STORMWATER DRAWINGS

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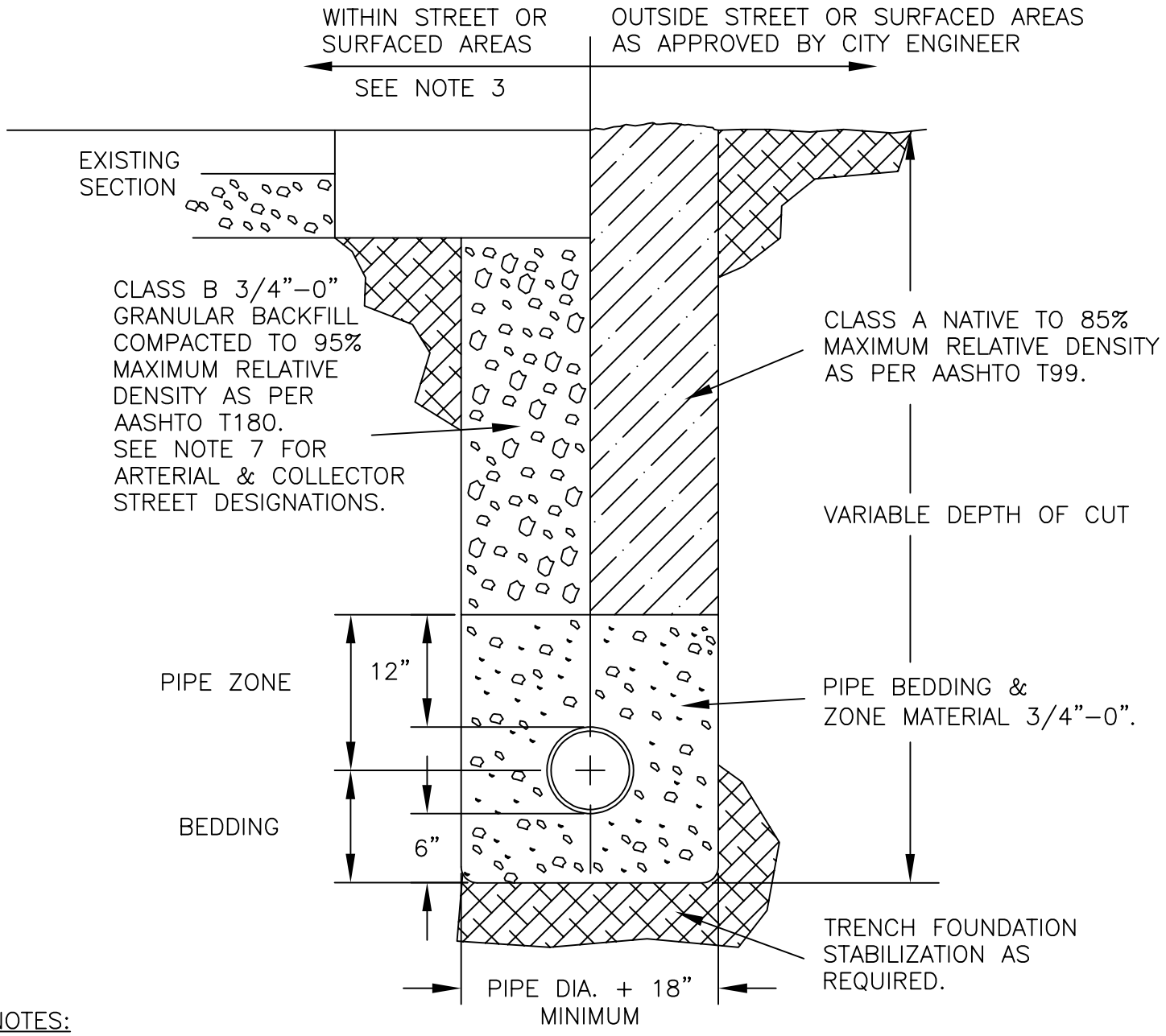


NOTES:

1. ALL CUTS IN PAVEMENT SHALL BE SAW CUT.
2. ALL PAVEMENT PATCH JOINTS AND ALL CUT EDGES SHALL BE SAND SEALED PER ODOT SPECS AND OREGON CITY SPECIAL PROVISIONS SEC–00744.51.
3. REFER TO OREGON CITY PAVEMENT CUT STANDARDS AND STANDARD DETAIL DRAWINGS 532, 533 & 534.
4. THIS TRENCH BACKFILL REQUIREMENT APPLIES TO ALL UNDERGROUND CONDUITS.
5. CLASS "B" BACKFILL SHALL EXTEND 3 FEET BEYOND EDGE OF STREET OR SURFACED AREA.
6. BACKFILL SHALL BE PLACED AND COMPACTED IN A MAX. OF 24–INCH LIFTS. COMPACTION TESTING REQUIRED AT A FREQUENCY OF 1 TEST EVERY 100 FEET OF TRENCH MINIMUM.
7. EXISTING ARTERIAL & COLLECTOR STREET DESIGNATIONS REQUIRE CLSM (aka CDF) PER ODOT STANDARDS, SEC–00442 FOR ALL TRENCH TRANSVERSE OR PERPENDICULAR CROSSINGS OF VEHICLE TRAVEL LANES.

OREGON CITY

Public Works Standard Drawings

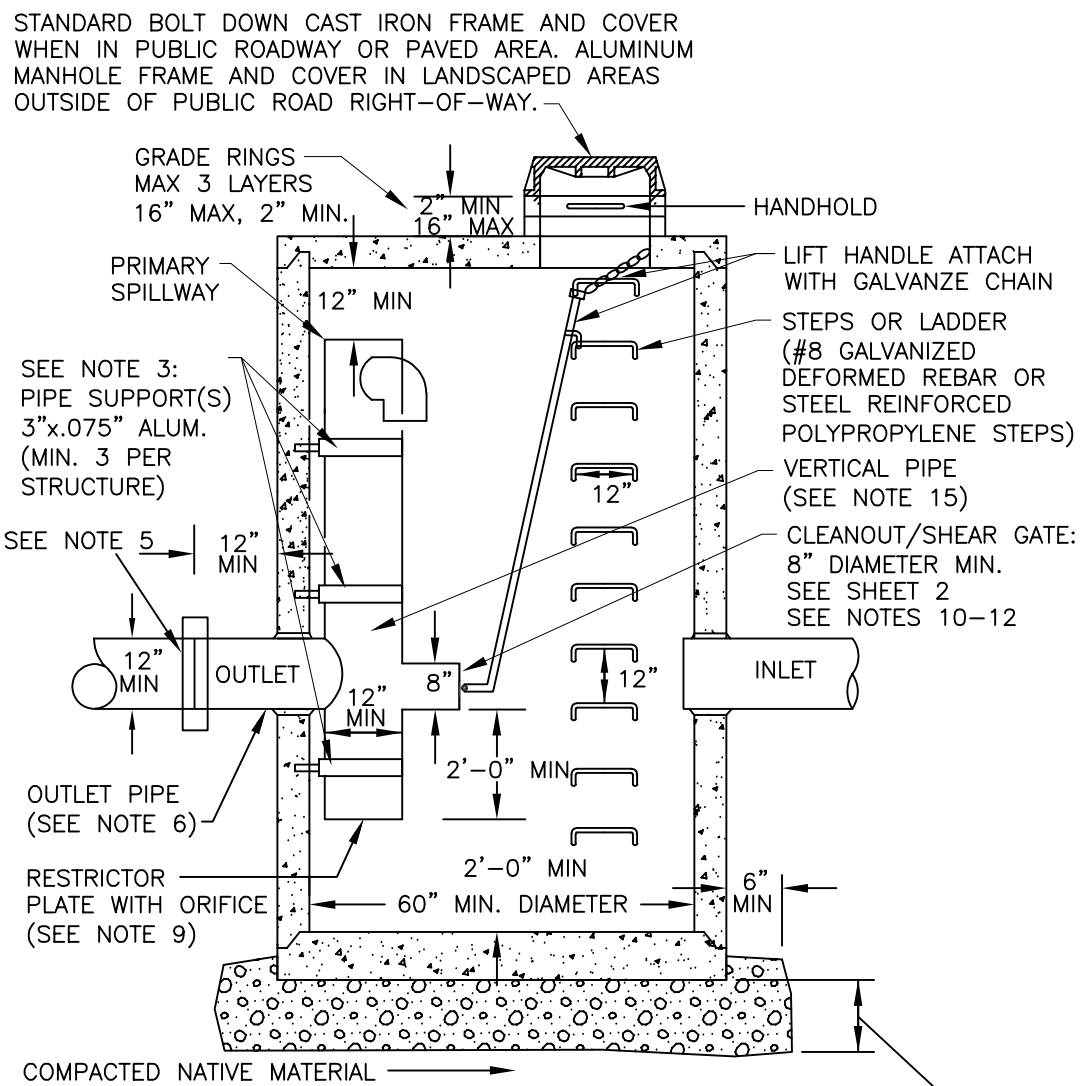
PIPE BEDDING AND TRENCH BACKFILL - STORM & SANITARY SEWER & WATER PIPE

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 313	

OREGON CITY

Public Works Standard Drawings

FLOW CONTROL MANHOLE - STORMWATER DETENTION TEE RISER TYPE



SECTION A-A

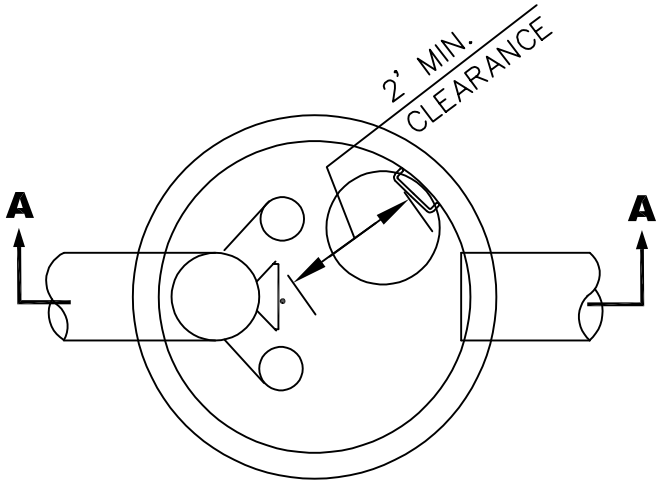
FLOW CONTROL MANHOLE

NOTES:

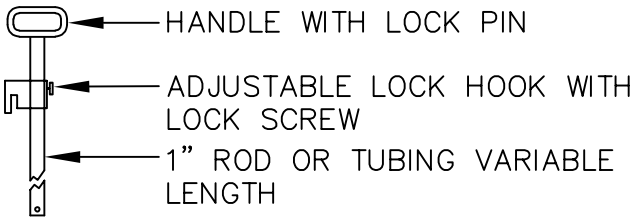
1. EXCEPT AS SHOWN OR NOTED, UNITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. FLAT TOP SHALL BE H-20 LOAD RATED WITH NO COVER.
3. PIPE SUPPORTS AND RESTRICTOR/SEPARATOR SHALL BE OF THE SAME MATERIAL, AND BE ANCHORED AT 3' MAX SPACING BY 5/8" DIA. STAINLESS STEEL EXPANSION BOLTS OR EMBEDDED 2" IN WALL.
4. THE RESTRICTOR/SEPARATOR SHALL BE FABRICATED FROM .060" (MM) ALUMINUM, IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF AASHTO M 36, M 196, M197, AND M 274.
5. OUTLET SHALL BE CONNECTED TO CULVERT OR SEWER PIPE WITH A STANDARD COUPLING BAND FOR CORRUGATED METAL PIPE, OR GROUTED INTO THE BELL OF CONCRETE PIPE.
6. THE VERTICAL RISER STEM OF THE RESTRICTOR/SEPARATOR SHALL BE THE SAME DIAMETER AS THE HORIZONTAL OUTLET PIPE, WITH AN 12" MINIMUM DIAMETER.
7. FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT:
   A. CLEANOUT GATE IS VISABLE FROM TOP.
   B. CLIMB-DOWN SPACE IS CLEAR OF RISER AND GATE.
   C. FRAME IS CLEAR OF CURB (IF ANY EXISTS).
8. MULTI-ORIFICE ELBOWS MAY BE LOCATED AS SHOWN OR ALL ON ONE SIDE OF RISER TO ASSURE LADDER CLEARANCE. SIZE OF ELBOWS AND PLACEMENT TO BE DETERMINED BY THE ENGINEER.
9. RESTRICTOR PLATE WITH ORIFICE AS SPECIFIED IN THE CONTRACT PLANS. SPECIFIED OPENING TO BE CUT ROUND AND SMOOTH.
10. CLEANOUT/SHEAR GATE:
    ALUMINUM ALLOY PER ASTM B-26-ZG-32a OR CAST IRON ASTM A48 CLASS 30B AS REQUIRED. LIFT HANDLE EITHER SOLID OR TUBING WITH ADJUSTABLE HOOK AS REQUIRED. NEOPRENE RUBBER GASKET REQUIRED BETWEEN RISER MOUNTING FLANGE AND GATE FLANGE. MATING SURFACES OF LID AND BODY TO BE MACHINED FOR PROPER FIT. FLANGE MOUNTING BOLTS SHALL BE 3/8" DIA STAINLESS.
11. ALTERNATE CLEANOUT/SHEAR GATES TO THE DESIGN SHOWN ON SHEET 2 ARE ACCEPTABLE, PROVIDED THEY MEET THE MATERIAL SPECIFICATIONS ABOVE AND HAVE A SIX BOLT, 10 3/8" BOLT CIRCLE FOR BOLTING THE FLANGE CONNECTION.
12. GATE SHALL NOT OPEN BEYOND THE CLEAR OPENING BY LIMITED HINGE MOVEMENT, STOP TAB, OR SOME OTHER DEVICE.
13. PRECAST CONCRETE MANHOLE CONSTRUCTED IN ACCORDANCE WITH ASTM C478.
14. SEE SHEET 2 FOR DETAILS ON ELBOW AND FOR PLAN VIEW.
15. MATERIAL OF VERTICAL PIPE SHALL BE HDPE, PVC, OR OTHER APPROVED MATERIAL.

SCALE	DATE	ENGR.	DRAWN	REV.	DRAWING NO.
NTS	JAN '23	DW	KAE		601-1

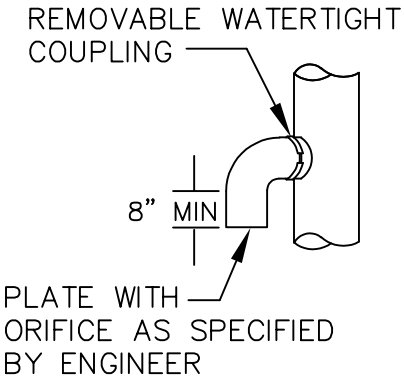
ALTERNATES ARE ACCEPTABLE PROVIDED MATERIAL SPECIFICATIONS ARE MET AND FLANGE BOLT PATTERN MATCHES.



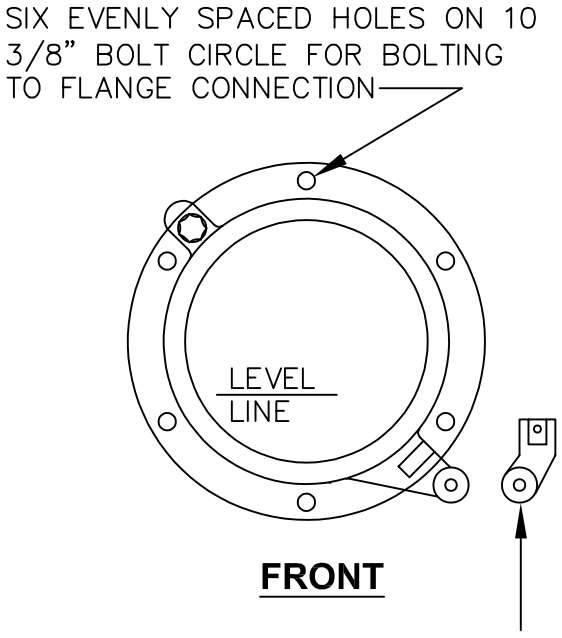
PLAN VIEW



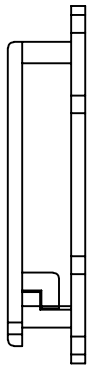
LIFT HANDLE



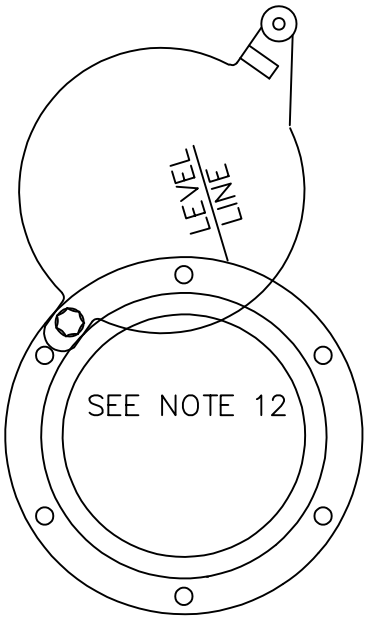
ELBOW DETAIL



FRONT



SIDE



MAXIMUM OPENING OF GATE

LIFT HANDLE SHALL BE ATTACHED PER MANUFACTURER'S RECOMMENDATIONS

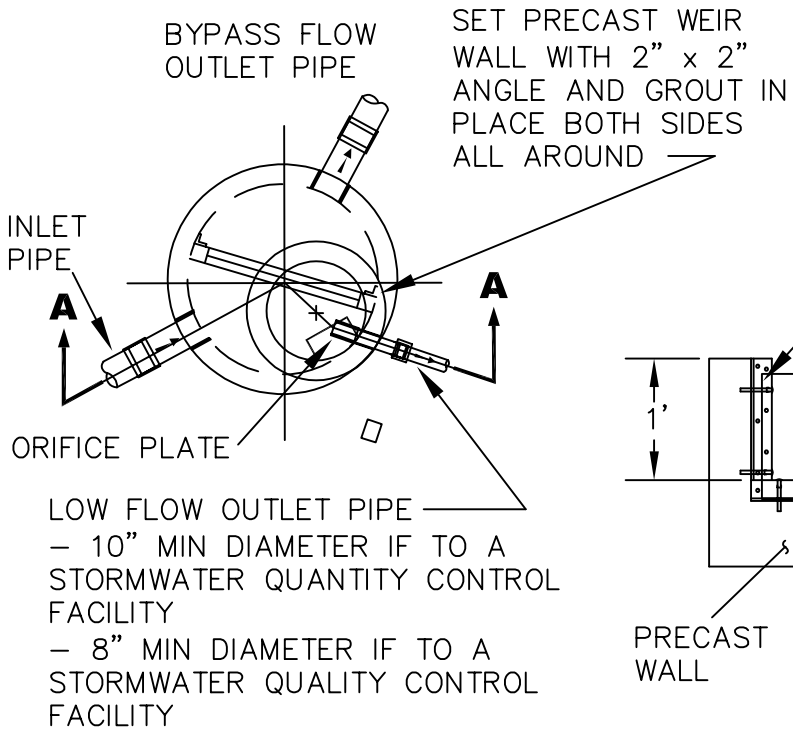
CLEANOUT/SHEAR GATE

OREGON CITY

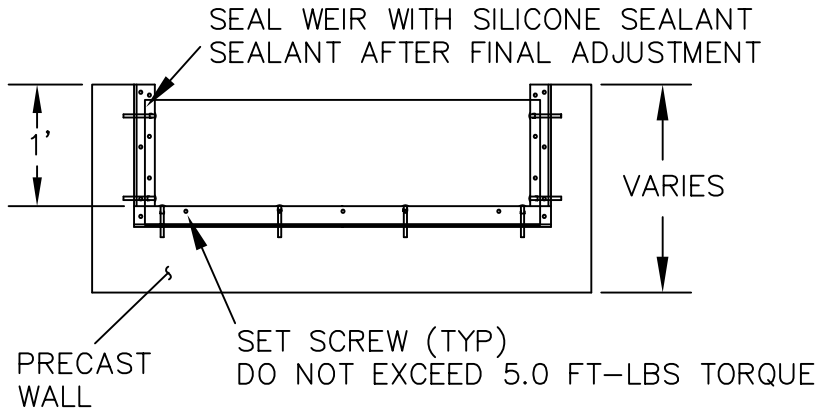
Public Works Standard Drawings

FLOW CONTROL MANHOLE - STORMWATER DETENTION TEE RISER TYPE

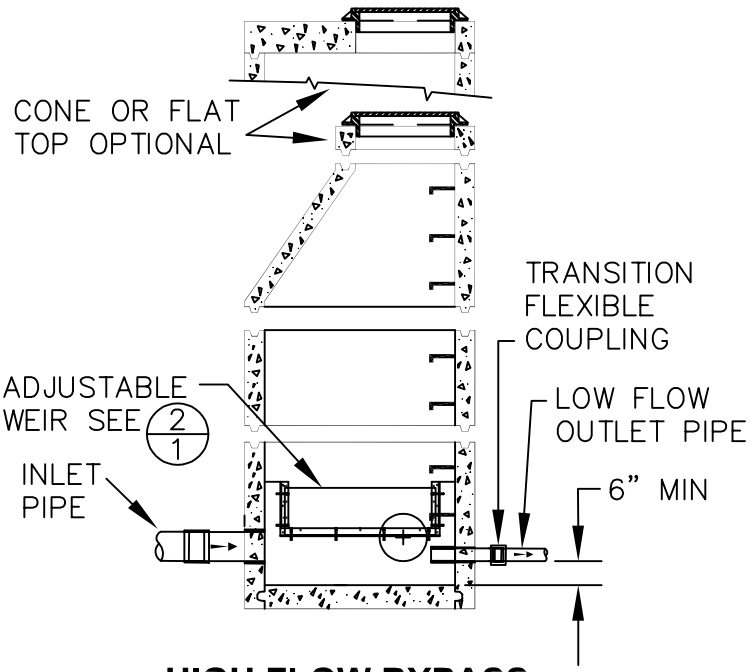
SCALE	NTS
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO.	601-2



HIGH FLOW BYPASS PLAN VIEW



HIGH FLOW BYPASS WEIR DETAIL

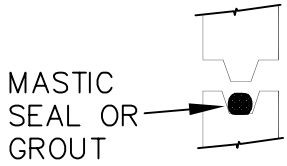


HIGH FLOW BYPASS SECTION VIEW

TOP UNIT

STANDARD CAST IRON FRAME AND COVERS ARE AVAILABLE IN A 3" SUBURBAN AND 7" STANDARD.

FLAT TOP SLABS COME WITH OPENINGS OFFSET TO ONE SIDE OR CENTERED IN SLAB. HS–20 LOADING CAPABLE.



KEYLOCK JOINT

NOTE:.

1. MANHOLE MATERIAL AND INSTALLATION PER DRAWING 301.

OREGON CITY	Public Works Standard Drawings	SCALE NTS
		DATE JAN '23 REV.
	HIGH FLOW BYPASS MANHOLE	ENGR. DW DRAWN KAE
		DRAWING NO. 602-1

SPECIFICATIONS

PART 1 SUBMITTALS

PRECASTER TO SUBMIT SHOP DRAWING TO CONTRACTOR FOR ENGINEER'S APPROVAL.

