

UTILITY COMPANY UTILITIES

AT&T
337 N. ABBOTT, RM. 201
EAST LANSING, MI 48823
517.337.3660

TELEPHONE

CONSUMERS ENERGY
530 W. WILLOW ST.
P.O. BOX 30162
LANSING, MI 48909
517.373.6100

GAS
ELECTRIC

COMCAST
1070 TROWBRIDGE ROAD
EAST LANSING, MI 48823
517.332.1012

CABLE TV

MERIDIAN TOWNSHIP
5151 MARSH RD.
OKEMOS, MI 48864
517.853.4440

WATER MAINS
SANITARY SEWER
PATHWAYS

WOLVERINE PIPE LINE
8105 VALLEYWOOD LANE
PORTAGE, MI 49024-5251
231.323.2491

PETROLEUM PIPELINE

INGHAM COUNTY DRAIN
COMMISSIONER
707 BUHL ST.
MASON, MI 48854
517.676.8395

DRAINS
STORM SEWER

INGHAM COUNTY ROAD DEPT
301 BUSH ST.
MASON, MI 48854
517.676.9722

PUBLIC ROADS AND
RIGHTS OF WAY

FOREST HILLS LIFT STATION REPLACEMENT CONSTRUCTION PLANS FOR MERIDIAN TOWNSHIP INGHAM COUNTY, MICHIGAN



STANDARD CONSTRUCTION NOTES

1. The Contractor shall notify the Charter Township of Meridian, Department of Public Works, Office of Engineering 517-853-4440 a minimum of 72 hours prior to the start of construction of public utilities or of construction within the public right-of-way.
2. All construction shall conform to the current standards and specifications of the Charter Township of Meridian which are included as part of these plans in effect at the time of construction.
3. After the completion of construction of public utilities or construction within public right-of-way, the contractor must request a final inspection. Any punchlist items resulting from the final inspection must be resolved prior to final release and acceptance.
4. The existing utilities indicated on the plans are in accordance with available information. It shall be the contractor's obligation to verify the exact location of all existing utilities, which might affect this job.
5. The contractor shall notify "MISS DIG" 1-800-482-7171 at least 72 hours prior to the start of construction.
6. The contractor shall at all times be aware of inconvenience caused to the abutting property owners and the general public. Where the contractor does not remedy undue inconveniences, the Charter Township of Meridian, upon four hours notice, reserves the right to perform the work and deduct the cost therefore from the money due the contractor.
7. A Registered Land Surveyor provided by the contractor at the contractor's expense shall replace all property irons and monuments disturbed or destroyed by the contractor's operations.
8. Contractor shall provide Owner and Township Engineer a copy of written permission to use private property for storage of equipment and materials or for his construction operations.
9. Trench backfill under existing or proposed roadways, driveways, and parking areas, shall be sand or gravel, placed in 12" layers (maximum) and consolidated to 95% of maximum density as measured by modified proctor unless otherwise noted.
10. Trees and shrubs are to be protected during construction and bored where necessary.
11. Existing fences shall be removed and restored to their original condition or better where in conflict with construction.
12. Driveways, culverts, ditches, drain tile, tile fields, drainage structures, etc., that are disturbed by the contractor's operations shall be immediately restored.
13. All established lawn areas disturbed by the contractor's operations shall be resodded with matching sod. All other areas shall be seeded and mulched. Seeding and mulching shall be done in accordance with the General Specifications.
14. All ditch slopes shall have established vegetation and be protected from erosion.
15. All utility poles in close proximity to construction shall be supported in a manner satisfactory to the utility owner.
16. Onsite parking and sanitary facilities shall be provided for construction workers. The facilities shall be constructed and operated (with minimal impact to the surrounding area) to the satisfaction of the Township.



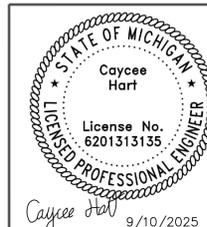
STANDARD CONSTRUCTION NOTES

1. All sewers to be placed in class "B" bedding or better.
2. Wyes, risers, and house leads are to be placed at locations shown on the plans or as directed by the township engineer. All wyes are incidental.
3. Each wye or house lead shall have a plug of the same type of joint as the house lead.
4. House leads shall have a minimum of 9 ft. Deep at the property line. Individual site topography may require a deviation of this minimum.
5. Down spouts or other conduits carrying storm or ground water shall not be connected to the sanitary sewer.
6. Whenever existing manholes or sewer pipe are to be tapped, holes are to be drilled at 4-inch center to center spacing around the periphery of the proposed opening to create a plane of weakness joint (or core saw the diameter)-a 12 inch thick collar is to encase the new pipe and opening.
7. All sanitary sewer manholes shall be provided with watertight covers.
8. All manhole covers shall bear the legend "MERIDIAN SANITARY SEWER" with tree logo.
9. All public sanitary sewer main lines shall be SDR-26, or ABS truss pipe. Clay pipe may be installed in locations approved by the township engineer.
10. The PVC (SDR-26) pipe material shall conform to ASTM D 2241, with bell and spigot joints in accordance with ASTM F 477.
11. Pipe installation shall be in accordance with ASTM D 2321. All pipe shall be marked to provide ASTM designation, SDR number, manufacturer's name and pipe diameter.
12. The contractor shall test the flexible pipe main for deflection by pulling a mandrel through the sewer after all backfill has been placed and compacted over the pipe. The outside diameter of the test mandrel shall be equal to the inside diameter. The outside diameter of the test mandrel shall be equal to the inside diameter of the pipe installation. A second test shall be performed after ten months of pipe installation or just before line's intended use.
13. Inspection and testing of the sanitary system shall also include video inspection by CCTV method of sanitary main, air testing of sanitary main, and vacuum testing of sanitary manholes. All inspections and testing shall be performed in the presence of township inspectors

| Sheet List Table | |
|------------------|--|
| Sheet Number | Sheet Title |
| 1 | COVER SHEET |
| 2 | DEMOLITION PLAN |
| 3 | SESC PLAN |
| 4 | SESC NOTES AND DETAILS |
| 5 | SESC NOTES AND DETAILS |
| 6 | SITE PLAN |
| 7 | LIFT STATION PLAN & PROFILE |
| 8 | BYPASS PLAN |
| 9 | BYPASS PLAN |
| 10 | LIFT STATION DETAILS |
| 11 | ELECTRICAL DETAILS |
| 12 | STANDARD DETAILS FOR SANITARY SEWER SYSTEM |
| 13 | LANDSCAPE PLAN |

Call 811 before you dig.

WOLVERINE PIPE LINE COMPANY 219-844-9510



Meridian Charter Township
Ingham County, Michigan
SANITARY SEWER

FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP,
INGHAM COUNTY, MICHIGAN

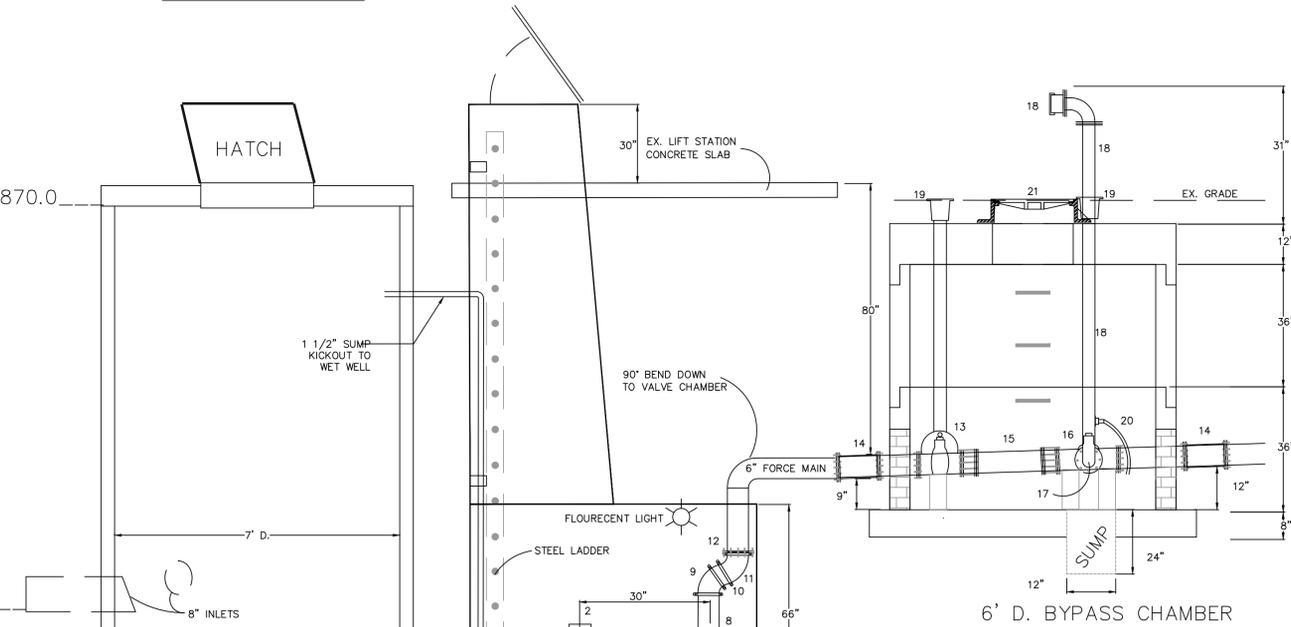
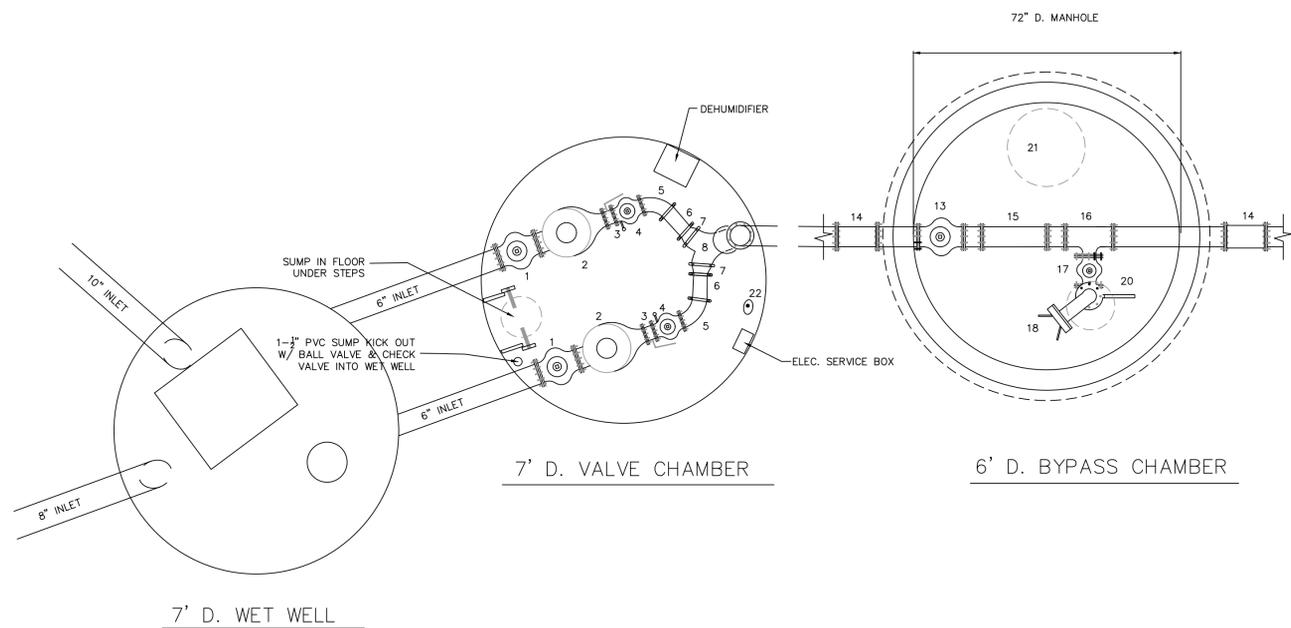
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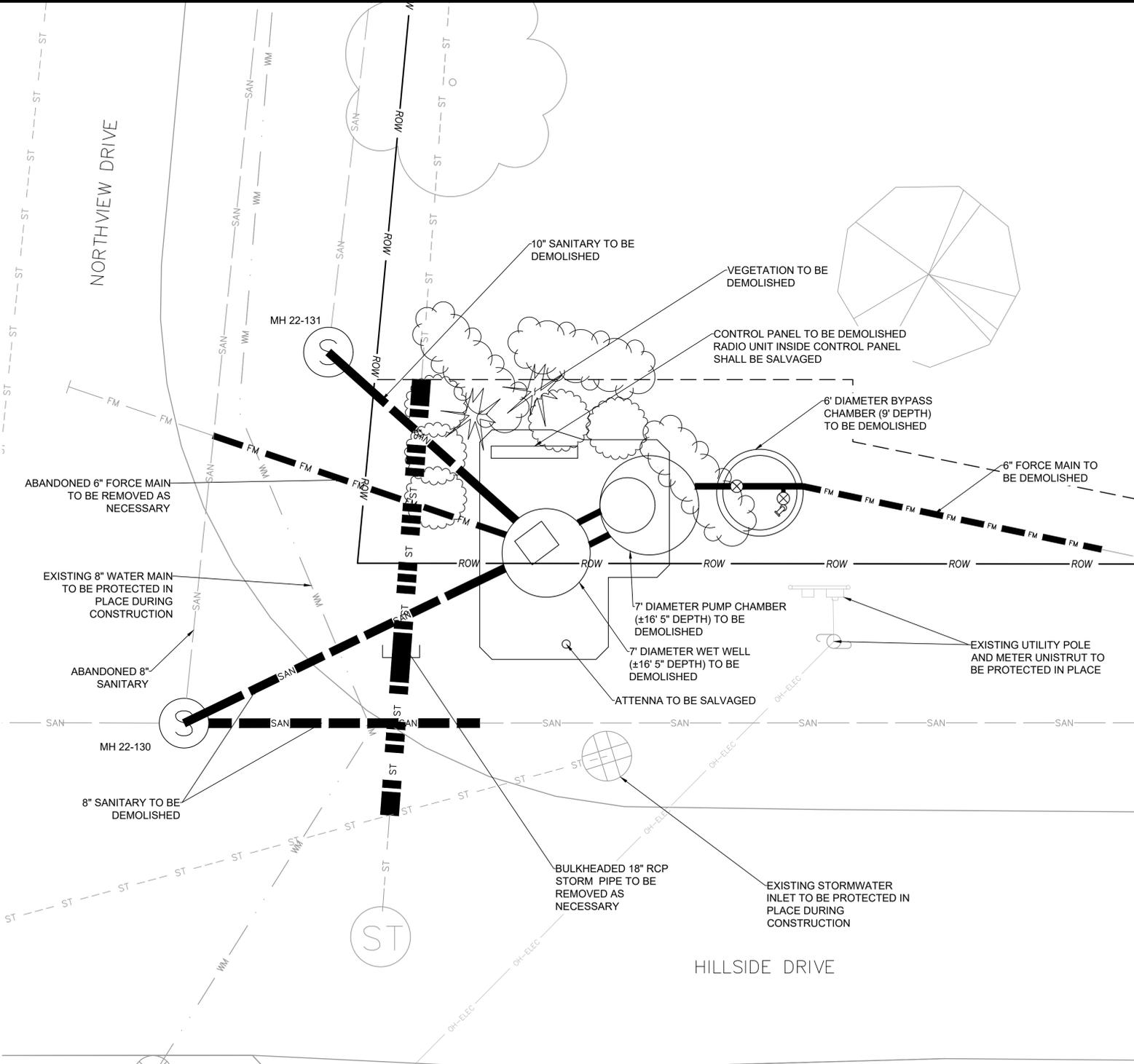
| REVISIONS: | | |
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| DATE | BY: | COMMENTS: |
| 09.05.25 | CH | EGLE SUBMITTAL |
| 09.10.25 | CH | BID PLANS |

