

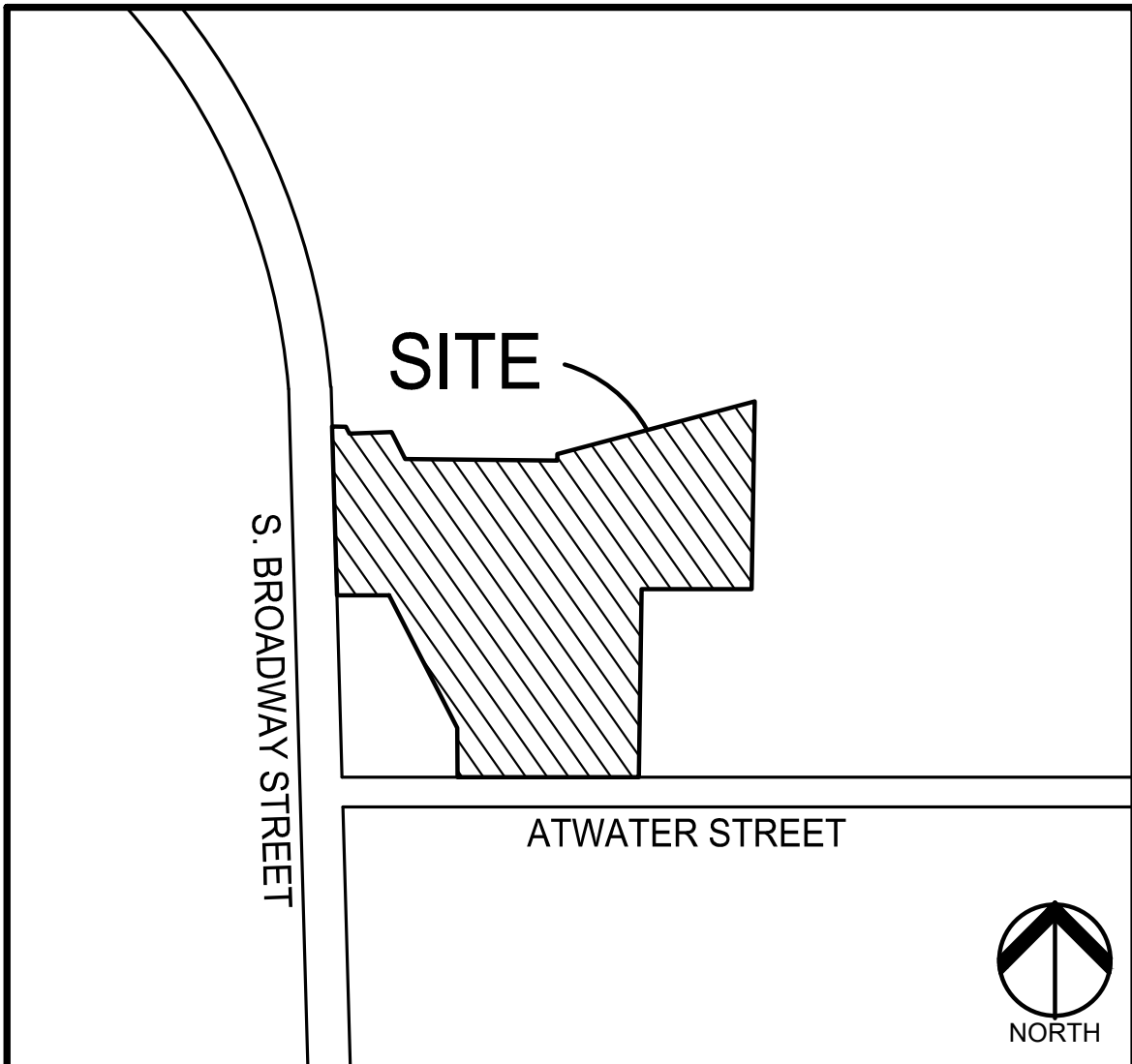
FINAL SITE PLANS

LAKE ORION LUMBER

215 SOUTH BROADWAY STREET

LAKE ORION, MICHIGAN

| PERMIT / APPROVAL SUMMARY |               |                   |
|---------------------------|---------------|-------------------|
| DATE SUBMITTED            | DATE APPROVED | PERMIT / APPROVAL |
| 5/27/2026                 |               | SPA               |
| 7/28/2026                 |               | FSPA              |



LOCATION MAP  
NO SCALE

| PROJECT NARRATIVE                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| THE LUMBER YARD AT PAINT CREEK REIMAGINES ONE OF LAKE ORION'S MOST SIGNIFICANT HISTORICAL INDUSTRIAL PROPERTIES AS A MULTIFUNCTIONAL PUBLIC MARKETPLACES, CULTURAL VENUES, TRAILHEAD DESTINATION, AND EXTENSION OF DOWNTOWN RETAIL AND CIVIC ACTIVITY. THE PROJECT EMPHASIZES PRESERVATION-BASED REDEVELOPMENT, ADAPTIVE REUSE AND CREATION OF SUBSTANTIAL PUBLIC AMENITIES WHILE REINFORCING THE HISTORICAL CHARACTER AND SPECIAL ORGANIZATION OF THE FORMER LUMBER YARD. |
| THE REDEVELOPMENT IS CENTERED ON THE RESTORATION AND ACTIVATION OF HISTORICAL STRUCTURES AND THEIR SURROUNDING GROUNDS, TRANSFORMING AN UNDERUTILIZED SITE INTO A COMMUNITY-BASED DESTINATION SERVING RESIDENTS, VISITORS, AND TRAIL USERS. THE DEVELOPMENT WILL HAVE THE FOLLOWING KEY COMPONENTS:                                                                                                                                                                        |
| EVENT BARN<br>MARKET PAVILION<br>TRAILHEAD<br>OUTDOOR PUBLIC SPACES<br>COMMERCIAL AND RETAIL                                                                                                                                                                                                                                                                                                                                                                               |
| THE PROPOSED SITE WILL BE CONSTRUCTED IN THREE PHASES                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1. CONSTRUCT BARN, TRAILHEAD AND EXISTING RETAIL<br>2. CONSTRUCT BIKE SHOP AND FRONTAGE RETAIL<br>3. CONSTRUCT MIXED USE                                                                                                                                                                                                                                                                                                                                                   |

| INDEX OF DRAWINGS |                                                |
|-------------------|------------------------------------------------|
| NUMBER            | TITLE                                          |
|                   | COVER SHEET                                    |
| C-1.0             | TOPOGRAPHIC SURVEY                             |
| C-2.0             | DEMOLITION PLAN                                |
| C-3.0             | DIMENSION & PAVING PLAN                        |
| C-3.1             | SITE ANALYSIS                                  |
| C-3.2             | TRAFFIC CIRCULATION PLAN                       |
| C-4.0             | GRADING PLAN                                   |
| C-5.0             | SOIL EROSION PLAN                              |
| C-6.0             | UTILITY PLAN                                   |
| C-7.1             | WATERMAIN PROFILES                             |
| C-7.2             | SANITARY PROFILES                              |
| C-7.3             | STORM PROFILES                                 |
| C-9.0             | NOTES AND DETAILS                              |
| C-9.1             | DETAILS                                        |
| C-9.2             | DETAILS                                        |
| L-1.0             | PRELIMINARY LANDSCAPE PLAN                     |
| L-2.1             | LANDSCAPE SPECIFICATIONS                       |
| L-2.2             | LANDSCAPE SPECIFICATIONS                       |
|                   | WRC STANDARD DETAILS                           |
| 1 OF 2            | SANITARY SEWER DETAILS AND NOTES               |
| 2 OF 2            | SANITARY SEWER DETAILS AND NOTES               |
| 1 OF 1            | STORM DRAIN NOTES AND DETAILS                  |
| 1 OF 7            | WATER MAIN STANDARD DETAILS                    |
| 2 OF 7            | WATER MAIN STANDARD DETAILS                    |
| 3 OF 7            | WATER MAIN STANDARD DETAILS                    |
| 1 OF 1            | SOIL EROSION AND SEDIMENTATION CONTROL DETAILS |

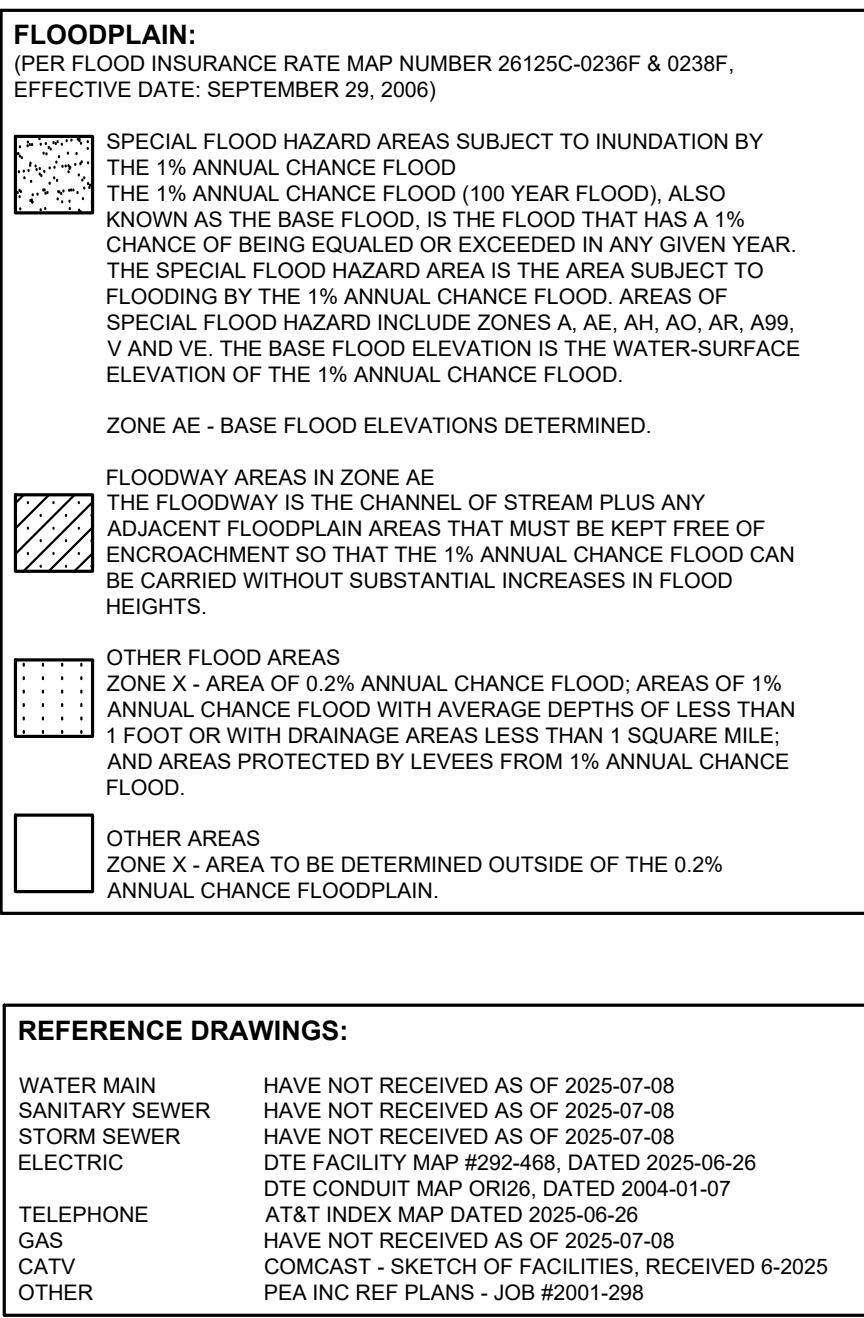
DESIGN TEAM

| OWNER/APPLICANT/DEVELOPER                                                                                                                                             | CIVIL ENGINEER                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| LAKE ORION DOWNTOWN AUTHORITY<br>118 N. BROADWAY ST.<br>LAKE ORION, MI 48362<br>CONTACT: MATHEW GIBB<br>PHONE: 248-464-0307<br>EMAIL: GIBB@DOWNTOWNLAKEORION.COM      | PEA GROUP<br>1849 POND RUN<br>AUBURN HILLS, MI 48326<br>CONTACT: JAMES P. BUTLER, PE<br>PHONE: 844.813.2949<br>EMAIL: JBUTLER@PEAGROUP.COM    |
| ARCHITECT                                                                                                                                                             | LANDSCAPE ARCHITECT                                                                                                                           |
| DAVIS&DAVIS<br>30500 NORTHWESTERN HWY, SUITE 311<br>FARMINGTON HILLS, MI 48334<br>CONTACT: JEREMIAH DOORNBOS<br>PHONE: 248-855-7040<br>EMAIL: DAVISINTERIORDESIGN.COM | PEA GROUP<br>7927 NEMCO WAY, STE. 115<br>BRIGHTON, MI 48116<br>CONTACT: JANET EVANS, PLA<br>PHONE: 844.813.2949<br>EMAIL: JEVANS@PEAGROUP.COM |



| REVISIONS   |      |
|-------------|------|
| DESCRIPTION | DATE |
|             |      |
|             |      |
|             |      |

NOT FOR CONSTRUCTION



# LEGEND:

|               |                                                 |
|---------------|-------------------------------------------------|
| —OH—ELEC—W-O— | EX. OH. ELEC. POLE & GUY WIRE                   |
| —UG—CATV—TV—  | EX. U.G. CABLE TV & PEDESTAL                    |
| —UG—COMM—     | EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE |
| —UG—ELEC—     | EX. U.G. ELEC. MANHOLE, METER & HANDHOLE        |
| —             | EX. GAS LINE                                    |
| ①             | EX. GAS VALVE & GAS LINE MARKER                 |
| □ □           | EX. TRANSFORMER & IRRIGATION VALVE              |
| —             | EX. WATER MAIN                                  |
| ⌋ ⌋           | EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE  |
| ①             | EX. WATER VALVE BOX & SHUTOFF                   |
| —             | EX. SANITARY SEWER                              |
| ①             | EX. SANITARY CLEANOUT & MANHOLE                 |
| ①             | EX. COMBINED SEWER MANHOLE                      |
| —             | EX. STORM SEWER                                 |
| ①             | EX. CLEANOUT & MANHOLE                          |
| ⊠             | EX. SQUARE, ROUND & BEEHIVE CATCH BASIN         |
| ⌋ ⌋           | EX. YARD DRAIN, U.G. ROOF DRAIN & DOWNSPOUT     |
| —             | EX. UNIDENTIFIED STRUCTURE                      |
| ⌋             | EX. MAILBOX, SIGN, LIGHTPOLE & GUARD POST       |
| —             | EX. FENCE                                       |
| —             | EX. GUARD RAIL                                  |
| ⊗             | EX. DEC. TREE, CONIFEROUS TREE & SHRUB          |
| ⊗             | EX. TREE TAG, & TREE LINE                       |
| ⊗             | EX. SPOT ELEVATION                              |
| —             | EX. CONTOUR                                     |
| ●             | IRON FOUND / SET                                |
| ⊗             | NAIL FOUND / NAIL & CAP SET                     |
| ⊗             | MONUMENT FOUND / SET                            |
| ●             | SECTION CORNER FOUND                            |
| R M C         | RECORDED / MEASURED / CALCULATED                |
| TAX P TC      | DESCRIPT / PLAT / TITLE COMMITMENT              |



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

CLIENT  
**LAKE ORION  
DOWNTOWN  
AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48362

PROJECT TITLE  
**LAKE ORION  
LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

| REVISIONS                |          |
|--------------------------|----------|
| FINAL SITE PLAN APPROVAL | 07-28-26 |

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

**TOPOGRAPHIC  
SURVEY**

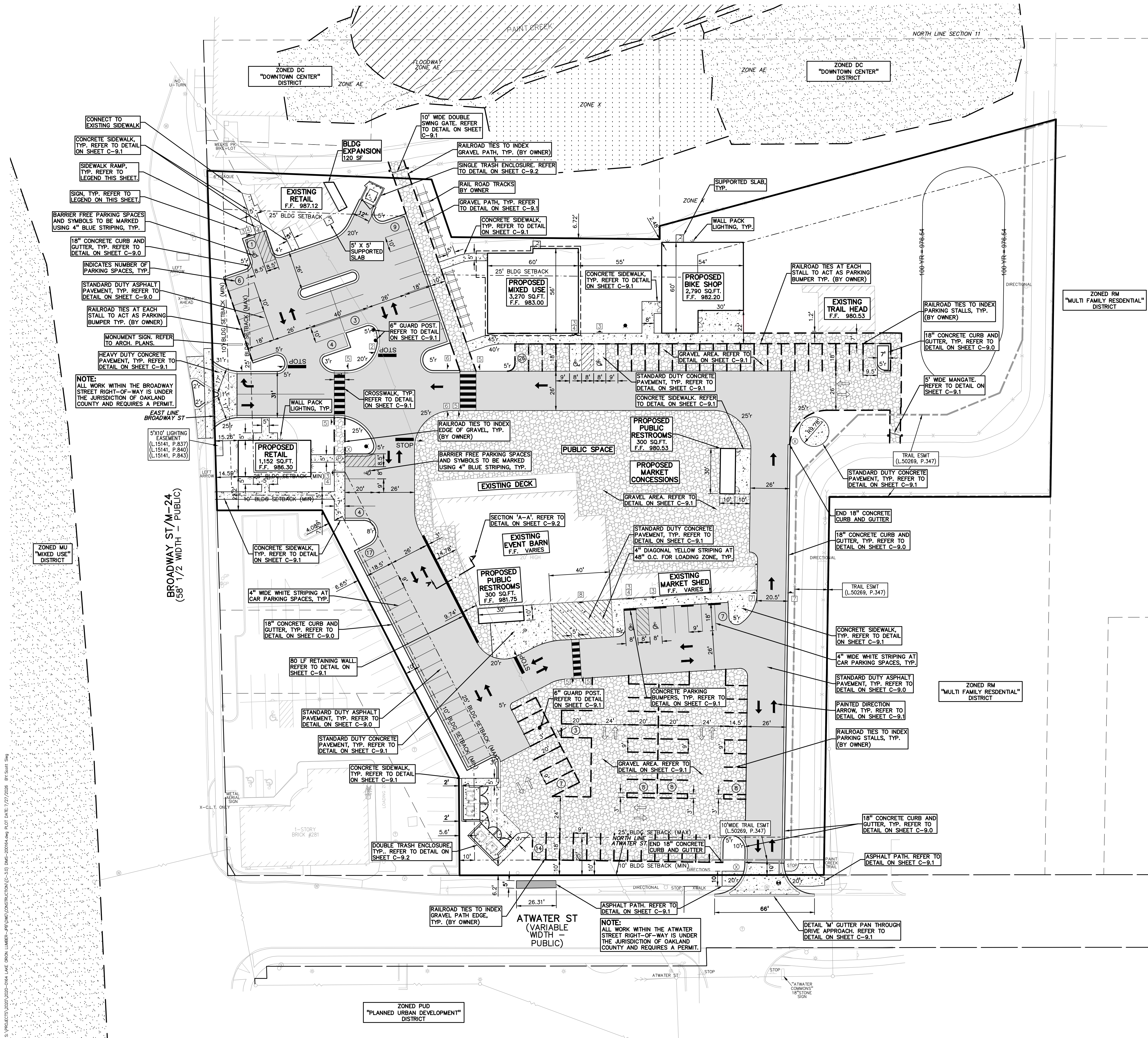
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|-----------------|---------|
| PEA JOB NO.     | 20-0164 |
| P.M.            | JPB     |
| DN.             | SWS     |
| DES.            | SWS     |
| DRAWING NUMBER: |         |

C-1.0

**NOT FOR CONSTRUCTION**



S:\PROJECTS\2020-2024\044 LAKE ORION LUMBER-FIN\DWG\CONSTRUCTION\C-3.0 DIMS-20164.dwg PLOT DATE: 7/27/2026 BY: Scott 39g



**LEGEND:**

|                   |                          |
|-------------------|--------------------------|
| CONCRETE PAVEMENT | CONCRETE CURB AND GUTTER |
| ASPHALT PAVEMENT  | REVERSE GUTTER PAN       |
| GRAVEL            | SETBACK LINE             |
| WETLAND           | SIGN LIGHTPOLE           |
|                   | FENCE                    |
|                   | GUARD RAIL               |

- GENERAL NOTES:**
- THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
  - 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
  - REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
  - REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS.

**SIDEWALK RAMP LEGEND:**

CURB DROP ONLY

SIDEWALK RAMP 'TYPE P'

REFER TO STANDARD RAMP AND DETECTABLE WARNING DETAILS

- SIGN LEGEND:**
- |                                |   |
|--------------------------------|---|
| 'NO PARKING FIRE LANE' SIGN    | 1 |
| 'STOP' SIGN                    | 2 |
| 'BARRIER FREE PARKING' SIGN    | 3 |
| 'VAN ACCESSIBLE' SIGN          | 4 |
| 'CROSSWALK' SIGN               | 5 |
| 'DO NOT ENTER' SIGN            | 6 |
| 'ONE WAY ONLY' SIGN            | 7 |
| 'NO PARKING LOADING ZONE' SIGN | 8 |
- REFER TO DETAIL SHEET FOR SIGN DETAILS

**SITE DATA TABLE:**

SITE AREA: 4.19 ACRES (182,516 SF.) NET AND GROSS

ZONING: MU - MIXED USE DISTRICT

PROPOSED USE: RETAIL (4,984 SF.) / MIXED USE (12,940 SF.)

**BUILDING INFORMATION:**

- MAXIMUM ALLOWABLE BUILDING HEIGHT = 36 FT
- PROPOSED BUILDING HEIGHT = 26.5 FT (MAX.)
- BUILDING FOOTPRINT AREA = 17,524 SF.
- BUILDING LOT COVERAGE = 9.76%

**SETBACK REQUIREMENTS:**

|               | REQUIRED       | PROP RETAIL | PROP MIXED USE | PROP BIKE SHOP |
|---------------|----------------|-------------|----------------|----------------|
| REAR (NORTH)  | 25'            |             | 6.72'          | 2.48'          |
| SIDE (EAST)   | 0'             |             |                |                |
| FRONT (WEST)  | 10' (25' MAX.) | 14.59'      |                |                |
| FRONT (SOUTH) | 10' (25' MAX.) | 22.2'       |                |                |

**SETBACK REQUIREMENTS:**

|               | REQUIRED       | EX. RETAIL | EX. EVENT BARN | EX. MARKET SHED |
|---------------|----------------|------------|----------------|-----------------|
| REAR (NORTH)  | 25'            | 4.78'      |                |                 |
| SIDE (EAST)   | 0'             |            | 141.51'        | 46.85'          |
| FRONT (WEST)  | 10' (25' MAX.) | 30.77'     | 143.22'        |                 |
| FRONT (SOUTH) | 10' (25' MAX.) |            | 182.02'        | 182.02'         |

**PARKING CALCULATIONS:**

REQUIRED

- RETAIL = 1 SPACE PER 250 SF.
- TOTAL RETAIL PARKING REQUIRED = 4,972 / 250 = 19.89 OR 20 SPACES

MIXED USE = 1 SPACE PER 150 SF.

- TOTAL MIXED USE PARKING REQUIRED = 12,540 / 150 = 83.60 OR 84 SPACES

TOTAL REQUIRED PARKING = 104 SPACES

PROPOSED

- TOTAL PROPOSED PARKING SPACES = 123 SPACES INC. 6 H/C SPACES (4 VAN ACCESS.)



0 15 30 60  
SCALE: 1" = 30'



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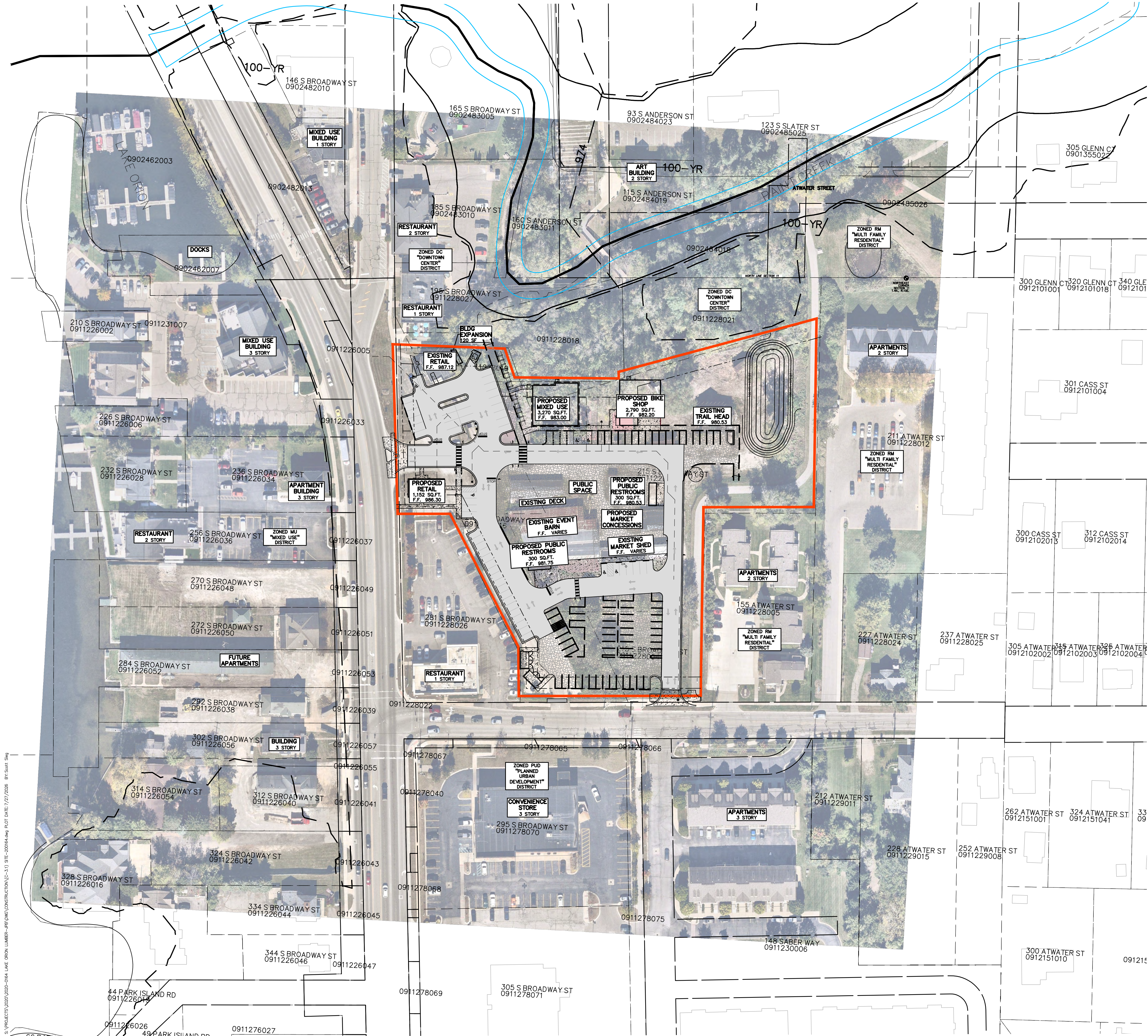
CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48062

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

REVISIONS  
FINAL SITE PLAN APPROVAL 07-28-26

ORIGINAL ISSUE DATE:  
MARCH 31, 2026  
DRAWING TITLE  
**DIMENSION & PAVING PLAN**

PEA JOB NO. 20-0164  
P.M. JPB  
DN. SWS  
DES. SWS  
DRAWING NUMBER:



0 15 30 60  
SCALE: 1" = 60'



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CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48042

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

REVISIONS  
FINAL SITE PLAN APPROVAL 07-23-26

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

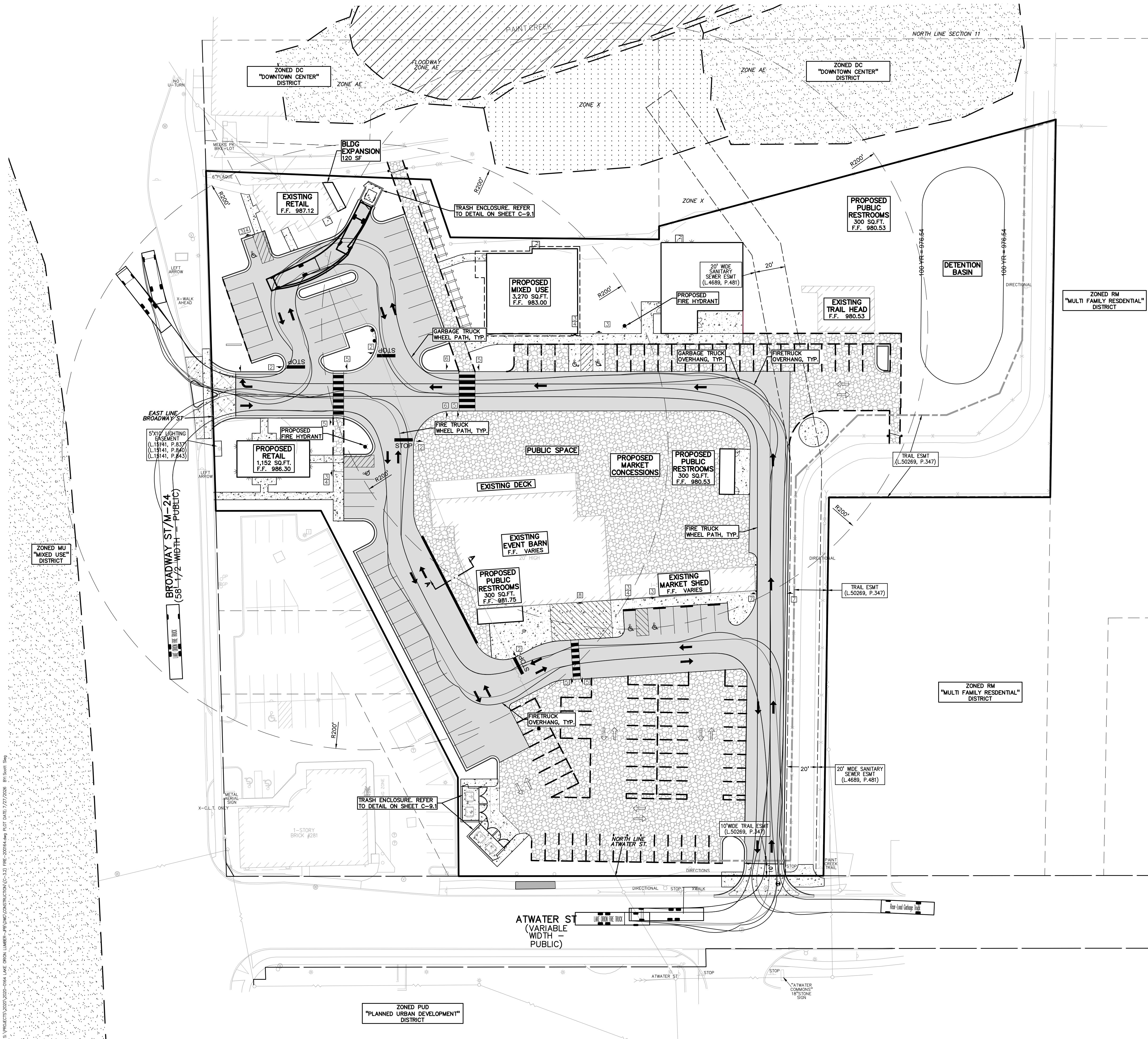
DRAWING TITLE  
**SITE ANALYSIS**

PEA JOB NO. 20-0164  
P.M. JPB  
DN. SWS  
DES. SWS  
DRAWING NUMBER:

**C-3.1**

NOT FOR CONSTRUCTION

S:\PROJECTS\2020-2024\LAKE ORION LUMBER-P&M\CONSTRUCTION\C-3.2\TIE-202106.dwg PLOT DATE: 7/27/2026 BY: Scott 56g



| LEGEND: |          |            |                    |
|---------|----------|------------|--------------------|
|         | STD DUTY | HEAVY DUTY | R.O.W. ONLY        |
|         | STD DUTY | HEAVY DUTY | DEEP DUTY STRENGTH |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |
|         |          |            |                    |

- GENERAL NOTES:**
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  - REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
  - REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

**SIDEWALK RAMP LEGEND:**

CURB DROP ONLY (X)

SIDEWALK RAMP 'TYPE P' (P)

REFER TO STANDARD RAMP AND DETECTABLE WARNING DETAILS

| SIGN LEGEND:                           |   |
|----------------------------------------|---|
| 'NO PARKING FIRE LANE' SIGN            | 1 |
| 'STOP' SIGN                            | 2 |
| 'BARRIER FREE PARKING' SIGN            | 3 |
| 'VAN ACCESSIBLE' SIGN                  | 4 |
| 'CROSSWALK' SIGN                       | 5 |
| 'DO NOT ENTER' SIGN                    | 6 |
| 'ONE WAY ONLY' SIGN                    | 7 |
| 'NO PARKING LOADING ZONE' SIGN         | 8 |
| REFER TO DETAIL SHEET FOR SIGN DETAILS |   |

**PEA GROUP**  
t: 844.813.2949  
www.peagroup.com



0 15 30 60  
SCALE: 1" = 30'



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CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48062

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

| REVISIONS                |          |
|--------------------------|----------|
| FINAL SITE PLAN APPROVAL | 07-28-26 |

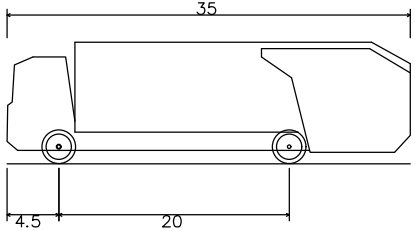
ORIGINAL ISSUE DATE:  
MARCH 31, 2026

DRAWING TITLE  
**TRAFFIC CIRCULATION PLAN**

|             |         |
|-------------|---------|
| PEA JOB NO. | 20-0164 |
| P.M.        | JPB     |
| DN.         | SWS     |
| DES.        | SWS     |

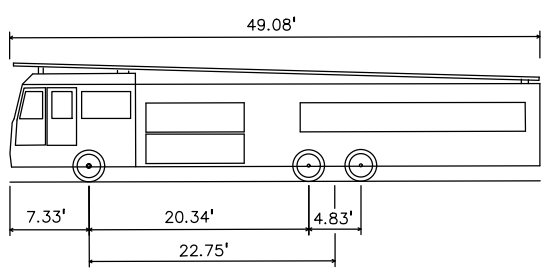
DRAWING NUMBER:

C-3.2



Rear-Load Garbage Truck  
Overall Length 35.000ft  
Overall Width 8.375ft  
Overall Body Height 10.546ft  
Min Body Ground Clearance 1.000ft  
Track Width 8.375ft  
Lock-to-lock time 6.00s  
Curb to Curb turning Radius 29.300ft

**GARBAGE TRUCK TEMPLATE**

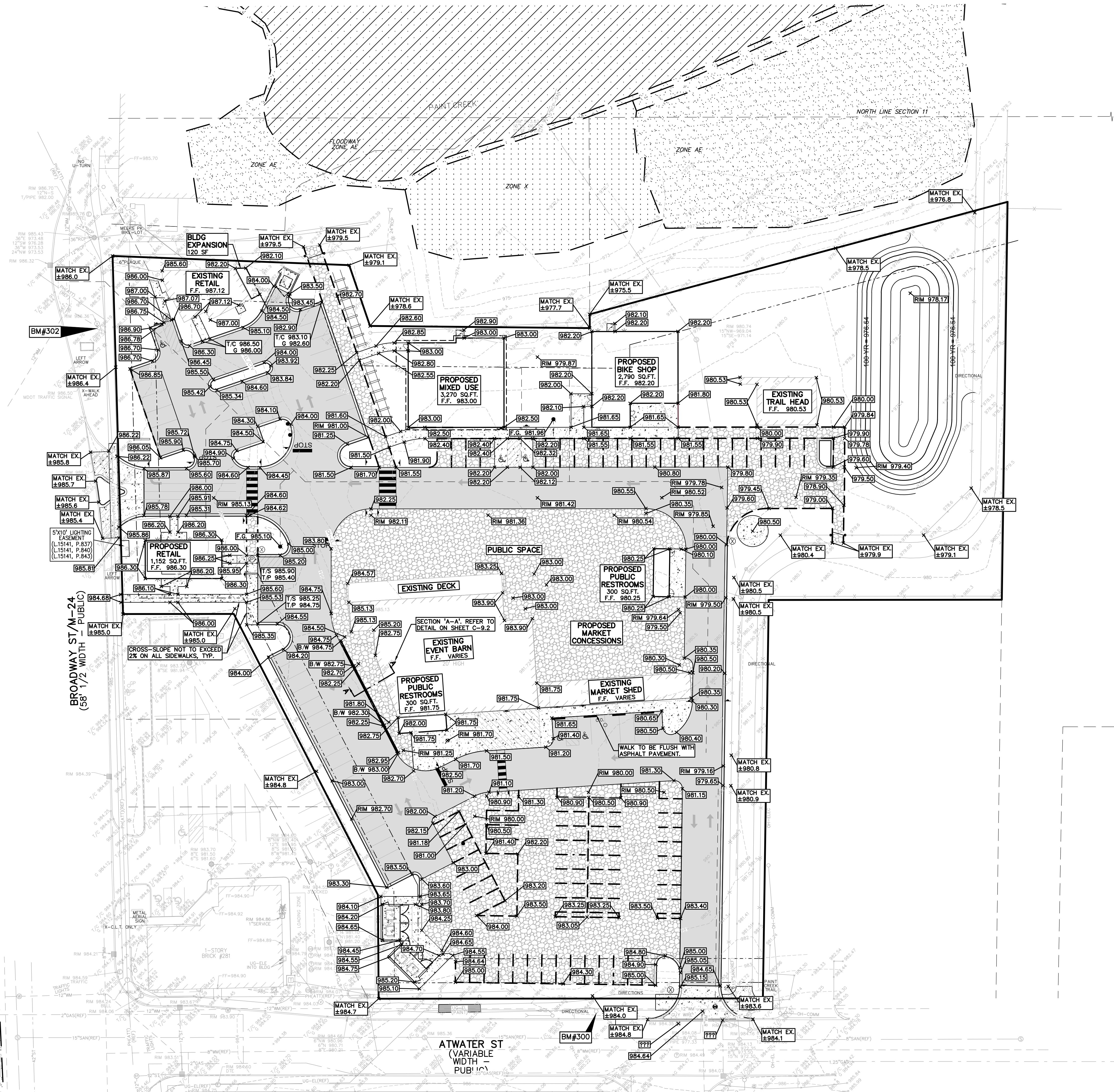


Orion Township Fire Truck  
Overall Length 49.080ft  
Overall Width 8.333ft  
Overall Body Height 11.000ft  
Min Body Ground Clearance 1.393ft  
Track Width 8.333ft  
Lock-to-lock time 6.00s  
Max Wheel Angle 45.00°

**ORION TOWNSHIP FIRE TRUCK TEMPLATE**

NOT FOR CONSTRUCTION

S:\PROJECTS\2020-2024\044 LAKE ORION LUMBER-PEA\CONSTRUCTION\C-4.0 GRADING-2004.dwg PLOT DATE: 7/27/2026 BY: Scott Seg



**GRADING LEGEND:**

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES.
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED REVERSE GUTTER PAN
- PROPOSED RIDGE LINE
- PROPOSED SWALE/DITCH

**ABBREVIATIONS**

|                       |                    |
|-----------------------|--------------------|
| T/C = TOP OF CURB     | G = GUTTER GRADE   |
| T/P = TOP OF PAVEMENT | FF = FINISH FLOOR  |
| T/S = TOP OF SIDEWALK | FG = FINISH GRADE  |
| T/W = TOP OF WALL     | RM = RIM ELEVATION |
| B/W = BOTTOM OF WALL  |                    |

REFER TO GRADING NOTES ON SHEET C-9.0

**RETAINING WALL NOTE:**

TOP OF WALL (TW) AND BOTTOM OF WALL (BW) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING WALL. NOT ACTUAL TOP AND BOTTOM OF THE WALL STRUCTURE.

**EARTHWORK BALANCING NOTE:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

**BENCHMARKS**  
(ENTER DATUM HERE)

|                |                |
|----------------|----------------|
| BM #300        | BM DESCRIPTION |
| ELEV. - 000.00 |                |
| BM #301        | BM DESCRIPTION |
| ELEV. - 000.00 |                |

**SIDEWALK RAMP LEGEND:**

- CURB DROP ONLY
- SIDEWALK RAMP "TYPE P"

REFER TO STANDARD RAMP AND DETECTABLE WARNING DETAILS



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**CLIENT**  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48062

**PROJECT TITLE**  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

| REVISIONS                |          |
|--------------------------|----------|
| FINAL SITE PLAN APPROVAL | 07-28-26 |

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

DRAWING TITLE  
**GRADING PLAN**

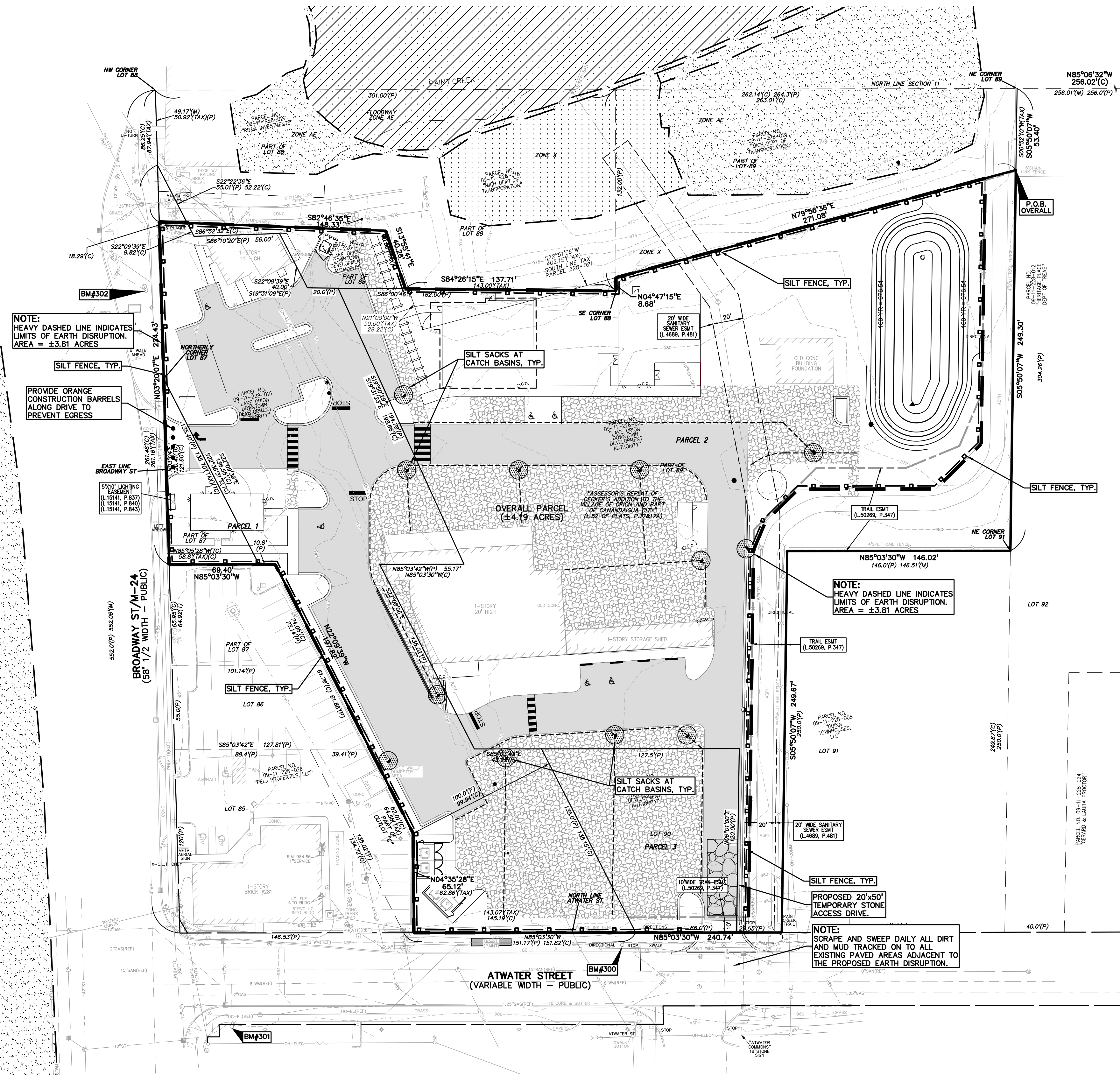
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|-------------|---------|
| PEA JOB NO. | 20-0164 |
| P.M.        | JPB     |
| DN.         | SWS     |
| DES.        | SWS     |

DRAWING NUMBER:

**C-4.0**

NOT FOR CONSTRUCTION

S:\PROJECTS\2020\2020-0164 LAKE ORION LUMBER-PEV\DWG\CONSTRUCTION\C-5.0 SSC-2020164.dwg (LOT DATE: 7/27/2020 BY: Scott\_Sing)



**SYMBOLS: GRADING AND EROSION CONTROL**

- PROPOSED SPOT GRADE ELEVATION. ALL PAVEMENT GRADES INDICATED ARE TOP OF PAVEMENT OR GUTTER FLOW LINE UNLESS OTHERWISE INDICATED.
- PROPOSED CONTOUR LINE
- INLET FILTER (SEE CITY OF TROY STANDARD SOIL EROSION & GENERAL CONSTRUCTION DETAIL SHEET.)
- SILT FENCE (SEE CITY OF TROY STANDARD SOIL EROSION & GENERAL CONSTRUCTION DETAIL SHEET.)
- TEMPORARY CONSTRUCTION ACCESS DRIVE.