PART 2 PRODUCTS

2.1 FLOW KIT COMPONENTS

A. PVC PIPING: ALL INTERNAL PVC PIPING AND FITTINGS SHALL MEET ASTM D1785.
B. SLIDE GATE VALVE: SHALL BE CONSTRUCTED OF PVC WITH STAINLESS STEEL SHAFT AND ALUMINUM HANDLE.
C. THE WEIR: SHALL BE CONSTRUCTED OF PVC, FRP, PLASTIC AND STAINLESS STEEL.
D. STEEL REINFORCED POLYPROPYLENE STEPS ARE INSTALLED AS REQUIRED.
E. ORIFICE PLATE: SHALL BE CONSTRUCTED OF PVC OR STAINLESS STEEL.
F. FLOW KIT COMPONENTS ARE AVAILABLE FROM LOCAL SUPPLIERS.

2.2 PRE-CAST CONCRETE STRUCTURE COMPONENTS

A. PRECAST CONCRETE: SHALL BE PROVIDED ACCORDING TO DRAWING 301.
B. JOINT SEALANT: SHALL BE CONSEAL CS-101 OR ENGINEER APPROVED EQUIVALENT.

2.3 CONTRACTOR PROVIDED COMPONENTS

A. CONCRETE (FOR CONCRETE NOT COVERED BY PRE-CAST SPECIFICATION ABOVE): SHALL BE 3000 PSI, 28 DAY STRENGTH, 3/4 INCH ROUND ROCK, 4 INCH SLUMP MAXIMUM, PLACED WITHIN 90 MINUTES OF INITIAL MIXING.
B. SILICONE SEALANT: SHALL BE PURE RTV SILICONE CONFORMING TO FEDERAL SPECIFICATION NUMBER TT S001543A TT S0023C OR ENGINEER APPROVED.
C. GROUT: SHALL BE NON-SHRINK GROUT MEETING THE REQUIREMENTS OF CORPS OF ENGINEERS CRD-C588. SPECIMENS MOLDED, CURED AND TESTED IN ACCORDANCE WITH ASTM C-109 SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 6,200 PSI. GROUT SHALL NOT EXHIBIT VISIBLE BLEEDING.
D. SUB-BASE: SHALL BE SIX (6) INCH MINIMUM OF 3/4 INCH MINUS ROCK, 95% COMPACTION. COMPACT UNDISTURBED SUB-GRADE MATERIALS TO 95% OF MAXIMUM DENSITY AT +/- 2% OF OPTIMUM MOISTURE. UNSUITABLE MATERIAL BELOW SUB-GRADE SHALL BE REPLACED TO SITE ENGINEER'S APPROVAL.
E. BACKFILL: SHALL BE 3/4 INCH MINUS ROCK (95% COMPACTION), OR AS OTHERWISE SPECIFIED IN THE PROJECTS GENERAL TECHNICAL SPECIFICATIONS.

PART 3 EXECUTION

3.1 PRECAST CONCRETE MANHOLE - PER DRAWING 301

A. CONTRACTOR TO GROUT ALL INLET AND OUTLET PIPES FLUSH WITH INTERIOR WALL. CONTRACTOR TO GROUT INTERIOR WALLS.
B. BOOTS: FOR NEW MANHOLES, USE KOR-N-SEAL BOOTS (OR EQUAL). CONNECTIONS TO EXISTING MANHOLES SHALL USE SANDED PVC COLLAR WITH GASKETED JOINT. FLEXIBLE JOINT SHALL BE NO GREATER THAN 18" FROM EXTERIOR MANHOLE WALL.

3.2 WEIRS

AT PROJECT COMPLETION, WEIRS SHALL BE SET TO SPECIFIED ELEVATION, LEVEL AND SEALED AT ALL JOINTS WITH SILICONE SEALANT. SEALANT SHALL BE WORKED INTO JOINT FROM BOTH SIDES.

3.3 CLEANUP

REMOVE ALL EXCESS MATERIALS, ROCKS, ROOTS, OR FOREIGN MATERIAL, LEAVING THE SITE IN A CLEAN, COMPLETE CONDITION APPROVED BY THE ENGINEER. ALL PVC AND FIBERGLASS FILTER COMPONENTS SHALL BE FREE OF ANY FOREIGN MATERIALS, INCLUDING CONCRETE AND EXCESS SEALANT.

3.4 PVC PIPING

SHALL BE JOINDED IN ACCORDANCE WITH ASTM D2564.

BASIC OPERATIONS MAINTENANCE GUIDELINES

A. MINIMUM ANNUAL MAINTENANCE INCLUDES INSPECTION OF COMPONENTS AND REMOVAL OF SEDIMENTS.
B. INSPECT SYSTEM CONDITION IN THE EVENT OF A 5 YEAR STORM OR GREATER.

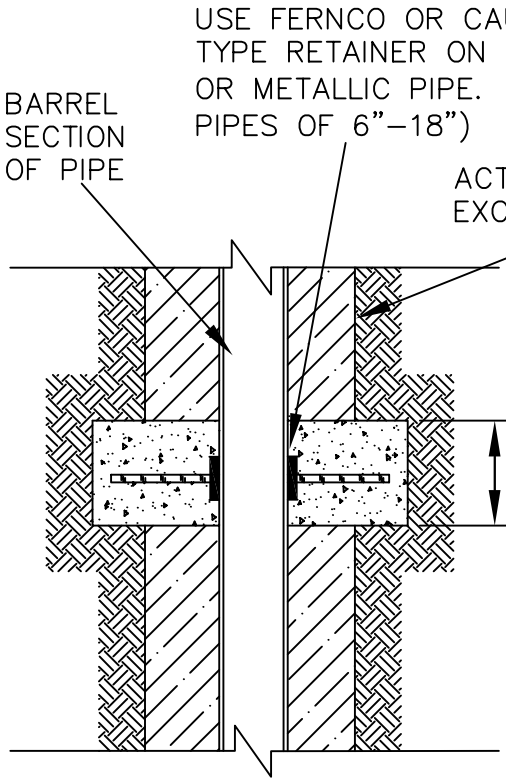
NOTE: FOLLOW ALL LOCAL, STATE, & FEDERAL SAFETY GUIDELINES.

OREGON CITY

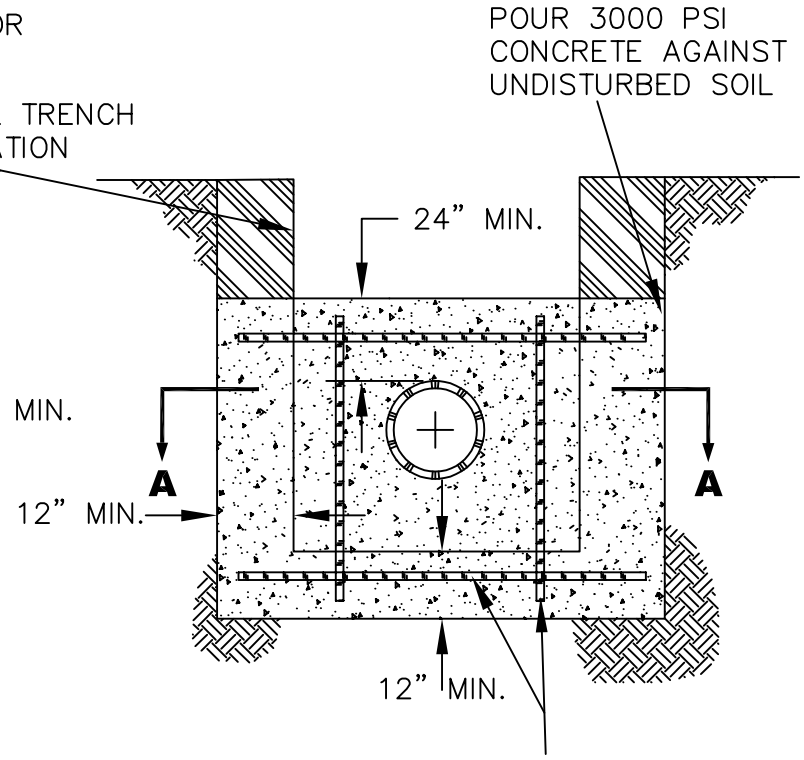
Public Works Standard Drawings

HIGH FLOW BYPASS MANHOLE

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 602-2	



SECTION A - A



#4 REBAR VERT. & HORZ. @12" O.C. OUTSIDE OF PIPE 3" CLEAR.

ELEVATION

CONCRETE ANCHOR WALLS (CLASS 3000) SHALL BE CONSTRUCTED USING FORMS WHEN SEWERS, STORM DRAINS, AND OTHER PIPELINES ARE CONSTRUCTED WITH SLOPES 20 PERCENT OR GREATER. REMOVE FORMS PRIOR TO BACKFILLING TRENCH.

MIN. SPACING OF ANCHOR WALLS:

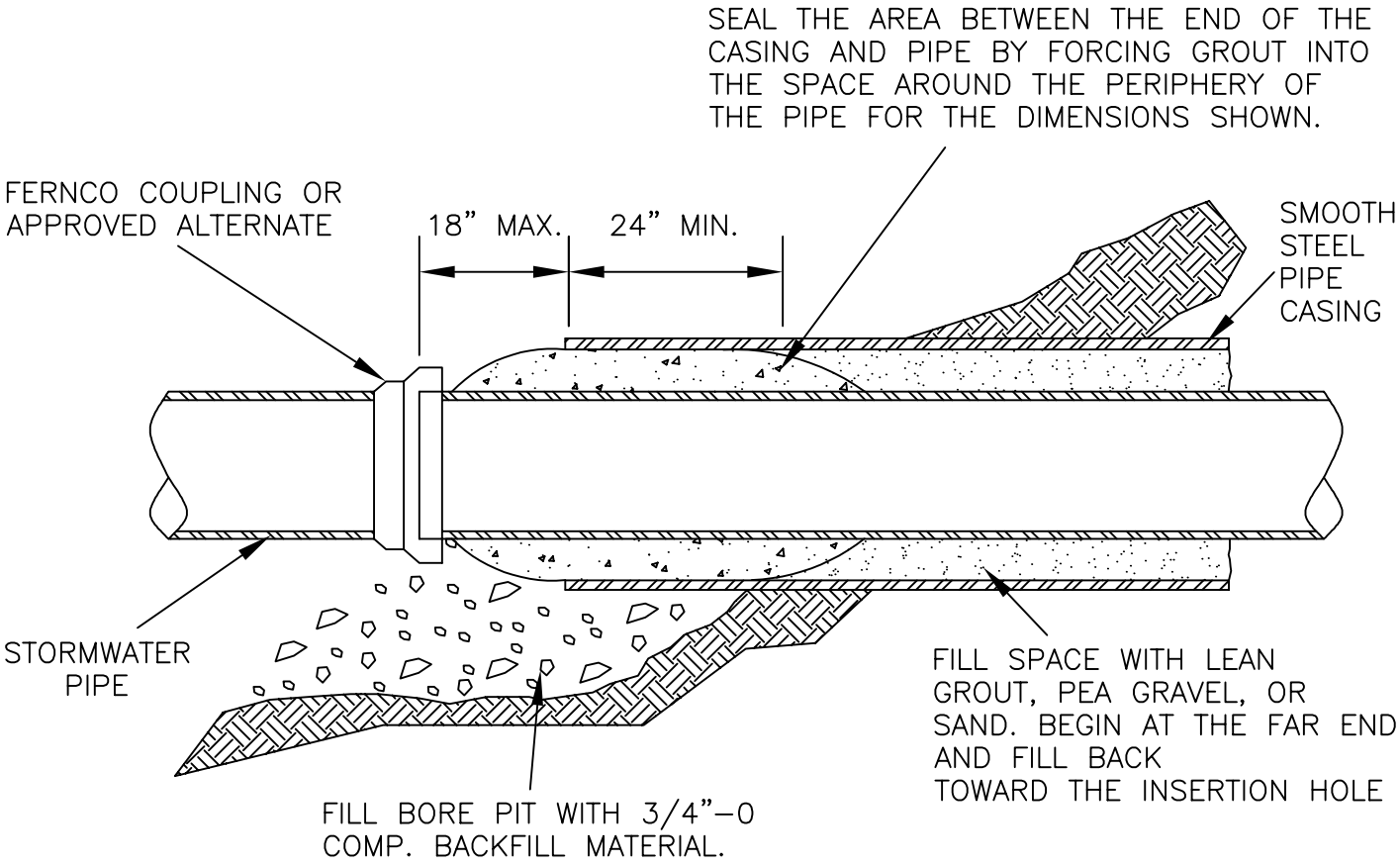
SLOPE:	SPACING:
20–35%	35 FEET
35–50%	25 FEET
>50%	15 FEET OR SPECIAL DESIGN

OREGON CITY

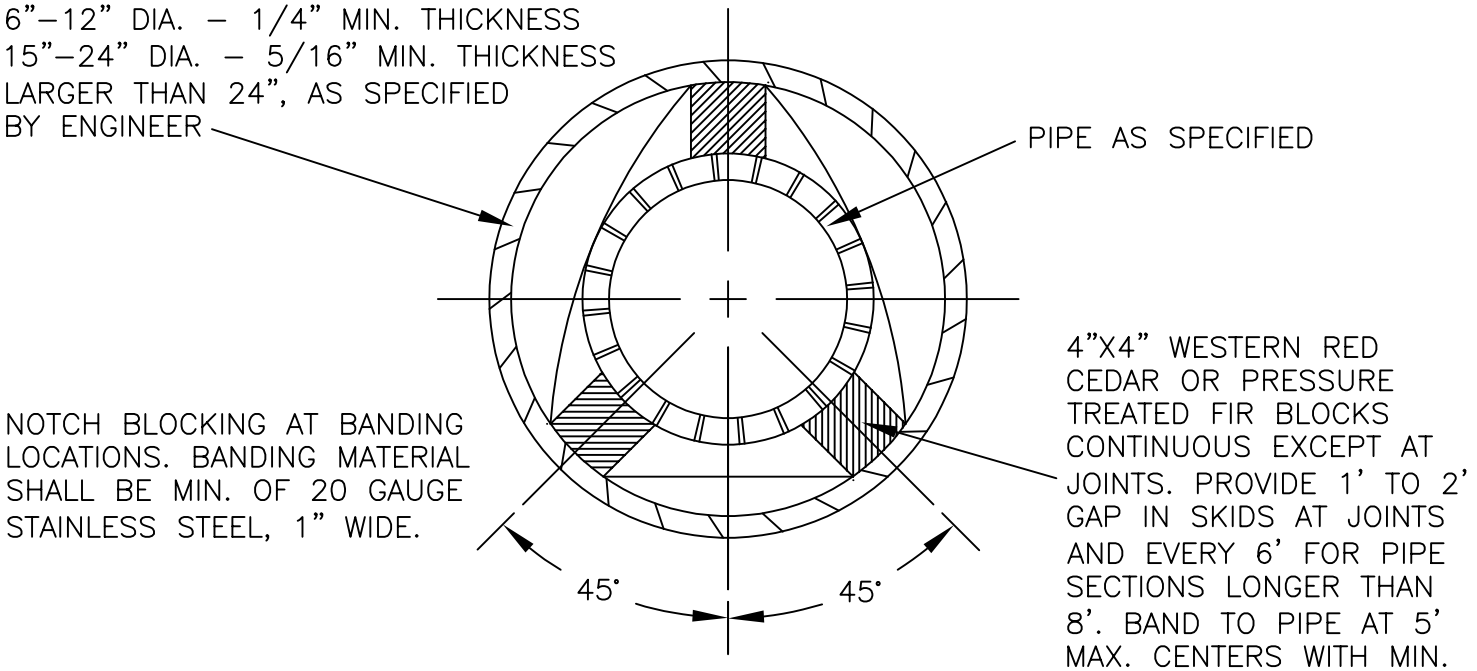
Public Works Standard Drawings

PIPE ANCHOR WALL

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 605	

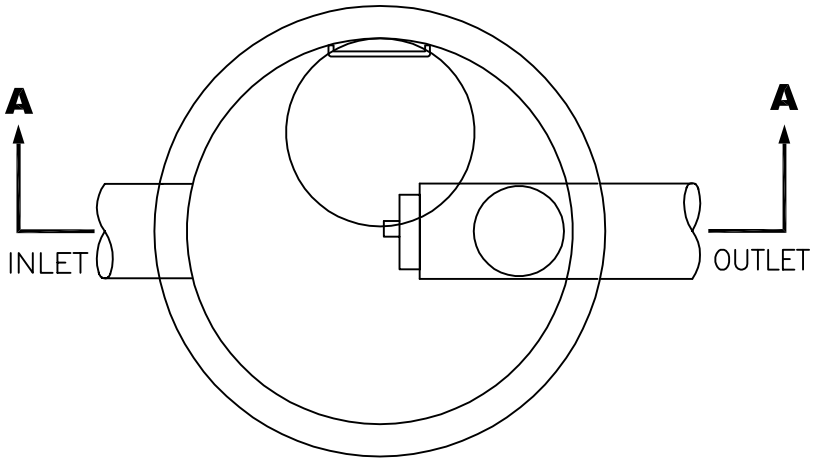


PIPE SEAL DETAIL



CASING SECTION

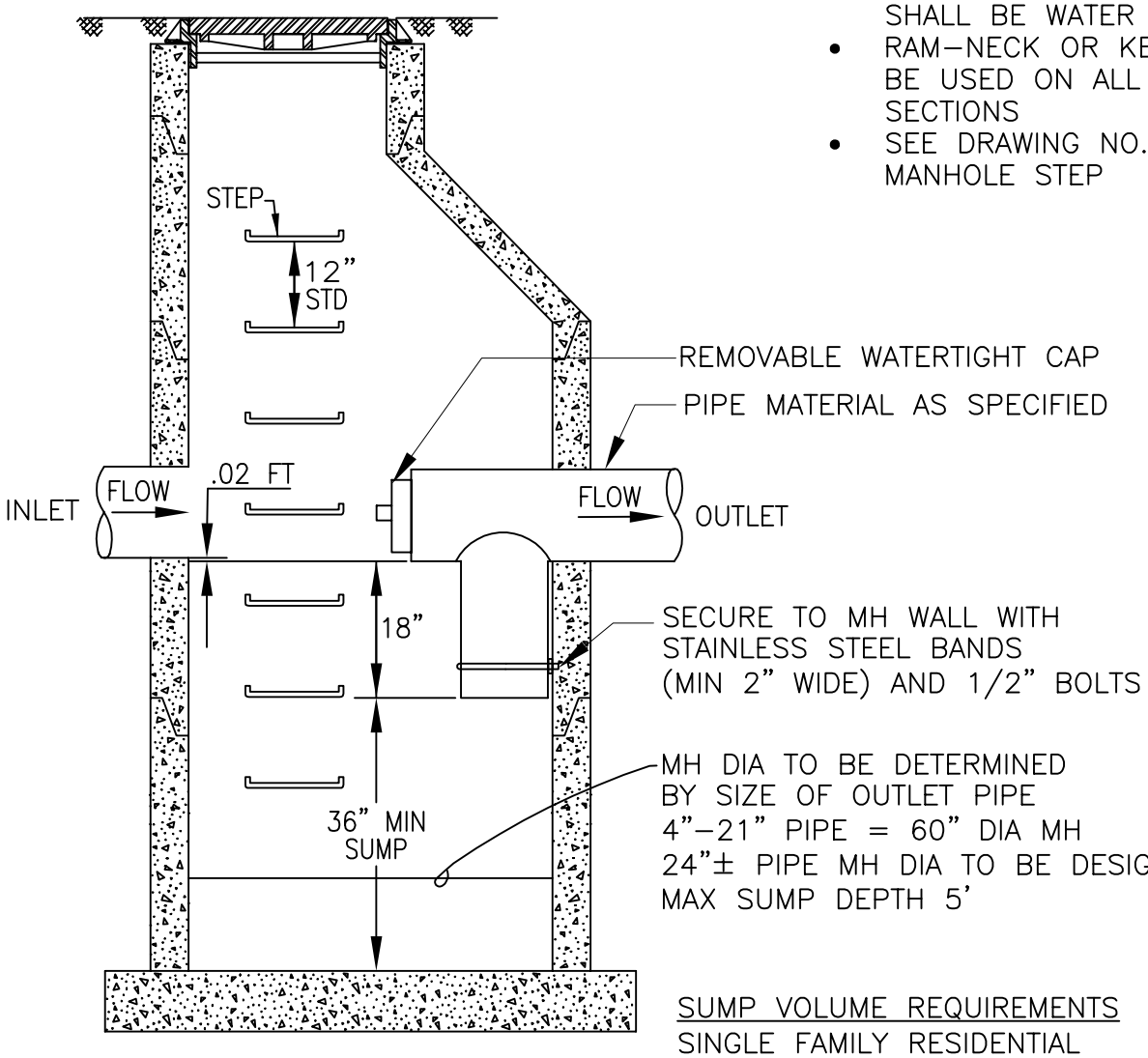
OREGON CITY	Public Works Standard Drawings	SCALE NTS
		DATE JAN '23 REV.
	BORE CASING	ENGR. DW DRAWN KAE
		DRAWING NO. 606



PLAN

NOTES:

- MANHOLE TO CONFORM WITH DRAWING NO. 301
- MANHOLE PIPE CONNECTIONS PER DRAWING 301
- MANHOLE FRAME AND COVER AS SPECIFIED SEE DRAWING 305
- ALL PIPES ENTERING OR EXITING SHALL BE WATER TIGHT
- RAM–NECK OR KENT– SEAL TO BE USED ON ALL MANHOLE SECTIONS
- SEE DRAWING NO. 307 MANHOLE STEP



SECTION A-A

SUMP VOLUME REQUIREMENTS

SINGLE FAMILY RESIDENTIAL	3.5 CF/ACRE
MULTI FAMILY RESIDENTIAL	22.0 CF/ACRE
COMMERCIAL/INDUSTRIAL	94.0 CF/ACRE

OREGON CITY

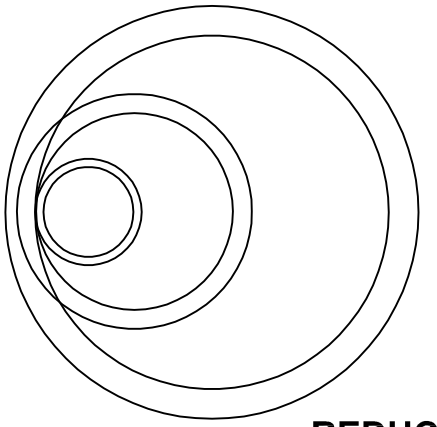
Public Works Standard Drawings

POLLUTION CONTROL MANHOLE

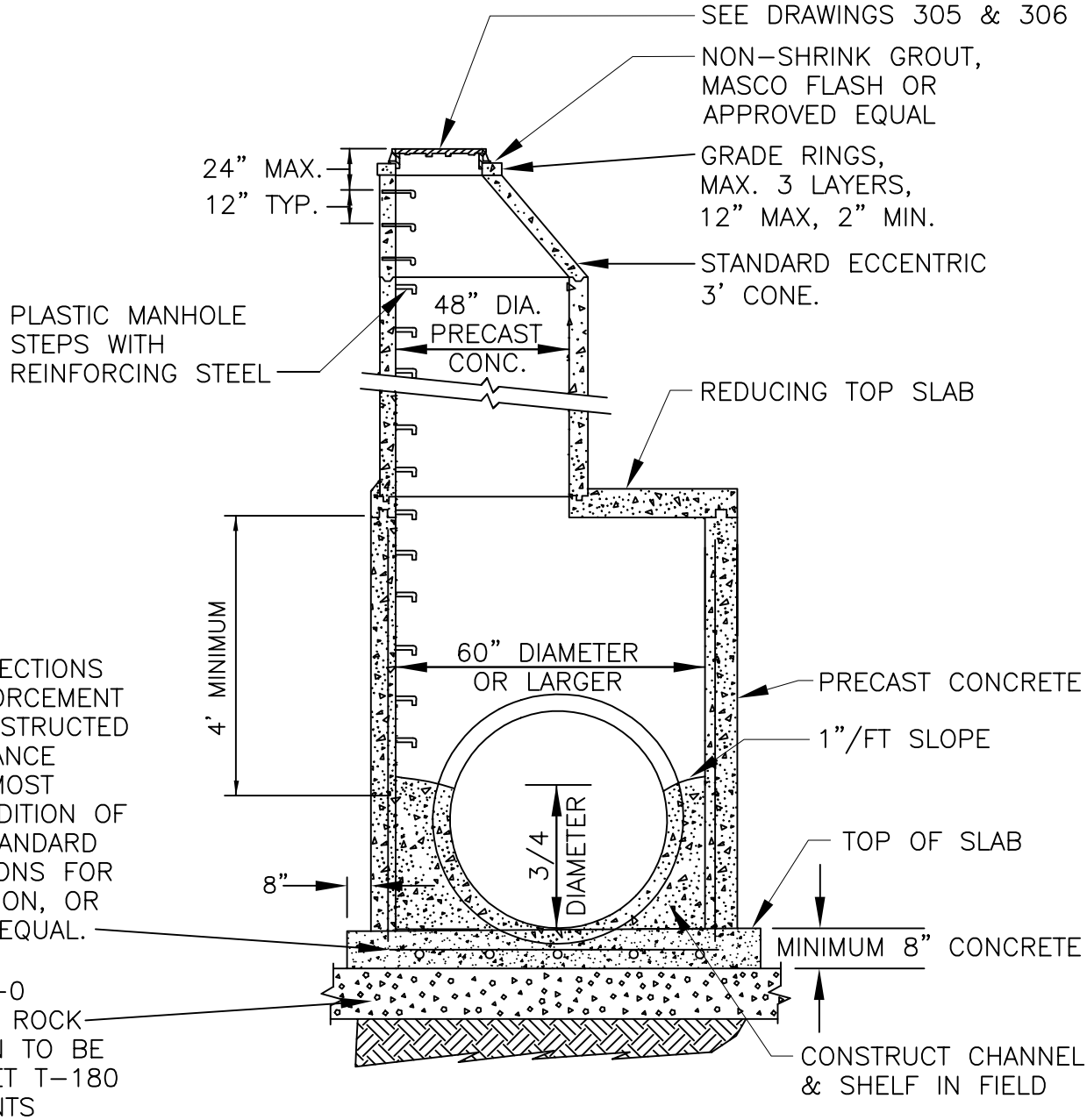
SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	607		

NOTES:

1. MANHOLE FRAME AND COVER AS SPECIFIED. SEE DRAWINGS 305 AND 306.
2. ALL PIPES ENTERING OR EXITING SHALL BE WATER TIGHT
3. CHANNELS TO BE 3/4 VERTICAL HEIGHT OF PIPE–SMOOTH FINISH
4. INSIDE DROP MAXIMUM 2' VERTICAL DISTANCE INVERT TO INVERT
5. ALL CONCRETE TO BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH



REDUCING TOP SLAB



MANHOLE SECTIONS AND REINFORCEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE MOST CURRENT EDITION OF OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, OR APPROVED EQUAL.

