ROCHESTER PUBLIC WORKS DEPARTMENT STANDARD SPECIFICATIONS BOOK	**TRANSMITTAL LETTER NO.:** (24-01) **DATED:** January 26, 2024
SUBJECT: Sewer Specifications S100, Watermain Specifications W200, Service Connections C150, Engineering Standards Detail Plates – Standard Detail Plate Index, 1-01M, 1-02K, 1-03L, 1-04K, 1-06F, 1-13G, 2-09N, 2-10M, 4-01I, 5-02B, 6-13D, 6-19E, 8-01C, 8-04A	

The Standards for Street and Utility Construction have been updated and are reinstated in their entirety at the City's web site for the Department of Public Works, Specifications and Standards section by selecting at the following address:

https://www.rochestermn.gov/government/departments/public-works/specifications-standards

INSTRUCTIONS:

1. Remove the following sections or subsections from the Specifications and Standards and remove the following Standard Detail Plates:

   Sewer Specifications S100 – S100.308 Televising

   Watermain Specifications W200 – W200.204 Ductile Iron Fittings and Specials, W200.207 Cutting in Sleeves, W200.208 Valve Boxes

   Service Connections C150 – C150.201.C Curb Stop and Box

   Engineering Standards – 1002.2.C.6 Vehicle Storage, 1002.6 Intersections, 1002.9 Typical Cross-Section, 1002.10 Curbing, 1002.13 Pavement Design, 1002.17 Location of Utilities, 1006.1.B Water, 1007.1.C.1 Pumping Stations, 1010.2 Definitions, 1014.7 Detailed Stage Inspections of Terms

   Detail Plates – Standard Detail Plate Index, 1-01M, 1-02K, 1-03L, 1-04K, 1-06F, 1-13G, 2-09N, 2-10M, 4-01I, 5-02B, 6-13D, 6-19E, 8-01C

2. Insert the following Sections and Subsections from the Specifications and Standards and insert the following Standard Detail Plates:

   Sewer Specifications S100 – S100.308 Televising

   Watermain Specifications W200 – W200.204 Ductile Iron Fittings and Specials, W200.207 Cutting in Sleeves, W200.208 Valve Boxes and Gate Valve Adaptor

   Service Connections C150 – C150.201.C Curb Stop and Box

   Engineering Standards – 1002.2.C.6 Vehicle Storage, 1002.6 Intersections, 1002.9 Typical Cross-Section, 1002.10 Curbing, 1002.13 Pavement Design, 1002.17 Location of Utilities, 1006.1.B Water, 1007.1.C.1 Pumping Stations, 1010.2 Definitions of Terms, 1014.7 Detailed Stage Inspections

   Detail Plates – Standard Detail Plate Index, 1-01N, 1-02L, 1-03M, 1-04L, 1-06G, 1-13H, 2-09O, 2-10N, 4-01J, 5-02C, 6-13E, 6-19F, 8-01D, 8-04A

   If you have any questions, please contact Amy Kreofsky (507) 328-2418 or akreofsky@rochestermn.gov

SPECIFICATION CHANGES MADE:

Sewer Specifications S100

Revise S100.308 Televising
The Contractor and Engineer shall notify the City to televise the lines. The city will televise **all sanitary sewer and storm sewer** lines regardless of visual inspection, leakage testing, or deflection testing prior to use. **Pipes must be flushed and clear of sediment prior to televising.**

Watermain Specifications W100

Revise W200.204 Ductile Iron Fittings and Specials

Ductile iron fittings and specials shall be of the single gasket push-on joint, the Mechanical Joint (M.J.), or ALPHA restrained joint (furnished by American Flow Control) type conforming to AWWA C153 and ANSI A-21.53 covering ductile iron compact fittings for 350 psi water pressure plus water hammer. The single gasket push-on joint and mechanical joint shall conform to ANSI A-21.11. Cement mortar lining will not be required unless otherwise stated in the Special Provisions. Bolts and nuts shall be Cor-Blue T-Bolts with matching nuts, **Fluorokote Fastener, or Xylan 1424 Series coated fasteners.**

Revise W200.207 Cutting in Sleeves

Cutting-in sleeves are not permitted. Only mechanical joint solid sleeves and mechanical joint by plain end dual purpose sleeves with retainer glands~~, or~~ ALPHA restraint couplings**, or Hy-Max Grip Couplings** shall be used for pipe cut-ins (one per cut-in). Stainless steel repair sleeves shall not be used for this application.

Revise W200.208 Valve Boxes and Gate Valve Adaptor

Valve boxes shall be the screw type, have a minimum inside shaft diameter of 5 1/4 inches, and have a cap with the word "WATER" plainly marked on top. In all respects the valve box shall be equal to Tyler 6860 Series.

The valve box assembly shall be furnished in such lengths of sections needed to satisfactorily complete the installation to the desired height without field cutting either the center or top section of the box.

All valve boxes shall be installed on the valve with the use of a properly sized gate valve adaptor as manufactured by Adaptor Inc. or an approved equal. A gate valve adaptor shall be shall be 1/4" steel with a UV polyurethane protective coating and a 3/4" rubber gasket, with polycoated wire ties attached.

Service Connections C150

Revise C150.201.C Curb Stop and Box

C. Curb Stop and Box

1. Curb stop valves shall be of the compression type fitting and shall be one of the following and specifically for the use with copper inlet and outlet service pipe. All curb stop valves shall be threaded and conform to the Minneapolis Pattern.

(a) Mueller H-15155, or Mueller B-25155.
(b) McDonald 6104-Q**, A.Y. McDonald Lead-Free Repair Cut-in Curb Stop Valve, Minneapolis Pattern, 1"x1" CTS McQuick Compression, 76104REPQ 1X10.50**.
(c) Ford B44-444MW (1 inch), Ford B44-666MQ (1-1/2 inch), Ford B44-777MQ (2 inch).

(d) Curb box shall be Mueller H-10300, McDonald 5614 or 5615, or equal, which can be extended from 72 inches to 84 inches in height and shall conform to the Minneapolis Pattern.

2. Where curb boxes are placed in paved areas, a curb box cover per Detail Plate 1-10 shall be installed.

Engineering Standards

Roadway Design

Revise 1002.2.C.6 Vehicle Storage

6. Vehicle Storage: The capacity of storage bays and auxiliary lanes for turning traffic shall be adequate to **store 95th percentile queues and** ensure turning traffic will not interfere with through traffic flows on any public street.

Revise 1002.6 Intersections

Streets shall intersect at an angle of 90 degrees for a minimum of 50 feet ~~from the roadway intersection~~ **measured from the point of tangency of the curb return.** In no case shall the angle be less than 70 degrees unless the Engineer submits a special intersection design for approval by the City Engineer. Intersections having more than four (4) corners are prohibited.

Proposed streets which intersect opposite sides of another street (either existing or proposed) shall be laid out to intersect directly opposite each other. The offset between intersections shall be a minimum of 200 feet measured from centerline to centerline on through street and as determined by the City Engineer on major streets.

Revise 1002.9 Typical Cross-Section

Cross-slope – desired 2% on driving lanes (maximum with variance request 3%), 2% to 5% on parking lanes, and 3% to 5% on boulevards with batterface curb and 5% to 7% with driveover curb.

A two (2) foot clear zone area shall be provided from the face of curb to the face of any obstruction.

Sidewalk shall be located (one) 1 foot from property line.

Bituminous roadways that are less than or equal to 32 feet from lip of curb to lip of curb should be paved in a maximum of two passes, resulting in one seam at the roadway centerline. Any additional passes, offset crowns, or other grade breaks shall be approved by the City Engineer.

Revise 1002.10 Curbing

All urban streets and alleys shall be constructed with concrete curb and gutter on both sides. Concrete alleys may be designed with an inverted crown in lieu of the curb and gutter.

Curb and gutter shall be design B624 in all commercial/industrial streets, all multi-family residential (more than two (2) families per dwelling unit), all streets centerline grade of 8% or steeper, all intersection radii, at drainage structures, and on residential streets that are platted as ‘Controlled Access’ (or similar restriction).

Minimum longitudinal slope on curbing is 0.4%. Minimum longitudinal slope on curbing for streets leading to a cul-de-sac is 0.5%. The minimum longitudinal slope on curbing for the radial portion of a cul-de-sac is 1%.

Four (4) inch driveover concrete curb and gutter will be permitted at one and two family residential areas where driveway locations have not been established and street grades are less than 8%.

Pedestrian ramps, conforming to current ADA and Mn/DOT requirements, shall be placed at all intersection corners.

Where sidewalk abuts curb, the curb shall be modified to include a sill on the back on which the walk will rest.

Expansion joints shall be placed at the ends of all curved sections, at the ends of the curved portions of street returns, at drainage structures and where abutting other concrete. The spacing of expansion joints shall not exceed 300 feet.

Where new concrete curb and gutter abuts existing concrete curb and gutter provide a tied joint. Drill and grout 2 - No. 4 x 18" long epoxy coated rebar a minimum of 3 inches from the edge of concrete. New saw cuts should be a minimum of 3' from an existing joint. If the 3' minimum cannot be maintained, place the saw cut over the existing joint.

Revise 1002.13 Pavement Design

All rigid and flexible pavements shall be designed in accordance with the procedures set forth in the Pavement Manual of the Minnesota Department of Transportation.

City Owner contracts, that include street pavements, shall include a Pavement Design Report prepared and signed by a licensed professional engineer. The report shall utilize the conclusions and recommendations of the Geotechnical Report.

The report must contain the following:

1. The purpose and goals of the report.
2. The Mn/DOT methodology used for the analysis.
3. Soils factor or R-value used. Recommended measures shall be provided for special conditions such as excess moisture or highly expansive soils.
4. Equivalent Single Axle Load Traffic Forecasting with volume and vehicle type distribution (6% trucks minimum) used for the recommendations. Indicate the source of the projections.
5. Consideration of pavement materials concrete and bit options.
6. 50-year pavement life, including maintenance preservation schedule for overlay, seal coat, or rehabilitation.
7. Summary of calculations containing layer thickness of pavement, aggregate base and granular subbase or geotextile fabric.

Unless otherwise directed by the City Engineer the minimum structural sections are as follows:

Flexible pavements include four (4) inches bituminous surfacing, eight (8) inches Aggregate Base, 12 inches Select Granular and Geotextile ~~**Type 5**~~ **Fabric.**

Rigid pavements include seven (7) inches concrete surfacing, five (5) inches Aggregate Base, 12 inches Select Granular and Geotextile ~~**Type 5**~~ **Fabric.**

Select Granular shall comply with Mn/DOT section 3149.2B Table 3149.2-1, line 4, Select Granular Material Modified 10 percent.

Geotextile Fabric should be chosen based on subgrade properties.

Geotextile	Soil Description	R-Value	CBR (USACE, 1992)	DPI (DCP) mm	Recommended Geotextile
Category 1	good dry medium strong soils	Greater than 20	Greater than 6	Less than 20	Non-Woven MnDOT Type 7
Category 2	Weak dry/damp soils	10-20	3-6	20-60	MnDOT Type 9
Category 3	Very Weak and/or wet soils	Less than 10	Less than 3	Greater than 60	As a minimum use MnDOT Type 10

Revise 1002.17 Location of Utilities

The general criteria for placement of utilities within the right of way is as follows:

Material	Horizontal Alignment	Vertical Depth
Sanitary Sewer*	Center of Street or, maximum 5.5 feet from center on curvilinear streets	6 feet over top
Watermain*	10 feet Clear and Parallel, north and east, to Sanitary sewers and 10 feet Clear and Parallel, south and west, to Storm sewers	7 feet over top
Storm Sewer*	5 feet – 10 feet Clear and Parallel, south and west, to Sanitary Sewer.	2 feet over top
Subsurface Edge Drain	Both sides of street behind curbs	3.5 feet over top
Electric Telephone Cable TV, Gas	Easement adjacent to R/W	3 feet

* Sanitary sewer, watermains, and storm sewer are generally to be kept within the paved street area. In no case shall the sewer or watermain be placed within 3 feet of the lip of gutter. Public sewer and watermains outside the public right of way are to be located in dedicated public easements. When narrow roadway width cannot accommodate alignment spacing, the storm sewer may be placed closer to the curb **or utilities may need to be run in dedicated utility easements.** Landscaping features should be kept outside utility easement areas in order to facilitate future utility maintenance activity.

Rochester Public Utilities (RPU) shall have the final decision as to whether any service pipe(s) shall be connected at any proposed location.

A plumbing permit is required for any utility manhole structure located within 10 feet of a building.

Revise 1006.1.B Water

B. Water

Small water services are to be one (1) inch, one and one half (1-1/2) inch or two (2) inch inside diameters only. For common trench installation a vertical separation of 12 inch (minimum) is required. Water services are to be sized to provide the design flow rate while maintaining a minimum **15** ~~**20**~~ psi residual pressure at the last plumbing or process fixture connected to the service line. Rochester Public Utilities will provide static pressure and fire flow capacity information from a water distribution system computer model as an aid to water service line, interior plumbing, and fire sprinkler system designers. Designers are to anticipate water meter and required backflow preventer head losses in sizing water services.

If a water service is sized to serve a fire sprinkler system and domestic water consumption is anticipated to be small, construction of a separate small water service to provide for the domestic water service needs is recommended.

Domestic water usage must be enough to be able to turn-over the water within the combined water service pipe within 24 hours to avoid water quality issues.

Revise 1007.1.C.1 (Pumping Stations)

C. Pumps shall be submersible solids handling pumps designed for raw sewerage service.

1. Manufacturers shall be Flygt, KSB, **Sulzer,** or approved equal.
2. Pumps shall have non clog type impellers and be capable of passing at minimum a 3 inch solid.
3. Lift Station shall have one (1) duty, one (1) standby pump and each pump shall be designed to independently handle future peak wet weather flow.
4. A guiderail system shall be used to allow easy pump removal from service without requiring physical entry into the wet well by maintenance personal. Lockable service access hatch covers shall be provided to allow pump removal without removal of wet well top.

Tree Planting, Preservation, and Protection

Add 1010.2.E Definitions of Terms

E. Structural Soils:

Special soil mixture used in tree planting pits as indicated on SDP 5-02. Structural soil is required in the Central Business District. Soil mixture should consistent of crushed rock, topsoil, soil binder and water.

Material	***Amount for 1 CY of Structural Soil***
Crushed Rock	**23.2 cubic feet**
(Gradation 100 % passing 1.25 inch, maximum 30% passing 0.75 inch)	
Loam/Organic Topsoil	**5.9 cubic feet**
Soil Binder (such as "Stabilizer")	**13.7 oz**
Water	**1.6 gallon**

Proportions of Materials:

The major components of the structural soil mixture are crushed rock and topsoil. Since when mixed together some of the topsoil fills in the voids of the crushed rock material, the sum of the rock and topsoil

volumes does not equal the volume of the structural soil material. There is approximately a ten percent (10%) volume reduction due to mixing the materials together.
The target moisture content is twenty percent (20%) by weight of the topsoil weight. The above water contents assume the top is dry. The amount of water that will need to be added will be dependent on the moisture content of the raw materials. Actual amounts of water used will be determined during mixing.
Structural Soils Mixing:

1. **Mix structural soil in batches of an appropriate size for the equipment being used. The end result is to be a material that is uniformly blended together. The end result is to be a material that is uniformly blended together. Do not batch in quantities that will not allow the equipment to completely mix the material. Determine batch size and quantities of each material needed for the batch.**
2. **Start with half of the crushed rock material.**
3. **Add all of the topsoil material.**
4. **Add the soil binder.**
5. **Add half of the estimated water.**
6. **Add the other half of the crushed rock material.**
7. **Mix the material together.**
8. **Slowly add water to the mixture and continue to mix. The final amount of water will vary with moisture content of the crushed rock and topsoil. Add water in incremental amounts and mix the material between the additions of water.**
9. **Stop adding water and mixing when there is a minute amount of free topsoil remaining. The topsoil will coat the crushed rock and not fall out of the material. All of the crushed rock should be uniformly coated with topsoil. There should be no clumps of topsoil or uncovered crushed rock in the mixture.**
10. **If too much water is added to the mixture water will drain out of the material and the topsoil will wash off of the crushed rock. If this occurs this batch of material is to be discarded and shall not be incorporated into the completed work.**

Soil Placement:

1. **Protect soils and mixes from absorbing excess water and from erosion at all times. Do not store materials unprotected from rainfall events. Do not allow excess water to enter site prior to compaction. If water is introduced into the material after grading, allow material to drain or aerate to optimum compaction moisture content.**
2. **All areas to receive structural soil mixture shall be inspected by the city before starting placement of mixture. All defects such as incorrect grading, compaction, and inadequate drainage, etc. shall be corrected prior to beginning placement of structural soil.**
3. **Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope parallel to the finished grade. Clear the excavation of all construction debris, trash, rubble, and foreign material. Fill any over-excavation with approved fill and compact to the required subgrade compaction.**
4. **Install structural soil in 6-inch lifts and spread uniformly over the area. Delay placement 24 hours if moisture content exceeds maximum allowable and protect structural soil with plastic or plywood during delay.**
5. **Bring structural soils to finished grades as shown in the plan detail. Immediately protect the structural soil material from contamination by water by covering with plastic or plywood.**
6. **The contractor shall refer to the tree planting detail for depth and volume of structural soils at tree planting locations.**

Revise 1014.7 Detailed Stage Inspections

The Engineer shall notify the City Engineer 48 hours prior to "stage inspections." The inspections will be performed in the presence of the Contractor, the project Consulting Engineer, and Public Works Department personnel. Inspections shall be performed at the following construction stages, unless otherwise indicated in the Contract. Submit the required material test reports to the City Engineer prior to or at the respective "stage inspection." Any areas failing the stage inspection must be corrected and re-tested for compliance prior to re-inspection.

1. Subgrade Preparation. Visual inspection of soils and conditions. Test rolling – one pass of a 7 ton per axle vehicle in each travel lane and parking lanes; one wheel shall be within the curb section during the parking lane pass. Prior to the inspection, submit test results to the City Engineer for utility trench compaction, embankment compaction, and subgrade compaction.

2. Aggregate Base. Test roll according to Mn/DOT 2111. Prior to the inspection, submit test results for aggregate quality, aggregate gradation, and aggregate compaction. Submit bituminous trial mix design to the City Engineer prior to paving.

Yield calculations are required for aggregate base. Use 135 pounds per cubic foot for aggregate base. Calculations must be submitted to Public Works prior to placing bituminous base.

3. Prior to Paving. Visual inspection or survey verification that catch basins and other underground utilities are placed in the correct location such that castings are within City of Rochester's allowed horizontal and vertical tolerances. All necessary adjustments should be completed prior to paving.

4. Bituminous Base and Concrete Curb & Gutter. Visual inspection for settling and cracking. Prior to the inspection, submit test results for concrete tests of the curb, bituminous mix design (prior to paving), aggregate quality, and compaction.

Bituminous pavement material shall be tested in accordance with the Mn/DOT Schedule of Materials Control. Except, bituminous pavement shall be cored for all projects with bituminous quantities exceeding 100 tons

5. Grading. Visual inspection of site grading, consistent with provisions of City of Rochester Code of Ordinances, Section 4-1-3. - Additional provisions. Prior to inspection submit lot elevations at property corners for Public Works review of vertical and horizontal elevations.

The City's approval of various stages of the project work shall not constitute an acceptance of the work or the project, and the contractor shall be liable for defects due to faulty construction until the entire work under the Contract or City-Owner Contract is finally accepted by the City as stipulated in the Contract or City-Owner Contract. The Engineer / Inspector shall document all inspections. These documents shall be made available to Public Works upon request.

DETAIL PLATE CHANGES MADE 2024:

1-01N *Updated "NOTE 2" to change "ADJUSTING RINGS" to "CONCRETE ADJUSTING RINGS"*

1-02L Page 1 *Updated "NOTE 3" to change "ADJUSTING RINGS" to "HDPE ADJUSTING RINGS"*

1-02L Page 2 *Updated "NOTE 3" to change "ADJUSTING RINGS" to "HDPE ADJUSTING RINGS"*

1-03M *Updated "NOTE 3" to change "ADJUSTING RINGS" to "HDPE ADJUSTING RINGS"*

1-04L Page 1 *Updated "NOTE 4" to change "ADJUSTING RINGS" to "HDPE ADJUSTING RINGS"*

1-04L Page 2 *Updated revision letter only*

1-06G *Updated "NOTE 4" to change "ADJUSTING RINGS" to "HDPE ADJUSTING RINGS", removed adjusting ring description below node "4" in side elevation detail*

1-13H Page 1 *Updated "NOTE 1" to change from 2" minimum and 8" maximum to 2" minimum and 9" maximum and added standards for reconstructing inplace structures*

1-13H Page 2 *Changed plate title to "HIGH DENSITY POLYETHYLENE (HDPE) ADJUSTING RINGS", added "NOTE 3"*

2-09O *Updated to reflect pedestrian curb ramps to include concrete landing and 1:12 max ramp*

2-10N Page 1 *Revised construction note numbers, updated "NOTE 1" to reflect Mn/DOT changes to expansion materials, updated "NOTE 7" to clarify ASTM #67 requirements*

2-10N Page 2 *Added "JOINT E" to Section A-A behind curb and gutter for redundancy*

2-10N Page 3 *Removed "EXPANSION JOINT "BLDG"" detail, changed "JOINT FILLER" to "TYPE A-E EXPANSION" in "EXPANSION JOINT "E"" detail, changed saw-cut dimension in "CONTRACTRION JOINT "C"" from 3/16" to 1/8", updated "NOTE 4" to reflect Mn/DOT changes to expansion materials*

4-01J Page 1 *Added dimension and "NOTE 10" to call out ending subsurface edge drain service line 3' past property line*

4-01J Page 2 *Added dimension to call out ending subsurface edge drain service line 3' past property line, changed subsurface edge drain service to show gravity flow from end of service*

4-01J Page 3 *Added dimension to call out ending subsurface edge drain service line 3' past property line, changed subsurface edge drain service to show gravity flow from end of service*

5-02C *Updated "NOTE 2" to reference Engineering Standards, added dimensions and subsurface edge drain to detail*

6-13E *Added "LOT LINE" label to all lines in detail, added note "OUTLOT OR A RECORDED PRIVATE UTILITY EASEMENT" to detail, updated notes and numbered*

6-19F *Updated "NOTE 1" to include AASHTO M 230 and insulation board specifications*

6-19F *Updated "NOTE 1" to include AASHTO M 230 and insulation board specifications*

8-01D Page 1 *Updated "STALL DIMENSIONS (SD)" table, updated "AISLE WIDTH" table*

8-01D Page 2 *Updated "STALL DIMENSIONS (SD)" table, updated "AISLE WIDTH" table*

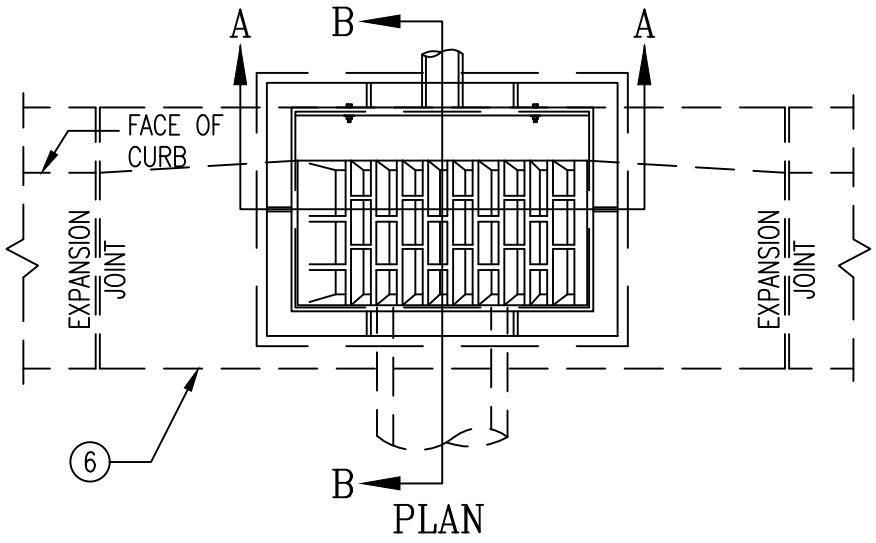
8-01D Page 3 *Updated "STALL DIMENSIONS (SD)" table, updated "AISLE WIDTH" table*

8-01D Page 4 *Updated "STALL DIMENSIONS (SD)" table, updated "AISLE WIDTH" table*

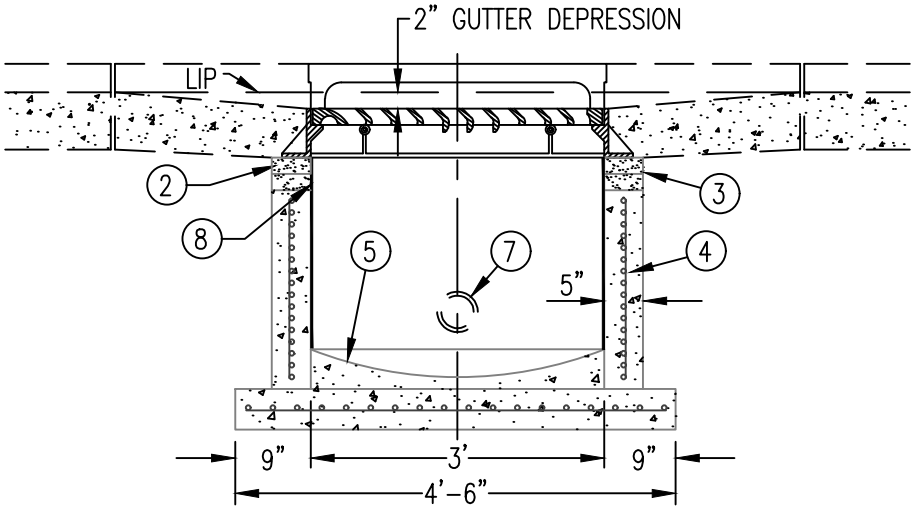
8-01D Page 5 *Updated "STALL DIMENSIONS (SD)" table, updated "AISLE WIDTH" table*

8-04A Page 1 *New detail plate*

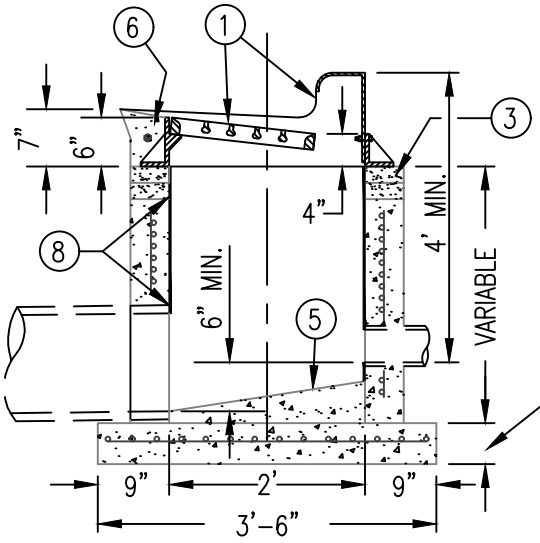
8-04A Page 2 *New detail plate*



PLAN



SECTION A–A



SECTION B–B

NOTES

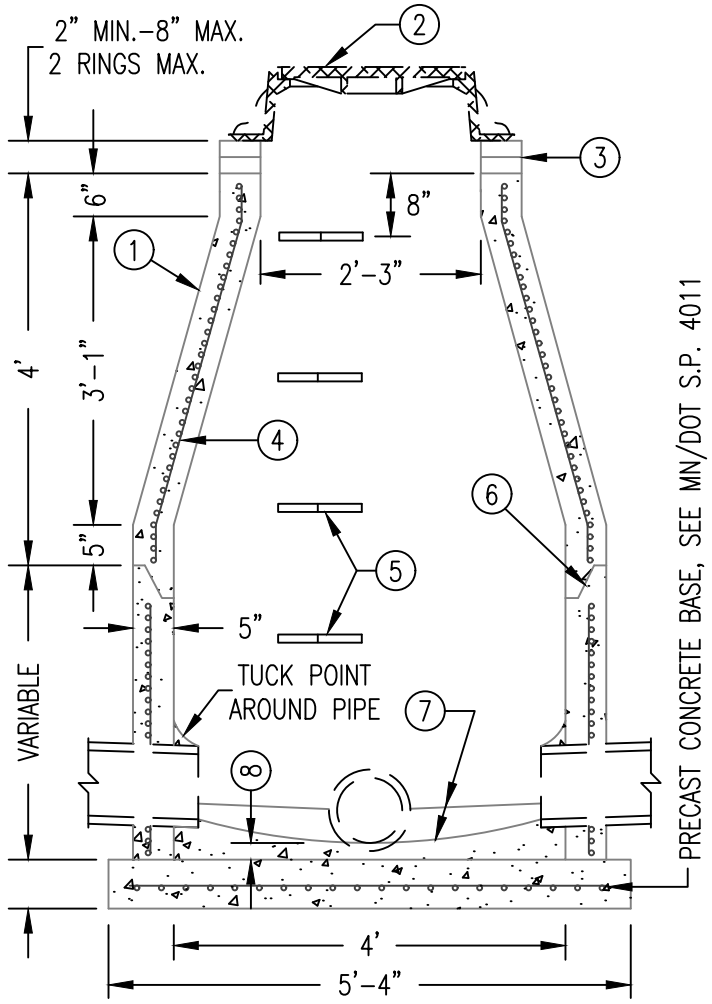
1. REFER TO PLANS AND S.D.P. 1–11 & 1–12 FOR TYPE OF FRAME, GRATE AND CURB BOX.
2. CONCRETE ADJUSTING RINGS SHALL BE PER S.D.P. 1–13, AND FULLY MORTARED.
3. IF THE HORIZONTAL ALIGNMENT IS OFFSET BY MORE THAN 2", IN ANY DIRECTION, THE STRUCTURE SHALL BE REALIGNED AS AN INCIDENTAL EXPENSE.
4. REINFORCING SHALL BE A MINIMUM OF SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
5. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF STRUCTURE AND TO DIRECT THE FLOW TO OUTLET AT MINIMUM SLOPE OF 1/4" PER FOOT. MINIMUM CONCRETE THICKNESS AT OUTLET 1 1/2".
6. SEE S.D.P. 2–01, 2–05 AND 2–06 FOR CURB, GUTTER AND REINFORCEMENT DETAILS AT CATCH BASINS.
7. SEE S.D.P. 1–08 FOR SUBDRAIN DETAILS AT CATCH BASINS.
8. A PROTECTIVE COATING SHALL BE APPLIED TO ALL MORTARED JOINTS AROUND PIPE AND CONCRETE ADJUSTING RINGS WITH A 4" OVERLAP ON PRECAST. ALL GROUTING AND CLEANUP SHALL BE DONE PRIOR TO COATING.
9. NO STEPS REQUIRED.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

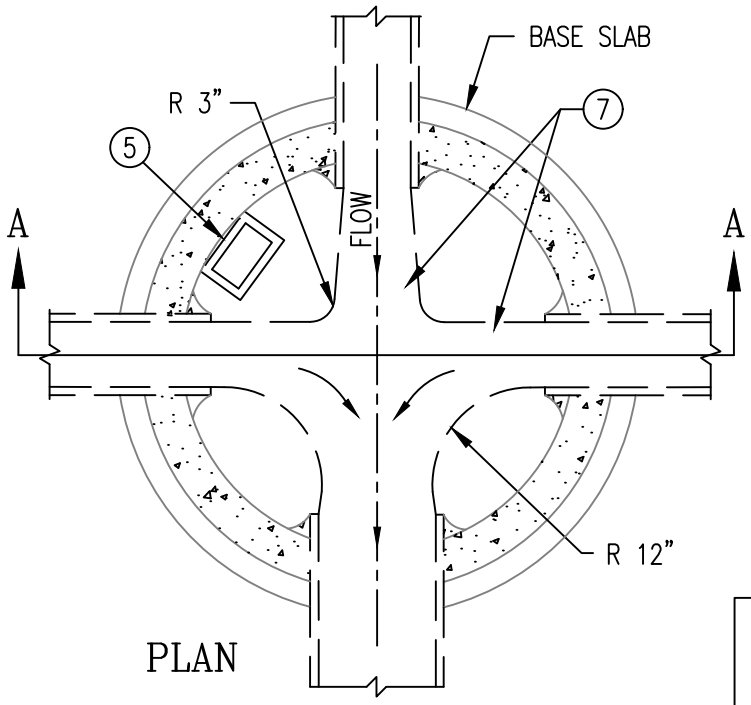
STRUCTURE TYPE 1

CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–01	REV. N



SECTION A–A



PLAN

NOTES

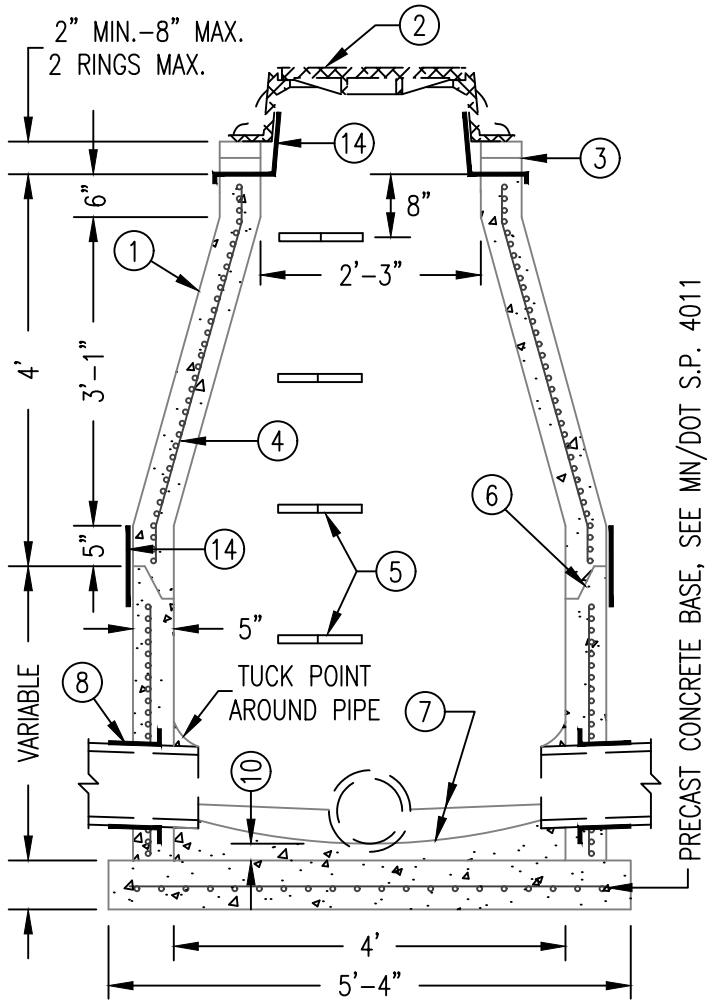
1. CONE SHALL BE CONCENTRIC. REFER TO MN/DOT S.P. 4005.
2. REFER TO PLANS AND S.D.P. 1–11 AND 1–12 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN NON–PAVED AREAS.
3. HDPE ADJUSTING RINGS SHALL BE PER S.D.P. 1–13.
4. REINFORCING SHALL BE A MIN. OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
5. STEPS ARE SPACED 16" O.C. MAXIMUM AND SHALL CONFORM TO MN/DOT S.P. 4180. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE AS SHOWN.
6. ALL JOINTS TO BE GASKETED. REFER TO MN/DOT SPEC. 3726.
7. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MINIMUM SLOPE. SHAPE CHANNELS TO HAVE SMOOTH ROUND INVERTS. DEPTH OF CHANNELS SHALL NOT BE LESS THAN 1/2 THE PIPE SIZE.
8. MINIMUM CONCRETE THICKNESS AT LOWEST INVERT SHALL BE 1 1/2".
9. MAXIMUM PIPE SIZE:
   24" FOR STRAIGHT THRU TO 135°
   18" FOR 90° BEND
10. FOR INLET STRUCTURES IN PAVED AREAS, A PROTECTIVE COATING SHALL BE APPLIED TO ALL MORTARED JOINTS AROUND PIPE.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

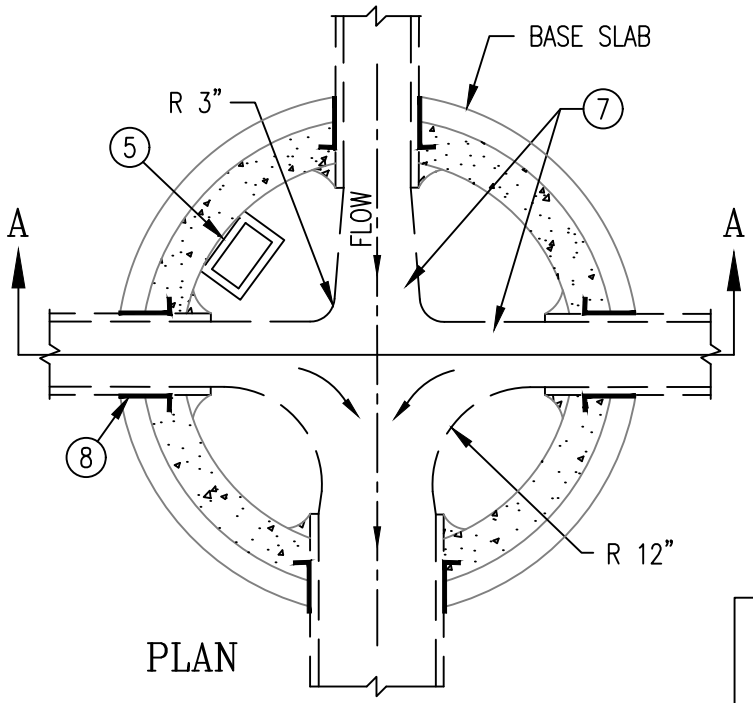
STRUCTURE TYPE 2
(STORM SEWER)

CITY ENGINEER

SHT 1 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–02	REV. L



SECTION A–A



PLAN

(14) SEE S.D.P. 1–07 FOR MANHOLE WATERPROOFING.

NOTES

(1) CONE SHALL BE CONCENTRIC. REFER TO MN/DOT S.P. 4005.

(2) REFER TO PLANS AND S.D.P. 1–11 AND 1–12 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO STRUCTURE IN NON–PAVED AREAS.

(3) HDPE ADJUSTING RINGS SHALL BE PER S.D.P. 1–13.

(4) REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.

(5) STEPS ARE SPACED 16" O.C. MAXIMUM AND SHALL CONFORM TO MN/DOT S.P. 4180. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE AS SHOWN.

(6) ALL JOINTS TO BE GASKETED. REFER TO MN/DOT SPEC. 3726.

(7) PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MINIMUM SLOPE. SHAPE CHANNELS TO HAVE SMOOTH ROUND INVERTS. DEPTH OF CHANNELS SHALL NOT BE LESS THAN 1/2 THE PIPE SIZE.

(8) FOR WATER TIGHT SEAL REFER TO MN/DOT S.P. 4007.

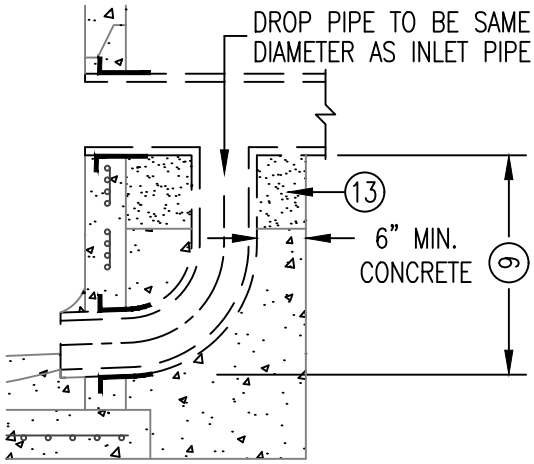
(9) DROP INLET USED FOR SAN. SEWER DROPS GREATER THAN 1.0 FT.

(10) MINIMUM CONCRETE THICKNESS AT LOWEST INVERT SHALL BE 1 1/2".

11. STRUCTURE TYPE 3 OR 3A REQUIRED FOR NEW SANITARY SEWER CONSTRUCTION.

12. MAXIMUM PIPE SIZE:
    24" FOR STRAIGHT THRU TO 135°
    18" FOR 90° BEND

(13) DROP PIPE TO BE ENCASED IN GROUT IF FLEXIBLE PIPE, OR GRANULAR ENCASEMENT IF RIGID PIPE IS USED. USE ENCASEMENT BLOCK AS REQUIRED.



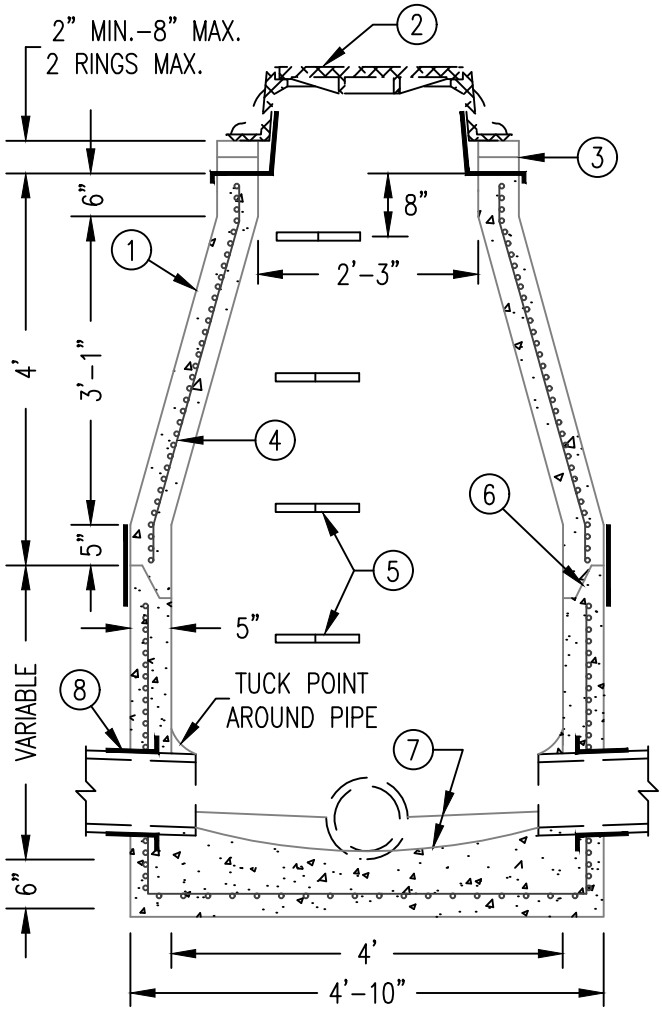
TYPE 2A FOR DROP–INLET

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

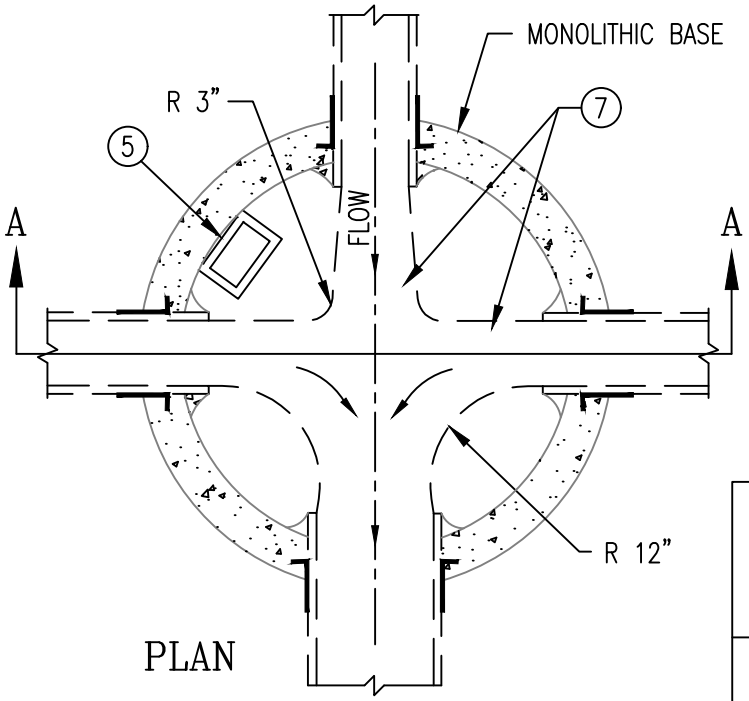
STRUCTURE TYPES 2 AND 2A (SANITARY SEWER)

CITY ENGINEER

SHT 2 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–02	REV. L



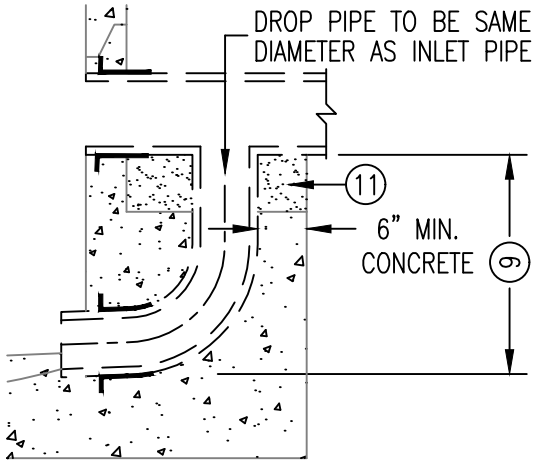
SECTION A–A



PLAN

NOTES

1. CONE SHALL BE CONCENTRIC. REFER TO MN/DOT S.P. 4005.
2. REFER TO PLANS AND S.D.P. 1–11 AND 1–12 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN NON–PAVED AREAS.
3. HDPE ADJUSTING RINGS SHALL BE PER S.D.P. 1–13, AND WATERPROOFING PER S.D.P. 1–07.
4. REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
5. STEPS ARE SPACED 16" O.C. MAXIMUM AND SHALL CONFORM TO MN/DOT S.P. 4180. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE AS SHOWN.
6. ALL JOINTS TO BE GASKETED. REFER TO MN/DOT SPEC. 3726.
7. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MINIMUM SLOPE. SHAPE CHANNELS TO HAVE SMOOTH ROUND INVERTS. DEPTH OF CHANNELS SHALL NOT BE LESS THAN 1/2 THE PIPE SIZE.
8. FOR WATER TIGHT SEAL REFER TO MN/DOT S.P. 4007.
9. DROP INLET USED FOR SANITARY SEWER DROPS GREATER THAN 1.0 FT.
10. MAXIMUM PIPE SIZE:
    24" FOR STRAIGHT THRU TO 135°
    18" FOR 90° BEND
11. DROP PIPE TO BE ENCASED IN GROUT IF FLEXIBLE PIPE, OR GRANULAR ENCASEMENT IF RIGID PIPE IS USED. USE ENCASEMENT BLOCK AS REQUIRED.



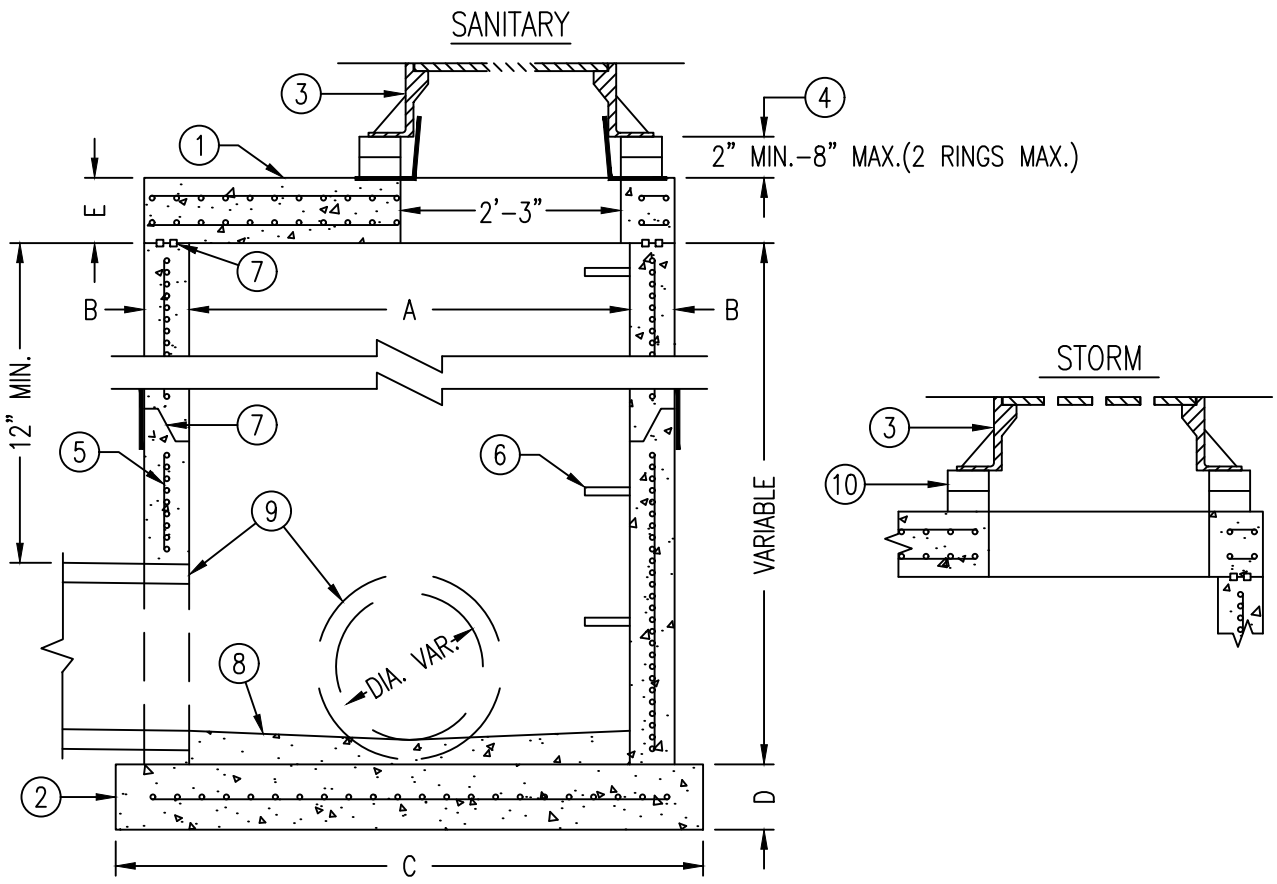
TYPE 3A FOR DROP–INLET

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPES 3 AND 3A (SANITARY SEWER)

CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–03	REV. M



NOTES

1. MANHOLE COVER SHALL CONFORM TO MN/DOT S.P. 4020.
2. MANHOLE BASE SHALL CONFORM TO MN/DOT S.P. 4011.
3. REFER TO PLANS AND S.D.P. 1-11 AND 1-12 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN NON-PAVED AREAS.
4. HDPE ADJUSTING RINGS SHALL BE PER S.D.P. 1-13, AND WATERPROOFING FOR SANITARY MANHOLES PER S.D.P. 1-07.
5. REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
6. STEPS ARE SPACED AT 16" O.C. MAXIMUM AND SHALL CONFORM TO MN/DOT S.P. 4180. STEPS SHALL BE ORIENTED ON THE UPSTREAM LEFT SIDE.
7. ALL JOINTS TO BE GASKETED, WITH 2 ROWS AT TOP SLAB. REFER TO MN/DOT SPEC. 3726.
8. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET AT 1/4" PER FT. MINIMUM SLOPE. MINIMUM CONCRETE THICKNESS AT LOWEST INVERT SHALL BE 1 1/2".
9. WATERTIGHT SEAL PER MN/DOT S.P. 4007. REQUIRED FOR SANITARY SEWER USE.
10. FOR STORM SEWER MANHOLE CATCH BASINS - A PROTECTIVE COATING SHALL BE APPLIED TO ALL MORTARED JOINTS AROUND PIPE AND CONCRETE ADJUSTING RINGS WITH A 4" OVERLAP ON PRECAST. ALL GROUTING AND CLEANUP SHALL BE DONE PRIOR TO COATING.

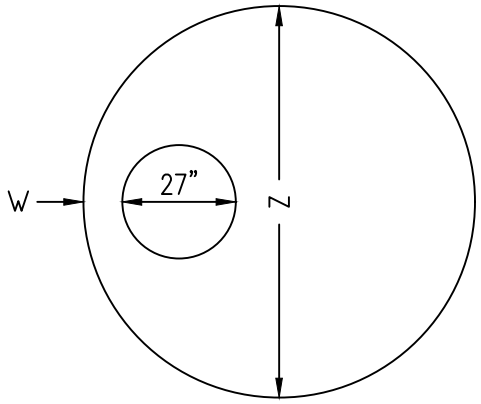
SEE SHEET 2 FOR MANHOLE DIMENSIONS

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

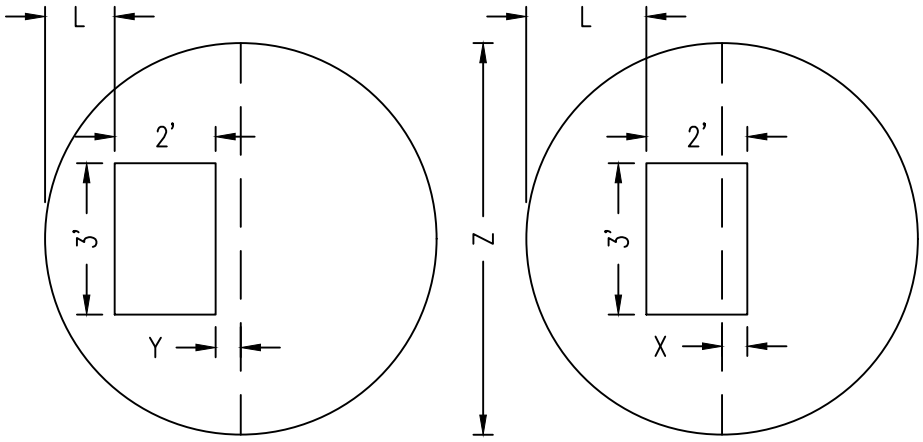
STRUCTURE TYPE 4 (XX in.)

Dillon S. Dahl
CITY ENGINEER

SHT 1 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 1-04	REV. L



MANHOLE TOP SLAB



ALTERNATE TOP
SLAB FOR MANHOLE

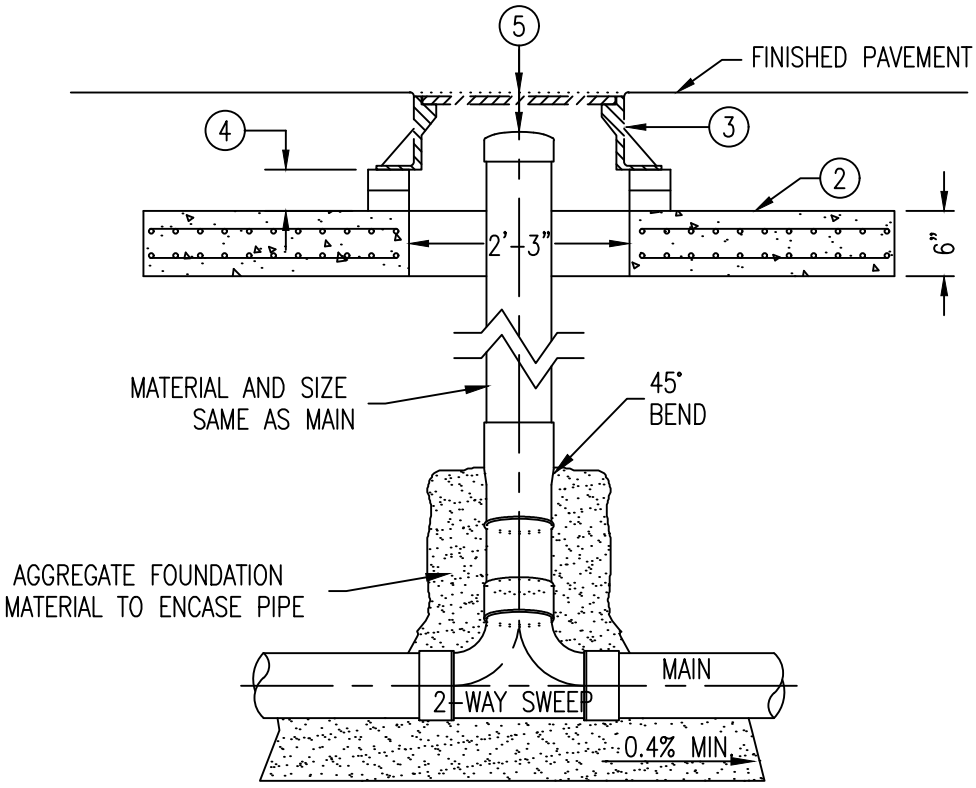
MANHOLE TOP SLAB					MANHOLE DIMENSIONS					MAXIMUM PIPE SIZE	
L	W	X	Y	Z	A	B	C	D	E	135°–180°	90°
14"	6"	9"	–	58"	48"	5"	64"	6"	6"	27"	18"
14.5"	6"	6"	–	65"	54"	5.5"	72"	8"	8"	33"	21"
15"	7"	3"	–	72"	60"	6"	78"	8"	8"	36"	24"
15.5"	7"	0"	–	79"	66"	6.5"	85"	8"	8"	42"	30"
16"	8"	–	3"	86"	72"	7"	92"	8"	8"	42"	33"
16.5"	8"	–	6"	93"	78"	7.5"	100"	8"	8"	48"	36"
17"	9"	–	9"	100"	84"	8"	106"	8"	8"	54"	42"
17.5"	9"	–	12"	107"	90"	8.5"	114"	8"	8"	60"	42"
18"	9"	–	15"	114"	96"	9"	120"	8"	8"	60"	42"
18.5"	9"	–	18"	121"	102"	9.5"	127"	8"	8"	60"	48"
18"	10"	–	21"	126"	108"	10"	132"	9"	12"	60"	54"
22"	11"	–	24"	140"	120"	10"	146"	12"	12"	60"	60"

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

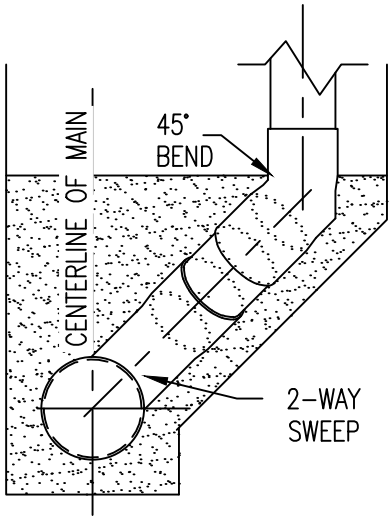
STRUCTURE TYPE 4 (XX in.) MANHOLE DIMENSIONS

Dillon S. Dahl
CITY ENGINEER

SHT 2 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–04	REV. L



SIDE ELEVATION



END ELEVATION

NOTES

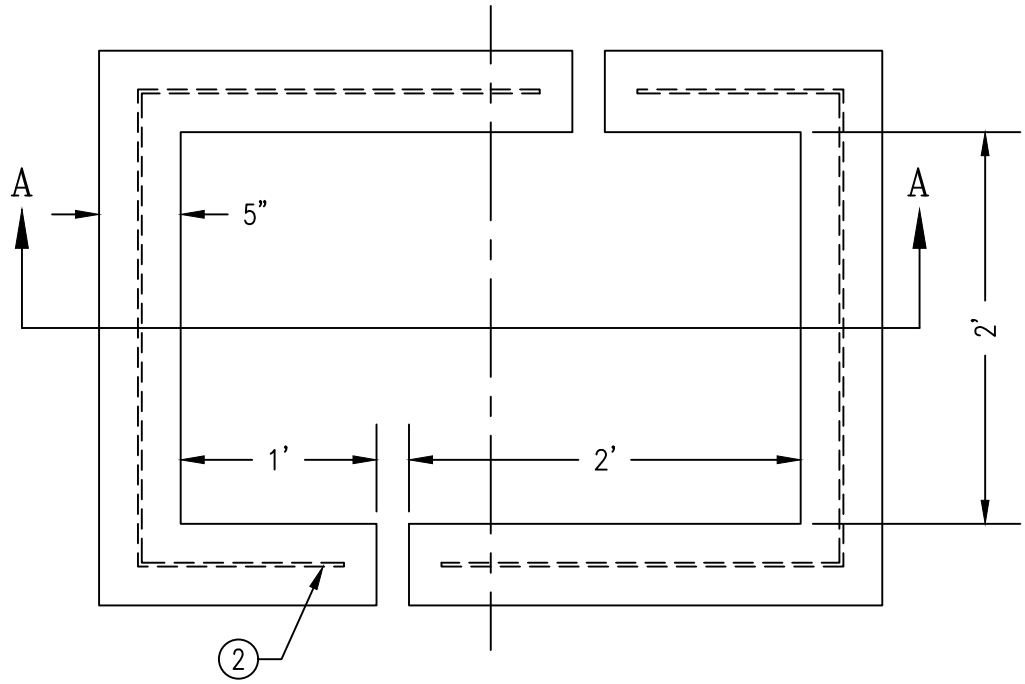
1. 48" STRUCTURE SHALL BE USED WHENEVER THE CLEANOUT FALLS INTO PAVEMENT AREAS.
2. MANHOLE COVER SHALL CONFORM TO MN/DOT S.P. 4020.
3. REFER TO PLANS AND S.D.P. 1-11 AND 1-12 FOR CASTING REQUIRED. CASTING SHALL BE BOLTED TO CONCRETE IN FIELD APPLICATIONS.
4. HDPE ADJUSTING RINGS SHALL BE PER S.D.P. 1-13, AND BE FULLY MORTARED.
5. CLEANOUT CAP IS TO BE A MINIMUM OF 4" AND A MAXIMUM OF 6" BELOW THE FINISHED PAVEMENT GRADE.
6. SET TOP OF RING CASTING TO 1/2" BELOW THE FINISHED PAVEMENT.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

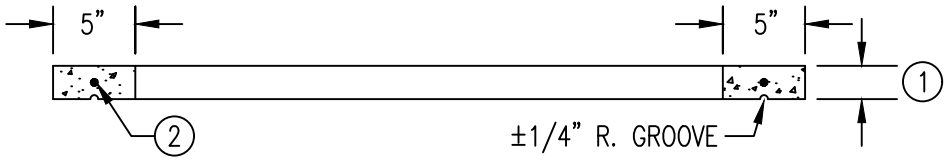
STRUCTURE TYPE 6 (CLEANOUT)

CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 1-06	REV. G



PLAN



SECTION A–A

NOTES

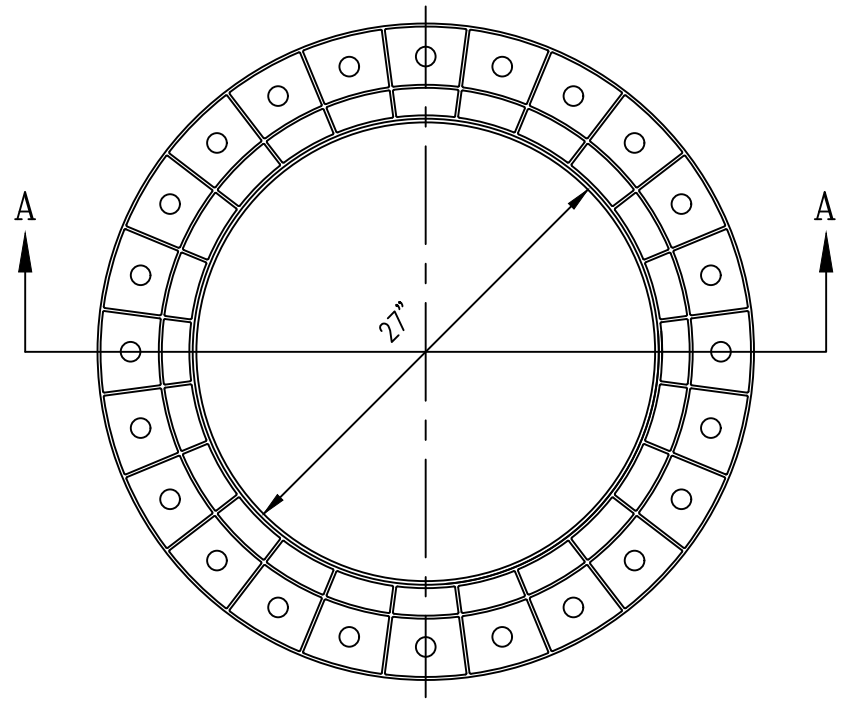
1. VARIABLE THICKNESS OF 2" MINIMUM AND 9" MAXIMUM ON NEW DRAINAGE STRUCTURES AND 12" MAXIMUM WITH 3 RINGS FOR RECONSTRUCTING INPLACE STRUCTURES
2. REINFORCEMENT SHALL BE A SINGLE HOOP OF #8 GAGE STEEL WIRE
3. SEE MN/DOT S.P. 4010

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

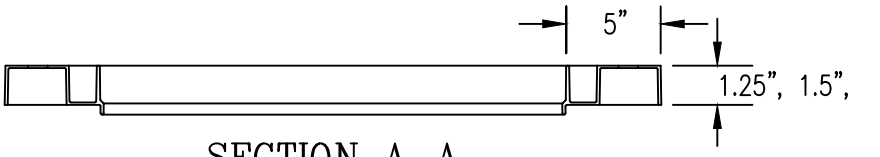
CONCRETE STRUCTURE ADJUSTING RINGS

CITY ENGINEER

SHT 1 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–13	REV. H



PLAN



SECTION A–A
FLAT

SECTION A–A
SLOPED

NOTES

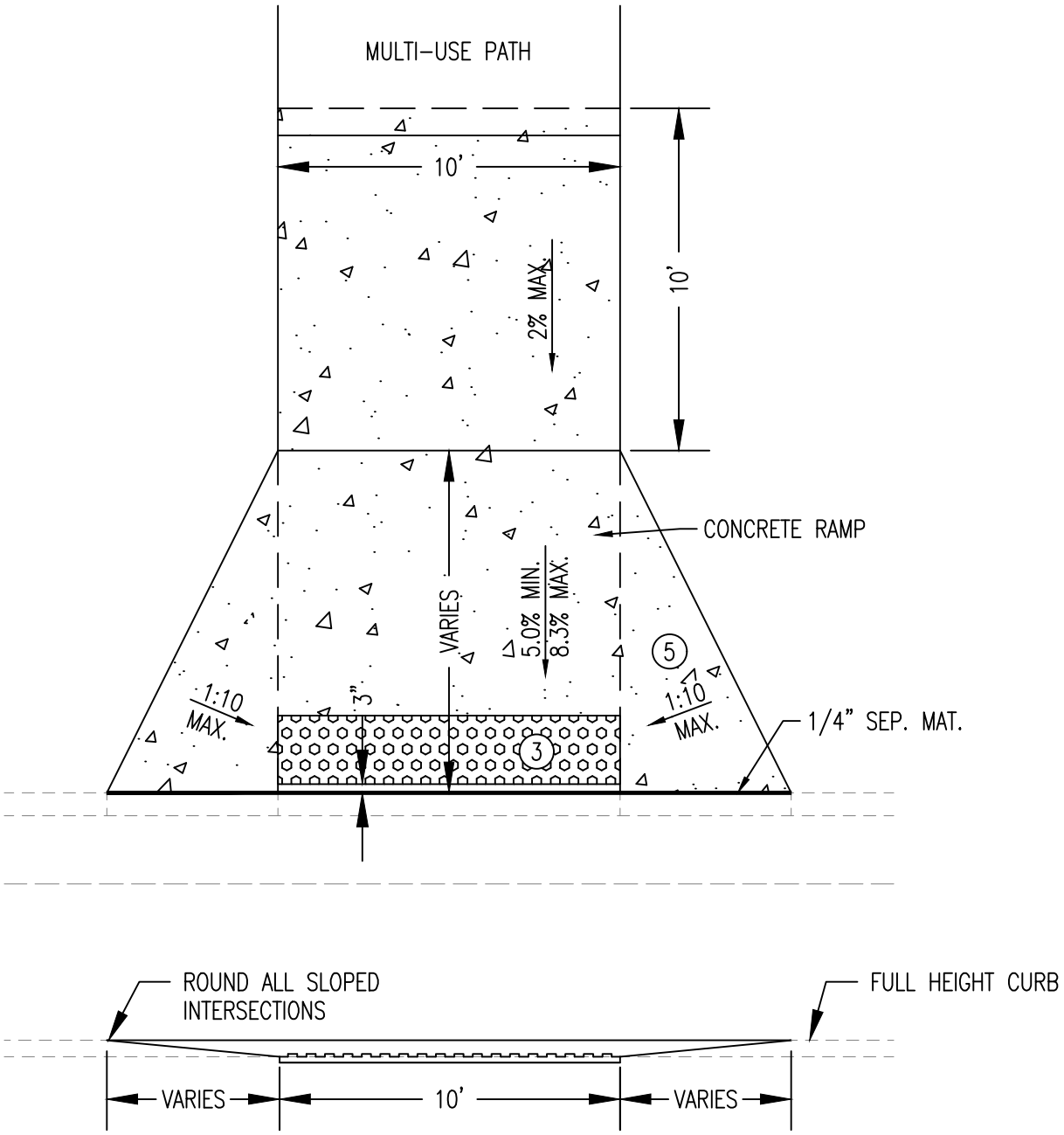
1. RING SHALL BE MOLDED FROM HIGH DENSITY POLYETHYLENE MATERIAL AS DEFINED IN ASTM D4976.
2. USE SLOPED RINGS TO MATCH GRADE ANGLE.
3. VARIABLE THICKNESS OF AT LEAST 2 AND NOT MORE THAN 6 STANDARD 2" RINGS ON NEW AND RECONSTRUCTION OF INPLACE DRAINAGE STRUCTURES

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

HIGH DENSITY POLYETHYLENE (HDPE) ADJUSTING RINGS

CITY ENGINEER

SHT 2 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 1–13	REV. H



NOTES

1. DETAIL COMPLIES WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.
2. SEE MN/DOT STANDARD PLAN 5-297.250 PEDESTRIAN CURB RAMP DETAILS

(3) IF RAMP IS PAID BY SQ. FT. THEN DETECTABLE WARNING AREA IS PAID IN ADDITION TO RAMP AREA.

4. RAMP THICKNESS IS TO BE MINIMUM 6" CONCRETE- MN/DOT SPEC. MIX 3F52 WITH A MINIMUM OF 4" AGGREGATE BASE (INCIDENTAL).

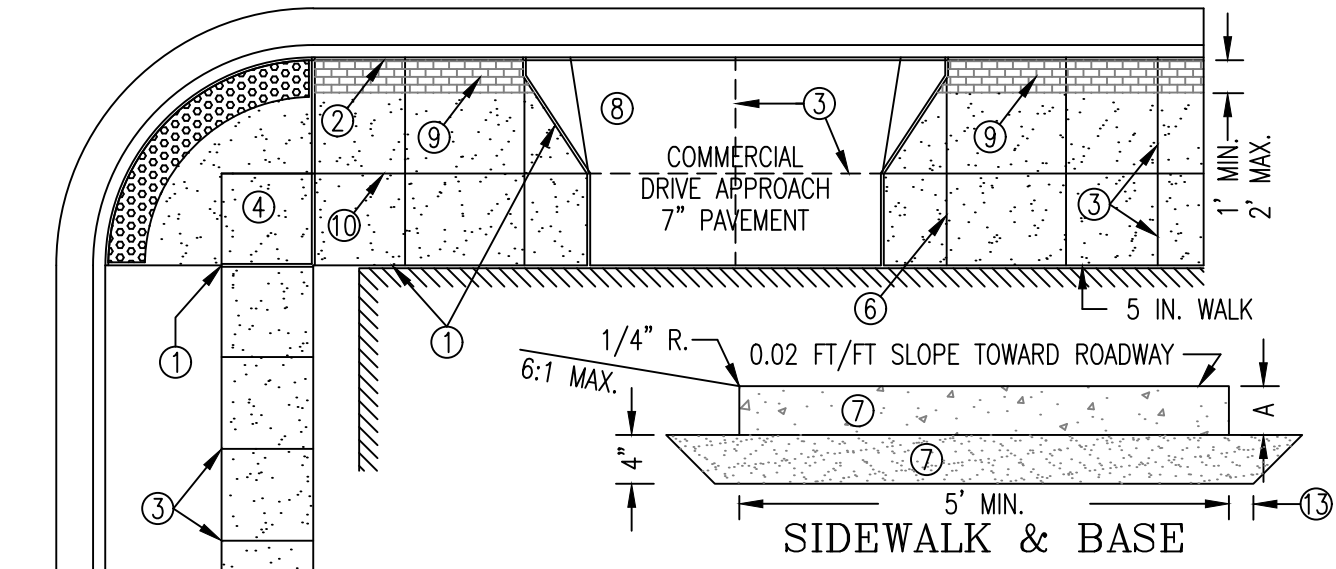
(5) CONSTRUCT WINGS IN WALKABLE SURFACE AREAS.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

MULTI-USE PATH CURB RAMP

CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED	PLATE NO.	REV.
	1/26/24	2-09	0

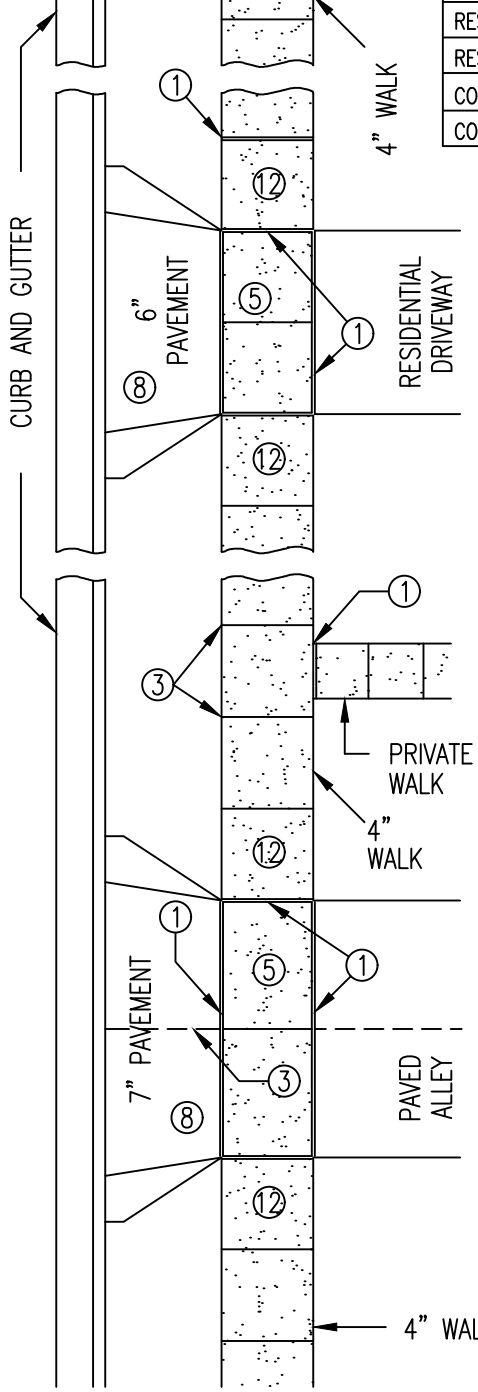


SIDEWALK & BASE

TYPE OF SIDEWALK	A
RESIDENTIAL	4"
RESIDENTIAL THRU DRIVE, PED. RAMPS	6"
COMM., IND., R-4	5"
COMM., IND., ALLEY, R-4 THRU DRIVE	7"

ASTM #67* GRADATION	% PASSING
1 INCH	100
3/4 INCH	90-100
3/8 INCH	20-55
NO. 4	0-10

*GRADATION IS MN/DOT MODIFIED



CONSTRUCTION NOTES

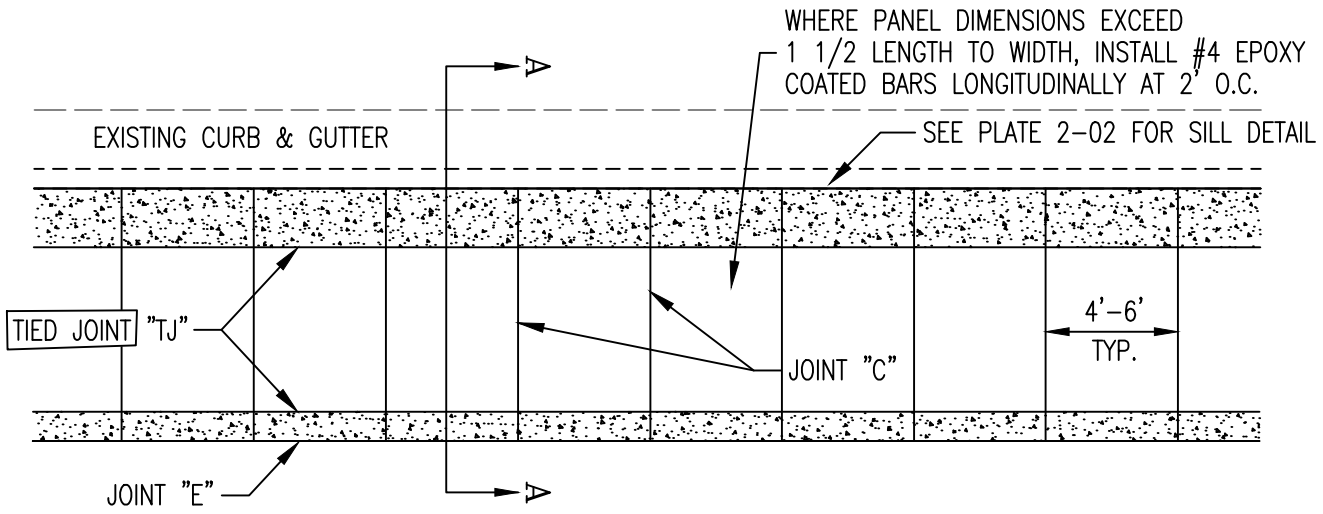
1. CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPEC. 3702 TYPES A-E. EXPANSION JOINTS AT PROPERTY LINE, TRANSITION PANELS, AND 100 FEET (APPROX.) MAXIMUM INTERVALS.
2. SEE S.D.P. 2-02 FOR CONCRETE SILL DETAIL.
3. CONTRACTION JOINT (FORMED OR SAWED 1/3 DEPTH) SEE S.D.P. 2-08 FOR PLACEMENT.
4. SEE MN/DOT STD. PLANS 5-297.250, PED. CURB RAMP DETAILS. ENSURE THAT RAMP DRAINS IN ALL DIRECTIONS A MIN. OF 0.5%
5. SIDEWALK THICKNESS THRU DRIVE APPROACH IS TO BE THE SAME AS APPROACH.
6. PROVIDE INTERMEDIATE JOINT AT SQUARED END IN SIDEWALK, WHEN SIDEWALK IS ADJACENT TO CURB AND GUTTER.
7. CONCRETE-MN/DOT SPEC. MIX 3F52. AGG BASE-MN/DOT SPEC. 3137 ASTM #67* WHERE TREE ROOTS ARE PRESENT AND NEW SIDEWALK LOCATIONS, EXCLUDING THROUGH DRIVE APPROACHES. ALL OTHER LOCATIONS USE MN/DOT SPEC. 3138 CLASS 5 (INCIDENTAL). SEE TABLE ABOVE FOR GRADATION AND SIDEWALK SPECIFICATIONS C700.
8. SEE S.D.P. 2-08 FOR DRIVE APPROACH.
9. WALKS PLACED ABUTTING THE STREET CURB SHALL HAVE A SPECIAL DECORATIVE PATTERN AS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
10. THE LENGTH TO WIDTH RATIO OF PANELS SHALL NOT EXCEED 1 TO 1.5.
11. 18" CLEAR ZONE ON BOTH SIDES OF SIDEWALK ARE TO BE FREE FROM ALL OBSTRUCTIONS.
12. TRANSITION DRIVE APP. THICKNESS TO WALK THICKNESS. IF THERE IS A CONST. JOINT AND NO EXPANSION IS USED, INSTALL TIE BARS.
13. 3" FOR WIDTH LESS THAN 6', 12" FOR WIDTH 6' OR GREATER.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

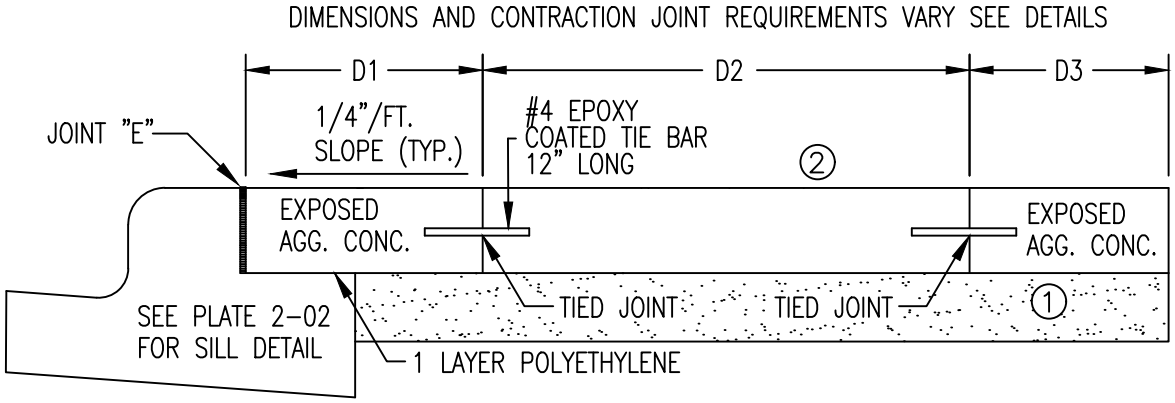
SIDEWALK DETAILS

Dillon S. Dahl
CITY ENGINEER

SHT 1 OF 3 SHTS	DATE REVISED 1/26/24	PLATE NO. 2-10	REV. N



PLAN VIEW



SECTION A-A

CONSTRUCTION NOTES

① PLACE 4" AGGREGATE BASE BELOW SLAB (INCIDENTAL)

② CONCRETE SURFACE SHALL BE BROOM FINISHED

3. TIE ALL JOINTS BETWEEN EXPOSED AGGREGATE AND BROOM FINISH CONCRETE, TRANSVERSE AND LONGITUDINAL JOINTS (INCIDENTAL).

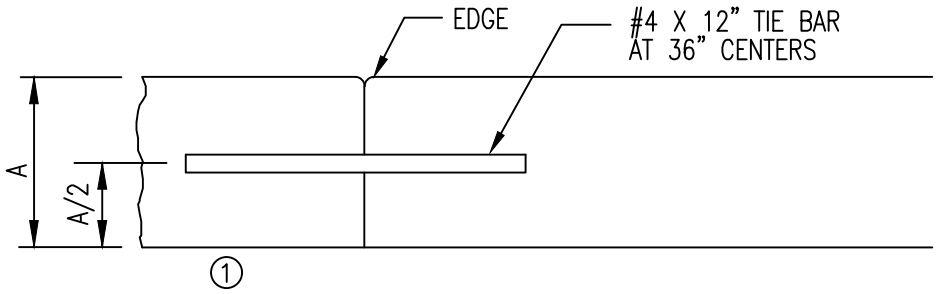
4. SEAL JOINTS WITH APPROVED FILLER AND SILICONE JOINT AND CRACK SEALER MEETING MN/DOT SPEC 3722 (INCIDENTAL).

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

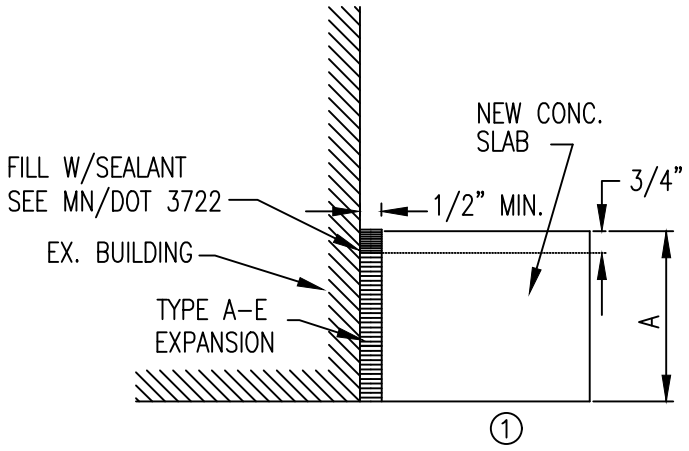
SIDEWALK DETAILS
DECORATIVE EDGING

CITY ENGINEER

SHT 2 OF 3 SHTS	DATE REVISED 1/26/24	PLATE NO. 2-10	REV. N

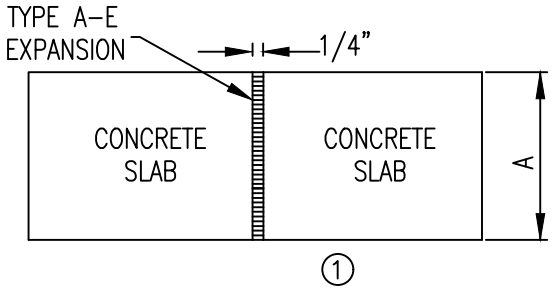


TIED JOINT ③
"TJ"



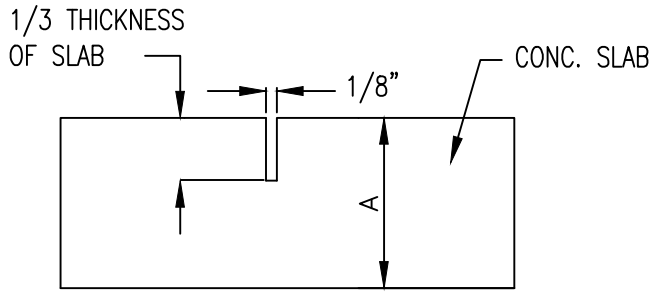
FOR USE AROUND FIXED OBJECTS AND BACK OF CURB
EX. BUILDINGS, LIGHTS, HYDRANTS

EXPANSION JOINT
"E"

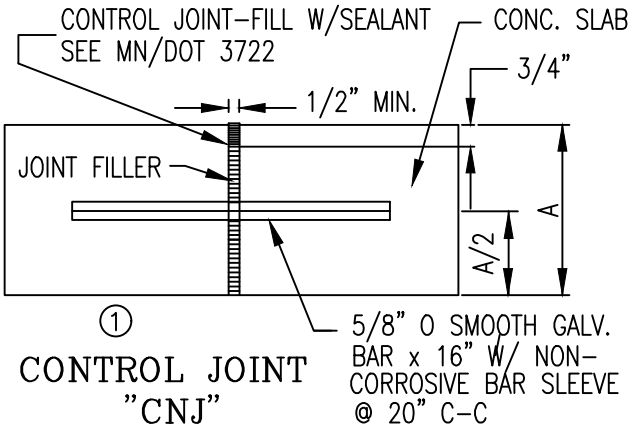


FOR USE IN CONCRETE SLABS
EX. SIDEWALK, DRIVEWAYS

EXPANSION JOINT
"E"



CONTRACTION JOINT
"C"



CONTROL JOINT
"CNJ"

CONSTRUCTION NOTES

① PLACE 4" AGGREGATE BASE BELOW SLAB (INCIDENTAL)

② CONCRETE SURFACE SHALL BE BROOM FINISHED

③ TIE ALL JOINTS BETWEEN EXPOSED AGGREGATE AND BROOM FINISH CONCRETE, TRANSVERSE AND LONGITUDINAL JOINTS (INCIDENTAL).

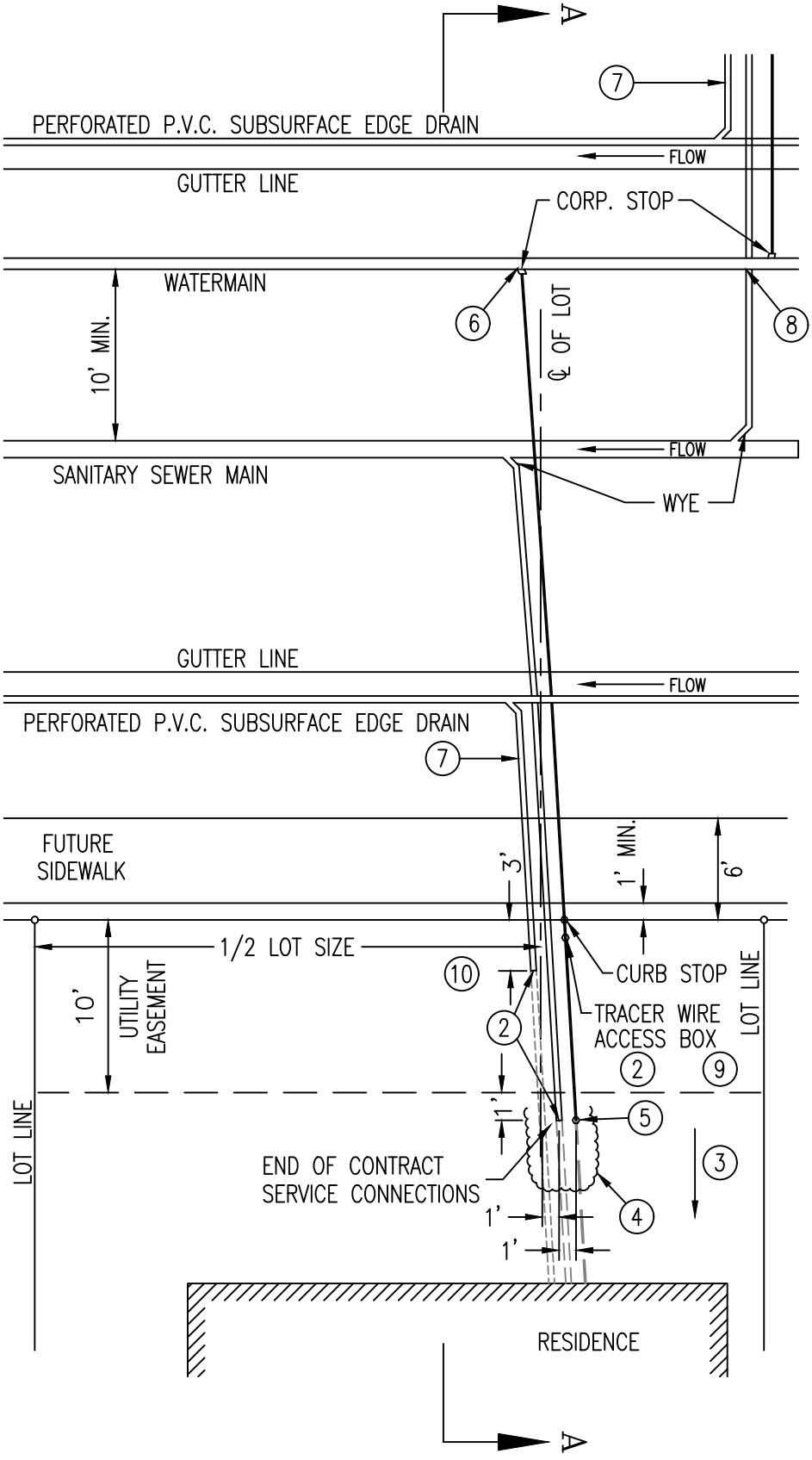
4. CONSTRUCT JOINTS WITH APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION AND SEAL JOINTS WITH SILICONE JOINT AND CRACK SEALER MEETING MN/DOT SPEC 3722 (INCIDENTAL).

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

SIDEWALK DETAILS

CITY ENGINEER

SHT 3 OF 3 SHTS	DATE REVISED 1/26/24	PLATE NO. 2-10	REV. N



NOTES

1. FINAL RECORD OF SERVICE LOCATIONS: END OF SEWER, WATER & SUBDRAIN SERVICES SHALL BE REFERRED TO LOT CORNER AND PROPERTY LINE. SHOW INVERT ELEVATION AND FINISHED GRADE OF SEWER AND UNDERGROUND SERVICES AND DISTANCE FROM LOT CORNER TO SEWER SERVICE. ALSO SHOW DIMENSIONS BETWEEN END OF SEWER SERVICE AND ENDS OF WATER AND UNDERGROUND DRAIN SERVICE.
2. PLUG END OF UNDERGROUND SERVICES. PLACE 4"x4" WOOD POST, EXTENDING ONE FOOT ABOVE GRADE.
3. FUTURE EXTENSION OF SERVICES BY OTHERS. REFER TO S.D.P 4-01 SHEET 3.
4. WHEN INSTALLED IN SOLID ROCK, BLAST 4' BEYOND END OF PIPE FOR FUTURE CONNECTION.
5. REFER TO S.D.P. 4-01 SHEET 2 FOR WATER SERVICE TEMPORARY CAP DETAIL.
6. REFER TO S.D.P. 6-11 FOR ADDITIONAL WATER SERVICE DETAIL.
7. REFER TO S.D.P. 1-08 FOR ADDITIONAL SUBSURFACE EDGE DRAIN DETAIL.
8. SEWER SERVICE CONNECTIONS ON SAME SIDE AS WATERMAIN SHOULD BE PLACED BELOW WATERMAIN.
9. TRACER WIRE REQUIRED FOR ALL NONMETALLIC PIPING MATERIALS PER MINNESOTA PLUMBING CODE.
10. EXTEND SUBSURFACE EDGE DRAIN SERVICE 3' PAST PROPERTY LINE

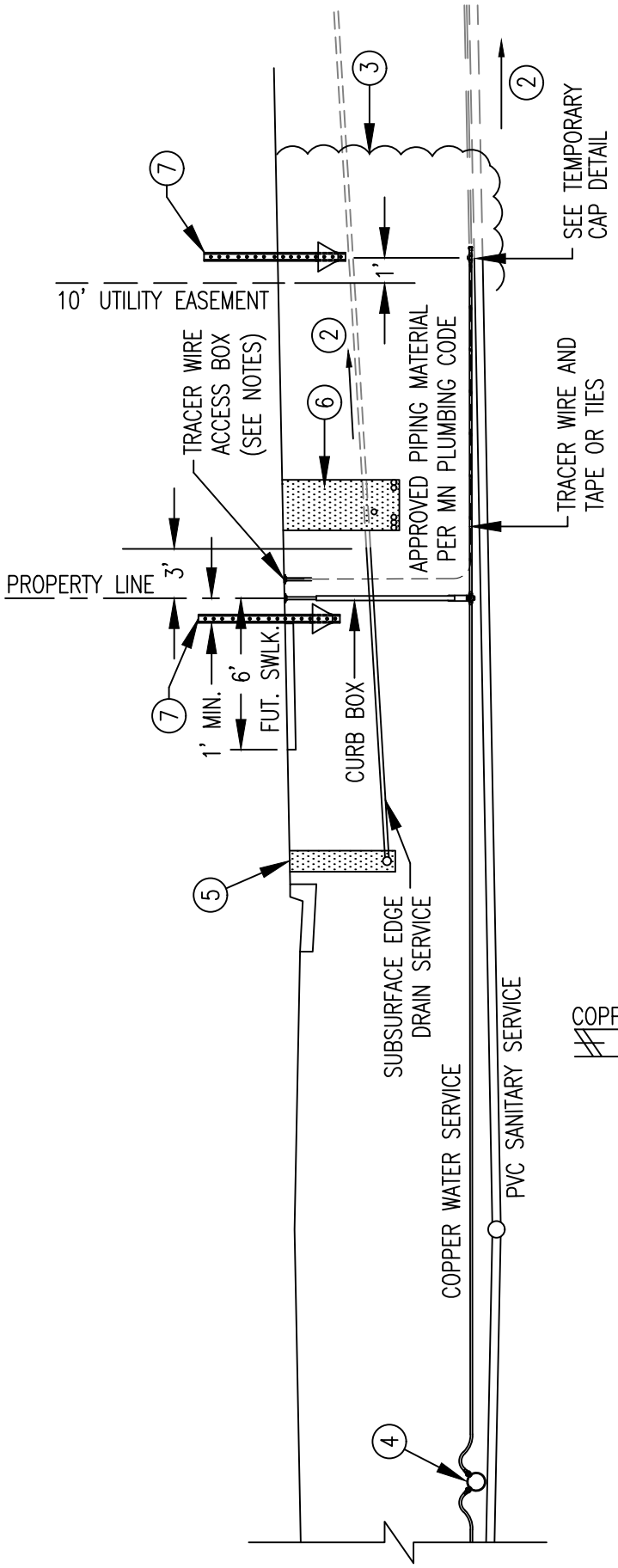
REPLACE PIPING MATERIAL IN KIND DURING SERVICE REPAIRS. MAINTAIN TRACER WIRE CONNECTIVITY USING APPROVED CONNECTORS FOR NONMETALLIC PIPING.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

SERVICE CONNECTIONS STUBBED INTO PROPERTY

CITY ENGINEER

SHT 1 OF 3 SHTS	DATE REVISED 1/26/24	PLATE NO. 4-01	REV. J



REPLACE PIPING MATERIAL IN KIND DURING SERVICE REPAIRS. MAINTAIN TRACER WIRE CONNECTIVITY USING APPROVED CONNECTORS FOR NONMETALLIC PIPING.

NOTES

1. TO DETERMINE ELEVATION OF END OF SEWER SERVICE: USING TOP OF INSIDE OF MAIN AT WYE, BEGIN 2% GRADE (APPROX. 1/4" PER FT.) IF DEPTH OF INVERT AT END OF SERVICE IS GREATER THAN 8.5' BELOW FINISH BOULEVARD GRADE, INCREASE GRADIENT. FINAL DEPTH OF SEWER SERVICE LESS THAN 8' BELOW FINISH BOULEVARD GRADE SHALL BE REVIEWED AND APPROVED BY CITY ENGINEER.

(2) FUTURE EXTENSION OF SERVICES BY OTHERS. REFER TO S.D.P. 4-01 SHEET 3.

(3) WHEN INSTALLED IN SOLID ROCK, BLAST 4' BEYOND END OF PIPE FOR FUTURE CONNECTION.

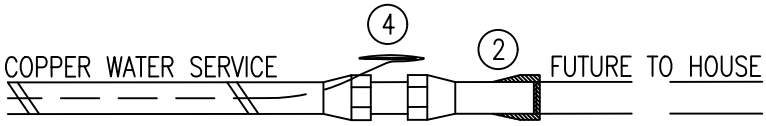
(4) REFER TO S.D.P. 6-11 FOR ADDITIONAL WATER SERVICE DETAIL.

(5) REFER TO S.D.P. 1-08 FOR ADDITIONAL SUBSURFACE EDGE DRAIN DETAIL.

(6) REFER TO S.D.P. 4-03 FOR ADDITIONAL UTILITY SERVICE DETAIL.

(7) INSTALL EITHER 4"x4" WOOD POST OR METAL SIGN POST MIN. ONE FOOT ABOVE GRADE TO MARK AND PROTECT LOCATION.

8. FOR ALL NONMETALLIC PIPING MATERIALS, INSTALL TRACER WIRE AS REQUIRED BY MINNESOTA PLUMBING CODE. CONTRACTOR SHALL PROVIDE AND INSTALL TRACER WIRE, WIRE CONNECTORS, AND ACCESS BOX PER DETAIL AND ENGINEERING STANDARDS FOR SERVICE CONNECTIONS.
   2' OF SLACK WIRE IS REQUIRED IN ALL ACCESS BOXES AFTER MEETING FINAL ELEVATION.



TEMPORARY CAP DETAIL

1. INSTALL COMPRESSION COUPLER AND CAP. TEST MAIN WITH CURB STOP IN OPEN POSITION.

(2) TEMPORARY CAP ASSEMBLY CONSISTS OF PUSH TO CONNECT OR SOLDER BUSHING, COPPER DISC, AND 3" COPPER TUBE.

3. REMOVE TEMPORARY CAP AND CONNECT INTO COUPLER WHEN HOUSE CONNECTION IS MADE.

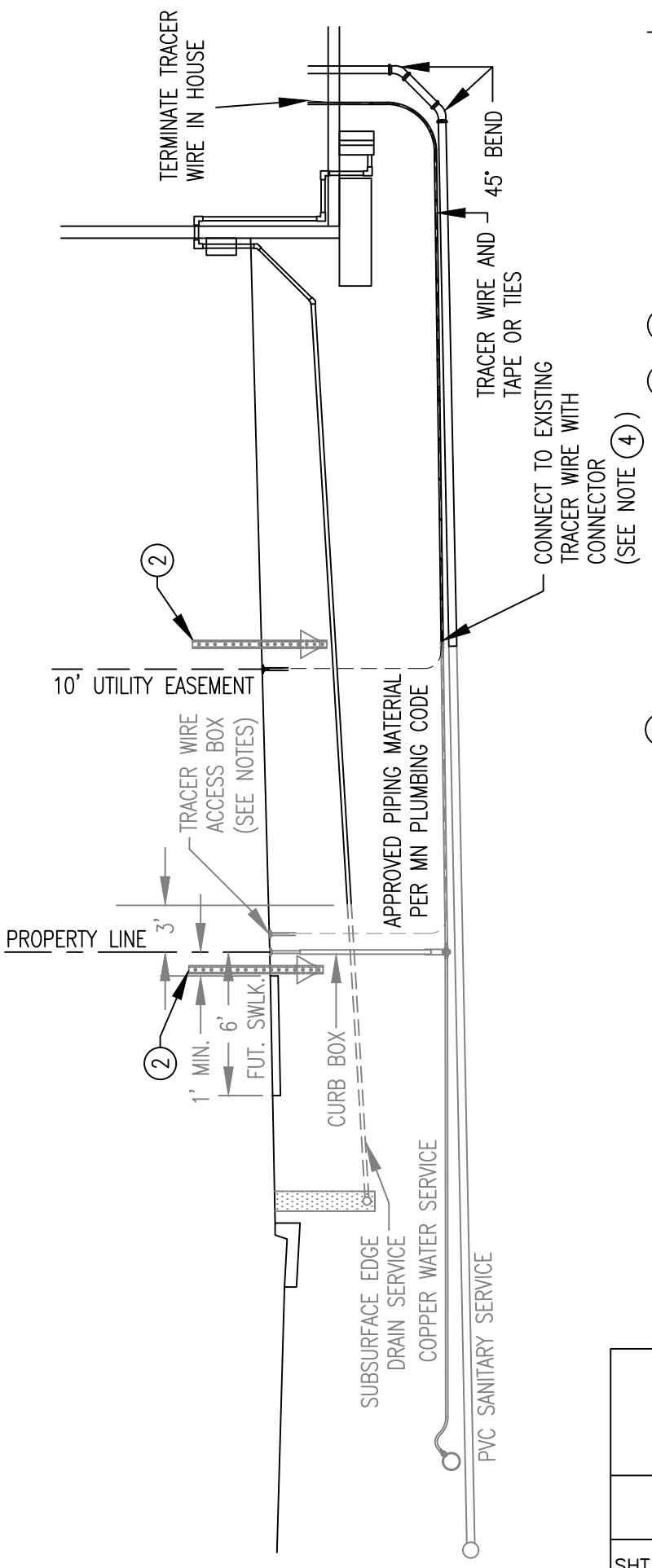
(4) CONNECT TO EXISTING TRACER WIRE WITH APPROVED CONNECTOR DURING SERVICE INSTALLATION OF NONMETALLIC PIPING.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

SECTION A-A WORK INSIDE R/W & EASEMENT

CITY ENGINEER

SHT 2 OF 3 SHTS	DATE REVISED 1/26/24	PLATE NO. 4-01	REV. J



NOTES

1. TO DETERMINE ELEVATION OF END OF SEWER SERVICE: USING TOP OF INSIDE OF MAIN AT WYE, BEGIN 2% GRADE (APPROX. 1/4" PER FT.) IF DEPTH OF INVERT AT END OF SERVICE IS GREATER THAN 8.5' BELOW FINISH BOULEVARD GRADE, INCREASE GRADIENT. FINAL DEPTH OF SEWER SERVICE LESS THAN 8' BELOW FINISH BOULEVARD GRADE SHALL BE REVIEWED AND APPROVED BY CITY ENGINEER.

(2) REMOVE 4"x4" WOOD POST OR METAL SIGN

(3) WHEN CONNECTING NONMETALLIC PIPING MATERIAL TO AN EXISTING COPPER STUB, INSTALL TRACER WIRE AS REQUIRED BY MINNESOTA PLUMBING CODE. CONTRACTOR SHALL PROVIDE AND INSTALL TRACER WIRE AND ACCESS BOX. ACCESS BOX MAY BE INSTALLED AT THE CONNECTION POINT OR AT THE EXISTING CURB STOP FOR EXISTING STUBS. ACCESS BOX AND TRACER WIRE SHALL BE INSTALLED AT THE CURB STOP FOR ALL FUTURE CONNECTIONS.
2' OF SLACK WIRE IS REQUIRED IN ALL ACCESS BOXES AFTER MEETING FINAL ELEVATION.

(4) WHEN CONNECTING A NONMETALLIC PIPING MATERIAL TO A LIKE MATERIAL, THE CONTRACTOR SHALL CONNECT TO THE EXISTING TRACER WIRE WITH AN APPROVED CONNECTOR. A MINIMUM OF 2' OF SLACK WIRE IS REQUIRED IN ALL ACCESS BOXES AFTER MEETING FINAL GRADE.

5. REPLACE PIPING MATERIAL IN KIND DURING SERVICE REPAIRS. MAINTAIN TRACER WIRE CONNECTIVITY USING APPROVED CONNECTORS FOR NONMETALLIC PIPING.

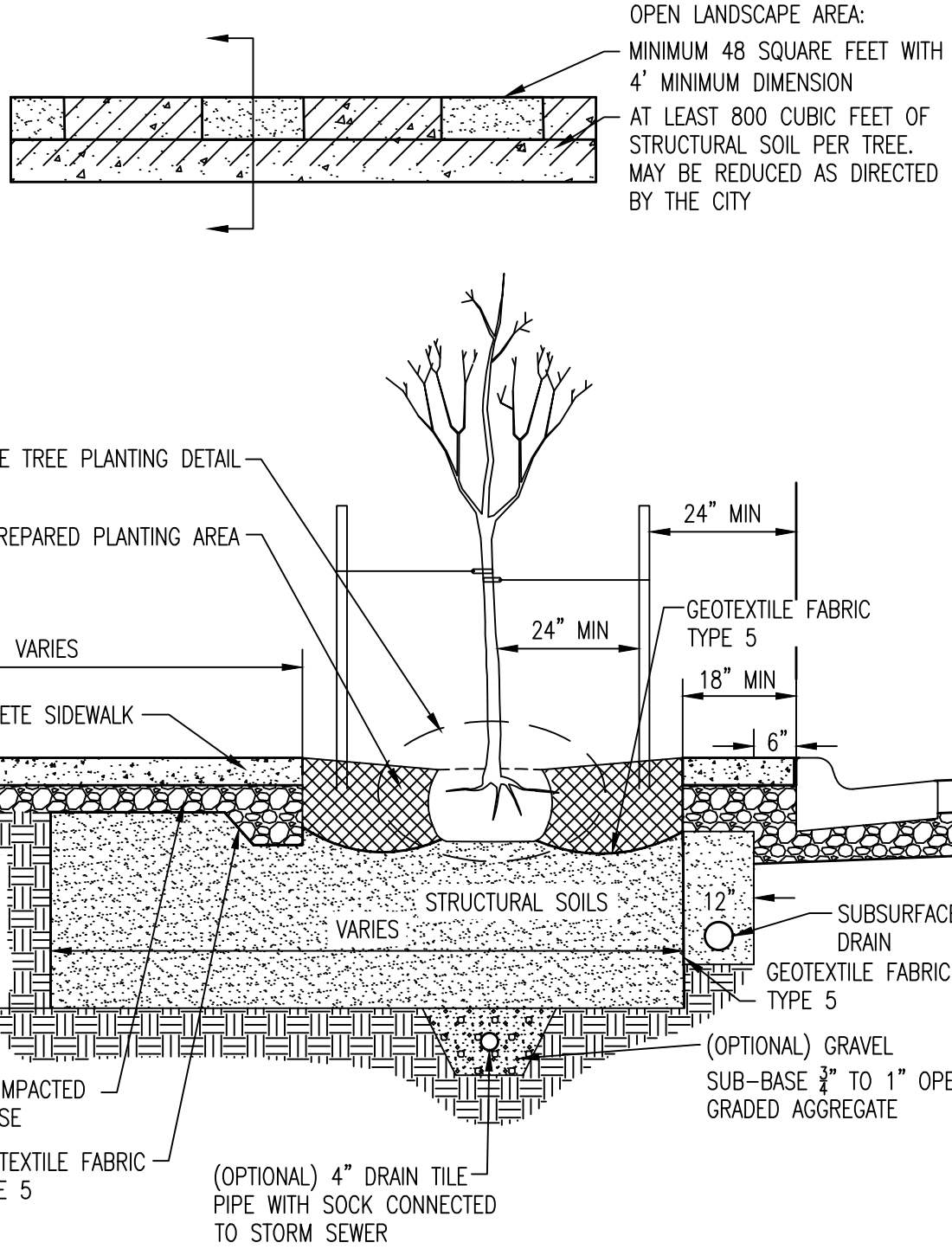
6. REPLACEMENT OF AN EXISTING METALLIC WATER SERVICE WITH NONMETALLIC PIPING SHALL NOT BE PERFORMED UNLESS A REPLACEMENT ELECTRICAL GROUNDING SYSTEM HAS BEEN INSTALLED, INSPECTED, AND APPROVED BY THE ELECTRICAL INSPECTOR.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

SECTION A–A WORK OUTSIDE R/W & EASEMENT

CITY ENGINEER

SHT 3 OF 3 SHTS	DATE REVISED 1/26/24	PLATE NO. 4–01	REV. J



STRUCTURAL SOILS

NOT TO SCALE

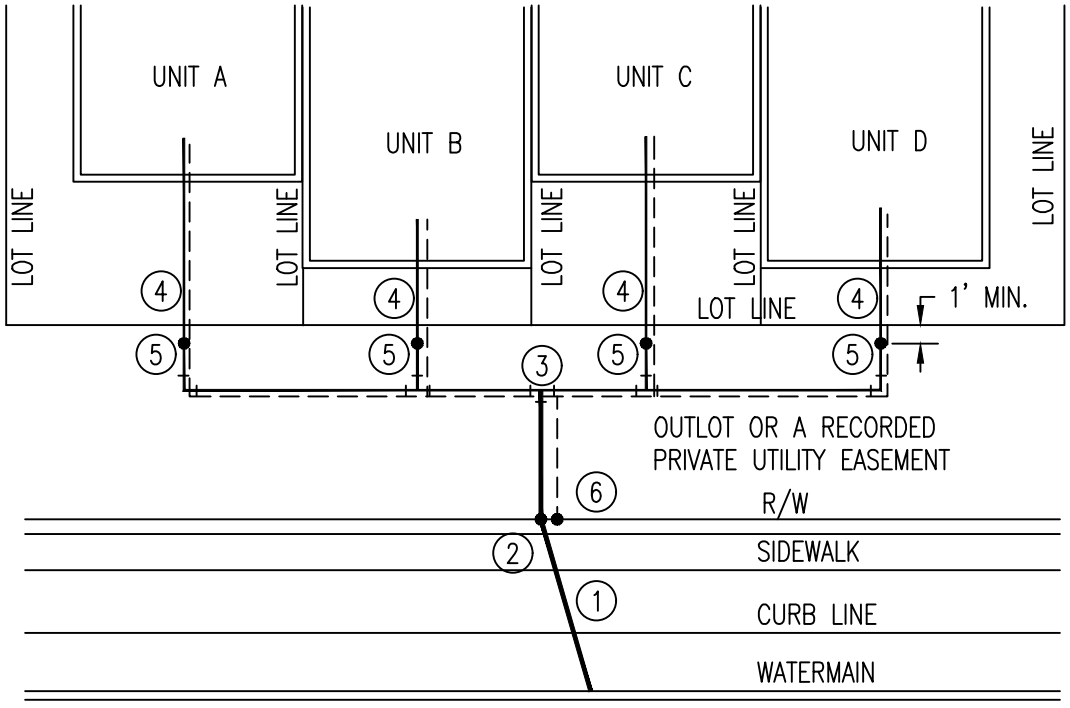
1. REQUIRED IN THE CENTRAL BUSINESS DISTRICT
2. SOIL MIXTURE SHALL BE CONSISTENT WITH STRUCTURAL SOILS STANDARDS & SPECIFICATIONS SECTION 1010 OF THE ENGINEERING STANDARDS FOR ROCHESTER, MN
3. DRAIN TILE MAY BE REQUIRED DEPENDING ON SOIL CONDITIONS AS DIRECTED BY THE CITY

ALTERNATIVE: A FIBERGLASS REINFORCED, POLYPROPYLENE CELLULAR SYSTEM MAY BE SUBSTITUTED, AS OTHERWISE APPROVED BY THE ENGINEER

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURAL SOIL DETAIL TYPE 1

CITY FORESTER	PARKS & REC DIRECTOR			
SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 5-02	REV. C



1. MASTER SERVICE
2. MASTER CURB BOX
3. MASTER TEE (SPLIT FOR INDIVIDUAL UNIT SERVICES)
4. INDIVIDUAL SERVICES–MINIMUM 1"
5. INDIVIDUAL CURB BOXES
6. TRACER WIRE REQUIRED FOR ALL NONMETALLIC PIPING MATERIALS PER MINNESOTA PLUMBING CODE

REFER TO S.D.P 4–01 SHEETS 2&3 FOR SERVICE CONNECTIONS COMPLETED BY CITY AND PRIVATE CONTRACTOR.

NOTES

1. ALL SERVICE CONNECTIONS OF THIS TYPE SHALL BE REVIEWED BY OWNER'S MECHANICAL ENGINEER AND CITY OF ROCHESTER PLUMBING INSPECTOR FOR PROPER SIZING PRIOR TO INSTALLATION.
2. SERVICE FROM WATERMAIN TO BUILDING BY OWNER.
3. A RECORDED MAINTENANCE AGREEMENT IS REQUIRED

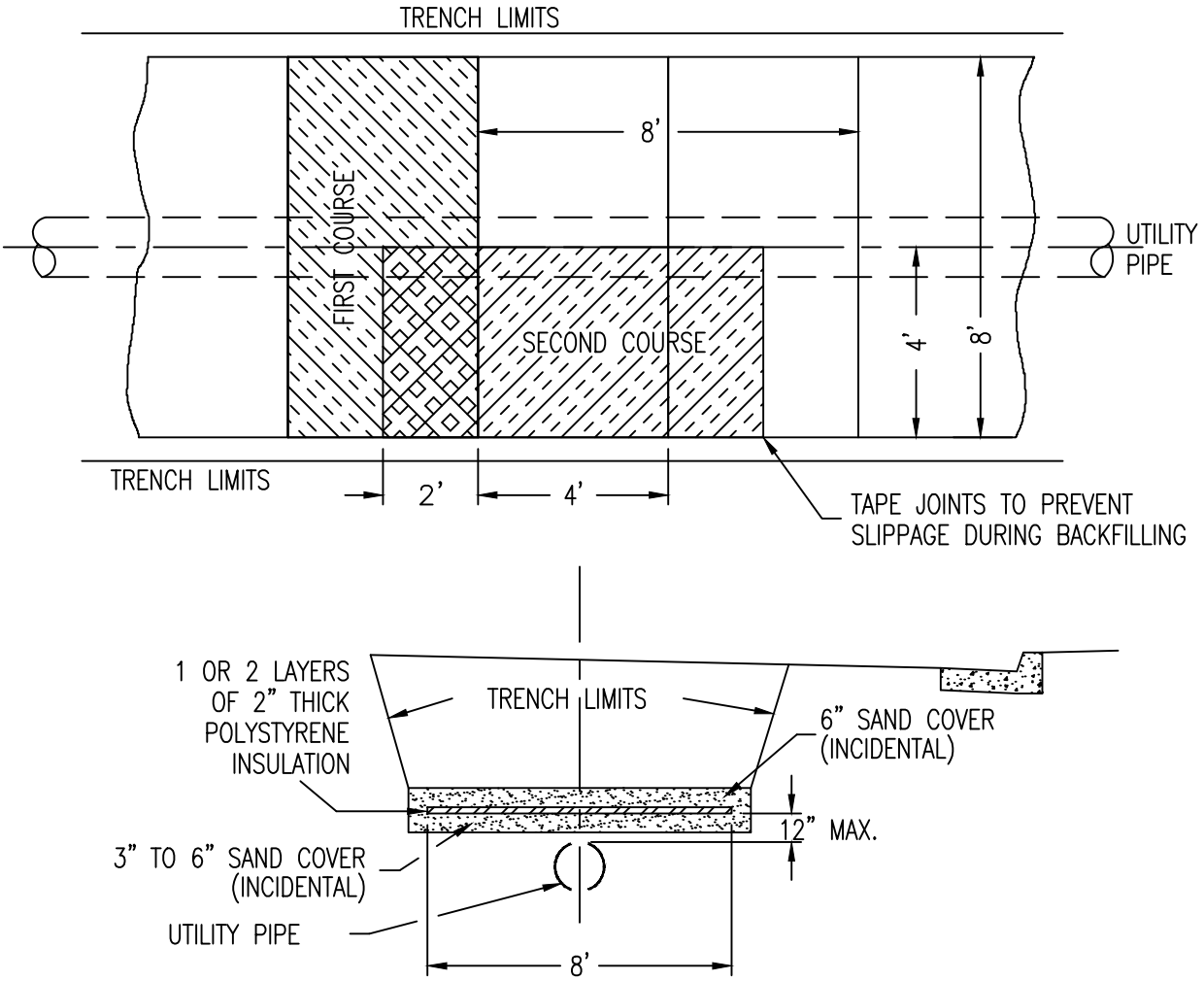
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

ALTERNATE SERVICE LAYOUT FOR MULTIPLE–UNIT BUILDINGS

RPU–WATER UTILITY	CITY ENGINEER			
SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 6–13	REV. E

INSULATION REQUIREMENTS

DEPTH ③	SAN. SEWER	WATER-MAIN ②
4'-5'	4"	4"
5'-7'	2"	2"
>7'	0	0



TYPICAL LAYOUT FOR POLYSTYRENE INSULATION

NOTES

1. INSULATION BOARD SHALL BE AS PER MN/DOT SPEC. 3760 AND AASHTO M 230. INSULATION BOARD SHALL MEET THE FOLLOWING REQUIREMENTS:
   COMPRESSIVE STRENGTH OF 35 PSI MIN
   WATER ABSORPTION OF 0.25% BY VOLUME MAX

② FOR WATERMAIN WITH NO SERVICE CONNECTIONS OR FOR WATERMAIN OUTSIDE OF PAVED AREAS WHERE SNOW IS NOT REMOVED, NO INSULATION IS REQUIRED IF COVER IS AT LEAST 6'.

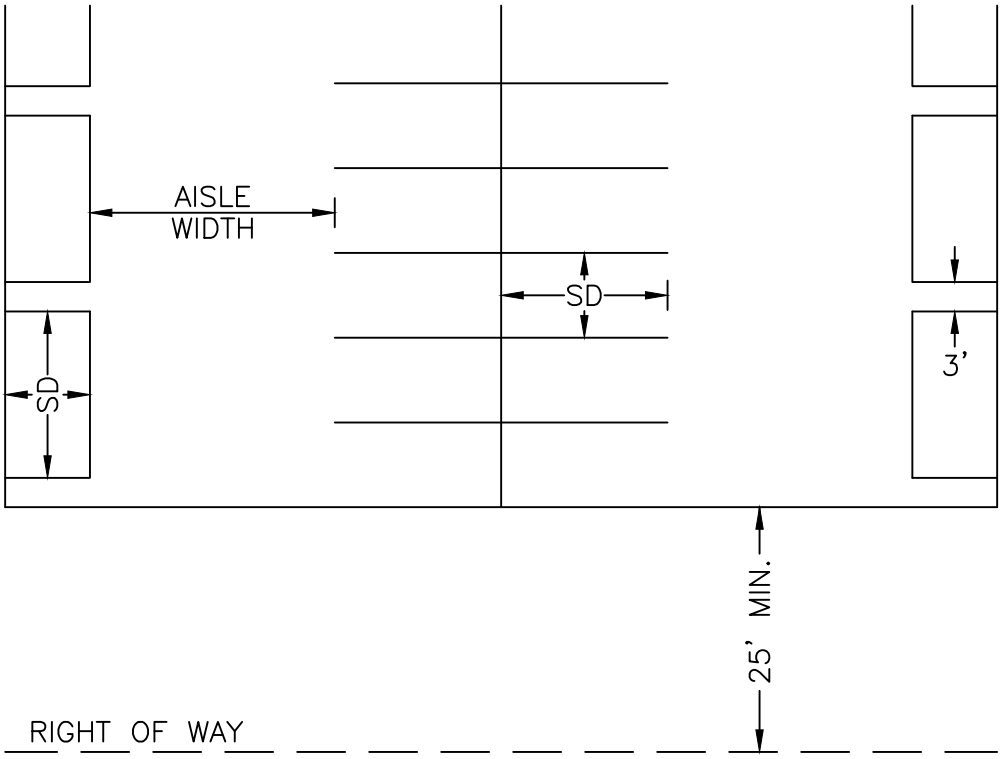
③ DEPTH FOR SANITARY AND STORM SHALL BE TO INVERT. DEPTH FOR WATERMAIN SHALL BE TO TOP OF PIPE. LESS THAN 4' REQUIRES CONCRETE INSULATION. SEE S.D.P. 6-18.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

POLYSTYRENE INSULATION

CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 6-19	REV. F



STALL DIMENSIONS (SD)		
SIZE OF CAR	SHORT TERM	LONG TERM
SMALL	7'6"x15'0"	7'3"x15'0"
STANDARD	8'6"x18'0"	8'4"x18'0"

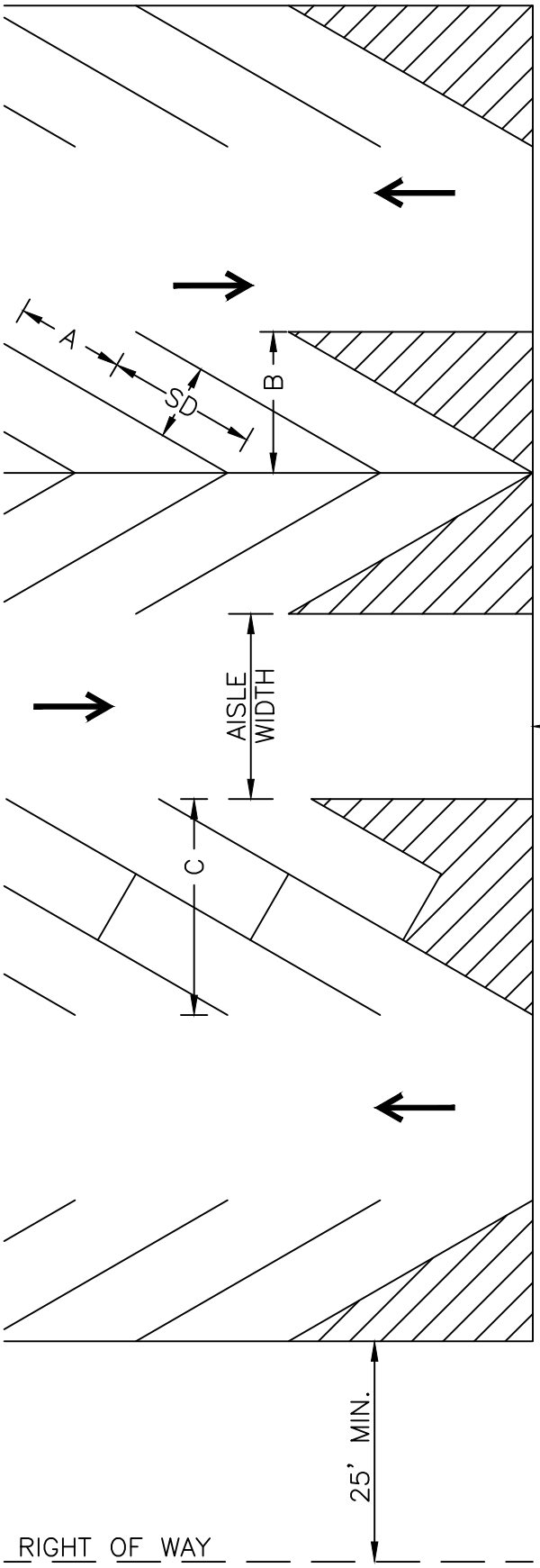
AISLE WIDTH										
	ONE–WAY					TWO–WAY				
SIZE OF CAR	PAR.	30°	45°	60°	90°	PAR.	30°	45°	60°	90°
SMALL	8'	8'	10'	12'	15'	14'	14'	16'	18'	18'
STANDARD	10'	11'	12'	13.5'	20'	21'	20'	20'	21'	23'

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PARKING STALL DIMENSIONS PARALLEL PARKING

CITY ENGINEER

SHT 1 OF 5 SHTS	DATE REVISED 1/26/24	PLATE NO. 8–01	REV. D



STALL DIMENSIONS (SD)				
SIZE OF CAR	SHORT TERM	A	B	C
SMALL	7'6"x15'0"	12'11"	15'0"	21'6"
STANDARD	8'6"x15'0"	15'0"	15'0"	22'6"
	LONG TERM			
SMALL	7'3"x15'0"	12'7"	13'9"	21'3"
STANDARD	8'4"x15'0"	14'5"	15'9"	24'3"

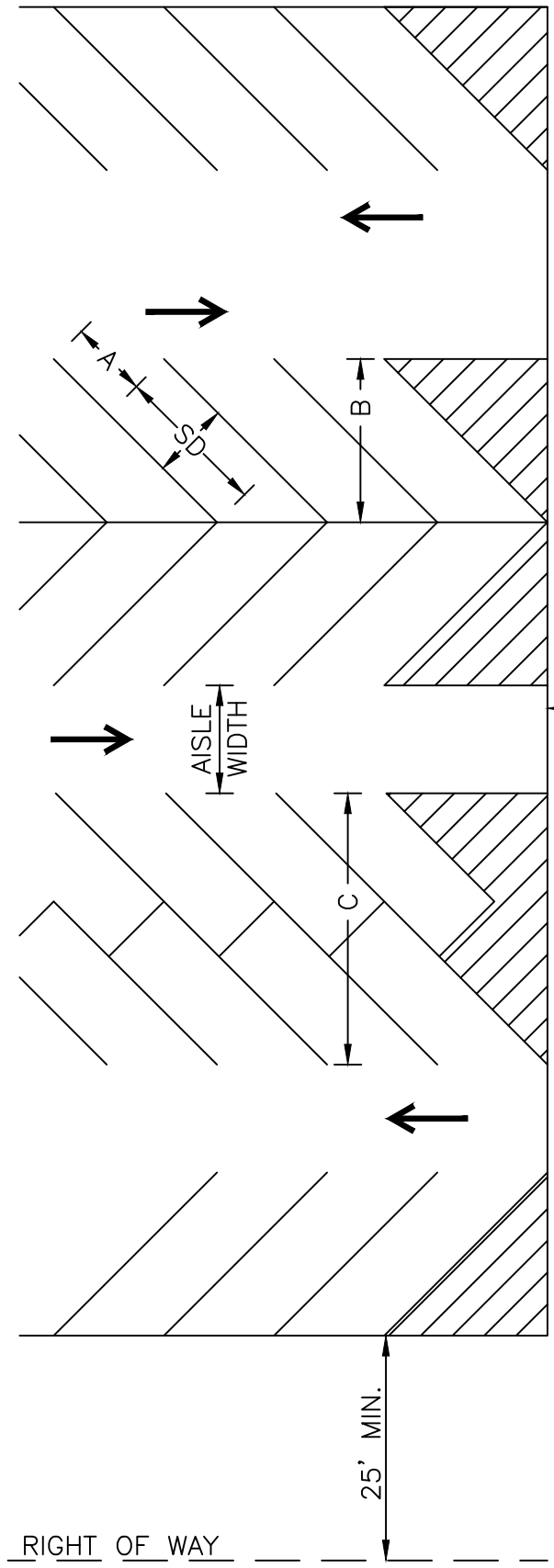
AISLE WIDTH		
SIZE OF CAR	ONE-WAY	TWO-WAY
SMALL	8 FT.	14 FT.
STANDARD	11 FT.	20 FT.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PARKING STALL DIMENSIONS
30° PARKING

CITY ENGINEER

SHT 2 OF 5 SHTS	DATE REVISED 1/26/24	PLATE NO. 8-01	REV. D



STALL DIMENSIONS (SD)				
SIZE OF CAR	SHORT TERM	A	B	C
SMALL	7'6"x15'0"	7'6"	15'11"	26'6"
STANDARD	8'6"x17'7"	8'6"	17'7"	29'2"
	LONG TERM			
SMALL	7'3"x15'0"	7'3"	15'9"	26'4"
STANDARD	8'4"x17'0"	8'4"	17'11"	29'11"

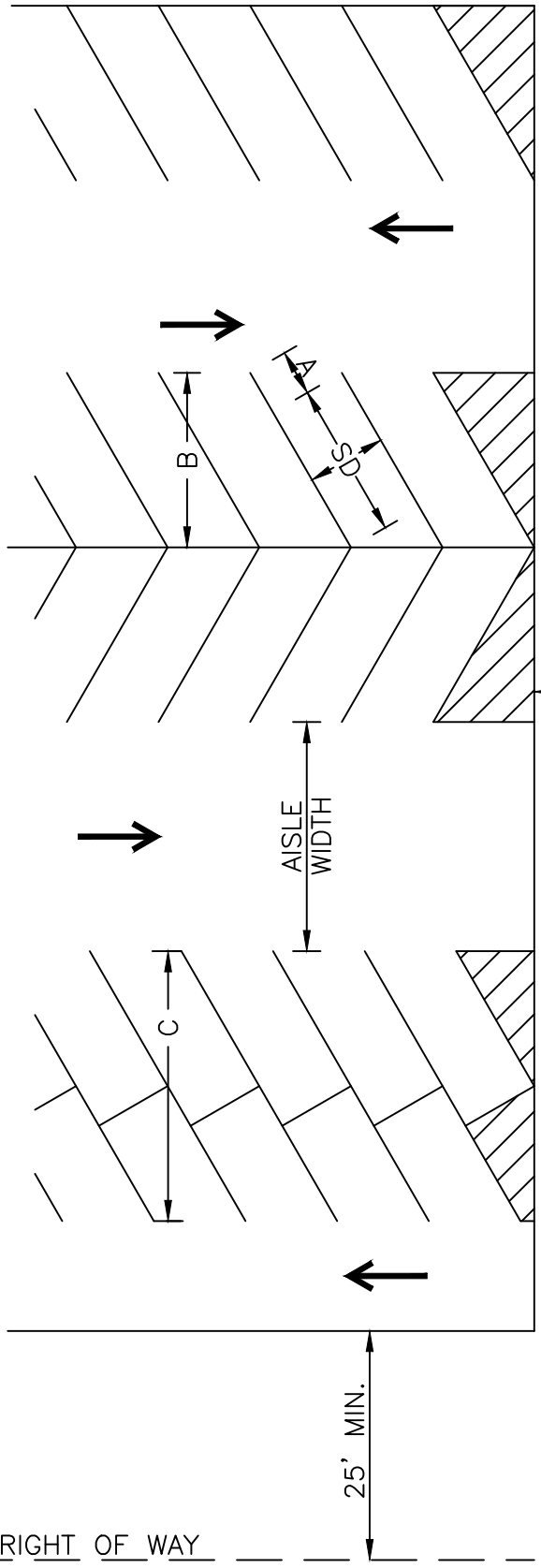
AISLE WIDTH		
SIZE OF CAR	ONE-WAY	TWO-WAY
SMALL	10 FT.	16 FT.
STANDARD	12 FT.	20 FT.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PARKING STALL DIMENSIONS
45° PARKING

CITY ENGINEER

SHT 3 OF 5 SHTS	DATE REVISED 1/26/24	PLATE NO. 8-01	REV. D



STALL DIMENSIONS (SD)				
SIZE OF CAR	SHORT TERM	A	B	C
SMALL	7'6"x15'0"	4'4"	16'9"	29'9"
STANDARD	8'6"x19'0"	4'11"	19'0"	33'9"
	LONG TERM			
SMALL	7'3"x15'0"	4'2"	16'7"	29'7"
STANDARD	8'4"x17'0"	4'10"	18'11"	33'7"

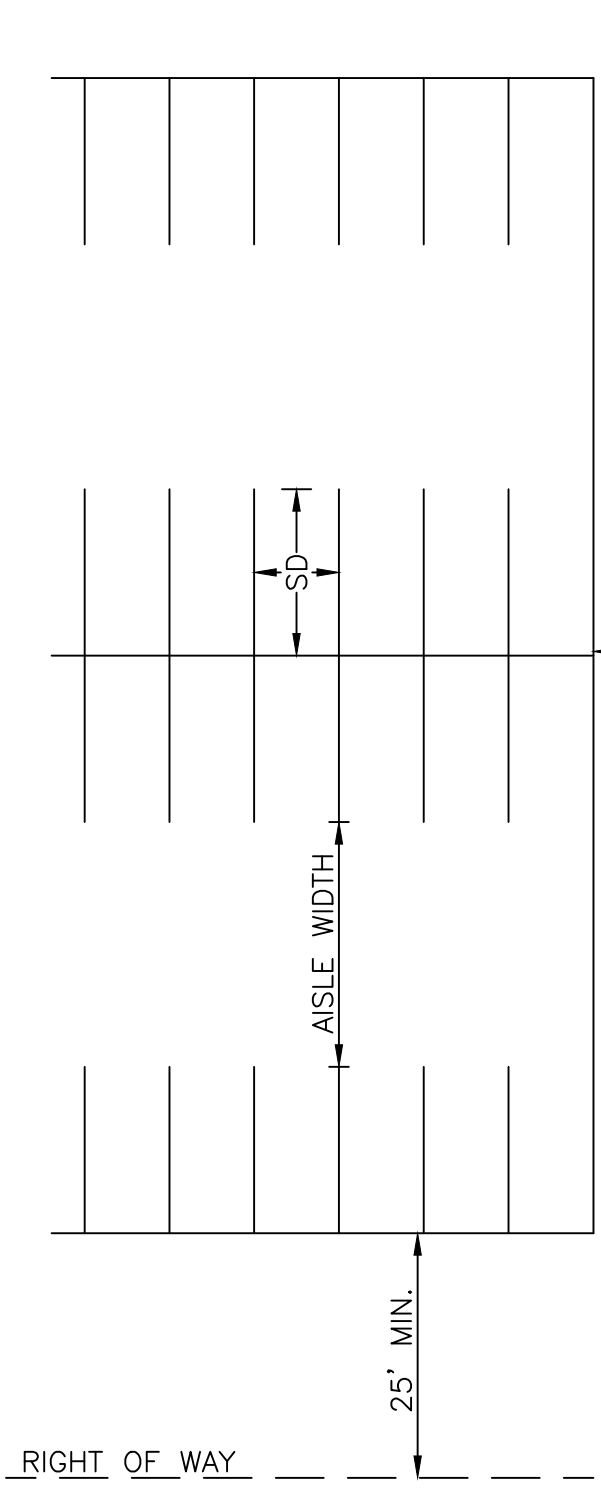
AISLE WIDTH		
SIZE OF CAR	ONE-WAY	TWO-WAY
SMALL	12 FT.	18 FT.
STANDARD	13.6 FT.	21 FT.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PARKING STALL DIMENSIONS
60° PARKING

Dillon S. Dahl
CITY ENGINEER

SHT 4 OF 5 SHTS	DATE REVISED 1/26/24	PLATE NO. 8-01	REV. D



STALL DIMENSIONS (SD)		
SIZE OF CAR	SHORT TERM	LONG TERM
SMALL	7'6"x15'0"	7'3"x15'0"
STANDARD	8'6"x18'0"	8'4"x17'0"

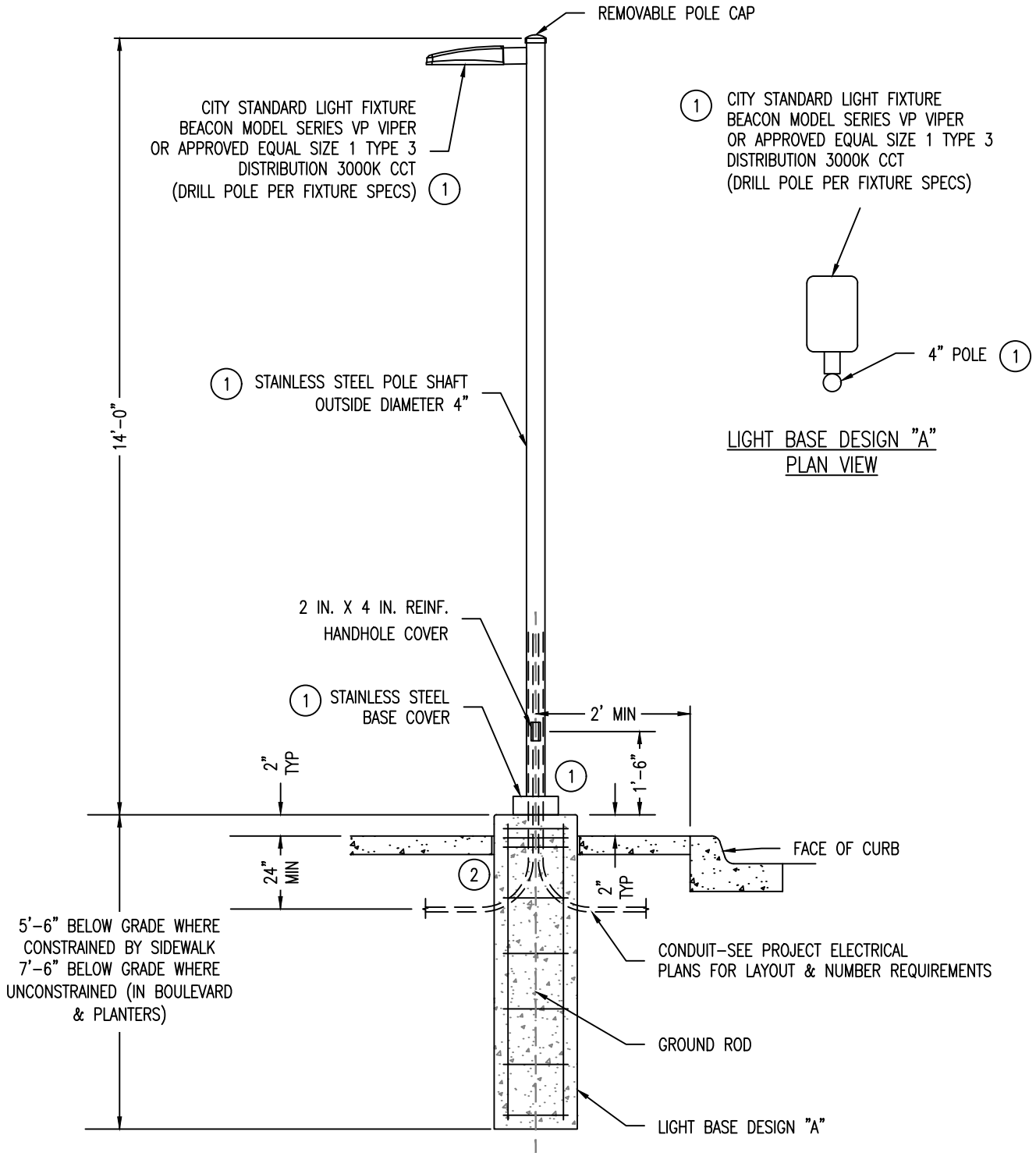
AISLE WIDTH		
SIZE OF CAR	ONE-WAY	TWO-WAY
SMALL	15 FT.	18 FT.
STANDARD	20 FT.	23 FT.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PARKING STALL DIMENSIONS 90° PARKING

CITY ENGINEER

SHT 5 OF 5 SHTS	DATE REVISED 1/26/24	PLATE NO. 8-01	REV. D



NOTES

1. LUMINAIRE, POLE, AND COMPONENTS SHALL BE SUPPLIED WITH GLOSS BLACK SMOOTH FINISH
2. SEE S.D.P. 2-10 FOR EXPANSION JOINT AROUND BASE
3. LUMINAIRE SHALL BE CITY STANDARD LIGHT FIXTURE BEACON MODEL SERIES VP VIPER OR APPROVED EQUAL SIZE 1 TYPE 3 DISTRIBUTION 3000K CCT:
   - LUMENS – 7500
   - CCT/CRI – 3000K, 70 CRI
   - DISTRIBUTION – TYPE 3
   - VOLTAGE – 120-277V
   - MOUNT – ADJUSTABLE ARM (UNIVERSAL DRILL PATTERN)

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

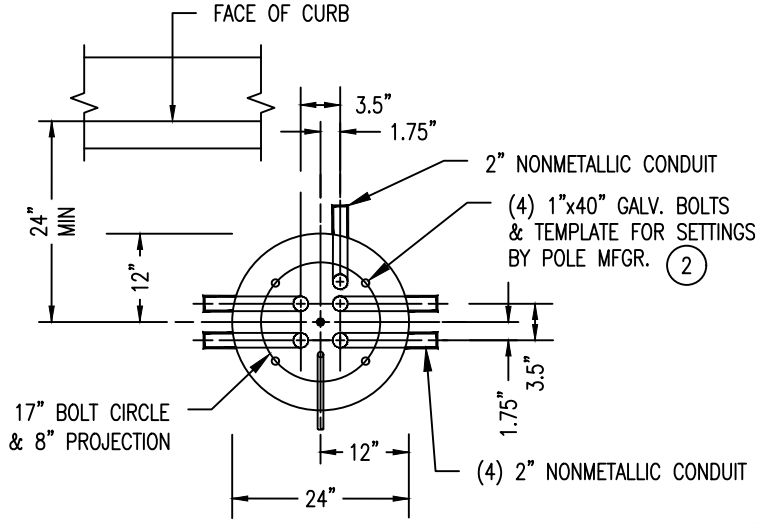
SIDEWALK LIGHT POLE DETAILS

CITY ENGINEER

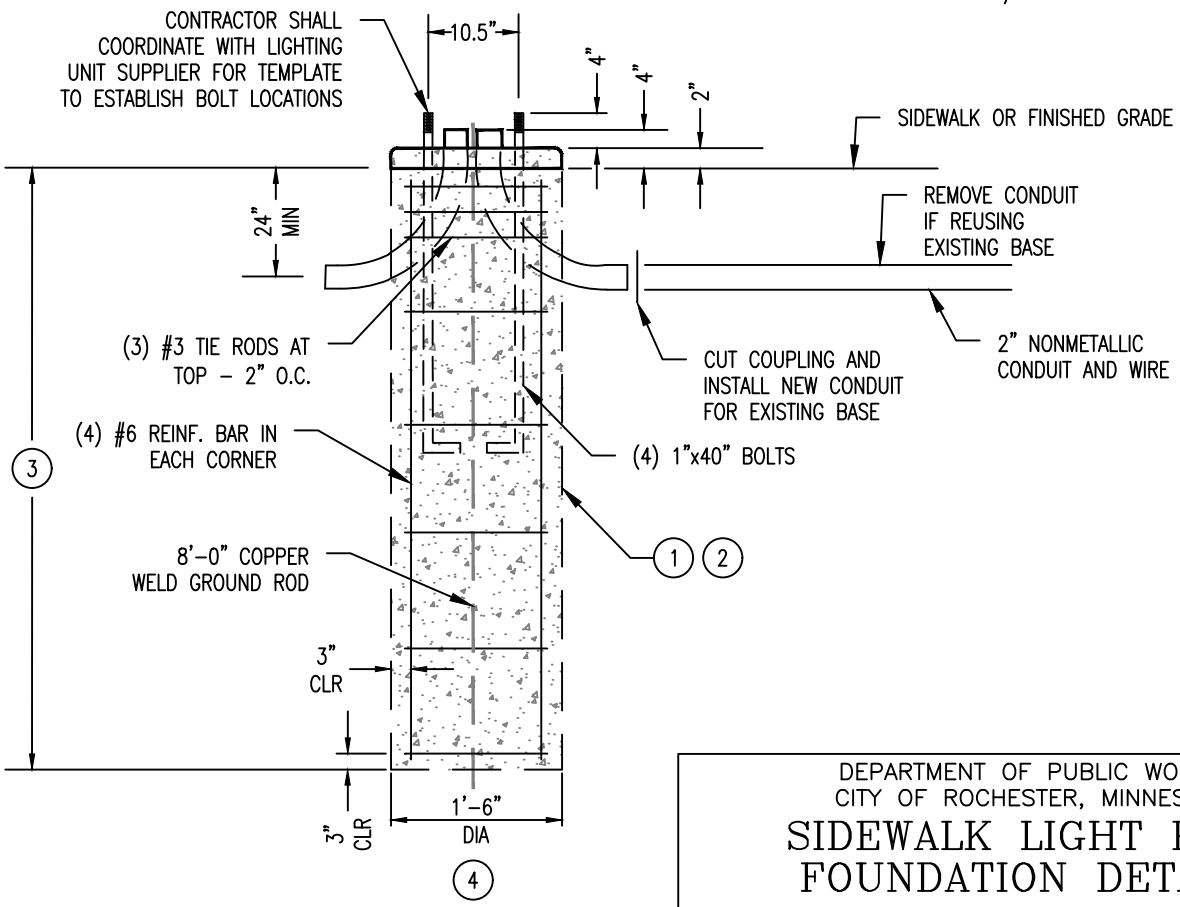
SHT 1 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 8-04	REV. A

NOTES

1. NEW CAST IN PLACE CONCRETE LIGHT BASE
2. AT EXISTING LIGHT BASE, RE-USE EXISTING ANCHORS IF CONDITION IS ADEQUATE AND LAYOUT IS CORRECT FOR NEW BASE. OTHERWISE, CUT ANCHORS FLUSH WITH CONCRETE AND COAT ANCHORS AND SURROUNDING CONCRETE WITH BRUSH APPLIED WATERPROOFING. INSTALL NEW STAINLESS STEEL ANCHOR RODS USING INJECTION ADHESIVE. EMBEDMENT DEPTH SHALL BE ADEQUATE TO DEVELOP THE FULL STRENGTH OF ANCHOR ROD, PER EPOXY MANUF. TABLES BUT NO LESS THAN 16". INSTALL NEW RODS A MINIMUM OF 4" FROM EXISTING ANCHOR LOCATIONS. CONTRACTOR SHALL COORDINATE ROTATED ANCHOR LAYOUT (IF REQUIRED) WITH LIGHTING SUPPLIER.
3. 5'-6" BELOW GRADE WHERE CONSTRAINED BY SIDEWALK
   7'-6" BELOW GRADE WHERE UNCONSTRAINED (IN BOULEVARDS & PLANTERS)
4. LIGHT POLE CONCRETE FOUNDATION SHALL BE MN/DOT SPEC. MIX 3G52



LIGHT BASE DESIGN "A"
PLAN VIEW



LIGHT BASE DESIGN "A"
CROSS SECTION

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

SIDEWALK LIGHT POLE FOUNDATION DETAILS

CITY ENGINEER

SHT 2 OF 2 SHTS	DATE REVISED 1/26/24	PLATE NO. 8-04	REV. A