23	REISSUED TO WHITE LAKE TWP.
	11-10-22	REISSUED TO WHITE LAKE TWP.
REVISION OR ISSUE		

NORTHWEST 1/4 SECTION 36 T-3N, R-8E
COMFORT CARE
UNION LAKE ROAD
WHITE LAKE TWP., OAKLAND COUNTY STATE OF MICHIGAN

DRAWING TITLE
SITE DETAILS

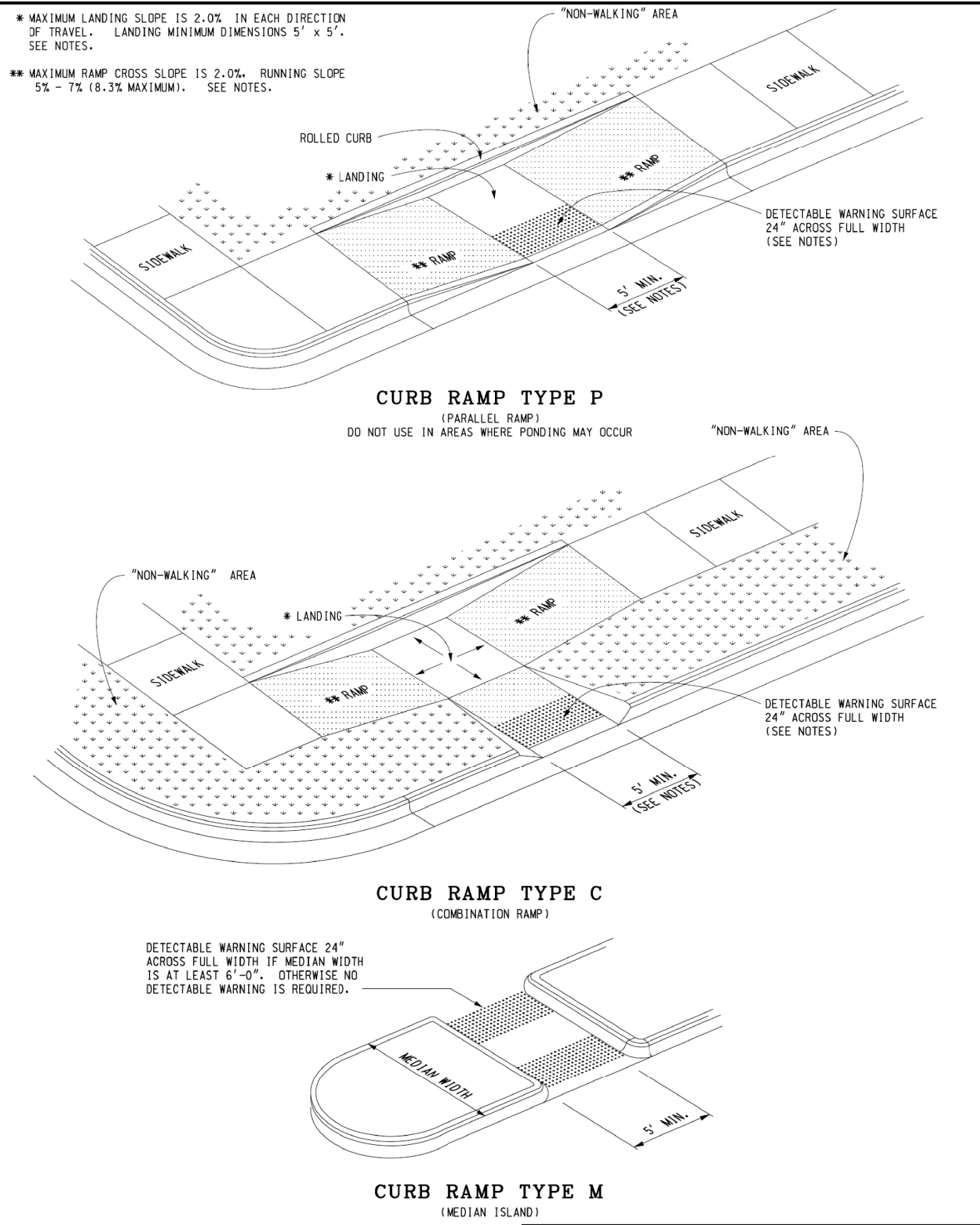
PROJECT NUMBER	210303	SHEET	C600
PROJECT PHASE	FINAL SPA		



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

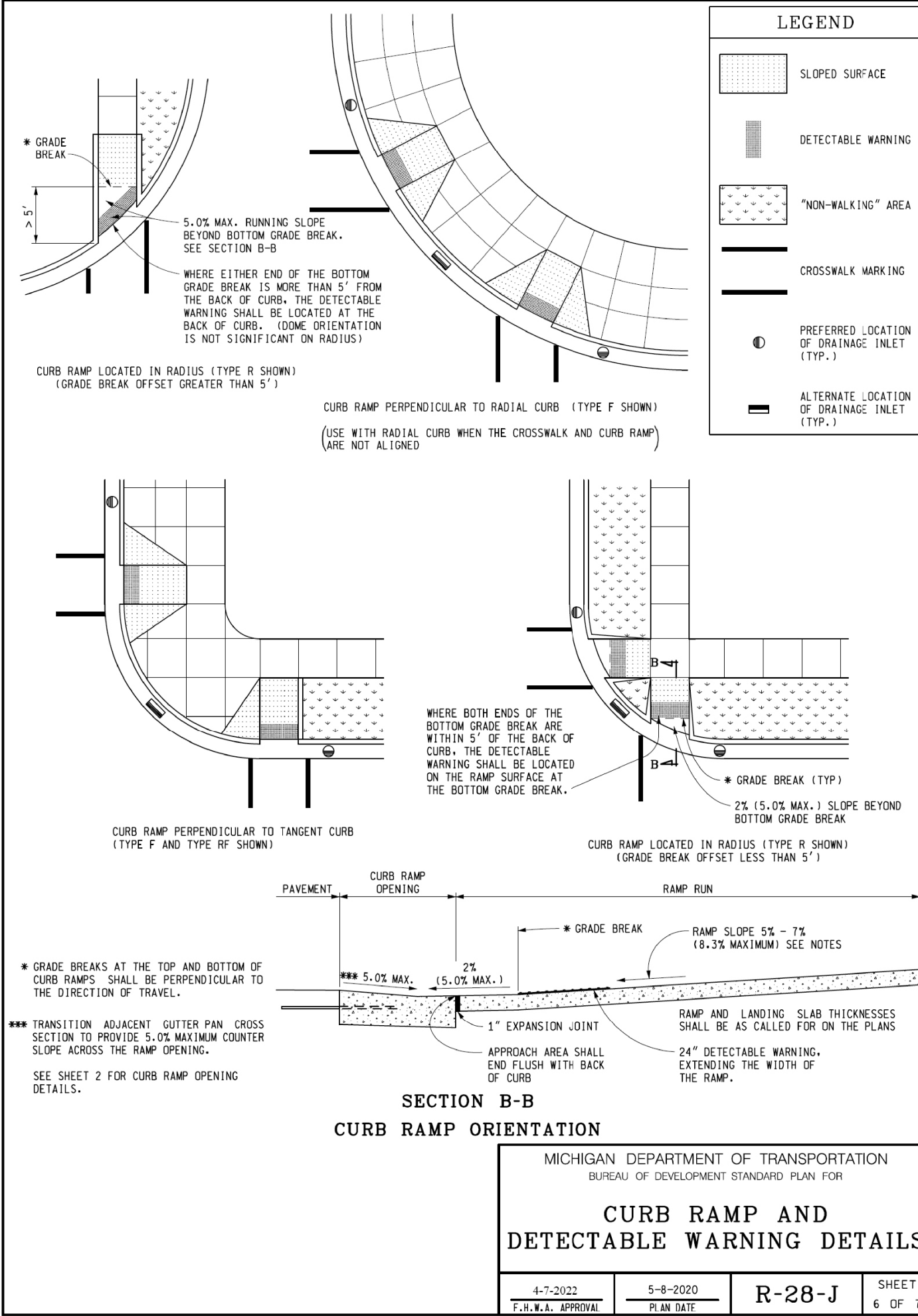
4-7-2022 5-8-2020 R-28-J SHEET 1 OF 1



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

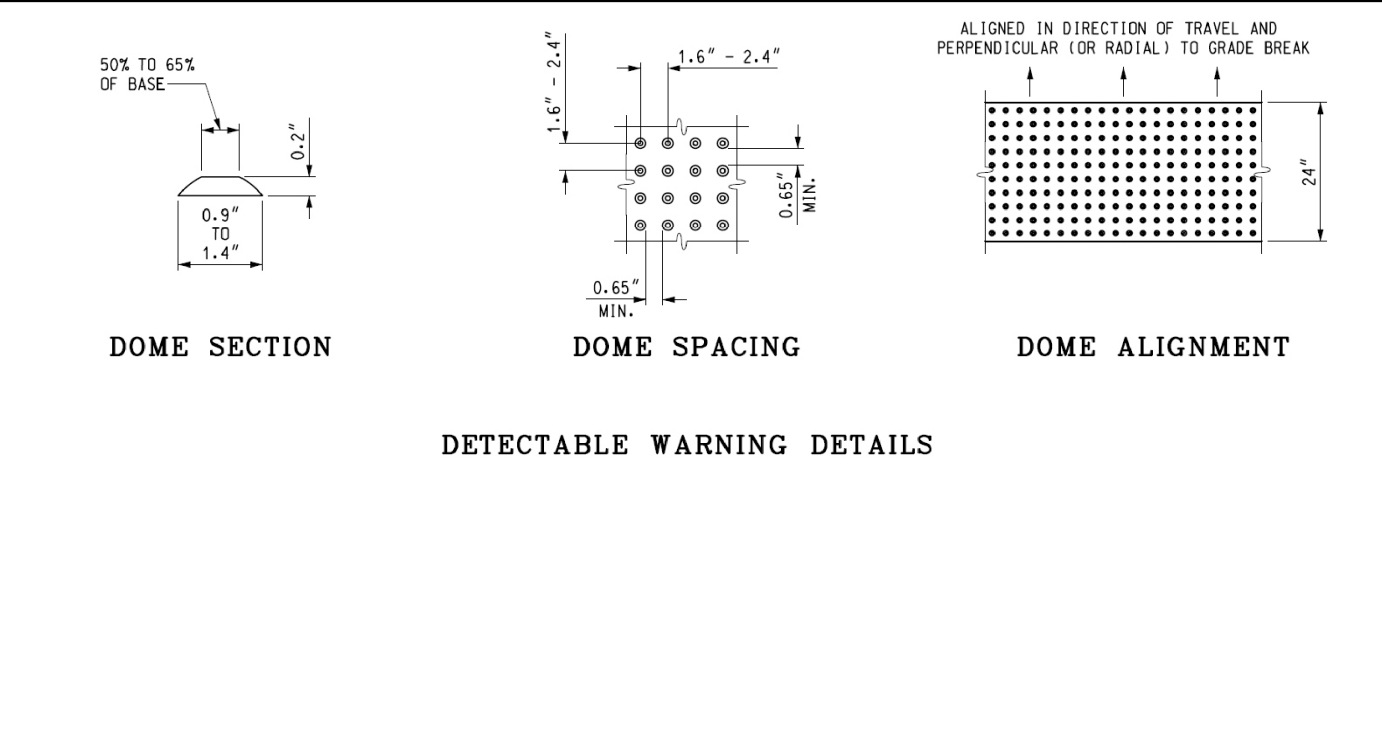
4-7-2022 5-8-2020 R-28-J SHEET 3 OF 1



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

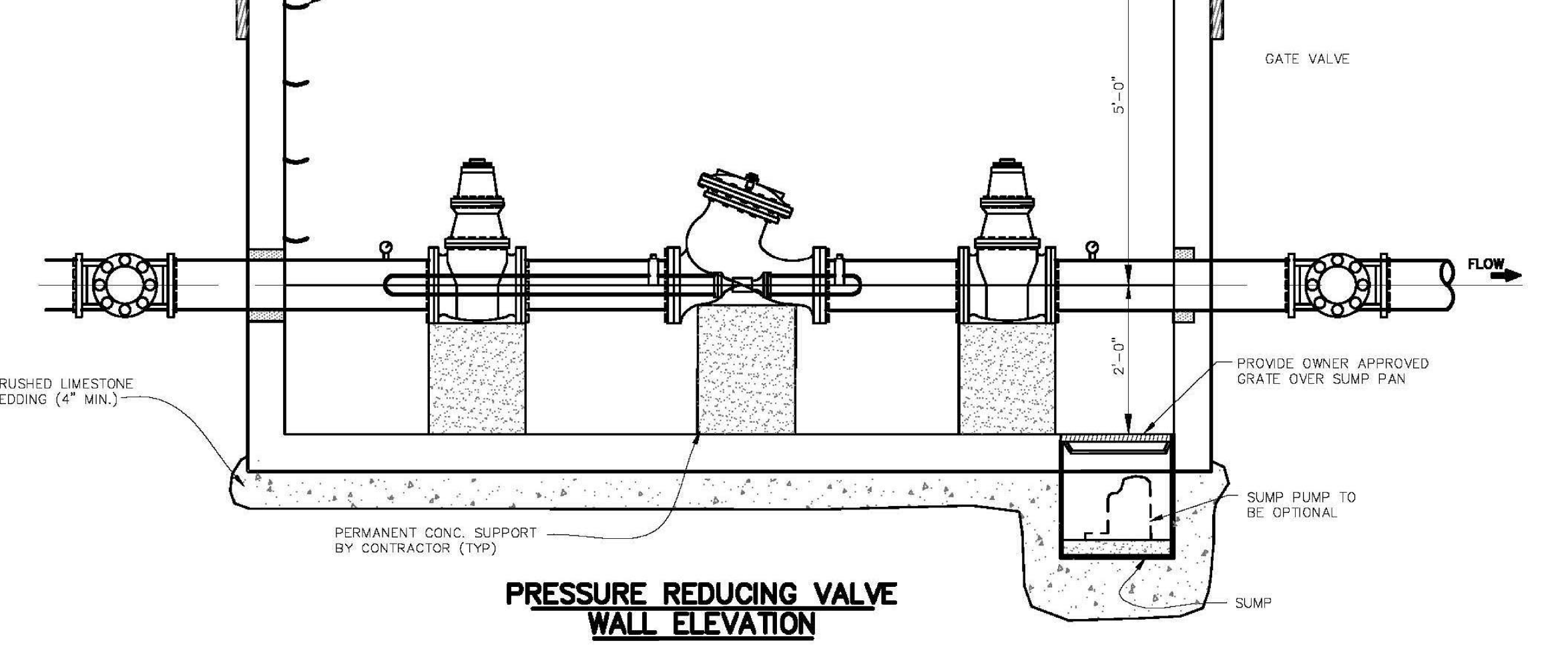
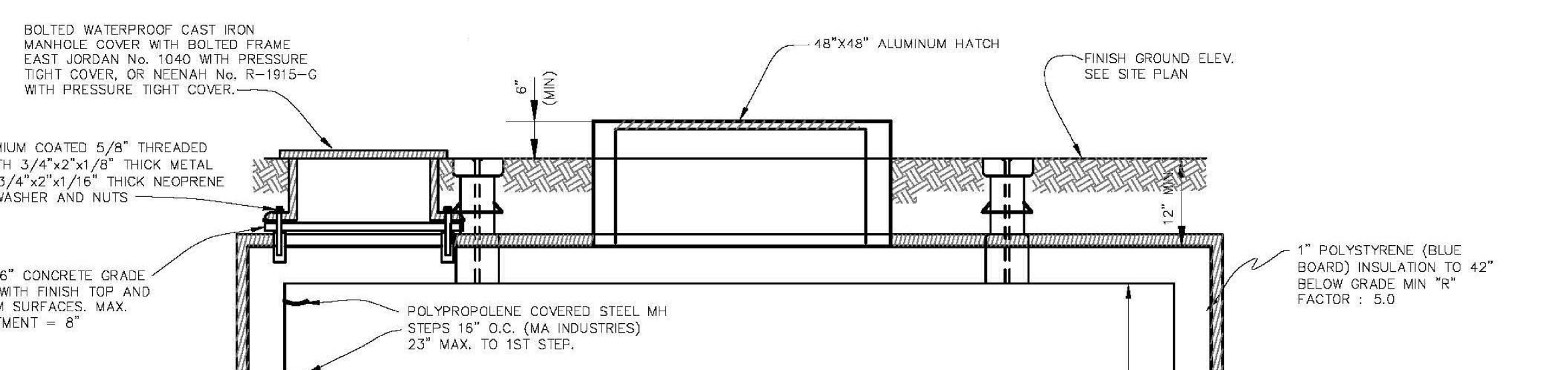
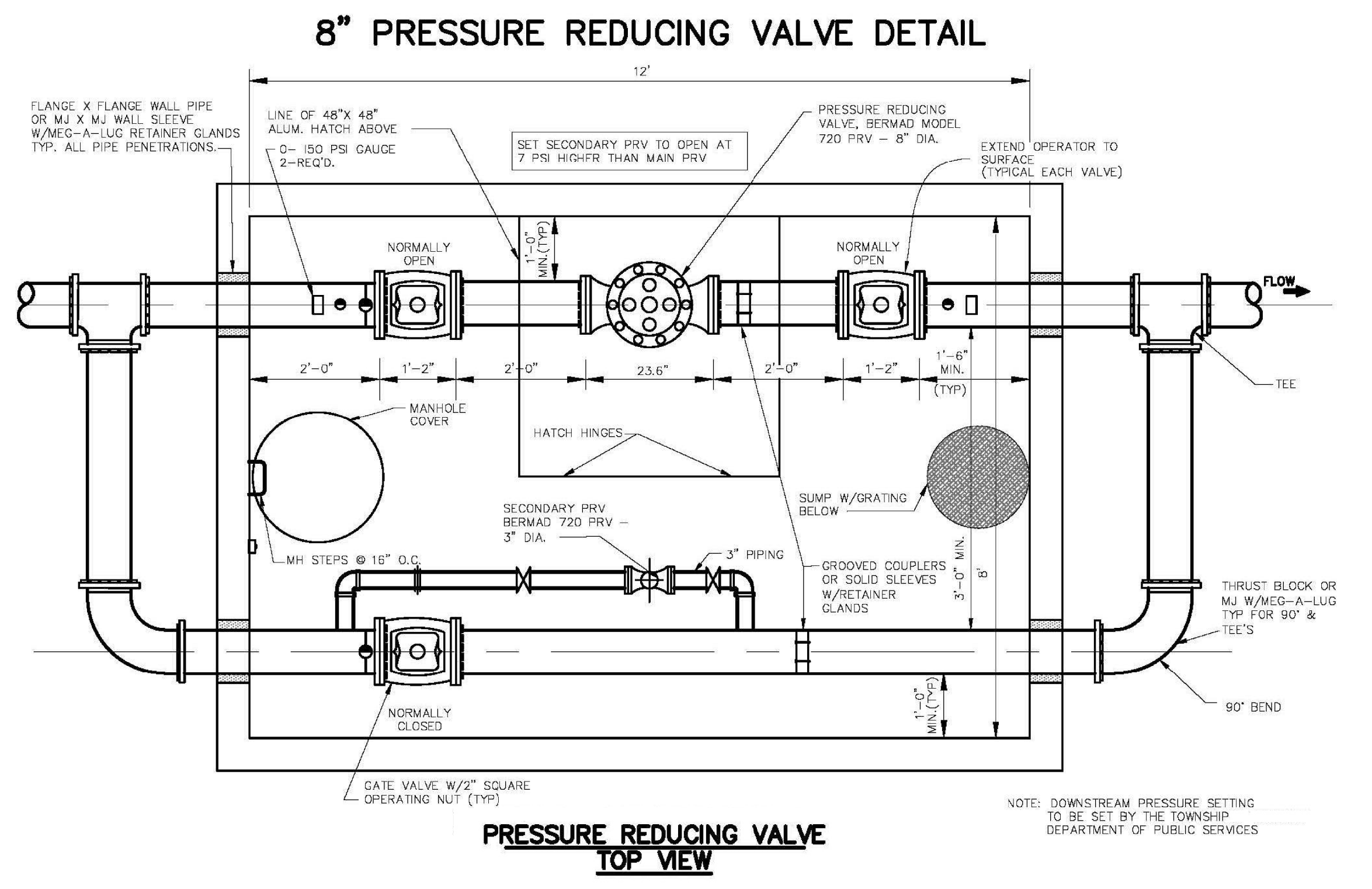
4-7-2022 5-8-2020 R-28-J SHEET 6 OF 1



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

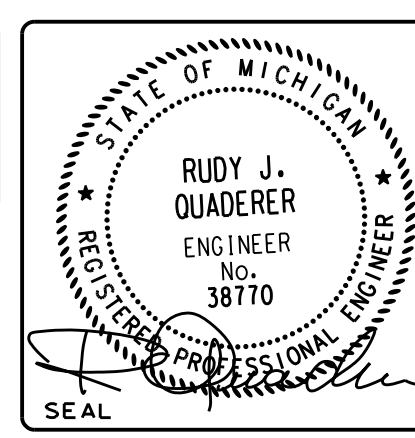
CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 5-8-2020 R-28-J SHEET 7 OF 1



NO.	DATE	SUBJECT
02-07-23	RE ISSUED TO WHITE LAKE TWP.	
11-10-22	RE ISSUED TO WHITE LAKE TWP.	
NO.	DATE	SUBJECT
REVISION OR ISSUE		

DRAWN	
DESIGNED	BRZEZINSKI
CHECKED	QUADERER
FIELD WORK	



NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
SITE DETAILS



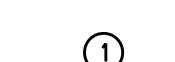

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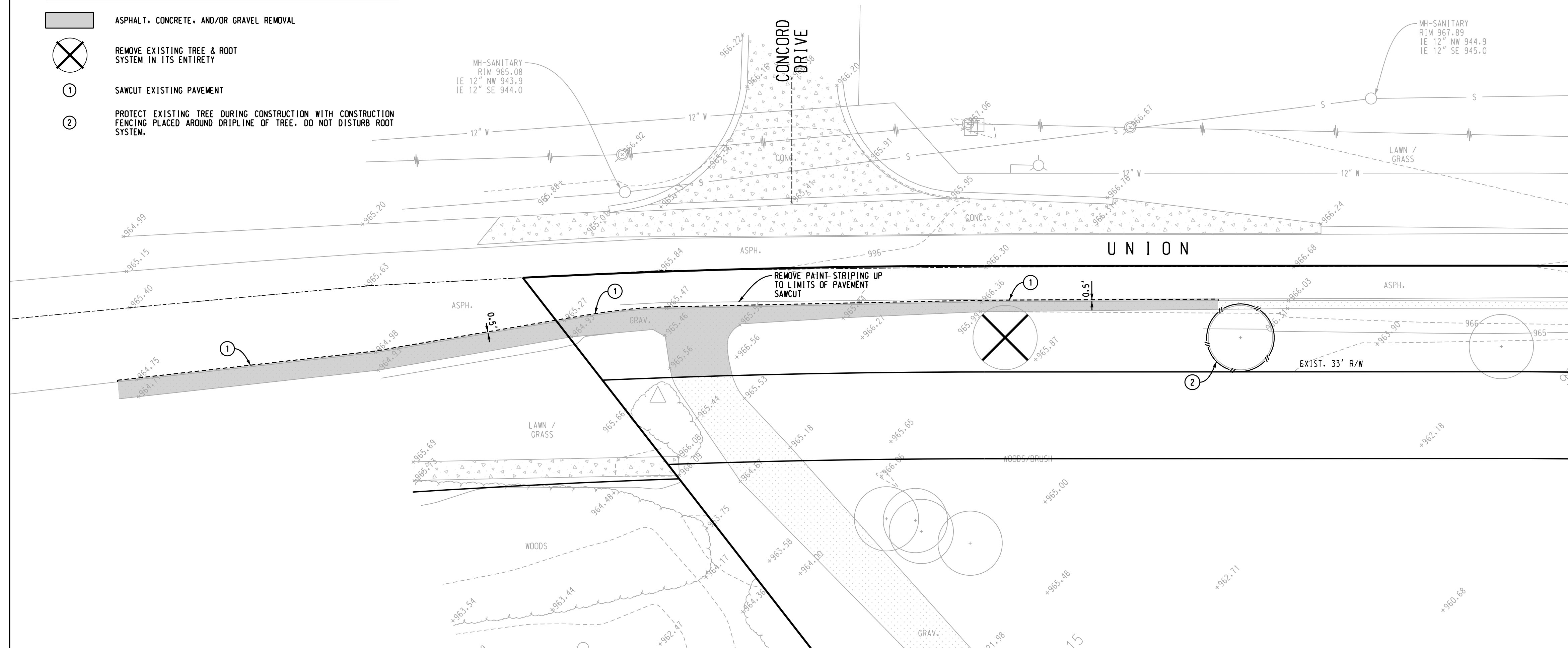
8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
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PROJECT NUMBER 210303 SHEET C601

PROJECT PHASE FINAL SPA

DEMOLITION KEY:

-  ASPHALT, CONCRETE, AND/OR GRAVEL REMOVAL
-  REMOVE EXISTING TREE & ROOT SYSTEM IN ITS ENTIRETY
-  SAWCUT EXISTING PAVEMENT
-  PROTECT EXISTING TREE DURING CONSTRUCTION WITH CONSTRUCTION FENCING PLACED AROUND DRIPLINE OF TREE. DO NOT DISTURB ROOT SYSTEM.



DRIVE APPROACH - REMOVAL PLAN

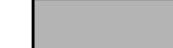

DEMOLITION NOTES:

1. PRIOR TO BEGINNING OF ANY DEMOLITION WORK THE CONTRACTOR SHALL NOTIFY THE LOCAL GOVERNING AGENCY TO OBTAIN PERMIT. ALL DEMOLITION WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL GOVERNING AGENCY. ALL DEMOLITION OPERATIONS SHALL COMPLY WITH MISHA REGULATIONS.
2. THE CONTRACTOR MUST OBTAIN A SOIL EROSION CONTROL PERMIT AND INSTALL EROSION CONTROL MEASURES PRIOR TO BEGINNING OF DEMOLITION WORK. THESE CONTROL MEASURES SHALL CONFORM IN ALL RESPECT WITH THE MDEQ AND LOCAL GOVERNING AGENCY REQUIREMENTS.
3. CONTACT "MISS DIG" AT (811) A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGIN OF DEMOLITION WORK.
4. CLEARING, GRUBBING, STUMP REMOVAL, TOPSOIL REMOVAL AND STOCKPILING SHALL BE IN ACCORDANCE WITH THESE DOCUMENTS AND/OR THE PROJECT SPECIFICATIONS.
5. PROVIDE ADEQUATE BARRICADES AT DRIVES, ENTRANCES, AND OTHER OPENINGS TO KEEP OUT UNAUTHORIZED PERSONS, FOR PUBLIC SAFETY, AND TRAFFIC CONTROL. BARRICADES SHALL BE PROVIDED IN ACCORDANCE WITH APPROPRIATE GOVERNING AGENCIES.
6. NO ATTEMPT IS MADE TO STIPULATE EVERY REQUIRED ITEM OF DEMOLITION EITHER ON THE DRAWINGS AND/OR IN SPECIFICATIONS. CONTRACTOR MUST VISIT AND STUDY PHYSICAL CONDITIONS OF SITE. REVIEW DRAWINGS AND REACH THEIR OWN CONCLUSIONS ON WORK NECESSARY TO ACCOMPLISH INTENDED RESULTS DESCRIBED BY DRAWINGS AND/OR SPECIFICATIONS.
7. PROVIDE CONSTRUCTION FENCING AROUND DRIP LINE OF TREES TO REMAIN WITHIN CONSTRUCTION AREA.
8. ALL DEMOLITION MATERIAL SHALL BE PROPERLY REMOVED FROM THE SITE AND DISPOSED OF IN A LEGALLY DESIGNATED DISPOSAL SITE. NO ON-SITE BURNING WILL BE ALLOWED. PERMITS AND FEES FOR DISPOSAL OF DEMOLITION MATERIAL SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.

ROAD COMMISSION OF OAKLAND COUNTY NOTES:

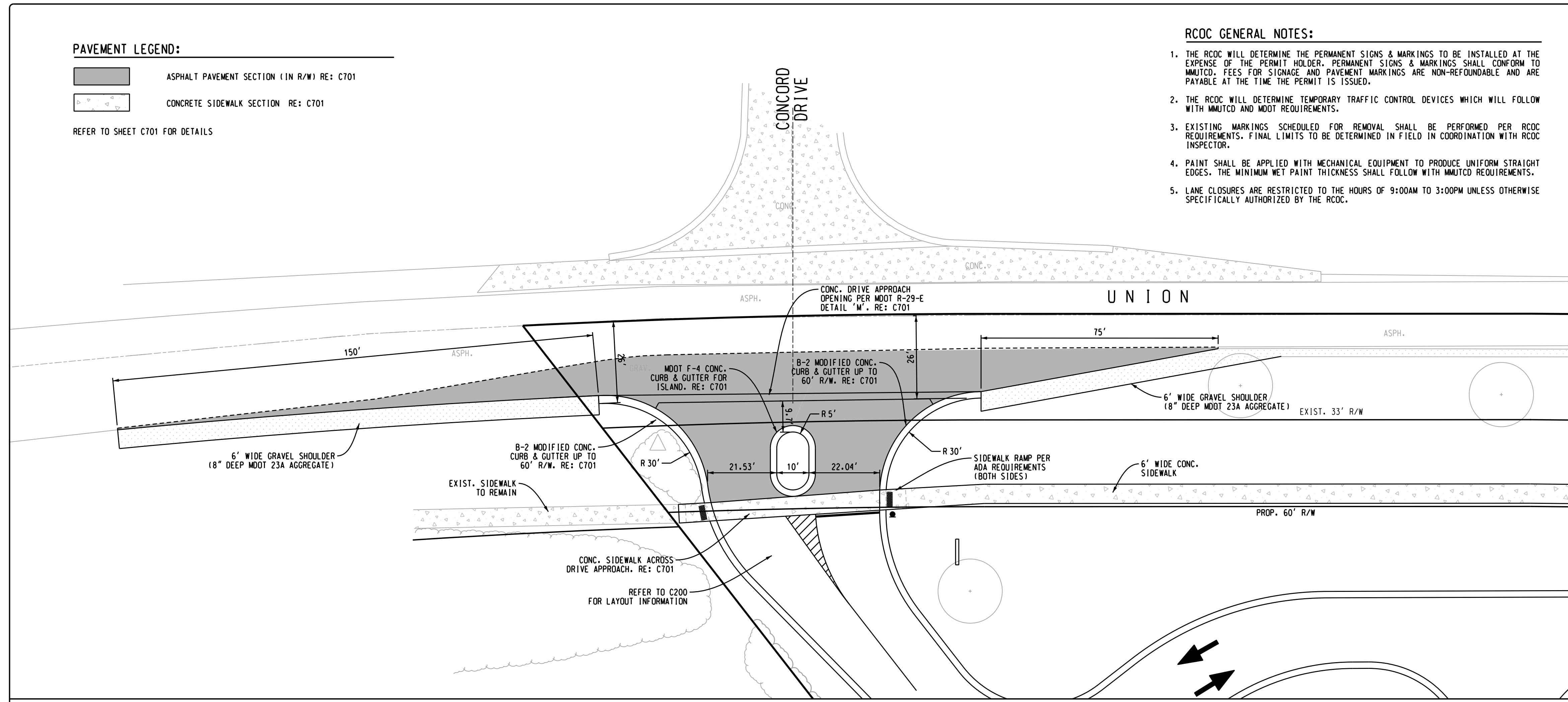
1. A PERMIT MUST BE OBTAINED FROM THE ROAD COMMISSION OF OAKLAND COUNTY (RCOC) PRIOR TO ANY WORK WITHIN UNION LAKE ROAD RIGHT-OF-WAY.
2. MAINTAIN ACCESS TO EXISTING RESIDENT AT ALL TIMES DURING CONSTRUCTION.
3. NO EQUIPMENT OR MATERIAL STORAGE IS PERMITTED WITHIN THE ROAD RIGHT-OF-WAY.
4. CONTRACTOR'S MANNER AND METHOD OF INGRESS AND EGRESS WITH RESPECT TO THE PROJECT AREA SHALL IN NO WAY PROHIBIT OR DISTURB NORMAL PEDESTRIAN OR VEHICULAR TRAFFIC IN THE VICINITY AND IS SUBJECT TO REGULATION AND WRITTEN APPROVAL FROM RCOC.
5. RESTORE ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE DITCHES, AND OTHER PUBLIC OR PRIVATE STRUCTURES THAT ARE DISTURBED OR DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITIONS AND TO THE SATISFACTION OF THOSE HAVING JURISDICTION.
6. CONTRACTOR SHALL PULL EROSION CONTROL PERMIT FROM GOVERNING AGENCY AND SET TEMPORARY EROSION CONTROL MEASURES AS INDICATED ON THESE DOCUMENTS PRIOR TO BEGIN OF ANY DEMOLITION OR EARTHWORK.
7. THE CONTRACTOR SHALL NOTIFY MISS DIG (811) THREE (3) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION WITH POWER EQUIPMENT.
8. OVERHEAD LINE TO BE 18 FEET ABOVE FINISHED PAVEMENT GRADES.
9. VERIFY EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER.
10. CONTRACTOR SHALL VERIFY ALL EXISTING PAVEMENT GRADES TO ENSURE 2% CROSS SLOPE ACROSS ALL WIDENINGS AND TAPERINGS.
11. ALL BORE PITS ARE TO BE LOCATED AT LEAST 10 FEET FROM EDGE OF PAVEMENT.
12. CONTACT RCOC INSPECTOR PRIOR TO BEGIN OF WORK WITHIN ROAD R/W.
13. PROPER ROAD CONSTRUCTION SIGNAGE IS REQUIRED PRIOR TO START OF WORK WITH ROAD R/W. CONTRACTOR TO COORDINATE WITH RCOC.
14. LANE CLOSURE RESTRICTED TO 9AM TO 3PM MONDAY THROUGH FRIDAY.
15. FLAG PERSON IS REQUIRED FOR TEMPORARY ONE LANE CLOSURE.
16. TRENCH BACKFILL WITHIN INFLUENCE OF ROAD BED SHALL BE MOOT CLASS II SAND COMPACTED TO 95% DENSITY.
17. SUITABLE BASE TO BE DETERMINED BY RCOC INSPECTOR IN FIELD.
18. PROVIDE FULL DEPTH SAWCUT AND/OR MILL FOR BUTT JOINT AS DIRECTED BY RCOC INSPECTOR IN FIELD.
19. NEW SIDEWALK RAMPS SHALL FOLLOW ADA REQUIREMENTS.
20. ADDITIONAL DITCHING MAY BE NECESSARY TO OBTAIN POSITIVE DRAINAGE AS DIRECTED BY RCOC INSPECTOR.
21. PLACE MINIMUM 4" TOPSOIL IN ALL DISTURBED GREEN AREAS WITHIN ROAD R/W.
22. ALL TEMPORARY EROSION CONTROL MEASURES MUST BE REMOVED AND ALL GREEN AREAS ESTABLISHED PRIOR TO FINAL RELEASE OF CONSTRUCTION DEPOSIT BY RCOC.

PAVEMENT LEGEND:

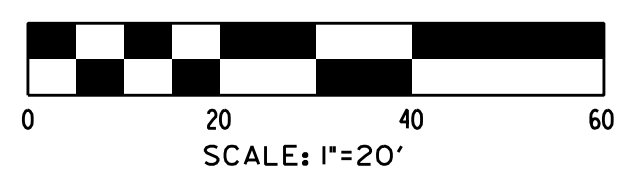
-  ASPHALT PAVEMENT SECTION (IN R/W) RE: C701
 -  CONCRETE SIDEWALK SECTION RE: C701
- REFER TO SHEET C701 FOR DETAILS

RCOC GENERAL NOTES:

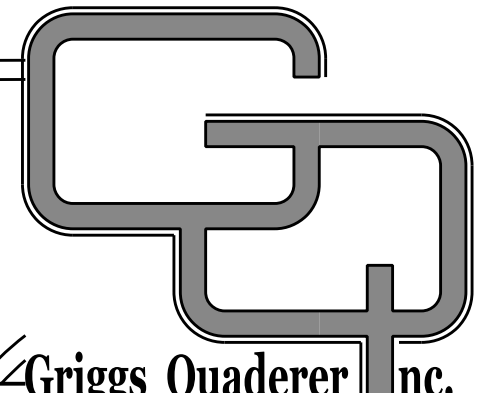
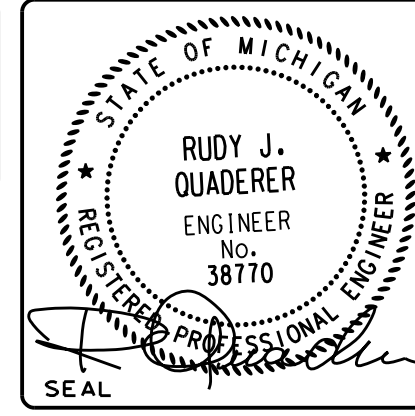
1. THE RCOC WILL DETERMINE THE PERMANENT SIGNS & MARKINGS TO BE INSTALLED AT THE EXPENSE OF THE PERMIT HOLDER. PERMANENT SIGNS & MARKINGS SHALL CONFORM TO MUTCD. FEES FOR STORAGE AND PAVEMENT MARKINGS ARE NON-REFUNDABLE AND ARE PAYABLE AT THE TIME THE PERMIT IS ISSUED.
2. THE RCOC WILL DETERMINE TEMPORARY TRAFFIC CONTROL DEVICES WHICH WILL FOLLOW WITH MUTCD AND MOOT REQUIREMENTS.
3. EXISTING MARKINGS SCHEDULED FOR REMOVAL SHALL BE PERFORMED PER RCOC REQUIREMENTS. FINAL LIMITS TO BE DETERMINED IN FIELD IN COORDINATION WITH RCOC INSPECTOR.
4. PAINT SHALL BE APPLIED WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. THE MINIMUM WET PAINT THICKNESS SHALL FOLLOW WITH MUTCD REQUIREMENTS.
5. LANE CLOSURES ARE RESTRICTED TO THE HOURS OF 9:00AM TO 3:00PM UNLESS OTHERWISE SPECIFICALLY AUTHORIZED BY THE RCOC.



DRIVE APPROACH - LAYOUT PLAN



DRAWN	
DESIGNED	BRZEZINSKI
CHECKED	QUADERER
FIELD WORK	



8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PH: (810) 695-0154
FX: (810) 695-0158
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NO.	DATE	SUBJECT
02-07-23		REISSUED TO WHITE LAKE TWP.
11-10-22		REISSUED TO WHITE LAKE TWP.
REVISION OR ISSUE		

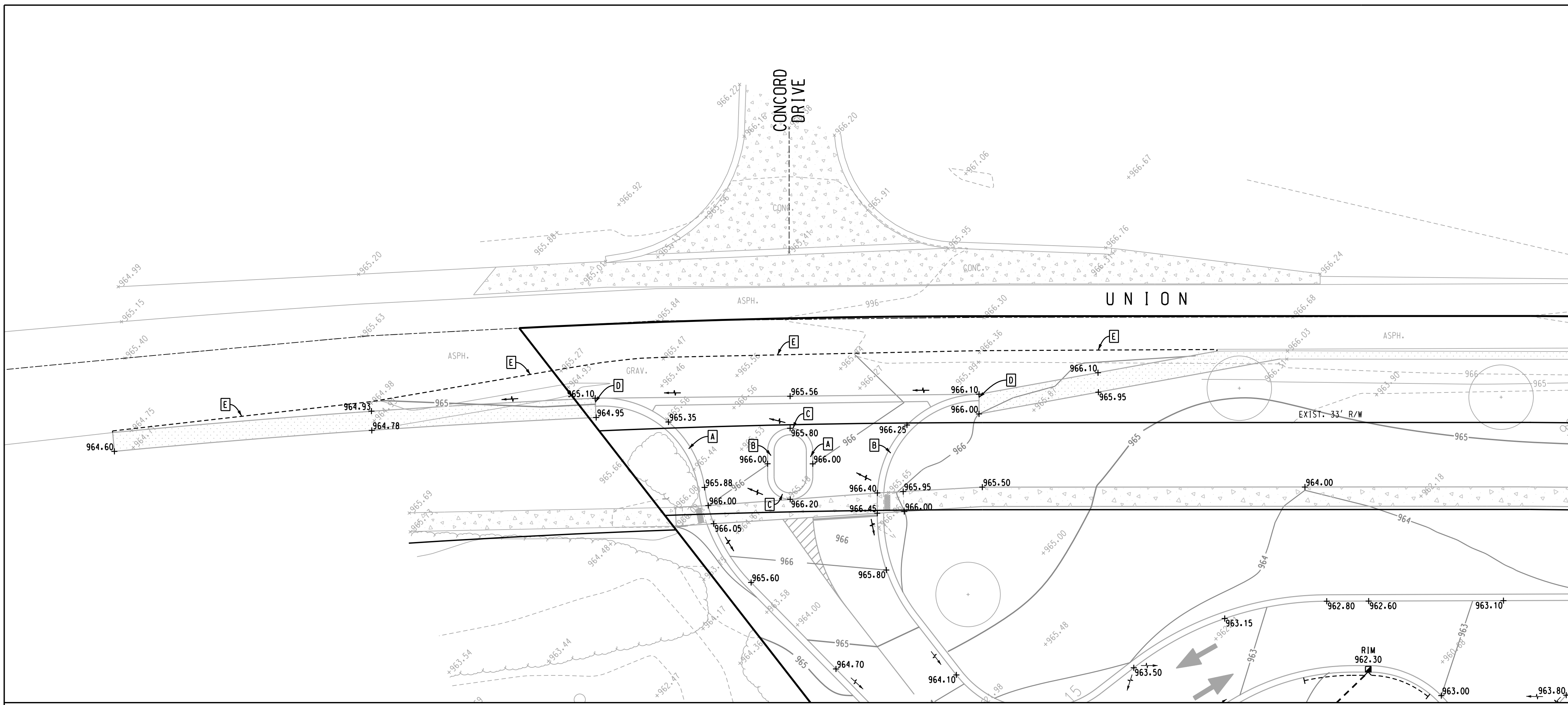
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
**DRIVE APPROACH
REMOVAL & LAYOUT PLAN**

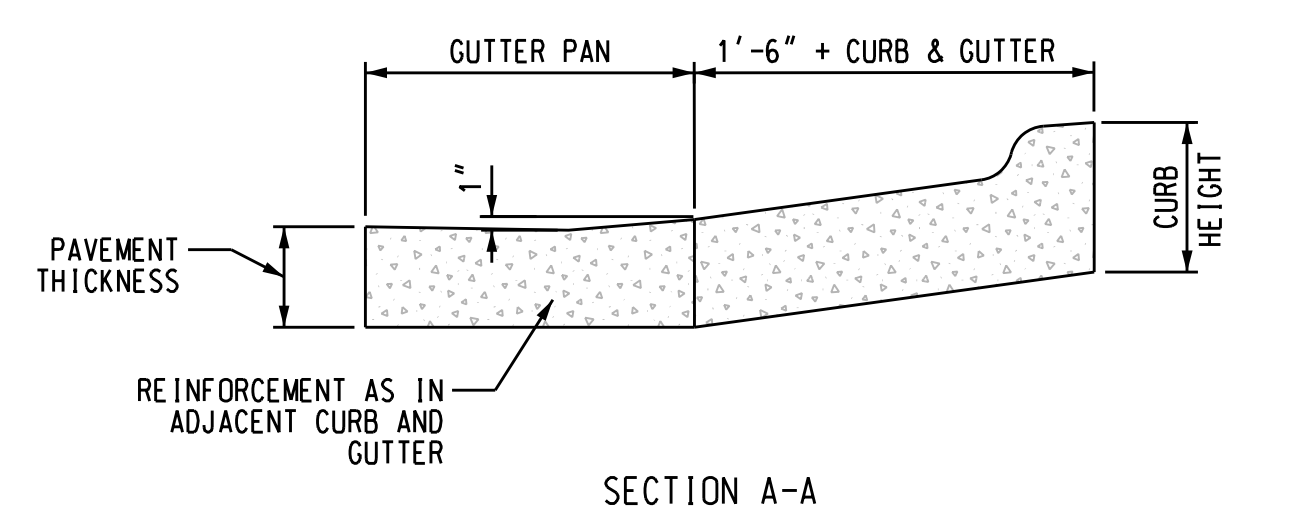
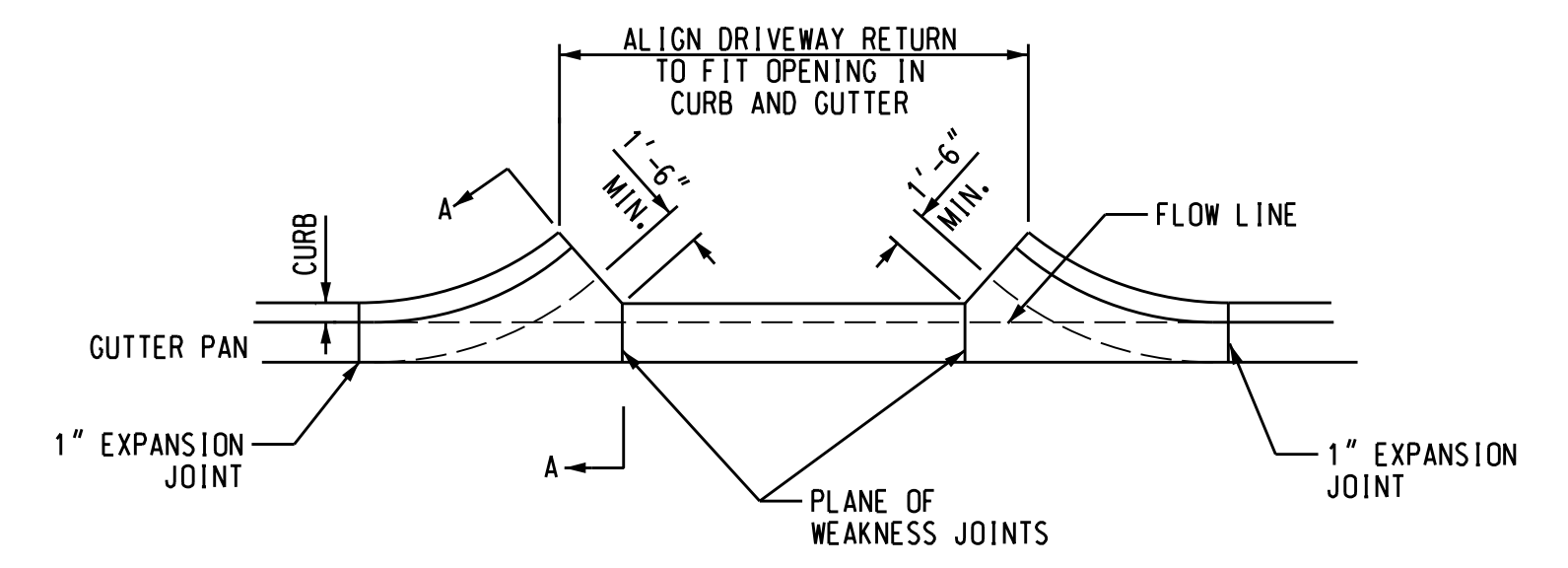
PROJECT NUMBER	210303	SHEET	C700
PROJECT PHASE	FINAL SPA		