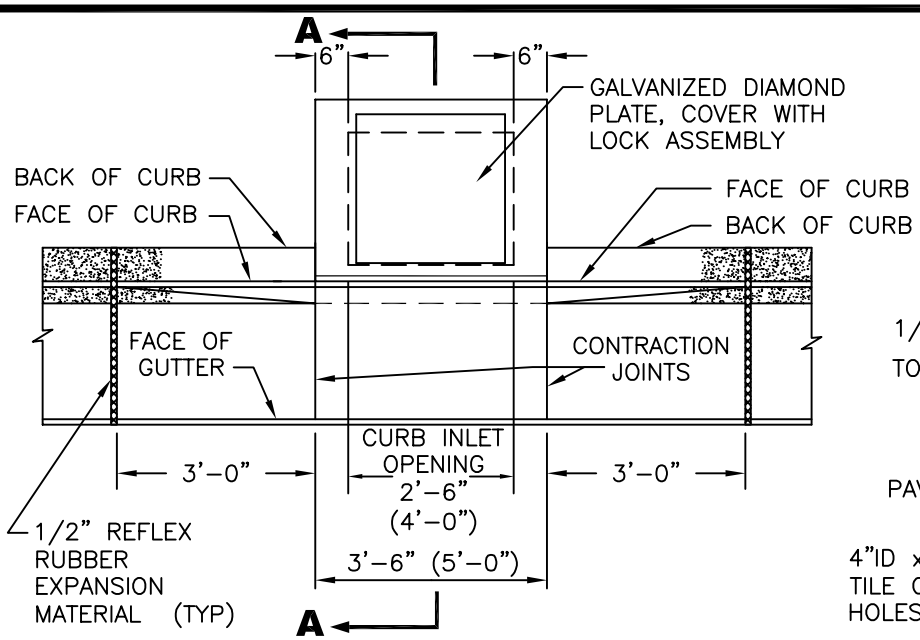
12" –3/4"–0 COMPACTED ROCK COMPACTION TO BE 95% & MEET T–180 REQUIREMENTS

OREGON CITY

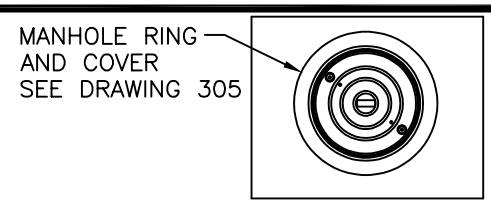
Public Works Standard Drawings

MANHOLE FOR LARGE DIAMETER PIPE (PIPE 27" AND LARGER)

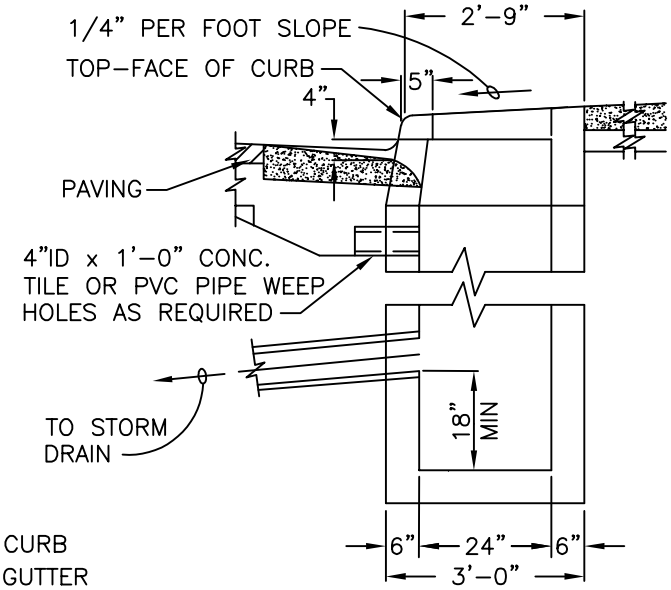
SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	608		



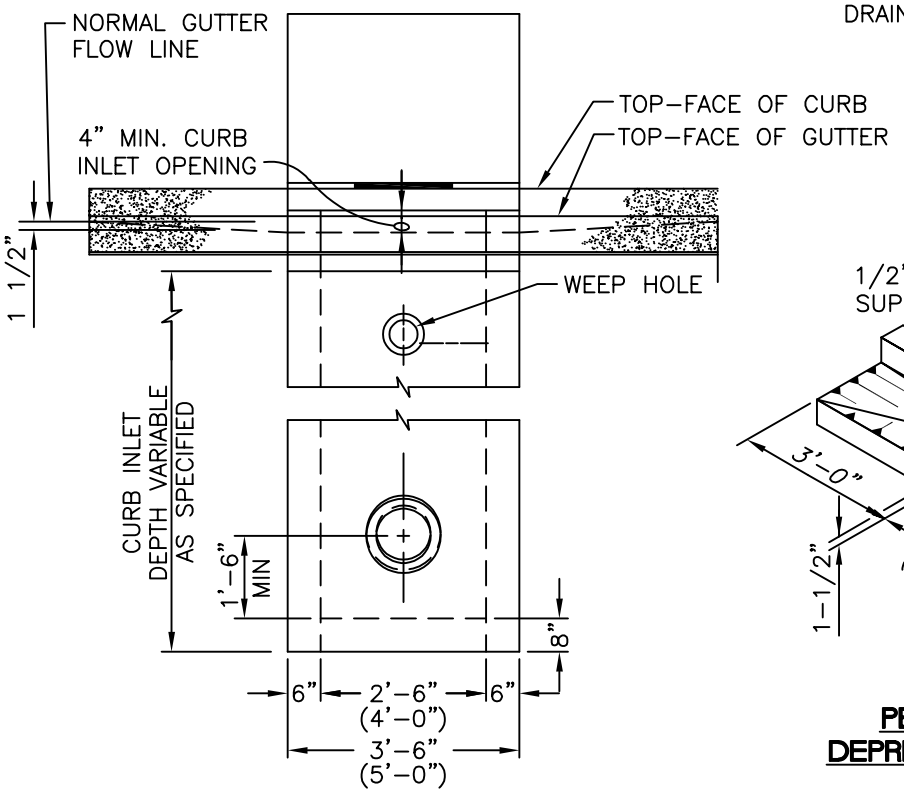
PLAN VIEW



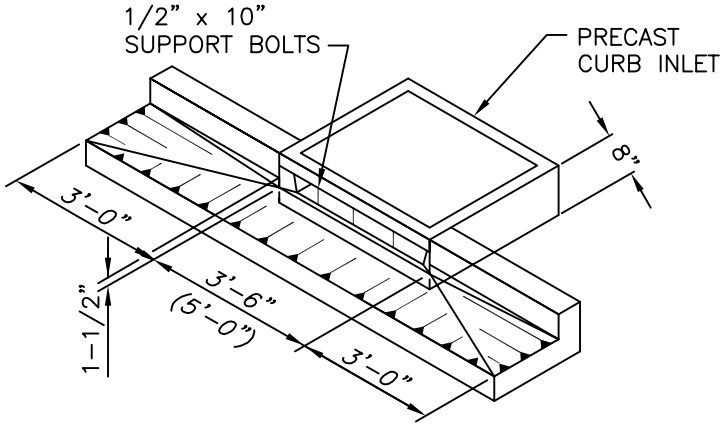
OPTIONAL COVER



SECTION A-A



FRONT VIEW



PERSPECTIVE VIEW SHOWING DEPRESSED GUTTER AT CURB INLET

NOTES:

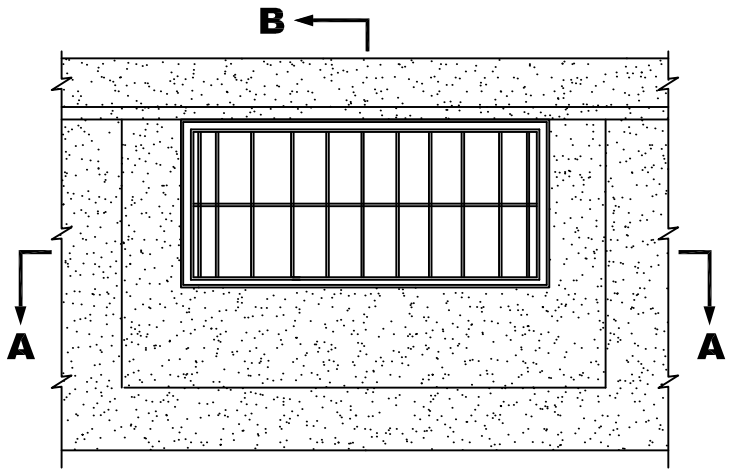
1. CURB INLET TOP AND BASE SHALL MEET H–20 LOADING
2. CONCRETE STRENGTH SHALL BE 3000 PSI.
3. ALL FABRICATED METAL PARTS SHALL BE HOT–DIPPED GALVANIZED AFTER FABRICATION.
4. FOR STEEP GRADES USE STD. PRECAST INLET WITH 4'–0" OPENING OR TWO 2'–6" OPENING INLETS.
5. CURB INLET BASE MAY BE PRECAST OR CAST–IN–PLACE.
6. DIMENSIONS SHOWN ABOVE IN PARENTHESIES ARE FOR 4A INLETS. A 1 1/2 A INLET SHALL HAVE A CURB INLET OPENING WIDTH OF 1'–6" AND AN OUTSIDE WIDTH OF 2'–6"; ALL OTHER DIMENSIONS AND DETAILS SHALL BE AS SHOWN.

OREGON CITY

Public Works Standard Drawings

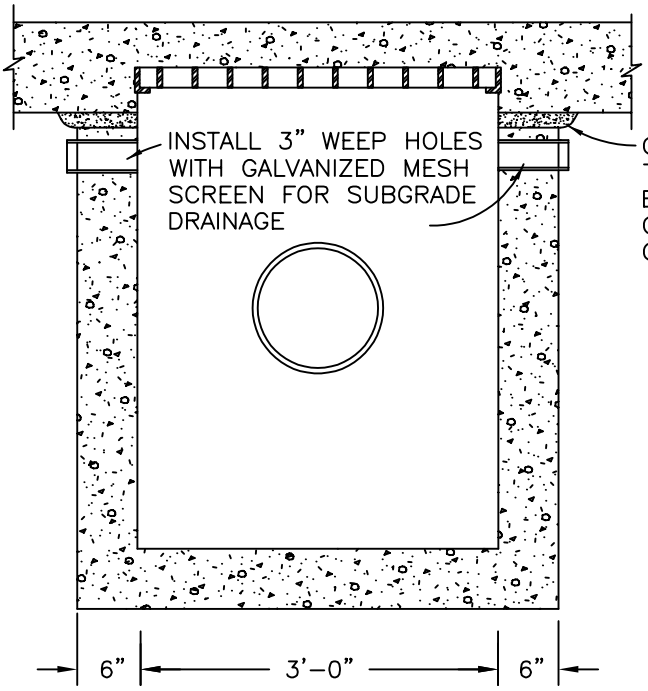
PRECAST CURB INLET
1 1/2 A, 2 21/2 A, 4 A

SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	609		

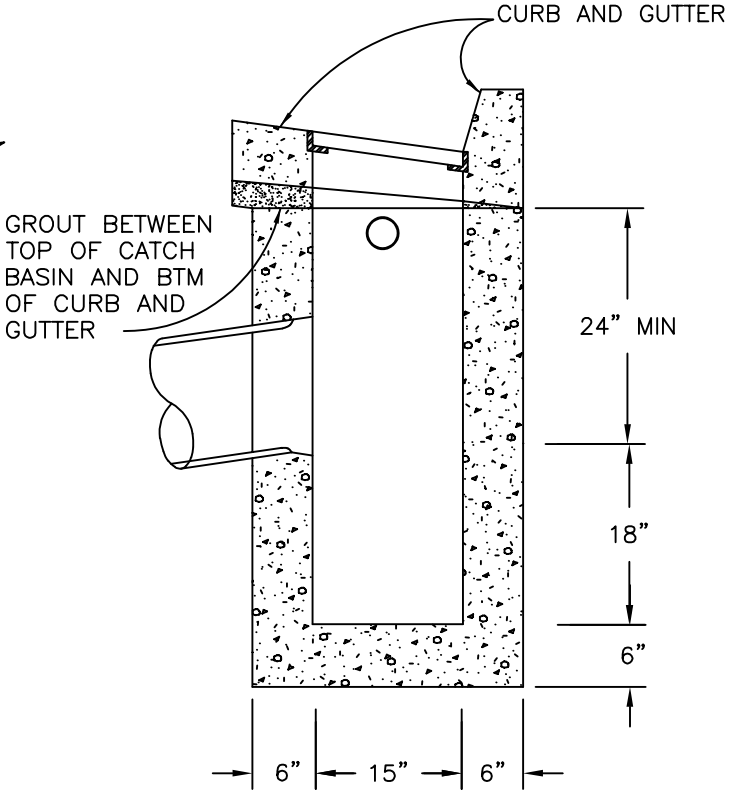


PLAN

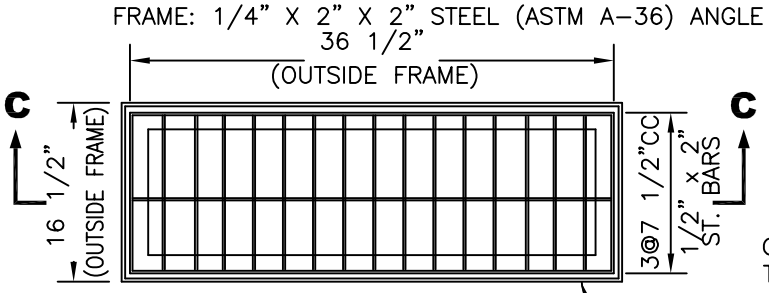
NOTES:
1. PRECAST BASE WALLS MAY BE A MINIMUM OF 4" THICK.
2. CONCRETE SHALL BE CLASS 3000.
3. APPROVED CAST IRON FRAMES AND GRATES MAY BE ACCEPTED.



SECTION A-A

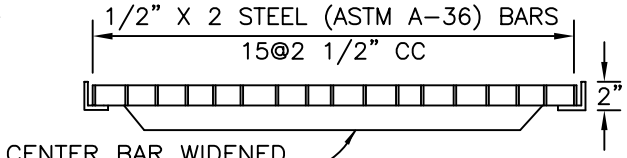


SECTION B-B



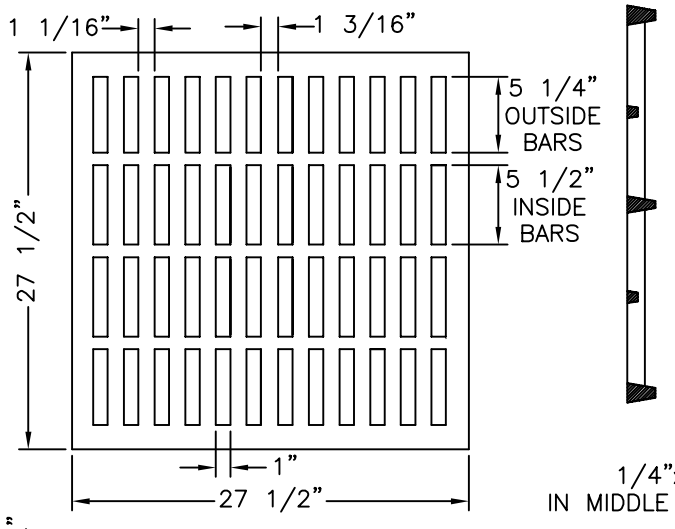
FRAME AND GRATE PLAN

ALL CORNERS OF GRATE BARS TO BE WELDED



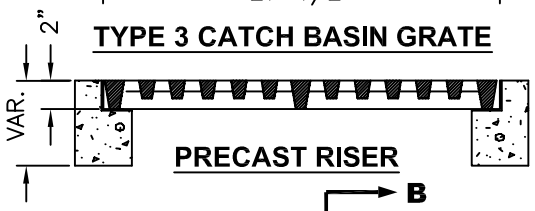
SECTION C-C

Public Works Standard Drawings	SCALE NTS	
	DATE JAN '23	REV.
CATCH BASIN	ENGR. DW	DRAWN KAE
	DRAWING NO. 610-1	

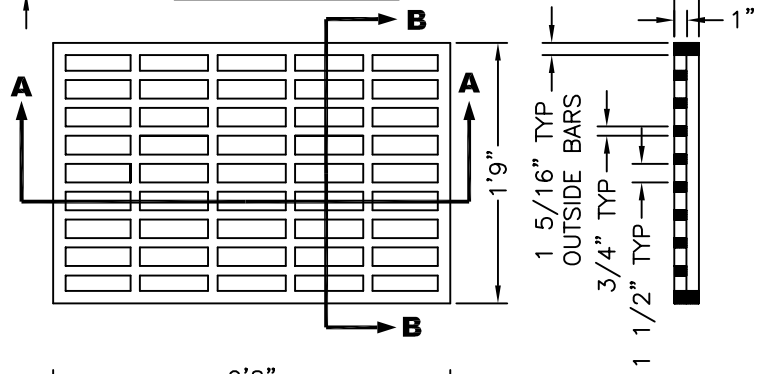


TYPE 3 CATCH BASIN GRATE

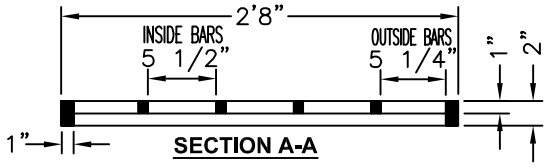
TYPE 3 FRAME - STEEL



PRECAST RISER

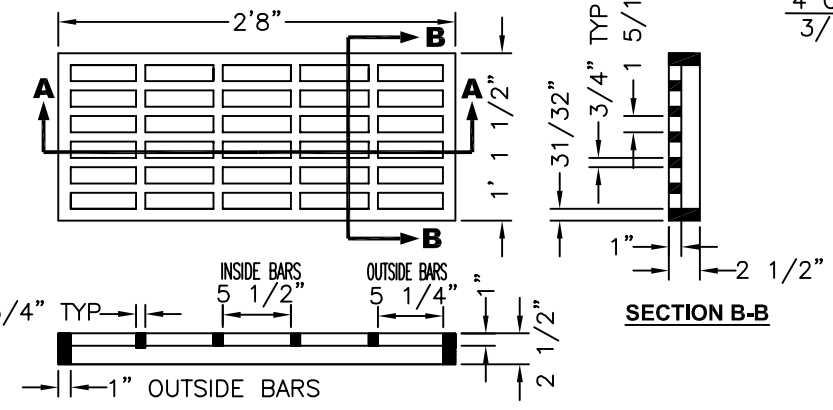


SECTION B-B



SECTION A-A

G-1 CATCH BASIN - 1 EACH/UNIT

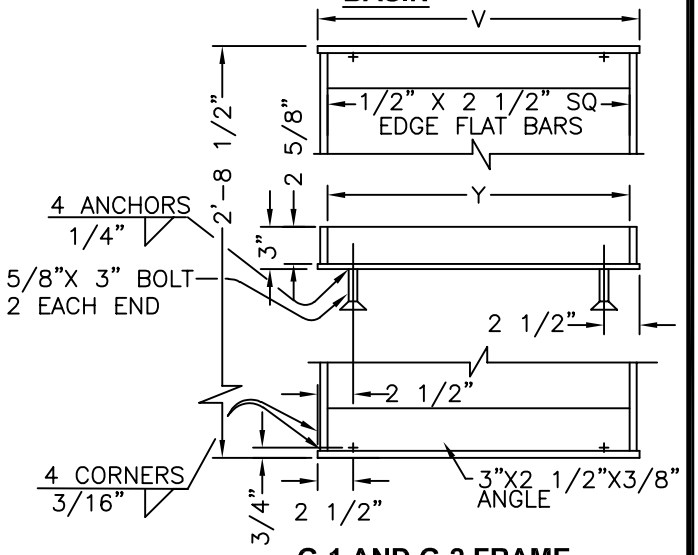


SECTION B-B

SECTION A-A

G-2 CATCH BASIN 2 EACH/UNIT
CAST IRON GRATES

OPTIONAL CAST IRON FRAME FOR A MORTAR-ON TYPE 3 CATCH BASIN



G-1 AND G-2 FRAME

INLET TYPE	V	Y
G-1, CG-1	1'-10 3/4"	1'-9 3/8"
G-2, CG-2	2'-4 3/4"	2'-3 3/8"