SHEET:

EXISTING LIFT STATION



1. 6" KENNEDY GATE VALVE (FLANGE JOINT)
2. 6" x 4" FLYGT PUMP (FLANGE JOINT)
3. 4" PRINCE WAFER VALVE W/ WEIGHTED LEVER ARM
4. 4" KENNEDY GATE VALVE W/1/2" BLEEDER
5. 90° BEND @ 45° ANGLE (GRUVLOK JOINTS)
6. 19" OF 4" GALV. PIPE (GRUVLOK JOINTS)
7. GALV. 4" x 6" REDUCER (GRUVLOK JOINTS)
8. GALV. 6"x6"x6" WYE (GRUVLOK JOINTS)
9. GALV. 6" 22 1/2" BEND (GRUVLOK JOINTS)
10. 4" OF 6" GALV. PIPE (GRUVLOK JOINTS)
11. GALV. 6" 22 1/2" BEND (GRUVLOK JOINTS)
12. 6" UNI-FLANGE ATTACHED TO EX. 6" F.M.
13. 6" GATE VALVE (FLANGE JOINT)
14. 6" D.I. SLEEVE
15. 6" FLANGED SLEEVE
16. 6" x 4" TEE (MECH. JOINT)
17. 4" GATE VALVE
18. 4" D.I. BYPASS PIPE W/90° BEND & QUICK CONNECT
19. "SEWER" CURB BOX
20. 1" CURB STOP & 1" CU. DRAIN PIPE
21. MANHOLE CASTING MARKED "SEWER"
22. FLOAT WARNING HIGH WATER LEVEL

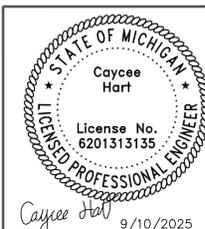


SUGGESTED DEMOLITION PROCEDURE

1. PLACE DEWATERING WELLS AND BEGIN DEWATERING THE PROJECT AREA.
2. IMPLEMENT BYPASS OF FLOW UPSTREAM OF MH 22-131. SUGGESTED BYPASS PROCEDURE CAN BE FOUND ON SHEET 8.
3. DEMOLISH MH 22-131 AND THE EFFLUENT 12" PIPE THAT CONNECTS TO MH 22-131.
4. INSTALL MH-1 AS SHOWN ON SHEET 6 - SITE PLAN.
5. DEMOLISH COMPONENTS OF THE EXISTING LIFT STATION, BYPASS CHAMBER, NE EFFLUENT 8" SEWER FROM MH 22-130, AND THE PORTION OF EFFLUENT 6" FORCEMAIN.
 - 5.1. SALVAGE THE RADIO UNIT FROM THE CONTROL PANEL
6. INSTALL THE LIFT STATION REPLACEMENT INCLUDING WETWELL AND VALVE CHAMBER.
7. INSTALL MH-2 AND MH-3 AS SHOWN ON SHEET 6 - SITE PLAN.
8. DEMOLISH MH 22-130 AND EASTERN INFLUENT 8" PIPE INTO MH 22-130.
9. INSTALL THE 8" PIPE FROM MH-3 TO THE EXISTING 8" PIPE THAT PREVIOUSLY TIED INTO MANHOLE 22-130.

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WOLVERINE PIPE LINE COMPANY 219-844-9510



Meridian Charter Township
Ingham County, Michigan

SANITARY SEWER

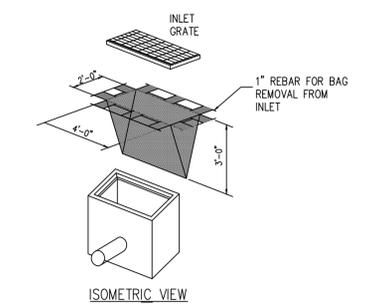
FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP,
INGHAM COUNTY, MICHIGAN

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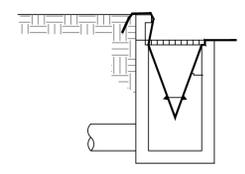
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S58

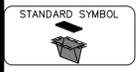
INLET PROTECTION – FABRIC DROP



ISOMETRIC VIEW



INSTALLATION DETAIL



S58

INLET PROTECTION – FABRIC DROP SPECIFICATIONS

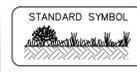
- When**
- When sediment laden stormwater requires treatment before entering a stormwater drainage system.
- Why**
- To prevent sediment from entering stormwater systems.
- Where**
- Use in or at stormwater inlets, especially at construction sites or in streets.
- How**
1. A filter fabric bag is hung inside the inlet, beneath the grate.
 2. Replace grate, which will hold bag in place.
 3. Anchor filter bag with 1" rebar for removal from inlet.
 4. Flaps of bag that extend beyond the bag can be buried in soil in earth areas.
- Maintenance**
- Drop inlet filters should be inspected routinely and after each major rain event.
 - Damaged filter bags should be replaced.
 - Clean and/or replace filter bag when 1/2 full.
 - Replace clogged fabric immediately.
 - If needed, initiate repairs immediately upon inspection.
 - Remove entire protective mechanism when upgradient areas are stabilized and streets have been swept.
- Limitations**
- Can only accommodate small flow quantities.
 - Requires frequent maintenance.
 - Ponding may occur around storm drains if filter is clogged.



E8

PERMANENT SEEDING SPECIFICATIONS

- When**
- To finalize stabilization of temporary seeding areas or when an area needs permanent stabilization following completion of construction. Also used when vegetative establishment can correct existing soil erosion or sedimentation problem.
 - Within 5 days of final grade.
- Why**
- To stabilize soil and prevent or reduce soil erosion/sedimentation problems from developing.
- Where**
- Used on construction and earth change sites which require permanent vegetative stabilization.
- How**
1. Review SESC plan and construction phasing to identify areas in need of permanent vegetative stabilization.
 2. Select perennial grass and ground cover for permanent cover.
 3. Seed mixes vary. However, they should contain native species.
 4. Seed mixes should be selected through consultation with a certified seed provider and with consideration of soil type, light, moisture, use applications, and native species content.
 5. Soil tests should be performed to determine the nutrient and pH levels in the soil. The pH may need to be adjusted to between 6.5 and 7.0.
 6. Prepare a 3–5" deep seedbed, with the top 3–4" consisting of topsoil.
 7. Slopes steeper than 1:3 should be roughened.
 8. Apply seed as soon as possible after seedbed preparation. Seed may be broadcast by hand, hydroseeding, or by using mechanical drills.
 9. Mulch immediately after seeding.
 10. Dormant seed mixes are for use after the growing season, using seed which lies dormant in the winter and begins growing as soon as site conditions become favorable.



E8

PERMANENT SEEDING SPECIFICATIONS

- How (cont.)**
11. Protect seeded areas from pedestrian or vehicular traffic.
 12. Divert concentrated flows away from the seeded area until vegetation is established.
- Maintenance**
- Inspect weekly and within 24 hours following each rain event in the first few months following installation to be sure seed has germinated and permanent vegetative cover is being established.
 - Add supplemental seed as necessary.
- Limitations**
- Seeds need adequate time to establish.
 - May not be appropriate in areas with frequent traffic.
 - Seeded areas may require irrigation during dry periods.
 - Seeding success is site specific, consider mulching or sodding when necessary.



E8

PERMANENT SEEDING

| Planting Zones: | Lower Peninsula (South of T20N) Zone 1 | Lower Peninsula (North of T20N) Zone 2 | Upper Peninsula Zone 3 |
|-------------------------------------|---|---|---------------------------|
| Seeding Window Permanent Seeding | 4/15 – 10/10 | 5/1 – 10/1 | 5/1 – 9/20 |
| Seeding Window Dormant Seeding* | 11/15 – Freeze | 11/01 – Freeze | 11/01 – Freeze |

Source: Adapted from MDOT Interim 2003 Standard Specifications for Construction

| | Zone 1 Lower Peninsula (South of U.S. 10) | Zone 2 Lower Peninsula (North of U.S. 10) | Zone 3 Upper Peninsula |
|--|---|---|--------------------------------|
| Seeding Dates (with Irrigation or Mulch) | 4/1 – 8/1 | 5/1 – 9/20 | 5/1 – 9/10 |
| Seeding Dates (w/o Irrigation or Mulch) | 4/1 – 5/20 or 8/10 – 10/1 | 5/1 – 6/10 or 8/1 – 9/20 | 5/1 – 6/15 or 8/1 – 9/20 |
| Dormant Seeding Dates* | 11/1 – Freeze | 10/25 – Freeze | 10/25 – Freeze |

Source: Adapted from USDA NRCS Technical Guide #342 (1999)

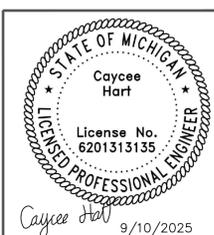
* Dormant seeding is for use in the late fall after the soil temperature remains consistently below 50°F, prior to the ground freezing. This practice is appropriate if construction on a site is completed in the fall but the seed was not planted prior to recommended seeding dates. No seed germination will take place until spring. A cool season annual grass may be added in an attempt to have some fall growth.