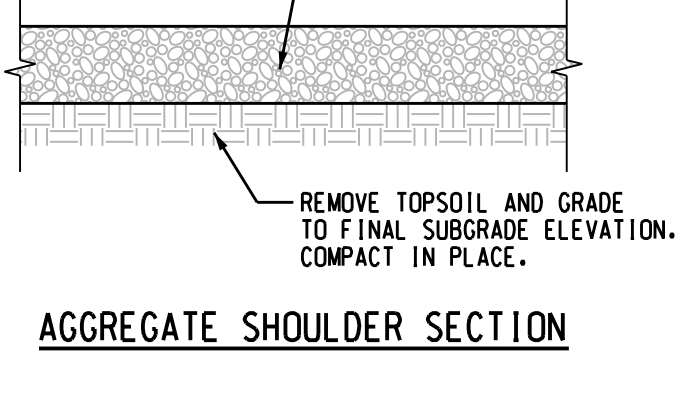
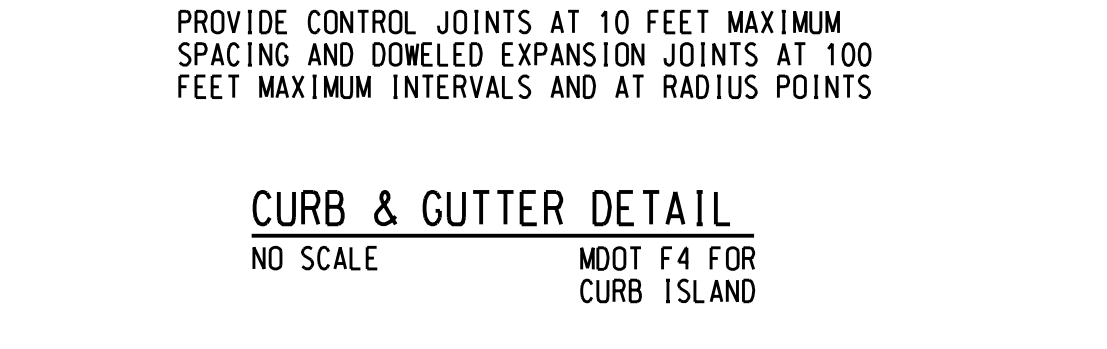
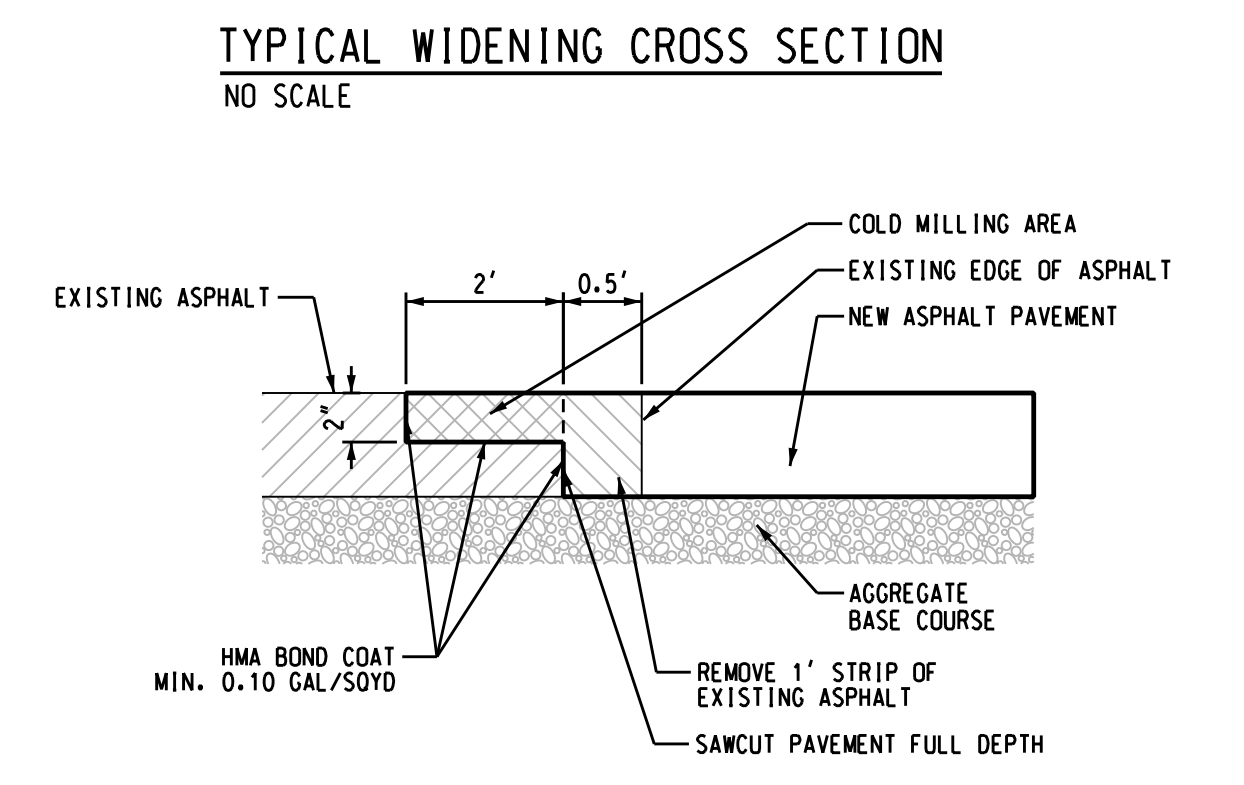
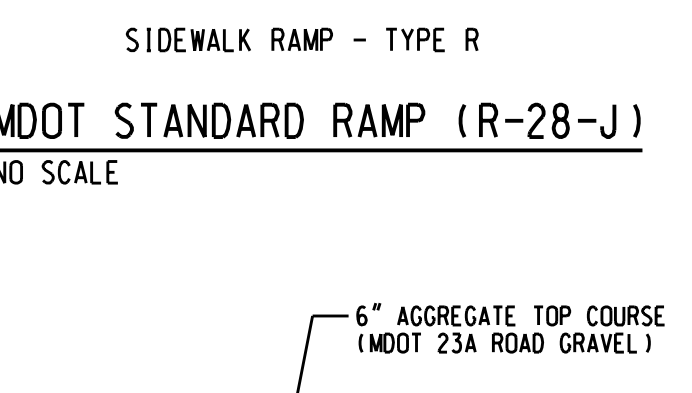
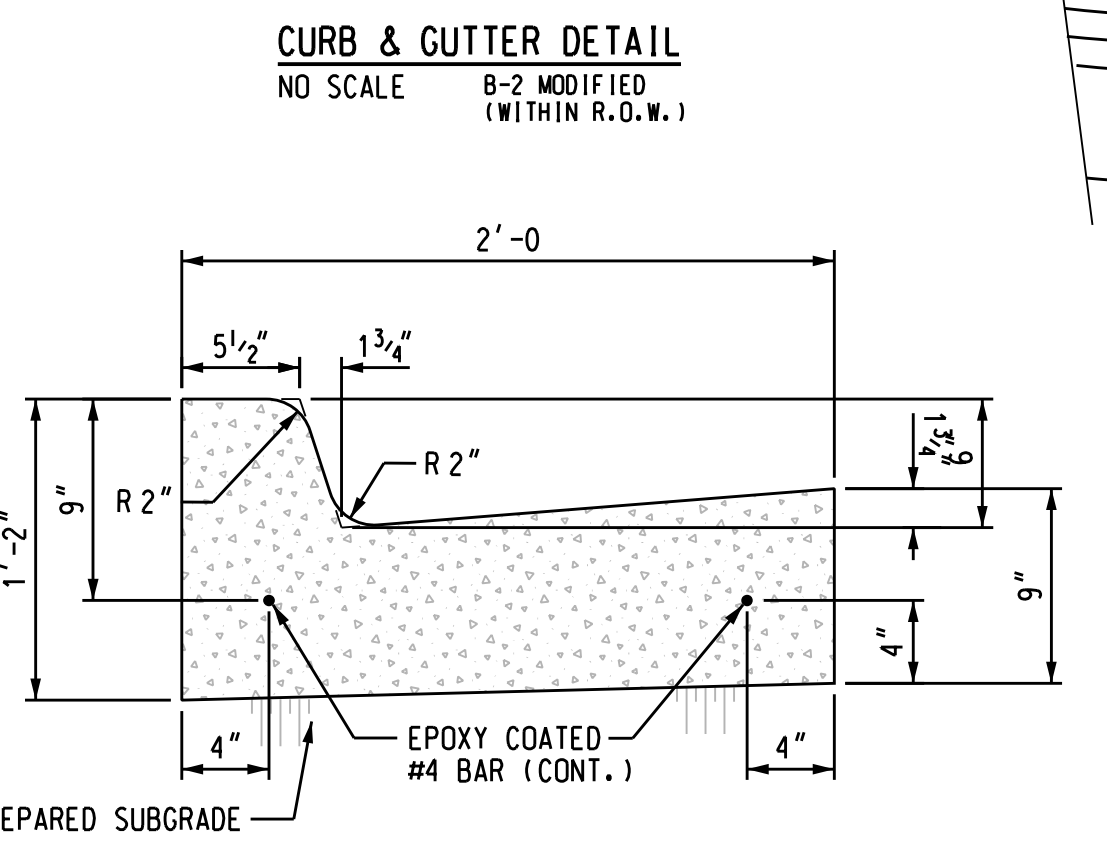
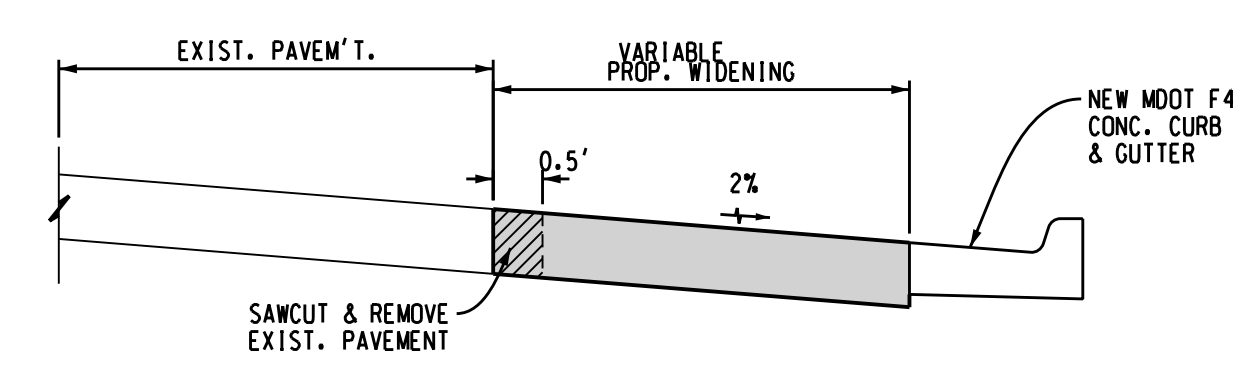
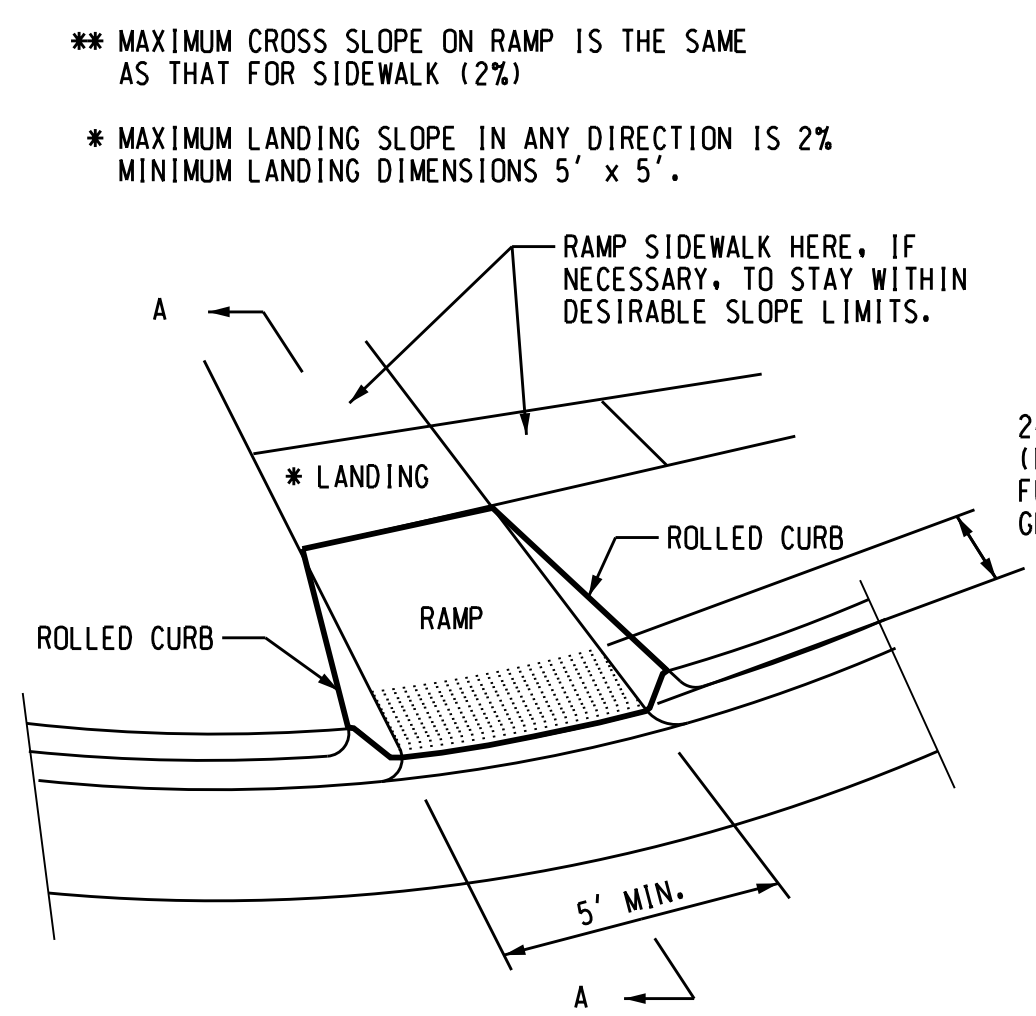
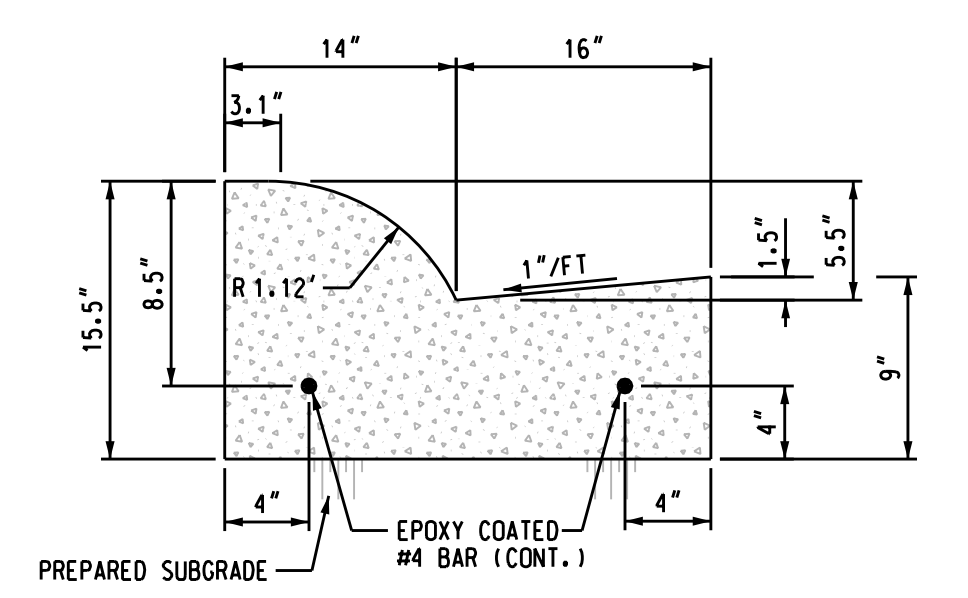
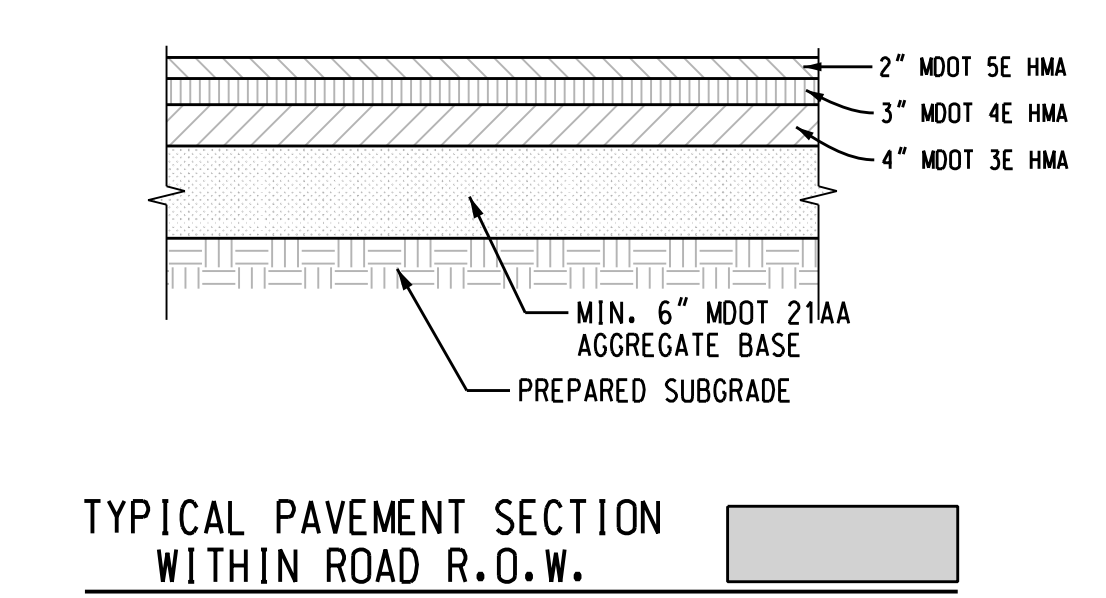
DRIVE APPROACH - GRADING PLAN

- GRADING NOTES:**
1. ALL PROPOSED SPOT ELEVATIONS IN PAVED AREAS ARE TO TOP OF PAVEMENT UNLESS NOTED OTHERWISE.
 2. CONTOURS SHOWN ARE FOR REFERENCE ONLY. BASE CONSTRUCTION EFFORTS ON PROPOSED SPOT ELEVATIONS ONLY.
 3. PROVIDE POSITIVE DRAINAGE AT ALL TIMES TO ENSURE NO STANDING WATER. MAINTAIN A MINIMUM SLOPE OF 1.00% IN ALL NEW BITUMINOUS AREAS.
 4. CONTRACTOR IS RESPONSIBLE FOR CUT AND FILL QUANTITIES. ADDITIONAL COMPENSATION WILL NOT BE ACCEPTED FOR HAULING AND LABOR COSTS FOR EXCESS AND BORROW MATERIAL TO AND FROM SITE. OFF-SITE BORROW MATERIAL MUST BE CLEAN COMPACTIBLE STRUCTURAL FILL MATERIAL (NO ORGANIC MATERIAL) AND WILL BE INSPECTED PRIOR TO USE FOR ON-SITE FILL MATERIAL.
 5. SITE CONTRACTOR IS RESPONSIBLE TO PROVIDE A STABLE SUBGRADE AT DESIGN ELEVATIONS. ALL PAVED AREAS SHALL BE COMPACTED TO MEET THE DENSITY REQUIREMENTS OF ASTM.
 6. CONTRACTOR SHALL STORE SUFFICIENT TOPSOIL MATERIAL ON-SITE FOR RE-USE IN ALL DISTURBED GREEN AREAS AND NEW LANDSCAPE AREAS.

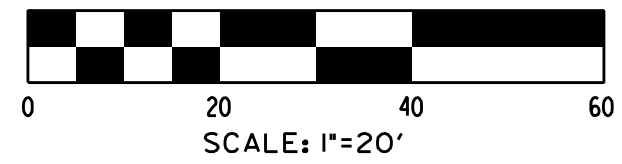
- CURB, GRADING & SIDEWALK RAMP NOTATIONS:**
- A STANDARD CURB AND GUTTER
 - B STANDARD CURB AND GUTTER WITH REVERSE SLOPE
 - C 10 FOOT TRANSITION BETWEEN TYPE A AND TYPE B
 - D 5 FOOT CURB END TRANSITION.
 - E MATCH EXISTING PAVEMENT OR CURB ELEVATION.



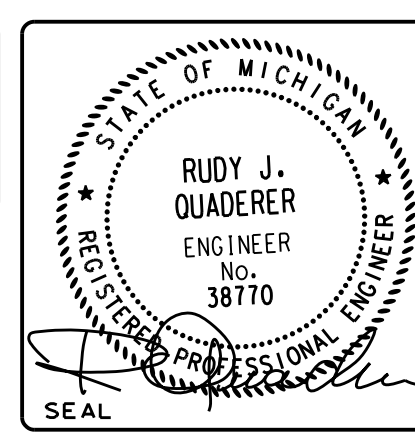
CONCRETE DRIVEWAY OPENING - DETAIL 'M'
NO SCALE MDT R-29-E



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



DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK



Griggs Quaderer Inc.
CIVIL ENGINEERING · LAND SURVEYING · SITE PLANNING

8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PH: (810) 695-0154
FX: (810) 695-0158
WWW.GQINCORP.COM

NO.	DATE	SUBJECT
	02-07-23	REISSUED TO WHITE LAKE TWP.
	11-10-22	REISSUED TO WHITE LAKE TWP.
REVISION OR ISSUE		

NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

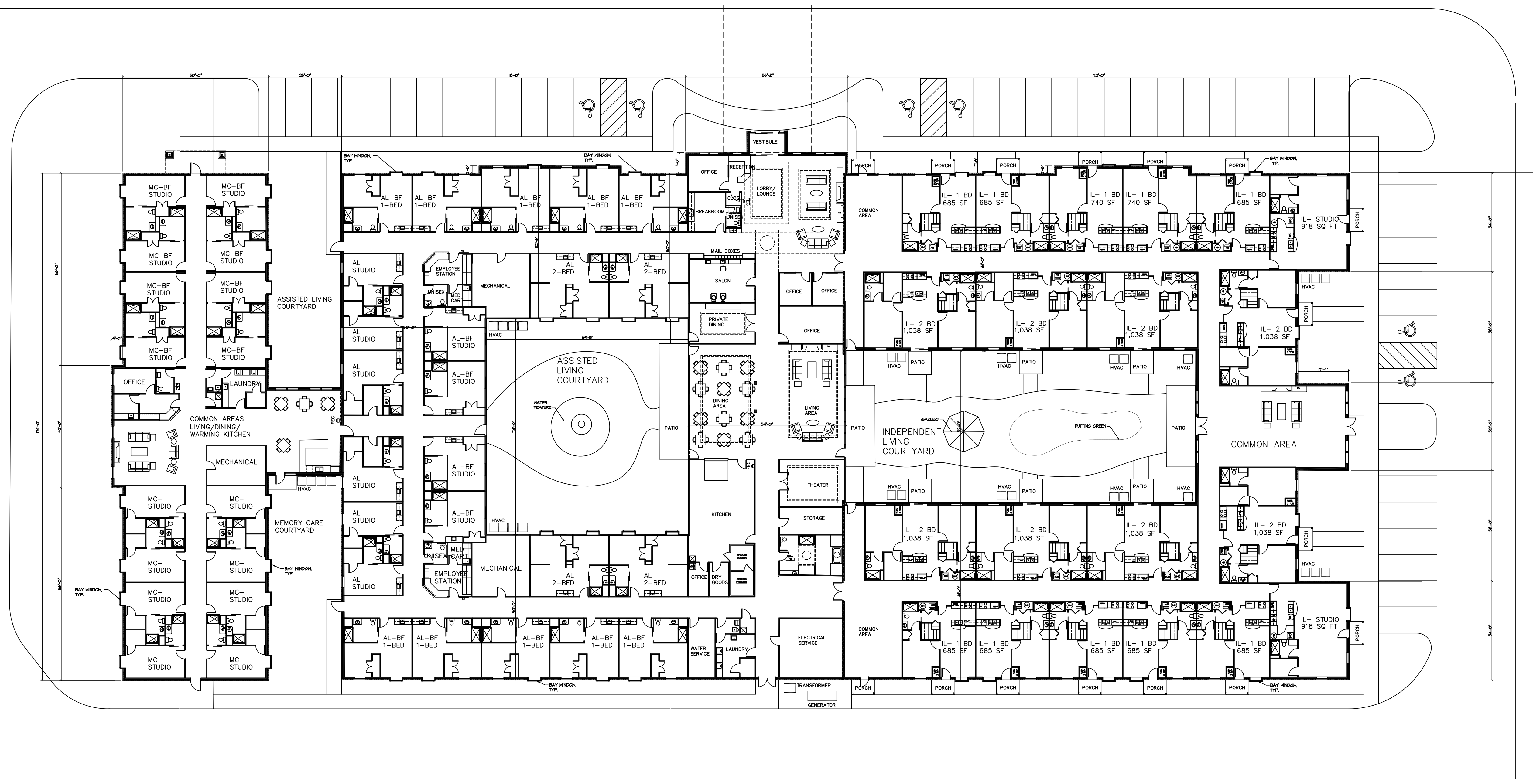
DRAWING TITLE
DRIVE APPROACH GRADING PLAN & DETAILS

PROJECT NUMBER 210303	SHEET C701
PROJECT PHASE FINAL SPA	

DRIVE APPROACH - DETAILS

PROPOSED NEW SENIOR HOUSING
COMFORT CARE SENIOR LIVING
 UNION LAKE ROAD, WHITE LAKE TOWNSHIP

OVERALL FLOOR PLAN



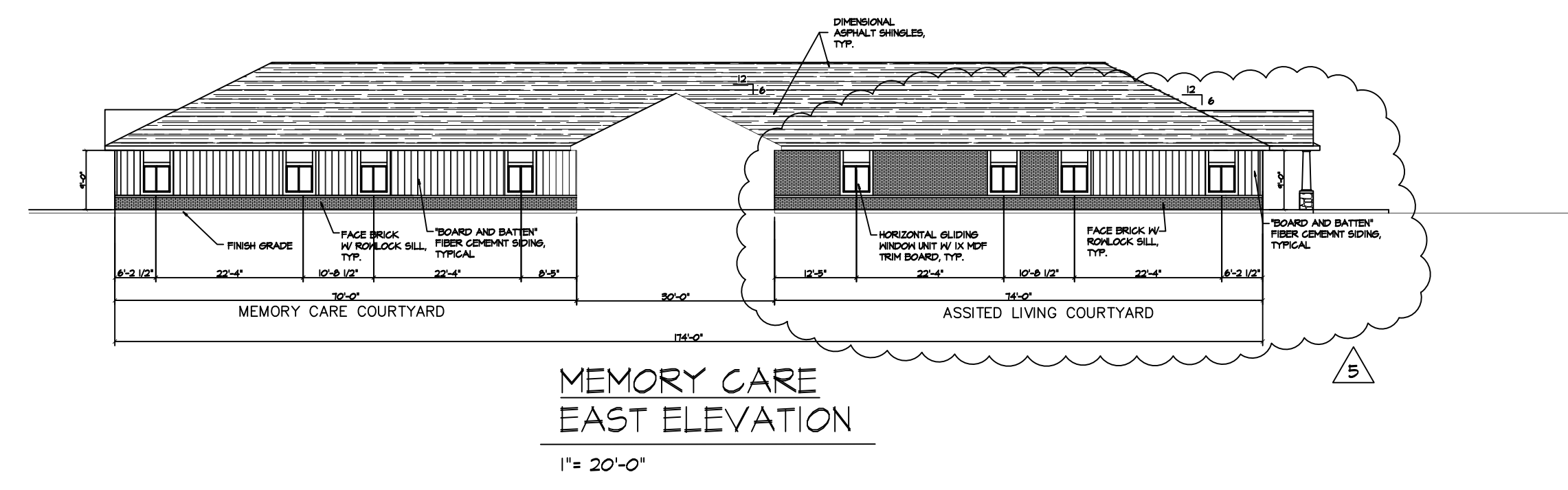
N
 OVERALL FLOOR PLAN
 1" = 20'-0"

UNIT SUMMARY
ASSISTED LIVING
 10-AL STUDIO UNITS
 10-AL ONE BED UNITS
 4-AL TWO BED UNITS
 16-MC STUDIO UNITS
 TOTAL AL UNITS = 40
 34,970 SQ FT

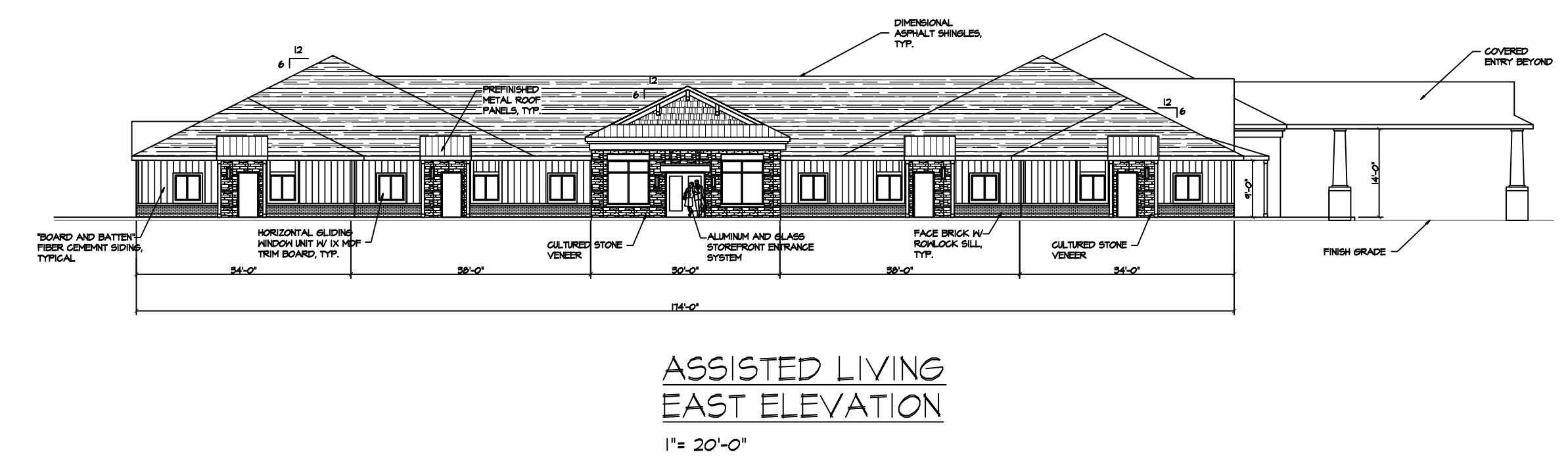
INDEPENDENT LIVING
 2-IL STUDIO UNITS
 10-IL ONE BED UNITS
 8-IL TWO BED UNITS
 TOTAL IL UNITS = 20
 22,473 SQ FT

REVISIONS
12-15-2022
12-8-2021
1-7-2022
2-14-2022
0-3-2022

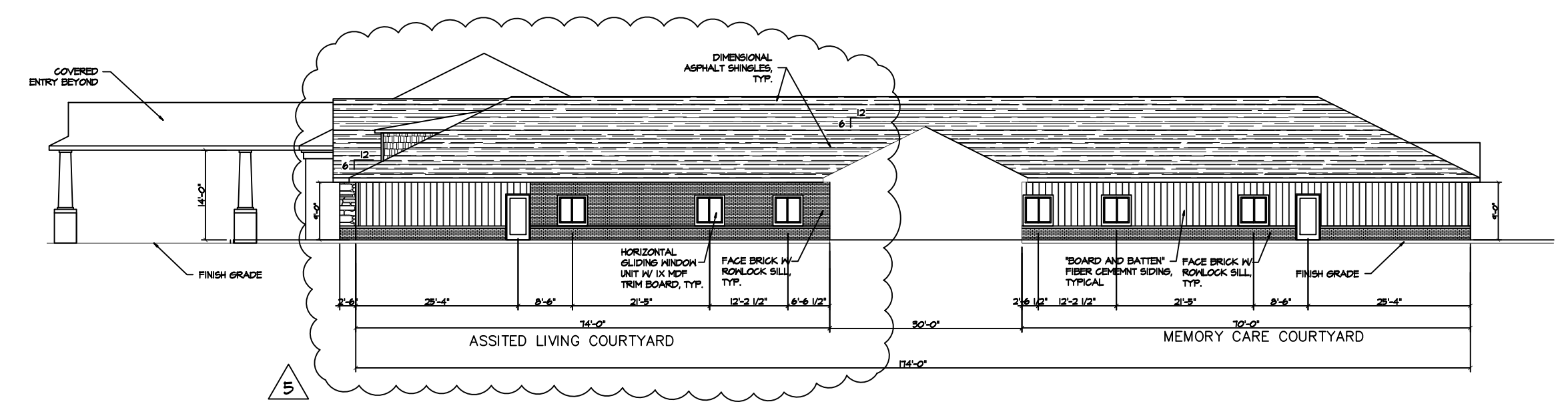
JOB NO: 021-024
 DATE: 6-1-2021
 DRAWN BY: JKC
 SCALE: AS NOTED
 SHEET NO:



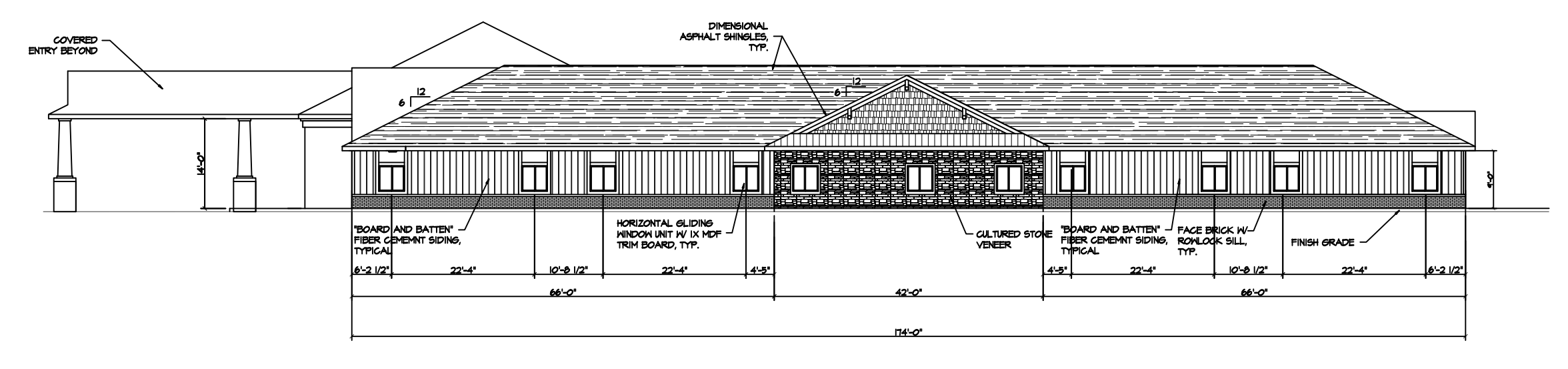
MEMORY CARE
EAST ELEVATION
1" = 20'-0"



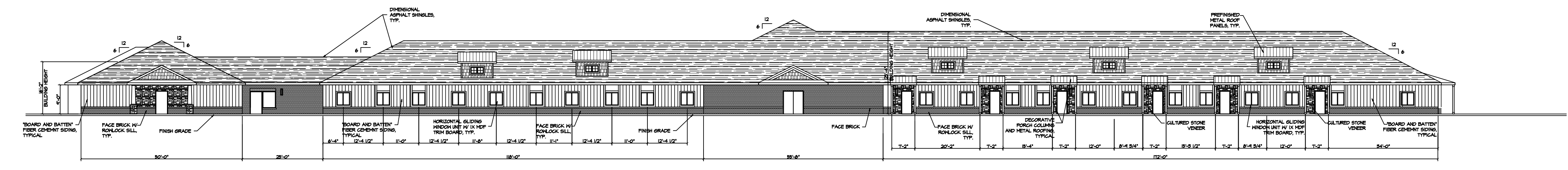
ASSISTED LIVING
EAST ELEVATION
1" = 20'-0"



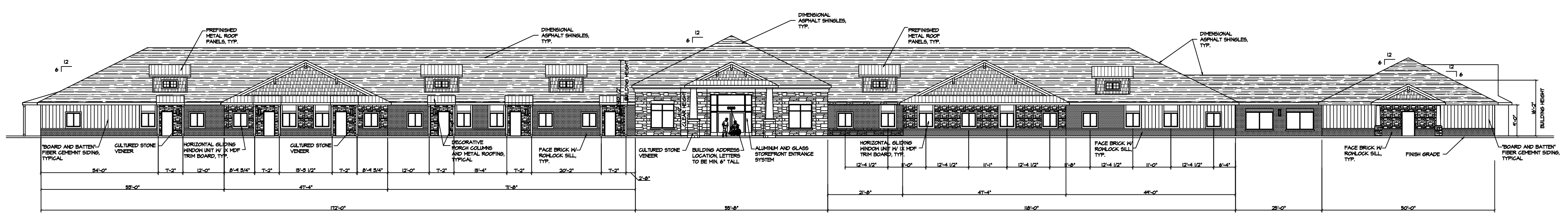
ASSISTED LIVING
WEST ELEVATION
1" = 20'-0"



MEMORY CARE
WEST ELEVATION
1" = 20'-0"



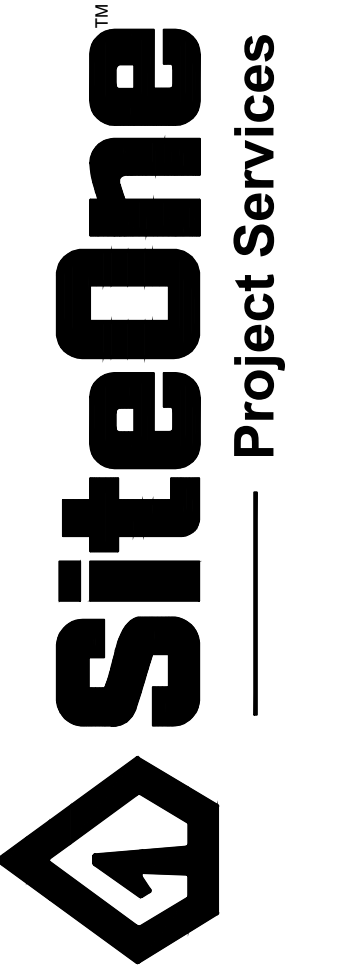
SOUTH ELEVATION
1" = 20'-0"



NORTH ELEVATION
1" = 20'-0"

12-15-2022
REVISIONS
12-8-2021
1-7-2022
2-14-2022
10-3-2022

JOB NO: 021-024
DATE: 6-1-2021
DRAWN BY: JKC
SCALE: AS NOTED
SHEET NO:



1-800-347-4272
http://www.projectsiteservices.siteone.com

650 Stephenson Highway
Troy, Michigan 48083
Phone 248.588.2100
Fax 248.588.3528
www.Siteone.com
800.347.4272

Project Name:
COMFORT CARE
White Lake, MI, 48386

Customer Name:

Design Date: 11/07/22
Drawn By: DB
Checked By: C. BEST

REVISIONS

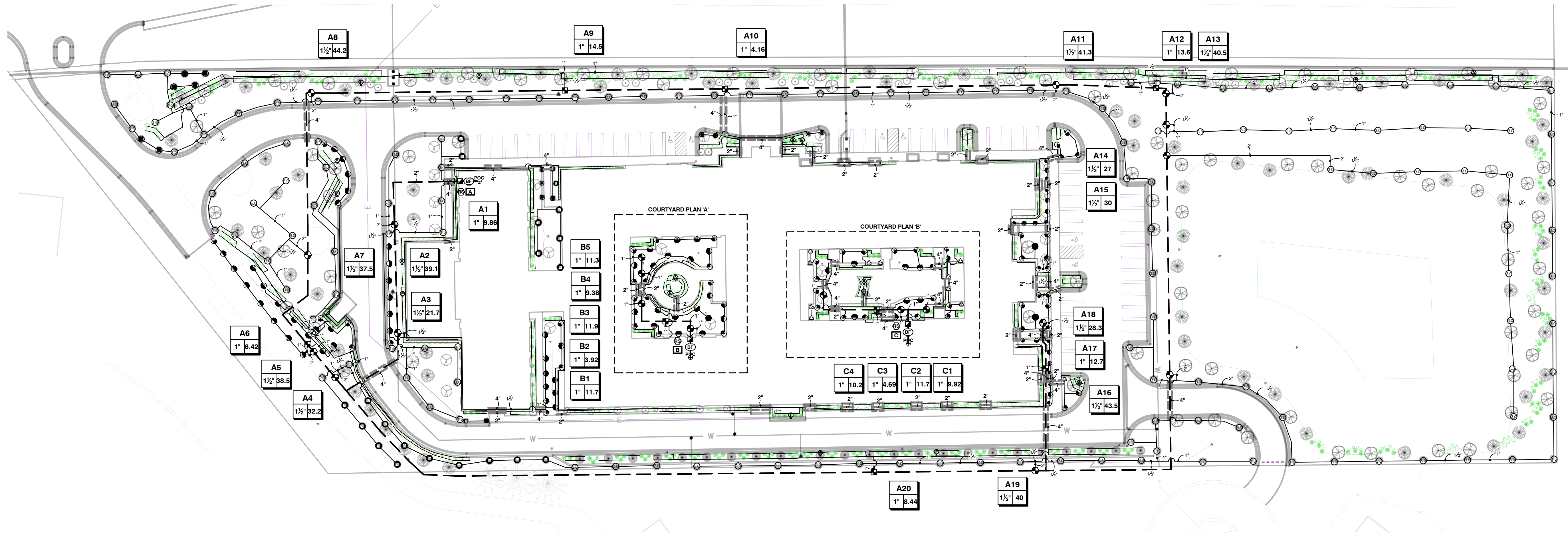
Description	Date
△	11/08/22
△	
△	
△	
△	

Drawing Title:
BID DESIGN

Drawing Scale: 1" = 40'

Project Services Number: 305973

Sheet Number:
IR-1



IRRIGATION SCHEDULE BASE PLAN

SYMBOL	MANUFACTURER/MODEL	QTY
ES LCS RCS CS SS	Hunter PROS-04 5' strip spray	1
○ ○ ○ ○ ○	Hunter PROS-04 8' radius	17
○ ○ ○ ○ ○	Hunter PROS-04 10' radius	13
○ ○ ○ ○ ○	Hunter PROS-04 12' radius	20
○ ○ ○ ○ ○	Hunter PROS-04 15' radius	34
LST SST RST	Hunter MP Strip PROS-04-PRS40-CV	5
○	Hunter MP1000 PROS-04-PRS40-CV	6
○	Hunter MP2000 PROS-04-PRS40-CV	19
○	Hunter MP800SR PROS-04-PRS40-CV	7
SYMBOL	MANUFACTURER/MODEL	QTY
○	Hunter PGP-04 1.5	23
○	Hunter PGP-04 2.0	46
○	Hunter PGP-04 3.0	71
○	Hunter PGP-04 6.0	3
SYMBOL	MANUFACTURER/MODEL	QTY
■	Rain Bird XCZ-100-PRF 1"	7
⊕	Flush Valve	7
⊕	Drip Air Relief Valve	7
—	Netafim TLDL-06-12	6,784 l.f.
SYMBOL	MANUFACTURER/MODEL	QTY
○	Hunter PGV-151 Globe 1-1/2"	13
○	Hunter HQ-44RC 1"	1
BP	Febco 765 1-1/2"	1
A	Hunter IZC-2400-PL	1
WR-CLIK	Hunter WR-CLIK	1
POC	Point of Connection 1 1/2"	1
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 1"	7,296 l.f.
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 1 1/2"	1,620 l.f.
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 2"	335.5 l.f.
—	Irrigation Mainline: PVC Class 160 SDR 26 2"	2,123 l.f.
—	Pipe Sleeve: PVC Class 160 SDR 26 2"	211.2 l.f.
—	Pipe Sleeve: PVC Class 160 SDR 26 4"	252.4 l.f.

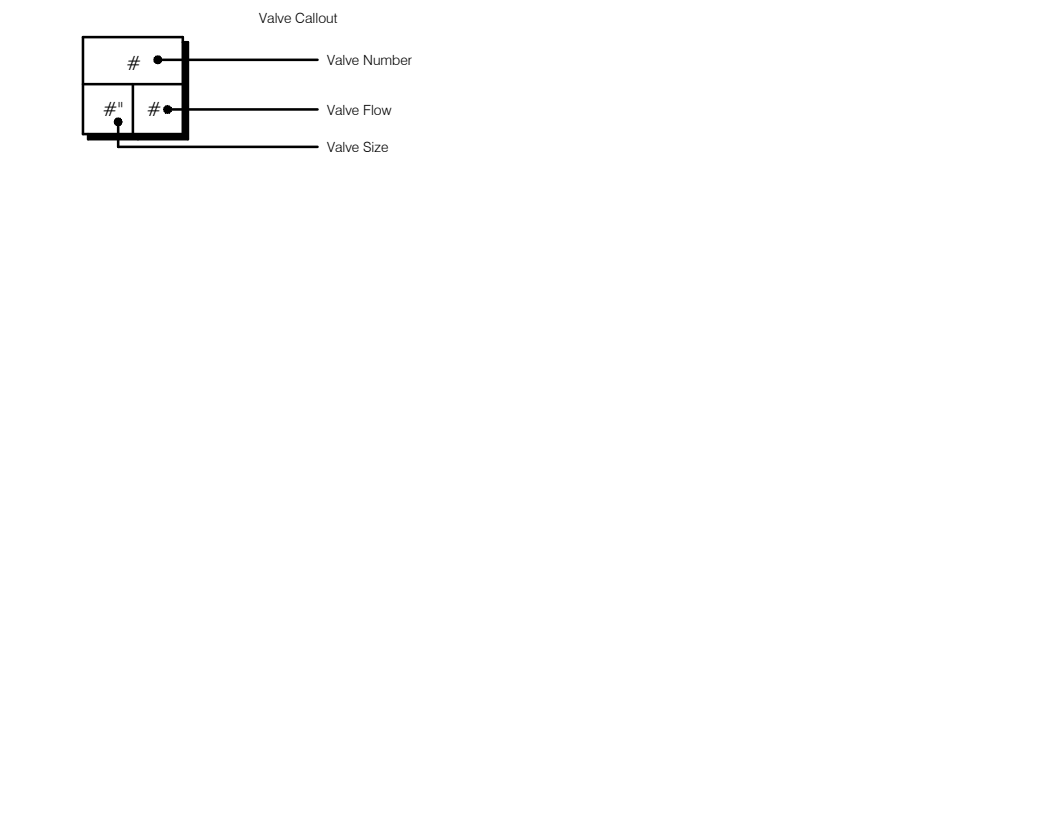
IRRIGATION SCHEDULE COURTYARD PLAN A

SYMBOL	MANUFACTURER/MODEL	QTY
○ ○ ○ ○ ○	Hunter PROS-04 10' radius	3
○ ○ ○ ○ ○	Hunter PROS-04 15' radius	28
SYMBOL	MANUFACTURER/MODEL	QTY
■	Rain Bird XCZ-100-PRF 1"	1
⊕	Flush Valve	1
⊕	Drip Air Relief Valve	1
—	Netafim TLDL-06-12	357.6 l.f.
SYMBOL	MANUFACTURER/MODEL	QTY
○	Hunter PGV-101G 1"	4
○	Hunter HQ-44RC 1"	1
BP	Febco 765 1"	1
B	Hunter PC-400 with (01) PCM-300	1
WR-CLIK	Hunter WR-CLIK	1
POC	Point of Connection 1"	1
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 1"	574.3 l.f.
—	Irrigation Mainline: PVC Class 200 SDR 21 1"	108.7 l.f.
—	Pipe Sleeve: PVC Class 160 SDR 26 2"	29.0 l.f.



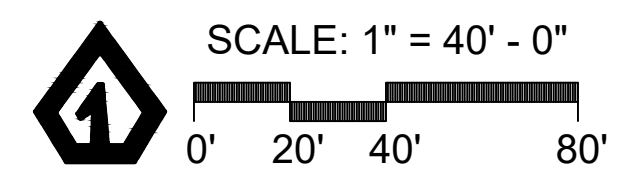
IRRIGATION SCHEDULE COURTYARD PLAN B

SYMBOL	MANUFACTURER/MODEL	QTY
ES LCS RCS CS SS	Hunter PROS-04 5' strip spray	10
○ ○ ○ ○ ○	Hunter PROS-04 8' radius	2
○ ○ ○ ○ ○	Hunter PROS-04 10' radius	2
○ ○ ○ ○ ○	Hunter PROS-04 12' radius	7
○ ○ ○ ○ ○	Hunter PROS-04 15' radius	14
SYMBOL	MANUFACTURER/MODEL	QTY
■	Rain Bird XCZ-100-PRF 1"	1
⊕	Flush Valve	1
⊕	Drip Air Relief Valve	1
—	Netafim TLDL-06-12	436.7 l.f.
SYMBOL	MANUFACTURER/MODEL	QTY
○	Hunter PGV-101G 1"	3
○	Hunter HQ-44RC 1"	1
BP	Febco 765 1"	1
C	Hunter PC-400	1
WR-CLIK	Hunter WR-CLIK	1
POC	Point of Connection 1"	1
—	Irrigation Lateral Line: Polyethylene Pipe 100 PSI 1"	748.5 l.f.
—	Irrigation Mainline: PVC Class 200 SDR 21 1"	110.5 l.f.
—	Pipe Sleeve: PVC Class 160 SDR 26 2"	22.4 l.f.
—	Pipe Sleeve: PVC Class 160 SDR 26 4"	43.9 l.f.