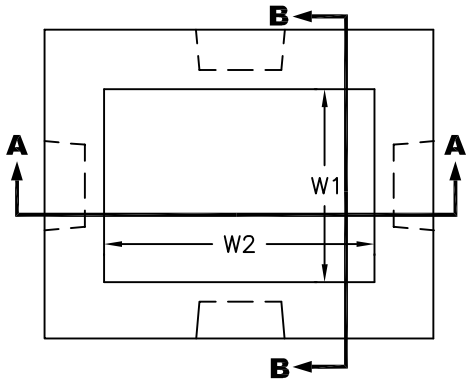
NOTES:
CATCH BASIN, FRAME AND GRATES SHALL MEET H20 LOADING

OREGON CITY

Public Works Standard Drawings

FRAMES AND GRATES
G-1, G-2, TYPE 3

SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	610-3		

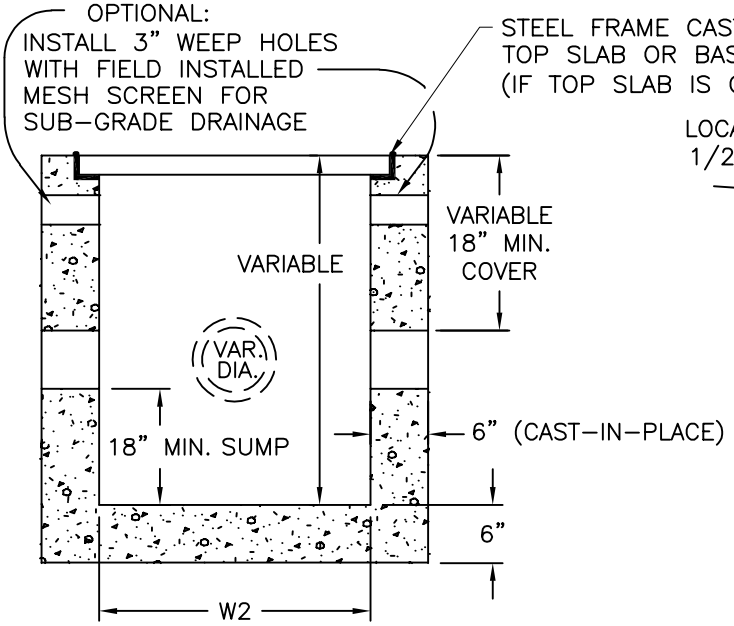


TOP VIEW

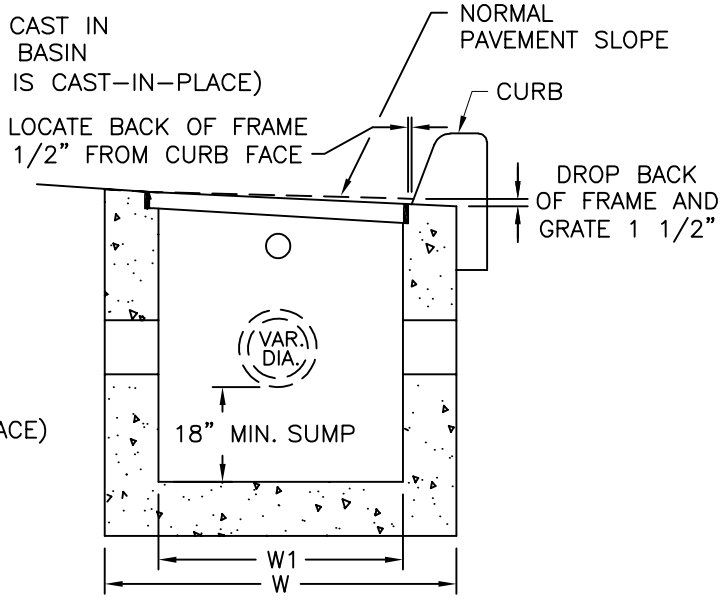
INLET TYPE	W	W_1	W_2
G–1	2'–8 7/8"	1'–8 7/8"	2'–4 1/4"
G–2	3'–3 3/8"	2' 3 3/8"	2'–4 1/4"
TYPE–3	2'–8"	2"–0"	2'–0"

NOTES:

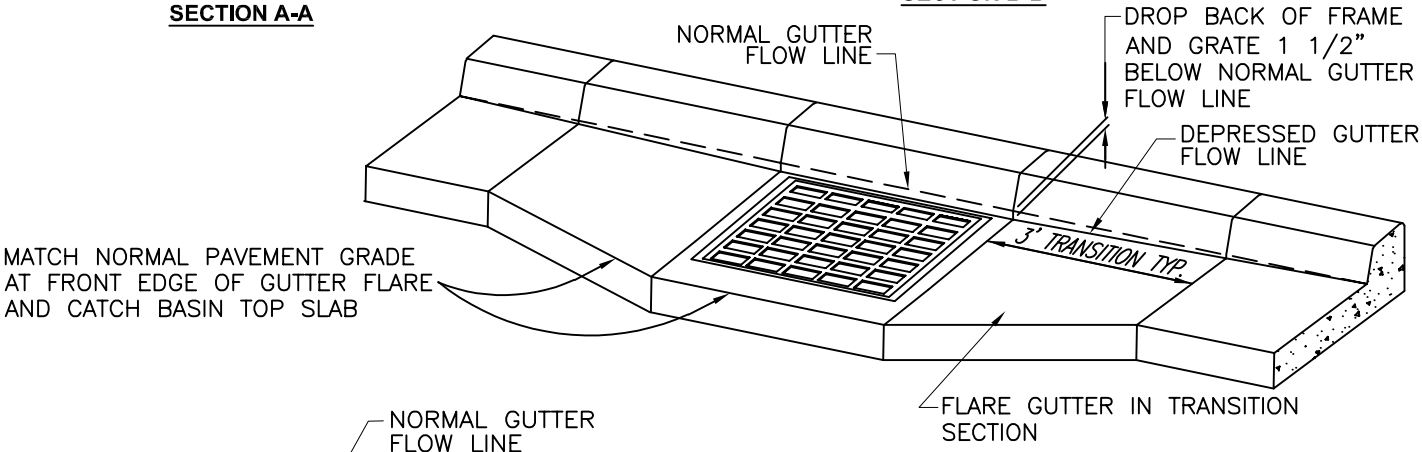
1. CONCRETE STRENGTH SHALL BE 3000 PSI.
2. PRECAST BASE WALLS SHALL BE A MINIMUM 4" THICK. CAST–IN–PLACE BASE WALLS SHALL BE 6" THICK.
3. "X" DIMENSION ASSUMES A 24" GUTTER. ADD 6" FOR AN 18" GUTTER.
4. CATCH BASIN AND GRATE SHALL MEET H–20 LOADING.
5. FOR FRAME AND GRATES SEE DRAWING 610–3.

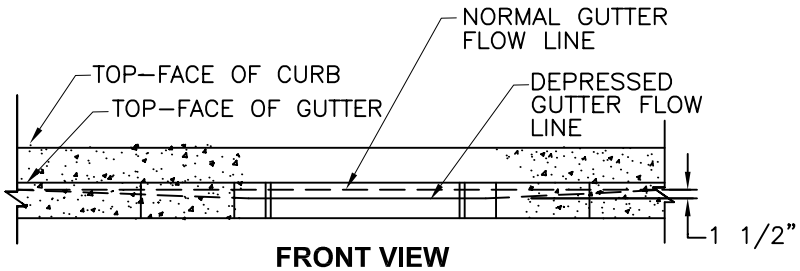


SECTION A-A



SECTION B-B





FRONT VIEW

NOTE: PRECAST TOP SLAB SHOWN WITH GUTTER TRANSITION FLARE IF THE TOP SLAB IS CAST–IN–PLACE, NO FLARE IS REQUIRED IN THE TRANSITION SECTION: MATCH THE TOP FRONT EDGE OF THE FRAME AND THE TOP FRONT EDGE OF THE CAST–IN–PLACE TOP SLAB TO THE NORMAL PAVEMENT GRADE.

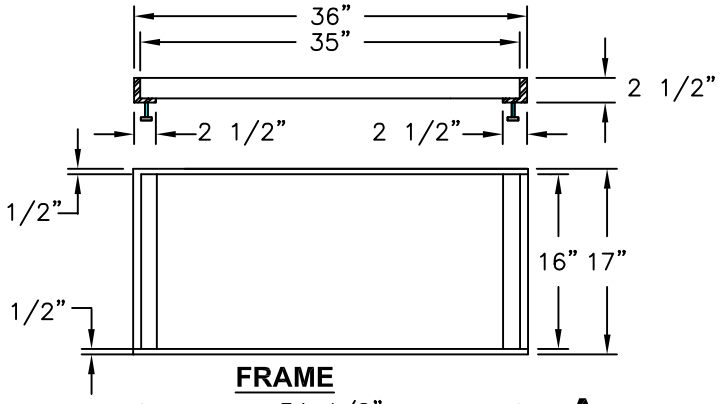
OREGON CITY

Public Works Standard Drawings

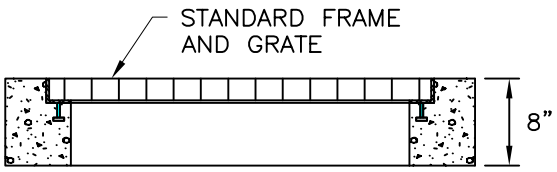
TYPE G-1, G-2, TYPE 3 CATCH BASIN WITH SUMP

SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	610-4		

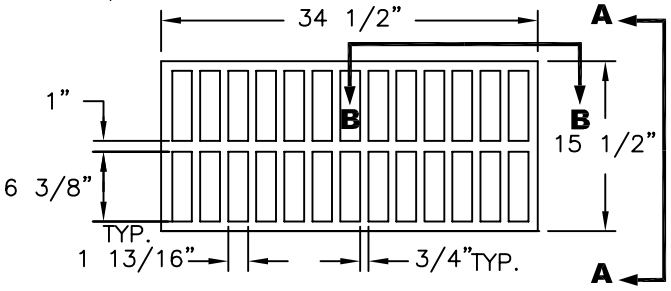
USE ASTM A-36 STEEL
AND AWS E-7024
WELDING ELECTRODES



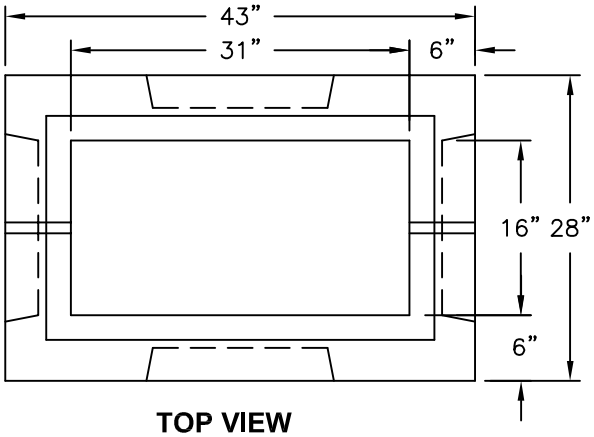
FRAME



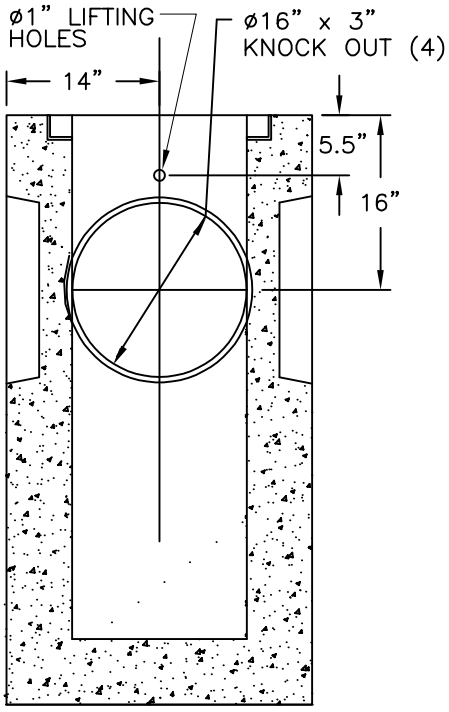
INLET SECTION



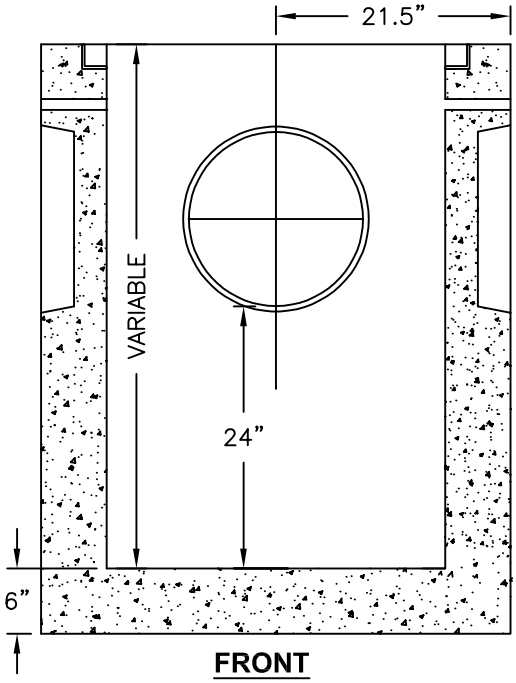
BIKE-PROOF GRATE



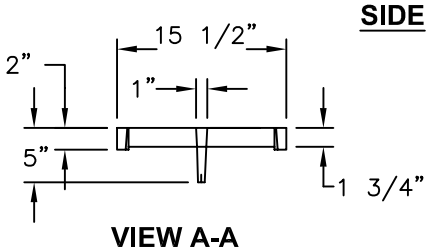
TOP VIEW



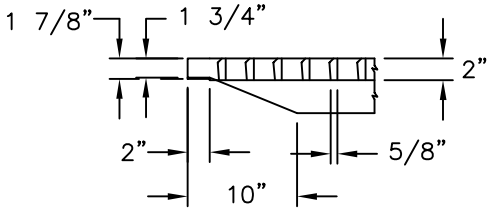
SIDE



FRONT

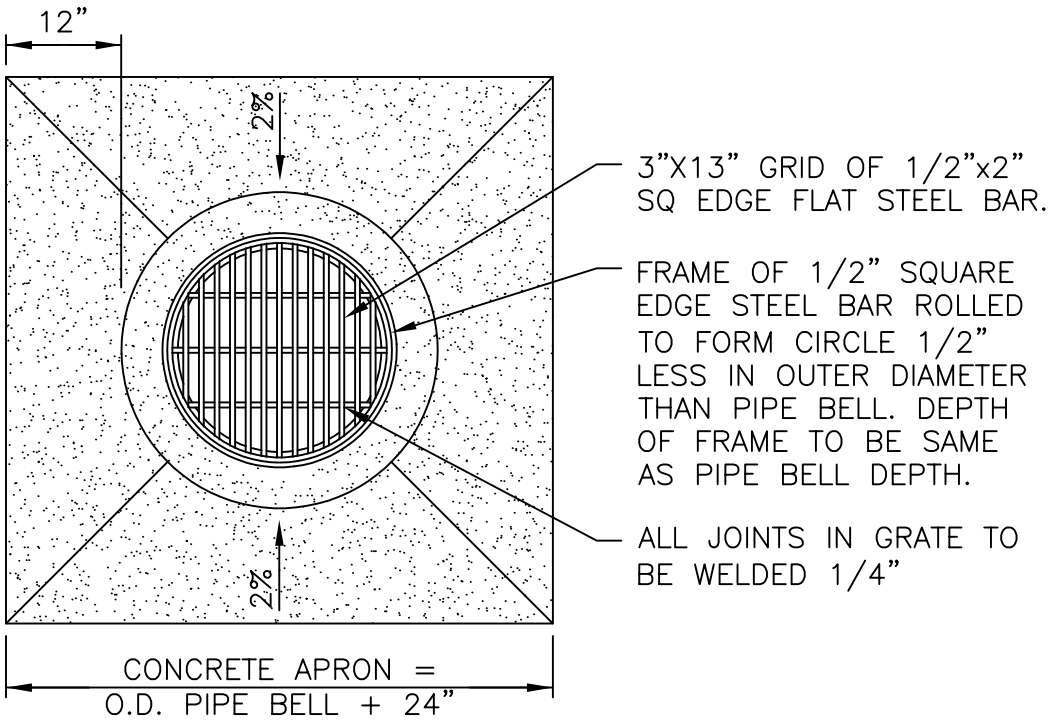


VIEW A-A

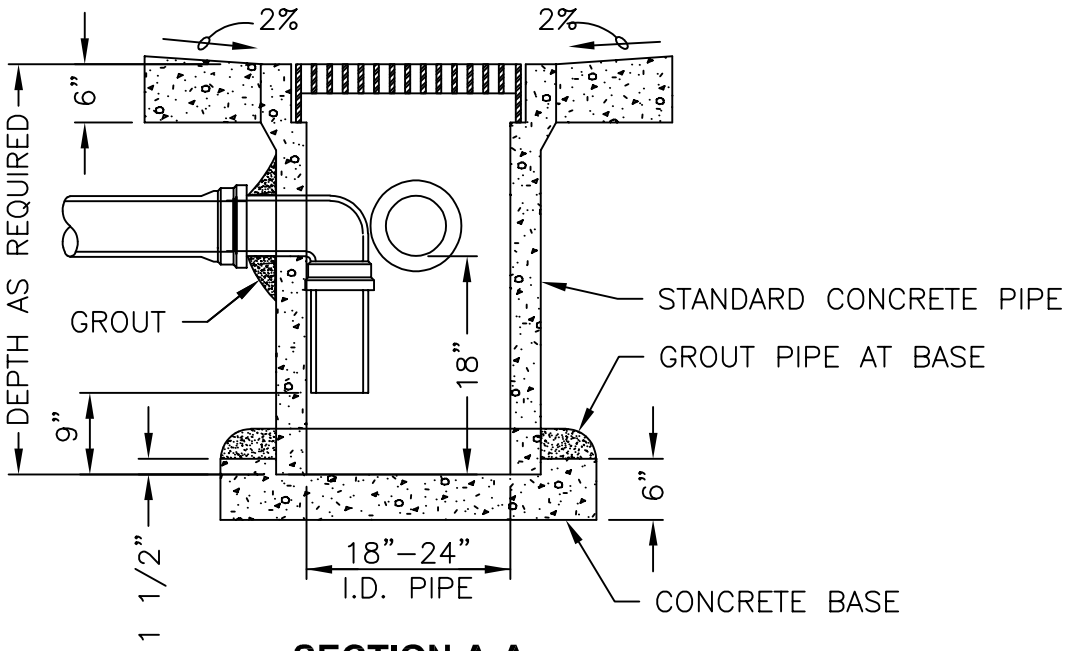


VIEW B-B

Public Works Standard Drawings	SCALE NTS	
	DATE JAN '23	REV.
TYPE 4 CATCH BASIN DETAIL	ENGR. DW	DRAWN KAE
	DRAWING NO. 610-5	



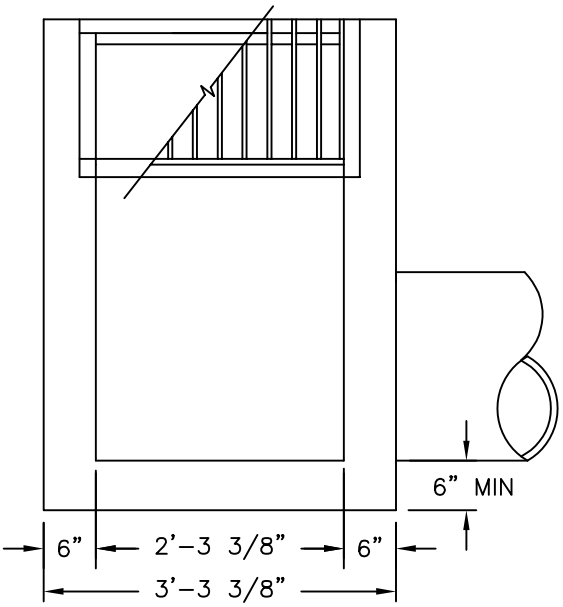
PLAN



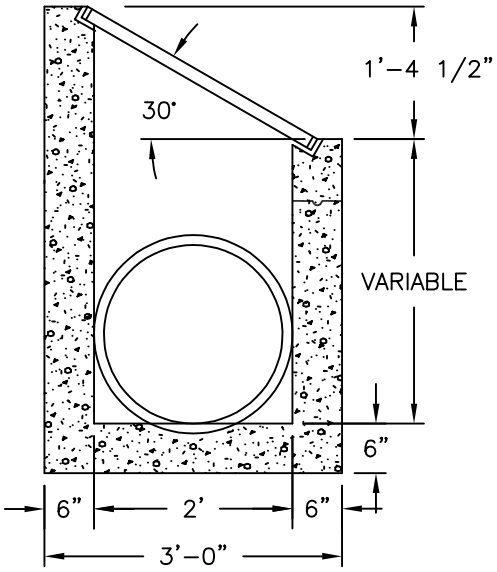
SECTION A-A

NOTES:
1. GRATES SHALL BE CONSTRUCTED FOR BICYCLE SAFETY.
2. PRECAST CONCRETE CATCH BASINS MAY BE USED WHEN SPECIFIED OR APPROVED.
3. NOT FOR USE IN VEHICULAR TRAFFIC AREAS.