- Mulch must be used with dormant seed.
- Do not seed when the ground is frozen or snow covered.
- Do not use a dormant seed mix on grassed waterways.



Call 811 before you dig.

WOLVERINE PIPE LINE COMPANY 219-844-9510



Meridian Charter Township
Ingham County, Michigan

SANITARY SEWER

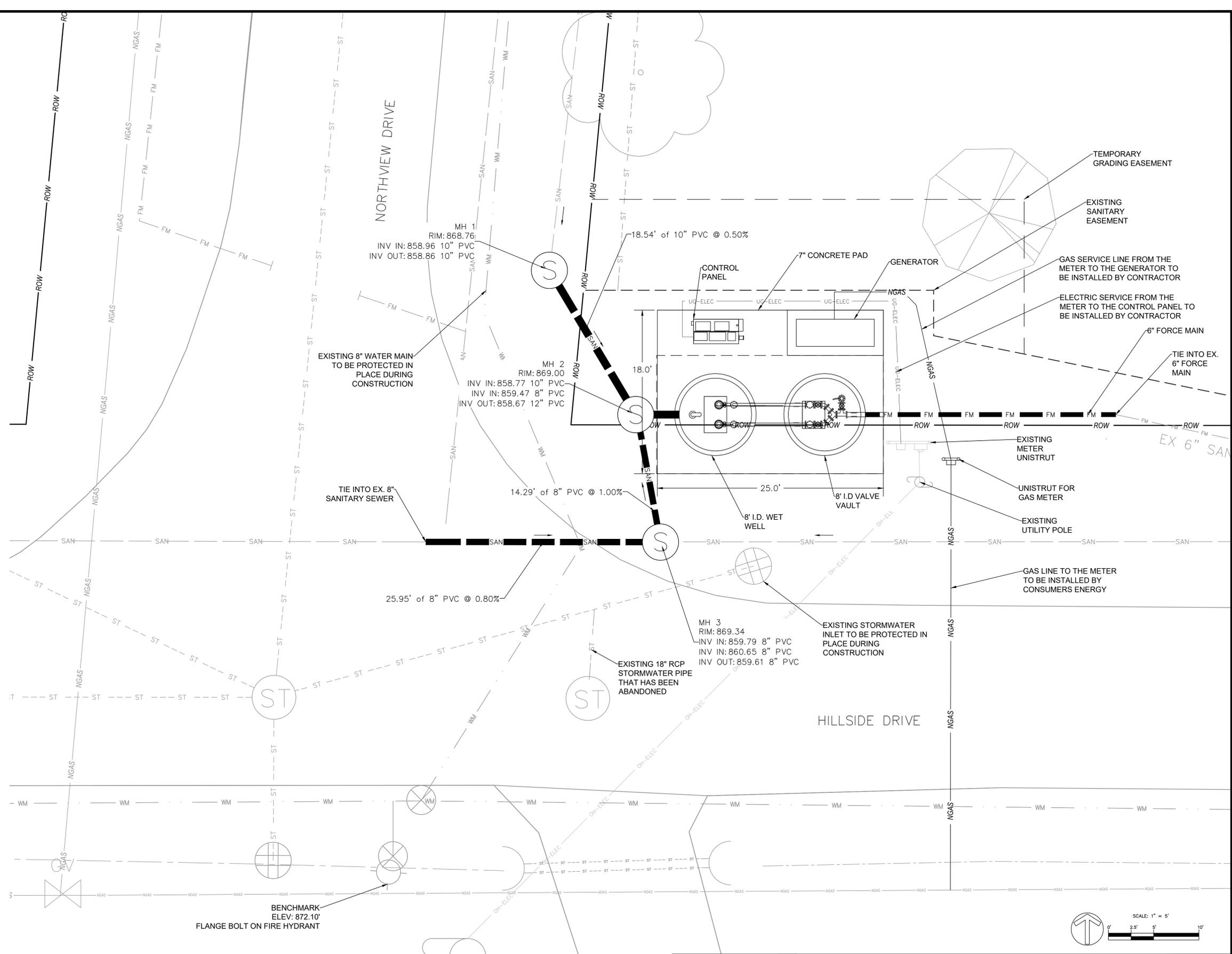
FOREST HILLS LIFT STATION REPLACEMENT
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INGHAM COUNTY, MICHIGAN

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| 09.10.25 | CH | BID PLANS |
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| SHEET: | | |

LEGEND

- ROW — RIGHT-OF-WAY LINE
- - - SAN - - - EXISTING SANITARY PIPE
- - - FM - - - EXISTING FORCE MAIN
- - - WM - - - EXISTING WATER MAIN
- - - NGAS - - - EXISTING UNDERGROUND GAS LINE
- SAN — PROPOSED SANITARY PIPE
- UG-ELEC — PROPOSED UNDERGROUND ELECTRIC
- NGAS — PROPOSED UNDERGROUND GAS LINE

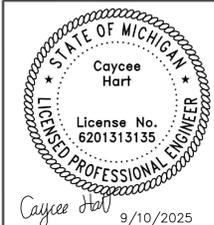


BENCHMARK
ELEV: 872.10'
FLANGE BOLT ON FIRE HYDRANT



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Meridian Charter Township
Ingham County, Michigan

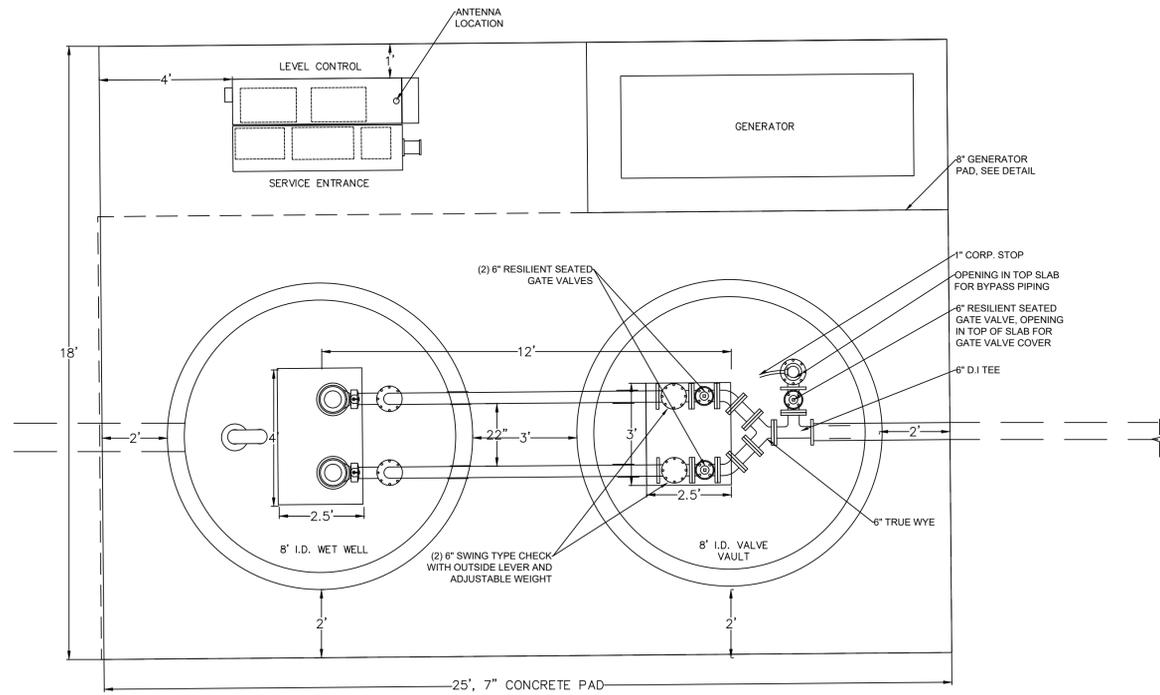
SANITARY SEWER

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PROPOSED LIFT STATION

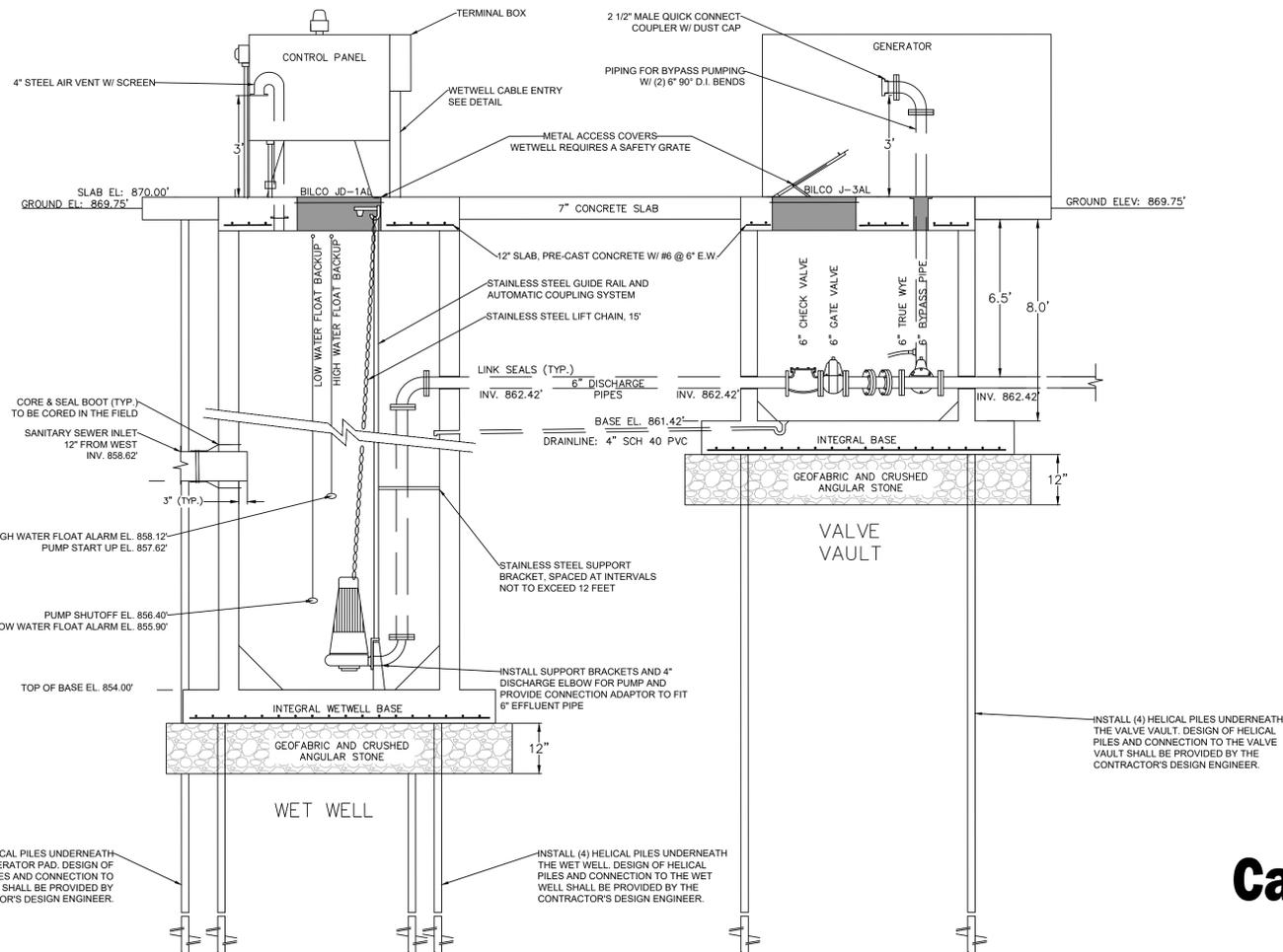


PLAN VIEW



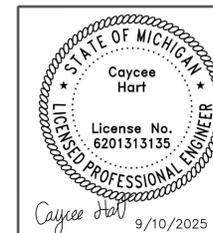
LIFT STATION REPLACEMENT – GENERAL CONSTRUCTION NOTES

- 1) Ductile Iron pipes and valves shall be Class 52 and Hydrogen Sulfide (H₂S) resistant.
- 2) Penetrations into the Wetwell and Valve Vault shall be sealed water tight.
- 3) Support strapping shall be 316 Stainless Steel.
- 4) Pipes and Valves within Wetwell and Valve Vault shall be coated with Epoxy.