**EROSION CONTROL QUANTITIES:**

|                                     |         |
|-------------------------------------|---------|
| SILT FENCE                          | 1862 LF |
| LOW POINT INLET FILTER              | 12 EA.  |
| TEMPORARY CONSTRUCTION ACCESS DRIVE | 1 EA.   |

**SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:**

- THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY:  
TBD
- IF ANY DAMAGE HAS OCCURRED AS A RESULT OF STORM WATER DISCHARGE FROM THE SITE, THE FOLLOWING STEPS SHALL BE IMPLEMENTED.
- ANY DEBRIS OR DIRT ON ANY PAVED AREA RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED IN A PROMPT MANNER BY THE CONTRACTOR. THE CONSTRUCTION DRIVE SHALL BE CLEANED AT THE END OF EACH DAY.
- ALL DIRT AND MUD TRACKED ONTO PAVED AREAS SHALL BE REMOVED BY THE CONTRACTOR DAILY BY SCRAPING. STREET SWEEPING IS REQUIRED WEEKLY.
- SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR REBACKFILL THE SILTATION FENCE SHOULD IT FALL OR BE DAMAGED DURING CONSTRUCTION.
- INLET FILTER MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY ACCUMULATED SILT OR OTHER DEBRIS. THE REMOVAL OF SILT SHOULD BE WITH THE USE OF A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTERS CAN NOT BE CLEANED OR ARE DAMAGED, THEN THE FABRIC MUST BE REPLACED.
- CONTRACTOR SHALL PROVIDE WATER TRUCK TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.
- IF HIGH GROUNDWATER IS ANTICIPATED OR ENCOUNTERED DURING CONSTRUCTION A DEWATERING PLAN MUST BE SUBMITTED TO THE VILLAGE ENGINEERING DIVISION FOR REVIEW.

**GENERAL SITE CONDITIONS:**

- ACCORDING TO THE USGS WEB SOIL SURVEY DATED DECEMBER 19, 2024, THE SITE CONSISTS OF THE FOLLOWING SOIL TYPES:  
COHOCTAH FINE SANDY LOAM, URBAN LAND
- TOTAL DISTURBED AREA = ±3.81 ACRES
- N.P.D.E.S. NOTICE OF COVERAGE IS REQUIRED

**SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE OF CONSTRUCTION**

- SEE OAKLAND COUNTY SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL SOIL EROSION CONTROL RELATED DETAILS.
- PLACE SILT FENCE & INSTALL INLET FILTERS ON EXISTING STORM SEWER STRUCTURES, ACCORDING TO PLANS.
- INSTALL TEMPORARY CRUSHED CONCRETE ACCESS DRIVE AT ALL CONSTRUCTION ENTRANCES. (50'x20'x8" W/MINIMUM OF 1"-3" CRUSHED CONCRETE - NO FINES).
- REMOVE CURB, PAVEMENT, TREES, ETC. AS DIRECTED ON THE DEMOLITION PLAN.
- STRIP AND STOCKPILE TOPSOIL FOR RESTORATION REQUIREMENTS.
- DISPOSE OF ALL EXCESS, UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO BURN OR BURY PITS ALLOWED.
- UNUSABLE MATERIALS CONSIST OF, BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING: CONCRETE, ASPHALT, TREES, BRUSH, STUMPS, ROOTS, OR OTHER MISCELLANEOUS DEBRIS OR TRASH.
- MASS GRADE THE SITE IN ACCORDANCE WITH THE PLANS.
- INSTALL SEED, MULCH AND EROSION CONTROL BLANKETS AS SHOWN ON THE PLAN WITHIN 5 DAYS OF COMPLETION OF MASS GRADING OR WHENEVER DISTURBED AREAS WILL REMAIN UNCHANGED FOR 30 DAYS OR GREATER. 3-4" TOPSOIL WILL BE USED WHERE VEGETATION IS REQUIRED.
- COMPLETE ROUGH GRADING OF SITE AND INSTALL UTILITIES. PLACE INLET FILTERS AT ALL INLETS AND CATCH BASINS, AS SHOWN.
- FINISH GRADE AND PAVE SITE AS PROPOSED TO DRAIN TO STORM SEWER SYSTEM. REPAIR INLET FILTERS AS REQUIRED.
- APPLY TOPSOIL, SEED AND MULCH/SOD TO ALL DISTURBED AREAS UPON COMPLETION OF GRADING. THE CONTRACTOR SHALL STAGE CONSTRUCTION ACTIVITIES IN ORDER TO MINIMIZE THE EXPOSURE OF UNSTABILIZED AREAS.
- CLEAN PAVEMENT AND STORM SEWERS. REMOVE SILT FENCE, AND INLET FILTERS ONCE VEGETATION HAS BEEN ESTABLISHED.
- ALL DIRT AND MUD TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED DAILY.
- STREET CATCH BASINS TO BE PERIODICALLY CLEANED AND FILTER CLOTH CHANGED AND MAINTAINED.

**SEQUENCE OF CONSTRUCTION:**

| START DAY | END DAY | DESCRIPTION                                                                                                                                                                                                                                                                                                   |
|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1         | 90      | INSTALL CRUSHED CONCRETE ACCESS APPROACH AT SITE ROAD APPROACH.                                                                                                                                                                                                                                               |
| 1         | 90      | INSTALL TEMPORARY SOIL EROSION CONTROL MEASURES, SILT FENCES, INLET PROTECTION, ETC. AS NECESSARY.                                                                                                                                                                                                            |
| 1         | 120     | MAINTAIN A 25' BUFFER OF VEGETATION AROUND PERIMETER OF SITE WHERE POSSIBLE.                                                                                                                                                                                                                                  |
| 1         | 15      | REMOVE ALL VEGETATION, TREES AND BRUSH FROM THE PROPOSED CONSTRUCTION AREA UNLESS MARKED TO REMAIN. STRIP AND STOCKPILE TOPSOIL AS REQUIRED. ALL STOCKPILES MUST BE GRADED AND SEED.                                                                                                                          |
| 5         | 14      | REMOVE ALL PAVEMENT, CURB, UTILITIES, ETC. AS REQUIRED TO INSTALL THE PROPOSED WORK AS SHOWN ON THE TOPOGRAPHIC SURVEY AND DEMOLITION PLAN.                                                                                                                                                                   |
| 5         | 14      | DISPOSE OF ALL EXCESS/UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO ON-SITE BURN OR BURY PITS ALLOWED.                                                                                                                                                                                                  |
| 14        | 28      | ROUGH GRADE SITE. SEED AND MULCH BLANKETS MUST BE INSTALLED AS SHOWN WITHIN 5 DAYS OF FINAL GRADE. REPAIR AND/OR RE-INSTALL ANY TEMPORARY SOIL EROSION CONTROL MEASURES THAT WERE DAMAGED DURING GRADING OPERATIONS.                                                                                          |
| 28        | 60      | INSTALL SITE UTILITIES (STORM SEWER, SANITARY SEWER, WATER MAIN ETC.). INSTALL INLET PROTECTION AT ALL PROPOSED CATCH BASINS.                                                                                                                                                                                 |
| 28        | 90      | TEMPORARY SEEDING MUST BE PROVIDED IN AREAS NOT TO BE WORKED ON FOR 15 DAYS OR LONGER.                                                                                                                                                                                                                        |
| 30        | 80      | BEGIN CONSTRUCTION OF BUILDING.                                                                                                                                                                                                                                                                               |
| 70        | 80      | FINE GRADE SITE AND PREPARE FOR SITE PAVING OPERATIONS.                                                                                                                                                                                                                                                       |
| 80        | 110     | INSTALL ALL PAVEMENT, SIDEWALKS, CURBING AS PROPOSED. IF PERMANENT LANDSCAPING IS NOT TO BE INSTALLED SOON AFTER PAVING IS COMPLETE, ALL AREAS WITHIN 20 FEET OF BACK OF CURB MUST BE TEMPORARILY SEED, REPAIR INLET PROTECTION, SILT FENCE AND ANY OTHER DAMAGED SOIL EROSION CONTROL MEASURES AS NECESSARY. |
| 90        | 119     | FINAL GRADE, REDISTRIBUTE STOCKPILED TOPSOIL, ESTABLISH VEGETATION AND INSTALL ALL PERMANENT LANDSCAPING IN ALL DISTURBED AREAS NOT BUILT.                                                                                                                                                                    |
| 118       | 120     | CLEAN PAVEMENT AND REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES. RE-ESTABLISH VEGETATION AS REQUIRED.                                                                                                                                                                                                   |
| 120       | 120     | REMOVE SEDIMENTATION CONTROLS ONCE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED.                                                                                                                                                                                                                               |

**PEA GROUP**  
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0 20 40 80  
SCALE: 1" = 80'



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**CLIENT**

**LAKE ORION DOWNTOWN AUTHORITY**  
118 N BROADWAY ST.  
LAKE ORION, MI 48062

**PROJECT TITLE**

**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

**REVISIONS**

FINAL SITE PLAN APPROVAL 07-28-26

**ORIGINAL ISSUE DATE:**

MARCH 31, 2026

**DRAWING TITLE**

**SOIL EROSION CONTROL PLAN**

PEA JOB NO. 20-0164

P.M. JPB

DN. SWS

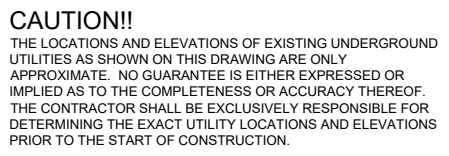
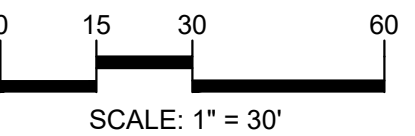
DES. SWS

DRAWING NUMBER:

**C-5.0**

NOT FOR CONSTRUCTION





PROJECT TITLE  
**LAKE ORION  
LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

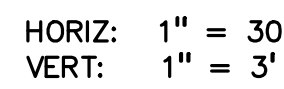
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DRAWING TITLE  
**WATERMAIN  
PROFILES**

|                 |         |
|-----------------|---------|
| PEA JOB NO.     | 20-0164 |
| P.M.            | JPB     |
| DN.             | SWS     |
| DES.            | SWS     |
| DRAWING NUMBER: |         |

DRAWING NUMBER:

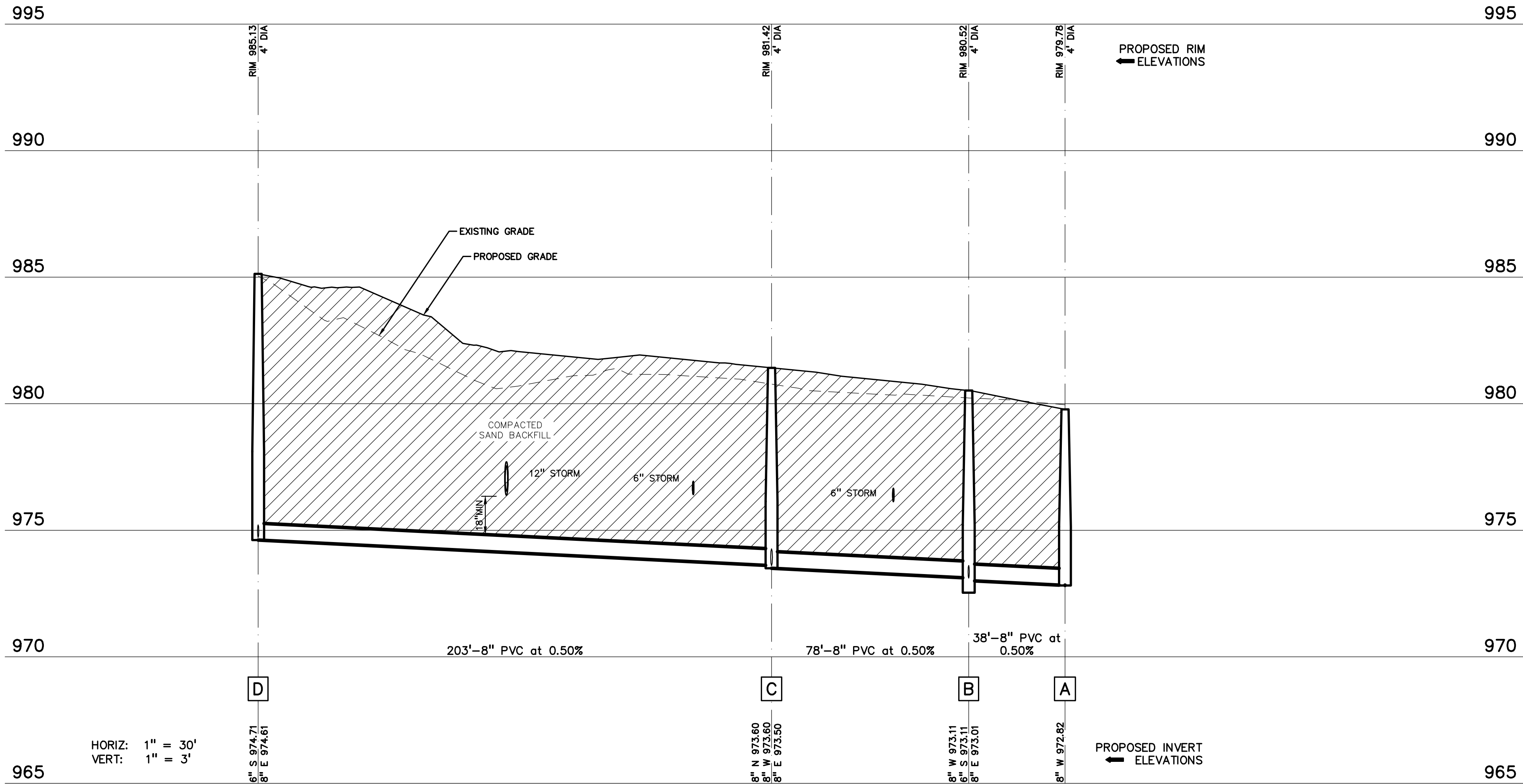
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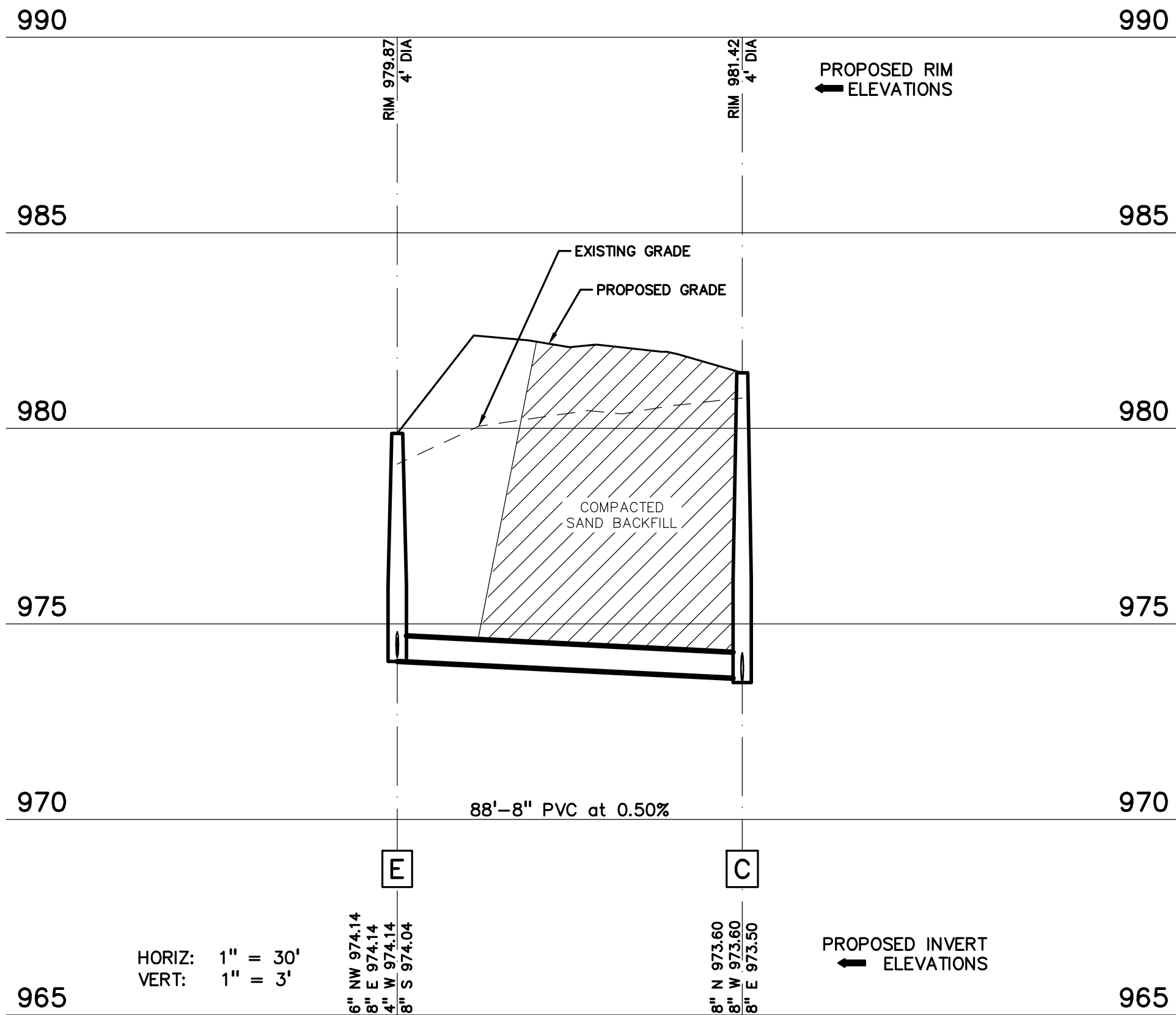
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**NOT FOR CONSTRUCTION**

S:\PROJECTS\2020\2020-0164 LAKE ORION LUMBER-P&V\DWG\CONSTRUCTION\C-7.0 SANPS-200164.dwg PLOT DATE: 7/27/2026 BY: Scott Sieg



SANITARY D-A PROFILE



SANITARY E-C PROFILE



0 15 30 60  
SCALE: 1" = 30'



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CLIENT  
**LAKE ORION  
DOWNTOWN  
AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48062

PROJECT TITLE  
**LAKE ORION  
LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

REVISIONS  
FINAL SITE PLAN APPROVAL 07-28-26

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

DRAWING TITLE  
**SANITARY  
PROFILES**

PEA JOB NO. 20-0164

P.M. JPB

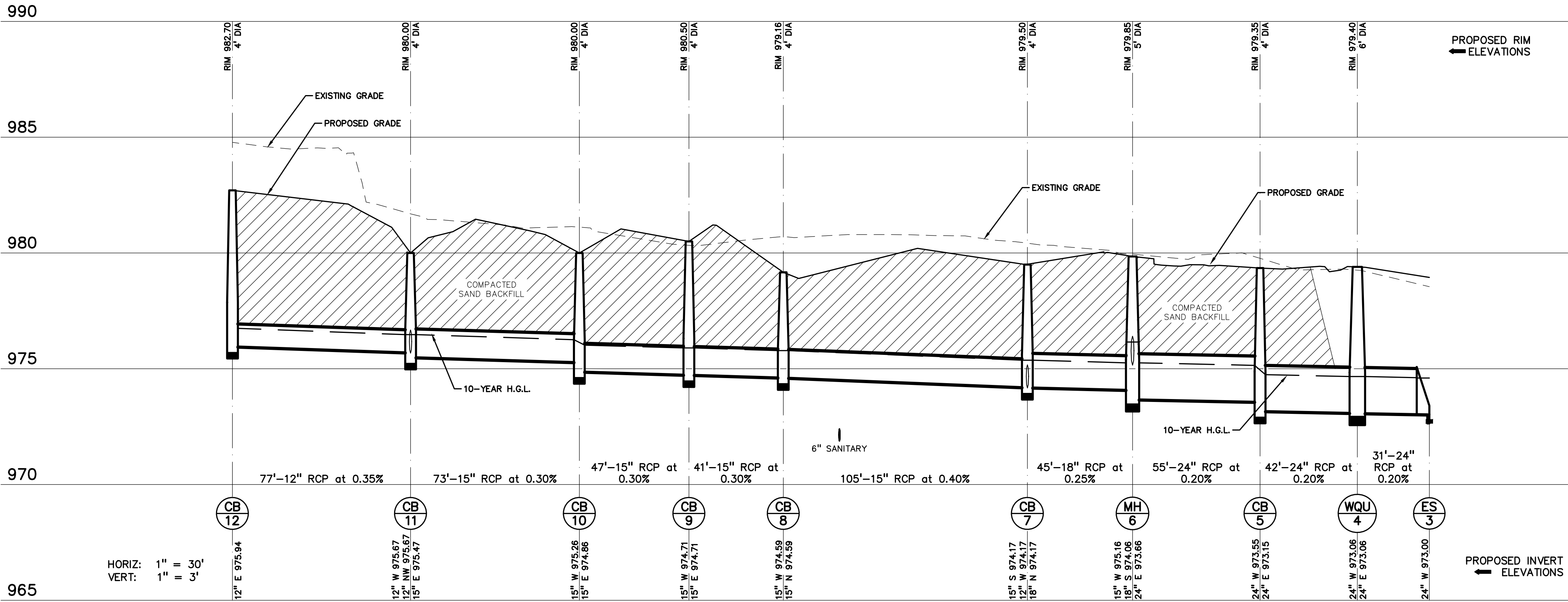
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DES. SWS

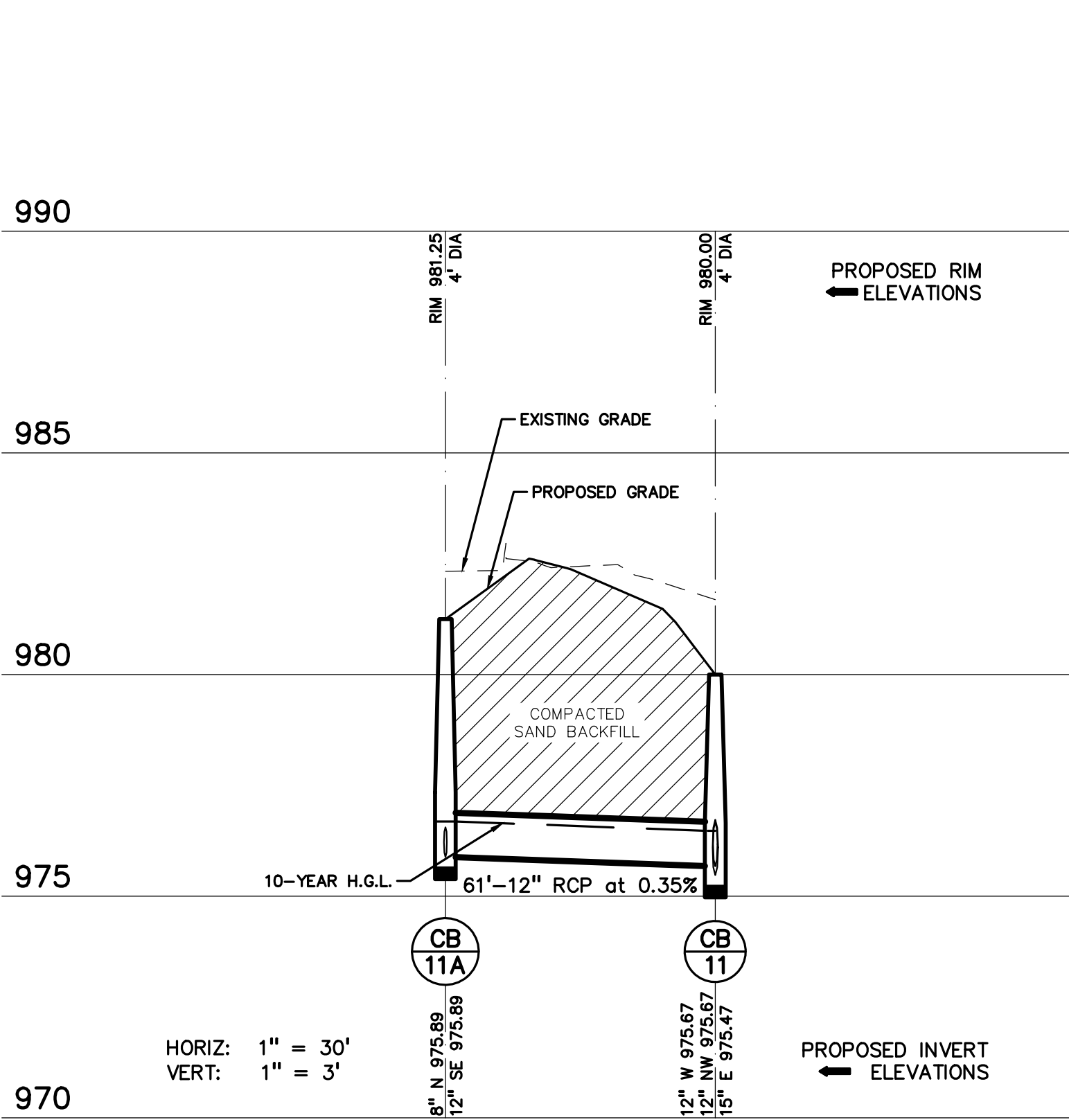
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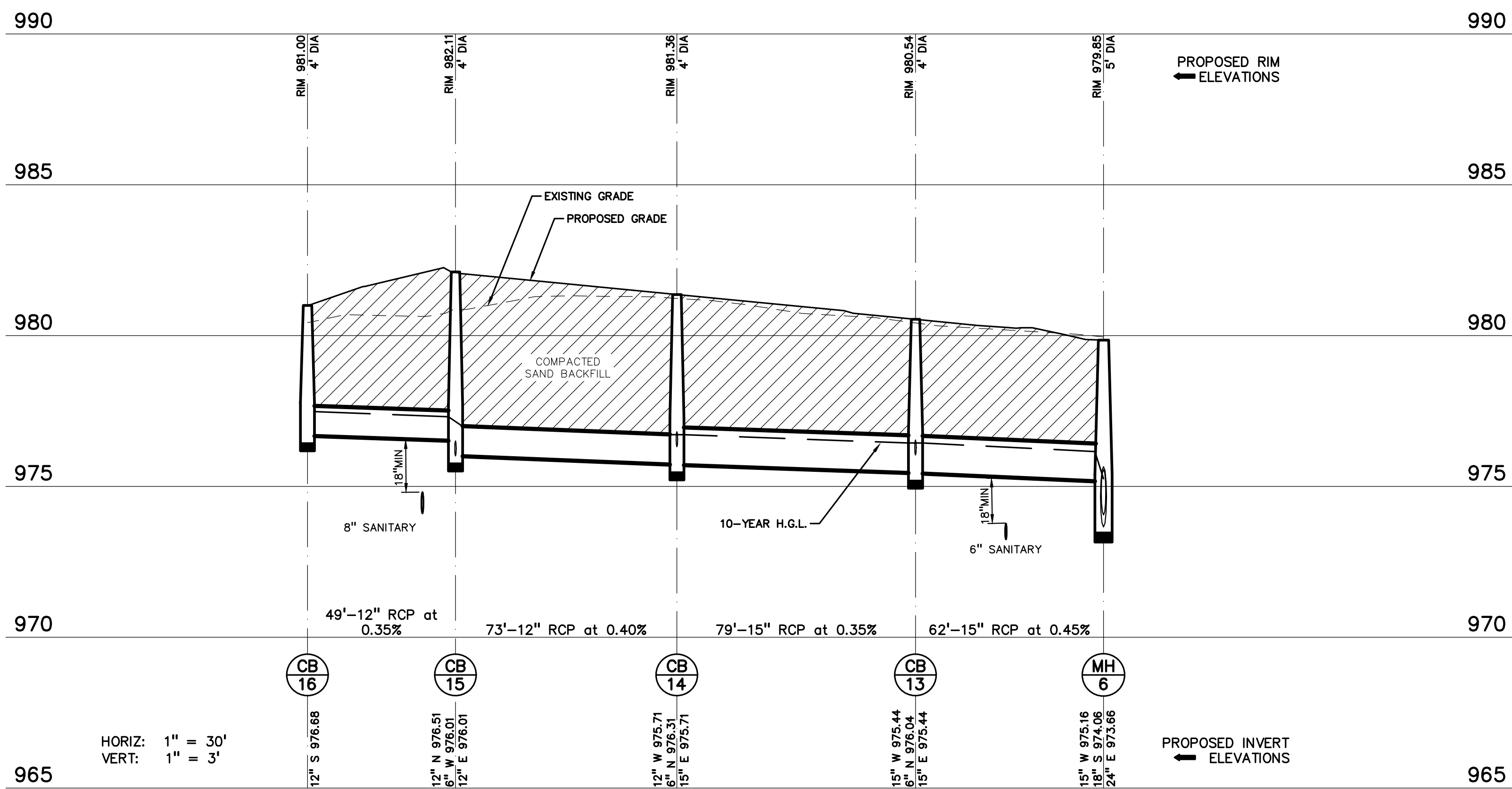
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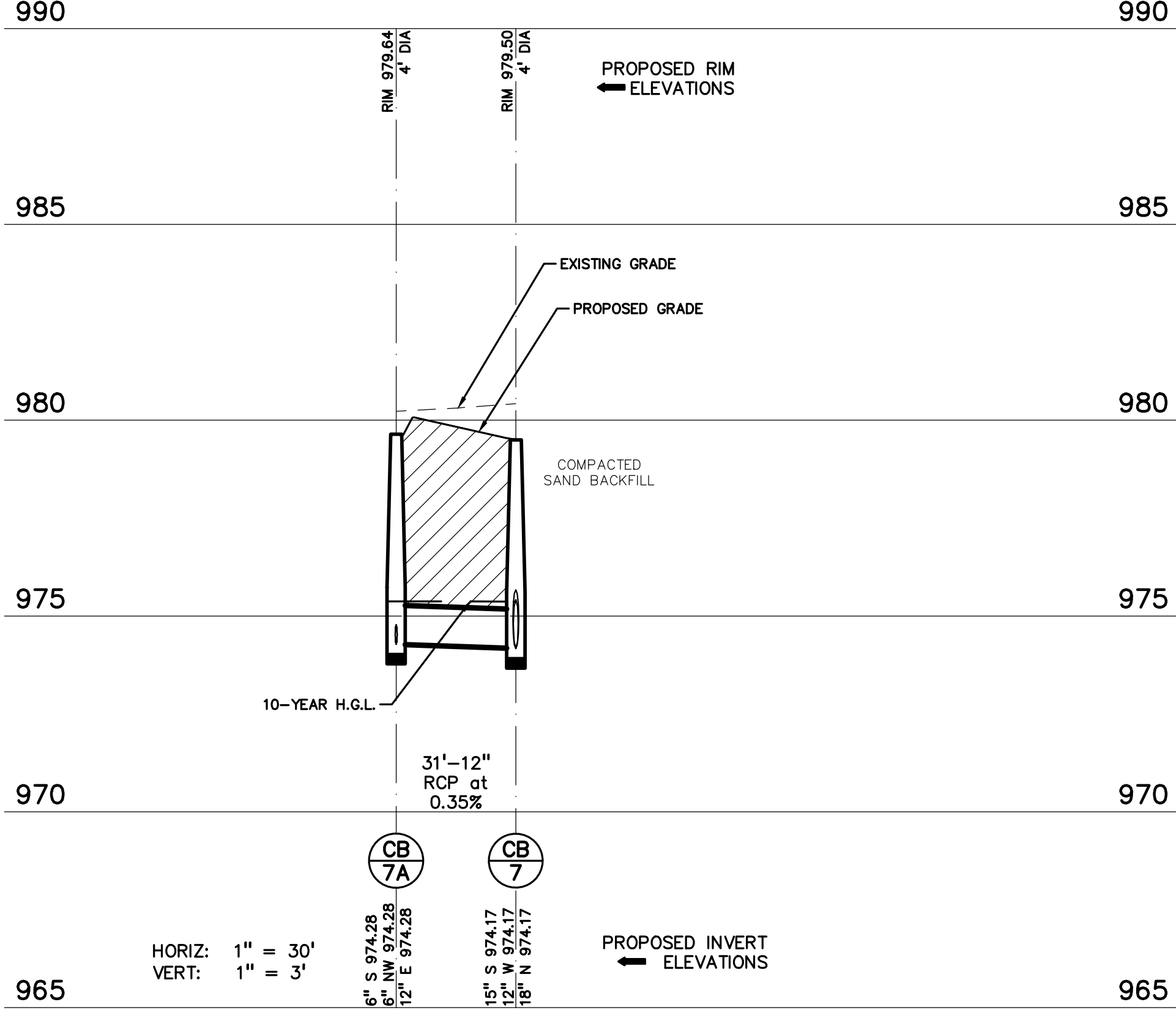
STORM 12-3 PROFILE



STORM 11A-11 PROFILE



STORM 16-6 PROFILE



STORM 7A-7 PROFILE

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STATE OF MICHIGAN  
JANUARY 2020  
PROFESSIONAL ENGINEER  
NO. 039605

NORTH

0 15 30 60  
SCALE: 1" = 30'

811

Know what's below.  
Call before you dig.

CAUTION!!

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CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48062

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

| REVISIONS                              |          |
|----------------------------------------|----------|
| FINAL SITE PLAN APPROVAL               | 07-28-26 |
|                                        |          |
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| ORIGINAL ISSUE DATE:<br>MARCH 31, 2026 |          |
| DRAWING TITLE<br><b>STORM PROFILES</b> |          |

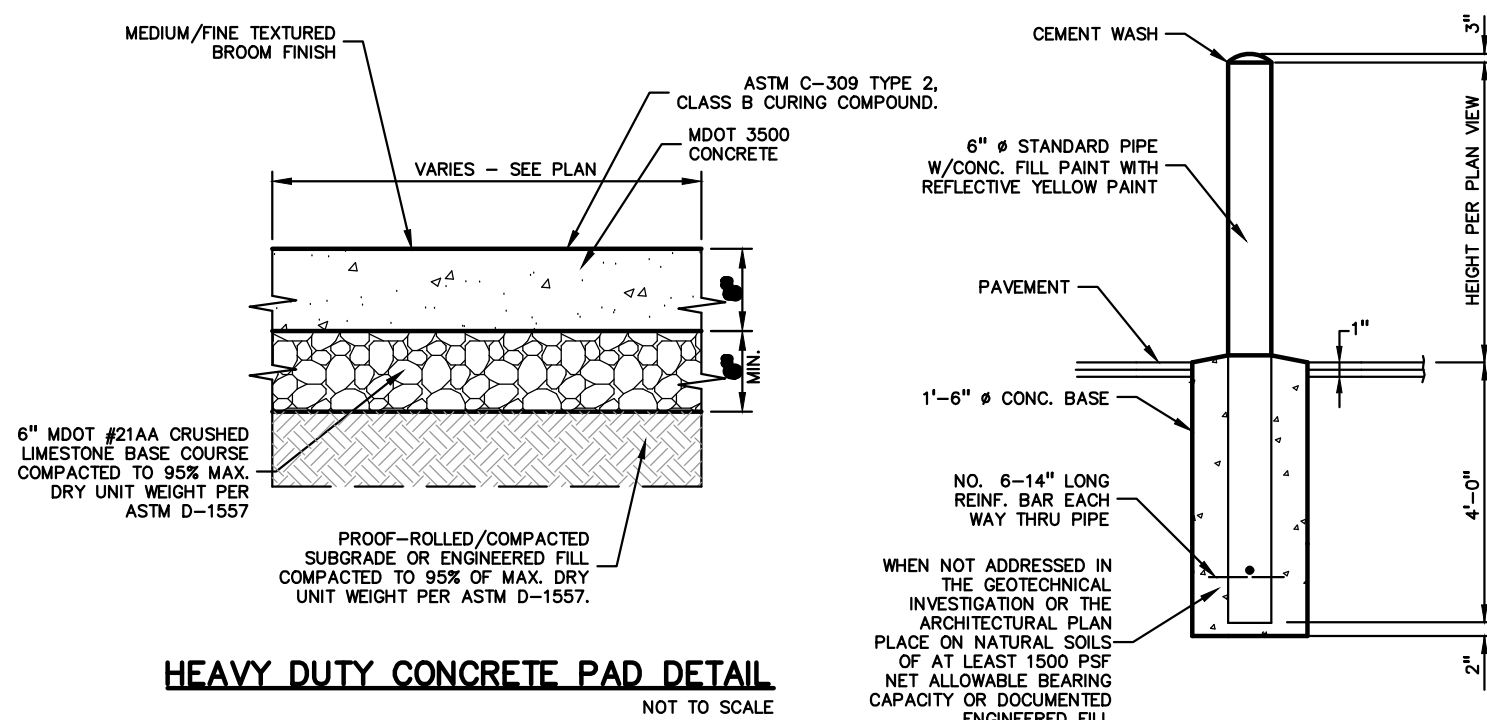
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| PEA JOB NO.     | 20-0164 |
| P.M.            | JPB     |
| DN.             | SWS     |
| DES.            | SWS     |
| DRAWING NUMBER: |         |



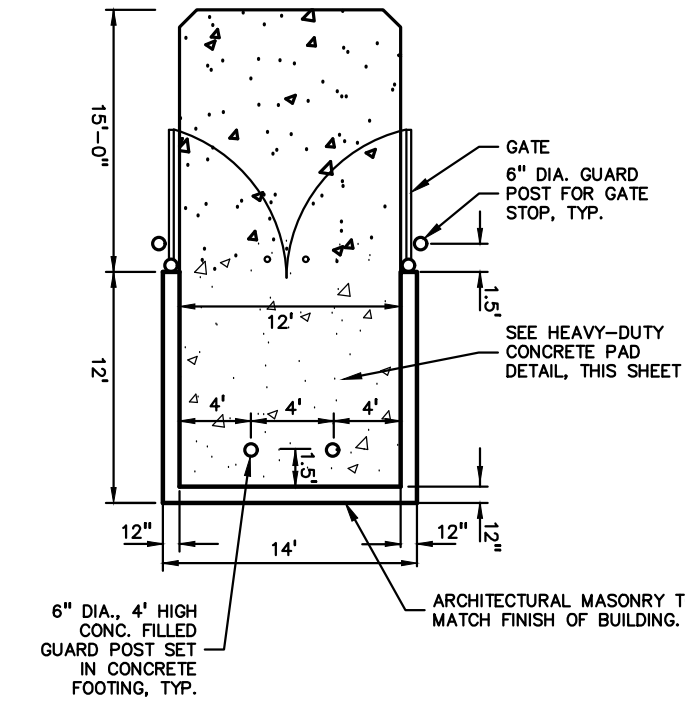




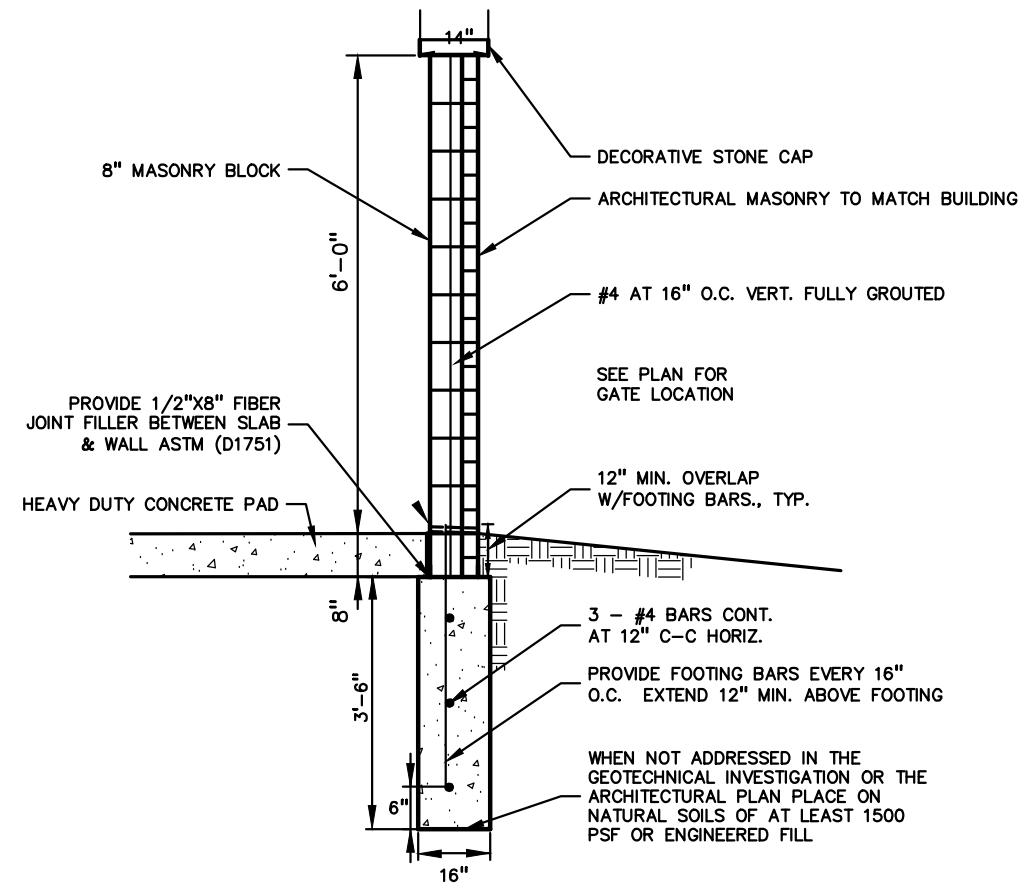
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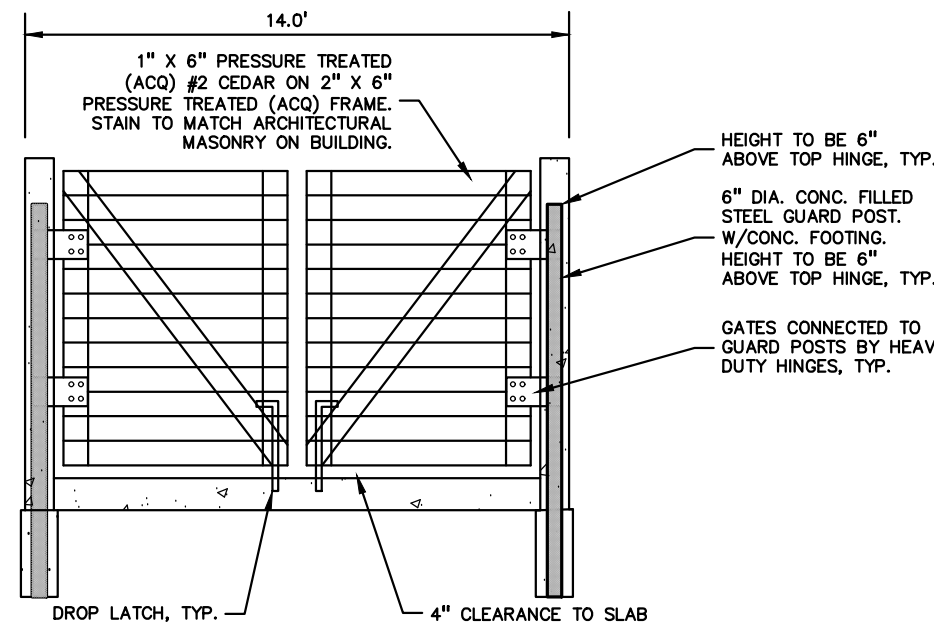
6" DIA. GUARD POST DETAIL  
NOT TO SCALE