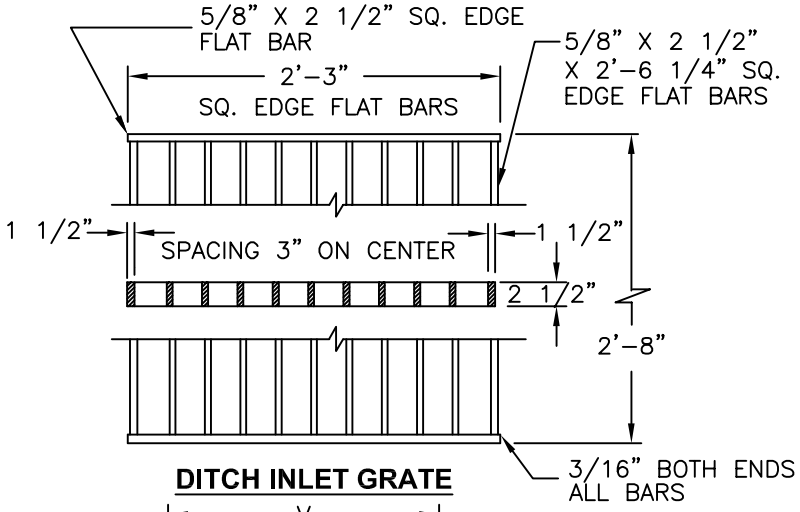
OREGON CITY	Public Works Standard Drawings	SCALE NTS
		DATE JAN '23 / REV.
	AREA DRAINAGE BASIN OR FIELD INLET	ENGR. DW / DRAWN KAE
		DRAWING NO. 611-1



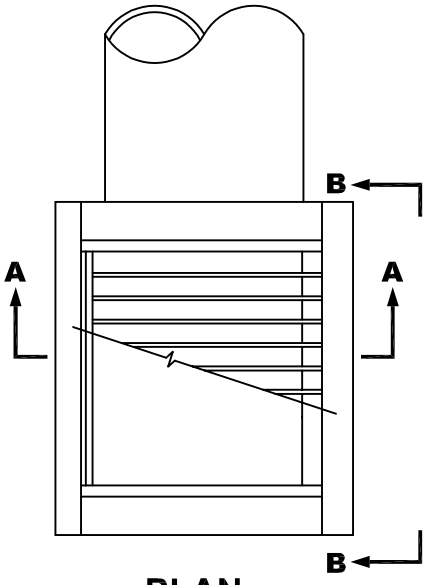
SECTION B-B



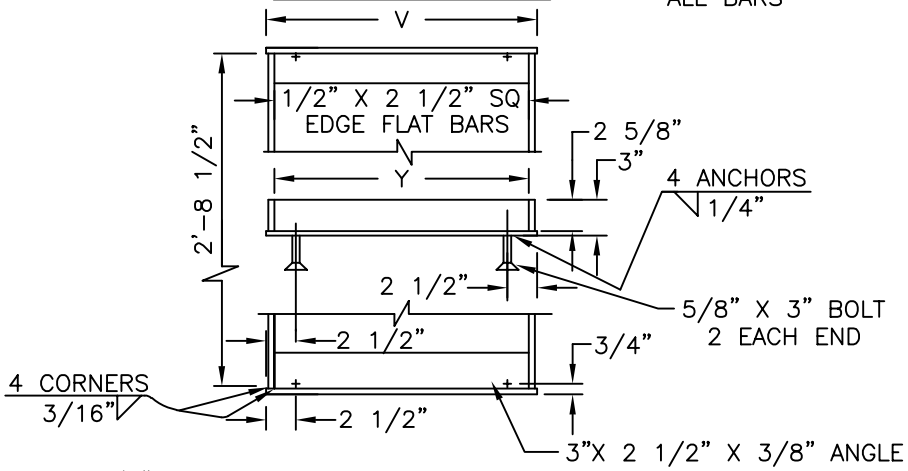
SECTION A-A



DITCH INLET GRATE



PLAN



NOTE: 3/8" CROSS BARS SHALL BE FLUSH WITH THE GRATE SURFACE AND MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.

DITCH INLET FRAME

NOTES:
1. CONCRETE STRENGTH SHALL BE 3000 PSI.
2. G–2 GRATES MAY BE USED IF APPROVED BY THE ENGINEER.
3. CATCH BASIN, FRAME, AND GRATES SHALL MEET H20 LOADING.
4. INSIDE FRAME DIMENSIONS: 2'–3 3/8", 2'–8 1/2."

INLET TYPE	V	Y	Y_1	NO. OF BARS	TYPE
D	2'–4 3/4"	2'–3 3/8"	2'–3"	9	1

OREGON CITY

Public Works Standard Drawings

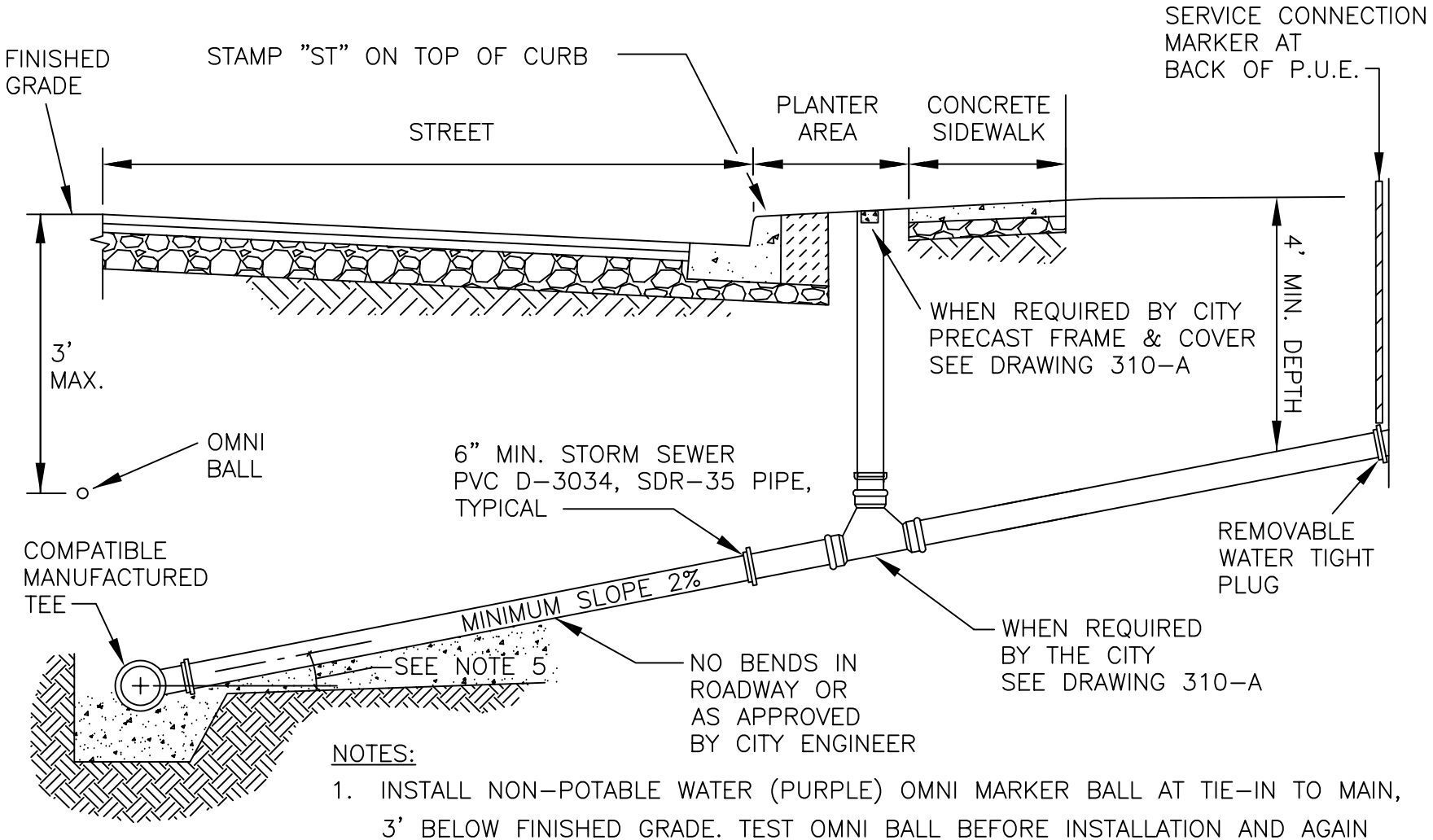
DITCH INLET

SCALE	NTS
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO.	611-2

OREGON CITY

Public Works Standard Drawings

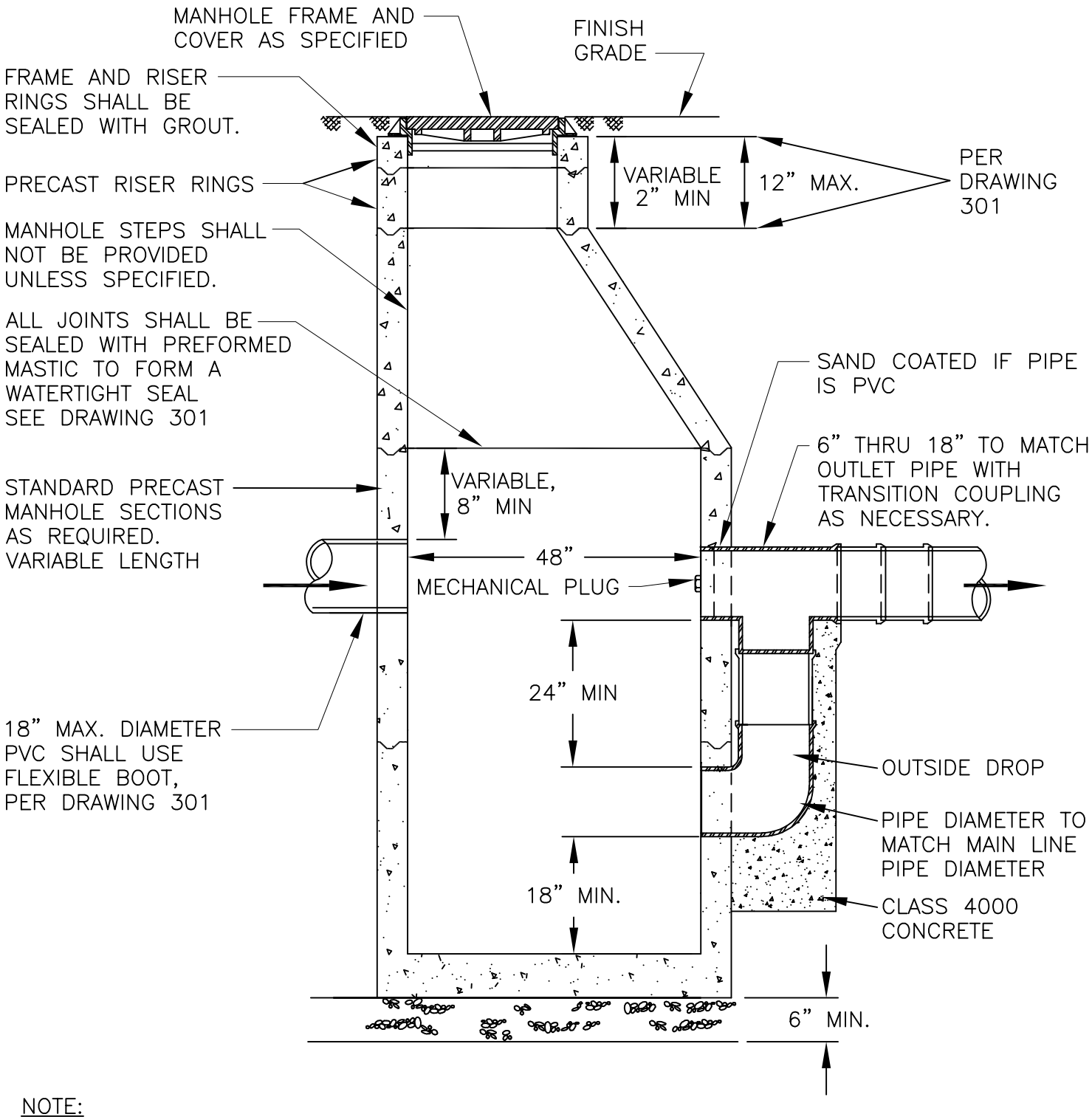
STORM SEWER SERVICE



NOTES:

1. INSTALL NON-POTABLE WATER (PURPLE) OMNI MARKER BALL AT TIE-IN TO MAIN, 3' BELOW FINISHED GRADE. TEST OMNI BALL BEFORE INSTALLATION AND AGAIN AFTER FINISHED GRADE IS PLACED. OMNI BALL-NON-POTABLE WATER-PURPLE, FREQUENCY 66.35 KHz, MODEL 168, UPC 11050.
2. WHEN REQUIRED BY THE CITY, INSTALL 2-WAY CLEANOUT PER STANDARD DRAWING 310-A.
3. VIDEO INSPECT LATERAL BETWEEN MAINLINE AND CLEANOUT PER APPLICABLE APWA/ODOT STANDARDS.
4. 2" x 4" TREATED STAKE FROM INVERT TO 1' ABOVE FINISH GRADE. SERVICE MARKER SHALL BE CONTINUOUS AND REMAIN VERTICAL AFTER BACKFILLING. END SHALL BE PAINTED WHITE WITH "STM" MARKED ON POST. (TYPICAL AT ALL SERVICES.)
5. CENTERLINE OF SERVICE OUTLET ON TEE SHALL BE ABOVE SPRINGLINE.
6. STORM SEWER SERVICE LINES SHALL BE 90° PERPENDICULAR TO STORM SEWER MAIN.

DRAWING NO.	ENGR.	DATE	SCALE
612	DW	JAN '23	NTS
	DRAWN	REV.	
	KAE		



NOTE:

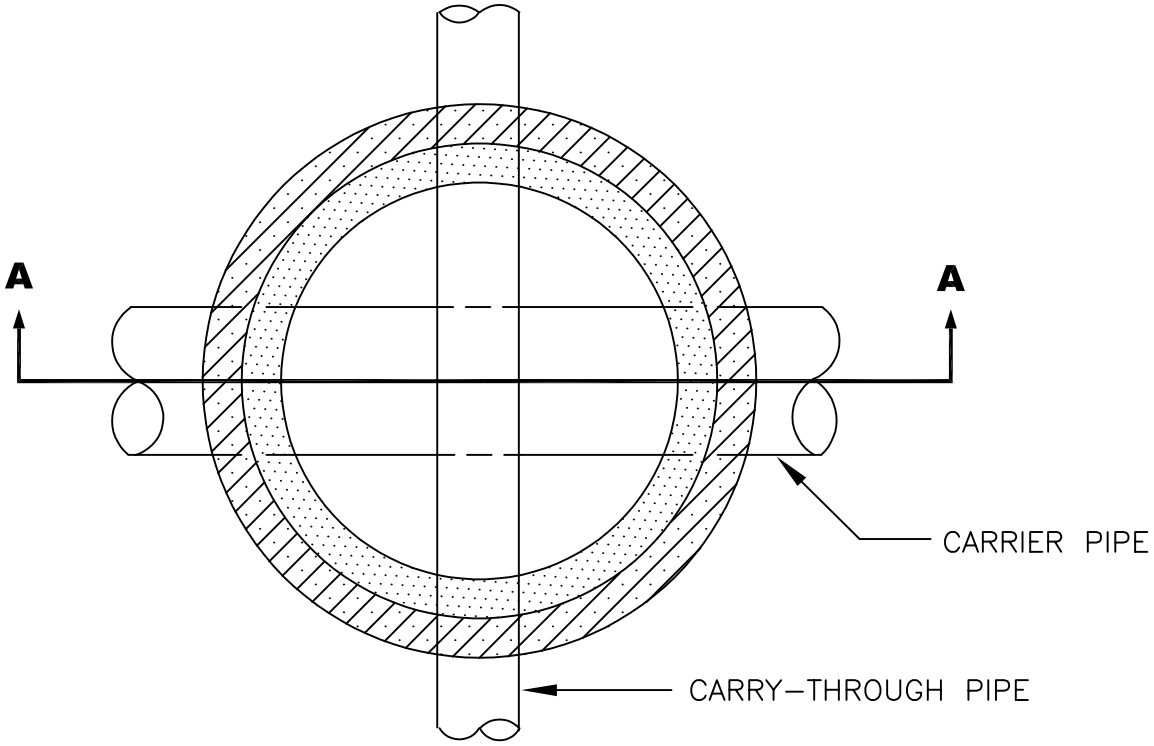
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OUTLINED IN DRAWING 301.
2. ALL CONNECTING PIPE SHALL HAVE A FLEXIBLE JOINT WITHIN 18" OF MANHOLE WALL. FOR NEW MANHOLES, USE KOR-N-SEAL BOOTS (OR EQUAL). CONNECTIONS TO EXISTING MANHOLES SHALL USE SANDED PVC COLLAR WITH GASKETED JOINT. FLEXIBLE JOINT SHALL BE NO GREATER THAN 18" FROM EXTERIOR MANHOLE WALL. SEE DRAWING 301.
3. CONSTRUCT OUTSIDE DROP PER THE DETAIL FOR 'OUTSIDE DROP CONNECTION FOR MANHOLES. SEE DRAWING 303.

OREGON CITY

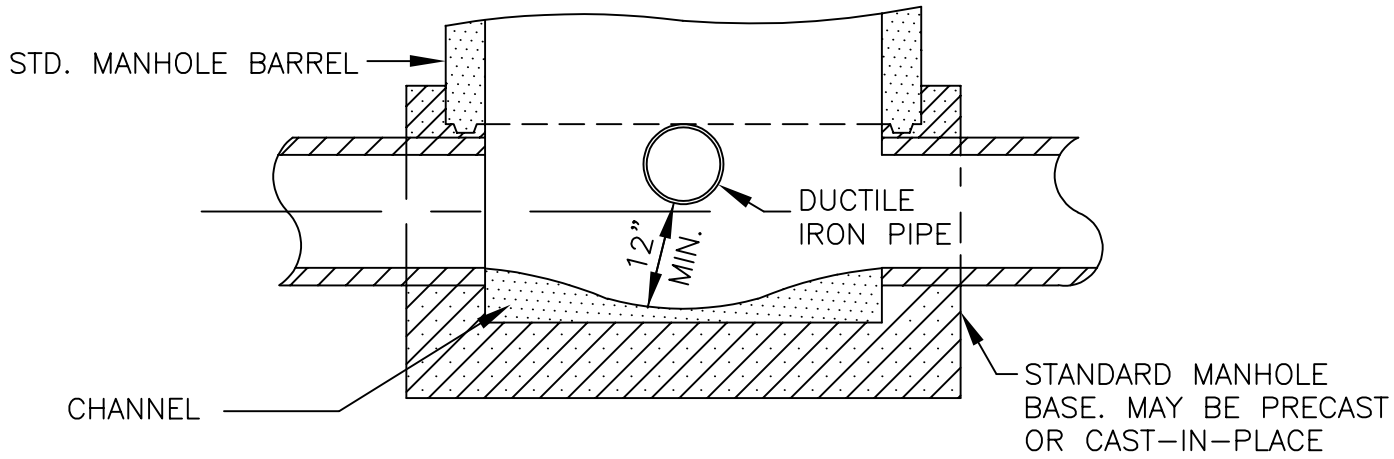
Public Works Standard Drawings

POLLUTION CONTROL MANHOLE WITH OUTSIDE DROP

SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	613-2		



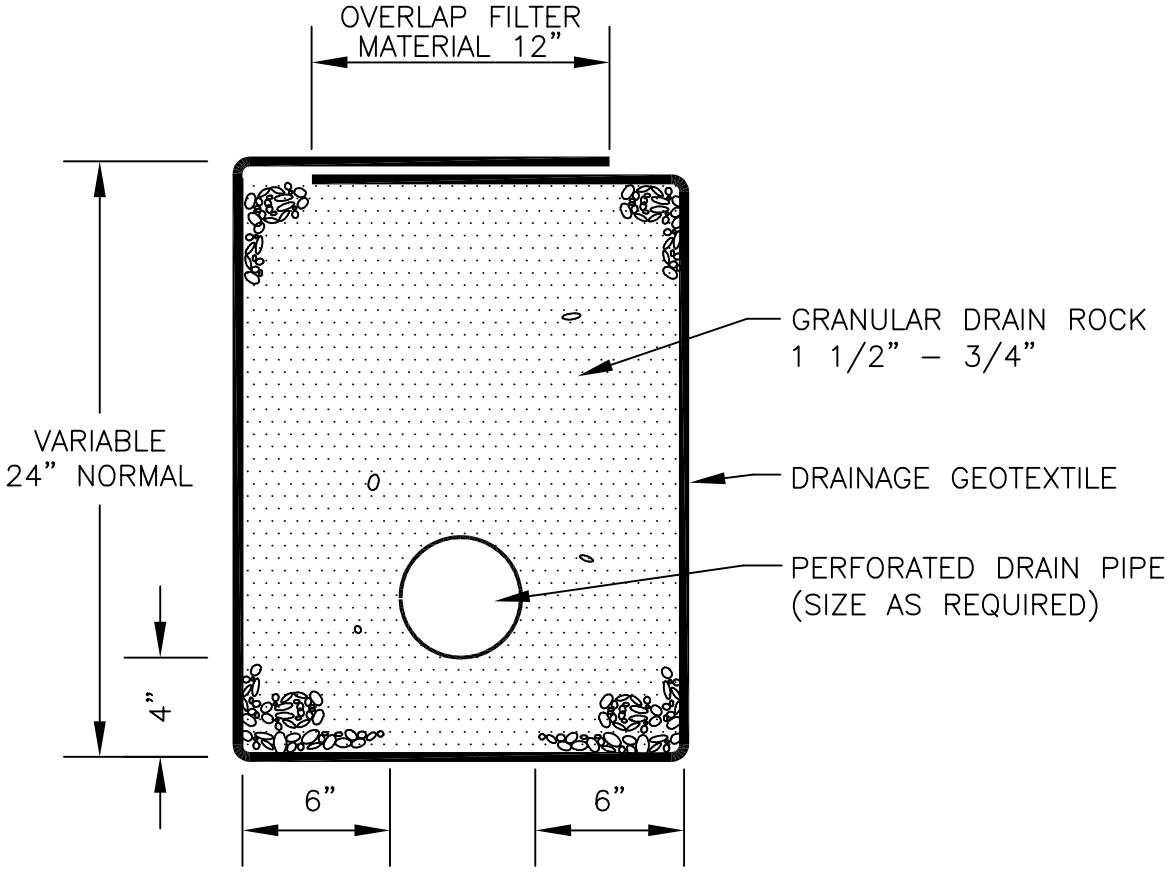
PLAN VIEW



SECTION A-A

NOTES:
1. CARRY–THROUGH PIPE SHALL BE DUCTILE IRON.
2. THIS MANHOLE DESIGN SHALL BE USED ONLY AS DIRECTED BY THE ENGINEER TO MITIGATE UNAVOIDABLE GRADE CONFLICTS.

OREGON CITY	Public Works Standard Drawings	SCALE NTS
	CARRY THROUGH MANHOLE - STORM	DATE JAN '23 REV.
		ENGR. DW DRAWN KAE
		DRAWING NO. 614



NOTES:

1. GRANULAR DRAIN ROCK PER ODOT STANDARD 00430–11.
2. DRAINAGE GEOTEXTILE PER ODOT STANDARD TABLE 02320–1.
3. PERFORATED DRAIN PIPE PER ODOT STANDARD 02415.00.