PROFILE VIEW

Call 811 before you dig.



Meridian Charter Township
Ingham County, Michigan
SANITARY SEWER

FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP,
INGHAM COUNTY, MICHIGAN

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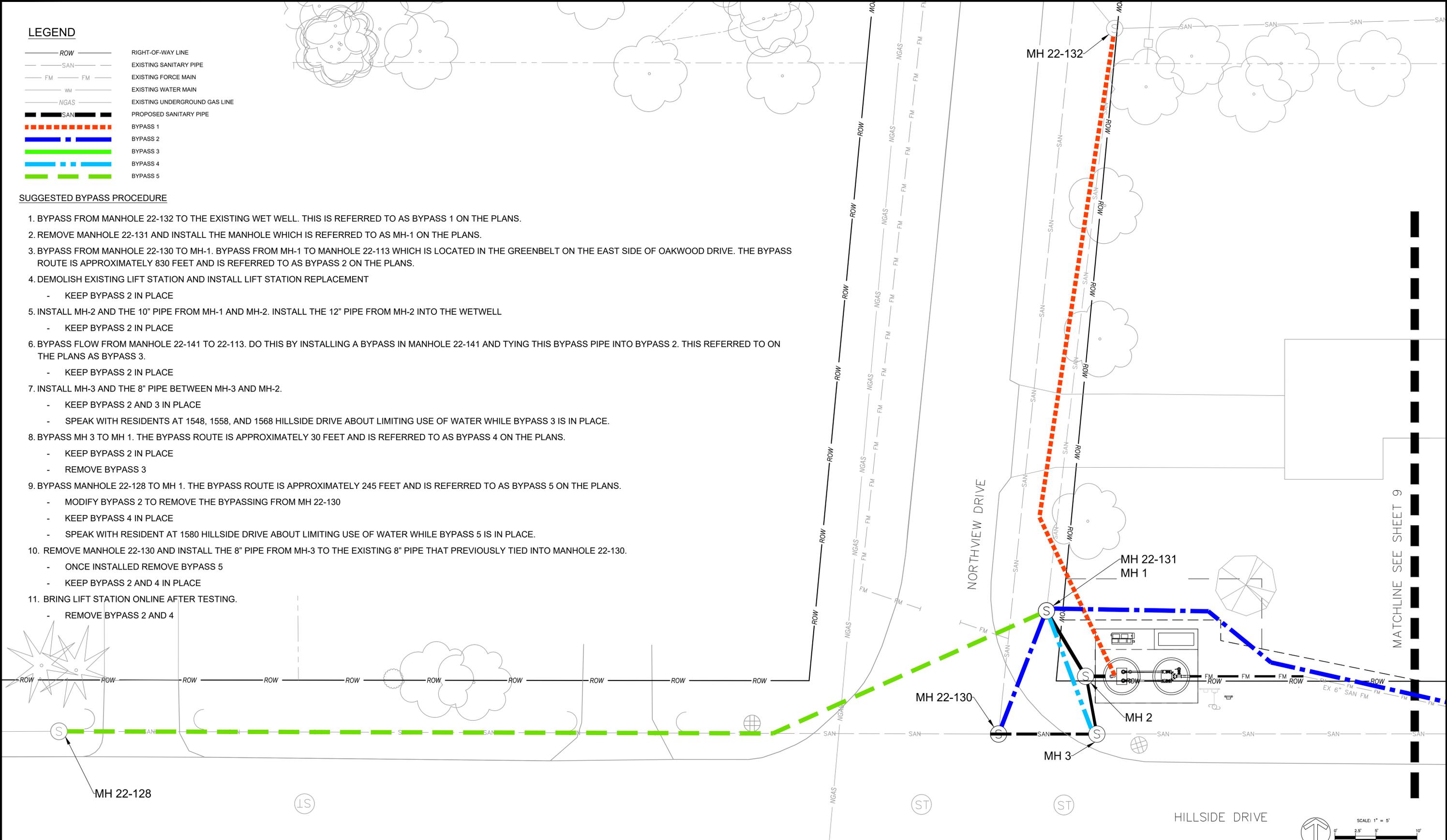
7 - LIFT STATION PLAN & PROFILE

LEGEND

- ROW — RIGHT-OF-WAY LINE
- - - SAN - - - EXISTING SANITARY PIPE
- - - FM - - - EXISTING FORCE MAIN
- - - WM - - - EXISTING WATER MAIN
- - - NGAS - - - EXISTING UNDERGROUND GAS LINE
- - - SAN - - - PROPOSED SANITARY PIPE
- BYPASS 1 —
- BYPASS 2 —
- BYPASS 3 —
- BYPASS 4 —
- BYPASS 5 —

SUGGESTED BYPASS PROCEDURE

1. BYPASS FROM MANHOLE 22-132 TO THE EXISTING WET WELL. THIS IS REFERRED TO AS BYPASS 1 ON THE PLANS.
2. REMOVE MANHOLE 22-131 AND INSTALL THE MANHOLE WHICH IS REFERRED TO AS MH-1 ON THE PLANS.
3. BYPASS FROM MANHOLE 22-130 TO MH-1. BYPASS FROM MH-1 TO MANHOLE 22-113 WHICH IS LOCATED IN THE GREENBELT ON THE EAST SIDE OF OAKWOOD DRIVE. THE BYPASS ROUTE IS APPROXIMATELY 830 FEET AND IS REFERRED TO AS BYPASS 2 ON THE PLANS.
4. DEMOLISH EXISTING LIFT STATION AND INSTALL LIFT STATION REPLACEMENT
 - KEEP BYPASS 2 IN PLACE
5. INSTALL MH-2 AND THE 10" PIPE FROM MH-1 AND MH-2. INSTALL THE 12" PIPE FROM MH-2 INTO THE WETWELL
 - KEEP BYPASS 2 IN PLACE
6. BYPASS FLOW FROM MANHOLE 22-141 TO 22-113. DO THIS BY INSTALLING A BYPASS IN MANHOLE 22-141 AND TYING THIS BYPASS PIPE INTO BYPASS 2. THIS REFERRED TO ON THE PLANS AS BYPASS 3.
 - KEEP BYPASS 2 IN PLACE
7. INSTALL MH-3 AND THE 8" PIPE BETWEEN MH-3 AND MH-2.
 - KEEP BYPASS 2 AND 3 IN PLACE
 - SPEAK WITH RESIDENTS AT 1548, 1558, AND 1568 HILLSIDE DRIVE ABOUT LIMITING USE OF WATER WHILE BYPASS 3 IS IN PLACE.
8. BYPASS MH 3 TO MH 1. THE BYPASS ROUTE IS APPROXIMATELY 30 FEET AND IS REFERRED TO AS BYPASS 4 ON THE PLANS.
 - KEEP BYPASS 2 IN PLACE
 - REMOVE BYPASS 3
9. BYPASS MANHOLE 22-128 TO MH 1. THE BYPASS ROUTE IS APPROXIMATELY 245 FEET AND IS REFERRED TO AS BYPASS 5 ON THE PLANS.
 - MODIFY BYPASS 2 TO REMOVE THE BYPASSING FROM MH 22-130
 - KEEP BYPASS 4 IN PLACE
 - SPEAK WITH RESIDENT AT 1580 HILLSIDE DRIVE ABOUT LIMITING USE OF WATER WHILE BYPASS 5 IS IN PLACE.
10. REMOVE MANHOLE 22-130 AND INSTALL THE 8" PIPE FROM MH-3 TO THE EXISTING 8" PIPE THAT PREVIOUSLY TIED INTO MANHOLE 22-130.
 - ONCE INSTALLED REMOVE BYPASS 5
 - KEEP BYPASS 2 AND 4 IN PLACE
11. BRING LIFT STATION ONLINE AFTER TESTING.
 - REMOVE BYPASS 2 AND 4



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SANITARY SEWER

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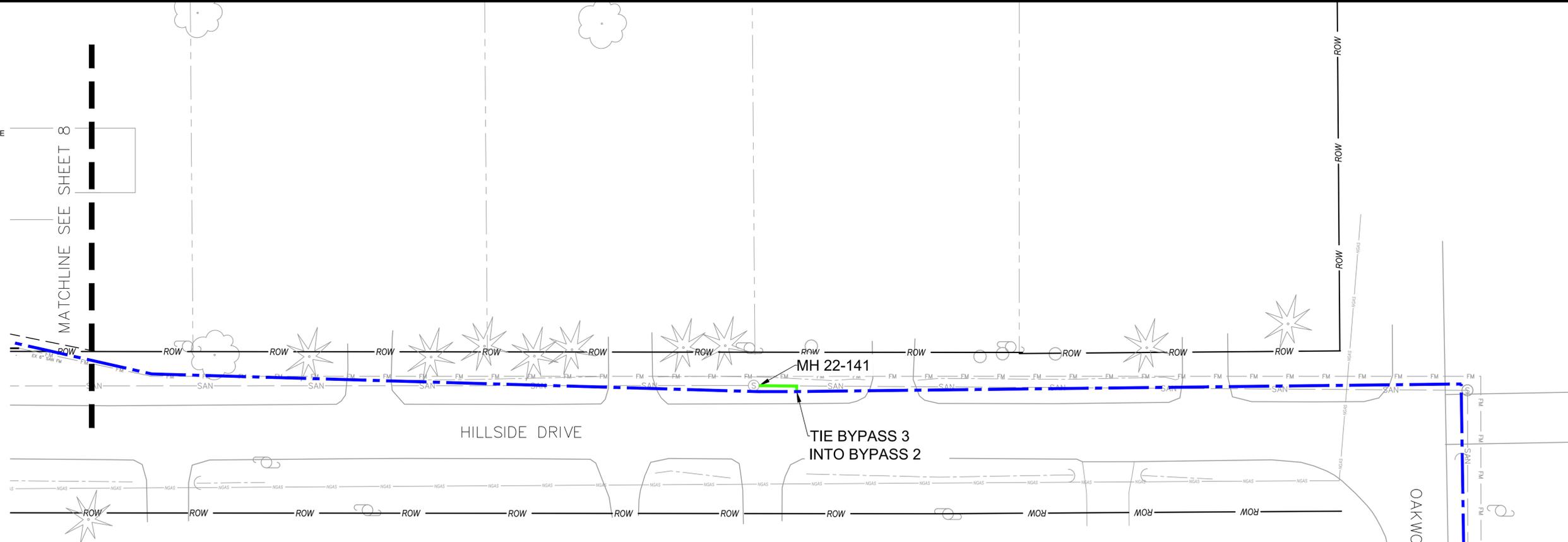
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SHEET: 8 - BYPASS PLAN

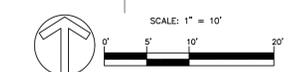
LEGEND

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- SAN — EXISTING SANITARY PIPE
- FM — EXISTING FORCE MAIN
- WM — EXISTING WATER MAIN
- NGAS — EXISTING UNDERGROUND GAS LINE
- SAN — PROPOSED SANITARY PIPE
- BYPASS 1
- BYPASS 2
- BYPASS 3
- BYPASS 4
- BYPASS 5