SINGLE DUMPSTER ENCLOSURE DETAIL  
NOT TO SCALE

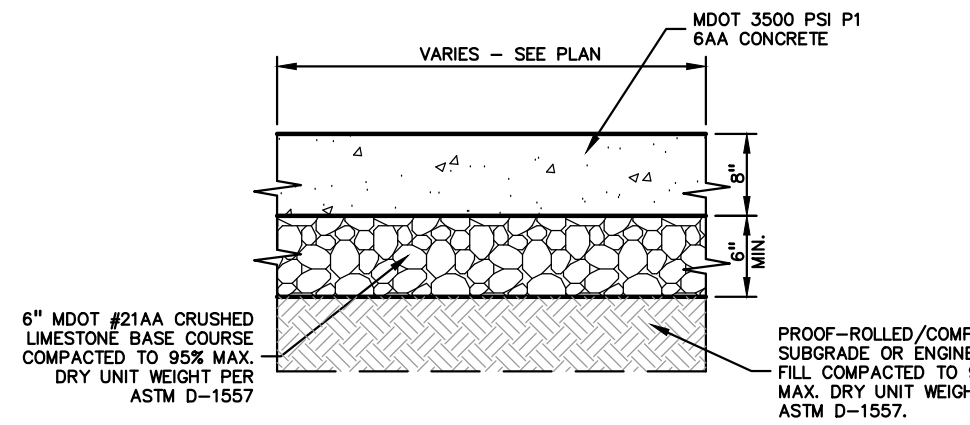


DUMPSTER ENCLOSURE WALL  
CROSS SECTION  
NOT TO SCALE

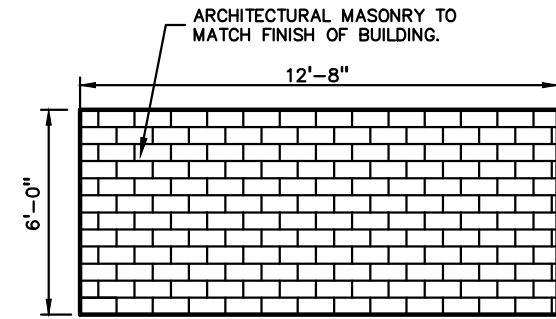


TRASH ENCLOSURE GATE DETAIL  
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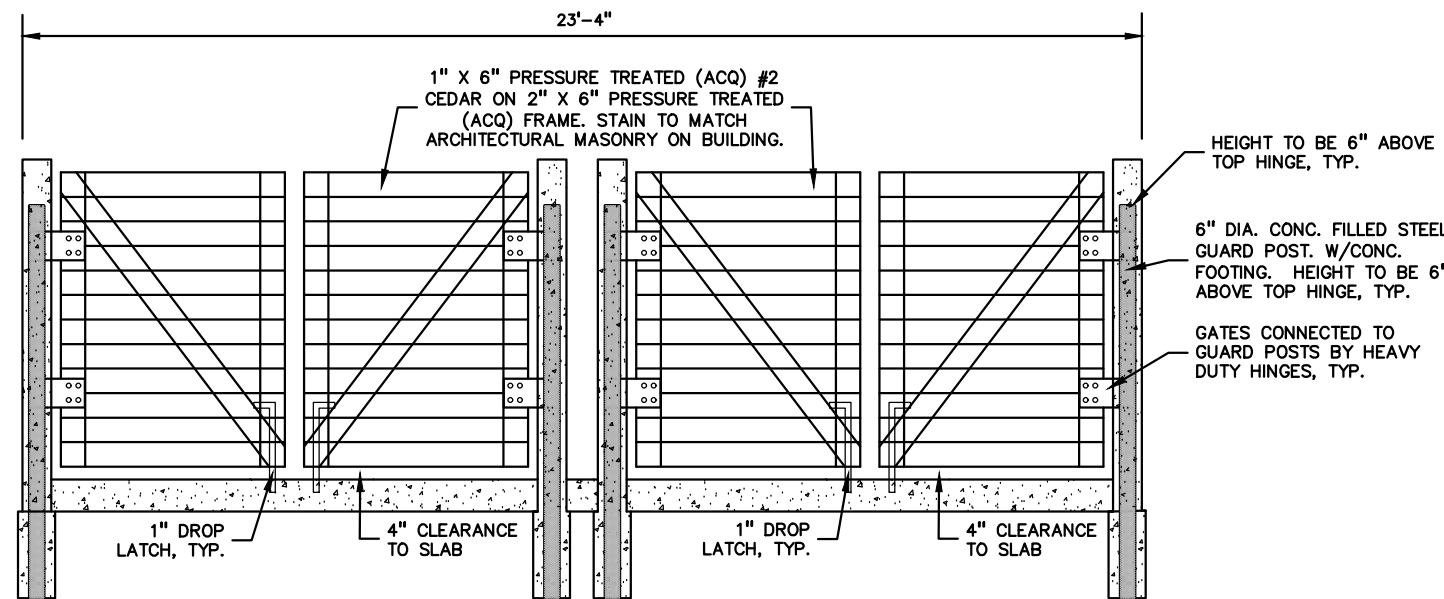
SINGLE TRASH ENCLOSURE DETAILS  
NOT TO SCALE



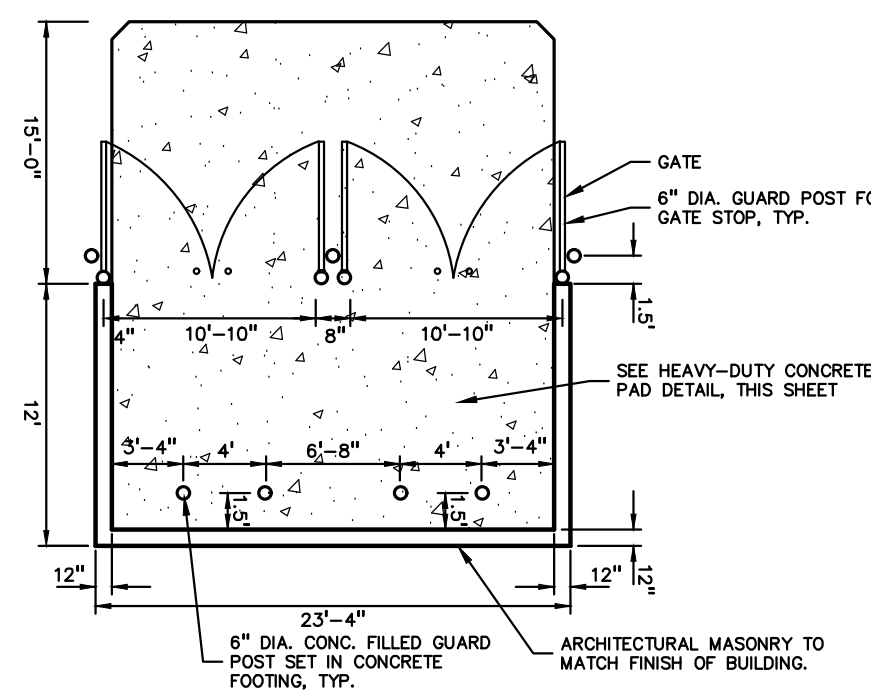
HEAVY DUTY CONCRETE PAD DETAIL  
NOT TO SCALE



SIDE ELEVATION  
NOT TO SCALE



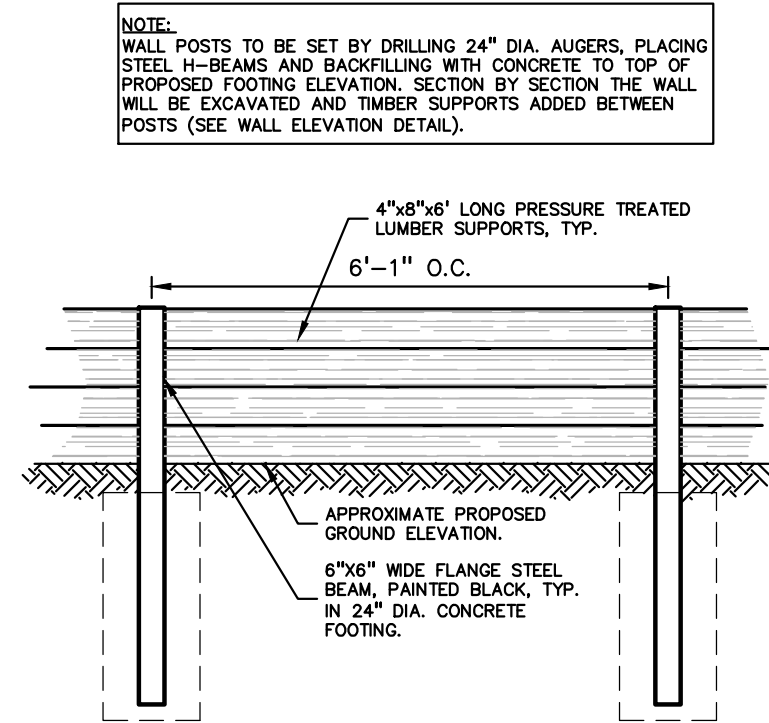
FRONT ELEVATION  
NOT TO SCALE



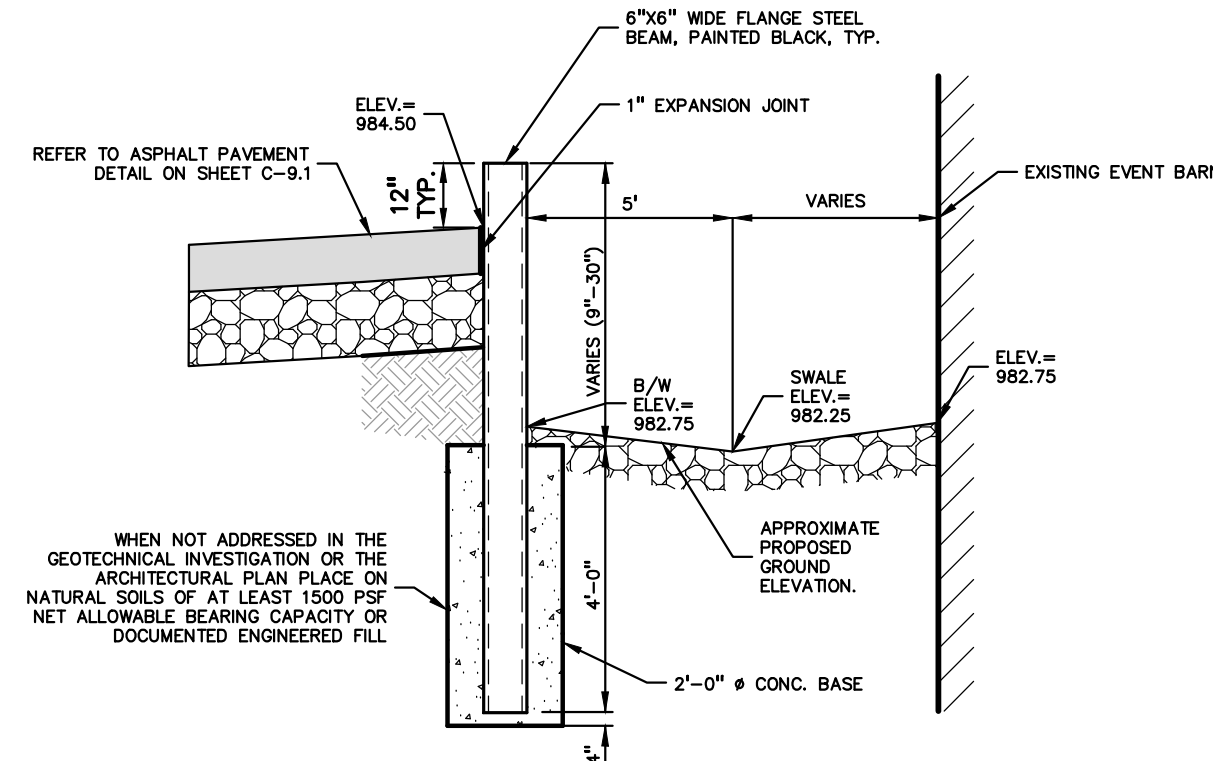
DOUBLE DUMPSTER ENCLOSURE DETAIL  
NOT TO SCALE

6" DIA. GUARD POST DETAIL  
NOT TO SCALE

DOUBLE TRASH ENCLOSURE DETAILS  
NOT TO SCALE



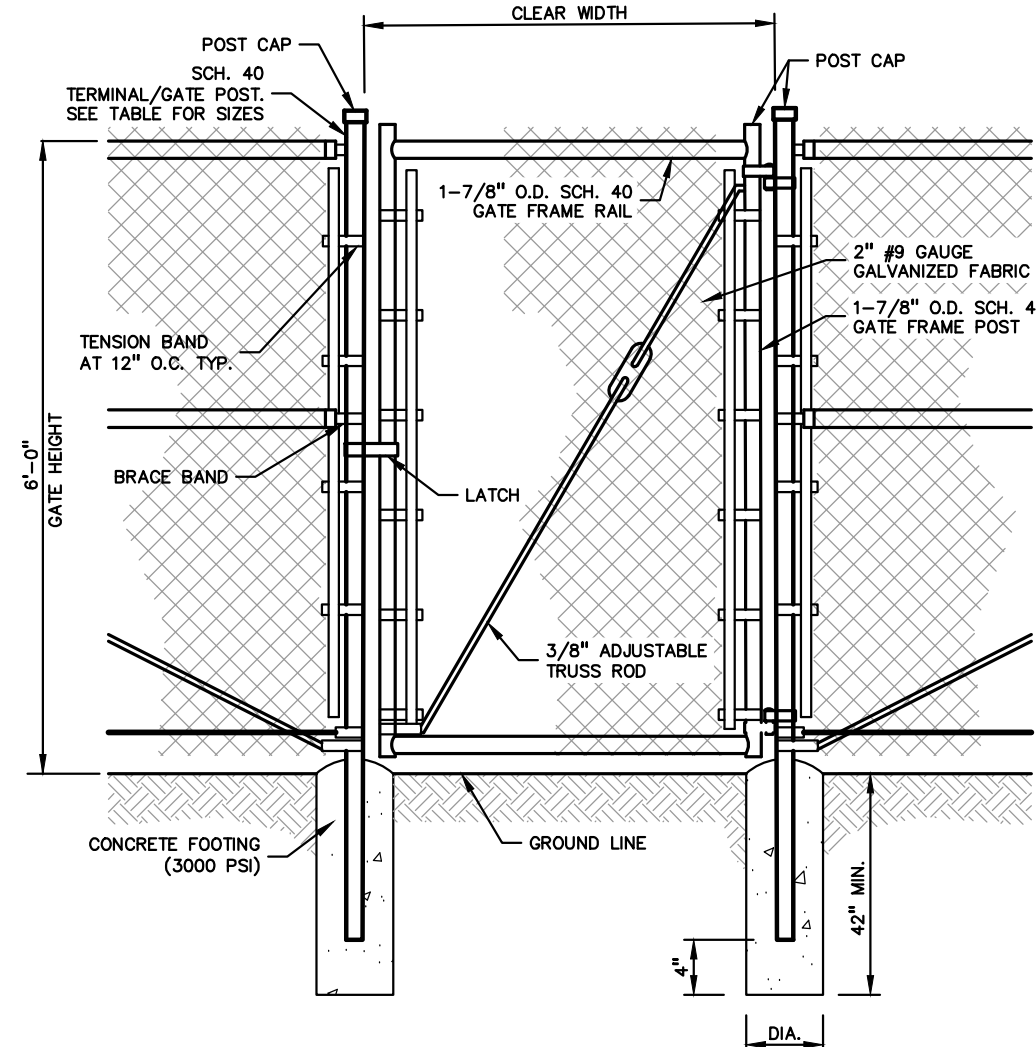
RETAINING WALL ELEVATION  
NOT TO SCALE



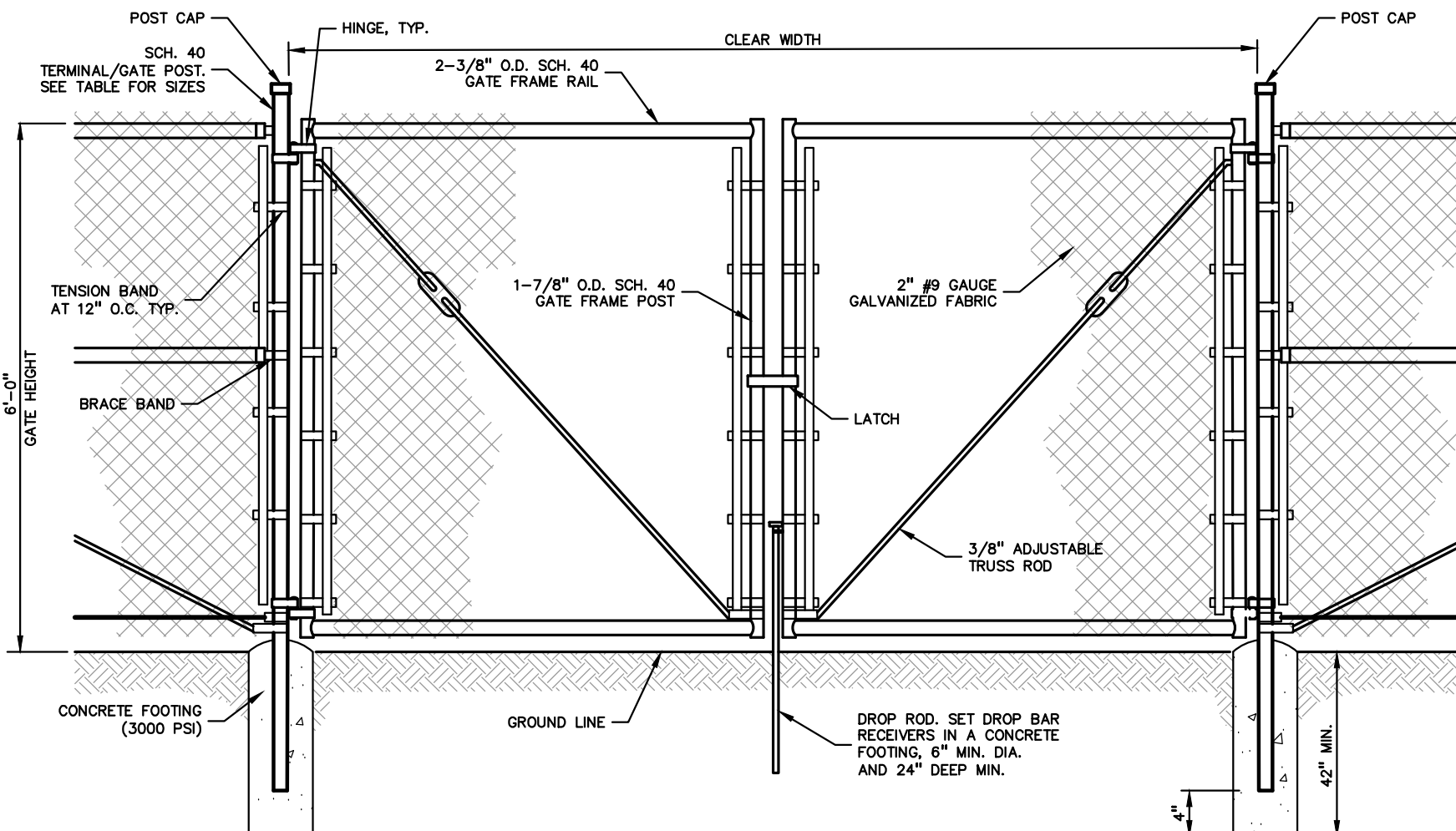
SECTION 'A-A' (RETAINING WALL POST DETAIL)  
NOT TO SCALE

|                                                                                                                             |                   |                   |  |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|--|
| GATE POST SIZES FOR DIFFERENT WIDTH/HEIGHT CHAIN LINK FENCE:                                                                |                   |                   |  |
| FOR FENCE HEIGHT UP TO 6 FOOT:                                                                                              |                   |                   |  |
| GATE WIDTH                                                                                                                  | SCH. 40 PIPE MIN. | FOOTING DIA. MIN. |  |
| UP TO 4'                                                                                                                    | 2-3/8"            | 12"               |  |
| FOR FENCE HEIGHT OVER 6 FOOT TO 12 FEET:                                                                                    |                   |                   |  |
| GATE WIDTH                                                                                                                  | SCH. 40 PIPE MIN. | FOOTING DIA. MIN. |  |
| UP TO 6'                                                                                                                    | 2-7/8"            | 12"               |  |
| MIN. POST SIZE BASED ON 2" 9-GAUGE MESH, 105MPH WIND SPEED, SCHEDULE 40 PIPE ASSUMES REGULAR GRADE, 30,000 PSI YIELD STEEL. |                   |                   |  |

NOTE:  
CONTRACTOR TO SUBMIT SHOP DRAWINGS TO P&V GROUP FOR ALL GATES AS DETAILED BELOW AND CALLED OUT ON THE PLANS. VERTICAL AND HORIZONTAL MEMBERS SHALL BE PLACED AT A MAXIMUM OF 8" ON CENTER. VERTICAL AND HORIZONTAL BRACES SHALL BE INSTALLED AS NEEDED, 1-5/8" SCH.40



CHAIN LINK SINGLE SWING GATE DETAIL  
NOT TO SCALE



CHAIN LINK DOUBLE SWING GATE DETAIL  
NOT TO SCALE

NOTE:  
CONTRACTOR TO SUBMIT SHOP DRAWINGS TO P&V GROUP FOR ALL GATES AS DETAILED BELOW AND CALLED OUT ON THE PLANS. VERTICAL AND HORIZONTAL MEMBERS SHALL BE PLACED AT A MAXIMUM OF 8" ON CENTER. VERTICAL AND HORIZONTAL BRACES SHALL BE INSTALLED AS NEEDED, 1-5/8" SCH.40

|                                                                                                                             |                   |                   |  |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|--|
| GATE POST SIZES FOR DIFFERENT WIDTH/HEIGHT CHAIN LINK FENCE:                                                                |                   |                   |  |
| FOR FENCE HEIGHT UP TO 6 FOOT:                                                                                              |                   |                   |  |
| GATE WIDTH                                                                                                                  | SCH. 40 PIPE MIN. | FOOTING DIA. MIN. |  |
| UP TO 4'                                                                                                                    | 2-3/8"            | 12"               |  |
| 4' TO 10'                                                                                                                   | 2-7/8"            | 12"               |  |
| 10' TO 18'                                                                                                                  | 4"                | 16"               |  |
| FOR FENCE HEIGHT OVER 6 FOOT TO 12 FEET:                                                                                    |                   |                   |  |
| GATE WIDTH                                                                                                                  | SCH. 40 PIPE MIN. | FOOTING DIA. MIN. |  |
| UP TO 6'                                                                                                                    | 2-7/8"            | 12"               |  |
| 6' TO 12'                                                                                                                   | 4"                | 16"               |  |
| 12' TO 18'                                                                                                                  | 6-5/8"            | 24"               |  |
| 18' TO 24'                                                                                                                  | 8-5/8"            | 30"               |  |
| MIN. POST SIZE BASED ON 2" 9-GAUGE MESH, 105MPH WIND SPEED, SCHEDULE 40 PIPE ASSUMES REGULAR GRADE, 30,000 PSI YIELD STEEL. |                   |                   |  |

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GROUP  
t: 844.813.2949  
www.peagroup.com



0 15 30 60  
SCALE: 1" = 30'



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CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N BROADWAY ST.  
LAKE ORION, MI 48362

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

REVISIONS  
FINAL SITE PLAN APPROVAL 07-28-26

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

DRAWING TITLE  
**DETAILS**

PEA JOB NO. 20-0164

P.M. JPB

WIND SPEED SCHEDULE 40 PIPE ASSUMES REGULAR

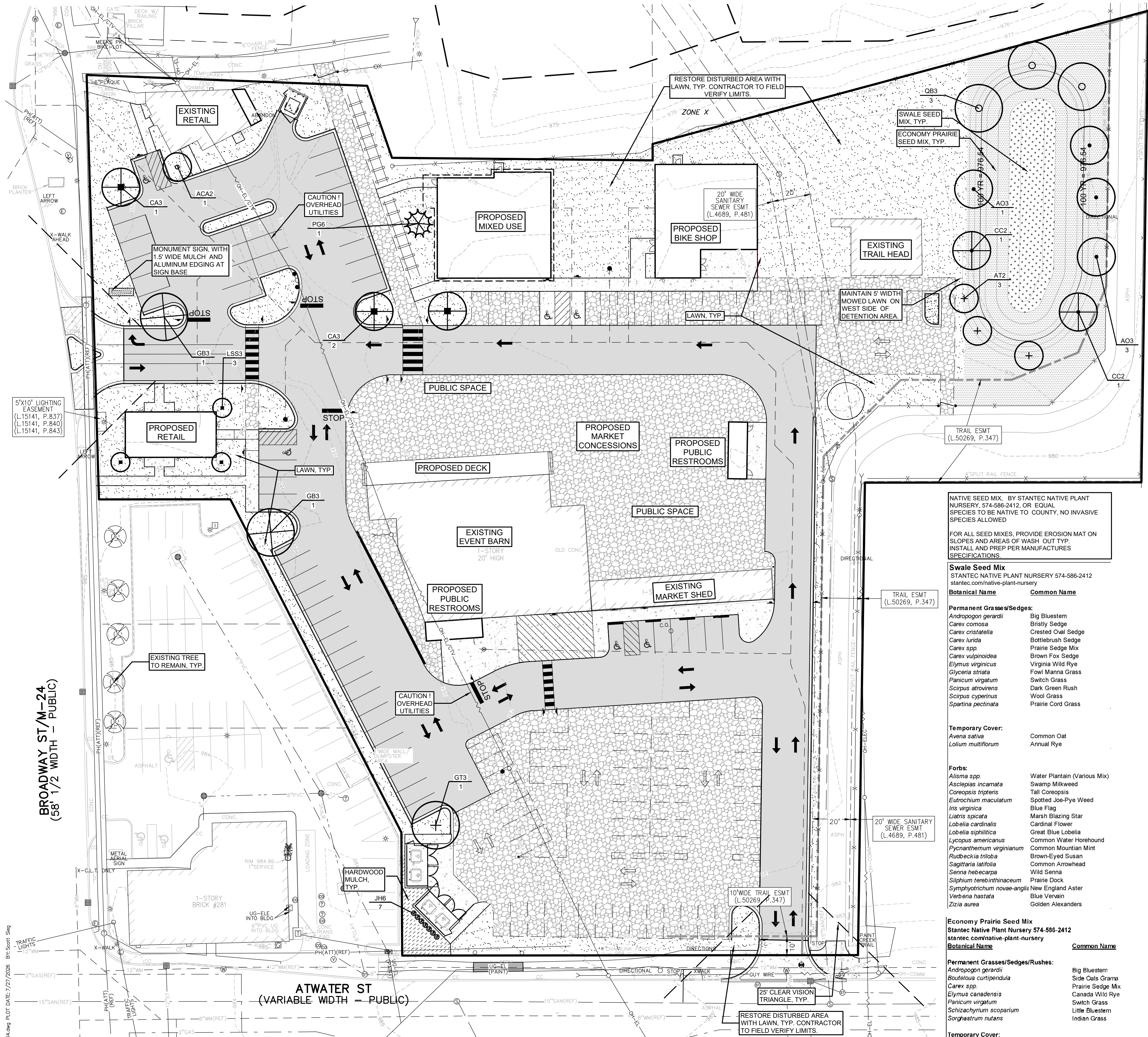
DN. SWS

DES. SWS

DRAWING NUMBER:

C-9.2

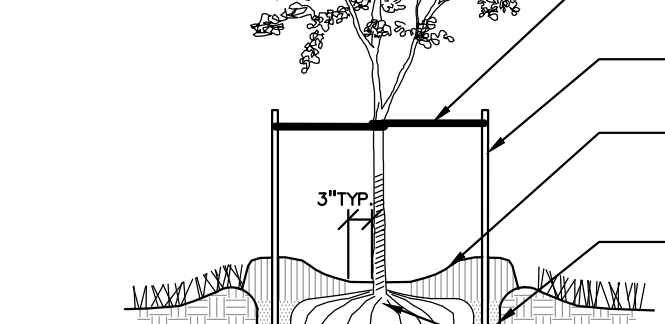
NOT FOR CONSTRUCTION



| PLANT SCHEDULE   |  |  |      |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
|------------------|--|--|------|------|----------------|----------------------------------------------|------------------------------|-----------|---------|----------------------------------------------------------------|------------|-----------|-----------|--------|
| DECIDUOUS TREES  |  |  | QTY  | UNIT | BOTANICAL NAME | COMMON NAME                                  | SIZE                         | CONTAINER | SPACING | DESIGNATION                                                    | REMARKS    | %         | GENUS (%) |        |
|                  |  |  | AO3  | 4    | ea             | ACER RUBRUM 'OCTOBER GLORY'                  | OCTOBER GLORY RED MAPLE      | 3" CAL.   | B&B     | PER PLAN                                                       | NATIVE     | 17.4%     | 17.4%     |        |
|                  |  |  | CA3  | 3    | ea             | CARPINUS CAROLINIANA                         | AMERICAN HORNBEAM            | 3" CAL.   | B&B     | PER PLAN                                                       | NATIVE     | 13.0%     | 13.0%     |        |
|                  |  |  | GB3  | 2    | ea             | GINKGO BILOBA                                | MAIDENHAIR TREE              | 3" CAL.   | B&B     | PER PLAN                                                       | NON-NATIVE | MALE ONLY | 8.7%      | 8.7%   |
|                  |  |  | GT3  | 1    | ea             | GLEDITSIA TRACANTHOS 'NERMIS 'SKYCOLE'       | SKYLARK HONEY LOCUST         | 3" CAL.   | B&B     | PER PLAN                                                       | NATIVE     | THORNLSS  | 4.3%      | 4.3%   |
|                  |  |  | LSS3 | 3    | ea             | LIQUIDAMBAR STYRACIFLUA 'SLENDER SILHOUETTE' | SLENDER SILHOUETTE SWEET GUM | 3" CAL.   | B&B     | PER PLAN                                                       | NON-NATIVE |           | 13.0%     | 13.0%  |
|                  |  |  | QB3  | 3    | ea             | QUERCUS BICOLOR                              | SWAMP WHITE OAK              | 3" CAL.   | B&B     | PER PLAN                                                       | NATIVE     |           | 13.0%     | 13.0%  |
| SUBTOTAL:        |  |  | 16   |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
|                  |  |  |      |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
| EVERGREEN TREES  |  |  | QTY  | UNIT | BOTANICAL NAME | COMMON NAME                                  | SIZE                         | CONTAINER | SPACING | DESIGNATION                                                    | REMARKS    | %         | GENUS (%) |        |
|                  |  |  | PG6  | 1    | ea             | PICEA GLAUCA                                 | WHITE SPRUCE                 | 6" HT.    | B&B     | PER PLAN                                                       | NATIVE     |           | 4.3%      | 4.3%   |
| SUBTOTAL:        |  |  | 1    |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
|                  |  |  |      |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
| ORNAMENTAL TREES |  |  | QTY  | UNIT | BOTANICAL NAME | COMMON NAME                                  | SIZE                         | CONTAINER | SPACING | DESIGNATION                                                    | REMARKS    | %         | GENUS (%) |        |
|                  |  |  | ACA2 | 1    | ea             | AMELANCHIER CANADENSIS                       | SHADLOW SERVICEBERRY         | 2" CAL.   | B&B     | PER PLAN                                                       | NATIVE     |           | 4.3%      | 4.3%   |
|                  |  |  | AT2  | 3    | ea             | ASIMINA TRILOBA                              | PAWPAW                       | 2" CAL.   | B&B     | PER PLAN                                                       | NATIVE     |           | 13.0%     | 13.0%  |
|                  |  |  | CC2  | 2    | ea             | CERCIS CANADENSIS                            | EASTERN REDBUD               | 2" CAL.   | B&B     | PER PLAN                                                       | NATIVE     |           | 8.7%      | 8.7%   |
| SUBTOTAL:        |  |  | 6    |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
|                  |  |  |      |      |                |                                              |                              |           |         | ALL TREES: 78.3% NATIVE, 0.0% ADAPTED NATIVE, 21.7% NON-NATIVE |            |           |           |        |
|                  |  |  |      |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
| SHRUBS           |  |  | QTY  | UNIT | BOTANICAL NAME | COMMON NAME                                  | SIZE                         | CONTAINER | SPACING | DESIGNATION                                                    | REMARKS    | %         | GENUS (%) |        |
|                  |  |  | JH6  | 7    | ea             | JUNIPERUS CHINENSIS 'HETZLI COLUMNARIS'      | HETZLI COLUMN JUNPER         | 6" HT.    | B&B     | 36" O.C.                                                       | NON-NATIVE |           | 100.0%    | 100.0% |
| SUBTOTAL:        |  |  | 7    |      |                |                                              |                              |           |         |                                                                |            |           |           |        |
|                  |  |  |      |      |                |                                              |                              |           |         |                                                                |            |           |           |        |

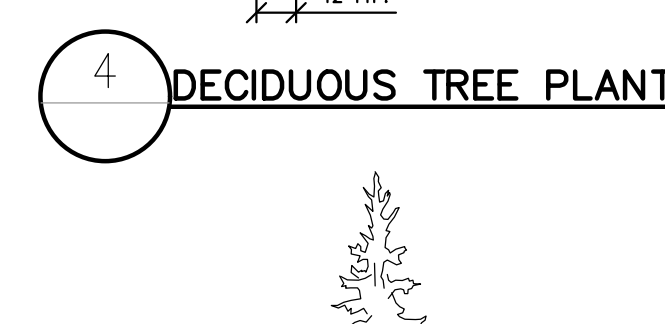
## ALUMINUM EDGE DETAIL

NOT TO SCALE



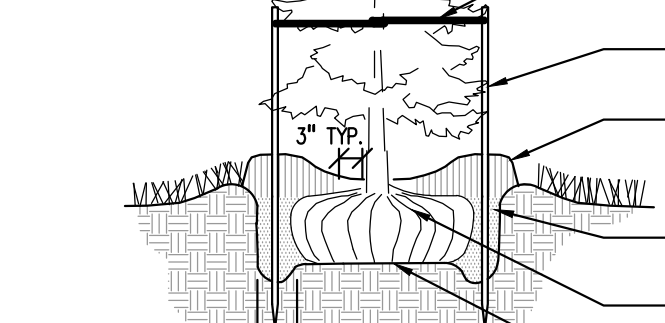
## DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



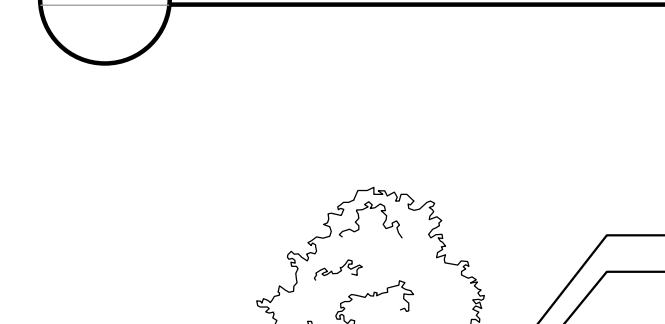
## EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



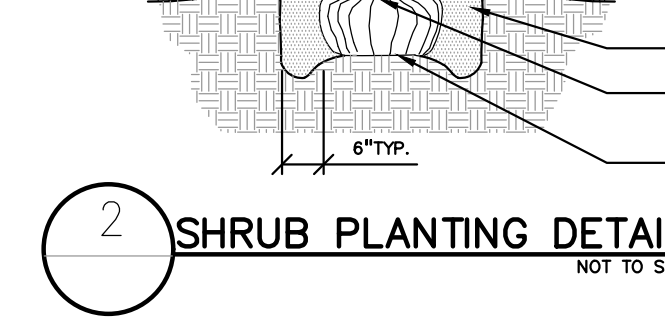
## SHRUB PLANTING DETAIL

NOT TO SCALE

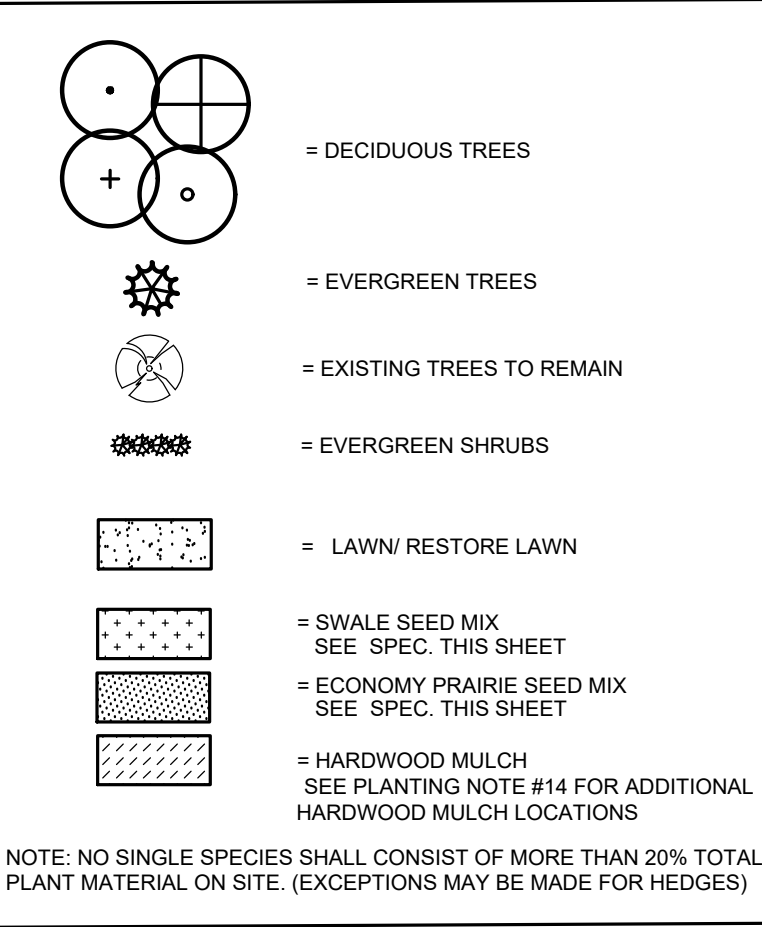


## MULTI-STEM TREE PLANTING DETAIL

NOT TO SCALE



## KEY



## LANDSCAPE CALCULATIONS:

PER VILLAGE OF LAKE ORION DC DOWNTOWN

\$15.02 C.1. REQUIRED: TREES SHALL BE PROVIDED AT THE ENTRANCE OF THE BUILDING WHERE DEEMED APPROPRIATE BY THE PLANNING COMMISSION

PROVIDED: TREES PROVIDED PER ABOVE AND WITHIN PARKING LOT: 11 PROPOSED TREES

\$15.02 C.2. REQUIRED: PLANTER BOXES OR OTHER LANDSCAPE FEATURES SHALL BE INCORPORATED WHERE APPROPRIATE

PROVIDED: EXISTING PLANTER BOX BY OWNER

\$15.02 C.3. REQUIRED: OUTDOOR UTILITY EQUIPMENT SHALL BE SCREENED TO THE GREATEST EXTENT POSSIBLE BY FENCES, WALLS PLANTER BOXES OR OTHER LANDSCAPE FEATURES.

PROVIDED: UPRIGHT EVG HEDGE AT TRASH

\$15.02 G.1.2.3. BASIN LANDSCAPE

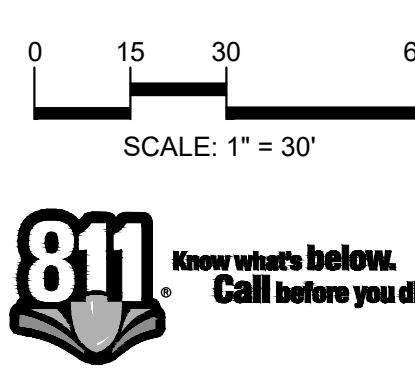
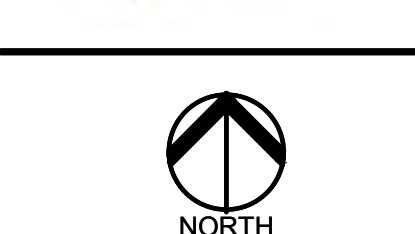
REQUIRED: 1 DEC TREE / 50' OF POND PERIMETER AND 1 ORN / 75' OF POND PERIMETER. TREES SHALL BE PLANTED ABOVE THE FREEBOARD, ANY PLANT MATERIALS PLANTED BELOW THE FREEBOARD WILL BE SUITABLE FOR INUNDATION

366 LF POND PERIMETER / 50 = 7.2 DEC TREES AND 366 / 75 = 4.88 ORN TREES

PROVIDED: 7 PROPOSED DECIDUOUS AND 5 PROPOSED ORNAMENTAL TREES

## GENERAL PLANTING NOTES:

- LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING SITE CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES. CONTACT LANDSCAPE ARCHITECT WITH ANY CONCERNS.
- CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ELECTRIC, GAS, TELEPHONE, CABLE TELEVISION MAY BE LOCATED BY CALLING MISS DIG 1-800-485-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES ON THE JOB AND SHALL REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER'S REPRESENTATIVE PRIOR TO COMMENCING.
- ALL PLANT MATERIAL TO BE PREMIUM GRADE NURSERY STOCK AND SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARD FOR NURSERY STOCK. ALL LANDSCAPE MATERIAL SHALL BE NORTHERN GROWN, NO. 1. GRADE.
- ALL PLANT MATERIAL SIZES INDICATED IN THE PLANT SCHEDULE ARE THE MINIMUM SIZE AT TIME OF INSTALLATION.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON LANDSCAPE PLAN PRIOR TO PRICING THE WORK.
- THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.
- ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.
- ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER; TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.
- ALL MULTI STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.
- ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.
- ALL TREES TO HAVE CALY OR CLAY LAWN BALLS, TREES WITH SAND BALLS WILL BE REJECTED.
- NO MACHINERY IS TO BE USED WITHIN THE DRIP LINE OF EXISTING TREES; HAND GRADE ALL LAWN AREAS WITHIN THE DRIP LINE OF EXISTING TREES.
- ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.
- IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS.
- ALL PLANTING BEDS SHALL RECEIVE 3" SHREDDED HARDWOOD BARK MULCH WITH PRE EMERGENT. SEE SPECIFICATIONS. SHREDDED PALETTE AND TOLD DOWN ALL BURLAP FROM TOP 1/3 OF ROOT BALL.
- ALL LANDSCAPED AREAS SHALL RECEIVE 3" COMPACTED TOPSOIL.
- SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY STANDARDS.
- FOR NON-LAWN SEED MIX AREAS, AS NOTED ON PLAN, BRUSH MOW ONCE SEASONALLY FOR INVASIVE SPECIES CONTROL.
- CONTRACTOR SHALL NOT INSTALL PLANTS UNDER BUILDING OVERHANGS AND SHALL NOTIFY LANDSCAPE ARCHITECT IF DRAWINGS CONFLICT WITH BUILDING OVERHANGS.
- TREES SHALL NOT CONFLICT/BLOCK PROPOSED REGULATORY/ DIRECTION SIGNAGE, MONUMENT SIGNS, ADDRESS OR LIGHT POLES. SHIFT TREES AS NECESSARY TYP.