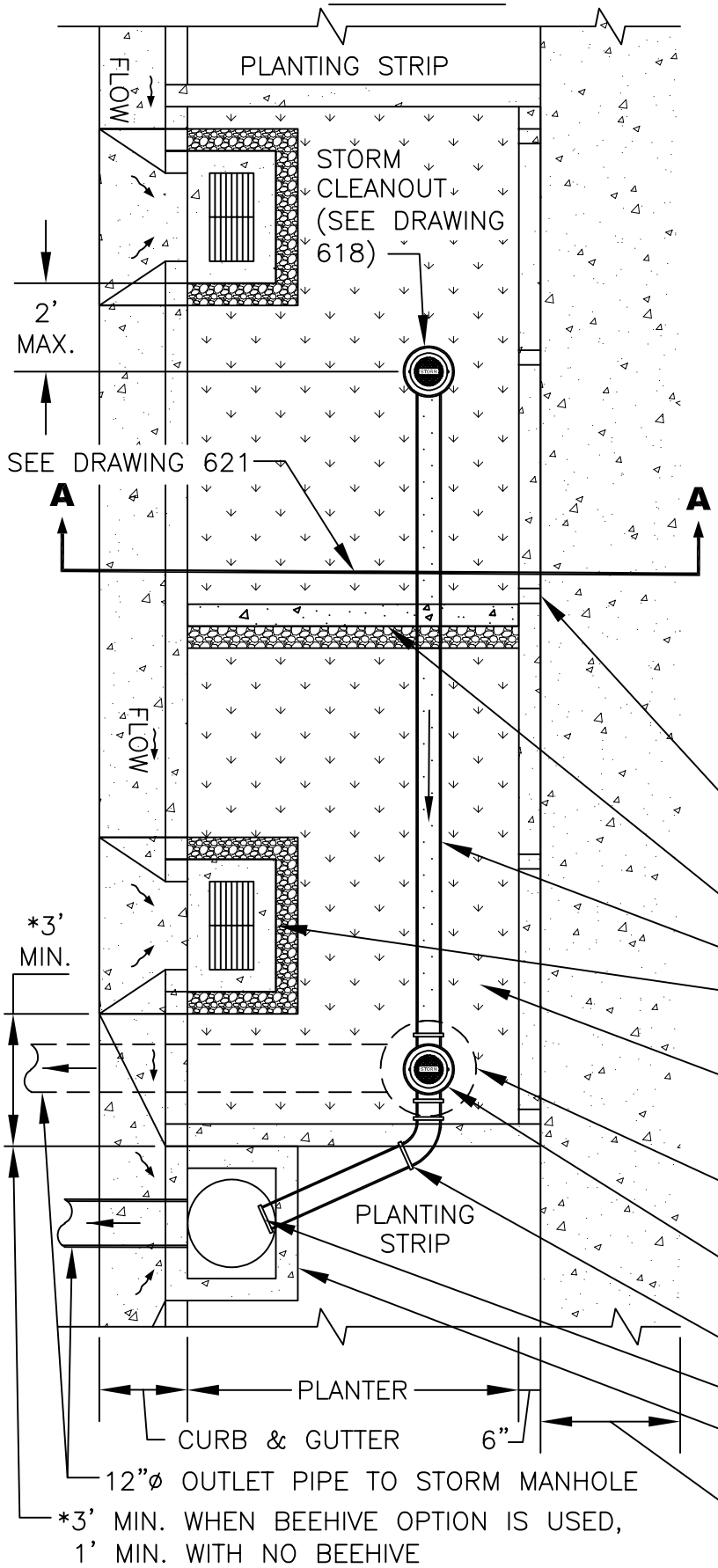
OREGON CITY

Public Works Standard Drawings

SUBSURFACE DRAIN DETAIL

SCALE	NTS
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO.	616

PLAN VIEW



NOTES:

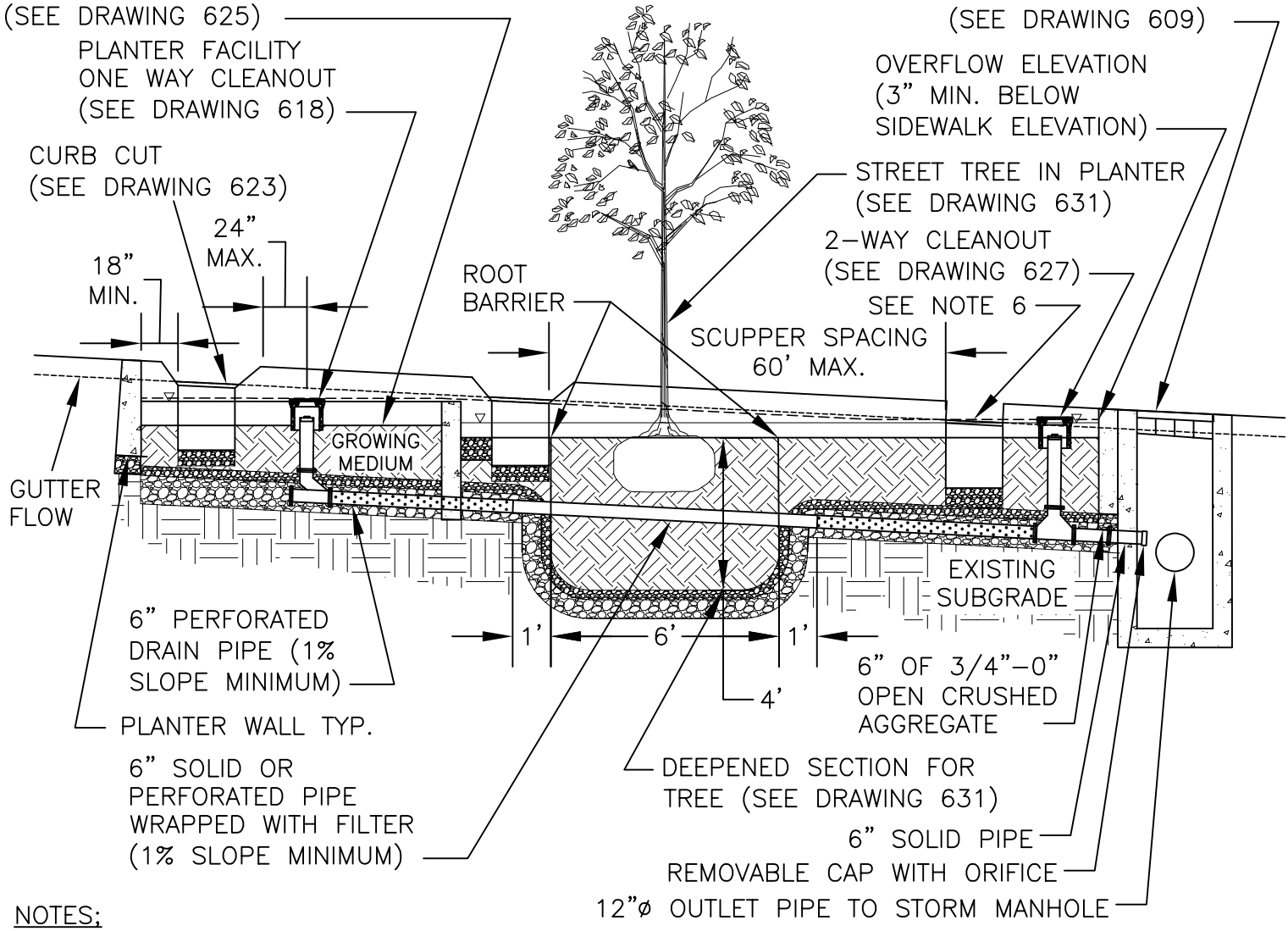
1. THIS PLAN VIEW IS ONLY AN EXAMPLE, TO GUIDE ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY. PROVIDE STATIONING AND/OR DIMENSIONS AND ELEVATIONS AT EACH INLET, OUTLET, CHECK DAM, PLANTER CORNER.
3. SIDEWALK ELEVATION MUST BE SET ABOVE CHECK DAM AND INLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
4. PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
5. 4" WIDE NOTCH AT LOW POINT(S) OF SIDEWALK AND/OR EVERY 6FT.
6. BEEHIVE STRUCTURE TO BE UTILIZED WHEN OVERFLOW CANNOT BE CONVEYED TO AN APPROVED STORM INLET STRUCTURE IN LIEU OF DRAIN PIPE CONNECTING TO AN APPROVED STORM INLET STRUCTURE. BEEHIVE STRUCTURE TO HAVE 12"ø OUTLET PIPE CONNECTING TO AN APPROVED OUTLET STRUCTURE SUCH AS A STORM MANHOLE, SEE DRAWING 626.
7. STORMWATER FACILITY GROWING MEDIUM SHALL MEET REQUIREMENTS OF APPENDIX A OF CITY STORMWATER MANUAL.
8. SEE DRAWING 620 FOR ROADSIDE STORMWATER PLANTER ELEVATION.

OREGON CITY

Public Works Standard Drawings

ROADSIDE STORMWATER PLANTER PLAN VIEW

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 619	



NOTES;

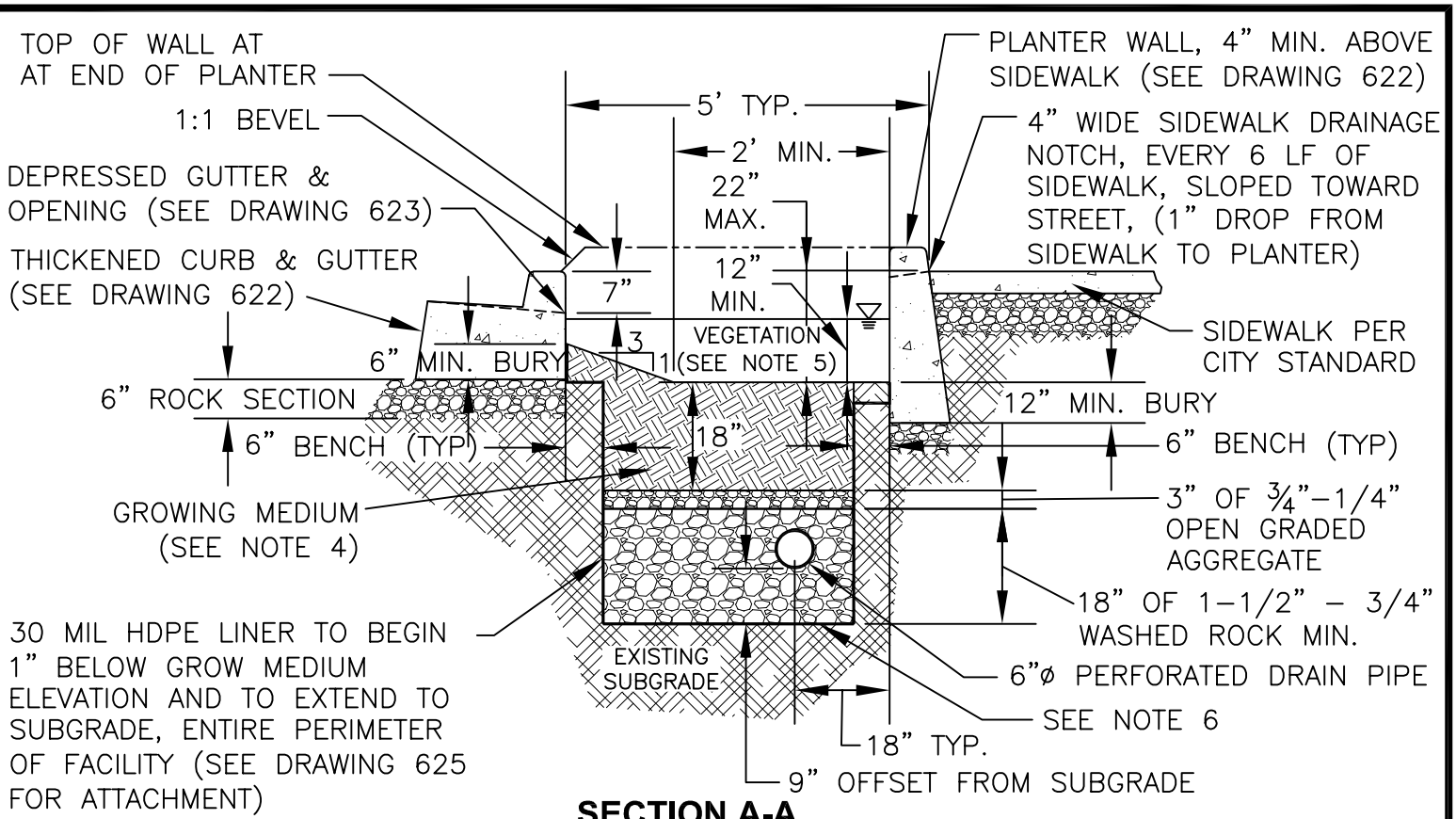
1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC PRIOR TO, DURING AND AFTER CONSTRUCTION.
2. SCUPPERS SHALL BE SPACED NO MORE THAN 60 FEET APART AND ONE AT EACH END OF A PLANTER.
3. SLOPE OF PLANTER TO NOT EXCEED 0.5%.
4. PIPE SHALL BE PVC D3034 SDR 35, 6" MINIMUM DIAMETER. PIPING MUST HAVE 1% SLOPE MINIMUM, BOTTOM OF PIPE SHALL BE SET AT 9" ABOVE EXISTING SUBGRADE.
5. ALL PIPE TO HAVE GASKET JOINTS AND GASKETED JOINT FITTINGS.
6. OVERFLOW
   - MUST FLOW TO APPROVED OUTLET STRUCTURE PER OREGON CITY STORMWATER MANUAL.
   - BEEHIVE STRUCTURE TO BE UTILIZED WHEN OVERFLOW CANNOT BE CONVEYED TO CURB INLET OR AN APPROVED STORM INLET STRUCTURE. SEE DRAWING 619 AND 626.
7. THIS ELEVATION VIEW IS ONLY AN EXAMPLE, TO GUIDE ENGINEERED DESIGN.

OREGON CITY

Public Works Standard Drawings

ROADSIDE STORMWATER PLANTER ELEVATION

SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	620		



SECTION A-A
PLANTER

NOTES:

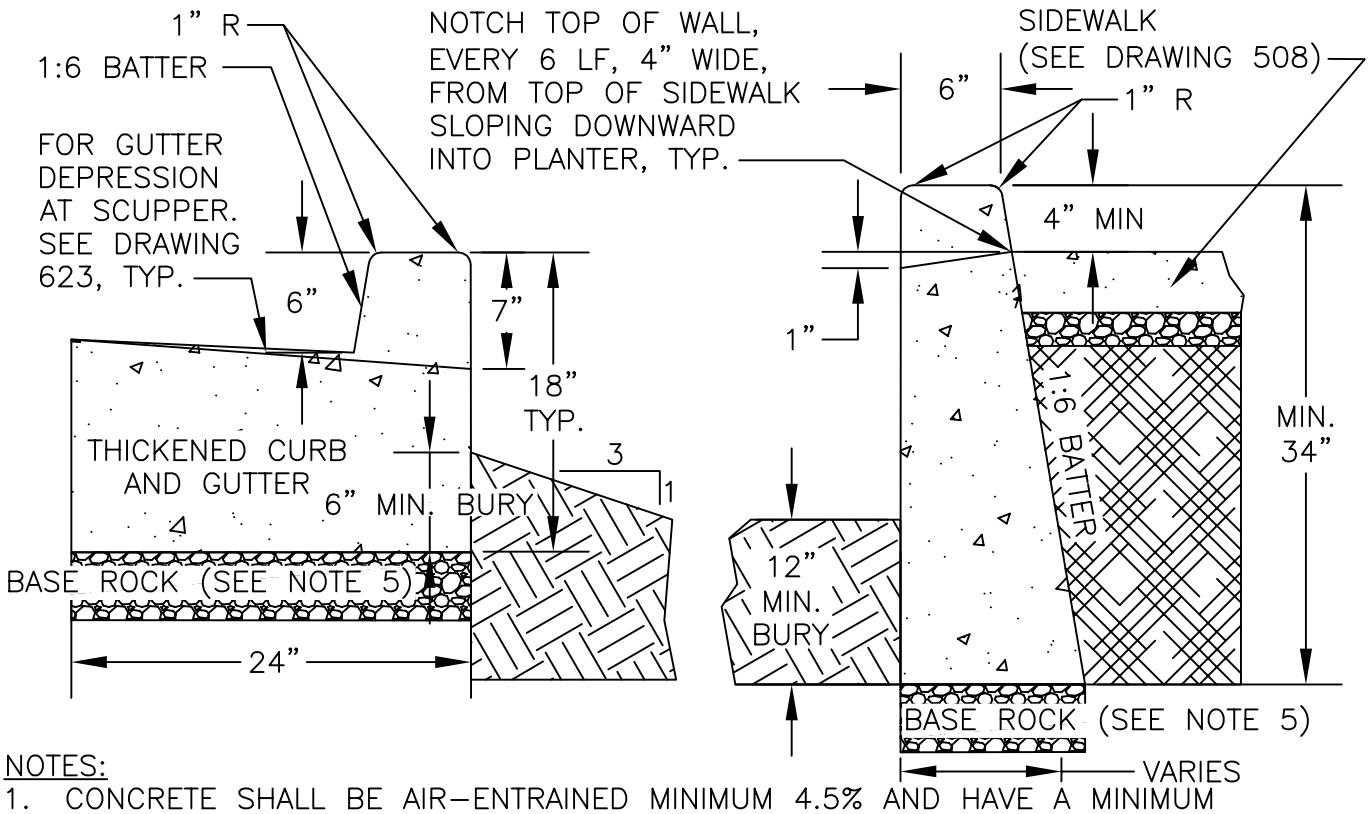
1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC PRIOR TO, DURING AND AFTER CONSTRUCTION.
2. DIMENSIONS:
   - TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION SHALL BE A MINIMUM OF 12".
   - TOP OF SIDEWALK ELEVATION ADJACENT TO PLANTER SHALL BE NO LESS THAN 3" ABOVE GUTTER ELEVATION.
   - TOP OF SIDEWALK ELEVATION ADJACENT TO PLANTER SHALL BE NO GREATER THAN 22" FROM TOP OF PLANTER GROWTH MEDIUM.
3. PIPING:
   - PIPE SHALL BE PVC D3034 SDR 35, 6" MINIMUM DIAMETER WITHIN PLANTER. PIPING MUST HAVE 1% SLOPE, BOTTOM OF PIPE SHALL BE SET AT 9" ABOVE EXISTING SUBGRADE.
   - OVERFLOW SHALL BE PIPED TO A STANDARD CURB INLET/CATCH BASIN STRUCTURE OR STORM MANHOLE, SEE DRAWING 619.
4. GROWING MEDIUM: SEE APPENDIX A OF STORMWATER MANUAL FOR SPECIFICATION.
5. VEGETATION: REFER TO PLANTING REQUIREMENTS IN APPENDIX A OF STORMWATER MANUAL, SEE DRAWING 630 FOR PLANT SPACING REQUIREMENTS.
6. WATERTIGHT LINER (SEE DRAWING 625 FOR LINER ATTACHMENT REQUIREMENTS):
   - WHEN WITHIN CONTAMINATED SOIL OR 10' OF STRUCTURE FOUNDATION OR PAVED STRUCTURAL SECTION OR UNDERGROUND STRUCTURES, BOTTOM OF FACILITY MUST BE LINED WITH A WATERTIGHT LINER.
   - LINER SHALL BE 30 MIL HDPE OR APPROVED EQUAL.
   - LINER SHALL BE PLACED AROUND ENTIRE PERIMETER OF FACILITY.
   - LINER REQUIRED UNLESS FACILITY'S BOTTOM AND SIDES ARE MONOLITHIC CONCRETE.
7. CHECK DAMS:
   - REINFORCED CONCRETE CHECK DAMS SHALL BE PLACED AT LEAST EVERY 30 FEET.
8. MINIMUM PLANTER WALL HEIGHT OF 34".

OREGON CITY

Public Works Standard Drawings

ROADSIDE STORMWATER PLANTER SECTION

SCALE	NTS
DATE JUL '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO.	621



NOTES:

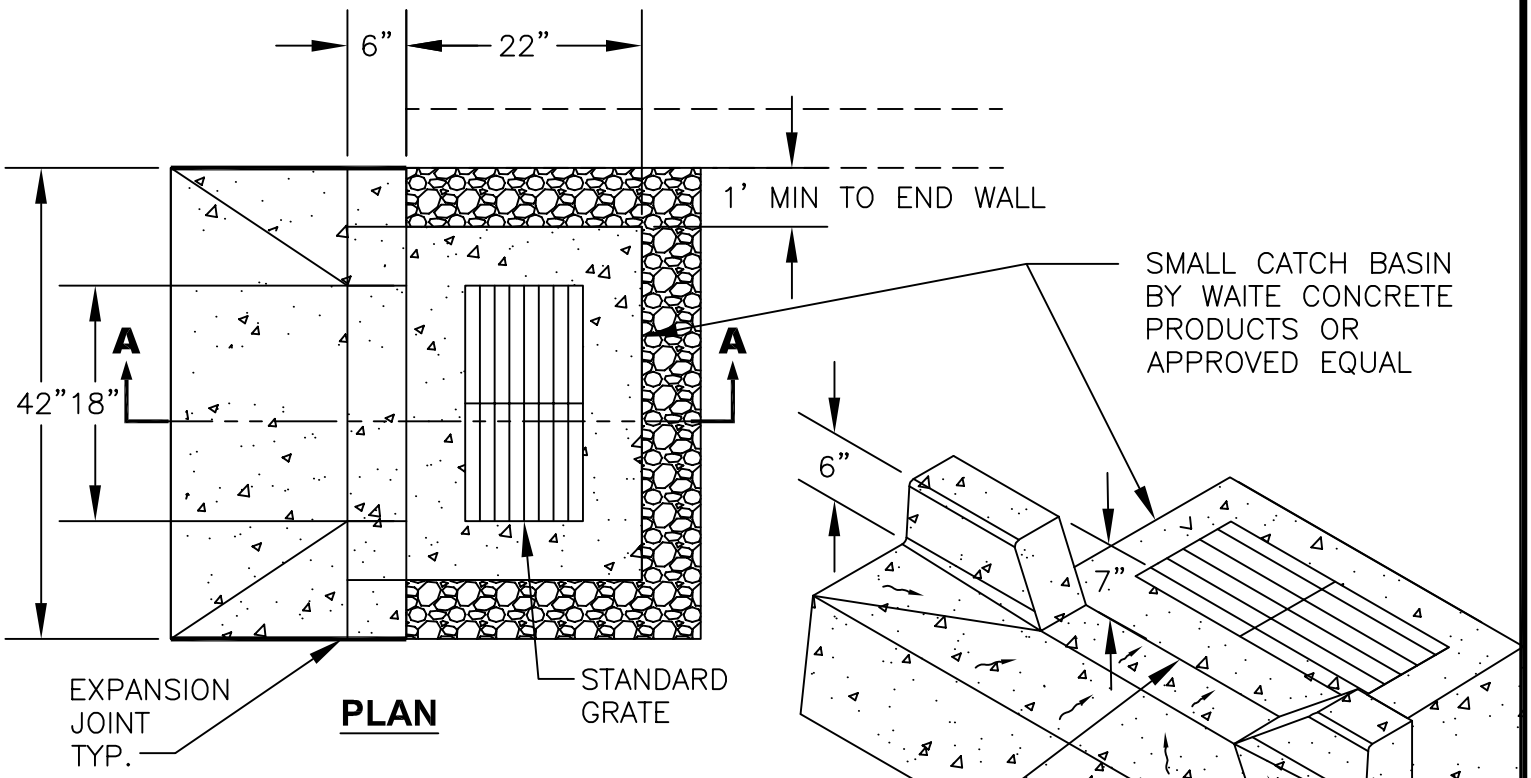
1. CONCRETE SHALL BE AIR-ENTRAINED MINIMUM 4.5% AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AFTER 28 DAYS.
2. ALL CONCRETE SURFACES SHALL BE SMOOTH AND FREE FROM DEFECTS AND SHALL HAVE A LIGHT BROOM TEXTURED FINISH.
3. EXPANSION JOINTS (CURB AND SIDEWALK ONLY):
   A. TO BE PROVIDED:
      1) AT EACH COLD JOINT.
      2) AT EACH END OF DRIVEWAYS.
      3) AT EACH POINT OF TANGENCY OF THE CURB.
      4) AT LOCATIONS NECESSARY TO LIMIT SPACING TO 45 FEET.
   B. MATERIAL TO BE USED IS "REFLEX RUBBER JOINT EXPANSION" JOINT MATERIAL, OR CITY APPROVED EQUAL, WITH A THICKNESS OF 1/2 INCH.
4. CONTRACTION JOINTS (CURB AND SIDEWALK ONLY):
   A. SPACING TO BE NOT MORE THAN 10 FEET REGARDLESS OF LOCATION OF DRAINAGE NOTCH
   B. THE DEPTH OF THE JOINT SHALL BE AT LEAST 1-1/2 INCHES WITH 1/2-INCH MAXIMUM RADIUS TROWEL JOINT.
   C. PLACE JOINT ON EACH SIDE OF SCUPPER INLET (SEE DRAWING 623)
5. BASE ROCK TO BE 3/4"-0", 95% COMPACTION PER AASHTO T 180. BASE ROCK SHALL BE 6" MINIMUM IN DEPTH.
6. SIDEWALK CONTRACTION JOINTS SHALL BE PLACED IN LINE WITH ONE OF THE DRAINAGE NOTCH CORNERS.
7. SIDEWALK ELEVATION MUST BE SET ABOVE STREET INLET/OULET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET OR PIPED OVERFLOW SYSTEM AS APPLICABLE.
8. CHECK DAMS:
   -REINFORCED CONCRETE CHECK DAMS SHALL BE PLACED EVERY 30 FEET STARTING FROM UPPER END WALL
   -CHECK DAMS SPACING MAY BE DECREASED TO KEEP LONGITUDINAL SLOPE OF PLANTER FROM EXCEEDING .05%
9. THICKENED CURB AND GUTTER SHALL BE POURED MONOLITHICALLY.

OREGON CITY

Public Works Standard Drawings

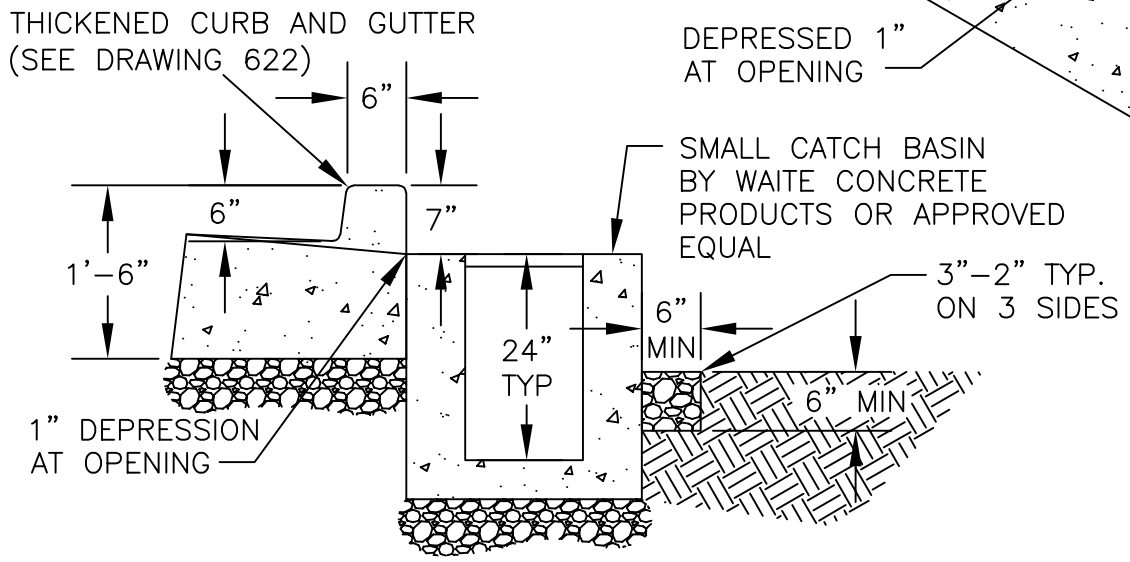
ROADSIDE STORMWATER PLANTER WALL DETAIL

SCALE	NTS		
DATE	MAY '24	REV.	1
ENGR.	DW	DRAWN	KAE
DRAWING NO.	622		



PLAN

ISOMETRIC



SECTION A-A

NOTES:

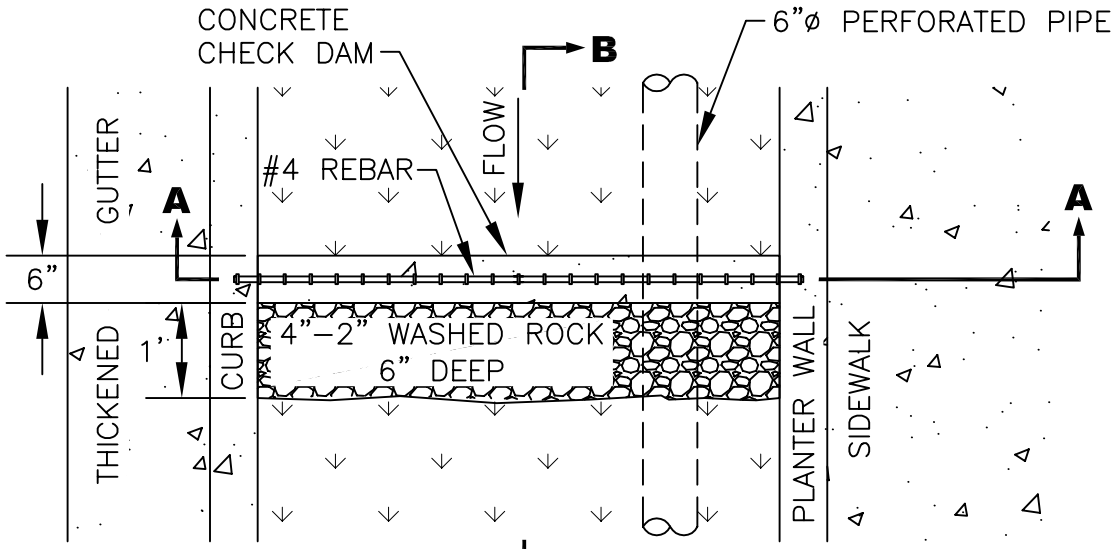
1. MATCH GUTTER PAN OF ADJACENT CURB AND GUTTER.
2. CATCH BASIN RIM SHALL BE LEVEL WITH DEPRESSED GUTTER ELEVATION.
3. CATCH BASIN SHALL BE PRECAST CONCRETE, INCLUDING BOTTOM.

OREGON CITY

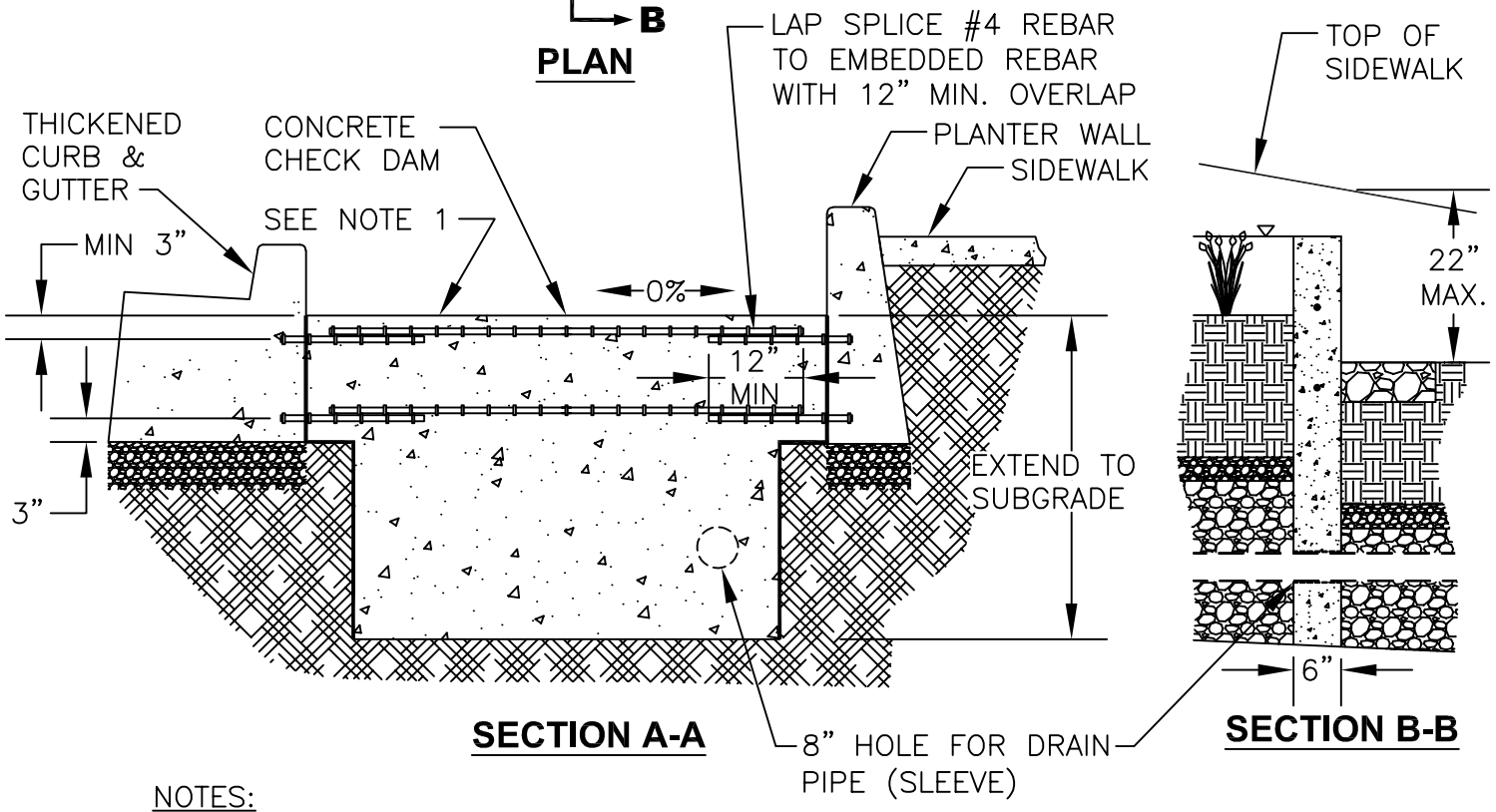
Public Works Standard Drawings

CURB CUT SCUPPER AND SEDIMENT CATCH BASIN

SCALE	NTS		
DATE	JAN '23	REV.	
ENGR.	DW	DRAWN	KAE
DRAWING NO.	623		



PLAN



SECTION A-A

SECTION B-B

NOTES:

1. TOP OF CHECKDAM (TCD) ELEVATION TO BE AT LEAST 3" BELOW ADJACENT TOP OF CURB AND 1" BELOW UPSTREAM SCUPPER.
2. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW FROM UPSTREAM SCUPPER OR ONTO SIDEWALK.
3. ELEVATION DROP FROM TOP OF SIDEWALK TO DOWN STREAM SIDE OF CHECK DAM MUST NOT EXCEED 22".
4. CONCRETE TO BE 4,000 PSI WITH #4 REBAR EMBED 3" INTO CURB AND PLANTER WALL.

OREGON CITY

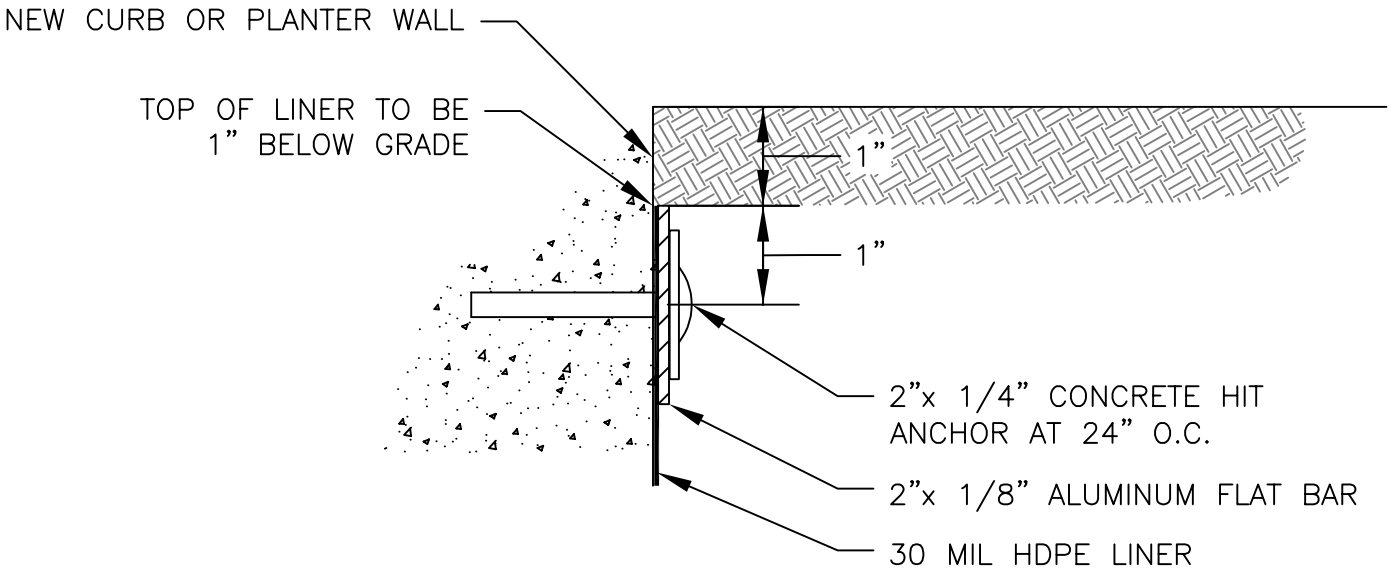
Public Works Standard Drawings

ROADSIDE STORMWATER PLANTER CONCRETE CHECK DAM

SCALE	NTS		
DATE	JUL '23	REV.	1
ENGR.	DW	DRAWN	KAE
DRAWING NO.	624		

CONSTRUCTION NOTES

1. ADHERE LINER TO CONCRETE W/SEALANT IF RECOMMENDED BY LINER MANUFACTURE.
2. SECURE LINER TO CONCRETE WITH 2" ALUMINUM FLAT BAR, PLACED AS DIRECTED.
3. ATTACH FLAT BAR WITH CONCRETE HIT ANCHORS, 24" O.C.
4. TRIM EXCESS LINER TO THE TOP OF THE FLAT BAR.
5. ATTACHING LINER TO MINIMIZE WRINKLES, CORNERS SHOULD BE CUT TO FIT WITHOUT WRINKLES.
6. LINER TO BEGIN 1" BELOW GRADE AND EXTEND DOWN TO SUBGRADE AND MINIMUM 1' INTO BOTTOM OF PLANTER.



LINER ATTACHMENT

NOTES:

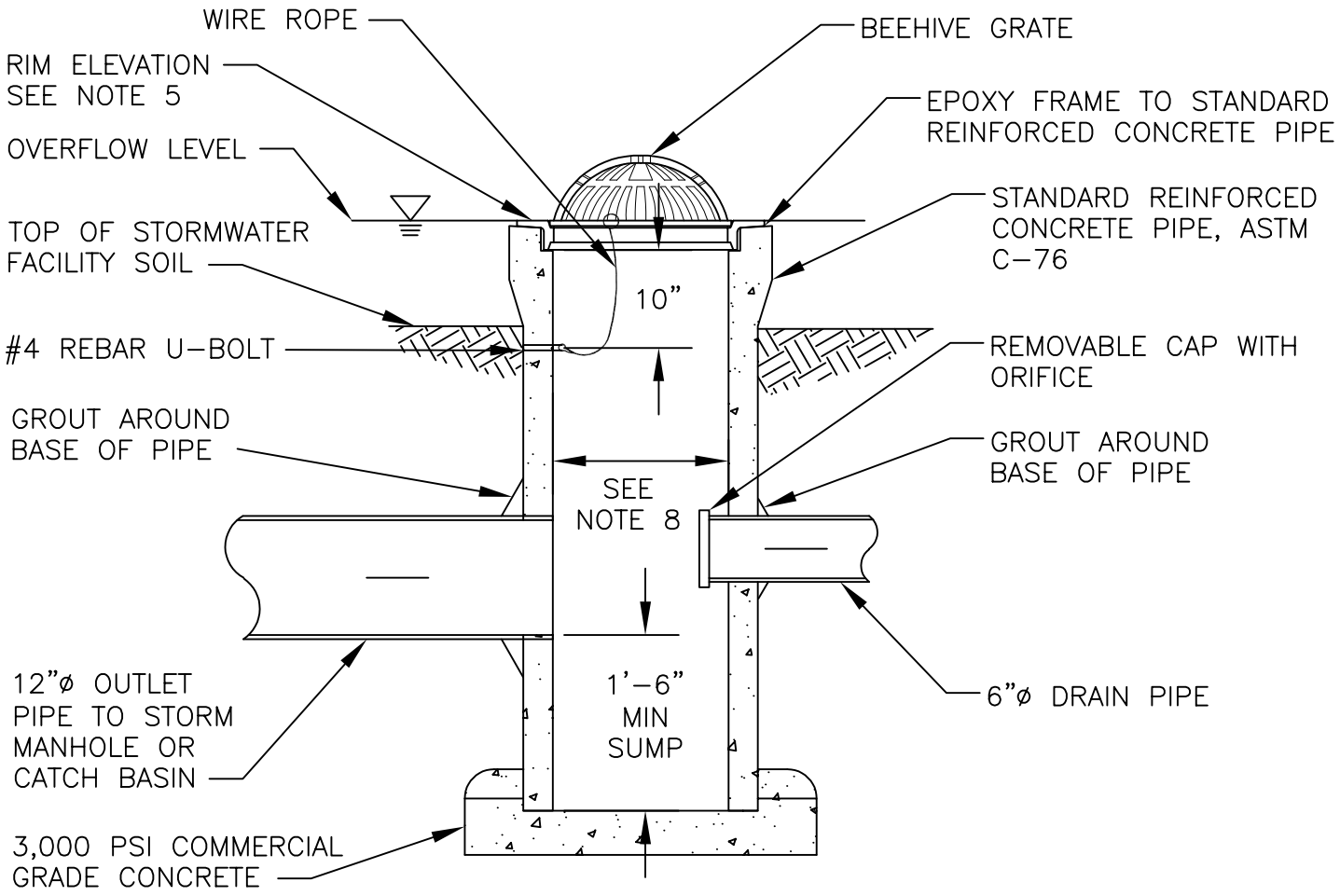
1. LINER MATERIALS TO BE HDPE LINER TO EXTEND FROM TOP OF 2" FLAT BAR TO SUBGRADE.
2. IN AREAS WITH CONTAMINATED SOILS THE FACILITY MUST BE COMPLETELY LINED WITH A 30 MIL LINER UNLESS FACILITY'S BOTTOM AND SIDES ARE MONOLITHIC CONCRETE.
3. PIPE BOOT: USE SEALANT OR STAINLESS STEEL BANDS TO ADHERE LINER TO PIPING, OR OTHER METHOD AS APPROVED BY THE CITY ENGINEER.

OREGON CITY

Public Works Standard Drawings

WATERPROOF LINER ATTACHMENT AND PIPE BOOT

SCALE NTS	
DATE JUL '23	REV. 1
ENGR. DW	DRAWN KAE
DRAWING NO. 625	



NOTES

1. THIS CROSS-SECTIONAL VIEW IS ONLY AN EXAMPLE, ORIENTATION OF INLET AND OUTLET PIPES DEPENDS ON ENGINEERED DESIGN.

2. SECURE GRATE IN PLACE WITH 54" OF WIRE ROPE. LOOP ENDS OF WIRE ROPE AROUND U-BOLT AND GRATE. CRIMP EACH END OF WIRE ROPE WITH 3" OVERLAP.

3. DRILL 2" DEEP HOLES INTO PIPE AND EPOXY #4 REBAR U-BOLT (2"X 4") IN HOLES.

4. GRATE TO BE CAST IRON, ASTM A48 CL30.

5. BEEHIVE RIM ELEVATION MUST BE MINIMUM 1" BELOW NEAREST SCUPPER, MINIMUM 4" BELOW ADJACENT TOP OF CURB, AND 12" ABOVE GROW MEDIUM.

6. WIRE ROPE BETWEEN 1/8"-3/16" DIAMETER, STAINLESS STEEL, 7 STRANDS OF 19 WIRES.

7. INVERT ELEVATION OF INLET PIPE MUST BE NO LOWER THAN INVERT ELEVATION OF OUTLET PIPE.

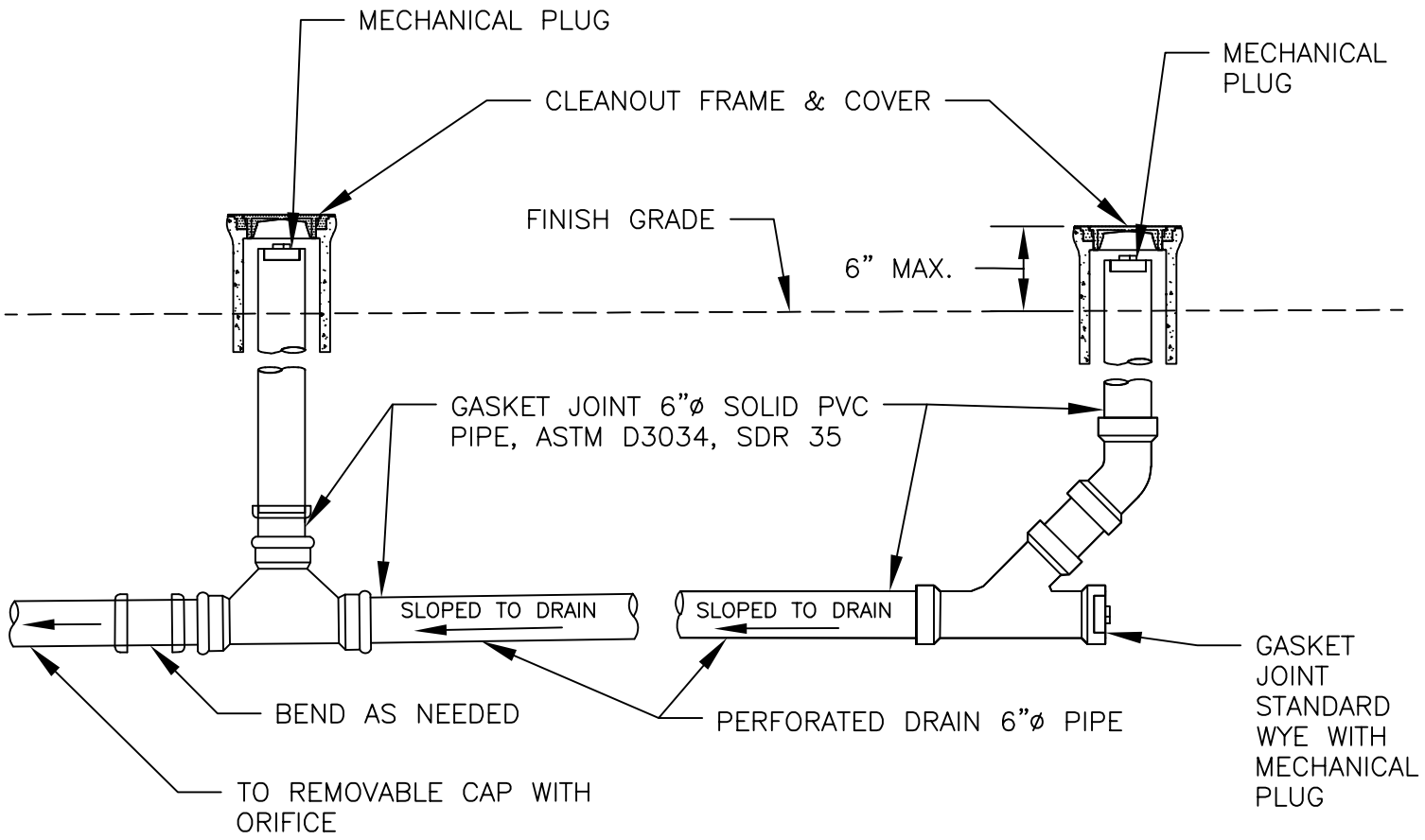
8. MINIMUM 18" I.D., MAXIMUM 24" I.D.

OREGON CITY

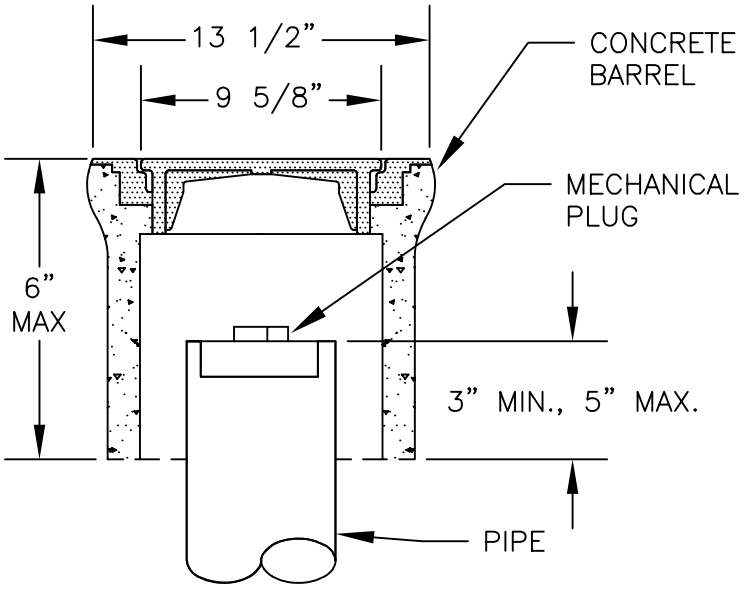
Public Works Standard Drawings

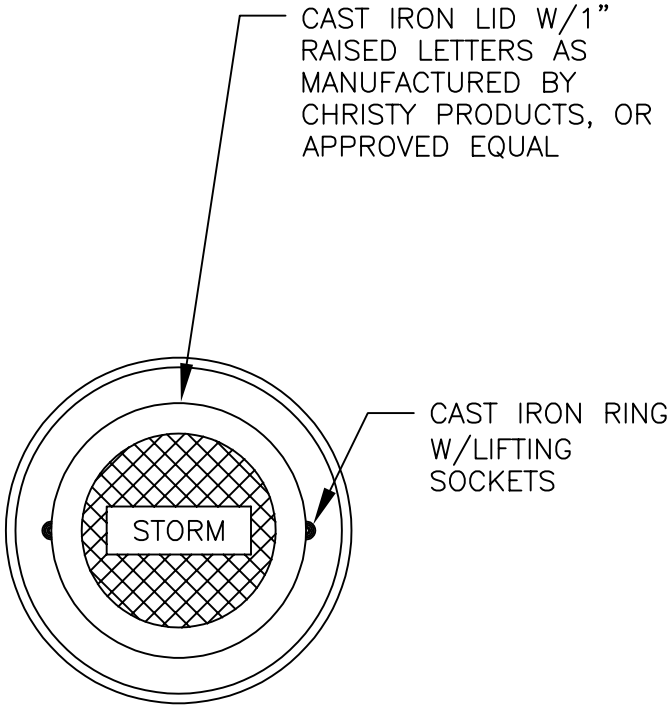
BEEHIVE OVERFLOW STRUCTURE

SCALE	NTS		
DATE	JUL '23	REV.	1
ENGR.	DW	DRAWN	KAE
DRAWING NO.	626		

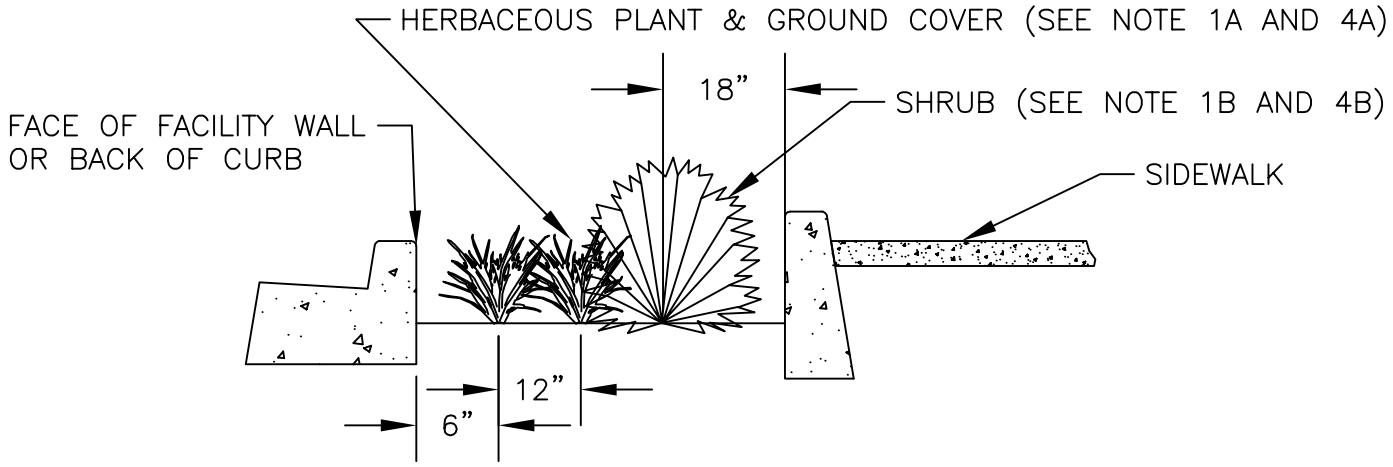


SECTION VIEW

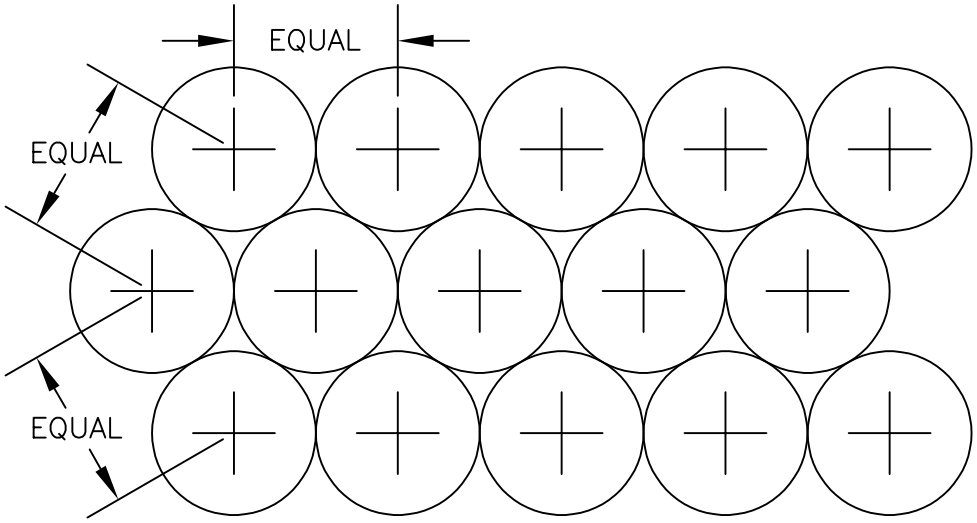




OREGON CITY	Public Works Standard Drawings	SCALE NTS	
	STORMWATER PLANTER FACILITY CLEANOUTS	DATE JUL '23	REV. 1
		ENGR. DW	DRAWN SP
		DRAWING NO. 627	



FACILITY ELEVATION VIEW



PLAN VIEW
SPACING

NOTES:

1. REFER TO PLANTING REQUIREMENTS IN APPENDIX A OF STORMWATER MANUAL.
   A. HERBACEOUS PLANTS AND GROUNDCOVERS THAT REQUIRE MORE THAN 12" ON CENTER (O.C.) SPACING ARE PROHIBITED.
   B. ONLY SMALL SHRUBS (NO MORE THAN 3' POTENTIAL HEIGHT) THAT REQUIRE NO MORE THAN 24" O.C. SPACING SHALL BE ALLOWED.

2. ALL PLANTS SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING ON CENTER. INTERIOR PLANT SPACING MAY BE SLIGHTLY ADJUSTED TO ACHIEVE DESIRED EDGE SETBACKS.

3. PLANTING DENSITY SHALL AVERAGE NO LESS THAN 90 TO 115 PLANTS FOR EVERY 100 SQUARE FEET, DEPENDING ON PLANTING DIVERSITY.

4. PLANTS SHALL BE LOCATED SET BACK FROM FACILITY EDGES AS FOLLOWS:
   A. HERBACEOUS PLANTS AND GROUNDCOVERS: 6" FROM CENTER OF PLANT TO FACE OF FACILITY WALL, BACK OF CURB OR SIDEWALK EDGE.
   B. SHRUBS: 18" FROM CENTER OF PLANT TO FACE OF FACILITY WALL, BACK OF CURB OR SIDEWALK EDGE AND 24" O.C. FROM SHRUB TO SHRUB.

OREGON CITY

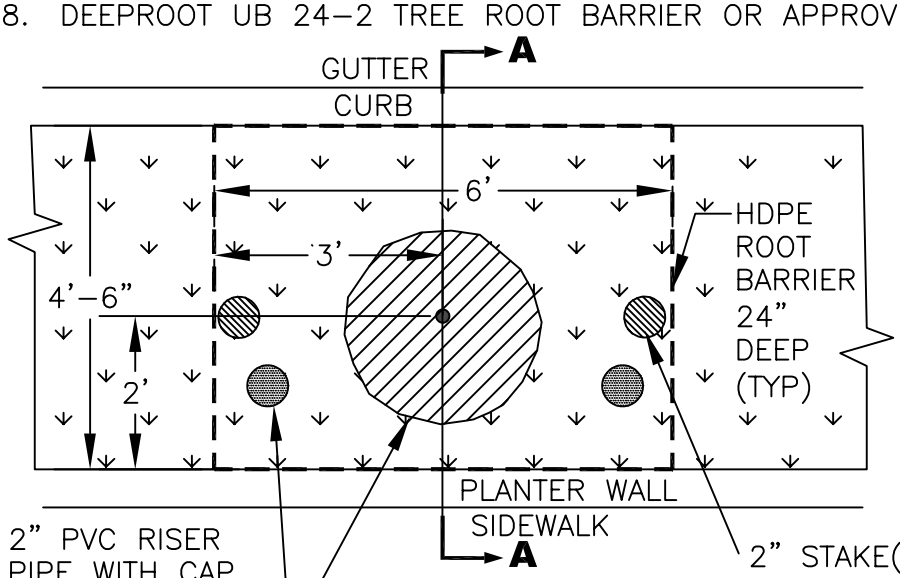
Public Works Standard Drawings

ROADSIDE STORMWATER PLANTER
PLANT SPACING

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 630	

NOTES:

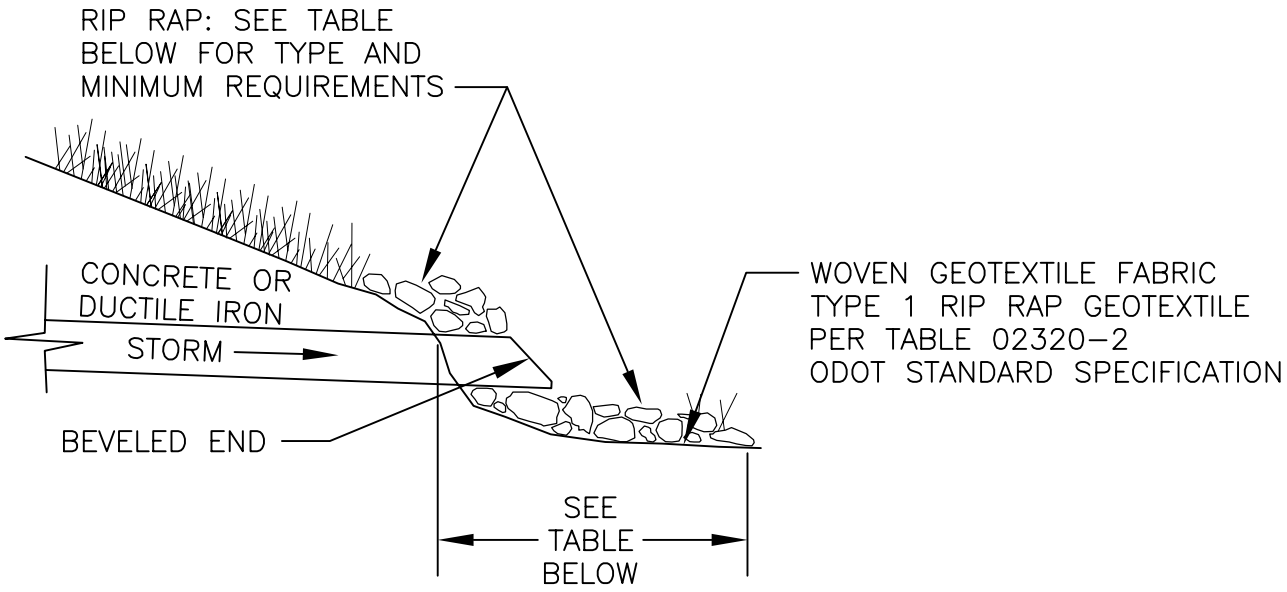
1. DISTANCE BETWEEN TREES VARIES, TYPICALLY ONE STREET TREE SHALL BE PLANTED FOR EVERY THIRTY–FIVE FEET OF PROPERTY FRONTAGE. THE TREE SPACING SHALL BE EVENLY DISTRIBUTED THROUGHOUT THE TOTAL DEVELOPMENT FRONTAGE.
2. STORMWATER FACILITY GROWING MEDIUM SHALL MEET REQUIREMENTS OF APPENDIX A OF CITY STORMWATER MANUAL.
3. ALL PROPOSED TREE SPECIES MUST MEET REQUIREMENTS IN APPENDIX A OF STORMWATER MANUAL.
4. TREES SHALL BE CENTERED IN THE PLANTING ZONE/TREE WELL.
5. SET TRUNK FLARE TWO INCHES ABOVE SOIL SURFACE.
6. REMOVE ALL TWINE, WIRE, ROOT BAGS, BURLAP, AND ALL OTHER NURSERY MATERIALS FROM TREE PRIOR TO BACKFILLING.
7. DRIVE TREE STAKE INTO SOIL OUTSIDE OF ROOT BALL.
8. DEEPROOT UB 24–2 TREE ROOT BARRIER OR APPROVED EQUAL.



TREE WELL PLAN VIEW

SECTION A-A

OREGON CITY	Public Works Standard Drawings	SCALE NTS
		DATE JAN '23 REV.
	TREE WELL IN STORMWATER PLANTER	ENGR. DW DRAWN KAE
		DRAWING NO. 631



STORM OUTFALL DETAIL

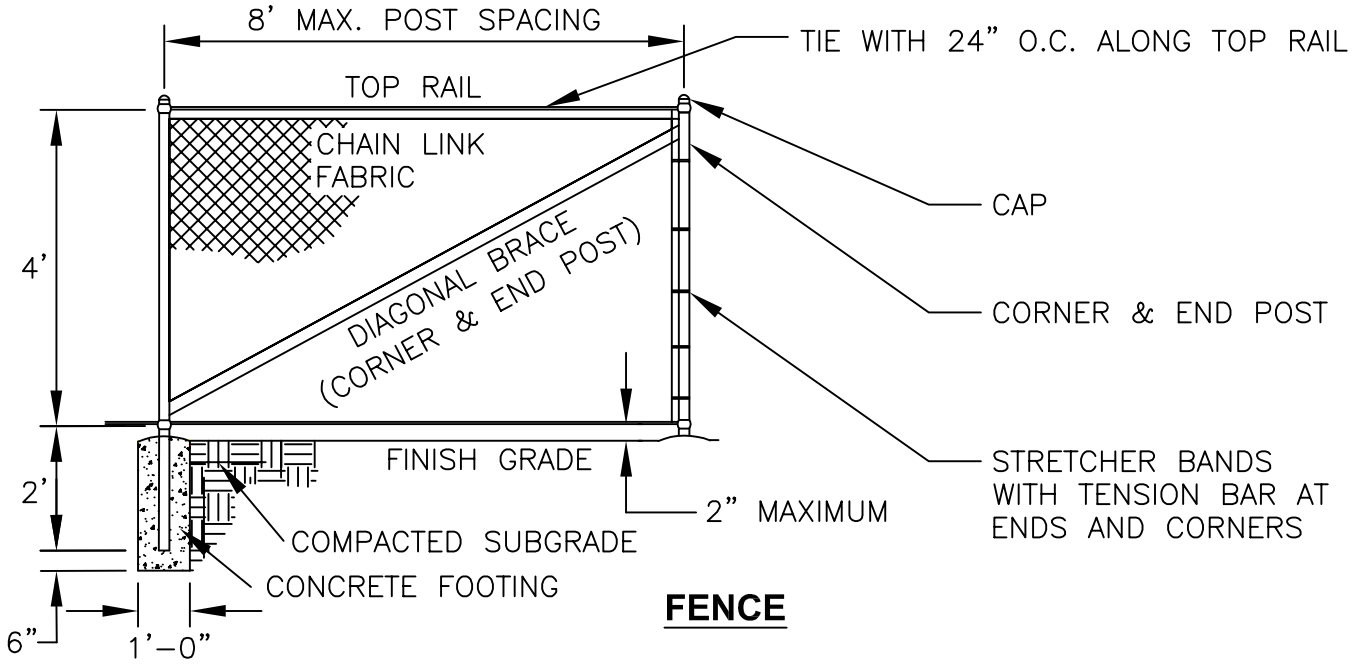
N.T.S.

DISCHARGE VELOCITY AT DESIGN FLOW (fps)		MINIMUM REQUIRED PROTECTION DIMENSIONS				
GREATER THAN	LESS THAN OR EQUAL	TYPE	THICKNESS (ft)	WIDTH	LENGTH (USE GREATER OF)	HEIGHT OVER CROWN
0	5	ODOT CLASS 50 RIP RAP*	1.5	PIPE DIAMETER + 6 FT	8 FT OR 4 X PIPE DIAMETER	1 FT
5	10	ODOT CLASS 200 RIP RAP	2.5	GREATER OF: PIPE DIAMETER + 6 FT	12 FT OR 4 X PIPE DIAMETER	1 FT
10		ENGINEERED ENERGY DISSIPATER REQUIRED				

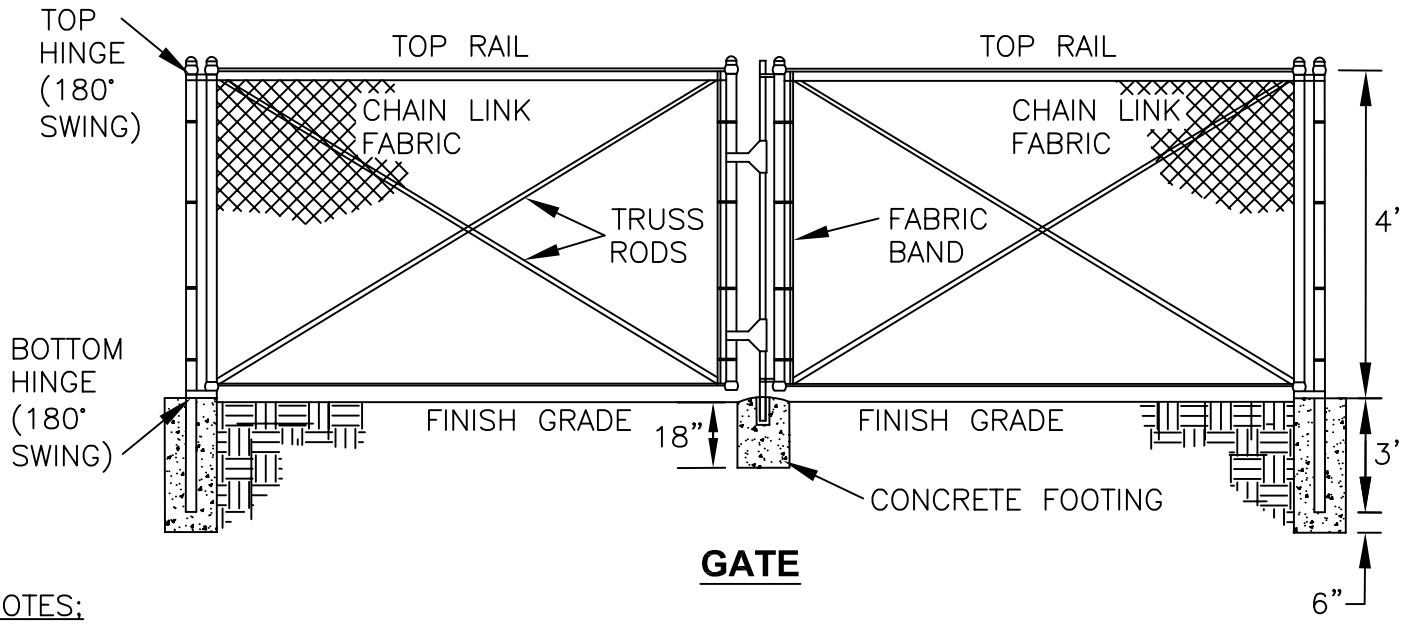
* THE CITY MAY REQUIRE ODOT CLASS 100 RIP RAP IN AREAS WITH A LIKELIHOOD OF VANDALISM.

NOTE:

1. PIPE HEADWALLS SHALL BE REQUIRED WHERE PIPE MATERIAL OTHER THAN CONCRETE OR DUCTILE IRON IS EXPOSED IN THE DESIGN OF AN OUTLET OR INLET PIPE OR WHERE REQUIRED TO STABILIZE SLOPE. DETAILS OF ALL HEADWALLS AND END PROTECTION SHALL BE INCLUDED IN THE CONSTRUCTION DRAWINGS.



FENCE



GATE

NOTES;

1. GATE AND FENCE SHALL BE DESIGNED TO CITY OF OREGON CITY CONSTRUCTION STANDARDS.
2. FENCE MATERIAL SHALL BE NO. 11 GAUGE GALVANIZED STEEL FABRIC WITH BONDED VINYL COATING (BLACK).
3. POSTS SHALL BE GALVANIZED STEEL, WITH TOP CAPS.
4. CROSS BARS SHALL CONNECT ADJACENT FENCE POSTS WITH DIAGONAL BRACES AT CORNERS AND ENDS.
5. SEE PLAN FOR LOCATION OF GATE AND FENCE.
6. ALL GATE AND FENCE MATERIALS (INCLUDING CHAIN LINK, FABRIC, POSTS, RAILS, ETC.) SHALL BE COVERED WITH BLACK-COLORED VINYL COATING. THE COLOR SHOULD BE THE SAME FOR ALL GATE AND FENCE MATERIALS.
7. CONCRETE FOOTING SHALL BE AS FOLLOWS:
   * FENCE – 12" MINIMUM DIAMETER X 30" DEEP, 3,000 PSI CONCRETE.
   * GATE – 12" MINIMUM DIAMETER X 42" DEEP, 3,000 PSI CONCRETE.

OREGON CITY

Public Works Standard Drawings

CHAIN LINK FENCE AND GATE

SCALE NTS	
DATE JAN '23	REV.
ENGR. DW	DRAWN KAE
DRAWING NO. 633	