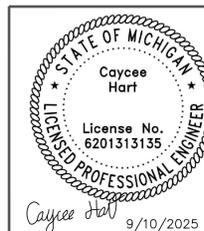


SUGGESTED BYPASS PROCEDURE

1. BYPASS FROM MANHOLE 22-132 TO THE EXISTING WET WELL. BYPASS FROM THE EXISTING WET WELL TO MANHOLE 22-113 WHICH IS LOCATED IN THE GREENBELT ON THE EAST SIDE OF OAKWOOD DRIVE. THE BYPASS ROUTE IS APPROXIMATELY 990 FEET AND IS REFERRED TO AS BYPASS 1 ON THE PLANS.
2. REMOVE MANHOLE 22-131 AND INSTALL THE MANHOLE WHICH IS REFERRED TO AS MH-1 ON THE PLANS.
3. BYPASS FROM MANHOLE 22-130 TO MH-1. BYPASS FROM MH-1 TO MANHOLE 22-113 WHICH IS LOCATED IN THE GREENBELT ON THE EAST SIDE OF OAKWOOD DRIVE. THE BYPASS ROUTE IS APPROXIMATELY 830 FEET AND IS REFERRED TO AS BYPASS 2 ON THE PLANS.
4. DEMOLISH EXISTING LIFT STATION AND INSTALL LIFT STATION REPLACEMENT
 - KEEP BYPASS 2 IN PLACE
5. INSTALL MH-2 AND THE 10" PIPE FROM MH-1 AND MH-2. INSTALL THE 12" PIPE FROM MH-2 INTO THE WETWELL
 - KEEP BYPASS 2 IN PLACE
6. BYPASS FLOW FROM MANHOLE 22-141 TO 22-113. INSTALL BYPASS IN MANHOLE 22-141 AND TIE INTO BYPASS 2. THIS REFERRED TO ON THE PLANS AS BYPASS 3.
 - KEEP BYPASS 2 IN PLACE
7. INSTALL MH-3 AND THE 8" PIPE BETWEEN MH-3 AND MH-2.
 - KEEP BYPASS 2 AND 3 IN PLACE
 - SPEAK WITH RESIDENTS AT 1548, 1558, AND 1568 HILLSIDE DRIVE ABOUT LIMITING USE OF WATER WHILE BYPASS 3 IS IN PLACE.
8. BYPASS MH 3 TO MH 1. THE BYPASS ROUTE IS APPROXIMATELY 30 FEET AND IS REFERRED TO AS BYPASS 4 ON THE PLANS.
 - KEEP BYPASS 2 IN PLACE
 - REMOVE BYPASS 3
9. BYPASS MANHOLE 22-128 TO MH 1. THE BYPASS ROUTE IS APPROXIMATELY 245 FEET AND IS REFERRED TO AS BYPASS 5 ON THE PLANS.
 - MODIFY BYPASS 1 TO REMOVE THE BYPASSING FROM MH 22-130
 - KEEP BYPASS 4 IN PLACE
 - SPEAK WITH RESIDENT AT 1580 HILLSIDE DRIVE ABOUT LIMITING USE OF WATER WHILE BYPASS 5 IS IN PLACE.
10. REMOVE MANHOLE 22-130 AND INSTALL THE 8" PIPE FROM MH-3 TO THE EXISTING 8" PIPE THAT PREVIOUSLY TIED INTO MANHOLE 22-130.
 - ONCE INSTALLED REMOVE BYPASS 5
 - KEEP BYPASS 1 AND 4 IN PLACE
11. BRING LIFT STATION ONLINE AFTER TESTING.
 - a. REMOVE BYPASS 1 AND 4



Call 811 before you dig.



| | |
|---|----------------|
| Meridian Charter Township Ingham County, Michigan | |
| SANITARY SEWER | |
| FOREST HILLS LIFT STATION REPLACEMENT SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN | |
| DRAWN BY: CH | CHECKED BY: VI |

| REVISIONS: | | |
|------------|-----|---------------|
| DATE | BY: | COMMENTS: |
| 09.05.25 | CH | EGL SUBMITTAL |
| 09.10.25 | CH | BID PLANS |
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| | | |
| SHEET: | | |

C:\Engineering & Public Works\Projects\Sewer\Projects\Forest Hills Lift Station Replacement\CAD\Plans\Bypass Plan.dwg

Natural Gas Service: Meter Posts

5.13 FREESTANDING METER SUPPORT

General

- Consumers Energy reserves the right to refuse to connect a gas service to an improperly installed meter support.
- Use freestanding support where the building wall will not support the meter installation.

Meter Pedestal

This meter pedestal can also accommodate the following sizes: Multiple 175 RMs, 250 Metris, 425, 800, 1000, and up to 11M compact rotary meters.

- 16" between posts will accommodate 425 through 11M compact rotary meter installations.
- 36" between posts will accommodate multiples of up to three 250 RMM Metris meters.
- Up to a 60" span is acceptable for multiples of greater than three 250 RMM Metris meters.

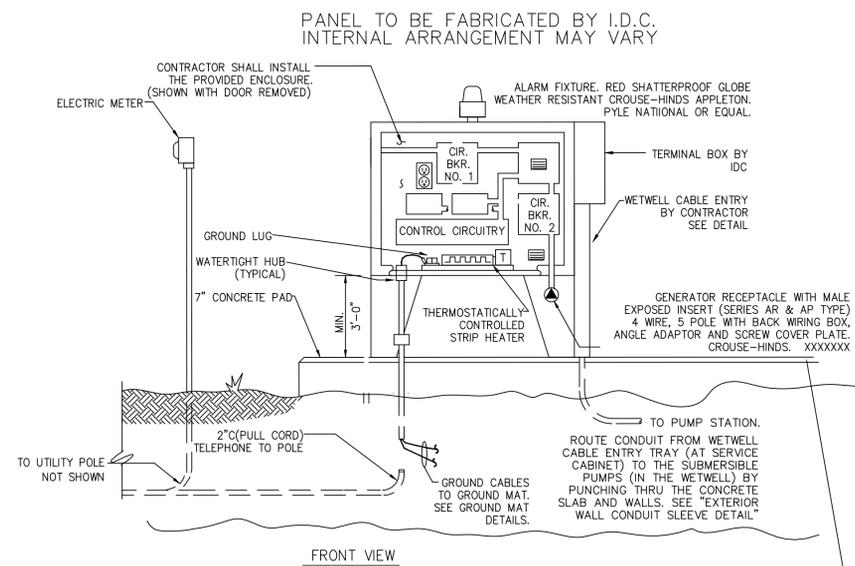
Height

Height is field adjustable based on selected meter stand.

Customer Responsibilities

Customer to provide and install Items **A** and **B** (Figure 1). Fence posts are NOT acceptable:

- For 1.5-7 M rotary meters — Use two 2" ID (internal diameter) galvanized steel pipe (Schedule 40) a minimum of 11' long.
- For 11M-16M rotary meters — Use two 3" ID (internal diameter) galvanized steel pipe (Schedule 40) a minimum of 11' long.
- A 6" (or larger) auger is recommended for the postholes. The steel pipes must be plumb.



CONTROL PANEL AND POLE DETAILS

- 240V SINGLE PHASE, CROUSE-HINDS AR6375-22
- 240V 3-PHASE, CROUSE-HINDS AR6415-22
- 480V 3-PHASE, CROUSE-HINDS AR10415-22

THE CONTROL PANEL DIMENSIONS SHALL NOT EXCEED 30" HIGH IF SPACE IS NOT SUFFICIENT FOR ALL REQUIRED COMPONENTS, THE CABINET SHALL BE EXTENDED IN WIDTH PAINT CONTROL PANEL FOREST GREEN OR TO MATCH UTILITY TRANSFORMER.

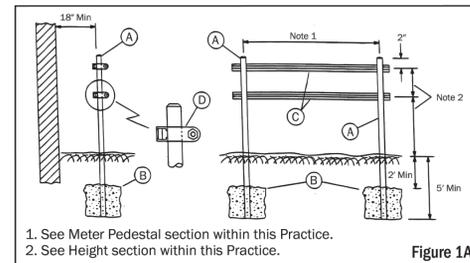


Figure 1A

- See Meter Pedestal section within this Practice.
- See Height section within this Practice.

| Item | Quantity | Description | Material No. |
|------|-------------|-----------------------------------|--------------|
| A | 2 | Galvanized steel pipe (11 feet) | Customer* |
| B | - | Concrete | Customer* |
| C | As Required | Unistrut channel — 1-5/8" x 3/16" | 10143622 |
| D | 4 | 2" STD Unistrut pipe clamp | 10090216 |

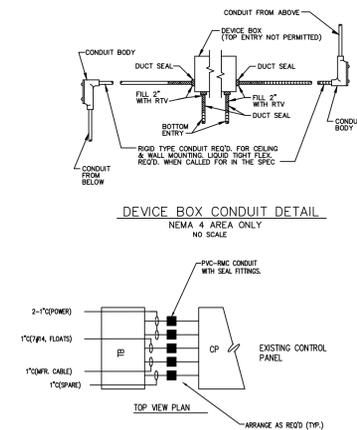
*See Customer Responsibilities section within this Practice.

Figure 1B

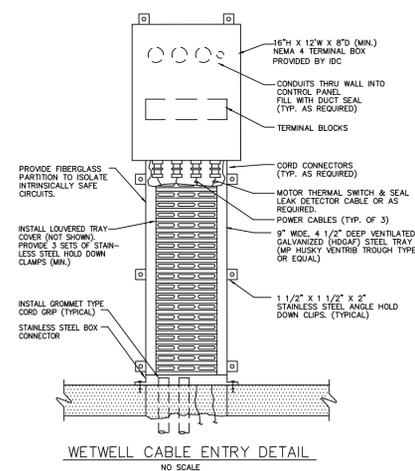
GAS SERVICE MANUAL

The Controlled Version of this document is provided electronically for use by Company Employees and Contractors. For print documents to be valid, the holder has the sole responsibility to ensure the date matches the Controlled Version.

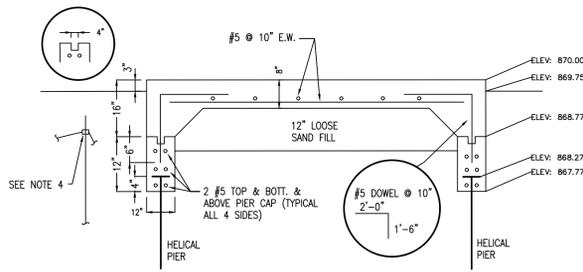
REVISION: 04 | 01 | 2017



DEVICE BOX CONDUIT DETAIL



WETWELL CABLE ENTRY DETAIL

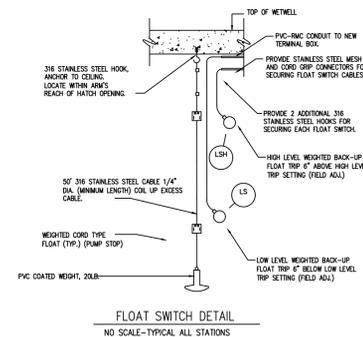


PAD NOTES:

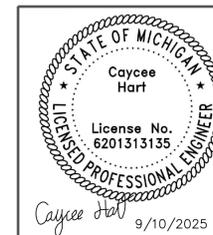
- ALL CONCRETE SHALL ACHIEVE 4000 PSI AT 28 DAYS AND SHALL BE AIR ENTRAINED, CHAMFER EXPOSED EDGES 3/4". REBAR IS TO BE EPOXY COATED.
- PROVIDE OPENINGS FOR GENERATOR CONDUITS AS REQUIRED. SEE DETAIL SHEET.
- ADJUST PAD DIMENSIONS FOR PROPOSED EQUIPMENT PAD SHALL BE 24 INCHES LONGER AND WIDER THAN PROPOSED EQUIPMENT OR AS DIMENSIONED ON THE PLANS, WHICHEVER IS GREATER.
- FURNISH AND INSTALL 4 - 3/4"x10" GROUND RODS IN UNDISTURBED SOIL NEAR PAD CORNERS. INTERCONNECT WITH NO. 4/0 BARE COPPER GROUND CABLE. CONNECT TO GENERATOR GROUND LUG AND TO MAIN GROUND BUS WITH NO. 4/0 CABLE.