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

CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48032

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

REVISIONS  
FINAL SITE PLAN APPROVAL 07-28-26

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

DRAWING TITLE  
**LANDSCAPE PLAN**

PEA JOB NO. 20-0164  
P.M. JPB  
D.N. CAL  
DES. JLE  
DRAWING NUMBER:

L-1.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2020\2020-0164 LAKE ORION LUMBER-JPB\DWG\CONSTRUCTION\1-2.0) LANDSCAPE SPECS-200164.dwg PLOT DATE: 7/27/2026 BY: Scott Sieg

S:\PROJECTS\2020\2020-0164 LAKE ORION LUMBER-REVENUE\CONSTRUCTION\(-2.0) LANDSCAPE\_SPECS-2020164.dwg PLOT DATE: 7/27/2026 09:50:07

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXTERIOR PLANTS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | manufacture's recommendations. Clean area of all dead material after five (5) days.                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                         | 2.0                                                                                                                                                                                                                                                                                                                    | PRODUCTS - Not Used                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.0             | GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1. No plants shall be loose in the container.                                                                                                                                                                                                                                                                                                     | 3. Pre-Emergence Herbicide: applied per manufacturer recommendations to same area where "Herbicide" has been applied and to planting bed areas; after area is cleared of dead vegetation.                                                                                                                                               | 3.0                                                                                                                                                                                                                                                                                                                    | EXECUTION                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.1             | SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2. Container stock shall not be root bound.                                                                                                                                                                                                                                                                                                       | 4. Herbicides to be applied by licensed applicator as required by the State.                                                                                                                                                                                                                                                            | 3.1                                                                                                                                                                                                                                                                                                                    | PERFORMANCE                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.1.1           | Includes But Not Limited To                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3. Single stemmed or thin plants will not be accepted.                                                                                                                                                                                                                                                                                            | 5. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide plant pits per planting details. Depth of pit shall accommodate the root system. Scarify the bottom of the pit to a depth of 6".                                                                           | 3.1.1                                                                                                                                                                                                                                                                                                                  | Acceptance of Installation                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2             | QUALITY ASSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4. Side branches shall be generous, well twigged, and the plant as a whole well bushed to the ground.                                                                                                                                                                                                                                             | 6. Roughen sides of excavations.                                                                                                                                                                                                                                                                                                        | 1.                                                                                                                                                                                                                                                                                                                     | At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's Representative shall be present.                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.1           | Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.                                                                                                                                                                                                                                                                                                        | 5. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.                                                                                                                                                                                                                                 | 7. Provide premixed planting mixture Type "A" for use around the balls and roots of all deciduous and evergreen tree plantings.                                                                                                                                                                                                         | a.                                                                                                                                                                                                                                                                                                                     | Following the acceptance inspection a punch list will be issued by the Landscape Architect.                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.2           | Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock". A plant shall be dimensioned as it stands in its natural position.                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2.1.4 Collected stock consists of plants growing under natural conditions in soils and climate as exist at location to be planted, in locations lending themselves to proper collecting practices. Root system (balls) to be at least twenty-five (25%) percent larger than specified for nursery grown material.                                 | 3.3.3 Percolation Testing of Plant Beds                                                                                                                                                                                                                                                                                                 | b.                                                                                                                                                                                                                                                                                                                     | Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall reinspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.3           | All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of two years.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2.1.5 Specimen stock: all specimen designated plantings are to be nursery grown, fully developed, excellent quality, and typical example of the species. Plants designated to be planted in rows must be matched, symmetrical, and uniform in height, spread, caliper, and branching density.                                                     | Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.                                                                                                                              | c.                                                                                                                                                                                                                                                                                                                     | At the time of acceptance all plant material shall be of vigorous health and planting bed and mulch rings are weed free.                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.4           | Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional charge. Larger plants shall not be cut back to size indicated.                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2.1.6 Topsoil for planting mix: fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials with acidity range of between pH 6.0-6.8 for ericaceous plants. | 1. Dig a hole at least 12" in diameter by 12" in depth, with straight sides, in excavated plant beds.                                                                                                                                                                                                                                   | d.                                                                                                                                                                                                                                                                                                                     | It is the responsibility of the Landscape Subcontractor to make the written request for inspection of installation in a timely fashion.                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.5           | Provide "specimen" plants with a special height, shape, or character of growth. Landscape Subcontractor is to tag specimen trees or shrubs at the source of supply. The Landscape Subcontractor shall inspect all plant material at source prior to Landscape Architect's approval. Landscape Subcontractor shall accompany Landscape Architect on final selection trip. The Landscape Architect will inspect specimen selections for suitability and adaptability to selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for approval. | 2.1.7 Peat moss: brown to black in color, weed and seed free granulated raw peat.                                                                                                                                                                                                                                                                 | 2. Fill hole with water and let it sit overnight.                                                                                                                                                                                                                                                                                       | e.                                                                                                                                                                                                                                                                                                                     | If there is plant material loss prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape Contractor shall make all replacements of this dead material at no additional cost. These replacements are not considered to be the required one (1) replacement of dead plant material by the Landscape Subcontractor during the one (1) year project warranty period, as outlined below.   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.6           | Plants may be inspected and approved at the place of growth for compliance with specification requirements for quality, size, and variety.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2.1.8 Planting mixture Type A - trees: standard planting backfill shall be a mixture of ½ native soil (excavated from plant pits), ½ topsoil, and ½ sand. Add fertilizer Type "A" and "B" to planting mixture per manufacturer's requirements. Follow planting details.                                                                           | 3. Refill hole the next day.                                                                                                                                                                                                                                                                                                            | 2.                                                                                                                                                                                                                                                                                                                     | Landscape work may be inspected for acceptance in parts agreeable to the General Contractor's Representative and Landscape Architect provided work offered for inspection is complete, including maintenance as required.                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.7           | Approval of plant selection at the place of growth shall not impair the right of inspection and rejection upon delivery at the site or during progress of the work.                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.1.9 Planting mixture Type B for perennial flowers, groundcover beds, and ericaceous plants: planting backfill shall be a mixture of 1/3 screened topsoil, 1/3 sand and 1/3 peat. All existing soil shall be excavated and removed. Adding fertilizer types "A" and "B" to mixture per manufacturer's requirements. Follow planting details.     | 4. Measure the water level by laying a straight edge across the top of the hole, then use a tape measure or yardstick to determine the water level. Continue to measure the water level every hour until the hole is empty, noting the number of inches the water level drops per hour.                                                 | 3.                                                                                                                                                                                                                                                                                                                     | For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply a written statement requesting acceptance of this work completed to date.                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.8           | Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.                                                                                                                                                                                                                                                                                                                                                                                                              | 2.1.10 Planting mixture Type C for annual flower beds: same as Type "B". Submit a sample to the Landscape Architect for approval prior to installation.                                                                                                                                                                                           | Any test holes with a rate of 1" or less an hour is considered to slow and recommendations to remedy issue shall be provide to Architect and Owner.                                                                                                                                                                                     | 3.1.2                                                                                                                                                                                                                                                                                                                  | Project Warranty                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.9           | Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with work of this section.                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.1.11 Planting mixture Type D for Bioretention Soil Mix, for use with shrubs and perennials in a bioswale/rain garden or bioretention area. Planting backfill shall be a mixture of 50%-60% coarse sand, 25%-35% screened topsoil, and 10-15% Compost by volume. The following criteria for bioretention soil mix shall be provided:             | 3.3.4 Ground Cover Beds, Perennial Flower Beds, and Ericaceous Plant Beds                                                                                                                                                                                                                                                               | 1.                                                                                                                                                                                                                                                                                                                     | The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General Contractor's representative.                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.10          | Plant totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All plantings indicated on Drawings are required unless indicated otherwise.                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1. Maximum clay content: 15%                                                                                                                                                                                                                                                                                                                      | 1. Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B".                                                                                                           | 2.                                                                                                                                                                                                                                                                                                                     | The Landscape Subcontractor shall guarantee trees, shrubs, ground cover beds and seeded or sodded areas through construction and for a period of one (1) year after date of Acceptance of Installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse or damage by others or unusual phenomena or incidents which are beyond Landscape Subcontractor's control.      |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.3             | SUBMITTALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2. Clay and silt content: 25%-40%                                                                                                                                                                                                                                                                                                                 | 3.4                                                                                                                                                                                                                                                                                                                                     | INSTALLATION                                                                                                                                                                                                                                                                                                           | 3.1.3                                                                                                                                                                                                                                                                                                                                                                                                                             | Maintenance During One (1) Year Project Warranty                                                                                                                                                                                                                                                                                                                                                                       |
| 1.3.1           | Provide and pay for material testing. Testing agency shall be acceptable to the Landscape Architect. Provide the following data:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3. Nutrient content: 15-30 mg/kg                                                                                                                                                                                                                                                                                                                  | 3.4.1                                                                                                                                                                                                                                                                                                                                   | Planting shall be performed only by experienced workman familiar with planting procedures under the supervision of a qualified supervisor.                                                                                                                                                                             | 1.                                                                                                                                                                                                                                                                                                                                                                                                                                | To insure guarantee standards, the following maintenance procedures for trees, shrubs, and ground covers shall be executed during construction and for the full Project Warranty Periods.                                                                                                                                                                                                                              |
| 1.              | The loss of weight by ignition and moisture absorption capacity shall be tested for peat moss.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4. Hydraulic Conductivity: 1-4 inches per hour                                                                                                                                                                                                                                                                                                    | 3.4.2                                                                                                                                                                                                                                                                                                                                   | Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the planting details.                                                                                                                                                                | a.                                                                                                                                                                                                                                                                                                                                                                                                                                | Landscape Subcontractor shall be responsible for only one (1) replacement of any plant materials during the one (1) year Project Warranty Period. These include those which are dead or in the opinion of the Landscape Architect are in an unhealthy or unsightly condition, or having lost natural shape, resulting from dieback, excessive pruning, or inadequate or improper maintenance as part of the guarantee. |
| 1.3.2           | Submit the following material samples to Landscape Architect:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 5. Organic Matter Content: 2%-5%                                                                                                                                                                                                                                                                                                                  | 3.4.3                                                                                                                                                                                                                                                                                                                                   | See drawings for planting details.                                                                                                                                                                                                                                                                                     | b.                                                                                                                                                                                                                                                                                                                                                                                                                                | Prior to any replacements, Landscape Subcontractor shall review individual plants in question with Landscape Architect to determine reason for plant demise.                                                                                                                                                                                                                                                           |
| 1.              | Peat moss, shredded hardwood bark mulch, planting accessories, pre-emergent herbicides, and plant fertilizers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Adding fertilizer to mixture per manufacturer's requirements and soil testing recommendations. Follow detail for installation. Submit a sample and testing results to the Landscape Architect for approval prior to installation.                                                                                                                 | 3.4.4                                                                                                                                                                                                                                                                                                                                   | If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape Architect. | c.                                                                                                                                                                                                                                                                                                                                                                                                                                | Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.                                                                                                             |
| 1.3.3           | Submit the following materials certification to Landscape Architect:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.1.12 Planting mixture Type E for Planter Soil Mix, Metro Mix 900 in 3 cubic foot bags or approved equal.                                                                                                                                                                                                                                        | 3.4.5                                                                                                                                                                                                                                                                                                                                   | Set plant material in the planting pit to proper grade and alignment.                                                                                                                                                                                                                                                  | d.                                                                                                                                                                                                                                                                                                                                                                                                                                | Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.                                                                                                                                                                                                                                                          |
| 1.              | Topsoil source and pH value, peat moss, and plant fertilizer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2.1.13 Plant fertilizer Type A to be "Drimanure" applied per manufacturer recommendations.                                                                                                                                                                                                                                                        | 1. Lime to be ground dolomitic limestone, ninety-five percent (95%) passing through #100 mesh screen. Use to adjust soil pH only, under direction of Landscape Architect.                                                                                                                                                               | 1.                                                                                                                                                                                                                                                                                                                     | Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure.                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.4             | DELIVERY, STORAGE, AND HANDLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.1.14 Plant fertilizer Type B to be "14-14-14". Apply per manufacturer recommendations.                                                                                                                                                                                                                                                          | 2. Set plant material so it is flush to finish grade after settling, or 1-2" higher in poorly drained soil, or as directed by Landscape Architect.                                                                                                                                                                                      | 2.                                                                                                                                                                                                                                                                                                                     | Set plant material so it is flush to finish grade after settling, or 1-2" higher in poorly drained soil, or as directed by Landscape Architect.                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.4.1           | Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2.1.15 Bone Meal - 5 lbs. per cubic yard of soil mixes.                                                                                                                                                                                                                                                                                           | 3. No filling will be permitted around the trunks or stems.                                                                                                                                                                                                                                                                             | 3.                                                                                                                                                                                                                                                                                                                     | No filling will be permitted around the trunks or stems.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.4.2           | Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.1.16 Lime to be ground dolomitic limestone, ninety-five percent (95%) passing through #100 mesh screen. Use to adjust soil pH only, under direction of Landscape Architect.                                                                                                                                                                     | 4. Do not cover top of root ball with soil.                                                                                                                                                                                                                                                                                             | 4.                                                                                                                                                                                                                                                                                                                     | Do not cover top of root ball with soil.                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.4.3           | Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2.1.17 Sand to be clean, coarse, ungraded conforming to ASTM-C-3 for fine aggregates.                                                                                                                                                                                                                                                             | 5. Backfill pit with planting mixture. Do not use frozen or muddy mixtures for backfilling.                                                                                                                                                                                                                                             | 5.                                                                                                                                                                                                                                                                                                                     | Backfill pit with planting mixture. Do not use frozen or muddy mixtures for backfilling.                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.4.4           | Dig, pack, transport, and handle plants with care to ensure protection against injury.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2.1.18 Anti-Desiccant: protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with Manufacturer's instructions.                                                                                                                                             | 6. Form a ring of soil around the edge of the planting pit to retain water.                                                                                                                                                                                                                                                             | 6.                                                                                                                                                                                                                                                                                                                     | Form a ring of soil around the edge of the planting pit to retain water.                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.4.5           | Inspection certificates required by law shall accompany each shipment invoice or order to stock on arrival. The certificate shall be filed with the General Contractor's representative.                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.1.19 Shredded bark mulch shall be double processed, dark shredded hardwood bark that is clean, free of debris and sticks. Materials shall be uniform in size, shape, and texture. Submit samples to Landscape Architect for approval prior to installation. Install mulch to finish grade, level smooth, without ridges, humps, or depressions. | 3.4.6                                                                                                                                                                                                                                                                                                                                   | After balled and burlapped plants are set, tamp planting mixture around of balls and fill all voids and remove air pockets.                                                                                                                                                                                            | 3.4.7                                                                                                                                                                                                                                                                                                                                                                                                                             | Remove all burlap, ropes, and wires from top 1/3 of balls.                                                                                                                                                                                                                                                                                                                                                             |
| 1.4.6           | Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, shredded hardwood bark mulch, or in a manner acceptable to the General Contractor's representative.                                                                                                                                                                                                                                                                                                                                                                                         | 2.1.20 Water: free of substances harmful to plant growth. Hoses or other methods of transportation shall be furnished by Sub Contractor.                                                                                                                                                                                                          | 3.4.8                                                                                                                                                                                                                                                                                                                                   | Evenly fill planting bed with indicated quantity of plants. Plant to within 12" of trunks and shrubs and to within 6" of planting bed.                                                                                                                                                                                 | 3.4.9                                                                                                                                                                                                                                                                                                                                                                                                                             | Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and frayed roots before installing planting mixture.                                                                                                                                                                                                                     |
| 1.4.7           | Water heeled in plantings daily.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.1.21 Stakes for staking: (3) Three Hardwood, 2" x 2" x 8'-0" long. Driven a min. of 18" deep firmly into subgrade prior to backfilling. Stakes for guying: Hardwood, 2" x 2" x 36" long.                                                                                                                                                        | 3.4.10                                                                                                                                                                                                                                                                                                                                  | Water immediately after planting.                                                                                                                                                                                                                                                                                      | 3.4.11                                                                                                                                                                                                                                                                                                                                                                                                                            | Apply pre-emergent herbicide to bed areas per manufacturer's recommendations before mulching.                                                                                                                                                                                                                                                                                                                          |
| 1.4.8           | No plant shall be bound with rope or wire in a manner that could damage or break the branches.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.1.22 Guying/staking material With 2"-3" wide fabric straps, connect from tree to stake. Remove after (1) year, allow for flexibility (do not use wire & hose).                                                                                                                                                                                  | 3.5                                                                                                                                                                                                                                                                                                                                     | MULCHING                                                                                                                                                                                                                                                                                                               | 3.5.1                                                                                                                                                                                                                                                                                                                                                                                                                             | Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep to discipline immediately after planting. Leave 3" circle of bare soil around tree trunk. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.                                                                                                                               |
| 1.4.9           | Cover plants transported on open vehicles with a protective covering to prevent wind burn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2.1.23 Tree wrap: standard waterproofed tree wrapping paper, 2'-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, cemented together with asphalt. Secure tree wrap with biodegradable material at top and bottom. Remove after first winter.                                                              | 3.5.2                                                                                                                                                                                                                                                                                                                                   | Mulch shall not be placed in contact with trunks or stems.                                                                                                                                                                                                                                                             | 3.5.3                                                                                                                                                                                                                                                                                                                                                                                                                             | Mulch ground cover beds with shredded bark mulch 2" to 3" deep prior to planting.                                                                                                                                                                                                                                                                                                                                      |
| 1.4.10          | Frozen or muddy topsoil is not acceptable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2.1.24 Twine: two-ply jute material.                                                                                                                                                                                                                                                                                                              | 3.5.4                                                                                                                                                                                                                                                                                                                                   | Plant ground cover through mulch.                                                                                                                                                                                                                                                                                      | 3.6                                                                                                                                                                                                                                                                                                                                                                                                                               | WRAPPING, GUYING, AND STAKING                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.5             | PROJECT CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.2                                                                                                                                                                                                                                                                                                                                               | 2.2 MEASUREMENTS                                                                                                                                                                                                                                                                                                                        | 3.6.1                                                                                                                                                                                                                                                                                                                  | Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.5.1           | See Landscape Preparation Section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.2.1 Measure height and spread of specimen plant materials with branches in their normal positions as indicated on Drawings or Plant List.                                                                                                                                                                                                       | 2.2.2 The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.                                                                                                                                                                                        | 3.6.2                                                                                                                                                                                                                                                                                                                  | Wrap trunks of all trees spirally from bottom to top with specified tree wrap and secure in place.                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.5.2           | Work notification: notify Landscape Architect at least seven working days prior to installation of plant material.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.2.2 The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.                                                                                                                                                                                                  | 2.2.3 Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in narrowest direction would be classified as 12 inch stock.                                                                                                                               | 3.6.3                                                                                                                                                                                                                                                                                                                  | Stake deciduous trees under 4" caliper. Stake evergreen trees under 6'-0" tall and over with metal fence post, three (3)per tree.                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.5.3           | Protect existing utilities, paving, and other facilities from damage caused by landscaping operations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2.2.4 Plants properly trimmed and transplanted should measure same in every direction.                                                                                                                                                                                                                                                            | 2.2.5 Measure caliper of trees 6 inches above surface of ground.                                                                                                                                                                                                                                                                        | 3.6.4                                                                                                                                                                                                                                                                                                                  | Stake/guy all trees immediately after installation. When high winds or other conditions which may effect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the staking/guying.                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.5.4           | A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the proposal form. In the event that quantity discrepancies or material omissions occur in the proposal form, Subcontractor shall notify the Landscape Architect during the proposal bidding process.                                                                                                                                                                                                                                                                                                          | 2.2.6 Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.                                                                                                                                                                                                    | 2.2.7 Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:                                                                                                                                                                                                             | 3.6.5                                                                                                                                                                                                                                                                                                                  | Guy deciduous trees 4" caliper and over. Stake evergreen trees 6'-0" tall and over with metal fence post, three (3) per tree.                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.5.5           | An irrigation system will be installed prior to planting. Locate, protect, and maintain the irrigation system during planting operations. Repair irrigation system components, damaged during planting operations, at the Landscape Subcontractor's expense.                                                                                                                                                                                                                                                                                                                                                            | 2.2.8 The height of the trees, specified by height, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated on the drawings.                                                                                                                                                        | 3.0                                                                                                                                                                                                                                                                                                                                     | EXECUTION                                                                                                                                                                                                                                                                                                              | 3.6.6                                                                                                                                                                                                                                                                                                                                                                                                                             | All work shall be acceptable to the Landscape Architect/Owner's representative.                                                                                                                                                                                                                                                                                                                                        |
| 1.5.6           | The Landscape Subcontractor shall inspect existing soil conditions in all areas of the site where his operations will take place, prior to the beginning of work. It is the responsibility of the Landscape Subcontractor to notify the General Contractor's representative and the Landscape Architect in writing of any conditions which could affect the survivability of plant material to be installed.                                                                                                                                                                                                            | 3.1                                                                                                                                                                                                                                                                                                                                               | INSPECTION                                                                                                                                                                                                                                                                                                                              | 3.1.1                                                                                                                                                                                                                                                                                                                  | Landscape Architect or General Contractor's representative must approve proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.6             | WARRANTY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.1.2                                                                                                                                                                                                                                                                                                                                             | Individual plant locations shall be staked on the project site by the Landscape Contractor and approved by the Landscape Architect before any planting pits are dug. The Landscape Architect reserves the right to adjust plant material locations to meet field conditions, without additional cost to the General Contractor / Owner. | 3.1.2                                                                                                                                                                                                                                                                                                                  | Accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.6.1           | See Landscape Maintenance and Warranty Standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3.1.3                                                                                                                                                                                                                                                                                                                                             | Accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.                                                                                                                                       | 3.2                                                                                                                                                                                                                                                                                                                    | TIME OF PLANTING                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.0             | PRODUCTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.2                                                                                                                                                                                                                                                                                                                                               | TIME OF PLANTING                                                                                                                                                                                                                                                                                                                        | 3.2.1                                                                                                                                                                                                                                                                                                                  | Evergreen material: Plant Evergreen materials between September 1 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.1             | MATERIALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3.2.2                                                                                                                                                                                                                                                                                                                                             | Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in leaf, they shall be sprayed with anti-desiccant prior to planting operation.                                                                                                                                                    | 3.2.3                                                                                                                                                                                                                                                                                                                  | Planting times other than those indicated must be acceptable to the Landscape Architect.                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.1.1           | Plants: Provide plants typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, unsound injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.                                                                                                                                                                                        | 3.3                                                                                                                                                                                                                                                                                                                                               | PREPARATION                                                                                                                                                                                                                                                                                                                             | 3.3.1                                                                                                                                                                                                                                                                                                                  | General: See Landscape Preparation Section                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.              | Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed balls are not acceptable.                                                                                                                                                                                                                                                                        | 3.3.2                                                                                                                                                                                                                                                                                                                                             | Vegetation Removal                                                                                                                                                                                                                                                                                                                      | 1.                                                                                                                                                                                                                                                                                                                     | Strip existing grass and weeds, including roots from all bed areas leaving the soil surface one (1") inch below finish grade.                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.              | All trees shall have clay or clay loam balls. Trees with sand balls will be rejected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3.3.3                                                                                                                                                                                                                                                                                                                                             | Herbicide: as required to prepare area for new planting applied to all ground cover, evergreen and shrubby beds and all mulch areas before application of preemergence herbicide, per                                                                                                                                                   | 2.                                                                                                                                                                                                                                                                                                                     | Herbicide: as required to prepare area for new planting applied to all ground cover, evergreen and shrubby beds and all mulch areas before application of preemergence herbicide, per                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3.              | Provide free species that mature at heights over 25'-0" with a single, main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable.                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3.3.4                                                                                                                                                                                                                                                                                                                                             | Ground Cover Beds, Perennial Flower Beds, and Ericaceous Plant Beds                                                                                                                                                                                                                                                                     | 1.                                                                                                                                                                                                                                                                                                                     | Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B".                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 4.              | Plants planted in rows shall be matched in form, (see specimen stock).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3.3.5                                                                                                                                                                                                                                                                                                                                             | Mass Shrub Beds / Hedge Beds:                                                                                                                                                                                                                                                                                                           | 1.                                                                                                                                                                                                                                                                                                                     | Excavate existing soil to 18" depth over entire bed area and remove soil from site. Scarify bottom of the bed to a 4" depth. Set plants according to drawings and Specifications. Backfill entire bed with (premixed) specified planting mixture Type "A".                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 5.              | Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.3.6                                                                                                                                                                                                                                                                                                                                             | Annual Flower Beds:                                                                                                                                                                                                                                                                                                                     | 1.                                                                                                                                                                                                                                                                                                                     | Excavate existing soil to 8" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Backfill entire bed to an 8" depth with premixed planting mixture "Type B".                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6.              | No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.4                                                                                                                                                                                                                                                                                                                                               | INSTALLATION                                                                                                                                                                                                                                                                                                                            | 1.                                                                                                                                                                                                                                                                                                                     | To insure guarantee standards, the following maintenance procedures for trees, shrubs, and ground covers shall be executed during construction and for the full Project Warranty Periods.                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 7.              | Evergreen trees shall be unsharred and branched to the ground.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.4.1                                                                                                                                                                                                                                                                                                                                             | Planting shall be performed only by experienced workman familiar with planting procedures under the supervision of a qualified supervisor.                                                                                                                                                                                              | a.                                                                                                                                                                                                                                                                                                                     | Landscape Subcontractor shall be responsible for only one (1) replacement of any plant materials during the one (1) year Project Warranty Period. These include those which are dead or in the opinion of the Landscape Architect are in an unhealthy or unsightly condition, or having lost natural shape, resulting from dieback, excessive pruning, or inadequate or improper maintenance as part of the guarantee.            |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 8.              | Shrubs and small plants shall meet the requirements for spread and height indicated on the drawings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3.4.2                                                                                                                                                                                                                                                                                                                                             | Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the planting details.                                                                                                                                                                                 | b.                                                                                                                                                                                                                                                                                                                     | Prior to any replacements, Landscape Subcontractor shall review individual plants in question with Landscape Architect to determine reason for plant demise.                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 9.              | Plant materials shall be subject to approval by the Landscape Architect as to size, health, quality, and character.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.4.3                                                                                                                                                                                                                                                                                                                                             | See drawings for planting details.                                                                                                                                                                                                                                                                                                      | c.                                                                                                                                                                                                                                                                                                                     | Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 10.             | Bare root trees are not acceptable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.4.4                                                                                                                                                                                                                                                                                                                                             | If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape Architect.                  | d.                                                                                                                                                                                                                                                                                                                     | Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 11.             | Provide plant materials from licensed nursery or grower.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.4.5                                                                                                                                                                                                                                                                                                                                             | Set plant material in the planting pit to proper grade and alignment.                                                                                                                                                                                                                                                                   | e.                                                                                                                                                                                                                                                                                                                     | Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2             | Bare root plants: dug with adequate fibrous roots, to be covered with a uniformly thick coating of mud by being puddled immediately after they are dug or packed in moist straw or peat moss.                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.4.6                                                                                                                                                                                                                                                                                                                                             | After balled and burlapped plants are set, tamp planting mixture around of balls and fill all voids and remove air pockets.                                                                                                                                                                                                             | f.                                                                                                                                                                                                                                                                                                                     | The contractor will be responsible for irrigation system operation, watering schedules, watering amounts and general monitoring of irrigation system throughout construction, maintenance, and warranty period. Over watering or lack of water from the irrigation system is the responsibility of the landscape contractor and any required replacements at the cost of the contractor and not part of the warranty replacement. |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.2.3           | Container grown stock: grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm, and whole.                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3.4.7                                                                                                                                                                                                                                                                                                                                             | Remove all burlap, ropes, and wires from top 1/3 of balls.                                                                                                                                                                                                                                                                              | 2.                                                                                                                                                                                                                                                                                                                     | Replacements must meet the standards specified on the Landscape plans and in the specifications, i.e. quality, species of plant material and planting procedures to receive approval of replacement materials by Landscape Architect.                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.4.8                                                                                                                                                                                                                                                                                                                                             | Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 12" of trunks and shrubs and to within 6" of planting bed.                                                                                                | 3.                                                                                                                                                                                                                                                                                                                     | Costs for replacements are assumed part of bid quotations and therefore will not result in an additional cost to General Contractor or Landscape Architect.                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.4.9                                                                                                                                                                                                                                                                                                                                             | Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and frayed roots before installing planting mixture.                                                                                                                                      | 4.                                                                                                                                                                                                                                                                                                                     | Areas damaged as a result of replacement operation are to be restored by Landscape Subcontractor at no cost to the General Contractor or Landscape Architect.                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.4.10                                                                                                                                                                                                                                                                                                                                            | Water immediately after planting.                                                                                                                                                                                                                                                                                                       | 5.                                                                                                                                                                                                                                                                                                                     | The Landscape Subcontractor shall be responsible for watering all plantings through the warranty period and shall keep guy wires taut, raise tree balls which settle, furnish and apply sprays as necessary to keep the plantings free of disease and insects until the end of the warranty period.                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.4.11                                                                                                                                                                                                                                                                                                                                            | Apply pre-emergent herbicide to bed areas per manufacturer's recommendations before mulching.                                                                                                                                                                                                                                           | 6.                                                                                                                                                                                                                                                                                                                     | The Landscape Subcontractor shall remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition.                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.5                                                                                                                                                                                                                                                                                                                                               | MULCHING                                                                                                                                                                                                                                                                                                                                | a.                                                                                                                                                                                                                                                                                                                     | Rejected plants and materials shall be removed promptly.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.5.1                                                                                                                                                                                                                                                                                                                                             | Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep to discipline immediately after planting. Leave 3" circle of bare soil around tree trunk. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.                                                | b.                                                                                                                                                                                                                                                                                                                     | Replacements shall be made during the following normal planting schedule.                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.5.2                                                                                                                                                                                                                                                                                                                                             | Mulch shall not be placed in contact with trunks or stems.                                                                                                                                                                                                                                                                              | c.                                                                                                                                                                                                                                                                                                                     | Trees and shrubs which are in doubt shall be replaced, unless, in the opinion of the Landscape Architect, it is advisable to extend Project Warranty Period for full growing Season.                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.5.3                                                                                                                                                                                                                                                                                                                                             | Mulch ground cover beds with shredded bark mulch 2" to 3" deep prior to planting.                                                                                                                                                                                                                                                       | 7.                                                                                                                                                                                                                                                                                                                     | The Landscape Contractor shall apply anti-desiccants on evergreen trees and evergreen shrub beds within 150' of major streets and drives, no later than December 1, during the one (1) year project warranty.                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.5.4                                                                                                                                                                                                                                                                                                                                             | Plant ground cover through mulch.                                                                                                                                                                                                                                                                                                       | 8.                                                                                                                                                                                                                                                                                                                     | The first spring after plant installation the contractor shall check all trees to insure twine has rotted from around the trunk. If twine is still present, it shall be removed and disposed of off-site.                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6                                                                                                                                                                                                                                                                                                                                               | WRAPPING, GUYING, AND STAKING                                                                                                                                                                                                                                                                                                           | 9.                                                                                                                                                                                                                                                                                                                     | All stakes, guy wires, tree wrap paper, dead twigs and branches shall be removed from tree and plant materials at the end of this warranty period.                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6.1                                                                                                                                                                                                                                                                                                                                             | Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.                                                                                                                                                                                                                                | 3.1.4                                                                                                                                                                                                                                                                                                                  | Maintenance of Seeded Lawn Areas                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6.2                                                                                                                                                                                                                                                                                                                                             | Wrap trunks of all trees spirally from bottom to top with specified tree wrap and secure in place.                                                                                                                                                                                                                                      | 1.                                                                                                                                                                                                                                                                                                                     | The Landscape Subcontractor shall maintain seeded lawn areas.                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6.3                                                                                                                                                                                                                                                                                                                                             | Stake deciduous trees under 4" caliper. Stake evergreen trees under 6'-0" tall and over with metal fence post, three (3)per tree.                                                                                                                                                                                                       | a.                                                                                                                                                                                                                                                                                                                     | Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare spots, none of which is larger than one (1) foot of area up to a maximum of 3% of the total seeded lawn area is established.                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6.4                                                                                                                                                                                                                                                                                                                                             | Stake/guy all trees immediately after installation. When high winds or other conditions which may effect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the staking/guying.                                                                                                  | b.                                                                                                                                                                                                                                                                                                                     | Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established, regardless of what season the seed was installed.                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6.5                                                                                                                                                                                                                                                                                                                                             | Guy deciduous trees 4" caliper and over. Stake evergreen trees 6'-0" tall and over with metal fence post, three (3) per tree.                                                                                                                                                                                                           | 2.                                                                                                                                                                                                                                                                                                                     | The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows). When lawn reaches 3" in height it shall be cut to 2" in height.                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6.6                                                                                                                                                                                                                                                                                                                                             | All work shall be acceptable to the Landscape Architect/Owner's representative.                                                                                                                                                                                                                                                         | 3.                                                                                                                                                                                                                                                                                                                     | The Owner assumes cutting responsibilities following the Acceptance of Installation of the seeded lawn.                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.7                                                                                                                                                                                                                                                                                                                                               | PRUNING                                                                                                                                                                                                                                                                                                                                 | 4.                                                                                                                                                                                                                                                                                                                     | At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance responsibilities.                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.7.1                                                                                                                                                                                                                                                                                                                                             | Remove or cut back broken, damaged, and unsymmetrical growth of new wood.                                                                                                                                                                                                                                                               | 1.                                                                                                                                                                                                                                                                                                                     | The Landscape Subcontractor shall maintain sodded lawn areas.                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.7.2                                                                                                                                                                                                                                                                                                                                             | Multiple leader plants: preserve the leader which will best promote the symmetry of the plant. Do not prune terminal leader. Cut branches flush with the trunk of the main branch, at a point beyond a lateral shoot or bud a distance of not less than ½ the diameter of the supporting branch. Make cut on an angle.                  | a.                                                                                                                                                                                                                                                                                                                     | Water, fertilize, spot weed, apply herbicides, fungicides, insecticides and reseed until a full uniform, smooth stand of sod is knitted to topsoil, and accepted by the Landscape Architect or his or her representative.                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.7.3                                                                                                                                                                                                                                                                                                                                             | Prune evergreens only to remove broken or damaged branches.                                                                                                                                                                                                                                                                             | 2.                                                                                                                                                                                                                                                                                                                     | Water sod thoroughly, as required to establish proper rooting.                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.8                                                                                                                                                                                                                                                                                                                                               | MAINTENANCE                                                                                                                                                                                                                                                                                                                             | 3.                                                                                                                                                                                                                                                                                                                     | Repair, rework, and reseed all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod.                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.8.1                                                                                                                                                                                                                                                                                                                                             | See Landscape Maintenance and Warranty Standards.                                                                                                                                                                                                                                                                                       | 4.                                                                                                                                                                                                                                                                                                                     | Mow lawn areas once as soon as sod has rooted sufficiently and knitted to the topsoil. Cut back to 2" height. Not more than 40% of grass leaf shall be removed at any single mowing. Excess clipping to be removed by the Landscape Subcontractor. The Landscape Subcontractor shall be responsible for lawn mowing until acceptance of installation (typically 3-mows).                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.9                                                                                                                                                                                                                                                                                                                                               | CLEANING                                                                                                                                                                                                                                                                                                                                | 5.                                                                                                                                                                                                                                                                                                                     | The Owner assumes mowing responsibilities following the Acceptance of Installation of the sodded lawn.                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.9.1                                                                                                                                                                                                                                                                                                                                             | Perform cleaning during installation of the work and upon completion of the work. Remove from all site excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.                                                                                                                                 |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | END OF SECTION                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.0             | GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.1             | SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.1.1           | Includes But Not Limited To                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.              | Provide maintenance for new landscaping as described in Contract Documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.              | The requirements of the Section include a one (1) year warranty period from date of acceptance of installation performed by the General Contractor's Representative and Landscape Architect.                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6.              | At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance responsibilities.                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3.1.6           | Maintenance of Seeded Meadow/Prairie Lawn Areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.              | The Landscape Subcontractor shall maintain seeded meadow/prairie lawn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| a.              | Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |



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

CLIENT  
**LAKE ORION DOWNTOWN AUTHORITY**  
118 N. BROADWAY ST.  
LAKE ORION, MI 48062

PROJECT TITLE  
**LAKE ORION LUMBER**  
215 SOUTH BROADWAY  
LAKE ORION, MI

REVISIONS  
FINAL SITE PLAN APPROVAL 07-28-26

ORIGINAL ISSUE DATE:  
MARCH 31, 2026

DRAWING TITLE  
**LANDSCAPE SPECIFICATIONS**

PEA JOB NO. 20-0164

P.M. JPB

DN. NSM

DES. SWS

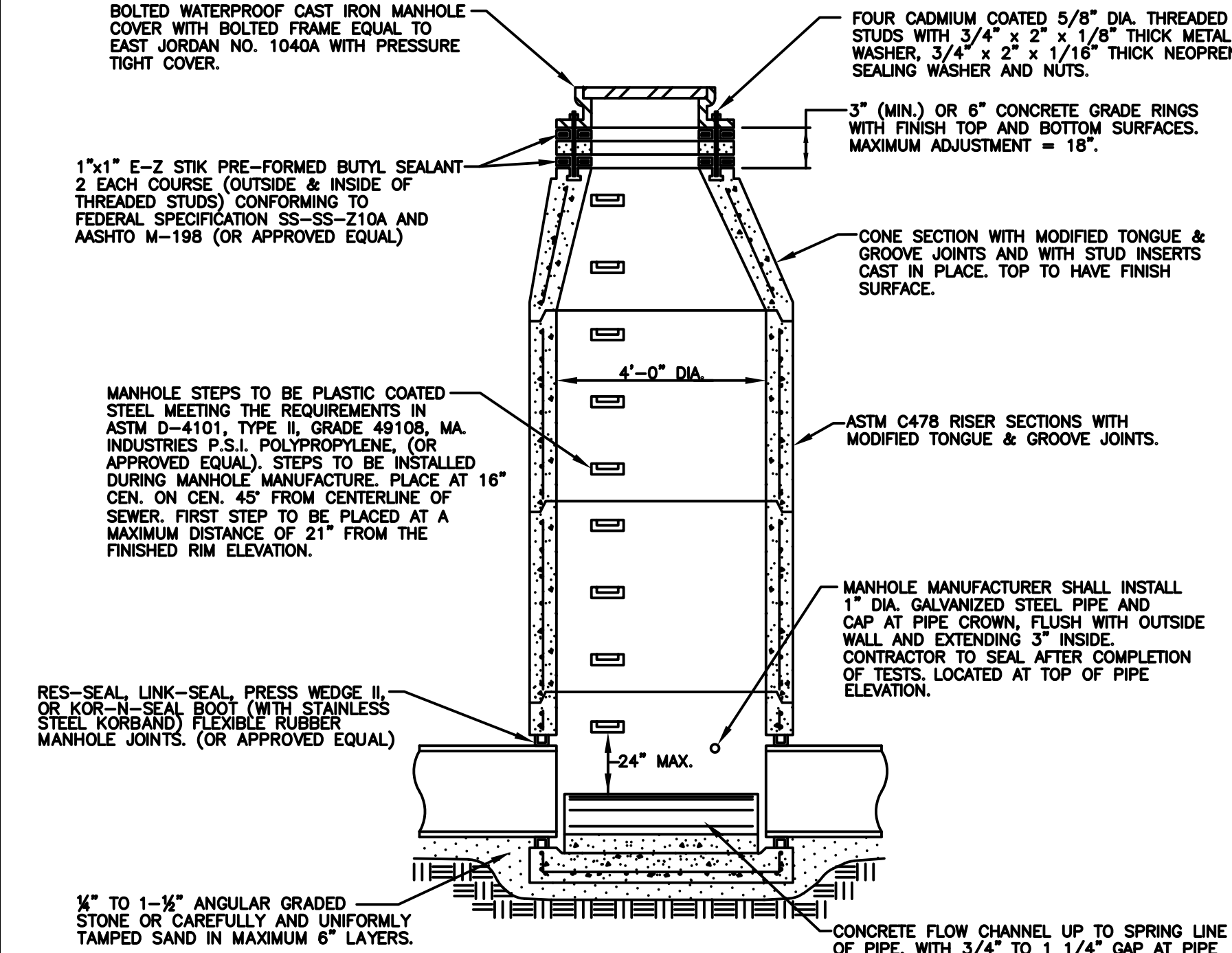
DRAWING NUMBER:

L-2.2

NOT FOR CONSTRUCTION

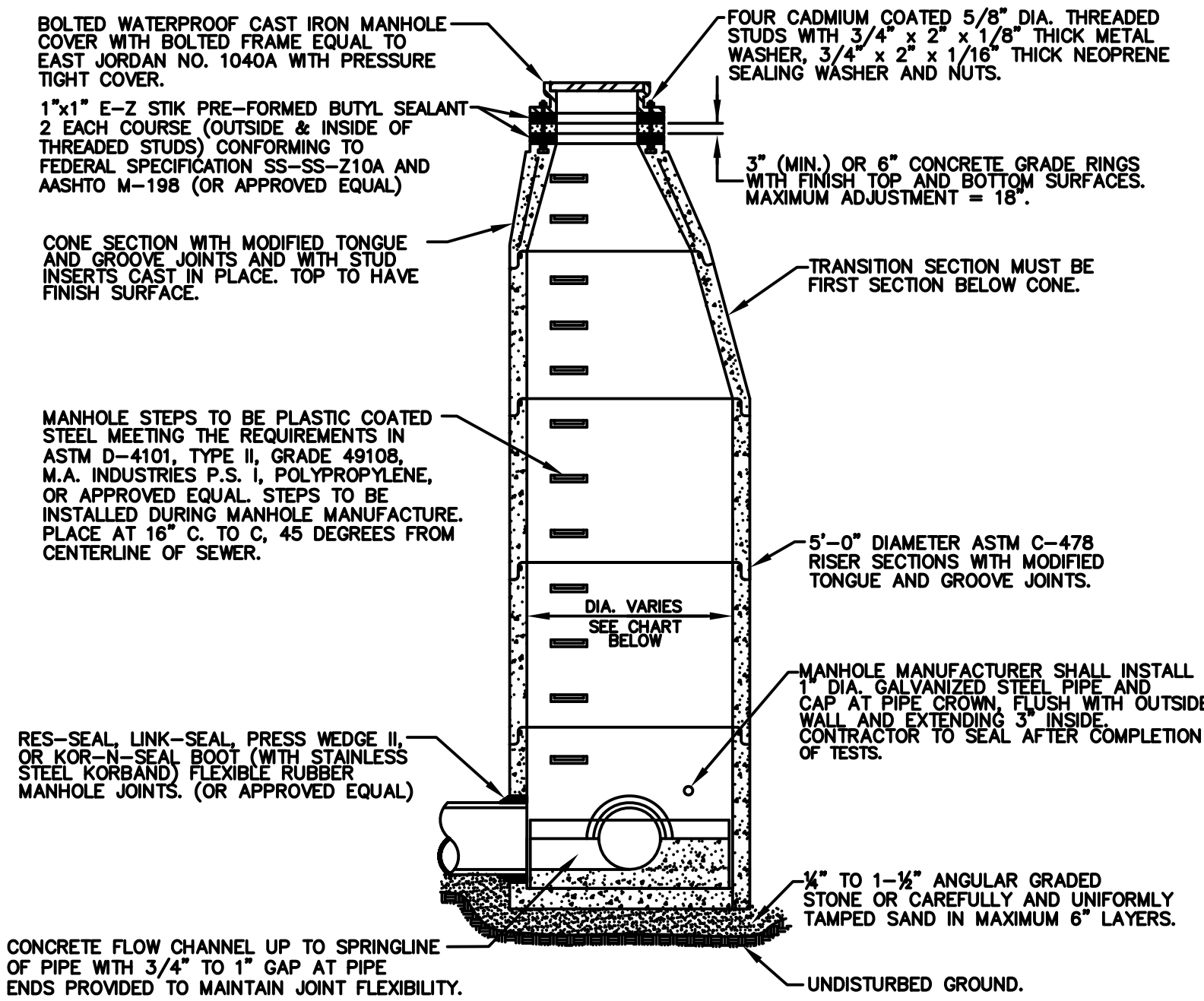
SANITARY SEWER CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE LOCAL UNIT OF GOVERNMENT AND THE WATER RESOURCES COMMISSIONER (WRC). ALL SANITARY SEWER CONSTRUCTION SHALL HAVE FULL-TIME INSPECTION SUPERVISED BY A STATE OF MICHIGAN LICENSED PROFESSIONAL ENGINEER PROVIDED BY, OR CAUSED TO BE PROVIDED BY, THE LOCAL UNIT OF GOVERNMENT.
- AT ALL CONNECTIONS TO WRC SEWERS OF EXTENSIONS, AND BEFORE START OF CONSTRUCTION, THE CONTRACTOR MUST OBTAIN A SEWER INSPECTION PERMIT ISSUED BY WRC. GRAVITY SEWER PERMIT CHARGES ARE \$250 FOR EACH CONNECTION PLUS \$25 FOR EACH MANHOLE CONSTRUCTED. PRESSURE SEWER PERMIT CHARGES ARE \$250 PER 2,460 L.F. OF FORCE MAIN WITH A MINIMUM PERMIT FEE OF \$250. 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 WRC A \$5,000 SURETY BOND AND \$500 CASH DEPOSIT. THE CONTRACTOR SHALL NOTIFY THE LOCAL UNIT OF GOVERNMENT AND WRC (248-858-1105) 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 IT'S CONSULTANT IN ADVANCE WITH 24 HOUR NOTICE AT 248-858-1105.
- NO SEWER INSTALLATION SHALL HAVE AN INFILTRATION 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 WATER RESOURCES COMMISSIONER STANDARDS. ONLY PIPE AND PIPE JOINTS APPROVED BY WRC MAY BE USED FOR SANITARY SEWER CONSTRUCTION.
- LOCATED IN THE FIRST MANHOLE UPSTREAM FROM THE POINT OF ALL CONNECTIONS TO AN EXISTING WRC 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 SUCCESSFUL COMPLETION OF ANY ACCEPTANCE TEST UP TO THE STANDARD FILLET PROVIDED FOR THE FLOW CHANNEL. A WATERTIGHT BULKHEAD SHALL BE PROVIDED ON THE DOWNSTREAM SIDE OF THE SUMP MANHOLE.
- AT ALL TIMES WHEN LAYING OF NEW PIPE IS NOT ACTUALLY IN PROGRESS, THE UPSTREAM OPEN END OF THE PIPE SHALL BE CLOSED BY TEMPORARY WATERTIGHT PLUGS OR BY OTHER APPROVED MEANS. IF WATER IS IN THE TRENCH WHEN WORK IS RESUMED, THE PLUG SHALL NOT BE REMOVED UNTIL THE DANGER OF WATER ENTERING THE PIPE HAS PASSED.
- ALL BUILDING LEADS AND RISERS SHALL BE SIX INCH SDR 23.5 ABS PIPE WITH CHEMICALLY FUSED JOINTS OR AN APPROVED EQUAL PIPE AND JOINT. BUILDING LEADS TO BE FURNISHED WITH REMOVABLE AIRTIGHT AND WATERTIGHT 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 WRC SPECIFICATIONS.
- ALL NEW MANHOLES SHALL HAVE WRC APPROVED FLEXIBLE, WATERTIGHT SEALS WHERE PIPES PASS THROUGH WALLS. MANHOLES SHALL BE OF PRE CAST SECTIONS WITH MODIFIED GROOVE TONGUE AND RUBBER GASKET TYPE JOINTS. PRE CAST MANHOLE CONE SECTIONS SHALL BE WRC APPROVED MODIFIED ECCENTRIC CONE TYPE. ALL MANHOLES SHALL BE PROVIDED WITH BOLTED, WATERTIGHT COVERS.
- AT ALL CONNECTIONS TO MANHOLES ON WRC SEWERS, OR EXTENSIONS THERETO, DROP CONNECTIONS WILL BE REQUIRED WHEN THE DIFFERENCE IN INVERT ELEVATIONS EXCEEDS 18 INCHES.
- TAPS TO EXISTING MANHOLES SHALL BE MADE BY CORING. THE CONTRACTOR SHALL PLACE A KOR-N-SEAL BOOT (OR WRC APPROVED EQUAL) AFTER CORING IS COMPLETED. BLIND DRILLING WILL ONLY BE PERMITTED IN LIEU OF CORING WITH PRIOR WRC APPROVAL.
- MANHOLES CONSTRUCTED DIRECTLY ON WRC SEWERS SHALL BE PROVIDED WITH COVERS READING "WATER RESOURCES COMMISSIONER-SANITARY" IN RAISED LETTERS.
- NO GROUND WATER, STORM WATER, CONSTRUCTION WATER, DOWN SPOUT DRAINAGE OR WEEP TILE DRAINAGE SHALL BE ALLOWED TO ENTER ANY SANITARY SEWER INSTALLATION.
- PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL TELEPHONE MISS DIG (800-482-7171) FOR THE LOCATION OF UNDERGROUND PIPELINE AND CABLE FACILITIES AND SHALL ALSO NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK.
- AN 18 INCH MINIMUM VERTICAL SEPARATION AND A 10 FOOT MINIMUM HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN SANITARY SEWER AND WATER MAIN.
- NEW MANHOLES BUILT OVER AN EXISTING SANITARY SEWER SHALL HAVE MONOLITHIC POURED BOTTOMS.
- IF THE STRUCTURE FALLS WITHIN THE ROADBED OF A GRAVEL ROAD OR WITHIN THE UNPAVED SHOULDER OF A PAVED ROAD, THE COVER SHALL BE SIX (6") INCHES BELOW THE FINISHED GRAVEL SURFACE.