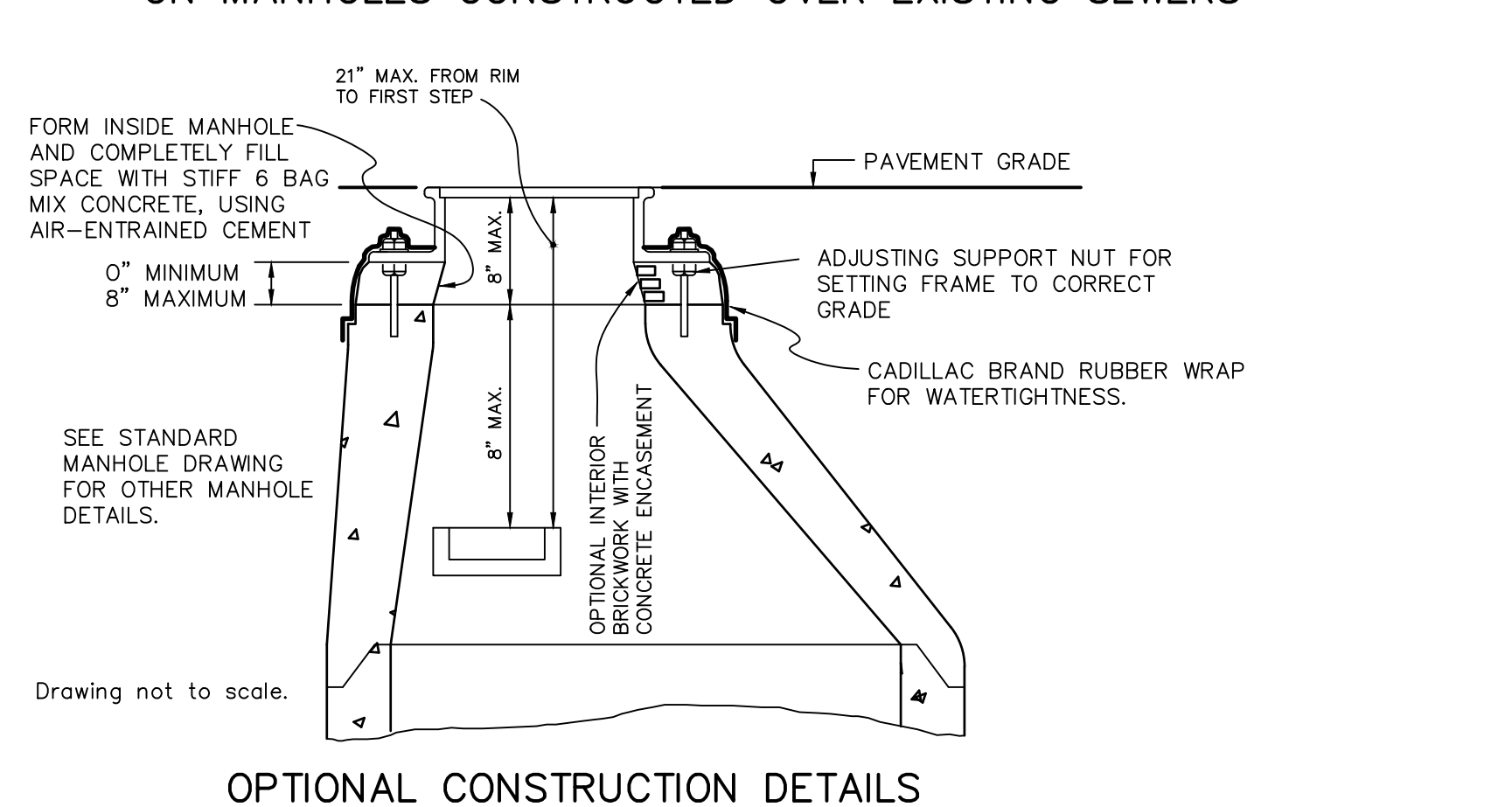
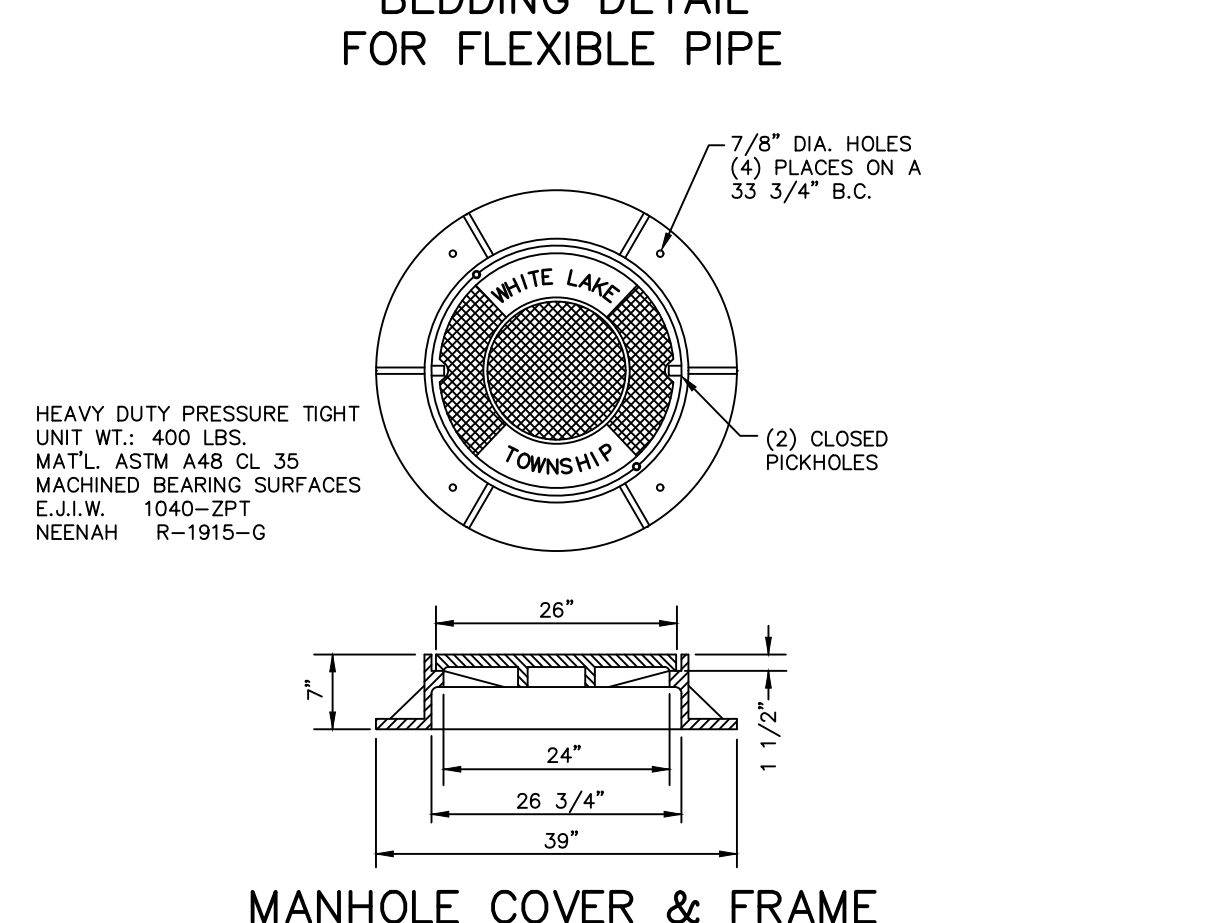
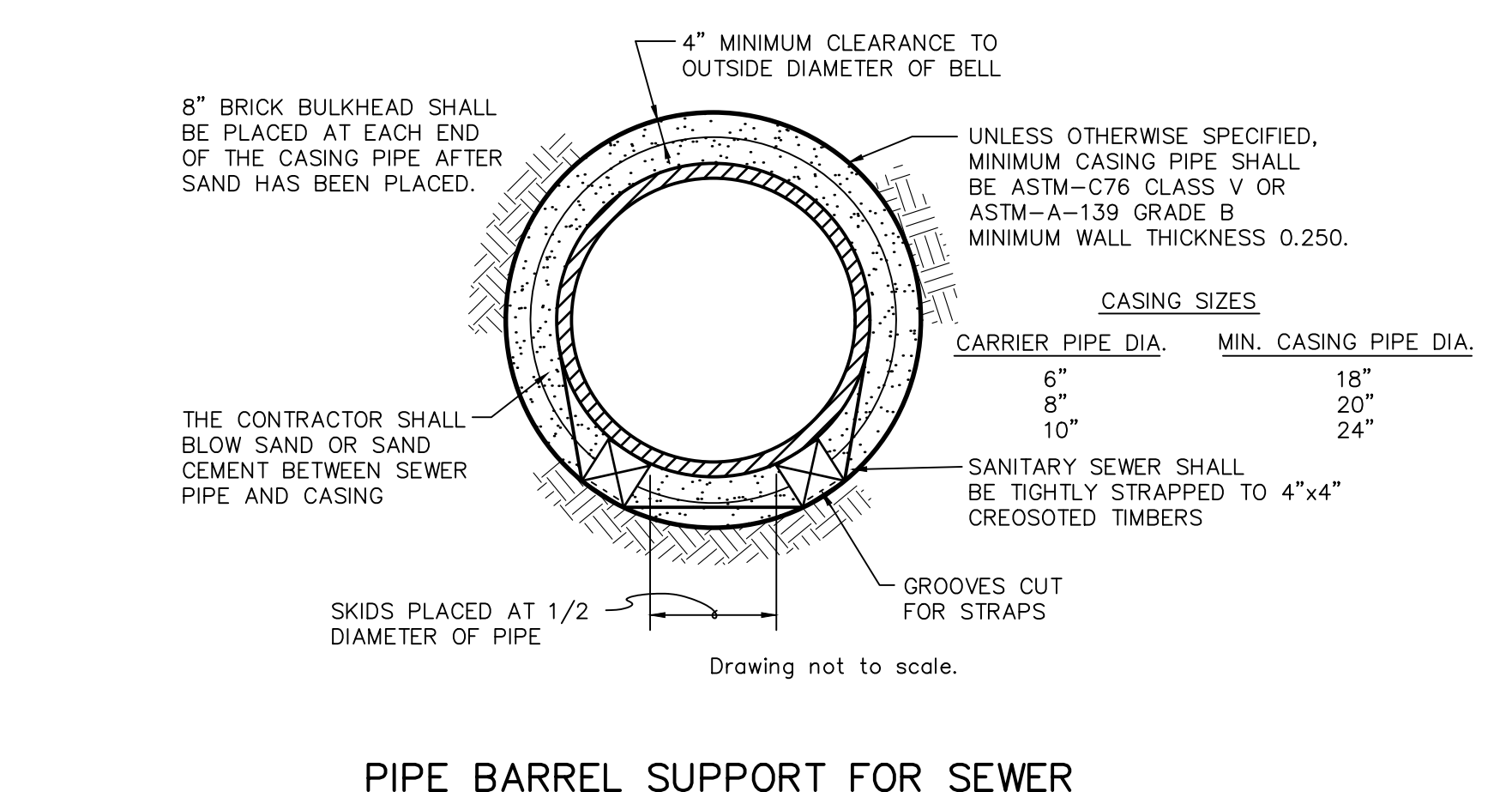
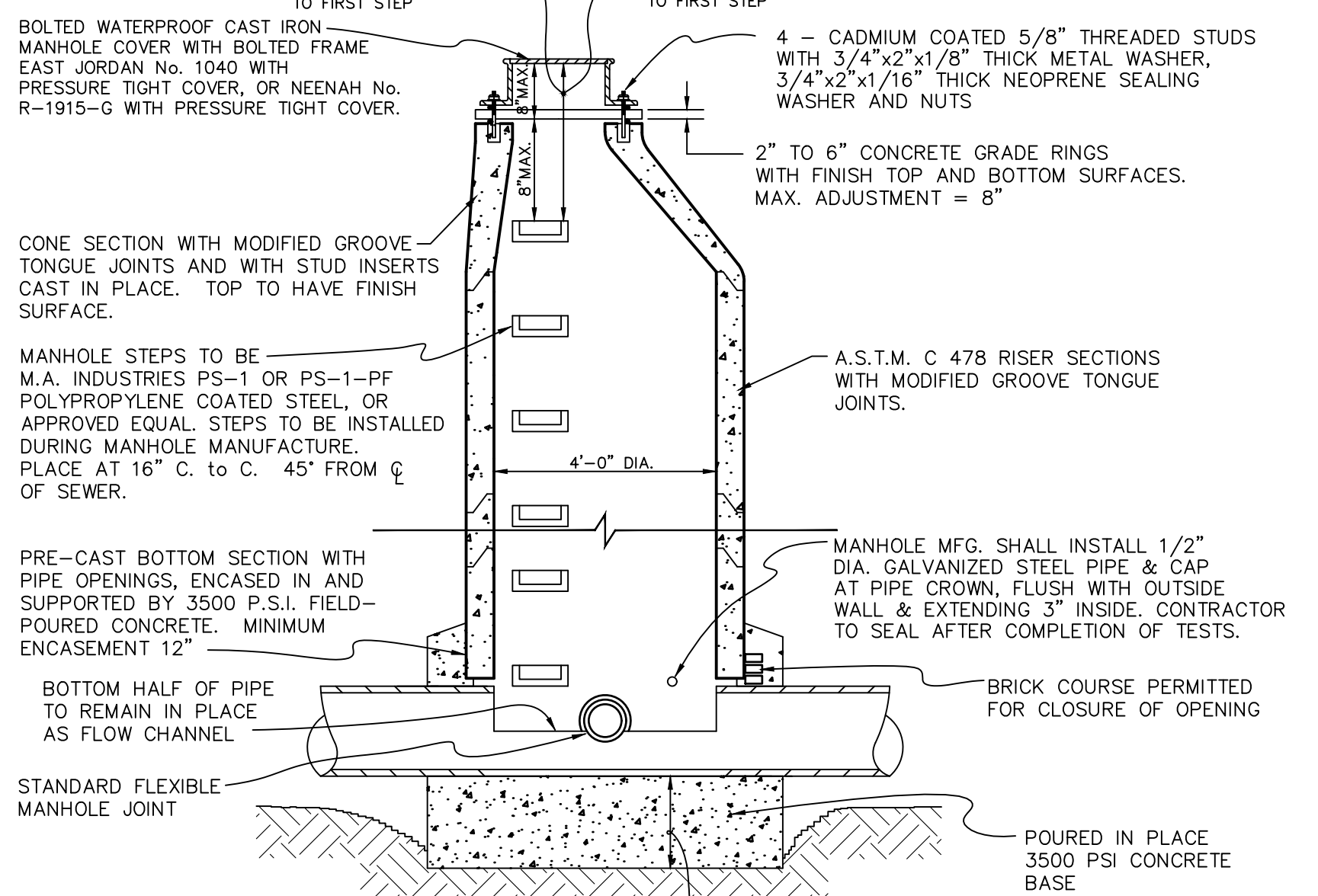
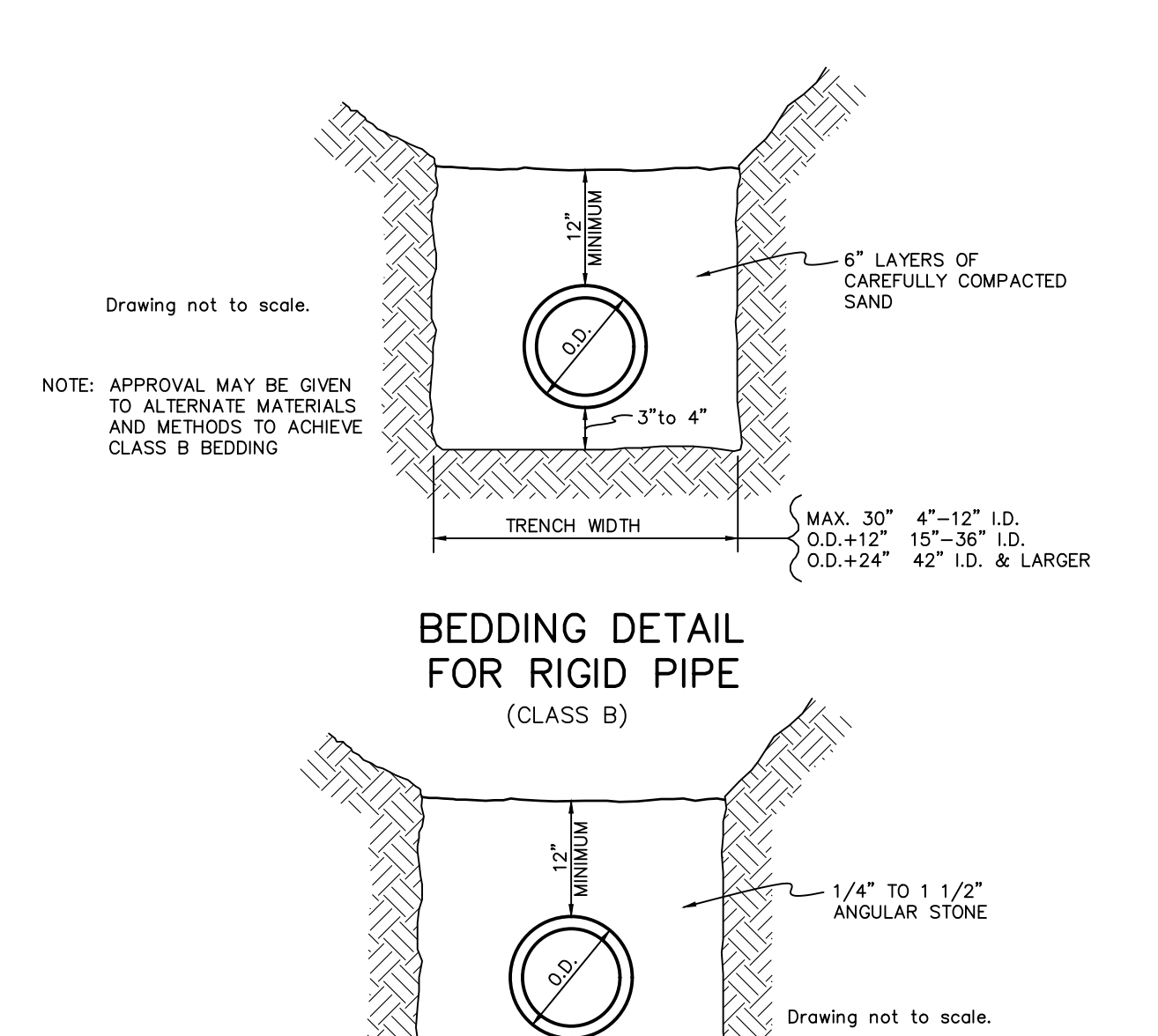
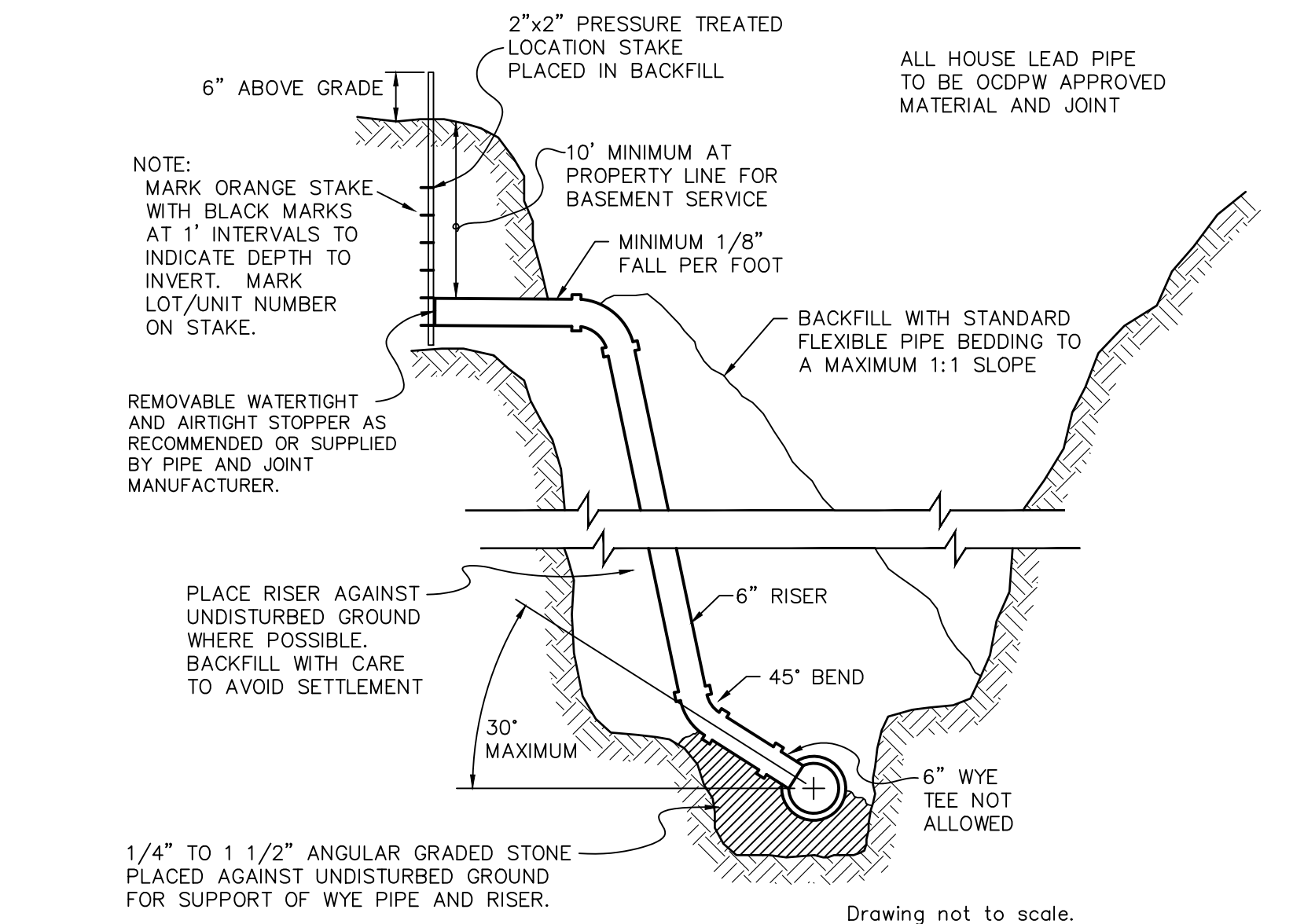
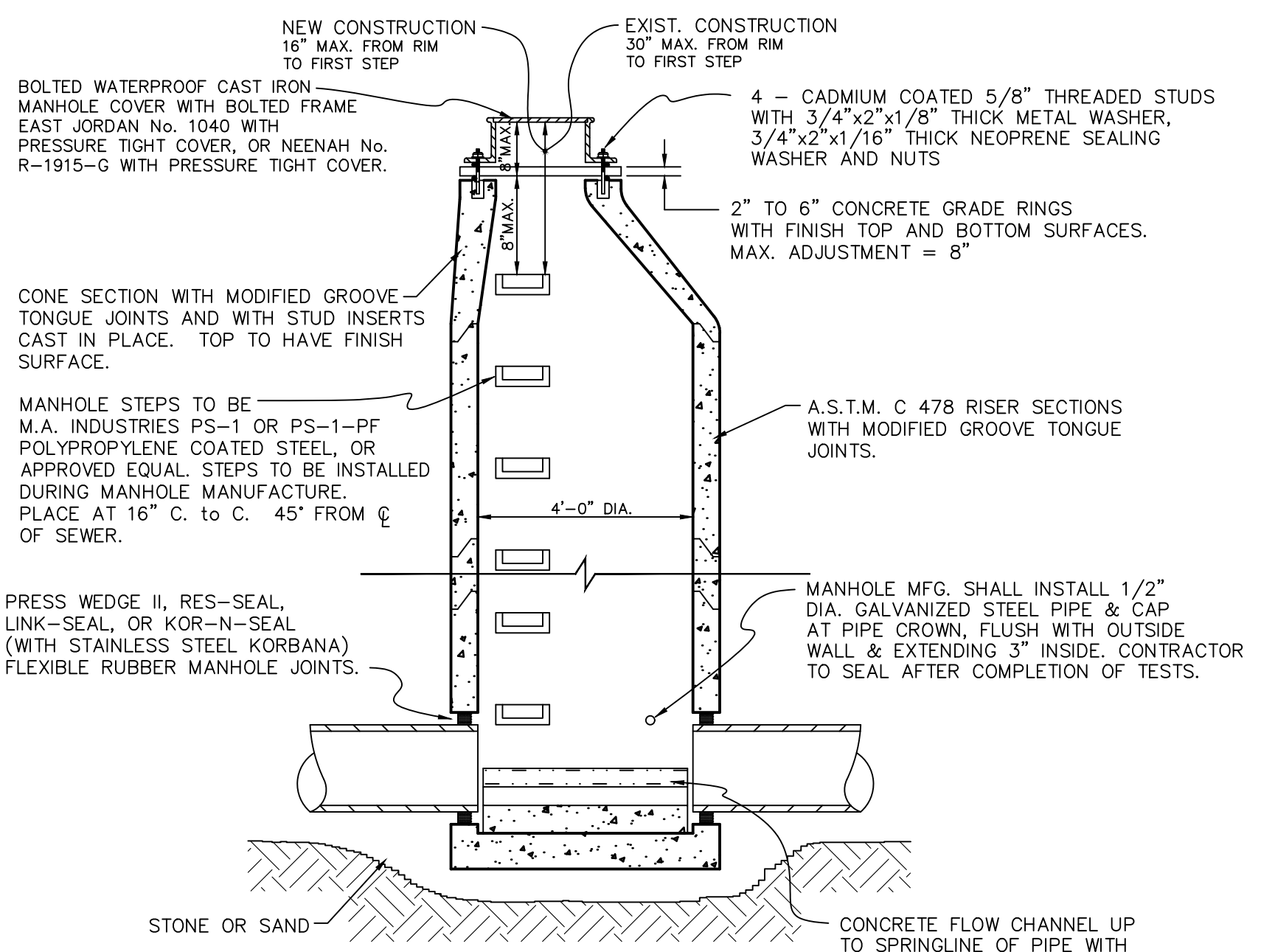
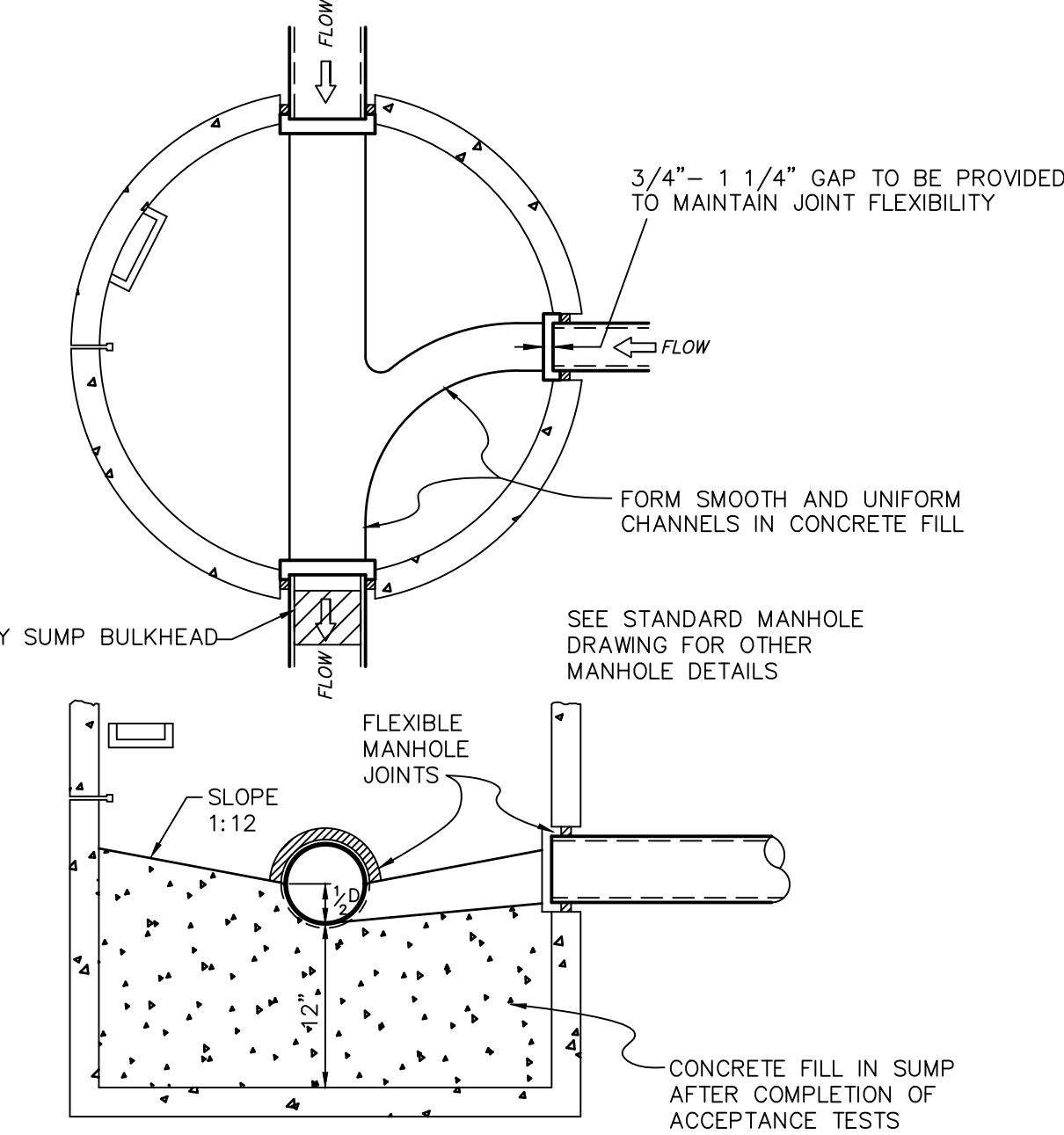
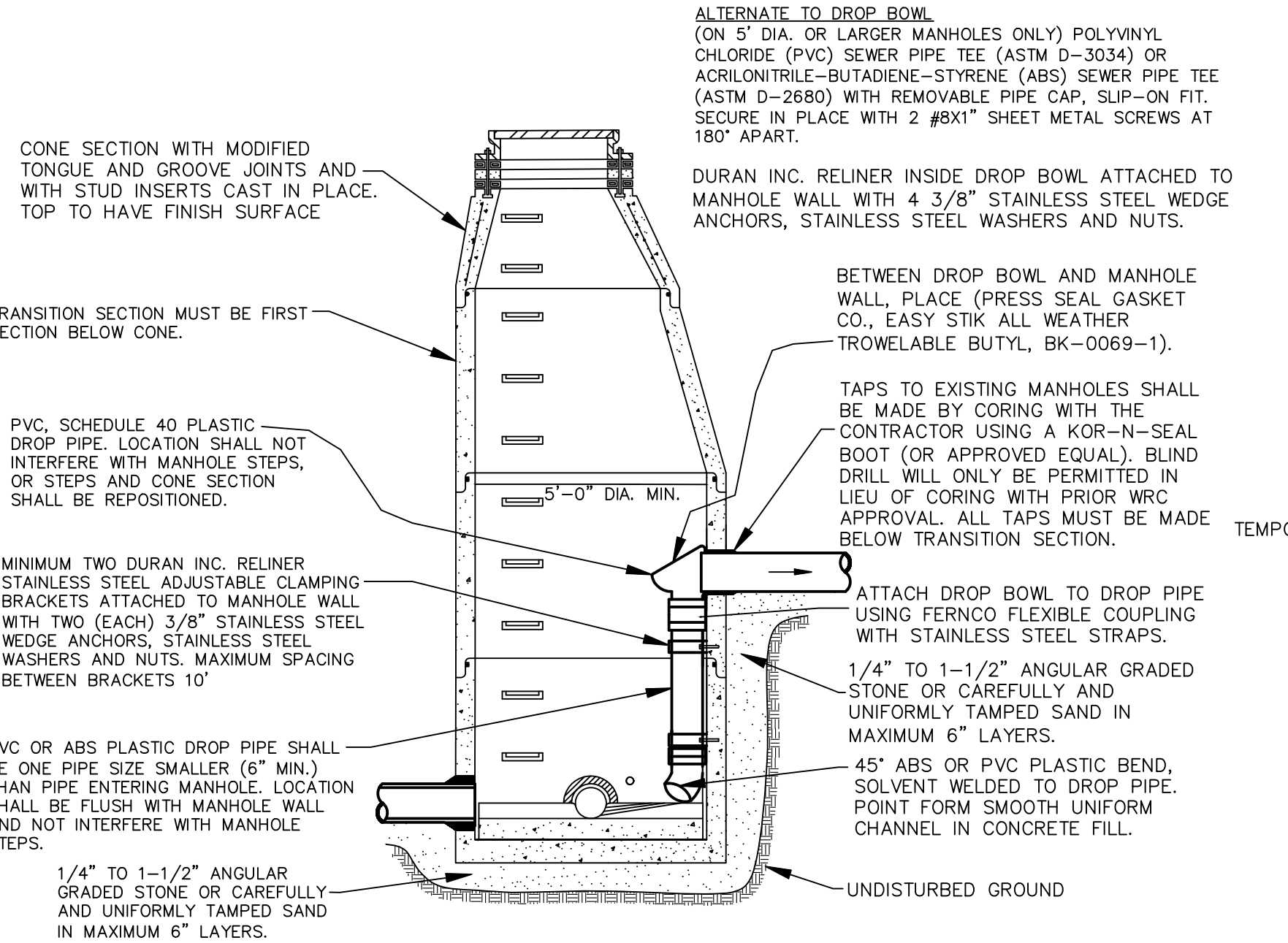
IRRIGATION SPECIFICATIONS

- IRRIGATION SYSTEM DESIGN BASED ON 45 & 12 GPM AT 66 PSI.
- IRRIGATION DESIGN IS FROM THE POINT OF CONNECTION(POC) ONLY. THE DESIGN IS BASED ON GALLONS PER MINUTE(GPM) AND POUNDS PER SQUARE INCH(PHI) FURNISHED BY OTHERS.
- IRRIGATION CONTRACTOR IS TO VERIFY POINT OF CONNECTION IN THE FIELD. INSTALLER IS TO CONFIRM THE MINIMUM DISCHARGE REQUIREMENTS OF THE POINT OF CONNECTION AS INDICATED ON THE LEGEND PRIOR TO INSTALLATION.
- THE PRESSURE REQUIREMENT AT THE POINT OF CONNECTION IS BASED ON NO MORE THAN 5 FEET OF ELEVATION CHANGE IN THE AREAS OF IRRIGATION.
- ALL PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ACCORDING TO LOCAL BUILDING, ELECTRICAL, AND PLUMBING CODES.
- IRRIGATION CONTRACTOR WILL ARRANGE INSPECTIONS REQUIRED BY LOCAL AGENCIES AND ORDINANCES DURING THE COURSE OF CONSTRUCTION AS REQUIRED. ALL WIRING TO BE PER LOCAL CODE. BACKFLOW PREVENTION TO BE PER LOCAL CODE.
- LOCATION OF IRRIGATION COMPONENTS SHOWN ON DRAWING IS APPROXIMATE. ACTUAL PLACEMENT MAY VARY SLIGHTLY AS REQUIRED TO ACHIEVE FULL, EVEN COVERAGE.
- ALL SPRINKLER HEADS SHALL BE INSTALLED PERPENDICULAR TO FINISH GRADES. EXCEPT AS OTHERWISE INDICATED.
- INSTALL IRRIGATION MAINS WITH A MINIMUM 18" OF COVER BASED ON FINISH GRADES. INSTALL IRRIGATION LATERALS WITH MINIMUM 12" OF COVER BASED ON FINISH GRADES.
- PIPE LOCATIONS ARE DIAGRAMMATIC. VALVES AND MAINLINE SHOWN IN PAVED AREAS ARE FOR GRAPHIC CLARITY ONLY.
- THE IRRIGATION CONTRACTOR SHALL COMPLY WITH PIPE SIZES AS INDICATED.
- ALL WIRE SPLICES OR CONNECTIONS SHALL BE MADE WITH APPROVED WATERPROOF WIRE CONNECTIONS AND BE IN A VALVE OR SPLICE BOX.
- ALL CONTROL WIRING DOWNSTREAM OF THE CONTROLLER IS TO BE 14 AWG, UL APPROVED DIRECT BURY.
- THE DESIGN IS BASED ON THE SITE INFORMATION AND/OR DRAWING SUPPLIED WITH THE DESIGN CRITERIA BEING SET (AREA TO BE IRRIGATED, EQUIPMENT MANUFACTURER AND MODEL TO BE USED, WATER SOURCE INFORMATION, ELECTRICAL POWER AVAILABILITY, ETC...). SITEONE LANDSCAPE SUPPLY BEARS NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS IN DESIGN OR INSTALLATION THAT ARISE DUE TO INACCURACIES IN THE ABOVE REFERENCED INFORMATION SUPPLIED TO SITEONE LANDSCAPE SUPPLY LANDSCAPES IN RELATION TO THIS PROJECT, UNLESS OTHERWISE NOTED.



SANITARY SEWER CONSTRUCTION NOTES

- All construction shall conform to the current standards and specifications of the local unit of government and the Oakland County Water Resources Commissioner (OCWRC). All sanitary sewer construction shall have full time inspection supervised by a professional engineer provided by or caused to be provided by the local unit of government.
- At all connections to Oakland County Water Resources Commissioner's sewers or extensions, and before start of construction, the Contractor must obtain a Sewer Inspection Permit issued by the OCWRC. Gravity sewer permit charges are \$250.00 for each connection plus \$25.00 for each manhole constructed. Pressure sewer permit charges are \$250.00 per 2460 L.F. of force main with a minimum permit fee of \$250.00. Failure to pass any test segment will result in an additional charge to the Contractor for each retest, in accordance with the above price schedule. The Contractor shall also have posted with the OCWRC a \$5,000.00 surety bond and \$500.00 cash deposit. The Contractor shall notify the local unit of government and the OCWRC (248-858-1110) 24 hours prior to the beginning of any construction. Final acceptance tests must be witnessed by County personnel and must be scheduled by Municipality or its consultant in advance with 24 hour notice at 248-858-1110.
- No sewer installation shall have an infiltration or exfiltration exceeding 100 gallons per inch diameter per mile of pipe in a 24 hour period, and no single run of sewer between manholes shall exceed 100 gallons per inch diameter per mile. Air tests in lieu of infiltration tests shall be as specified in the OCWRC "Acceptance Tests", dated September, 1972. Only pipe and pipe joints approved by the Oakland County Water Resources Commissioner may be used for sanitary sewer construction.
- Located in the first manhole upstream from the point of all connections to an existing OCWRC sewer, or extension thereto, a temporary 12-inch deep sump shall be provided in the first manhole above the connection which will be filled in after such successful completion of any acceptance test up to the standard fill provided for the flow channel. A watertight bulkhead shall be provided on the downstream of the sump manhole.
- All building leads and risers shall be 6-inch S.D.R. 23.5 ABS OR PVC pipe with chemically fused joints, or an approved equal pipe and joint. Sewer pipe wye shall contain factory installed premium joint material of an approved type compatible with that of the building lead pipe used. Building leads to be furnished with removable air tight and water-tight stoppers.
- All rigid sewer pipe shall be installed in Class "B" bedding or better. All flexible, semi-flexible or composite sewer pipe shall be installed in conformance to the Oakland County Water Resources Commissioner specifications.
- All new manholes shall have Oakland County Water Resources Commissioner approved flexible, water-tight seals where pipes pass through walls. Manholes shall be of precast sections with modified groove tongue and rubber gasket type joints. Precast manhole cone sections shall be Oakland County Water Resources Commissioner approved modified eccentric cone type. All manholes shall be provided with bolted, water-tight covers.
- At all connections to manholes on Oakland County Water Resources Commissioner's sewers or extensions thereto drop connections will be required when the difference in invert elevations exceeds 18-inches. Outside drop connections only will be approved.
- Taps to existing manholes shall be made by coring. The Contractor shall place a KOR-N-SEAL boot (or OCWRC approved equal) after coring is completed. Blind drilling will not be permitted in lieu of coring.
- New manholes constructed directly on Oakland County Water Resources Commissioner's sewers shall be provided with covers reading "Oakland County - Sanitary" in raised letters. New manholes built over an existing sanitary sewer shall have monolithic poured bottoms.
- No ground water, storm water, construction water, downspout drainage or weep tile drainage shall be allowed to enter any sanitary sewer installation.
- Prior to excavation, the Contractor shall telephone MISS DIG (647-7344) for the location of underground pipeline and cable facilities, and shall also notify representatives of other utilities located in the vicinity of the work.
- 18" minimum vertical separation and 10' minimum horizontal separation must be maintained between sanitary sewer and water main.
- Manhole frame and cover shall be as follows: East Jordan heavy manhole cover, base flange type #1040 or Neenah Foundry heavy duty #R-1642 manhole frame. Solid lid cover shall be non-rocking and marked "WHITE LAKE TOWNSHIP SEWER DEPARTMENT."



DRAWN:CAD DESIGN:OA CHECKED:--

VERT. -
SCALE: HORZ. AS NOTED

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

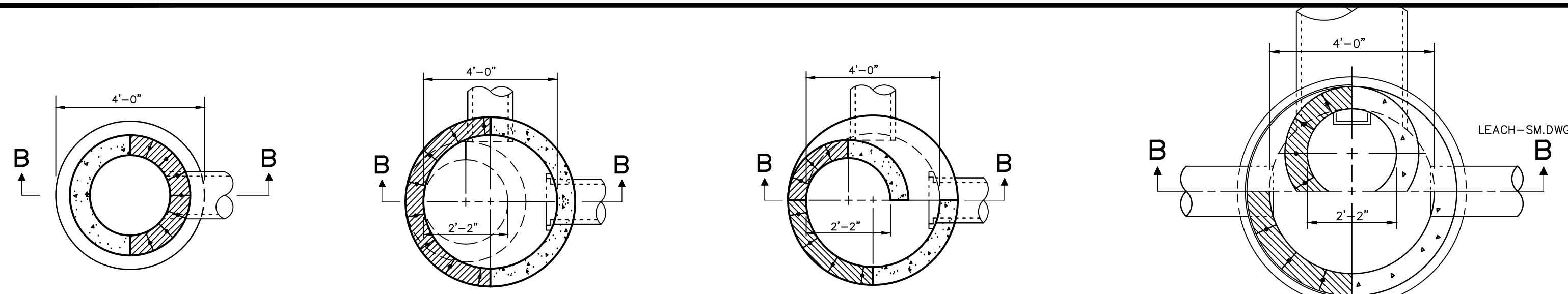
1060 W. Norton Avenue, Suite 7 Muskegon, Michigan 49441 tel (231) 780-3100 fax (231) 780-3115

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

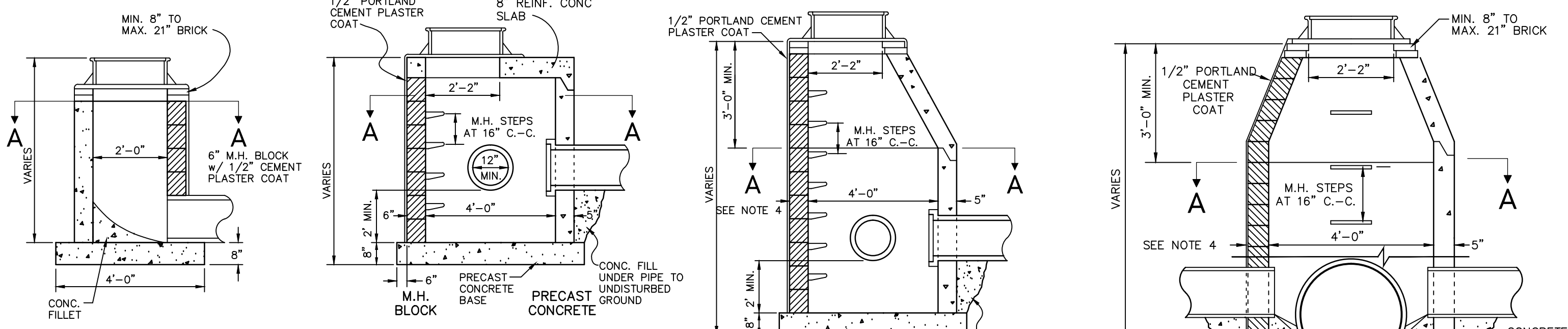
White Lake Township
7525 Highland Road (M-59)
White Lake, Michigan 48383
248-698-3300

SANITARY SEWER STANDARD DETAILS

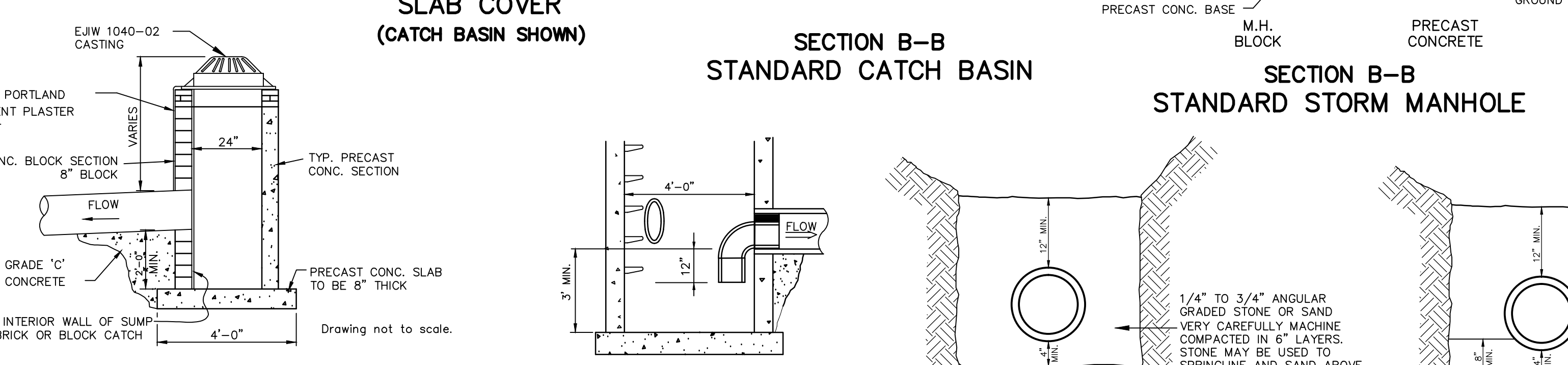
JOB NO.	
DATE ISSUED	09/11/97
SHEET NO.	



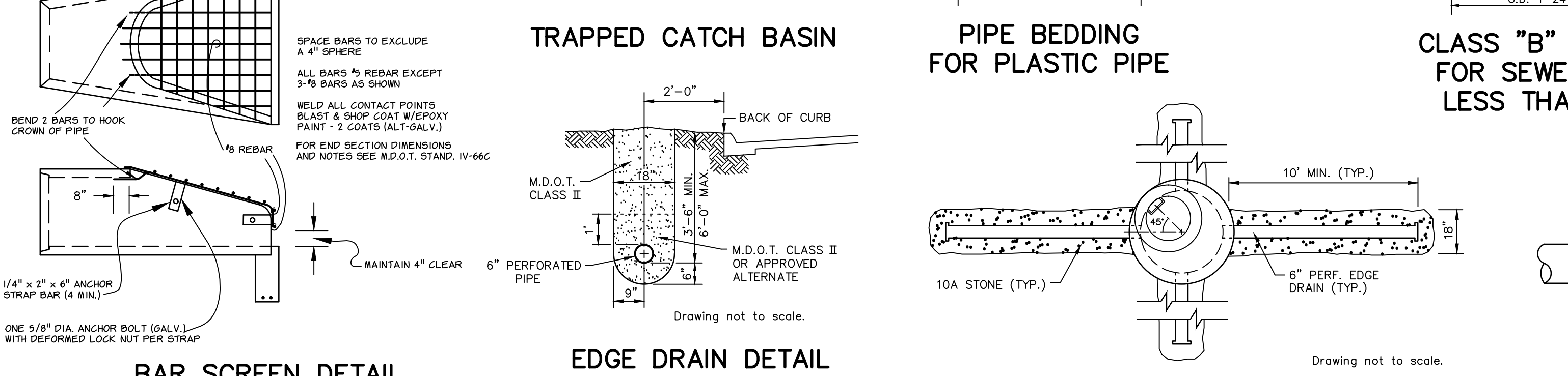
SECTION A-A SECTION A-A SECTION A-A SECTION A-A
M.H. BLOCK PRECAST CONCRETE



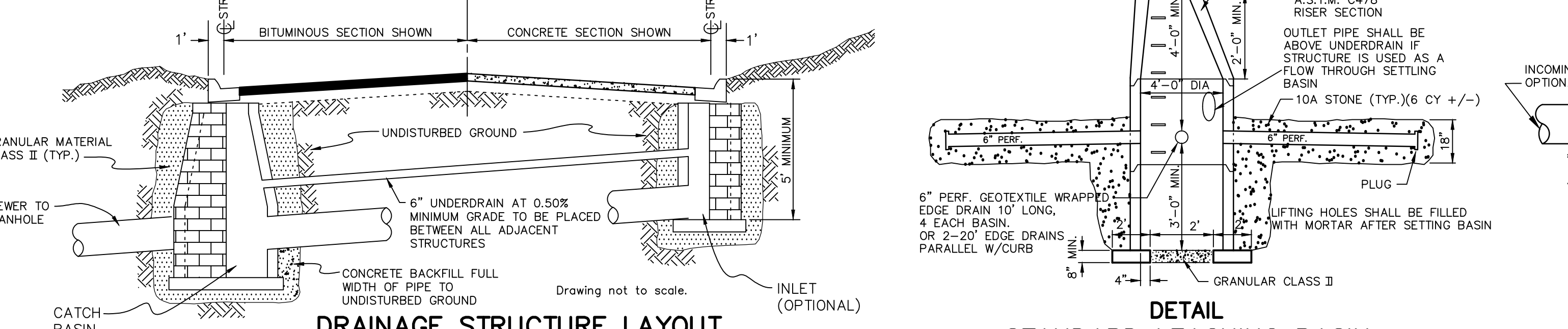
SECTION B-B SECTION B-B SECTION B-B SECTION B-B
24" INLET STRUCTURE WITH SLAB COVER (CATCH BASIN SHOWN) STANDARD CATCH BASIN STANDARD STORM MANHOLE



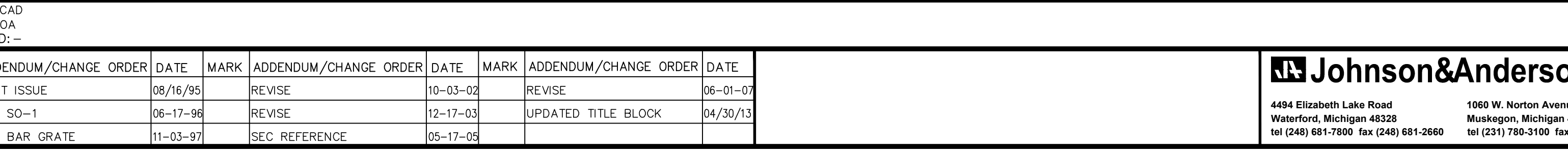
SECTION B-B SECTION B-B SECTION B-B
STANDARD REAR YARD CATCH BASIN STANDARD PRECAST CONCRETE MANHOLE TEE STANDARD STORM MANHOLE



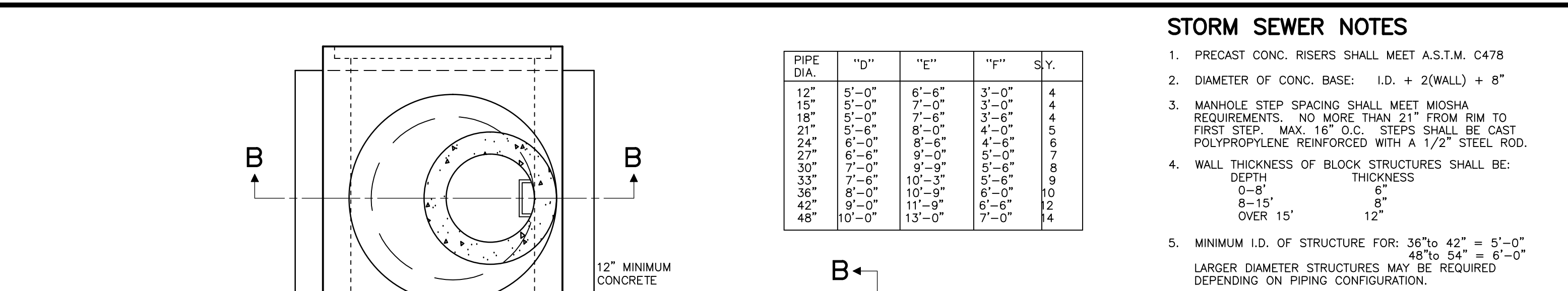
PIPE BEDDING FOR PLASTIC PIPE CLASS "B" BEDDING FOR SEWER PIPE LESS THAN 48"



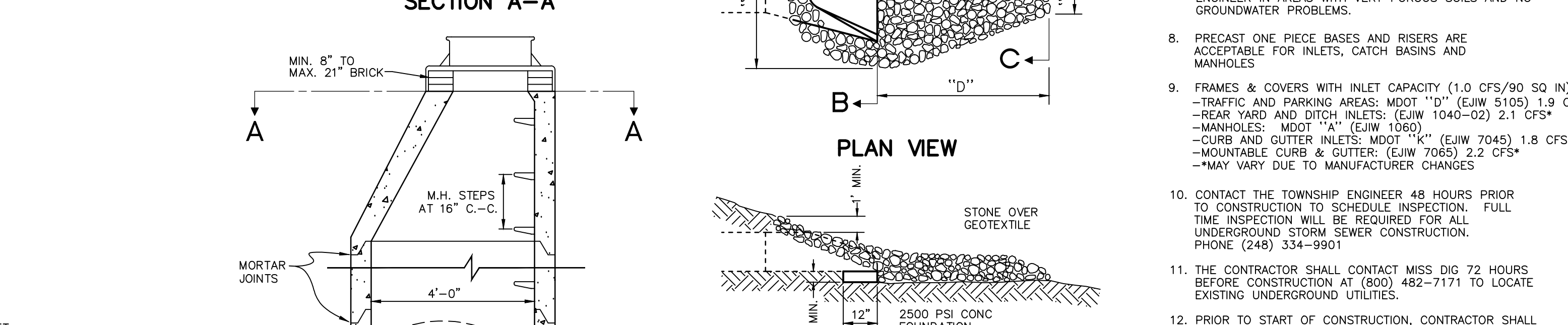
EDGE DRAIN DETAIL STANDARD LEACHING BASIN



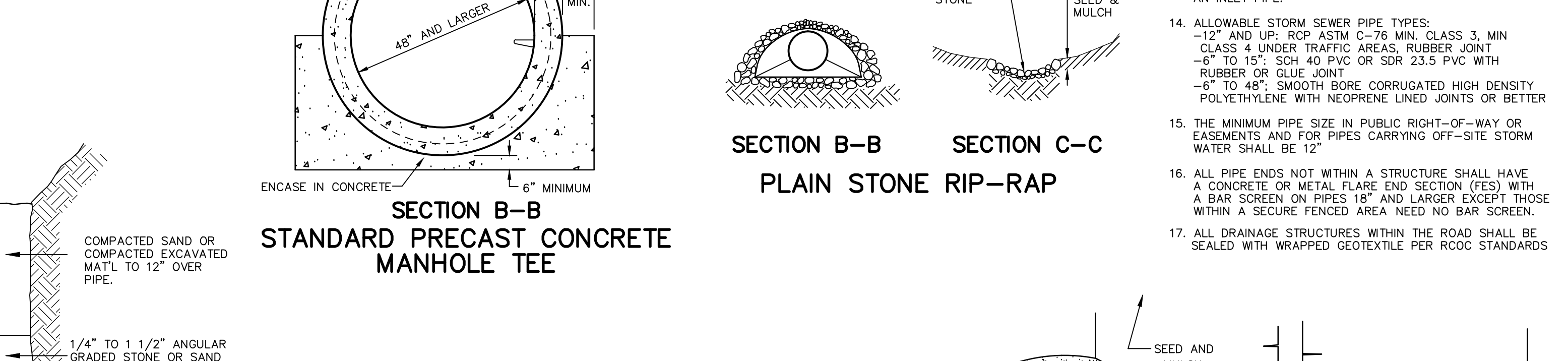
1000 GALLON LEACHING/SETTLING BASIN



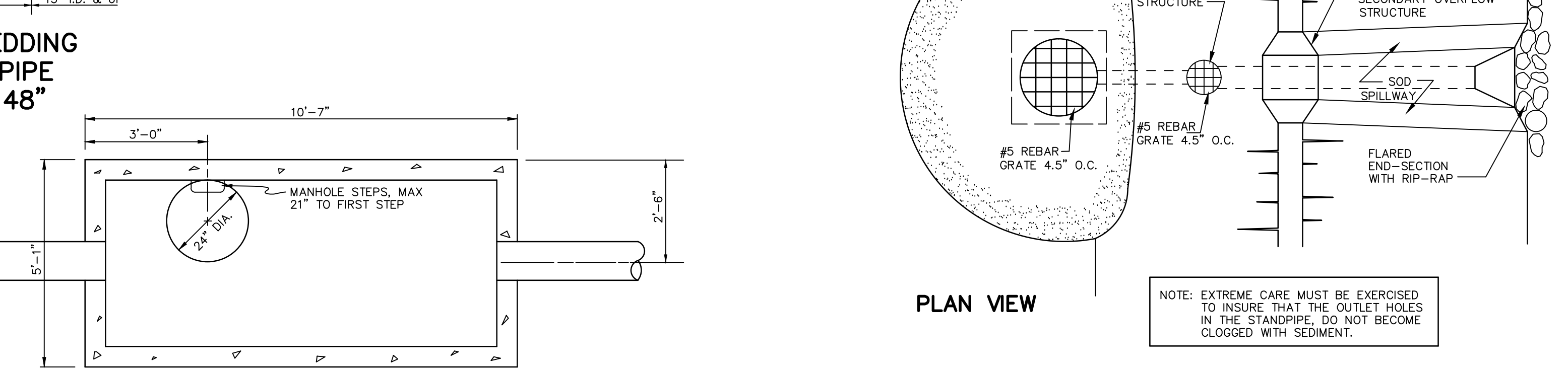
SECTION A-A SECTION B-B SECTION C-C
STANDARD PRECAST CONCRETE MANHOLE TEE PLAIN STONE RIP-RAP