GENERATOR PAD DETAIL (MODIFIED)

SCALE: NTS



FLOAT SWITCH DETAIL



Meridian Charter Township
Ingham County, Michigan
SANITARY SEWER

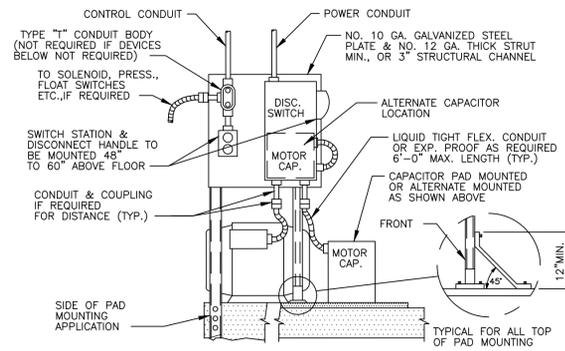
FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP,
INGHAM COUNTY, MICHIGAN

DRAWN BY: CH

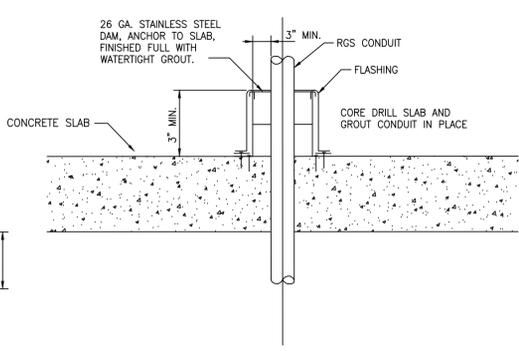
CHECKED BY: YI

| REVISIONS: | | |
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| DATE | BY: | COMMENTS: |
| 09.05.25 | CH | EGLE SUBMITTAL |
| 09.10.25 | CH | BID PLANS |

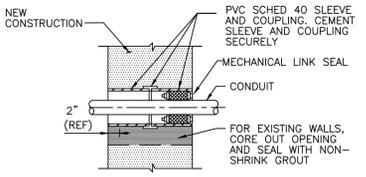
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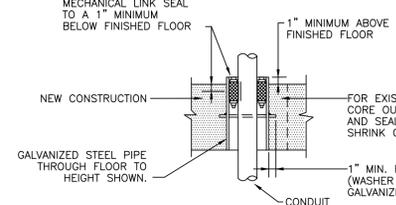
MOTOR CONDUIT DETAIL (PLATE OR WALL MOUNTED)
NO SCALE
CONDUIT FROM ABOVE
POWER & CONTROL IN SEPARATE CONDUIT



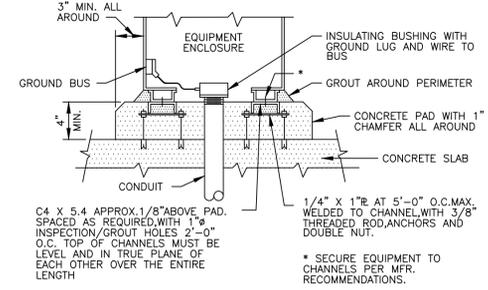
EXTERIOR SLAB CONDUIT PENETRATION DETAIL
NO SCALE



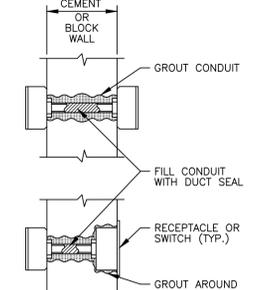
EXTERIOR WALL CONDUIT SLEEVE DETAIL
NO SCALE
DO NOT USE BELOW GRADE



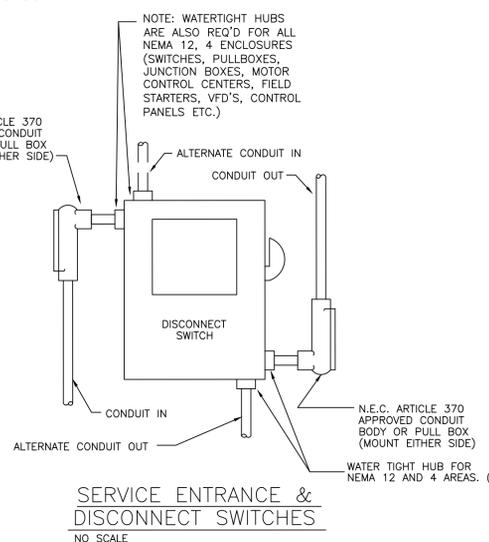
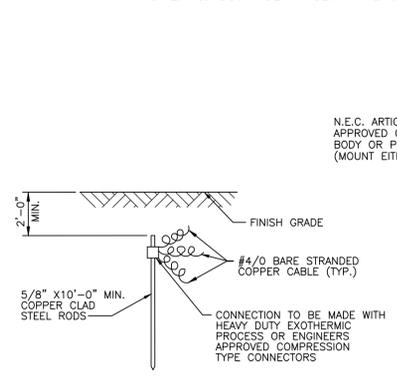
INTERIOR FLOOR CONDUIT SLEEVE DETAIL
NO SCALE



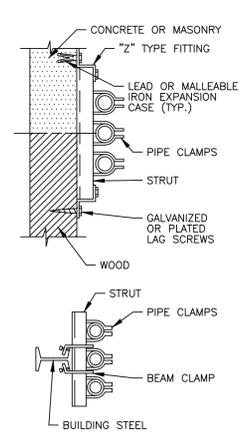
OUTDOOR PAD MOUNTED EQUIPMENT DETAIL
NO SCALE



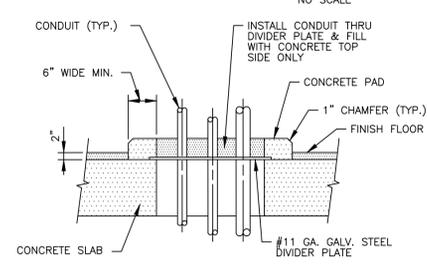
WALL BOXES BACK-TO-BACK FOR SOUND PROOFING
NO SCALE



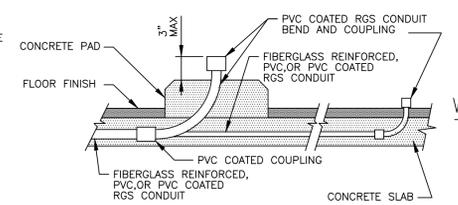
SERVICE ENTRANCE & DISCONNECT SWITCHES
NO SCALE



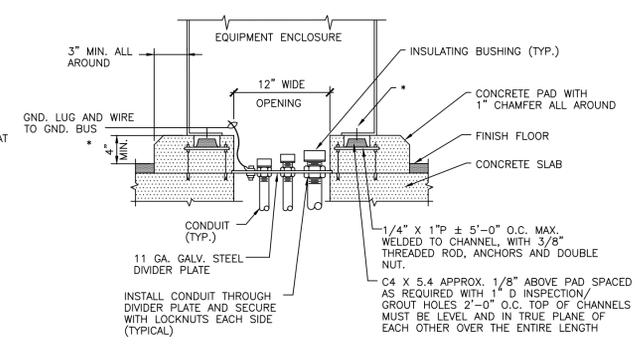
VERTICAL AND HORIZONTAL CONDUIT RACKS AND HANGERS



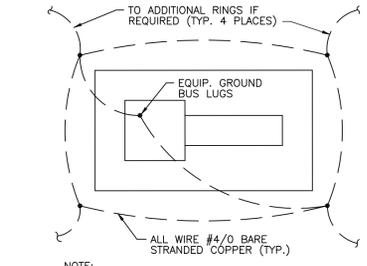
INTERIOR FLOOR CONDUIT FLOOR OPENING DETAIL
NO SCALE



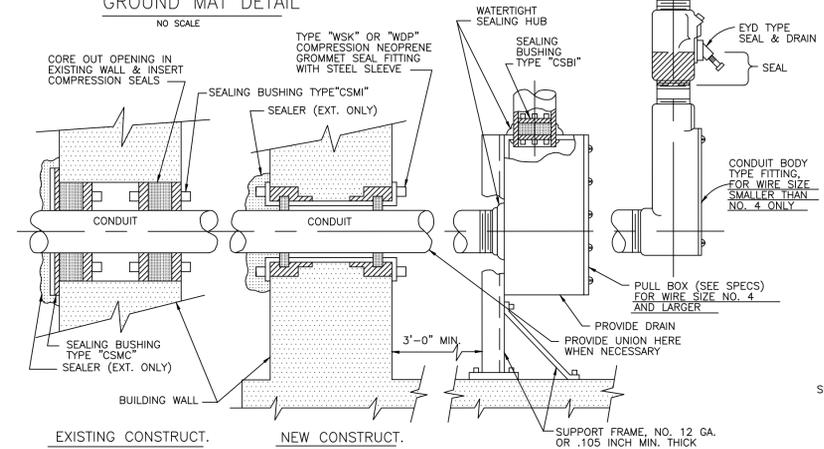
CONDUIT STUB-UP DETAIL
NO SCALE



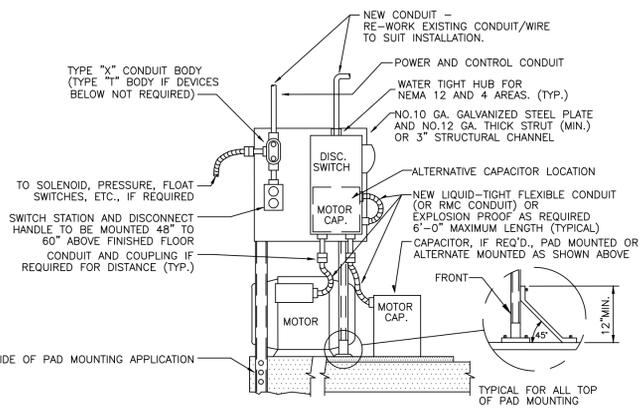
INTERIOR PAD MOUNTED EQUIPMENT DETAIL
NO SCALE



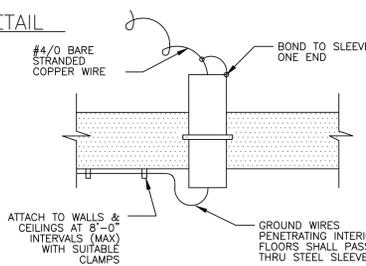
GROUND MAT DETAIL
NO SCALE



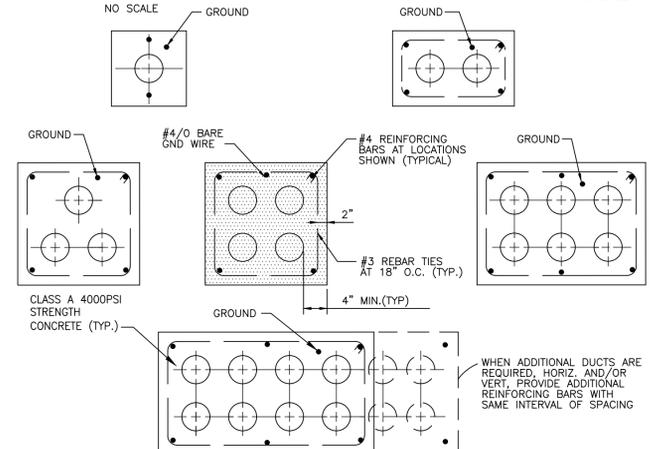
BELOW GRADE CONDUIT ENTRANCE DETAIL
NO SCALE
NOTE: ALL CONDUIT ENTRANCES SHALL HAVE SEAL & DRAIN



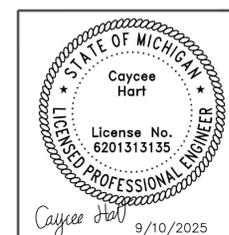
MOTOR DISCONNECT DETAIL
NO SCALE
FOR NEW DISCONNECTS SHOWN TO BE PROVIDE FOR EXISTING MOTORS. (TYPICAL)



INTERIOR GROUND FLOOR SLEEVE
NO SCALE



UNDERGROUND DUCT SECTIONS
NO SCALE



**Meridian Charter Township
Ingham County, Michigan**

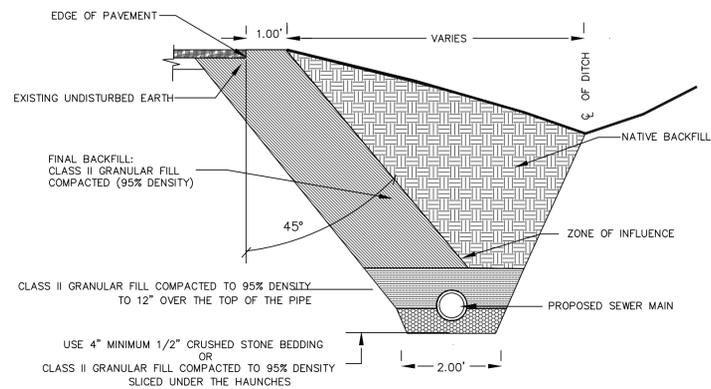
SANITARY SEWER

FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP,
INGHAM COUNTY, MICHIGAN

DRAWN BY: CH CHECKED BY: YI

| REVISIONS: | | |
|------------|-----|----------------|
| DATE | BY: | COMMENTS: |
| 09.05.25 | CH | EGLE SUBMITTAL |
| 09.10.25 | CH | BID PLANS |

SHEET:

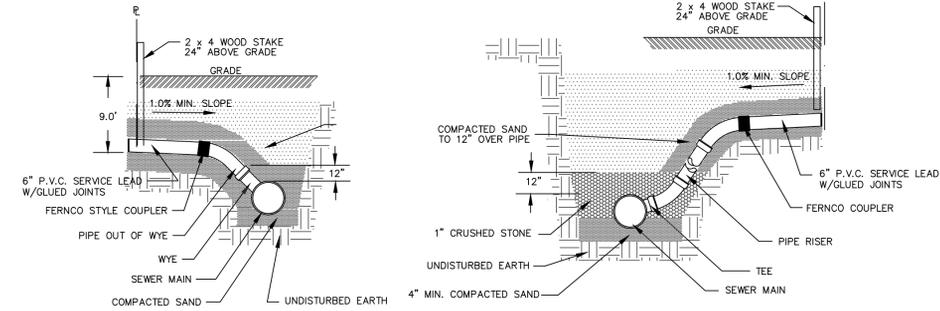


CLASS-B TRENCH DETAIL

- NOTES:
- LEADS AND RISERS SHALL BE CONSTRUCTED OF MATERIALS AS SPECIFIED AND OF SIZES AS SHOWN ON THE PLANS.
 - DEPTH AT PROPERTY LINE SHALL BE 9' UNLESS OTHERWISE SHOWN ON THE PLANS.
 - IF CONCRETE PIPE IS USED, AN ASBESTOS CEMENT BELL IS TO BE CAST IN THE WALL OF THE PIPE FOR USE AS A TEE BRANCH.
 - FERNCO-STYLE FLEXIBLE COUPLERS SHALL BE USED WHEN CONNECTING THE HOUSE TO THE STUB.
 - MIN. 3" SEPARATION BETWEEN WATER & SEWER SERVICES.
 - ALL REFERENCES TO STONE BEDDING SHALL MEAN CRUSHED STONE.