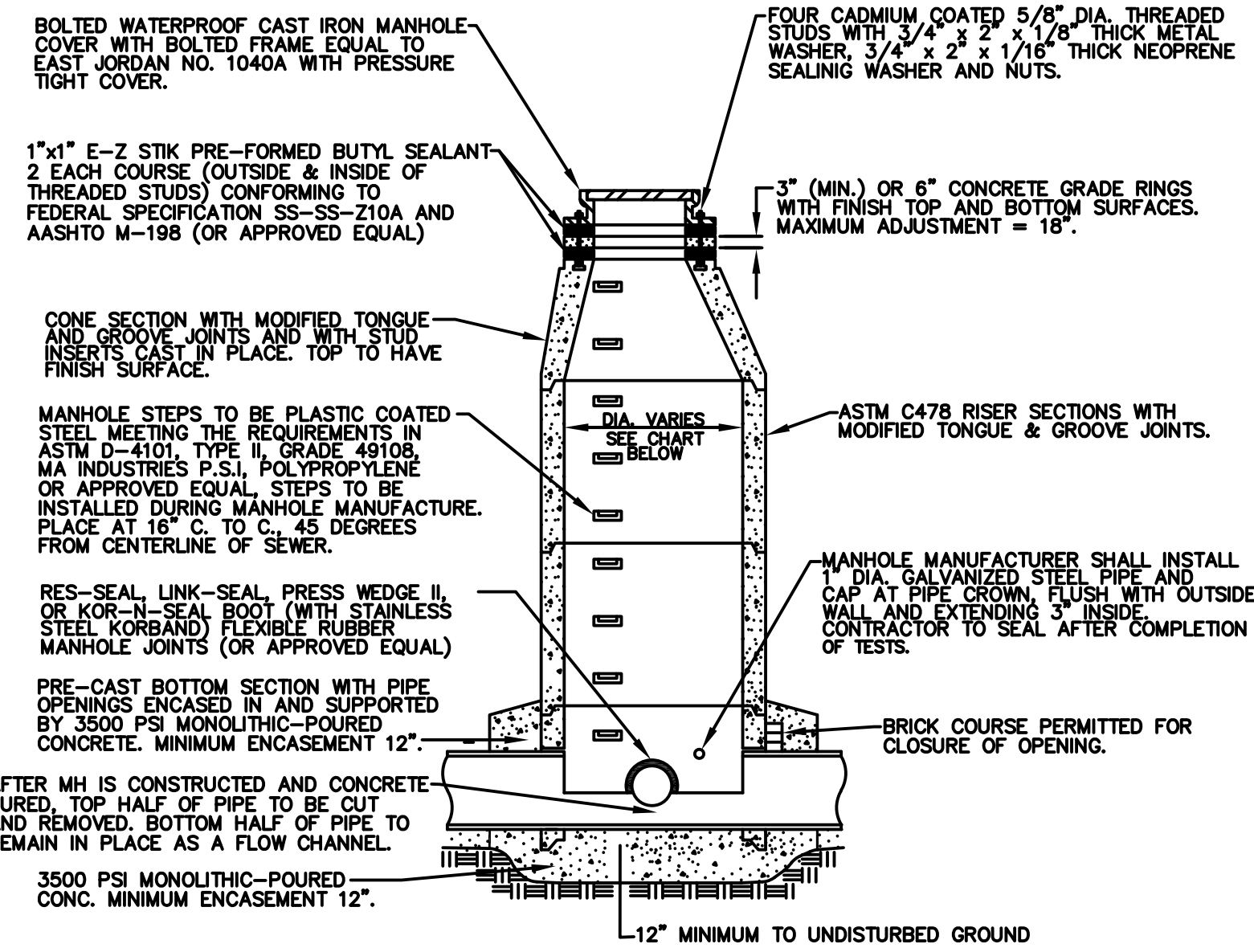
STANDARD MANHOLE

| MAX. PIPE SIZE FOR STRAIGHT THRU INSTALLATION | MAX. PIPE SIZE FOR RIGHT ANGLE INSTALLATION |
|-----------------------------------------------|---------------------------------------------|
| 24"                                           | 18"                                         |



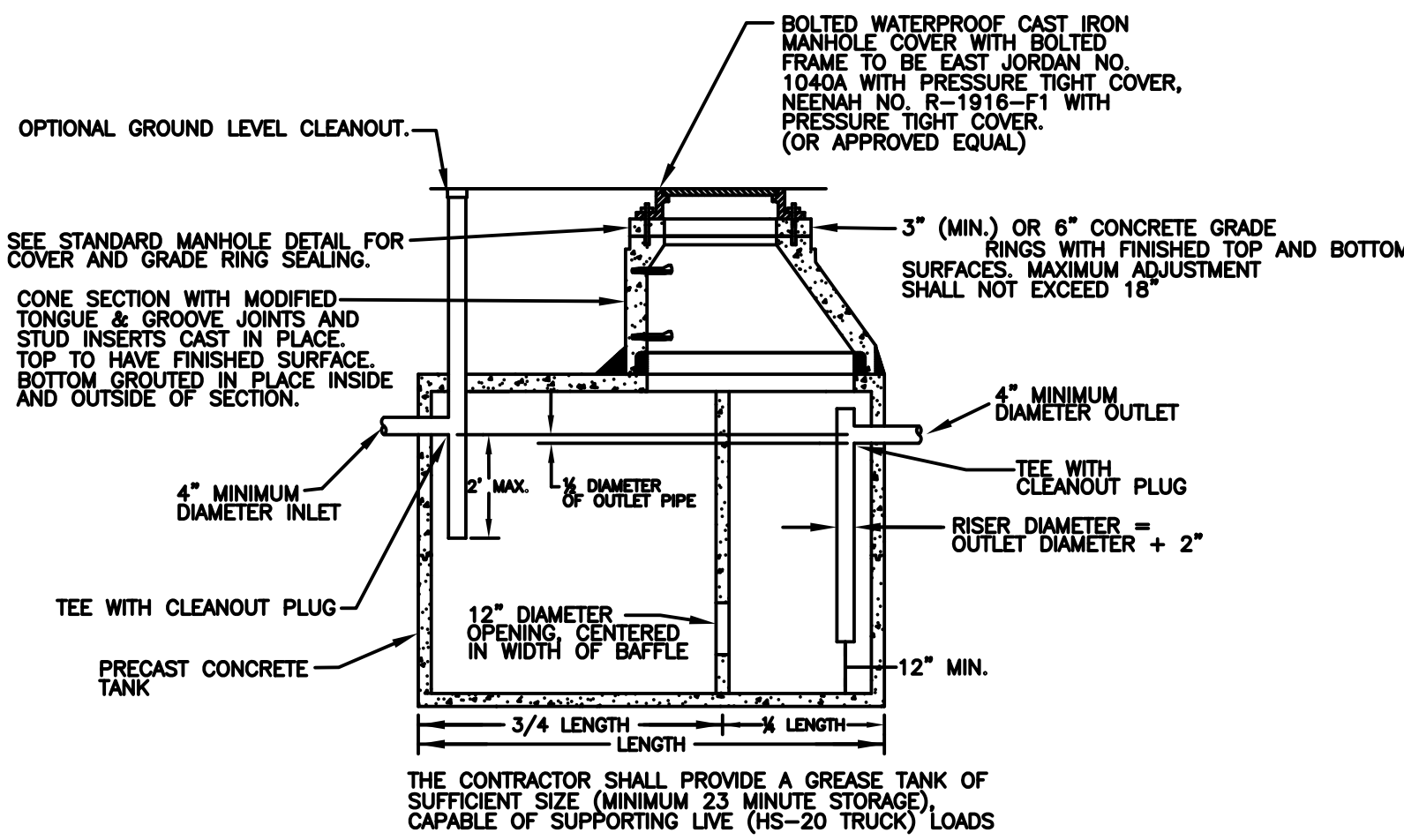
STANDARD OVERSIZED MANHOLE

| MANHOLE SIZING CHART |                                        |                                      |
|----------------------|----------------------------------------|--------------------------------------|
| MANHOLE DIAMETER     | MAX. PIPE SIZE FOR STRAIGHT THRU INST. | MAX. PIPE SIZE FOR RIGHT ANGLE INST. |
| 5'                   | 36"                                    | 24"                                  |
| 6'                   | 42"                                    | 36"                                  |
| 7'                   | 60"                                    | 42"                                  |

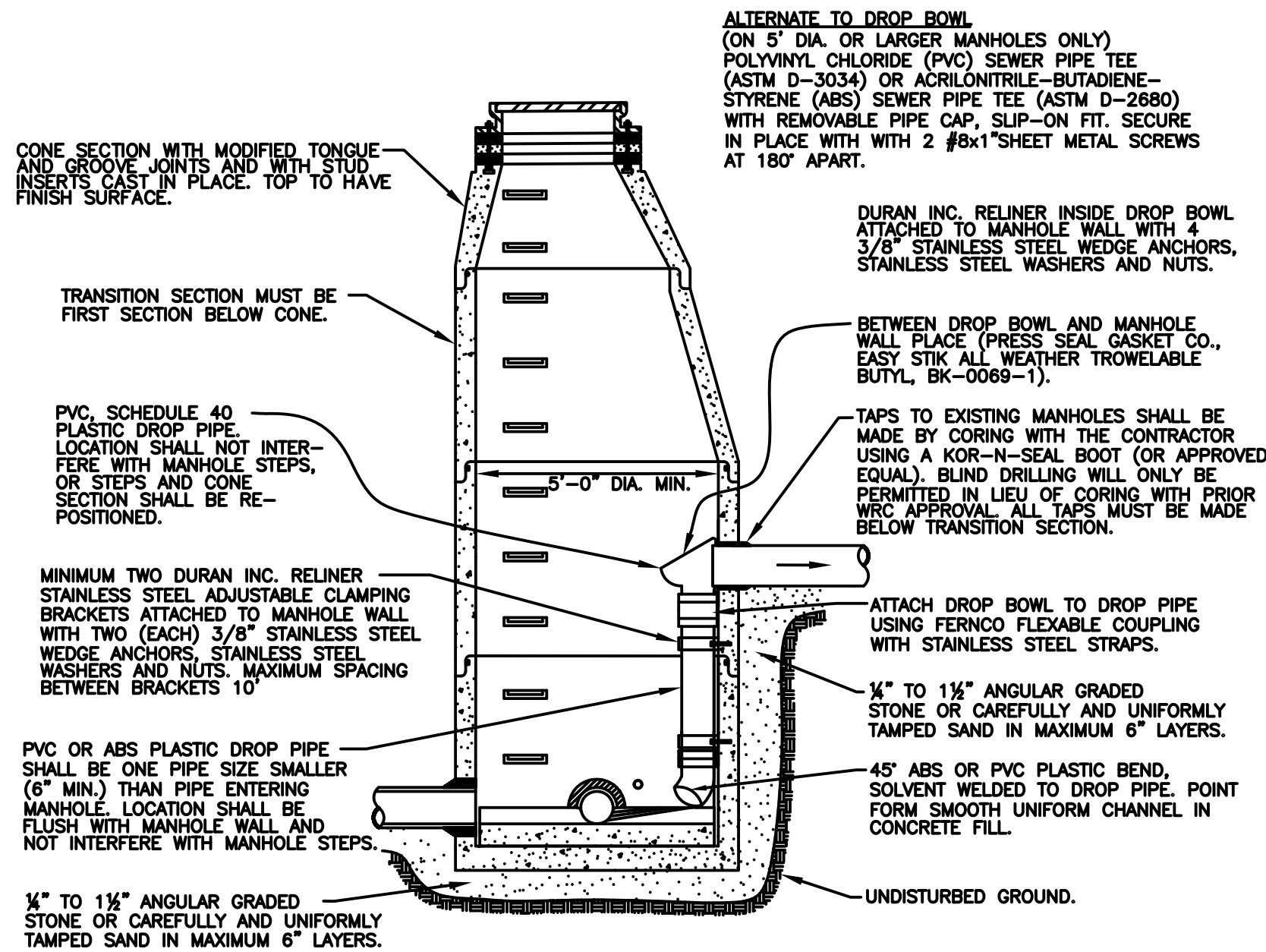


MANHOLE CONSTRUCTED OVER EXISTING SEWER

| MANHOLE SIZING CHART |                                        |
|----------------------|----------------------------------------|
| MANHOLE DIAMETER     | MAX. PIPE SIZE FOR STRAIGHT THRU INST. |
| 4'                   | 24"                                    |
| 5'                   | 36"                                    |
| 6'                   | 42"                                    |
| 7'                   | 60"                                    |



DOUBLE-COMPARTMENT GREASE INTERCEPTOR TANK FOR OUTLET PIPE BURIAL 42" AND DEEPER



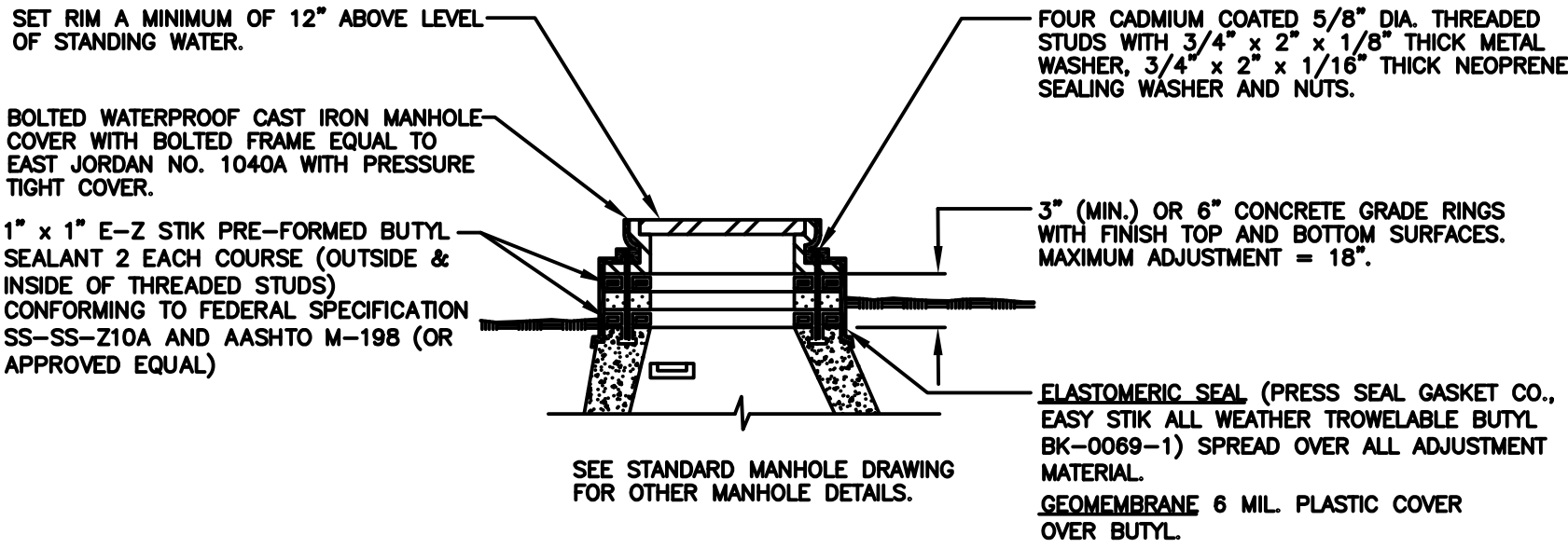
INTERIOR DROP CONNECTION

| REVISION BLOCK                 |          |            |                                                                              |
|--------------------------------|----------|------------|------------------------------------------------------------------------------|
| Parcel Base / Source Date: N/A |          |            |                                                                              |
| Rev. No.                       | Rev. By: | Rev. Date: | Description:                                                                 |
| 1                              | DS       | 3-23-11    | REMOVED STANDARD MONITORING MANHOLE                                          |
| 2                              | KB       | 6-21-16    | ADDED NOTE "REQUIRES ADVANCED APPROVAL BY WRC" AND UPDATE PHONE # IN NOTE #2 |
| 3                              | KB       | 7-22-20    | UPDATED MH STEPS TO ASTM D4101                                               |
| 4                              | KB       | 9-27-23    | REMOVED EXTERIOR DROP CONNECTION DETAIL                                      |

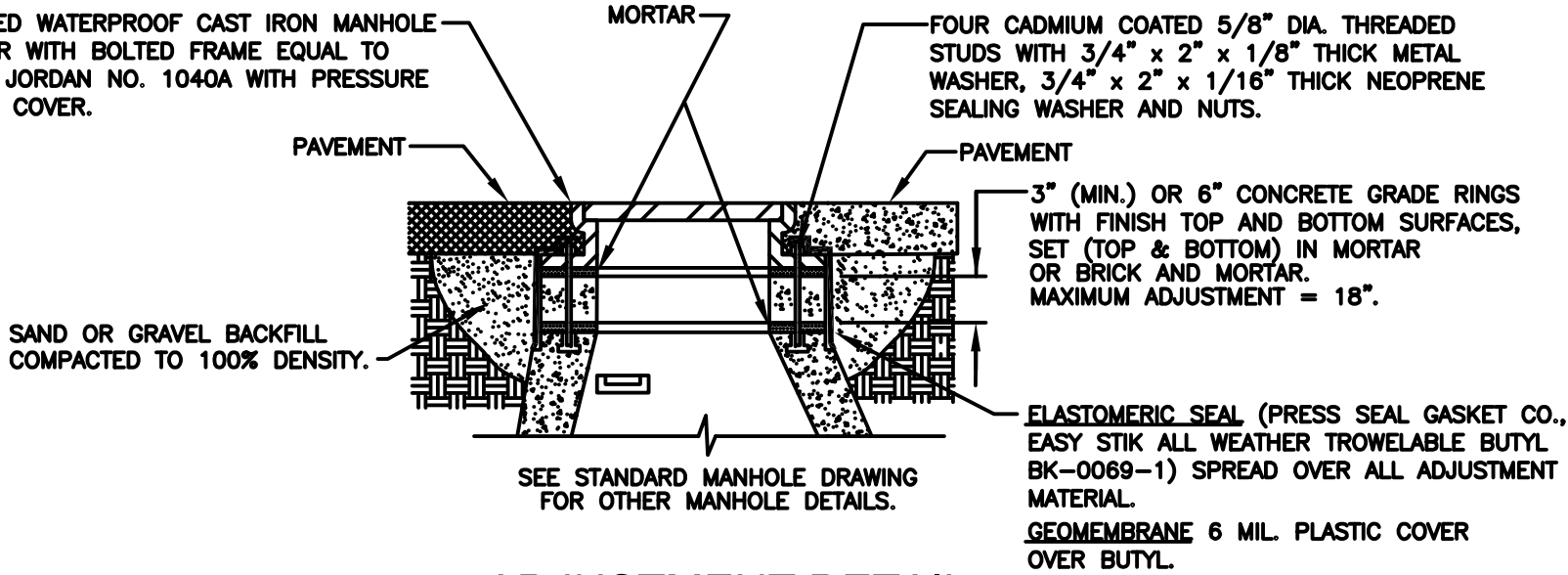
SANITARY SEWER DETAILS AND NOTES

|              |             |                                                                                                                                                               |                                                                           |
|--------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| ORIG. DATE:  | 08/21/02    | <br><b>WRC</b><br><b>WATER RESOURCES COMMISSIONER</b><br><i>Jim Nash</i> | ONE PUBLIC WORKS DRIVE, BLDG 95 WEST<br>WATERFORD, MICHIGAN<br>48328-1907 |
| SCALE:       | NO SCALE    |                                                                                                                                                               |                                                                           |
| DESIGNED BY: | WRC         |                                                                                                                                                               |                                                                           |
| DRAWN BY:    | WRC Mapping |                                                                                                                                                               |                                                                           |
| SHEET NO.:   |             | 1 of 2                                                                                                                                                        |                                                                           |

| MANHOLE RIM ADJUSTMENT CHART |                          |
|------------------------------|--------------------------|
| MANHOLE LOCATION             | SET RIM ELEVATION        |
| DITCH                        | 12" ABOVE FINISH GRADE   |
| FLOOD PLAIN                  | 12" ABOVE STANDING WATER |
| GRAVEL ROAD / SHOULDER       | 6" BELOW FINISH GRADE    |
| PAVEMENT / GREENBELT         | FLUSH WITH FINISH GRADE  |



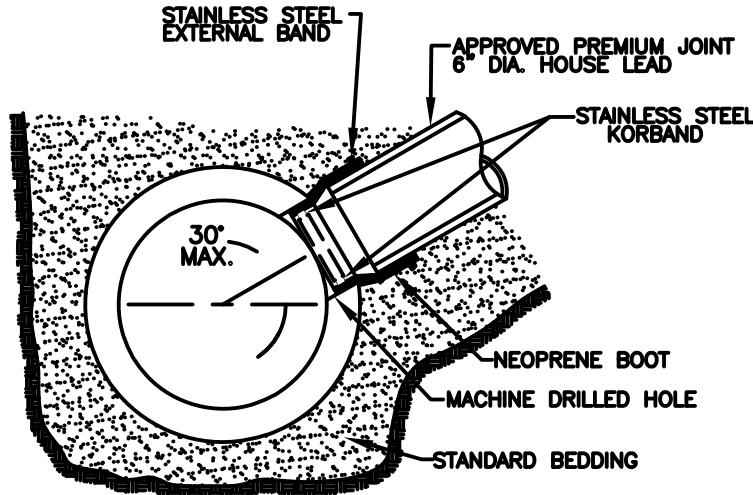
ADJUSTMENT DETAIL FOR  
MANHOLE TOPS WITHIN FLOOD PRONE AREAS



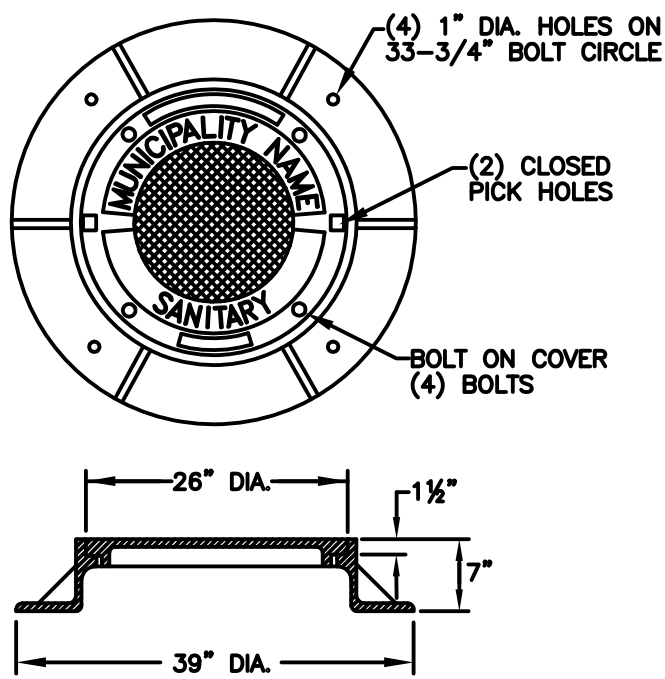
ADJUSTMENT DETAIL  
MANHOLE TOPS WITHIN PAVEMENT AREAS

## WATER RESOURCES COMMISSIONER GRAVITY BUILDING LEAD REQUIREMENTS AND DETAILS

- ALL BUILDING LEAD WORK MUST BE PERFORMED UNDER WATER RESOURCES COMMISSIONER (WRC) AND/OR LOCAL UNIT OF GOVERNMENT INSPECTION.
- FOR ALL WRC-OPERATED SYSTEMS, CALL 248-858-1110 24-HOURS IN ADVANCE OR WORK TO SCHEDULE INSPECTION.
- NO SANITARY SEWER MAY BE USED AS A CLEANOUT OF DEWATERING OUTLET.
- WHERE AN EXISTING BUILDING LEAD IS BEING EXTENDED, DISSIMILAR TYPES AND SIZES OF PIPE SHALL BE JOINED USING AN WRC APPROVED ADAPTER.
- APPROVED BUILDING LEAD PIPE FOR GRAVITY SEWER LEADS:
  - ABS PLASTIC, ASTM D2751, SDR 23.5.
  - PVC PLASTIC, ASTM D3034, SDR 23.5 OR ASTM D2688, SCHEDULE 40.
  - DUCTILE IRON PIPE, AMERICAN WATER WORKS ASSOCIATION (AWWA) C-104/A21.4, CLASS 54. JOINTS SHALL BE SUPER BEL TITE, TYTON, TY-SEAL, MULTI-TITE, DUAL-TITE, OR VERI-TITE.
  - ANY DEVIATIONS FROM SPECIFIED ABOVE REQUIRE APPROVAL BY WRC.
- ALLOWABLE TYPES OF SEWER PIPE ADAPTERS:
  - FERNCO ADAPTER/REDUCER DONUTS.
  - FERNCO FLEXIBLE COUPLING.
  - MISSION CLAY BAND-SEAL COUPLING.
  - SMITH-BLAIR STAINLESS STEEL REPAIR CLAMP.
  - HURON-CLINTON O-RING ADAPTER.
  - HAMILTON-KENT GEAR GRIP ADAPTER.
  - PLANT FABRICATED JOINT CONVERSION PIPE.

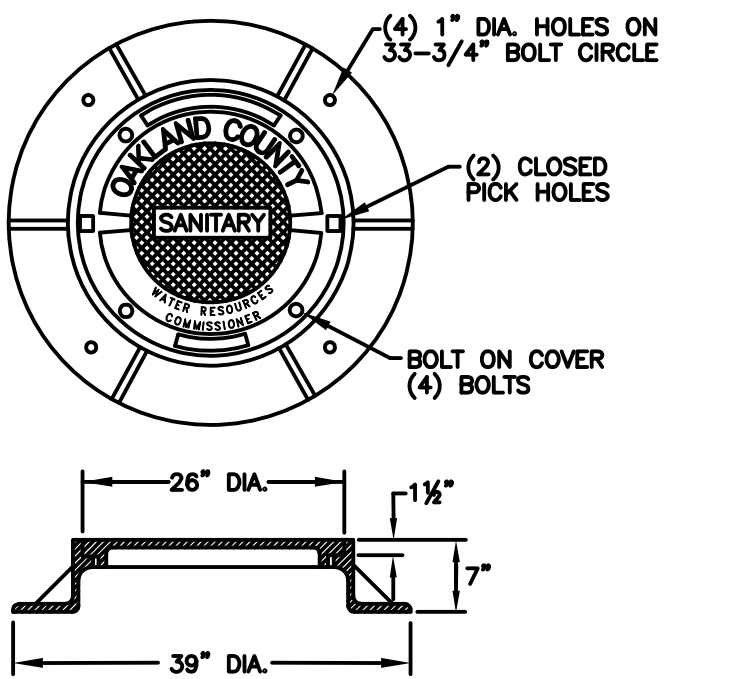


KOR-N-TEE TAP FOR CONCRETE PIPE



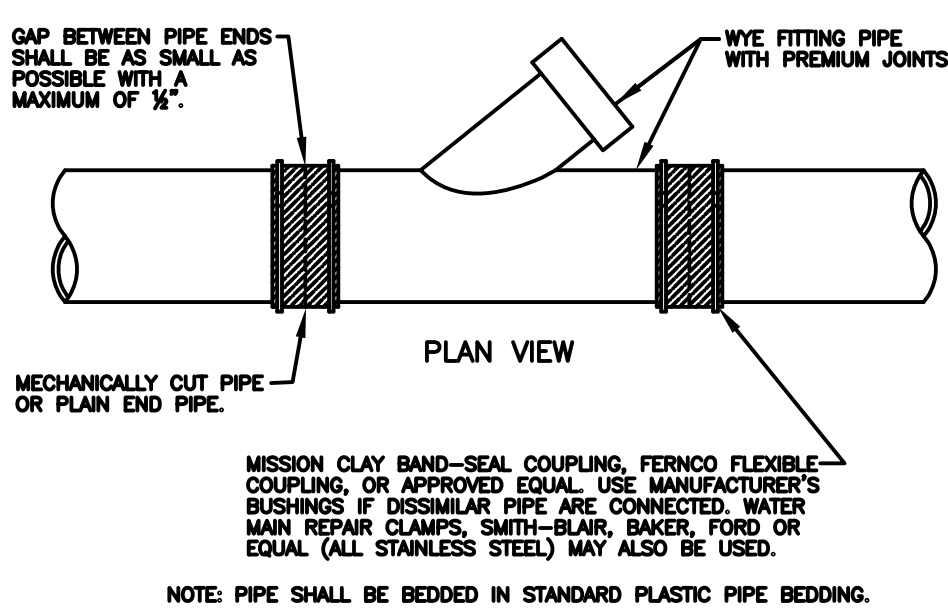
EAST JORDAN IRON WORKS  
HEAVY DUTY MATERIAL ASTM A48 CL.35  
COVER WT., 150 LBS., CATALOG NO. 1040A  
PATTERN NO. 1040A, PRODUCT NO. 1040XX OAKCOSTD.  
2" RAISED LETTERS, 1" RAISED LETTERS  
ALL RECESSED FLUSH.

LOCAL MUNICIPALITIES MANHOLE COVER

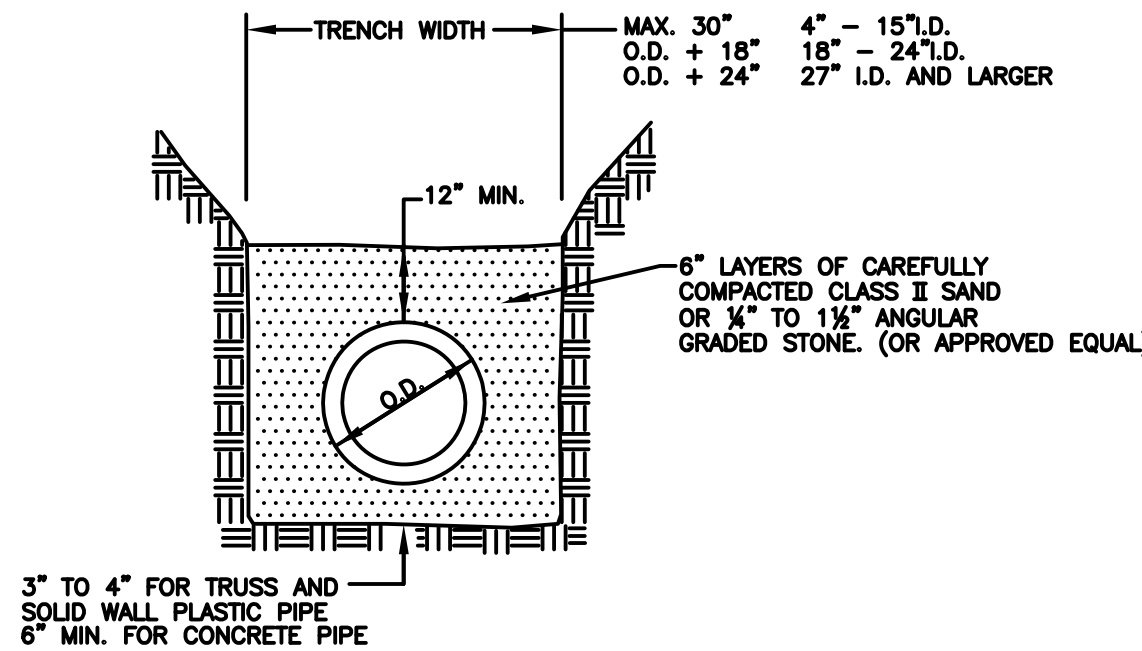


EAST JORDAN IRON WORKS  
HEAVY DUTY MATERIAL ASTM A48 CL.35  
COVER WT., 150 LBS., CATALOG NO. 1040APT  
PATTERN NO. 1040A, PRODUCT NO. NCR09-1280 C  
2" RAISED LETTERS, 1" RAISED LETTERS, 3/4" RAISED LETTERS  
ALL RECESSED FLUSH.

W.R.C. LETTERED MANHOLE COVER

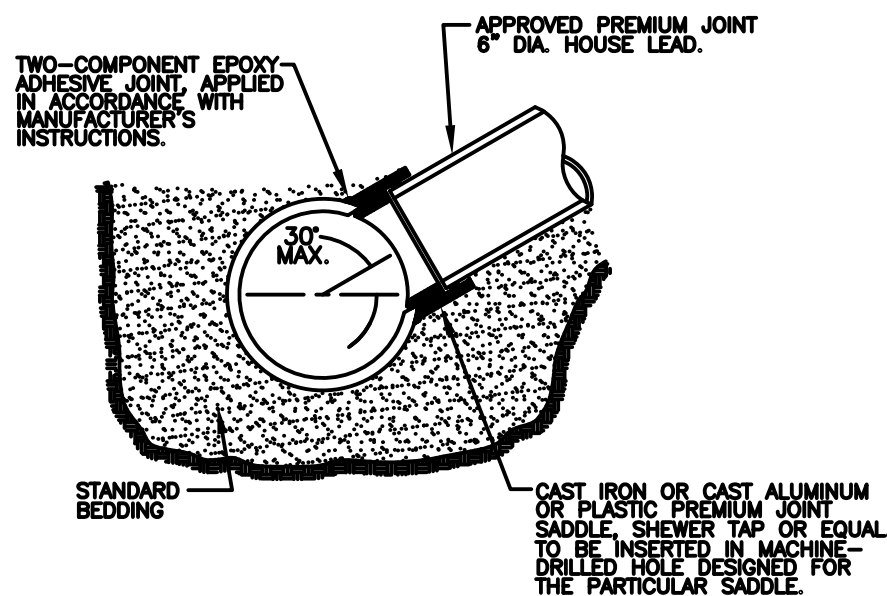


WYE PIPE INSERTION WITH FLEXIBLE COUPLINGS  
(RIGID PIPE)



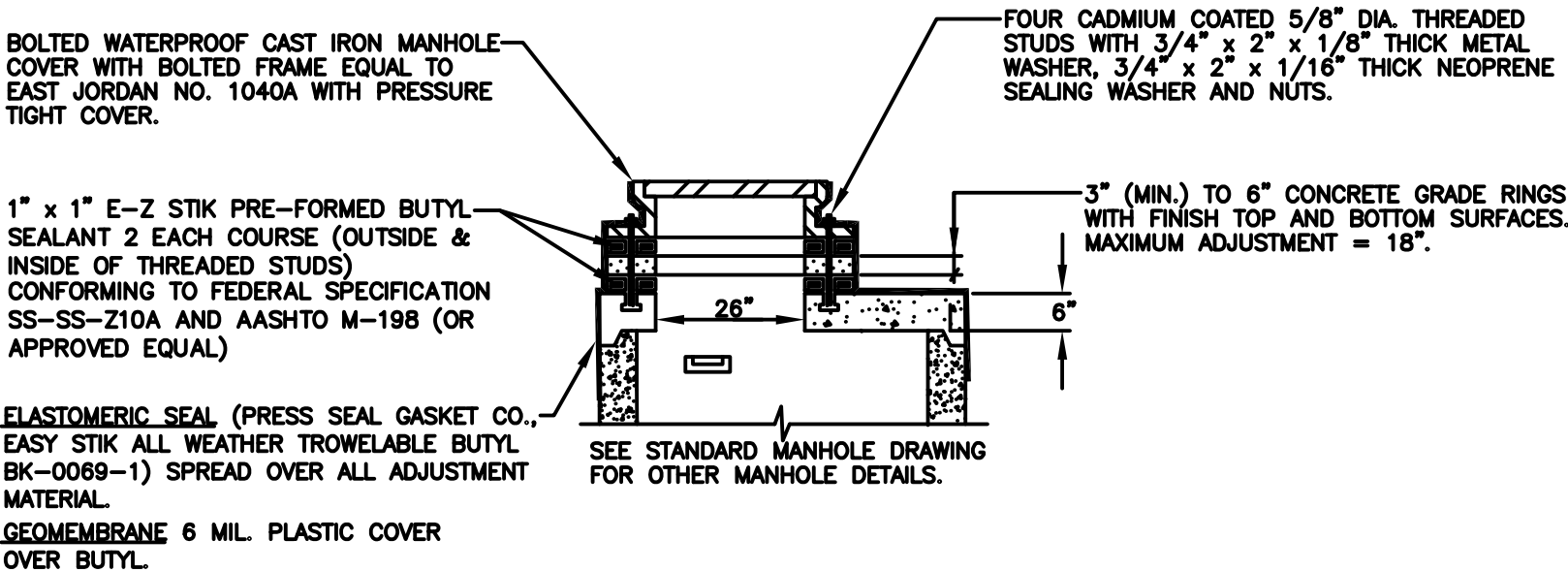
NOTE:  
APPROVAL MAY BE GIVEN TO ALTERNATE MATERIALS AND METHODS TO ACHIEVE CLASS B BEDDING.

STANDARD BEDDING  
(CLASS B)

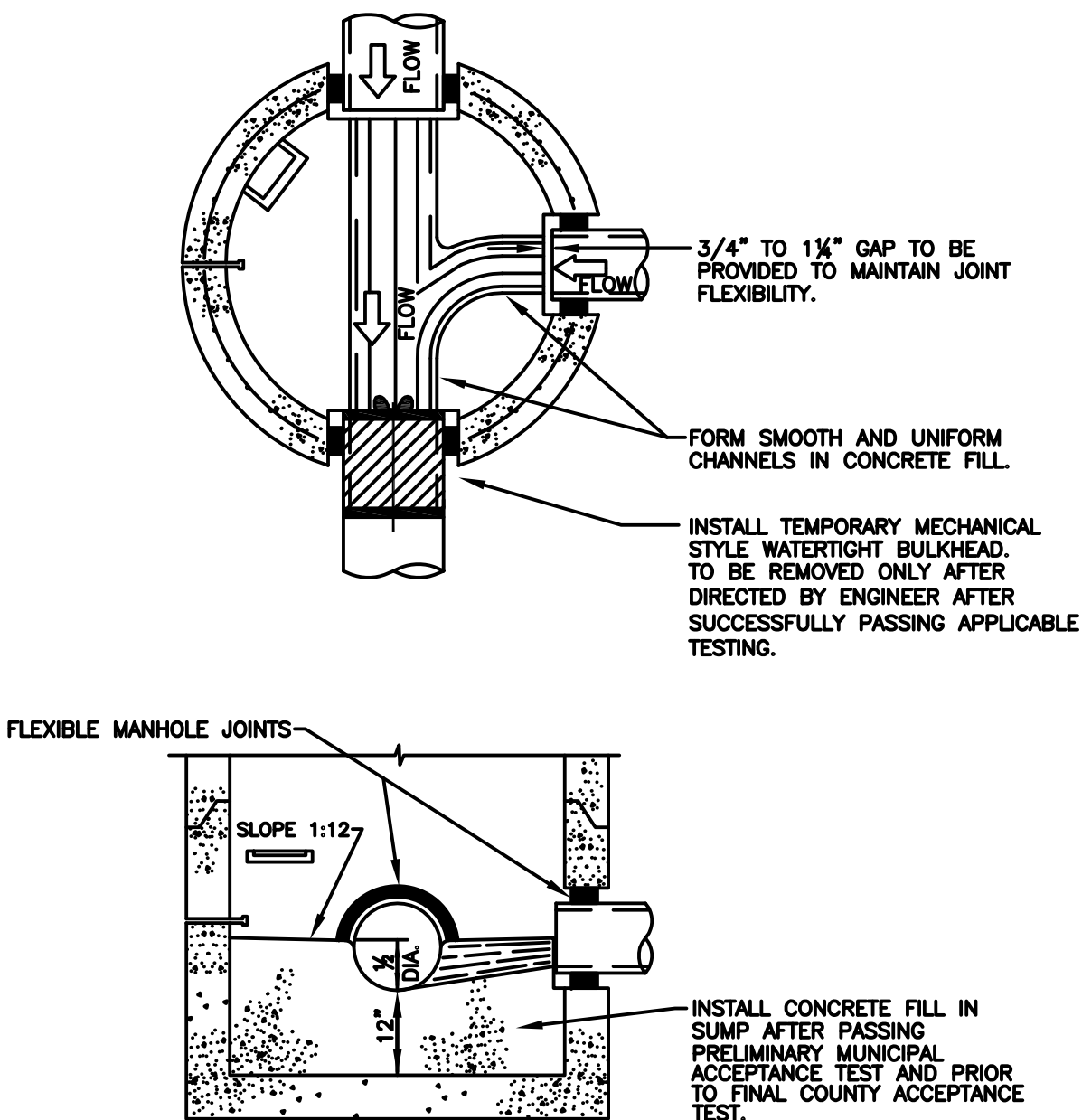


NOTE: SURFACE OF MAIN SEWER SHALL BE CLEANED WITH AN ABRASIVE GRINDER PRIOR TO EPOXY APPLICATION. DUE TO VARIATION OF SET-UP TIME OF EPOXY ADHESIVE, HIGH TEMPERATURE, ANCHOR STRAPS SHALL BE USED TO SECURE SADDLE IN POSITION IN COLD WEATHER OR WHENEVER WORK IS TO PROCEED PRIOR TO COMPLETE CURE OF EPOXY.

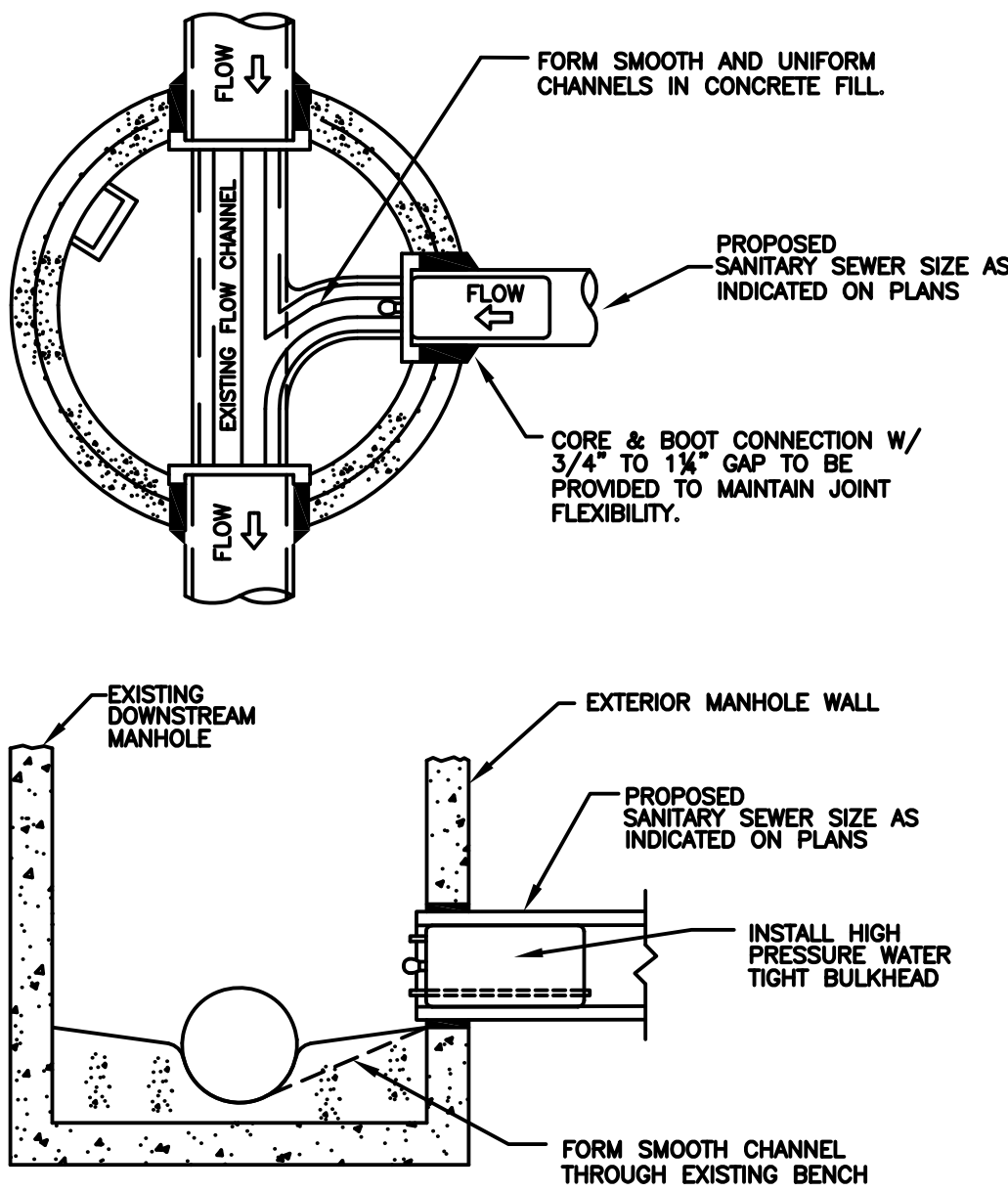
SEWER TAP-ALL SIZES OF MAIN SEWER PIPES  
VITRIFIED CLAY



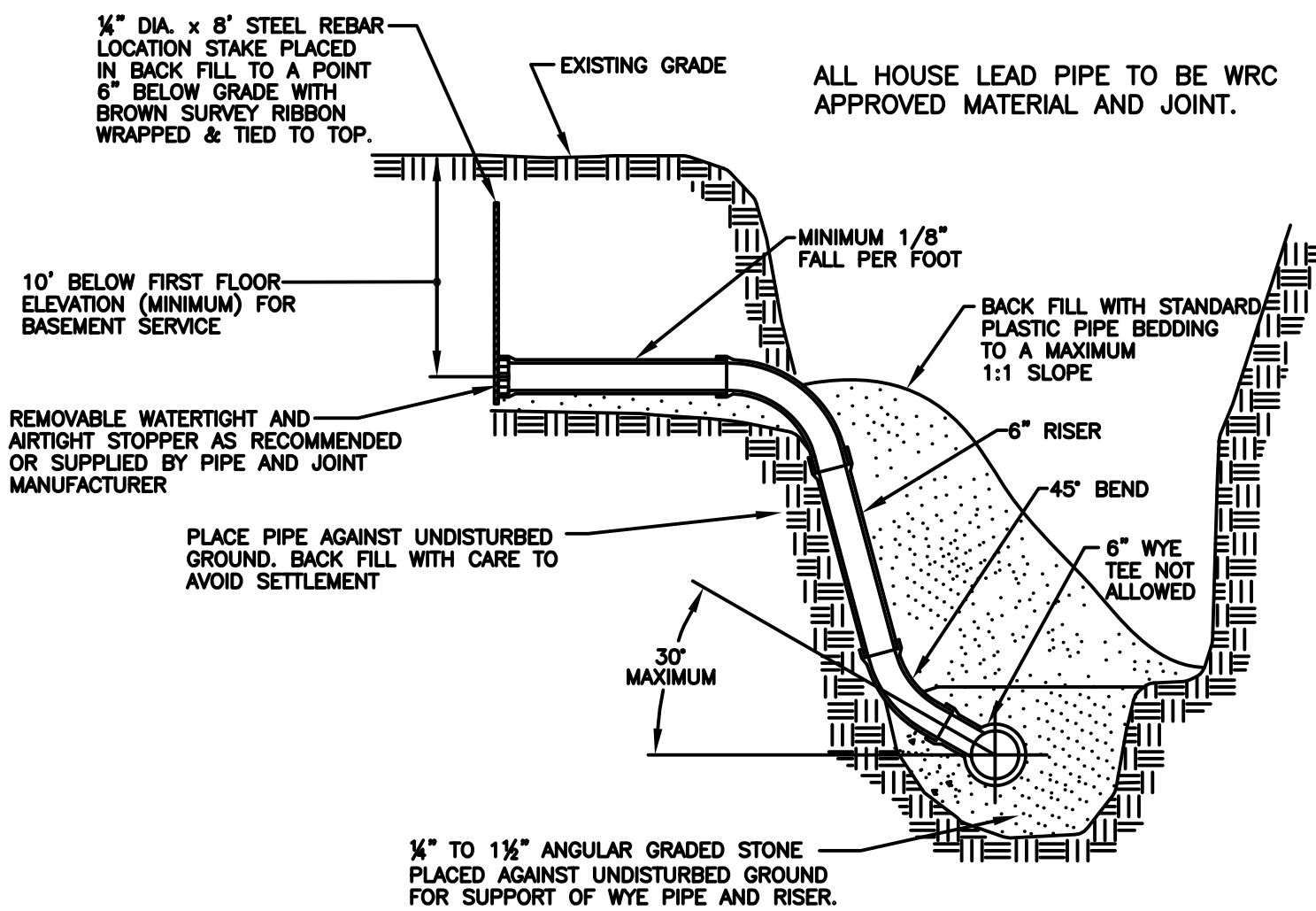
FLAT TOP MANHOLE



SUMP MANHOLE FOR TESTING,  
CLEANING AND DEWATERING



TESTING BULKHEAD WITH PIPE TAP

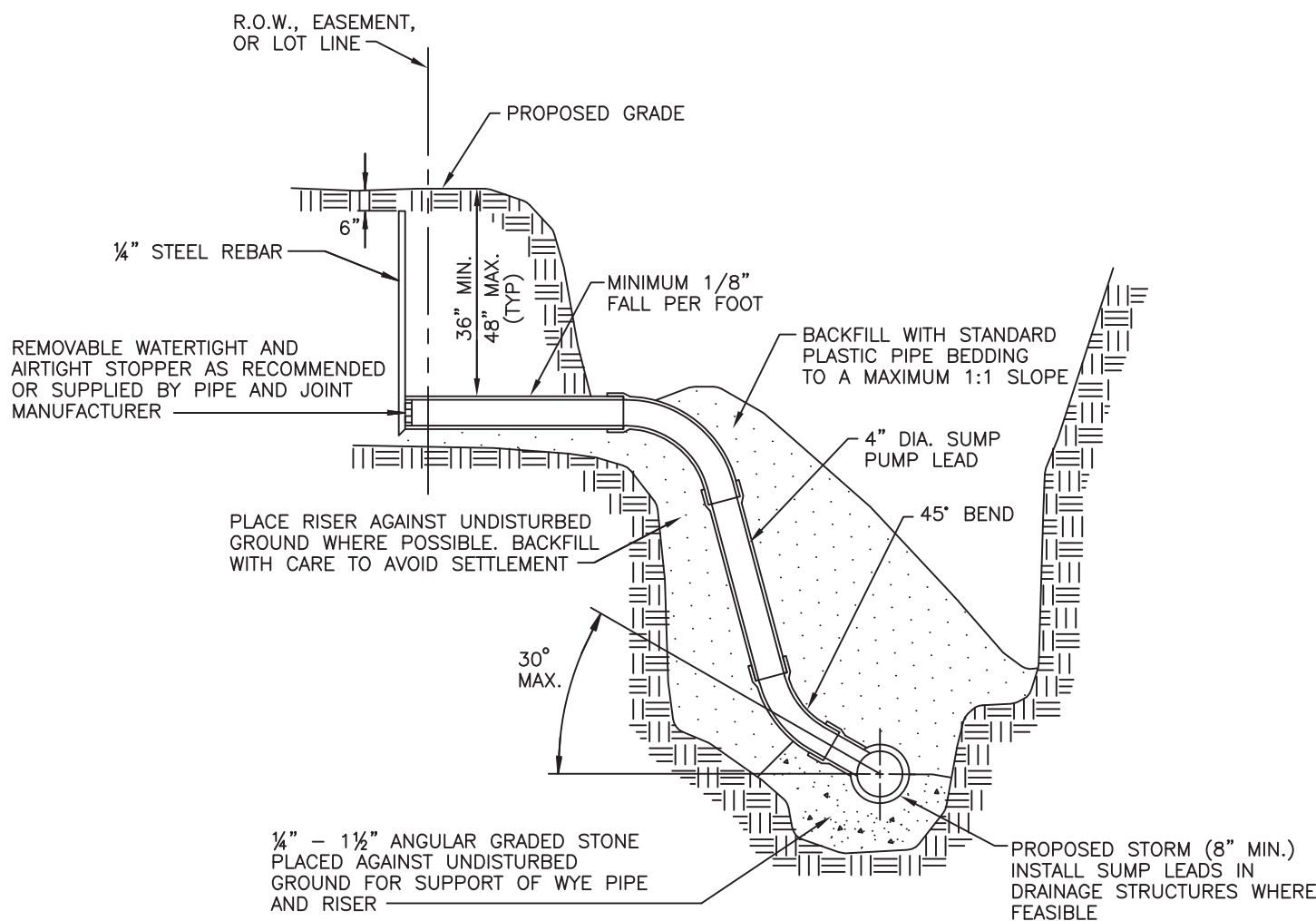


HOUSE LEAD DETAIL

| REVISION BLOCK                 |          |            |                                                           |
|--------------------------------|----------|------------|-----------------------------------------------------------|
| Parcel Base / Source Date: N/A |          |            |                                                           |
| Rev. No.                       | Rev. By: | Rev. Date: | Description:                                              |
| 1                              | DS       | 06/28/06   | ADDED TESTING BULKHEAD WITH PIPE TAP DETAIL               |
| 2                              | IZ       | 05/28/09   | MOVED DETAILS FROM SHEET 1 ONTO SHEET 2                   |
| 3                              | IZ       | 07/14/09   | STANDARDIS COMMITTEE APPROVAL FOR DETAIL CHANGES          |
| 4                              | DS       | 02/03/14   | REPLACE UPDATE CDDG WITH WRC FOR THE MANHOLE COVER DETAIL |

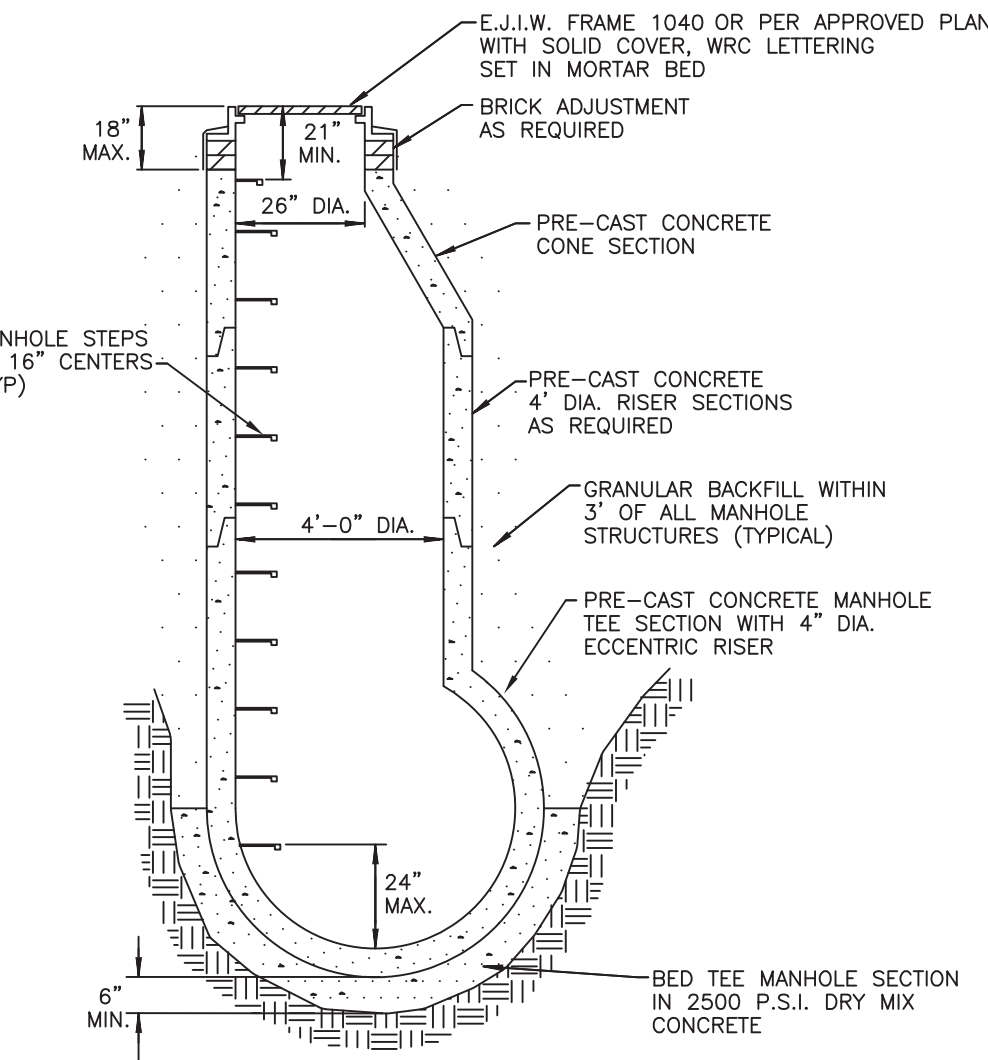
## SANITARY SEWER DETAILS AND NOTES

|              |               |                                                                                                                                                     |                                                                           |
|--------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| ORIG. DATE:  | 05-09-03      |  <b>WRC</b><br>WATER RESOURCES COMMISSIONER<br><i>Jim Nash</i> | ONE PUBLIC WORKS DRIVE, BLDG 95 WEST<br>WATERFORD, MICHIGAN<br>48328-1907 |
| SCALE:       | NO SCALE      |                                                                                                                                                     |                                                                           |
| DESIGNED BY: | MWD           |                                                                                                                                                     | SHEET NO.:                                                                |
| DRAWN BY:    | Mapping Staff |                                                                                                                                                     | 2 of 2                                                                    |



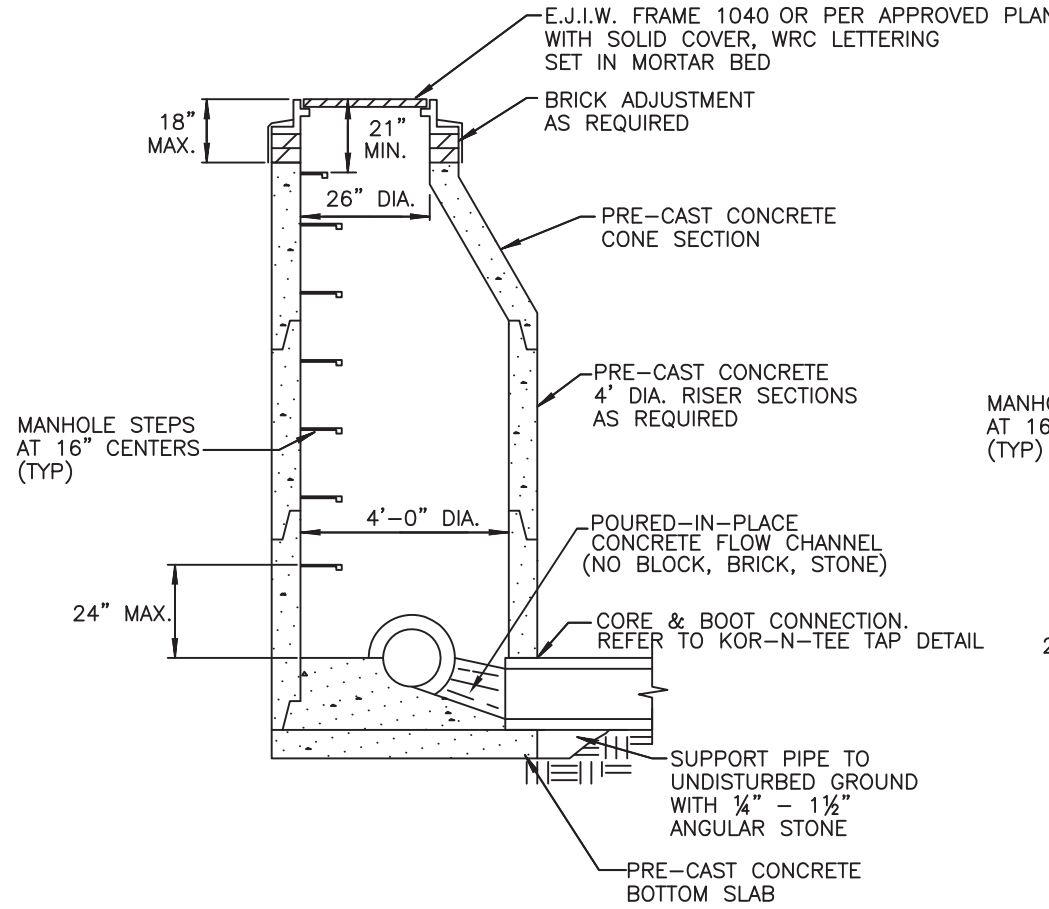
HOUSE LEAD DETAIL FOR 4" DIA.  
PLASTIC SUMP PUMP LEADS

NO SCALE



PRE-CAST TEE MANHOLE DETAIL

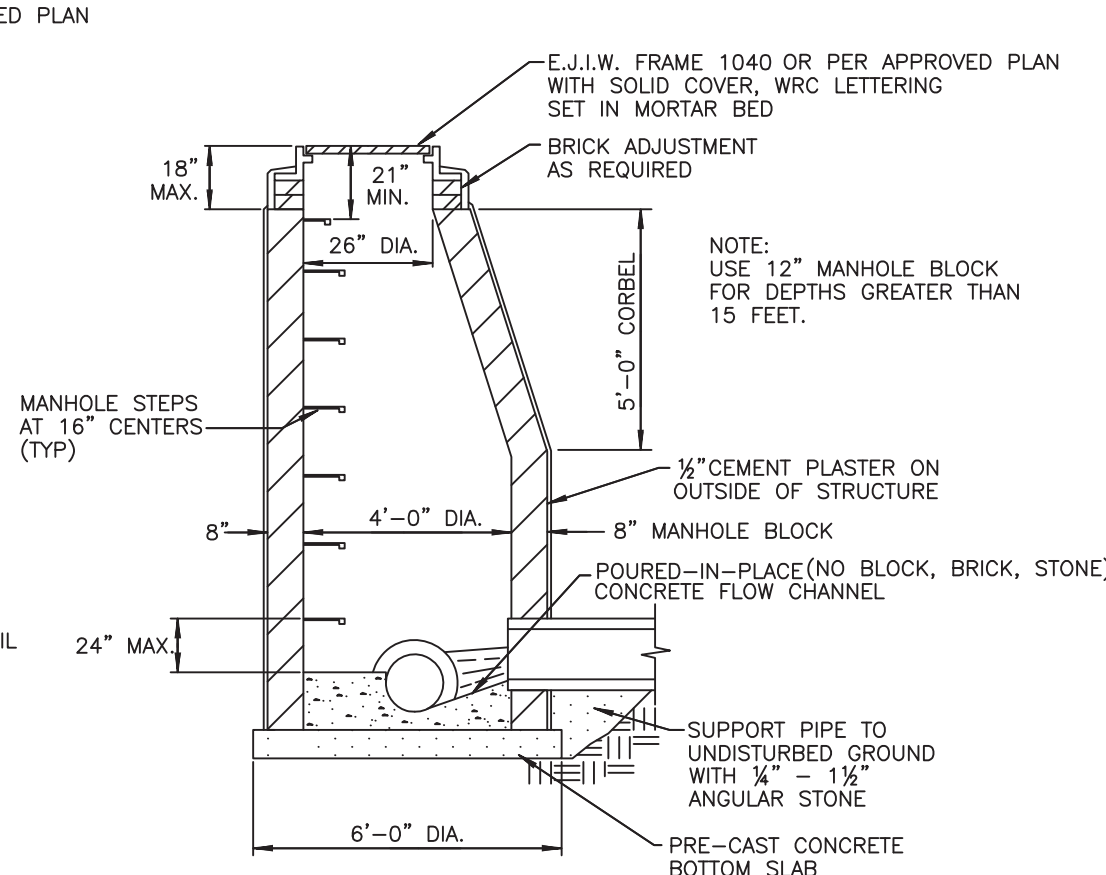
NO SCALE



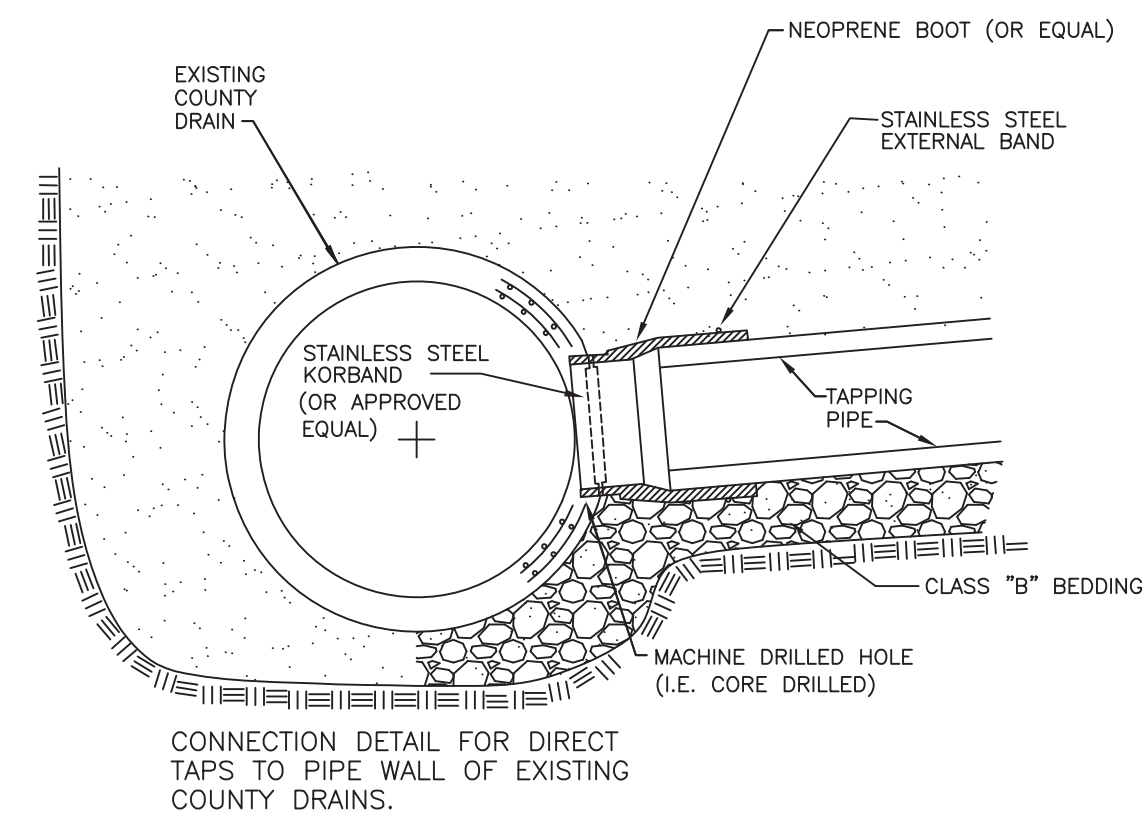
PRE-CAST MANHOLE

STANDARD MANHOLE DETAILS

NO SCALE



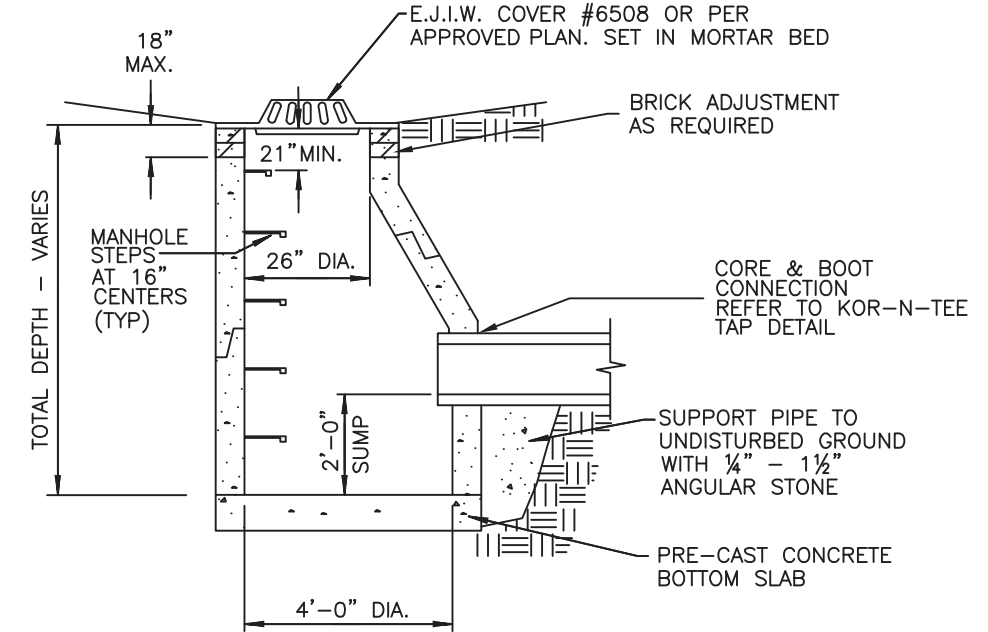
BLOCK MANHOLE (PRIOR APPROVAL ONLY)



KOR-N-TEE TAP (OR APPROVED EQUAL)

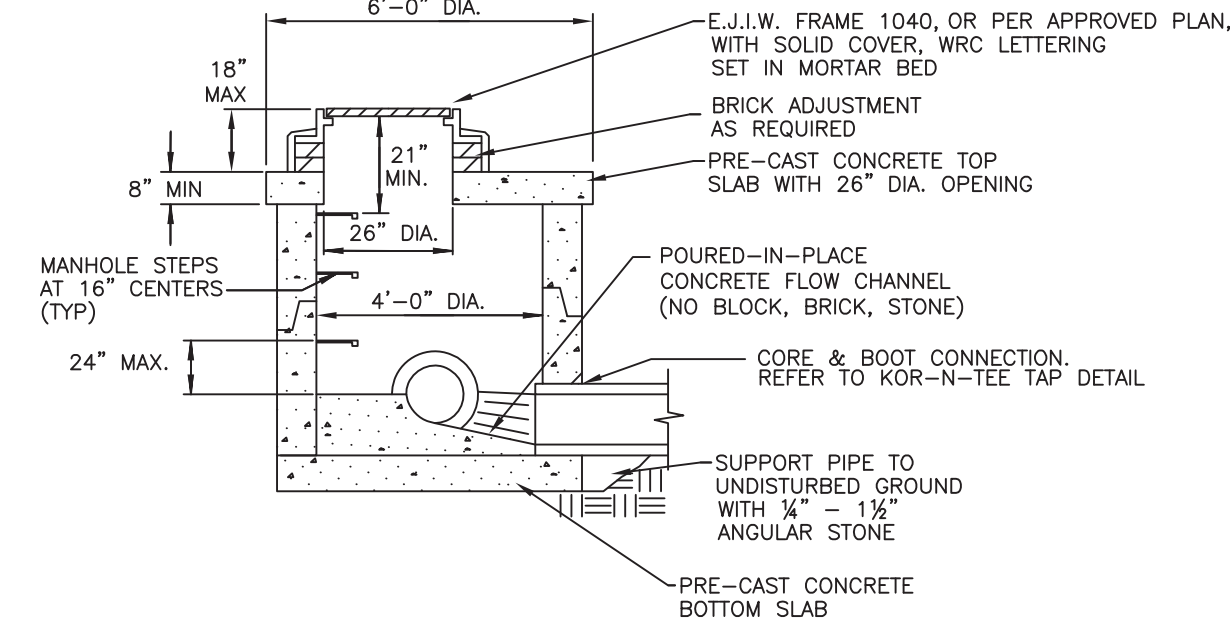
NO SCALE

- \* For non-concrete to concrete taps.
- \* Use link-seal, A-lock or approved equal for concrete to concrete taps.



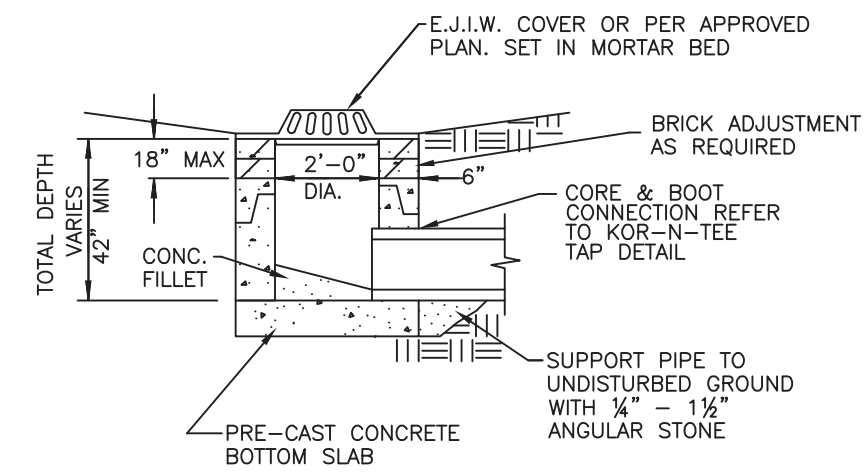
PRE-CAST CATCH BASIN DETAIL

NO SCALE



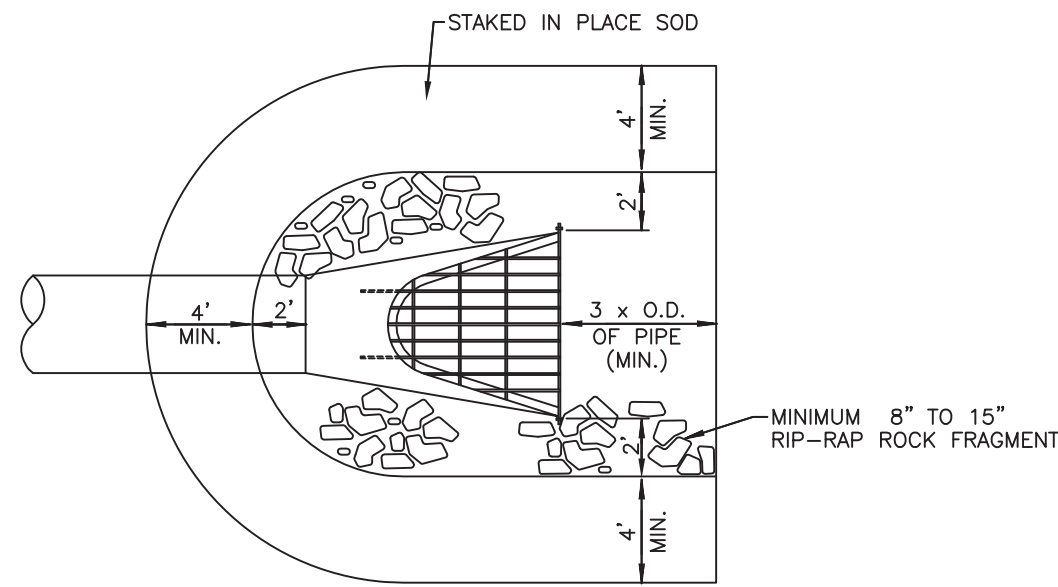
PRE-CAST LOW HEAD MANHOLE DETAIL

NO SCALE  
(PRIOR APPROVAL ONLY)

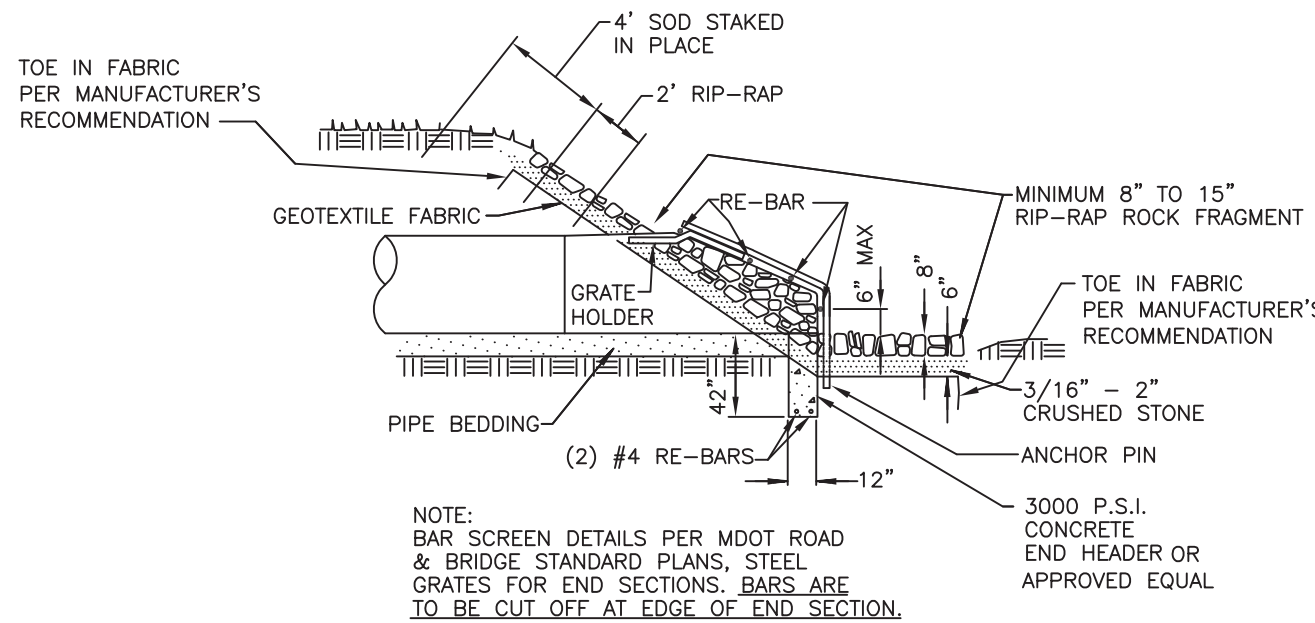


PRE-CAST INLET DETAIL

NO SCALE



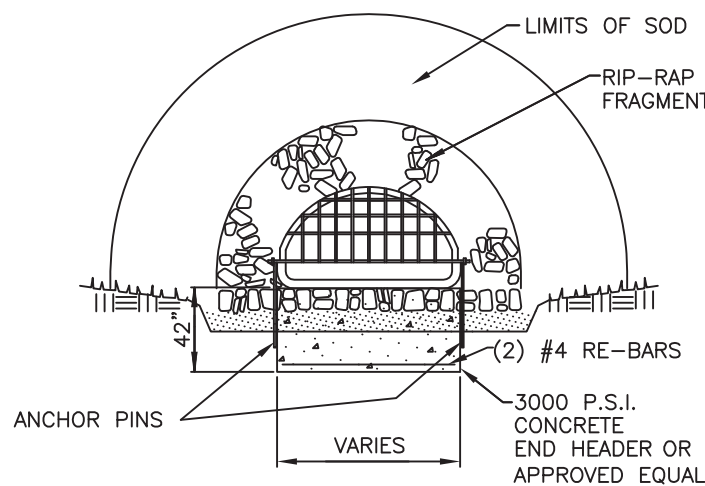
PLAN VIEW



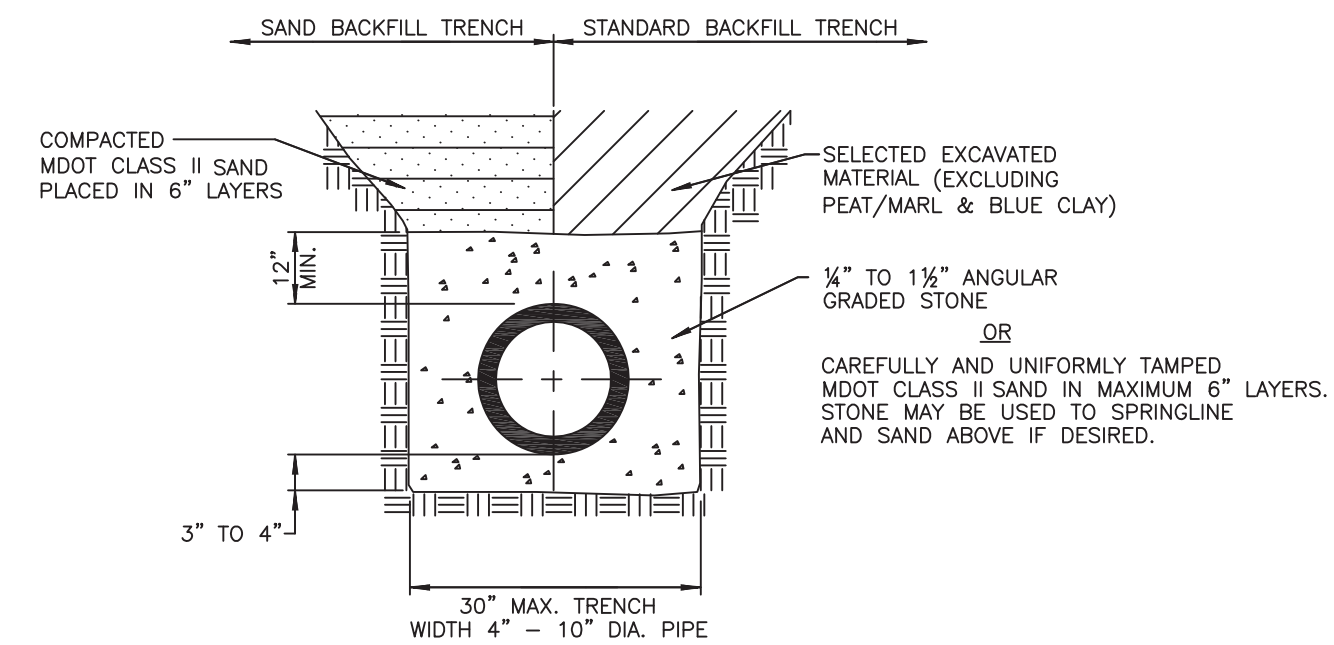
PROFILE VIEW

END SECTION AND BAR SCREEN DETAIL

NO SCALE

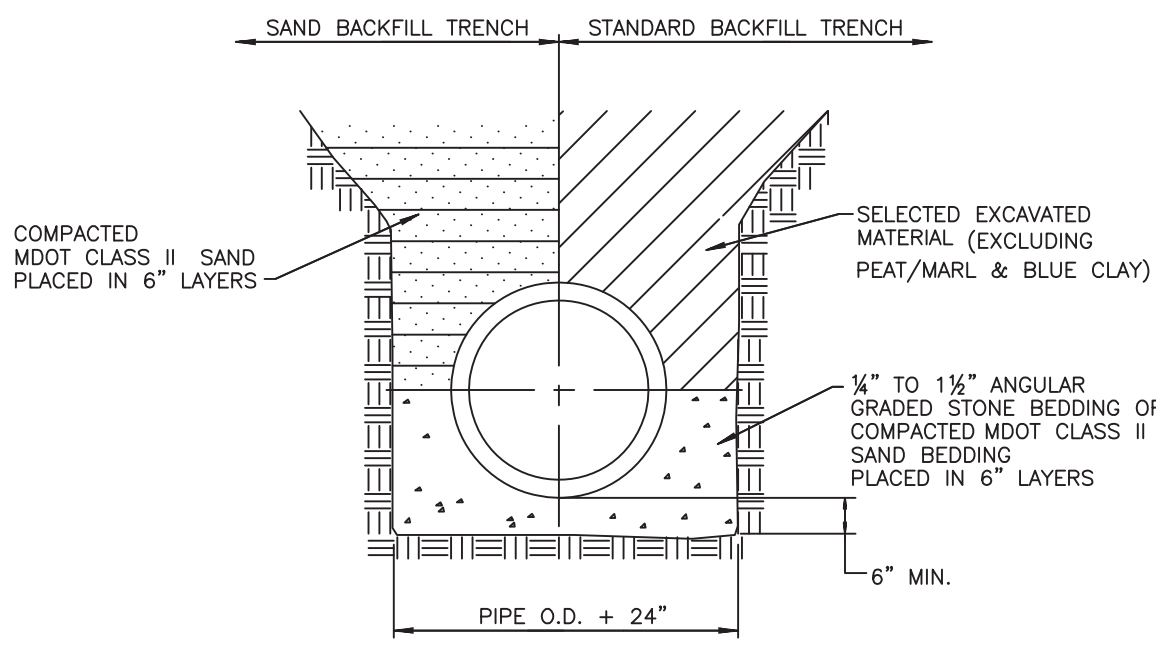


END VIEW



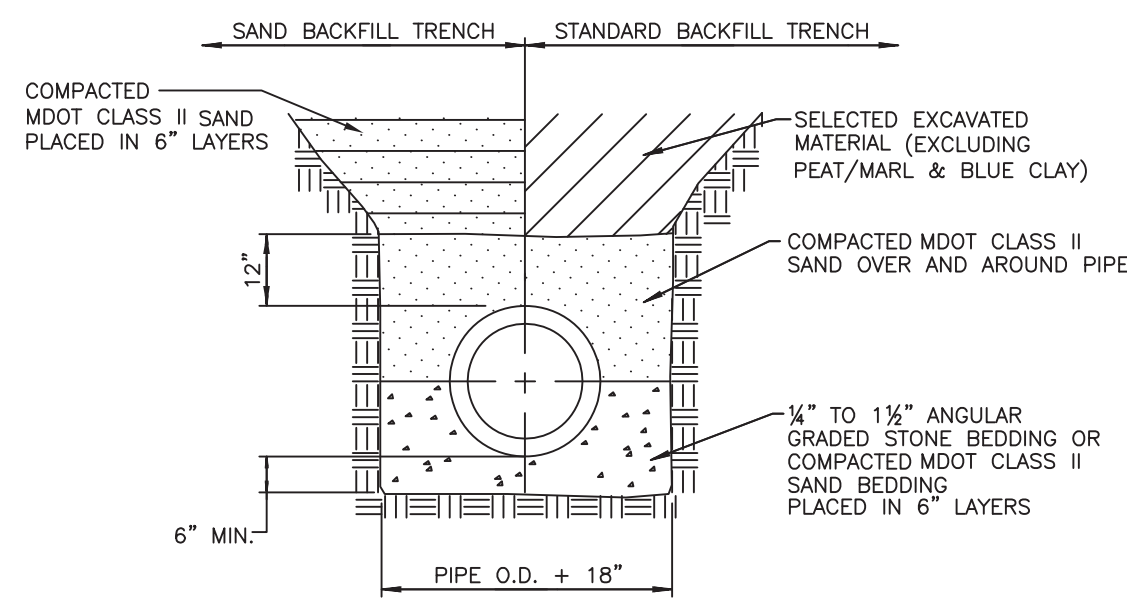
ABS (TRUSS AND SOLID WALL),  
PVC (TRUSS, SOLID WALL, A2000),  
ADS N-12 WT PIPE BEDDING DETAIL

NO SCALE



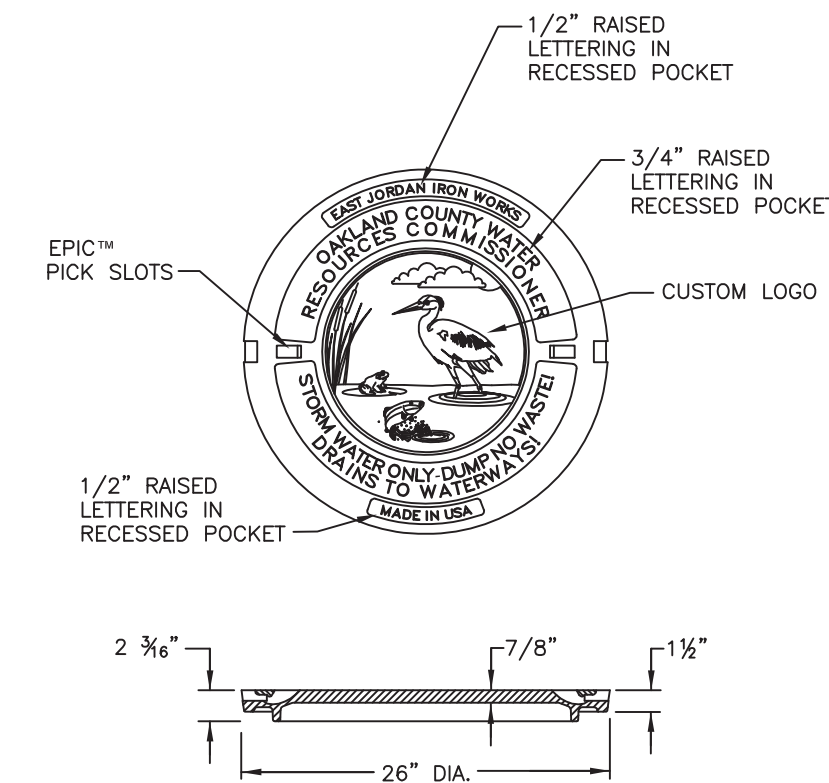
CLASS "B" BEDDING TRENCH DETAIL  
FOR 27" DIAMETER AND LARGER  
CONCRETE PIPE

NO SCALE



CLASS "B" BEDDING TRENCH DETAIL  
FOR 24" DIAMETER AND SMALLER  
CONCRETE PIPE

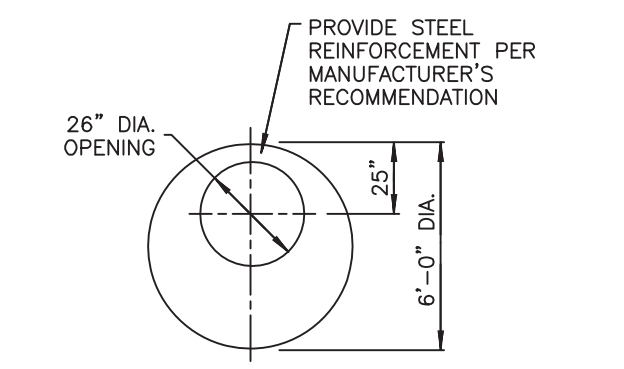
NO SCALE



EAST JORDAN IRON WORKS OR APPROVED EQUAL  
HEAVY DUTY MATERIAL ASTM A48 CL35B  
CATALOG NO. 1040A  
PATTERN NO. 1040A, PRODUCT NO. 104718 OAKCOSTD.  
2" HIGH RAISED LETTERS, 1" WIDE RAISED LETTERS  
ALL IN RECESSED POCKET.

LETTERED MANHOLE COVER  
FOR WRC

NO SCALE



PRECAST CONCRETE TOP  
SLAB DETAIL

## GENERAL NOTES

- Type and class of pipe shall be as specified on plans.
- Class "B" bedding shall be used throughout, unless otherwise specified on the plan.
- All end sections 18" and larger shall be provided with a bar screen unless otherwise approved.
- Standard rip-rap shall be 8"-15" fragmented rock, heavy rip-rap shall be 16"-24" fragmented rock. (No Broken Concrete)
- MANHOLE REQUIREMENTS:
  - All new catch basins, inlets, and manholes are to be manufactured to ASTM C-478 specifications.
  - All new catch basins, inlets, and manholes shall have WRC approved flexible, watertight seals where pipes pass through walls. Manholes shall be of precast sections with modified groove tongue and rubber gasket type joints. Pre cast manhole cone sections shall be WRC approved modified eccentric cone type.
  - Taps through manhole joints or cone sections are prohibited unless otherwise approved.
  - Manhole steps to be plastic coated steel meeting the requirements in ASTM D 2146, Type II, Grade 49108, MA. Industries P.S.I. Polypropylene, (or approved equal). Steps to be installed during manhole manufacture. Place at 16" centers 45" from centerline of sewer.
  - Cone section with modified groove tongue joints and with stud inserts cast in place. Top to have flush surface.
  - ASTM C-478 riser section with modified groove tongue joints.
  - Res-seal, link-seal, press wedge II, or kor-n-seal boot (with stainless steel korbard) flexible rubber manhole joints. (or approved equal).
  - The inside joints of manholes, catch basins, and pipe sizes over 42" and larger in diameter shall be pointed up with mortar upon completion of backfilling.
- CONCRETE PIPE REQUIREMENTS:
  - Concrete pipe to be per ASTM C76 standards.
  - It will be required to TV all pipe 30 days after installation
  - The contractor shall provide reinforced concrete pipe as specified on the plans.
  - All reinforced concrete pipe shall have modified grooved tongue joints with o-ring type rubber gasket, per A.S.T.M. specifications C443.
  - The inside joints of manholes, catch basins, and pipe sizes over 42" and larger in diameter shall be pointed up with mortar upon completion of backfilling.
- SUMP PUMP LEAD REQUIREMENTS:
  - All sump pump leads connected to a County Drain pipe shall be pre-manufactured.
  - Sump pump leads connected to a manhole shall be cored and booted. Refer to Kor-N-TEE Tap Detail.
  - Sump pump mains and leads shall be ADS (truss and solid wall), PVC (truss, solid wall , A2000), ADS N-12 WT with premium joints.
  - Ends of all 4" sump pump leads shall be temporarily capped and their location staked, witnessed and recorded.
  - All sump pump leads to be taken to the property line, easement line or as indicated on the plan.
  - Sump pump mains must have a cleanout with a minimum inside diameter of 24" and be constructed at changes of alignment, ends of sump pump mains or as indicated on the plan.
- RESTORATION REQUIREMENTS:
  - All disturbed area within the County Drain right-of-way shall be restored as follows:
    - Under roads, sidewalks, driveways and parking areas, backfill material shall be placed loosely into trenches in six (6) inch layers with each layer compacted to not less than 95% of maximum dry density as determined by the ASTM D 1557 Compaction Standard (modified proctor compaction test). All other areas shall have each layer compacted to not less than 90% of maximum dry density.
    - Finish subgrade
    - Place 3" thickness clean topsoil acceptable to the engineer to attain finished grade. Topsoil must not be contaminated and may not be a mixture of natural underlying soils, subbase materials, or other materials. It must consist of natural loam, sandy loam, silty loam or clay loam humus-bearing soil adapted to the sustenance of plant life. Topsoil must be neither excessively acidic nor excessively alkaline. It must be of mineral origin, exclusive of any peat or muck.
    - Apply seed and fertilizer as follows:\*

| Location                      | Seeding Requirements                                                                                                                                  | Fertilizer Requirement                            |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Slopes and Ditch, Banks, Etc. | M.D.O.T. "Roadside Mix" Turf Seed Mixture TGM (10% Kentucky Blue, 20% Perennial Rye, 30% Hard Fescue, 40% Creeping Red Fescue) applied at 220 lb/acre | M.D.O.T. Seeding and Sodding Fertilizers, Class A |
| Other Areas                   | M.D.O.T. "Roadside Mix" Turf Seed Mixture THM (30% Kentucky Blue, 20% Perennial Rye, 50% Creeping Red Fescue) applied at 220 lb/acre                  | M.D.O.T. Seeding and Sodding Fertilizers, Class A |

- \* Sod is required in maintained lawn areas. Refer to WRC General Specifications for additional requirements and information.
- apply straw or marsh hay mulch in an air-dry condition to all seeded areas over the surface to a uniform thickness at 2 tons/acre.
- mulch shall be anchored in place with biodegradable netting, not larger than 1 1/2" by 2" nor smaller than 1/2" by 1/2".
- The contractor shall be responsible to insure the growth of all seeded areas, and shall re-seed as necessary to accomplish this.

- The Storm Drain Notes and Details Sheet shall be a supplement to WRC Standards and Specifications, which are available on the WRC website ([www.oakgov.com/water/](http://www.oakgov.com/water/)).

## STORM DRAIN NOTES AND DETAILS

| REVISION BLOCK                 |      |          |                                  |
|--------------------------------|------|----------|----------------------------------|
| Data Source / Source Date: N/A |      |          |                                  |
| Rev. No.                       | Rev. | Date     | Description                      |
| 1                              | 1    | 3/17/08  | PROPOSED DETAIL CHANGES NEW LOGO |
| 2                              | 1    | 06/12/09 | APPROVAL PER STANDARDS COMMITTEE |
| 3                              | 1    | 03/28/10 | REVISED MH COVER DETAIL          |
| 4                              | 05   | 04/27/10 | REVISED GENERAL NOTES            |
| ORIG. DATE: 05/05/97           |      |          |                                  |
| SCALE: NONE                    |      |          |                                  |
| DESIGNED BY: WRC               |      |          |                                  |
| DRAWN BY: Mapping              |      |          |                                  |



ONE PUBLIC WORKS DRIVE, BLDG 95 WEST  
WATERFORD, MICHIGAN  
48328-1907

SHEET NO.:

1 of 1

## GENERAL NOTES

1. ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WATER RESOURCES COMMISSIONER'S OFFICE AND/OR THE LOCAL MUNICIPALITY.
2. THE CONTRACTOR SHALL OBTAIN AN WATER RESOURCES COMMISSIONER'S OFFICE WATER INSPECTION PERMIT PRIOR TO THE START OF CONSTRUCTION. SEE CORRESPONDING WATER MAIN CONSTRUCTION PERMIT REQUEST LETTER FOR COST OF THE PERMIT.
3. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION AND SHALL BE SCHEDULED BY THE LOCAL MUNICIPAL ENGINEER. THOSE IN ATTENDANCE SHALL INCLUDE 1) LOCAL MUNICIPAL ENGINEER, 2) DESIGN ENGINEER, 3) OWNER/DEVELOPER, 4) ROAD COMMISSION FOR OAKLAND COUNTY, 5) OAKLAND COUNTY WATER RESOURCES COMMISSIONER'S OFFICE (WATER, SEWER AND STORM DIVISIONS) AND 6) ALL UTILITY COMPANIES. CONTRACTOR SHALL PROVIDE MATERIALS LISTING FOR APPROVAL BY MUNICIPAL ENGINEER AND OCOWRC.
4. CONTRACTOR MUST CONTACT MISS DIG (1-800-482-7171) THREE WORKING DAYS BEFORE THE START OF CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE STAKED BEFORE CONSTRUCTION STARTS.
5. ALL NECESSARY EASEMENTS FOR WATER MAINS SHALL BE PROVIDED IN THE NAME OF THE OWNER OF THE WATER MAIN PRIOR TO CONSTRUCTION AND ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM FOR OPERATION.
6. ALL WATER MAINS SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF FIVE AND ONE-HALF (5-1/2) FEET BELOW FINISHED GRADES INCLUDING OPEN DRAINAGE COURSES.
7. ALL TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING OR PROPOSED PAVEMENT OR DRIVEWAYS SHALL BE BACKFILLED WITH THOROUGHLY COMPACTED CLASS II SAND TO GRADE AT NOT LESS THAN 95% OF THE MAXIMUM UTILITY WEIGHT
8. WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN TWELVE (12) INCH COMPACTED LAYERS TO THE UNDERSIDE OF THE DEEPER UTILITY.
9. WHERE WATER MAINS MUST DIP TO PASS UNDER OTHER UTILITIES, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH AND SHALL BE CONSTRUCTED WITH ELEVEN AND ONE-QUARTER (11-1/4) DEGREE VERTICAL BENDS, PROPERLY ANCHORED. BENDS GREATER THAN 11-1/4° MUST HAVE ROD RESTRAINTS.
10. ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
11. CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 2 (i.e. 2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATEWELL OPENING. FAILURE TO DO SO WILL REQUIRE CONTRACTOR TO CORRECT AT HIS EXPENSE.
12. ALL CROSS-CONNECTION CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY THE LOCAL PLUMBING INSPECTOR AND IN ACCORDANCE WITH THE STANDARDS OF THE WATER RESOURCES COMMISSIONER'S OFFICE OPERATION AND MAINTENANCE DIVISION AND THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY, DIVISION OF DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION
13. ALL WATER SERVICE CONNECTIONS TWO (2) INCHES AND SMALLER SHALL BE MADE BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION AFTER WATER MAIN ACCEPTANCE AND APPLICABLE TAP PERMITS ARE OBTAINED.
14. ALL FITTINGS AND BENDS SHOULD BE BLOCKED IN ACCORDANCE WITH THRUST BLOCK DETAILS, UNLESS ALTERNATE THRUST RESTRAINT SYSTEM, AS INDICATED IN PLANS AND SPECIFICATIONS, IS APPROVED BY WATER RESOURCES COMMISSIONER'S OFFICE AND THE LOCAL MUNICIPALITY.
15. ALL STEEL AND IRON MATERIAL AND PRODUCTS FOR PERMANENT INCORPORATION INTO THE WORK SHEET MEET BUY AMERICA REQUIREMENT, FEDERAL CODE OF REGULATIONS SECTION 635.410

# WATER MAIN MATERIALS NOTES

1. WATER SUPPLY SYSTEM PIPING (3-INCH & LARGER) SHALL BE DUCTILE IRON OR HIGH DENSITY POLYETHYLENE (HDPE) UNLESS OTHERWISE APPROVED BY THE LOCAL COMMUNITY.
2. DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH EIGHTEEN (18) INCH, CLASS 56 FOR TWENTY (20) INCH, AND CLASS 56 FOR TWENTY-FOUR (24) INCH AND LARGER. (ABBREVIATED "D.I." IN DETAILS AND ON THIS SHEET).
3. PIPES OF SIZES LARGER THAN TWENTY-FOUR (24) INCHES IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
4. THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
5. REFER TO SHEET 5 FOR HDPE MATERIAL REQUIREMENTS.
6. MECHANICAL AND SLIP-ON JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
7. FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
8. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON OR CAST IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 350 PSI, PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER. DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE DIAMETERS.
9. INSTALL BRASS WEDGES AT ALL PUSH ON JOINTS IN DUCTILE IRON PIPE INSTALLATIONS. TWO (2) WEDGES PER JOINT FOR PIPES 12 INCH IN DIAMETER AND LESS, FOUR WEDGES PER JOINT FOR PIPES GREATER THAN 12 INCHES IN DIAMETER.
10. ALL WATER MAINS SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
11. ALL BURIED BOLTS, NUTS, AND WASHERS SHALL BE AWWA C111 LOW ALLOY STEEL COATED WITH A MINIMUM OF TWO (2) COATS OF FLUOROPOLYMER EPOXY COATING AND HEAT CURED (COR-BLUE OR APPROVED EQUAL) AND POLY-WRAPPED WHEN SPECIFIED.
12. ALL BURIED BOLTS, NUTS, AND WASHERS FOR ALL PLANGED CONNECTIONS SHALL BE STAINLESS STEEL (ASTM A320, GRADE B8M) AND HAVE A NEVER SEIZE TYPE COMPOUND APPLIED TO THE THREADS PRIOR TO INSTALLATION.
13. CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE MUELLER TYPE H-15000, FORD METER BOX FB-1000-X-Q-NL OR FORD METER BOX FB1000-4-Q-NL. ALL STOPS SHALL HAVE BRONZE CAST BODIES, KEYS, STEM WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C800.
14. TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE REDUCE PRESSURE ZONE (RPZ) VALVE WITH CURRENT CERTIFICATION.

## VALVE AND SLEEVE NOTES

1. GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED WITH NON-RISEING STEM.
2. ALL IN LINE GATE VALVES THREE (3) INCH AND LARGER SHALL BE IN WELLS AS DETAILED. SPECIFICATIONS SHALL INCLUDE THE DIRECTION OF OPERATION OF ALL VALVES.
3. ALL GATE WELL COVERS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED.
4. ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH A STAINLESS STEEL EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY A STAINLESS STEEL EXTENSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
5. TAPPING VALVES SHALL BE AWWA C515 FL X MJ AS MANUFACTURED BY EJ WITH RESILIENT SEATED GATE VALVES AS APPROVED BY LOCAL MUNICIPALITY.
6. TAPPING SLEEVES SHALL BE ALL STAINLESS STEEL (BODY, FLANGE AND HARDWARE), MANUFACTURED BY ROMAC INDUSTRIES SST; JCM 432; SMITH-BLAIR 663/665 OR APPROVED EQUAL BY THE WATER RESOURCES COMMISSIONER'S OFFICE.

## HYDRANT REQUIREMENTS

1. ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX, WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE, E.J. VALVE BOX NO. 8560 OR APPROVED EQUAL.
2. ALL HYDRANTS SHALL BE EJ 58R250 TRAFFIC MODEL, OR APPROVED EQUAL WITH A MINIMUM OF 6'-0" DEPTH OF BURY UNLESS OTHERWISE INDICATED. SELF-DRAINING HYDRANTS SHALL NOT BE USED. ALL HYDRANTS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAIL SHOWN ON THE DRAWING. ALL HYDRANTS SHALL BE BURY BREAKAWAY.
3. ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW GROUND WITH A FINISH COAT OF GLAMORQUE 501 ENAMEL, COLOR 314 VERMILION OR APPROVED EQUAL. HYDRANT CAP SHALL BE PAINTED SAME COLOR AS THE HYDRANT. FOR PONTIAC: YELLOW RUST-OLEUM #7543 SAFETY YELLOW.

## ACCEPTANCE OF NEW WATER MAINS

2. PRIOR TO WATER MAIN ACCEPTANCE THE FOLLOWING CONDITIONS MUST BE MET:
  - 1.1. PRESSURE TESTING AND BACTERIA TESTING MUST BE COMPLETED IN ACCORDANCE WITH THE WATER RESOURCES COMMISSIONER'S OFFICE REQUIREMENTS
  - 1.2. ALL EASEMENT AND RIGHT-OF-WAY ACQUISITION MUST BE ACCEPTED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, RIGHT-OF-WAY DIVISION
  - 1.3. THE LOCAL MUNICIPALITY MUST BE PROVIDED WITH THE BILL OF SALE
  - 1.4. ALL "RECORD DRAWINGS" MUST BE ACCEPTED AND APPROVED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION. THE WATER RESOURCES COMMISSIONER'S OFFICE AND LOCAL ENGINEER MUST WITNESS THE CONNECTION OF THE WATER MAIN TO THE EXISTING WATER MAIN, AFTER WHICH RESIDENTIAL AND COMMERCIAL TAPS WILL BE ALLOWED.
2. THE CONTRACTOR SHALL NOTIFY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION THROUGH THE LOCAL ENGINEER FOR NEW CONSTRUCTION TAP, PRESSURE TESTING, BACKFLOW PREVENTION, CONNECTIONS TO EXISTING WATER MAIN AND FINAL FIELD REVIEW. A SEVENTY-TWO (72) HOUR ADVANCE NOTICE IS REQUIRED.
3. THE CONTRACTOR SHALL DISINFECT AND PRESSURE TEST ALL NEW WATER MAIN CONSTRUCTION PURSUANT TO THE CURRENT STANDARDS SPECIFIED BY THE WATER RESOURCES COMMISSIONER'S OFFICE.
4. HYDROSTATIC TESTING FOR DUCTILE IRON WATER MAIN SHALL BE COMPLETED IN ACCORDANCE WITH ANSI/AWWA C900 SEC 5.2. THE SPECIFIED TEST PRESSURE IS 150 PSI OR 1.5 TIMES THE MAXIMUM ALLOWED OPERATING PRESSURE (MAOP) OF THE TEST SECTION, WHICHEVER IS GREATER. THE TEST METHOD IS GENERALLY SUMMARIZED AS FOLLOWS:
  - 4.1. SLOWLY FILL PIPELINE WITH WATER, VENTING ENTRAPPED AIR AS NECESSARY.
  - 4.2. REPAIR ANY VISIBLE LEAKS THAT OCCUR DURING FILLING OR AT ANY POINT DURING THE TEST.
  - 4.3. GRADUALLY APPLY PRESSURE UP TO THE SPECIFIED WORKING PRESSURE USING A SUITABLE PUMP CONNECTED TO THE PIPELINE, BLEEDING TRAPPED AIR, AND ADDING WATER AS NECESSARY UNTIL A STABLE PRESSURE IS HELD.
  - 4.4. HYDROSTATIC TEST BEGINS AFTER THE PIPELINE IS STABILIZED AT THE WORKING PRESSURE BY INCREASING THE PRESSURE UP TO THE SPECIFIED TEST PRESSURE AND HOLD IT WITHIN PLUS/MINUS 5 PSI FOR THE DURATION OF THE TEST, OR A MINIMUM OF TWO HOURS.
  - 4.5. CAREFULLY RECORD THE AMOUNT OF MAKEUP WATER ADDED DURING THE TEST. THE HYDROSTATIC TEST PASSES IF THE AMOUNT OF MAKEUP WATER DOES NOT EXCEED THE TESTING ALLOWANCE.
  - 4.6. IF THE TESTING ALLOWANCE IS EXCEEDED, LOCATE AND REPAIR ANY LEAKS AND REPEAT TEST.
5. REFER TO SHEET 5 FOR HYDROSTATIC TESTING REQUIREMENTS FOR HDPE PIPE.
6. PRESSURE TESTING AGAINST VALVES PHYSICALLY CONNECTED TO AN EXISTING WATER SUPPLY SYSTEM IS STRICTLY PROHIBITED.
7. WHERE CONTRACTOR SUPPLIED GAUGES ARE REQUIRED, MINIMUM SIZE SHALL BE 3/4" DIAMETER OR LARGER GRADUATED IN ONE (1) OR TWO (2) POUND INCREMENTS FROM 1 TO 160 P.S.I. OR HIGHER.
8. PRESSURE TESTING AND BACTERIA TESTING MUST BE SUCCESSFULLY COMPLETED PRIOR TO CONNECTING TO THE EXISTING WATER SUPPLY SYSTEM.

# WATER RESOURCES COMMISSIONER

## WATER SYSTEM STANDARDS –

### GATE VALVES

| COMMUNITY            | DIRECTION<br>TO OPEN | VALVE TYPE      |               |
|----------------------|----------------------|-----------------|---------------|
|                      |                      | STD. GATE VALVE | TAPPING VALVE |
| BINGHAM FARMS        | RIGHT                | CS15            | CS15          |
| BLOOMFIELD HILLS     | RIGHT                | CS15            | CS15          |
| COMMERCE TOWNSHIP    | LEFT                 | CS15            | CS15          |
| FARMINGTON HILLS     | RIGHT                | CS15            | CS15          |
| HIGHLAND TOWNSHIP    | LEFT                 | CS15            | CS15          |
| KEEGO HARBOR         | RIGHT                | CS15            | CS15          |
| OAKLAND TOWNSHIP     | LEFT                 | CS15            | CS15          |
| ORCHARD LAKE VILLAGE | LEFT                 | CS15            | CS15          |
| OXFORD TOWNSHIP      | LEFT                 | CS15            | CS15          |
| PLEASANT RIDGE       | RIGHT                | CS15            | CS15          |
| PONTIAC              | LEFT                 | CS15            | CS15          |
| ROYAL OAK TOWNSHIP   | RIGHT                | CS15            | CS15          |
| SPRINGFIELD TOWNSHIP | LEFT                 | CS15            | CS15          |
| SYLVAN LAKE          | RIGHT                | CS15            | CS15          |
| WALLED LAKE          | LEFT                 | CS15            | CS15          |

1.) C515 RESILIENT SEATED GATE VALVE - MANUFACTURED BY U.S. PIPE, MUELLER, EAST JORDAN IRON WORKS, AMERICAN FLOW CONTROL OR APPROVED EQUAL.

## FIRE HYDRANT NOZZLE SIZE AND THREAD SPECIFICATIONS

| CVT                             | PUMPER NOZZLE                      | HOSE NOZZLE      | OPERATING NUT | DEPTH OF BURY | STYLE  | MODEL # |
|---------------------------------|------------------------------------|------------------|---------------|---------------|--------|---------|
| BINGHAM FARMS                   | (1) - 4"-STORZ                     | (2) - 2-1/2"-DFD | 1-1/2"        | 5'-6"         | 5BR250 | 548310  |
| BLOOMFIELD HILLS                | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-DFD | 1-1/8"        | 6'-0"         | 5BR250 | 558250  |
| COMMERCE TWP/<br>WOLVERINE LAKE | (1) - 5"-STORZ                     | (2) - 2-1/2"-NST | 1-1/2"        | 5'-6"         | 5BR250 | 549130  |
| FARMINGTON HILLS                | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-NST | 1-1/8"        | 5'-6"         | 5BR250 | 543290  |
| HIGHLAND TWP                    | (1) - 5"-STORZ                     | (2) - 2-1/2"-NST | 1-1/2"        | 5'-6"         | 5BR250 | 549130  |
| KEEGO HARBOR                    | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-DFD | 1-1/8"        | 5'-6"         | 5BR250 | 548260  |
| OAKLAND TWP                     | (1) - 4"-STORZ                     | (2) - 2-1/2"-DFD | 1-1/2"        | 5'-6"         | 5BR250 | 548310  |
| ORCHARD LAKE                    | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-DFD | 1-1/8"        | 6'-0"         | 5BR250 | 558250  |
| OXFORD TWP                      | (1) - 5"-STORZ<br>(1) - 4-1/2"-NST |                  | 1-1/2"        | 6'-0"         | 5BR250 | 556010  |
| PLEASANT RIDGE                  | (1) - 3-3/4"-DFD<br>(1) - 5"-STORZ |                  | 1-1/8"        | 5'-6"         | 5BR250 | 549490  |
| PONTIAC                         | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-DFD | 1-1/2"        | 6'-0"         | 5BR250 | 558220  |
| ROYAL OAK TWP                   | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-DFD | 1-1/8"        | 5'-6"         | 5BR250 | 548260  |
| SPRINGFIELD TWP                 | (1) - 5"-STORZ                     | (2) - 2-1/2"-NST | 1-1/2"        | 5'-6"         | 5BR250 | 549130  |
| SYLVAN LAKE                     | (1) - 3-3/4"-DFD                   | (2) - 2-1/2"-NST | 1-1/2"        | 6'-0"         | 5BR250 | 558270  |
| WALLED LAKE                     | (1) - 4-1/2"-NST                   | (2) - 2-1/2"-NST | 1-1/8"        | 5'-6"         | 5BR250 | 545340  |

1. D.F.D. - DETROIT FIRE DEPARTMENT THREAD  
2. N.S.T. - NATIONAL STANDARD THREAD
- STORZ NOZZLES SHALL BE COMPATIBLE WITH STORZ COUPLED LARGE DIAMETER FIRE HOSE. NOZZLES SHOULD BE MADE OF "LEAD FREE" BRASS OR ALUMINUM, AS APPROVED BY LOCAL CITY, VILLAGE OR TOWNSHIP. THE NOZZLE SHALL BE AN INTEGRAL PART OF THE HYDRANT, RESISTANT TO TAMPER AND REMOVAL. ENGAGEMENT LUGS SHALL BE ON THE NOZZLE AND CAP TO PREVENT FAILURE UNDER HIGH PRESSURE. NOZZLE AND CAP SHALL MEET AWMA C502 SPECIFICATIONS. NOZZLE SHALL BE COMPATIBLE WITH HOSE LOCK TO PREVENT HOSE FROM DISCONNECTING WHILE IN USE.

WATER RESOURCES COMMISSIONER'S OFFICE  
WATER SYSTEMS OPERATIONS AND MAINTENANCE DIVISION  
RECORD DRAWING SPECIFICATIONS

IN AREAS WHERE WATER SYSTEMS ARE OPERATED AND MAINTAINED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION, FINAL ACCEPTANCE OF THE WATER SYSTEM MUST BE RENDERED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION, BEFORE THE SYSTEM CAN BE USED FOR THE SERVICE INTENDED.

ONE ITEM REQUIRED FOR FINAL ACCEPTANCE SHALL BE THE SUBMISSION OF RECORD DRAWINGS TO THE WATER RESOURCES COMMISSIONER, OPERATIONS AND MAINTENANCE DIVISION, BY THE DESIGN ENGINEER. RECORD DRAWINGS SHALL BE DEFINED AS AND CONTAIN THE FOLLOWING INFORMATION:

1. THE DESIGN ENGINEER SHALL FURNISH "RECORD DRAWINGS" WATER MAIN PLANS UPON JOB COMPLETION. "RECORD DRAWINGS" SHALL BE FORWARDED TO THE WATER RESOURCES COMMISSIONER BY THE LOCAL MUNICIPAL ENGINEER AFTER THEIR REVIEW AND APPROVAL.
2. THE COVER SHEET SHALL BE SIGNED AND SEALED BY THE PROJECT DESIGN ENGINEER AND INCLUDE THE FOLLOWING CERTIFICATION STATEMENT:

HEREBY CERTIFY THAT OUR FIRM HAS PREPARED THESE RECORD DRAWINGS OF THE IMPROVEMENTS AS CONSTRUCTED, AND THAT TO THE BEST OF MY KNOWLEDGE THOSE IMPROVEMENTS NOTED AS "RECORD DRAWINGS" WERE CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS; AND ALSO THAT THE WATER MAIN AND STRUCTURES, AS CONSTRUCTED, LIE WITHIN THE EASEMENT DESCRIPTIONS REQUIRED BY THE WATER RESOURCES COMMISSIONER'S OFFICE.

\_\_\_\_\_  
(COMPANY NAME)

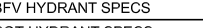
\_\_\_\_\_  
(ENGINEER'S SIGNATURE)

PROFESSIONAL ENGINEER NO. \_\_\_\_\_

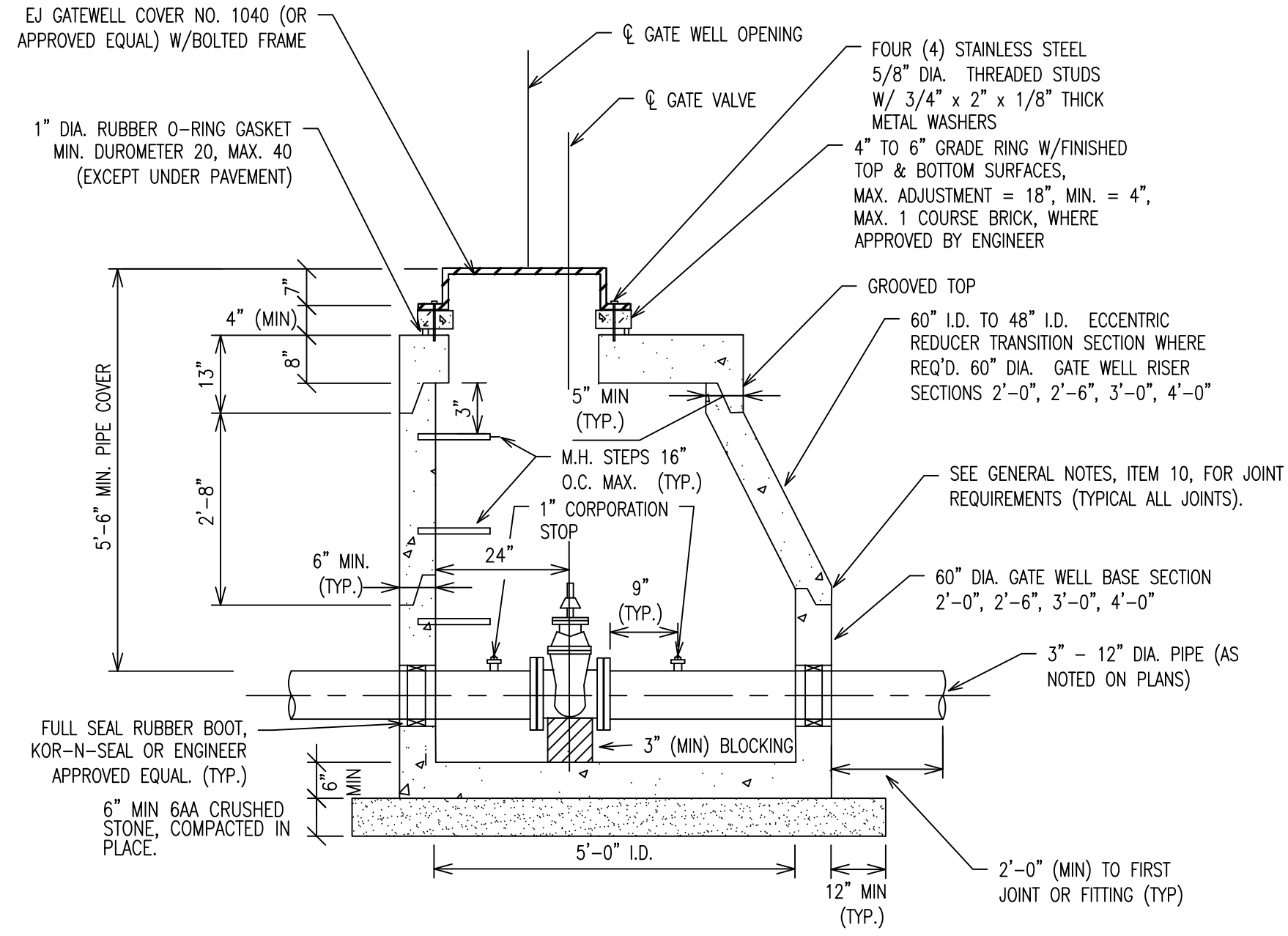
ENGINEER SEAL

3. THE MINIMUM SCALE SHALL BE ONE (1) INCH EQUALS FIFTY (50) FEET.
4. THE SIZE, LENGTH, CLASS AND MANUFACTURER OF PIPE INSTALLED SHALL BE INDICATED.
5. THE SIZE, BRAND AND MODEL NUMBERS OF ALL VALVES AND HYDRANTS INSTALLED SHALL BE INDICATED.
6. A TOTAL RECORD DRAWING QUANTITY LIST SHALL BE INCLUDED, AS WELL AS A RECORD DRAWING QUANTITY LIST OF EACH INDIVIDUAL SHEET.
7. THE LOCATIONS SHALL BE SHOWN ON THE PLANS WITH AN ACCURACY OF ONE (1) FOOT.
8. THE OFFSET OF THE WATER MAIN FROM PROPERTY LINES SHALL BE INDICATED.
9. ALL GATE VALVE WELLS, HYDRANTS AND ALL WATER SYSTEM APPURTENANCES SHALL BE LOCATED FROM THE NEAREST PROPERTY CORNER.
10. ALL UNDERGROUND APPURTENANCES, SUCH AS GATE VALVE WELLS, METER PITS, PRESSURE REDUCING VALVE PITS, ETC. SHALL BE LOCATED FROM THE NEAREST HYDRANT THAT IS CONNECTED TO THE SAME WATER MAIN AS THE APPURTENANCE.
11. THE LOCATION, SIZE, BRAND AND MODEL NUMBER OF EVERY RESTRAINED JOINT SHALL BE NOTED.
12. THE ACCURATE LOCATION OF ALL UTILITY CROSSINGS WHERE THE RECOMMENDED SEPARATION, VERTICALLY OR HORIZONTALLY, IS LESS THAN THE TEN STATE STANDARDS SHALL BE NOTED.
13. WATER MAINS 12" AND LARGER IN DIAMETER SHALL BE DRAWN IN PROFILE VIEW IN ADDITION TO PLAN VIEW ON THE CONSTRUCTION PLANS.

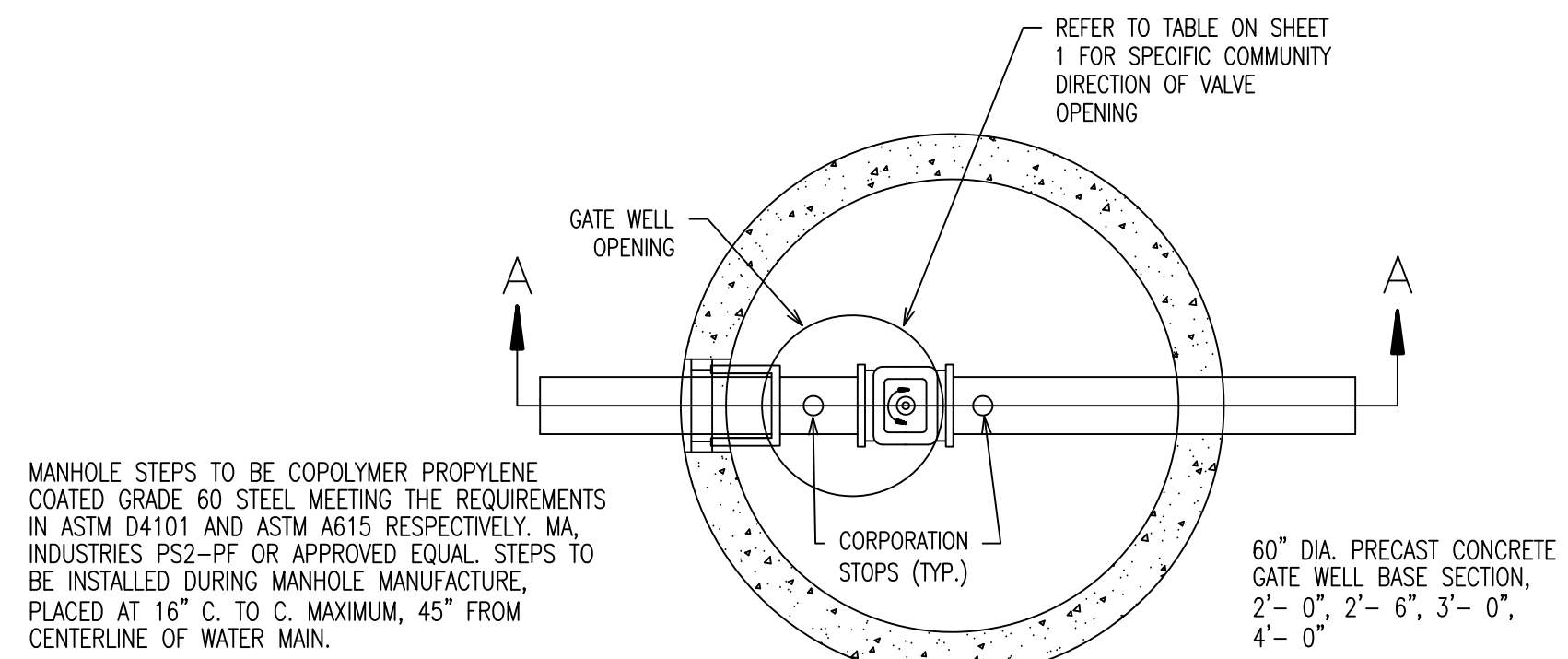
# WATER MAIN STANDARD DETAILS

|                                                                                       |      |                                                                           |                                |
|---------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------|--------------------------------|
| <b>REVISION BLOCK</b>                                                                 |      |                                                                           |                                |
| Data Source / Source Data: N/A                                                        |      |                                                                           |                                |
| Rev:                                                                                  | Rev: | Rev:                                                                      | Description:                   |
| No.:                                                                                  | By:  | Date:                                                                     |                                |
| 1                                                                                     | WRC  | 08/10/20                                                                  | GENERAL UPDATE                 |
| 2                                                                                     | KS   | 03/05/23                                                                  | ADD PRC AND SLG INFO TO TABLES |
| 3                                                                                     | KS   | 05/08/23                                                                  | UPDATE BPV HYDRANT SPECS       |
| 4                                                                                     | KS   | 07/11/24                                                                  | UPDATE RPV HYDRANT SPECS       |
| <b>ORG. DATE:</b>                                                                     |      | 01/01/21                                                                  |                                |
| <b>SCALE:</b>                                                                         |      | NONE                                                                      |                                |
| <b>DESIGNED BY:</b>                                                                   |      | WRC                                                                       |                                |
| <b>DRAWN BY:</b>                                                                      |      | WRC Mapping                                                               |                                |
|  |      | ONE PUBLIC WORKS DRIVE, BLDG 95 WEST<br>WATERPOOR, MICHIGAN<br>48328-1907 |                                |
|                                                                                       |      | <b>SHEET NO.:</b>                                                         |                                |
|                                                                                       |      | 1 of 7                                                                    |                                |

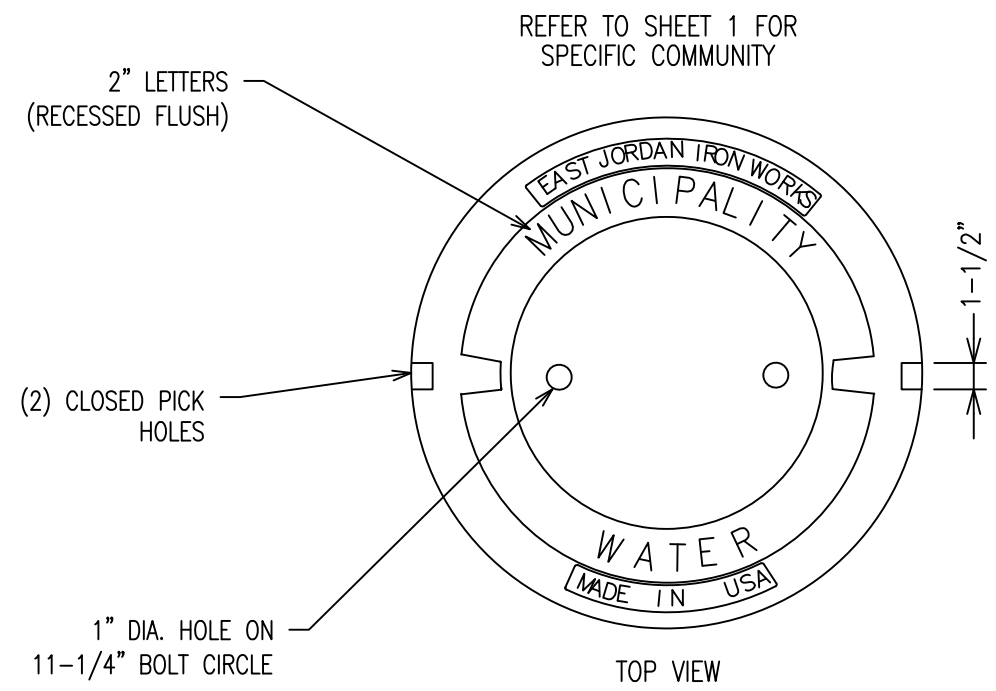
## GATE VALVE & WELL DETAILS



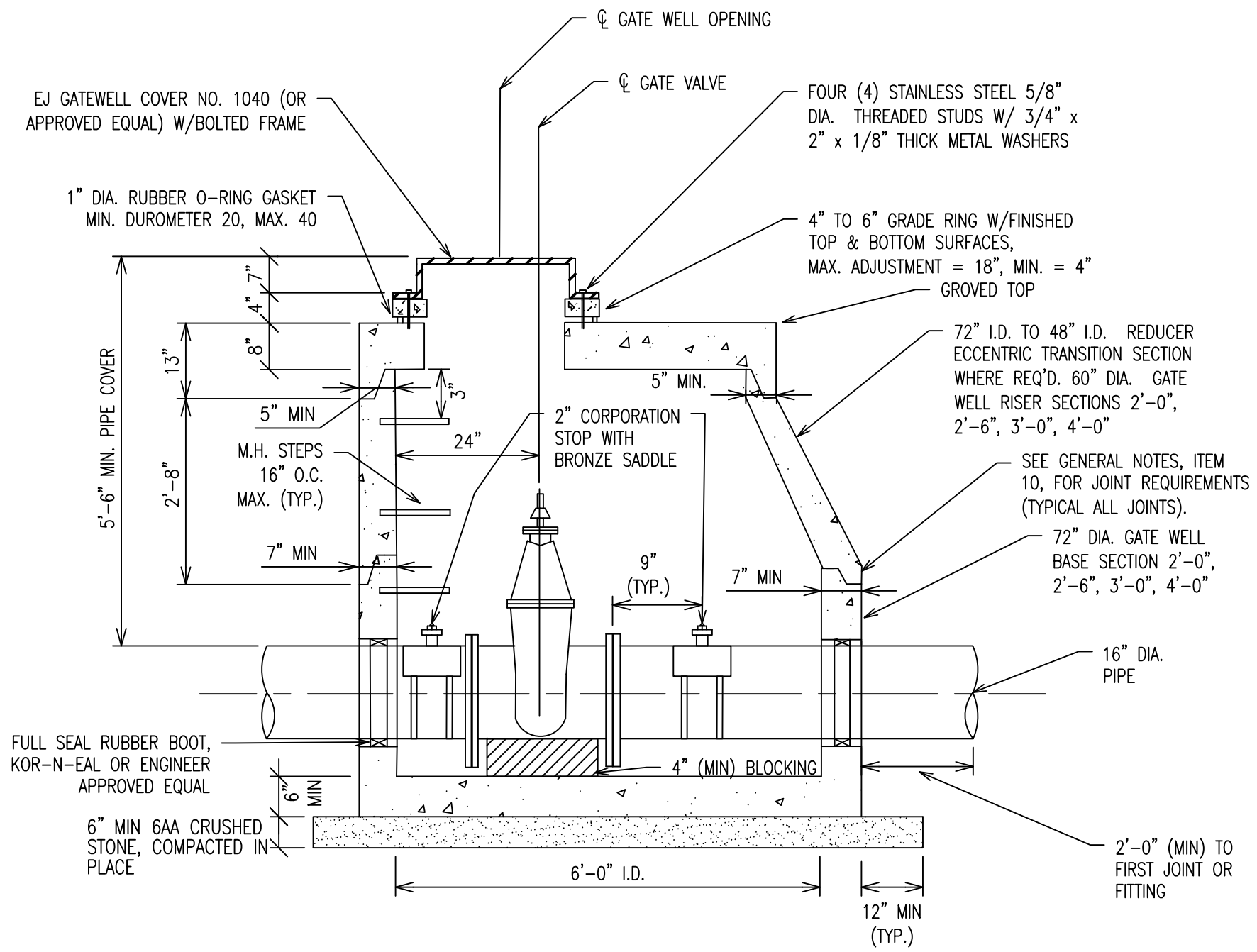
3" THRU 12" GATE WELL



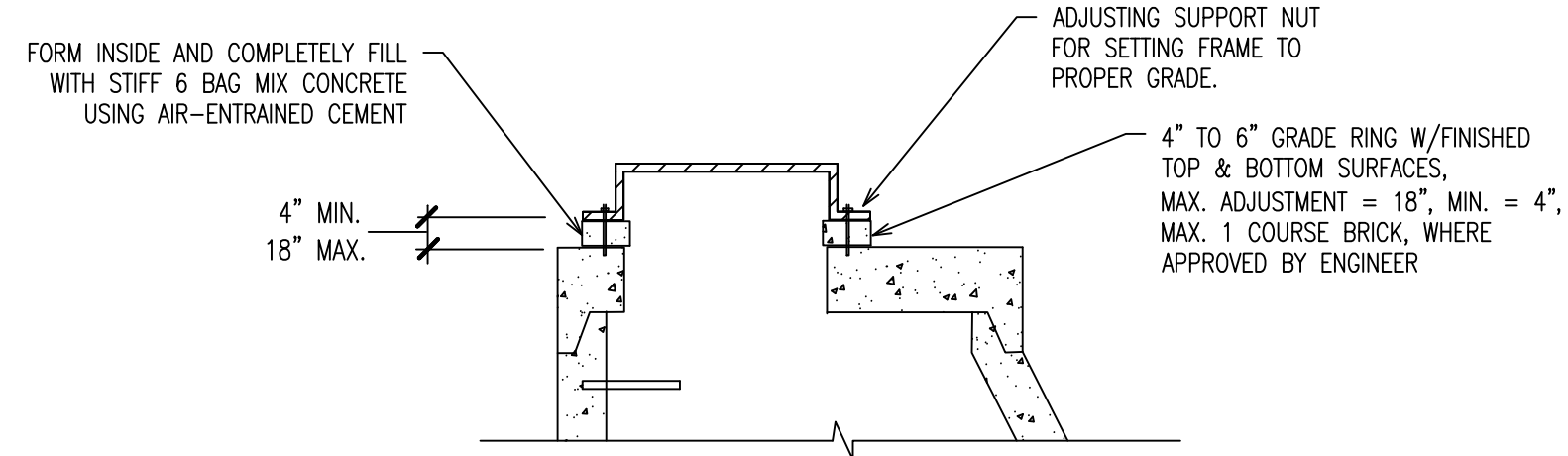
PLAN GATE WELL TYPICAL



## LETTERING LAYOUT FOR GATEWELL COVERS

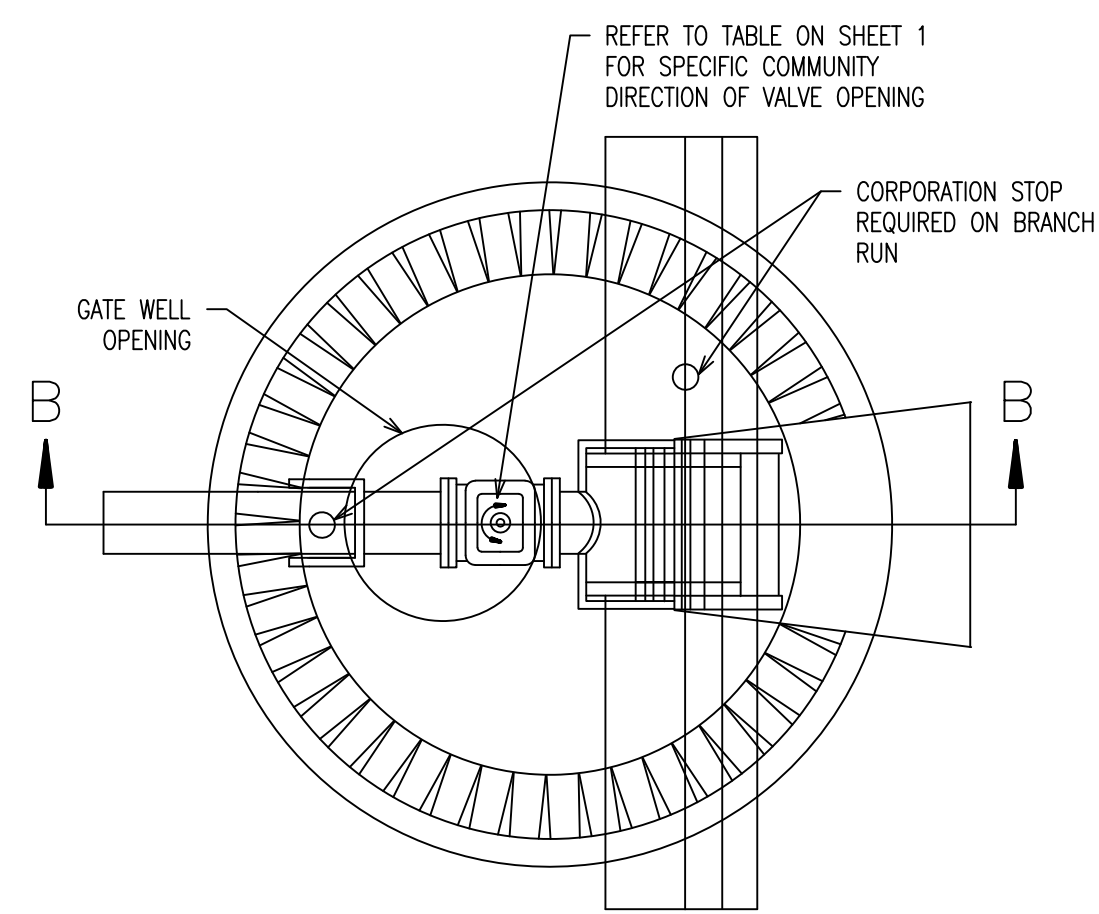


16" GATE WELL

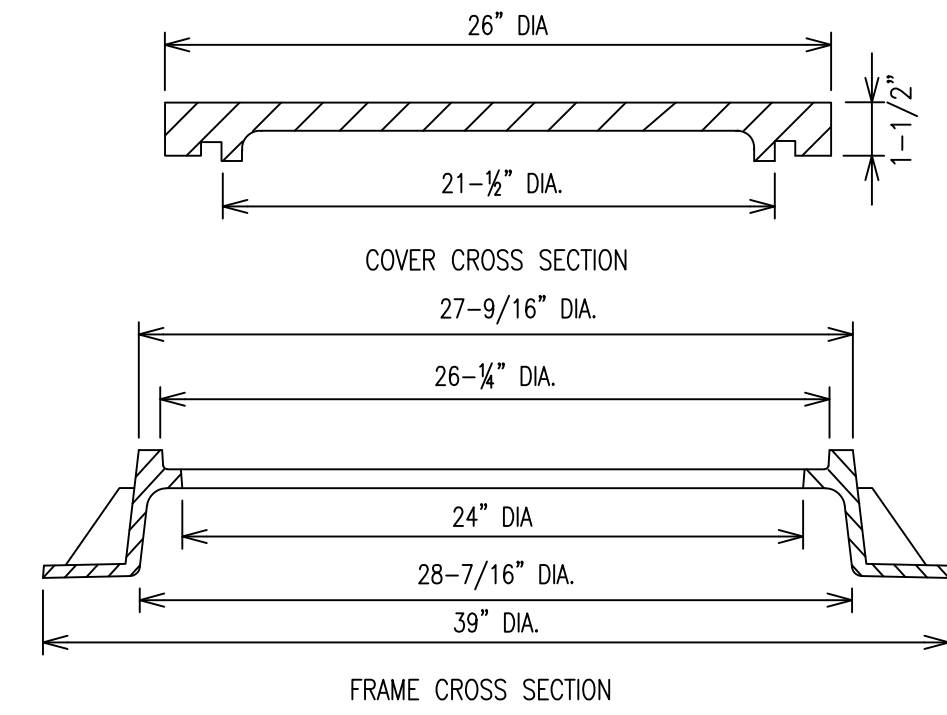
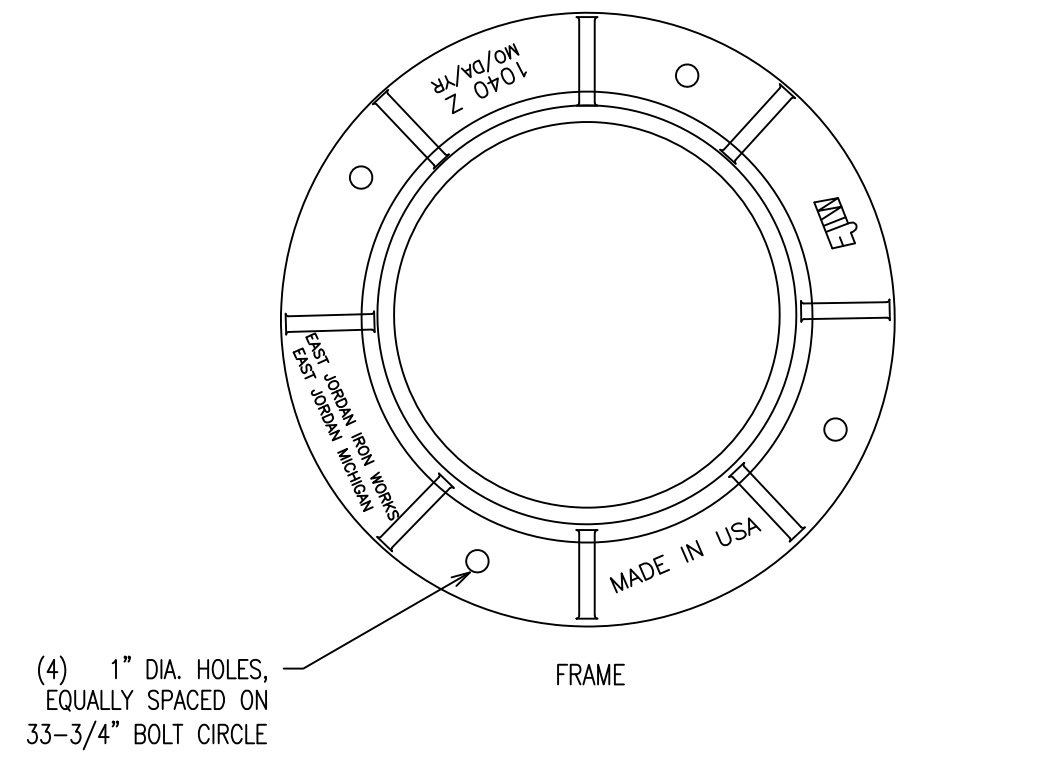
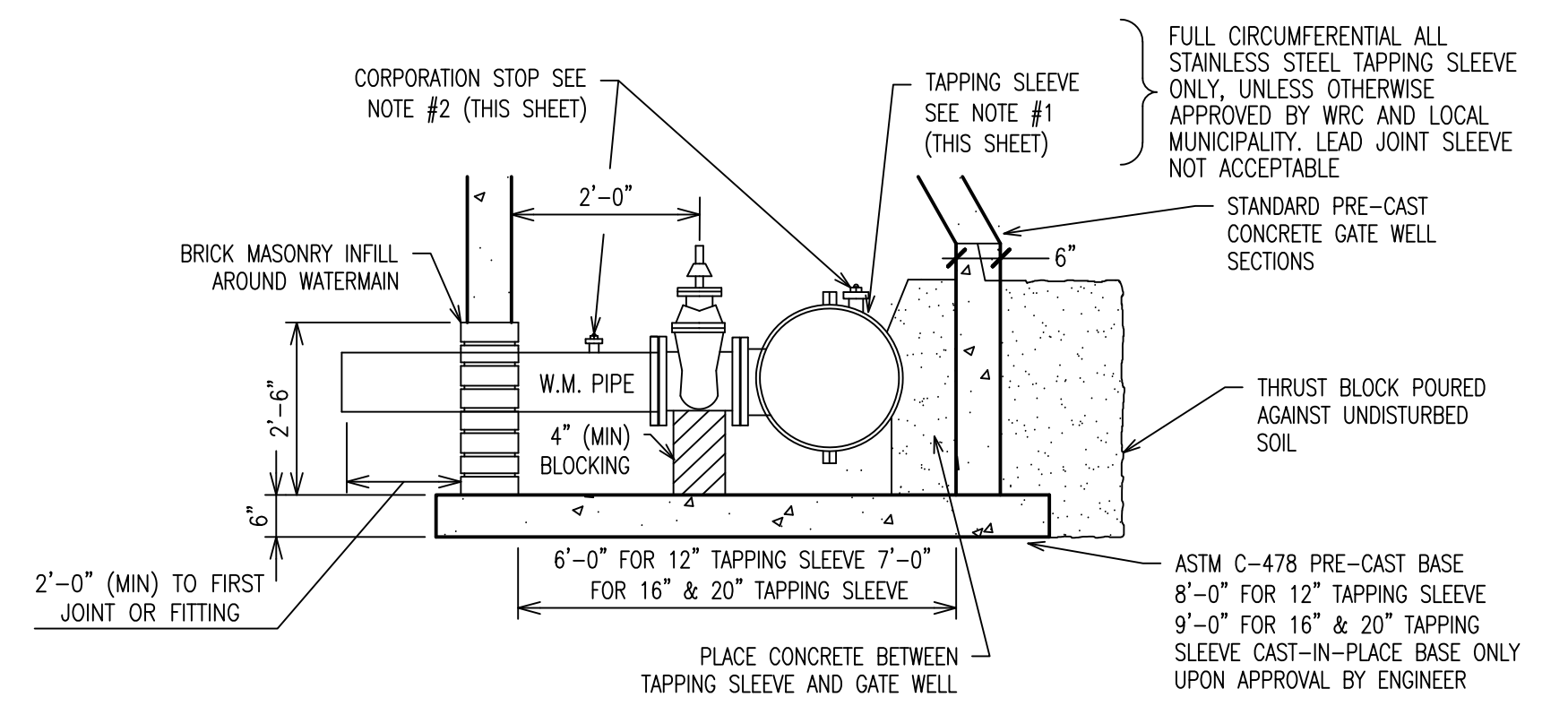


### GATE WELL TOPS WITHIN PAVEMENT AREAS

RUBBER O'RINGS SHALL  
NOT BE USED IN PAVEMENT



PLAN TAPPING SLEEVE  
VALVE & WELL (TYPICAL)

FRAME

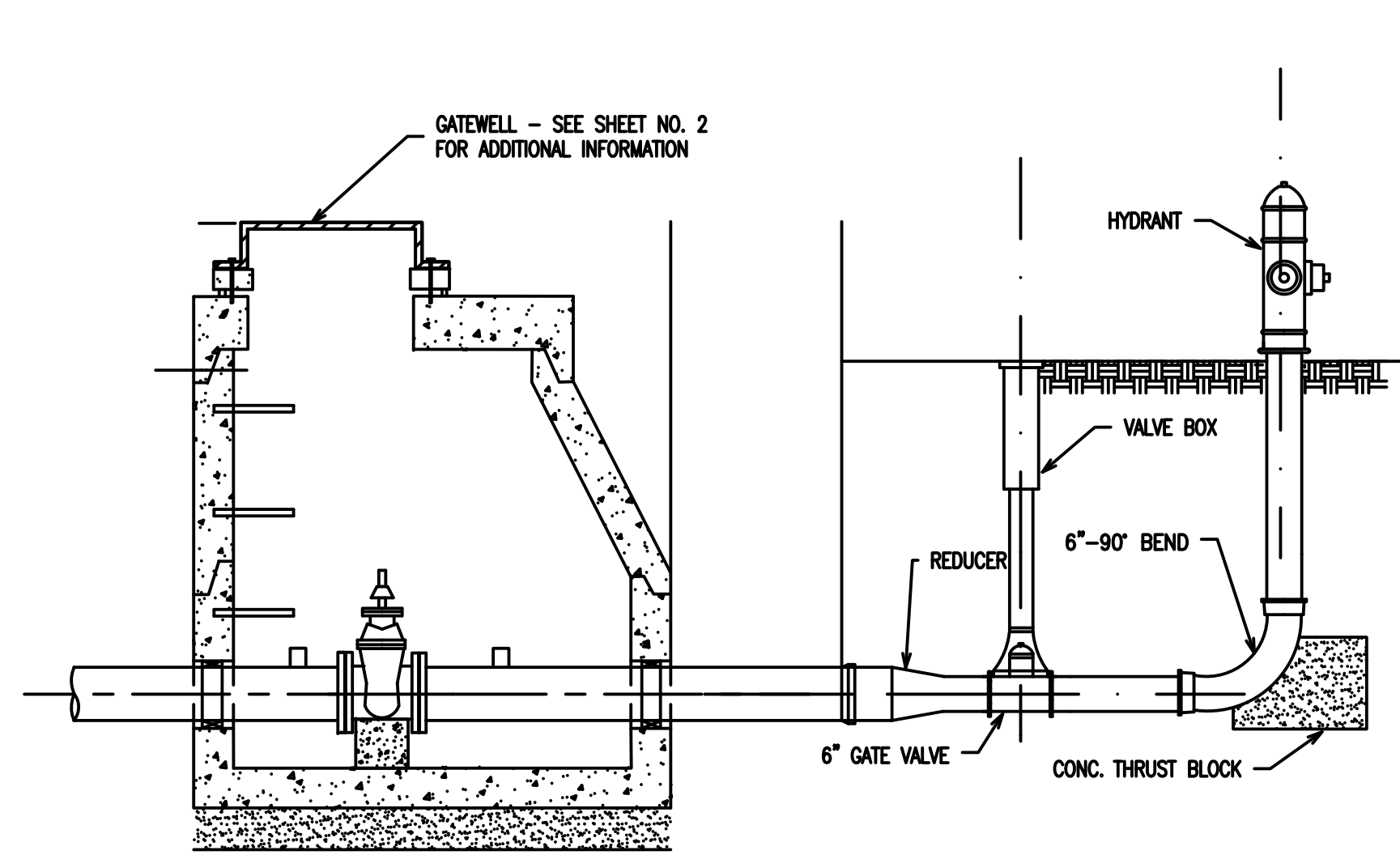
20" x 12", 20" x 8", 16" x 12", 16" x 8", 12" x 8"

## TAPPING SLEEVE, VALVE & WELL

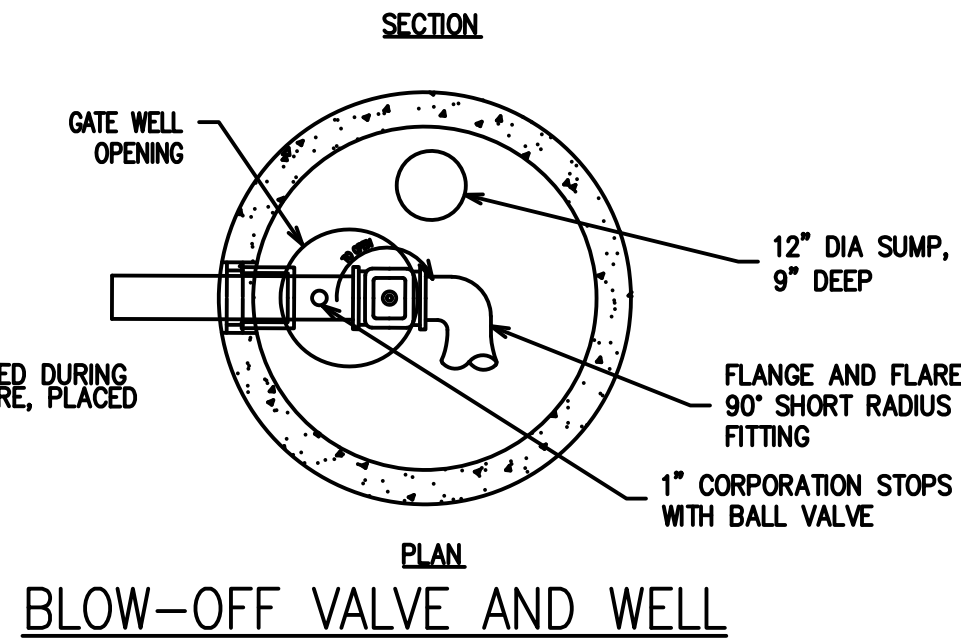
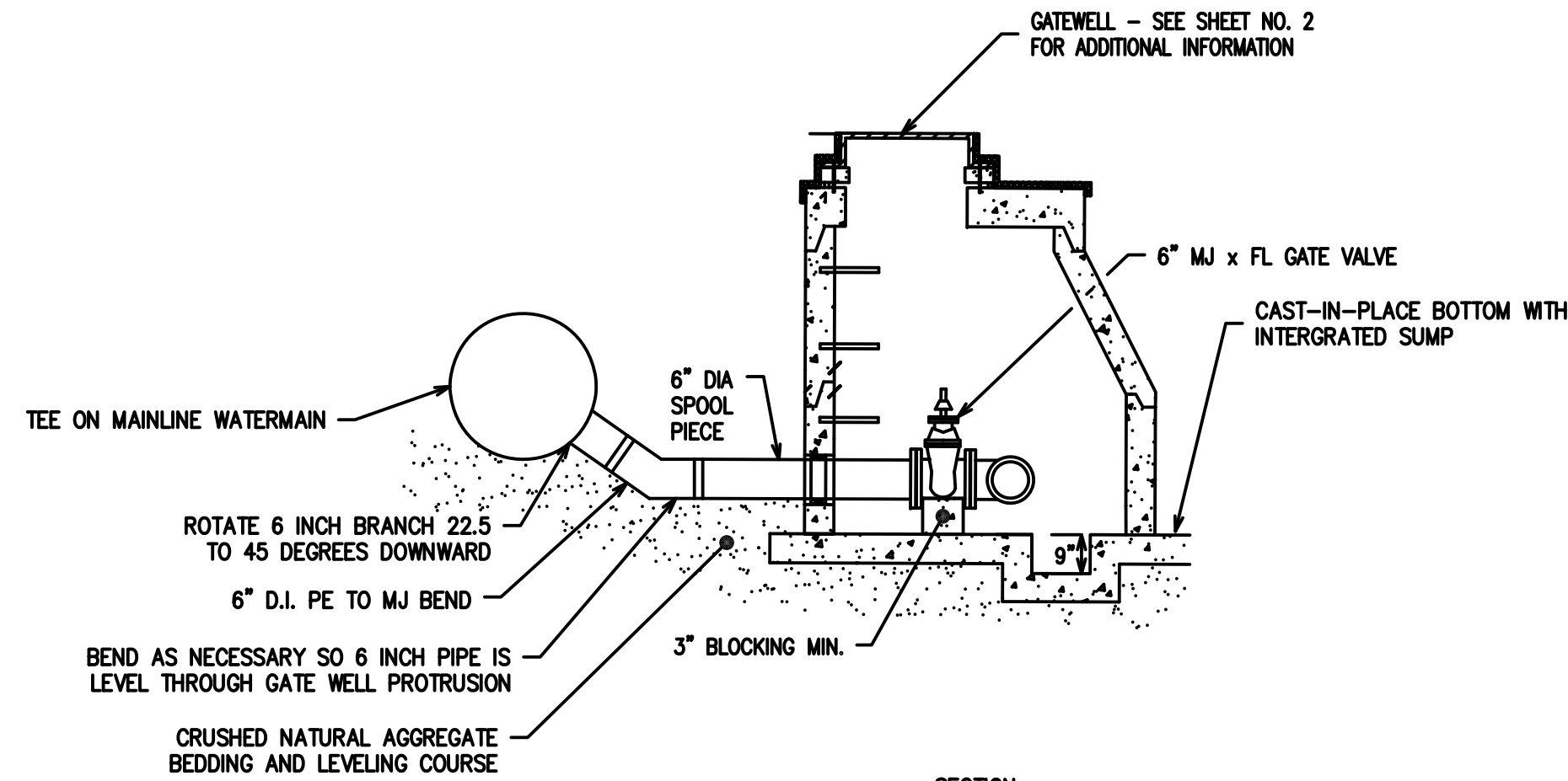
NOTES:

1. REFER TO NOTE 7 OF "VALVE AND SLEEVE NOTES" ON SHEET 1.
2. FOR PIPE SMALLER THAN 16" USE 1" CORPORATION STOP, FOR 16" PIPE OR LARGER USE 2" CORPORATION STOP WITH BRONZE SADDLE.
3. WRC DOES NOT RECOMMEND SIZE ON SIZE TAPPING.

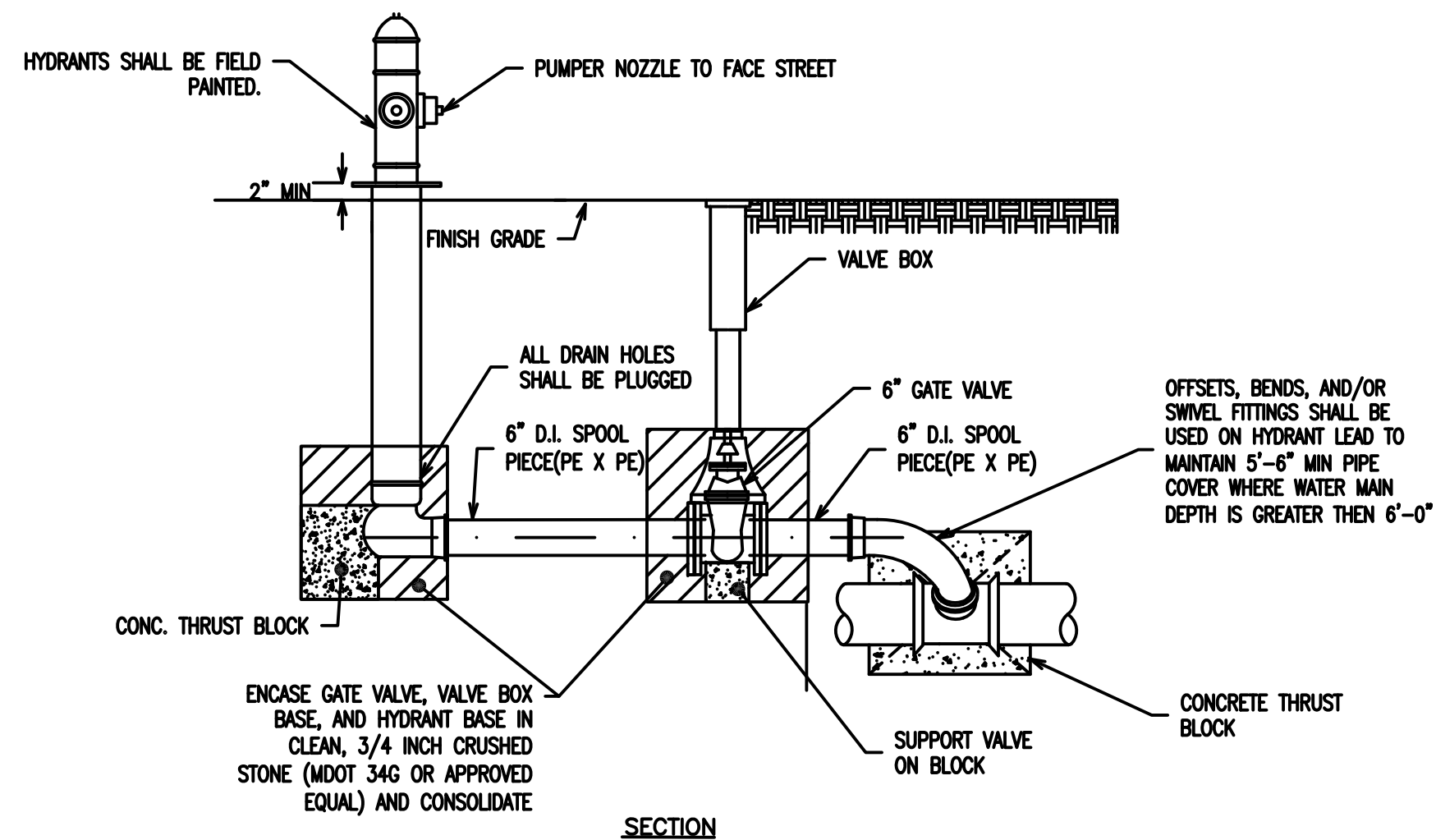
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| <b>REVISION BLOCK</b>                                                                                                                          |      |          |                                                                                      |  |  |
| Data Source / Source Date: N/A                                                                                                                 |      |          |                                                                                      |  |  |
| Rev.                                                                                                                                           | Rev. | Rev.     | Description:                                                                         |  |  |
| No. 1                                                                                                                                          | BY:  | DATE:    |                                                                                      |  |  |
| 1                                                                                                                                              | DL   | 03/22/19 | FINAL CHANGES TO GATE VALVE STANDARDS, HYDRANT SPECIFICATIONS AND PIPE CLASS UPDATES |  |  |
| 2                                                                                                                                              | DL   | 03/03/17 | UPDATE TRIBUTION TO OPEN COMMERCIAL TOWNSHIP FROM RIGHT TO LEFT                      |  |  |
| 3                                                                                                                                              | DL   | 02/14/16 | MARKUP PER PER APPTEL                                                                |  |  |
| 4                                                                                                                                              | DL   | 06/22/10 | GENERAL UPDATE                                                                       |  |  |
| ORG. DATE:                                                                                                                                     |      |          | 01/01/01                                                                             |  |  |
| SCALE:                                                                                                                                         |      |          | NONE                                                                                 |  |  |
| DESIGNED BY:                                                                                                                                   |      |          | WRC                                                                                  |  |  |
| DRAWN BY:                                                                                                                                      |      |          | WRC Mapping                                                                          |  |  |
| <br><b>WATER RESOURCES CORPORATION</b><br><i>Jim Nash</i> |      |          | ONE PUBLIC WORKS DRIVE, BLDG 05 WEST<br>WATERFORD, MICHIGAN<br>48328-1907            |  |  |
|                                                                                                                                                |      |          | <b>SHEET NO.:</b><br><div style="float: right; font-size: 2em;">2 of 7</div>         |  |  |



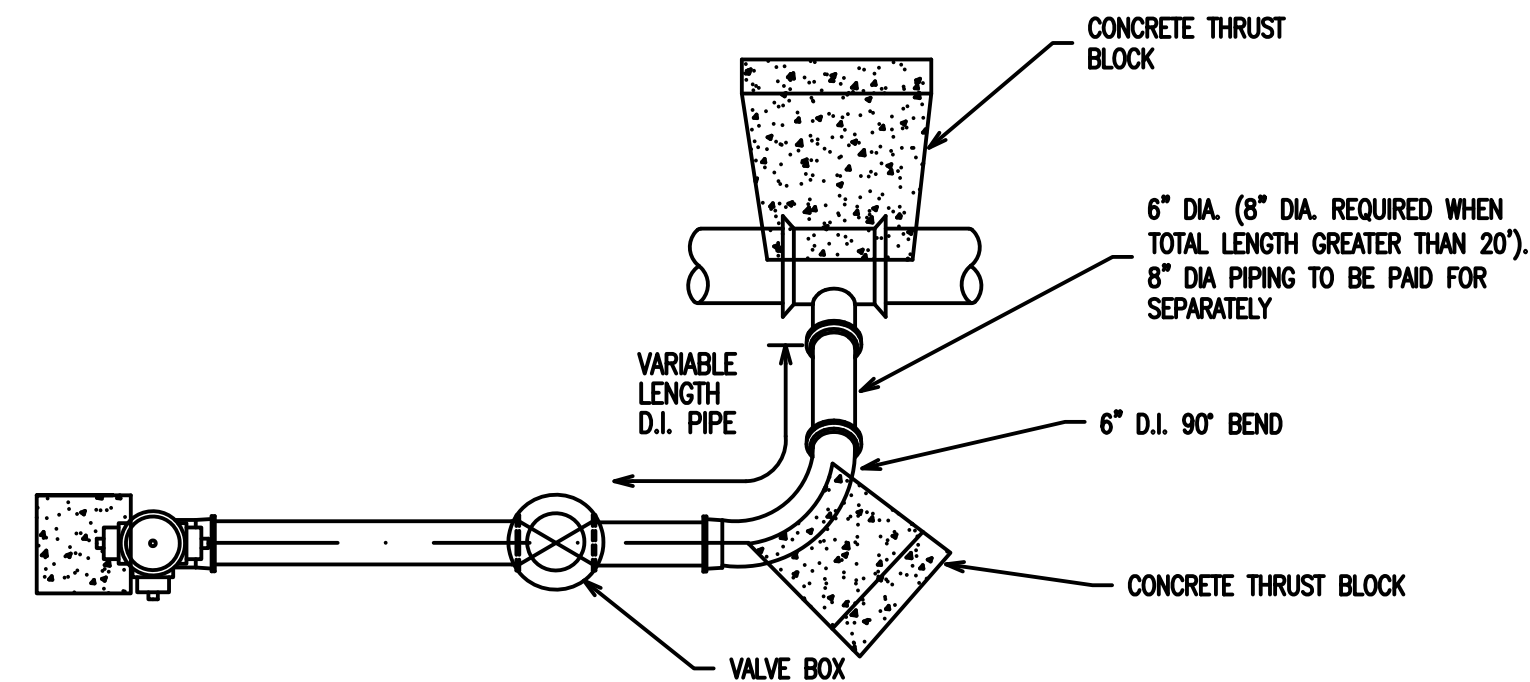
DEAD END BLOWOFF CONNECTION



BLOW-OFF VALVE AND WELL



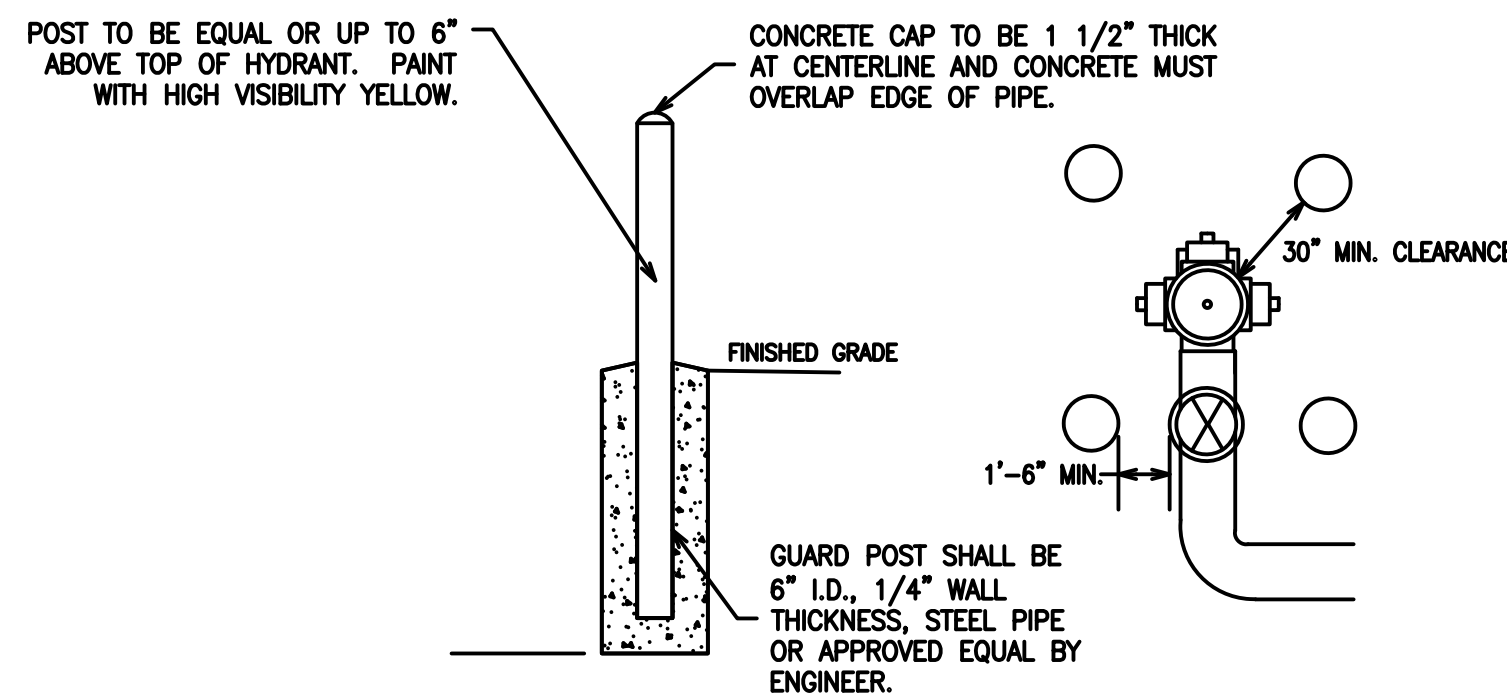
SECTION



PLAN

6" HYDRANT SIDE OUTLET

- NOTES:
1. HYDRANT EXTENSIONS BETWEEN THE STANDPIPE LOWER SECTION & STANDPIPE UPPER ARE LIMITED TO 18 INCHES
  2. ALL HYDRANTS COMPANION VALVES, BENDS, AND TEES TO BE FULLY RESTRAINED BY MECHANICAL JOINT RESTRAINT SYSTEM FITTINGS (MEGA-LUG OR APPROVED EQUAL).
  3. THRUST BLOCKS ARE REQUIRED AT ALL TEES, BENDS AND ENDS.
  4. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) FOR HYDRANT ASSEMBLIES SHALL BE COR-BLUE OR APPROVED EQUAL



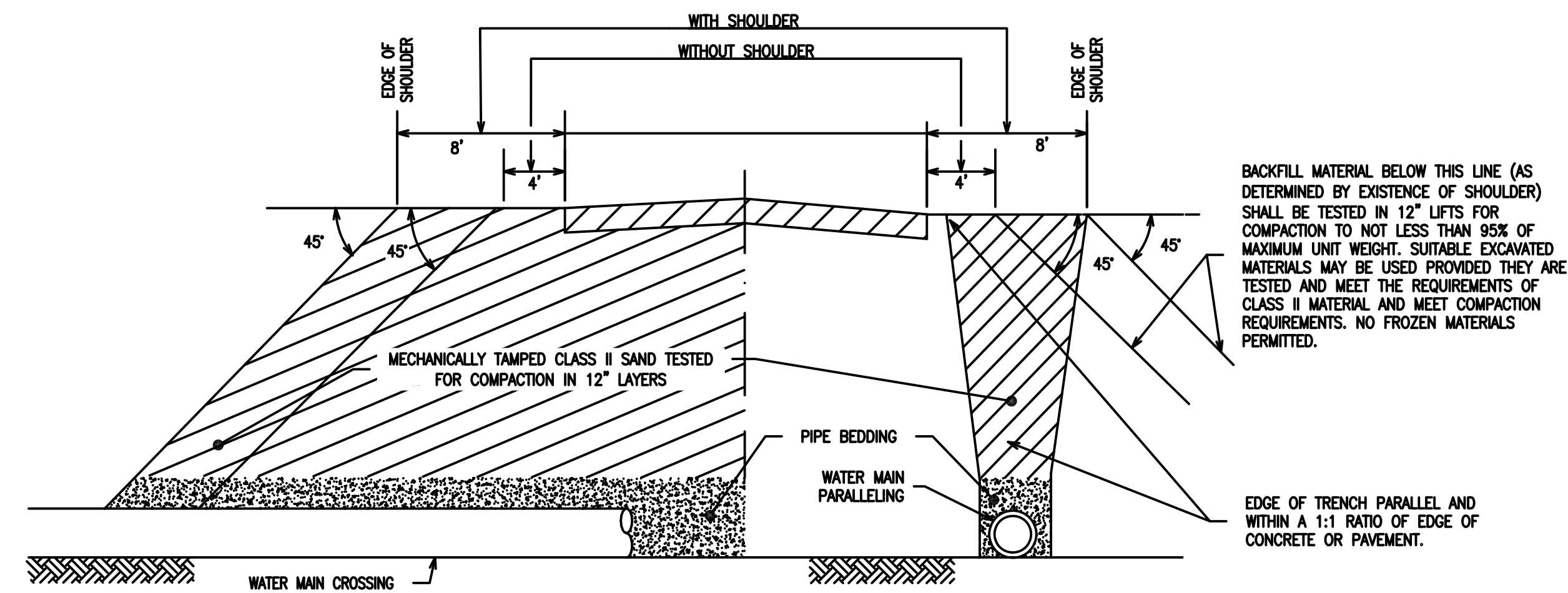
GUARD POST

- NOTES:
1. GUARD POST SHALL NOT INTERFERE WITH HYDRANT OPERATION
  2. TO BE INSTALLED IN ALL PAVED AREAS PARKING LOTS, PARKS, PLAZAS, ETC. (NOT RIGHT-OF-WAYS) SPACE WHERE VEHICLE EQUIPMENT DAMAGE TO HYDRANT IS POSSIBLE.

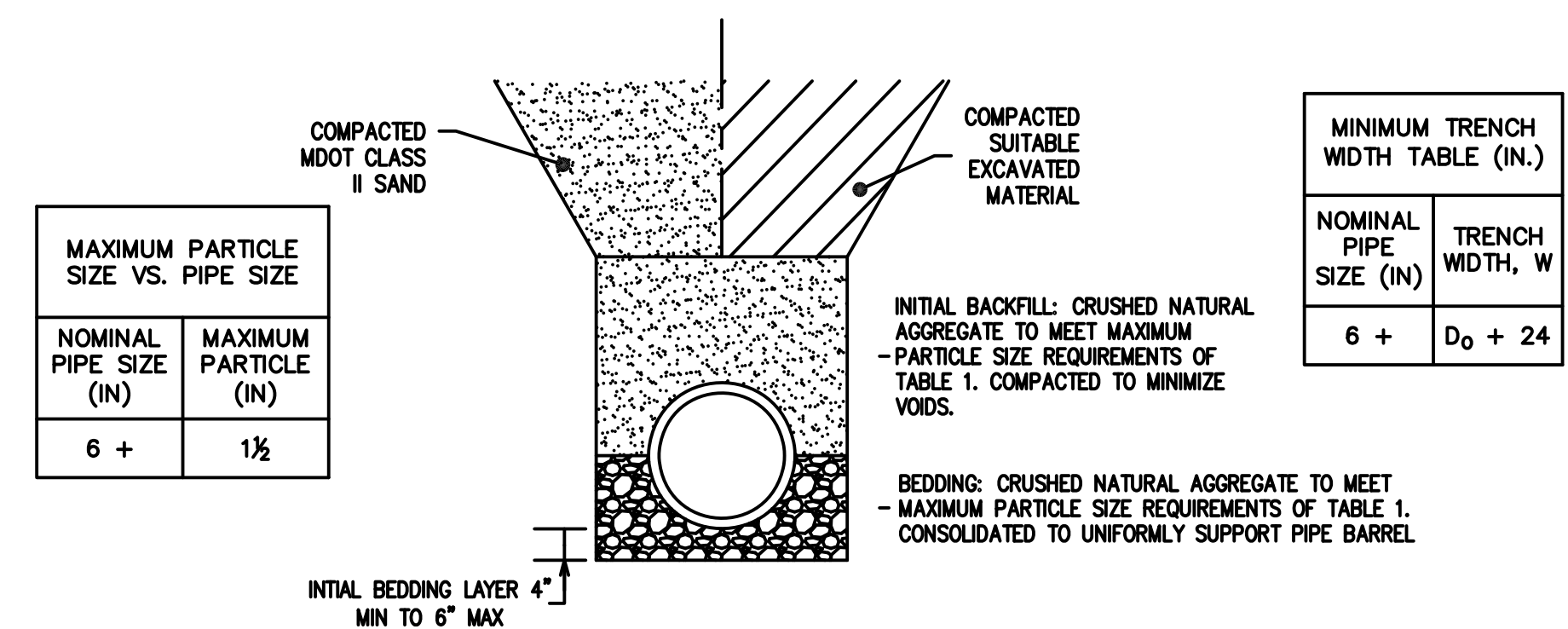
| FOR 90° BENDS OR SMALLER |    |      |      |        | FOR PLUGS |        |        |        | FOR TEES |       |       |      |        |
|--------------------------|----|------|------|--------|-----------|--------|--------|--------|----------|-------|-------|------|--------|
| D                        | A  | B    | C    | E MIN. | D         | A      | B      | C MIN. | D        | A     | B     | C    | E MIN. |
| 20"                      | 8" | 6.5" | 3.5" | 2.5"   | 20"       | 7"     | 5"     | 2.5"   | 20"      | 6.5"  | 4.5"  | 3.5" | 3"     |
| 16"                      | 6" | 4"   | 2.5" | 2"     | 16"       | 4'-10" | 4'-10" | 2"     | 16"      | 4'-8" | 4'-8" | 2.5" | 2.75"  |
| 12"                      | 4" | 3"   | 2"   | 1.75"  | 12"       | 4'-4"  | 3"     | 1'-9"  | 12"      | 4"    | 3"    | 2.5" | 2.5"   |
| 10"                      | 3" | 3"   | 2"   | 1.75"  | 10"       | 3"     | 2"     | 1'-6"  | 10"      | 3"    | 2"    | 2"   | 2.25"  |
| 8"                       | 3" | 2"   | 2"   | 1.5"   | 8"        | 2'-10" | 2'-6"  | 1'-6"  | 8"       | 2'-6" | 2"    | 2"   | 2.25"  |
| 6"                       | 2" | 1.5" | 2"   | 1.25"  | 6"        | 1'-6"  | 1'-6"  | 3"     | 6"       | 2"    | 2"    | 2"   | 2.25"  |

THRUST BLOCK DETAILS

- NOTE:
1. 3000 PSI CONCRETE TO BE USED. THRUST BLOCK TO ABUT & REST AGAINST UNDISTURBED SOIL OR EARTH COMPACTED TO 95% MODIFIED PROCTER.



MINIMUM BACKFILL UNDER OR NEAR PAVEMENT



DUCTILE IRON PIPE TRENCH DETAIL

- NOTES:
1. DUCTILE IRON PIPE IS CONSIDERED A FLEXIBLE PIPE THAT WHEN INSTALLED UNDERGROUND IS DESIGNED TO DEFLECT UNDER LOAD.
  2. DO NOT COMPACT INNER BEDDING OF INITIAL BEDDING LAYER.
  3. CAREFULLY EXCAVATE BELL OR COUPLING HOLES FROM THE INITIAL BEDDING LAYER.
  4. SHOVEL SLICE BEDDING MATERIAL IN THE HAUNCH AREA ALONG THE BOTTOM CIRCUMFERENCE OF THE PIPE TO CONSOLIDATE BEDDING AND UNIFORMLY SUPPORT THE PIPE BARREL.
  5. COMPACT INITIAL BACKFILL MATERIALS IN LIFTS NOT EXCEEDING 6 INCHES BY HAND TAMPING AROUND AND DIRECTLY ABOVE PIPE TO MINIMIZE VOIDS.
  6. DO NOT USE MECHANICAL COMPACTION EQUIPMENT DURING INITIAL BACKFILL OPERATIONS UNTIL MATERIAL HAS BEEN BROUGHT TO 12 INCHES ABOVE THE TOP OF PIPE BARREL.
  7. COMPACT SAND BACKFILL AND STANDARD TRENCHES OUTSIDE OF PIPE ZONE TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT IN LIFTS NOT EXCEEDING 12 INCHES.
  8. FOR MINIMUM TRENCH WIDTHS, REFER TO TABLE 2, MAXIMUM TRENCH WIDTH =  $D_0 + 2D_0$  UNLESS MINIMUM TRENCH WIDTH IS GREATER.
  9. IF THE PIPE IS LOCATED BENEATH THE GROUND WATER TABLE, THE PIPE ZONE SHALL BE WRAPPED IN A GEOTEXTILE SEPARATOR TO MINIMIZE MIGRATION OF SOIL INTO THE PIPE ZONE.

## WATER MAIN STANDARD DETAILS

| REVISION BLOCK        |     |      |          |
|-----------------------|-----|------|----------|
| Rev.                  | By: | Rev. | Date:    |
| 1                     | DL  | 1    | 01/01/14 |
| 2                     | DL  | 2    | 03/20/14 |
| 3                     | WRC | 3    | 02/14/18 |
| 4                     | WRC | 4    | 01/01/20 |
| ORIG. DATE: 01/01/01  |     |      |          |
| SCALE: NONE           |     |      |          |
| DESIGNED BY: WRC      |     |      |          |
| DRAWN BY: WRC Mapping |     |      |          |



ONE PUBLIC WORKS DRIVE, BLDG 95 WEST  
WATERFORD, MICHIGAN  
48326-1907

SHEET NO.:

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