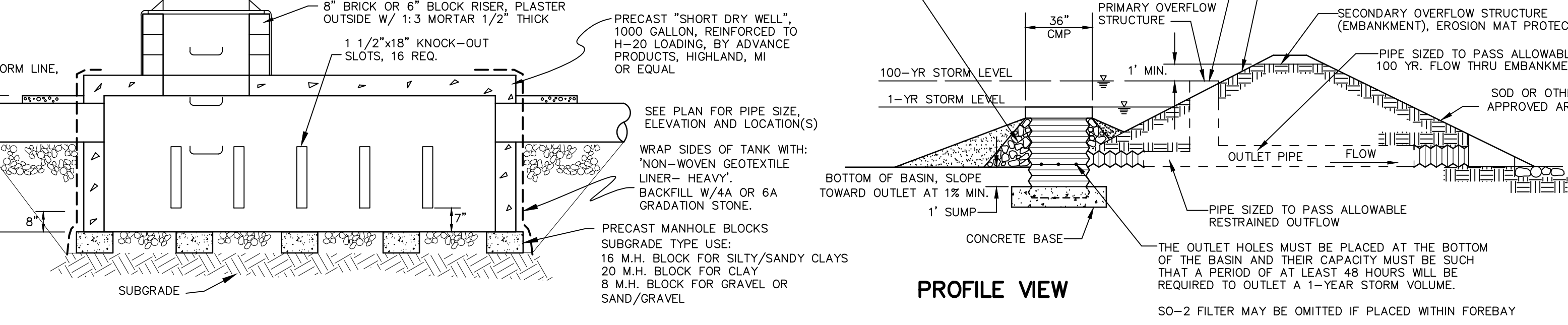
1000 GALLON LEACHING/SETTLING BASIN



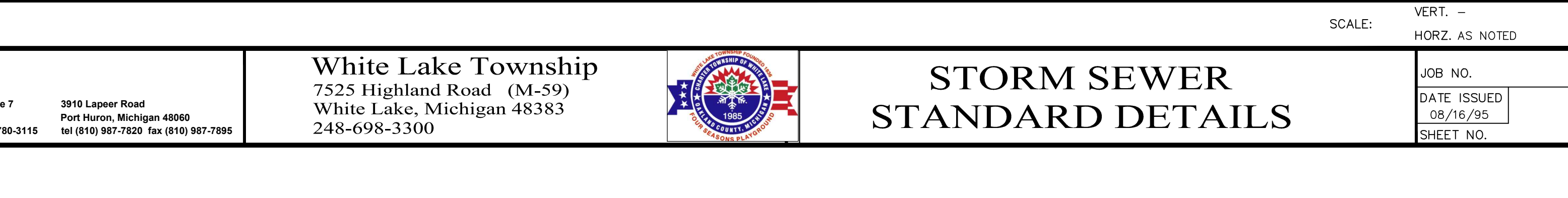
SO-2 DETENTION BASIN OUTLET FILTER (CMP)



DRAINAGE STRUCTURE LAYOUT



BAR SCREEN DETAIL



TRAPPED CATCH BASIN

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

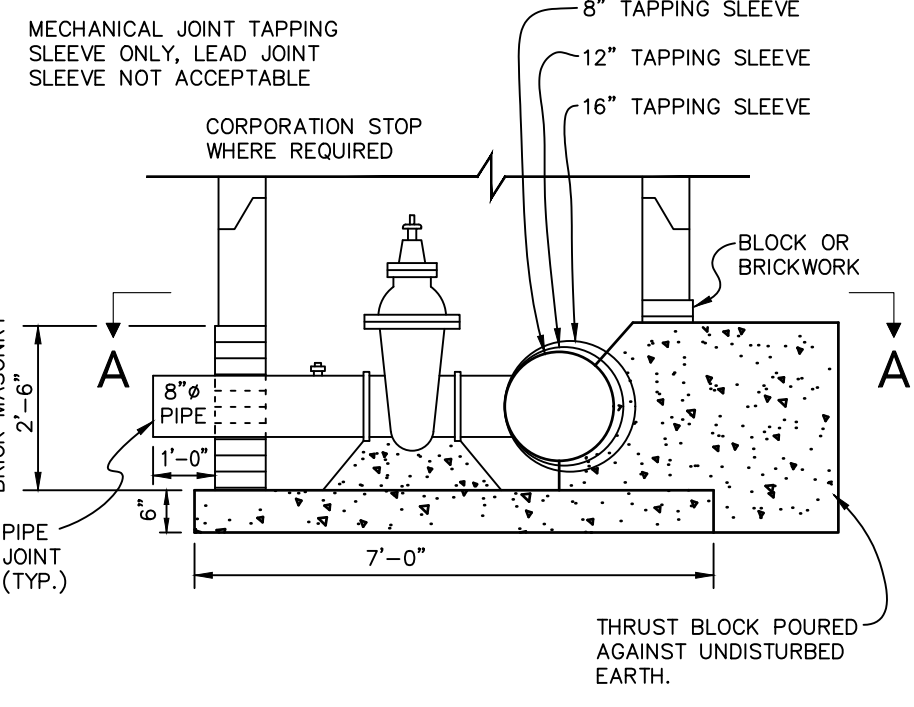
- STORM SEWER NOTES**
- PRECAST CONC. RISERS SHALL MEET A.S.T.M. C478
 - DIAMETER OF CONC. BASE: I.D. + 2(WALL) + 8"
 - MANHOLE STEP SPACING SHALL MEET MIOSHA REQUIREMENTS. NO MORE THAN 21" FROM RIM TO FIRST STEP. MAX. 16" O.C. STEPS SHALL BE CAST POLYPROPYLENE REINFORCED WITH A 1/2" STEEL ROD.
 - WALL THICKNESS OF BLOCK STRUCTURES SHALL BE:
DEPTH THICKNESS
0-8' 8"
8-15' 8"
OVER 15' 12"
 - MINIMUM I.D. OF STRUCTURE FOR: 36" to 42" = 5'-0"
48" to 54" = 6'-0"
LARGER DIAMETER STRUCTURES MAY BE REQUIRED DEPENDING ON PIPING CONFIGURATION.
 - ALL LIFTING HOLES AND VOIDS IN INTERIOR JOINTS SHALL BE FILLED BY MORTAR.
 - THE FINGER DRAIN DETAIL SHALL BE USED AT ALL LOW POINT CATCH BASINS IN PAVEMENT AREAS. THE DETAIL MAY BE OMITTED WITH THE APPROVAL OF THE TOWNSHIP ENGINEER IN AREAS WITH VERY POROUS SOILS AND NO GROUNDWATER PROBLEMS.
 - PRECAST ONE PIECE BASES AND RISERS ARE ACCEPTABLE FOR INLETS, CATCH BASINS AND MANHOLES
 - FRAMES & COVERS WITH INLET CAPACITY (1.0 CFS/90 SQ IN) -TRAFFIC AND PARKING AREAS: MDOT "D" (EJW 5105) 1.9 CFS*
-REAR YARD AND DITCH INLETS: (EJW 1040-02) 2.1 CFS*
-MANHOLES: MDOT "A" (EJW 1060)
-CURB AND GUTTER INLETS: MDOT "K" (EJW 7045) 1.8 CFS*
-MOUNTABLE CURB & GUTTER: (EJW 7065) 2.2 CFS*
*MAY VARY DUE TO MANUFACTURER CHANGES
 - CONTACT THE TOWNSHIP ENGINEER 48 HOURS PRIOR TO CONSTRUCTION TO SCHEDULE INSPECTION. FULL TIME INSPECTION WILL BE REQUIRED FOR ALL UNDERGROUND STORM SEWER CONSTRUCTION. PHONE: (248) 334-9901
 - THE CONTRACTOR SHALL CONTACT MISS DG 72 HOURS BEFORE CONSTRUCTION AT (800) 482-7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
 - PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY WHITE LAKE TOWNSHIP.
 - A 2' DEEP SUMP SHALL BE USED IN ANY STRUCTURE SUBJECT TO A WATER DROP GREATER THAN 2.0' FROM AN INLET PIPE.
 - ALLOWABLE STORM SEWER PIPE TYPES:
-12" AND UP: RCP ASTM C-76 MIN CLASS 3, MIN CLASS 4 UNDER TRAFFIC AREAS, RUBBER JOINT
-6" TO 15": SCH 40 PVC OR SDR 23.5 PVC WITH RUBBER OR GLUE JOINT
-6" TO 48": SMOOTH BORE CORRUGATED HIGH DENSITY POLYETHYLENE WITH NEOPRENE LINED JOINTS OR BETTER
 - THE MINIMUM PIPE SIZE IN PUBLIC RIGHT-OF-WAY OR EASEMENTS AND FOR PIPES CARRYING OFF-SITE STORM WATER SHALL BE 12"
 - ALL PIPE ENDS NOT WITHIN A STRUCTURE SHALL HAVE A CONCRETE OR METAL FLARE END SECTION (FES) WITH A BAR SCREEN ON PIPES 18" AND LARGER EXCEPT THOSE WITHIN A SECURE FENCED AREA NEED NO BAR SCREEN.
 - ALL DRAINAGE STRUCTURES WITHIN THE ROAD SHALL BE SEALED WITH WRAPPED GEOTEXTILE PER ROC STANDARD

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

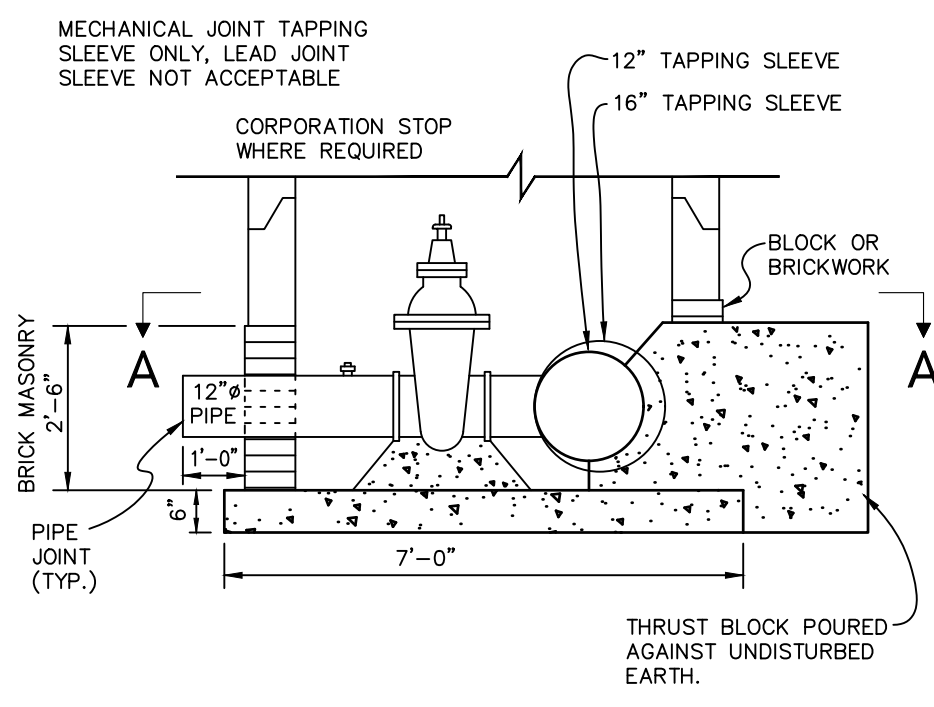
Johnson & Anderson
 4494 Elizabeth Lake Road Waterford, Michigan 48328 tel (248) 681-7800 fax (248) 681-2660
 1060 W. Norton Avenue, Suite 7 Muskegon, Michigan 49441 tel (231) 780-3100 fax (231) 780-3115
 3910 Lapeer Road Port Huron, Michigan 48060 tel (810) 987-7820 fax (810) 987-7895

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

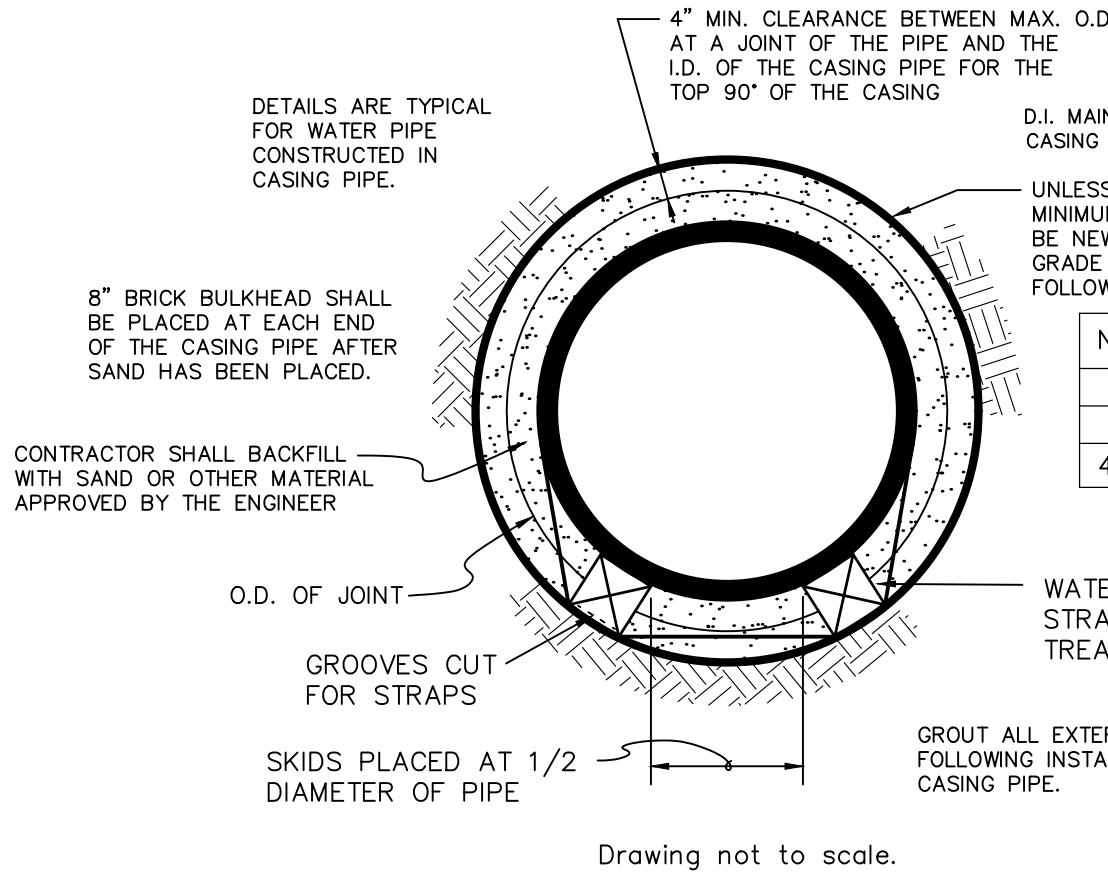
STORM SEWER STANDARD DETAILS
 JOB NO. _____
 DATE ISSUED 08/16/95
 SHEET NO. _____



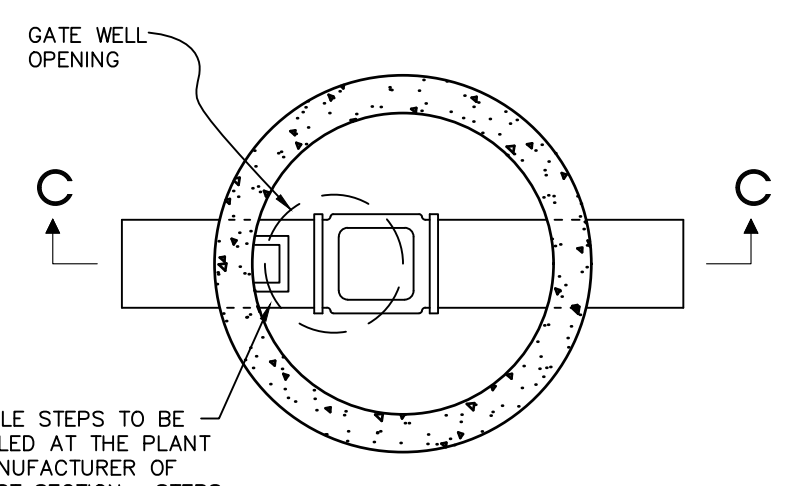
MECHANICAL JOINT TAPPING SLEEVE ONLY, LEAD JOINT SLEEVE NOT ACCEPTABLE
CORPORATION STOP WHERE REQUIRED
BLOCK OR BRICKWORK
THRUST BLOCK POURED AGAINST UNDISTURBED EARTH.
16" X 8", 12" X 8", 8" X 8" TAPPING SLEEVE, VALVE & WELL
(B-B)



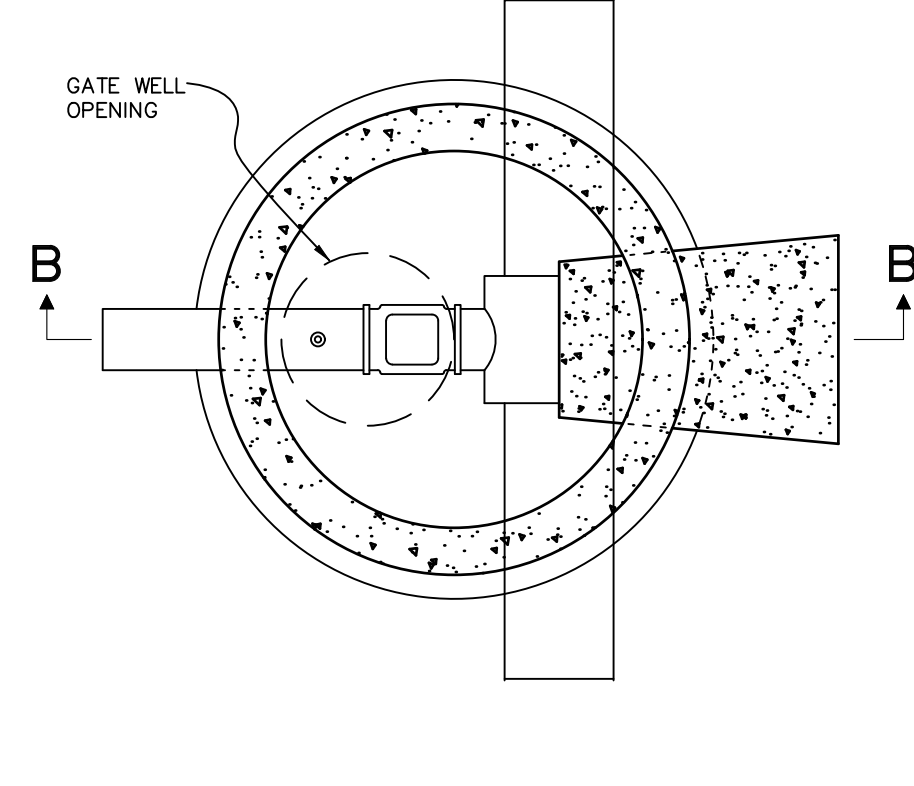
MECHANICAL JOINT TAPPING SLEEVE ONLY, LEAD JOINT SLEEVE NOT ACCEPTABLE
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16" X 12", 12" X 12" TAPPING SLEEVE, VALVE & WELL
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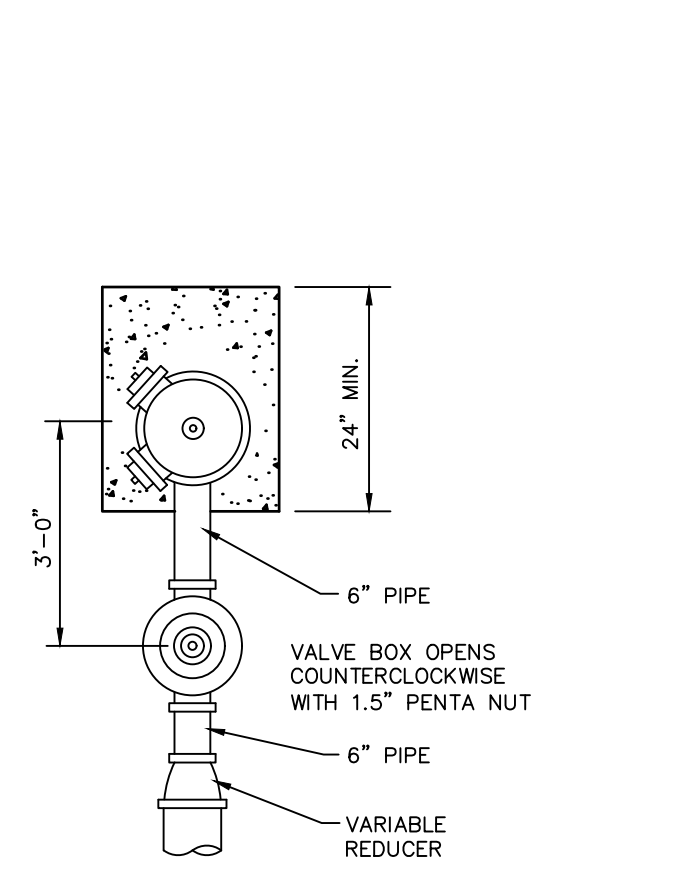
PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING



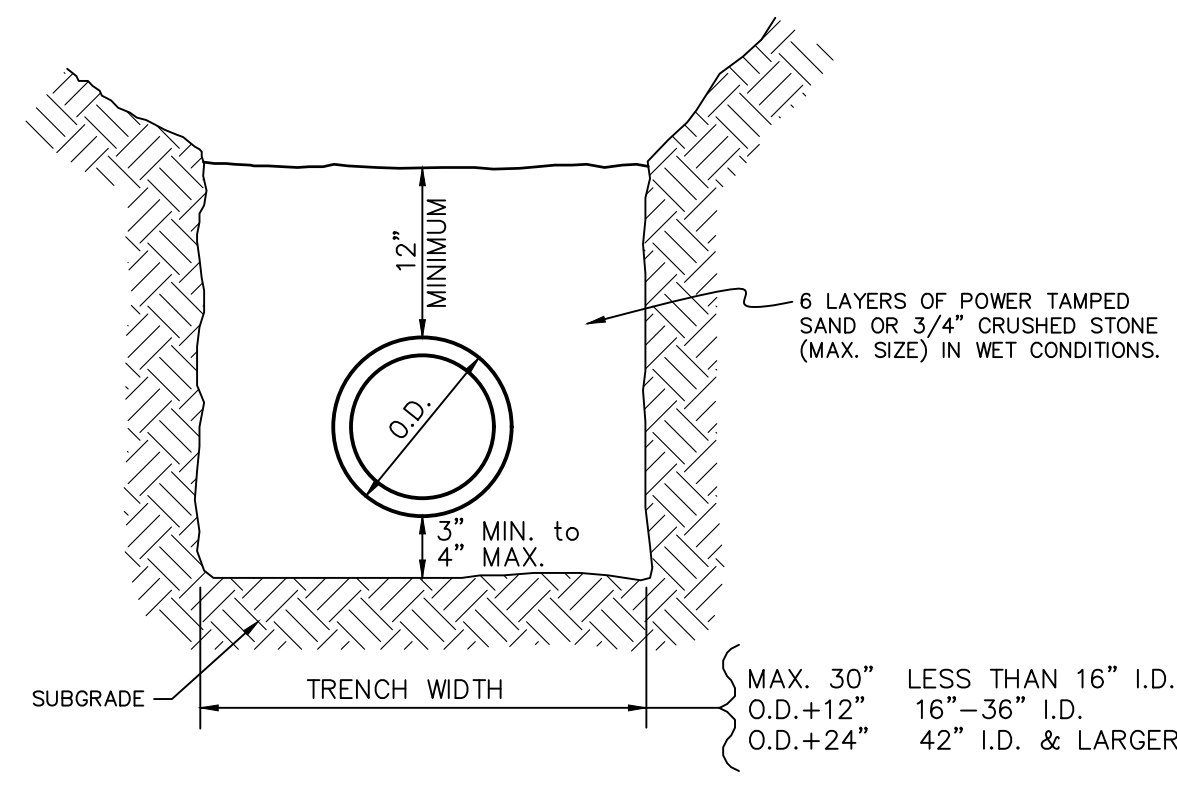
PLAN GATE WELL - TYPICAL (D-D)



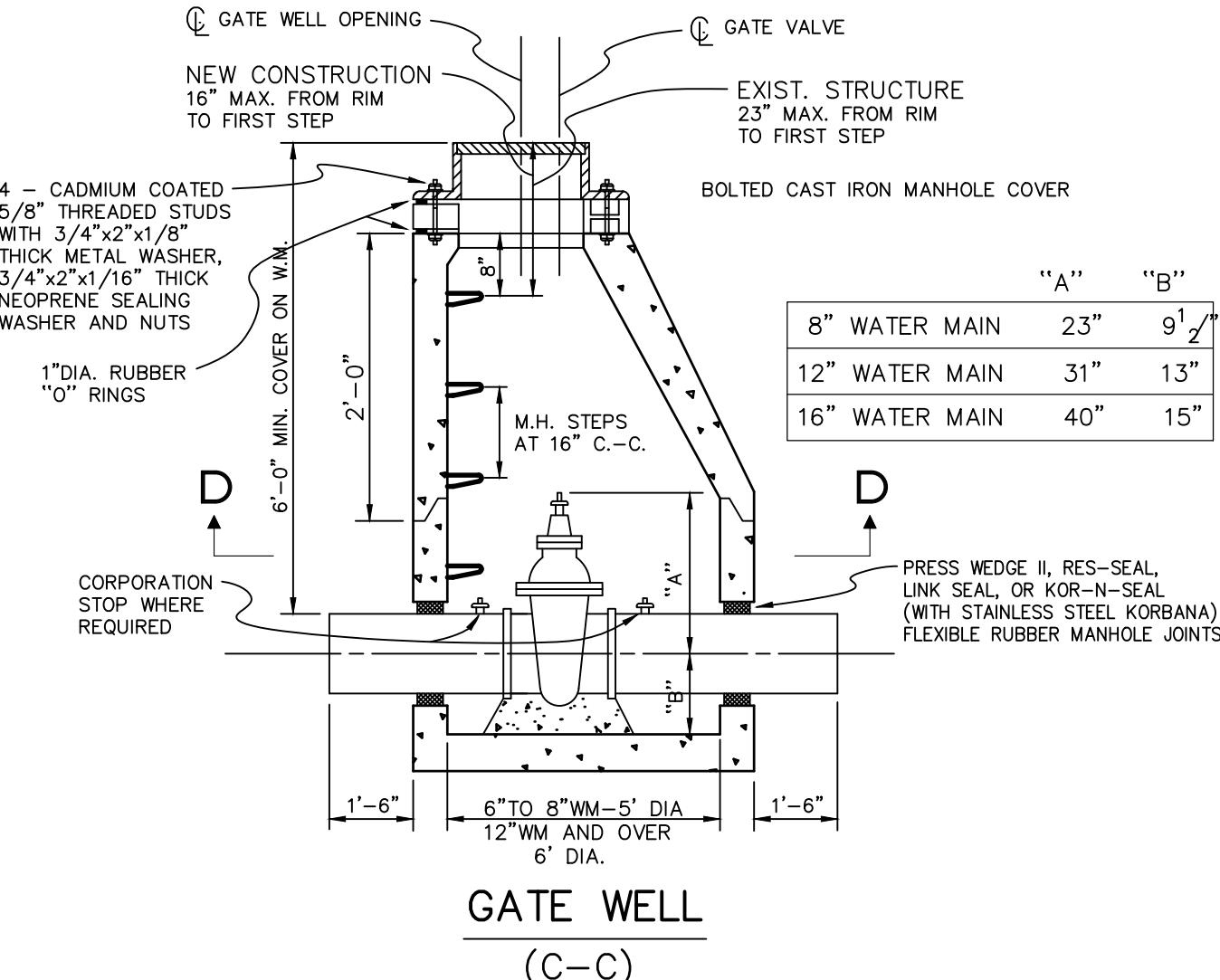
PLAN TAPPING SLEEVE, VALVE & WELL - TYPICAL (A-A)



VALVE BOX OPENS COUNTERCLOCKWISE WITH 1.5" PENTA NUT

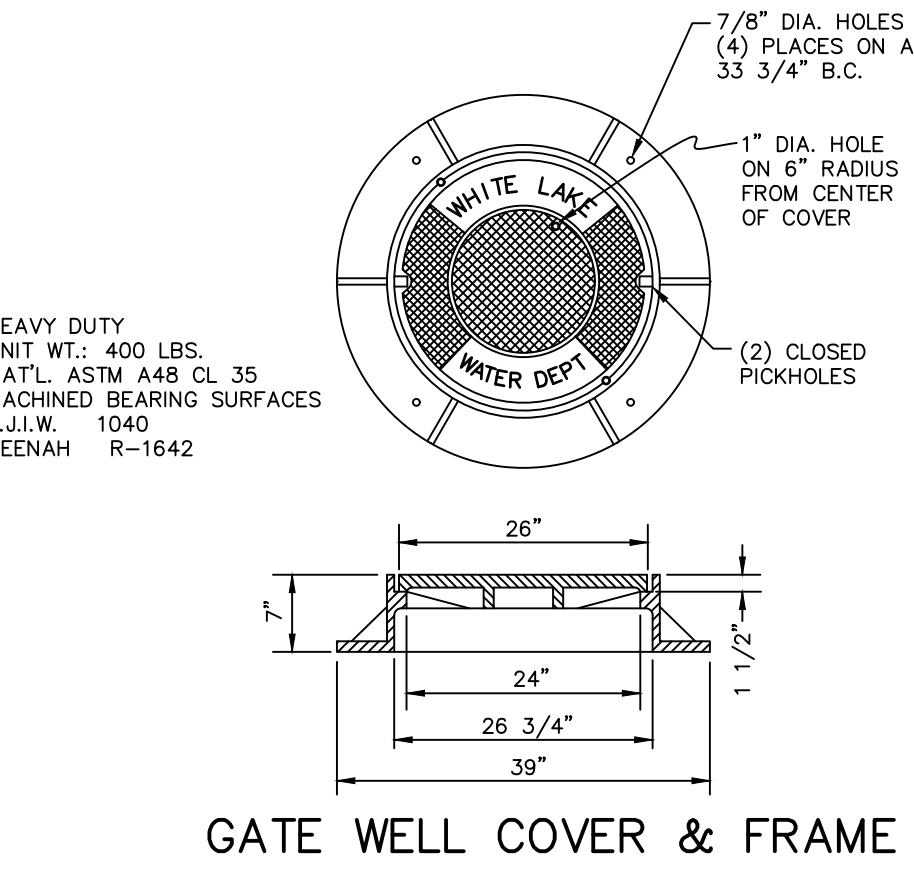


STANDARD BEDDING FOR WATER PIPE

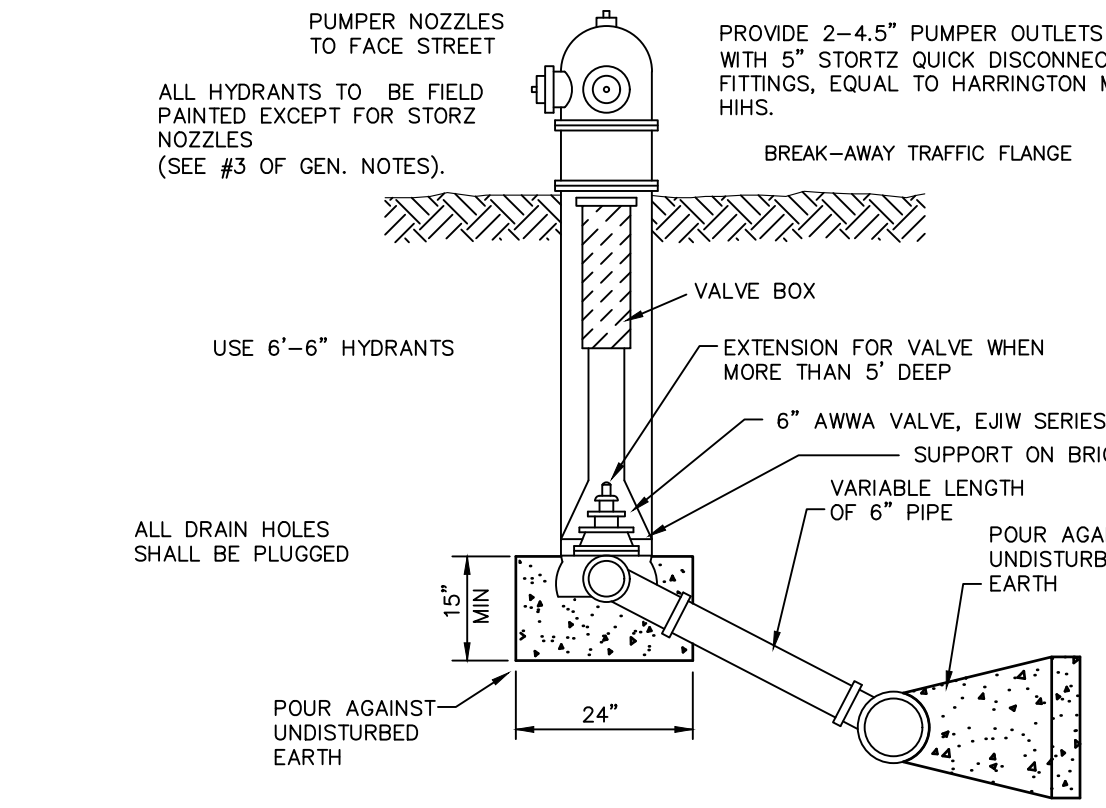


GATE WELL (C-C)

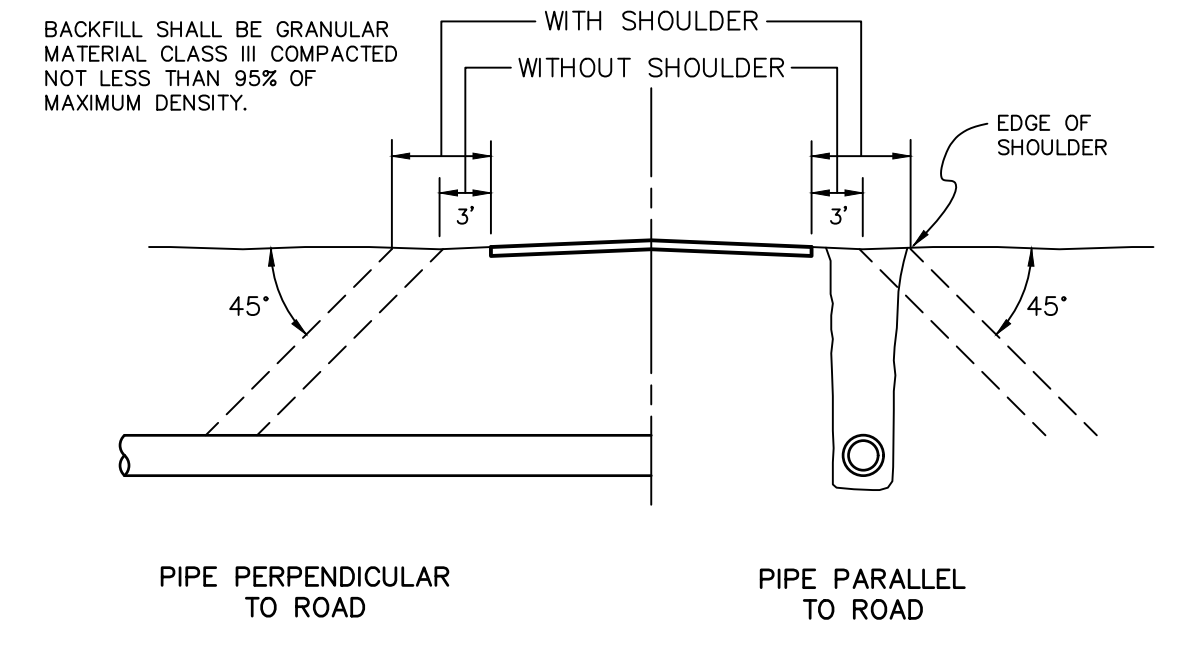
- WATER MAIN NOTES**
- All construction procedures and materials used on this project shall conform to White Lake Township current standards and specifications.
 - All hydrants shall be East Jordan Iron Works 5BR-250 traffic model. Self-draining hydrants shall not be used. Valve shall have 1-1/2" pentagon 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 sets 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-racking 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 D2237-03 (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.



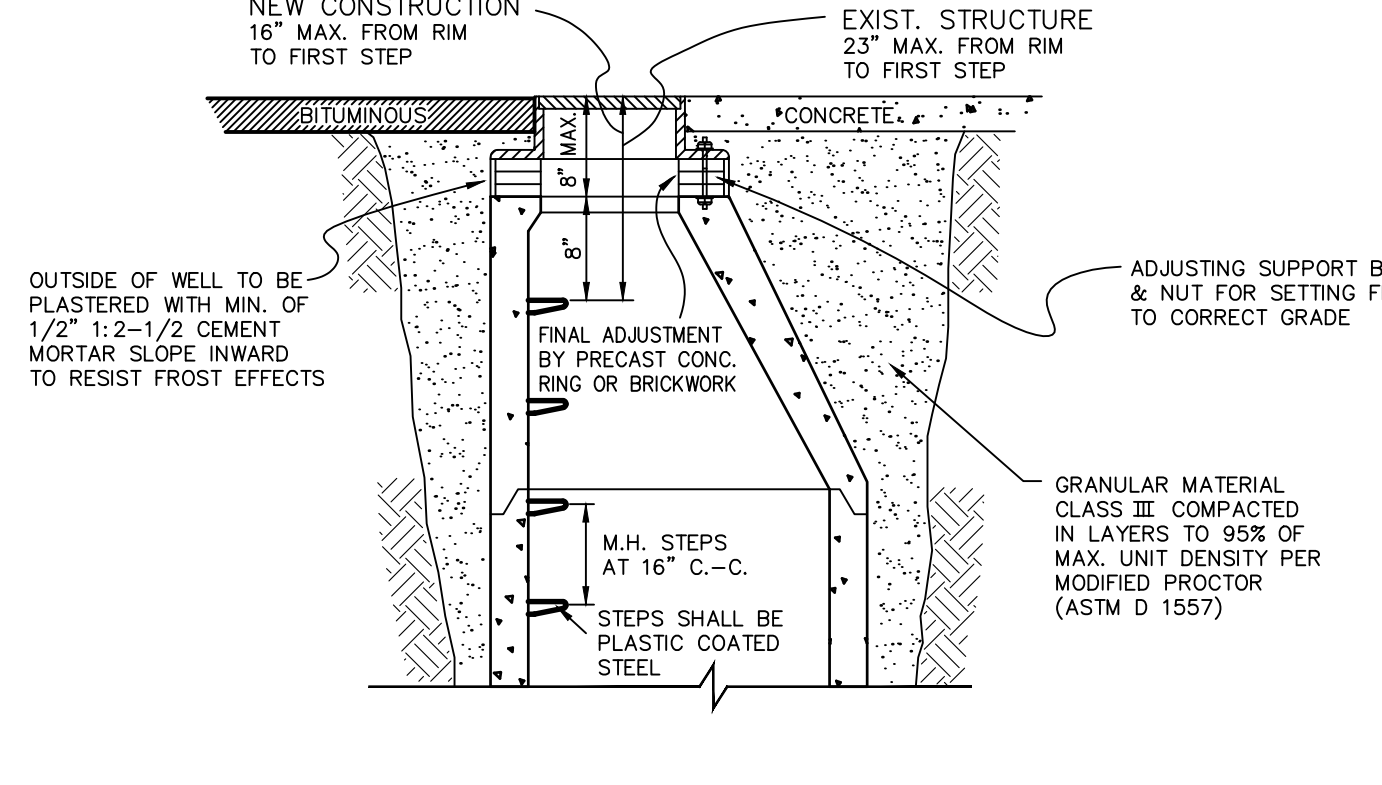
GATE WELL COVER & FRAME



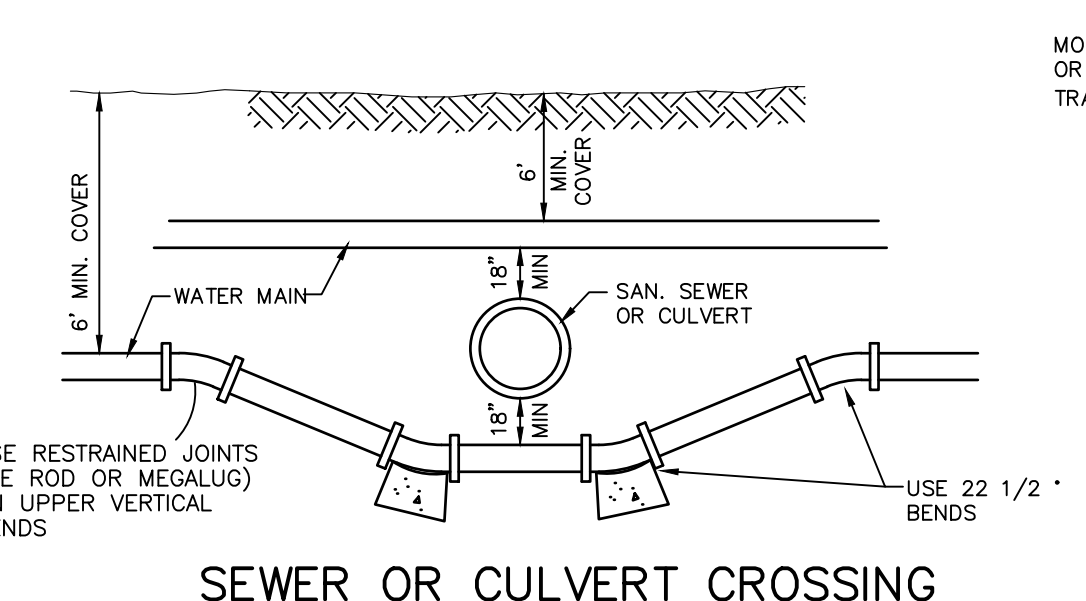
DETAIL OF HYDRANT SETTINGS



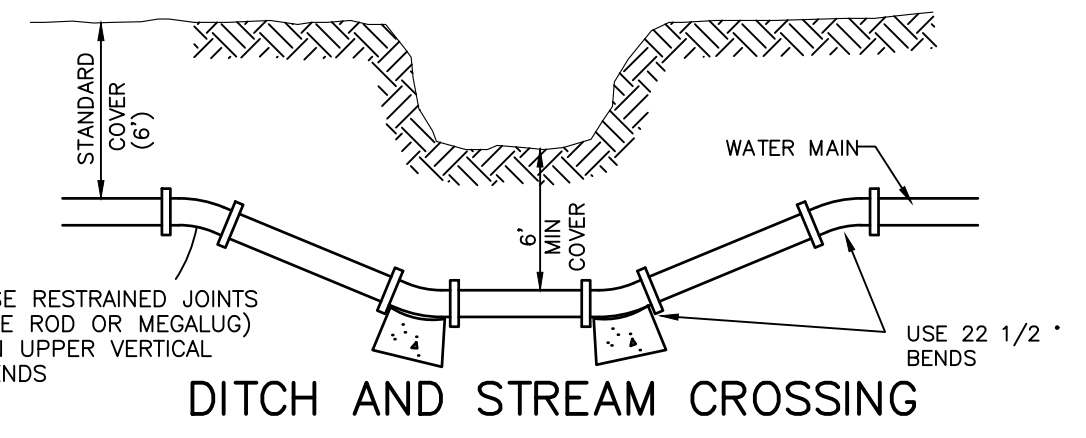
BACKFILL IN THE AREA OF STREETS, ALLEYS, SIDEWALKS, DRIVES & PARKING AREAS



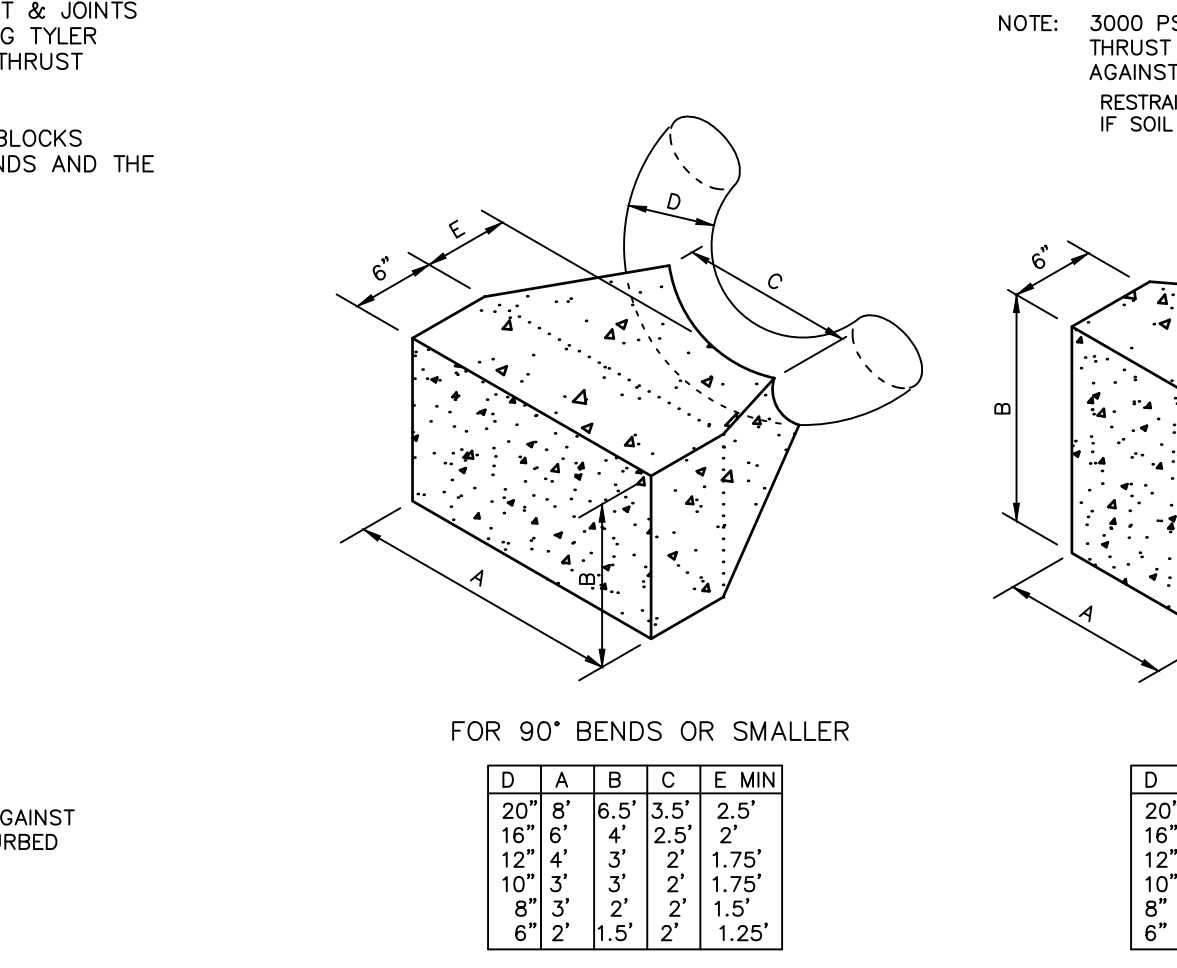
GATE WELL TOPS WITHIN PAVEMENT AREAS



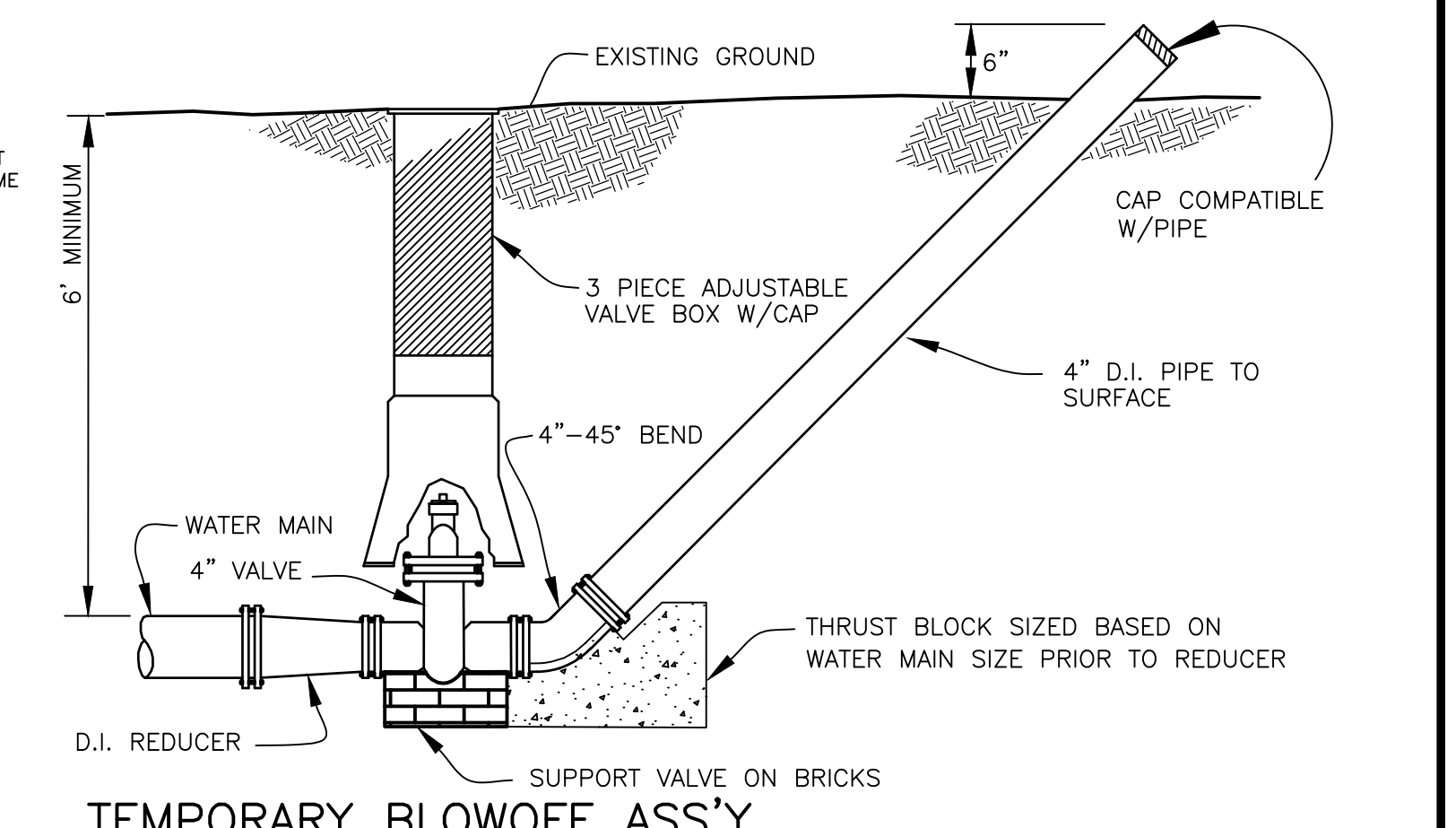
SEWER OR CULVERT CROSSING



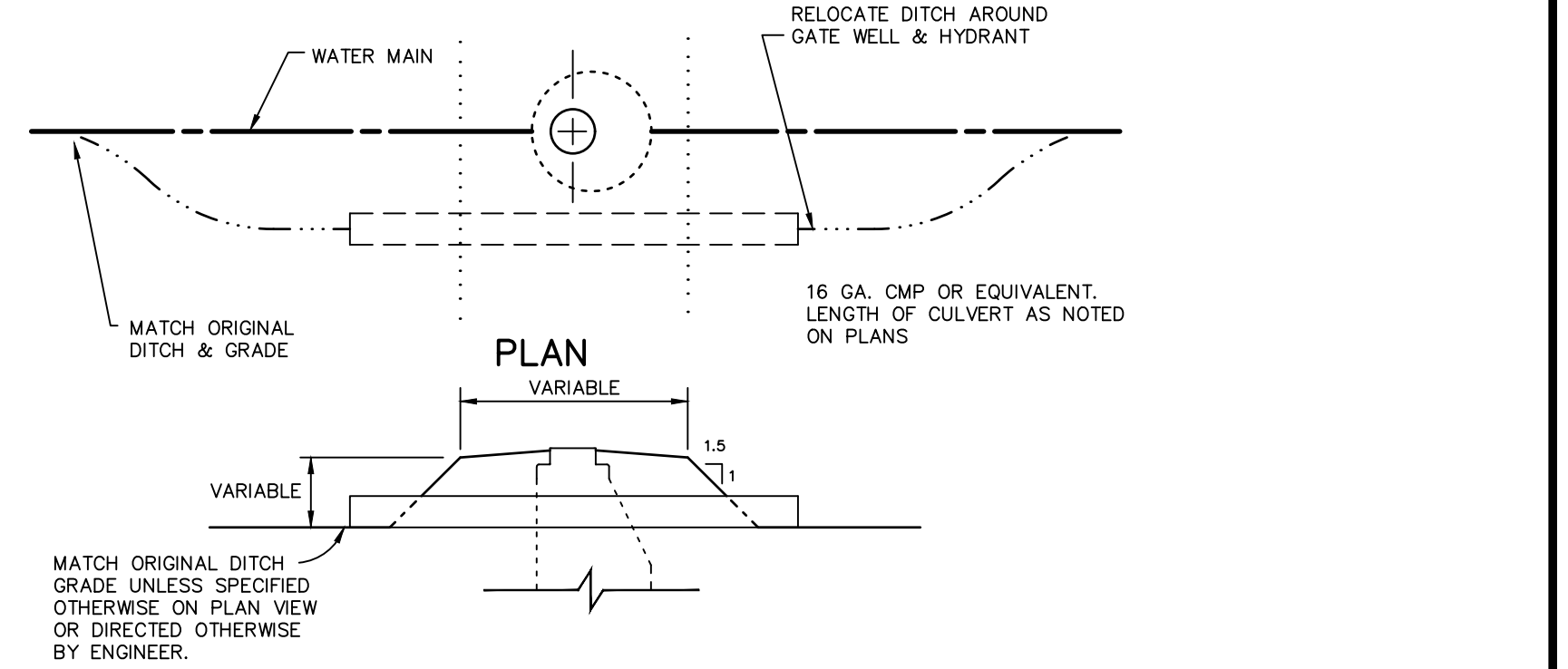
DITCH AND STREAM CROSSING



THRUST BLOCK DETAILS



TEMPORARY BLOWOFF ASS'Y



PROFILE DITCH ENCLOSURE AT GATE WELL

DRAWN: CAD DESIGN: OA CHECKED: -- SCALE: VERT. - HORZ. AS NOTED

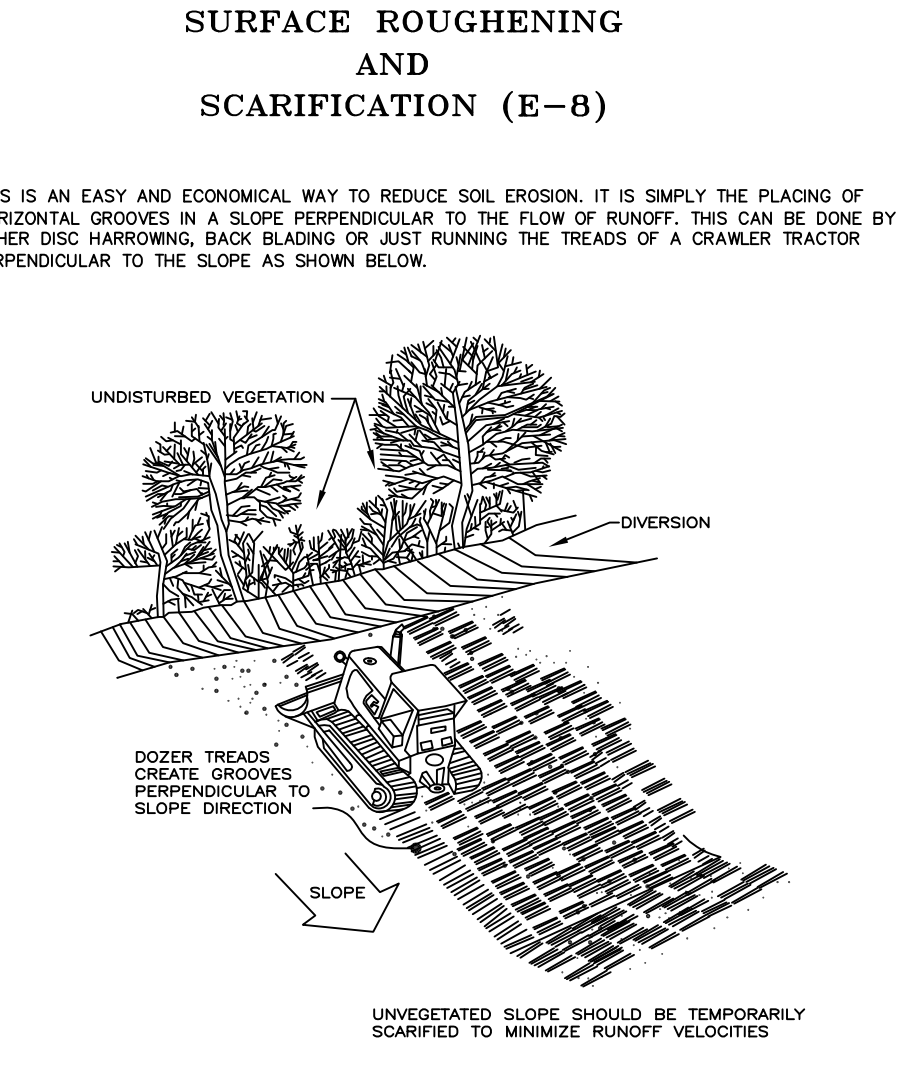
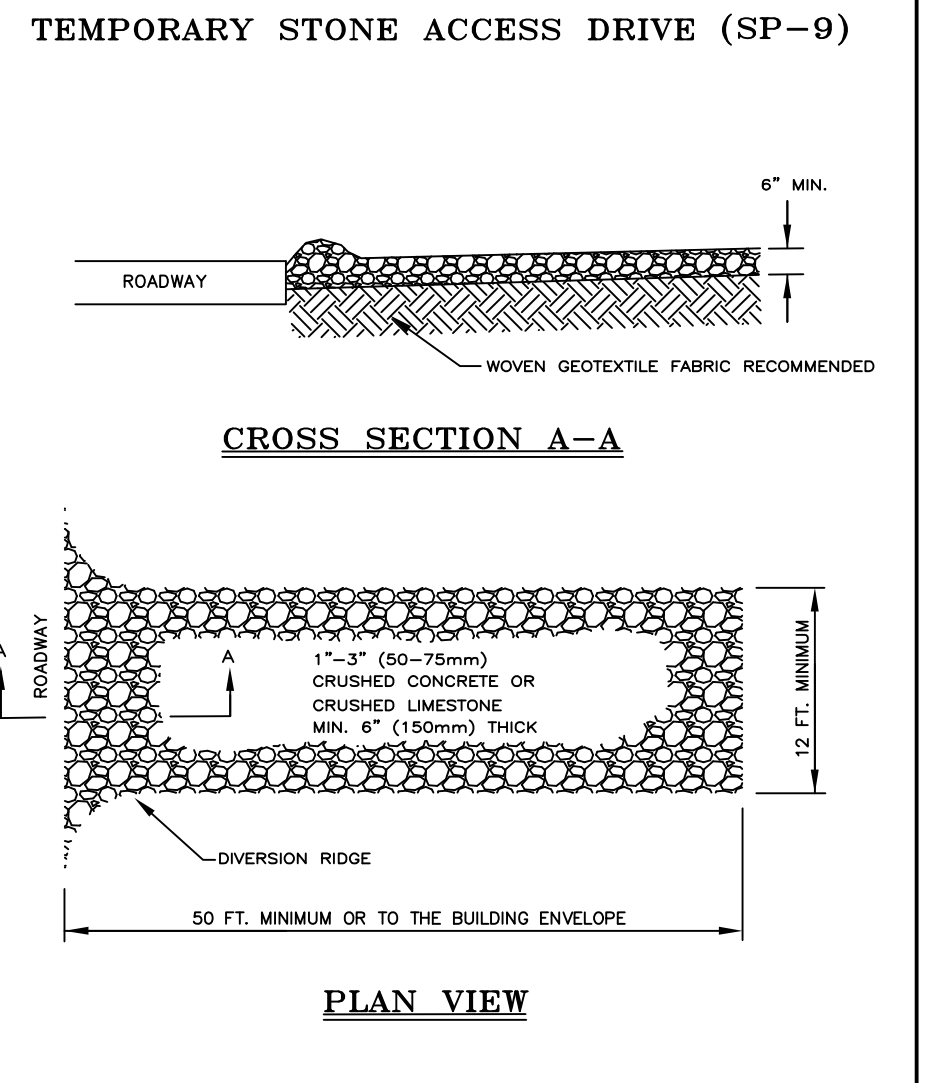
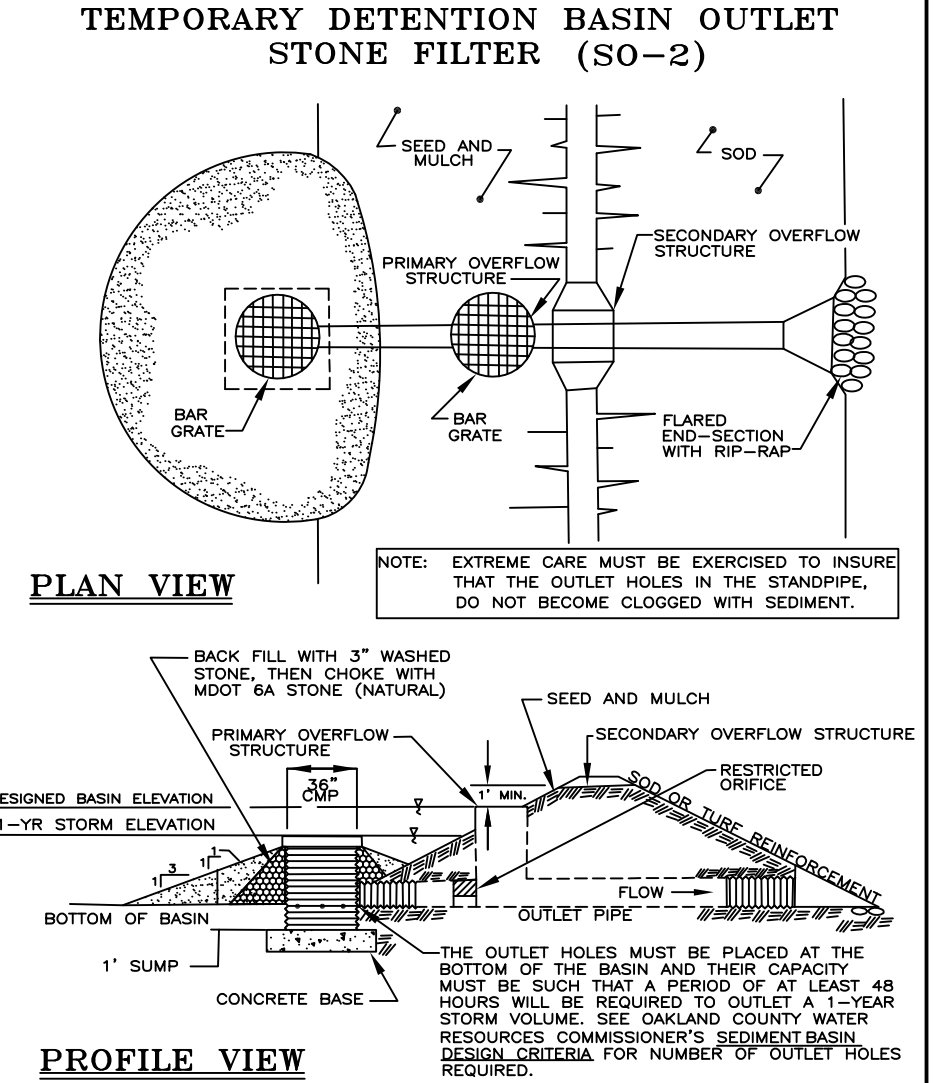
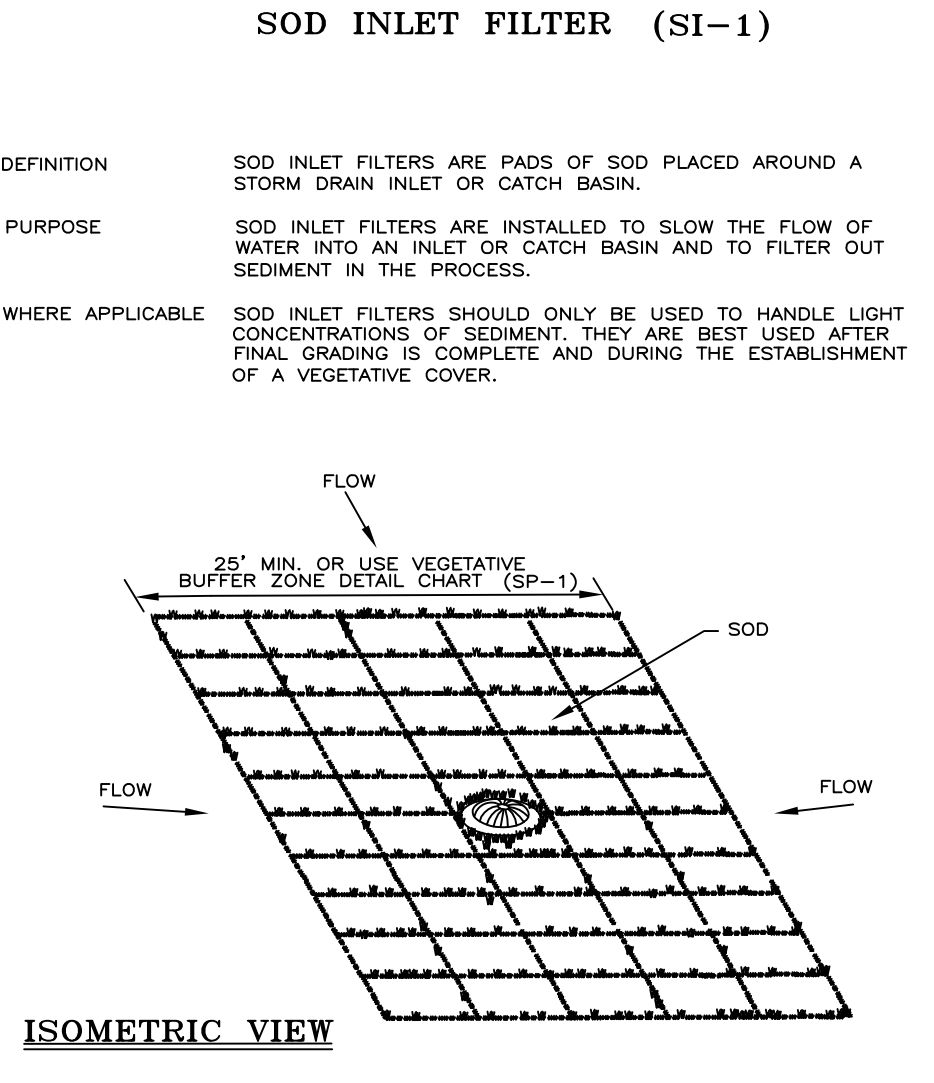
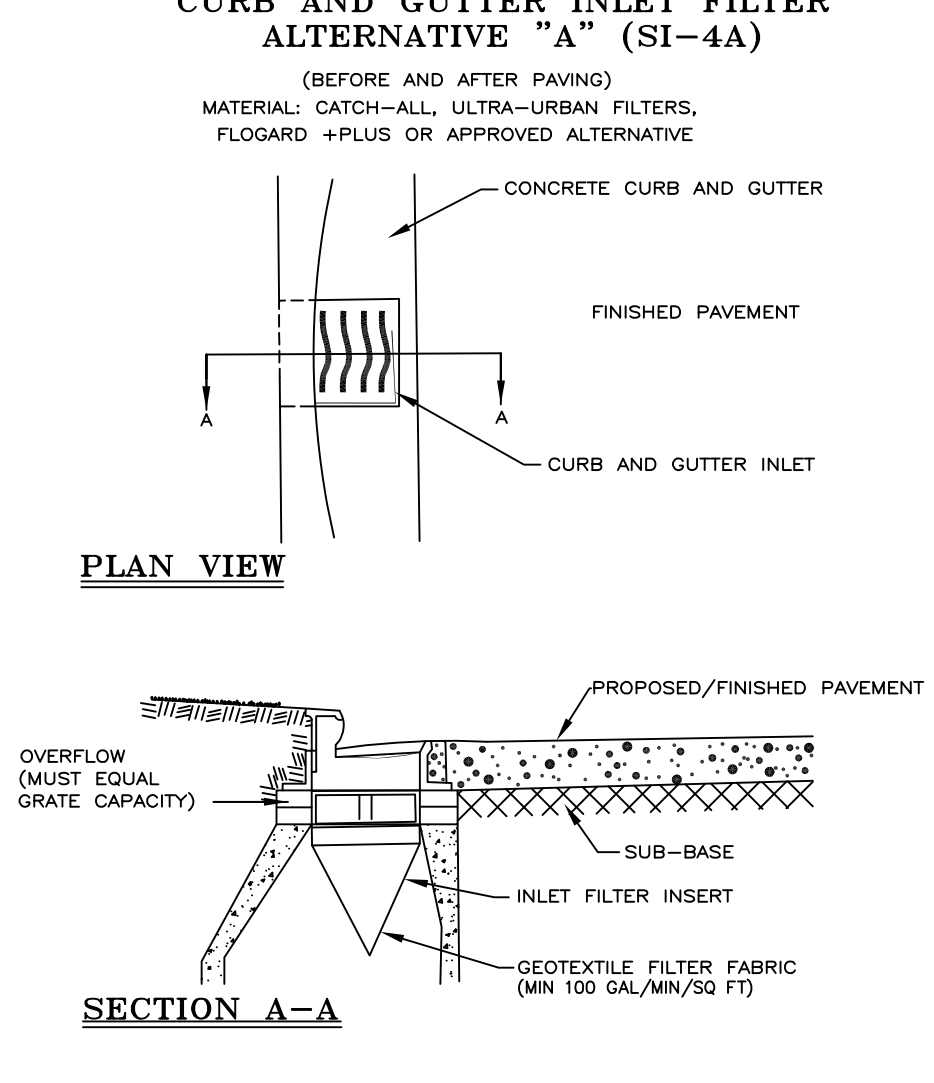
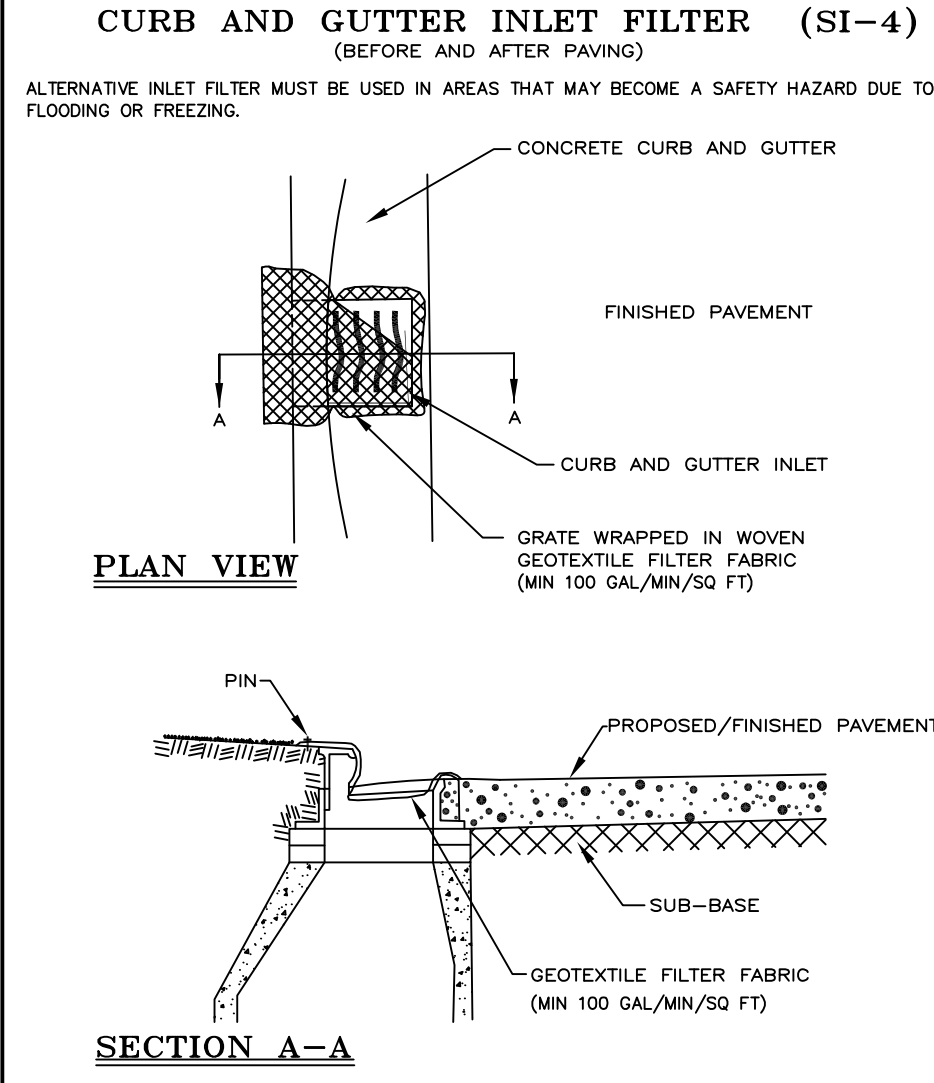
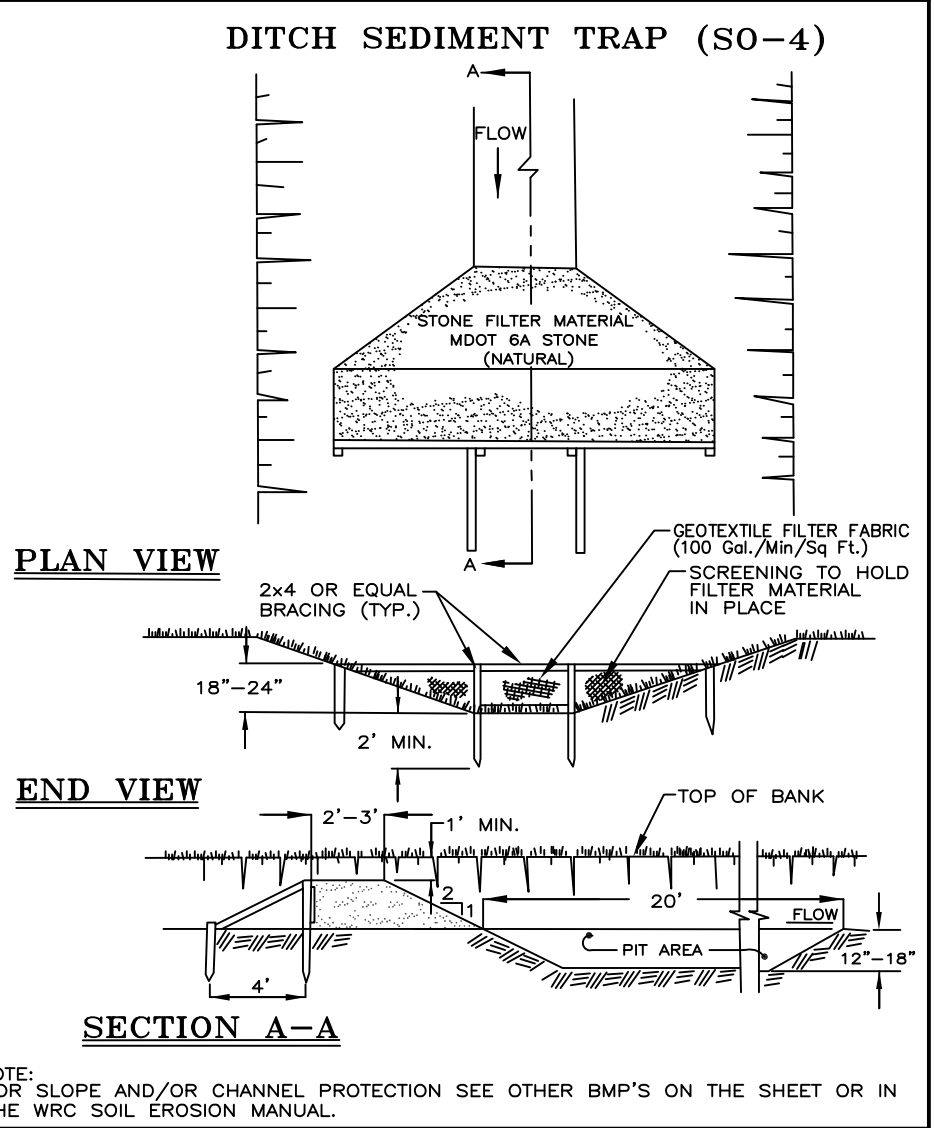
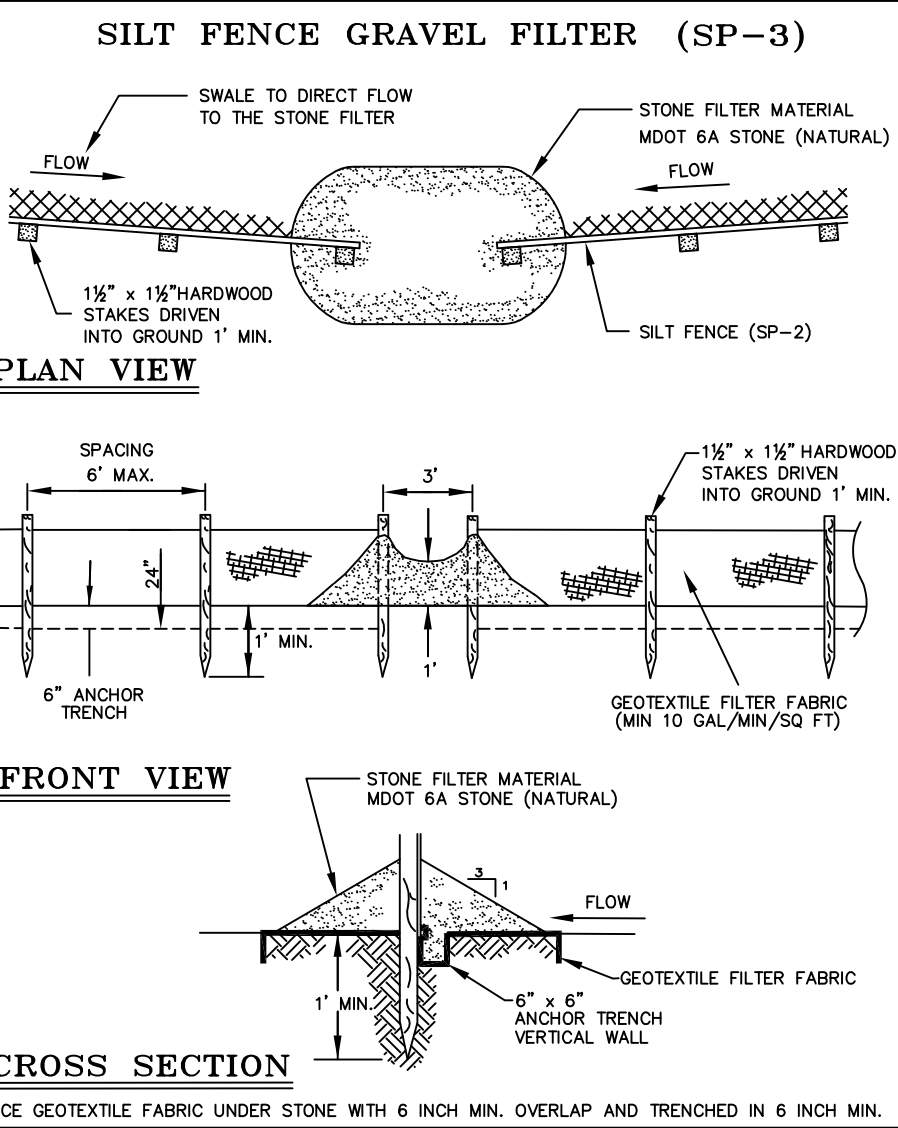
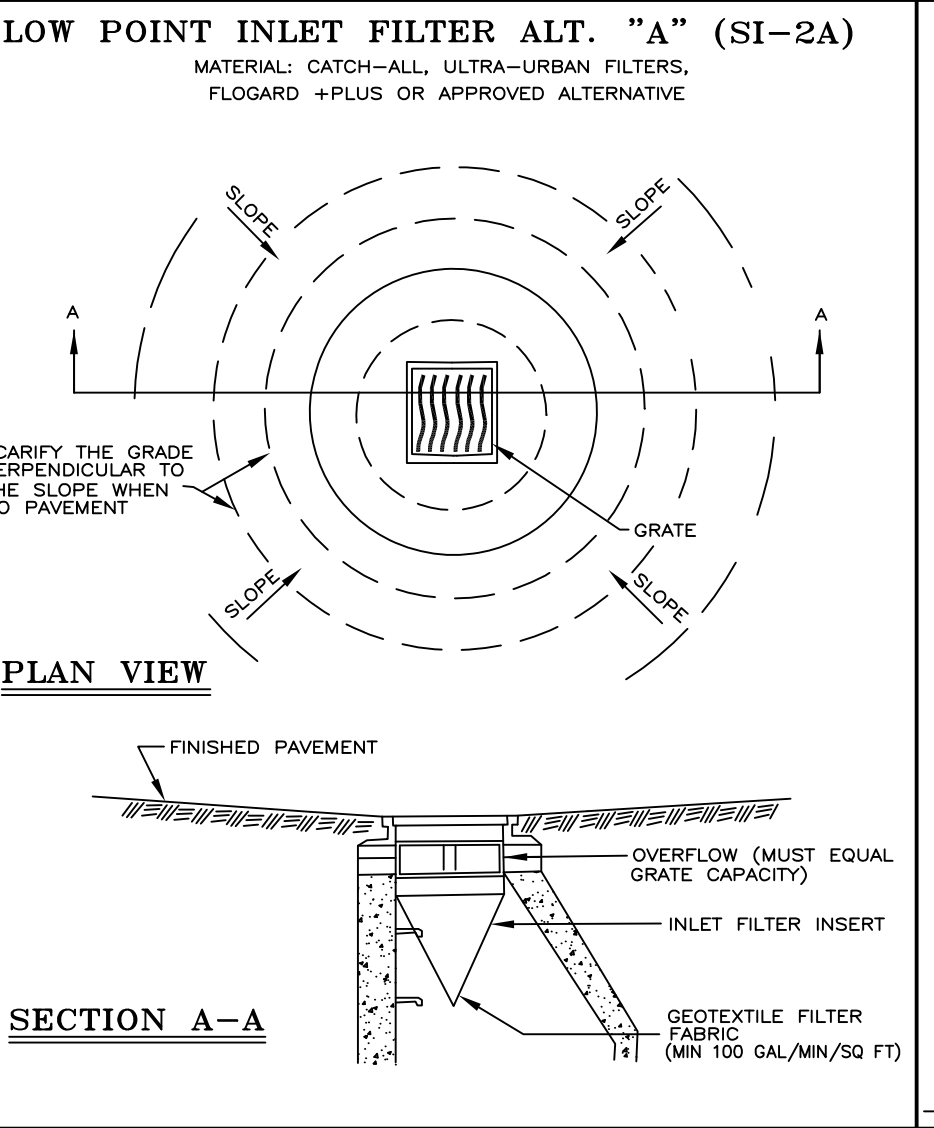
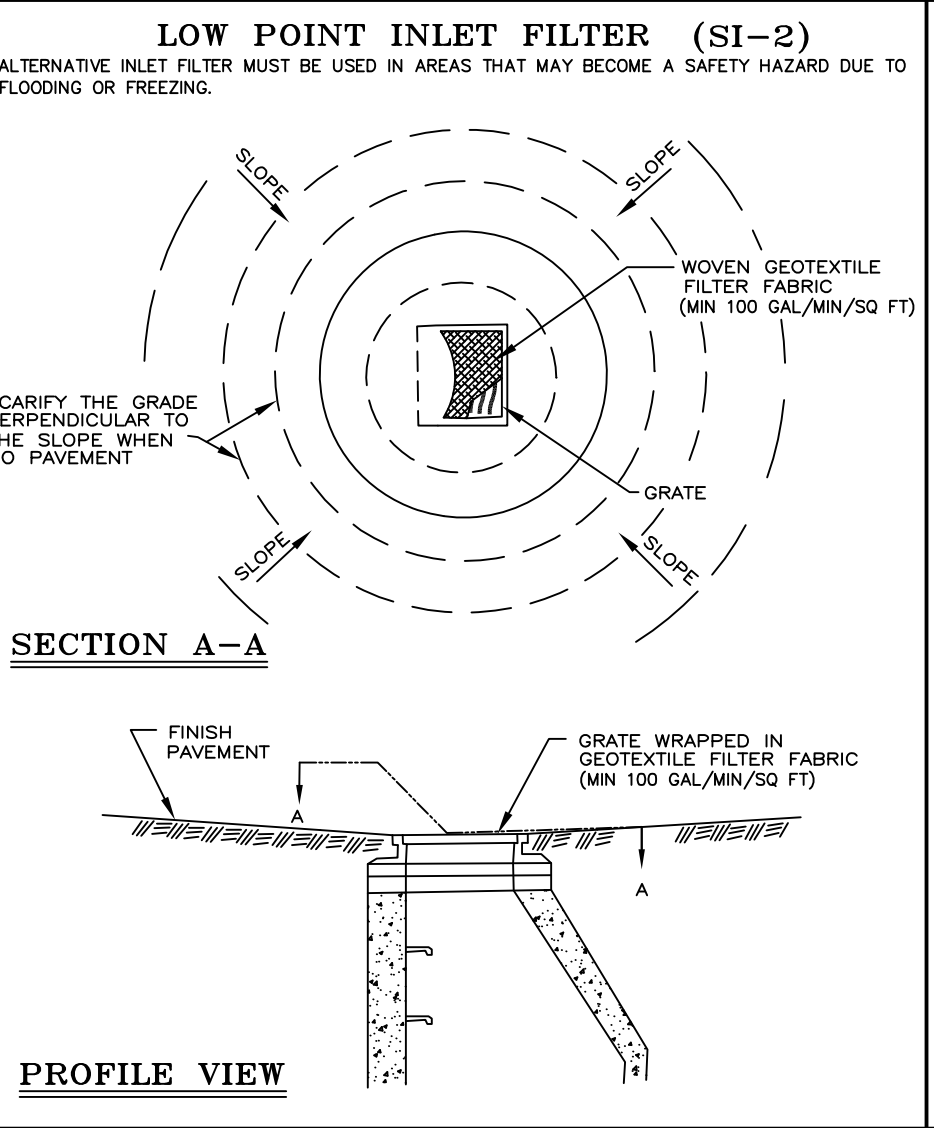
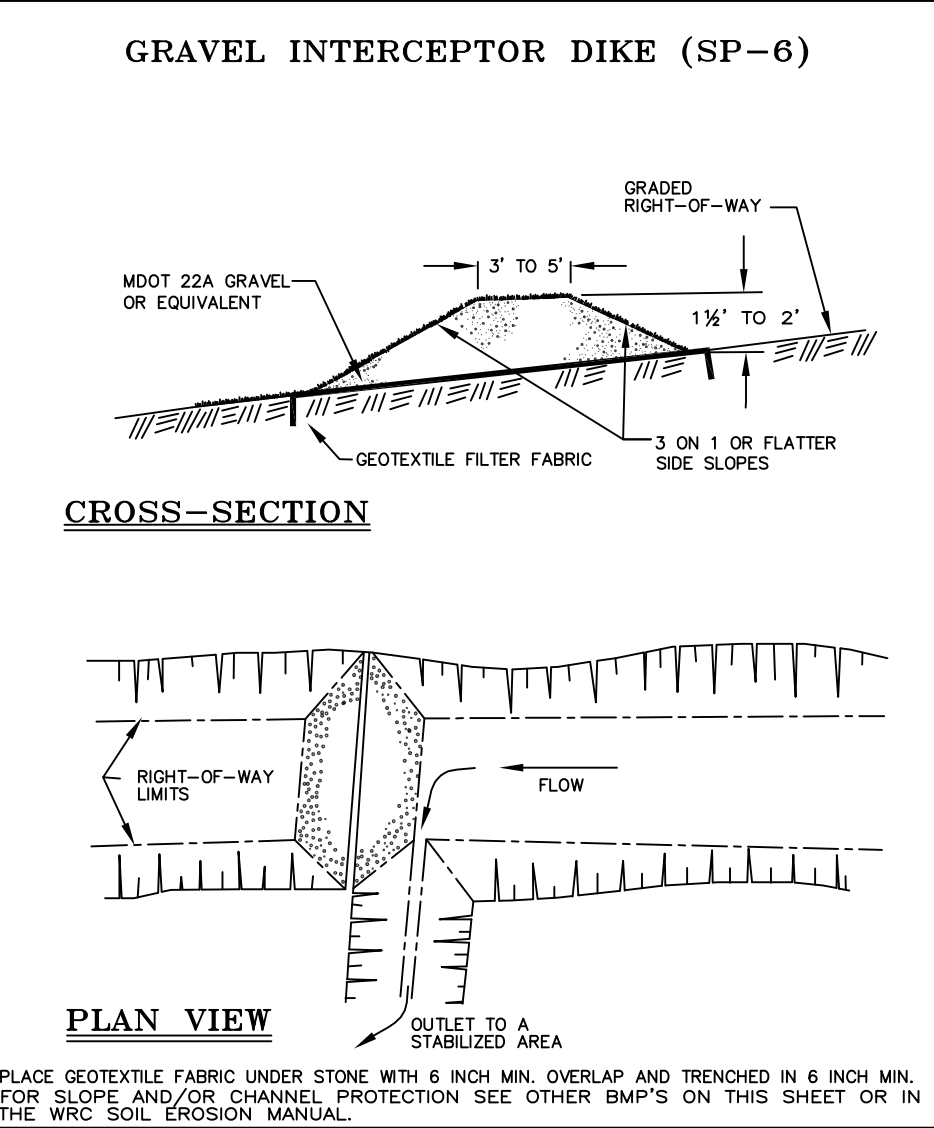
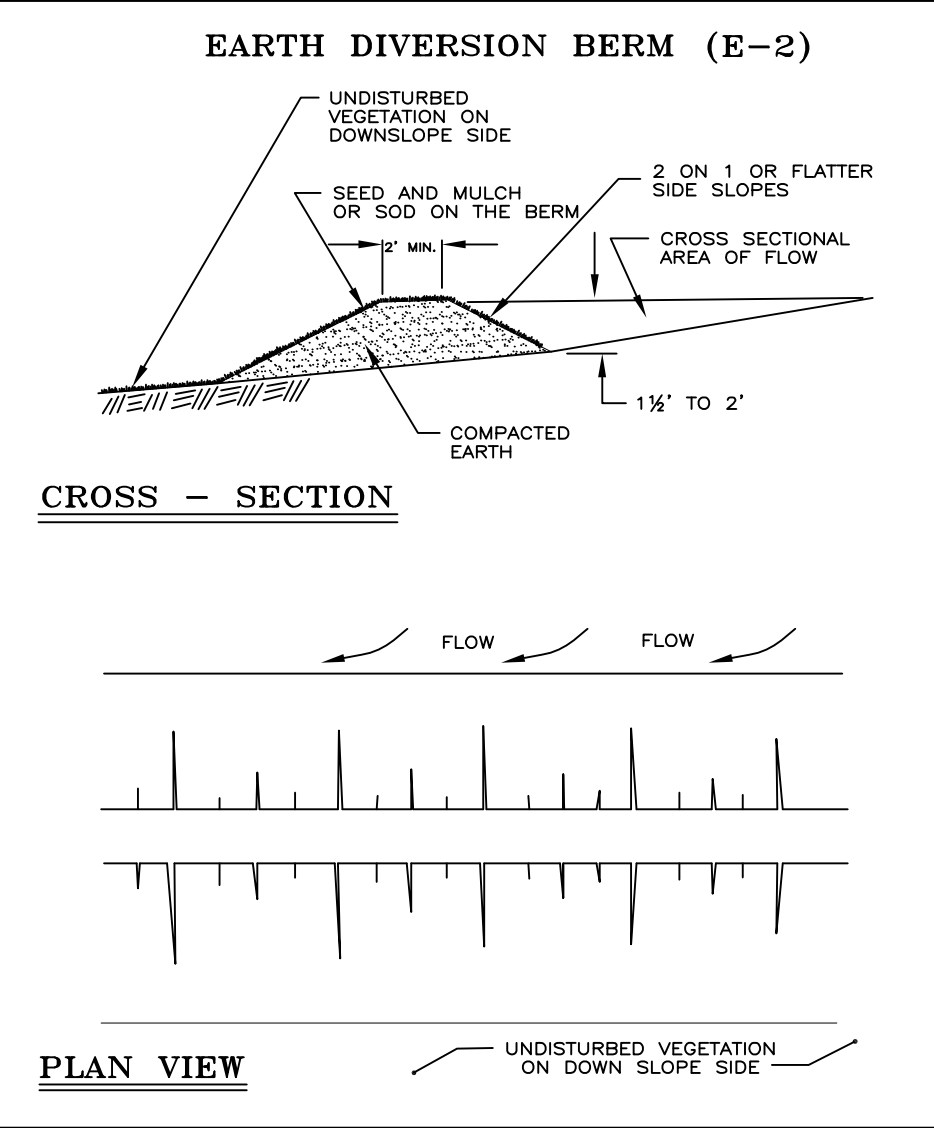
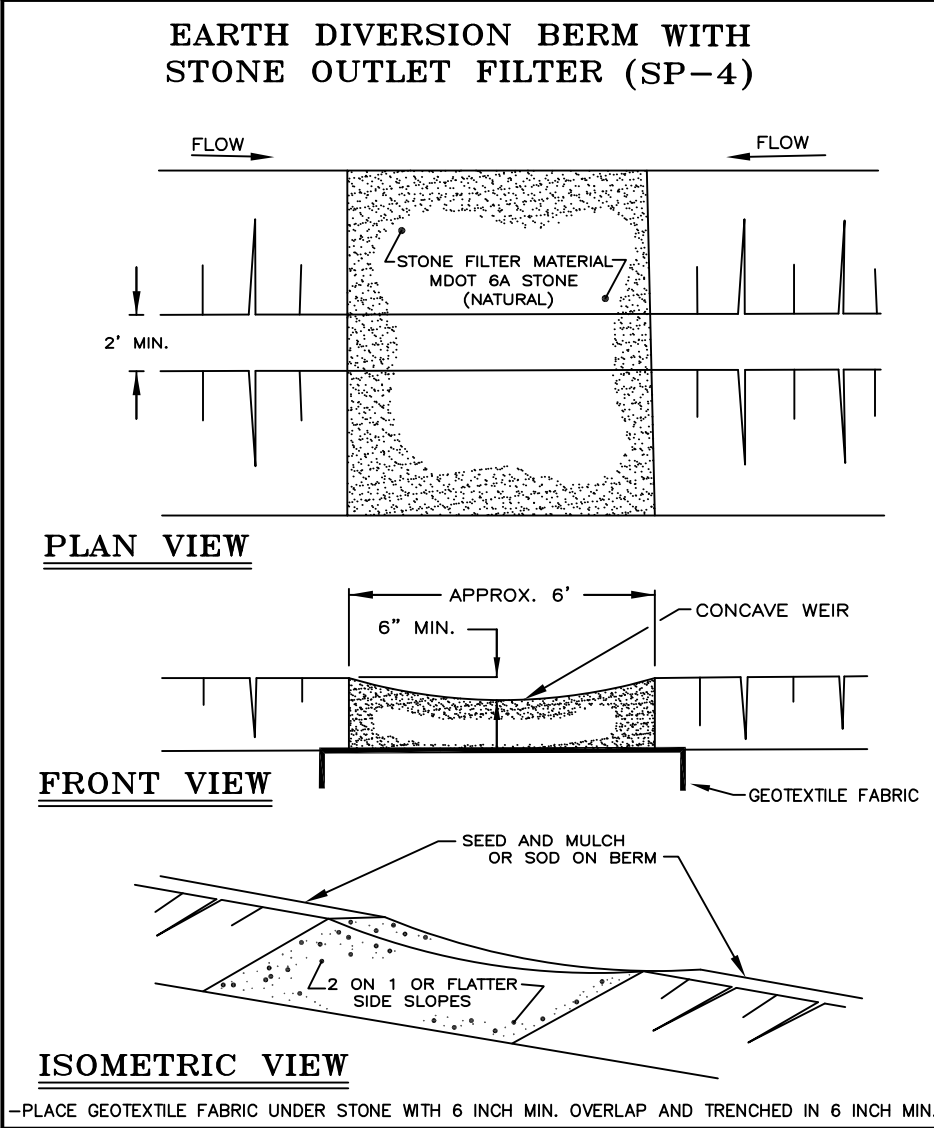
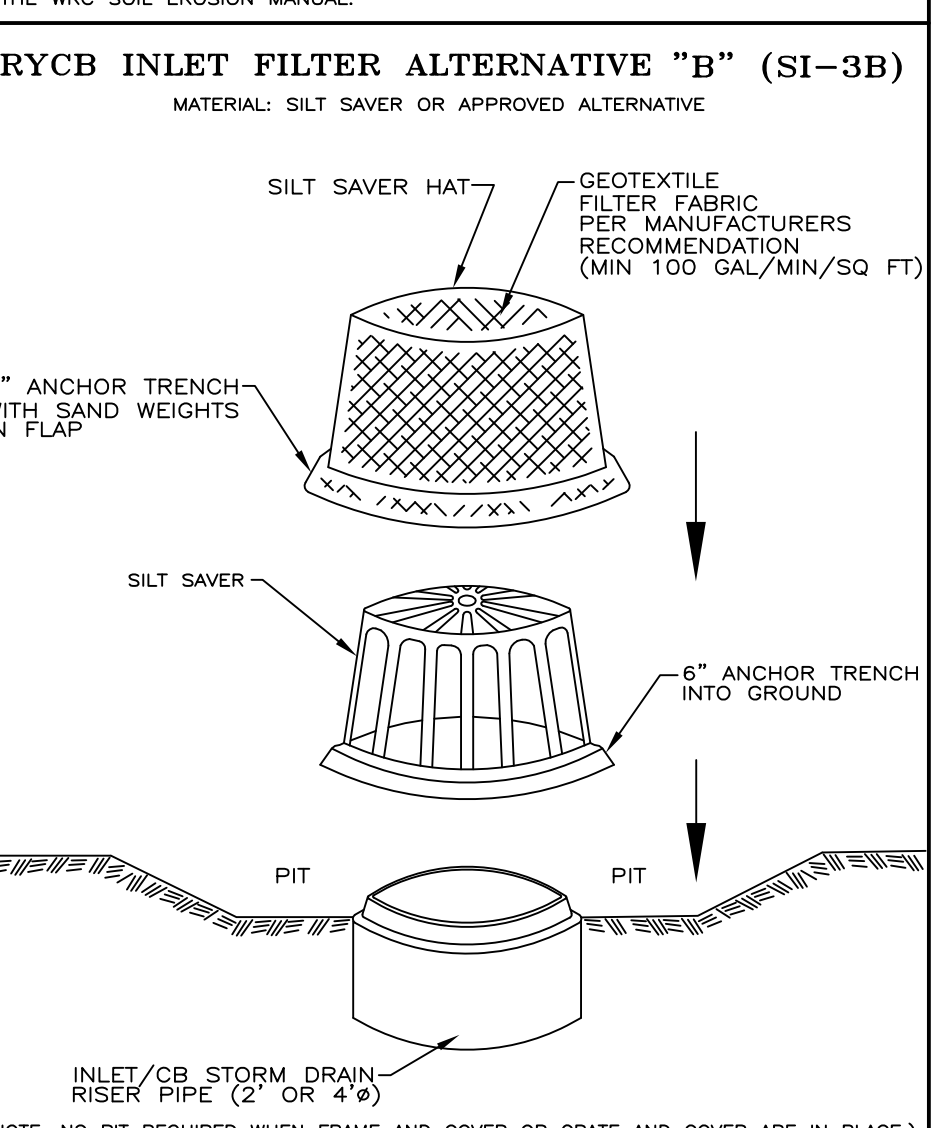
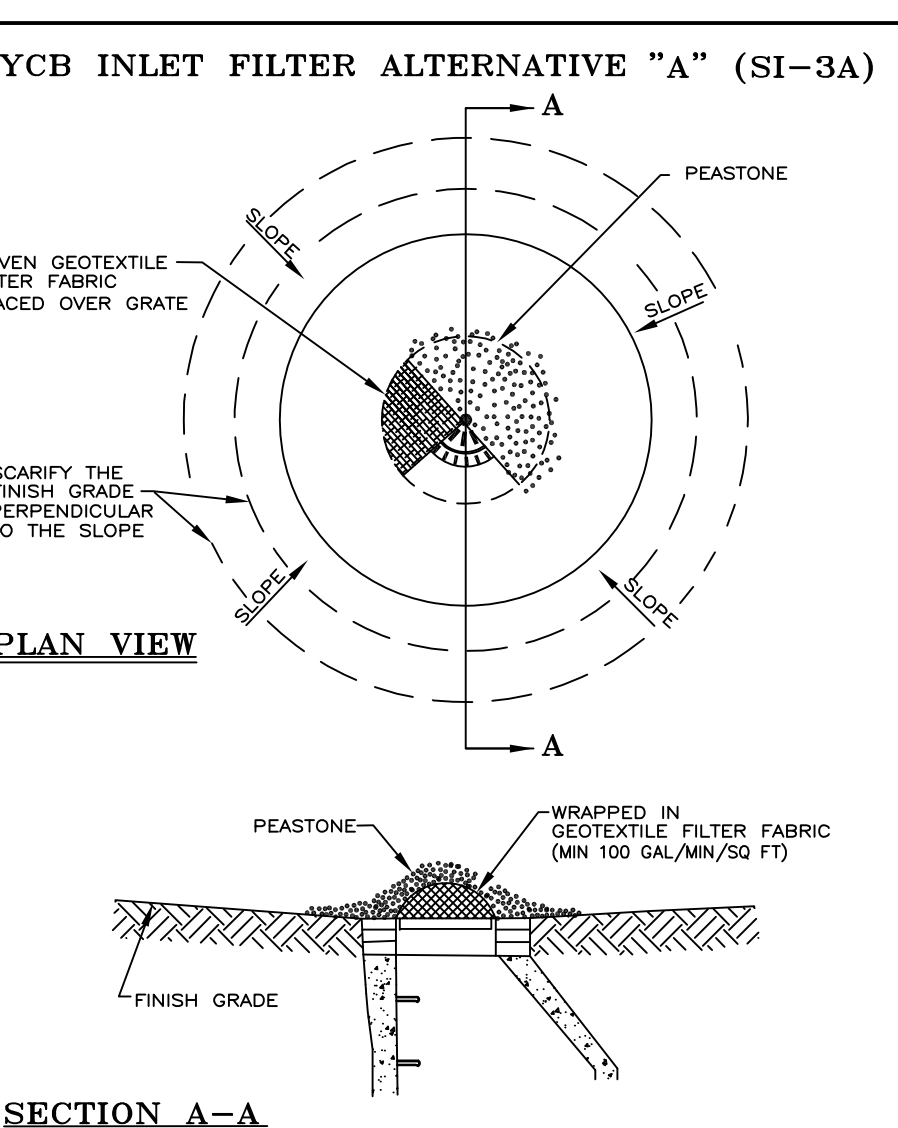
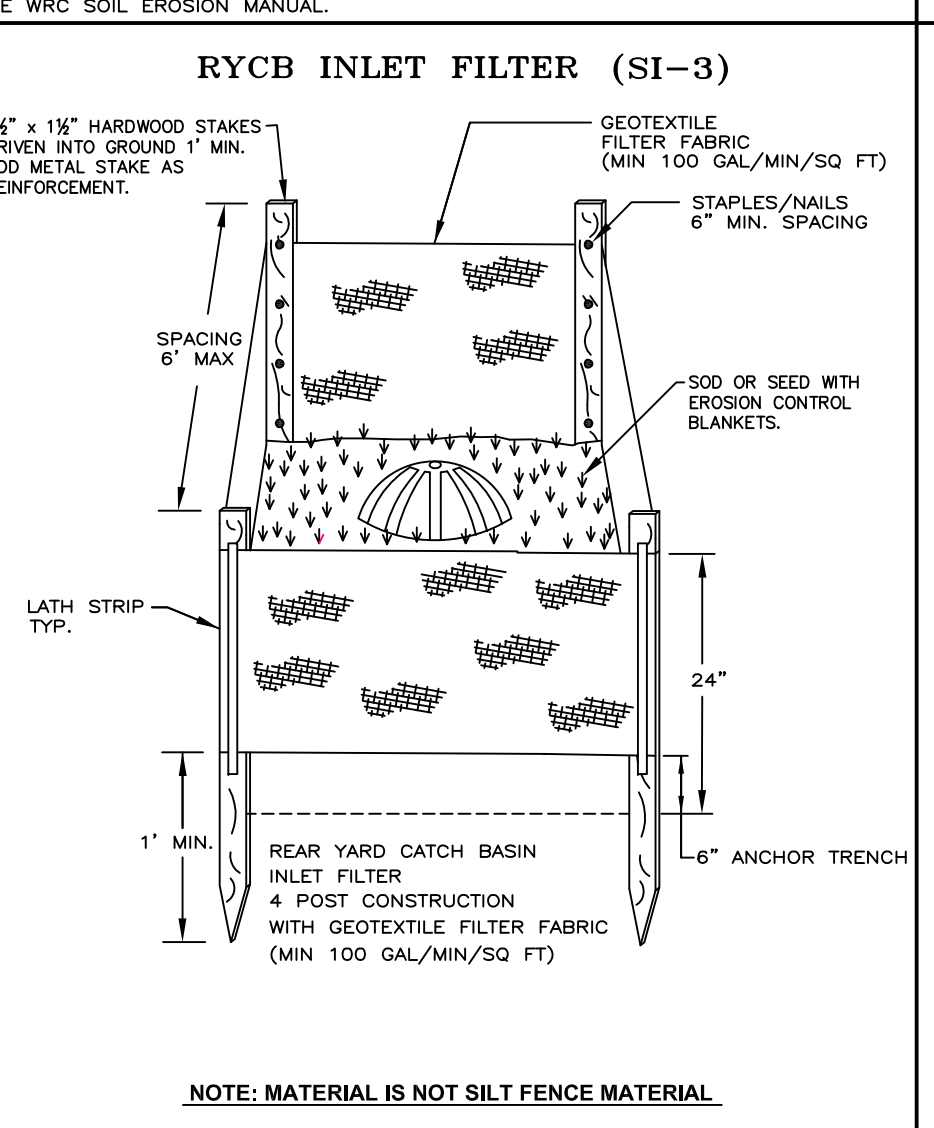
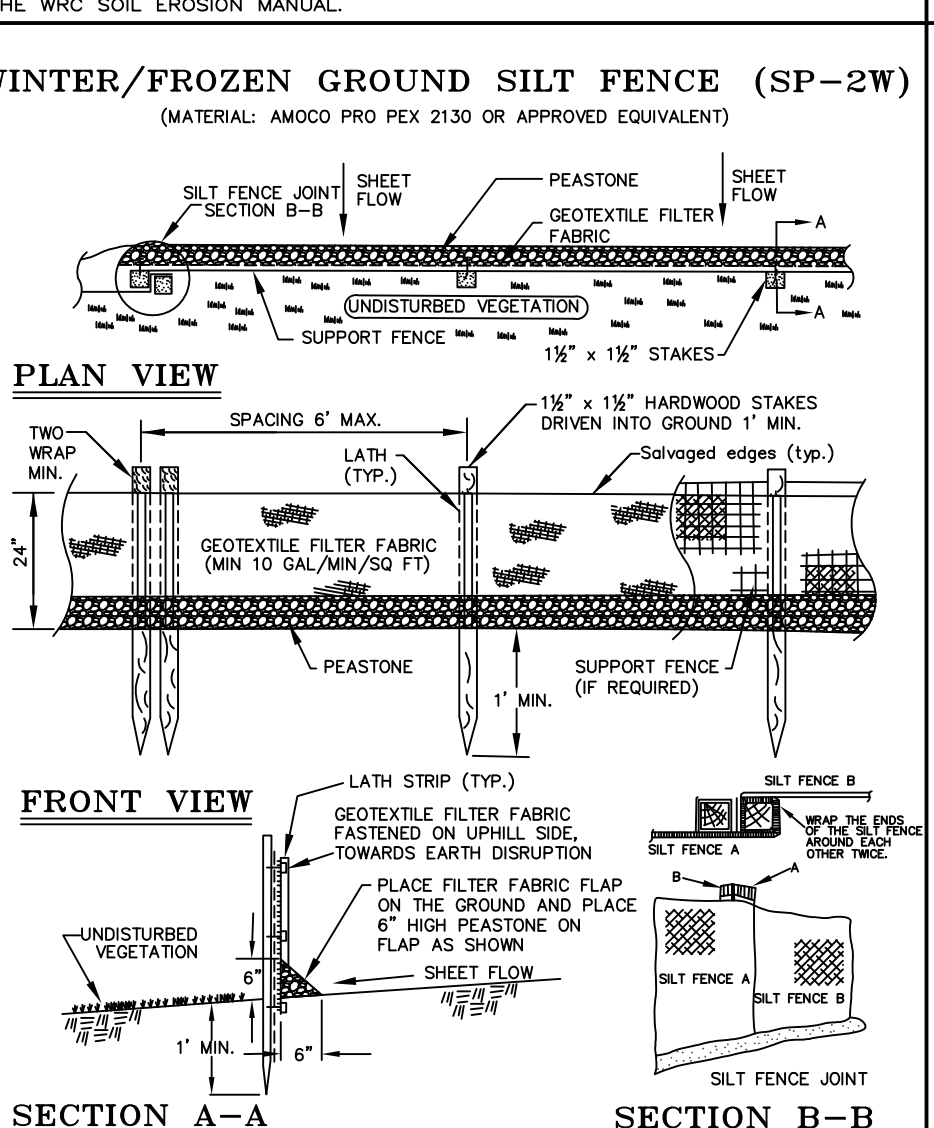
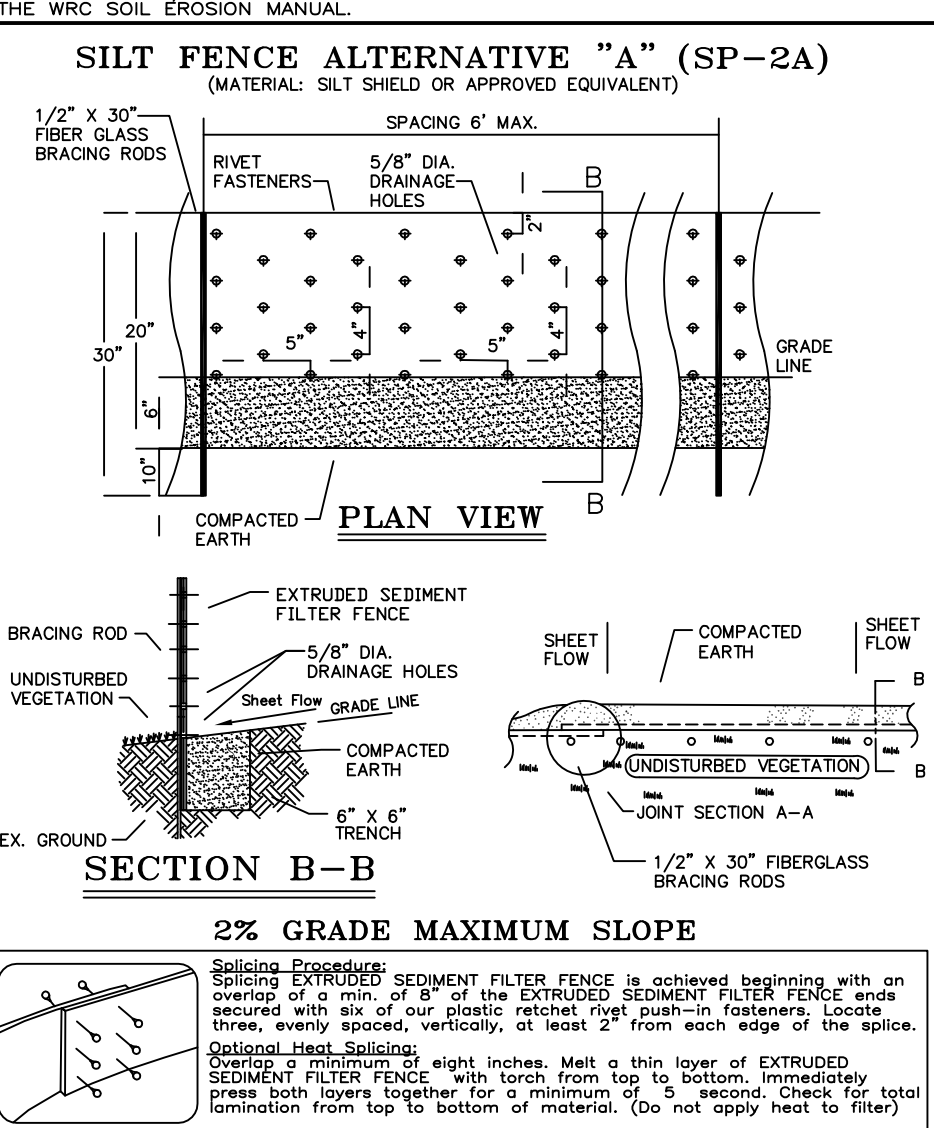
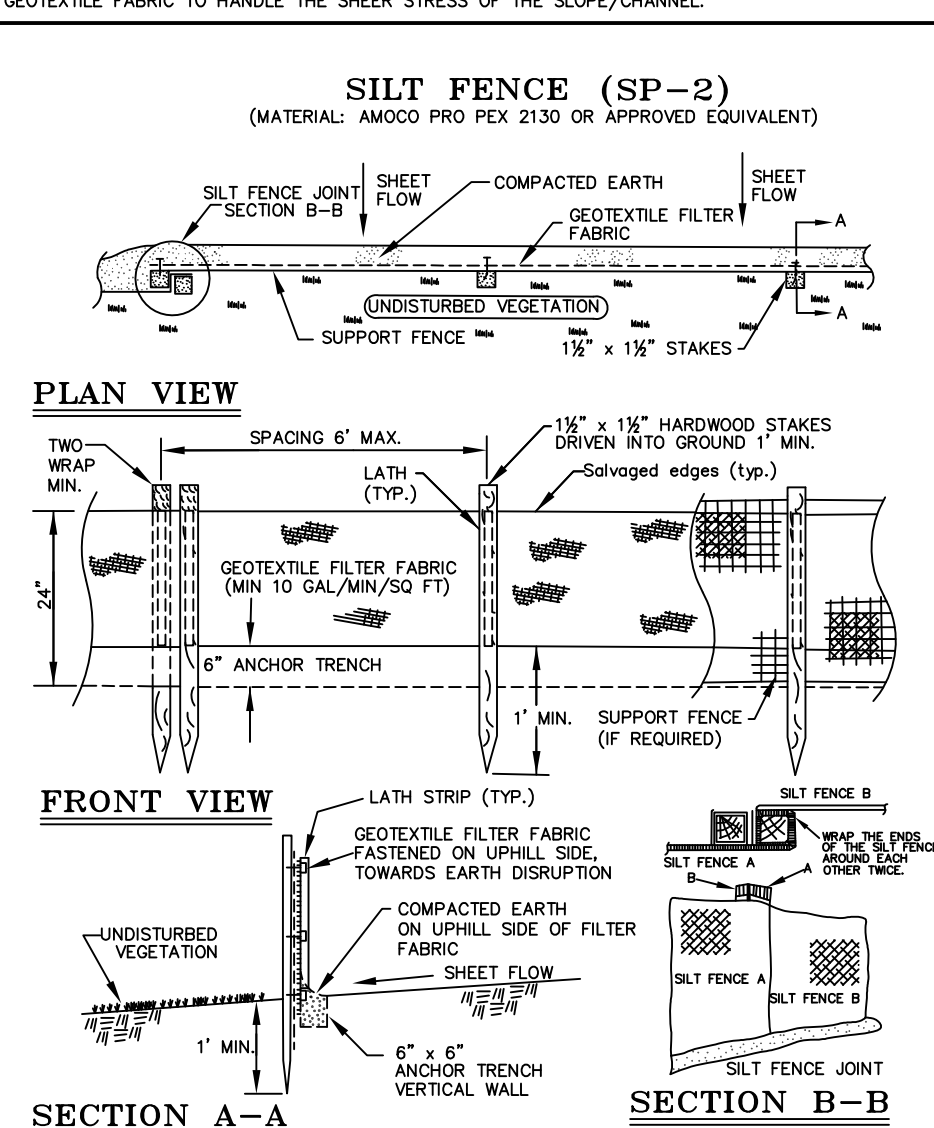
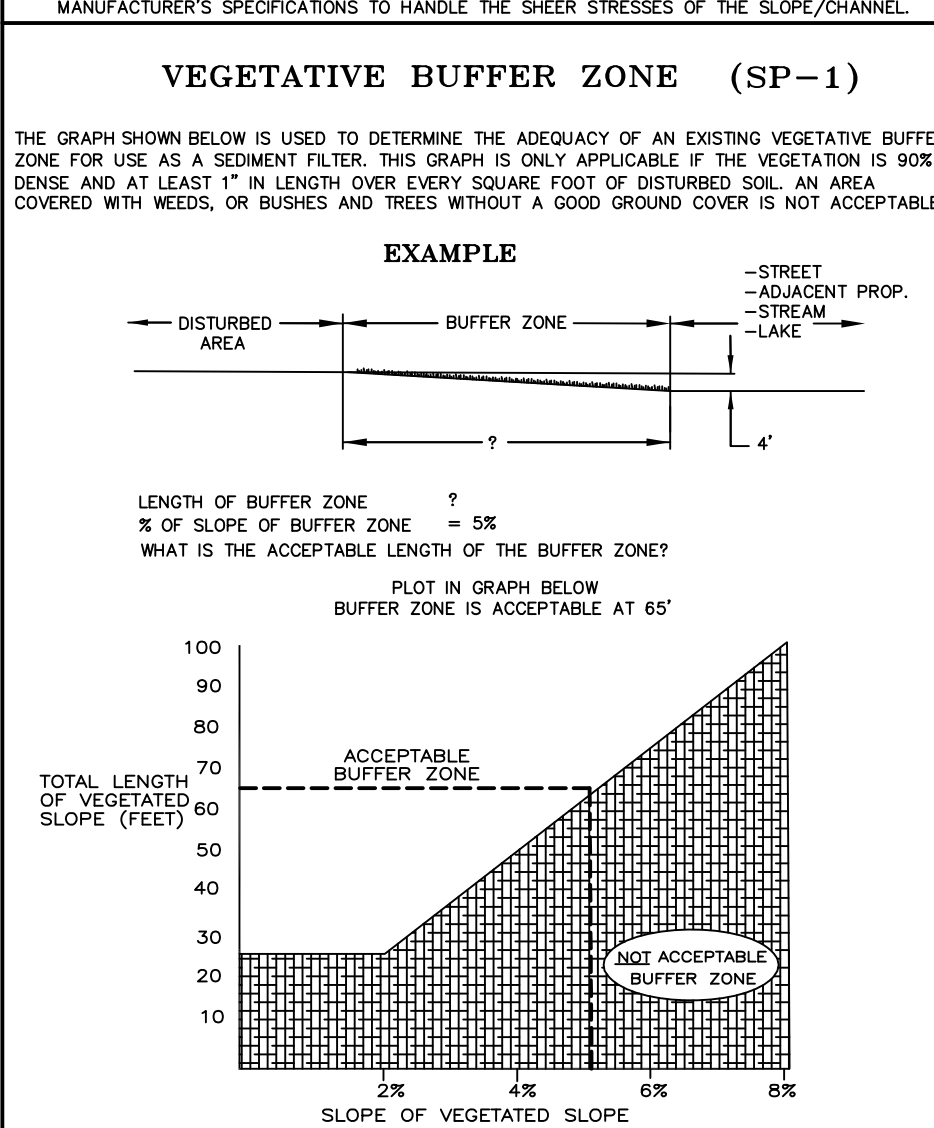
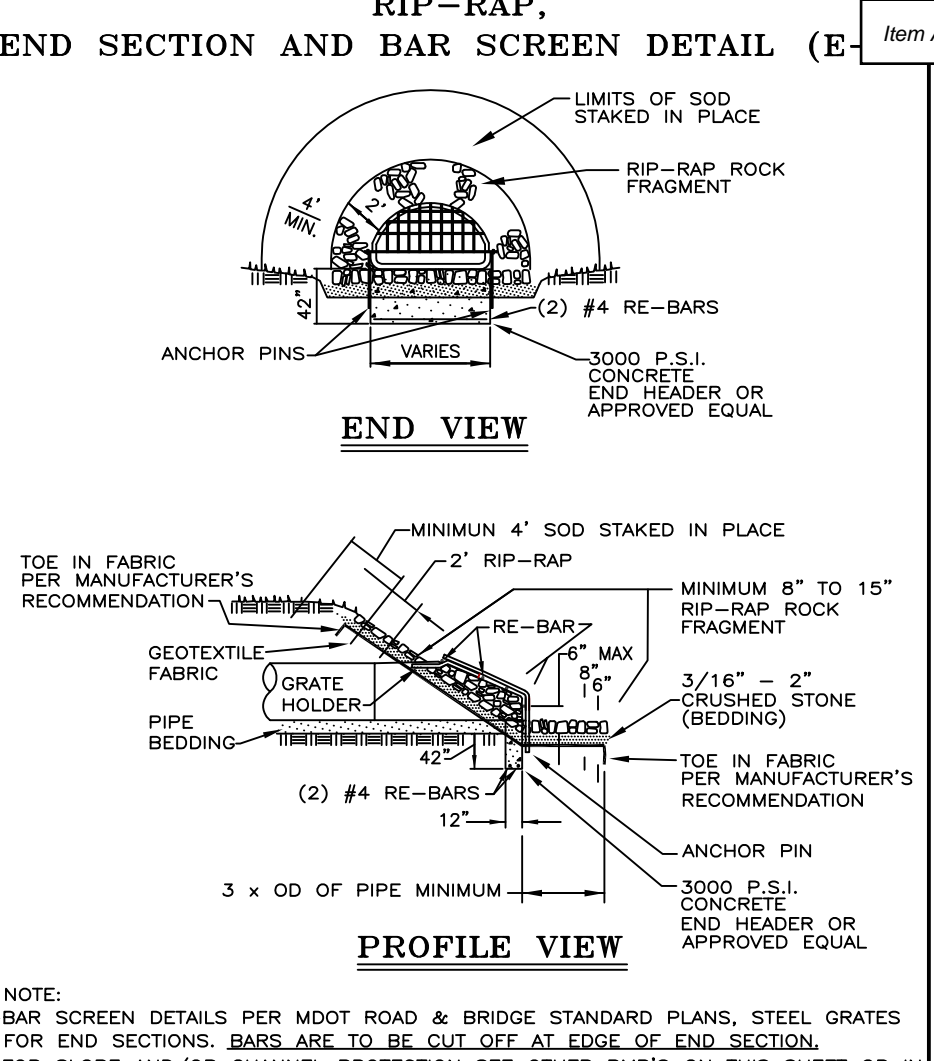
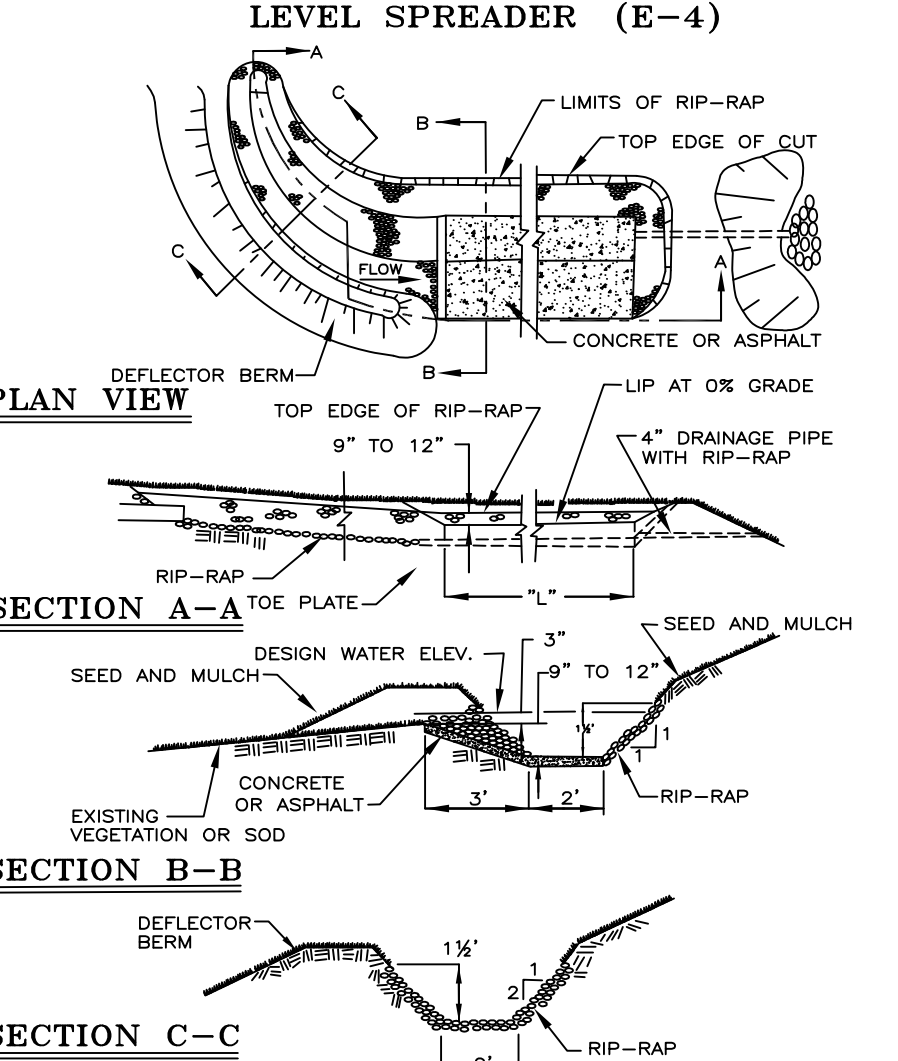
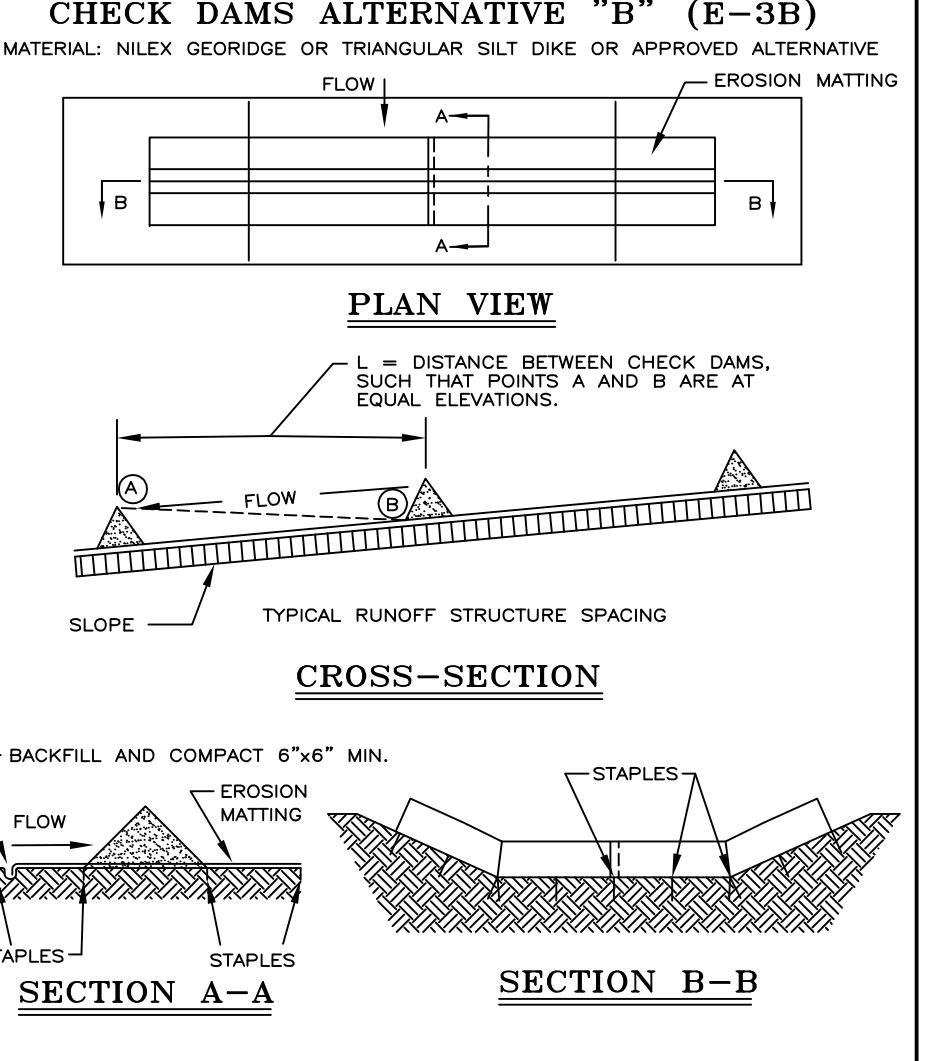
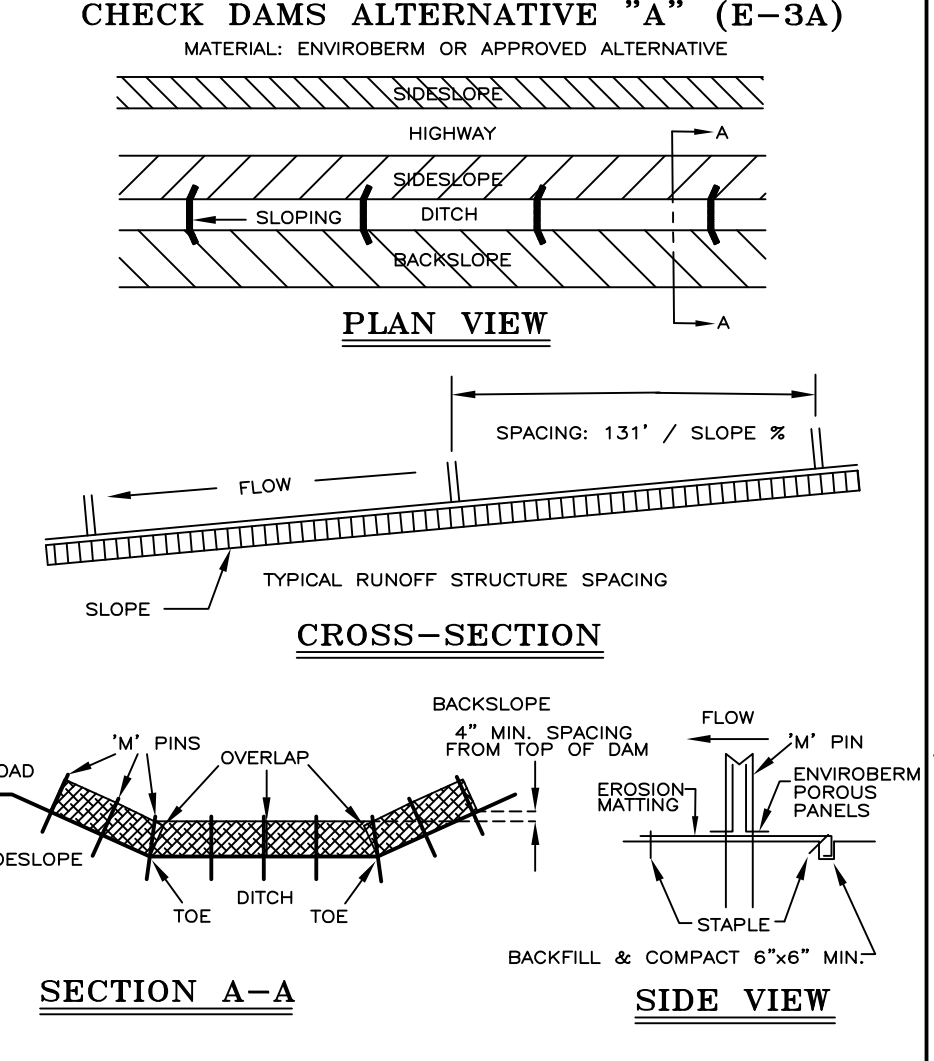
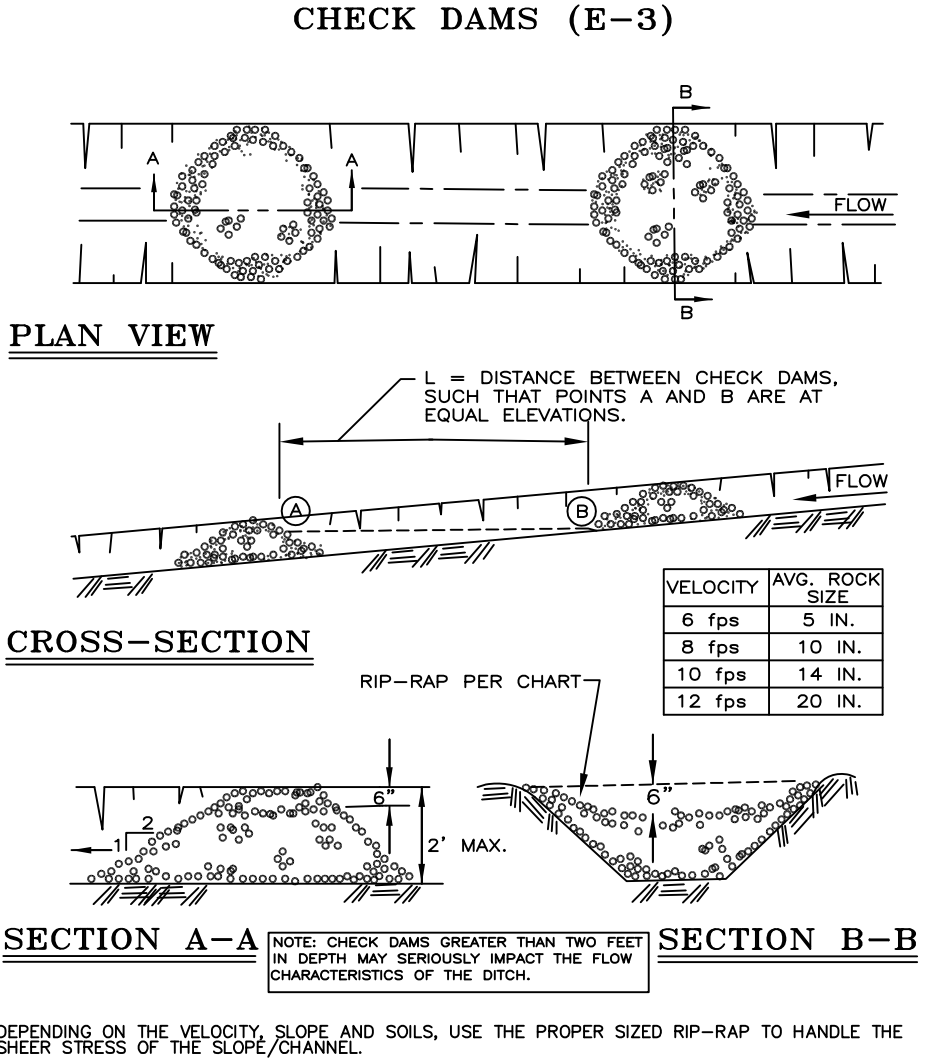
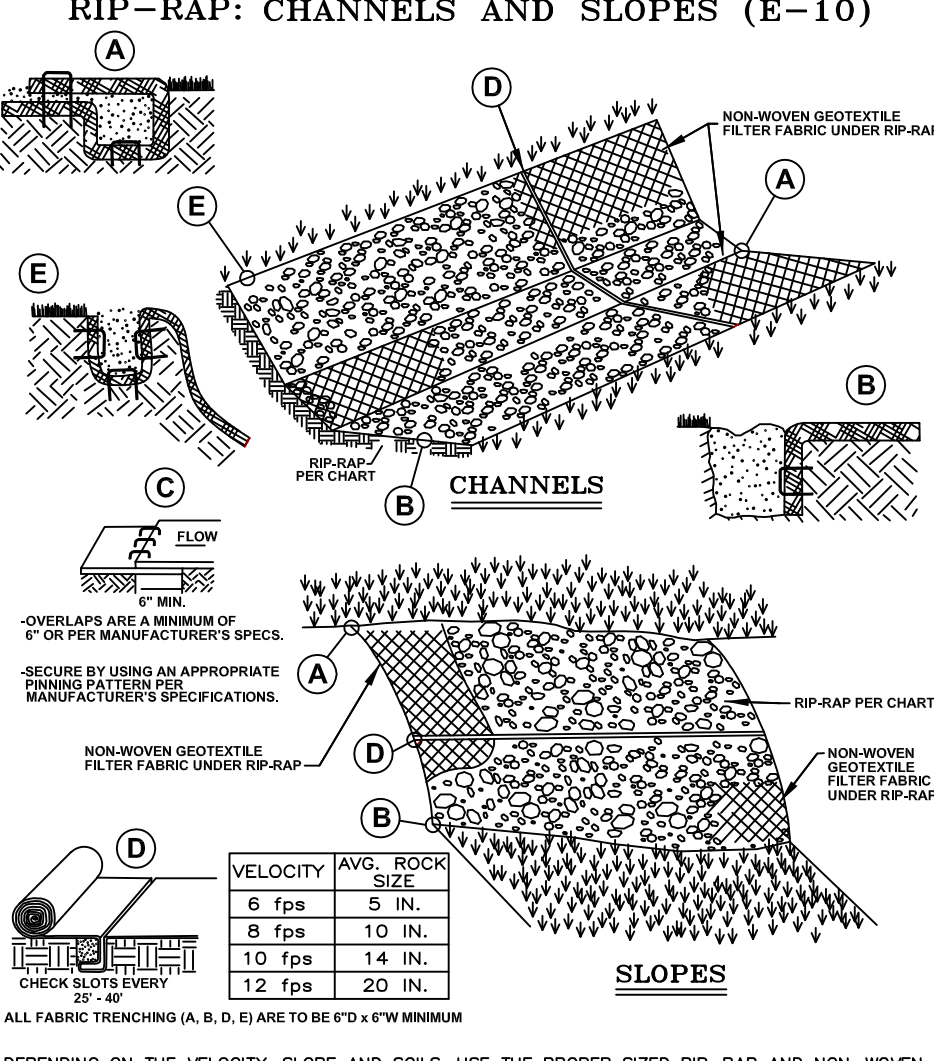
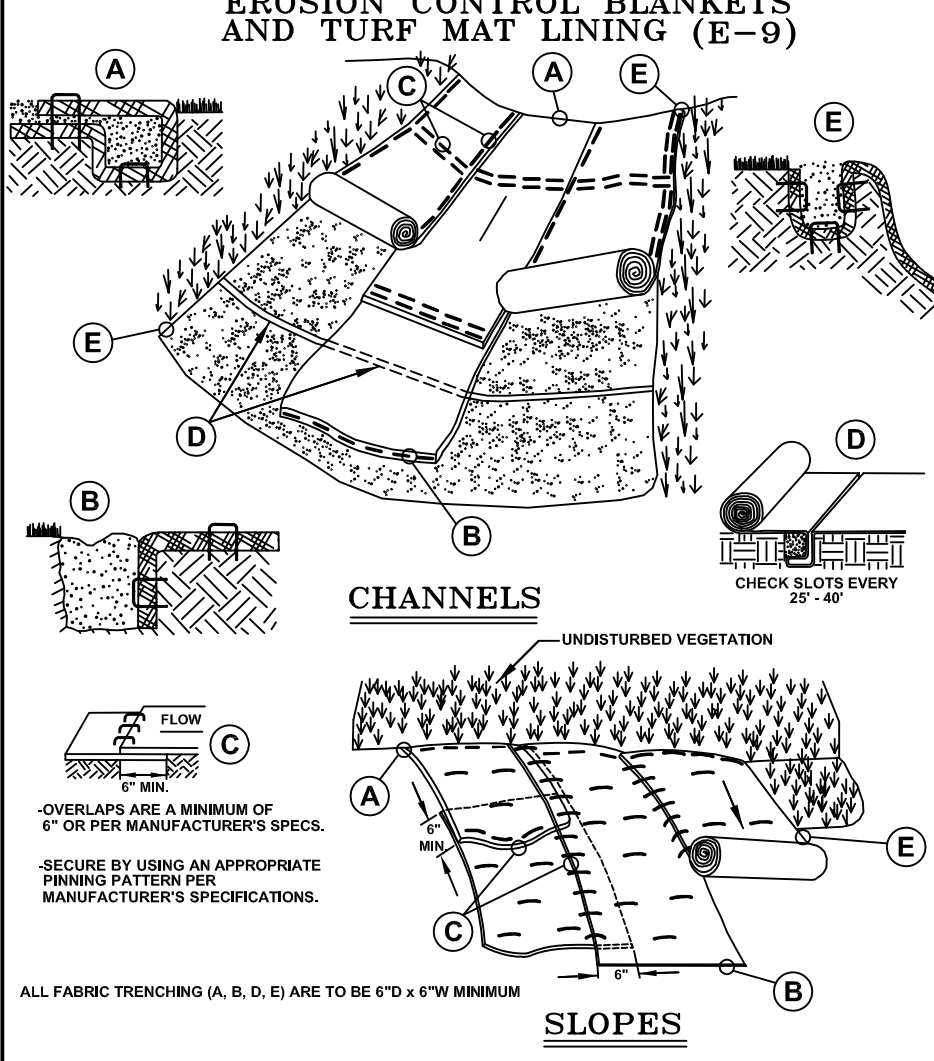
REVISION	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
1	GENERAL	REVISION TO CAD	12/29/95	GW & NUT SIZE	07/23/98	CLARIFY HYD. SPEC	02/07/01	REV. HYD., THRUST, AIR REL.	03/29/04
2	ADD NOTE	17	11/04/97	PIPE COVER & FLANGE TAPE	05/12/99	5-BR HYD, WS STAKE	02/27/02	HDPE, HYD, VALVES	07/18/05
3	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
 1060 W. Norton Avenue, Suite 7 Muskegon, Michigan 49441
 2291 Water Street, Suite 6 Port Huron, Michigan 48060
 Tel (248) 881-7800 Fax (248) 881-2660 Tel (231) 780-3100 Fax (231) 780-3115 Tel (810) 987-7820 Fax (810) 987-7895

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

WATER MAIN STANDARD DETAILS

JOB NO.	
DATE ISSUED	
SHEET NO.	48



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 BMP'S SHALL BE IMPLEMENTED BY THE CONTRACTOR TO THE MAXIMUM EXTENT PRACTICABLE TO PROTECT WATER QUALITY AND WILDLIFE HABITAT.

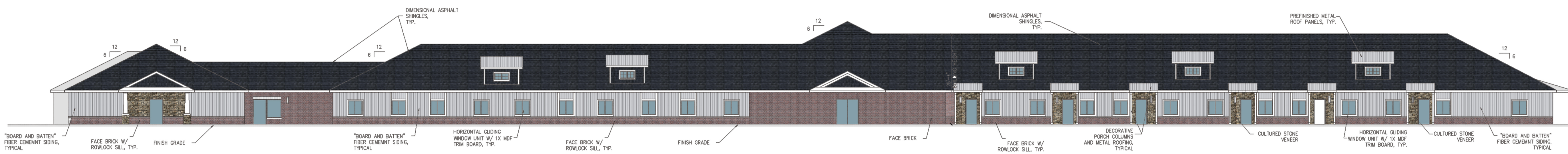
SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

Rev.	By	Date	Description
1	JM	01/10/01	PROPOSED DETAIL REVISED
2	JM	02/06/01	FOR WRC COMMITTEE APPROVAL, NAME CHANGES
3	JM	03/04/01	FOR WRC COMMITTEE APPROVAL, DETAIL REVISION ADDED
4	JM	03/04/01	FOR WRC COMMITTEE APPROVAL, REVISIONS

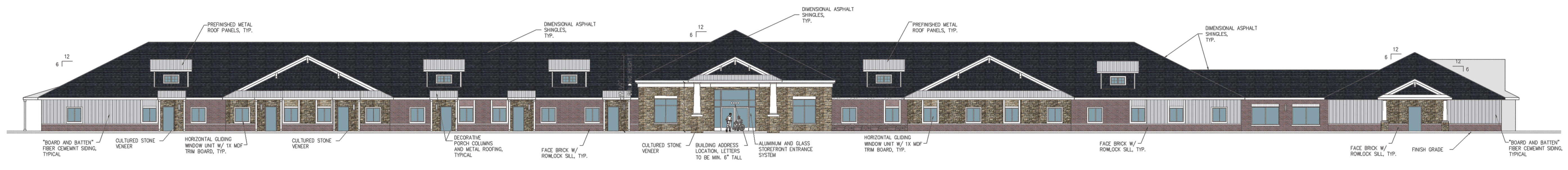
ORIG. DATE: 01/10/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: Mapping

WRC WATER RESOURCES COMMISSIONER
ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERSFORD MICHIGAN 48326-1907

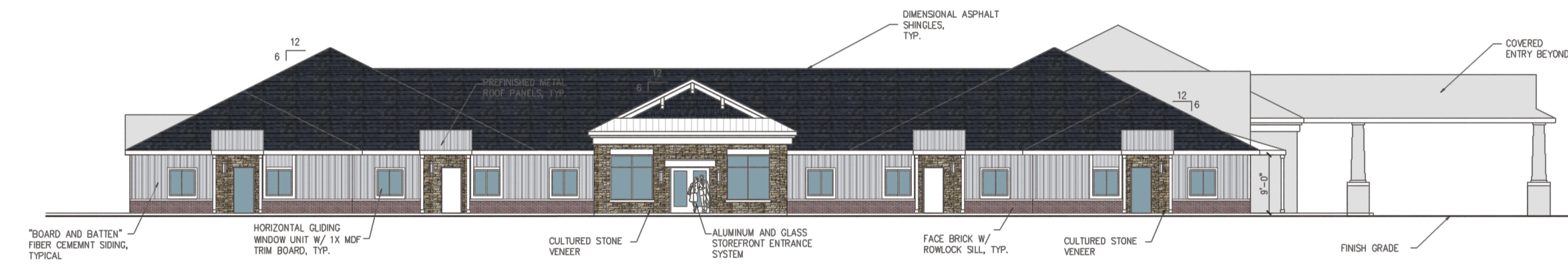
SHEET NO.: 1 of 49



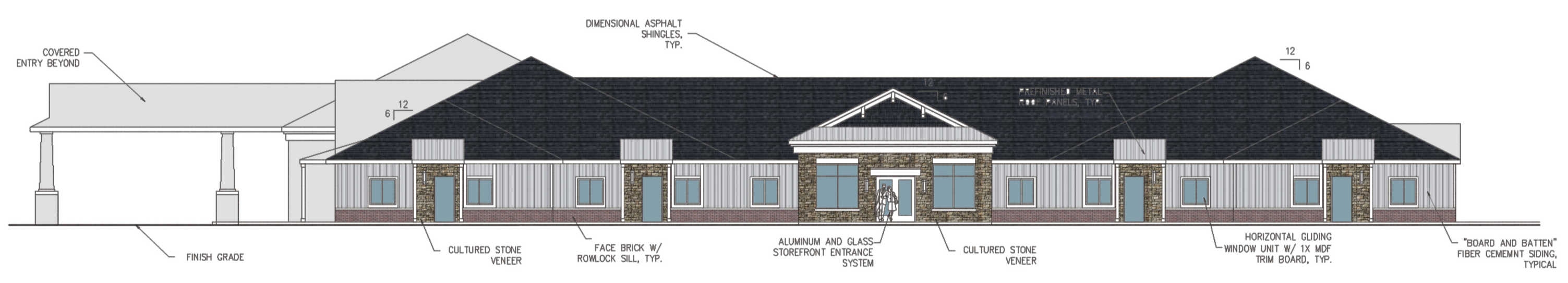
SOUTH ELEVATION



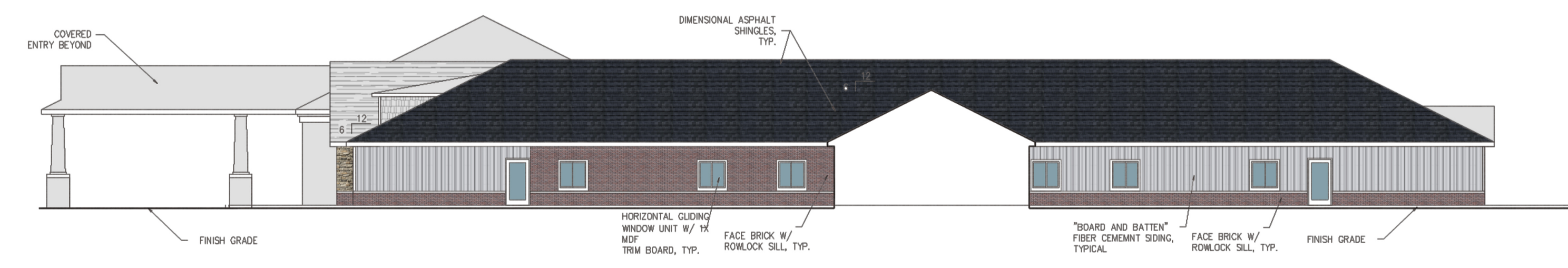
NORTH ELEVATION



EAST ELEVATION



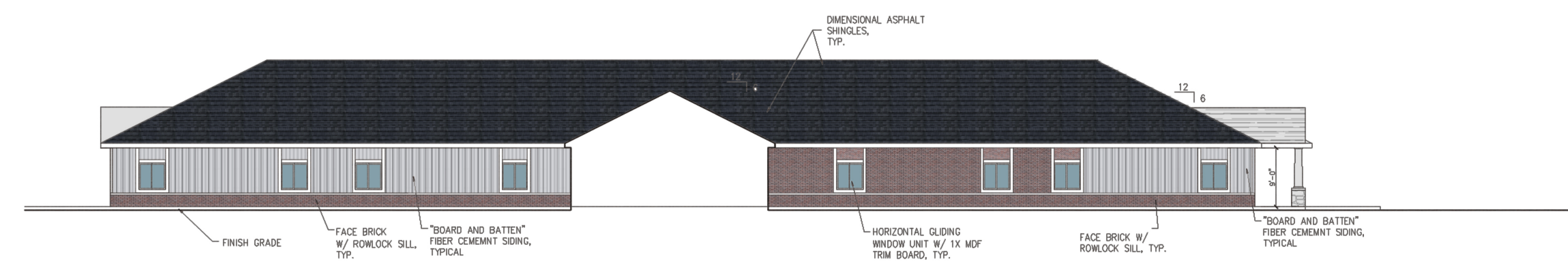
WEST ELEVATION



ASSISTED LIVING WEST ELEVATION

ASSISTED LIVING COURTYARD

MEMORY CARE COURTYARD

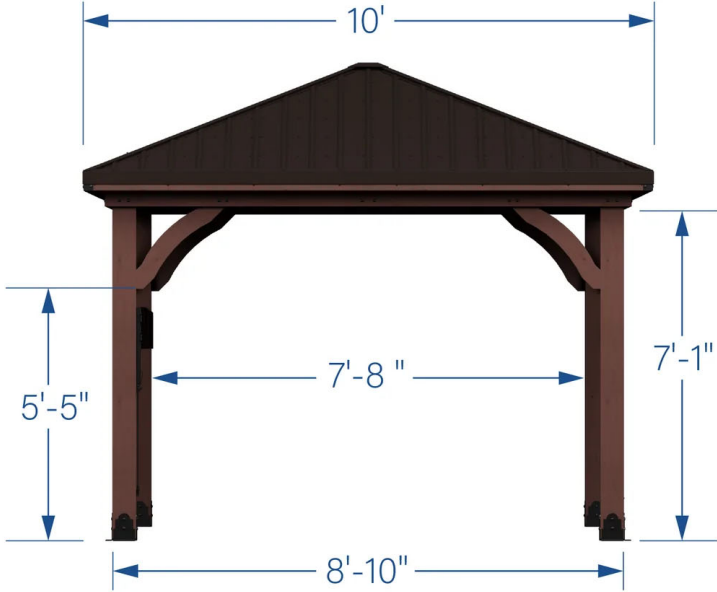


MEMORY CARE EAST ELEVATION

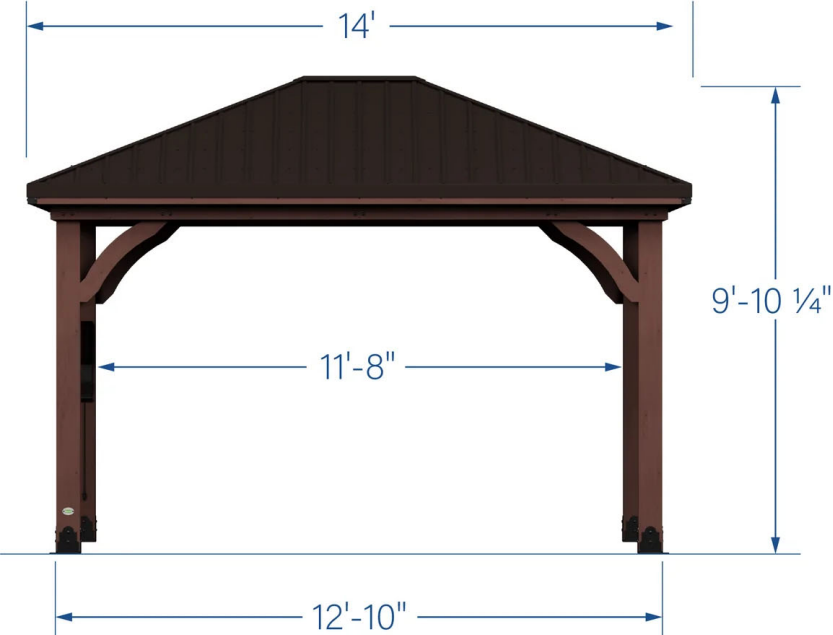
MEMORY CARE COURTYARD

ASSISTED LIVING COURTYARD

14X10 CORDOVA GAZEBO



SIDE VIEW



FRONT VIEW





HORCHOW

Search



Three-Tier "Castle" Fountain

\$2395

25% off: **\$1796.25**

Shipping: \$250

Expected To Ship No Later Than 02/17/2023

Back Order

QTY:... ▾

ADD TO BAG

Sparkle & Shine Sale: 25% off sitewide, excluding furniture.

Exclusions apply. Savings reflected in checkout. Sale ends December 23, 2022, at 9:00 a.m.

CT. For details, [click here](#)

DETAILS



Live Chat

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This three-rail design features clean, simple lines and quality engineering. Available in Residential Series, Residential Series Premium, Commercial Series, and Commercial Series Premium. Ultra Aluminum™ Premium grades have a reinforced double-wall rail with hidden fasteners.



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CONSULTANTS, INC.

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March 11, 2022

Comfort Care
Union Lake Rd.
White Lake Twp., MI

File: 22-686

Subject: Drain Pipe at Retaining Wall

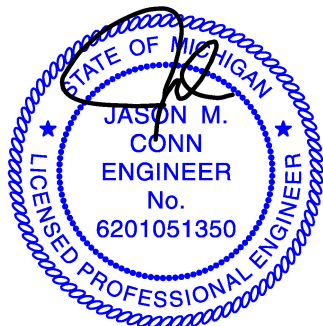
Attention: Rudy Quaderer

Per your request, we have evaluated the storm sewer drainage system where it passes through and under the retaining wall for the project under construction located at the above referenced address. Based on our evaluation, we have determined that both scenarios are acceptable as shown on the Storm Sewer Plan provided by Griggs Quaderer, C300.

If you have questions in regards to our evaluation, please contact our office.

Sincerely,

Jason M. Conn, PE





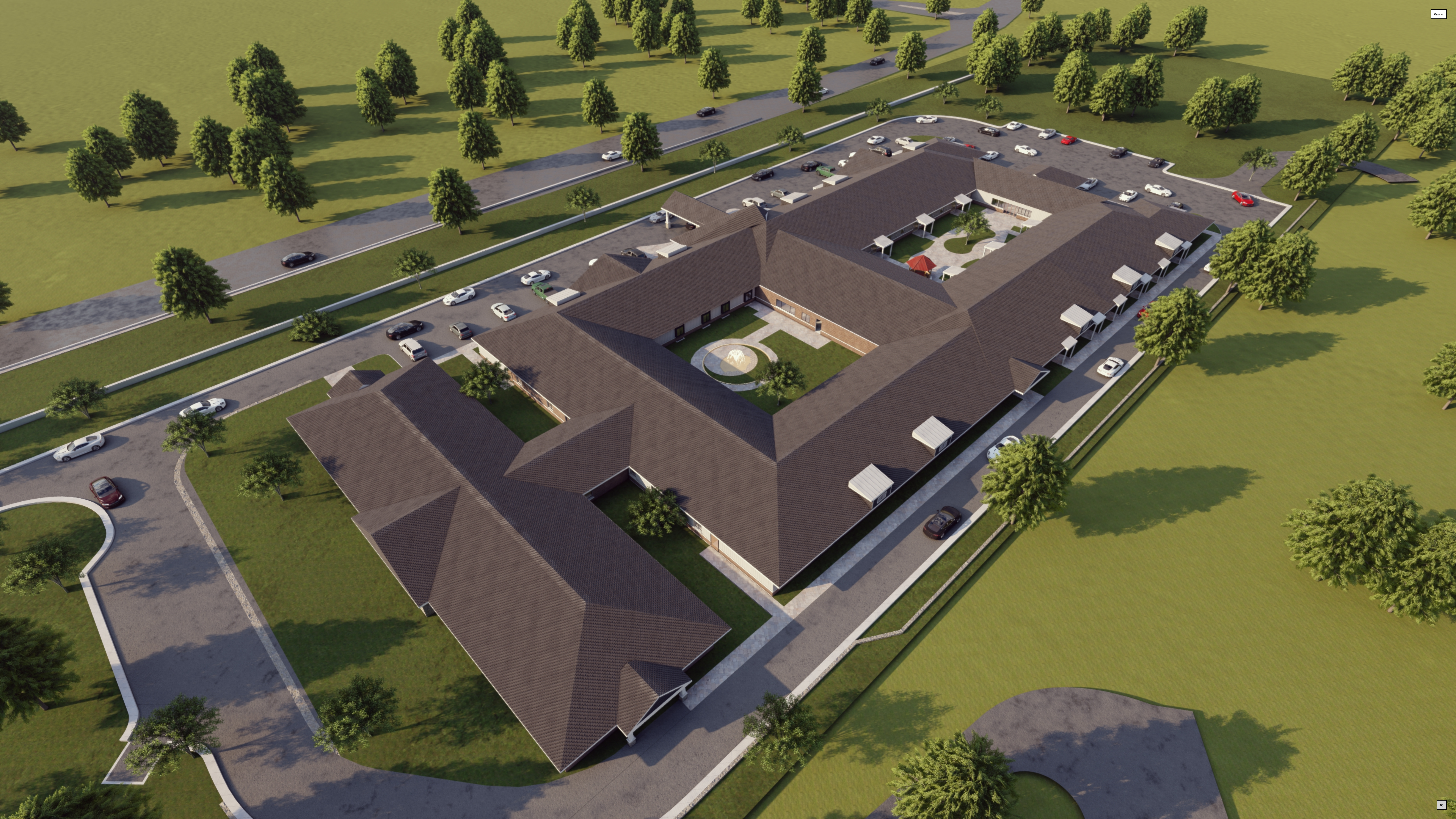


















Director's Report

Project Name: Comfort Care
 Description: Planned development approval
 Date on Agenda this packet pertains to: March 16, 2023

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

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Community Development Director	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Based on comments from staff and consultants
DLZ	Engineering Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 03/08/23
Justin Quagliata	Staff Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See letter dated 03/02/2023
Lisa Hamameh	Township Attorney	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See letter dated 03/09/2023



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

March 8, 2023

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

RE: Comfort Care – Planned Development Agreement – 3rd Review

DLZ Job No. 2145-7233-19

Dear Mr. O' Neil,

The applicant is proposing a 60 unit independent living, assisted living, and memory care community on an 8.37 acre parcel located off Union Lake Road. This is a review of the PDA document that has been prepared for Comfort Care, LLC. and was submitted to this office on March 1, 2023 via Dropbox.

The following items were submitted as part of this review:

- Draft PDA Agreement and associated Exhibits A and B

We offer the following comments for your consideration:

Note that comments from our February 24, 2023 review are in *italics*. Responses to those comments are in **bold**. New comments are in standard font.

General

1. *Recitals A-Provide Exhibit A. This legal description shall match the Final Site Plan/Final Engineering Plan dated November 11, 2022. Comment outstanding. Exhibit A- Legal Description has been provided; however, the following revisions to the exhibit are required:*
 - a) *1st paragraph- Line 3- Remove 'South degrees 84.'* **Comment addressed.**
 - b) *2nd paragraph- Line 1- Spelling—Correct 'poing' to 'point.'* **Comment addressed.**
 - c) *2nd paragraph- Line 6- Spelling- Correct 'distrance' to 'distance.'* **Comment addressed.**
 - d) *Provide parcel ID number.* **Comment addressed.**

3. *Recitals E-Exhibit C-The revised Final Site Plan is currently under review by our office. Since the approved revised Final Site Plan will be an Exhibit for the above PDA amendment, the PDA amendment approval would need to be conditioned on approval of the revised Final Site Plan.*
Comment remains as a notation. Now Recitals F- Exhibit B. Article II, Section 2.3 a. notes approval of the revised Final PD Plans (FSP/FEP) as a condition of the PD approval.
4. *Article IV- Section 4.2- This section indicates that construction shall commence within 12 months from the Township’s approval of the PD plan. We note that this development depends on the construction of the West Valley development and cannot proceed forward until the West Valley development construction is complete. Comment addressed. Language has been provided clarifying that construction shall commence within 12 months from final completion of the West Valley development.* **We note that if/when West Valley begins construction, final completion of that project could be 2-3 years from commencement. The Township will now (see Township Planning review letter dated March 2, 2023) require Comfort Care to commence construction within 6 months of completion of West Valley’s necessary infrastructure improvements. Necessary infrastructure improvements would be defined as completion of West Valley’s watermain system, storm sewer system (including detention basin), and roads for secondary access. Overall site grading would also be required to be completed as Comfort Care’s retention basin overflow is dependent on rear yard grading within West Valley. We defer to Township Planning if these items should be referenced in Article IV, Section 4.2 of the PD Agreement.**
5. *Article I – Section 1.1- Correct 57,443 sq. ft. to 57,443 sq. ft.* **Comment addressed.**
6. *Article II – Section 2.6- Add the following language: “...construction/grading easements from the adjoining owners of West Valley and the single family parcel to the northwest of Comfort Care in such form ...”* **Comment addressed.**
7. Per language in Article II, Section 2.3 b. of the PD Agreement, the revised Final Site Plan/Final Engineering Plan will require resubmittal for review such that the plan shows the future sidewalk extension along Union Lake Road, including paving and grading details. Comment regarding this was also in our FSP/FEP review letter dated February 27, 2023.
8. Exhibit A- 2nd paragraph-Line7- Spelling- Correct ‘mintues’ to minutes.’

Recommendation-

There is a small spelling error that should be corrected prior to approval and we are seeking feedback from Planning Department regarding the required language for “necessary infrastructure” as referenced above related to the West Valley Development. If the Township desires this language be added, we recommend resubmittal so we can review the language; if not, resubmittal will not be necessary.



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

WLT-Comfort Care PDA – Review .03

March 8, 2023

Page 3 of 3

If you have any questions, please feel free to contact our office.

Sincerely,

DLZ Michigan

Michael Leuffgen, P.E.
Department Manager

Victoria Loemker, P. E.
Senior Engineer

Cc: Aaron Potter, DPS Director, *via email*
Hannah Micallef, Community Development, *via email*
Lisa Hamameh, RSJA Law, *via email*

X:\Projects\2021\2145\723319 WLT Comfort Care A\Project Acceptance and Closeout\PDA Review\Review.03\Review.03.docx

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



Item A.
Scott Ruggles
Liz Fessler Smith
Andrea C. Voorheis
Michael Powell

WHITE LAKE TOWNSHIP

7525 Highland Road • White Lake, Michigan 48383-2900 • (248) 698-3300 • www.whitelaketwp.com

March 2, 2023

Comfort Care, LLC
4180 Tittabawassee Road
Saginaw, MI 48604

ATTN: Doug Boehm

**RE: Comfort Care
Planned Development Agreement – Review #2**

Dear Mr. Boehm:

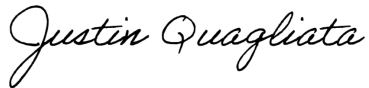
Community Development Department staff has reviewed the Comfort Care Planned Development Agreement (PDA), received by the Township on March 1, 2023. The following items shall be addressed:

- Recital C, Page 1, Line 2: The word “Planning” preceding the word “Development” shall be replaced with the word “Planned.”
- As stated in previous correspondence, add a recital stating the date the Planning Commission recommended approval of a waiver from the minimum PD acreage requirement (**August 19, 2021**). Revise subsequent recital identification accordingly.
- Recital H was added to address the following comment stated in previous correspondence: *add a recital stating the date the Township Board approved a waiver from the minimum PD acreage requirement.* The blank shall be filled in with the date **September 21, 2021**. Place this recital and the recital required by the previous comment in correct chronological order and revise subsequent recital identification accordingly.
- Recital E was added to address the following comment stated in previous correspondence: *add a recital stating the date the Township Board adopted the rezoning to PD.* Revise subsequent recital identification accordingly. The blank shall be filled in with the date **July 19, 2022**.
- Section 2.3, Subsection a: Strike this subsection and revise subsequent subsection identification accordingly.
- Section 4.2, Sentence 1: The number “12” shall be replaced with the number “6.” This change supersedes Number 6 of the previous DLZ review of this Agreement.

- Section 4.2, Sentence 1: The word “development” following the word “Valley” shall be replaced with the words “necessary infrastructure improvements.” This change supersedes Number 6 of the previous DLZ review of the Agreement.
- As stated in previous correspondence, following the signatures include a “Drafted By” section and provide the Attorney who prepared the Agreement.
- As stated in previous correspondence, following the signatures include a “When Recorded Return to” section and provide the Township’s mailing address.
- As stated in previous correspondence, prior to the execution of the Agreement, provide a corporate resolution authorizing the signer to execute the Agreement on behalf of the Developer.

Based on the items identified in this letter, the Agreement shall be revised and resubmitted. If you have any questions regarding this matter, please contact me at (248) 698-3300 ext. 177 or by email at justinq@whitelaketwp.com.

Sincerely,

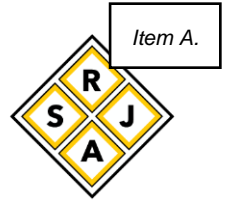


Justin Quagliata
Staff Planner

cc: Sean O’Neil, AICP, Community Development Director
Hannah Micallef, Community Development
Michael Leuffgen, DLZ
Victoria Loemker, DLZ
Lisa Hamameh, Township Attorney

LISA J. HAMAMEH
lhamameh@rsjalaw.com

2755 Executive Drive, Suite 250
Farmington Hills, Michigan 48331
P 248.489.4100 | F 248.489.1726
rsjalaw.com



ROSATI | SCHULTZ
JOPPICH | AMTSBUECHLER

March 9, 2023

Via electronic mail only (soneil@whitelaketwp.com)

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

**RE: 3rd Review of Planned Development Agreement
Comfort Care, LLC**

Dear Sean:

You asked that we review the proposed Planned Development Agreement for Comfort Care, LLC ("Agreement") submitted by Comfort Care, LLC. ("Owner") by transmittal dated March 1, 2023. Our comments regarding the Planned Development Agreement follow:

1. General Comments:

- a. As stated in previous correspondence, this Agreement cannot be executed until the necessary infrastructure in the West Valley Development is completed and appropriate easements secured.
- b. As stated in previous correspondence, the Township Engineer or other qualified personnel need to review the legal descriptions within the Exhibits.
- c. As stated in previous correspondence, prior to the execution of this Agreement, the Owner must provide proof of ownership and Owner must provide a corporate resolution authorizing the signer to execute the Agreement on behalf of the Owner.
- d. As stated in previous correspondence, since this document will be recorded at the register of deeds, it must be in recordable form, including a drafted by/return to paragraph.

2. The following are suggested additions to the Agreement:

- a. As stated in previous correspondence, a provision that states the ZBA shall have no jurisdiction over the property or the application of the Agreement.
- b. As stated in previous correspondence, a provision added to Article IV defining breach and the remedies associated therewith.
- c. As stated in previous correspondence, a provision acknowledging that at the time of execution of the Agreement, the Owner will not have yet obtained engineering approvals for the Development and that additional conditions may be imposed, provided that no such conditions be inconsistent with the PD Plan or this

Agreement and shall not change or eliminate any development right authorized thereby. Those conditions shall be incorporated into and made part of this Agreement automatically upon issuance of said conditions.

- d. As stated in previous correspondence, a provision requiring the Owner to convey all necessary easements, bills of sale, or maintenance agreements, as applicable, for the utilities, roads, pathways and storm water detention facilities.
3. With regard to the proposed PD Agreement, I offer the following comments:
- a. The PD Agreement was revised to add a new entity as the "Owner" and the original entity as the "Developer." The provisions in the PD Agreement were changed from obligating the Owner to obligating only the Developer. This is not acceptable. Both the Owner and the Developer, must be bound by this PD Agreement. Therefore, all instances in the document where "Owner" was changed to "Developer" should be revised to state "Owner and Developer."
 - b. Recital E was added to address a previous comment, but the blank was not filled in: July 19, 2022.
 - c. Recital H was added to address a previous comment, but the blank was not filled in: September 21, 2021.
 - d. The Township should consider whether Paragraph 1.4 and Paragraph 2.2 should be revised since it is not clear when development will commence and because this is inconsistent with the Site Plan Review process for Planned Developments (See, Section 6.7.A.iii.c.).
 - e. As stated in previous correspondence, Paragraph 1.5 should be revised to coincide with the Township's Zoning Ordinance, Section 6.7(E). For example, the second sentence defines "minor changes" to be limited to those provided in the ordinance, but also expands the definition to include Section 6.7(E)(ii and iii) which are not "minor changes" which may be approved administratively. Additionally, the Community Development Director, who would review administratively, has discretion in determining "minor changes" which is not reflected in this Paragraph.
 - f. As stated in previous correspondence, Paragraph 2.2 should be revised. A PD Agreement allows variances of Township Zoning Ordinances, not all ordinances and regulations of the Township. The Owner should be required to comply with all township ordinances and regulations, including the zoning ordinance, except as otherwise provided in the PD Plan and the Agreement. Additionally, the Township should consider whether the fourth sentence is acceptable since it is not clear when development will commence and because this is inconsistent with the Site Plan Review process for Planned Developments (See, Section 6.7.A.iii.C).
 - g. As stated in previous correspondence, Paragraph 2.3 should be revised to reflect all conditions of approval, including the completion of the infrastructure improvements in the West Valley development, and all necessary on and off-site easements.
 - h. The Township should consider whether Paragraph 3.1 should be revised to include the installation of the necessary infrastructure in the West Valley development as a prerequisite to a pre-construction meeting.

- i. As stated in previous correspondence, Paragraph 4.1 should be revised to add: "and in accordance with all Township Ordinances, codes, rules, regulations and standards."
- j. Paragraph 4.2 should be revised to clarify what is meant by "final completion of the West Valley development."
- k. The Township should consider whether the requirement for a Private Road Agreement should be included in light of Paragraph 4.3.
- l. Paragraphs 4.5 a and b should be revised to add that the extension of the water and sewer system shall be in accordance with the Township's Ordinance, not just as it relates to fees as currently drafted.
- m. As stated in previous correspondence, Paragraph 6.2 should be revised to replace the terms "defaults in its obligation" with the terms "fails". Also, the word "Subject" before Property should be removed. Finally, "(a)" should be inserted before "placed on a delinquent tax roll" as the first option available to the Township in the event costs and expenses have not been paid within sixty (60) days of a billing.
- n. As stated in previous correspondence, Paragraph 7.1 contains a typo in the word "shalt."
- o. As stated in previous correspondence, the heading in Paragraph 7.13 should be revised to state: Violations.

Please let us know if you have any questions or would like to discuss this matter further.

Very truly yours,

ROSATI SCHULTZ JOPPICH
& AMTSBUECHLER PC



Lisa J. Hamameh

cc: Michael Leuffgen

PLANNED DEVELOPMENT AGREEMENT

This Planned Development Agreement (“Agreement”) is entered into as of _____, 2023, by and among William Vestevich, Successor Co-Trustee of the Peter Vestevich Trust dated August 10, 1966, as amended, whose address is c/o William Vestevich, Esq., 6905 Telegraph Rd. Ste. 260, Bloomfield Hills, Michigan 48301 (“Owner”), Comfort Care Senior Living LLC, a Michigan limited liability company, whose address is 4180 Tittabawassee Road, Saginaw, Michigan 48604 (“Developer”), and Charter Township of White Lake, a Michigan Charter Township, whose address is 7525 Highland Road, White Lake, Michigan 48383 (“Township”).

RECITALS

A. Owner owns certain real property consisting of approximately 8.37 acres located in the Charter Township of White Lake, Oakland County, Michigan, which is more particularly described on Exhibit A attached hereto (the “Property”).

B. Developer desires to develop the Property as a single story Independent Living, Assisted Living and Memory Care Community comprising office space, 60 units (72 beds) for residents, and appropriate accompanying facilities for such a Community.

C. At a meeting held by the Township Planning Commission on May 19, 2022, the Township Planning Commission recommended approval of rezoning to Planning Development (“PD”) and Developer’s Preliminary Site Plan for the Project prepared by Griggs Quaderer Inc., last revised April 12, 2022 (“Preliminary Site Plan”), subject to conditions as more fully set forth in Section 2.3 below.

D. At a meeting held by the Township Board on June 21, 2022, the Township Board approved the Preliminary Site Plan and introduced the rezoning to PD.

E. At a meeting held by the Township Board on _____, 202__, the Township Board approved the rezoning to PD.

F. At a meeting held by the Township Planning Commission on _____, 2023, the Township Planning Commission approved Developer’s Final Site Plan for the Project, subject to certain conditions as more fully set forth in Section 2.3 below. The Final Site Plan is attached as Exhibit B and is referred to herein as the “PD Plan.”

G. At a meeting held by the Township Board on _____, 2023, the Township Board approved Developer’s Planned Development Agreement for the Project, subject to the conditions set forth in this Agreement, including without limitation Section 2.3 below.

H. At a meeting held by the Township Board on _____, 2023, the Township Board approved a waiver from the minimum PD acreage requirement.

I. By entering into this Agreement, the parties desire to set forth their respective obligations with respect to the PD and the conditions under which the Township has granted final PD approval. The Township is willing to establish the property as a PD and Developer is willing to develop and maintain the PD, subject to the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the premises and the mutual covenants of the parties described in this Agreement, the parties agree as follows:

ARTICLE I
DESCRIPTION OF THE PROJECT; PD and PD PLANS

1.1 **Description of Project.** The project (“Project”) covers an area comprising approximately of 8.37 acres located on the west side of Union Lake Road between Hutchins and Cooley Lake Roads in the Township. The Project will consist of a 57,443 square foot Assisted Living and Memory Care Community (the “Community”). The Community will be licensed with the State of Michigan as a “Home for the Aged.” The Community will comprise 24 assisted living units, 16 memory care units and 20 independent living units. The Community will be a single-story structure. When the Community becomes fully occupied, the estimated total staffing will be 50 employees, with an estimated 15 employees per each shift.

1.2 **Final PD Plan Approval; Exhibits.** The _____, 2023 PD Plan was approved by the Township Planning Commission on _____, 2023. The PD Plan approval grants the Developer the right to construct facilities as set forth in the PD Plan, subject to all applicable permits in the ordinary course, as the same may be modified and amended in accordance with the Township Zoning Ordinance from time to time. All exhibits attached hereto are incorporated herein and made a part hereof by reference.

1.3 **Performance Criteria.** Developer affirmatively submits that the proposed uses on the Property shall not exceed the performance criteria found in Section 5.18 of the Township Zoning Ordinance and the standards listed therein.

1.4 **Modifications to Standard Zoning Requirements.** Except as otherwise provided herein, Developer shall adhere to the Ordinances of the Township. To the extent that developing the Property in accordance with the PD Plan will deviate from the Township Zoning Ordinance or any other ordinance, resolution, rule or regulation of the Township, currently in effect or which may be adopted in the future, the Township shall be deemed to have granted, and hereby grants, modifications for all such deviations. Modifications from the Township Zoning Ordinance which the Township shall be deemed to have granted, and hereby grants, are as set forth on Exhibit B.

1.5 **Minor Modifications.** If, following the approval of the PD Plan, Developer elects to make minor changes to the PD Plan, such minor changes may be made subject only to “Administrative Approval”. The term “Minor Changes” shall be those changes set forth in the Township Zoning Ordinance, Article 6, Section 6.7(E)(i- iii). For purposes of this Agreement, “Administrative Approval” shall mean the approval by the Community Development Director of the Township, or his/her designee, or such other individual as may be designated by the Township Board, without the necessity of review by the Township Board or the Township Planning Commission or any amendment to this Agreement.

1.6 **Statement of Planning Objectives to be Achieved by the Developer.** The primary planning objectives of this development is to create an assisted living and memory care community licensed as a Home for the Aged by the State of Michigan.

1.7 **Statement of Applicant’s Intention and Lease to Residents.** It is the intent of the Developer to own and operate a 60 unit (72 beds) Home for the Aged and lease such units to residents who require assisted living or memory care services.

**ARTICLE II
REQUIREMENTS FOR DEVELOPMENT**

2.1 **Development Standards.** The Property shall be developed and improved in compliance with the following:

- a. The Charter Township of White Lake Zoning Ordinance, as amended, and engineering design standards, except where modified by this Agreement and the Exhibits attached hereto;
- b. This Agreement;
- c. The PD Plan;
- d. The conditions set forth in Section 2.3 below; and
- e. All applicable federal, state and county laws, rules and regulations.

2.2 **Effect of PD Approval.** To the extent that developing the Property in accordance with this Agreement and the PD Plan will deviate from the Zoning Ordinance or any other Township Ordinance or regulation, this Agreement and the PD Plan shall control. To the extent this Agreement and PD Plan attached hereto are silent on development issues, the Project shall comply with the Zoning Ordinance and other Township ordinances and regulations. All improvements constructed in accordance with this Agreement and PD Plan shall be deemed to be conforming under the Zoning Ordinance and in compliance with all ordinances of the Township. The Project shall not be subject to any additional requirements contained in any amendments or additions to Zoning Ordinances adopted subsequent to the date of this Agreement which conflict with the provisions of this Agreement including the PD Plan and/or any plans which are approved pursuant to this Agreement.

2.3 **Conditions to Approval.**

- a. Approval of the revised final PD Plan.
- b. The Developer’s engineer shall design an offsite sidewalk extension along Union Lake Road and submit said plan to the Township as part of the PD Plan, and allocate funds in the estimated amount of \$20,000 towards construction of said sidewalk extension.

2.4 **Traffic Impact Study.** The Traffic Impact Study prepared by Beaubien Engineering, LLC, dated February 1, 2022, and Anderson, Eckstein & Westrick, Inc., dated February 3, 2022, is incorporated by reference into this Agreement. Developer acknowledges the reliance by the Township on this traffic study in the approval of the PD Plan.

2.5 **Community Impact Statement.** The Community Impact Statement prepared by Developer, incorporated by reference into this Agreement. Developer acknowledges reliance by the Township on this Community Impact Statement in the approval of the PD Plan.

2.6 **Temporary Grading/Construction Easement.** Owner agrees that it shall obtain a fully

executed temporary construction/grading easements from the adjoining owners of West Valley and the single family parcel to the northwest of Comfort Care (which parcel is located at 900 Union Lake Road, White Lake Charter Township, Michigan 48386, Parcel ID# 12-36-151-017) in such form as is approved by the Township, prior to scheduling the pre-construction meeting.

ARTICLE III **CONDITIONS, PERMITS AND STIPULATIONS**

3.1 **Permits and Authorizations.** All state, county and federal permits required for completion of the project shall be approved prior to the scheduling of a pre-construction meeting with Developer and the Township staff and consultants.

3.2 **Improvements and Alterations.** Developer shall not engage in any improvements or alterations on the Property, including, without limitation, site grading work or installation of utilities, until completion of the pre-construction meeting.

ARTICLE IV **DEVELOPER'S RIGHTS AND OBLIGATIONS**

4.1 **Right to Develop.** Developer shall have the right to develop the Property in accordance with the PD Plan and this Agreement.

4.2 **Development Schedule.** Developer shall commence development of the Project within 12 months from final completion of the West Valley development. Construction shall be conducted in a single phase, and shall be completed within 12 months from the date of commencement. The foregoing development schedule may be modified by Developer as necessary or appropriate with the Township's consent, which shall not be unreasonably withheld.

4.3 **Internal Roads in the Project.** The internal drives within the Project will be private and asphalt or concrete and constructed in accordance with Township Ordinances and development standards.

4.4 **Landscape Plan.** The Landscape Plan which is part of the PD Plan attached hereto as Exhibit B identifies the landscaping to be installed within the Project.

4.5 **Utilities.**

a. **Sanitary Sewer System.** Sanitary sewers shall be extended by the Developer to serve the Project which must connect to the Township's sanitary sewer system. Connection to the sanitary sewer system shall require payment of all applicable fees, charges, and assessments, in accordance with the Township's Ordinance.

b. **Water System.** Water service shall be extended by the Developer to serve the Project which must connect to the Township's water system. Connection to the water system shall require payment of all applicable fees, charges, and assessments, in accordance with the Township Ordinance. The PD Plan identifies the water lines and related water easements to be dedicated to the Township.

4.6 **Storm Water Retention.** Storm water shall be conveyed by a storm sewer system to a storm water retention basin located within the Project. All such storm water drainage facilities, including the retention basin and all related improvements shall be designed in accordance with all applicable ordinances and engineering regulations and standards.

4.7 **Signs.** Any sign installed will have to be approved by the Township and Developer will comply with all the sign regulations in the Township's sign ordinance.

4.8 **Architectural and Site Design Guidelines.** The Project shall be developed in conformance with the following architectural and site minimum standards:

a. **Minimum Setbacks.** Setback requirements shall be in accordance with the approved final PD Plan.

b. **Exterior Materials.** The exterior materials shall be in accordance with the approved final PD Plan.

c. **Driveways and Sidewalks.** Curbs, gutters and sidewalks shall be constructed of concrete and shall be in accordance with the approved final PD Plan. Driveways shall be constructed of asphalt, except where indicated to be concrete on the approved Final Engineering Plan, and in accordance with the approved final PD Plan.

4.9 **Parks and Recreation Fund.** As a public benefit, Developer shall pay to the Township the amount of Twenty Thousand (\$20,000.00) and 00/100 Dollars to be used for the Township's Parks and Recreation Fund.

ARTICLE V MAINTENANCE OF OPEN SPACE

5.1 **Common Elements and Common Facilities.** The Developer shall have the responsibility for maintaining the open space and installed landscaping located within the Project.

ARTICLE VI TOWNSHIP'S RIGHTS AND OBLIGATIONS

6.1 **Township Action For Failure to Maintain Property.** In the event the Developer defaults in its obligation to maintain the property in a reasonable condition, using reasonable standards, and consistent with and as required under the PD Plan and this Agreement, the Township may serve written notice upon Developer setting forth the manner in which Developer has failed to maintain the Property, and such notice shall include a demand that deficiencies be cured within a stated reasonable time period no less than thirty (30) days, and shall set forth the date, time and place of a hearing before the Township Board for the purpose of allowing Developer to be heard as to why the Township should not proceed to perform the maintenance which has not been undertaken. In that hearing, the time for curing such deficiencies, and the hearing itself, may be extended. If, following the hearing, the Township Board shall determine that the Developer has not cured such deficiency within the time specified at the hearing, then upon five (5) days written notice to Developer, the Township shall thereupon have the power and authority, but not the obligation, to enter upon the Property or cause its agents or contractors to enter upon the Subject Property to cure such deficiency as reasonably found by the Township to be appropriate and/or necessary, in a manner so as to reasonably minimize any interference with the business operations on the Property and the cost and expense of such curative actions, including the cost of notices by the Township and reasonable legal, planning, and engineering fees and costs incurred by the Township shall be paid by the Developer. Such amount shall constitute a lien on the Property and the Township may require such costs and expenses to be paid prior to the commencement of work. If such costs and expenses have not been paid within sixty (60) days of a billing to the Developer, all unpaid amounts may

be placed on a delinquent tax roll of the Township as to the Property and shall accrue interest and penalties and shall be collected as and shall be deemed delinquent real property taxes in the discretion of the Township; or (b) assessed against the Developer and collected as special assessment on the next annual Township tax roll; or (c) collected by use of the applicable provisions of Michigan law providing for foreclosure by advertisement, the Developer having specifically granted the Township the required power of sale to do so; or (d) collected by suit against Developer. If suit is initiated, the Developer shall pay all of the Township’s reasonable legal fees and costs. The selection of remedy shall be at the sole option of the Township, and election of one remedy shall not waive the use of any other remedy.

ARTICLE VII
MISCELLANEOUS PROVISIONS

7.1 **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

7.2 **Counterparts.** This Agreement may be executed in multiple counterparts, each of which shall be deemed an original and all of which shall constitute an agreement. The signature of any party to any counterpart shall be deemed to be a signature to, and may be appended to, any other counterpart.

7.3 **Successors and Assigns.** The terms, provisions and conditions of this Agreement are and shall be deemed to be of benefit to the Property and shall run with and bind the Property, and shall bind and inure to the benefit of the successors and assigns of the parties to this Agreement.

7.4 **Amendment.** This Agreement shall only be amended pursuant to an instrument executed by the Township, Owner and Developer, or their successor in title. No consent to the amendment of this Agreement shall be required from any other person, including mortgagees.

7.5 **Authority.** This Agreement has been duly authorized by all necessary action of the Developer, the Owner, and the Township. By execution of this Agreement, the parties each warrant that they have the authority to execute this Agreement and bind the Property and the respective entities to its terms and conditions.

7.6 **Partial Invalidity.** Invalidation of any of the provisions contained in this Agreement or the application thereof to any persons by judgment or court order shall in no way affect any of the other provisions hereof or the application thereof to any other person and the same shall remain in full force and effect.

7.7 **No Partnership.** None of the terms or provisions contained in this Agreement shall be deemed to create a partnership or joint venture between Developer and the Township.

7.8 **Incorporation of Documents.** The recitals contained in this Agreement, the introductory paragraph, and all exhibits attached to this Agreement and referred to herein shall for all purposes be deemed to be incorporated in this Agreement by this reference and made a part of this Agreement.

7.9 **Integration Clause.** This Agreement is intended as the complete integration of all understandings between the parties related to the subject matter herein. No prior contemporaneous addition, deletion, or other amendment shall have any force or effect whatsoever, unless referenced in this Agreement.

7.10 **Recording.** This Agreement shall be executed by the Developer and recorded by the

Township in the office of the Oakland County Register of Deeds. Alternatively, the Township shall be authorized to prepare and record a Notice of Development Agreement.

7.11 **Waiver.** Failure of either party to insist upon strict performance of any of the terms, conditions or covenants hereof shall not be deemed to be a waiver of any rights or remedies that such party may have hereunder, at law or in equity, and shall not be deemed a waiver of any subsequent breach or default under this Agreement. No waiver by either party of any default under this Agreement shall be affecting or binding unless made in writing and no such waiver shall be implied from any omission by the party to take an action with respect to the default. No express written waiver of any default shall affect any other default or cover any other period of time, and one or more written waivers of any default shall not be deemed to be a waiver of any subsequent default in performance of the same or any other term or provision contained in this Agreement.

7.12 **Violating.** Violations of the provisions of this Agreement shall be deemed to be violations of the Township Zoning Ordinance and shall entitle the Township to all rights and remedies provided by the Zoning Ordinance or any other applicable law for such violation.

(Signatures and notarization are contained on the following pages)

DEVELOPER:

By: _____

Its: _____

STATE OF MICHIGAN)
) SS
COUNTY OF OAKLAND)

The foregoing PD Agreement was acknowledged before me this ____ day of _____, 20__,
by _____ of _____, on behalf of said _____.

_____, Notary Public
_____, County, Michigan
Acting in _____ County, Michigan
My commission expires: _____

OWNER:

By: _____

Its: _____

STATE OF MICHIGAN)
) SS
COUNTY OF OAKLAND)

The foregoing PD Agreement was acknowledged before me this ____ day of _____, 20__,
by _____ of _____, on behalf of said _____.

_____, Notary Public
_____, County, Michigan
Acting in _____ County, Michigan
My commission expires: _____

TOWNSHIP:

CHARTER TOWNSHIP OF WHITE LAKE
a Michigan municipal corporation

By: _____
Rik Kowall
Its: Supervisor

By: _____
Anthony L. Noble
Its: Clerk

STATE OF MICHIGAN)
) ss
COUNTY OF OAKLAND)

The foregoing PD Agreement was acknowledged before me this ___ day of _____, 20___, by Rik Kowall, Supervisor and Anthony L. Noble, Clerk of the Charter Township of White Lake, a Michigan municipal corporation, on behalf of said municipal corporation.

_____, Notary Public
_____, County, Michigan
Acting in _____ County, Michigan
My commission expires: _____

EXHIBIT A**Legal Description**

PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST; SAID POINT OF BEGINNING ALSO BEING THE SOUTHEAST CORNER OF THE "PRESERVE AT HIDDEN LAKE" CONDOMINIUM AS RECORDED AT THE OAKLAND COUNTY REGISTER OF DEEDS;

THENCE FROM SAID POINT OF BEGINNING AND ALONG THE SOUTH EAST LINE OF SAID CONDOMINIUM, NORTH 14 DEGREES 38 MINUTES 35 SECONDS EAST 445.59 FEET TO A POINT OF THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID CENTERLINE ON A CURVE TO THE RIGHT WITH RADIUS 2,852.97 FEET, A CENTRAL ANGLE OF 02 DEGREES 53 MINUTES 04 SECONDS AND WHOSE CHORD BEARS SOUTH 38 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 143.61 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 37 DEGREES 31 MINUTES 27 SECONDS EAST, 170.04 FEET; THENCE CONTINUING ALONG SAID CENTERLINE 36 DEGREES 58 MINUTES 19 SECONDS EAST, 473.41 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 31 MINUTES 19 SECONDS EAST, 385.43 FEET; THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST, 347.60 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST, 340.64 FEET; THENCE SOUTH 89 DEGREES 54 MINUTES 33 SECONDS EAST, 4.87 FEET; THENCE NORTH 37 DEGREES 41 MINUTES 37 SECONDS WEST, 559.50 FEET TO SAID POINT OF BEGINNING; SAID PARCEL CONTAINS 8.37 GROSS ACRES OF LAND.

PARCEL ID# 12-36-176-002

**EXHIBIT B
FINAL SITE PLAN**

Memo

To: Planning Commissioners
Date: March 16, 2022
Re: Master Plan Update- Materials

Please find the two sections for review from the Master Plan update: 02 - Demographics & 04 – Housing.

2. DEMOGRAPHICS

A demographic analysis provides valuable insights into a community's socio-economic characteristics, growth, and development patterns, and changing needs and preferences. A thorough understanding of demographic trends is therefore an essential precursor to determining future goals and sustainable planning strategies for White Lake Township. It is equally important to recognize that demographic trends and growth patterns in a community are not isolated events but tend to be responses to broader regional socioeconomic shifts. Collectively, an awareness of local and regional trends can enable the township to make the most of its assets while effectively addressing any challenges. To this end, this section examines data and trends relating to the township's population, households, and economy in comparison to other surrounding communities in Oakland County to provide regional context.

DATA SOURCES

The demographic data in this chapter is derived from the following sources, in this preferred order:

2020, 2010, 2000, and 1990 US Decennial Censuses

Mandated by the United States Constitution, the decennial census is the most accurate source of information recorded by the United States Census Bureau as it aims to count 100% of the population. The decennial census is extremely valuable as it provides comparable data points at regular 10-year intervals since 1790. This data is also the basis for congressional apportionment and redistricting which determines funding and resource allocation for a community for the next decade. However, it is important to note that the data provided by the decennial census is limited, as the intention is to count 100% of the United States population. The survey is intentionally short and covers limited information about household composition, sex, race, and occupancy type (own v. rent). Additionally, the 10-year gap between surveys means that demographic and housing patterns between the decades are not captured in this census.

American Community Survey (ACS)

The American Community Survey (ACS) was initiated in 2000 and collects more detailed information on social, economic, and housing characteristics compared to the decennial census. Instead of collecting data every 10 years, this survey collects data on an ongoing basis and releases data periodically. However, the long-form format of the ACS makes it logistically difficult to administer the survey for 100% of the population. Instead of surveying the complete population the ACS samples a percentage of the population, to determine estimates for the overall population; therefore, the accuracy of the ACS depends on the population size of the sampling area. To maintain statistical validity, the Census Bureau collects sample data over two different time frames, 1-year and 5-years, depending on the size of a community. In communities where the population is less than 65,000, data is collected over 60 months (5 years) to achieve a valid sample size and generate estimates for the overall population. Since White Lake Township and the surrounding communities (for regional comparison) have a population less than 65,000, this plan uses the ACS 5-year estimates.

Southeast Michigan Council of Governments (SEMCOG)

SEMCOG is a regional planning partnership of governmental units serving the seven-county region of Southeast Michigan including Oakland County. SEMCOG's Regional Forecast provides a long-range and

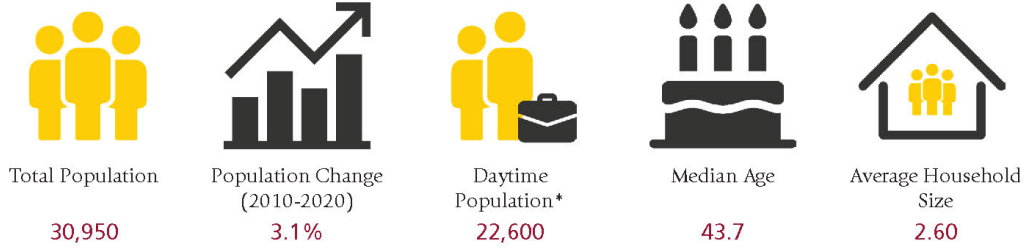
comprehensive view of future demographic and economic changes in Southeast Michigan. This plan uses the 2045 regional forecasts.

SUMMARY OF KEY COMMUNITY INDICATORS

White Lake Township, MI

Geography: County Subdivision

Population



Income



Economy & Market



* Daytime population, refers to the number of people who are present in an area during normal business hours, including workers. This is in contrast to the resident population who are typically present during the evening and nighttime hours.

** Asset Limited, Income Constrained, Employed (ALICE) is a measure that captures individuals who may be above the federal poverty level but still struggle with regular expenses and costs.

***Tapestry segmentation profiles are select consumer groups developed by ESRI, defined by shared traits such as demographics, socioeconomic status, and behavior.

This infographic contains data provided by the Decennial Census, American Community Survey (ACS), United Force – ALICE, ESRI, ESRI and Data Axle, ESRI and Bureau of Labor Statistics.

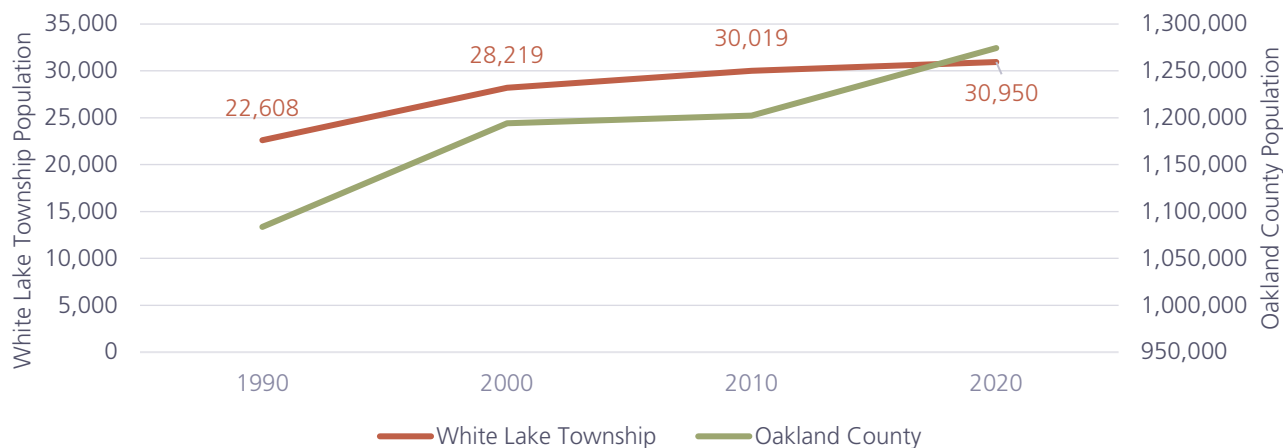
Beckett&Raeder

DEMOGRAPHIC PROFILE

Population

The population of White Lake Township has continually grown in the last three decades to 30,950 in 2020. With the highest growth rate of 25% occurring between 1990–2000, the rate of population growth gradually slowed down to 3.1% between 2010–2020. Even though the township’s population grew in the last decade, the pace has been slower than the county (6% growth rate) and most surrounding communities, barring Highland Township and Waterford Township where the population declined. The surrounding communities of Commerce Township, Lyon Township, and Orion Township witnessed a higher growth rate than White Lake Township likely due to their proximity to urban centers such as Novi and Auburn Hills. These townships are likely growing as a result of the out-migration from the densely populated cities, where housing opportunities are scarce, and the cost of living is high.

Figure XX: Population: White Lake Township & Oakland County (1990–2020)



Source: United States Census Bureau Decennial Census (1990, 2000, 2010, 2020)

Table XX: Population: White Lake Township & Other Communities (1990–2020)

	1990		2000		2010		2020	
	Count	Count	Change	Count	Change	Count	Change	
White Lake Twp	22,608	28,219	24.8%	30,019	6.4%	30,950	3.1%	
Commerce Twp	26,955	34,764	29.0%	40,186	15.6%	43,058	7.1%	
Highland Twp	17,941	19,169	6.8%	19,202	0.2%	19,172	-0.2%	
Lyon Twp	9,450	11,041	16.8%	14,545	31.7%	23,271	60.0%	
Orion Twp	24,076	33,463	39.0%	35,394	5.8%	38,206	7.9%	
Springfield Twp	9,927	13,338	34.4%	13,940	4.5%	14,703	5.5%	
Waterford Twp	66,692	73,150	9.7%	71,707	-2.0%	70,565	-1.6%	
Oakland County	1,083,592	1,194,156	10.2%	1,202,362	0.7%	1,274,395	6.0%	

Source: United States Census Bureau Decennial Census (1990, 2000, 2010, 2020)

Table XX: Population Forecast: White Lake Township & Oakland County (2020–2045)

	Census	SEMCOG Regional Forecast					
	2020	2030		2040		2045	
	Count	Count	Change	Count	Change	Count	Change
White Lake Twp	30,950	31,578	2.0%	32,236	2.1%	32,194	-0.1%
Oakland County	1,274,395	1,286,750	1.0%	1,314,016	2.1%	1,319,089	0.4%

Source: United States Census Bureau Decennial Census (2020); Southeast Michigan Council of Governments (SEMCOG)

Population Forecast

SEMCOG’s 2045 Regional Forecast provides a comprehensive overview of future population trends in Southeast Michigan. The table titled “Population Forecast” outlines the population forecasts from SEMCOG for the township and Oakland County over the next 25 years. SEMCOG anticipates a very slow growth to occur within both White Lake Township and Oakland County until 2040. The growth is expected to plateau for Oakland County and marginally decline in the township by 2045.

Households

Consistent with the population growth in the township, the total number of households also increased from 10,985 to 11,991 from 2010–2020. However, while the population grew by only 3.1%, the number of households increased by 9.2%. In comparison, Oakland County’s population growth rate (6%) was proportionate to the increase in households (5.9%). This pace of growth in the total households in the township is likely an outcome of changing household dynamics. On one hand, the number of seniors (65 years and above) living alone increased to 10.6% in 2020 from 6.4% in 2010 and the households with at least one senior leaped to 33% from 20%. Additionally, the households with children (under 18 years) slumped to 30% from 37% in 2010.¹ Consequently, the average household size decreased from 2.68 in 2010 to 2.60 in 2020, indicating the population spread out into a greater number of households. The average household size remains larger than the county (2.44) which is typical of townships due to the presence of housing typologies with larger footprints suited for bigger households. In summary, households in White Lake Township are getting smaller but the population is continuing to increase. The changing household structure will create a demand for more housing units and infrastructure, which will significantly impact land use in the township.

Components of Population Change

$\text{Natural Change} = \text{Total number of Births} - \text{Total number of deaths}$

If the number of births is higher than deaths, then the population has undergone a natural increase.

$\text{Net Migration} = \text{Migration In} - \text{Migration Out}$

$\text{Population Change} = \text{Natural Change} - \text{Net Migration}$

¹ United States Census Bureau, DP02 Selected Social Characteristics in the United States, American Community Survey 5-Year Estimates, 2010 & 2020.

Table XX: Households: White Lake Township & Oakland County (2010–2020)

	Total Households			Average Household Size		Average Family Size	
	2010	2020	Change	2010	2020	2010	2020
White Lake Township	10,985	11,991	9.2%	2.68	2.60	3.05	3.00
Oakland County	481,040	509,589	5.9%	2.47	2.44	3.08	3.10

Source: United States Census Bureau ACS 5-Year Estimates (2010, 2020)

Age

The population of White Lake Township is aging. In 2020, the median age of White Lake Township residents increased to 43.7 years from 41.3 years in 2010. Though the population is also aging in Oakland County (41.0 years median age) and the State of Michigan (39.8 years median age) the median age of the township is noticeably higher. The figure titled “Age Distribution: White Lake Township & Oakland County (2010–2020)” illustrates how the age distribution of the township’s population compares to that of Oakland County from 2010 to 2020. The 35-44 years (13%) and 45-54 years (13%) cohorts are the largest in the township. Children and young adults aged 19 years and below represent almost a quarter of the population.

The township has a lower percentage of younger households in the 25-34 years cohort compared to the county and a relatively low overall concentration of adults in the 20-24 years age group (6%). This depressed number of younger residents may be a consequence of two factors. First, young adults likely move out of the township after graduating high school to pursue higher education or employment opportunities. Second, this cohort may be migrating out in pursuit of wider housing opportunities (smaller units, lesser price points, more rental units, etc.) or quality of life opportunities (vibrant downtowns, better programming for youngsters, etc.). Since the 20-34 years group represents the age at which most people begin to form families, providing diverse housing opportunities and adequate leisure and recreation opportunities tailored to this age group is key to attracting and retaining new and young families.

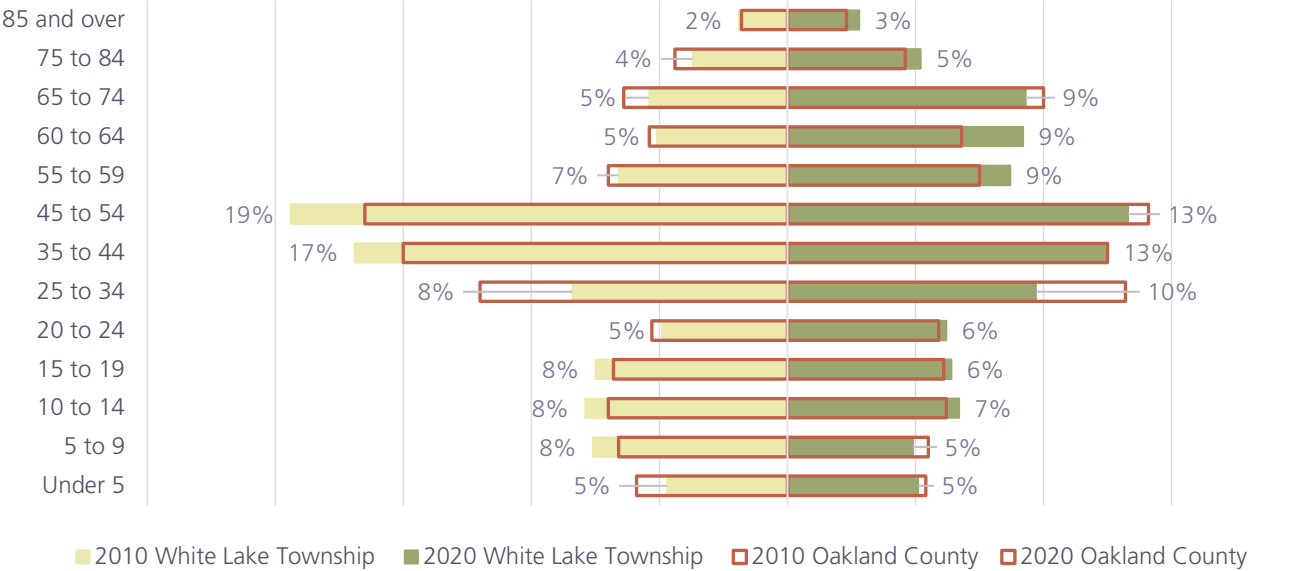
The term “empty nesters” generally refers to households that no longer have children living at home. Typically aged 55-64 years, this age cohort grew from 12% to 18% between 2010–2020 to surpass the county percentages (14%).² Indicative of an aging population, the senior population (65 years and above) in the township grew from 11% to 17%.³ SEMCOG’s 2045 Regional Forecast predicts that between 2015 and 2045 the senior age cohort will add 3,834 residents while the distribution of population in all other cohorts will decrease.⁴ The aging population will result in an increased demand for specific housing options (assisted living, nursing homes, etc.), healthcare facilities, and leisure options so that residents can age in place. The land use patterns will also have to plan for the proximity of services for the elderly to address concerns of limited mobility. Altogether, the age dynamics in the township present unique challenges for the township to retain (and potentially attract) young households while ensuring mature households and seniors have resources to transition through life and age in the township.

² United States Census Bureau, DP05 ACS Demographic and Housing Estimates, American Community Survey 5-Year Estimates, 2010 & 2020.

³ United States Census Bureau, DP05 ACS Demographic and Housing Estimates, American Community Survey 5-Year Estimates, 2010 & 2020.

⁴ SEMCOG, White Lake Township Community Profiles, <https://semcog.org/data-and-maps/community-profiles/communities=2290>

Figure XX: Age Distribution: White Lake Township & Oakland County (2010–2020)



Source: United States Census Bureau ACS 5-Year Estimates (2010, 2020)

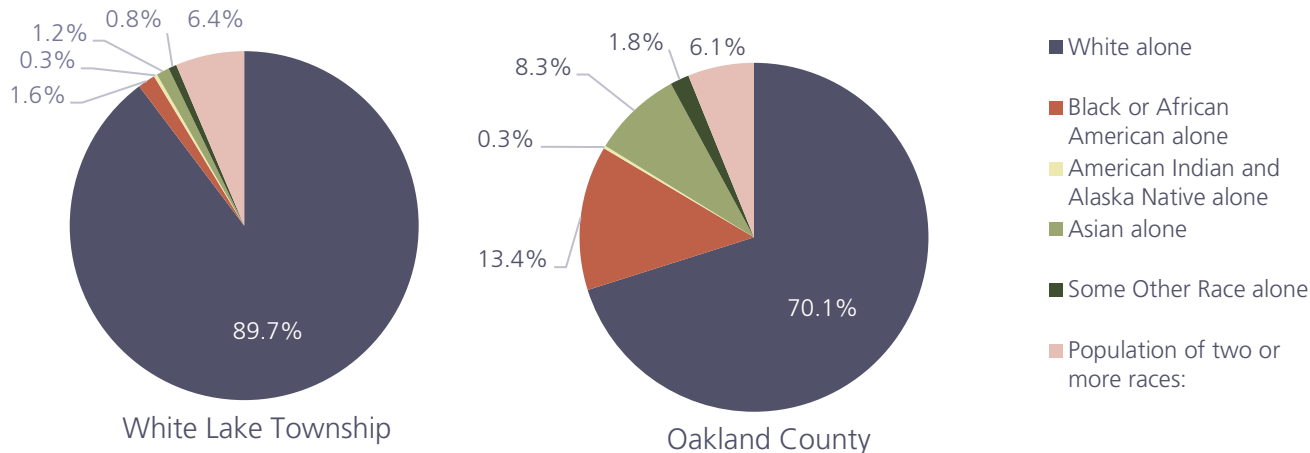
Racial and Ethnic Composition

White Lake Township’s racial and ethnic composition has undergone marginal change over the last decade. In 2020, nearly 90% of the township’s population identified as solely White compared to 94% in 2010.⁵ This change is a result of 6.4% of the residents identifying as biracial or multiracial in 2020 compared to only 1.3% in 2010. African Americans and Asians account for 1.6% and 1.2% of the population, respectively. All other races together only account for 1% of the population. The percentage of the population identifying as Hispanic or Latino (considered an ethnicity and not a race in the US Census as of 2020) in the township increased from 3.0% to 3.6% between 2010 to 2020.⁶ The township’s population is racially homogeneous compared to Oakland County’s population wherein only 70% of the population identify as solely White.

⁵ United States Census Bureau, DP05 ACS Demographic and Housing Estimates, American Community Survey 5-Year Estimates, 2010 & 2020.

⁶ United States Census Bureau, Decennial Census, 2010 & 2020.

Figure XX: Racial Composition: White Lake Township & Oakland County (2020)

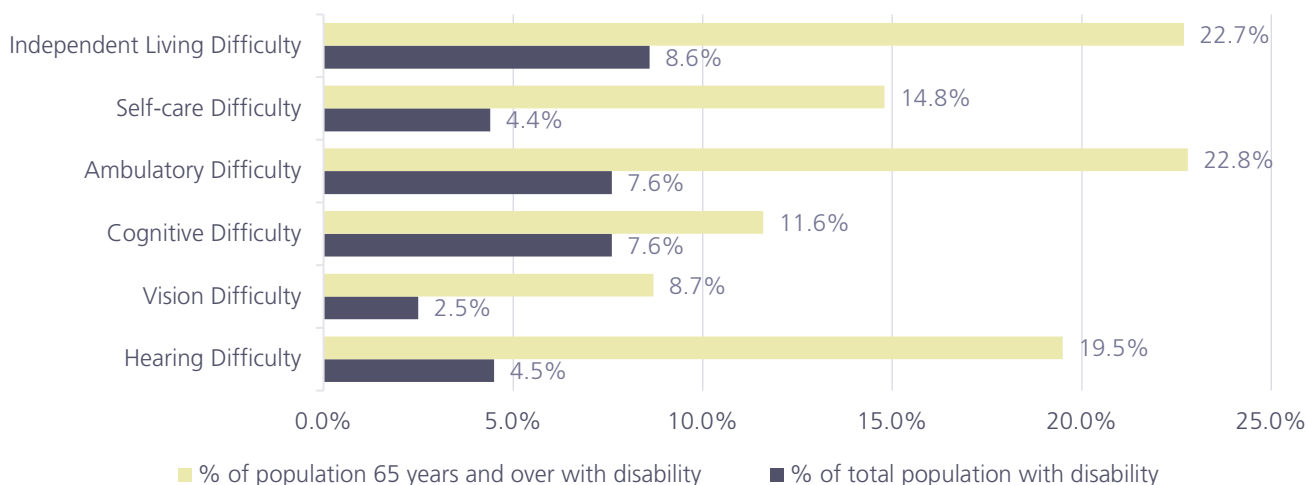


Source: United States Census Bureau Decennial Census (2010, 2020)

Disability

Land use patterns directly impact the everyday lives of people with disabilities. Especially in aging communities accommodating the needs and requirements of the disabled population is fundamental to inclusive planning. Approximately 15% of White Lake Township’s population and almost 40% of seniors have a disability.⁷ Independent living difficulty affects 8.6% of the population followed by cognitive difficulty (7.6%) and ambulatory difficulty (movement difficulty, 7.6%). Amongst the elderly population (65 years and above) ambulatory difficulty (22.8%) and independent living difficulty (22.7%) are most prevalent. Much of the township’s aging population will require specific support facilities including mobility assistance, accessible living facilities, or other specialized healthcare services. The diverse needs of this population also have implications for the design of housing and public services and spaces.

Figure XX: Disability Characteristics (2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

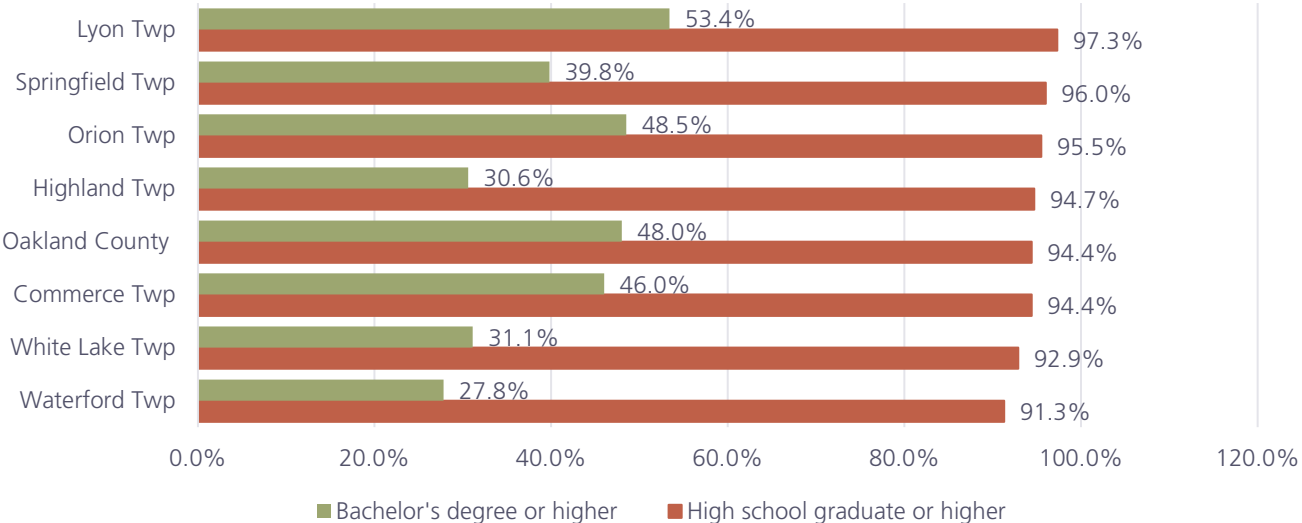
⁷ United States Census Bureau, DP02 Selected Social Characteristics in the United States, American Community Survey 5-Year Estimates, 2020.

SOCIOECONOMIC PROFILE

Education

Educational attainment is a key indicator of socio-economic status as it influences employment opportunities for residents, and relatedly, the companies that locate in a community. In 2020, roughly 93% of White Lake Township adults over the age of 25 possess at least a high school diploma and 32% have at least a bachelor’s degree.⁸ The age of 25 is used as the benchmark for educational attainment because it is assumed that most people will have completed their education by the age of 25. In addition to the 32% of residents that have a bachelors degree, 27% of residents above the age of 25 years have at least some college education, indicating a presence of an educated and skilled workforce.⁹ However, in comparison to other nearby communities and the county as shown in the figure titled “Education Attainment: White Lake Township & Other Communities (2020)”, the township ranks next to last in the percentage of residents with a high school degree and third to last in percentage of residents that have a bachelor’s degree. The highly qualified regional population represents a competitive yet economically strong region presenting diverse employment and business opportunities to the township residents.

Figure XX: Educational Attainment: White Lake Township & Other Communities (2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

Income & Poverty

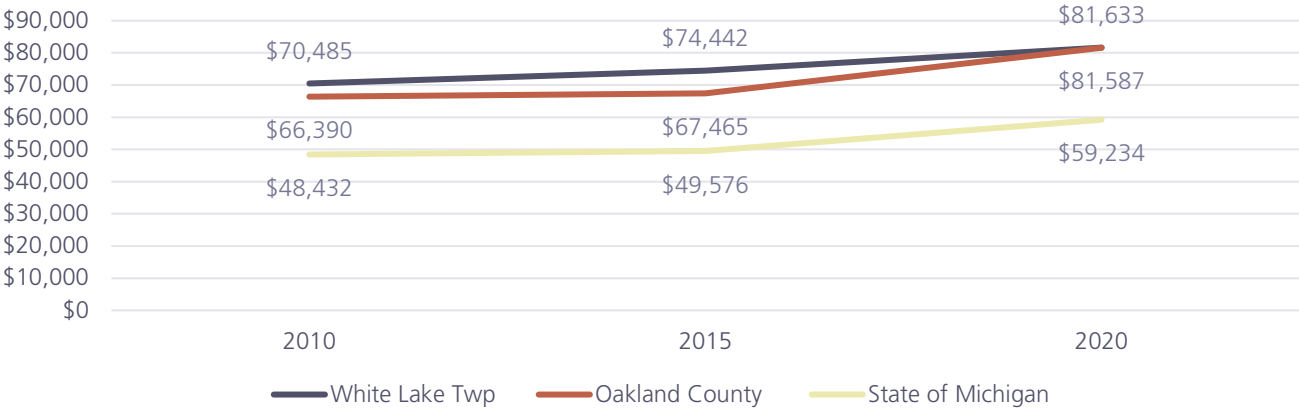
Median household income is a metric used to measure the economic strength of a region and higher educational attainment levels generally correlate with higher income potential and lower poverty rates. The 2020 median household income (inflation-adjusted dollars) in White Lake Township was \$81,633 which is only \$46 higher than the County (\$81,587) but significantly higher than the State of Michigan (\$59,234). Over the last decade, the median income in the township has risen continually and remained higher than

⁸ United States Census Bureau, DP02 Selected Social Characteristics in the United States, American Community Survey 5-Year Estimates, 2020.

⁹ United States Census Bureau, DP02 Selected Social Characteristics in the United States, American Community Survey 5-Year Estimates, 2020.

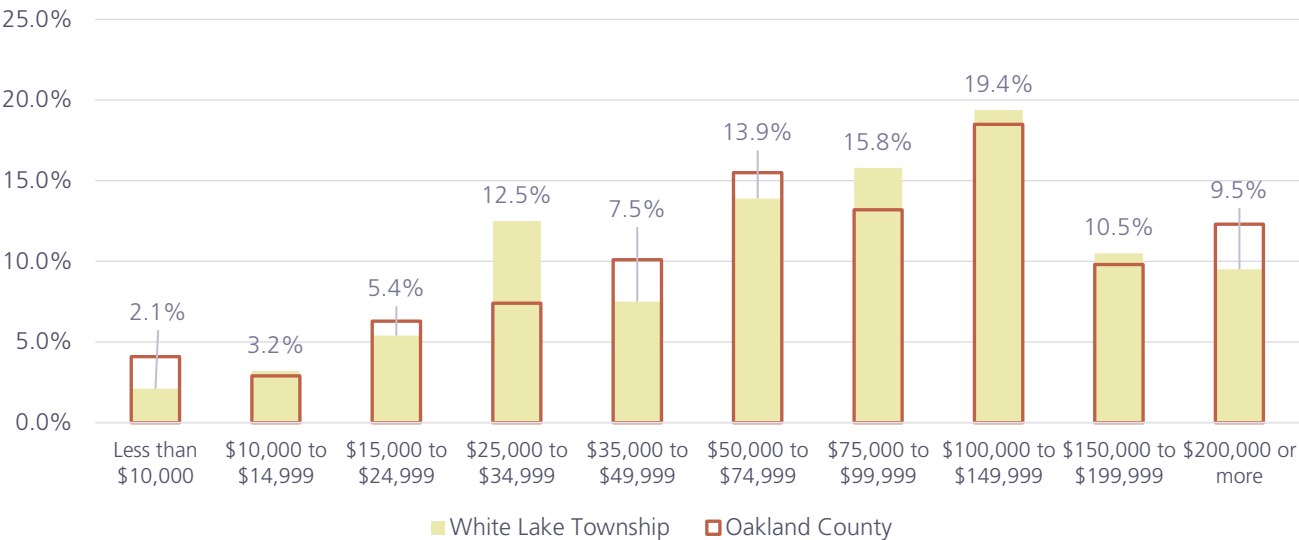
the county but followed a trajectory similar to the county. However, in comparison to the other communities (listed in Figure XX), only Waterford Township has a median income (\$62,893) lower than White Lake Township.¹⁰

Figure XX: Median Income: White Lake Township, Oakland County, and Michigan (2010–2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

Figure XX: Household Incomes: White Lake Township and Oakland County (2020)



The figure titled “Household Incomes: White Lake Township and Oakland County (2020)” charts the distribution of household incomes in the township against the county. At the higher end of the income spectrum, roughly 40% of township households earn more than \$100,000. At the lower end of the spectrum, around 13% of township households earn below \$25,000. The township has a higher

¹⁰ United States Census Bureau, S1901 Income in the Past 12 Months (In 2020 Inflation-Adjusted Dollars), American Community Survey 5-Year Estimates, 2020.

percentage of households in the \$25,000-\$34,999 income range than the county and likely include some of the township's retirees living on a fixed income.¹¹

The United States Census Bureau determines poverty by comparing household annual income with the number of individuals in the household. In 2020, 8.8% of all residents were under the poverty line, slightly higher than the county (7.8%). More importantly, the 8.8% poverty rate in 2020 was an increase from the 6.4% in 2010. This increase in this poverty rate is partially a result of the economic downturn triggered by the COVID-19 pandemic where earning potential fell nationwide. Single-mother households with children have the highest poverty rate at 30%.

While poverty is a helpful measure for determining the percentage of people experiencing high levels of financial hardship, it does not capture those who are one accident or large financial cost from falling below the poverty line. ALICE, which stands for Asset Limited, Income Constrained, Employed, is a measure that captures individuals who may be above the federal poverty level but still struggle with regular expenses and costs. This metric is calculated by totaling the minimum basic expenses for food, housing, healthcare, childcare, transportation, technology, etc.¹² In White Lake Township, an estimated 28% of households fall under the ALICE threshold, slightly higher than the county (22%).¹³

¹¹ United States Census Bureau, DP02 Selected Social Characteristics in the United States, American Community Survey 5-Year Estimates, 2020.

¹² United Way. Alice in Michigan: A Financial Hardship Study. 2019 Michigan Report. https://static1.squarespace.com/static/52fbd39ce4b060243dd722d8/t/5c902a7e971a186c0a29dff2/1552951937149/HR19ALICE_Report_MI_Refresh_02.26.19b_Final_Hires+%283%29.pdf

¹³ United for ALICE, Research Center, <https://www.unitedforalice.org/county-profiles/michigan>

Key Takeaways

White Lake Township's population has continually grown till 2020; however, the pace of growth is slowing down and SEMCOG's 2045 Regional Forecast anticipate a marginal decline (-0.1%) by 2045.

Households in White Lake Township are becoming smaller and as a result the total households in the township increased by 9% between 2010 and 2020. Land use patterns and housing opportunities in the township will have to cater to the shifting household compositions in the township.

White Lake Township's population is aging. Mature households (35-54 years) continue to remain the largest age cohort (26%) while the percentage of empty nesters and seniors in the township increased to roughly 18% in 2020. The township is presented with a challenge to retain younger (20-34 years) households while ensuring mature households and seniors can age in place.

Roughly 15% of the township's population and almost 40% of seniors have a disability and will require specific support facilities including mobility assistance, accessible living facilities, or other specialized healthcare services.

The percentage of individuals in poverty has increased to 8.8% in 2020, and an estimated 28% of households fall under the ALICE threshold. Providing affordable housing and economic opportunities will be key in ensuring these households can navigate their way out of poverty.

4. HOUSING

Housing is a basic human right, and providing quality housing opportunities that cater to the needs and preferences of residents across demographic and income groups is vital to building thriving communities. Currently, the state and the nation are in a housing crisis. Home construction has not returned to pre-Great Recession levels compounding the effects of a housing shortage. In Michigan, it is predicted that by 2045 there will be a shortage of 150,000 units.¹ On top of that, the COVID-19 pandemic disrupted the economy, pushing the Michigan housing market into a state of precarity as labor and materials become increasingly expensive.

The undersupply of housing benefits existing homeowners and disadvantages newcomers to the market. For existing homeowners, there is increased demand and competition for their homes, which drives up the prices. Homeowners can leverage the equity gained from the rising home prices which they can use to purchase their next home. However, because so few new units have been built, many homeowners are facing difficulties finding new units. For newcomers to the market, skyrocketing housing prices are out of reach for moderate- and low-income earners, such as young professionals or single-income households. As a result, these households stay in their rentals longer or have to pay more for older homes that were once attainable to lower-income households. The bottleneck caused by a lack of available homes for purchase leaves more people in the rental market and rents increase as a result of increased competition, leaving renters less opportunity to save for a down payment on a home. Many households are in less-than-ideal housing situations when it comes to finding the price, type, and location that fits their lifestyle.

In response to this housing crisis, the Michigan State Housing Development Authority's (MSHDA) Statewide Housing Plan set a calculated target of adding 75,000+ new or rehabilitated units over the next five years.² This target can only be realized if every community in Michigan proactively expands its housing stock and housing diversity. To this end, this section of the plan summarizes the housing characteristics in the township, presents community preferences, and outlines housing strategies.

REGIONAL CONTEXT

Housing supply is a regional issue as it is part of a larger ecosystem of people, land use, natural and built environments, transportation networks, and economic markets. Housing trends constantly change and evolve in response to local and regional socioeconomic shifts. Therefore, where relevant, the existing condition of housing in White Lake Township is compared to nearby Oakland County communities to guide housing goals and recommendations in this plan.

DEMOGRAPHIC TRENDS IMPACTING HOUSING

Demographic trends profoundly influence housing; therefore, it is essential to closely monitor the population and the community's preferences to predict future trends in housing and strategize housing supply appropriately. The township's local and regional demographic trends are discussed in detail in

¹ Michigan Association of Planning, "Zoning Reform in Michigan: What Can You Do Now?", Spring Institute, 2022.

² Michigan State Housing Development Authority, Michigan's Statewide Housing Plan, 2022.

chapter 2, titled “Demographics,” but specific trends that directly impact the housing market are listed below:

- » Households in White Lake Township are becoming smaller (average household size of 2.68 in 2010 to 2.6 in 2020) and as a result, the total households in the township grew by 9% between 2010 and 2020.
- » White Lake Township’s population is aging. Mature households (35-54 years) continue to remain the largest age cohort (26%) while the percentage of empty nesters and seniors, with niche housing requirements, increased to roughly 18% in 2020.
- » Roughly 15% of the township’s population and almost 40% of seniors have a disability and will require specific support facilities including mobility assistance, accessible living facilities, and specialized healthcare services.
- » The percentage of individuals in poverty has increased to 8.8% in 2020, and an estimated 28% of households fall under the ALICE threshold. Providing affordable housing and economic opportunities will be key in ensuring these households can navigate their way out of poverty.

CHARACTERISTICS OF HOUSING IN WHITE LAKE TOWNSHIP

Housing Units

The total housing units in White Lake Township increased by roughly 4% to an estimated 12,519 in 2020. Given that the households increased by 9% in the same period, the growth of housing units has been relatively slow, indicating a mismatch between the changing household structure and the existing housing stock in the township. The pace of growth is comparable to the county (2.9%); however, almost all surrounding communities, except Waterford Township, witnessed a greater increase in housing units than the township. Given the population in these communities also grew faster than the township, the higher growth rate of housing units is expected.

Table XX: Total Housing Units: White Lake Townships & Other Communities (2010–2020)

	2010	2020	Change
White Lake Twp	12,045	12,519	3.9%
Commerce Twp	15,292	17,096	11.8%
Highland Twp	7,677	8,048	4.8%
Lyon Twp	5,197	7,537	45.0%
Orion Twp	13,648	15,896	16.5%
Springfield Twp	5,264	5,620	6.8%
Waterford Twp	31,766	32,564	2.5%
Oakland County	526,693	542,094	2.9%

Source: United States Census Bureau ACS 5-Year Estimates (2010, 2020)

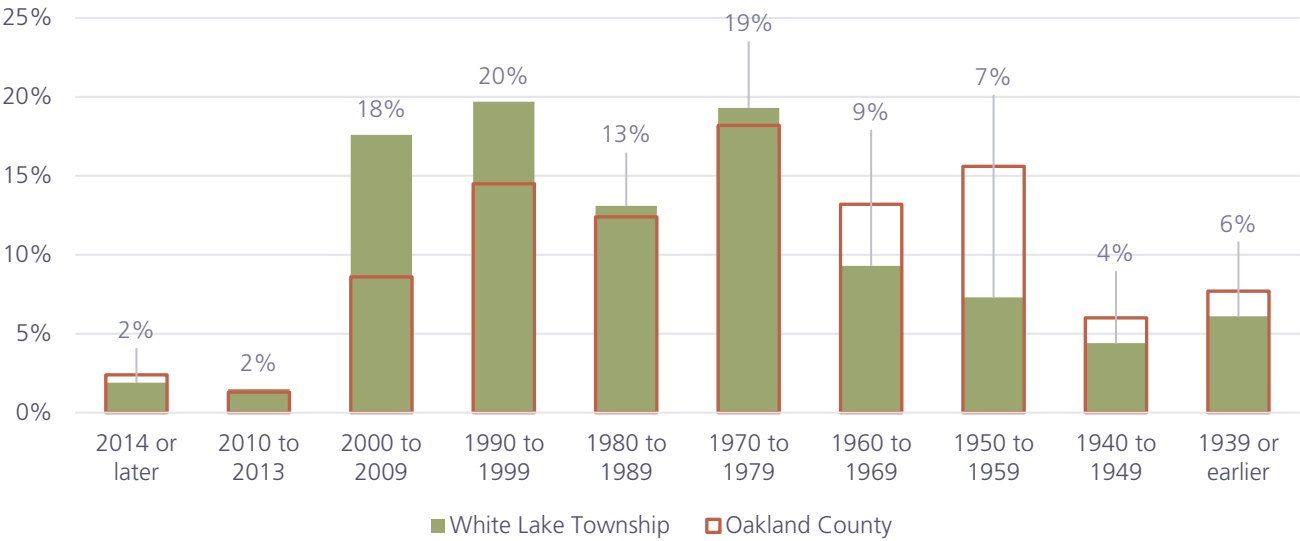
Of the 12,519 housing units, 95.8% are occupied units and the remaining 4.2% are vacant; The vacancy rate dropped from the estimated 8.8% in 2010 and is lower than the county (6%). While low vacancy rates are desirable, rates as low as 4% are one indication of a housing shortage. The term vacancy

includes units for sale, seasonal housing units, and migrant-worker housing. Therefore, while the unit may be “vacant,” it may not be available for a household to purchase or occupy. About 175 units are vacant. seasonal, recreational, or are occasionally used.³

Age of Housing Stock

The housing stock in White Lake Township is aging. Over a quarter of the housing stock is close to 50 years old, and only 4% of units have been built in the last decade. A large proportion of existing units were built between 1990-1999 which directly corresponds to the population boom the township witnessed during that period (25%). The slow rate of new builds in the township is consistent with the trend in Oakland County and most surrounding cities and is a contributing factor to the housing shortage in the region.⁴ The market is still recovering from the aftermath of the Great Recession which halted development for several years, but in many places, including White Lake Township, it has not caught up fast enough. Without an influx of new units, the average age of homes will increase. Older homes, depending on their level of maintenance or architectural charm, can either add to the township’s appeal or detract from it. When kept up, they are historic assets. On the other hand, families might find them harder to maintain and feel that they lack modern, convenient amenities.

Figure XX: Age of Housing Stock: White Lake Township & Oakland County (2010–2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

Building permits are a reliable metric to assess the quantity of housing being generated in a community. The table titled “Net Building Permits Issued: White Lake Township & Other Communities (2022)” shows the net building permits—the difference between new build permits and demolition permits—issued by White Lake Township and other nearby communities. White lake Township issued 76 permits for new builds; Commerce Township, Lyon Township, and Orion Township authorized a greater number of new construction permits, likely to accommodate the growing population.

³ United States Census Bureau, B25004 Vacancy Status, American Community Survey 5-Year Estimates, 2020.
⁴ United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.

Table XX: Net Building Permits Issued: White Lake Township & Other Communities (2022)

Total Housing Units	New Units	Demolition	Net Total
White Lake Twp	76	2	74
Commerce Twp	145	9	136
Highland Twp	26	2	24
Lyon Twp	242	2	240
Orion Twp	118	2	116
Springfield Twp	44	1	43
Waterford Twp	31	4	27

Source: Southeast Michigan Council of Governments (SEMCOG) Community Profiles (2022)

Homeownership in White Lake Township

A high percentage of owner-occupied units is generally perceived as a healthy market characteristic. In 2020, owner-occupied units accounted for 85.9% of the occupied households in White Lake Township, slightly lower than the homeownership rate in 2010 (89.5%), but higher than the county (71.2%).⁵ The township has a very low homeowner vacancy rate of 0.9%, indicative of a competitive homeownership market where demand outpaces supply.⁶

Home Value

The shortage of units available for sale, is likely the main factor median home values increased to \$247,200 in 2020 from \$210,700 in 2020. The median home value in the township is lower than the county (\$252,800) but substantially higher than the State of Michigan (\$154,900).⁷ Since demand drives home value; the higher the demand, the more homes are valued. In a tight market, when a housing unit becomes available, the bidding process can substantially inflate the home value resulting in people paying above-average values for the home. While this benefits existing residents because it increases the value of their homes, it makes it incredibly challenging for households attempting to enter the owner market. Of the 45 homes sold in 2023, nearly 23% were sold above the list price in White Lake Township, marginally lower than the state figure (24%).^{8,9}

The figure “Housing Value (2020)” illustrates that the majority of homes (31.3%) in the township are valued between \$200,000– \$299,999 and 28.5% are valued between \$300,000– \$499,999. Only about 5% of homes have price points between \$500K and \$1M. The township has a relatively smaller percentage of homes in the lower price range (\$50K– \$150K) creating a challenge for households seeking to buy “starter homes” and enter the homeowner market. Around 11% of the homes are priced at less than \$50,000; Given that 14% of vacant homes are sold but not occupied, these home are likely blighted and uninhabitable.¹⁰

⁵ United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.

⁶ United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.

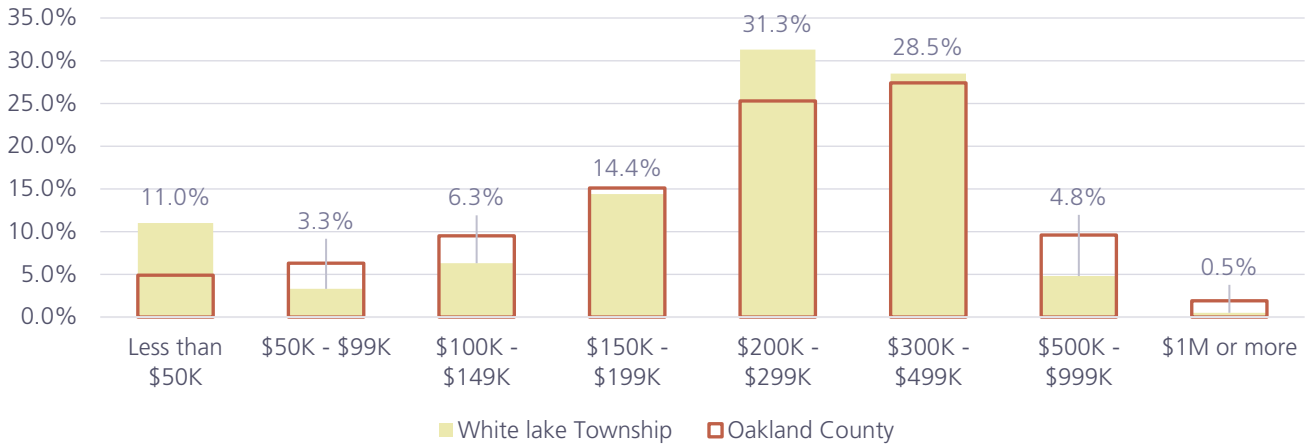
⁷ United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.

⁸ Redfin. White Lake Township Housing Market, 2023. <https://www.redfin.com/zipcode/48386/housing-market>

⁹ Redfin. Michigan Housing Market, 2023. <https://www.redfin.com/state/Michigan/housing-market>

¹⁰ United States Census Bureau, B25004 Vacancy Status, American Community Survey 5-Year Estimates, 2020.

Figure XX: Housing value (2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

Housing Costs & Affordability

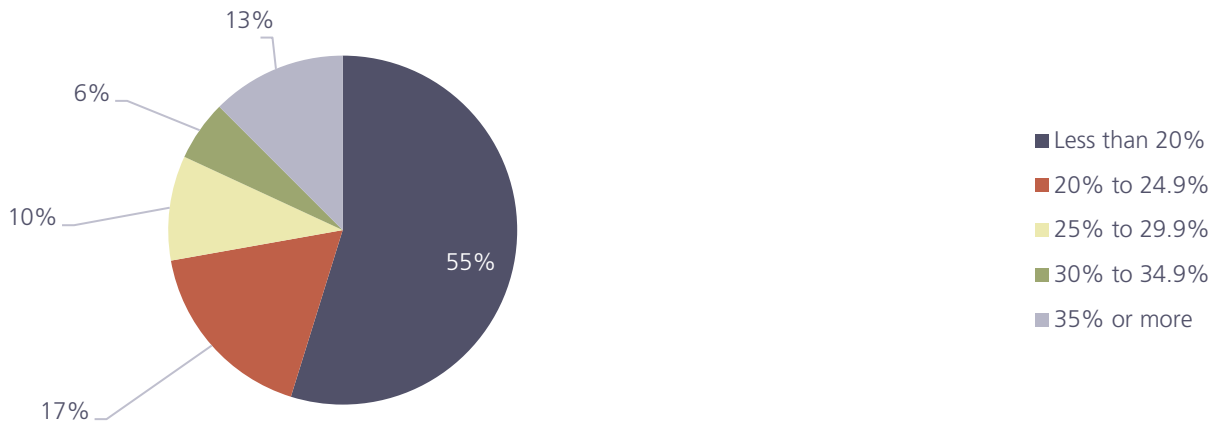
Homeowner costs are measured using the “Selected Monthly Owner Costs (SMOC)” metric, which includes a mortgage payment as well as insurance and other housing-related expenses. The median SMOC in White Lake Township in 2020 was estimated at \$1,666, slightly lower than the county (\$1,676). Among homeowners, roughly 82% live in an affordable unit and 16% live in an unaffordable unit. Given the raising poverty rates in the township, producing affordable housing will be a key step in assisting these households to build equity and navigate their way out of precarity.

Defining Housing Affordability

- Affordable:** Households spend <30% of income on housing costs
- Unaffordable:** Households spend 30% - 50% of income on housing costs
- Severely Unaffordable:** Households spend >50% of income on housing costs

Source: U.S. Department of Housing and Urban Development (HUD)

Figure XX: Homeowner Affordability (2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

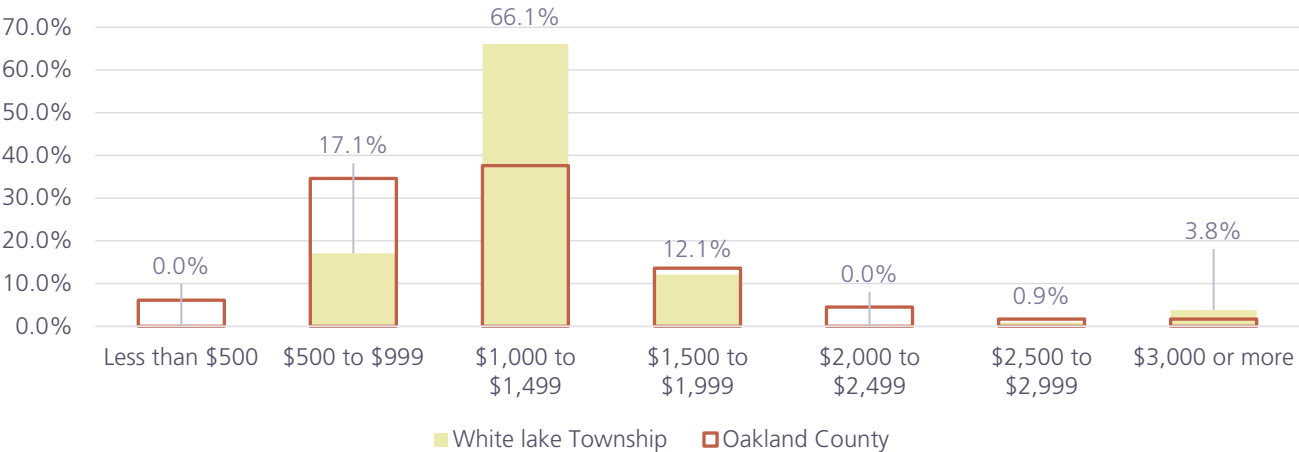
Renting in White Lake Township

Renting is becoming an increasingly popular option among young households, empty nesters, and seniors. Considering an overall scarcity of units available for sale in White Lake Township, especially in the lower price range (\$50K– \$150K), home ownership is out of reach for low- and moderate-income households, and as a result, they must rent. In 2020, renter-occupied units account for 14.1% of the occupied households in White Lake Township, higher than in 2010 (10.5%), but lower than the county (28.8%).¹¹ The rental vacancy rate in the township is 2.5%. The average household size of rental households is 2.05 lower than that of homeowners (2.69)

Gross Rent

Between 2010–2020 the median gross rent in the township jumped to \$1,192 from \$884. The gross rent in the township is slightly higher than the county (\$1,100) but substantially higher than the State of Michigan (\$871).¹² The figure “Monthly Rent (2020)” illustrates that roughly two-thirds of the renters in the township pay a gross rent between \$1000–\$1499 monthly. About 17% pay less than \$1,000 and 12% pay gross rents between \$1,500–\$1,999. The county has a greater availability of units (34.6%) with rents in the \$500-\$900 than the township (17.1%).

Figure XX: Monthly Rent (2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

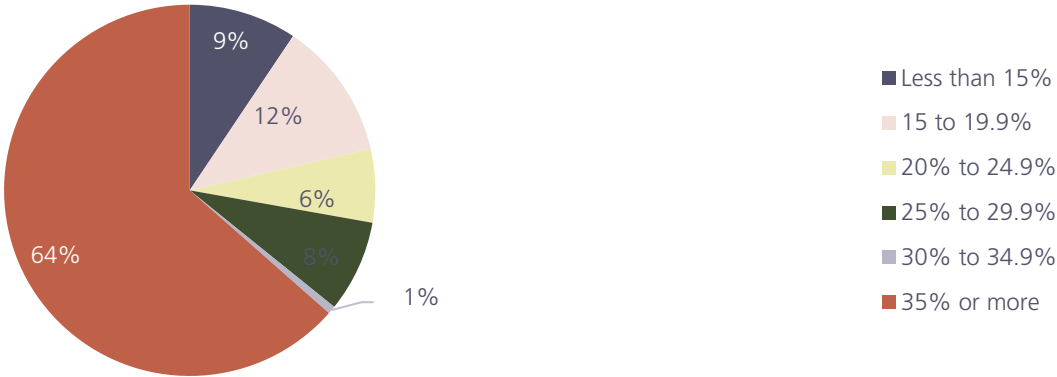
Housing Costs & Affordability

A sizable 64% of renters live in units unaffordable for their household income, while only 36% live in affordable units. The low- and moderate-income households in White Lake Township are disproportionately disadvantaged when considering rental unaffordability. These renters are in a challenging situation because they are priced out of homeownership and are living in rental units and still paying unaffordable rents.

¹¹ United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.

¹² United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.

Figure XX: Homeowner affordability (2020)



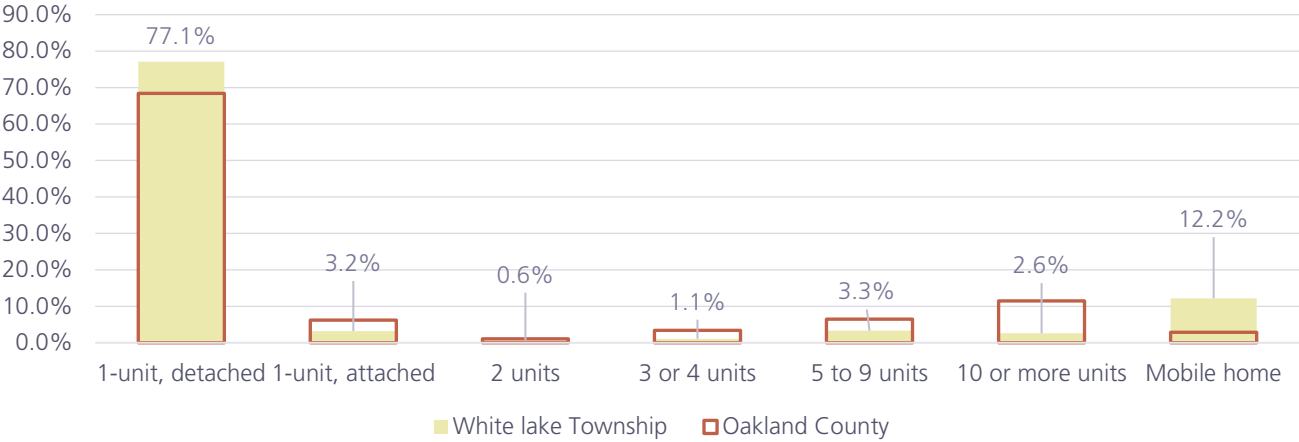
Source: United States Census Bureau ACS 5-Year Estimates (2020)

Housing Diversity

Housing diversity is an important tool to address the housing shortage and affordability in White Lake Township. The changing demographics of the township require a variety of housing typologies at different price points to ensure equitable housing access. Consistent with the county and regional trends, the existing housing stock in the township is homogeneous with 77.1% detached single dwelling units. Of the remaining units, 3.2% were attached single dwelling units, 0.6% were duplexes, 7.6% were multi-dwelling units, and 12% were mobile homes. Additionally, nearly a quarter of housing units have four or more bedrooms; with the average household sizes decreasing the demand for large-footprint homes will likely decrease in the township.¹³ However, of the 76 new builds authorized in the township in 2022, 85% are detached single dwelling units signifying that recent home construction is not aligned with the shifting housing preferences of demographic trends.¹⁴ Concentration in township’s housing stock of predominantly one housing typology is a major factor driving up unaffordability levels in the township. For instance, empty nesters who wish to downsize, working households with limited discretionary income, couples without children, or young adults moving out of their parent’s homes, may prefer smaller but affordable units. A shortage of such options will push residents, and potential future residents, to seek desired housing outside of the township or drive intense demand for those units in the township. Furthermore, because the neighboring townships have less to offer in terms of housing diversity, it could push them out of the region entirely.

¹³ United States Census Bureau, DP04 Selected Housing Characteristics, American Community Survey 5-Year Estimates, 2020.
¹⁴ Southeast Michigan Council of Governments (SEMCOG), White Lake Township Community Profiles, 2022

Figure XX: Housing Types: White Lake Township & Oakland County (2020)



Source: United States Census Bureau ACS 5-Year Estimates (2020)

COMMUNITY HOUSING PREFERENCES

To be completed based on survey results.

HOUSING STRATEGIES

Missing Middle

There is still a wide range of housing options between single-dwelling units and multi-dwelling-unit apartment complexes that remain unexplored in White Lake Township. In housing terms, the township needs to expand “Missing Middle” housing—a term that refers to housing that is similar in size to single-family structures, but instead are either clustered or have multiple units.¹⁵ Missing Middle housing typologies: Duplex, Triplex, Quadplex, Bungalow Courts, Multiplex, Live/Work units, effortlessly weave density and diversity into the fabric of traditional single-family residential neighborhoods. Typically, when smaller units are built on reduced lot areas, they generally have lower purchasing prices and maintenance costs.

Among the different missing middle typologies, Accessory Dwelling units (ADUs) are an effective way to diversify the existing housing stock and offer low-impact increases to density. Colloquially referred to as “in-law units” or “granny flats,” they are smaller units located in the rear lots of residential parcels, subordinate to the principal structure, that can be used to house family members or to be rented to a nonfamily member. ADUs add new units, that are compatible with the existing neighborhood composition, that are not supplied by the private market. The lower costs may be passed on to the tenants to provide more affordable housing options for young adults, the elderly, or residents in transition to homeownership, all of which are important goals for the township. Currently, ADUs are not permitted in the White Lake Township Zoning Ordinance.

¹⁵ Opticos Design. Missing Middle Housing. <https://missingmiddlehousing.com/>

Figure XX: Missing Middle Housing



Build To Rent

Housing markets often tend to focus heavily on ownership, and while ownership tenure is vital for overall economic well-being, renting is becoming a preferred option due to high housing costs and inventory shortage associated with homeownership. Additionally, many demographic groups like young adults, empty nesters, seniors, and immigrants may prefer to rent due to the convenience and flexibility it offers. With this growing demand for rental units, many developers are building to rent in Southeast Michigan, spread over an array of housing typologies, and they are typically more spacious than apartments and include shared amenities.¹⁶ White Lake Township can encourage build to rent developments through the Planned Development process.

Rehabilitate Blighted Properties

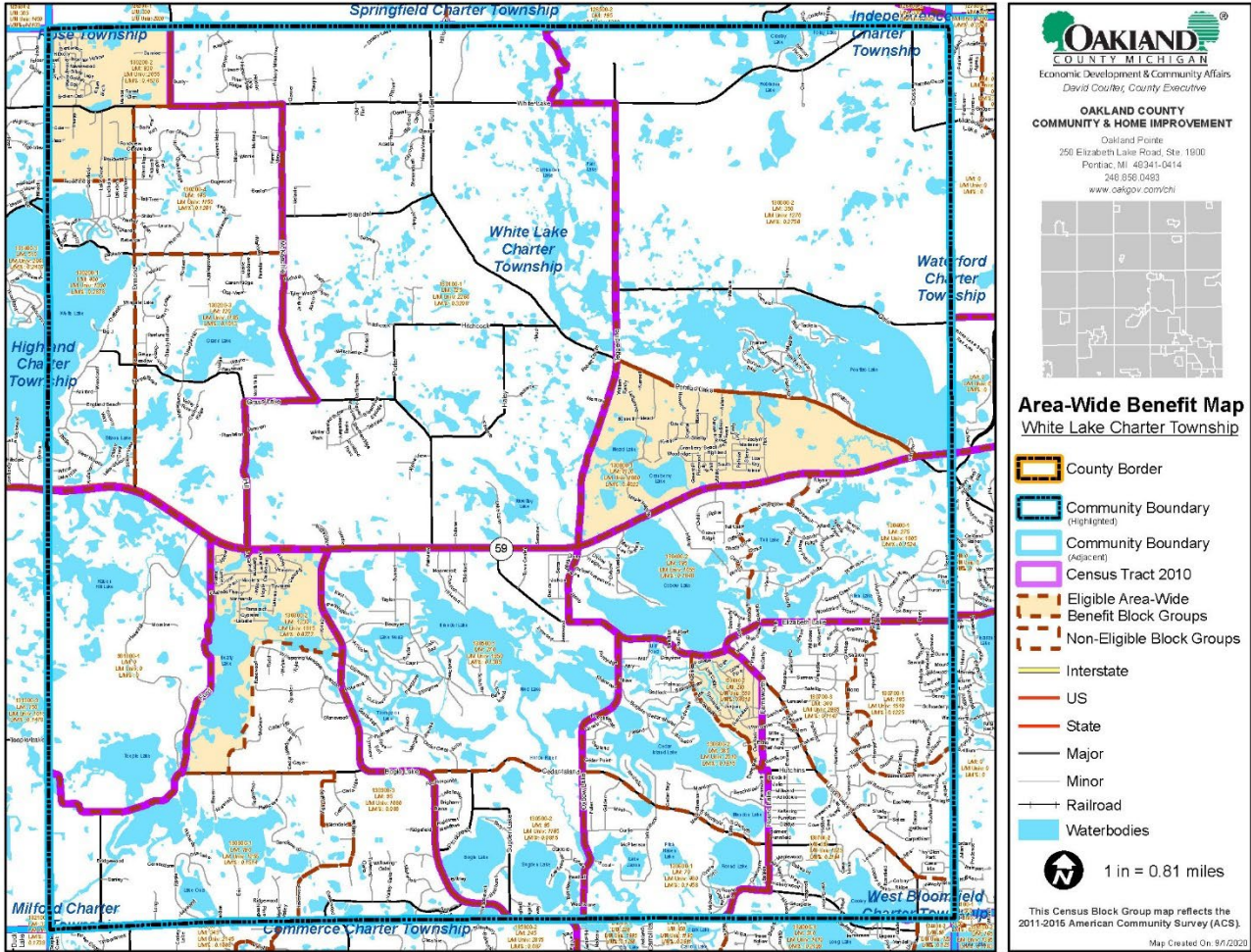
As of 2020, 77 units under the ownership tenure are unoccupied, and are valued below \$50,000.¹⁷ These units are likely blighted and uninhabitable, and a potential threat to deteriorating the quality of the neighborhood and lowering property values. Rehabilitating or retrofitting such properties will not only funnel more units into the housing market to address the supply issues but will also produce units at lower prices than new builds to cater to the low- and middle-income groups pursuing homeownership. Oakland County provides federal Community Development Block Grants (CDBG) funding to communities for revitalization projects. The program strengthens neighborhoods by supporting local revitalization, home improvement and public services for senior citizens, low-income persons and families, disadvantaged youth, and disabled residents throughout most of Oakland County.¹⁸ The map titled “CDBG Area-Wide Benefits: White Lake Township” denotes areas of the township eligible for the CDBG funding from Oakland County. Detailed information can be found on [Oakland County's Community & Home Improvement Division website](https://www.oakgov.com/nhd/grants-funding/Pages/cdbg.aspx).

¹⁶ Alexandra Ciuntu. Built-to-Rent Homes Expected to Hit All-Time High in 2022, Fueled by Need for Space and Privacy. Rent Café, 2022. <https://www.rentcafe.com/blog/rental-market/market-snapshots/built-to-rent-single-family-homes-double-in-2022/#:~:text=Built%2Dto%2Drent%20communities%20are,have%20a%20direct%2Daccess%20garage.>

¹⁷ United States Census Bureau, B25004 Vacancy Status, American Community Survey 5-Year Estimates, 2020.

¹⁸ Oakland County's Community & Home Improvement Division, Community Development Block Grants, <https://www.oakgov.com/nhd/grants-funding/Pages/cdbg.aspx>

Map XX: CDBG Area-Wide Benefits: White Lake Township



Zoning Reform¹⁹

Zoning determines where housing will be built, what types of units are allowed, how the housing might look, and when it might be approved. As the township’s legally binding document, the language can be removed or added to allow a range of housing types. Provisions can be modified to make conversions, infill, and redevelopment possible.

Rezone for Mixed-Use/Multi-Family in Commercial Districts

Existing commercial districts and corridors can be great locations to accommodate more housing. Zoning for mixed-use districts along commercial corridors and in villages and downtowns is one of the easiest ways to support higher-density residential uses adjacent to, but outside of, less compact neighborhoods. The majority of the M-59 corridor is zoned planned business which does not permit any residential

¹⁹ Michigan Association of Planning, Zoning Reform Toolkit, https://www.planningmi.org/assets/images/ZoningReformToolkit/MAP_ZoningReformToolkit_2022%2008%2002_Gradient.pdf

development. There are opportunities for residential development behind many of the commercial frontages on the corridor. Additionally, the Planned Development District and the Planned Business District could be collapsed into one district to allow greater flexibility in the planned development process.

Reduce Minimum Lot Width, Area, and Setback Requirements

Lot width and area requirements set the minimum standard for the size of the property. These two standards combined with setback requirements are often the primary criteria that establish whether a lot is buildable and impose significant restrictions on choice and cost of development. White Lake Township's lot width, area, and setbacks are well written to permit a range of residential sizes and styles and are well scaled to the intent of each residential zoning district.

Expand Administrative Review

Administrative review is a development approval conducted by the zoning administrator. Rather than require approval from the Planning Commission or the elected body, administrative review allows the zoning administrator to approve certain uses and development projects, streamlining the regulatory barriers to housing development. Currently, White Lake Township's zoning ordinance stipulates that new development or change of uses (with the exception of single-family homes) requires a site plan submission to the Planning Commission for review. This step prolongs the development process increasing development costs and the eventual cost of housing. Including a provision for administrative review of the site plan for two-family dwellings, attached single-family dwellings, and multi-family dwellings of a certain size would reduce the procedural step of submission to the planning commission but maintain a review by township staff. Staff would have the authority to approve, approve with conditions, or deny the site plan.