PLAN WITHOUT RISER

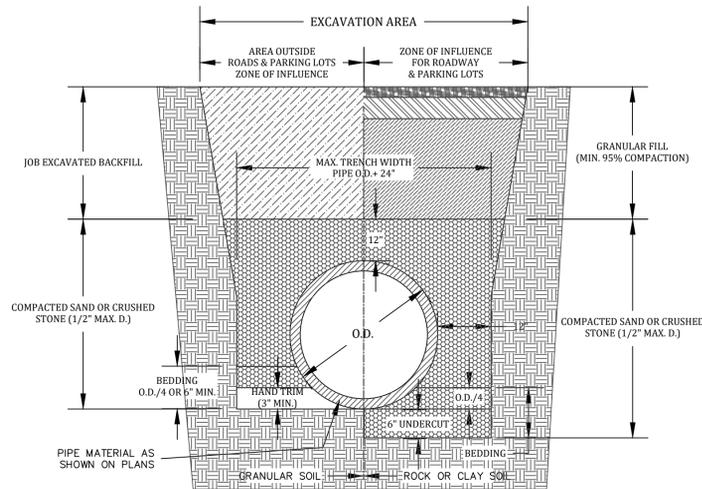
PLAN WITH RISER



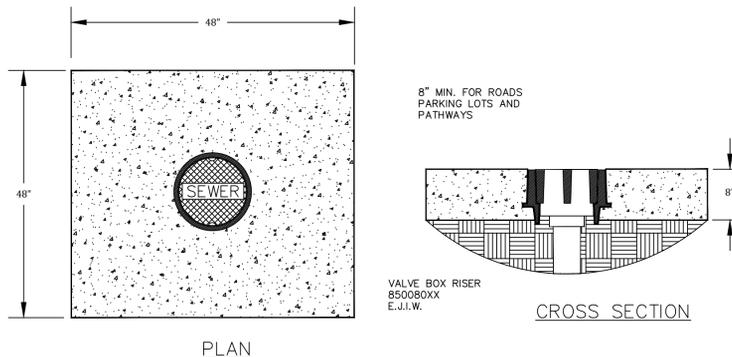
SECTION WITHOUT RISER

SECTION WITH RISER

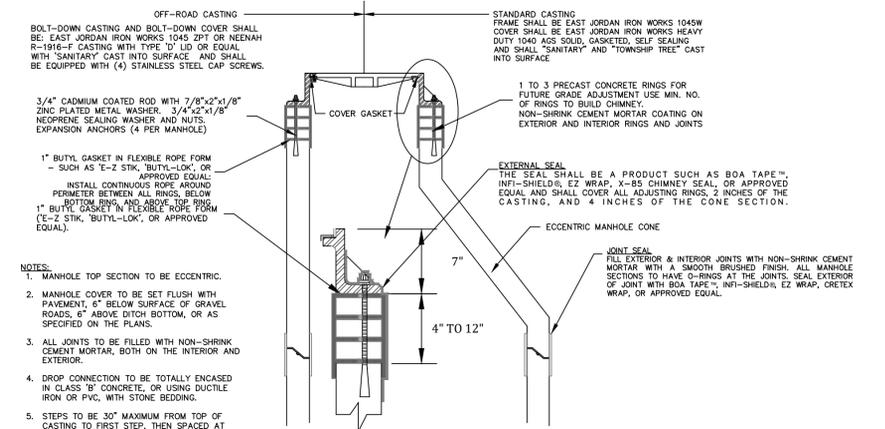
SERVICE/CONNECTION DETAIL



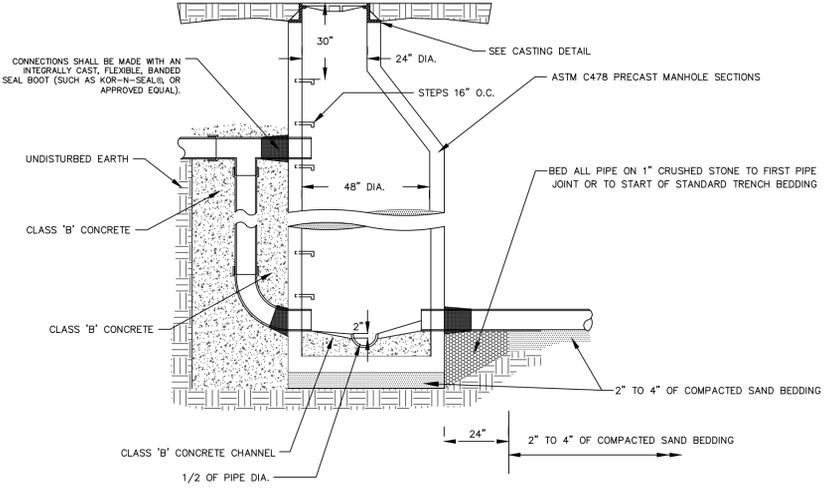
TYPICAL TRENCH DETAIL (SDR26 PVC ONLY)



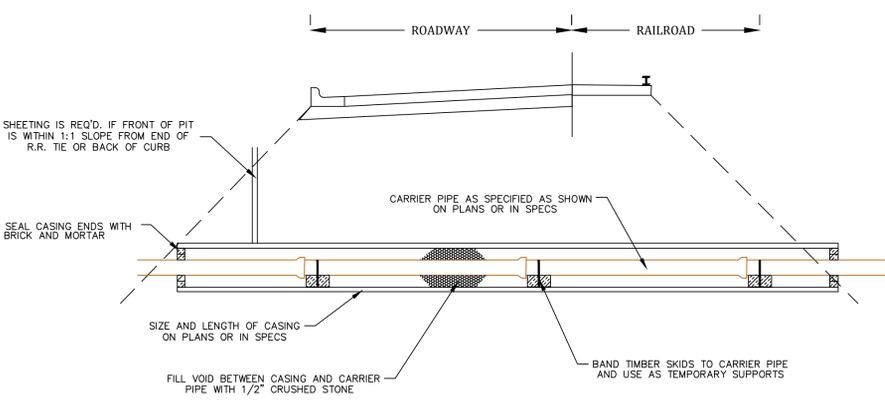
CLEANOUT BOXES IN CONCRETE



MANHOLE CASTING DETAIL

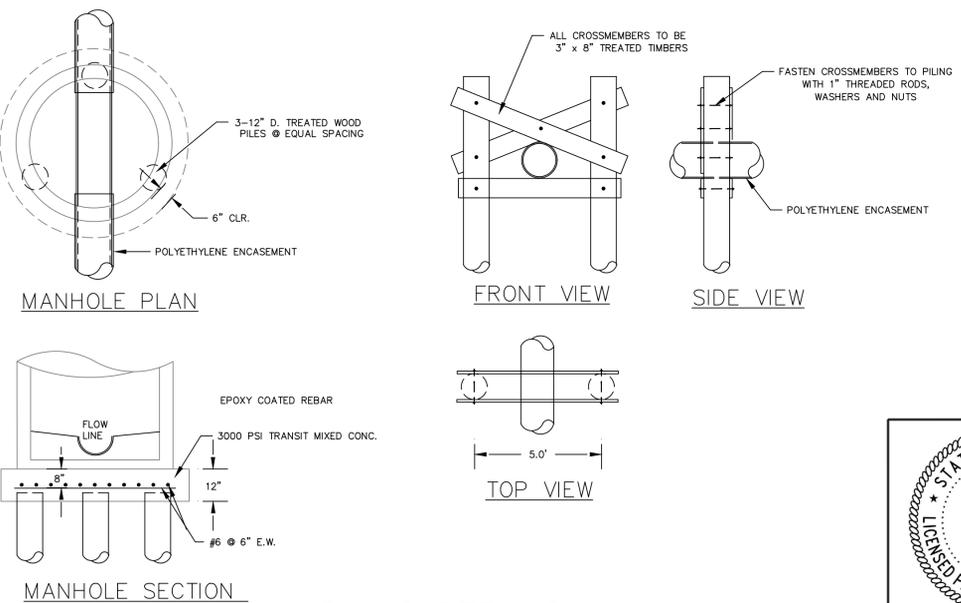


MANHOLE-SECTION DETAIL

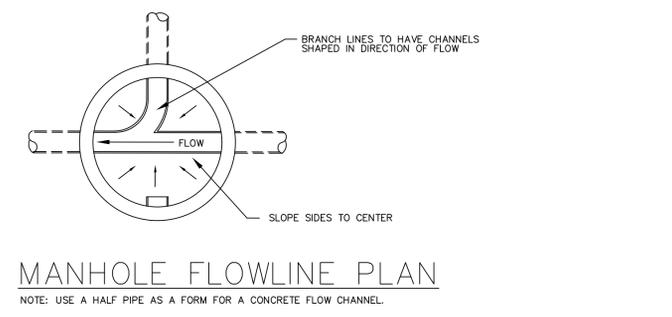


CASING INSTALLATION DETAIL FOR ROADS & RAILROADS

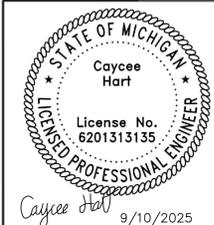
- NOTES:
- WORK IN ROAD OR RAILROAD RIGHTS-OF-WAY SHALL BE IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AGENCY'S REQUIREMENTS.
 - CASING PIPE SHALL MEET THE GRADE B REQUIREMENTS OF ASTM 139, ASTM A-53, OR API 5-L, WITH 0.375" MINIMUM WALL THICKNESS.



PILING DETAILS



MANHOLE FLOWLINE PLAN



Meridian Charter Township
Ingham County, Michigan
SANITARY SEWER

FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

DRAWN BY: CH CHECKED BY: YI

| REVISIONS: | | |
|------------|-----|----------------|
| DATE | BY: | COMMENTS: |
| 09.05.25 | CH | EGLE SUBMITTAL |
| 09.10.25 | CH | BID PLANS |

SHEET: 12 - STANDARD DETAILS FOR SANITARY SEWER SYSTEM

LEGEND

- ROW — RIGHT-OF-WAY LINE
- SAN — EXISTING SANITARY PIPE
- FM — EXISTING FORCE MAIN
- WM — EXISTING WATER MAIN
- NGAS — EXISTING UNDERGROUND GAS LINE
- █ SAN █ PROPOSED SANITARY PIPE
- UG-ELEC — PROPOSED UNDERGROUND ELECTRIC
- NGAS — PROPOSED UNDERGROUND GAS LINE
- ▨ PROPOSED MULCH BED

SOIL MIXTURE

1. SOIL MIXTURE SHALL CONSIST OF TWO PARTS OF TOPSOIL AND ONE PART SAND, AS DESCRIBED BELOW.
 - a. TOPSOIL FOR USE IN PREPARING SOIL MIXTURE FOR BACKFILLING PLANT OPENINGS SHALL BE FERTILE, FRIABLE, AND OF A LOAMY CHARACTER; REASONABLY FREE OF SUBSOIL, CLAY LUMPS, BRUSH WEEDS AND OTHER LITTER; FREE OF ROOTS, STUMPS, STONES LARGER THAN 2" IN ANY DIRECTION, AND OTHER EXTRANEIOUS OR TOXIC MATTER HARMFUL TO PLANTGROWTH. IT SHALL CONTAIN THREE (3) TO FIVE (5) PERCENT DECOMPOSED ORGANIC MATTER.
 - b. SAND SHALL BE COARSE, CLEAN, WELL-DRAINING, NATIVE SAND.
2. TREES SHALL BE PLANTED IN THE EXISTING NATIVE SOIL ON SITE, UNLESS DETERMINED TO BE UNSUITABLE – AT WHICH POINT THE CONTRACTOR SHALL CONTACT THE PROJECT LANDSCAPE ENGINEER TO DISCUSS ALTERNATE RECOMMENDATION PRIOR TO PLANTING.

PLANTING PROCEDURES

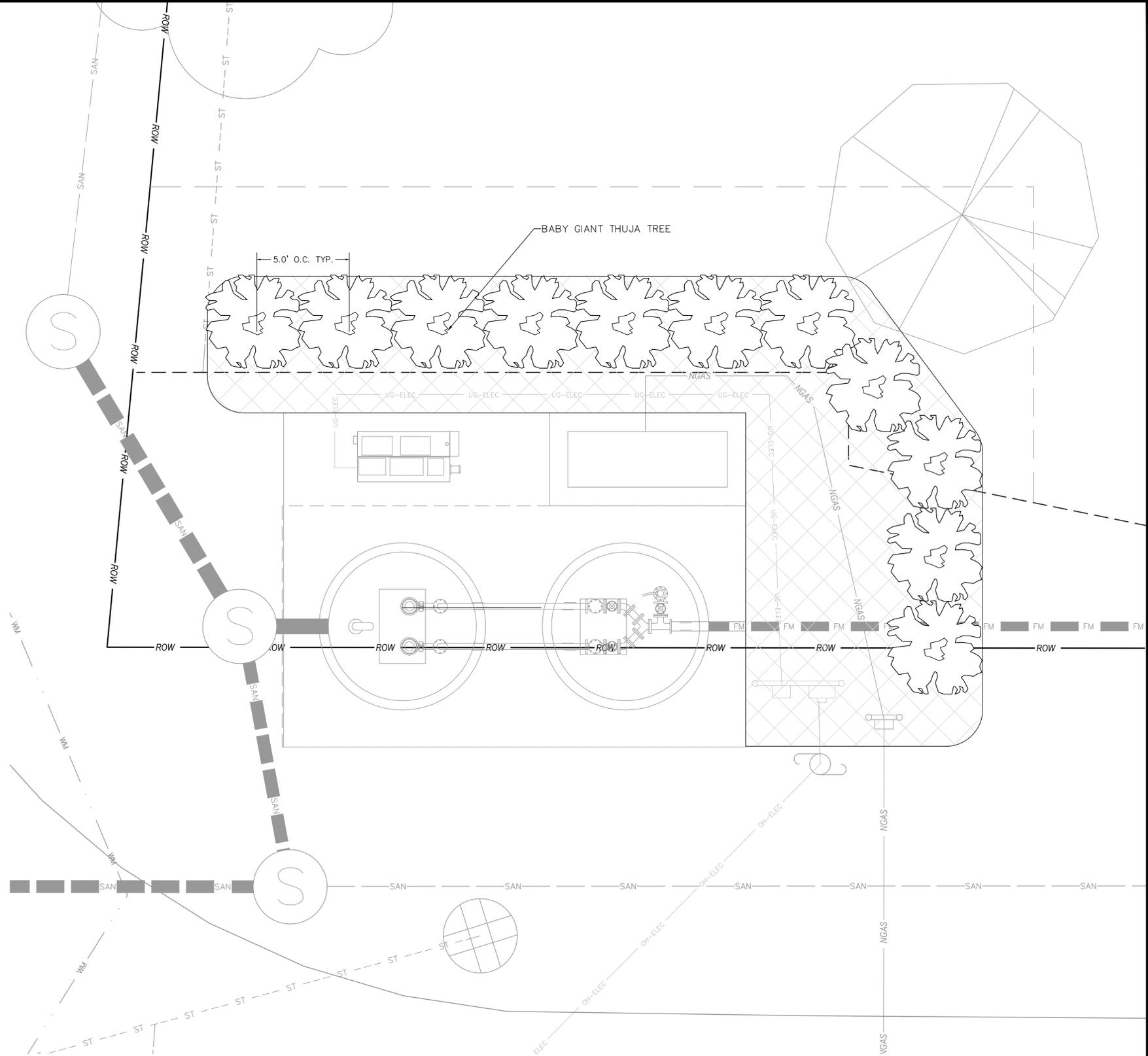
1. THE CONTRACTOR SHALL CLEAN WORK AND SURROUNDING AREAS OF ALL RUBBISH OR OBJECTIONABLE MATTER DAILY. ALL MORTAR, CEMENT, BUILDING MATERIALS, AND TOXIC MATERIAL SHALL BE COMPLETELY REMOVED FROM PLANTING AREAS. THESE MATERIALS SHALL NOT BE MIXED WITH THE SOIL. SHOULD THE CONTRACTOR FIND SUCH SOIL CONDITIONS IN PLANTING AREAS WHICH WILL ADVERSELY AFFECT THE PLANT GROWTH, THE CONTRACTOR SHALL IMMEDIATELY CALL IT TO THE ATTENTION OF THE PROJECT ENGINEER. FAILURE TO DO SO BEFORE PLANTING SHALL MAKE THE CORRECTIVE MEASURES THE RESPONSIBILITY OF THE CONTRACTOR.
2. VERIFY LOCATIONS OF ALL UTILITIES, CONDUITS, SUPPLY LINES AND CABLES, INCLUDING BUT NOT LIMITED TO: ELECTRIC, GAS, WATER, SANITARY SEWER, STORMWATER SYSTEMS, CABLE, AND TELEPHONE. PROPERLY MAINTAIN AND PROTECT EXISTING UTILITIES.
3. TEST ALL TREE OPENINGS WITH WATER BEFORE PLANTING TO ASSURE PROPER DRAINAGE PERCOLATION IS AVAILABLE. NO ALLOWANCE WILL BE MADE FOR LOST PLANTS DUE TO IMPROPER DRAINAGE. IF POOR DRAINAGE EXISTS NOTIFY THE PROJECT ENGINEER.
4. TREES SHALL BE SET PLUMB AND HELD IN POSITION UNTIL THE PLANTING MIXTURE HAS BEEN FLUSHED INTO PLACE WITH A SLOW, FULL HOSE STREAM. ALL PLANTING SHALL BE PERFORMED BY PERSONNEL FAMILIAR WITH PLANTING PROCEDURES AND UNDER THE SUPERVISION OF A QUALIFIED LANDSCAPE FOREMEN.
5. PRIOR TO EXCAVATION OF TREE OPENINGS, AN AREA EQUAL TO TWO TIMES THE DIAMETER OF THE ROOT BALL SHALL BE ROTO-TILLED TO A DEPTH EQUAL TO THE DEPTH OF THE ROOT BALL.
6. EXCAVATION OF TREE OPENINGS SHALL BE PERFORMED USING EXTREME CARE TO AVOID DAMAGE TO SURFACE AND SUBSURFACE ELEMENTS SUCH AS UTILITIES OR HARDSCAPE ELEMENTS, FOOTERS AND PREPARED SUB-BASES.
7. IN CONTINUOUS SHRUB AND GROUND COVER BEDS, THE ROTO-TILLED PERIMETER SHOULD EXTEND TO A DISTANCE OF ONE FOOT BEYOND THE DIAMETER OF A SINGLE ROOT BALL. THE BED SHALL BE TILLED TO A DEPTH EQUAL TO THE ROOT BALL DEPTH PLUS 6".
8. TREE OPENINGS FOR WELL DRAINED SOILS SHALL BE DUG SO THAT THE BOTTOM OF THE ROOT BALL WILL REST ON UNDISTURBED SOIL AND THE TOP OF THE ROOT BALL WILL BE FLUSH WITH FINISH GRADE. IN POORLY DRAINED SOILS THE
9. TREE OPENING SHALL BE DUG SO THAT THE ROOT BALL RESTS ON UNDISTURBED SOIL AND THE TOP OF THE ROOT BALL IS 1" ABOVE FINISH GRADE. PLANT PIT WALLS SHALL BE SCARIFIED PRIOR TO PLANT INSTALLATION.
10. TREES AND SHRUBS SHALL BE SET STRAIGHT AT AN ELEVATION THAT, AFTER SETTLEMENT, THE PLANT CROWN WILL STAND ONE (1) TO TWO (2) INCHES ABOVE GRADE. EACH PLANT SHALL BE SET IN THE CENTER OF THE PIT. SOIL MIXTURE SHALL BE BACK FILLED, THOROUGHLY TAMPED AROUND THE BALL, AND SETTLED BY WATER (AFTER TAMPING).
11. FILL HOLE WITH SOIL MIXTURE, MAKING CERTAIN ALL SOIL IS SATURATED. TO DO THIS, FILL HOLE WITH WATER AND ALLOW TO SOAK MINIMUM TWENTY (20) MINUTES, STIRRING IF NECESSARY TO GET SOIL THOROUGHLY WET. PACK LIGHTLY WITH FEET, ADD MORE WET SOIL MIXTURE. DO NOT COVER TOP OF BALL WITH SOIL MIXTURE.
12. ALL BURLAP, ROPE, WIRES, BASKETS, ETC., SHALL BE REMOVED FROM THE SIDES AND TOPS OF BALLS, BUT NO BURLAP SHALL BE PULLED FROM UNDERNEATH.

MULCH

13. MULCH MATERIAL SHALL BE MOISTENED AT THE TIME OF APPLICATION TO PREVENT WIND DISPLACEMENT, AND APPLIED AT A DEPTH OF THREE (3) INCHES CLEAR MULCH FROM EACH PLANT'S CROWN (BASE). MULCH SHALL BE DOUBLE SHREDDED HARDWOOD MULCH. DYED MULCH IS NOT ACCEPTABLE. MULCH SHALL BE PROVIDED OVER THE ENTIRE MULCH BED AS SHOWN ON THE PLANS.

WATER

14. WATER NECESSARY FOR PLANTING AND MAINTENANCE SHALL BE OF SATISFACTORY QUALITY TO SUSTAIN ADEQUATE PLANT GROWTH AND SHALL NOT CONTAIN HARMFUL, NATURAL OR MAN-MADE ELEMENTS DETRIMENTAL TO PLANTS. WATER MEETING THE ABOVE STANDARD SHALL BE OBTAINED ON THE SITE FROM THE OWNER, IF AVAILABLE, AND THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ARRANGEMENTS FOR ITS USE BY HIS TANKS, HOSES, SPRINKLERS, ETC...IF SUCH WATER IS NOT AVAILABLE AT THE SITE, THE CONTRACTOR SHALL PROVIDE SATISFACTORY WATER FROM SOURCE OFF THE SITE AT NO ADDITIONAL COST TO THE TOWNSHIP.

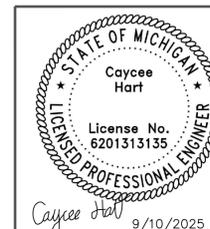


PLANTING SCHEDULE

| QUANTITY | BOTANICAL NAME | COMMON NAME | SIZE AT PLANTING | SPACING |
|----------|--|------------------|-----------------------|--------------|
| 11 | THUJA PLICATA X STANDISHII PPAF 61830744 'VIRGINIAN' | BABY GIANT THUJA | 4-5 FT HEIGHT MINIMUM | 5' ON CENTER |

Call 811 before you dig.

WOLVERINE PIPE LINE COMPANY 219-844-9510



Meridian Charter Township
Ingham County, Michigan
SANITARY SEWER

FOREST HILLS LIFT STATION REPLACEMENT
SE 1/4 SECTION 22, T4N, R1W, MERIDIAN TOWNSHIP,
INGHAM COUNTY, MICHIGAN

DRAWN BY: CH

CHECKED BY: YI

| REVISIONS: | | |
|------------|-----|----------------|
| DATE | BY: | COMMENTS: |
| 09.05.25 | CH | EGLE SUBMITTAL |
| 09.10.25 | CH | BID PLANS |

SHEET: