PART V

City of Bend Standard Drawings

Part V – City of Bend Standard Drawings

Table of Contents

WATER W

STORMWATER STRM

EROSION E

LANDSCAPE L

CITY OF BEND STANDARD DRAWINGS

Roadway (R)

GENERAL NOTES FOR STD DWGS R-1A THROUGH R-1H:

1. CENTER STREETS IN THE RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR UNIQUE TRANSITIONS OR SITE CONSTRAINTS.
2. THE LEVEL OF TRAFFIC STRESS PER THE ODOT APM CH. 14 IS SHOWN ON EACH STANDARD CROSS-SECTION. MODIFICATION OF THE CROSS-SECTIONS MUST PROVIDE THE APPROPRIATE LTS.
3. INSTALL SIDEWALKS/SHARED-USE PATHS PROPERTY TIGHT. SIDEWALKS/SHARE-USE PATHS MAY MEANDER AROUND UTILITIES, TREES, AND OTHER NON-MOVEABLE OBJECTS. METERS, MANHOLES, AND VALVES ARE NOT PERMITTED WITHIN THE SIDEWALK UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. EXCEPTIONS WILL ONLY BE PERMITTED IF SIDEWALK CANNOT MEANDER AROUND THE EXISTING CONSTRAINT, OR THE OBSTACLE CANNOT BE REMOVED/RELOCATED. EASEMENTS ARE REQUIRED WHERE SIDEWALK/SHARED-USE PATH MEANDERS OUT OF THE RIGHT-OF-WAY.
4. PAVEMENT SECTIONS FOR STREETS AND SIDEWALKS PER THE THICKNESSES NOTED IN TABLE BELOW OR AS SPECIFIED IN A STAMPED GEOTECHNICAL REPORT APPROVED BY THE CITY ENGINEER.
5. RETAINING WALLS AND STAIRS ARE NOT PERMITTED WITHIN THE RIGHT-OF-WAY UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
6. STREET CROSS-SECTION/IMPROVEMENT STANDARDS ARE BASED ON STREET CLASSIFICATION. REFERENCE THE BEND DEVELOPMENT CODE SECTION 3.4 PUBLIC IMPROVEMENTS STANDARDS AND STANDARD CROSS-SECTIONS FOR ADDITIONAL DETAIL.
7. THE CROSS-SLOPE OF THE PLANTER STRIP BETWEEN THE CURB AND RIGHT-OF-WAY SHALL NOT BE STEEPER THAN 4H:1V TO PROVIDE A RECOVERABLE ROADSIDE SLOPE. 50H:1V (2%) IS TYPICAL/PREFERRED.
8. MAX 1.5H:1V CUT SLOPES PERMITTED IN ROCK CUTS WHEN APPROVED BY A GEOTECHNICAL ENGINEER.
9. MASTER PLAN DEVELOPMENTS PER BEND DEVELOPMENT CODE 4.5.100(E)(2)(C) MAY PROPOSE MODIFIED STREET SECTIONS THAT INCLUDE ADDITIONS TO OR ENHANCEMENTS OF THE BASIC MINIMUM STANDARD SECTIONS SHOWN HERE.
10. OFF STREET SHARED-USE PATHS (PATHS MEETING THE GENERAL ALIGNMENT OF THE TSP LOW STRESS NETWORK AND ARE MORE THAN 30 FT OUTSIDE OF THE RIGHT-OF-WAY) ARE ENCOURAGED, PARTICULARLY ALONG ARTERIAL STREET CORRIDORS. SIDEWALKS MAY BE REDUCED TO A MINIMUM 6 FT OR ELIMINATED WHEN THE SAME SIDE OF THE ROAD CORRIDOR IS SERVED BY A SHARED-USE PATH DEPENDING ON ADJACENT LAND USE AND PEDESTRIAN/BIKE ACCESS AND WITH CITY ENGINEER APPROVAL.
11. TWELVE-FOOT CENTER MEDIAN ON ARTERIAL AND COLLECTOR CROSS-SECTIONS INCLUDES EITHER A STRIPED MEDIAN (TWO-WAY LEFT TURN LANE, DOUBLE YELLOW, AND/OR TURN BAY) OR A NINE-FOOT RAISED REFUGE ISLAND WITH A ONE AND A HALF FOOT SHY LINE STRIPE EACH SIDE AS REQUIRED PER STANDARDS.
12. RAISED MEDIANS ARE AT THE CITY ENGINEER'S DISCRETION ON ARTERIALS & COLLECTORS. MEDIAN REFUGE ISLANDS FOR STREET CROSSINGS ON A LOW STRESS ROUTE OR AN ENHANCED CROSSING ON A CONNECTOR ROUTE DO NOT REQUIRE CITY ENGINEER APPROVAL.
13. ON-STREET PARKING SPACES ARE NOT STRIPED. IN HIGH PARKING DEMAND AREAS, A PARKING LINE MAY BE USED WITH CITY ENGINEER APPROVAL.
14. SEE BEND DEVELOPMENT CODE 3.4.200(F)(3) FOR STREETS AND INTERSECTIONS NOT IDENTIFIED FOR TRAVEL LANE EXPANSION WHERE ADDITIONAL RIGHT-OF-WAY IS NOT REQUIRED FOR VEHICLE TRAVEL LANES.
15. PLTS = PEDESTRIAN LEVEL OF TRAFFIC STRESS / BLTS = BICYCLISTS LEVEL OF TRAFFIC STRESS.
16. DEVIATIONS FROM THE PAVEMENT SECTIONS PROVIDED IN THE TABLE BELOW REQUIRE A STAMPED GEOTECHNICAL REPORT. PCC ROADWAYS REQUIRE A STAMPED GEOTECHNICAL REPORT.
17. SEE CITY SPEC 00744/00745 FOR MAXIMUM AC PAVEMENT LIFT THICKNESS.
18. WHERE EXISTING GROUND CROSS SLOPE EXCEEDS 12%, CURB-TIGHT SIDEWALK IS ALLOWED PER DESIGN STANDARD 3.4.7 - HILLSIDE.

STREET TYPE	"A" ROW	"B" STREET	"C" SIDEWALK	"D" CURB	"E" ACP DEPTH/LEVEL	"F" BASE	"G" CUT/FILL
ARTERIAL	PER R-1A			7"/16"	8" - LEVEL III	10"	4H:1V
COLLECTOR	PER R-1B & R-1C			6"/14"	6" - LEVEL III	8"	4H:1V
LOCAL	PER R-1D & R-1E			6"/12"	4" - LEVEL III	6"	2H:1V
INDUSTRIAL LOCAL	PER R-1F			6"/12"	4" - LEVEL III	8"	2H:1V
ALLEY	PER R-1G			--	4" - LEVEL III	6"	2H:1V
ROUNDABOUT - ACP	VARIES	VARIES	VARIES	**	8" - LEVEL IV	10"	4H:1V
ROUDABOUT - PCC ***	VARIES	VARIES	VARIES	**	*	*	4H:1V

* THE STANDARD PAVEMENT SECTION FOR ARTERIAL STREETS IS ASPHALT. FOR RECONSTRUCTION, NEW STREETS MORE THAN 1/4 MILE LONG, AND FOR ROUNDABOUTS, A LIFE CYCLE COST ANALYSIS EVALUATING ASPHALT, PERPETUAL PAVEMENT, CONCRETE, AND OTHER SECTIONS SHALL BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

* CURBS AT ROUNDABOUTS AND ON SPLITTER ISLANDS SHALL BE HIGH-STRENGTH PER CITY SPEC 00759.13.

*** DOWELING REQUIRED AT ROUNDABOUT JOINTS

DRAWN	AJD
DIV	ROADWAY
REV	DATE

CITY OF BEND

CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

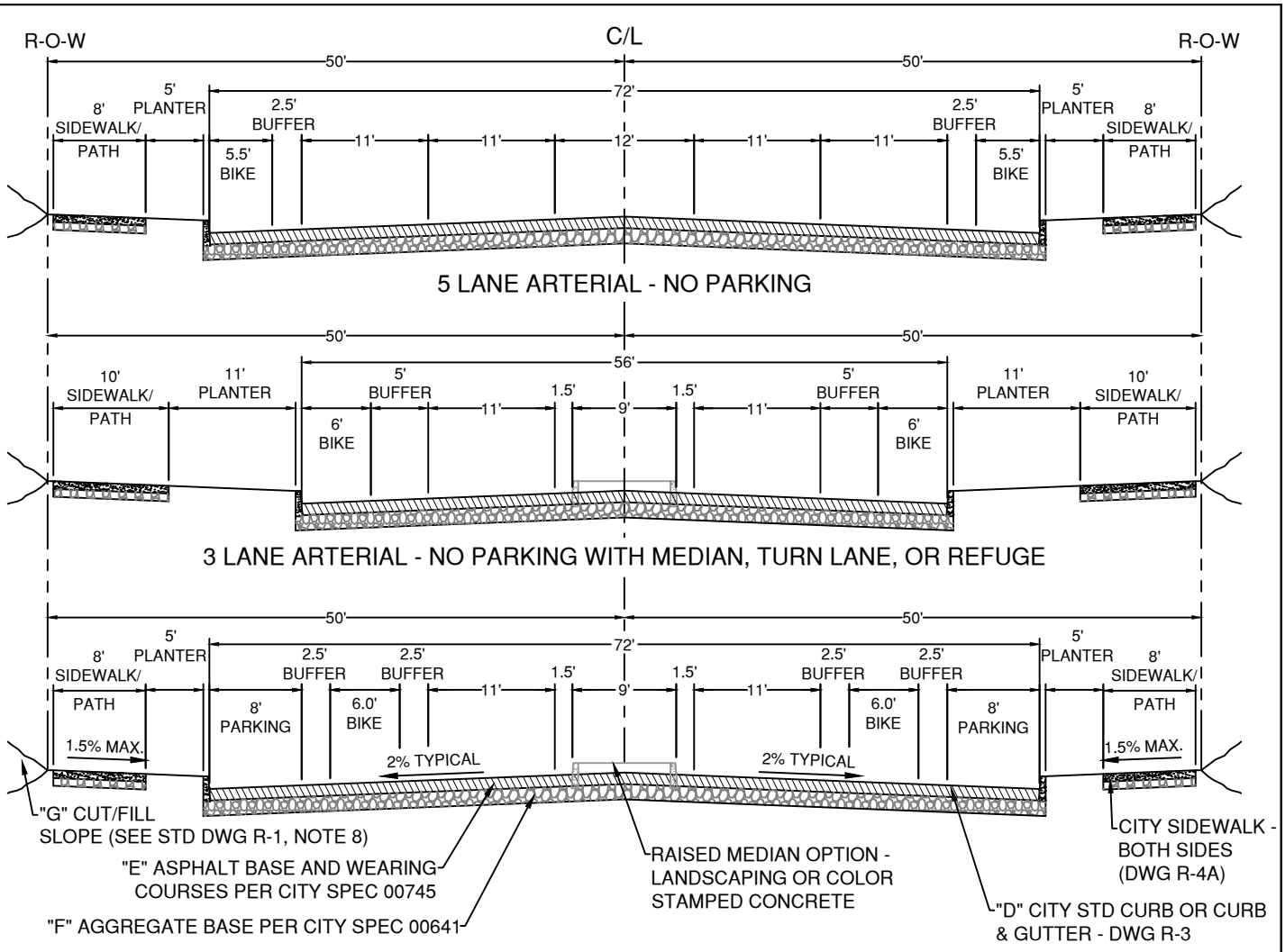
TYPICAL STREET CROSS-SECTIONS - GENERAL NOTES

SCALE NTS

DATE 01/31/2022

APPR

STD DWG R-1

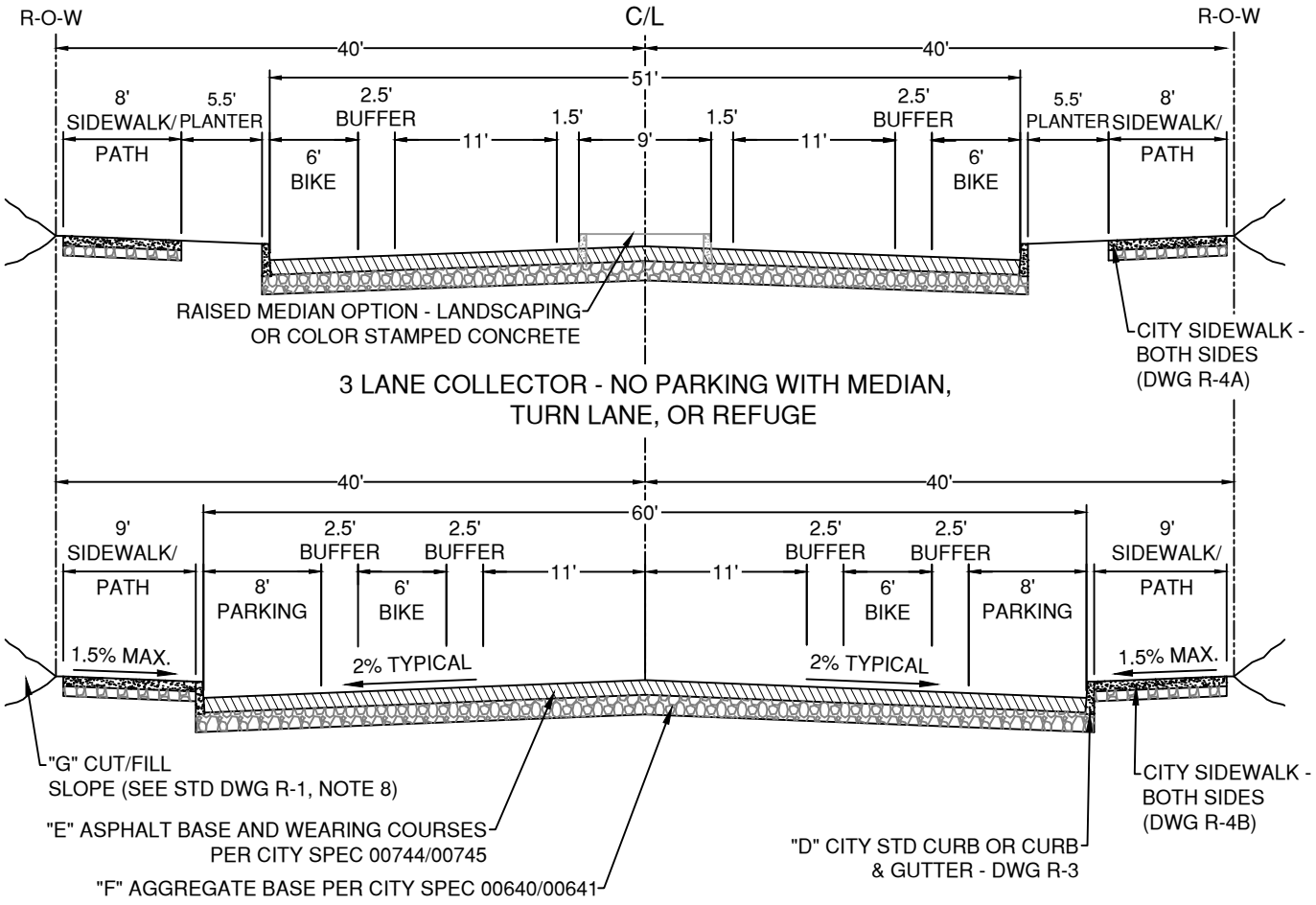


PLTS: 1 ≤ 35 MPH 2 ≥ 40 MPH	BLTS: 1 (SUP)	BLTS: 1 ≤ 30 MPH (BIKE LANE) 2 = 35 MPH 3 ≥ 40 MPH

ARTERIAL GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. WHERE PERMITTED BY THE BEND DEVELOPMENT CODE, ON-STREET PARKING MAY BE PROVIDED ON ARTERIAL STREETS WITH SPEEDS 35 MPH OR LESS. ON-STREET PARKING DESIGN PER ENGINEERING STANDARDS.
3. PROTECTED BIKE LANES, OTHER THAN PARKING PROTECTED, REQUIRE CITY ENGINEER APPROVAL. PARKING PROTECTED BIKE LANES ALLOWED ON A CASE-BY-CASE BASIS.
4. SIDEWALK MAY MEANDER WITH A MINIMUM 5 FT PLANTER STRIP. DESIGN MEANDERING CURVES FOR 10 MPH.
5. FOR EXISTING ARTERIAL SECTIONS IN 100 FT RIGHT-OF-WAY WITH 52 FT PAVEMENT WIDTHS, THE CITY ENGINEER MAY APPROVE REDUCING THE BIKE LANE TO 6/2.5 FT TO MATCH THE 52 FT CURB-TO-CURB EXISTING CONSTRUCTED SECTIONS; EXCEPTION DOES NOT APPLY TO SECTIONS (NEW OR RECONSTRUCTED) AT THE OUTER EXTENTS OF THE NETWORK WHERE UNDEVELOPED LAND AND FUTURE EXPANSIONS/RECONSTRUCTIONS CAN ACCOMMODATE THE 56/72 FT PAVEMENT SECTION.
6. THE FIVE-LANE ARTERIAL SECTION IS TO BE USED ON 3RD STREET, 27TH STREET SOUTH OF NEFF ROAD, REED MARKET ROAD EAST OF US 97, AND OTHER MAJOR ARTERIAL STREETS AS IDENTIFIED BY A TRAFFIC ANALYSIS WITH CITY ENGINEER APPROVAL (SEE STANDARDS FOR LANE ADDITIONS).
7. PARKING IS NOT PERMITTED ON A FIVE LANE ARTERIAL.
8. FOR PARKING ON ONE SIDE OF A THREE LANE ARTERIAL, COMBINE THE APPLICABLE HALF STREET SECTIONS FROM THE NO PARKING AND PARKING ON BOTH SIDES TYPICAL SECTIONS. THE ROAD CENTERLINE SHALL REMAIN IN THE CENTER OF ROW TO ALLOW FOR FUTURE EXPANSION.

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TYPICAL STREET CROSS-SECTIONS - ARTERIAL	SCALE NTS DATE 01/31/2022 APPR STD DWG R-1A



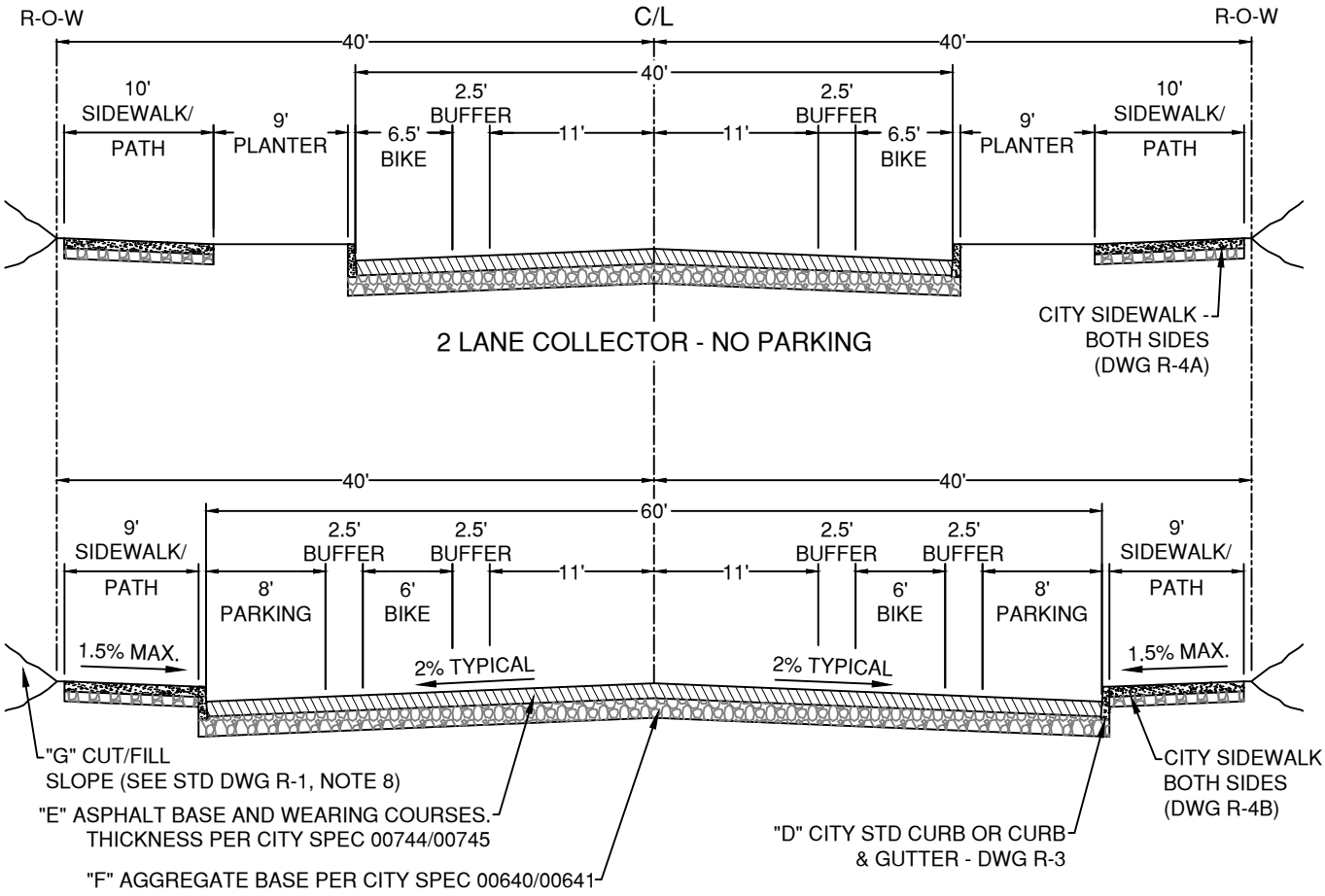
2 LANE COLLECTOR - PARKING BOTH SIDES

PLTS: 1 ≤ 35 MPH 2 ≥ 40 MPH	BLTS: 1 (SUP)	BLTS: 1 ≤ 30 MPH (BIKE LANE) 2 = 35 MPH 3 ≥ 40 MPH

MAJOR COLLECTOR GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. WHERE PERMITTED BY THE BEND DEVELOPMENT CODE, ON-STREET PARKING MAY BE PROVIDED ON COLLECTOR STREETS WITH SPEEDS 35 MPH OR LESS. ON-STREET PARKING DESIGN PER ENGINEERING STANDARDS.
3. WHERE THE CROSS-SECTION DOES NOT PROVIDE FOR TREES IN A PLANTER STRIP, DEVELOPMENT MUST STILL MEET BEND DEVELOPMENT CODE TREE REQUIREMENTS IN AN ALTERNATE LOCATION ON-SITE OR PROVIDE MITIGATION AND RECEIVE APPROVAL OF A VARIANCE AS REQUIRED BY CODE.
4. PROTECTED BIKE LANES, OTHER THAN PARKING PROTECTED, REQUIRE CITY ENGINEER APPROVAL. PARKING PROTECTED BIKE LANES ALLOWED ON A CASE-BY-CASE BASIS.
5. SIDEWALK MAY MEANDER WITH A MINIMUM 5 FT PLANTER STRIP. DESIGN MEANDERING CURVES FOR 10 MPH.

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		TYPICAL STREET CROSS-SECTIONS - MAJOR COLLECTOR	STD DWG R-1B



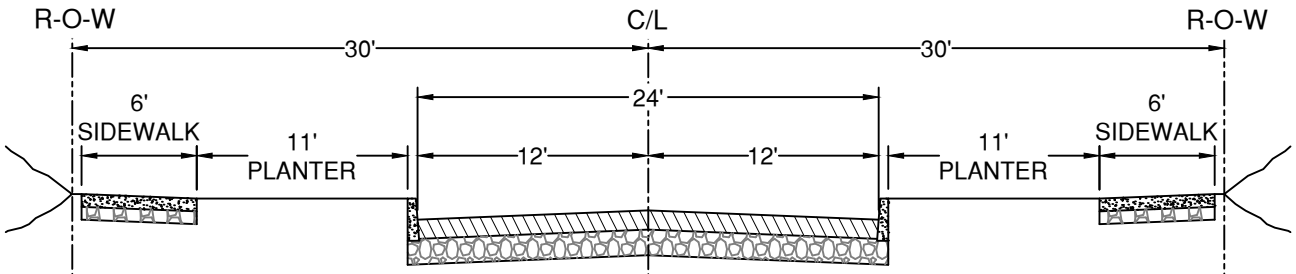
2 LANE COLLECTOR - PARKING BOTH SIDES

PLTS: 1 ≤ 35 MPH 2 ≥ 40 MPH	BLTS: 1 (SUP)	BLTS: 1 ≤ 30 MPH (BIKE LANE) 2 = 35 MPH 3 ≥ 40 MPH

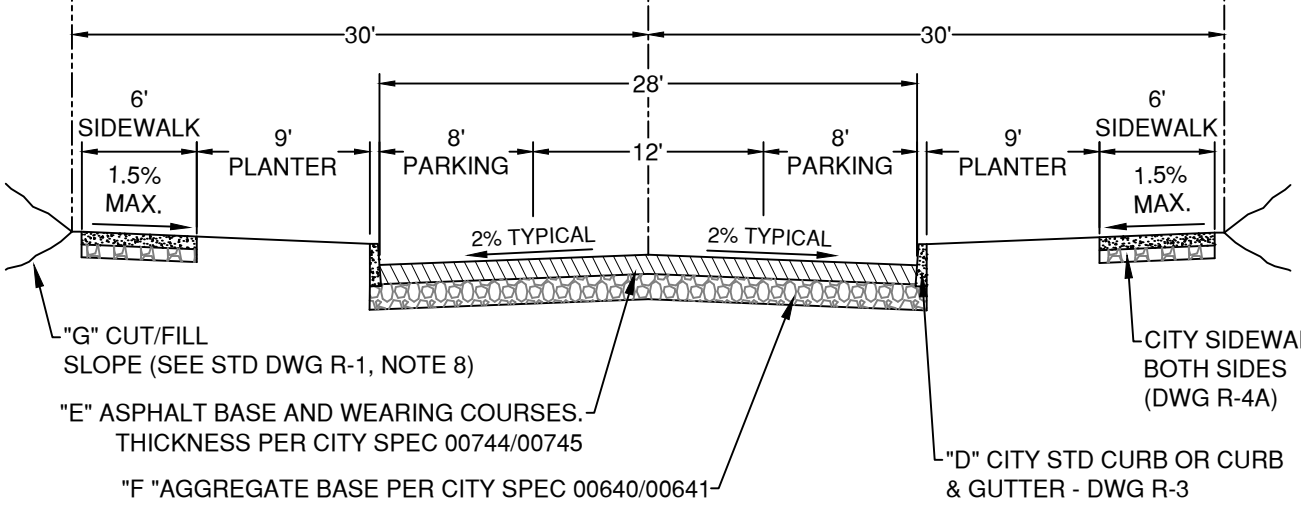
MINOR COLLECTOR GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. WHERE PERMITTED BY THE BEND DEVELOPMENT CODE, ON-STREET PARKING MAY BE PROVIDED ON COLLECTOR STREETS WITH SPEEDS 35 MPH OR LESS. ON-STREET PARKING DESIGN PER ENGINEERING STANDARDS.
3. WHERE THE CROSS-SECTION DOES NOT PROVIDE FOR TREES IN A PLANTER STRIP, DEVELOPMENT MUST STILL MEET BEND DEVELOPMENT CODE TREE REQUIREMENTS IN AN ALTERNATE LOCATION ON-SITE OR PROVIDE MITIGATION AND RECEIVE APPROVAL OF A VARIANCE AS REQUIRED BY CODE.
4. PROTECTED BIKE LANES, OTHER THAN PARKING PROTECTED, REQUIRE CITY ENGINEER APPROVAL. PARKING PROTECTED BIKE LANES ALLOWED ON A CASE-BY-CASE BASIS.
5. SIDEWALK MAY MEANDER WITH A MINIMUM 5 FT PLANTER STRIP. DESIGN MEANDERING CURVES FOR 10 MPH.
6. FOR PARKING ON ONE SIDE, COMBINE THE APPLICABLE HALF STREET SECTIONS FROM THE NO PARKING AND PARKING ON BOTH SIDES TYPICAL SECTIONS. THE ROAD CENTERLINE SHALL REMAIN IN THE CENTER OF ROW TO ALLOW FOR FUTURE EXPANSION.

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		TYPICAL STREET CROSS-SECTIONS - MINOR COLLECTOR	STD DWG R-1C



LOCAL ROAD - NO PARKING



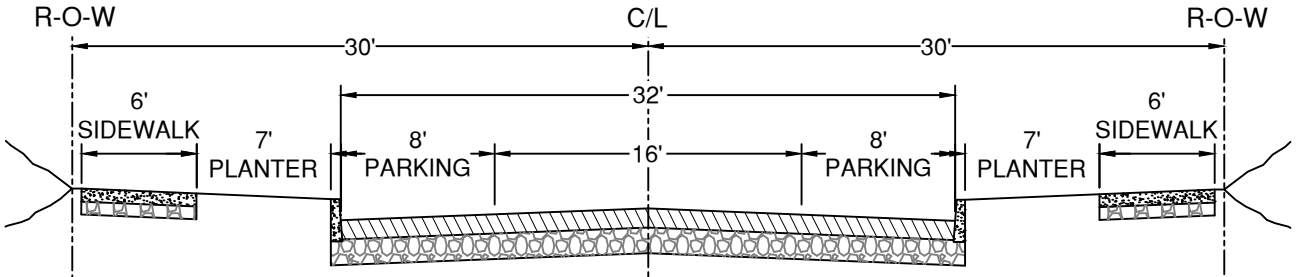
28' LOCAL ROAD - PARKING BOTH SIDES (SEE NOTE 3)

PLTS: 1	BLTS: 1
	2 (STRIPED CENTERLINE)

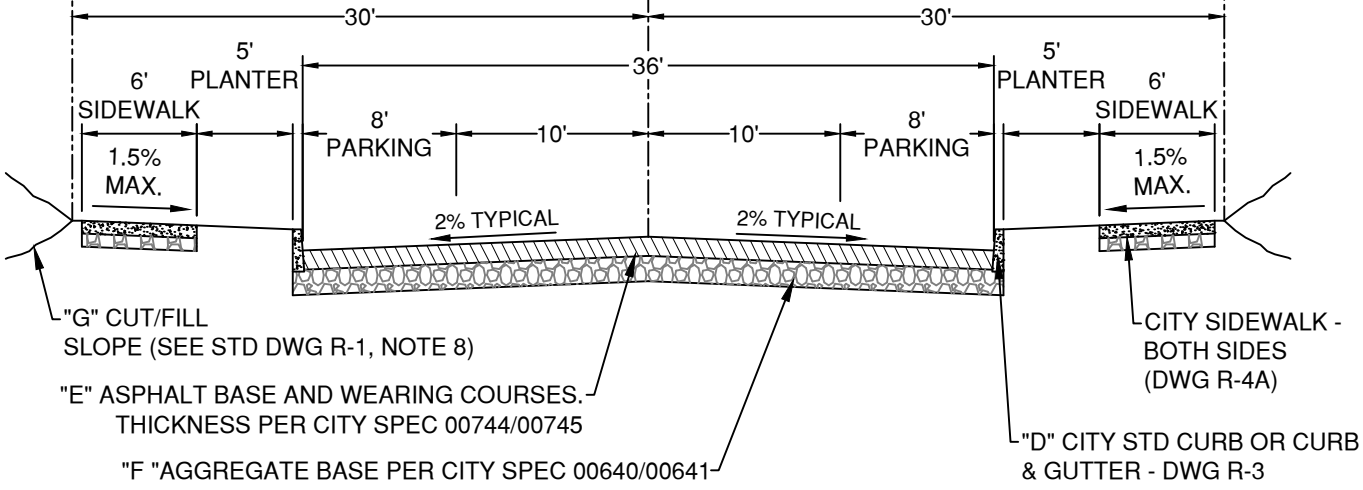
LOCAL ROAD GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES
2. UTILITY EASEMENTS MAY BE REQUIRED FOR PEDESTALS, TRANSFORMERS, ETC.
3. LOCAL ROADS WITH TRAVEL LANES LESS THAN 10' IN EACH DIRECTION ARE CONSIDERED QUEUING STREETS. SEE DESIGN STANDARDS SECTION 3.4.2.2 FOR APPROPRIATE QUEUING STREET APPLICATIONS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL STREET CROSS-SECTION - LOCAL	STD DWG R-1D



32' LOCAL ROAD - PARKING BOTH SIDES (SEE NOTE 3)



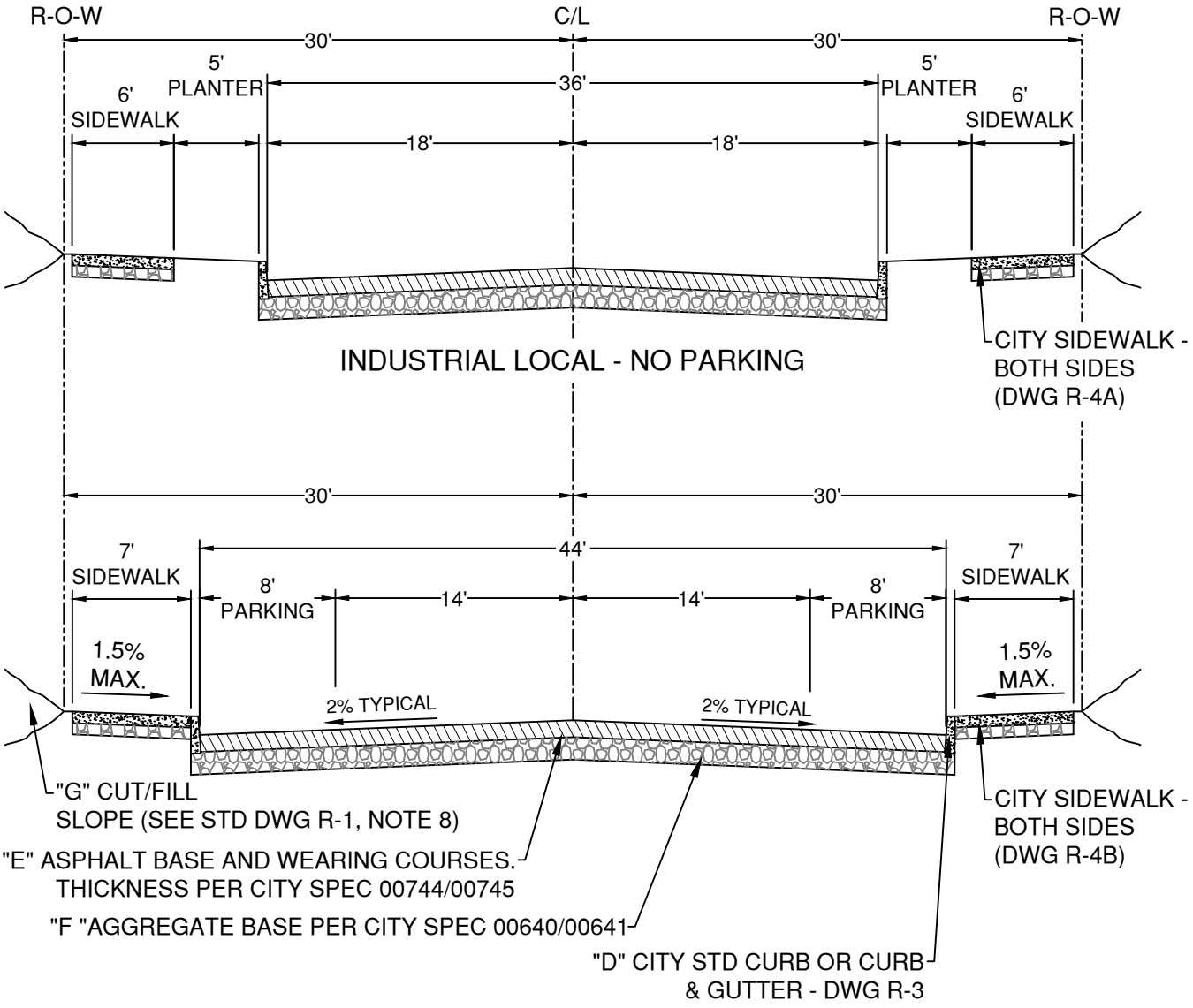
36' LOCAL ROAD - PARKING BOTH SIDES

PLTS: 1	BLTS: 1
	2 (STRIPED CENTERLINE)

LOCAL ROAD GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES
2. UTILITY EASEMENTS MAY BE REQUIRED FOR PEDESTALS, TRANSFORMERS, ETC.
3. LOCAL ROADS WITH TRAVEL LANES LESS THAN 10' IN EACH DIRECTION ARE CONSIDERED QUEUING STREETS. SEE DESIGN STANDARDS SECTION 3.4.2.2 FOR APPROPRIATE QUEUING STREET APPLICATIONS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL STREET CROSS-SECTION - LOCAL	STD DWG R-1E



INDUSTRIAL LOCAL - NO PARKING

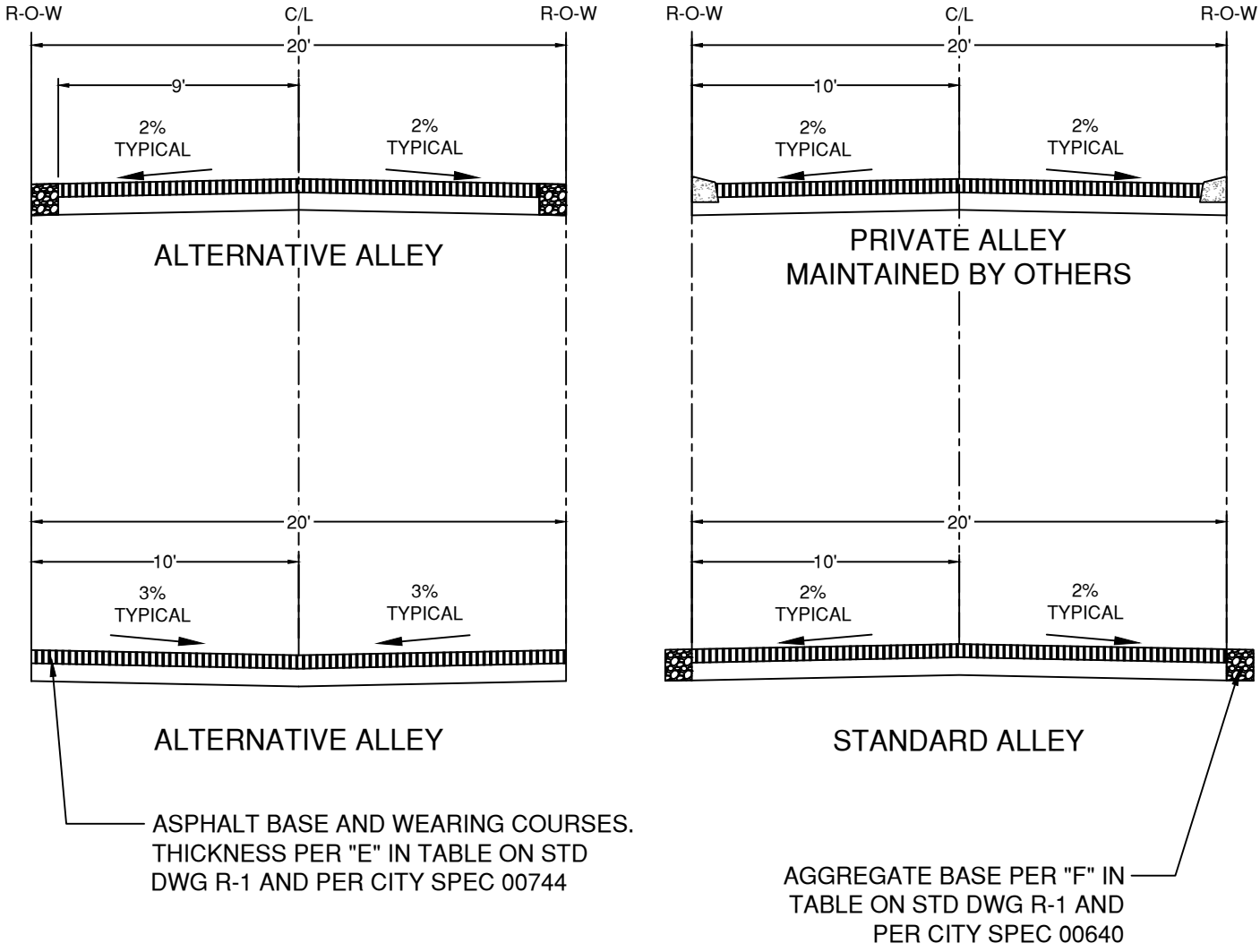
INDUSTRIAL LOCAL - PARKING BOTH SIDES

PLTS: 1	BLTS: 1
	2 (STRIPED CENTERLINE)

LOCAL ROAD GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES
2. THE SIDE PARKING IS ON MAY ALTERNATE BY BLOCK. PROVIDE PARKING NEXT TO PARKS, SCHOOLS, AND OTHER ACTIVITY GENERATING LAND USES.
3. UTILITY EASEMENTS MAY BE REQUIRED FOR PEDESTALS, TRANSFORMERS, ETC.
4. FOR PARKING ON ONE SIDE, COMBINE THE APPLICABLE HALF STREET SECTIONS FROM THE NO PARKING AND PARKING ON BOTH SIDES TYPICAL SECTIONS. THE ROAD CENTERLINE SHALL REMAIN IN THE CENTER OF ROW TO ALLOW FOR FUTURE EXPANSION.

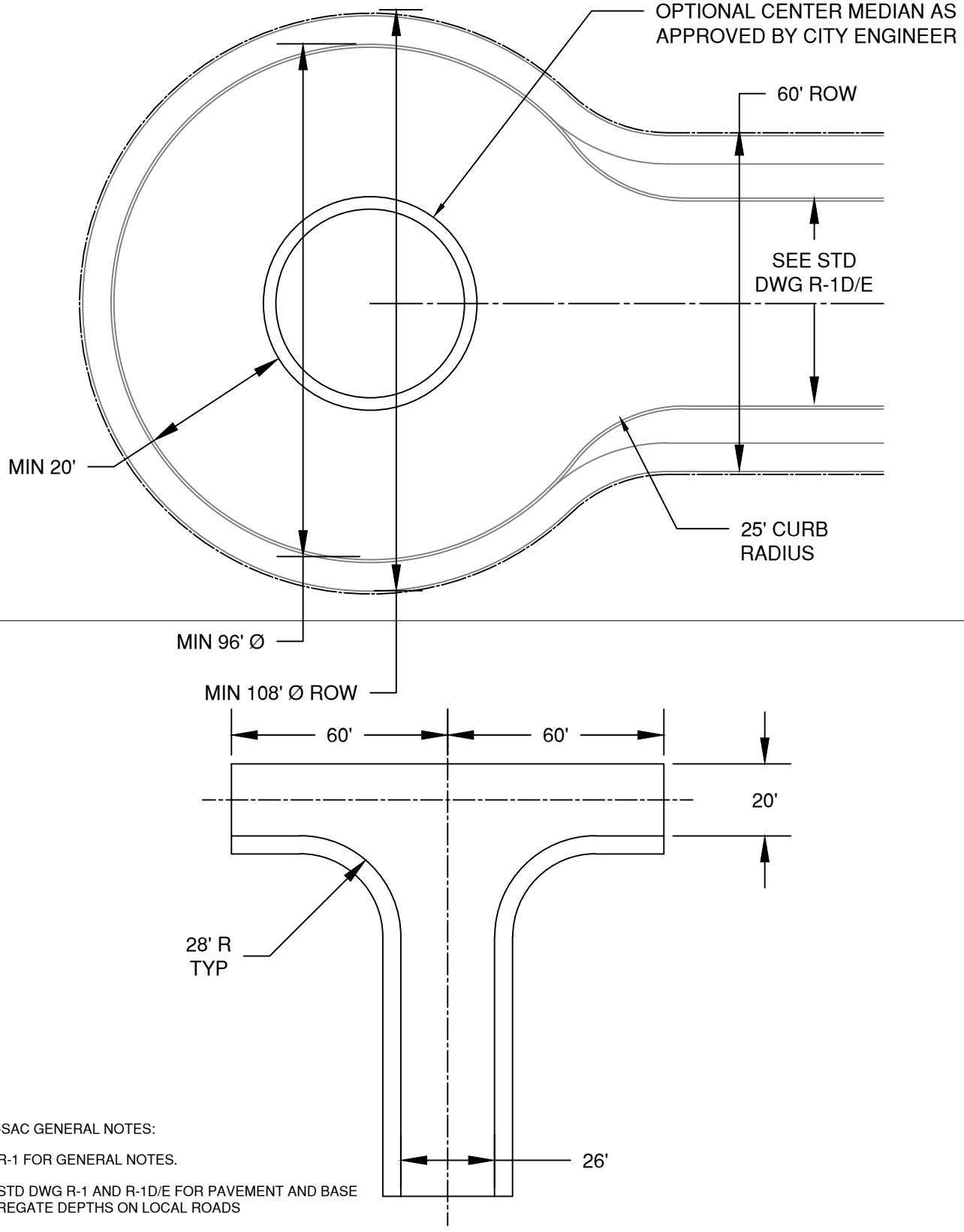
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL STREET CROSS-SECTION - INDUSTRIAL LOCAL	STD DWG R-1F



ALLEY GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. NEW ALLEY RIGHT-OF-WAY AND PAVED WIDTH WILL BE 20' WIDE. WHERE ALLEYS ARE INSTALLED IN EXISTING RIGHT-OF-WAY, THE PAVED WIDTH MAY BE UP TO 2 FEET LESS THAN THE RIGHT-OF-WAY WIDTH. 1-FOOT WIDE BUFFERS ON EACH SIDE OF THE ALLEY MAY BE LEFT UNPAVED WHEN ALLEYS ARE INSTALLED IN EXISTING RIGHT-OF-WAY.
3. SURFACE RESTORATION OF TRANSVERSE TRENCHING WILL NOT REQUIRE ASPHALT IF THE EXISTING ALLEY IS UNPAVED. RESTORE SURFACE TO MATCH EXISTING.

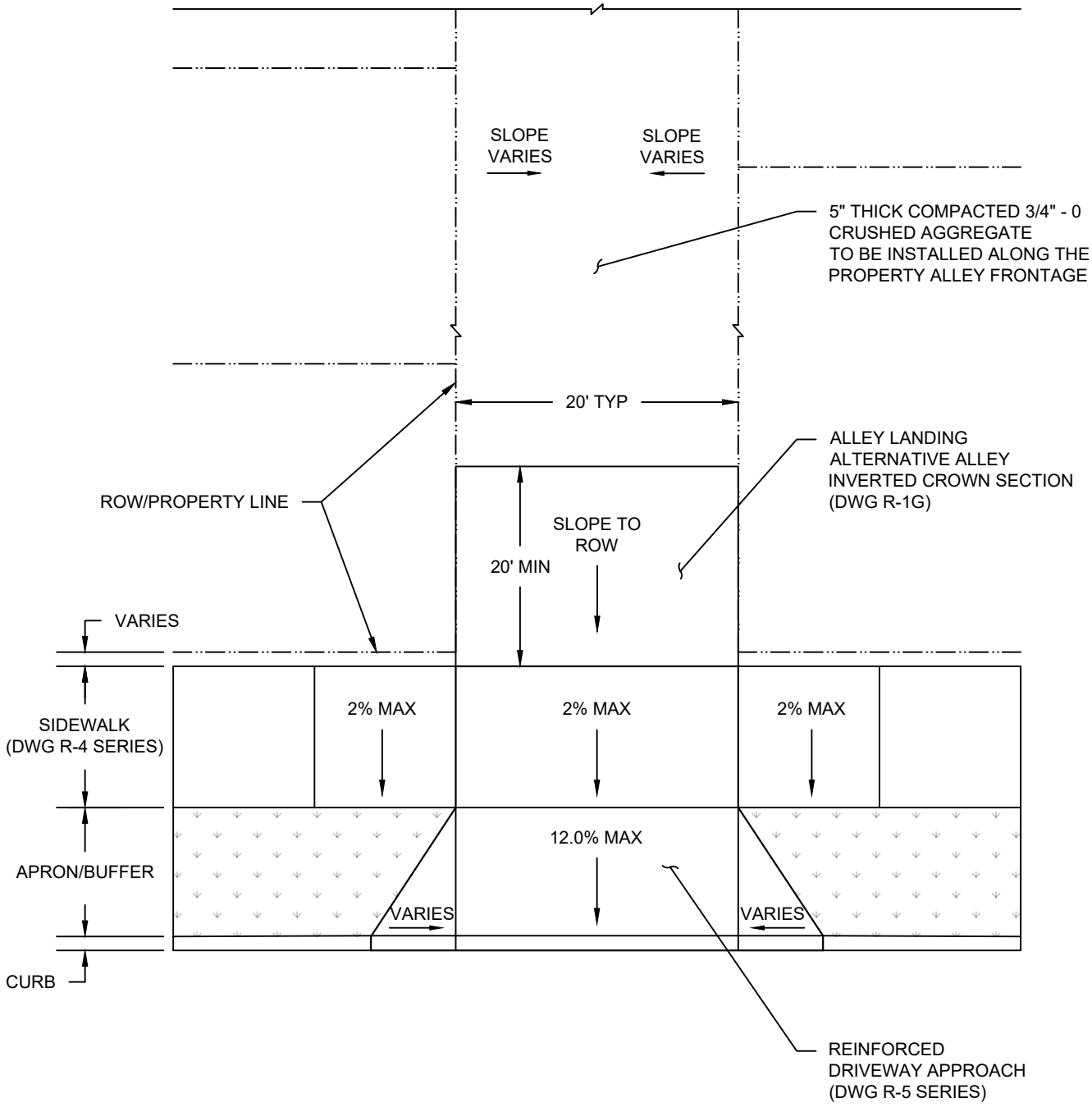
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL STREET SECTION - ALLEY	STD DWG R-1G



CUL-DE-SAC GENERAL NOTES:

1. SEE R-1 FOR GENERAL NOTES.
2. SEE STD DWG R-1 AND R-1D/E FOR PAVEMENT AND BASE AGGREGATE DEPTHS ON LOCAL ROADS
3. 10' EASEMENT REQUIRED ON THE T-COURT FOR PEDESTRIAN PATH. SEE DEVELOPMENT CODE 3.8.400C3

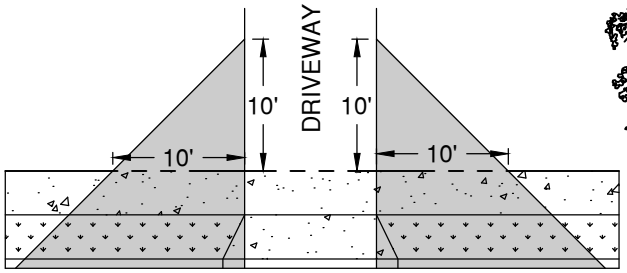
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL STREET DEAD-END TURNAROUND	STD DWG R-1H



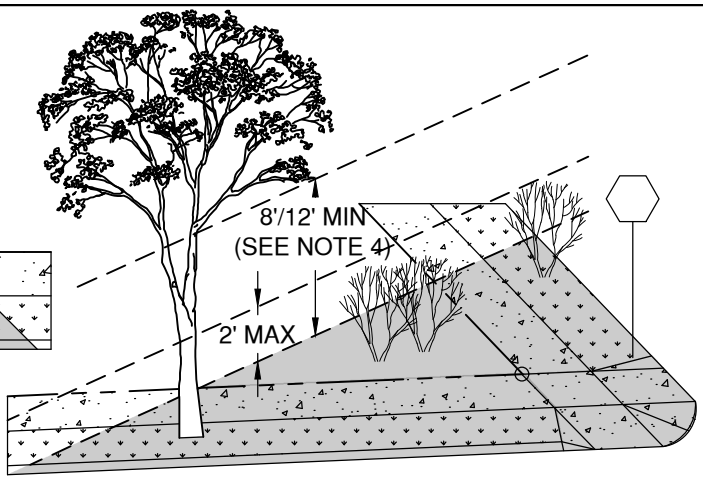
GENERAL NOTES:

1. IF THERE IS ALLEY ACCESS TO THE PROPERTY AND ONE OR MORE OF THE ALLEY DRIVEWAY APPROACHES ARE NOT IMPROVED TO CITY OF BEND STANDARDS AND SPECIFICATIONS, THEN AN ALLEY APPROACH MUST BE IMPROVED TO CITY OF BEND STANDARDS AND SPECIFICATIONS WITH THE PROPOSED DEVELOPMENT.
2. REFER TO THE BEND DEVELOPMENT CODE 4.2.400 FOR ADDITIONAL MINIMUM DEVELOPMENT STANDARDS REQUIREMENTS.

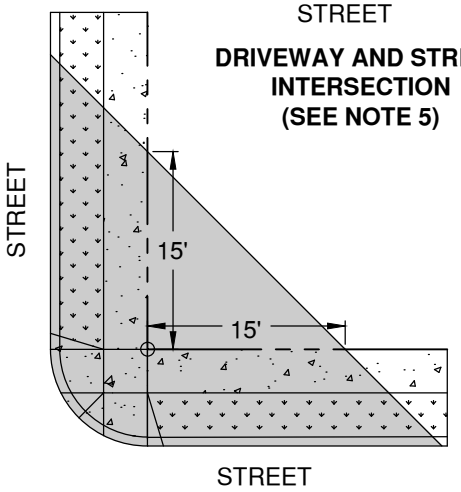
DRAWN DSE	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 04/21/2023
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		RESIDENTIAL ALLEY IMPROVEMENTS	STD DWG R-1J



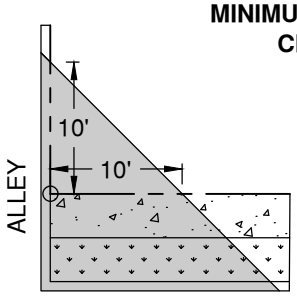
DRIVEWAY AND STREET INTERSECTION (SEE NOTE 5)



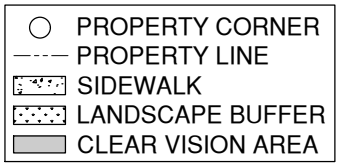
MAX HEIGHT OF SHRUBS AND MINIMUM LIMBING REQUIRED IN CLEAR VISION AREA



STREET/STREET INTERSECTION



STREET/ALLEY INTERSECTION

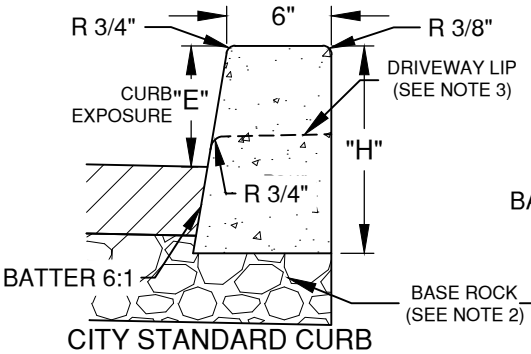


CLEAR VISION AREAS ARE ESTABLISHED AS FOLLOWS:

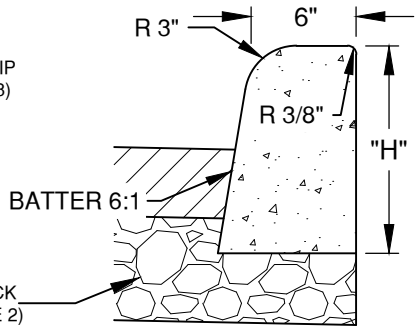
1) CLEAR VISION TRIANGLES SHALL BE ESTABLISHED AT THE CORNER OF ANY PROPERTY ADJACENT TO INTERSECTIONS OF PUBLIC OR PRIVATE STREETS, ALLEYS, MID-BLOCK LANES, AND/OR RAILROAD RIGHTS-OF-WAY.
2) THE TWO LEGS OF THE CLEAR VISION TRIANGLE ARE EACH MEASURED FROM THE POINT OF INTERSECTION OF THE TWO CORNER LOT LINES, SPECIAL SETBACK LINES, OR ACCESS EASEMENT LINES. WHERE LOT LINES HAVE ROUNDED CORNERS, THE LOT LINES ARE EXTENDED IN A STRAIGHT LINE TO A POINT OF INTERSECTION. THE CLEAR VISION AREA EXTENDS TO THE FACE OF CURB AT THE STREET OR ALLEY
3) THE LENGTH OF BOTH LEGS OF THE CLEAR VISION AREA TRIANGLE IS AS FOLLOWS:
   TYPICAL, ALL ZONES: 15 FEET
   RAILROADS: 15 FEET
   ALLEY INTERSECTION: 10 FEET
   DRIVEWAYS: 10 FEET
4) WITHIN THE CLEAR VISION AREA, OBSTRUCTIONS TO VISION OTHER THAN A STREET SIGN, POST, OR POLE LESS THAN 8 INCHES IN DIAMETER SHALL BE CLEARED FROM PROPERTY UNDER THE CONTROL OF THE CITY, HOMEOWNER, OR DEVELOPER. SHRUBS OR FOLIAGE MUST NOT EXCEED 2'-0" IN HEIGHT. PLANTING NEW TREES OR INSTALLATION OF COMMUNICATION TOWERS AND TRANSFORMERS, ARE NOT PERMITTED WITHIN THE CLEAR VISION AREA. EXISTING TREES MUST BE MAINTAINED/LIMBED TO A MINIMUM OF 8'-0" ABOVE THE TOP OF CURB OR 12'-0" ABOVE ADJACENT BIKE LANES.
5) DRIVEWAY APPROACHES AND DRIVEWAYS ARE NOT PERMITTED WITHIN THE CLEAR VISION AREA. ON-STREET PARKING DESIGN DOES NOT INCLUDE SPACES WITHIN 20 FEET OF AN ACCESSIBLE RAMP OR WITHIN 10 FEET OF A DRIVEWAY APPROACH.

NOTE: INTERSECTION SIGHT TRIANGLES ARE DISTINCT FROM, AND IN ADDITION TO, CLEAR VISION AREAS. INTERSECTION SIGHT TRIANGLE DIMENSIONS VARY WITH STREET WIDTH, GEOMETRY, TOPOGRAPHY, AND POSTED SPEED; ADDITIONAL CLEARING AS NECESSARY TO PROVIDE CLEAR INTERSECTION SIGHT DISTANCE IS ALSO REQUIRED; SEE CHAPTER 3.3 OF THE CITY OF BEND DESIGN STANDARDS.

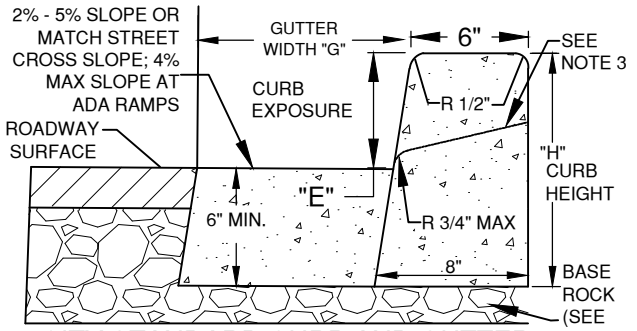
DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 CLEAR VISION AREAS AT INTERSECTIONS	SCALE NTS DATE 01/31/2022 APPR STD DWG R-2



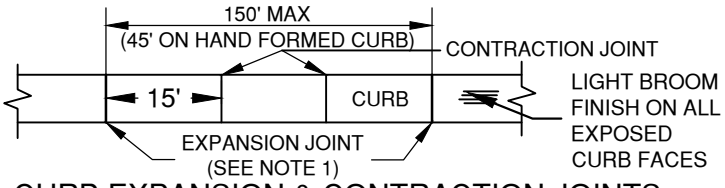
CITY STANDARD CURB



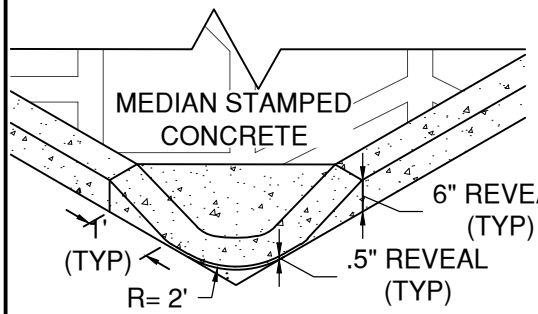
CITY ISLAND/MEDIAN MOUNTABLE CURB

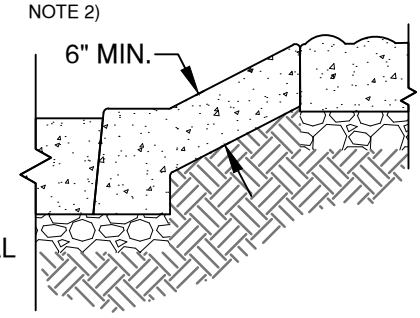


CITY STANDARD CURB AND GUTTER

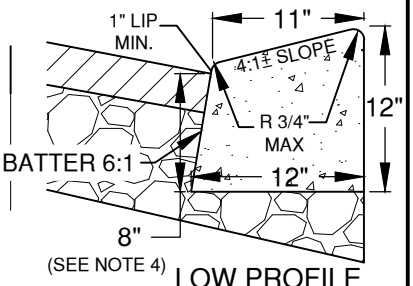


CURB EXPANSION & CONTRACTION JOINTS

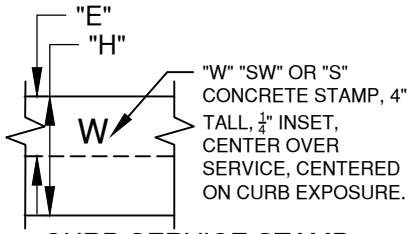




TAPERED CURB

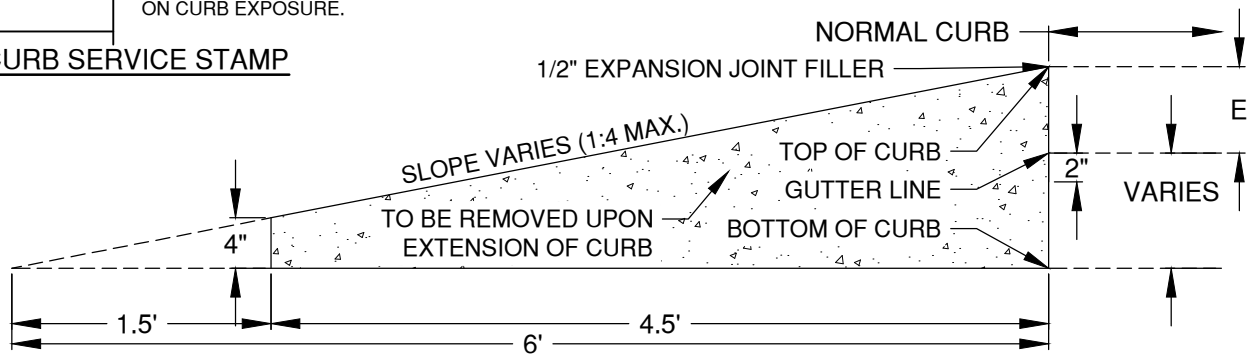


LOW PROFILE MOUNTABLE CURB



CURB SERVICE STAMP

ROAD CLASS	CURB HEIGHT - H	CURB EXPOSURE - E	GUTTER WIDTH - G
ARTERIAL	16"	7"	12"
COLLECTOR	14"	6"	18"
LOCAL	12"	6"	18"



CURB ENDING DETAIL

SEE NOTES ON STD DWG R-3A

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 03/22/2023
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CONCRETE CURB	STD DWG R-3

NOTES FOR STD DWG R-3:

1. EXPANSION JOINTS REQUIRED AT END OF RADII, DRIVEWAY APRONS, POINTS OF CURVATURE, AND NO GREATER THAN 150' MAXIMUM.
2. AGGREGATE BASE SHALL CONFORM TO SPECIFICATION SECTION 00640/00641. DEPTH AS REQUIRED TO MATCH BOTTOM OF STREET SECTION, 4" MIN.
3. SLOPE DRIVEWAY TOWARD STREET. 3/4" MAXIMUM LIP AT GUTTER, 1" ON COLLECTORS AND ARTERIALS.
4. MOUNTABLE CURB PERMITTED ON LOCAL STREET CUL-DE-SACS, ALLEYS, AND WHERE PERMITTED BY THE CITY ENGINEER. WHERE SIDEWALK ABUTS CURB, SIDEWALK SHALL BE MIN. 6" THICK
5. CURB AND GUTTER MAY BE REQUIRED WHEN GUTTER SLOPE IS BETWEEN 0.5% - 0.75%.
6. CONCRETE MATERIAL AND PLACEMENT SHALL CONFORM TO SPECIFICATION SECTION 00759.
7. LOCATE TAPERED CURB ON DOWNSTREAM SIDE OF PEDESTRIAN REFUGE IN CENTER MEDIAN CURB RAMPS TO PROTECT FROM SNOW PLOW DAMAGE.
8. TACK COAT IS TO BE APPLIED TO CURB FACE PRIOR TO PAVING.

DRAWN AJD		CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 03/22/2023
REV	DATE	710 NW WALL ST., BEND, OREGON 97701	APPR
		CONCRETE CURB NOTES	STD DWG R-3A

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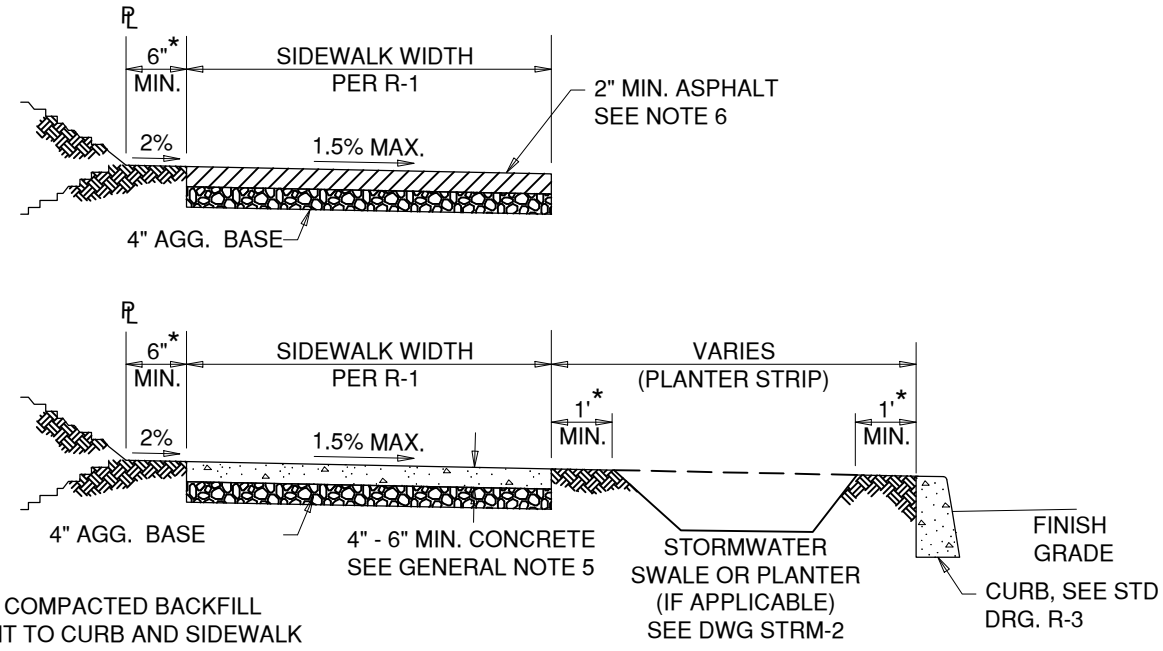
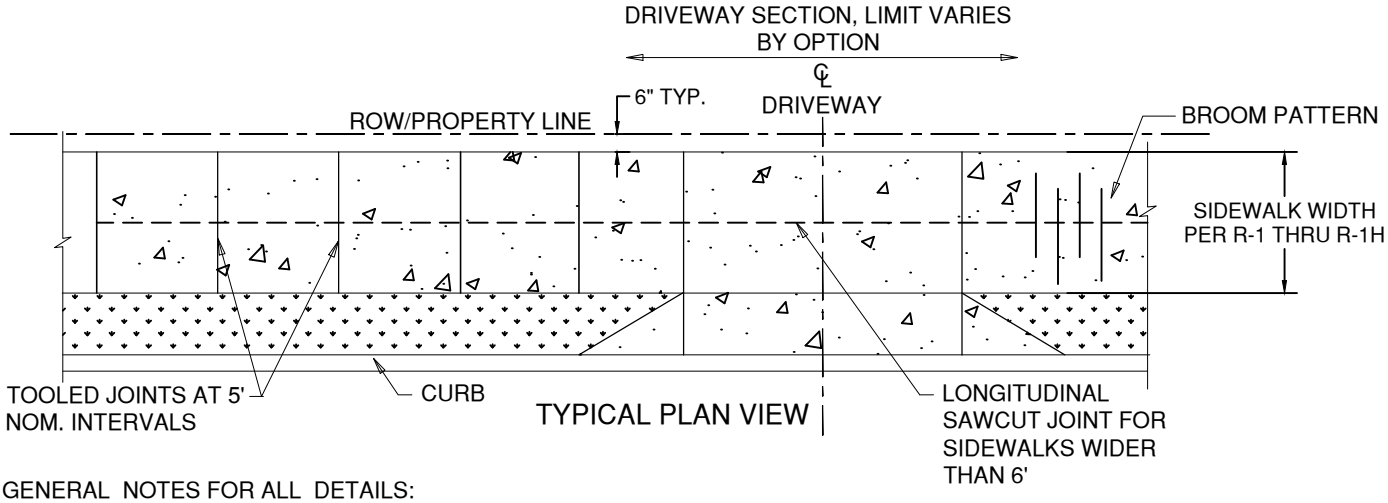
CITY OF BEND



TYPICAL CROSS SECTION



TYPICAL PLAN VIEW

GENERAL NOTES FOR ALL DETAILS:

1. SIDEWALKS SET BACK ADJACENT TO PROPERTY LINE ARE STANDARD. USE CURB-TIGHT SIDEWALKS ONLY WHERE PERMITTED. SIDEWALK SHALL BE PROPERTY-TIGHT EXCEPT TO MEANDER AROUND TREES OR BARRIERS (UTILITIES, SIGNS, ETC.) OR PER DESIGN STANDARD SECTION 3.4.7 - HILLSIDE.

2. CONST. EXPANSION JOINTS AT 25' MAXIMUM SPACING, AND AT POINTS OF TANGENCY, AND ON EACH SIDE OF DRIVEWAY APRONS. EXPANSION JOINTS MUST BE FULL DEPTH OF PAVING SECTION.

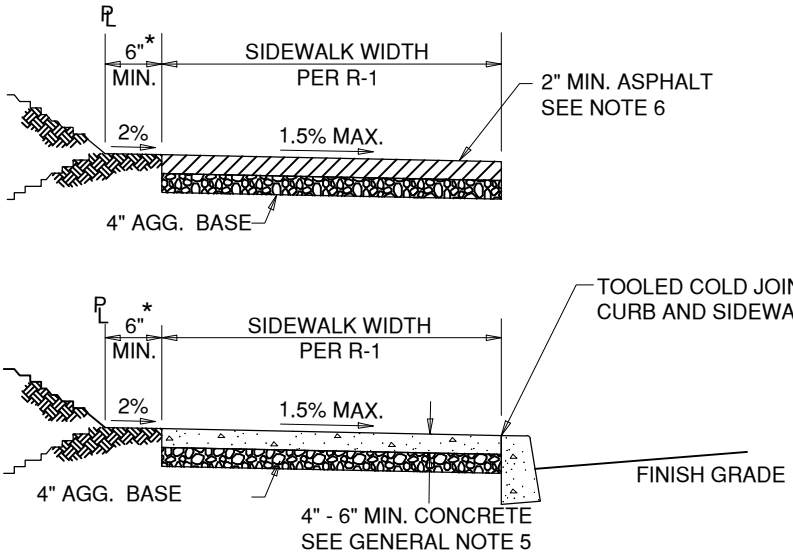
3. CONST. CONTRACTION JOINTS AT 5' MAXIMUM SPACING, AND AT ENDS OF EACH RAMP.

4. FOR DRIVEWAY DETAILS, SEE STD. DRGS. R-5A THROUGH R-5E.

5. SIDEWALK THICKNESS MINIMUM 4" THICK , TYPICAL. MINIMUM 6" THICK IF SIDEWALK IS INTENDED AS PORTION OF DRIVEWAY, CURB RAMP, OR ADJACENT TO MOUNTABLE CURB.

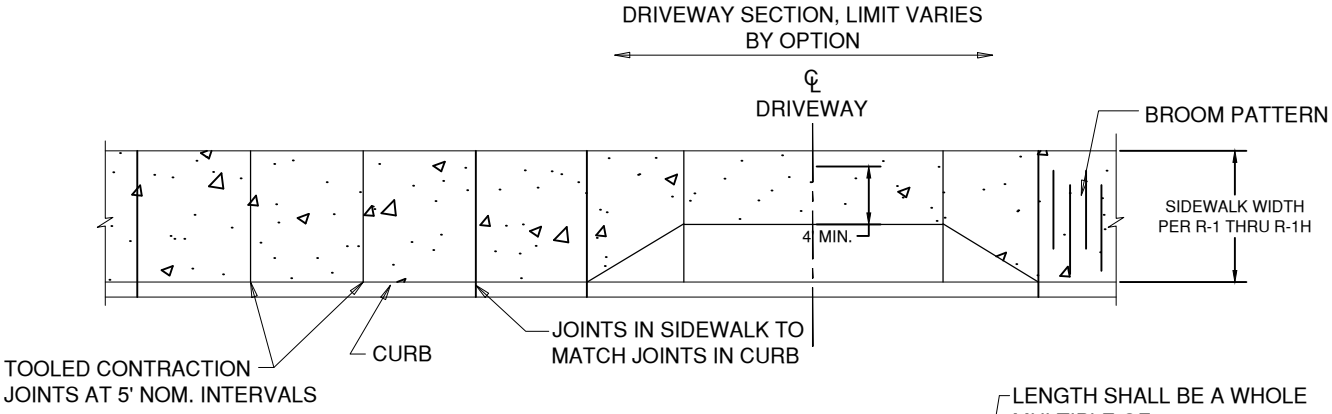
6. ASPHALT SHARED-USE PATH WHERE APPROVED BY THE ENGINEER.

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 SHARED-USE PATH/SIDEWALK, SETBACK	SCALE NTS DATE 01/31/2022 APPR STD DWG R-4A

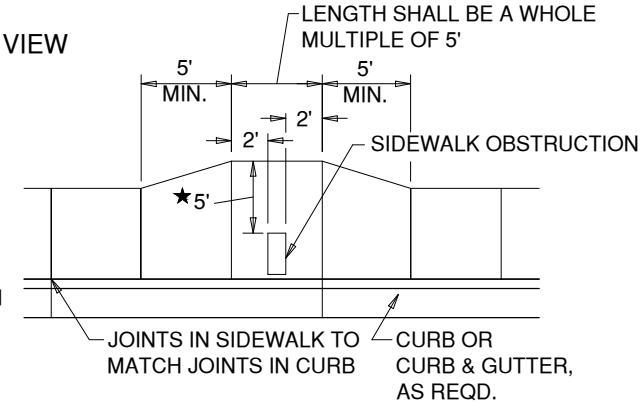


* PROVIDE COMPACTED BACKFILL
ADJACENT TO CURB AND SIDEWALK

TYPICAL CROSS SECTION



TYPICAL PLAN VIEW



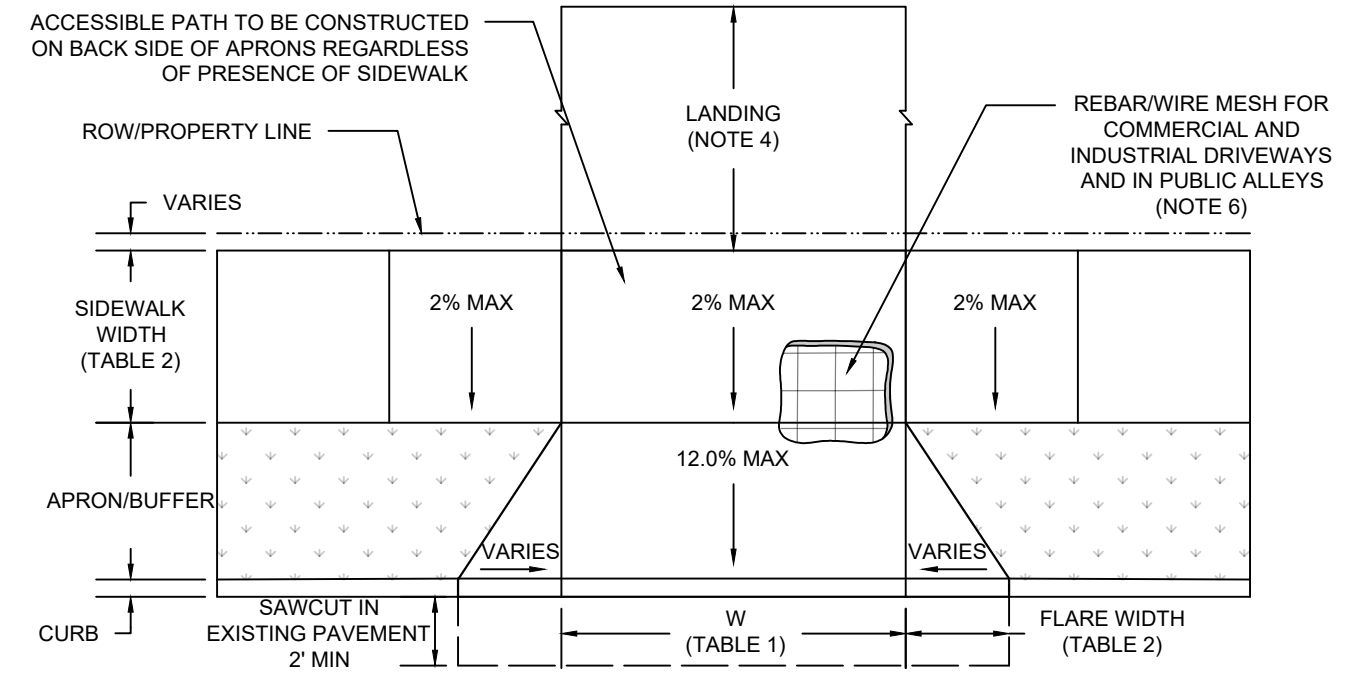
★ WHEN SITE CONSTRAINTS PROHIBIT A 5' PASSAGE, THE ENGINEER MAY DIRECT THIS TO BE REDUCED, BUT NO LESS THAN 4'.

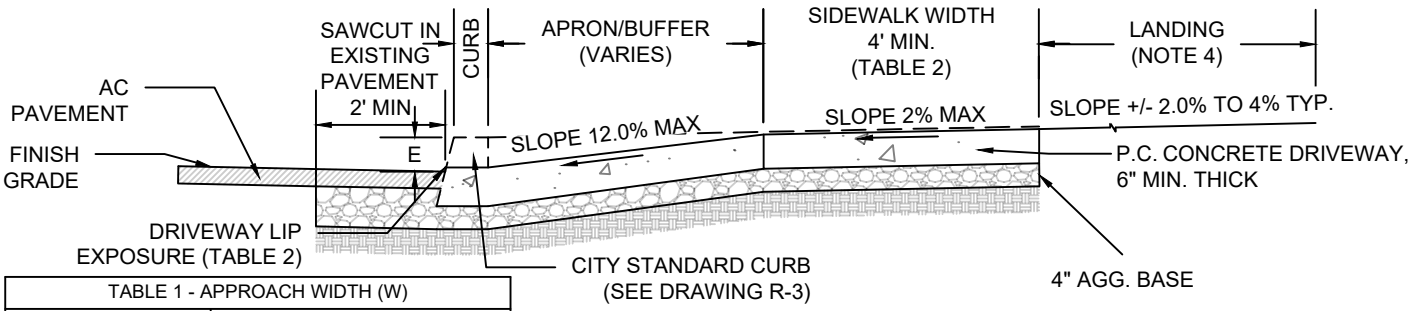
REQUIRED SIDEWALK WIDENING
AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS:

1. SIDEWALKS SET BACK ADJACENT TO PROPERTY LINE ARE STANDARD. USE CURB-TIGHT SIDEWALKS ONLY WHERE PERMITTED.
2. CONST. EXPANSION JOINTS AT 25' MAXIMUM SPACING, AND AT POINTS OF TANGENCY, AND ON EACH SIDE OF DRIVEWAY APRONS. EXPANSION JOINTS MUST BE FULL DEPTH OF PAVING SECTION.
3. CONST. CONTRACTION JOINTS AT 5' MAXIMUM SPACING, AND AT ENDS OF EACH RAMP.
4. FOR DRIVEWAY DETAILS, SEE STD. DRGS. R-5A THROUGH R-5E.
5. SIDEWALK THICKNESS MINIMUM 4" THICK, TYPICAL. MINIMUM 6" THICK IF SIDEWALK IS PORTION OF DRIVEWAY, CURB RAMP, OR ADJACENT TO MOUNTABLE CURB.
6. ASPHALT SHARED-USE PATH WHERE APPROVED BY THE ENGINEER.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		SHARED-USED PATH/SIDEWALK, CURB-TIGHT	STD DWG R-4B





TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, SETBACK SIDEWALK (STANDARD)

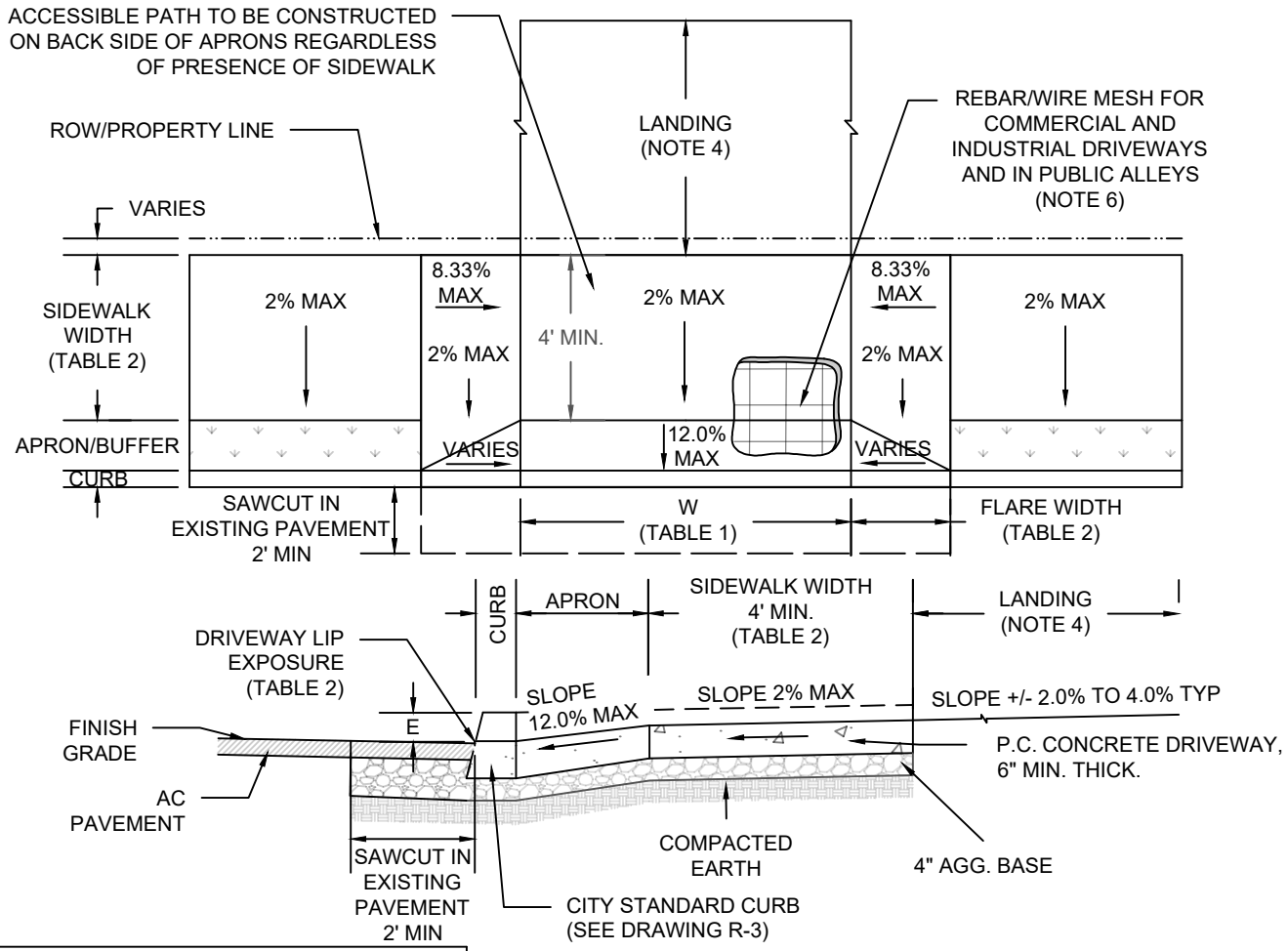
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS

TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$"	12.0% MAX	3'
COLLECTOR	PER R-1B & R1-C	1"	12.0% MAX	6'
ARTERIAL	PER R-1A	1"	12.0% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.
8. REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
9. THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV / DATE			APPR
		DRIVEWAY APPROACH, SETBACK (STANDARD)	STD DWG R-5A



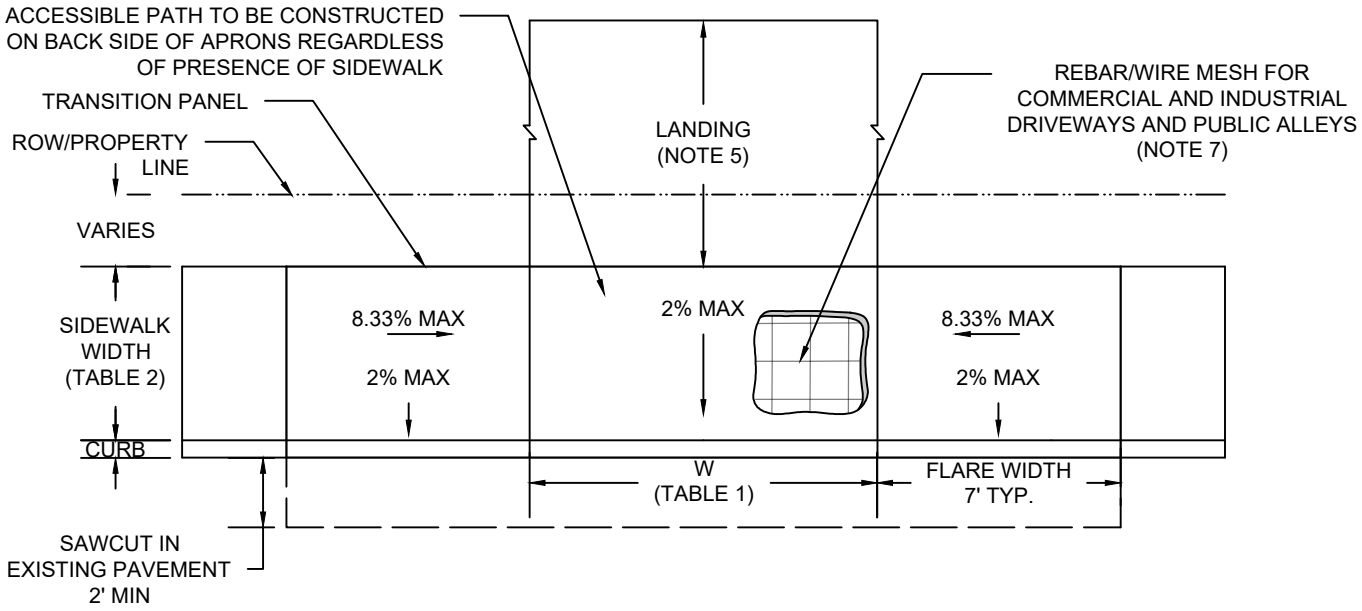
TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, SETBACK, PARTIALLY LOWERED
(ALTERNATE B)

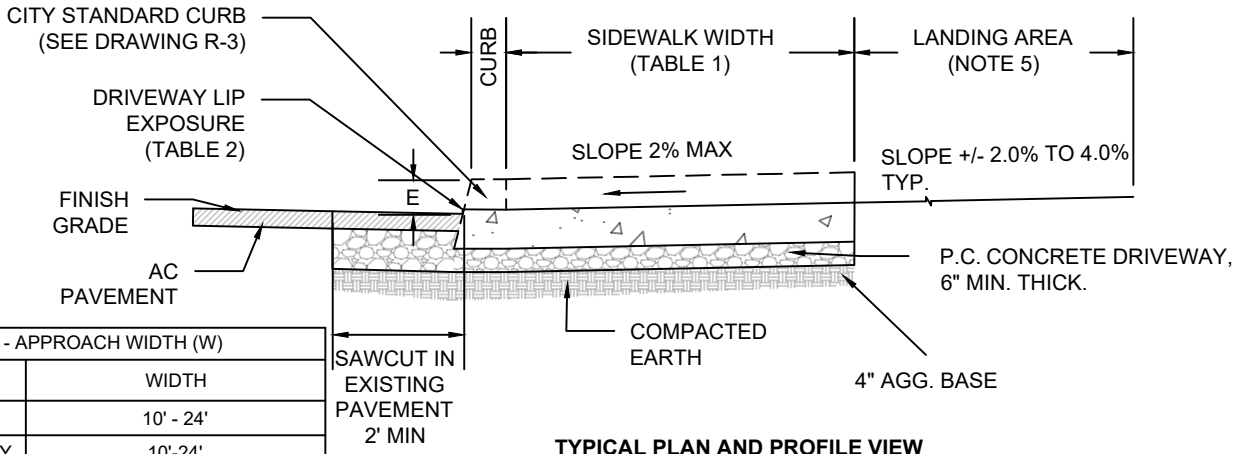
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS				
TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$"	12.0% MAX	3'
COLLECTOR	PER R-1B & R1-C	1"	12.0% MAX	6'
ARTERIAL	PER R-1A	1"	12.0% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.
8. REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
9. THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV / DATE			APPR
		DRIVEWAY APPROACH, SETBACK, PARTIALLY LOWERED (ALTERNATE B)	STD DWG R-5B





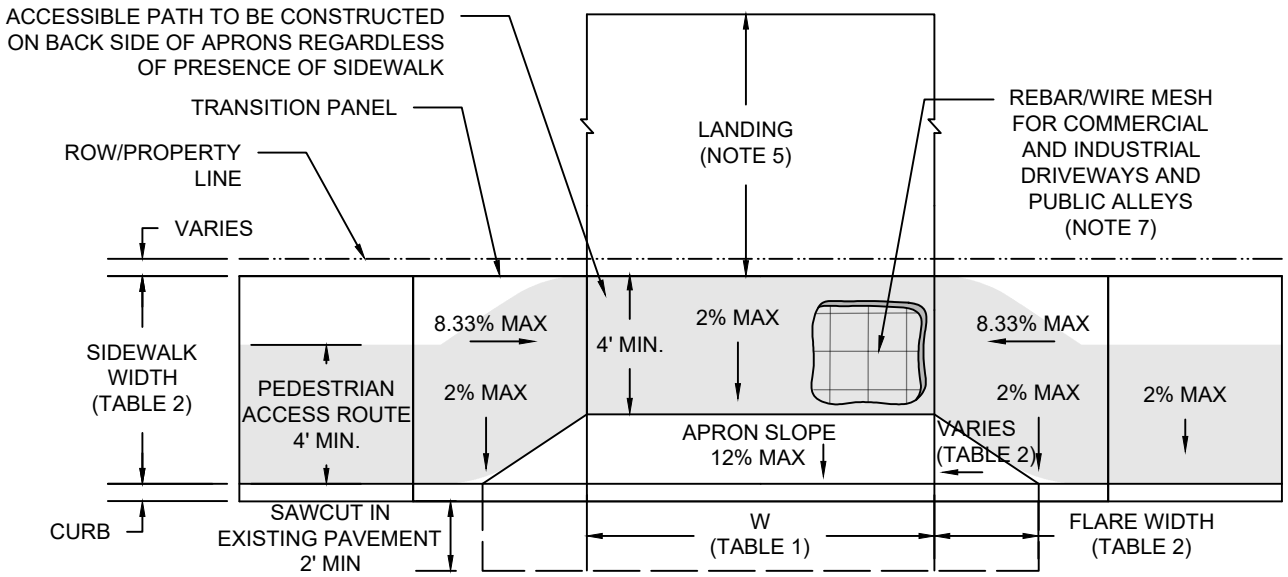
TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, CURB-TIGHT, FULLY LOWERED (ALTERNATE C)

TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS				
TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$"	12.0% MAX	3'
COLLECTOR	PER R-1B & R1-C	1"	12.0% MAX	6'
ARTERIAL	PER R-1A	1"	12.0% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.
8. REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
9. THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV / DATE			APPR
		DRIVEWAY APPROACH, CURB-TIGHT, FULLY LOWERED (ALTERNATE C)	STD DWG R-5C



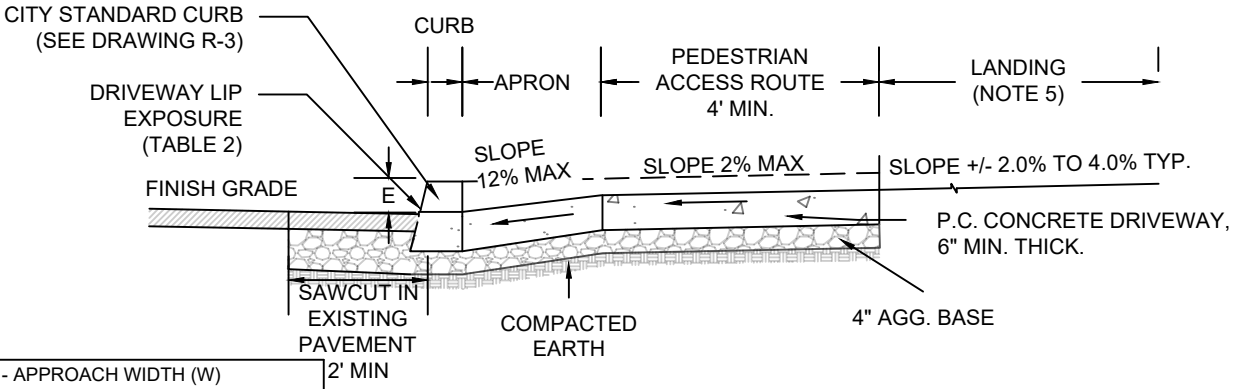


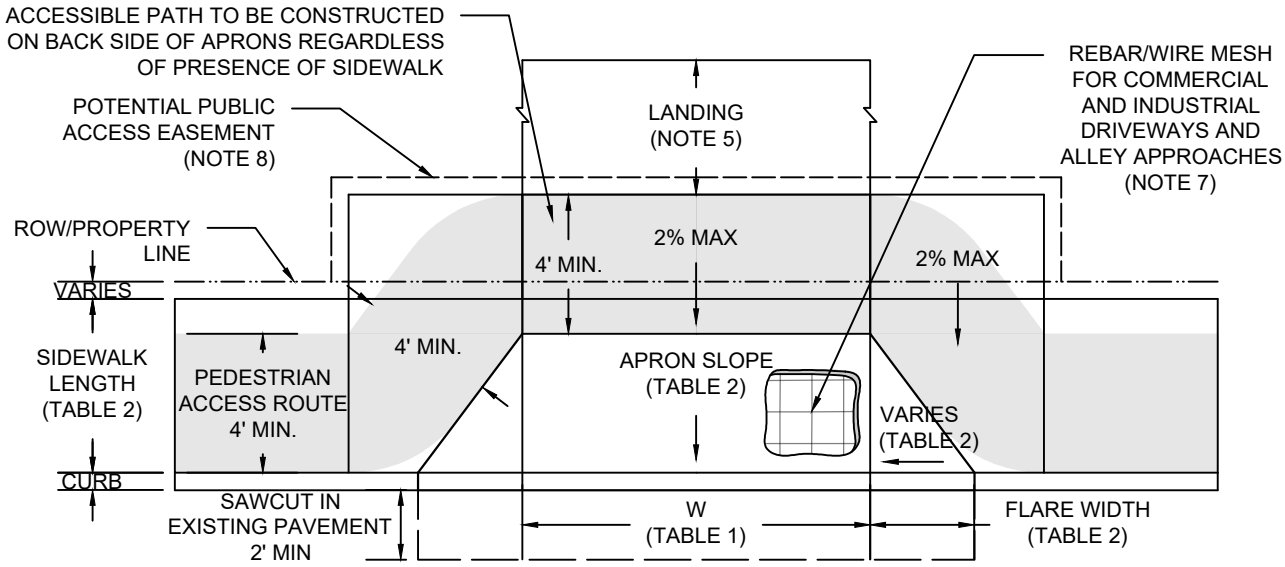
TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TYPICAL PLAN AND PROFILE VIEW
DRIVEWAY APPROACH, CURB-TIGHT, PARTIALLY LOWERED (ALTERNATE D)

TABLE 2 - DRIVEWAY APPROACH WITH SETBACK SIDEWALK SPECIFICATIONS				
TYPE OF STREET	SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$"	12.0% MAX	3'
COLLECTOR	PER R-1B & R1-C	1"	12.0% MAX	6'
ARTERIAL	PER R-1A	1"	12.0% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.
8. REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
9. THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV / DATE			APPR
		DRIVEWAY APPROACH, CURB-TIGHT, PARTIALLY LOWERED (ALTERNATE D)	STD DWG R-5D



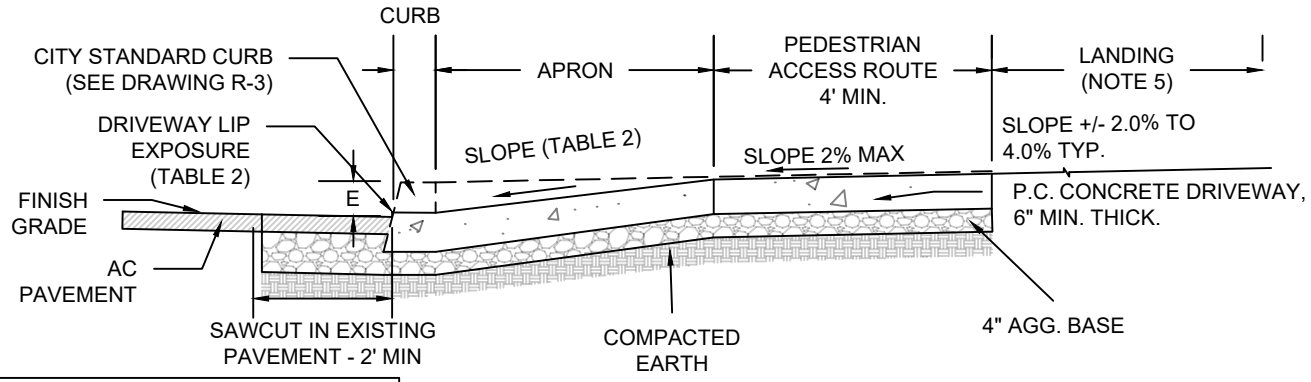


TABLE 1 - APPROACH WIDTH (W)	
TYPE	WIDTH
RESIDENTIAL	10' - 24'
SINGLE FAMILY	10'-24'
TOWNHOME	32' MAX SHARED; 16' MAX LOCAL STREETS
DUPLEX	SUM 32' MAX (2 APRON MAX)
TRIPLEX	SUM 32' MAX (3 APRON MAX)
QUADPLEX	SUM 32' MAX (4 APRON MAX)
MULTIFAMILY	20' - 30'
COMMERCIAL	10' - 35'

TYPICAL PLAN VIEW
DRIVEWAY APPROACH, CURB-TIGHT, WRAPPING SIDEWALK
(ALTERNATE E)

TABLE 2 - DRIVEWAY APPROACH SPECIFICATIONS WITH CURB-TIGHT WRAPPING SIDEWALK				
TYPE OF STREET	MINIMUM SIDEWALK WIDTH	LIP EXPOSURE	APRON GRADE, POSITIVE GRADE TO ROW	FLARE WIDTH
LOCAL	PER R-1D THRU R-1F	$\frac{3}{4}$"	12.0% MAX	3'
COLLECTOR	PER R-1B & R1-C	1"	12.5% MAX	6'
ARTERIAL	PER R-1A	1"	12.5% MAX	6'

GENERAL NOTES:
1. SIDEWALKS SHALL MEET ALL STANDARDS OF CURRENT PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
2. CURB AND SIDEWALK TYPES VARY, SEE PLANS. SEE STD. DRG. R-3 FOR CURB DETAILS. SEE STD. DRGS. R-4A & R-4B FOR SIDEWALK DETAILS.
3. TOOLED JOINTS ARE REQUIRED AT ALL DRIVEWAY SLOPE BREAK LINES.
4. THE LANDING SHALL BE PAVED WITH CONCRETE OR ASPHALT SURFACE FOR A MINIMUM OF 20 FEET. PAVING BEYOND THE LANDING SHALL BE IN ACCORDANCE WITH THE BEND DEVELOPMENT CODE. CONSTRUCT AS DIRECTED OR AS SHOWN ON PLANS. DO NOT ENTER PRIVATE PROPERTY WITHOUT APPROPRIATE PERMIT OR EASEMENT. MATERIAL WITHIN THE ROW SHALL BE CONCRETE.
5. CHECK THE GUTTER FLOW DEPTH AT DRIVEWAY LOCATIONS TO ASSURE THAT THE DESIGN FLOOD DOES NOT OVERTOP THE BACK OF SIDEWALK AT DRIVEWAY. IF OVERTOPPING OCCURS PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR PERFORM OTHER APPROVED DESIGN MITIGATION.
6. #4 REBAR (2'0" ON CENTER, TO BE SUSPENDED TO CENTER OF CONCRETE DEPTH) REQUIRED IN COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND IN PUBLIC ALLEYS. 6"X6" 10 GAUGE MINIMUM WELDED WIRE MAY BE USED IN LIEU OF REBAR.
7. CONCRETE DRIVEWAY APRON REQUIRED WHERE SIDEWALK AND/OR CURB IS EXISTING/PROPOSED, OTHERWISE AN ASPHALT APPROACH CAN BE INSTALLED TO EDGE OF PAVEMENT TO SIMILAR WIDTHS OF THE DRIVEWAY APRON AS APPROVED BY THE CITY ENGINEER.
8. REFER TO THE BEND DEVELOPMENT CODE 3.1.400 AND 3.6.200 FOR NUMBER AND WIDTH OF APRONS PERMITTED PER LOT.
9. THIS SAME STANDARD APPLIES TO ALLEYS

DRAWN AJD	CITY OF BEND	SCALE NTS	
DIV ROADWAY	STANDARD DRAWING	DATE 01/31/2022	
REV / DATE	710 NW WALL ST., BEND, OREGON 97701	APPR	
CITY OF BEND	DRIVEWAY APPROACH, CURB-TIGHT, WRAPPING SIDEWALK (ALTERNATE E)	STD DWG R-5E	

GENERAL NOTES :

1. CITY OF BEND STD DWGS R-6, R-6A, R-6B, AND R-6C ARE INTENDED AS A SUMMARY OF PROWAG REQUIREMENTS. SEE CURRENT PROWAG GUIDELINES FOR COMPLETE REQUIREMENTS.
2. SLOPES USED FOR DESIGN ARE TYPICALLY LESS THAN THE MAXIMUMS TO ALLOW FOR CONSTRUCTION TOLERANCES. RECOMMENDED DESIGN SLOPES ARE AS FOLLOWS:

PROWAG MAX. SLOPE	DESIGN MAX. SLOPE
1:10 (10%)	9.5%
1:12 (8.33%)	7.5%
1:20 (5.0%)	4.5%
1:50 (2%)	1.5%

3. GRADE BREAKS ARE NOT PERMITTED ON THE SURFACE OF CURB RAMPS, BLENDED TRANSITIONS, LANDINGS, AND GUTTER AREAS WITHIN THE PEDESTRIAN ACCESS ROUTE.
4. THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM.
5. SURFACES OF CURB RAMPS, BLENDED TRANSITIONS, AND LANDINGS SHALL COMPLY WITH R302.7. GRATINGS, ACCESS COVERS, AND OTHER APPURTENANCES SHALL NOT BE LOCATED ON CURB RAMPS, LANDINGS, BLENDED TRANSITIONS AND GUTTERS WITHIN THE PEDESTRIAN ACCESS ROUTE.
6. SURFACE DISCONTINUITIES SHALL NOT EXCEED 0.5 in. MAXIMUM. VERTICAL DISCONTINUITIES BETWEEN 0.25 in. AND 0.5 in. MAXIMUM SHALL BE BEVELED AT 1:2 MINIMUM. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE LEVEL CHANGE. SEE PROWAG R302.7.2.
7. WHERE SIDEWALKS ARE CONSTRUCTED OUTSIDE THE RIGHT OF WAY, A PUBLIC ACCESS EASEMENT MUST BE RECORDED OVER THE PRIVATE PROPERTY ENCROACHMENT.
8. 6 INCHES OF COMMERCIAL GRADE CONCRETE PER CITY SPEC 00440 AND 4 INCHES OF STATE SPEC AGGREGATE PER CITY SPEC 00640/00641 IS REQUIRED FOR CONSTRUCTION OF CURB RAMPS, FLARES, AND LANDINGS.
9. DETECTABLE WARNING SURFACES COMPLYING WITH PROWAG R305 SHALL BE PROVIDED, WHERE A CURB RAMP, LANDING, OR BLENDED TRANSITION CONNECTS TO A STREET.
10. DETECTABLE WARNING SURFACES SHALL EXTEND 24 in. MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARES), THE LANDING, OR THE BLENDED TRANSITION.
11. THE ROWS OF TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP, LANDING, OR BLENDED TRANSITION AND THE STREET.
12. THE CLEAR WIDTH OF LANDINGS BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 FT. MINIMUM.

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		CURB RAMP GENERAL NOTES	STD DWG R-6

CURB EXPOSURE TO BE MINIMUM 3-INCHES (6-INCH PREFERRED) BETWEEN RAMPS UNLESS OTHERWISE APPROVED.

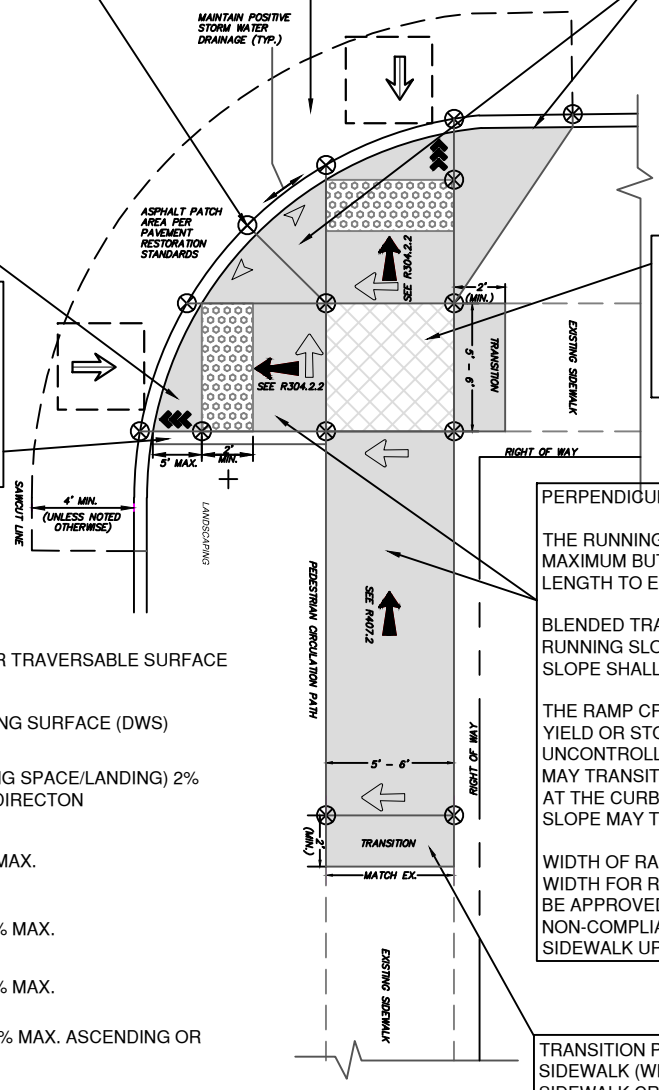
ONE CORNER OF THE DETECTABLE WARNING MUST BE WITHIN 2 in. OF THE GRADE BREAK; NO OTHER POINT ON THE LEADING EDGE OF THE DETECTABLE WARNING MAY BE MORE THAN 5 ft. FROM THE BACK OF CURB.

WHERE BOTH ENDS OF THE BOTTOM GRADE BREAK, COMPLYING WITH PROWAG R305.2.1, ARE 5.0 ft. OR LESS FROM THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE RAMP SURFACE AT THE BOTTOM GRADE BREAK. WHERE EITHER END OF THE BOTTOM GRADE BREAK IS MORE THAN 5.0 ft. FROM THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE LOWER LANDING.

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED PARALLEL TO THE CURB LINE, SHALL BE PROVIDED WHERE A PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP OR WHEN THE FLARE ABUTS A HARD SURFACE.

FLARES REQUIRED UNLESS BARRIERS EXIST OR WHERE APPROVED BY THE CITY ENGINEER. FLARE SLOPE CAN EXCEED 10% WHERE ABUTTING MIN 2' LANDSCAPING AREA.

GRADE BREAKS AT THE TOP AND BOTTOM OF PERPENDICULAR CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. AT LEAST ONE END OF THE BOTTOM GRADE BREAK SHALL BE AT THE BACK OF CURB. THE GRADE FROM THE BOTTOM OF THE DETECTABLE WARNING TO THE LANDING SHALL BE A CONTINUOUS GRADE (5% MAXIMUM). SURFACE SLOPES THAT MEET THE GRADE BREAKS SHALL BE FLUSH.



FLARED SIDES ARE PREFERRED, PARTICULARLY WHERE SUBJECT TO DAMAGE FROM ONCOMING TRAFFIC AND SNOWPLOWS. IF ADJACENT CONSTRAINTS PREVENT FLARE CONSTRUCTION, SIDE OF RAMPS MAY BE RETURNED IF PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, POLES, OR EQUIPMENT.

A LANDING 5.0 ft. MINIMUM BY 5.0 ft. MINIMUM SHALL BE PROVIDED AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER LANDINGS AND CLEAR SPACE. RUNNING AND CROSS SLOPES AT INTERSECTIONS SHALL BE 2% MAXIMUM.

PERPENDICULAR CURB RAMPS

THE RUNNING SLOPE SHALL BE 5% MINIMUM AND 8.3% MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT.

BLENDED TRANSITIONS SHALL COMPLY WITH R303.3. RUNNING SLOPE SHALL BE 5% MAXIMUM AND CROSS SLOPE SHALL BE 2% MAXIMUM.

THE RAMP CROSS SLOPE SHALL NOT EXCEED 2% AT YIELD OR STOP CONTROLLED INTERSECTIONS. AT UNCONTROLLED INTERSECTIONS, THE CROSS SLOPE MAY TRANSITION FROM 2% AT THE LANDING UP TO 5% AT THE CURB. AT MIDBLOCK CROSSINGS, THE CROSS SLOPE MAY TRANSITION TO MATCH THE ROAD GRADE.

WIDTH OF RAMP TO MATCH SUP/SIDEWALK STANDARD WIDTH FOR ROAD CROSS-SECTION; ALTERNATE MAY BE APPROVED BY CITY ENGINEER IN EXISTING NON-COMPLIANT AREAS WITH NO PLANS FOR SIDEWALK UPGRADES.

TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EX. SIDEWALK CROSS SLOPE). MAX. GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE 0.5% CHANGE PER FT. IF PROPOSED MATCH LINE LOCATION FALLS WITHIN 2 FEET FROM AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT.

SIDEWALK OR OTHER TRAVERSABLE SURFACE

DETECTABLE WARNING SURFACE (DWS)

LEVEL AREA (TURNING SPACE/LANDING) 2% MAX. SLOPE IN ANY DIRECTON

CROSS SLOPE 2.0% MAX.

RUNNING SLOPE 5.0% MAX.

RUNNING SLOPE 8.3% MAX.

COUNTER SLOPE 5.0% MAX. ASCENDING OR DESCENDING

FLARE SLOPE 10% MAX.

4'X4' CLEAR SPACE

REQUIRED DESIGN ELEVATIONS
SLOPES TO BE SHOWN WITH DESIGN

TYPICAL PERPENDICULAR CURB RAMP
ACCORDING TO PROWAG REQUIREMENTS

NOT TO SCALE – ROTATED TO FIT

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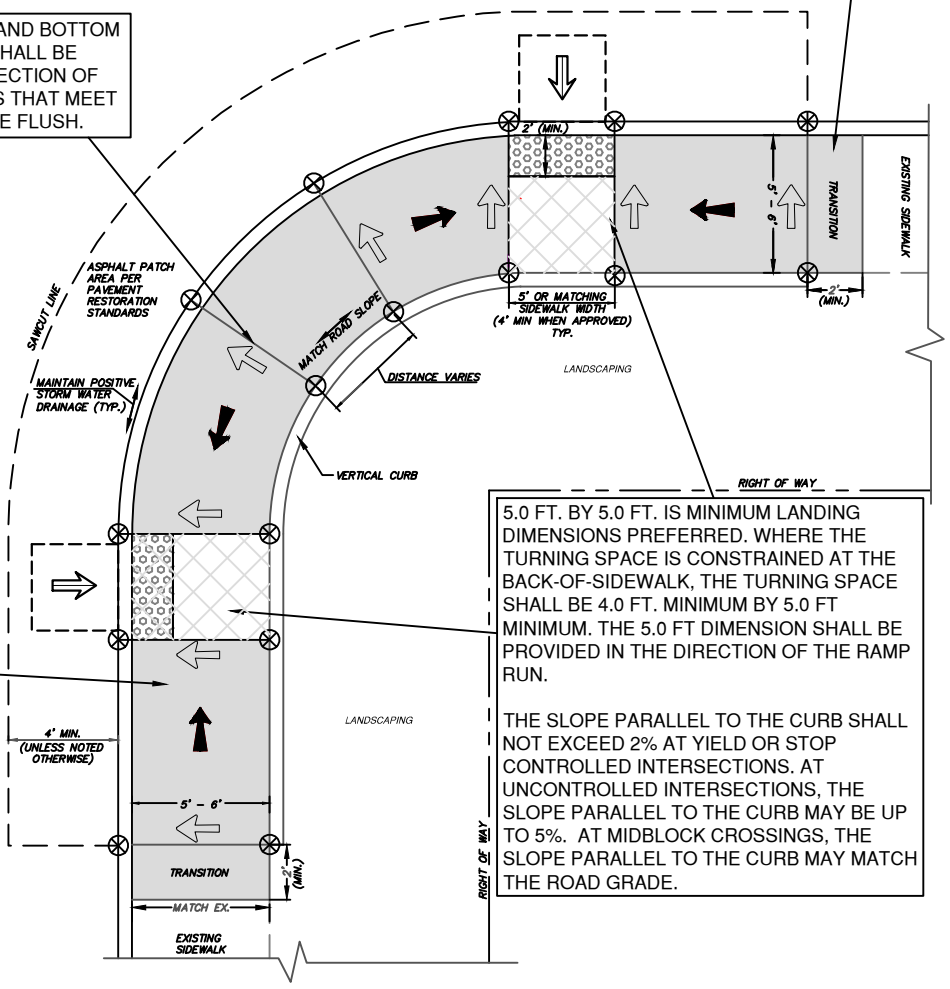
		TYPICAL PERPENDICULAR CURB RAMP	STD DWG R-6A

TRANSITION PANEL FROM RAMP TO EXISTING SIDEWALK (WHERE REQUIRED TO MATCH EX. SIDEWALK CROSS SLOPE). MAX. GRADES ARE NOT SPECIFIED BY PROWAG. ADJUST LENGTH AS NEEDED TO PROVIDE SMOOTH TRANSITION. IF PROPOSED MATCH LINE LOCATION FALLS WITHIN 2 FEET FROM AN EXISTING JOINT IN THE SECTION OF SIDEWALK TO REMAIN, THE EXISTING WALK SHALL BE REMOVED BACK TO THE NEXT JOINT.

GRADE BREAKS AT THE TOP AND BOTTOM OF PARALLEL CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. SURFACE SLOPES THAT MEET THE GRADE BREAKS SHALL BE FLUSH.



PARALLEL CURB RAMPS

THE RUNNING SLOPE SHALL BE 8.33% MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT.

THE CROSS SLOPE SHALL BE 2% MAXIMUM.

THE CLEAR WIDTH OF LANDINGS BLENDED TRANSITIONS, AND CURB RAMPS, EXCLUDING FLARES, SHALL BE 4.0 ft. MINIMUM.

LANDING WIDTH SHALL MATCH THE ADJACENT SIDEWALK WIDTH, 5.0 FT MIN., UNLESS OTHERWISE APPROVED.

5.0 FT. BY 5.0 FT. IS MINIMUM LANDING DIMENSIONS PREFERRED. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK-OF-SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT. MINIMUM BY 5.0 FT MINIMUM. THE 5.0 FT DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

THE SLOPE PARALLEL TO THE CURB SHALL NOT EXCEED 2% AT YIELD OR STOP CONTROLLED INTERSECTIONS. AT UNCONTROLLED INTERSECTIONS, THE SLOPE PARALLEL TO THE CURB MAY BE UP TO 5%. AT MIDBLOCK CROSSINGS, THE SLOPE PARALLEL TO THE CURB MAY MATCH THE ROAD GRADE.

TYPICAL PARALLEL CURB RAMP
ACCORDING TO PROWAG REQUIREMENTS
NOT TO SCALE – ROTATED TO FIT

SIDEWALK OR OTHER TRAVERSABLE SURFACE

DETECTABLE WARNING SURFACE (DWS)

LEVEL AREA (TURNING SPACE/LANDING) 2% MAX. SLOPE IN ANY DIRECTON

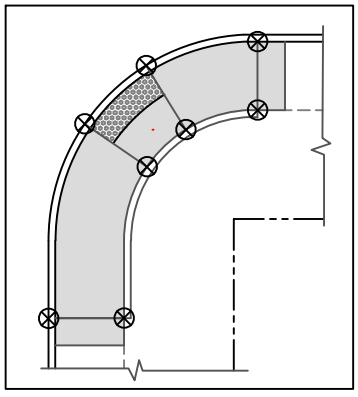
CROSS SLOPE 2.0% MAX.

RUNNING SLOPE 8.3% MAX.

COUNTER SLOPE 5.0% MAX. ASCENDING OR DESCENDING

4'X4' CLEAR SPACE

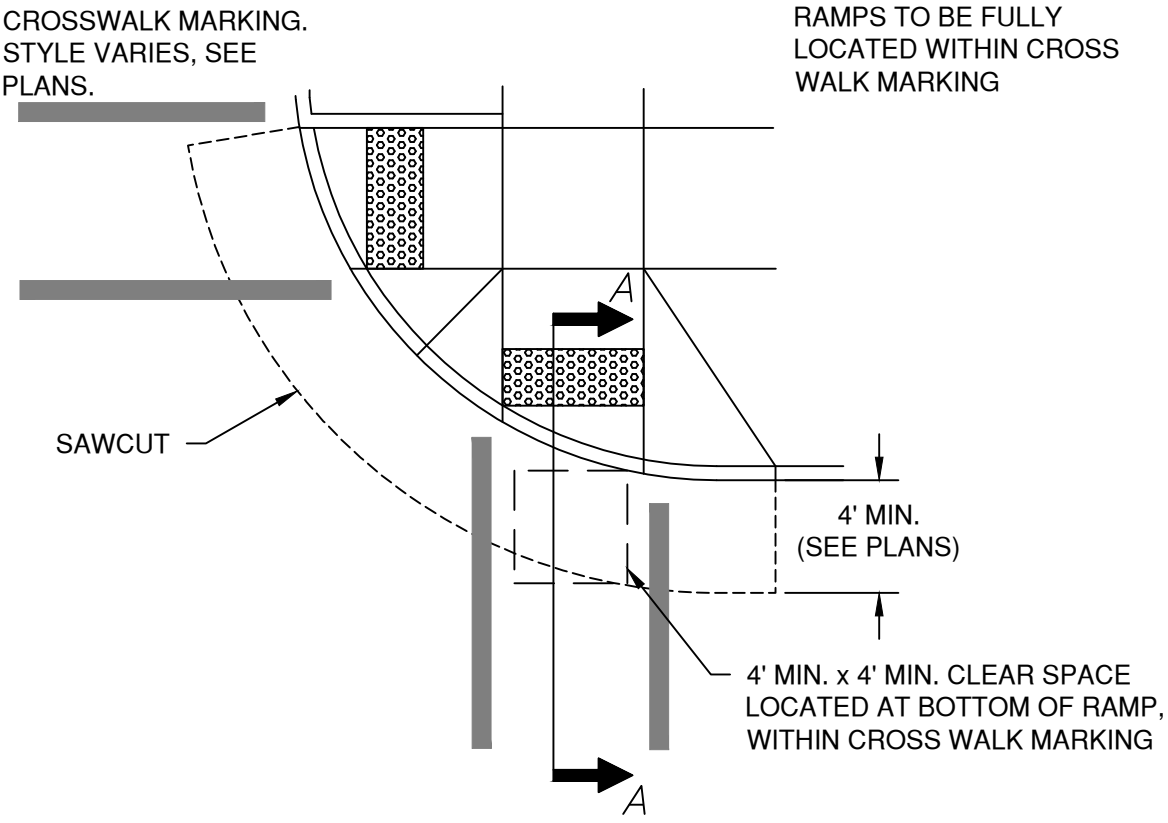
REQUIRED DESIGN ELEVATIONS SLOPES TO BE SHOWN WITH DESIGN



TYPICAL DIAGONAL CURB RAMP
REQUIRES CITY APPROVAL FOR CONSTRUCTION
ACCORDING TO PROWAG REQUIREMENTS
NOT TO SCALE – ROTATED TO FIT

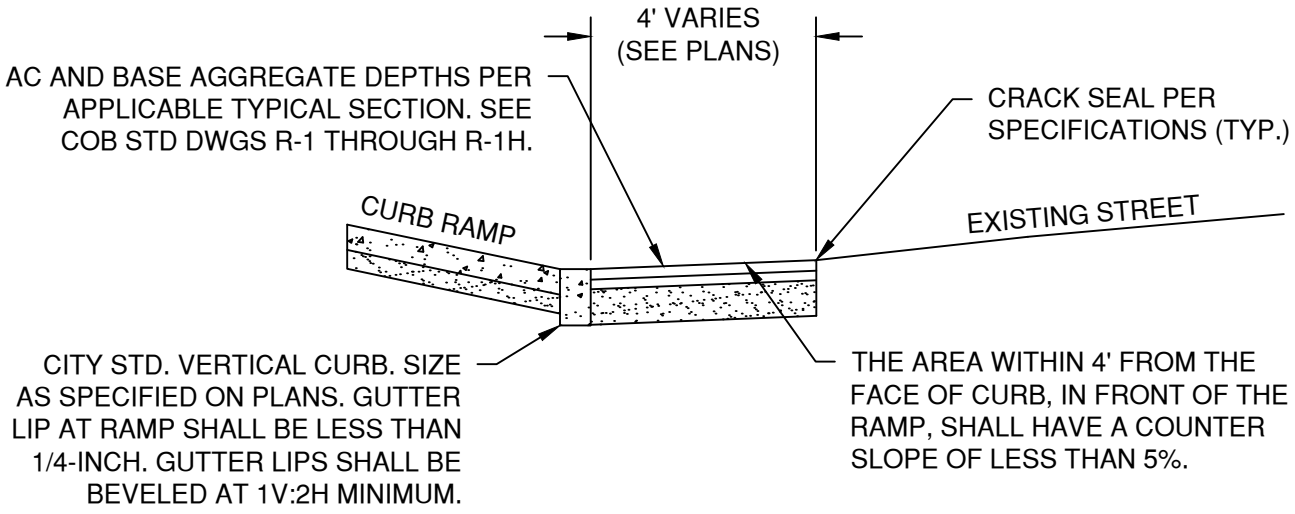
NOTE: DIAGONAL CURB RAMP ALTERNATE IS ONLY ALLOWED WHEN DIRECTIONAL RAMPS ARE NOT POSSIBLE AND MUST BE APPROVED BY THE CITY ENGINEER.

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV / DATE			APPR
		TYPICAL PARALLEL CURB RAMP	STD DWG R-6B



CROSS WALK - CURB RAMP ORIENTATION

NOT TO SCALE



NOTE: IN AREAS WITH UNIT PAVER CROSS WALKS, REMOVE EXISTING PAVERS, AND RE-INSTALL AT GRADES TO ACHIEVE THESE REQUIREMENTS.

TYPICAL RAMP / ASPHALT PATCH SECTION

NOT TO SCALE

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
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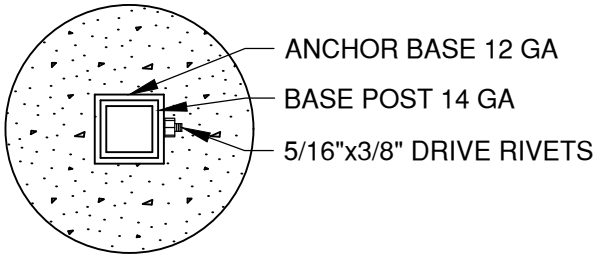
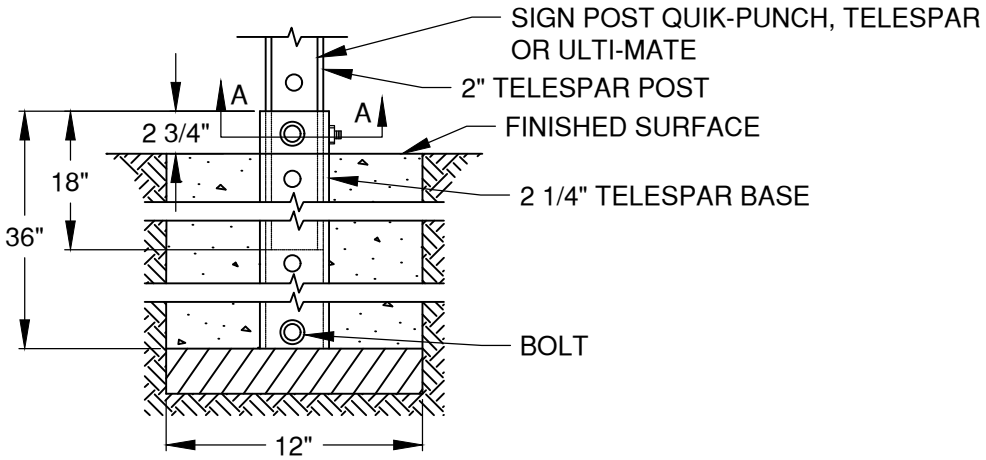
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CURB RAMP DETAILS	STD DWG R-6C

INSTALLATION IN NEW CONSTRUCTION



SECTION A-A

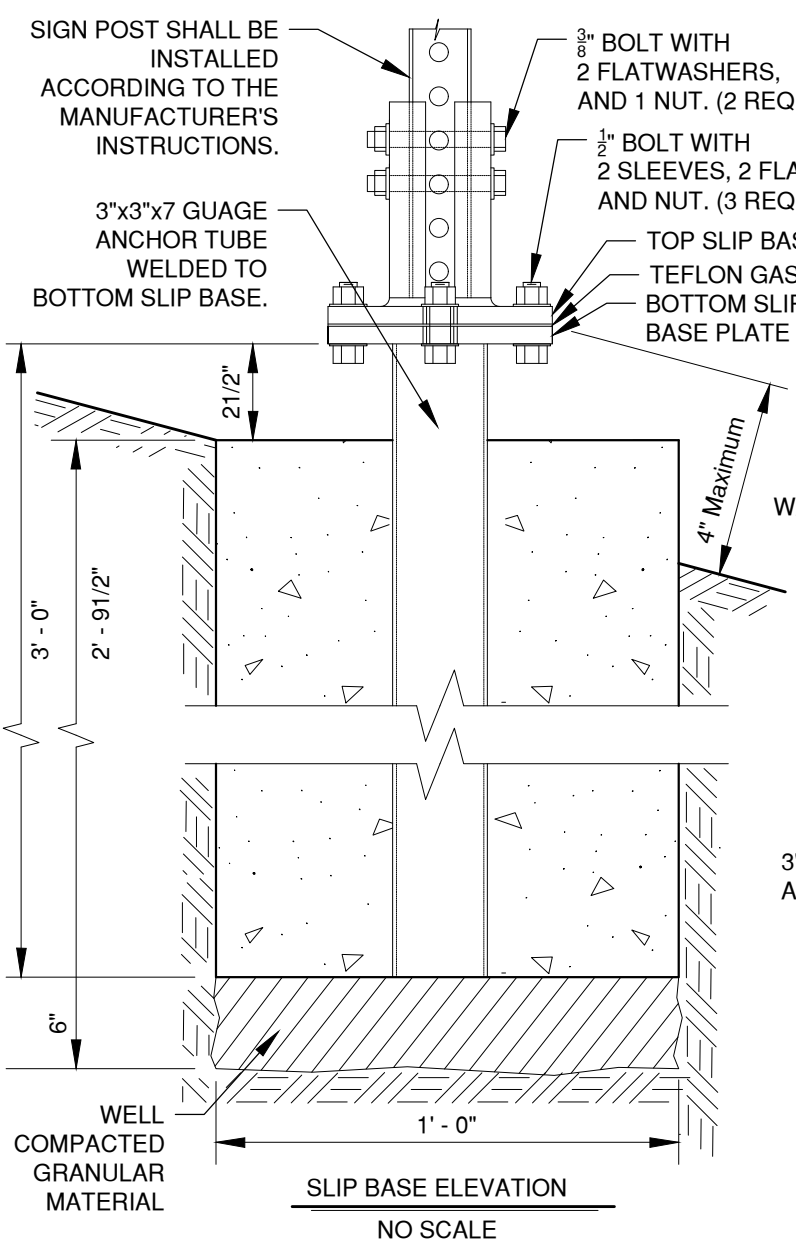


ANCHOR BASE DETAIL

NOTES:

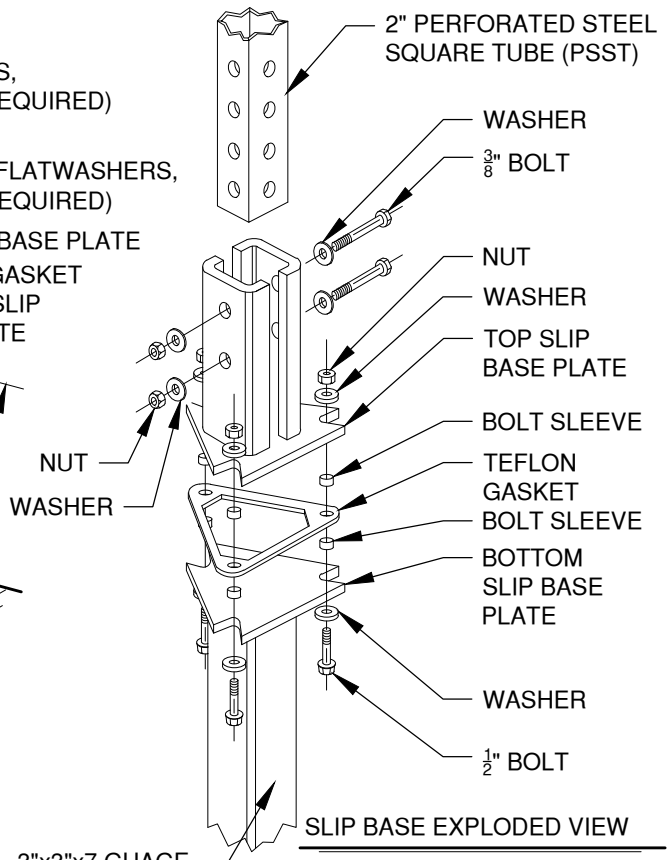
1. USE PSST ANCHOR BASE FOUNDATION FOR ALL SIGN LOCATIONS OTHER THAN IN MEDIANS AND ROUNDABOUT SPLITTER ISLANDS PER STD DWG R-7A.
2. ANCHOR BASE HOLES AND BOTTOM OF ANCHOR BASE SHALL BE COVERED SO THAT CONCRETE DOES NOT SEEP INTO ANCHOR BASE DURING SETTING
3. BASE SHOULD BE SET SEPARATELY FROM POST WITH ANCHOR BOLT IN BASE BOTTOM ONLY
4. POST SHOULD BE ABLE TO SLIDE FREELY WHEN RIVET IS REMOVED
5. FOR LARGE SIGNS THAT EXCEED WINDLOADS 2 1/2" POSTS MAY BE APPROVED BY CITY ENGINEER

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 PSST ANCHOR BASE FOUNDATION	SCALE NTS DATE 01/31/2022 APPR STD DWG R-7



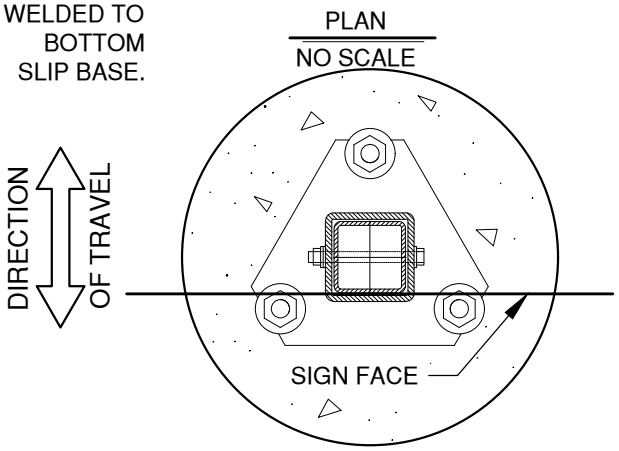
SLIP BASE ELEVATION

NO SCALE



SLIP BASE EXPLODED VIEW

NO SCALE



NOTES:

1. USE PSST SLIP BASE FOUNDATION FOR SIGNS INSTALLED IN MEDIANS AND ROUNDABOUT SPLITTER ISLANDS.
2. MATERIAL GRADE FOR BASE HARDWARE CONNECTION SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATION AND BASED ON CRASH TESTING.
3. SLIP BASE STEEL SHALL BE HOT DIPPED GALVANIZED OR APPROVAL EQUAL.
4. FOOTING CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE (FC=3000PSI) PER SPECIFICATION 00440. THE CGC MIXTURE MAY BE ACCEPTED AT THE SITE OF PLACEMENT ACCORDING TO 00440.14.
5. ALL SLIP BASES SHALL BE PRE-ASSEMBLED BY THE MANUFACTURER AND SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
6. SLIP BASE DETAILS SHOWN ARE NOT FOR A SPECIFIC MANUFACTURER AND ARE ONLY SHOWN TO CONVEY GENERAL PIECES OF A SLIP BASE SYSTEM. SPECIFIC SLIP BASE MATERIAL WILL BE ACCORDING TO THE MANUFACTURER'S DOCUMENTATION.
7. FOR LARGE SIGNS THAT EXCEED WINDLOADS, 2 1/2" PSST MAY BE APPROVED BY CITY ENGINEER

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
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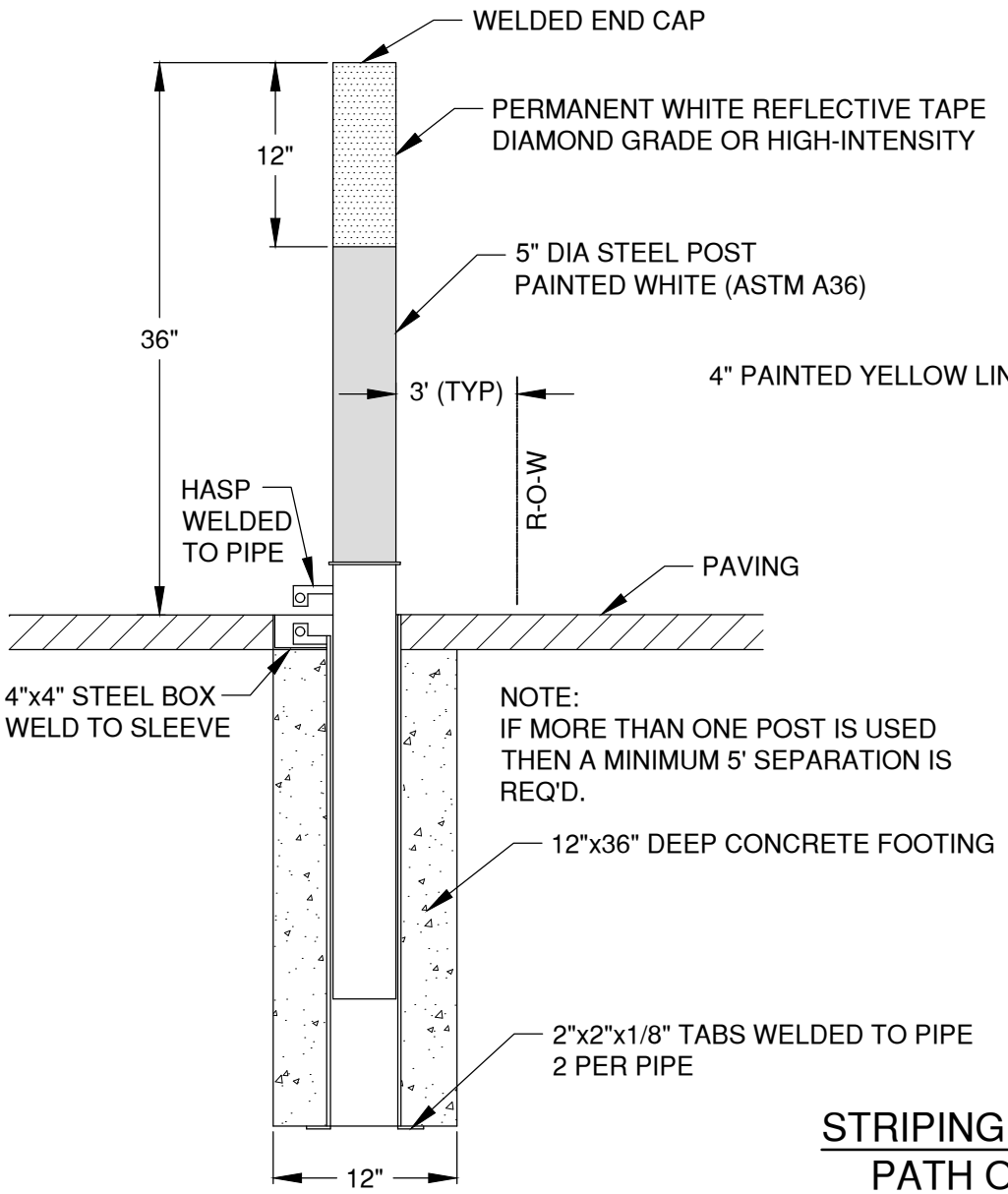
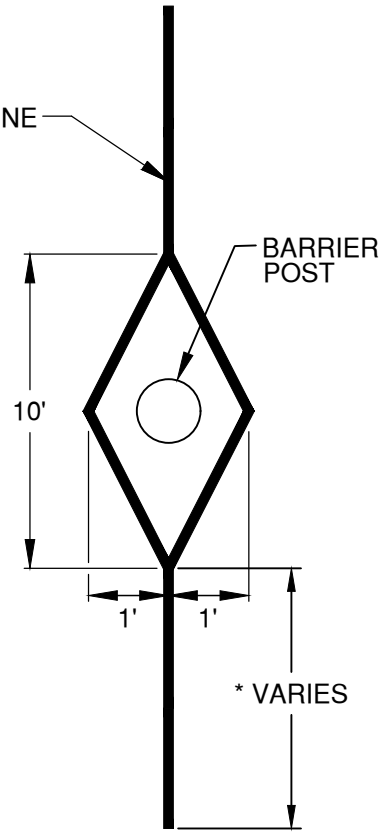
		PSST SLIP BASE FOUNDATION	STD DWG R-7A





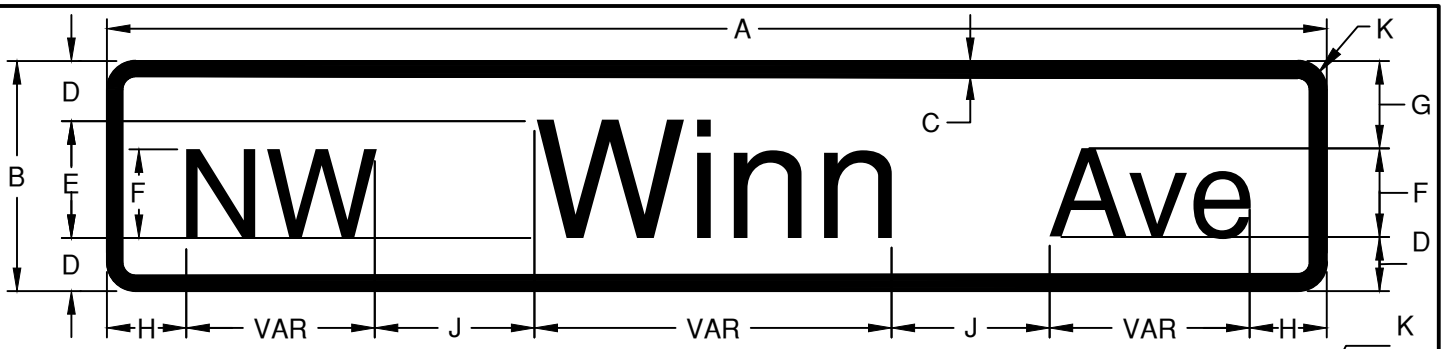
STRIPING DETAIL FOR PAVED PATH OR ACCESS ROAD

* Length of approach line varies by location, where possible, 25' min.

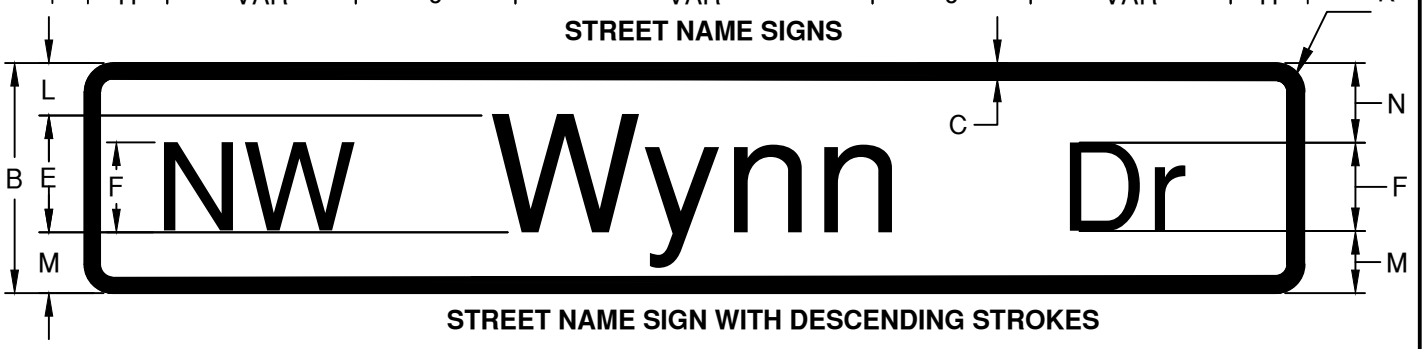
NOTES:

1. POSTS OR BOLLARDS SHALL BE SET BACK BEYOND THE CLEAR ZONE OF THE ADJACENT STREET OR BE OF A BREAKAWAY DESIGN. THE POST SHALL BE PERMANENTLY REFLECTORIZED FOR NIGHTTIME VISIBILITY AND PAINTED WHITE FOR IMPROVED DAYTIME AND NIGHT TIME VISIBILITY.
2. ON PAVED PATHS OR ACCESS ROADS, APPLY PAVEMENT MARKINGS PER STRIPING DETAIL.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		REMOVABLE POST AND MARKINGS	STD DWG R-7B



STREET NAME SIGNS



STREET NAME SIGN WITH DESCENDING STROKES

SIGN LOCATION	DIMENSIONS												
	A	B	C	D	E	F	G	H	J	K	L	M	N
LOCAL	VAR	8	0.375	2	4C	3C	3	3 MIN	3	1	1.75	2.25	2.75
COLLECTOR/ ARTERIAL ≤ 40MPH	VAR	12	0.5	3	6C	4.5C	5	4.5 MIN	4.5	1.5	2.75	3.25	4.75
COLLECTOR/ ARTERIAL > 40 MPH	VAR	18	0.75	5	8C	6C	7.67	5.33 MIN	6	1.875	5	5	7.67
OVERHEAD	VAR	24	1	6	12C	9C	10	9 MIN	9	2.25	5	6	9.50

NOTES:

1. SIGNS INSTALLED ALONG PUBLIC STREETS SHALL BE FABRICATED AND INSTALLED TO CONFORM TO THE MUTCD AND CITY OF BEND SPECIFICATIONS.
2. UNLESS OTHERWISE SPECIFIED, STREET NAME SIGNS SHALL BE FABRICATED AS FOLLOWS:
   a. SIGN SUBSTRATE: SHEET ALUMINUM (GAUGE 0.80 FOR GROUND-MOUNT) WITH ROUNDED CORNERS
   b. RETRO-REFLECTIVE SHEETING: GREEN BACKGROUND WITH WHITE LEGEND, USING HIP/TYPE G FOR GROUND-MOUNTED SIGNS, AND DIAMOND GRADE/TYPE G2 FOR SIGNS MOUNTED OVERHEAD;
   c. LETTERING SHALL BE LOWER-CASE WITH INITIAL UPPER-CASE LETTERS;
   d. SERIES C2000 FONT, WITH LETTERING AND LETTER SPACING PER THE FEDERAL HIGHWAY ADMINISTRATION'S STANDARD ALPHABETS AS SHOWN IN THE CURRENT EDITION OF THE STANDARD HIGHWAY SIGNS AND PAVEMENT MARKINGS MANUAL. (* EXCEPT FOR OVERHEAD SIGNS, WHERE SIGNS EXCEED 36" LONG, SERIES B2000 FONT SHALL BE USED);
   e. BOTTOM STREET SIGNS (CLOSEST TO THE REGULATORY/STOP SIGN) SHALL BE TWO SINGLE-SIDED WITH PREDRILLED HOLES. SIGNS SHALL BE RIVETED BACK TO BACK ON THE SQUARE TUBE POST , CENTERED ON THE POST.
   f. BOTTOM STREET SIGNS SHALL BE USED FOR SIDE STREET.
   g. TOP STREET SIGN SHALL BE DOUBLE SIDED. TOP SIGN USED FOR MAINLINE STREET.
3. ALL SIGNS SHALL BE REVIEWED AND APPROVED BY THE CITY OF BEND ENGINEERING DEPARTMENT PRIOR TO FABRICATIONS AND INSTALLATION.
4. TYPICAL INSTALLATION INCLUDES 2-INCH SQUARE TUBE CAPS WITH 90-DEGREE ANGLE BRACKETS ON 2-INCH PERFORATED SQUARE TUBE STEEL POSTS. USE 5- OR 6-INCH BLADE MOUNTS FOR SIGNS LESS THAN 36” WIDE; 12-INCH MOUNTS FOR SIGNS 36-INCHES OR WIDER OR OVER 6-INCHES HIGH. SEE STANDARD DRAWINGS R-7 AND R-9.
5. SIGN WIDTHS VARY WITH LEGEND. WHERE SITE CONSTRAINTS LIMIT AVAILABLE SPACE, REDUCED LETTER HEIGHT, FONT STYLE, LINE SPACING, OR EDGE SPACING WILL BE CONSIDERED. REDUCTIONS IN SPACING BETWEEN LETTERS OR WORDS IS NOT PERMITTED.
6. WHERE PRIVATE STREETS INTERSECT WITH PUBLIC STREETS, INSTALL A BLACK ON YELLOW PRIVATE DR SIGN WITH 4-INCH CAPITAL LETTERS (ODOT SIGN POLICY SIGN #OW14-3) DIRECTLY BELOW THE PRIVATE STREET NAME SIGN (OR ON A SEPARATE POST, IF NOT AT AN INTERSECTION).
7. FOR ADDITIONAL INFORMATION, REFER TO MUTCD SECTION 2A AND 2D, AND CITY OF BEND TECHNICAL SPECIFICATION SECTION 00940.
8. CONFIRM SIGN SIZE WITH CITY ENGINEER FOR SIGNS ON EXISTING TRAFFIC SIGNAL POLES OR MAST ARMS.

DRAWN	AJD
DIV	ROADWAY

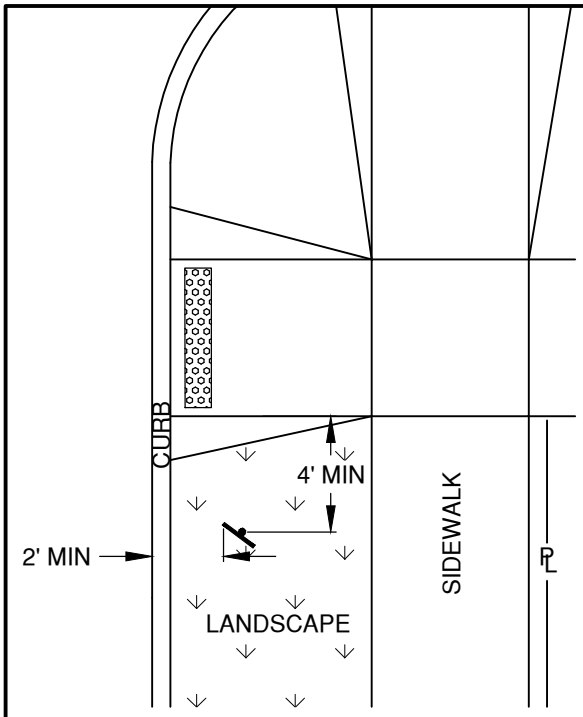
REV	DATE	APPR

CITY OF BEND

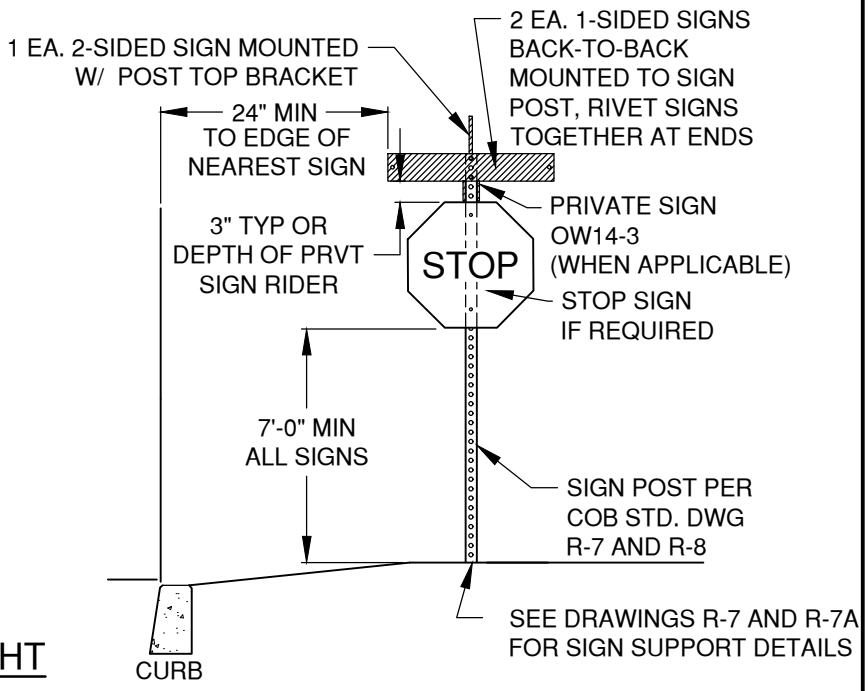
CITY OF BEND
STANDARD DRAWING
710 NW WALL ST., BEND, OREGON 97701

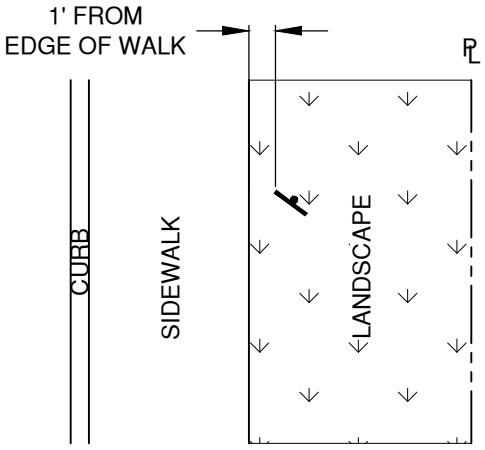
STANDARD STREET NAME SIGNS

SCALE	NTS
DATE	01/31/2022
APPR	
STD DWG	R-8

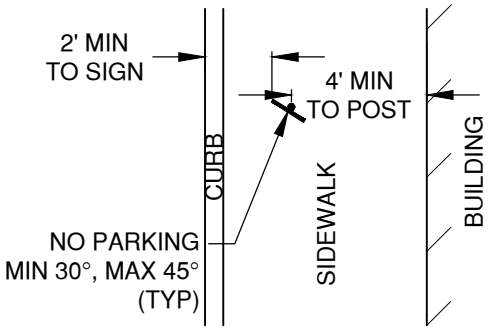


SIDEWALK PROPERTY TIGHT





SIDEWALK CURB TIGHT



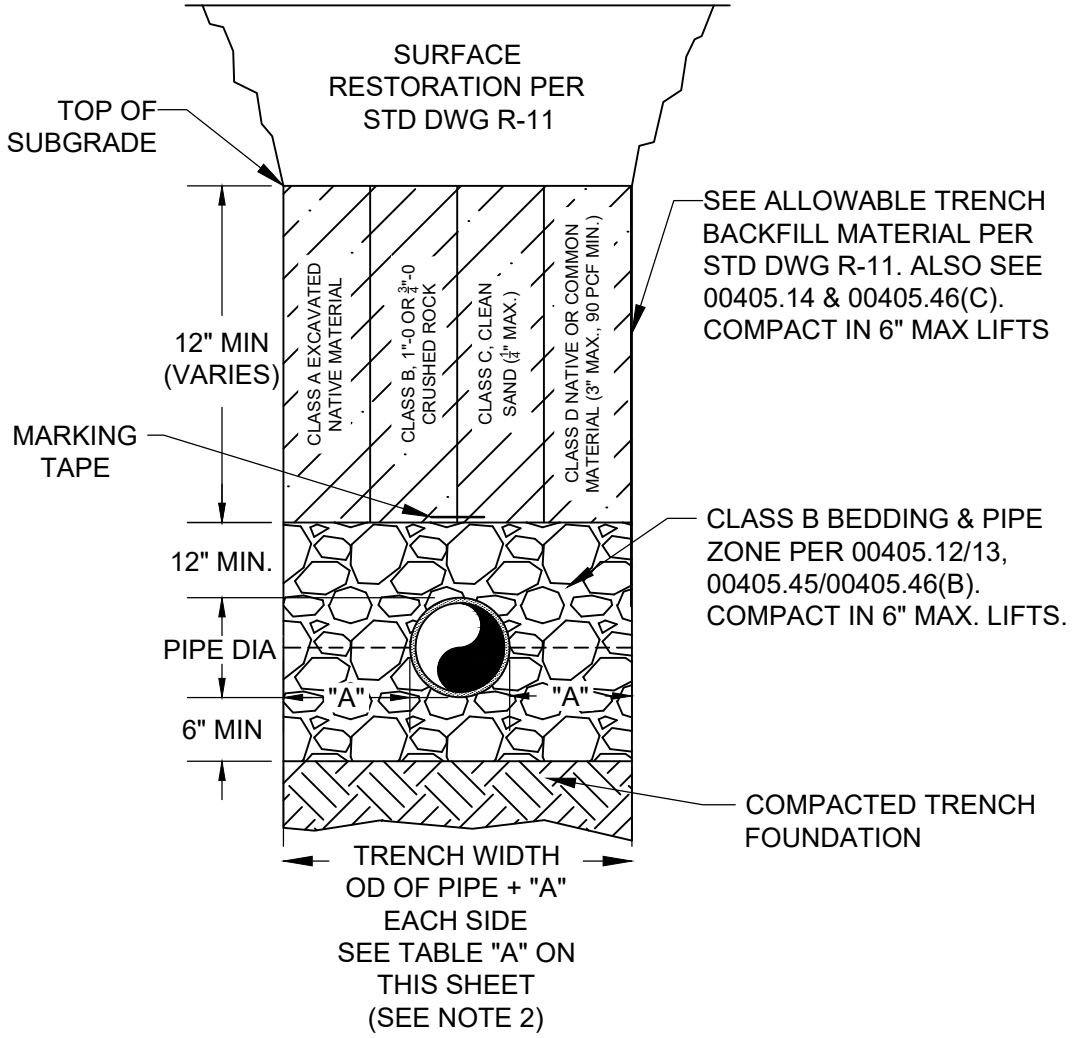
SIDEWALK FROM CURB TO NEAR BUILD

NOTES:

1. SET TO MUTCD SPECS
2. SEE R-8 FOR COB STREET NAME SIGN REQUIREMENTS.
3. CHECK THAT SIGN IS NOT OBSCURED BY VEGETATION, TRIM IF NEEDED.
4. INSTALL ALL SIGNS WITH 5/16"X3/8" DRIVE RIVETS

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 STANDARD STREET SIGN PLACEMENT	SCALE NTS DATE 01/31/2022 APPR STD DWG R-9

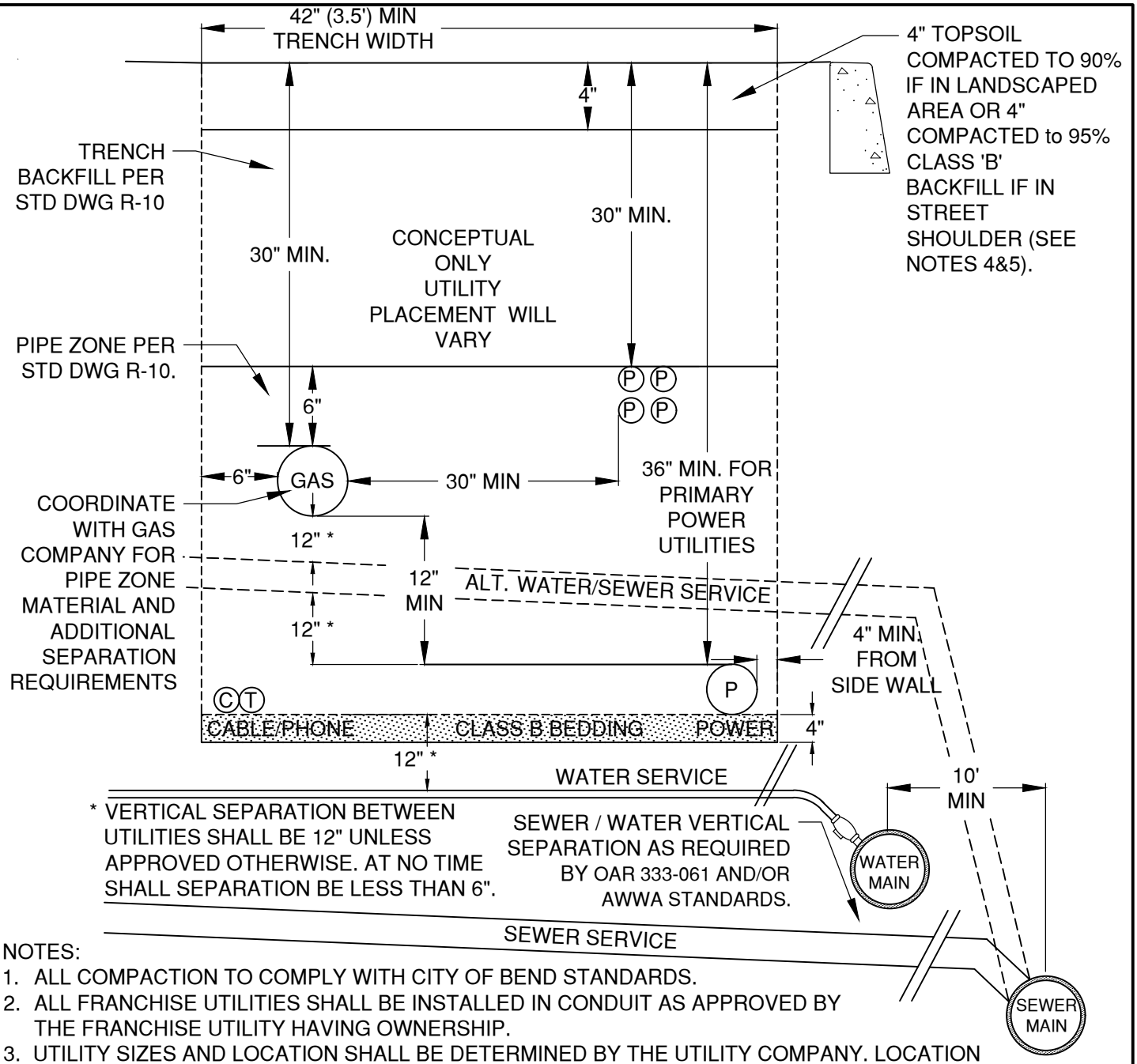
TABLE A	
PIPE DIA (IN)	"A" (IN)
4	10
6	10
8	10
10	10
12	12
15	12
18	16
21	16
24	18
30	18
36	24
42	24
48	24
54	24
60	24
66	24
72	24



NOTES:

1. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(c).
2. A FRANCHISE UTILITY THAT IS A SINGLE CONDUIT AND IS 4 INCHES IN DIAMETER OR LESS MAY BE CENTERED IN A 12-INCH WIDE TRENCH PROVIDED THAT THE TRENCH CAN ACCOMMODATE THE COMPACTION EQUIPMENT. TRENCH PATCH SHALL BE IN ACCORDANCE WITH STD DWG R-11 WHERE THE TEE PATCH SHALL NOT BE LESS THAN 12 INCHES ON BOTH SIDES OF THE TRENCH. OVERALL WIDTH MAY BE REDUCED FROM 4 FEET, BUT IN NO CIRCUMSTANCES RESULT IN TEE PATCHES LESS THAN 12 INCHES AND AN OVERALL MINIMUM WIDTH OF 3 FEET.
3. CLASS E - CLSM, MAY BE ALLOWED FOR TRENCH BACKFILL WHERE COMPACTION CANNOT BE MET DUE TO THE PRESENCE OF EXISTING UTILITIES

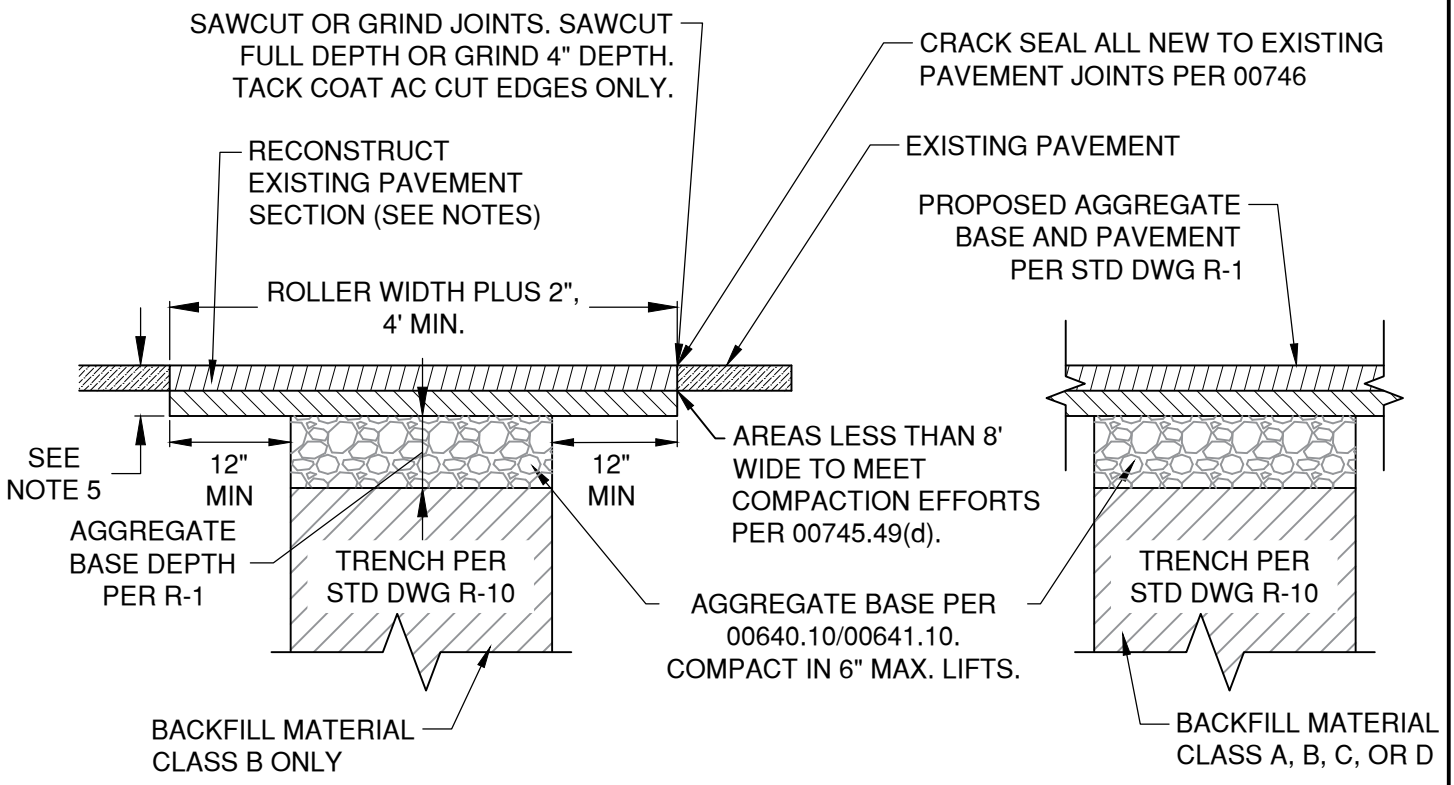
DRAWN AJD		CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE	CITY OF BEND	710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL TRENCH SECTION	STD DWG R-10



NOTES:

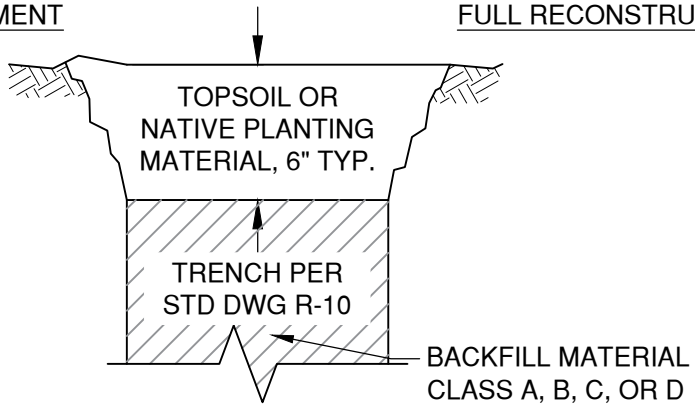
1. ALL COMPACTION TO COMPLY WITH CITY OF BEND STANDARDS.
2. ALL FRANCHISE UTILITIES SHALL BE INSTALLED IN CONDUIT AS APPROVED BY THE FRANCHISE UTILITY HAVING OWNERSHIP.
3. UTILITY SIZES AND LOCATION SHALL BE DETERMINED BY THE UTILITY COMPANY. LOCATION TO BE SHOWN AND APPROVED BY CITY WITH A RIGHT OF WAY (ROW) PERMIT.
4. WHERE STORM SWALES ARE PROPOSED WITHIN THE LANDSCAPE STRIP, FRANCHISE UTILITIES SHALL BE INSTALLED OUTSIDE OF THE SWALE AREA.
5. TOP SOIL LAYER TO BE COMPACTED TO 90% MAX DENSITY. WHERE SIDEWALK IS PLACED OVER FRANCHISE UTILITY TRENCH, NO TOP SOIL SHALL BE PLACED AND SIDEWALK TO BE CONSTRUCTED TO COMPLY WITH CITY STANDARDS R-4A AND R-4B
6. STANDARD SHOWN FOR NEW CONSTRUCTION. MODIFICATIONS SHALL BE MADE WHEN WITHIN EXISTING DEVELOPMENTS WHERE APPROVED BY THE CITY ENGINEER.
7. UTILITIES OUTSIDE THE RIGHT OF WAY SHALL BE WITHIN A PUBLIC UTILITIES EASEMENT (PUE). BACKFILL AND INSTALLATION REQUIREMENTS STILL COMPLY WITH THE PUE.
8. NO SWALES OR SURFACE STORMWATER DRAINAGE FACILITIES ARE PERMITTED OVER FRANCHISE UTILITIES.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		FRANCHISE UTILITY JOINT TRENCH	STD DWG R-10A



TYPICAL SURFACE RESTORATION IN EXISTING PAVEMENT

TYPICAL SURFACE RESTORATION IN FULL RECONSTRUCT OR NEW ROAD

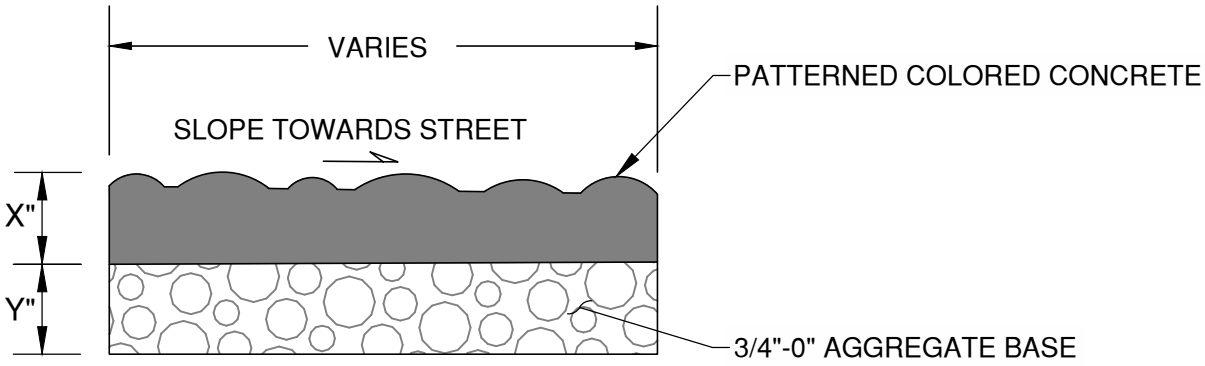


TYPICAL SURFACE RESTORATION IN UNIMPROVED AREAS

NOTES:

1. SURFACE RESTORATION IN EXISTING PAVEMENT TO COMPLY WITH SPECIFICATION 00495.
2. UNIMPROVED AREA CONSISTS OF ANY PORTION OF THE ROW THAT HAS NOT BEEN IMPROVED TO A CITY STANDARD AND CONSISTS MOSTLY OF NATIVE VEGETATED AREAS. UNIMPROVED AREAS ALSO INCLUDE AREAS WITHIN THE LANDSCAPE STRIP AND PUEs.
3. ALL EXISTING AC OR PCC PAVEMENT SHALL BE SAWCUT PRIOR TO REPAVING. CONCRETE SHALL BE CUT AND REPLACED TO THE NEAREST JOINT(S).
4. CONCRETE PAVEMENT SHALL BE REPLACED WITH CONCRETE TO A MINIMUM THICKNESS OF 6" OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER
5. PLACE ACP A MINIMUM THICKNESS PER R-1 OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER. PLACE ACP IN 2" MAX LIFTS.

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		TRENCH SURFACE RESTORATION	STD DWG R-11

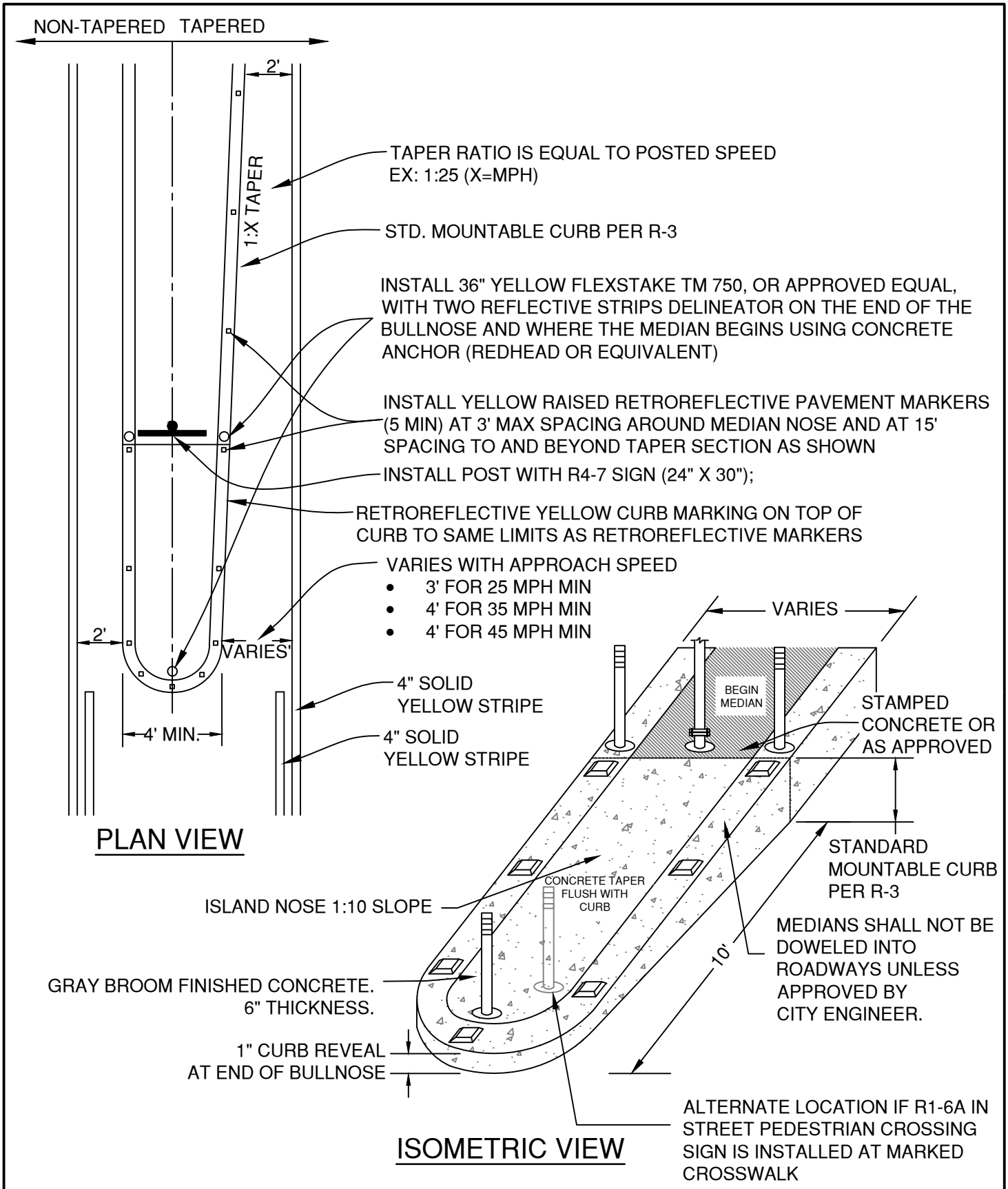


X DIMENSION:
- MEDIAN/ALL ADJACENT TO TRAVEL LANE = 6"
- ONLY BACK SIDE OF SIDEWALK OR SEPARATE FROM TRAVEL LANE = 4"
- TRUCK APRON = 9"

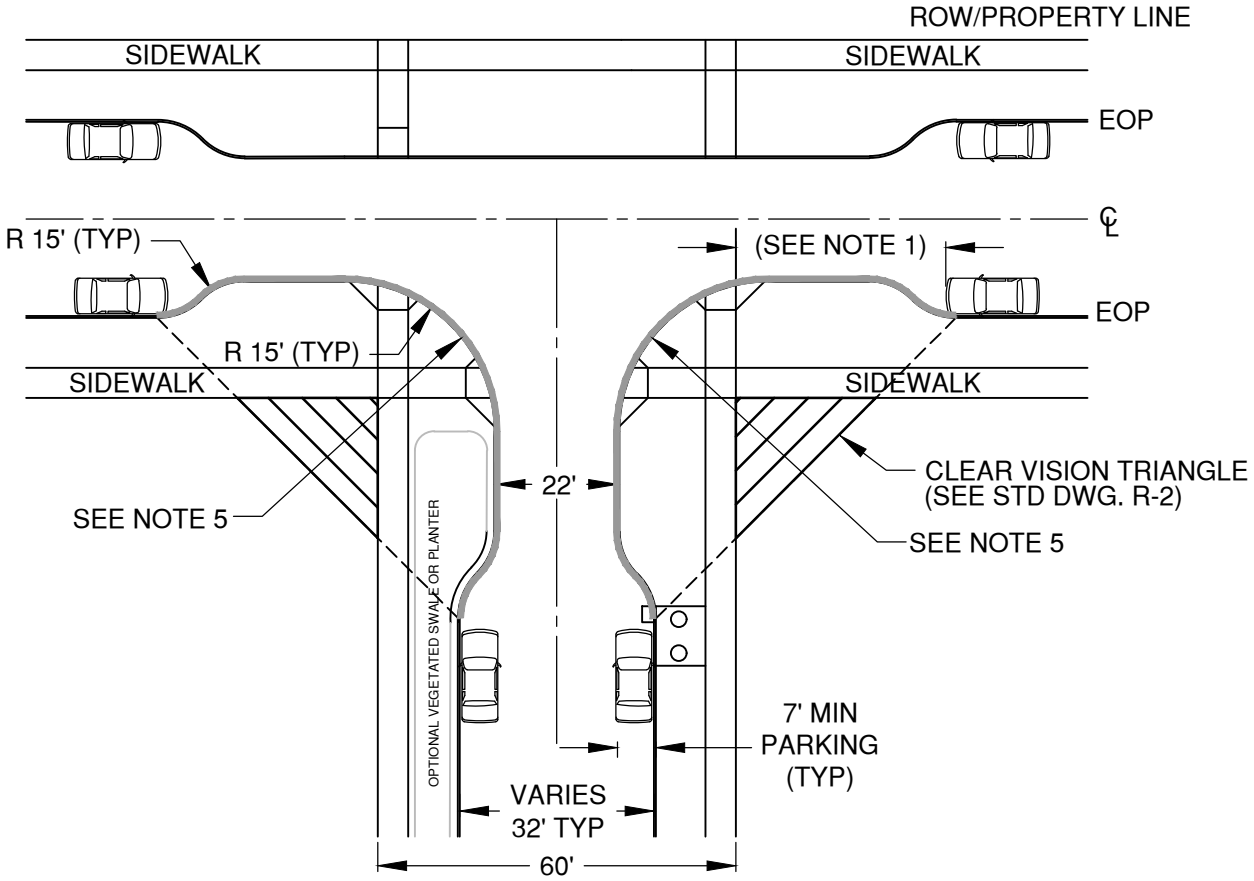
Y DIMENSION:
- MEDIAN/ALL ADJACENT TO TRAVEL LANE = 6"
- ONLY BACK SIDE OF SIDEWALK OR SEPARATE FROM TRAVEL LANE = 4"
- TRUCK APRON = 6"

NOTE:
1. STAMPED CONCRETE SURFACE TEXTURE PATTERN SHALL BE BRICKFORM "FLAGSTONE" TM-700) WITH SAWCUT GROOVE JOINTS 1/3 CONCRETE DEPTH.
2. GLAZE AND SEAL PER MANUFACTURERS SPECS.
3. INTEGRAL COLOR: DAVIS SPANISH GOLD (3 LBS. #5084)
4. RELEASE COLOR: DAVIS DARK GREY (#860)

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PATTERNED COLORED CONCRETE DETAIL	STD DWG R-24



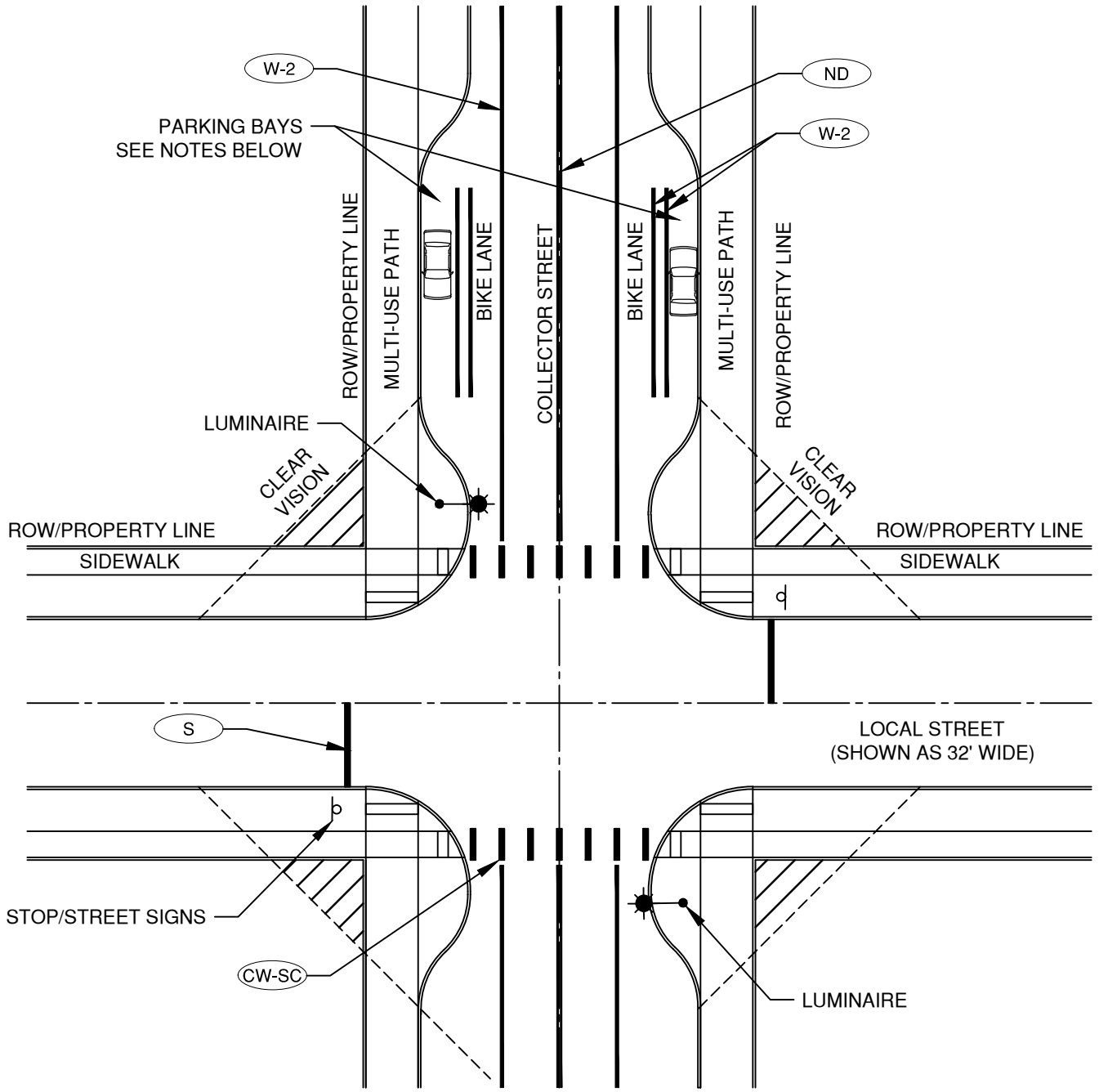
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY	STANDARD DRAWING		DATE 01/31/2022
REV DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
	MEDIAN END DETAIL		STD DWG R-25



NOTES:

1. NO PARKING WITHIN THE CLEAR VISION OR 20 FEET OF THE INTERSECTION, WHICHEVER IS GREATER.
2. AS REQUIRED BY THE CITY ENGINEER, INSTALL YELLOW 36" TALL YELLOW SURFACE MOUNTED TUBULAR MARKERS, PER SPECIFICATION SECTION 00856 FOR PLOW SIGNAGE AT CURB EXTENSIONS.
3. USE LOW GROWING VEGETATION FOR BIORETENTION SWALES/ PLANTERS LOCATED IN CURB EXTENSIONS.
4. CURB RETURNS TO BE CONSTRUCTED PER DESIGN STANDARD.
5. YELLOW CURB PAINT ON RETURNS IS REQUIRED IN COMMERCIAL AND HIGH DENSITY RESIDENTIAL AREAS

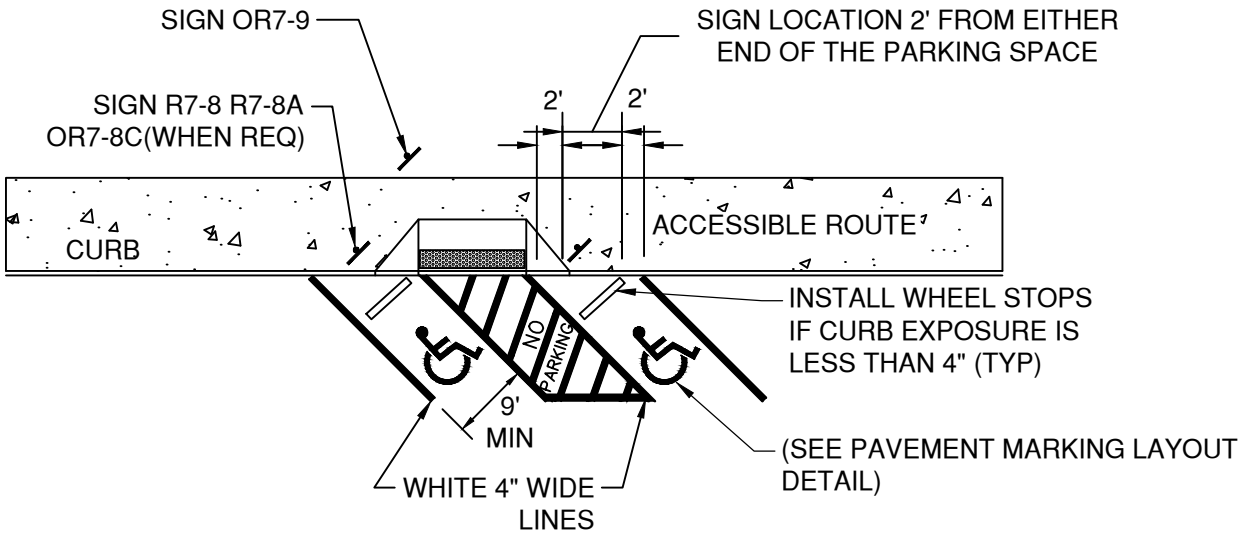
DRAWN AJD DIV ROADWAY REV / DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		LOCAL STREET CURB EXTENSIONS	STD DWG R-26



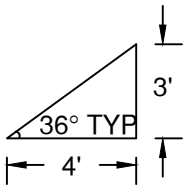
NOTES:

1. PARKING BAYS SHALL BE DESIGNED OUTSIDE THE CLEAR VISION OF THE INTERSECTION. PARKING WILL BE PERMITTED IF CLEAR VISION AND SIGHT DISTANCE AS ANALYZED AS SAFE BY A PROFESSIONAL ENGINEER.
2. PARKING BAYS ON COLLECTORS ARE PERMITTED AS DIRECTED BY THE DEVELOPMENT CODE.
3. NO MORE THAN 10 PARKING BAYS WILL BE PERMITTED TOGETHER. TERMINATION OF BAYS WILL BE FOR VEGETATION PLANTING, UTILITY INSTALLATION (FRANCHISE UTILITY VAULTS, STORM FACILITIES, ETC).
4. PARKING IS NOT PERMITTED WITHIN THE INTERSECTION'S CLEAR VISION AND SIGHT DISTANCE AS DETERMINED BY AASHTO REQUIREMENTS AND ENGINEER REVIEW.

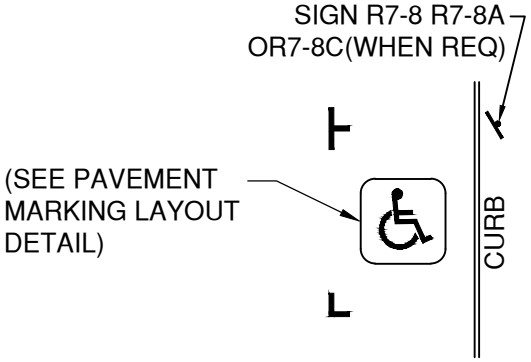
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		COLLECTOR / LOCAL INTERSECTION	STD DWG R-27



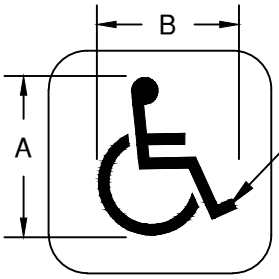
ANGLED PARKING PLAN



ACCESS AISLE ANGLE LAYOUT

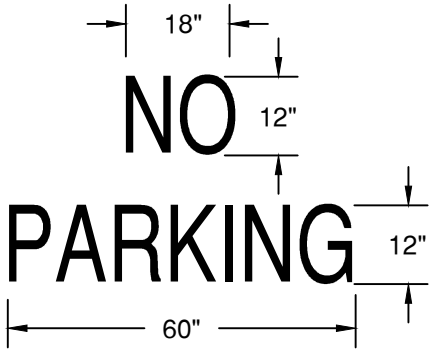


PARALLEL PARKING PLAN



LEGEND	DIMENSIONS (INCHES)		
	A	B	C
MINIMUM	28	24	3
STANDARD	41	36	4

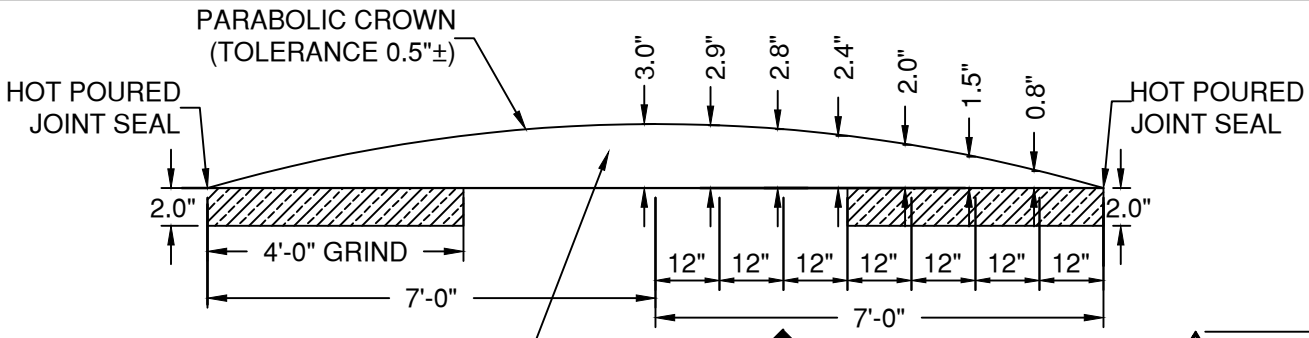
PAVEMENT MARKING LAYOUT

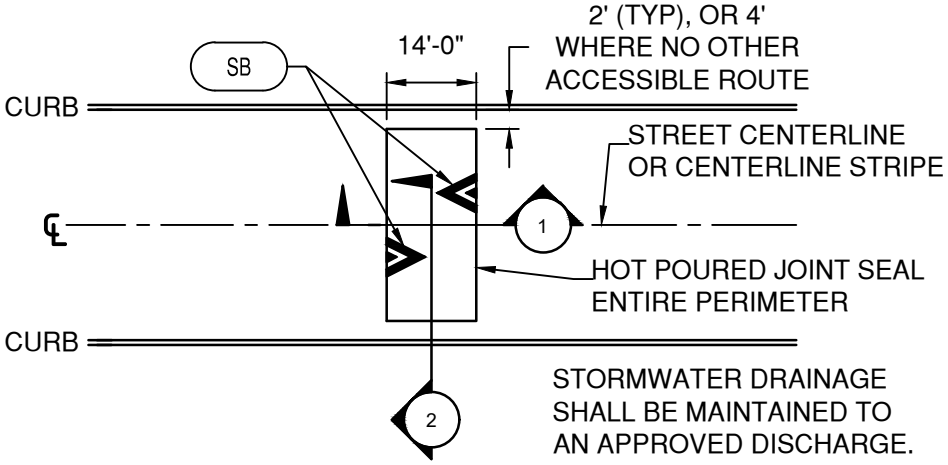


NOTE:

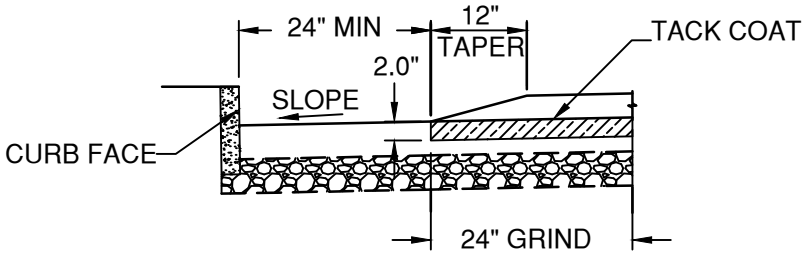
1. THIS IS ONE EXAMPLE OF AN ACCESSIBLE PARKING CONFIGURATION. REFER TO ODOT ACCESSIBLE PARKING STANDARDS FOR ADDITIONAL DETAILS AND OTHER CONFIGURATIONS.
2. ALL SIGNS AND PLACEMENT SHALL CONFORM TO ODOT STANDARDS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY	STANDARD DRAWING		DATE 01/31/2022
REV DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
	ACCESSIBLE PARKING - ANGLE		STD DWG R-29

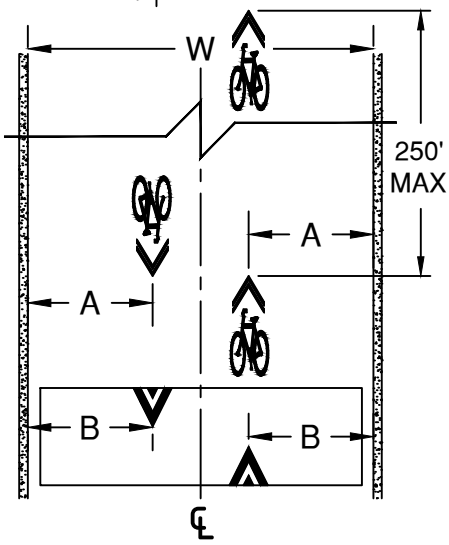




PLAN VIEW



CROSS
SECTION AT
CURB
2

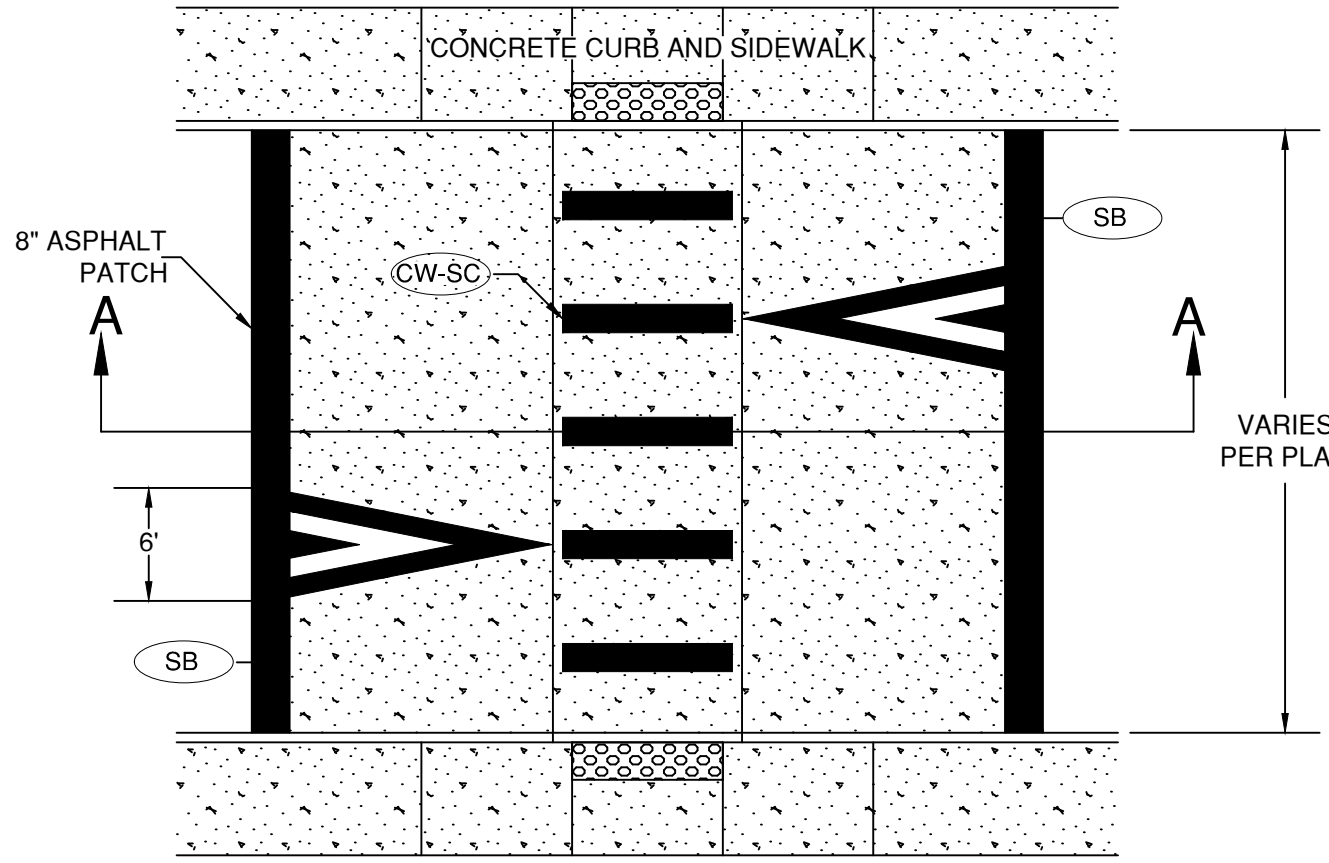


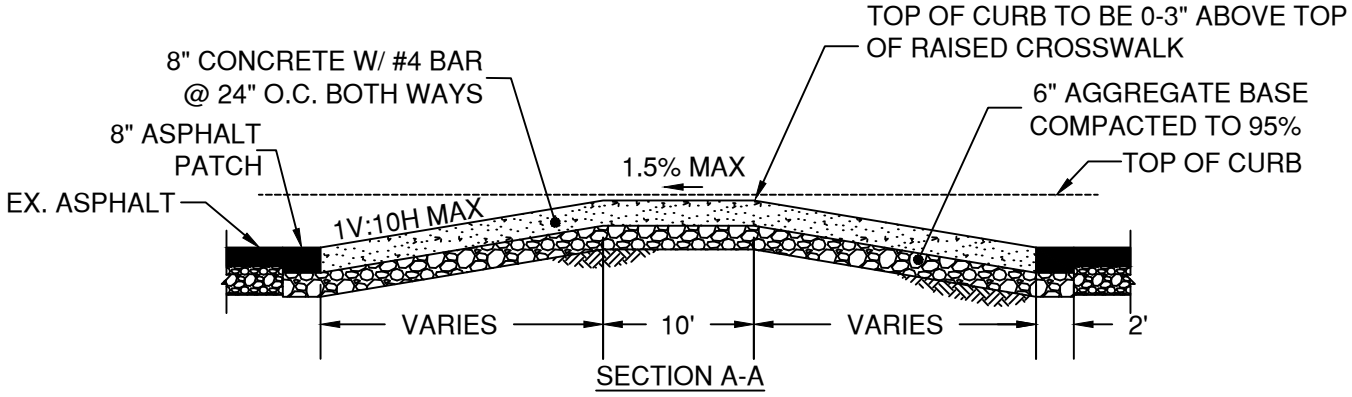
W	A	B	A	B
28'	12'	11'	7'	12'
30'	12'	11.5'	7'	12.5'
32'	13'	12'	7'	13'
34'	13'	12.5'	7'	14'
36'	13'	13'	7'	15'
	PARKING BOTH SIDES		PARKING ONE SIDE	

NOTES:

1. SPEED HUMPS ARE ONLY PERMITTED IN SELECT LOCATIONS. REFER TO CITY DESIGN STANDARDS.
2. WHERE SPEED HUMP IS A RETRO-FIT TO AN EXISTING ROAD:
   2.1. GRIND / KEY-IN PERIMETER TO THE DIMENSIONS SHOWN OR AS DIRECTED BY THE ENGINEER.
   2.2. APPLY TACK COAT TO ALL EXISTING SURFACES WHERE SPEED HUMP WILL BE IN CONTACT.
3. HOT POURED JOINT SEAL THE ENTIRE PERIMETER AFTER INSTALLATION.
4. ALL VERTICAL DIMENSIONS HAVE A REQUIRED MAXIMUM TOLERANCE OF +/- 1/4".
5. THE DISTANCE BETWEEN CURB AND EDGE OF THE SPEED HUMP VARIES. SEE ENGINEERED PLANS.
6. PAVEMENT MARKINGS ON SPEED BUMP SHALL BE INSTALLED CONCURRENTLY WITH THE ASPHALT STRUCTURES. PAVEMENT MARKINGS SHALL BE THERMO-PLASTIC.
7. PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE OPENING ANY LANE TO TRAFFIC THAT IS OCCUPIED BY A NEW SPEED BUMP.
8. SPEED HUMPS ARE NOT PERMITTED IN ACCESSIBLE ROUTES OR WHERE IN CONFLICT WITH DRIVEWAYS.

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		SPEED HUMPS AND SHARROW PLACEMENT	STD DWG R-32

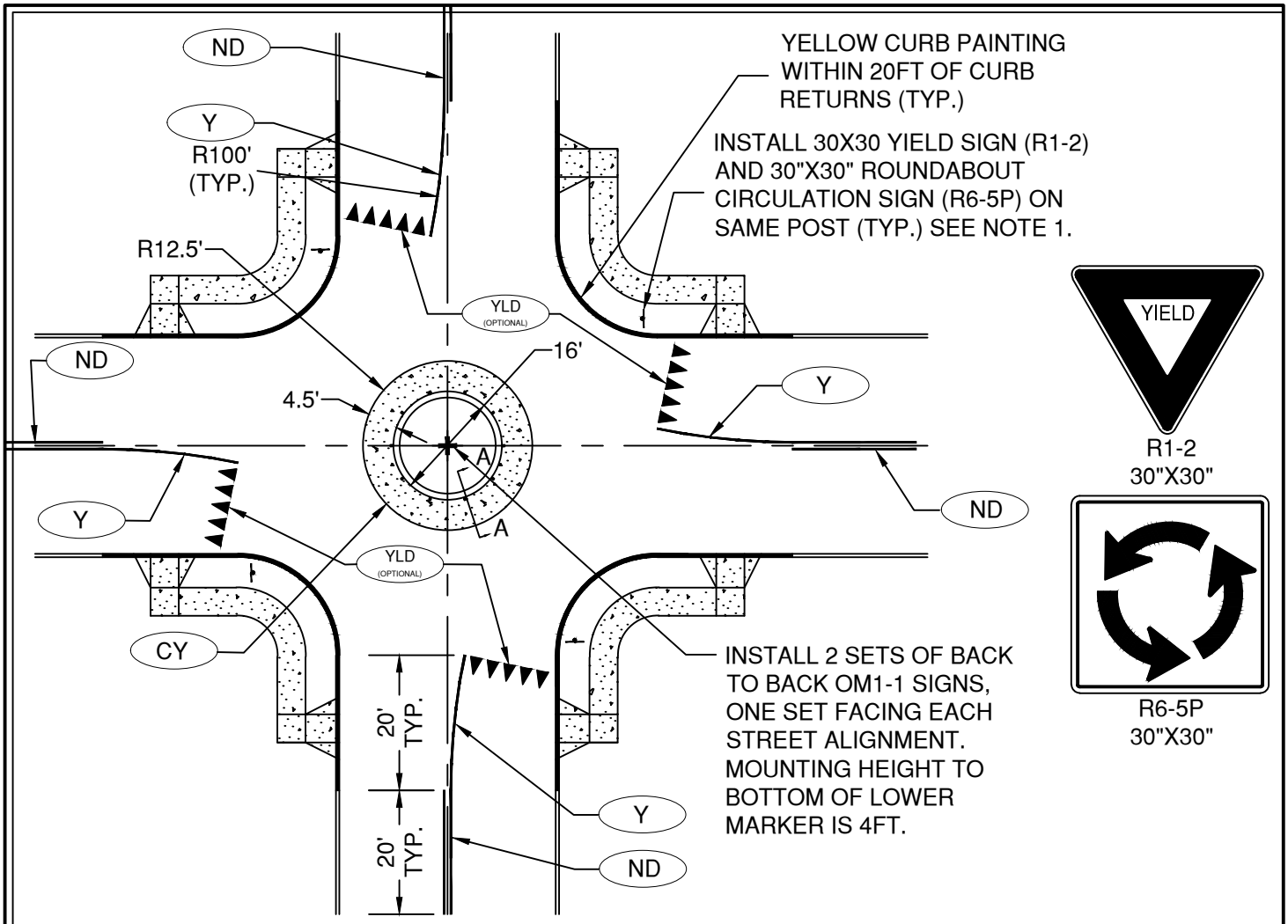


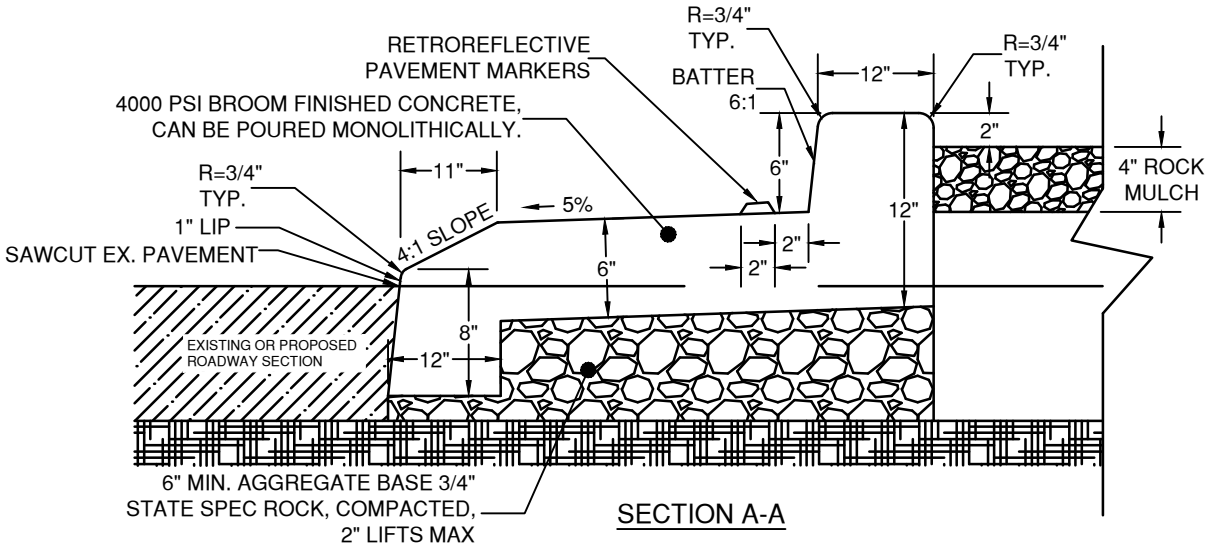


NOTES:

1. RAISED CROSSWALKS ARE ONLY PERMITTED IN SELECT LOCATIONS. REFER TO CITY DESIGN STANDARDS.
2. HOT POURED JOINT SEAL THE ENTIRE PERIMETER AFTER INSTALLATION.
3. PAVEMENT MARKINGS ON RAISED CROSSWALKS SHALL BE THERMO-PLASTIC.
4. PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE OPENING ANY LANE TO TRAFFIC THAT IS OCCUPIED BY A NEW SPEED BUMP.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		RAISED CROSSWALK	STD DWG R-33



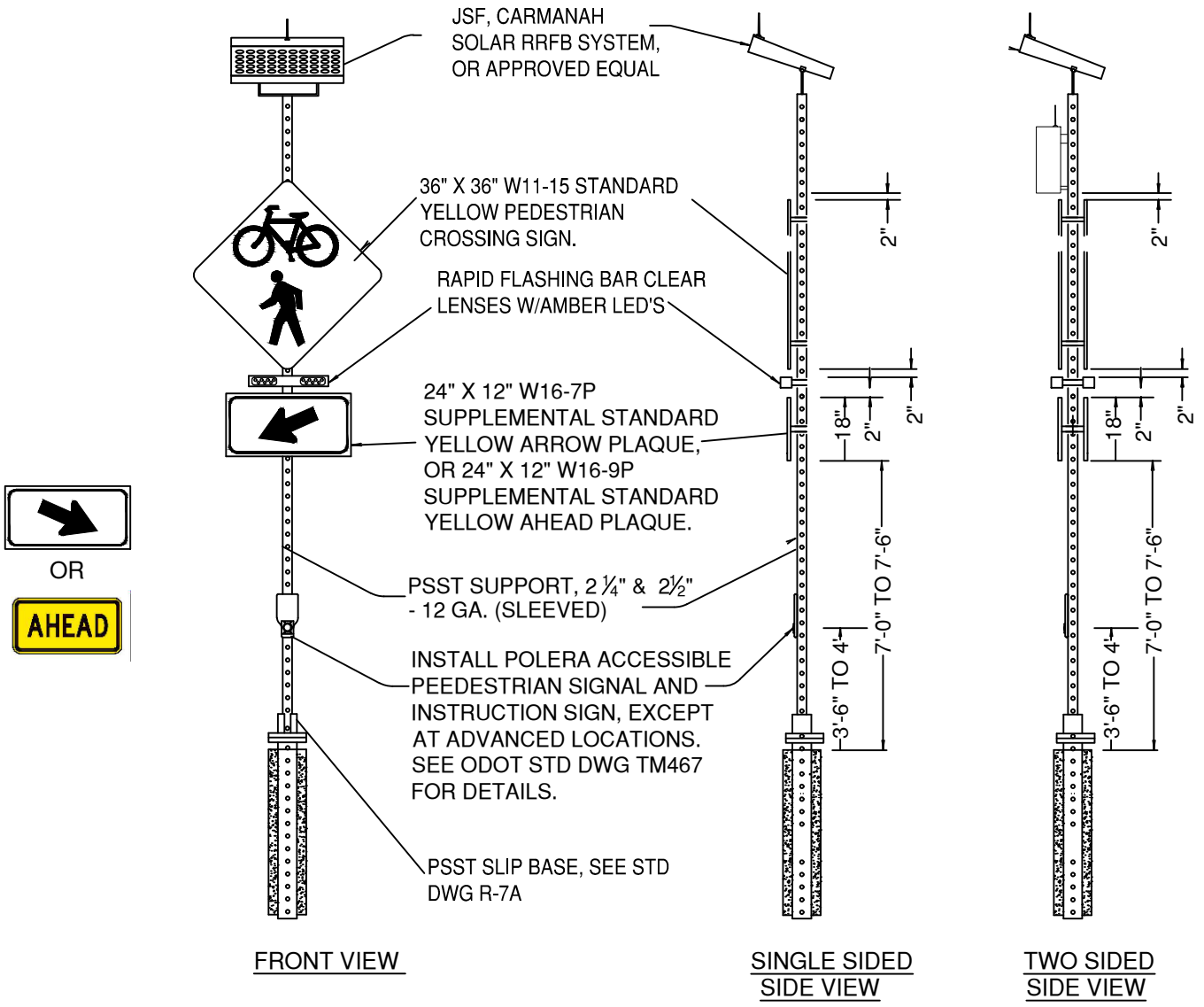


SECTION A-A

NOTES:

1. STANDARD IS YIELD CONTROL. TWO-WAY STOP MAY BE CONSIDERED FOR CIRCLES WITH INSUFFICIENT CIRCULATING DIAMETER FOR CROSSWALK OR SIGHT DISTANCE OBSTRUCTION THAT CANNOT BE MITIGATED

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TRAFFIC CIRCLE	STD DWG R-34



RECTANGULAR RAPID FLASHING BEACON SYSTEM
PSST INSTALLATION

NOTES:

1. REMOVE SOLAR EQUIPMENT IF USING COMMERCIAL POWER
2. USE APPLIED INFORMATION AI-500-030 LOW POWER MONITORING DEVICE
3. USE SCHOOL CROSSING (S1-1) FOR DESIGNATED SCHOOL CROSSING
4. USE DOUBLE SIDED SIGNS IN MEDIANS

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		RECTANGULAR RAPID FLASHING BEACON	STD DWG R-35

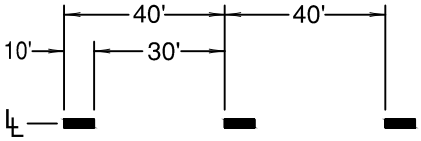
W

4" WHITE LINE

W-2

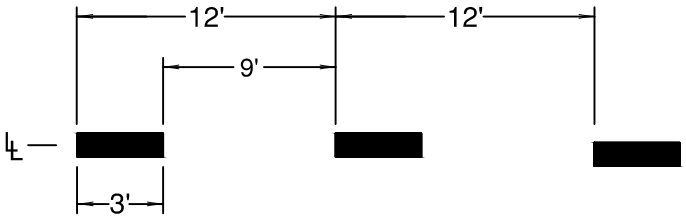
8" WHITE LINE

WB



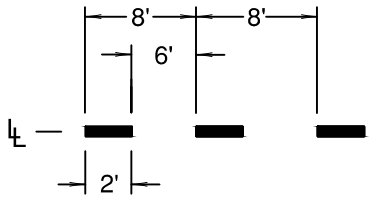
4" WHITE BROKEN LINE

DLL-2



8" WHITE DOTTED LANE LINE

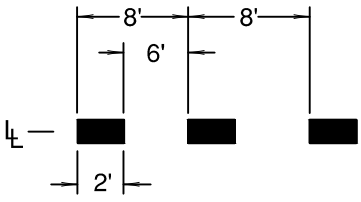
WD



4" WHITE DOTTED LINE

For lane extensions

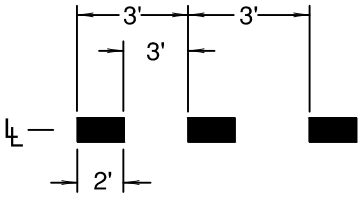
WD-2



8" WHITE DOTTED LINE

For lane extensions

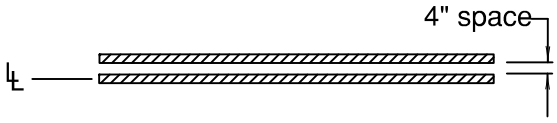
WRAB



8" WHITE DOTTED ROUNDABOUT CIRCULATING LINE

INSTALL AS TYPE B-HS PREFORMED THERMOPLASTIC

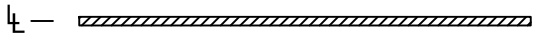
NDW



NARROW DOUBLE NO-LANE CHANGE TWO 4" WHITE LINES

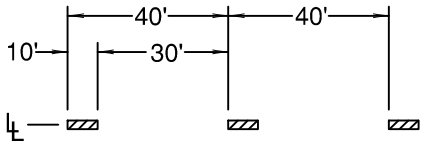
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PAVEMENT MARKINGS - WHITE	STD DWG R-40

Y



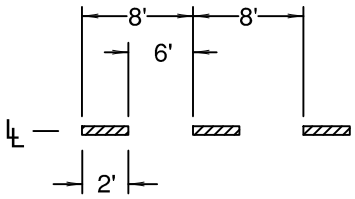
4" YELLOW LINE

YB



4" YELLOW BROKEN LINE

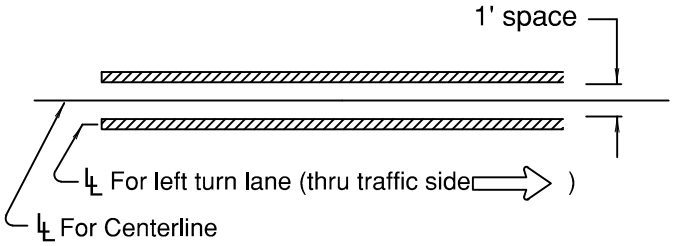
YD



4" YELLOW DOTTED LINE

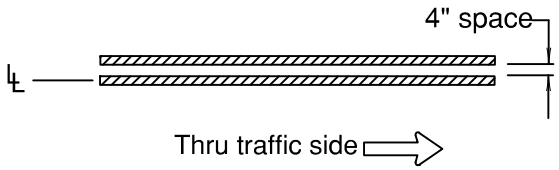
For lane extensions

D



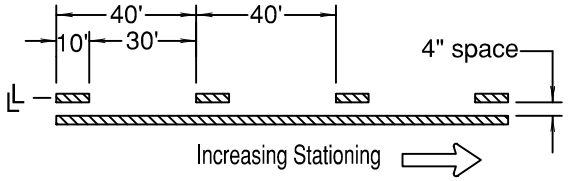
DOUBLE NO-PASS
TWO 4" YELLOW LINES

ND



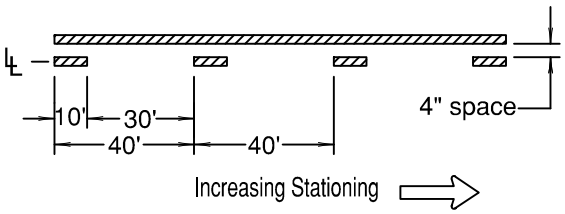
NARROW DOUBLE NO-PASS
TWO 4" YELLOW LINES

NPR



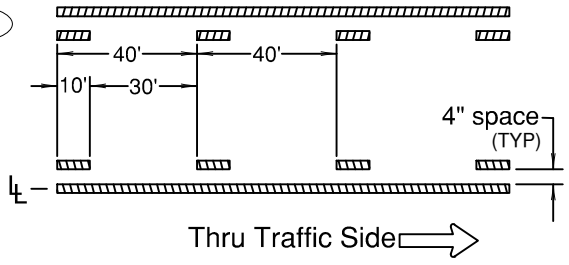
NO-PASS RIGHT
4" YELLOW LINES

NPL



NO-PASS LEFT
4" YELLOW LINES

TWL

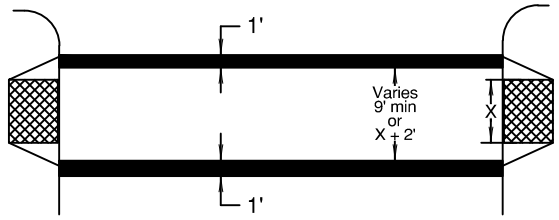


TWO-WAY LEFT TURN
4" YELLOW LINES

SEE R-44 FOR ARROW PLACEMENT

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 PAVEMENT MARKINGS - YELLOW	SCALE NTS DATE 01/31/2022 APPR STD DWG R-41

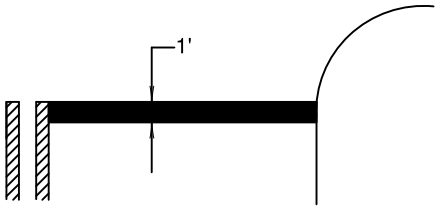
CW



STANDARD CROSSWALK
TWO 1' WHITE BARS

Install per Standard Drawing R-47

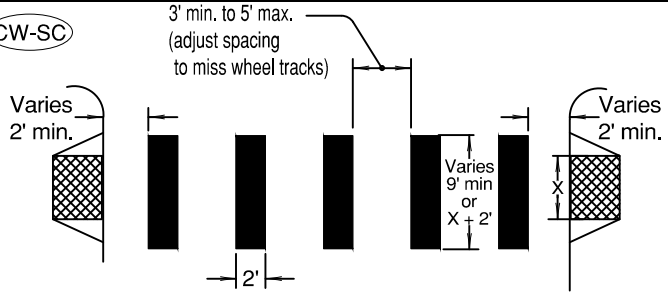
S



STOP BAR
1' WHITE BAR

Install stop bar in Thermoplastic. Install per Standard Drawing R-45

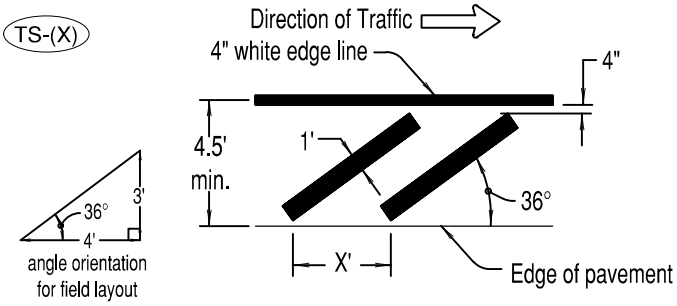
CW-SC



STAGGERED CONTINENTAL CROSSWALK
2' WHITE BARS

Install per standard drawing R-47; Install as Type B-HS preformed thermoplastic;
Install at uncontrolled approach

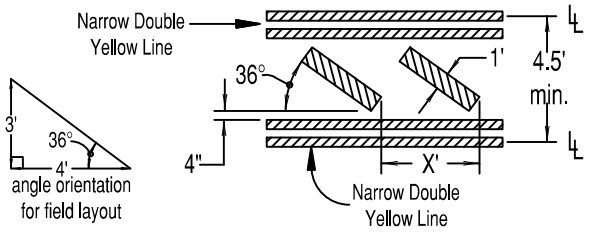
TS-(X)



TRANSVERSE SHOUDER BARS
1' WHITE BARS AT 20' SPACING

X = 20', Typical
(40' spacing may be used where median length exceeds 200')

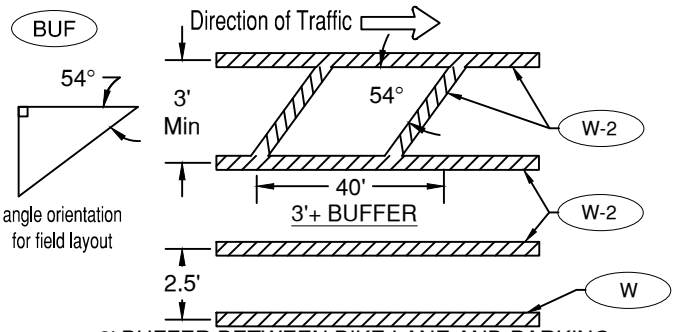
TM-(X)



TRANSVERSE MEDIAN BARS
1' YELLOW BARS AT 20' SPACING

X = 20', Typical
(40' spacing may be used where median length exceeds 200')

BUF

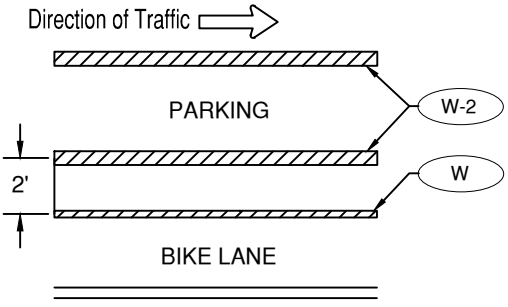


2' BUFFER BETWEEN BIKE LANE AND PARKING

BUFFER STRIPE

Install buffer stripes in thermoplastic / horizontal stripes parallel with traffic in paint

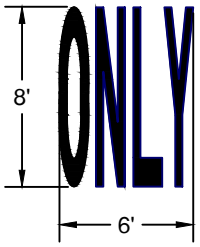
BUFP



PARKING PROTECTED BIKE LANE

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV / DATE			APPR
	CITY OF BEND	PAVEMENT MARKINGS	STD DWG R-42A

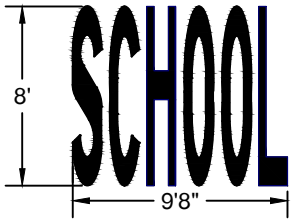
ON



ONLY (white)

Center marking within lane width
Install in Type B - HS Preformed Thermoplastic
For letter proportion details, see current version of FHWA Standard Highway Signs

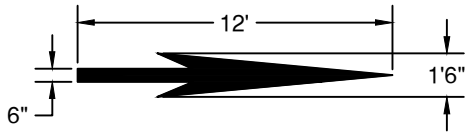
SCH



SCHOOL (white)

Center marking within lane width
Install in Type B - HS Preformed Thermoplastic
For letter proportion details, see current version of FHWA Standard Highway Signs
Install at school speed zone sign on arterial and collector roads

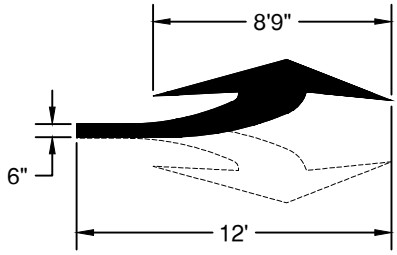
E-SA



ELONGATED STRAIGHT ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

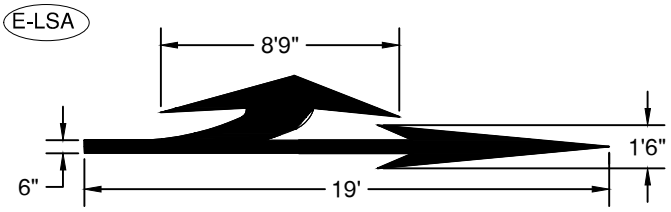
E-LA
E-RA



ELONGATED TURN ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width
Use E-LA for Left Turn and E-RA for right turn.

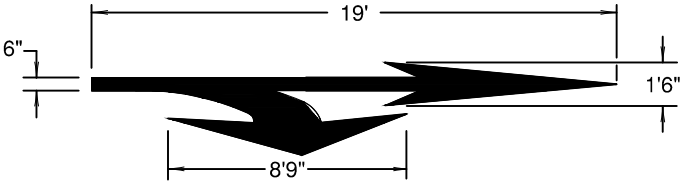
E-LSA



ELONGATED LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

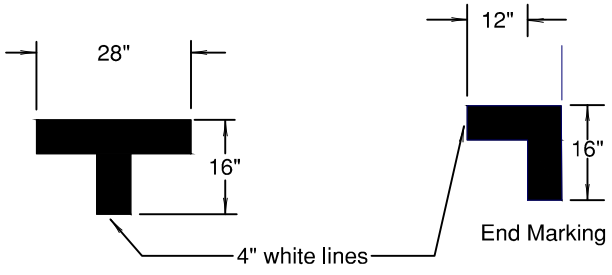
E-RSA



ELONGATED RIGHT TURN STRAIGHT ARROW (white)

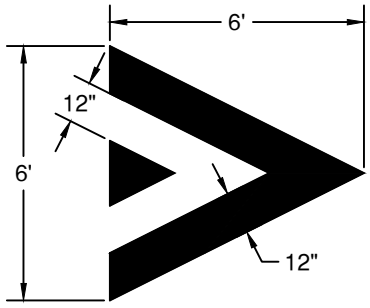
For arrow proportion details, see current version of FHWA Standard Highway Signs
Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

P



ON-STREET PARKING DETAIL (white)

SB

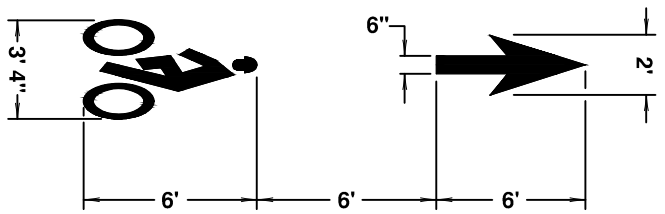


SPEED BUMP MARKING (WHITE)

Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PAVEMENT MARKINGS	STD DWG R-42B

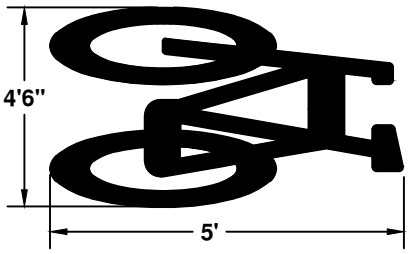
BS



BIKE LANE STANDARD STENCIL (white)

Center marking within lane width
For proportion details, see current version of FHWA Standard Highway Signs

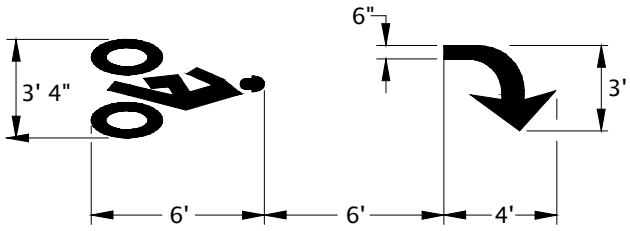
B



BIKE SYMBOL (WHITE)

Install in Type B - HS Preformed Thermoplastic
Center marking within lane width

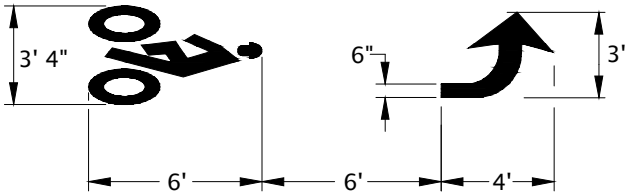
BR



BIKE RIGHT TURN STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

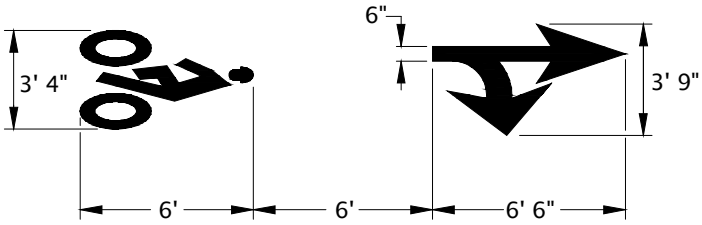
BL



BIKE LEFT TURN STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

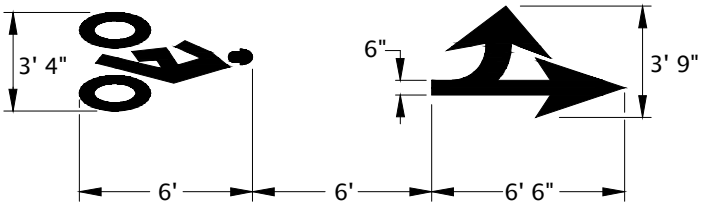
BRS



BIKE RIGHT TURN STRAIGHT STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

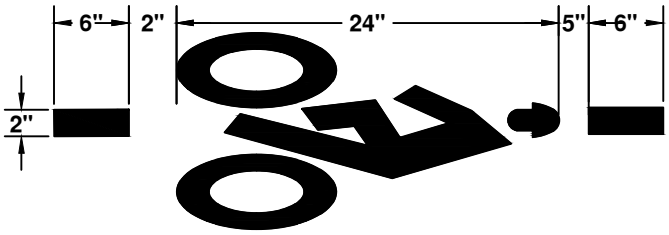
BLS



BIKE LEFT TURN STRAIGHT STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

BD



BIKE DETECTOR (WHITE)

Install in Type B - HS Preformed Thermoplastic
Place marking in optimal location for bicycle to actuate the traffic signal.

DRAWN	AJD
DIV	ROADWAY
REV	DATE

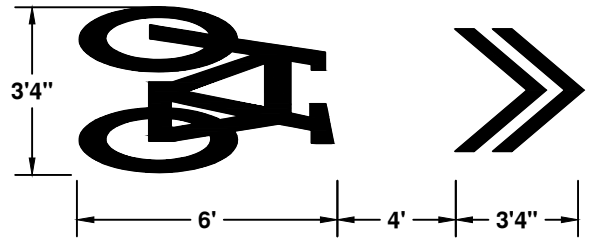
CITY OF BEND

CITY OF BEND
STANDARD DRAWING
710 NW WALL ST., BEND, OREGON 97701

PAVEMENT MARKINGS - BIKE

SCALE	NTS
DATE	01/31/2022
APPR	
STD DWG	R-43

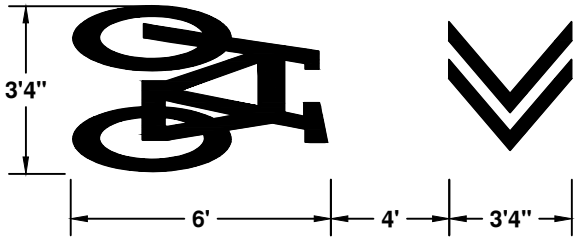
SLM



SHARROWS (WHITE)

Install in Type B - HS Preformed Thermoplastic
Locate marking per R-32
Arrow may be turned in direction of travel.

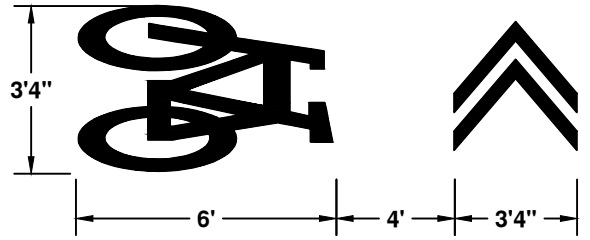
SLM-R



RIGHT TURN SHARROWS (WHITE)

Install in Type B - HS Preformed Thermoplastic
Locate marking per R-32

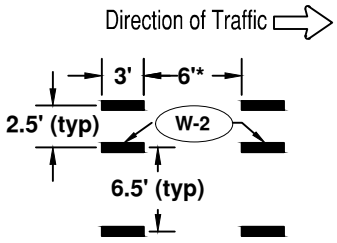
SLM-L



LEFT TURN SHARROWS (WHITE)

Install in Type B - HS Preformed Thermoplastic
Locate marking per R-32

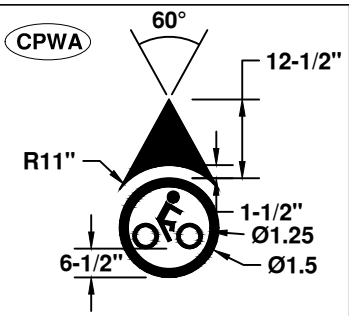
BLE



BIKE MARKING EXTENSION THROUGH INTERSECTION

*** 6' or bike lane width**
Install buffer stripes in Methyl Methacrylate (MMA)

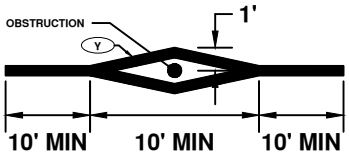
CPWA



COMMON PATH WAYFINDING ARROW

Black inner circle / Green ring / White arrow/bike symbol
Arrow may be turned in direction of travel.

Y-OM



YELLOW MARKING OBSTRUCTION IN PATH

DRAWN	AJD
DIV	ROADWAY
REV	DATE

CITY OF BEND

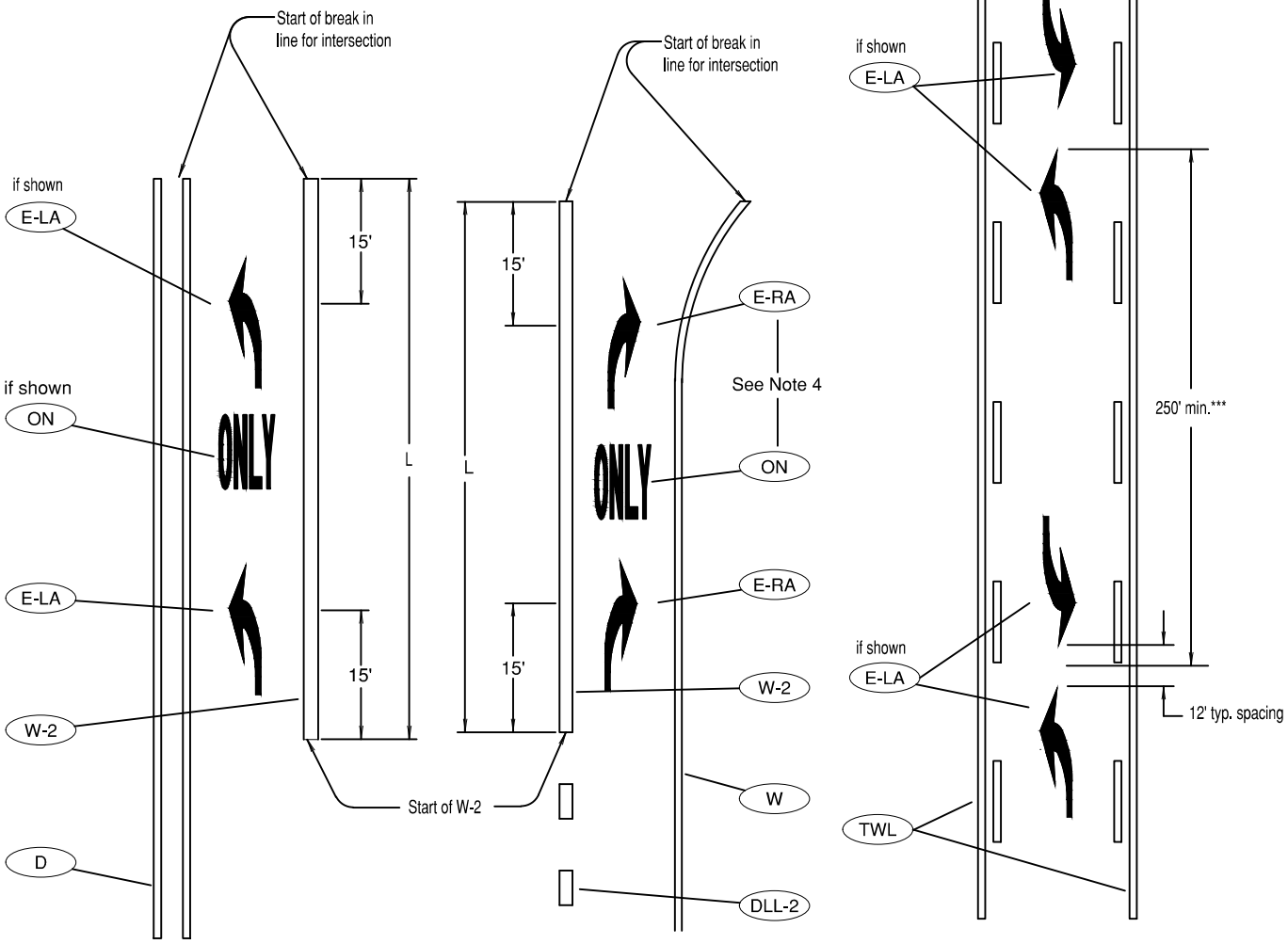
CITY OF BEND

STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

PAVEMENT MARKINGS - BIKE

SCALE	NTS
DATE	01/31/2022
APPR	
STD DWG	R-43A



LANE USE ARROW PLACEMENT (L≤ 400')

DETAIL "A"

LANE USE ARROW PLACEMENT - TRAP LANE

DETAIL "B"

TWO-WAY LEFT TURN LANE ARROW MARKING PLACEMENT

DETAIL "C"

General Notes:

1.) Center pavement marking legends within the lane.

2.) Placement of lane use arrows with respect to the 8" wide white line (W-2) channelization shown in details "A", "B" and "C" apply to both left and right turn lanes.

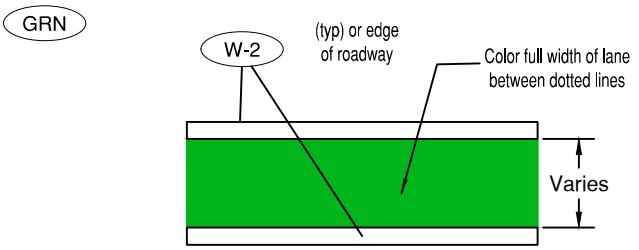
3.) When used for a short turn lane (<40'), the 2nd (downstream) arrow may be omitted.

4.) An ONLY symbol is only required where a through lane approaching an intersection becomes a mandatory turn lane.

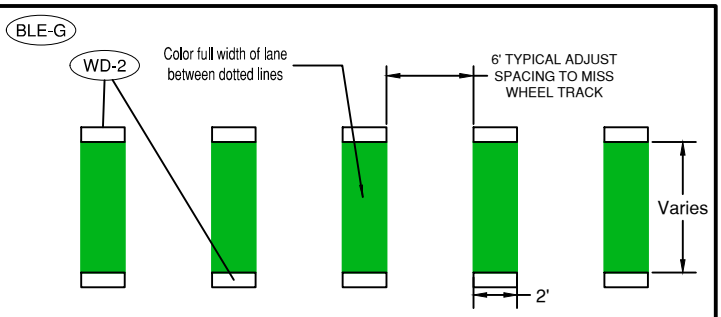
** When L is greater than 200', install 3rd lane use arrow at the midpoint of the turn lane.

To be accompanied by Standard Dwg. Nos. R-40 thru R-43

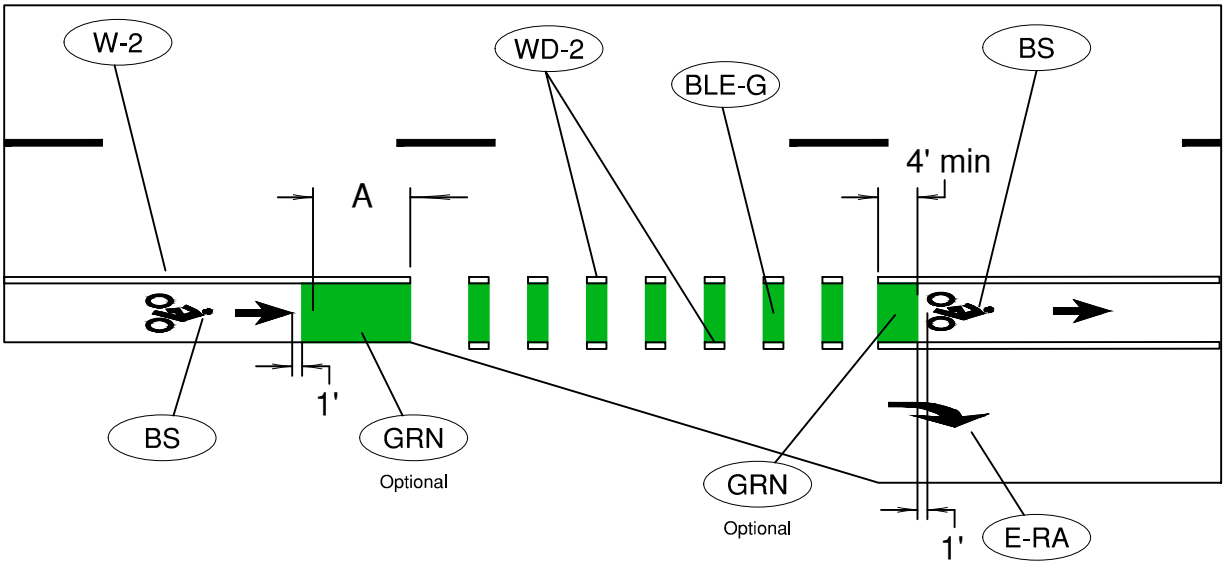
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TURN LANE MARKING LAYOUT	STD DWG R-44



GREEN SUPPLEMENTED BICYCLE LANE
SOLID LANE



GREEN SUPPLEMENTED BICYCLE LANE
DOTTED LINE EXTENSION

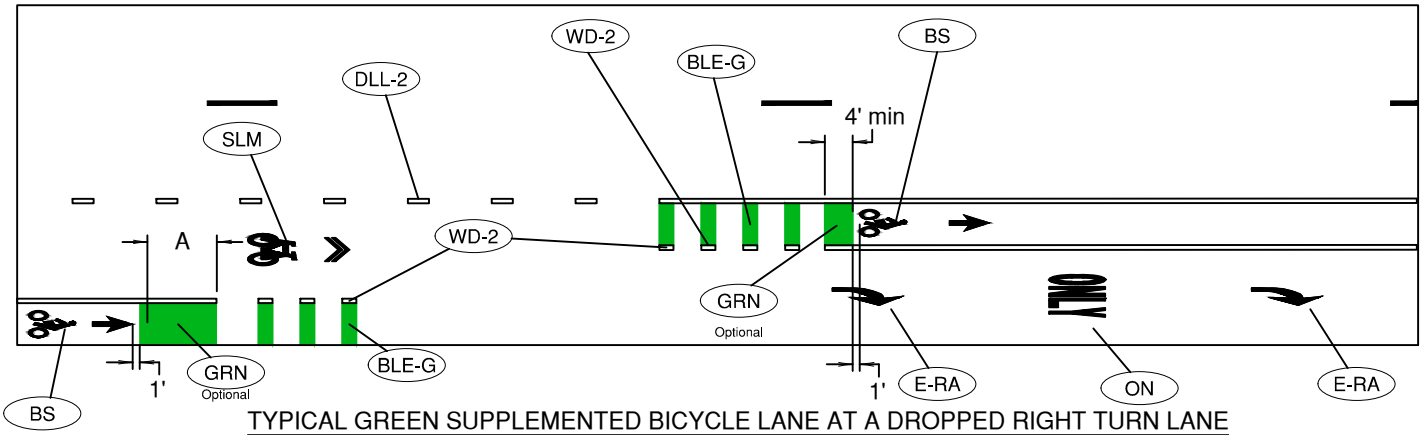


TYPICAL GREEN SUPPLEMENTED BICYCLE LANE ACROSS AN ADDED RIGHT TURN LANE TAPER

NOTES:
1. GREEN PAVEMENT MARKING USE PER DESIGN STANDARDS WITH CITY ENGINEER APPROVAL

POSTED SPEED (MPH)	A* (FT.) (MIN)
35 AND LESS	9
40	30
45	50

Add 20 ft if BS does not precede GRN



TYPICAL GREEN SUPPLEMENTED BICYCLE LANE AT A DROPPED RIGHT TURN LANE

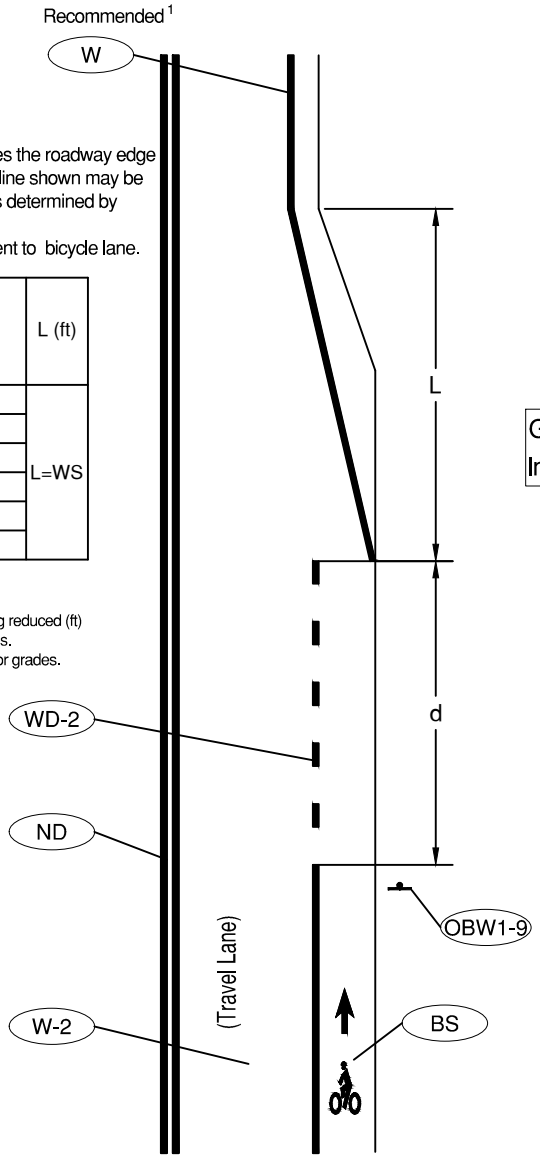
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		INTERSECTION BIKE SAFETY	STD DWG R-44A

General Notes:

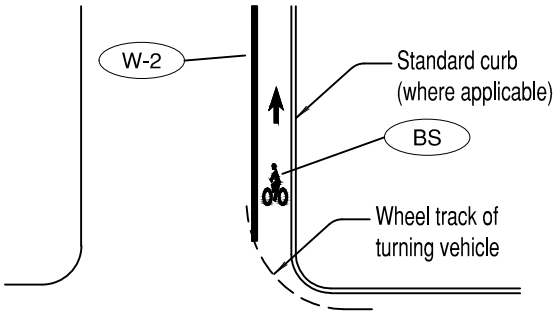
1. Where a curb clearly defines the roadway edge in the taper area, the edge line shown may be omitted in the taper area as determined by engineer judgement.
2. Motor vehicle speed adjacent to bicycle lane.

POSTED OR 85TH PERCENTILE SPEED (MPH) [2]	d (FT)	L (ft)
20	128	L=WS
25	152	
30	176	
35	184	
40	192	
45+	200	

WHERE:
L = taper length
W = width of bicycle lane being reduced (ft)
"d" distances are for level roads.
Corrections should be made for grades.



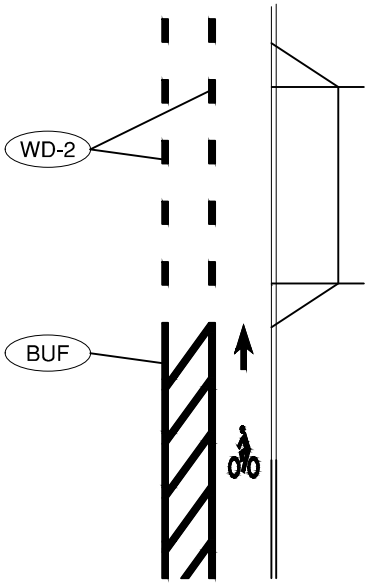
END OF BIKE LANE



SIDE STREET

General Note:
Install bike lane stencil to avoid right turning vehicle wheel tracks.

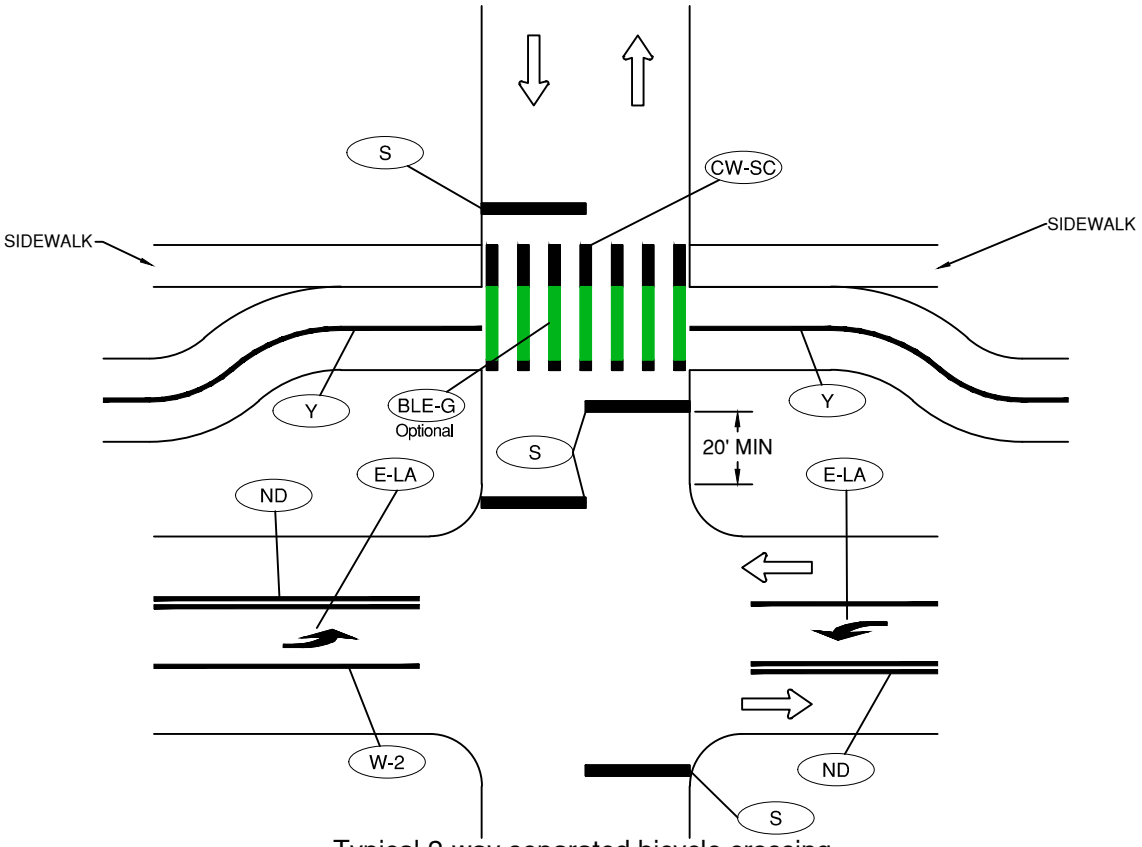
INSTALLATION OF BIKE LANE STENCILS FOLLOWING INTERSECTIONS



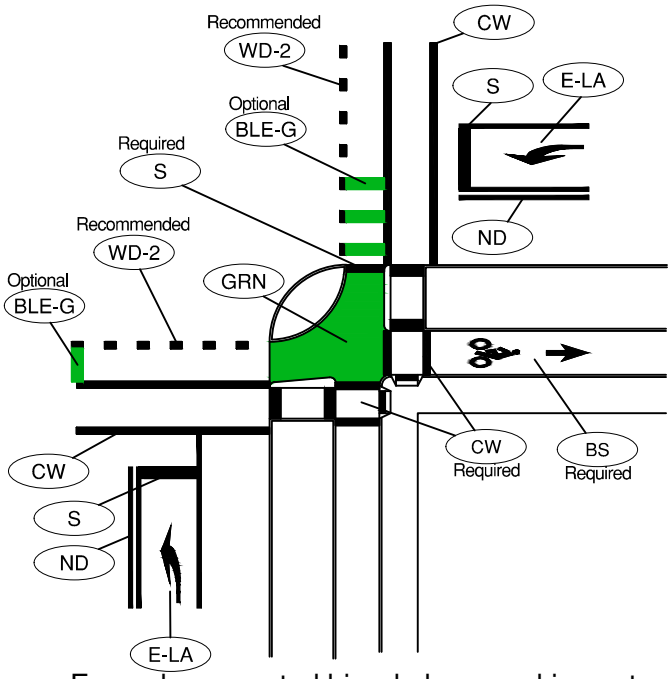
BUFFER BIKE LANE IN CONFLICT AREA
(FOR HIGH VOLUME COMMERCIAL DRIVEWAYS)

To be accompanied by Standard Dwg. Nos. R-40 thru R-43 and R-44A

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV ROADWAY			DATE 01/31/2022
REV DATE			APPR
	CITY OF BEND	BIKE LANE MARKINGS	STD DWG R-44B



Typical 2-way separated bicycle crossing
Bicycle lanes yield controlled

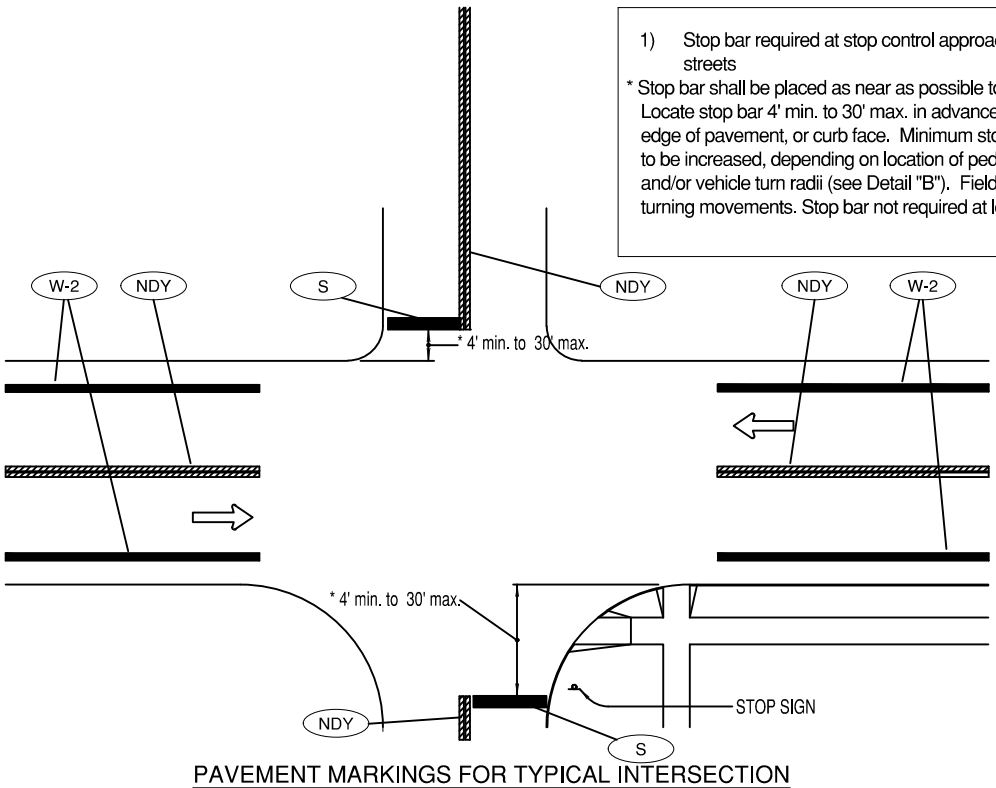


Example separated bicycle lane markings at a signalized intersection

DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 BIKE LANE MARKINGS	SCALE NTS DATE 01/31/2022 APPR STD DWG R-44C

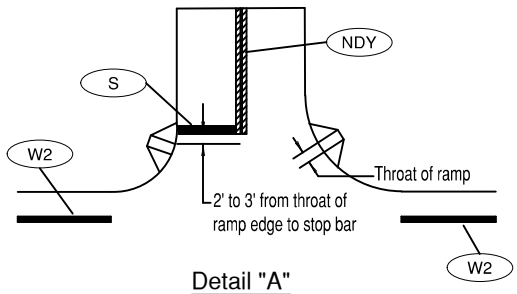
1) Stop bar required at stop control approaches on arterials and collector streets

* Stop bar shall be placed as near as possible to the intersecting traveled way. Locate stop bar 4' min. to 30' max. in advance of the extended fog line, edge of pavement, or curb face. Minimum stop bar distance may need to be increased, depending on location of pedestrian ramps (see Detail "A") and/or vehicle turn radii (see Detail "B"). Field verify sight distance and truck turning movements. Stop bar not required at local/local intersections.

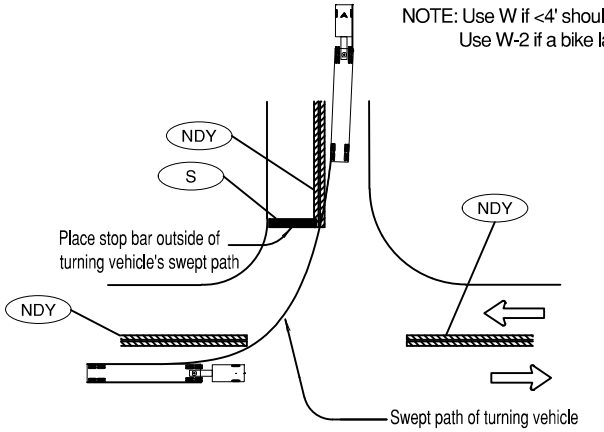


PAVEMENT MARKINGS FOR TYPICAL INTERSECTION

NOTE: Use W if <4' shoulder (no bike lane). Use W-2 if a bike lane exists.



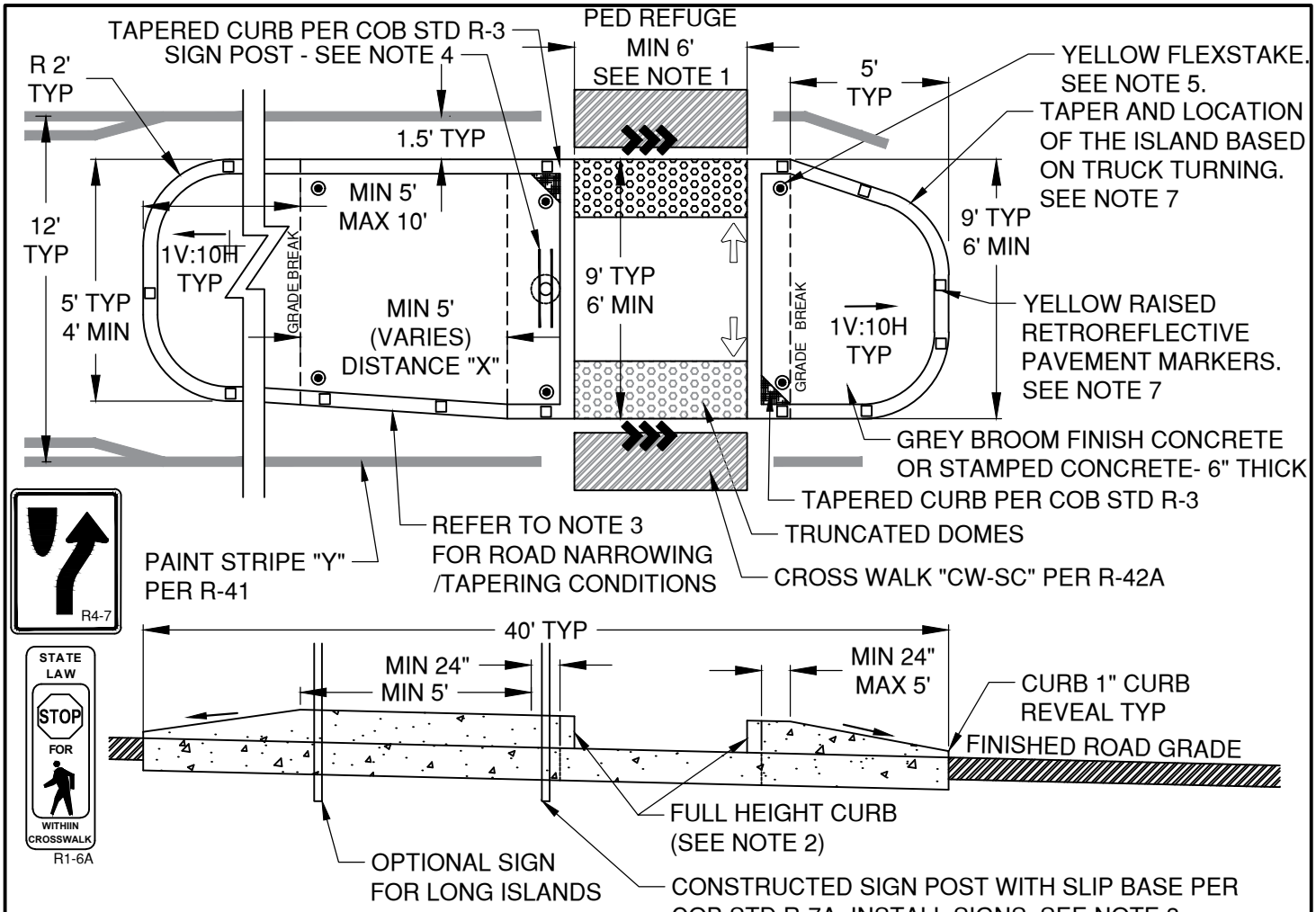
Detail "A"
STOP BAR PLACEMENT WITH RESPECT TO PEDESTRIAN RAMPS



Detail "B"
STOP BAR PLACEMENT WITH RESPECT TO TURN RADII WHERE NO RAMPS

To be accompanied by Standard Dwg. Nos. R-40 thru R-43

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		INTERSECTION PAVEMENT MARKING LAYOUT	STD DWG R-45



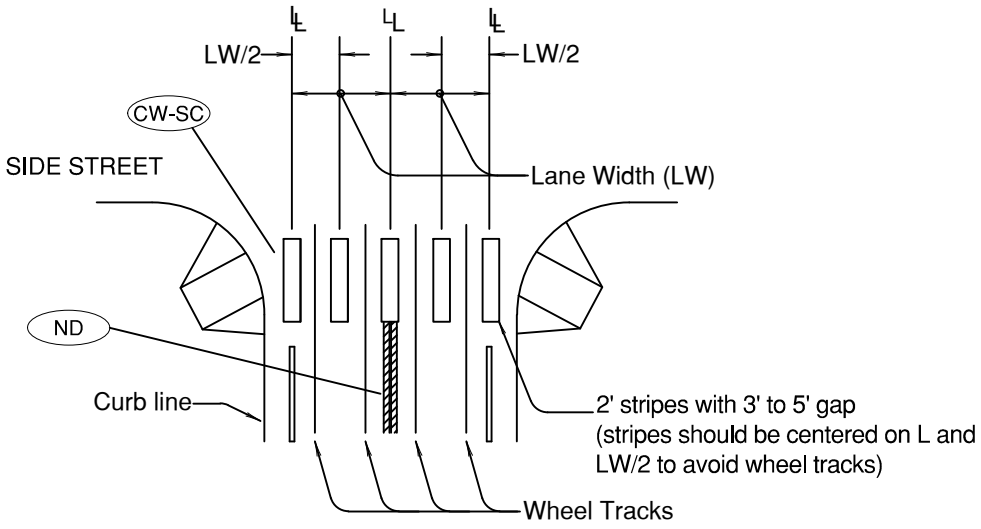
5.0% MAX (4.5% DESIGN) AT NON-STOP CONTROLLED INTERSECTION - 0.5% MIN

2.0% TYPICAL

NOTES:

1. PEDESTRIAN REFUGE OPENING TO MATCH THE WIDTH OF THE CURB RAMPS, BUT NOT LESS THAN 6 FEET WIDE; IF SHARED USE PATH CROSSING, CURB RAMPS AND REFUGE WIDTH SHALL MATCH PATH WIDTH.
2. CURB TO BE INSTALLED PER CITY STANDARD R-3. FULL HEIGHT CURB (DEPENDENT ON THE STREET CLASSIFICATION) TO BE CONSTRUCTED OUTSIDE THE BULL NOSE / VERTICAL TAPER SECTIONS OF THE ISLAND.
3. TAPER TO BE $\frac{1}{2}$*X OR AS NEEDED TO TERMINATE THE ISLAND WITH A 4' MIN BULLNOSE.
4. INSTALL R1-6A AND R4-7 (R1-6A OR R1-6C SIGNS FOR SCHOOL ZONES) SIGNS BACK TO BACK ON SIGN POST ADJACENT TO THE PED REFUGE. INSTALL AN ADDITIONAL POST PER COB STANDARD R-7A FOR INSTALLATION OF A SECOND R4-7 SIGN IF THE ISLAND EXCEEDS 40 FEET IN TOTAL LENGTH, OR AS DIRECTED BY THE CITY ENGINEER.
5. ISLANDS ARE NOT TO BE DOWELED INTO ROADWAYS UNLESS APPROVED BY THE CITY ENGINEER.
6. INSTALL 36" YELLOW TUBULAR FLEXSTAKE TM 750, OR APPROVED EQUAL, WITH TWO REFLECTIVE STRIPS DELINEATOR ON THE END OF THE BULLNOSE. OFFSET TO AVOID BLOCKING THE R1-6A SIGN. USE CONCRETE ANCHORS (REDHEAD OR EQUIVALENT).
7. INSTALL RETROREFLECTIVE YELLOW CURB MARKINGS ON TOP OF CURB AT 3' MAX SPACING AROUND MEDIAN NOSE AND AT 15' SPACING TO AND BEYOND TAPER SECTION AS SHOWN.
8. PLACEMENT OF ISLAND WILL BE BASED ON A MINIMUM WB-50 TURNING TEMPLATE. LARGER TRUCK MANEUVERABILITY TO BE DETERMINED IN INDUSTRIAL/COMMERCIAL AREAS.

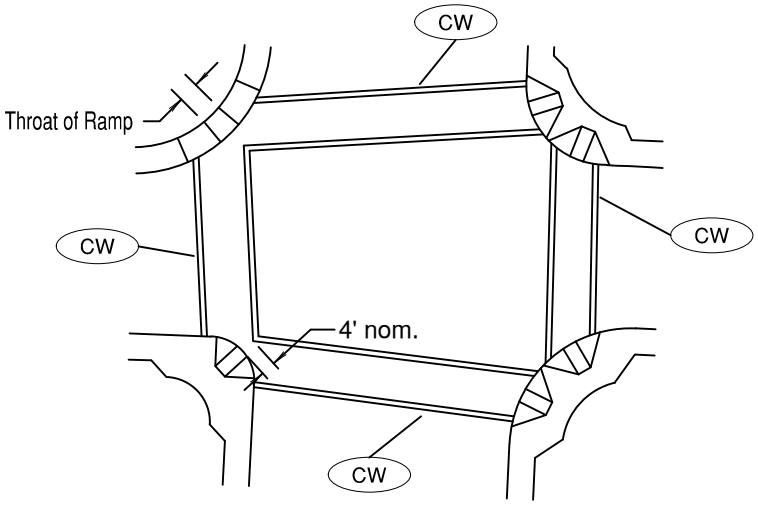
DRAWN CJH	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 05/02/23
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PEDESTRIAN REFUGE ISLAND	STD DWG R-46



STAGGERED CONTINENTAL LAYOUT

General Note:

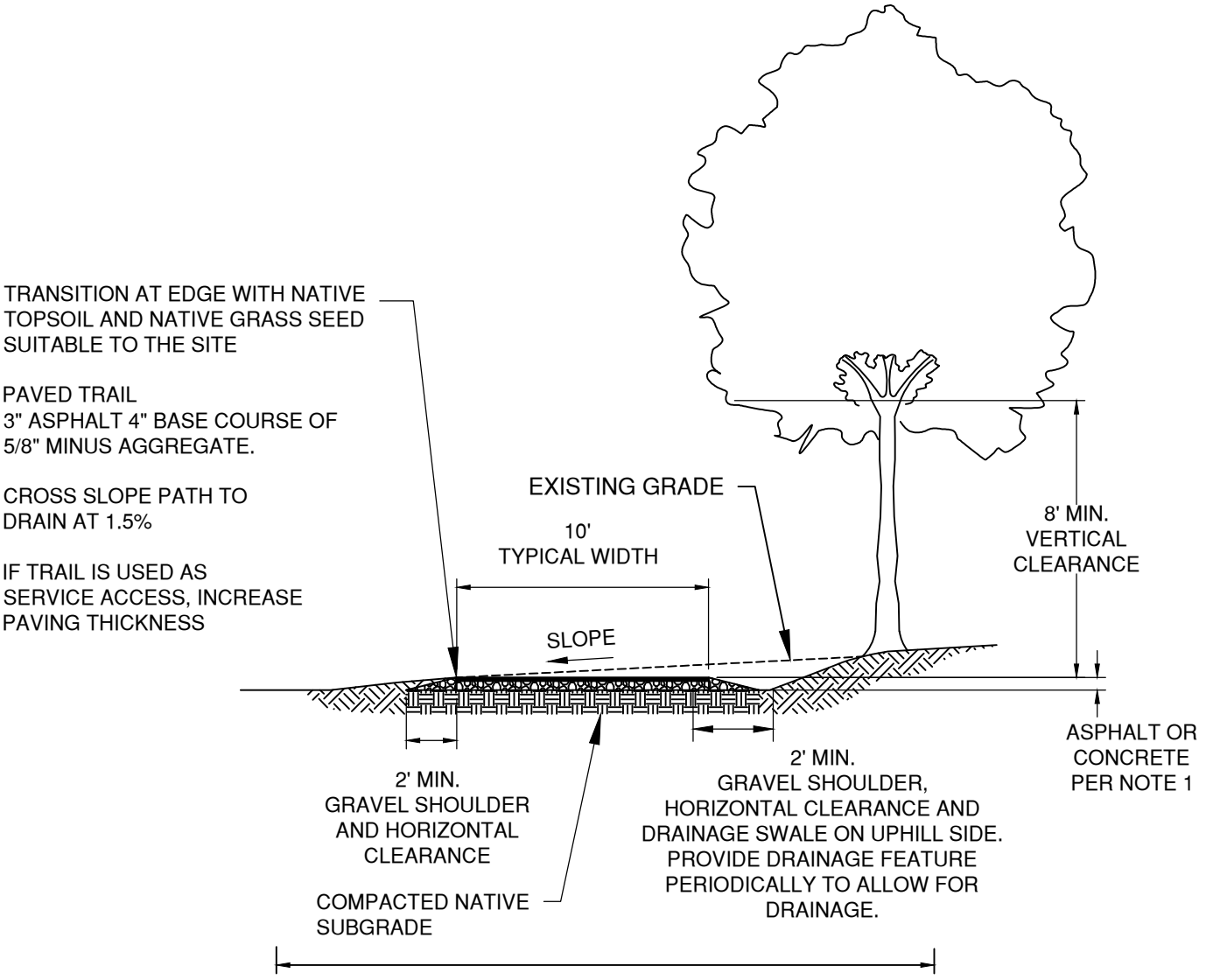
1. Install crosswalk bars such that the throat of the ADA ramp is entirely within crosswalk markings, or 5' back of extended fog line, edge of pavement, or curb face.



STANDARD CROSSWALK BARS AT 4-WAY CONTROLLED INTERSECTION

To be accompanied by Standard Dwg. Nos. R-40 thru R-43

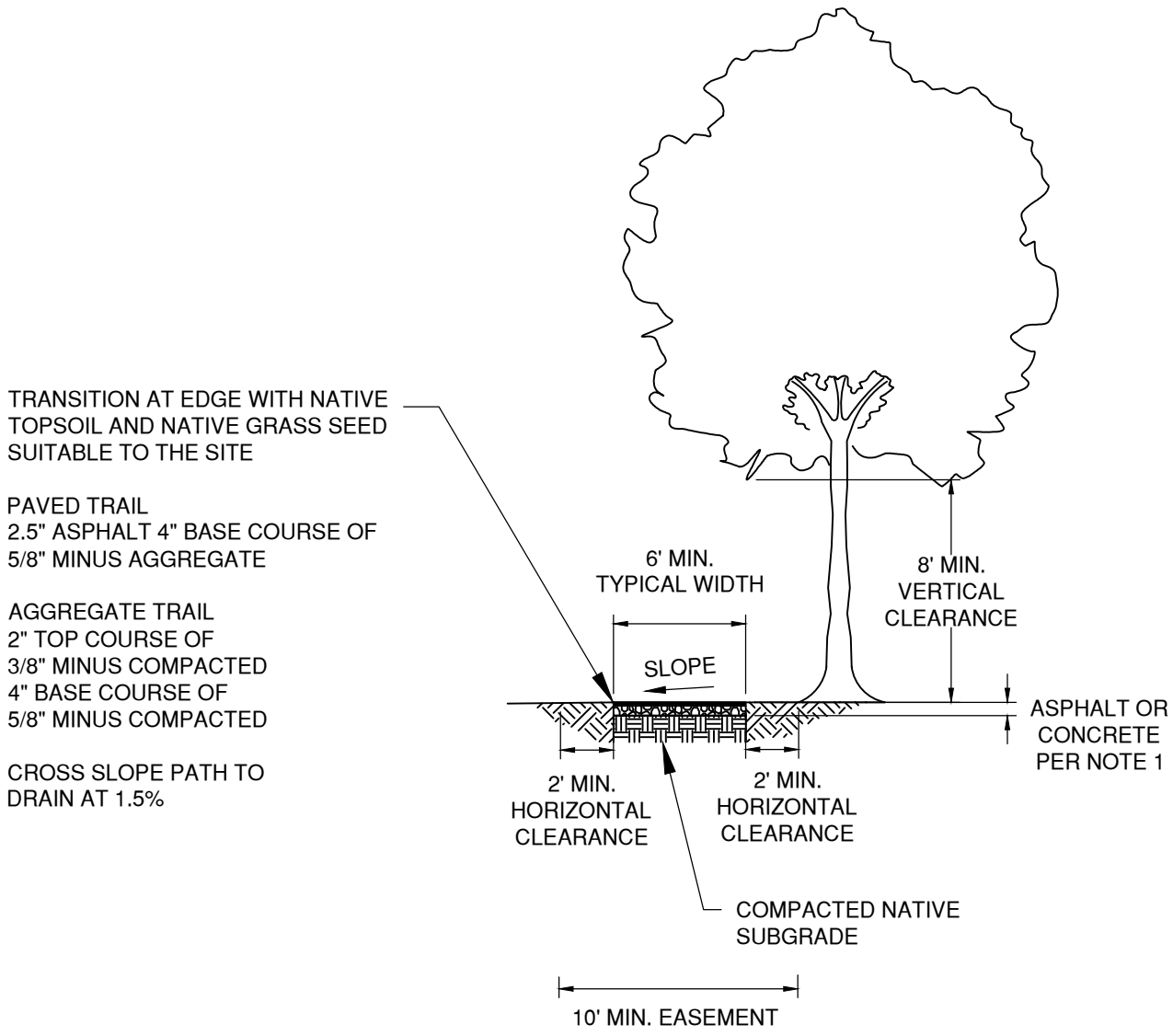
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CROSSWALK MARKINGS	STD DWG R-47



NOTES:

1. PRIMARY TRAIL SHALL BE PAVED WITH ASPHALT OR CONCRETE IN THE RIGHT-OF-WAY OR ADJACENT TO STREETS. OUTSIDE OF THE RIGHT-OF-WAY TRAIL MAY BE AGGREGATE AS APPROVED.
2. PRIMARY TRAILS ARE TYPICALLY FACILITIES OUTSIDE OF THE PUBLIC RIGHT-OF-WAY THAT ARE OWNED AND MAINTAINED BY THE BEND PARKS AND RECREATION DISTRICT OR PRIVATELY. (SEE STANDARD CROSS-SECTIONS FOR CITY SHARED USE PATHS IN THE RIGHT-OF-WAY.)
3. WHERE OUTSIDE OF RIGHT-OF-WAY, TRAIL EASEMENT DEDICATION IS REQUIRED INCLUDING A PUBLIC ACCESS EASEMENT AND UTILITY EASEMENT WHERE APPLICABLE.
4. TRAIL ALIGNMENTS ARE ENCOURAGED TO MEANDER AND NOT BE DESIGNED AS FENCED CANYONS.
5. TRAILS WITHIN RIGHT-OF-WAY SHALL MEET PROWAG REQUIREMENTS. TRAILS OUT OF RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE UNITED STATES ACCESS BOARD ACCESSIBILITY STANDARDS FOR FEDERAL OUTDOOR DEVELOPED AREAS.

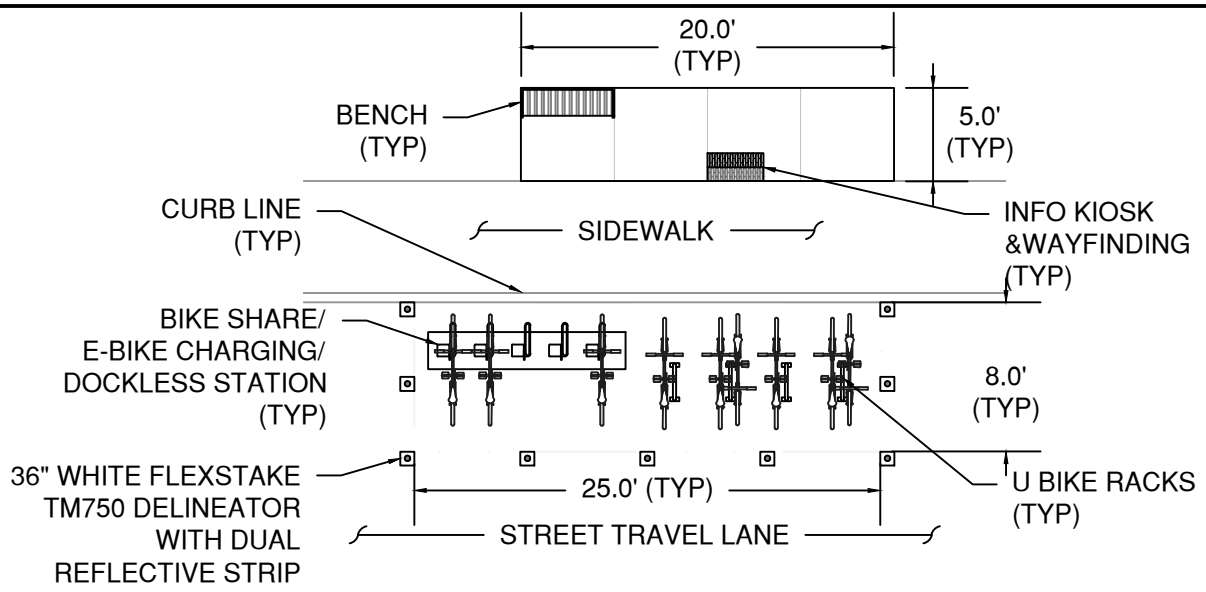
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PRIMARY TRAIL	STD DWG R-48



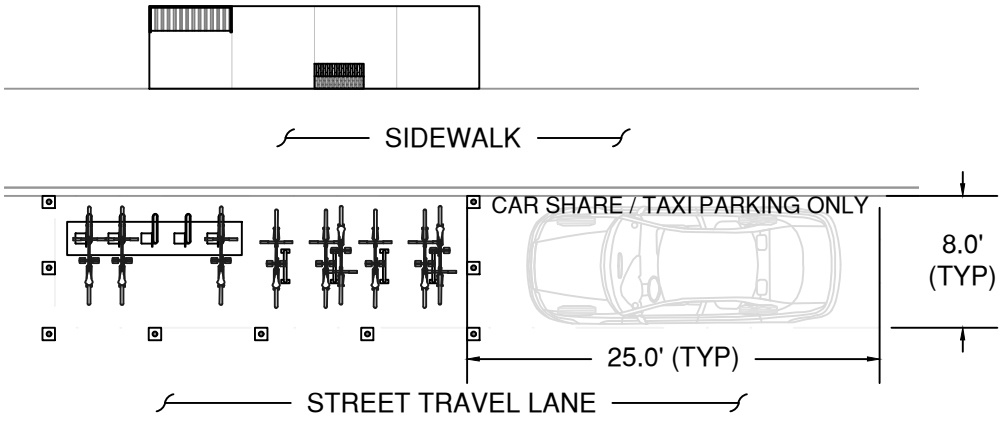
NOTES:

1. CONNECTOR TRAIL SHALL BE PAVED WITH ASPHALT OR CONCRETE IN THE RIGHT-OF-WAY OR ADJACENT TO STREETS. OUTSIDE OF THE RIGHT-OF-WAY TRAIL MAY BE AGGREGATE AS APPROVED.
2. CONNECTOR TRAILS ARE TYPICALLY FACILITIES OUTSIDE OF THE PUBLIC RIGHT-OF-WAY THAT ARE OWNED AND MAINTAINED BY THE BEND PARKS AND RECREATION DISTRICT OR PRIVATELY. (SEE STANDARD CROSS-SECTIONS FOR CITY SHARED USE PATHS IN THE RIGHT-OF-WAY.)
3. WHERE OUTSIDE OF RIGHT-OF-WAY, TRAIL EASEMENT DEDICATION IS REQUIRED INCLUDING A PUBLIC ACCESS EASEMENT AND UTILITY EASEMENT WHERE APPLICABLE.
4. TRAIL ALIGNMENTS ARE ENCOURAGED TO MEANDER AND NOT BE DESIGNED AS FENCED CANYONS.
5. NATIVE SURFACE TRAILS MAY BE USED WITHIN PARKS OR PRIVATE DEVELOPMENTS TO PROVIDE CONNECTIONS TO PRIMARY AND OTHER CONNECTOR TRAILS.
6. TRAILS WITHIN RIGHT-OF-WAY SHALL MEET PROWAG REQUIREMENTS. TRAILS OUT OF RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE UNITED STATES ACCESS BOARD ACCESSIBILITY STANDARDS FOR FEDERAL OUTDOOR DEVELOPED AREAS AT A MINIMUM.

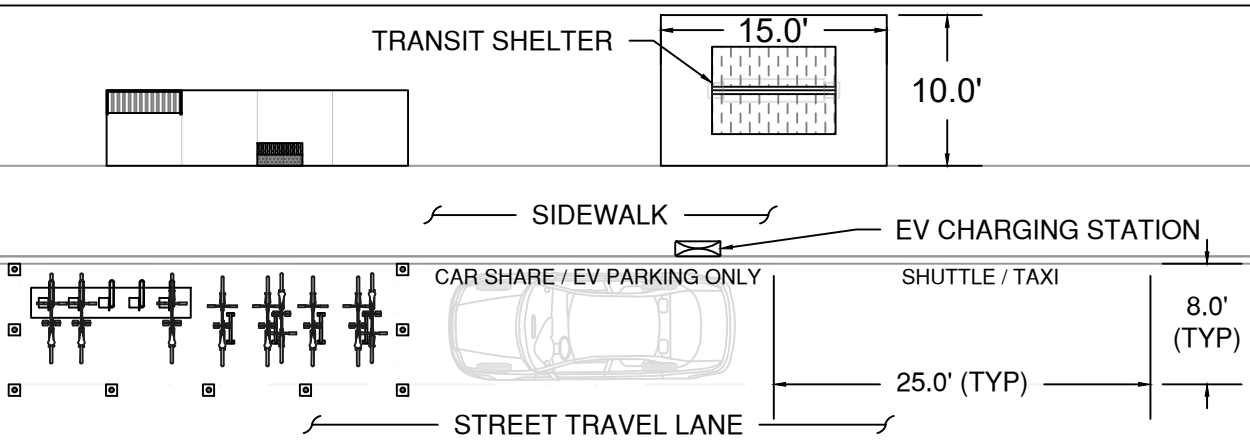
DRAWN AJD DIV ROADWAY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		CONNECTOR TRAIL	STD DWG R-49



SMALL MOBILITY POINT



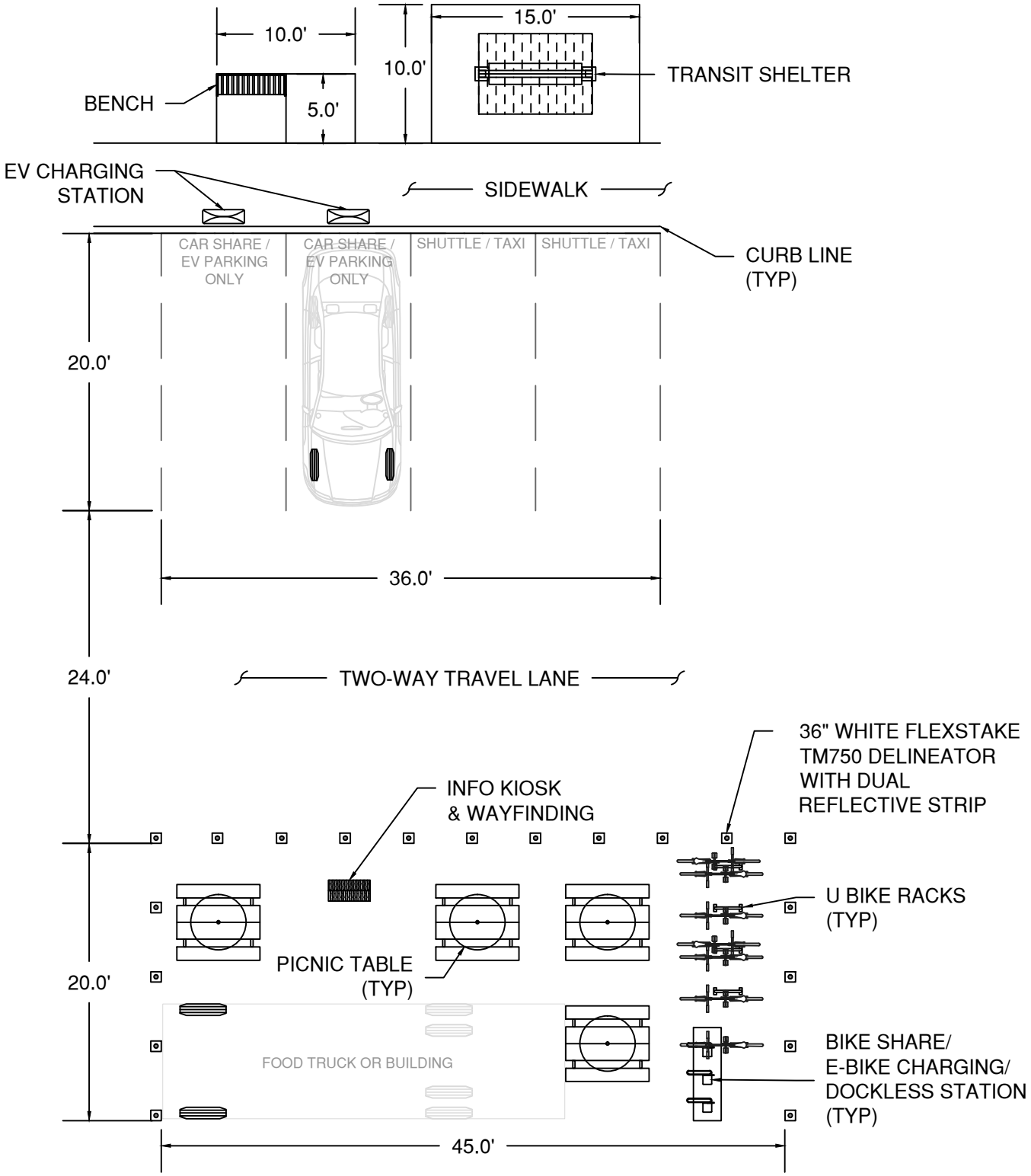
MEDIUM MOBILITY POINT



MEDIUM (+) MOBILITY POINT

NOTES:
1. LOCATION & EXISTING CONDITIONS WILL DETERMINE LAYOUT
2. FINAL LAYOUT MUST MEET MINIMUM ADA STANDARDS FOR ACCESSIBLE DESIGN
3. ALL CONCEPTS SHOWN ARE FOR SPATIAL REPRESENTATION ONLY
4. BICYCLE PARKING STATIONS MAY BE PLACED WITH IN ON-STREET PARKING SPACES OR ON PRIVATE PROPERTY

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		MOBILITY POINTS - SMALL/MEDIUM	STD DWG R-50A

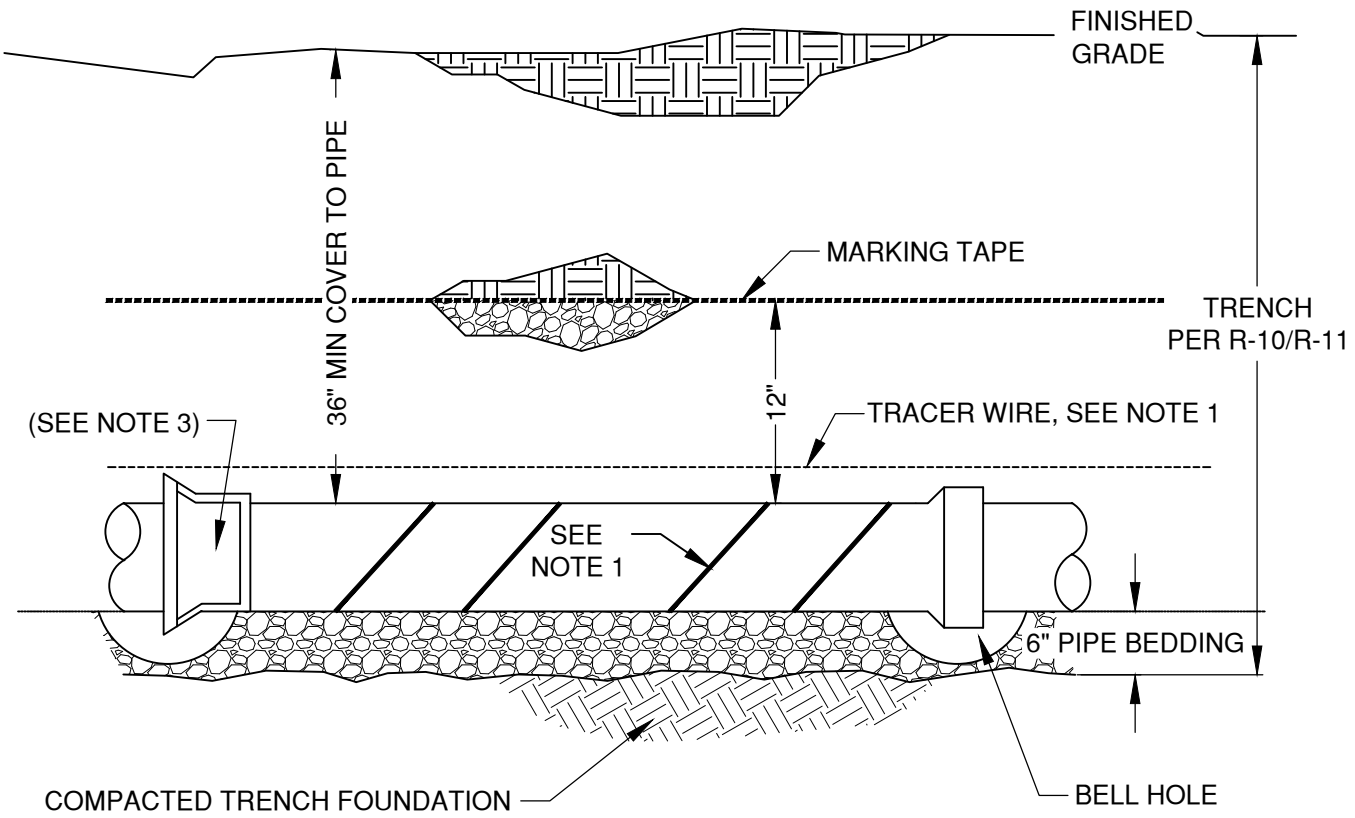


NOTES:
1. LOCATION & EXISTING CONDITIONS WILL DETERMINE LAYOUT
2. FINAL LAYOUT MUST MEET MINIMUM ADA STANDARDS FOR ACCESSIBLE DESIGN
3. ALL CONCEPTS SHOWN ARE FOR SPATIAL REPRESENTATION ONLY

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV ROADWAY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		MOBILITY POINTS - LARGE	STD DWG R-50B

CITY OF BEND STANDARD DRAWINGS

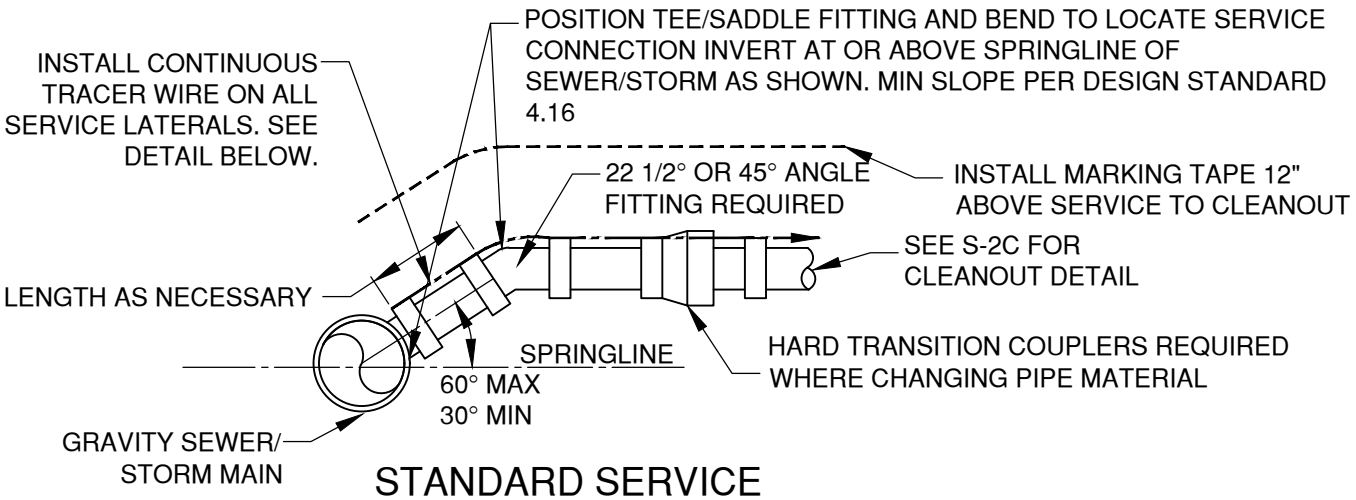
Sanitary (S)



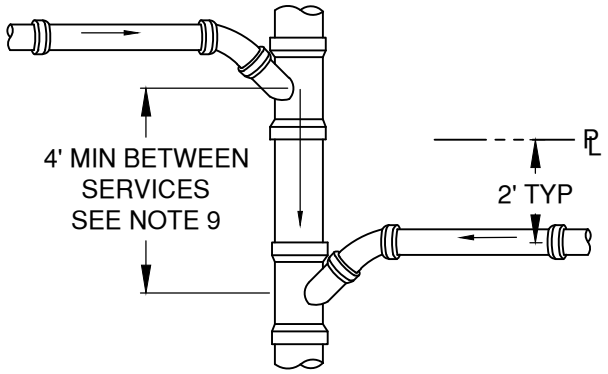
NOTES:

1. FOR PRESSURE AND VACUUM SEWER MAINS ONLY, TRACER WIRE SHALL BE CENTERED ON TOP OF THE MAIN, AS CLOSE TO THE MAIN AS POSSIBLE. THE MAIN SHALL BE WRAPPED WITH MARKING TAPE A MIN OF 4 WRAPS PER 20 FEET OF MAIN. TRACER WIRE IS NOT REQUIRED ON GRAVITY SEWER MAIN.
2. PLACE TRACER WIRE ON GRAVITY, PRESSURE, AND VACUUM SEWER SERVICES. TRACER WIRE AND MARKING TAPE TO BE PER SPECIFICATION SECTION 00445.11.
3. TRANSITION FITTING SHALL BE A HARD COUPLER WHERE CHANGING PIPE MATERIAL
4. WHEN A SEWER LINE IS LOCATED ABOVE OR WITHIN 18" BELOW A WATERLINE, THE SEWER SHALL BE CONSTRUCTED WITH A MIN OF 20 LF OF AWWA C900 OR AWWA C905 PIPE CENTERED AT THE WATERLINE PER OAR 333-061-0050(9) AND BE APPROVED BY CITY/STATE.
5. WHEN INSTALLING A WATER LINE THAT CROSSES BELOW OR WITHIN 18 INCHES ABOVE A NON-POTABLE LINE, FOLLOW OAR 333-061-0050(9). ALL NON-POTABLE LINES SHALL BE TREATED AS "SEWER" LINES AS DESCRIBED IN OAR 333-061-0050(9).
6. COMPACTION SHALL MEET 00405.46(c) PER COB SPECIAL PROVISIONS

DRAWN AJD DIV SANITARY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 SEWER MAIN TYPICAL PROFILE	SCALE NTS DATE 01/31/2022 APPR STD DWG S-1

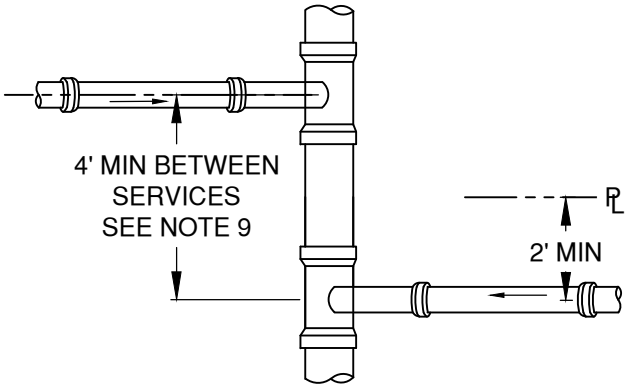


STANDARD SERVICE



WYE SERVICE CONNECTION

(FOR USE ON MAINS 12" AND SMALLER)



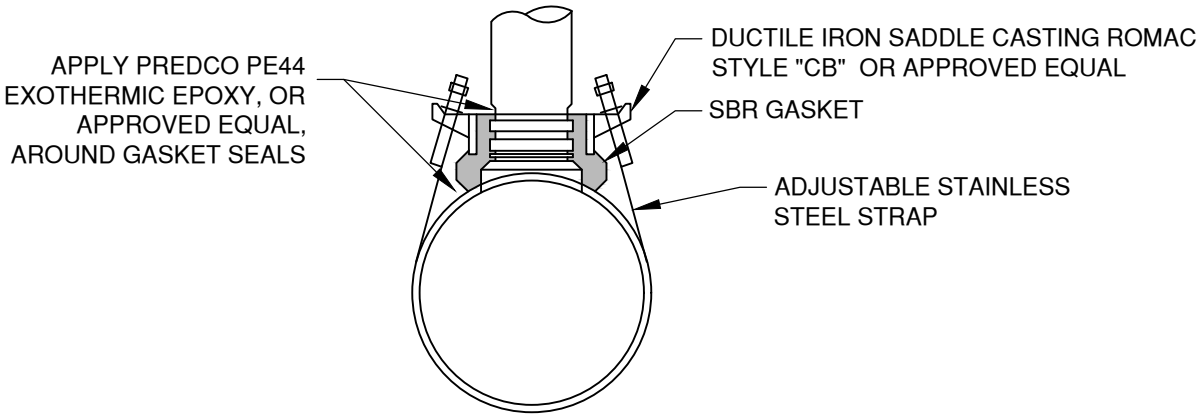
TEE SERVICE CONNECTION

(FOR USE ON MAINS LARGER THAN 12" OR ON EXISTING MAINS FOR INFILL SERVICE CONNECTIONS)

NOTES:

1. ALL TRENCHES TO CONFORM TO STD DWG R-10
2. SERVICES OFF NEW MAINS SHALL BE WYE OR TEE CONNECTIONS. SEE STD DWG S-2B FOR SERVICES OFF EXISTING MAINS
3. TRACER WIRE REQUIRED ON ALL SEWER / STORM SERVICES. MARKING TAPE SHALL BE INSTALLED AS SHOWN.
4. SEWER / STORM CONNECTION FROM THE PROPERTY LINE/ROW LINE TO THE CLEAN OUT NEAR THE BUILDING FOUNDATION REQUIRES A PLUMBING PERMIT.
5. WHEN A SEWER SERVICE IS LOCATED ABOVE OR WITHIN 18" BELOW A WATERLINE, THE SEWER SERVICE SHALL BE CONSTRUCTED WITH A MIN. 20 LF OF AWWA C900 OR AWWA C905 PIPE CENTERED AT THE WATERLINE PER OAR 333-061-0050(9).
6. STANDARD RESIDENTIAL SEWER SERVICES ARE 4"Ø. COMMERCIAL, INDUSTRIAL SEWER SERVICES ARE 6"Ø UNLESS OTHERWISE SIZED LARGER BY THE SITE'S ENGINEER.
7. WHERE A SERVICE CROSSES A NEW CURB, STAMP THE FACE OF CURB PER STD DWG R-3.
8. GRAVITY SEWER STANDARDS APPLY TO STORM SEWER MAINS.
9. MINIMUM 3' SECTIONS OF PIPE ARE REQUIRED BETWEEN FITTINGS.
10. ALL STORM SEWER LATERALS MUST COMPLY WITH CITY SEWER STANDARDS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 03/22/2023
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		GRAVITY SEWER/STORM SERVICES ON NEW MAINS	STD DWG S-2A



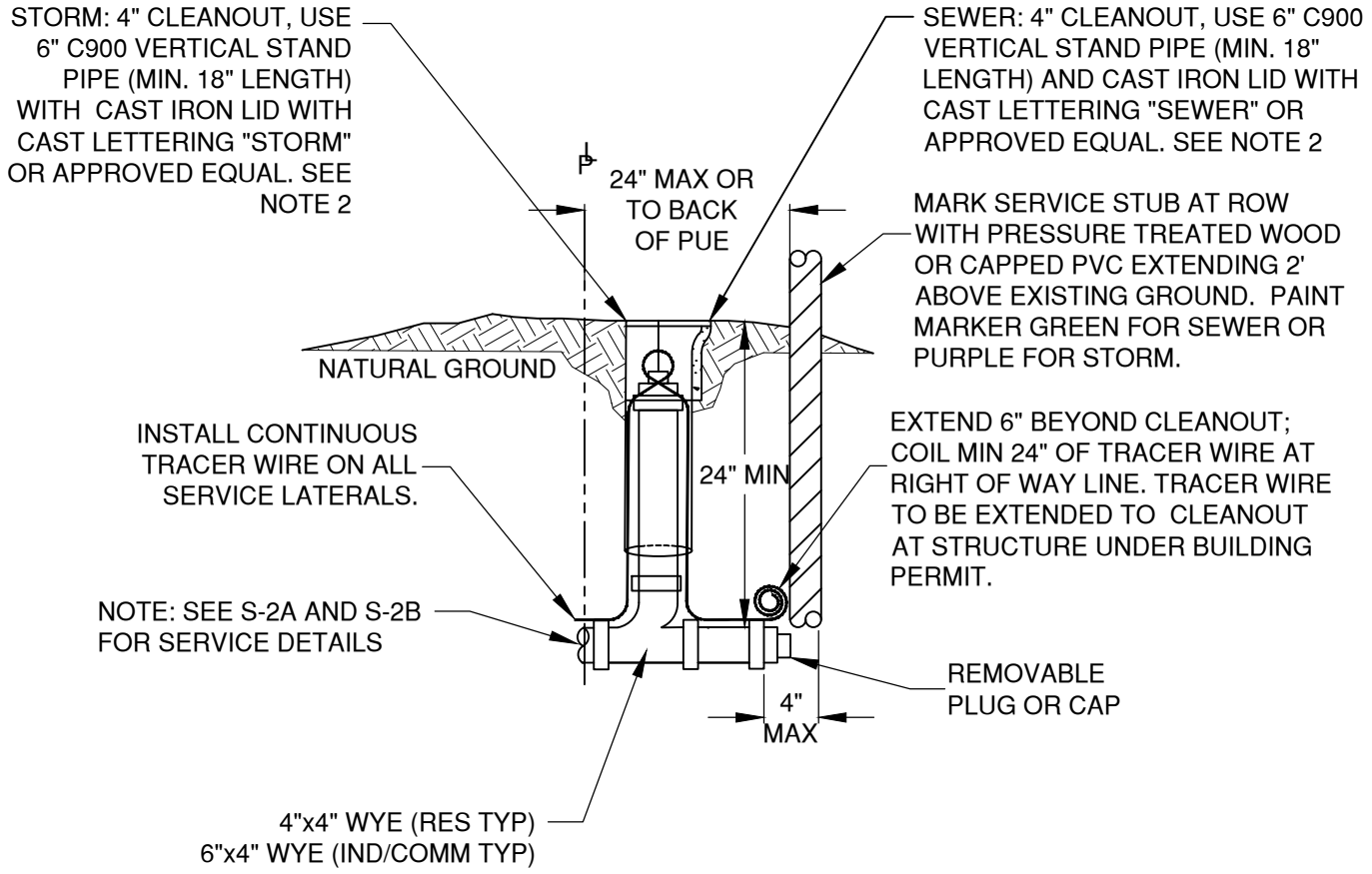
SEWER SADDLE

FOR USE ON MAINS 12" AND SMALLER

NOTES:

1. INSTALL SERVICE LATERAL PER STD DWG S-2A
2. CONNECTION TO EXISTING MAINS MAY BE CUT-IN FITTINGS PER STD DWG S-2A OR TAPS PER THIS DETAIL. PVC MAINS TO UTILIZE CUT IN FITTINGS.
3. SEWER SADDLE SHALL BE ROMAC STYLE "CB" OR APPROVED EQUAL.
4. INSTALL CONNECTION PER THE MANUFACTURER'S RECOMMENDATIONS.
5. GASKET SEAL EPOXY NOT TO BE INSTALLED ON PVC MAINS.

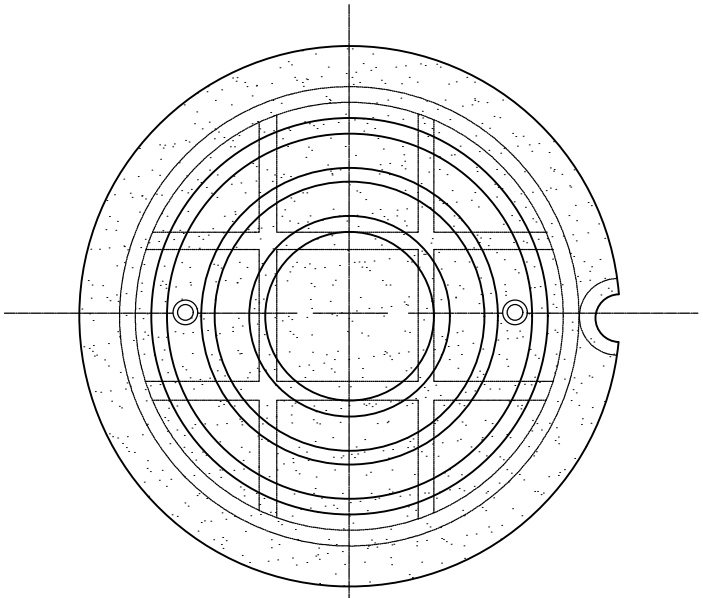
DRAWN AJD DIV SANITARY REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 GRAVITY SEWER/STORM SERVICE CONNECTION TO EXISTING MAIN	SCALE NTS DATE 03/22/2023 APPR STD DWG S-2B



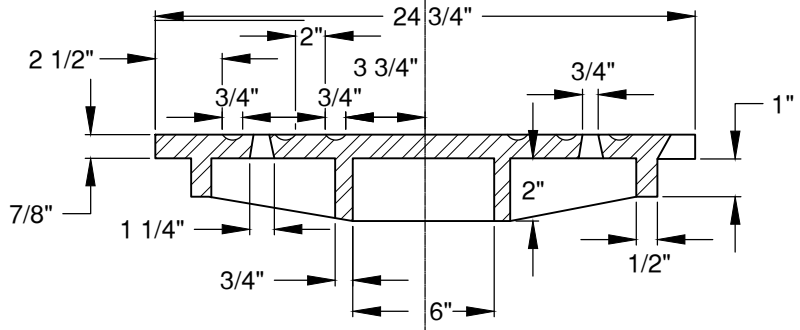
NOTES:

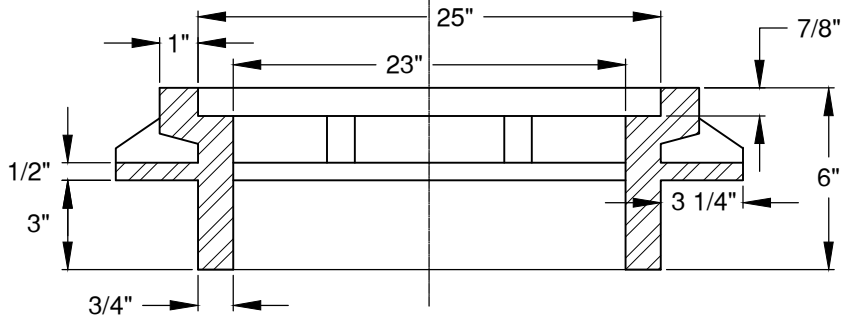
1. SEE STD DWG S-2A FOR GENERAL NOTES.
2. INSTALL CONCRETE BROOKS BOX WITH CAST IRON LID ON ALL CLEANOUTS WITHIN HARDSCAPE.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 03/22/2023
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		GRAVITY SEWER/STORM CLEANOUT	STD DWG S-2C



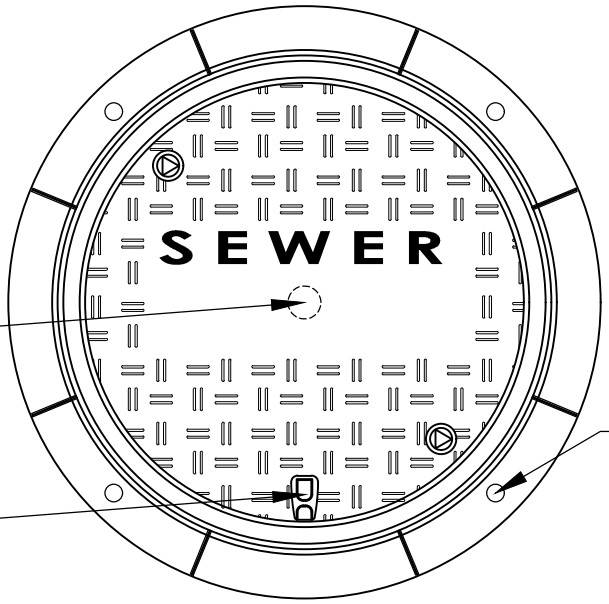
SEWER MANHOLE LID DETAIL
NTS





NOTES:
1. CITY SANITARY SEWER MANHOLE COVERS SHALL HAVE THE WORD "SEWER" CAST IN 2" RAISED LETTERS.
2. PRIVATE MANHOLE LIDS SHOULD NOT USE THE CITY OF BEND MANHOLE LID DETAIL.
3. HINGED MANHOLE LIDS ARE NOT PERMITTED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. LOCKS ARE TO BE USED ON THE LID WHEN THE LID IS LOCATED OUTSIDE A ROADWAY IF REQUIRED BY THE CITY ENGINEER.
5. MANHOLE LIDS SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL ON SIDEWALKS AND DRIVEWAY APRONS.

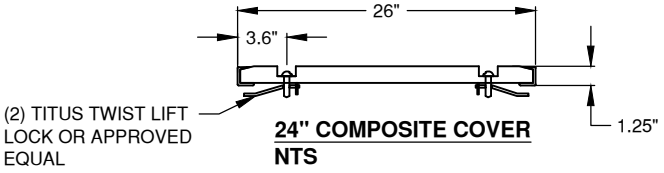
DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV SANITARY			DATE 01/31/2022
REV DATE			APPR
		STANDARD SEWER MANHOLE RING & COVER	STD DWG S-3A



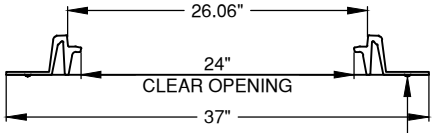
COMPOSITE COVER/FRAME ASSEMBLY

NTS

FOR USE IN NON-TRAFFIC AREAS ONLY

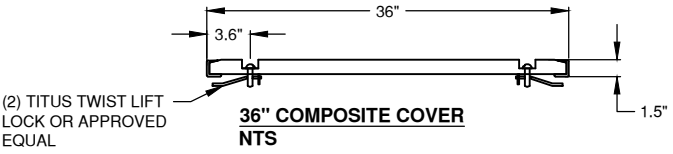


24" COMPOSITE COVER
NTS

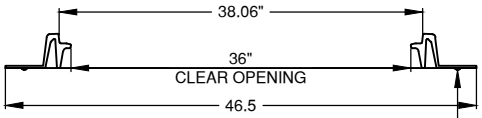


24" COMPOSITE FRAME
NTS

APPLY WATER REPELLANT SEALER AROUND ENTIRE FRAME CIRCUMFERENCE PRIOR TO TIGHTENING THE CONCRETE ANCHORS.



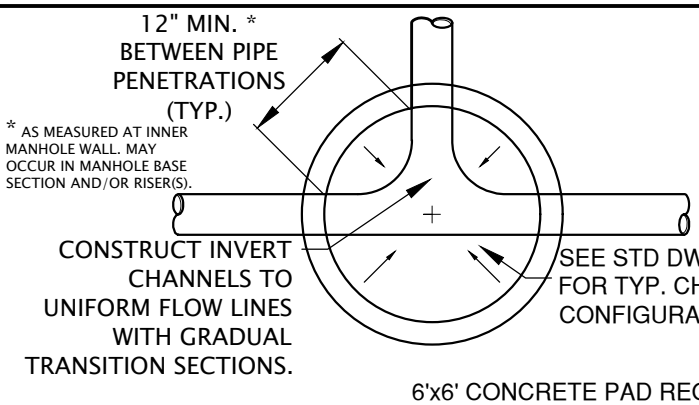
36" COMPOSITE COVER
NTS

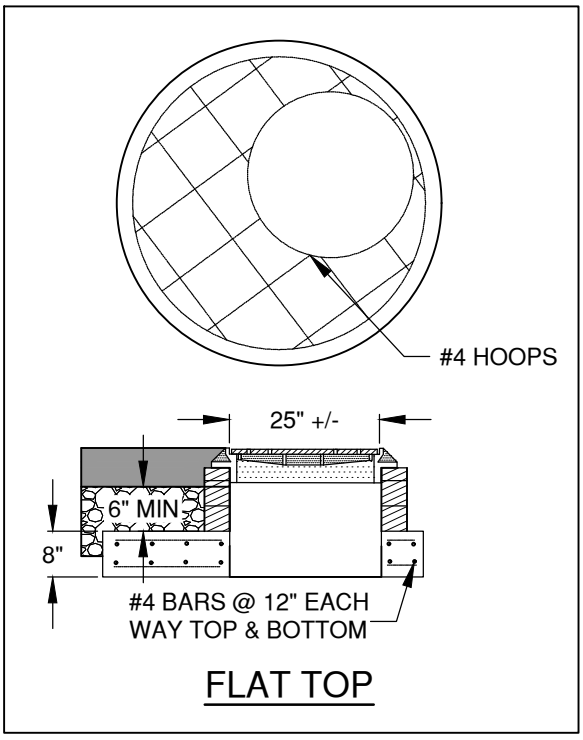


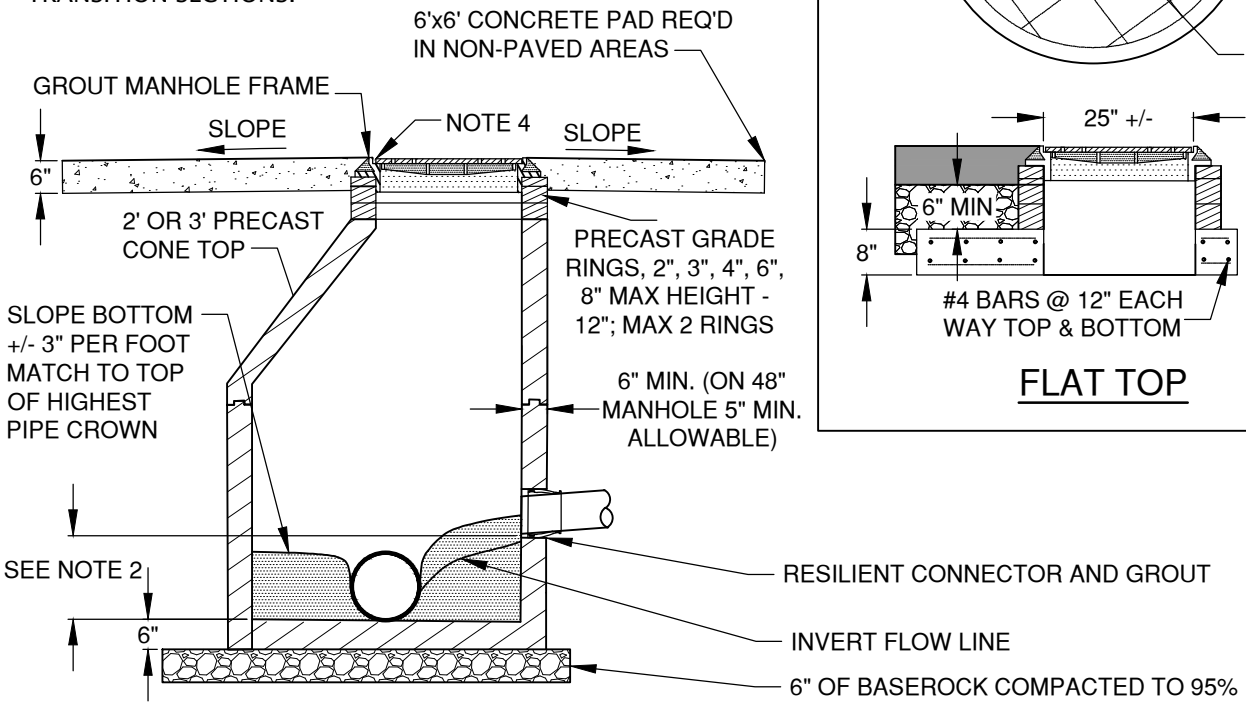
36" COMPOSITE FRAME
NTS

APPLY WATER REPELLANT SEALER AROUND ENTIRE FRAME CIRCUMFERENCE PRIOR TO TIGHTENING THE CONCRETE ANCHORS.

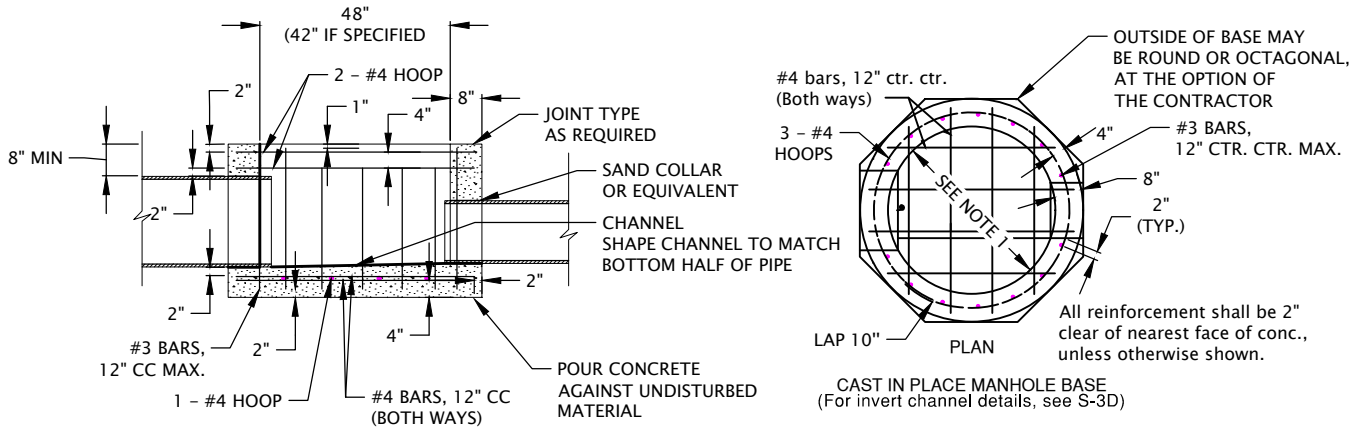
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		COMPOSITE MANHOLE FRAME AND COVER	STD DWG S-3B







STANDARD MANHOLE WITH PRECAST BASE

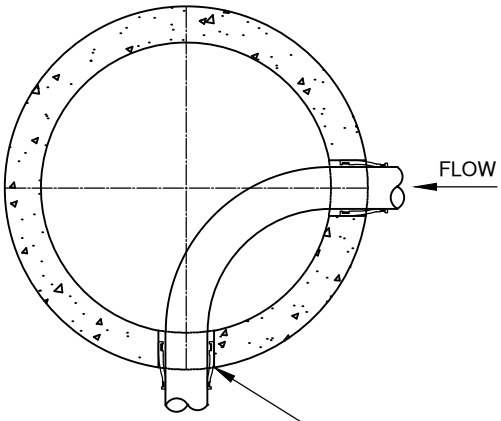


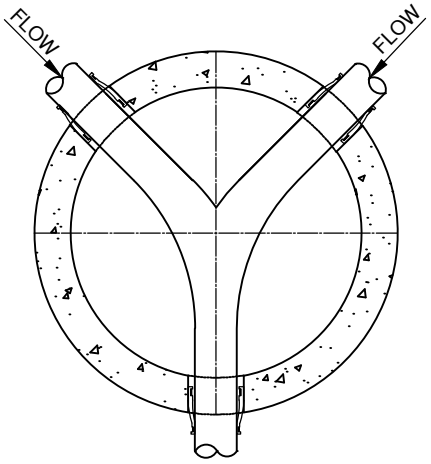
CAST IN PLACE MANHOLE BASE

GENERAL NOTES:

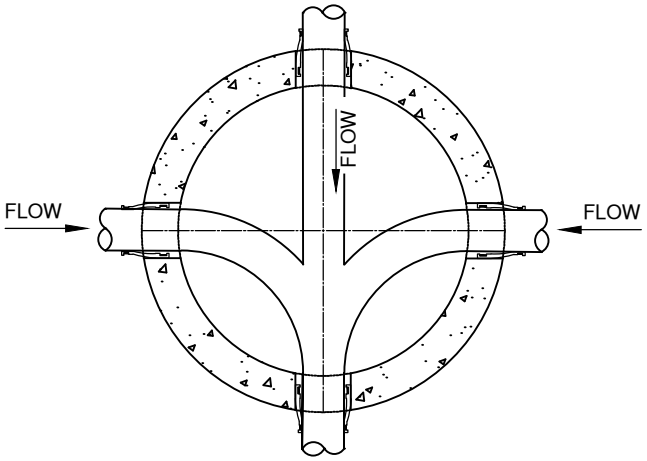
1. MANHOLE DIAMETER PER CITY OF BEND DESIGN STANDARDS.
2. THE MAXIMUM INTERNAL DROP IS 1' FOR PIPES 8" IN DIAMETER OR LESS AND 2' FOR PIPES GREATER THAN 8" IN DIAMETER. SEE DWGS S-4 AND S-4A FOR LARGER DROPS.
3. ALL GROUT USED ON MANHOLES SHALL BE NON-SHRINK.
4. A SINGLE RISER RING IS ALLOWED ON INITIAL INSTALLATION.

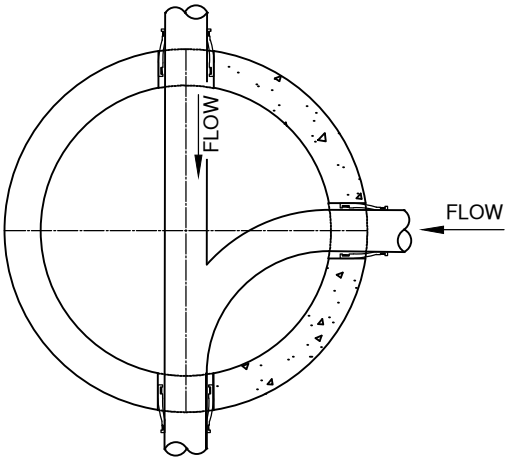
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 03/22/2023
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD SEWER/STORM MANHOLE	STD DWG S-3C





RESILIENT CONNECTOR WITH GROUT
FOR PRECAST BASE. SAND COLLAR OR
EQUIVALENT IN POURED IN PLACE BASE.

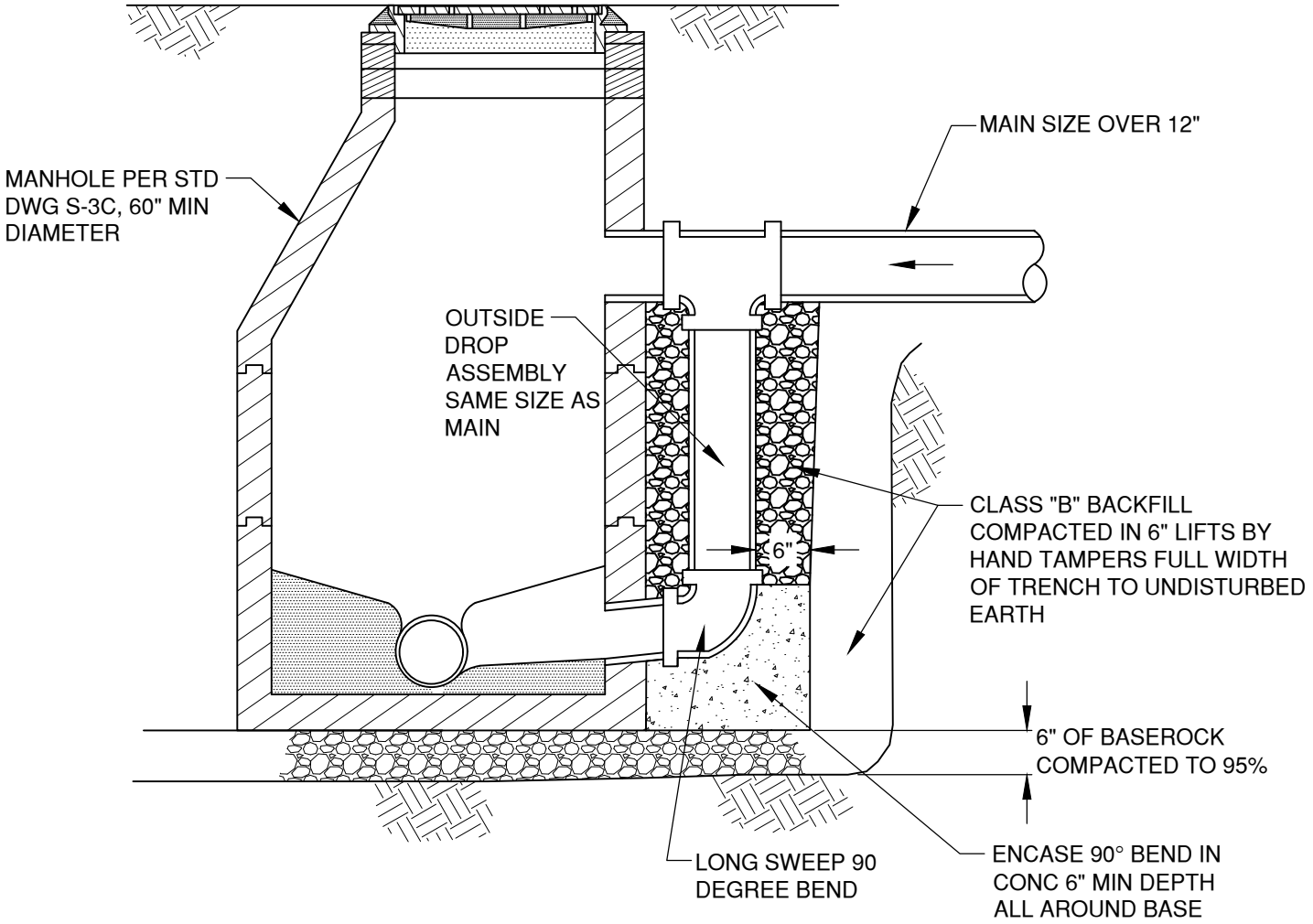


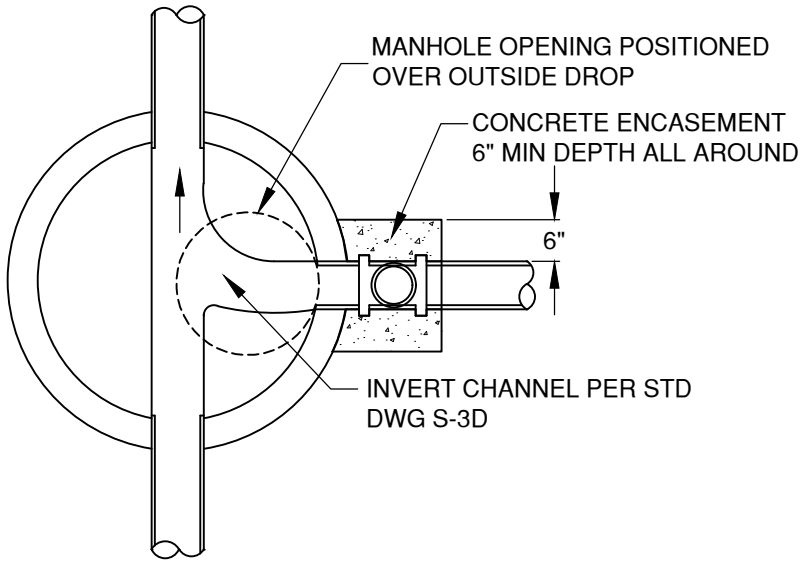


GENERAL NOTES:

1. FLOW CHANNELS DEVIATING FROM THE STANDARD CHANNELS REQUIRE A DETAIL FOR APPROVAL FROM THE ENGINEER
2. WIDTH OF CHANNEL SHOULD MATCH THE INSIDE DIAMETER OF INCOMING AND OUTGOING PIPES.
3. CHANNEL LINING SHALL BE BLENDED FOR SMOOTH CONTOUR BETWEEN PIPES.
4. GROUT CHANNEL TO SMOOTH FINISH.
5. FINISH BOTTOM TO EVEN SLOPE BROOM FINISH TO DRAIN TO CHANNEL.
6. LOCATE MANHOLE OPENING OPPOSITE OUTLET UNLESS OTHERWISE DIRECTED.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL MANHOLE INVERT LAYOUT	STD DWG S-3D

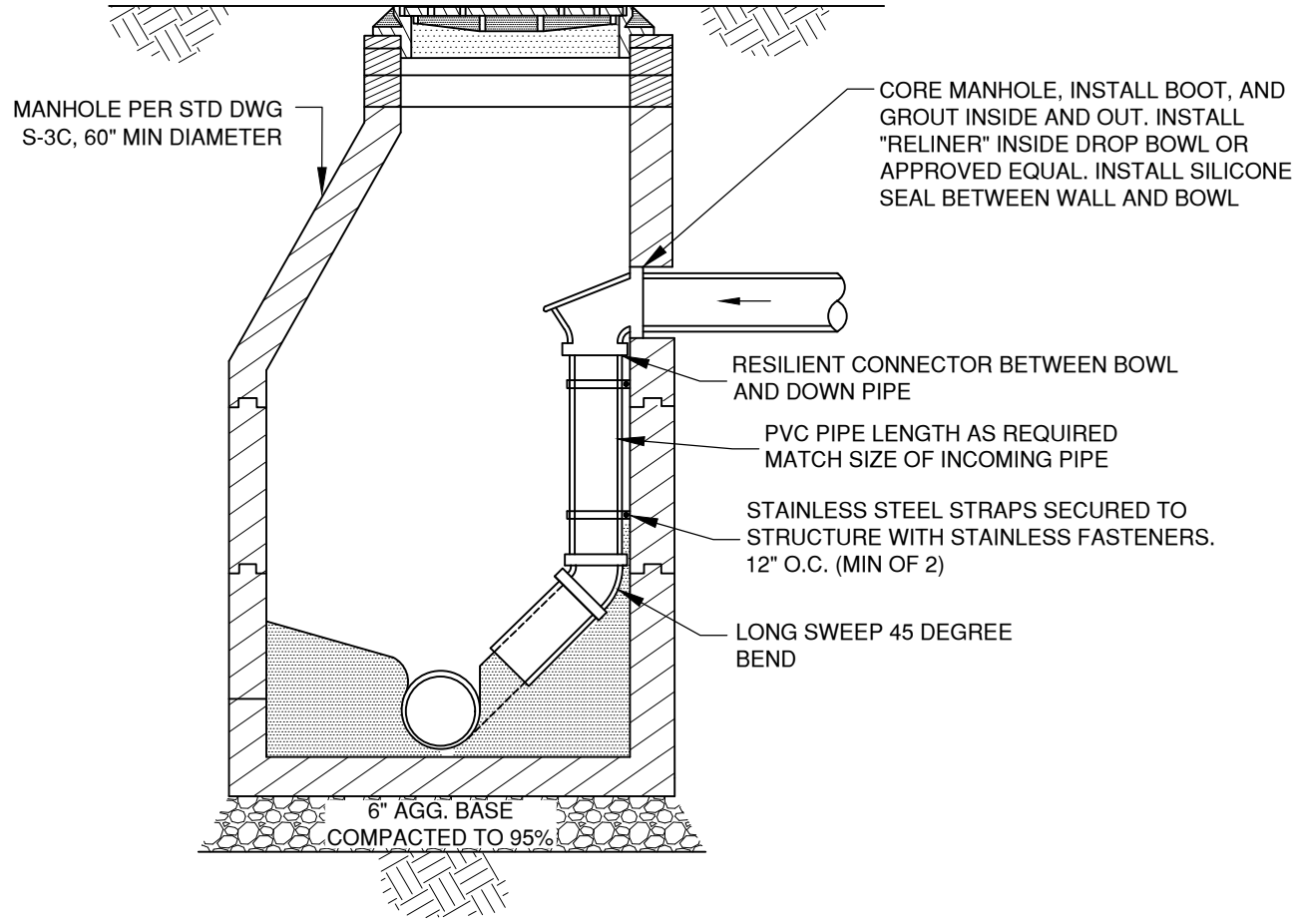


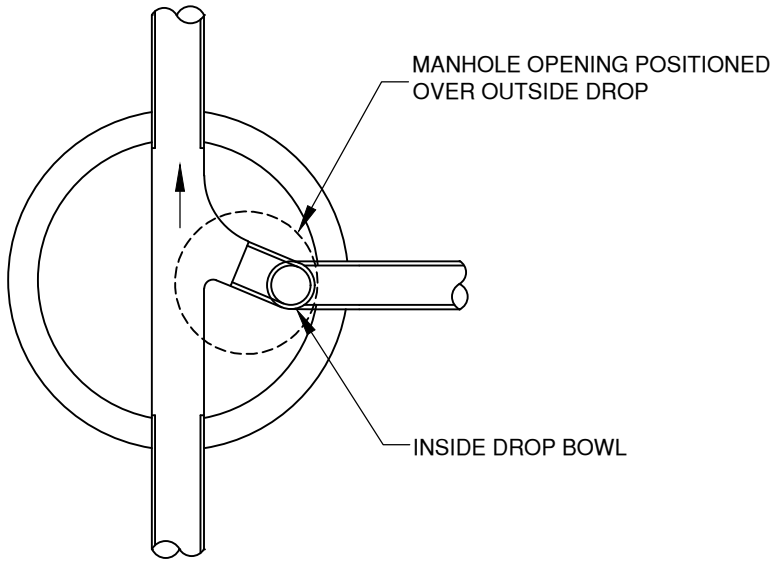


GENERAL NOTES:

1. OUTSIDE DROP MANHOLE FOR USE WITH MAIN SIZE OVER 12" ONLY

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD OUTSIDE DROP - LARGER THAN 12" PIPE	STD DWG S-4

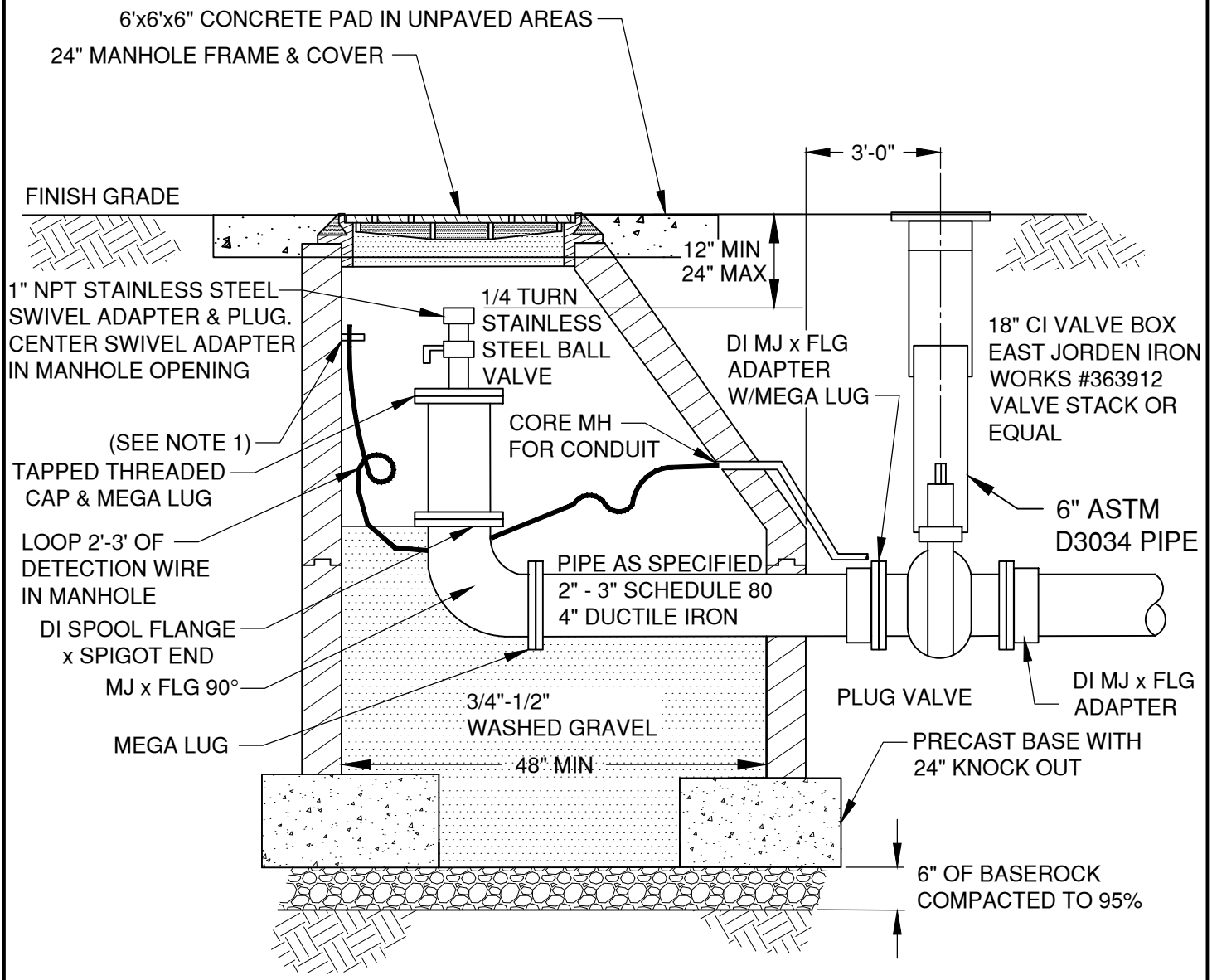




NOTES:

1. INSIDE DROP MANHOLE FOR USE WITH MAIN SIZE 12" AND SMALLER ONLY

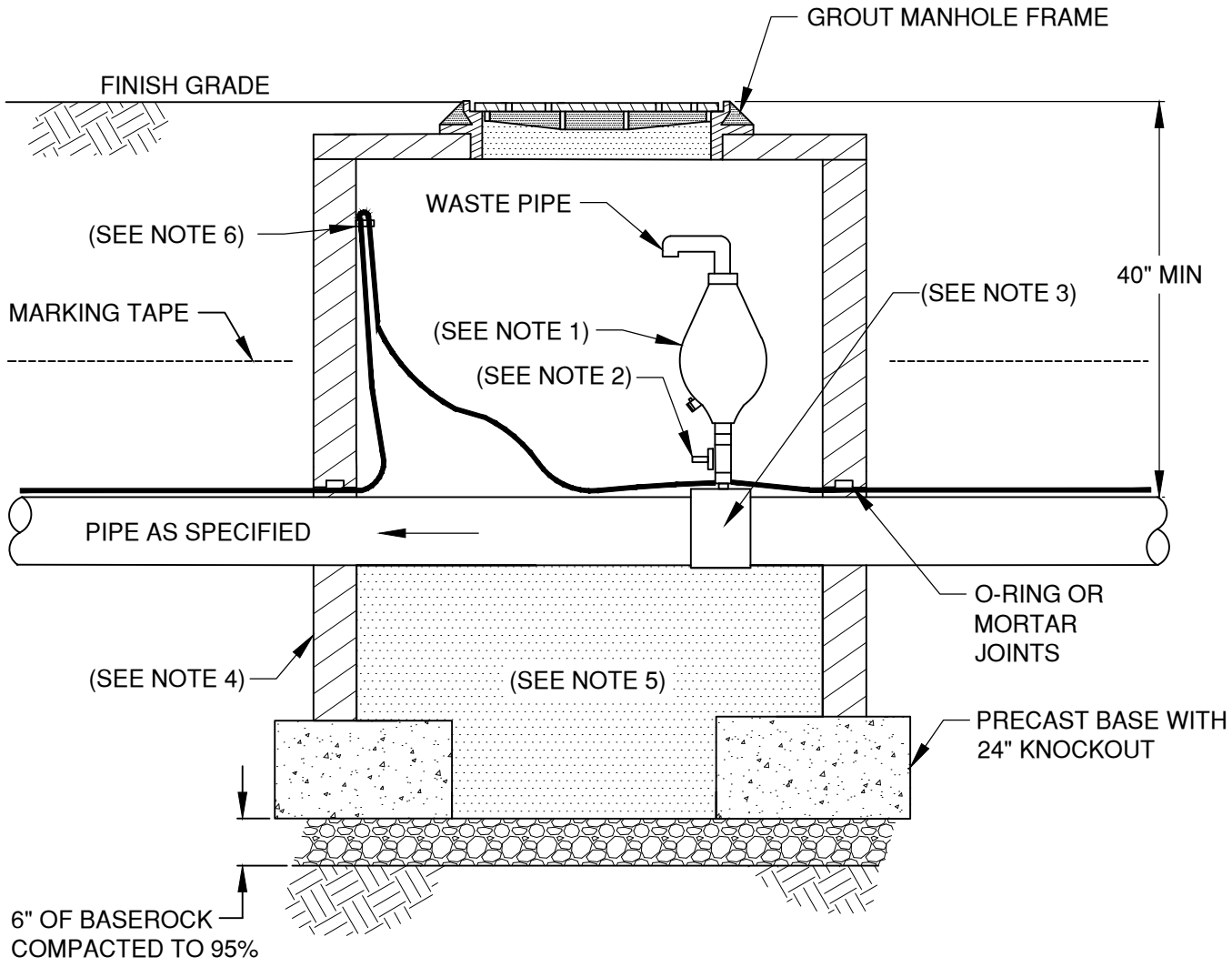
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD INSIDE DROP - 12" PIPE AND SMALLER	STD DWG S-4A



NOTES:

1. TRACER WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

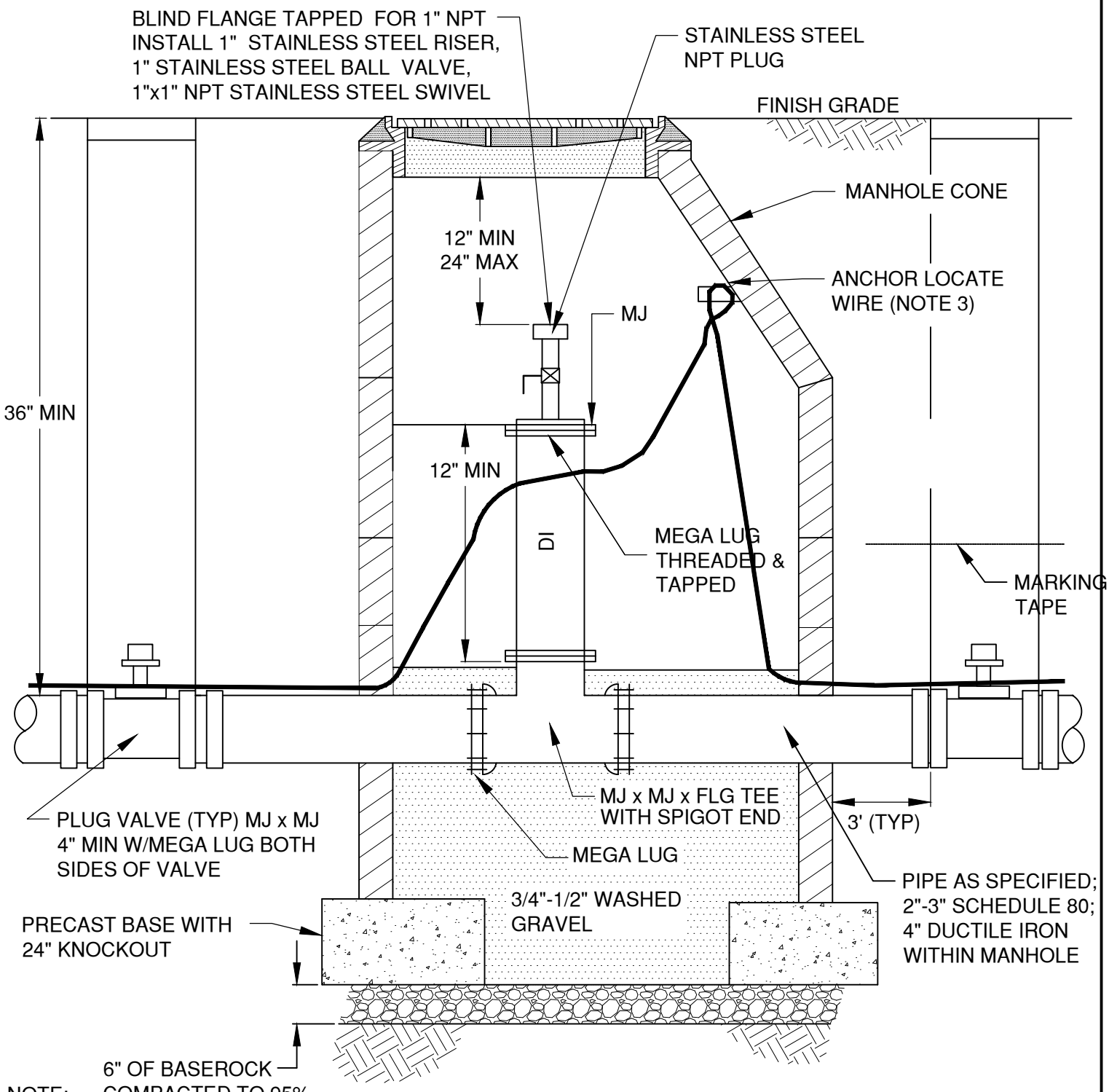
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		3" & 4" PRESSURE SEWER LINE TERMINATION CLEANOUT	STD DWG S-5



NOTES:

1. 2" COMBINATION AIR VALVE(SHORT VERSION) PER. 00445.11(I)(2)(d)
2. 2" STAINLESS STEEL BALL VALVE
3. 2" TEE OR 2" SADDLE TEE AS APPROVED FOR PRESSURE APPLICATIONS
4. 48" DIAMETER FLAT TOP MANHOLE.
5. 3/4"-1/2" WASHED GRAVEL
6. TRACER WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

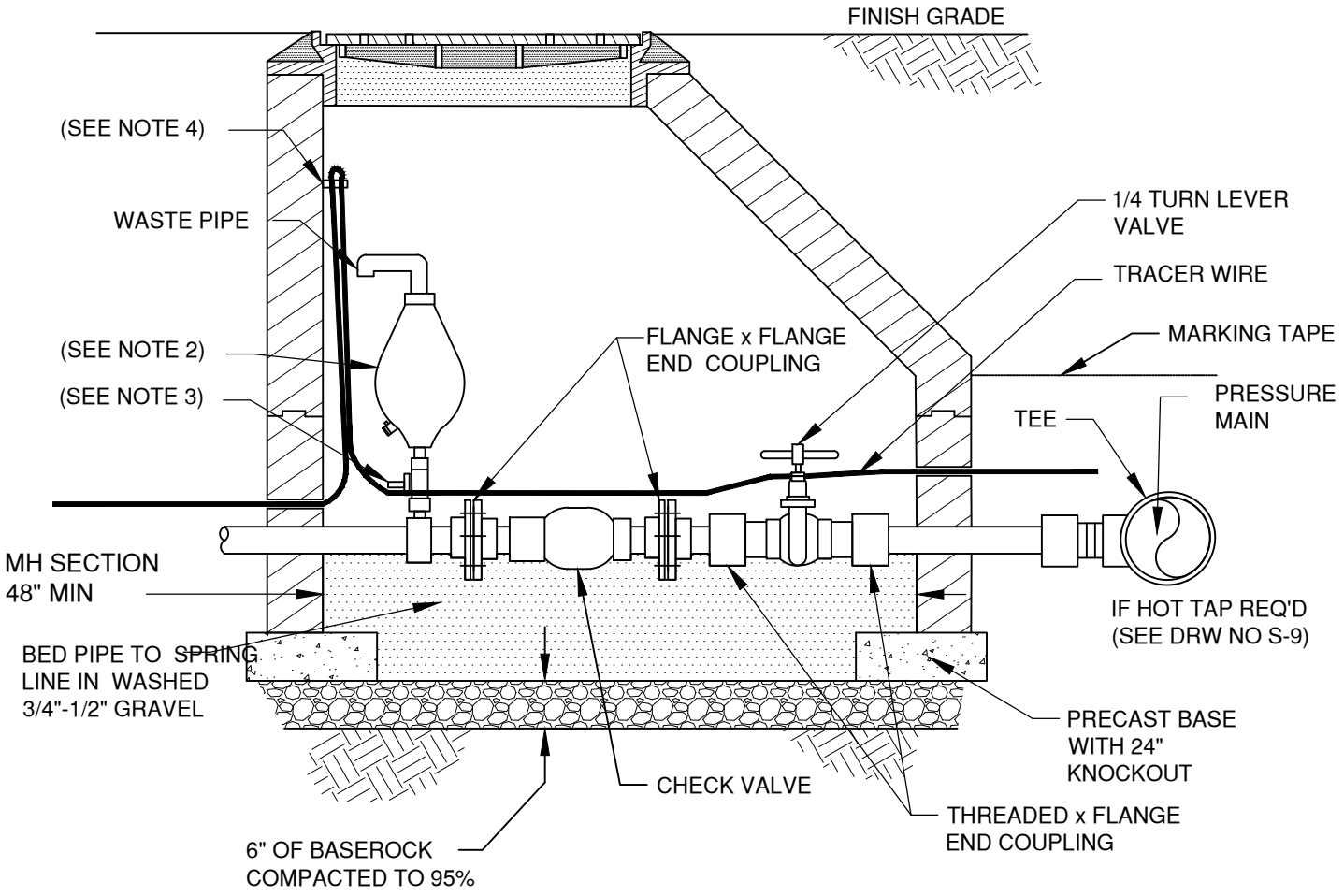
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		AIR RELEASE/VAC BREAKER PRESSURE SEWER MH	STD DWG S-6



NOTE:

1. ALL DUCTILE IRON FITTINGS THROUGH MANHOLE
2. 48" MINIMUM DIAMETER MANHOLE
3. TRACER WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

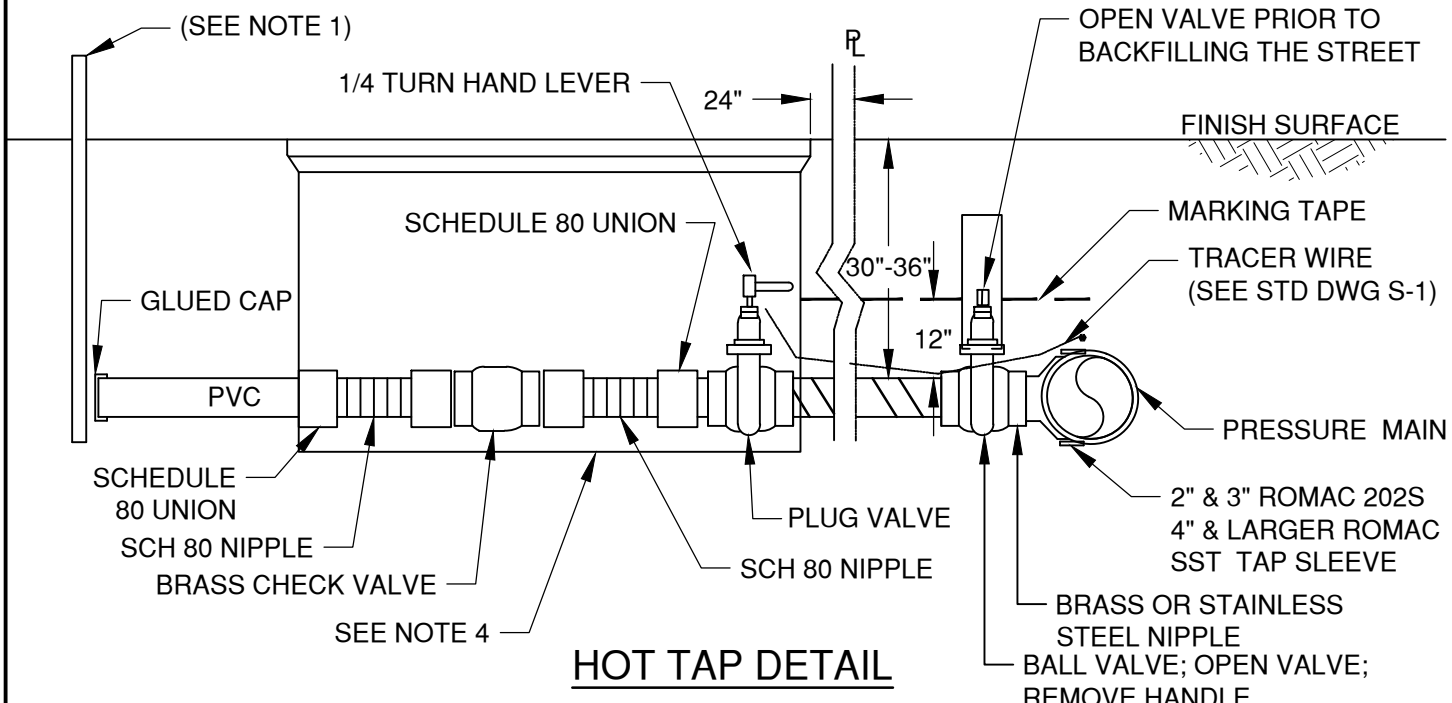
DRAWN AJD	CITY OF BEND		SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	MAIN LINE CLEANOUT PRESSURE SEWER	STD DWG S-7



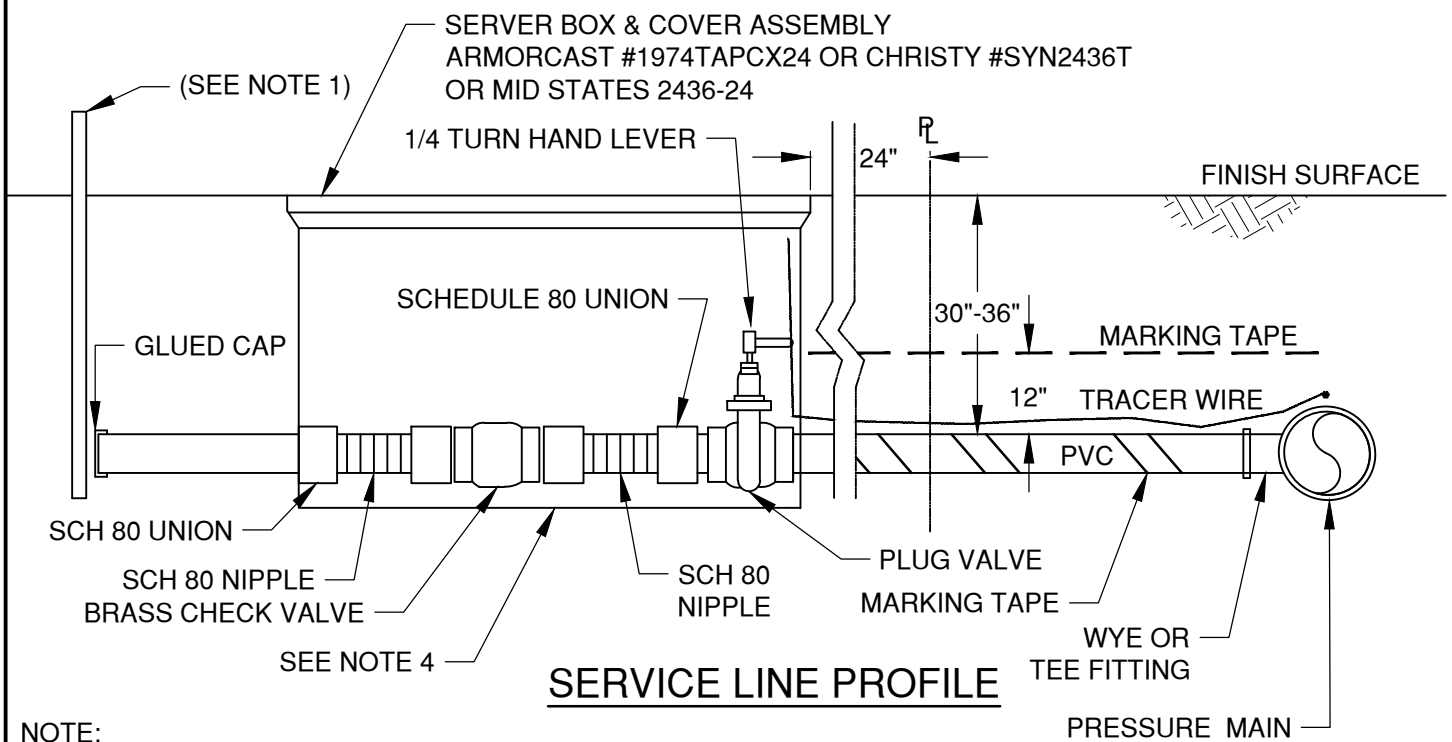
TYPICAL INSTALLATION IN TRAFFIC AREA

NOTE:
1. SHOWN WITH PLUG VALVE IN ENCLOSURE
2. 2" COMBINATION AIR VALVE (SHORT VERSION) PER. 00445.11(l)(2)(d)
3. 2" STAINLESS STEEL BALL VALVE
4. TRACER WIRE SHALL BE EXTENDED WITHIN 18-INCHES OF FINISHED GRADE OR 6" BELOW LOWEST GRADE RING, WHICH EVER IS GREATER, TO A 1.75-INCH STAINLESS STEEL RUBBER CUSHIONED CLAMP MOUNTED TO MANHOLE WITH AS MIN 1/4" X 1-3/4" CONCRETE ANCHOR SCREW.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PRESSURE SEWER SERVICE - TRAFFIC AREA	STD DWG S-8



HOT TAP DETAIL

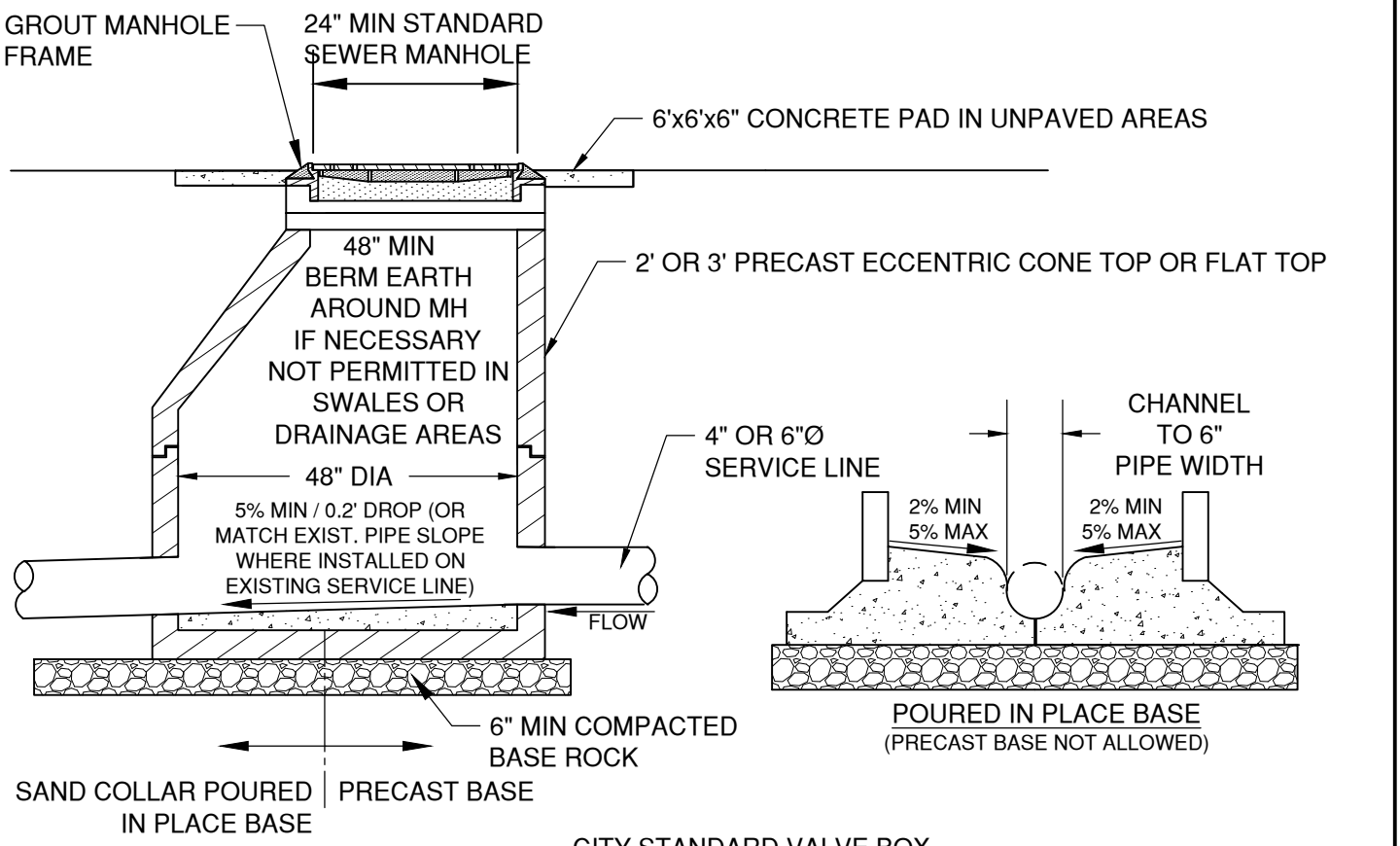


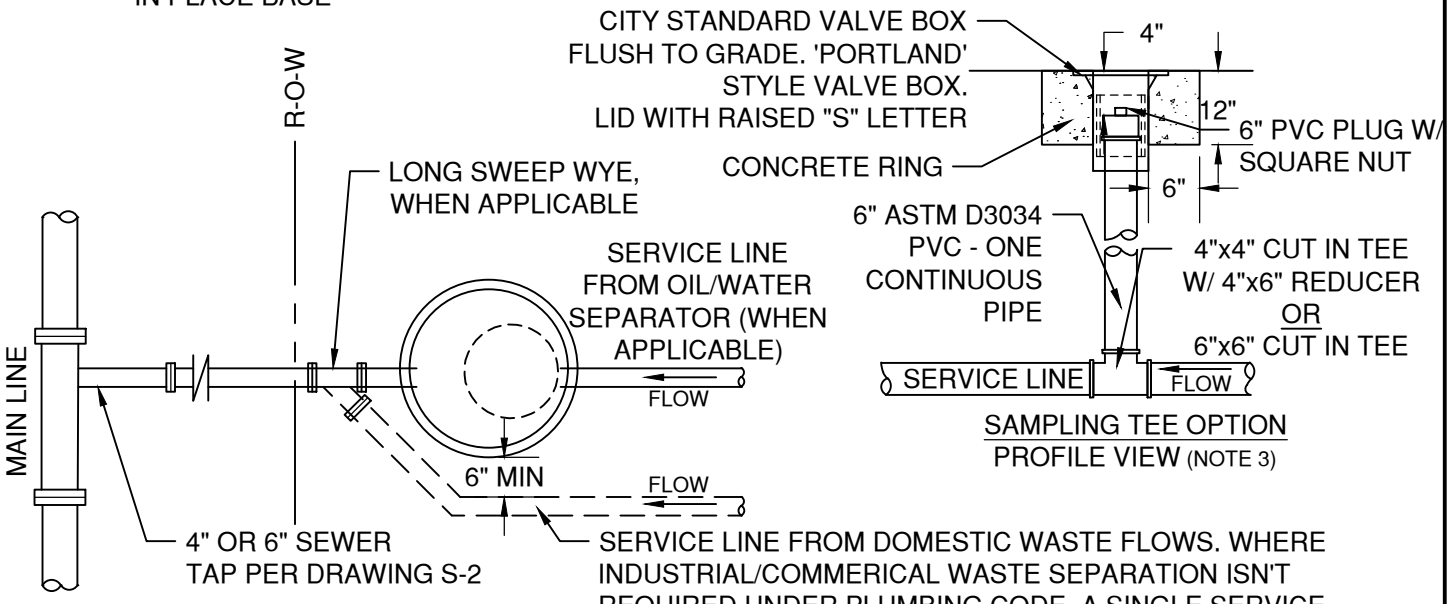
SERVICE LINE PROFILE

NOTE:

1. 2x4 SERVICE MARKER TO FULL DEPTH OF TRENCH. PROJECT END 2FT MINIMUM ABOVE FINISH GRADE & PAINT GREEN ALL AROUND
2. SERVICE BOX COVER MARKED "SEWER"
3. CHECK VALVES 3" & LARGER APCO 100. 2" LEGEND T451
4. SERVICE BOX AND ALL APPARATUSES WITHIN ARE PRIVATELY OWNED BUT REQUIRED TO BE INSTALLED WITH PRESSURE SEWER SERVICE

DRAWN AJD	CITY OF BEND		SCALE NTS
DIV SANITARY	STANDARD DRAWING		DATE 01/31/2022
REV DATE	710 NW WALL ST., BEND, OREGON 97701		APPR
CITY OF BEND	PRESSURE SEWER SERVICE - NON TRAFFIC AREA		STD DWG S-9

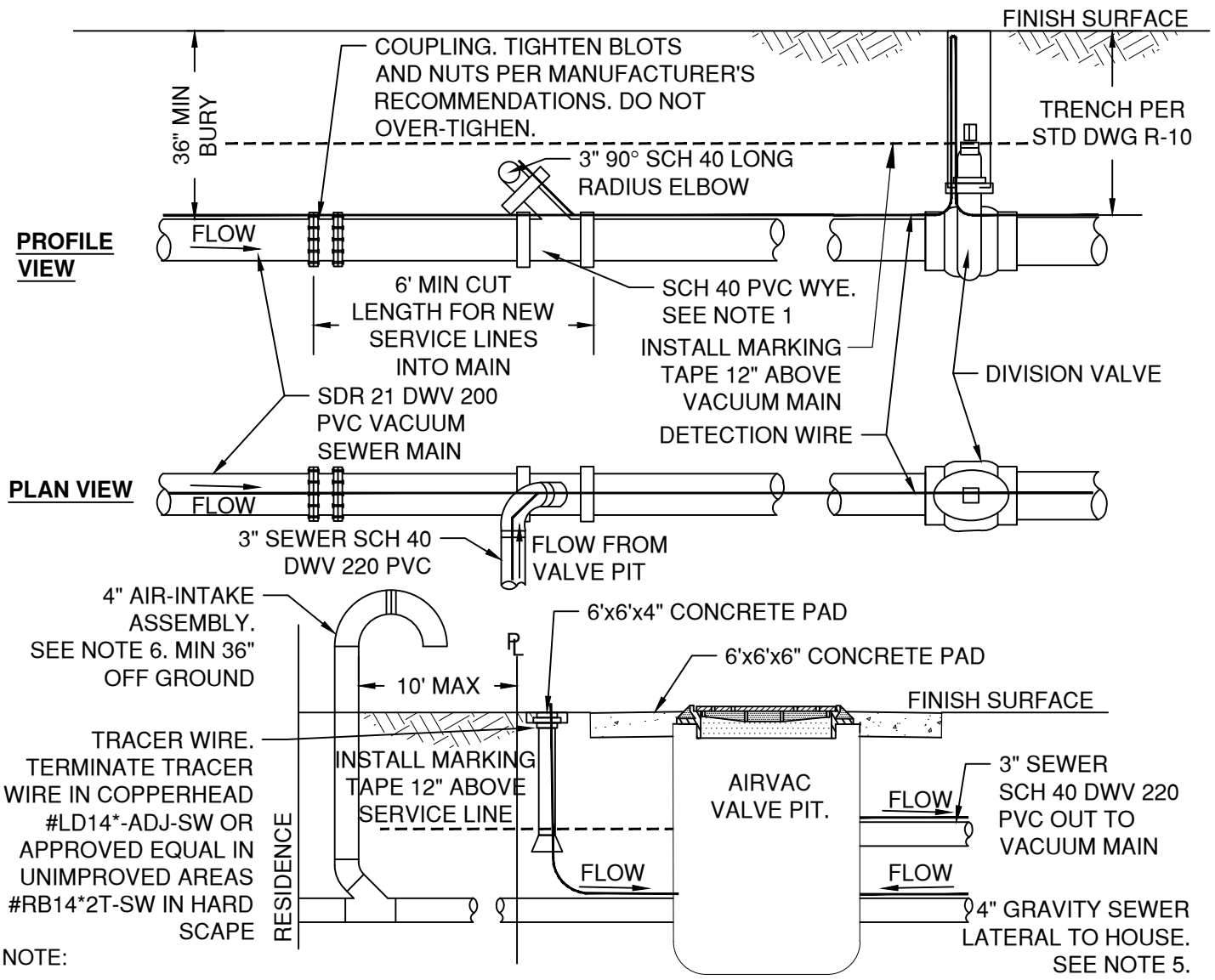




NOTES:

1. MULTIPLE SERVICE LINES SHALL CONNECT UPSTREAM AND OUTSIDE THE SAMPLE MANHOLE
2. SAMPLE MANHOLE TO BE LOCATED ON PRIVATE PROPERTY IN AN ACCESSIBLE AREA.
3. SAMPLING TEE OPTION IS ONLY PERMITTED WHEN APPROVED BY THE CITY ENGINEER AND ARE INTENDED FOR RETROFITS ON EXISTING SYSTEMS ONLY. CONSIDERED IN SITUATIONS WHERE EXISTING UTILITIES OR EASEMENTS PREVENT THE INSTALLATION OF MANHOLE.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	INDUSTRIAL AND COMMERCIAL SERVICES SAMPLING MH	STD DWG S-15



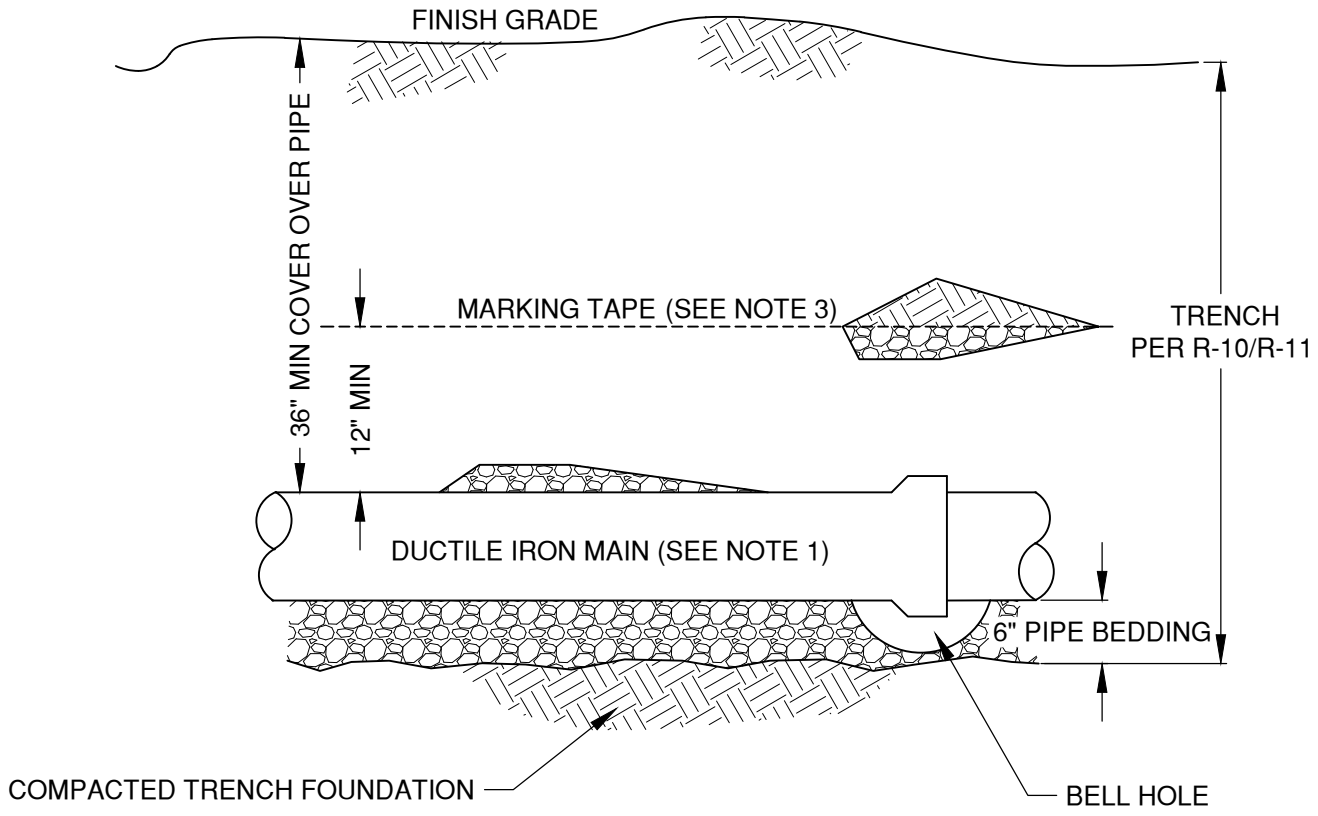
NOTE:

1. ALL WORK DONE ON A VACUUM SEWER SHALL BE COORDINATED WITH PUBLIC WORKS 7 DAYS IN ADVANCE TO COORDINATE VACUUM STATION SHUT DOWN.
2. ALL JOINTS TO BE CONNECTED USING STANDARD PRIMER AND SOLVENT CEMENT. KEEP ALL JOINTS CLEAN AND FREE OF DEBRIS. JOINTS TO BE SCH40 DWV 220 OR APPROVED EQUAL.
3. AFTER INSTALLATION IS COMPLETE, OPEN DIVISION VALVE AND PERFORM VISUAL AND AUDIBLE INSPECTION OF EACH JOINT FOR LEAKS PRIOR TO TRENCH CLOSURE.
4. TRENCH BACKFILL TO BE IN ACCORDANCE TO S-1. MARKING TAPE AND TRACER WIRE TO BE INSTALLED ON ALL MAINS AND SERVICES.
5. INSTALL GRAVITY SEWER LATERALS IN CONFORMANCE WITH PLUMBING CODE. SERVICE LINE FROM THE PIT TO THE HOUSE IS OWNED AND MAINTAINED BY PROPERTY OWNER. CONNECTIONS TO THE AIRVAC VALVE PIT SHALL BE MADE AS PER MANUFACTURER'S SPECIFICATION.
6. AIR-INTAKE SHALL BE INSTALLED IN CONFORMANCE TO THE PLUMBING CODE AND SHALL BE PERMITTED WITH THE BUILDING DEPARTMENT UNDER A PLUMBING PERMIT.
7. PIT TO BE INSTALLED OUTSIDE OF SIDEWALK AND APRON SURFACES IN ROW OR CITY EASEMENT.
8. ALL WORK SHALL CONFORM TO AIR VAC SPECIFICATIONS. NO MORE THAN TWO SERVICES MAY CONNECT TO A ONE VACCUM PIT.
9. CONNECTION AVAILABILITY TO VALVE PIT TO BE DETERMINED BY THE CITY ENGINEER BASED ON MANUFACTURERS ALLOWABLE FLOW INTO PIT AND THE VACUUM SYSTEM.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV SANITARY		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		VACUUM SEWER SERVICE	STD DWG S-16

CITY OF BEND STANDARD DRAWINGS

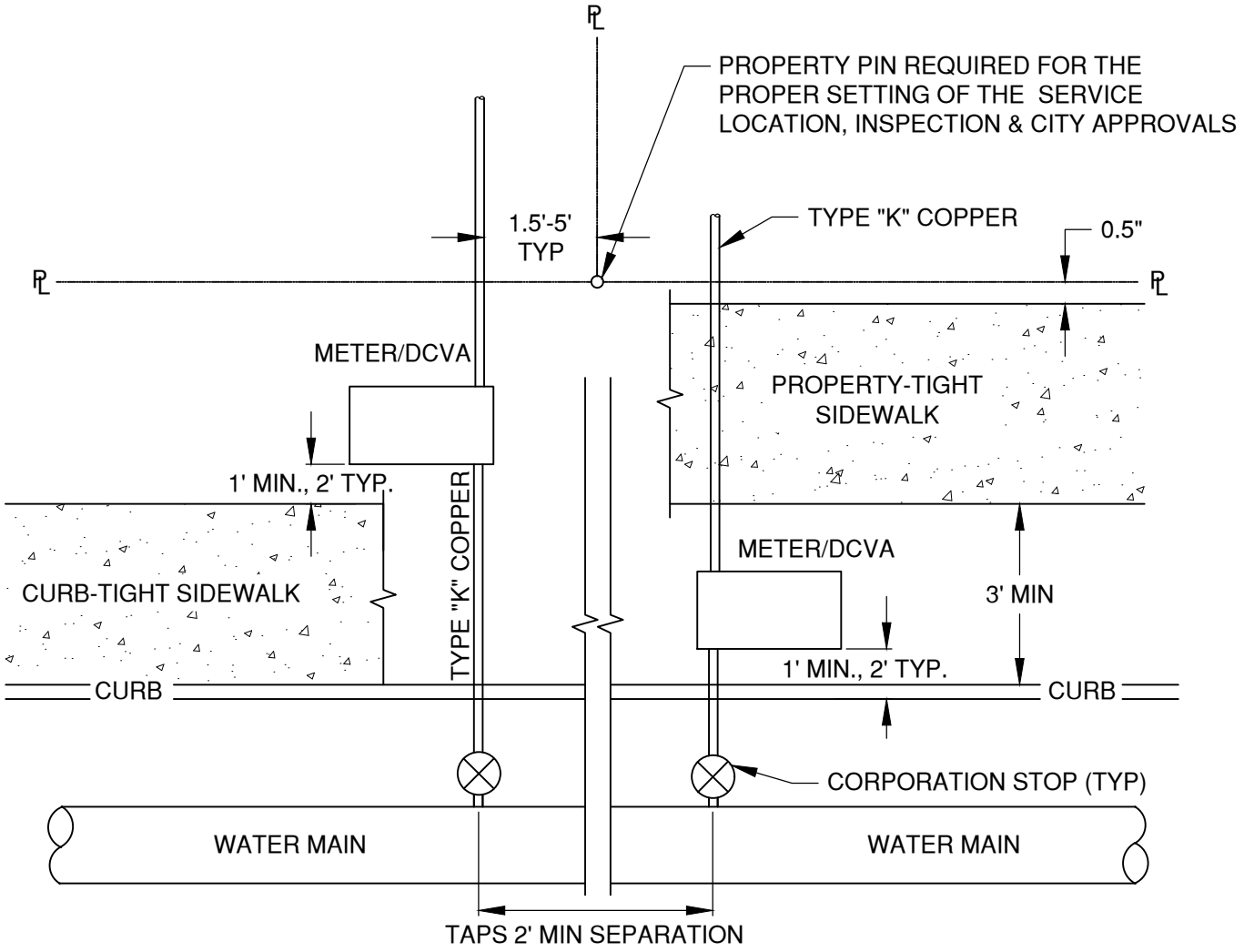
Water (W)



NOTES:

1. REFER TO SPECIFICATION SECTION 01140.41 FOR APPROVED PUSH-ON AND MECHANICAL JOINT RESTRAINT SYSTEMS.
2. WOOD BLOCKING IS NOT PERMITTED IN THE BACKFILLED TRENCH.
3. INSTALL MARKING TAPE ON ALL MAINS AND SERVICES PER SPECIFICATION SECTION 01140.10 AND 01140.45.
4. WHEN INSTALLING A WATER LINE THAT CROSSES BELOW OR WITHIN 18 INCHES ABOVE A NON-POTABLE LINE, FOLLOW OAR 333-061-0050(9). ALL NON-POTABLE LINES SHALL BE TREATED AS "SEWER" LINES AS DESCRIBED IN OAR 333-061-0050(9).
5. COMPACTION SHALL MEET REQUIREMENTS OF SPECIFICATION SECTION 00405.46(c)

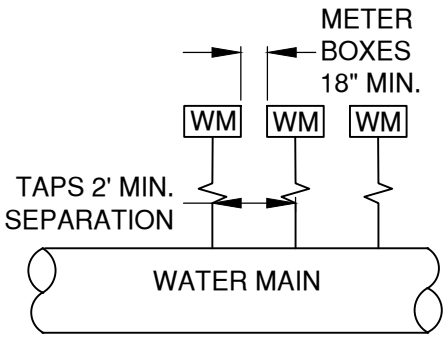
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		WATER MAIN TYPICAL PROFILE	STD DWG W-1



TWO SERVICES SHARING ONE DITCH AT PROPERTY LINE

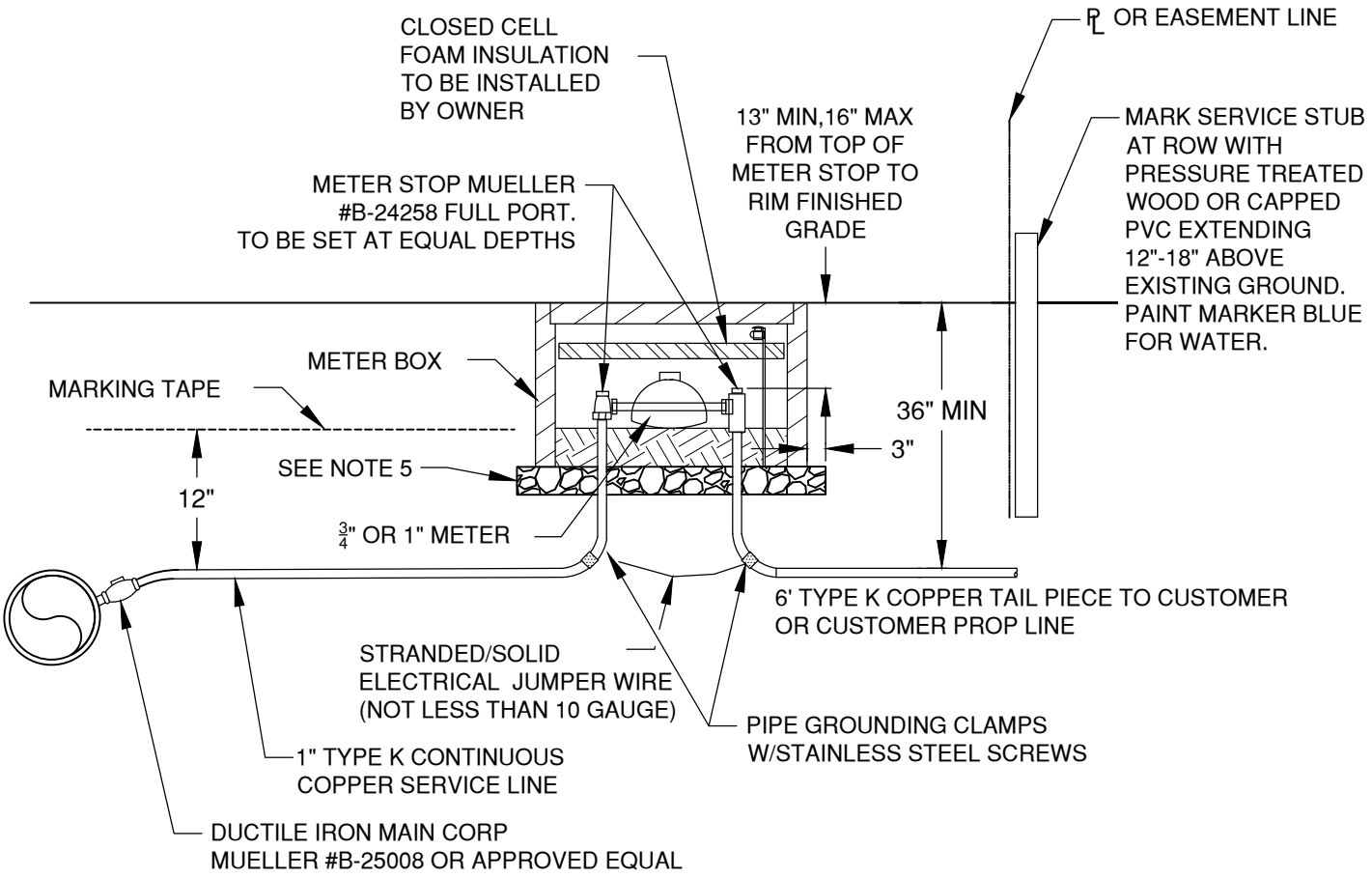
NOTE:

1. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS, NOT IN HARDSCAPE (I.E. SIDEWALKS& DRIVEWAYS). EXCEPTIONS REQUIRE APPROVAL OF CITY ENGINEER
2. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES.
3. METER SHALL MATCH SERVICE LINE SIZE OR ONE SIZE SMALLER.
4. A 1" TAP NEAR A BELL SECTION SHALL BE SEPARATED FROM THE BELL BY A MINIMUM OF 2'. TAPS LARGER THAN 1" IN SIZE SHALL BE SEPARATED FROM THE BELL BY A MINIMUM OF 3'.
5. WHERE METERS ARE PLACED IN METER BANKS, A PERMANENT ADDRESS TAG PROVIDED BY THE CONTRACTOR SHALL BE PLACED ON THE METER BOX PRIOR TO 1 YEAR WARRANTY RELEASE.
6. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE PRIOR TO THE METER BEING SET.
7. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.



MULTIPLE METER BANK

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		RESIDENTIAL WATER SERVICE INSTALLATION	STD DWG W-4

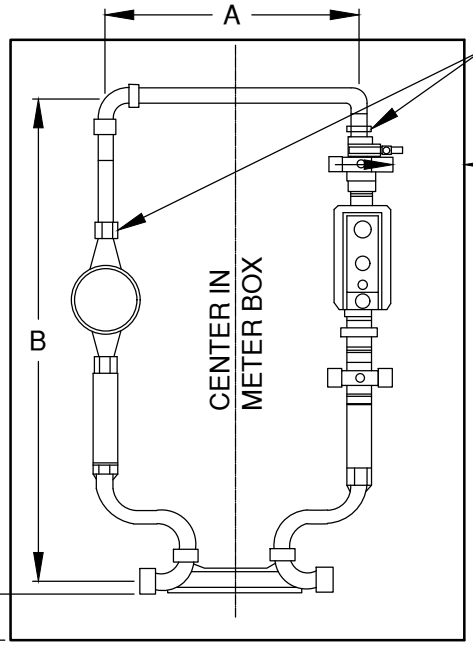


TYPICAL SERVICE

NOTES:

1. RESIDENTIAL METER BOXES SHALL BE SET PARALLEL W/THE CURB LINE AND SHALL NOT BE INSTALLED WITHIN SIDEWALK OR PAVED AREAS
2. JUMPER SIZE 1" METER SETTER - 1 1/4"x11" SCHEDULE 80 THREADED NIPPLE (DOMESTIC) DRILLED TO PREVENT FLOW
3. METERS ARE TO BE THE SAME SIZE AS THE SERVICE LINE OR ONE SIZE SMALLER.
4. IF AN EXISTING BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. METER SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION	STD DWG W-4A



METER COUPLING WITH
SADDLE METER NUT (TYP)

4-6" MIN. BETWEEN METER STOP
AND METER BOX

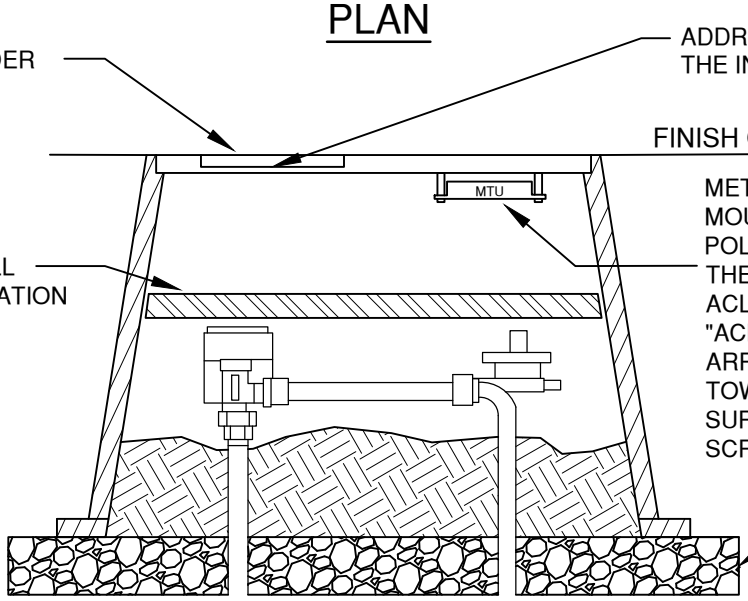
BACKFLOW-WATTS 007 SERIES
3/4" OR 1"

	A	B
3/4"	5"	19 1/4"
1"	6"	22"

7" +/- 1" MEASURED
FROM TOP OF BOX

METER SETTER BAR TO REPLACE
EXISTING JUMPER

PLAN



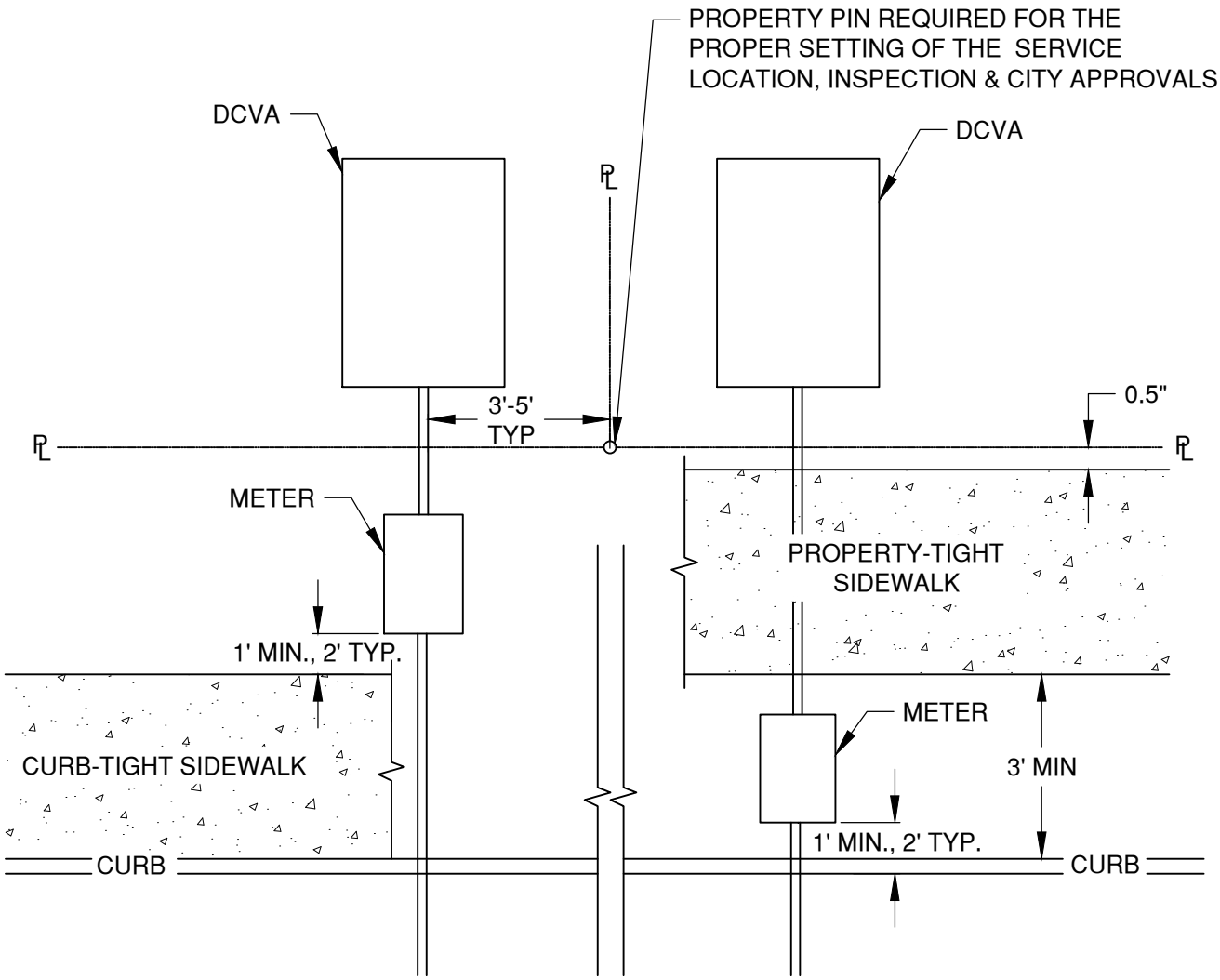
SECTION

OFFSET METER "LOOP" WITH BACKFLOW PREVENTION ASSEMBLY

NOTES:

1. RESIDENTIAL METER BOXES SHALL BE SET PARALLEL W/THE CURB LINE AND SHALL NOT BE INSTALLED WITHIN SIDEWALK OR PAVED AREAS
2. JUMPER SIZE 1" METER SETTER - 1 1/4"x11" SCHEDULE 80 THREADED NIPPLE (DOMESTIC) DRILLED TO PREVENT FLOW
3. WHERE METER BOXES ARE INSTALLED IN A METER BANK, A BRASS OR STAINLESS STEEL TAG/PLAQUE SHALL BE MOUNTED TO THE INSIDE METER DOOR WITH THE LOT ADDRESS STAMPED PRIOR TO 1 YEAR WARRANTY RELEASE.
4. IF THE METER ASSEMBLY/BOX OR SERVICE LINE IS DAMAGED DURING CONSTRUCTION/SITE IMPROVEMENT ACTIVITIES, DURING THE WARRANTY PERIOD, OR IF THE EXISTING METER BOX OR SERVICE LINE DOES NOT MEET CURRENT CITY STANDARDS, THE DEVELOPER/PROPERTY OWNER SHALL UPGRADE THE COMPONENTS OF THE SERVICE THAT IS OUT OF CONFORMANCE.

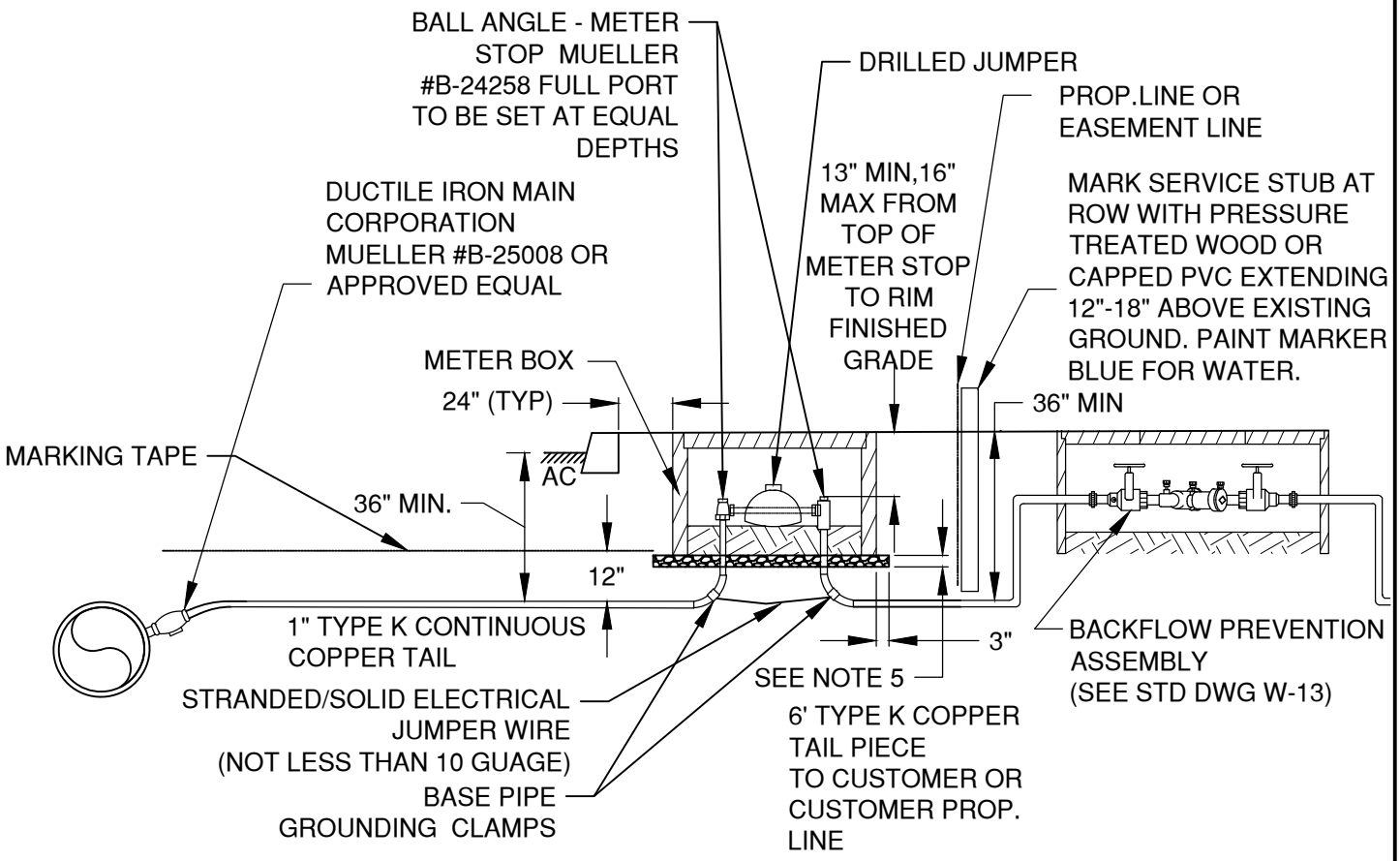
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		3/4"-1" RESIDENTIAL METER SERVICE INSTALLATION	STD DWG W-4B



NOTES:

1. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK VALVE ASSEMBLY TO BE LOCATED ON PRIVATE PROPERTY.
2. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS WHEN POSSIBLE, SEE STD DWG W-5E FOR LOCATING METER BOX IN HARD SURFACE.
3. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES. ALL TREE WELLS SHALL BE A MINIMUM 6 FEET FROM THE METER BOX INSTALLATION.
4. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON PRIVATE PROPERTY.
5. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
6. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		COMMERCIAL & IRR METER SERVICE INSTALLATION	STD DWG W-5

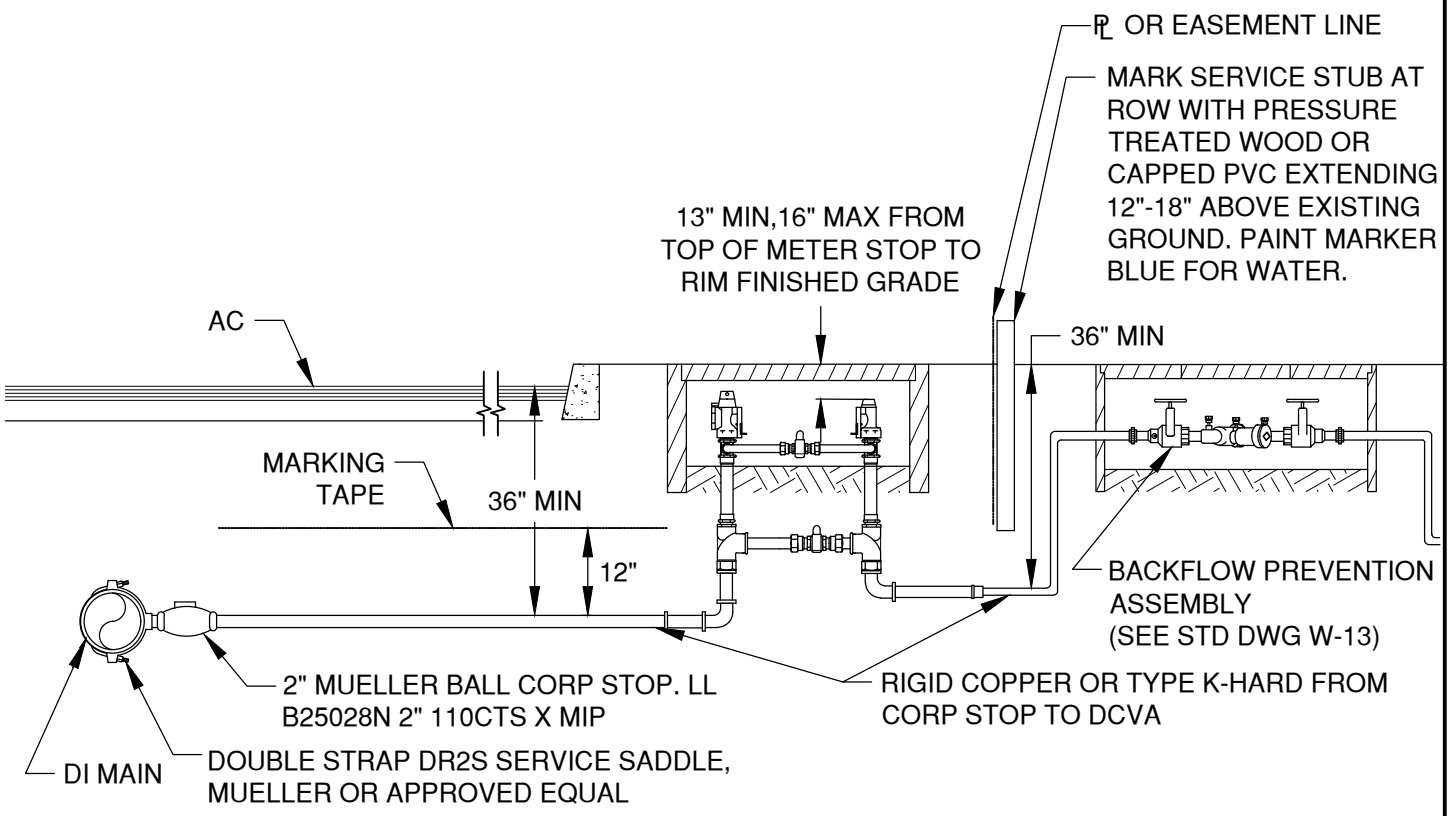


TYPICAL 1" SERVICE WITH METER

NOTES:

1. COMMERCIAL METERS NOT TO BE LESS THAN 1-INCH. METER SIZE TO MATCH SERVICE LINE SIZE.
2. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK VALVE ASSEMBLY TO BE LOCATED ON PRIVATE PROPERTY PER STD DWG W-5.
3. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE.
4. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS, CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY.

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		1" COMMERCIAL & IRR METER SERVICE INSTALLATION	STD DWG W-5A



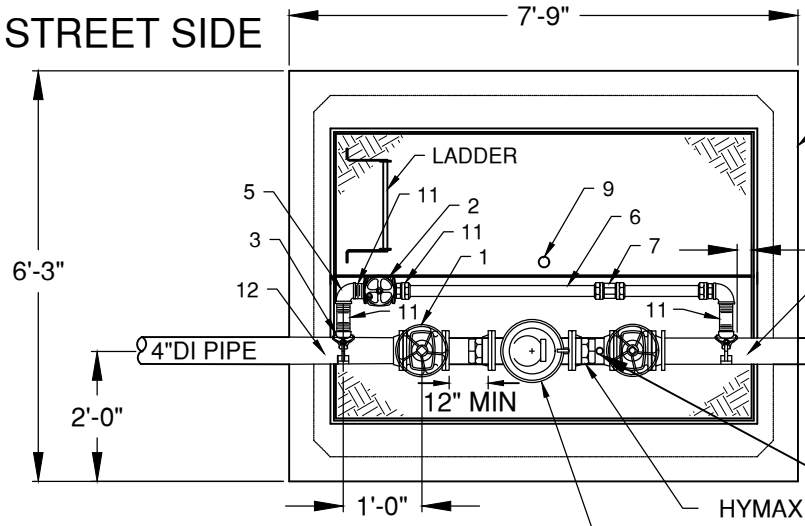
TYPICAL 2" SERVICE WITH 1-1/2" AND 2" METER

NOTES:

1. COMMERCIAL METERS WILL NOT BE SET UNTIL BACKFLOW PREVENTION ASSEMBLY IS IN PLACE
2. COMMERCIAL METER BOXES SHALL BE INSTALLED PERPENDICULAR TO THE CURB LINE WITH DOUBLE CHECK TO BE LOCATED ON PROPERTY
3. ALL METERS LESS THAN 2" WHEN USING A 2" SERVICE LINE ARE TO BE REDUCED WITHIN THE 2" METER SETTER
4. IF AN EXISTING METER BOX, METER, OR HARDWARE WITHIN THE METER BOX DOES NOT MEET CURRENT CITY STANDARDS CORRECTIONS OR REPAIRS SHALL BE MADE TO THE EXISTING SERVICE TO MEET CURRENT CITY STANDARDS PRIOR TO THE METER BEING SET.
5. DOUBLE CHECK ASSEMBLY SHALL BE INSTALLED USING THE UNIFORM BUILDING CODE (UBC) AND SHALL BE LOCATED ON A PRIVATE PROPERTY. THE ABOVE DIAGRAM IS FOR REFERENCE ONLY AND IS SUBJECT TO CHANGE BASED ON A REVIEW BY THE UBC PLANS EXAMINER.
6. METER BOX SHALL BE SET ON 6" MIN CLASS B MATERIAL COMPACTED TO 95% OF MAXIMUM DENSITY

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 1 1/2" & 2" COMMERCIAL AND IRRIGATION METER SERVICE INSTALLATION	SCALE NTS DATE 01/31/2022 APPR STD DWG W-5B

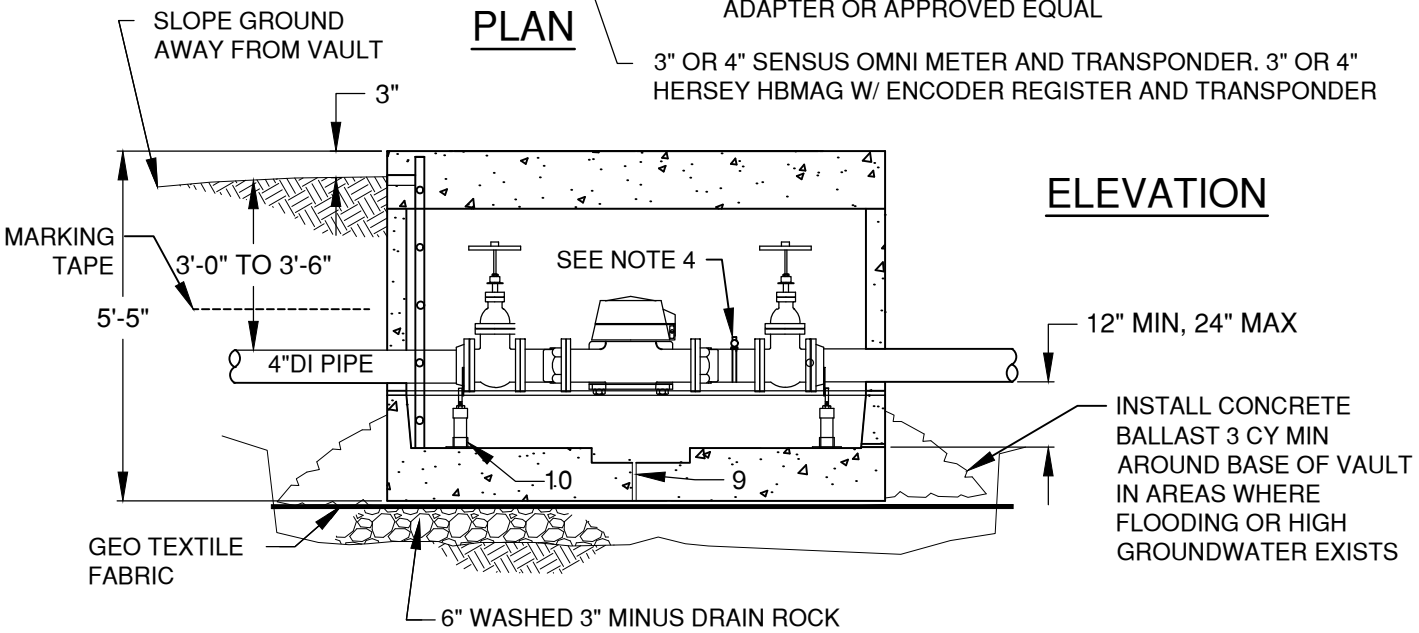
STREET SIDE



CUSTOMER SIDE

WATER METERS SHALL BE WITHIN THE RIGHT OF WAY OR WITHIN CITY WATER EASEMENT ON PRIVATE PROPERTY

PLAN



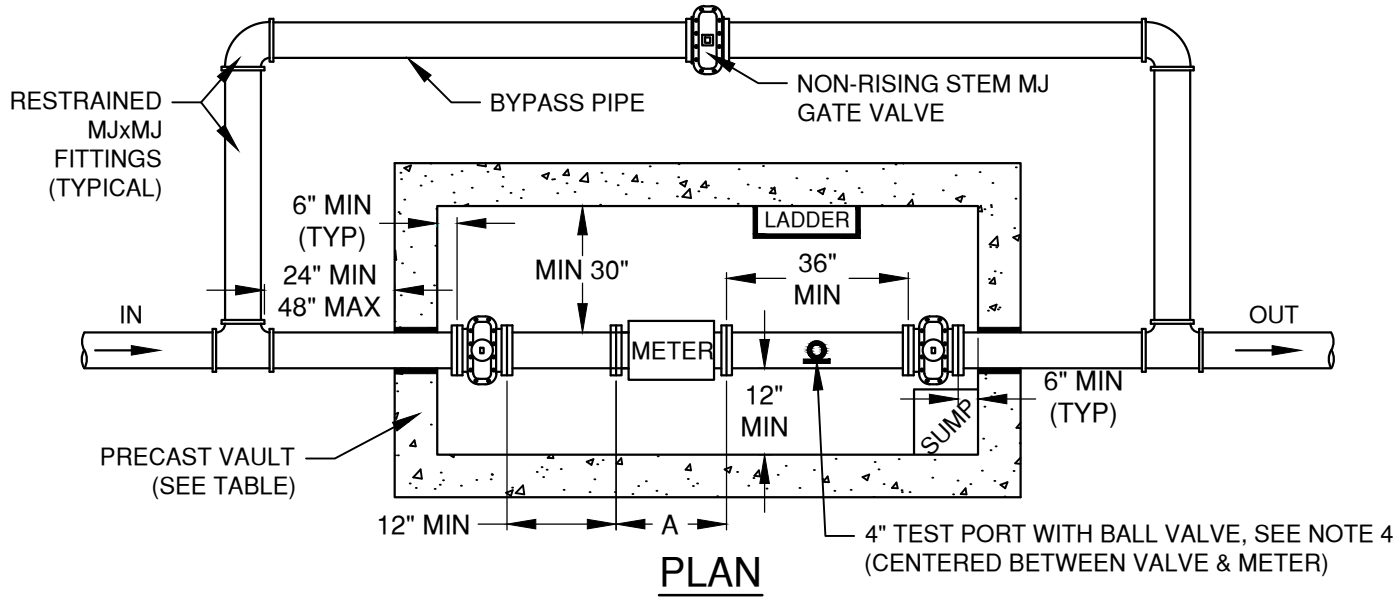
ELEVATION

ITEM	QTY	DESCRIPTION
1	2EA	4"x3" FLG x FLG REDUCER & 3" FLG GATE VALVE WITH HANDWHEEL OR
	2	4"x4" FLG GATE VALVE WITH HANDWHEEL
2	1	2" SE GATE VALVE AWWA C509
3	2	DOUBLE STRAP DR-25 SERVICE SADDLE, MUELLER OR APPROVED EQUAL
5	2	2" BRASS 90° COMP x COMP
6	2	2" TYPE K HARD COPPER PIPE
7	1	2" COMP UNION
8	1	OLD CASTLE 675-WA WITH OPENING FOR BILCO DOOR JD-3AL AND OSHA APPROVED LADDER (SEE STD DWG W-6)
9	1	WEEP HOLE (12"x12"x3" SUMP)
10	2	2" PIPE STAND "STANDON"
11	4	2" MPT x COMP ADAPTER
12	2	4"x3" REDUCER (WHERE 3" METER IS INSTALLED)

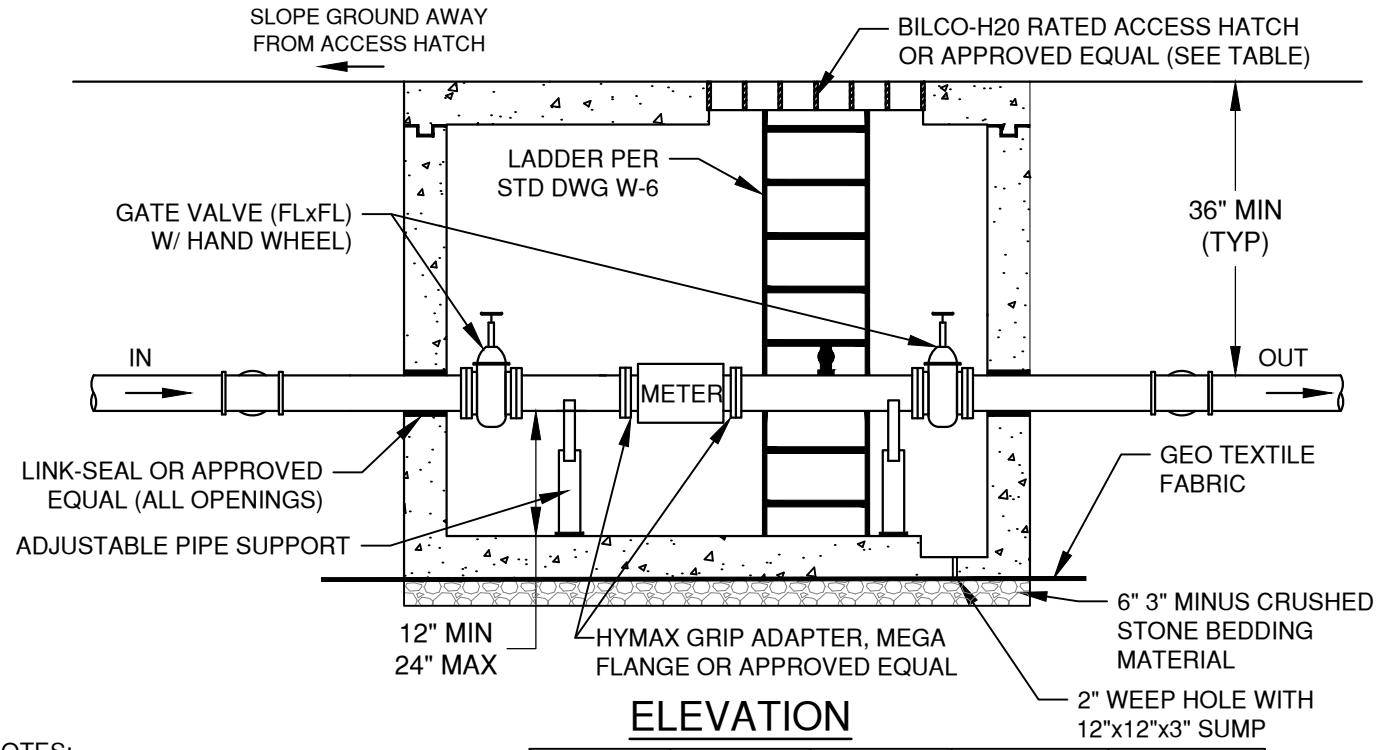
NOTES:

1. SEAL ALL OPENINGS IN VAULT WITH NON SHRINK GROUT
2. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
3. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.
4. WHERE THE METER DOES NOT PROVIDE A TEST PORT, A 2" TEST PORT SHALL BE INSTALLED WITH 2" TAP SADDLE, 2" BRASS BALL VALVE, AND 2" BRASS NIPPLE.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		3" & 4" COMMERCIAL METER INSTALLATION	STD DWG W-5C



PLAN



ELEVATION

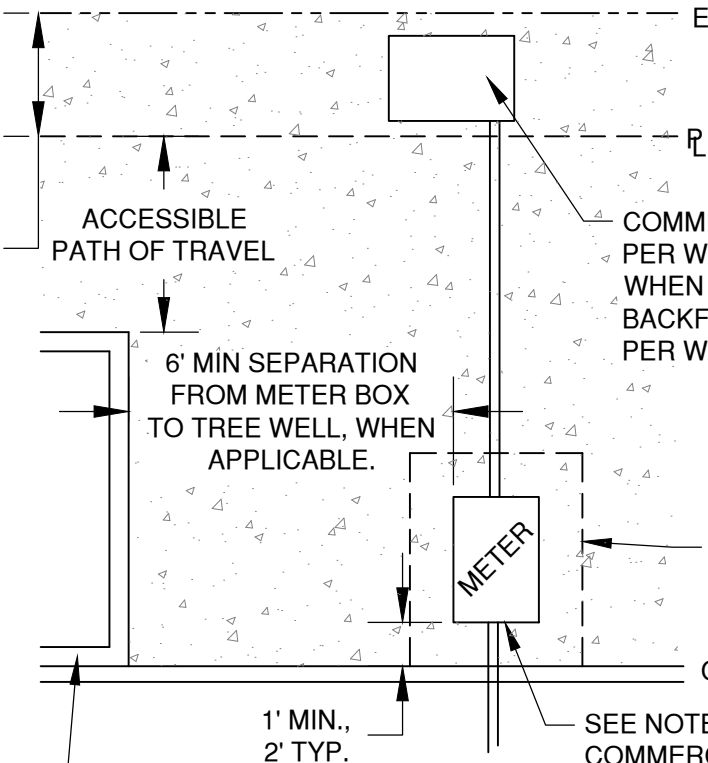
NOTES:

1. CONTRACTOR TO BRING ERT'S TO PUBLIC WORKS FOR INSTALLATION AND INSPECTION
2. ENGINEER TO PROVIDE PIPE RESTRAINT DETAIL ENTERING & EXITING VAULT
3. METER SIZE TO MATCH SERVICE SIZE OR ONE SIZE SMALLER.
4. WHERE THE METER DOES NOT PROVIDE A TEST PORT, A 4" TEST PORT SHALL BE INSTALLED WITH 4" TAPPING SADDLE, 4" BRASS BALL VALVE, AND 4" BRASS NIPPLE.

METER (INCH)	BYPASS (INCHES)	VAULT*	BILCO DOOR	A (INCHES)
6"	4"	810-LA	J-5AL	15"±
8"	6"	810-LA	JD-3AL	17"±
10"	8"	612-LA	JD-3AL	20"±
12"	12"	612-LA	JD-3AL	24"±

* VAULT SIZES MAY VARY BY ENGINEER DESIGN PROVIDE MIN DIMENSIONS ARE MAINTAINED

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
	CITY OF BEND	6" AND LARGER COMMERCIAL METER INSTALLATION	STD DWG W-5D



SIDEWALK INSTALLATION WITHIN 5' PUBLIC ACCESS EASEMENT AS REQUIRED BY BEND CENTRAL DISTRICT. MAY NOT BE APPLICABLE FOR ALL PROJECTS.

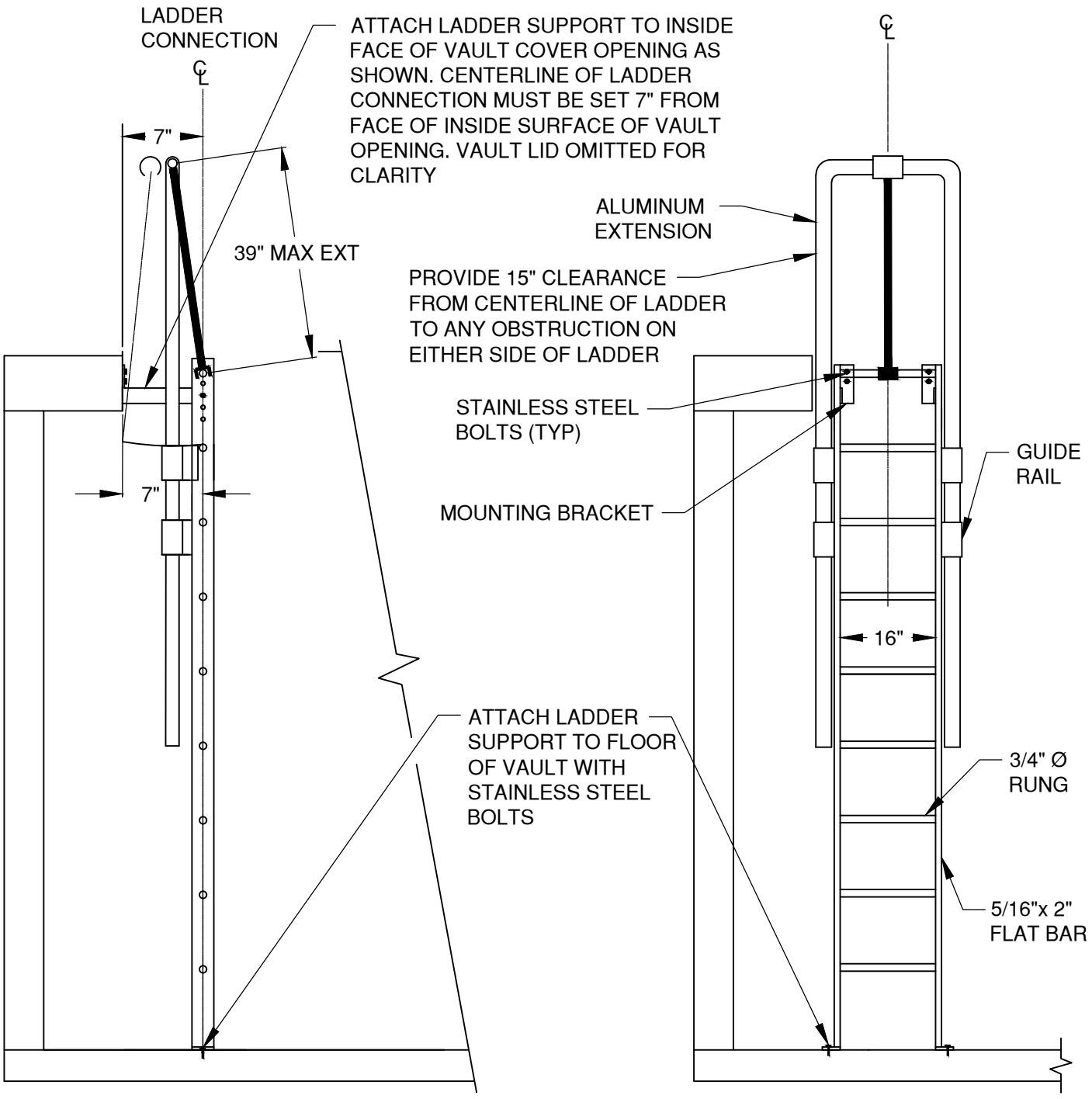
TREE WELL, MIN 4'X9' AS APPLICABLE. REFER TO 12.2.4.1 OF THE CONSTRUCTION DESIGN STANDARDS

TYPICAL INSTALLATION IN THE BEND CENTRAL DISTRICT OR WHERE WIDENED SIDEWALKS ARE REQUIRED BY DEVELOPMENT CODE. METERS TO BE PERMITTED WITHIN HARDSCAPE ONLY WHEN APPROVED BY THE CITY ENGINEER.

NOTE:

1. WATER METER BOXES SHALL BE LOCATED IN LANDSCAPE AREAS WHEN POSSIBLE. IF WATER METER BOX CAN BE LOCATED ON PRIVATE PROPERTY TO REMOVE IT FROM SIDEWALK, A UTILITY EASEMENT SHALL BE GRANTED TO THE CITY TO MAINTAIN THE METER.
2. AN EXPANSION JOINT IN THE SIDEWALK SHALL BE INSTALLED 12-INCH AROUND THE ENTIRE PERIMETER OF THE METER BOX.
3. STATE SPEC BASE ROCK SHALL BE COMPACTED TO 95% IMMEDIATELY BELOW AND FOR A MINIMUM OF 3 FEET AROUND THE METER BOX.
4. BACKFLOW DEVICE SHALL BE INSTALLED ON PRIVATE PROPERTY. WHERE BACKFLOW DEVICES CANNOT BE PLACED WITHIN LANDSCAPE, THE BOX SHALL BE INSTALLED OUTSIDE THE RIGHT OF WAY AND OUTSIDE A PUBLIC UTILITY EASEMENT. INSTALLATION OF BACKFLOW DEVICES WITHIN A BUILDING WILL BE GRANTED ON A CASE BY CASE BASIS BY THE CITY ENGINEER ONLY WHERE IT CAN BE ADEQUATELY SHOWN NOT TO FIT OUTSIDE THE BUILDING (EXAMPLE, THE BACKFLOW DEVICE, AND THEREFORE THE VAULT, IS TOO LARGE TO FIT)
5. SET WATER SERVICES A MINIMUM OF 10' FROM ALL SANITARY, FRANCHISE, STORM, AND ELECTRICAL SERVICES. ALL TREE WELLS SHALL BE A MINIMUM 6 FEET FROM THE METER BOX INSTALLATION.
6. WATER METERS SHALL NOT BE PLACED WITHIN VEHICULAR SURFACES (DRIVEWAYS) WITHOUT CITY ENGINEER APPROVAL.
7. COMMERCIAL WATER METER BOXES TO BE INSTALLED PERPENDICULAR TO THE CURB LINE, SEE STD DWG W-5. RESIDENTIAL WATER METER BOXES TO BE INSTALLED PARALLEL TO THE CURB LINE PER STD DWG W-4

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		METER INSTALLATION IN SIDEWALKS	STD DWG W-5E



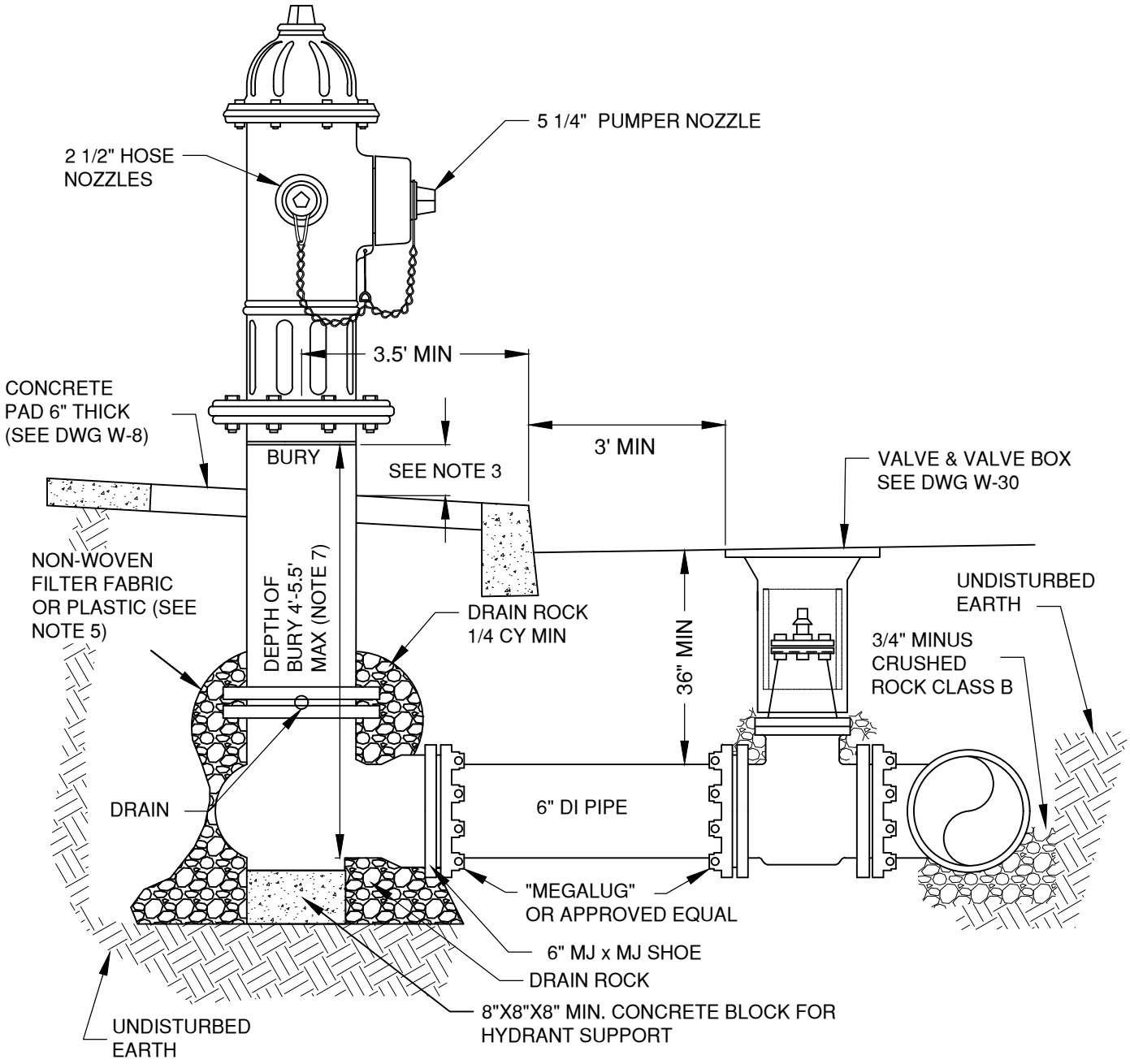
SIDE VIEW

FRONT VIEW

NOTES:

1. GALVANIZED LADDER W/AN ALUMINUM EXTENSION BY OLDCASTLE (OR APPROVED EQUAL) (PER OAR 437, DIV 2, CODE OF FEDERAL REGULATIONS, TITLE 29, CHAPTER XVII PART 1910.27)
2. 5'-4" GALVANIZED LADDER FROM OLDCASTLE TO BE CUT DOWN TO 4'-7" BY CONTRACTOR FOR USE IN VAULT 675-WA. OLDCASTLE TO SUPPLY 49 1/2" ALUMINUM EXTENSION

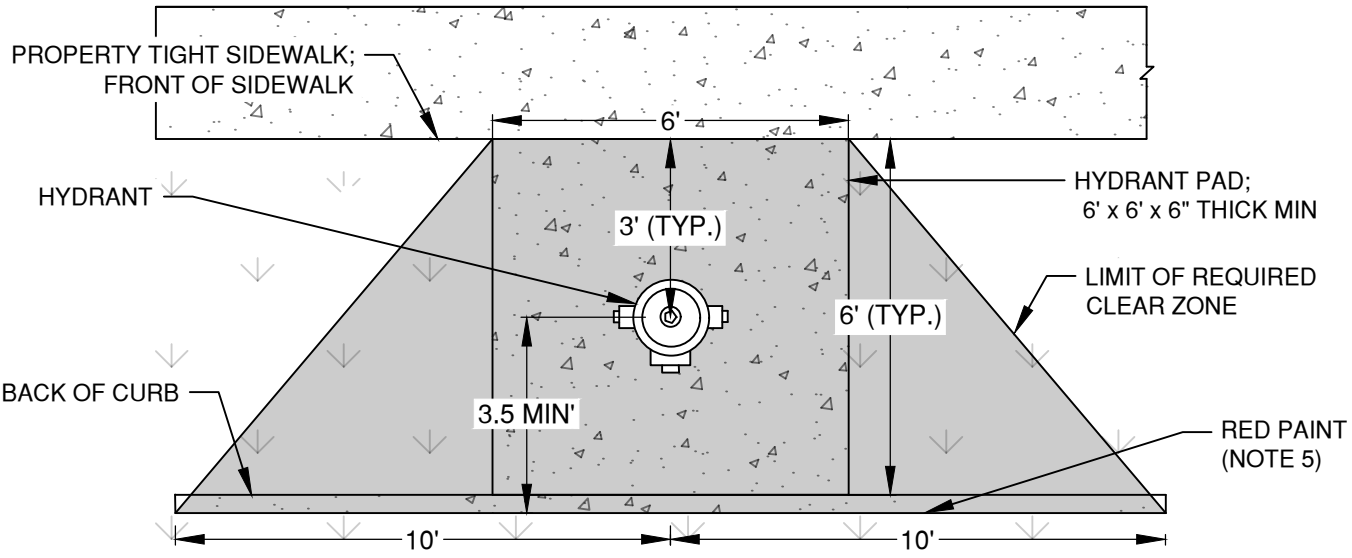
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		GALV. LADDER W/ ALUM EXT FOR WATER VAULTS	STD DWG W-6



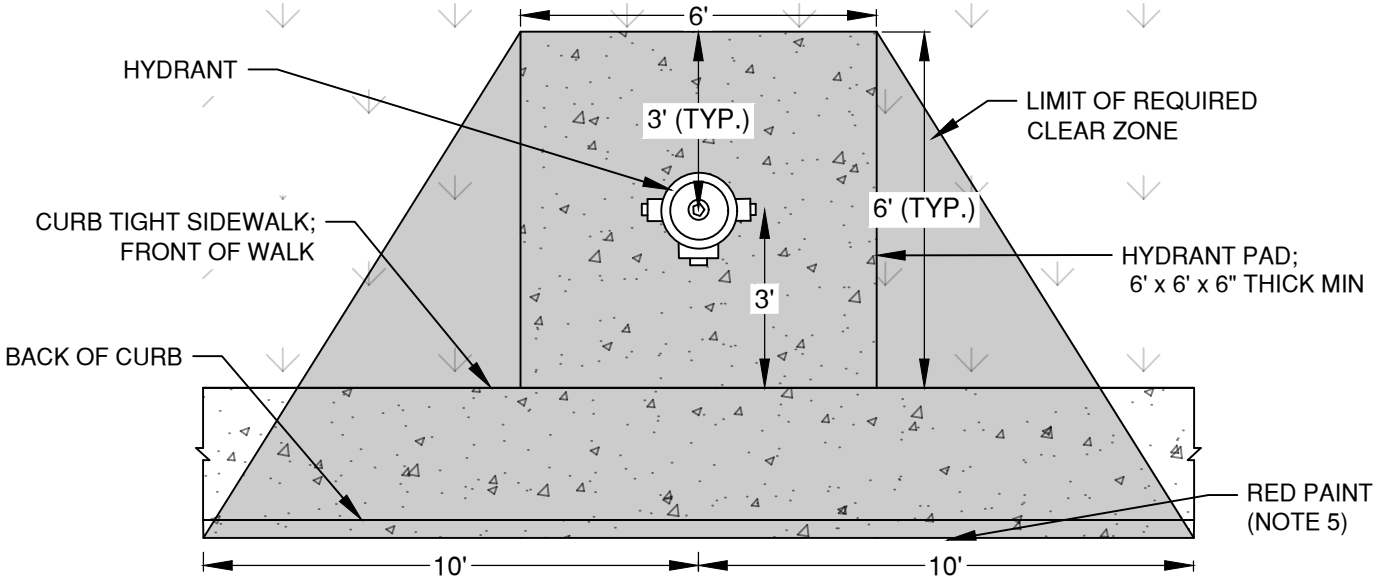
NOTES:

1. ALL PIPES SHALL HAVE RESTRAINED JOINTS.
2. MJ x MJ TEE OR MJxMJxSWIVEL (REQUIRES ENGINEER APPROVAL) WITH 6-INCH VALVE AT THE MAINLINE.
3. FINISH GRADE OF HYDRANT SHALL BE SET AT BURY LINE TO A MAXIMUM OF 3" BELOW BURY LINE FOR NEW INSTALLATION AND MAX OF 6" FOR RETROFITS. NO HYDRANT EXTENSIONS PERMITTED ON NEW INSTALLATIONS.
4. SET HYDRANT PLUMB. COMPACT ALL BACKFILL PER SPECIFICATIONS.
5. NON-WOVEN SEPARATION FILTER FABRIC OR PLASTIC (OSS TABLE 02320-4) INSTALLED BETWEEN UNDISTURBED EARTH AND DRAINROCK PRIOR TO BACKFILL.
6. HYDRANTS SHALL BE MANUFACTURER'S RED. NO OTHER COLOR IS PERMITTED.
7. BURY DEPTH IS MAX 6 FEET. USE 45 DEGREE OR 22.5 DEGREE BENDS TO ADJUST ACCORDINGLY.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 03/22/2023
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL HYDRANT	STD DWG W-7



PROPERTY TIGHT SIDEWALK HYDRANT LOCATION AND CLEAR ZONE
PLAN VIEW

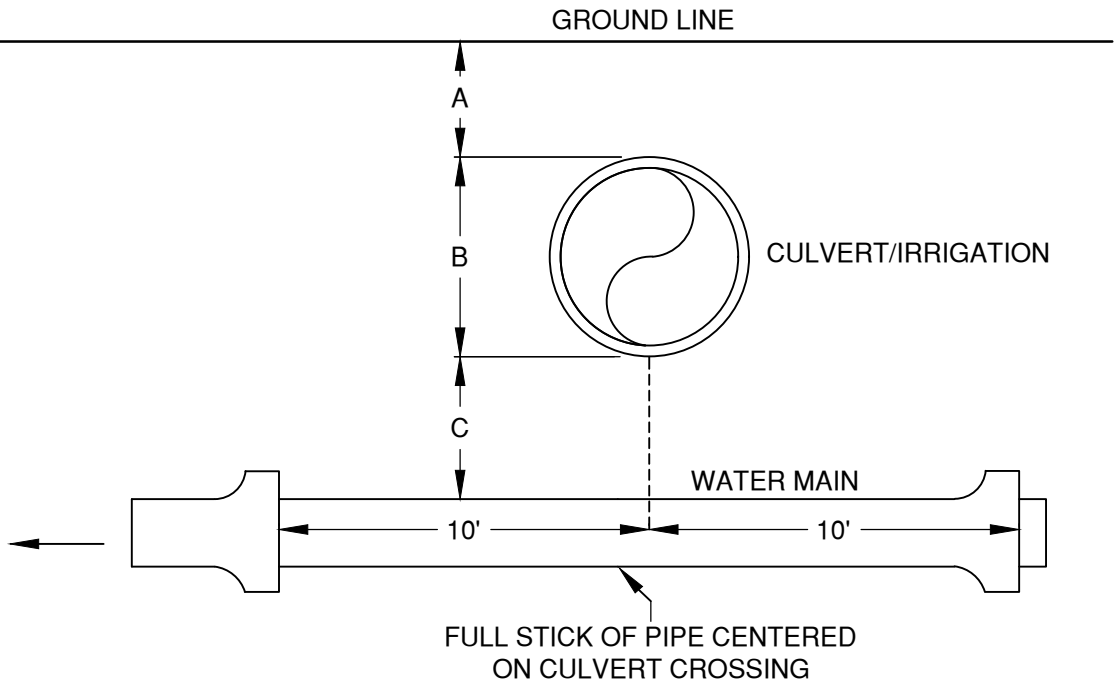


CURB TIGHT SIDEWALK HYDRANT LOCATION AND CLEAR ZONE
PLAN VIEW

NOTES:

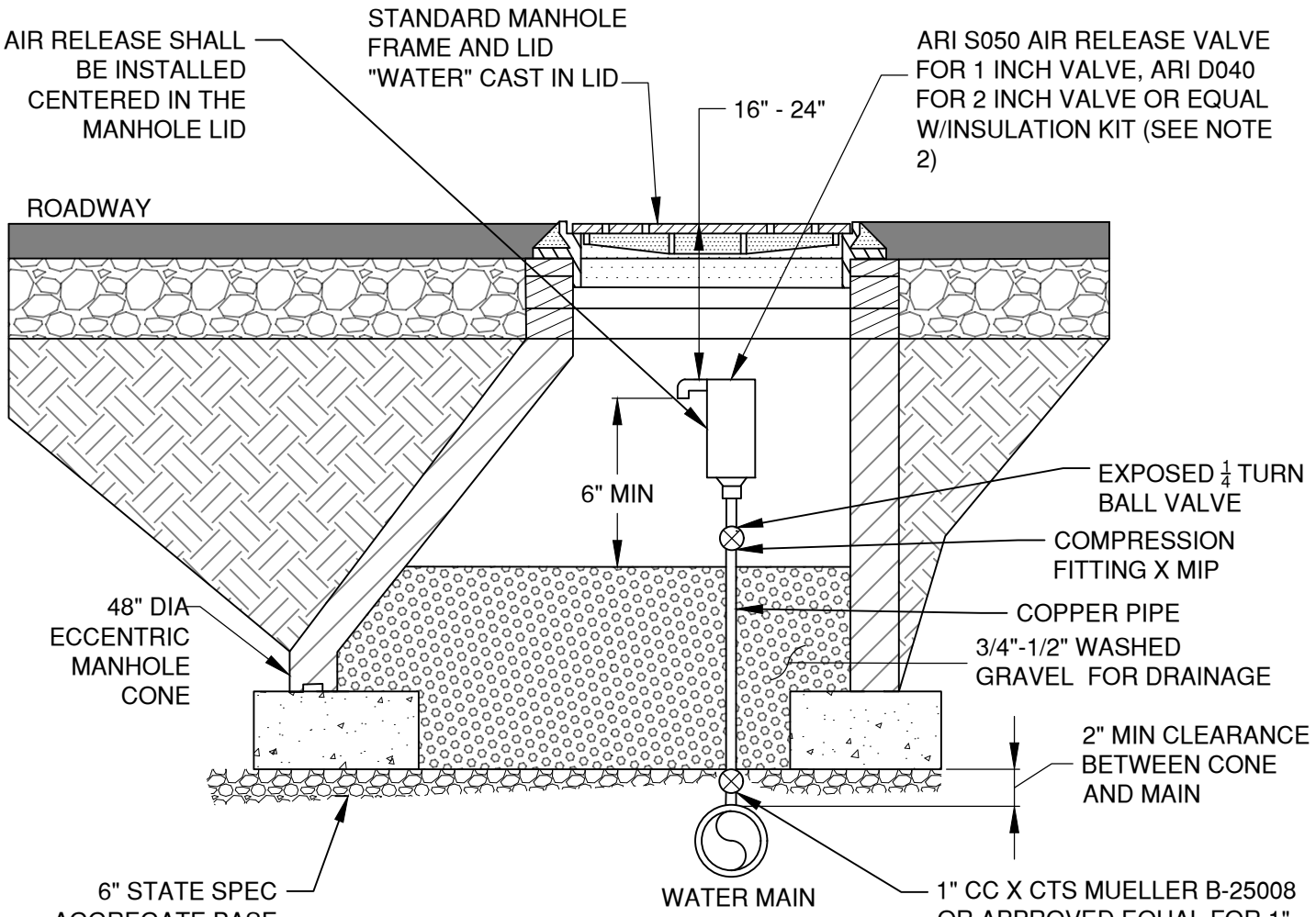
1. THE CLEAR ZONE PROHIBITS PARKING, FENCES, TREES, RETAINING WALLS, OR OTHER STRUCTURES THAT COULD INTERFERE WITH OPERATION OF HYDRANT. GRASS, MULCH, BARKDUST, AND GROUND COVER IS PERMITTED.
2. PROPERTY OWNERS SHOULD BE AWARE THAT GROUND COVER COULD BE DAMAGED WHEN THE HYDRANT IS USED OR WHEN HYDRANT MAINTENANCE IS PERFORMED.
3. CONCRETE PADS ARE TO BE A MINIMUM OF 6" THICK AND BE POURED AND PLACED ON 2" MIN. COMPACTED BASE ROCK PER SECTION OSS 00405.00
4. THERE SHALL BE A MINIMUM 4 FOOT CLEAR TRAVEL WIDTH ON SIDEWALKS ADJACENT TO HYDRANTS.
5. THE CURB SHALL BE PAINTED RED FOR A TOTAL OF 20 FEET, CENTERED ON THE HYDRANT.

DRAWN AJD DIV WATER REV / DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 HYDRANT LOCATION AND CLEAR ZONE	SCALE NTS DATE 03/22/2023 APPR STD DWG W-8

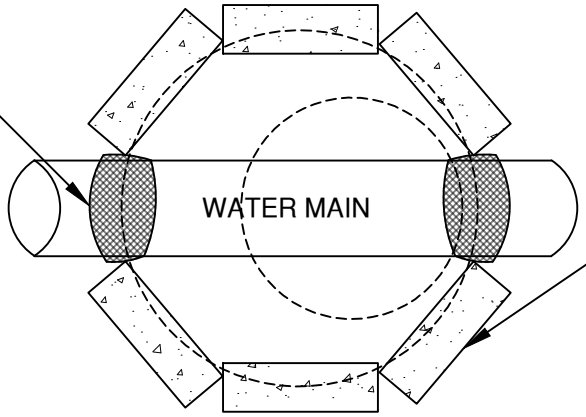


A COVER FROM CULVERT TO FINISH GRADE	B CULVERT SIZE	C SEPARATION CULVERT TO MAIN
12" OR LESS	6" THRU 12"	NOT LESS THAN 18"
12" OR MORE	6" THRU 12"	NOT LESS THAN 12"
12" OR LESS	14" THRU 24"	NOT LESS THAN 30"
12" OR MORE	14" THRU 24"	NOT LESS THAN 24"
	GREATER THAN 24"	NOT LESS THAN 36"

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 SEPARATION OF WATER LINE TO IRRIGATION CULVERTS	SCALE NTS DATE 01/31/2022 APPR STD DWG W-9



PROFILE VIEW

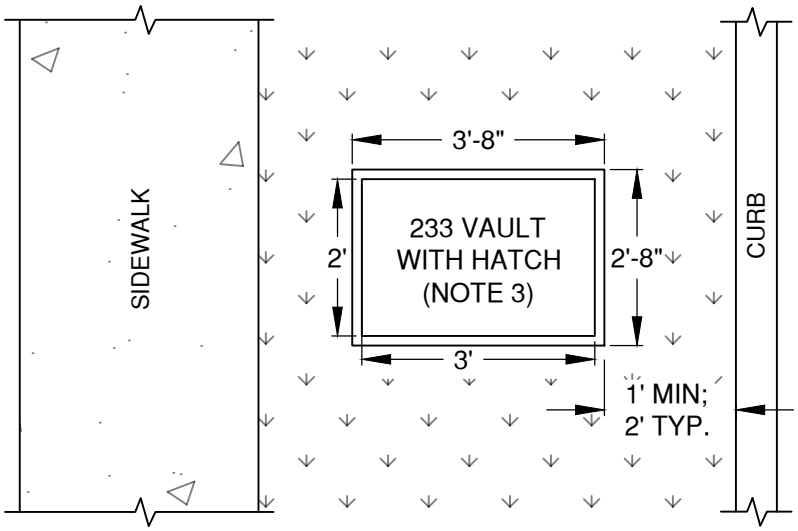


PLAN VIEW

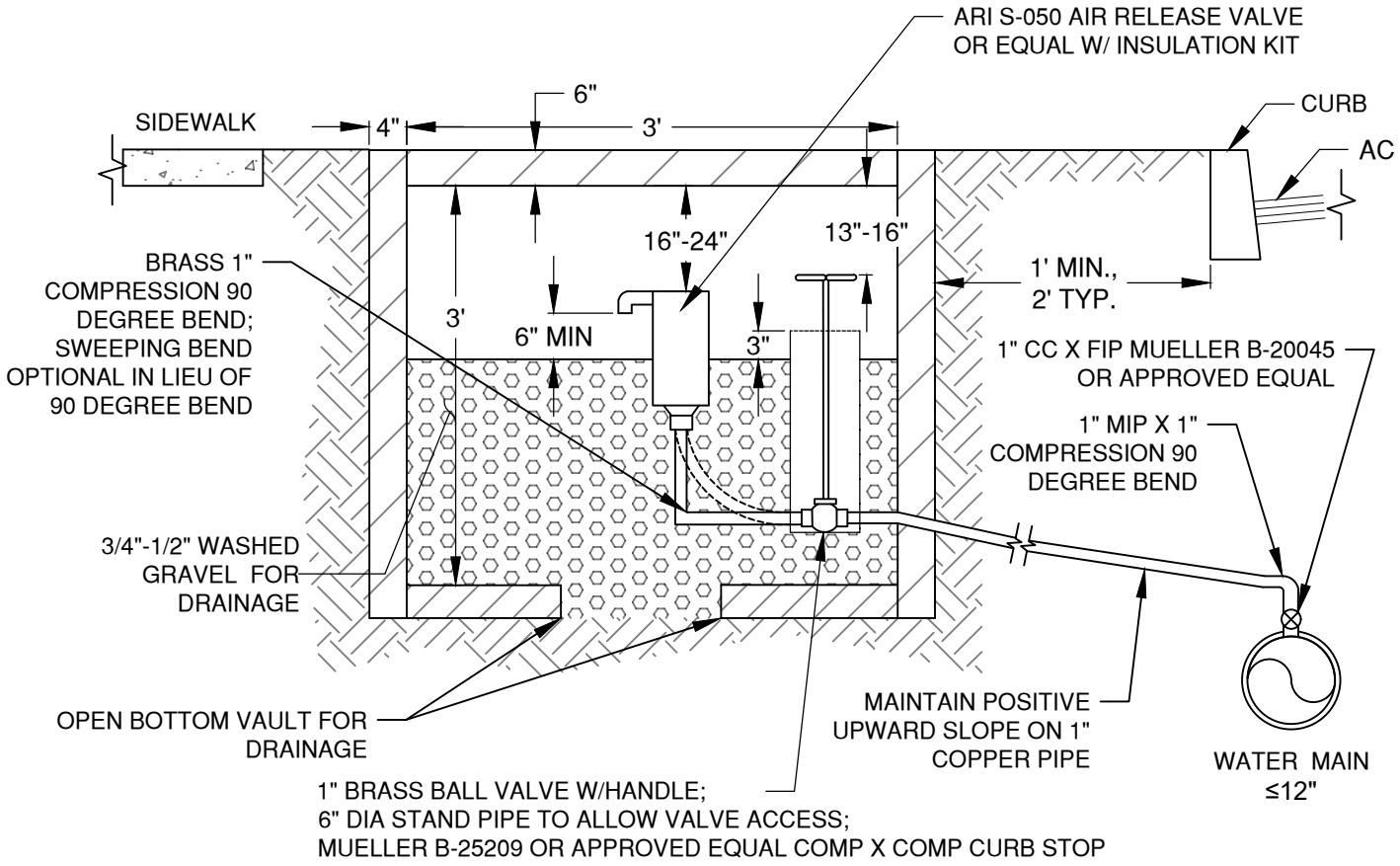
GENERAL NOTES:

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. 1" AIR RELEASE VALVE TO BE USED ON WATER MAINS LESS THAN 12" IN DIAMETER. 2" AIR RELEASE VALVE TO BE USED ON WATER MAINS GREATER THAN OR EQUAL TO 12" IN DIAMETER.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 03/22/2023
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	1" & 2" STANDARD AIR RELEASE VALVE - TRAFFIC AREA	STD DWG W-10



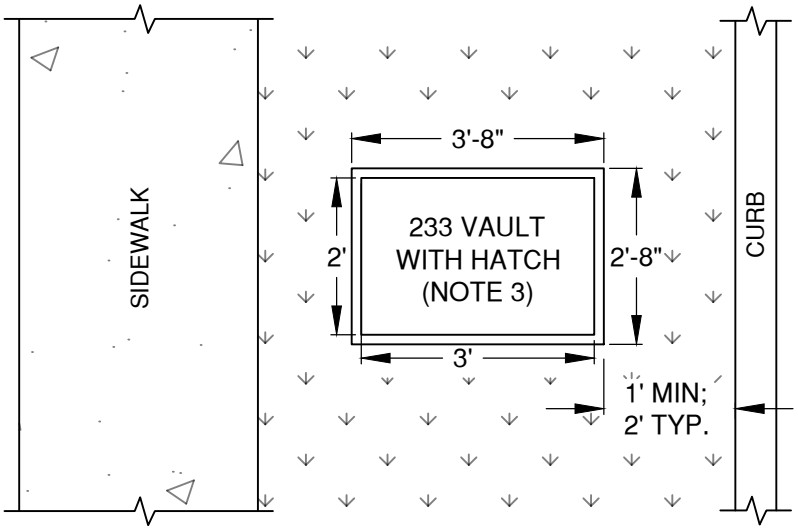
AIR RELEASE VALVE LOCATION
PLAN VIEW



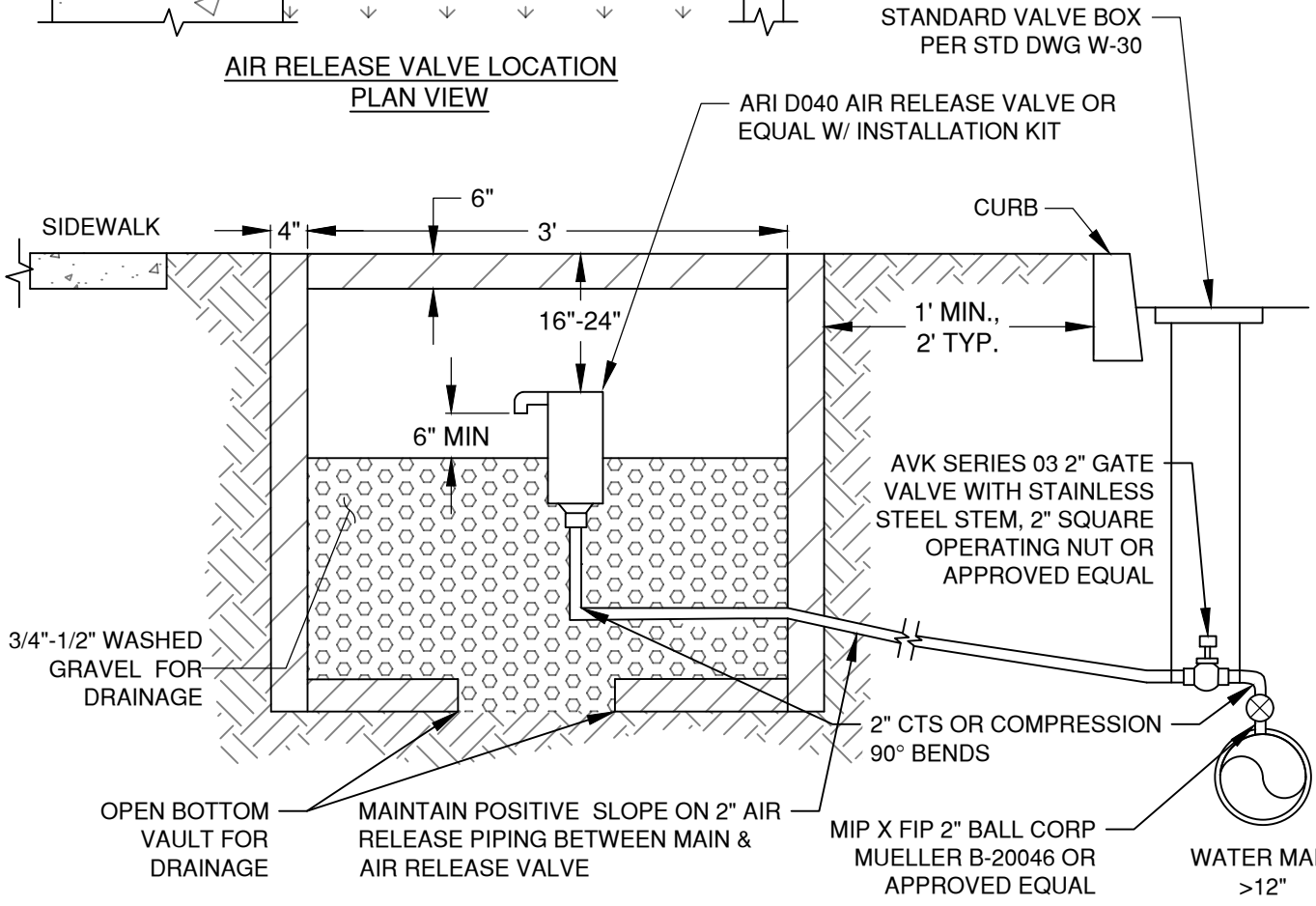
GENERAL NOTES:

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. IF 1" AIR RELEASE VALVE IS INSTALLED IN TRAFFIC AREA, INSTALL PER STD DWG W-10.
3. VAULT SHALL BE PRECAST VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		1" STANDARD AIR RELEASE VALVE	STD DWG W-10A



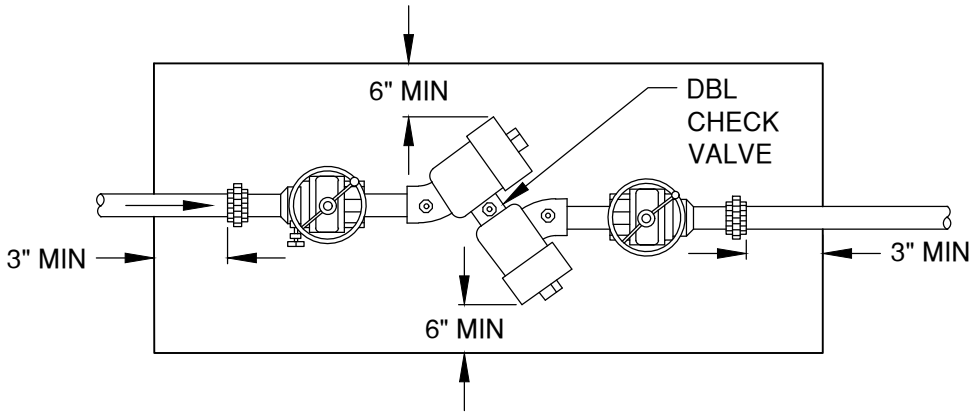
AIR RELEASE VALVE LOCATION
PLAN VIEW



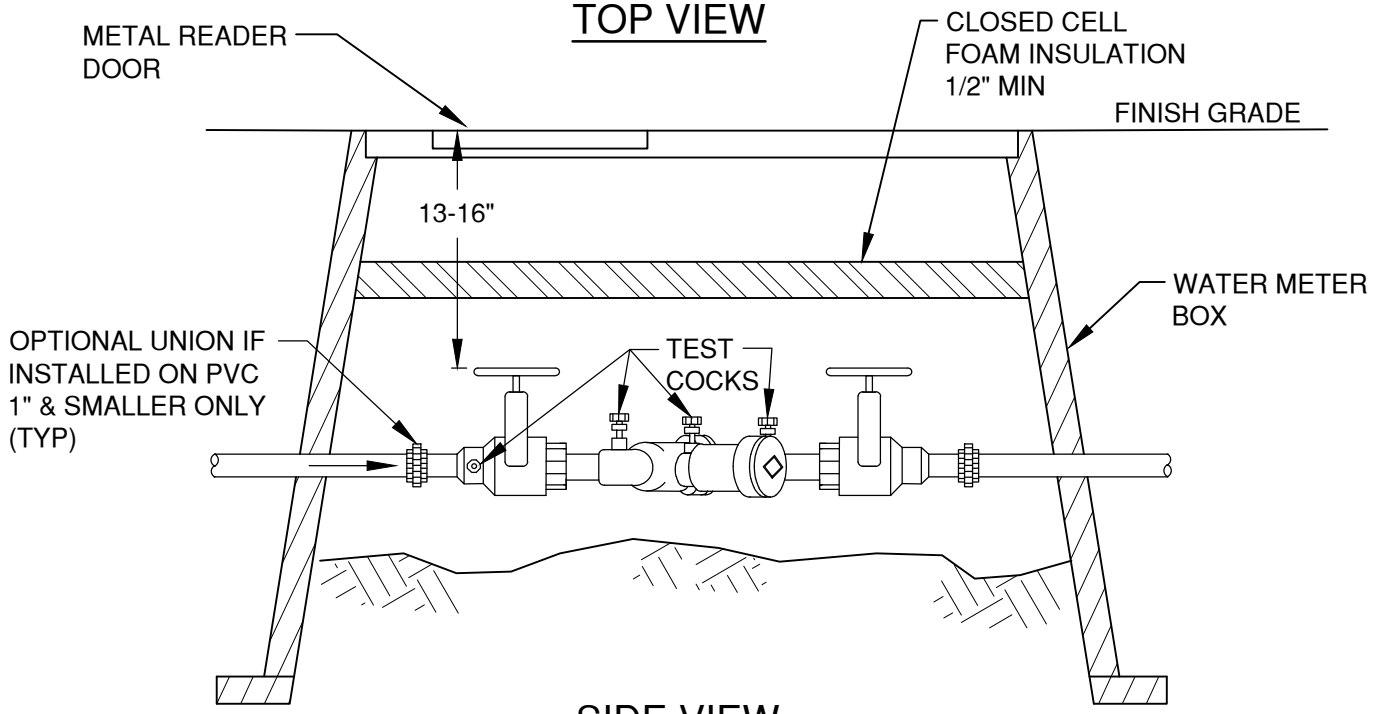
GENERAL NOTES:

1. AIR RELEASE OR COMBINATION VALVES SHALL BE INSTALL AT ALL HIGH POINTS. WHERE THE HIGH POINT IS AT THE TOP OF A LONG ASCENT (1,250 FEET+) A COMBINATION AIR/VACUUM VALVE SHALL BE INSTALLED.
2. SEE STD DWG W-10 FOR 2" AIR RELEASE VALVES LOCATED IN TRAFFIC AREAS.
3. VAULT SHALL BE ADVANCED PRECAST PRODUCT 233 VAULT WITH 2'X3' HATCH AND OPEN BOTTOM, OR APPROVED EQUAL.

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 2" STANDARD AIR RELEASE VALVE	SCALE NTS DATE 03/22/2023 APPR STD DWG W-10B



TOP VIEW

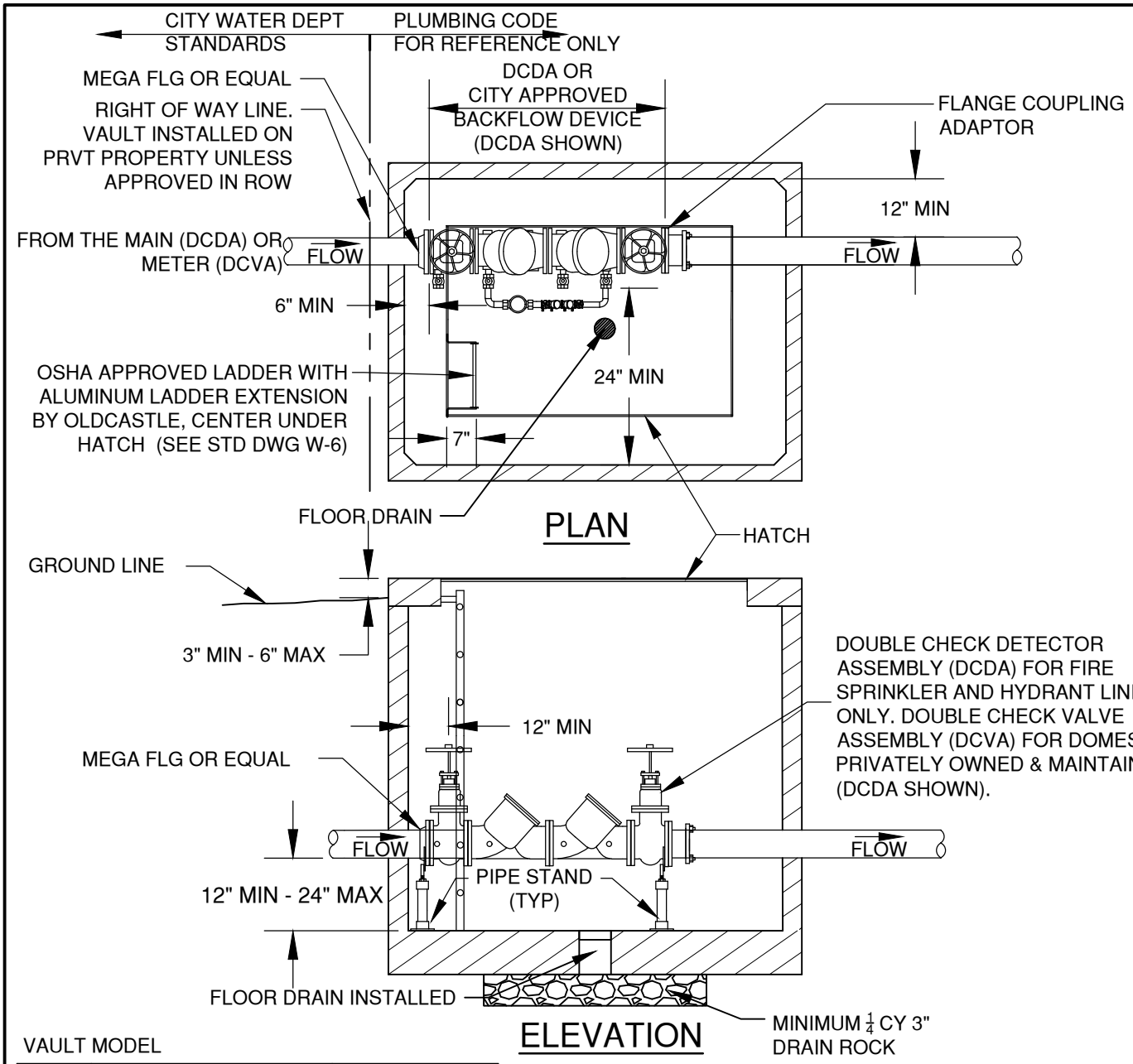


SIDE VIEW

NOTES:

1. DOUBLE CHECK VALVE ASSEMBLIES (DCVAs) MAY BE INSTALLED VERTICAL AS WELL AS HORIZONTAL PROVIDED THAT THE ASSEMBLY IS APPROVED FOR VERTICAL INSTALLATIONS
2. DCVAs MAY BE INSTALLED BELOW GRADE IN A VAULT PROVIDED WATER TIGHT, THREADED PLUGS ARE INSTALLED IN THE TEST COCKS, BUT THE ASSEMBLY SHALL NOT BE SUBJECT TO CONTINUOUS IMMERSION
3. BLOWOUT PORTS, WHEN REQUIRED MUST BE INSTALLED DOWNSTREAM OF LAST ASSEMBLY SHUTOFF

DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TYPICAL DCVA INSTALLATIONS 2" AND SMALLER	SCALE NTS DATE 01/31/2022 APPR STD DWG W-13



VAULT MODEL

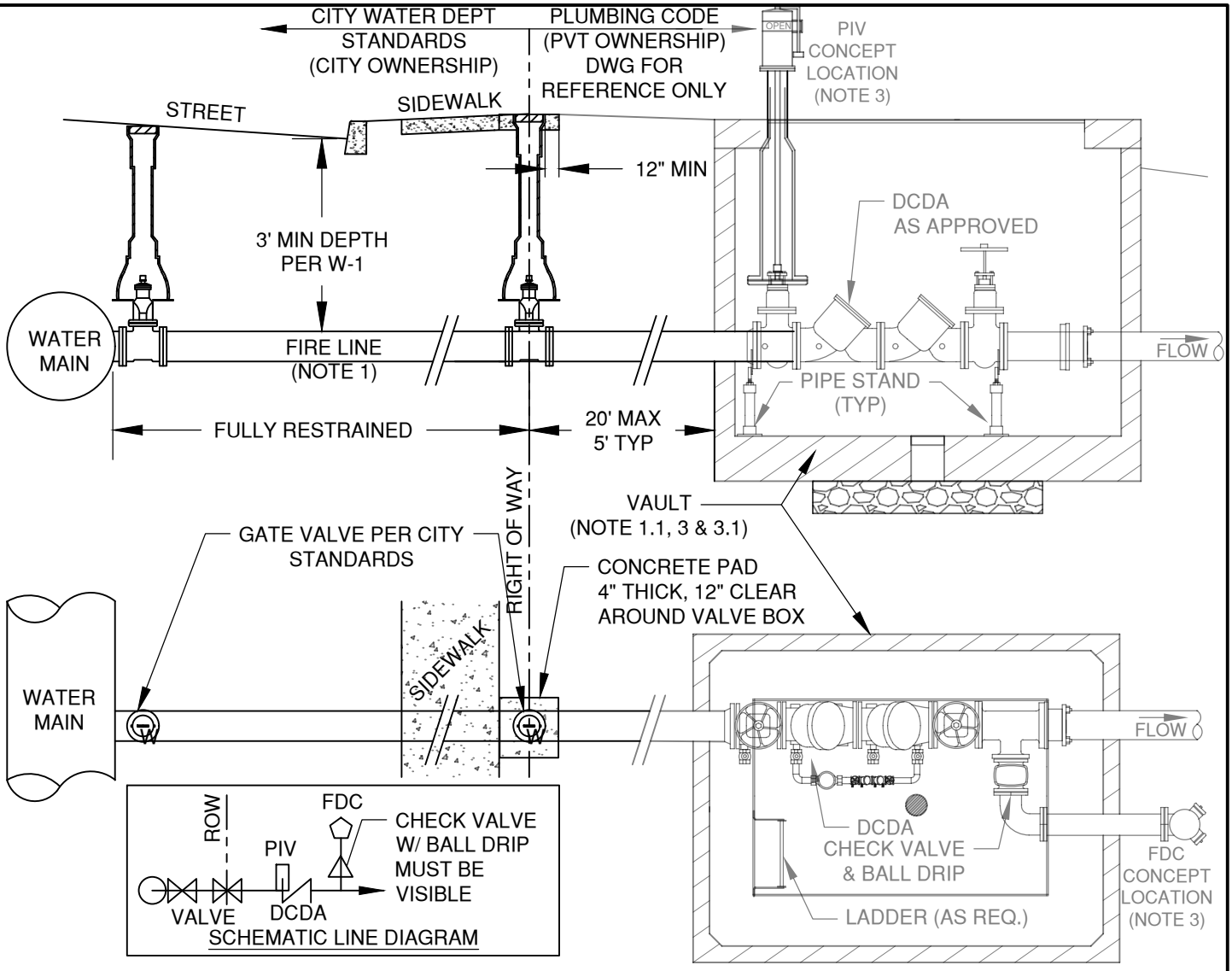
PIPE SIZE	UTILITY VAULT OR EQUAL		BILCO DOOR OR EQUAL
	W/ FDC*	W/O FDC	
3		660-WA	J-5AL
4	676-WA	577-WA	J-5AL
6	687-WA	676-WA	J-5AL
8	5106-LA	687-WA	JD-3AL
10	5106-LA	5106-LA	JD-3AL

* FOR FIRE SPRINKLER VAULTS, REFER TO W-13B. FIRE SPRINKLER VAULTS INSTALLED IN RIGHT OF WAY OR UTILITY EASEMENT ONLY WHEN APPROVED BY CITY ENGINEER.

NOTES:

1. ENGINEER TO PROVIDE RESTRAIN DETAIL FOR ALL PIPE ENTERING & EXITING VAULT
2. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT PRIOR TO BACKFILLING
3. CONDUIT BROUGHT TO VAULT FOR PUMP POWER AND DETECTOR WIRING.
4. ENGINEERED DESIGN TO BE PROVIDED WITH PERMIT.
5. VAULT AND LID TO BE TRAFFIC RATED
6. ALL FIRE LINES SHALL HAVE THE VAULT & DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLED CONCURRENTLY FOR TESTING & DISINFECTION TO THE CITY MAIN.
7. PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
		2" & LARGER DOUBLE CHECK VALVE ASSEMBLY	STD DWG W-13A

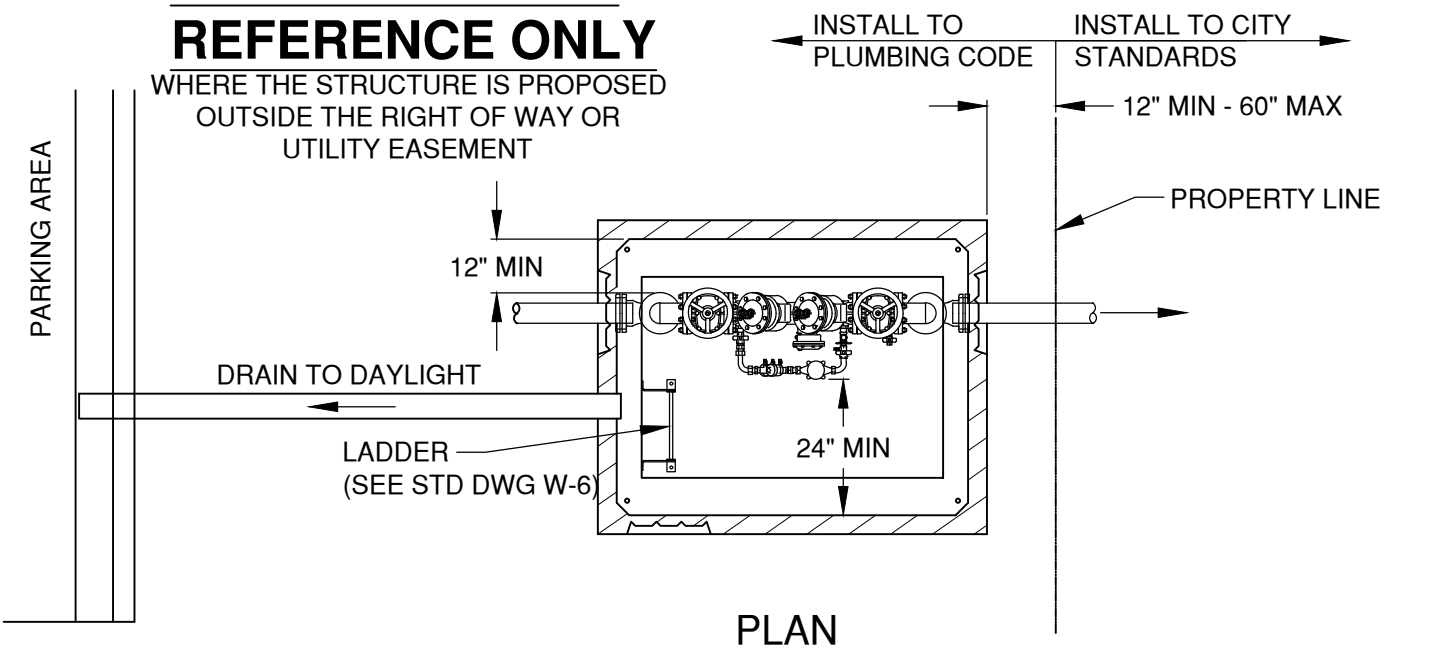


NOTES:

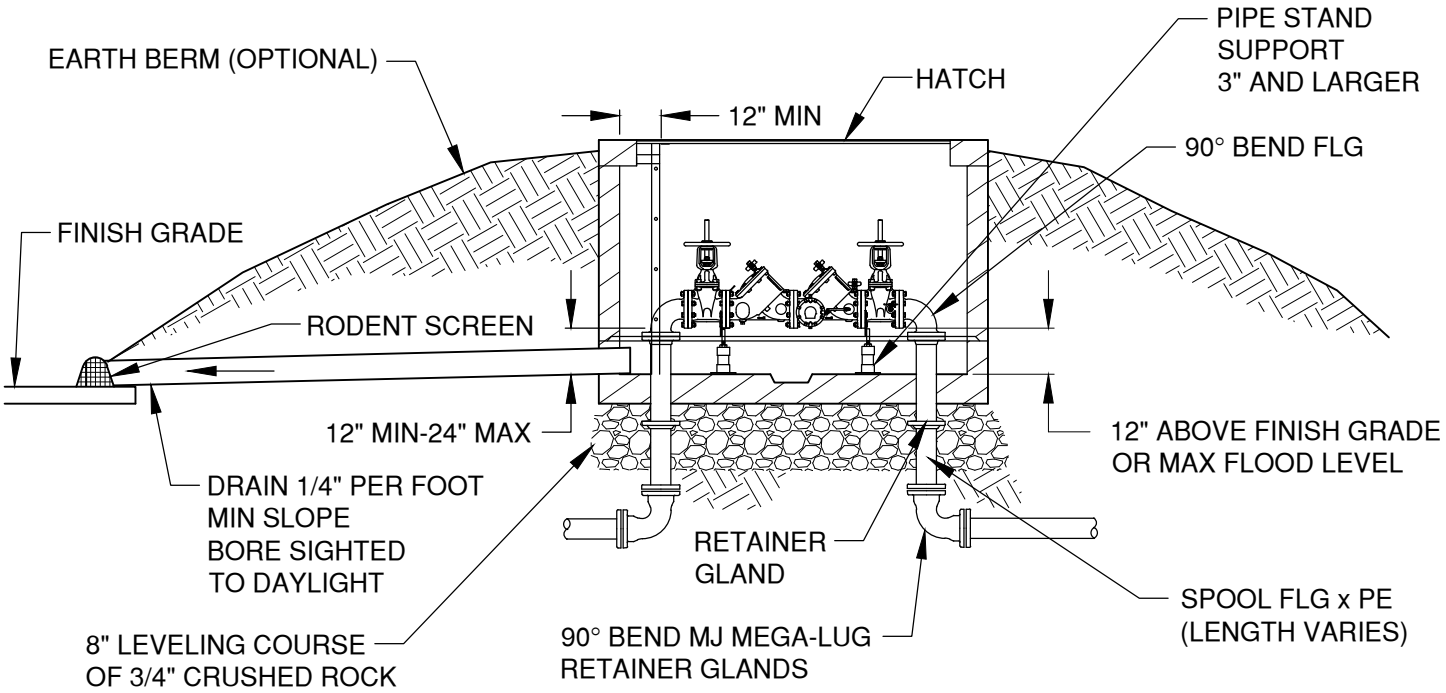
1. FIRE VAULT AND DCDA IS SHOWN FOR REFERENCE ONLY. VAULT AND PLUMBING BEYOND THE GATE VALVE SHALL BE INSTALLED PER PLUMBING CODE AND INSPECTED BY THE BUILDING DEPARTMENT.
   1.1. WHERE FIRE VAULT IS APPROVED BY CITY ENGINEER TO BE WITHIN THE ROW OR PUBLIC EASEMENT, VAULT SIZES ON STD DWG W-13A SHALL APPLY AND "FOR REFERENCE NOTES" ON THIS SHEET WOULD APPLY.
2. FIRE LINE TO BE 4" MIN DUCTILE IRON WATER MAIN PER CITY OF BEND SPECIFICATIONS. FIRE LINE TO BE SIZED BY ENGINEER UNDER A RIGHT OF WAY PERMIT.
3. VAULT TO BE SIZED BY ENGINEER IN CONFORMANCE TO BUILDING/FIRE/PLUMBING CODE, MEETING THE DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) MANUFACTURER'S INSTALLATION SPECIFICATIONS. DESIGN SHALL ACCOUNT FOR ANY FREEZE PROTECTION REQUIRED TO MEET FIRE CODE.
   3.1. WHERE BUILDING IS WITHIN 20 FEET OF THE RIGHT OF WAY LINE, THE DCDA CAN BE WITHIN THE BUILDING'S MECHANICAL ROOM AS APPROVED BY THE CITY ENGINEER. THE DCDA MUST BE LOCATED FRONTING THE ROW AND LOCATED AT THE BUILDING PENETRATION. THE FDC MUST BE VISIBLE FROM ROW. ACCESS TO THE MECHANICAL ROOM TO BE PROVIDED BY AN EXTERIOR DOOR WITH KNOX BOX UNLESS OTHERWISE APPROVED.
   3.2. VAULTS ARE TO BE PLACED OUT OF HARD SURFACES (SIDEWALKS, DRIVEWAYS/ROADWAYS,ECT.)
4. POST INDICATOR VALVE (PIV) AND FIRE DEPARTMENT CONNECTION (FDC) TO BE LOCATED IN CLEAR VIEW OF THE FRONTAGE STREET, WITH THE FDC LOCATED WITHIN AN ALLOWABLE DISTANCE FROM A HYDRANT. PIV AND FDC MAY BE MOUNTED ON THE BUILDING IN CONFORMANCE WITH THE FIRE CODE AND AS APPROVED. PIV AND FDC CAN BE MOUNTED OUTSIDE THE VAULT OR THROUGH THE VAULT LID PROVIDED THEY DON'T INTERFERE WITH VAULT ACCESS AND THE PENETRATIONS ARE GROUTED AND DON'T NEGATE THE STRUCTURAL INTEGRITY OF THE VAULT. PIV NOT TO BE USED IN-LIEU OF ISOLATION GATE VALVE AT PROPERTY LINE.
5. ALL ELECTRICAL TO VAULT AND PIV TO BE INSTALLED PER BUILDING AND FIRE CODE AS REQUIRED.
6. PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 03/22/2023
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		FIRE SPRINKLER LINE	STD DWG W-13B

DRAWING IS FOR REFERENCE ONLY



PLAN



PROFILE

NOTES:

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS.
2. ENGINEER TO PROVIDE RESTRAINT DETAIL FOR ALL PIPE ENTERING & EXITING VAULT
3. CONTRACTOR TO SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT PRIOR TO BACKFILLING
4. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST
5. PIPE SHALL MEET CITY ROW SPECIFICATIONS FROM MAIN TO DCDA

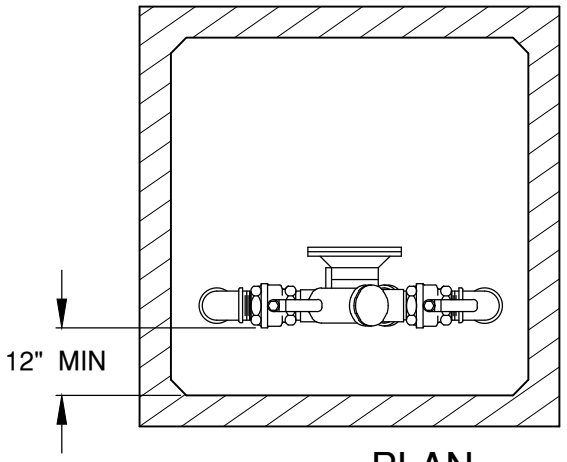
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	2 1/2"-10" REDUCED PRESSURE BACKFLOW ASSEMBLY	STD DWG W-15

DRAWING IS FOR REFERENCE ONLY

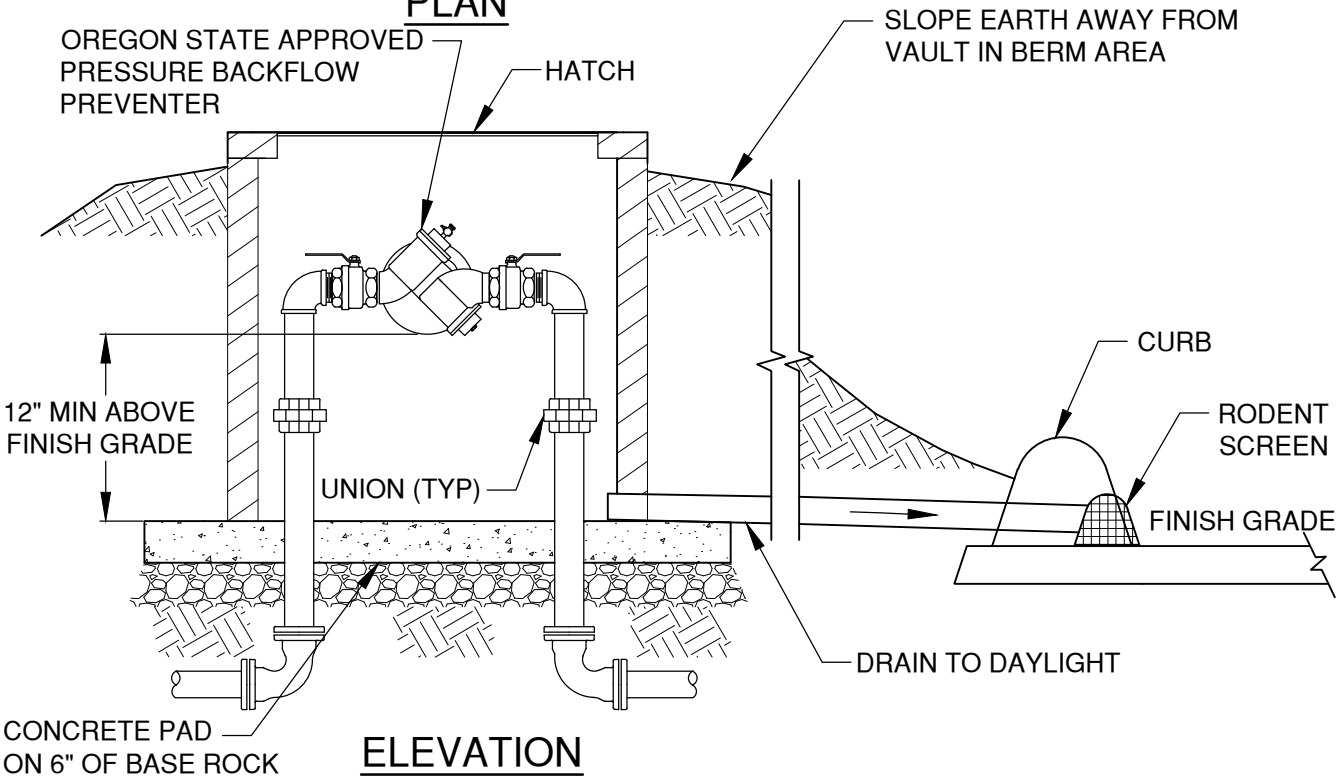
WHERE THE STRUCTURE IS PROPOSED OUTSIDE THE RIGHT OF WAY OR UTILITY EASEMENT

VAULT SPECIFICATIONS

WATER LINE DIAMETER	MODEL
1"	OLDCASTLE 3030-LA (OR EQUAL)
1-1/2" - 2"	OLDCASTLE 3642-PUT (OR EQUAL)



PLAN



ELEVATION

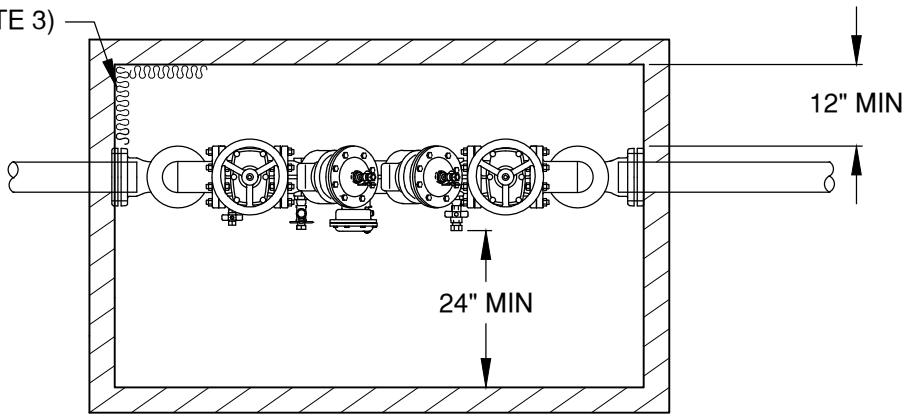
NOTES:

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY TO BE LOCATED DIRECTLY DOWN STREAM OF WATER METER
3. BRASS, STAINLESS, OR PLASTIC PLUGS TO BE INSTALLED IN TEST COCKS IF BELOW GROUND INSTALLATION
4. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

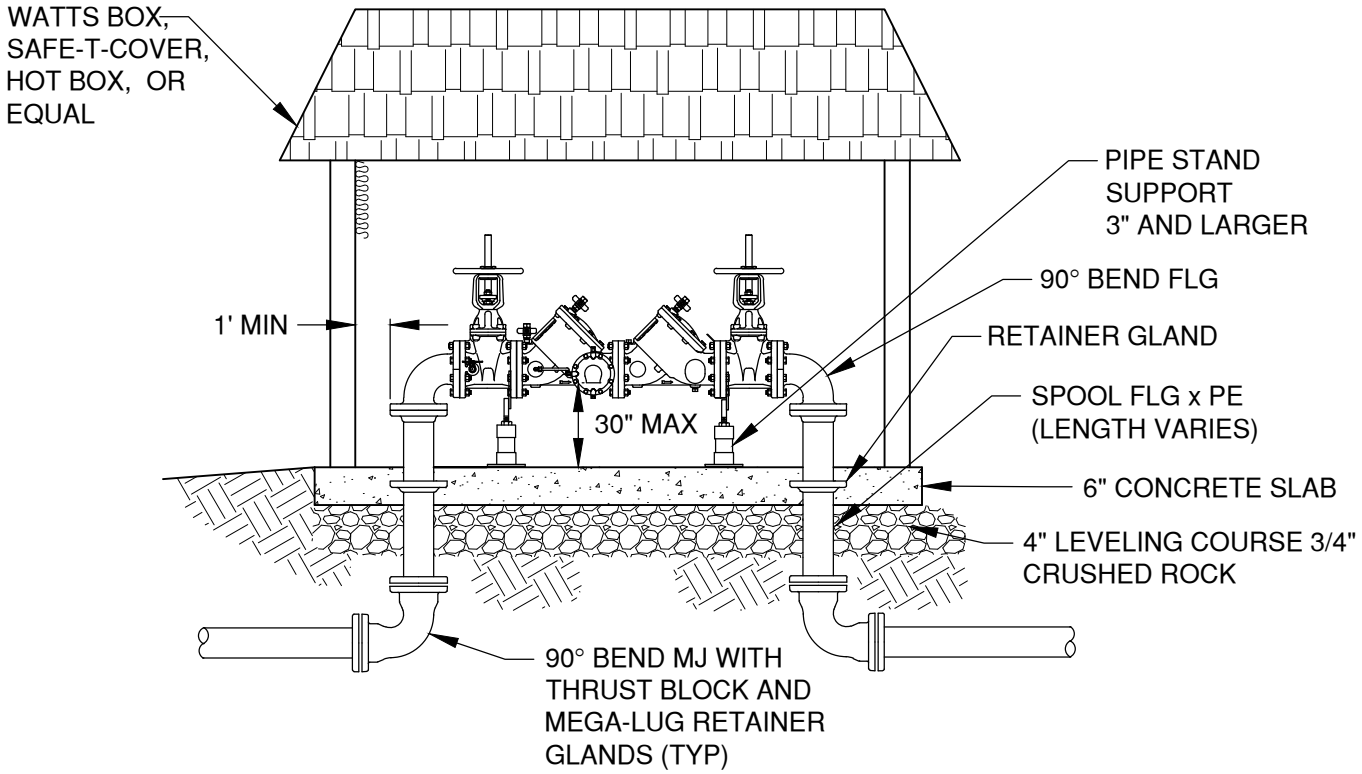
DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		1"-2" REDUCED PRESSURE BACKFLOW ASSEMBLY	STD DWG W-15A

DRAWING IS FOR REFERENCE ONLY

WHERE THE STRUCTURE IS PROPOSED OUTSIDE THE RIGHT OF WAY OR UTILITY EASEMENT



PLAN

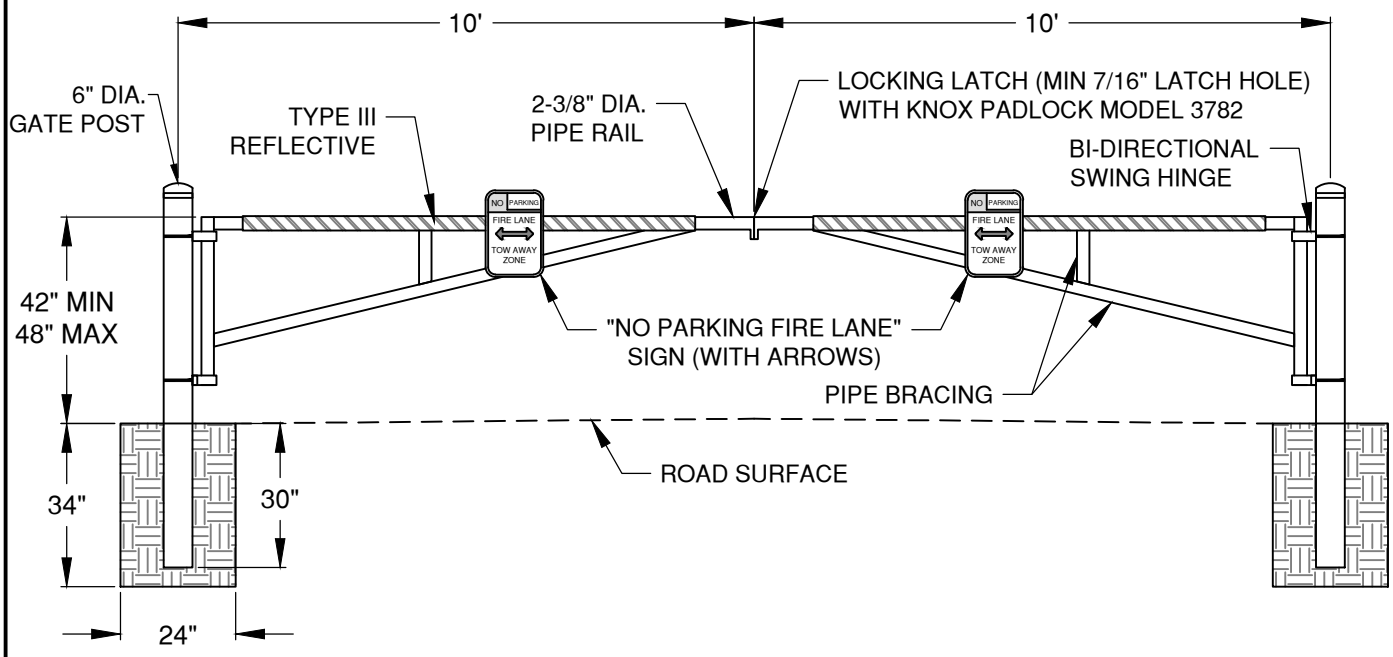


PROFILE

NOTES:

1. THIS DRAWING IS FOR REFERENCE ONLY. INSTALL PER PLUMBING CODE AND BUILDING DEPARTMENT REQUIREMENTS OR AS BY MANUFACTURER'S REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED HORIZONTALLY UNLESS APPROVED FOR OTHER ORIENTATION
3. ALL CLEARENCES APPLY TO OUTSIDE, IN-BUILDING, AND VAULT INSTALLATIONS
4. STRUCTURE TO BE INSULATED AND HAVE A HEAT SOURCE TO KEEP ENCLOSURE AT40°F (NFPA 13-4-5.4.1.1)
5. ENCLOSURE SHALL INCLUDE A BORE SIGHTED DRAIN TO DAYLIGHT CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE. MAKE/MODEL/SIZE WILL DICTATE THE SIZE OF THE ENCLOSURE.
6. ALL ASSEMBLIES 2 1/2" AND LARGER SHALL BE FLANGED
7. HIGH OR LOW HAZARD CONNECTIONS SHALL BE IDENTIFIED AND VERIFIED WITH CITY CROSS CONNECTION SPECIALIST

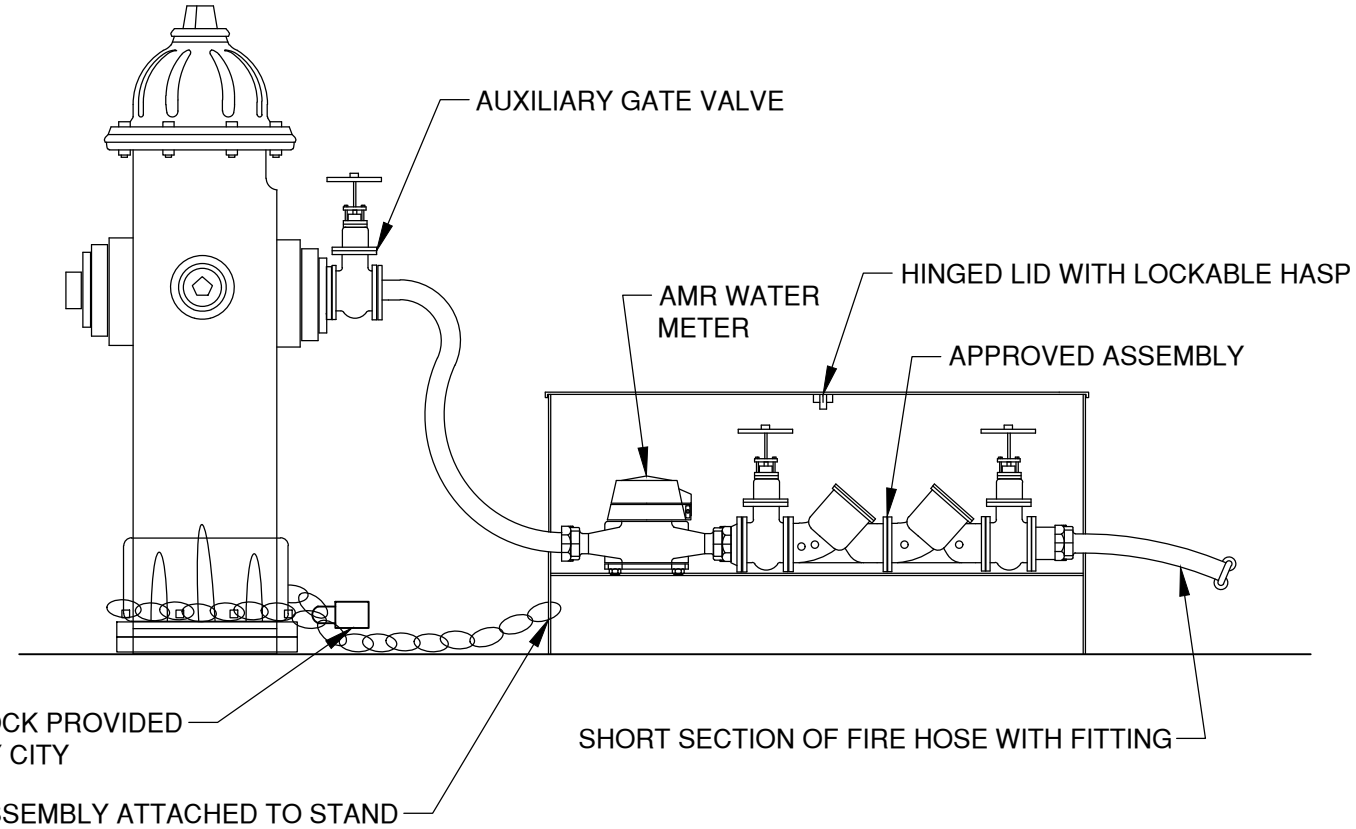
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		2 1/2" + REDUCED PRESSURE BACKFLOW ASSEMBLY	STD DWG W-15B



NOTES:

1. ALL MATERIAL SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE.
2. PROTECTIVE FINISH SHALL BE HOT-DIPPED, GALVANIZED GRAY.
3. CONTRACTOR TO INSTALL NO PARKING, FIRE LANE SIGN ON EACH SIDE OF GATE MEETING THE REQUIREMENTS OF OFC D103.6.
4. CONTRACTOR TO INSTALL TYPE III REFLECTIVE STRIPING ON BOTH SIDES OF GATE. STRIPING SHALL BE ALTERNATING RED/WHITE STRIPES, 6" WIDE AT 45 DEGREE ANGLE.
5. CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE PER SPECIFICATION SECTION 00440.
6. GATE POSTS SHALL BE LOCATED OUTSIDE OF THE ROADWAY. IF PAVEMENT AND CURBS ARE PRESENT, GATE POSTS SHALL BE LOCATED BEHIND CURB.
7. COORDINATE INSTALLATION OF KNOX PADLOCK WITH CITY OF BEND FIRE DEPARTMENT.

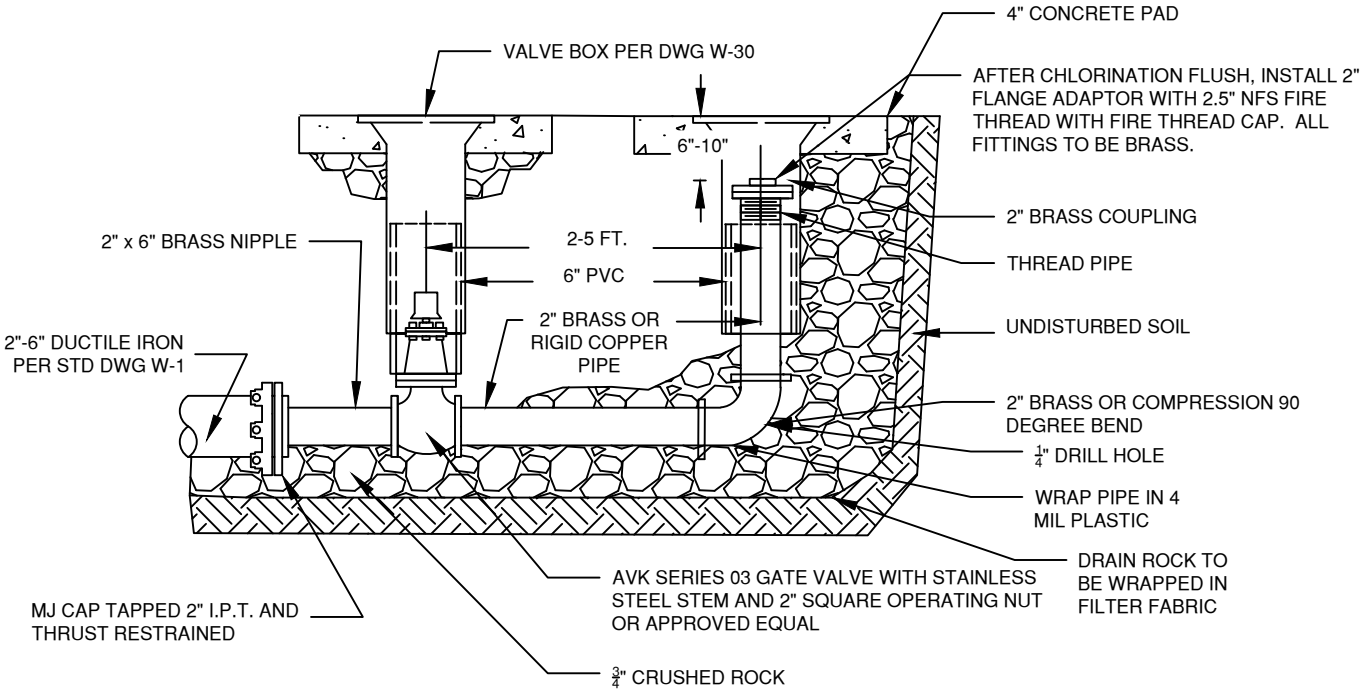
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		FIRE GATE	STD DWG W-21



NOTES:

1. GATE VALVE, METER, REDUCED PRESSURE BACKFLOW ASSEMBLY & DOUBLE CHECK VALVE ASSEMBLY, & BOX WILL BE SUPPLIED & SET UP BY THE CITY WATER DEPT @ THE CONTRACTORS REQUEST AFTER OBTAINING A CITY HYDRANT PERMIT
2. HYDRANT PERMIT HOLDER TO PROTECT THE ENTIRE UNIT FROM FREEZING
3. BACKFLOW ASSEMBLY MUST BE TESTED IF UNIT IS MOVED TO ANOTHER LOCATION.

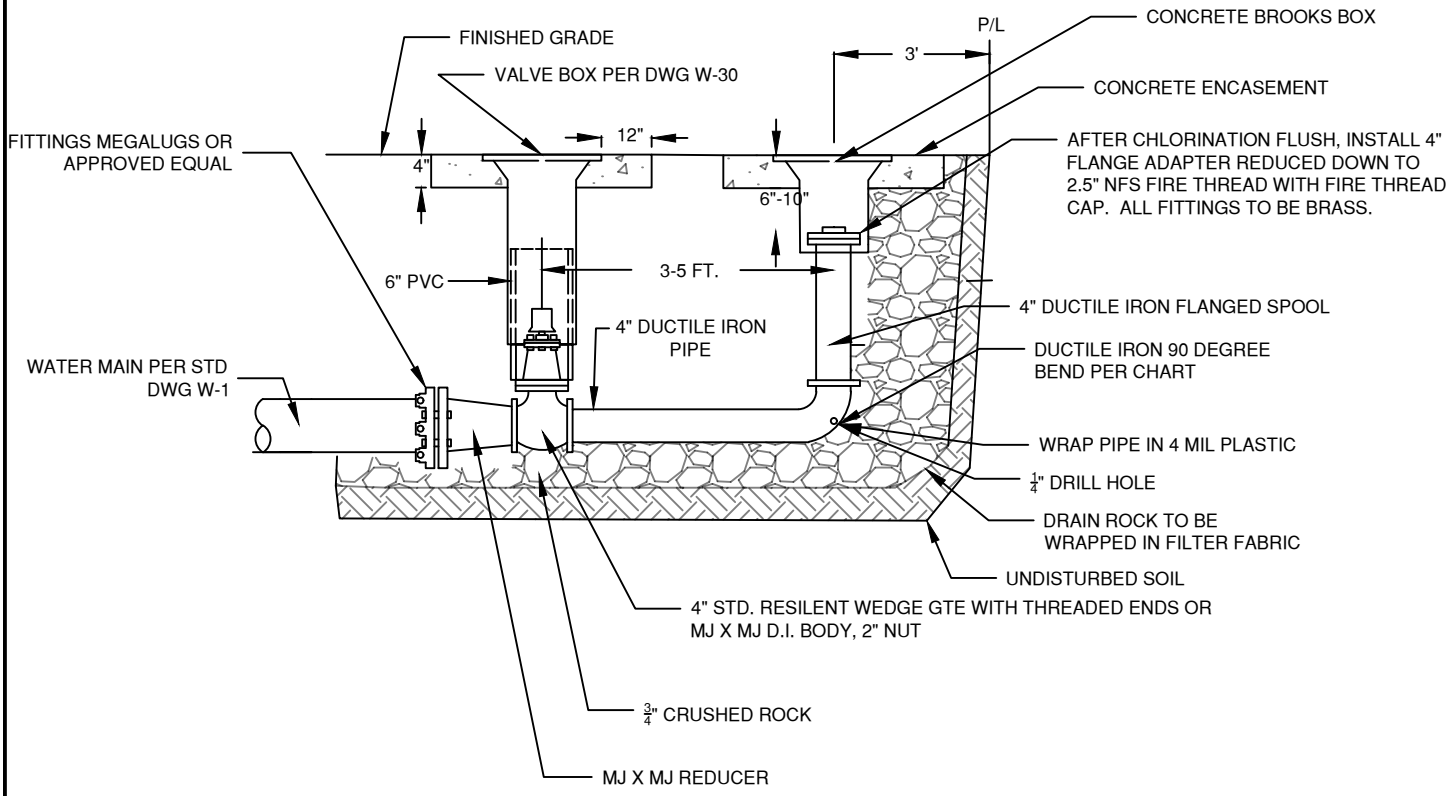
DRAWN AJD DIV WATER REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS DATE 01/31/2022 APPR
		HYDRANT PERMIT/FILLING TANKER TRUCK	STD DWG W-22



NOTES:

1. USE CITY STANDARD VALVE BOXES, LIDS, AND 6" PVC EXTENSION.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
3. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF WATER LINE TESTING AND INSTALLATION AND PRIOR TO PROJECT PAVING. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.
4. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
5. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
6. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
7. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.
8. 2" PVC PLUG WITH SQUARE NUT TO BE HAND TIGHTENED ONLY.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD 2" BLOW-OFF ASSEMBLY	STD DWG W-23

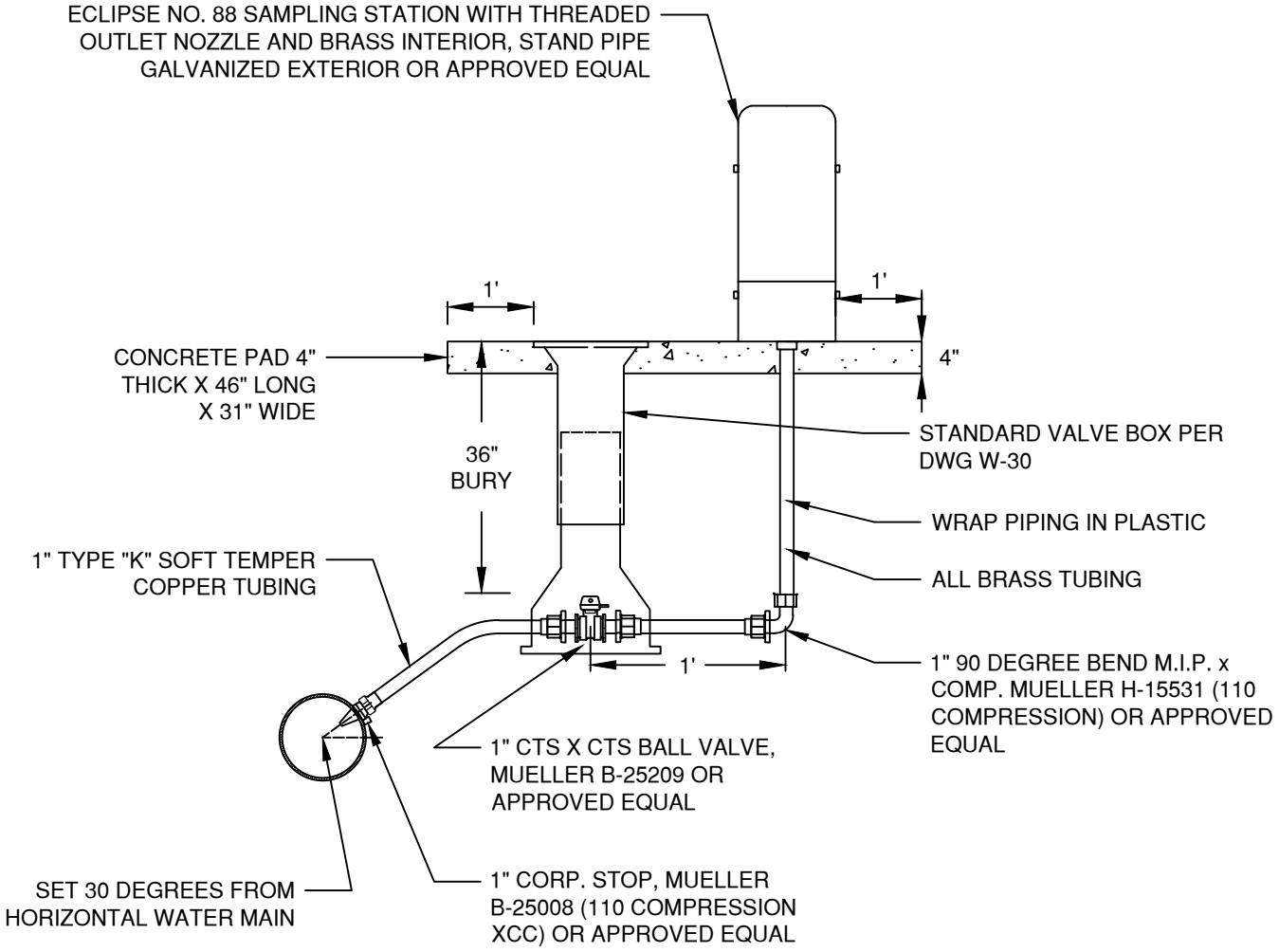


BLOW OFF SIZES REQUIRED	
MAIN SIZE	BLOW OFF SIZE
6" AND BELOW	2" (SEE DWG W-23)
8" - 12"	4"
ABOVE 12"	HYDRANT

NOTES:

1. USE CITY STANDARD VALVE BOXES, AND LIDS.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
3. TEMPORARY BLOW-OFF IS ONE REMOVED AT THE END OF WATER LINE TESTING AND INSTALLATION AND PRIOR TO PROJECT PAVING. A PERMANENT BLOW-OFF REMAINS ON THE PROJECT AFTER ACCEPTANCE.
4. PLACE BLOW-OFF STANDPIPE 3' INSIDE ROW LINE AT THE END OF STREET (2' FROM BARRICADE).
5. USE CITY STANDARD VALVE BOX, LID, AND 6" PVC EXTENSION FOR BLOW-OFF VALVE.
6. BLOW OFF RISER TO BE ONE CONTINUOUS PIECE.
7. USE EBAA IRON "MEGALUG" OR APPROVED EQUAL RETAINER GLAND ON MJ CAP. RESTRAIN PER ENGINEER.

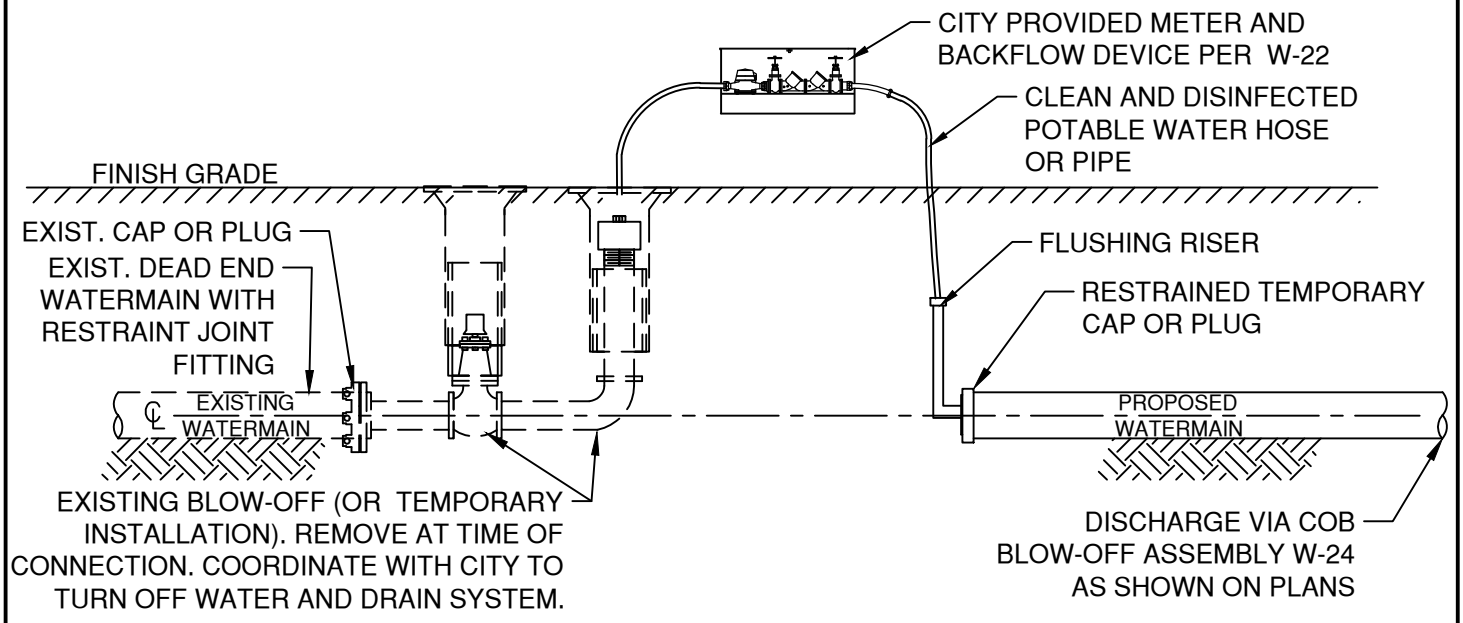
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		4" BLOW-OFF DETAIL	STD DWG W-24



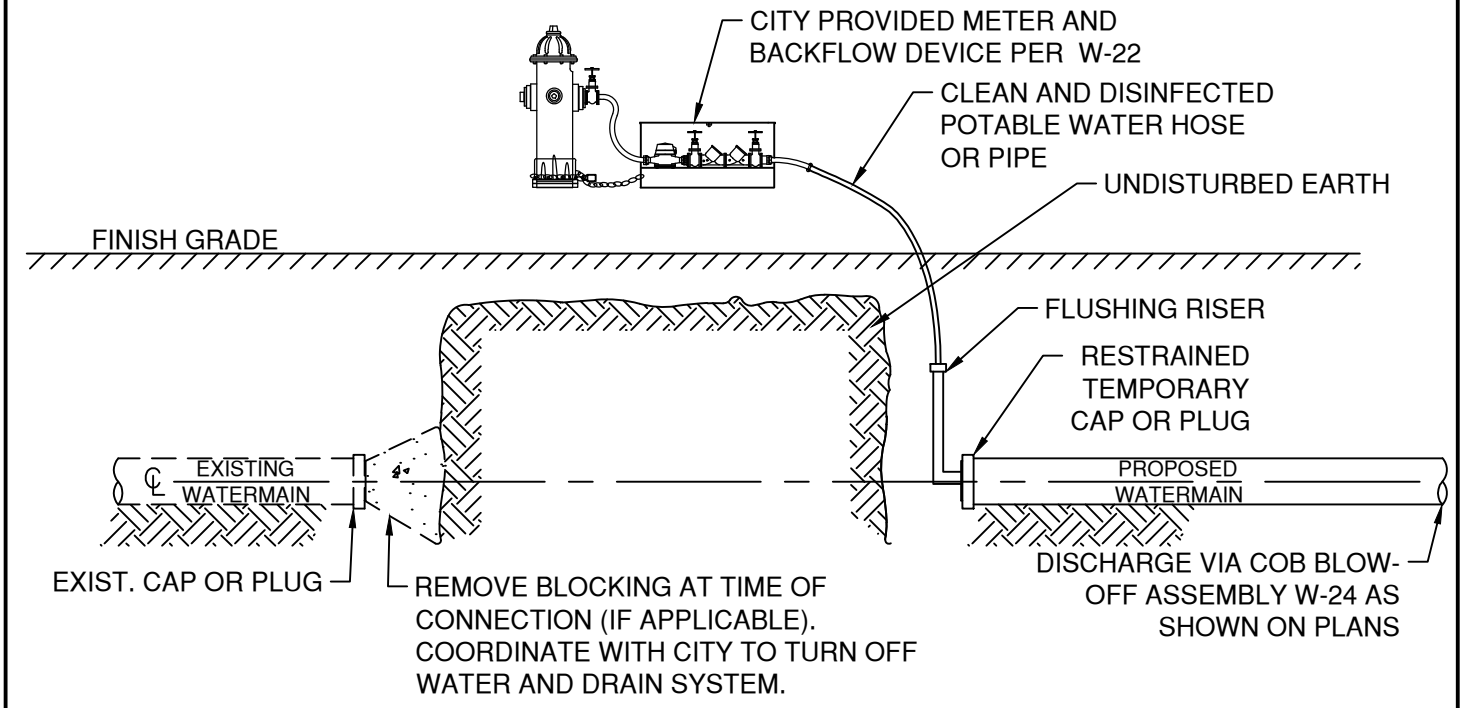
NOTES:

1. ALL PIPE AND STRUCTURES SHALL BE BACKFILLED WITH SCREENED MAX $\frac{3}{4}$" MINUS CRUSHED ROCK. ALL COMPACTION TO COMPLY WITH SPECIFICATION SECTION 00330.43 AND 00405.46(C).
2. SET STATION AT LOT LINE UNLESS OTHERWISE SPECIFIED.
3. WHEN CROSSING, CATHODICALLY PROTECTED SYSTEM, INSTALL COPPER IN PVC SLEEVE FOR 5' EACH SIDE OF THE CROSSING.
4. WHERE NO SIDEWALK EXISTS, PLACE CONC. PAD AS SHOWN. WHERE SIDEWALKS EXIST, PLACE MIN. 12" AROUND BACK OF SAMPLE STA. AND INCORPORATE INTO NEW SIDEWALK POUR.

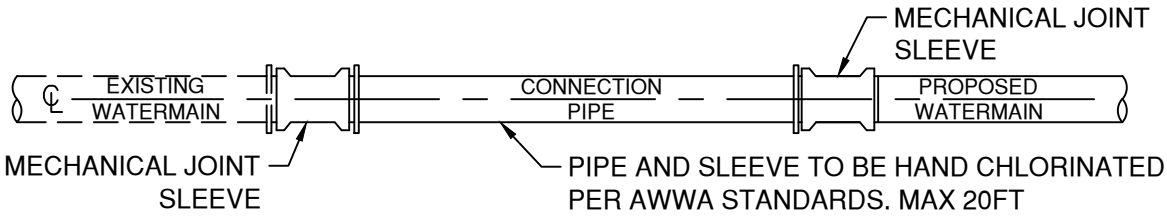
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD WATER SAMPLING STATION	STD DWG W-25



OPTION 1: TESTING AND FLUSHING USING A BLOW OFF ASSEMBLY

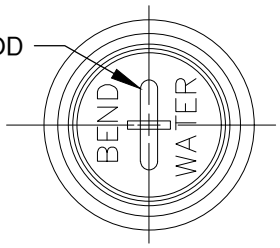


OPTION 2: TESTING AND FLUSHING USING NEARBY HYDRANT

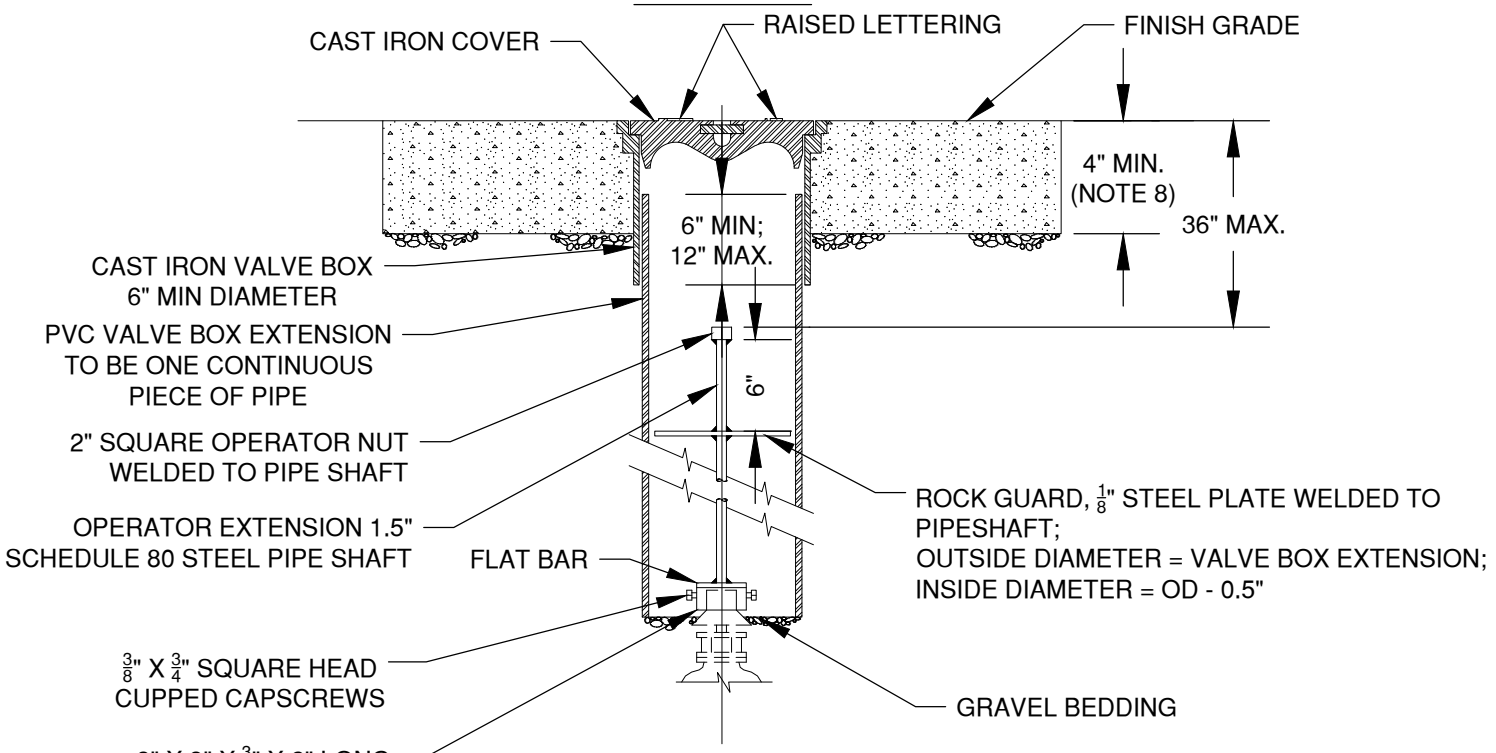


CONNECTION AFTER TESTING, FLUSHING AND APPROVAL

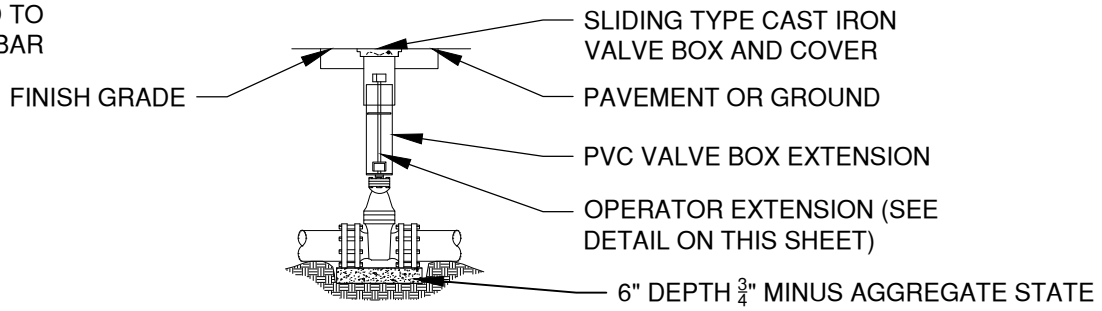
DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV WATER			DATE 01/31/2022
REV DATE			APPR
		CROSS CONNECTION DETAIL	STD DWG W-29



COVER PLAN



VALVE BOX EXTENSION SECTION



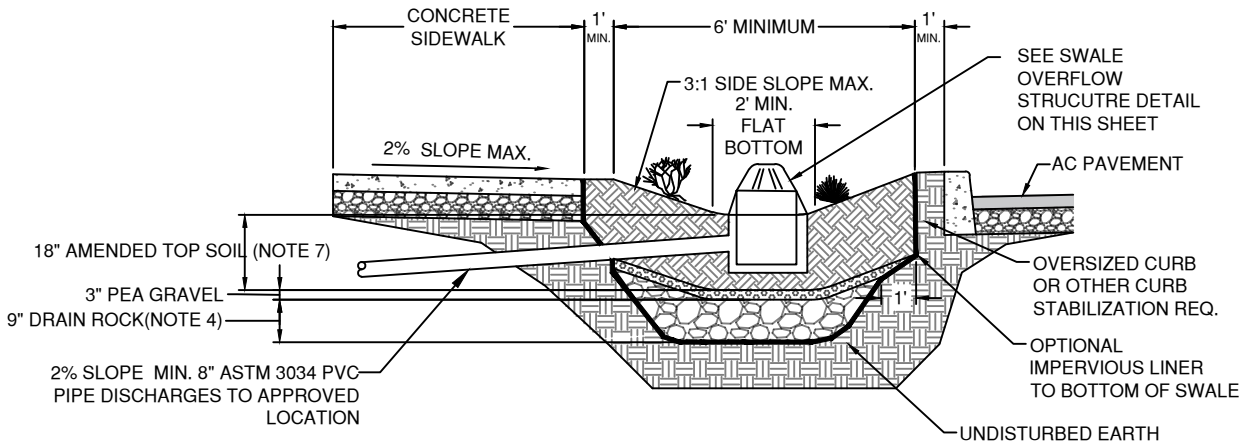
VALVE BOX ASSEMBLY DETAIL

NOTES:
1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 6' FROM FINISH GRADE.
3. CENTER VALVE BOX ON AXIS OF OPERATOR NUT.
4. VALVES TO BE INSTALLED WITH COMPACTED AGGR. BASE ON UNDISTURBED GROUND.
5. WELDS SHALL BE MINIMUM 0.5" ALL AROUND.
6. HOT DIP GALVANIZE OPERATOR EXTENSION AFTER FABRICATION.
7. CASTING SHALL MEET H20 LOAD REQUIREMENT.
8. PROVED 24"x24"x4" CONCRETE PAD WITH EXPANSION JOINT AROUND VALVE BOX WHEN INSTALLED OUTSIDE OF ROADWAY.
9. SEE PROJECT PLANS FOR DETAILS NOT SHOWN.
10. ALL VALVE BOXES SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL ON SIDEWALK AND DRIVEWAY APRONS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV WATER		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		VALVE BOX AND OPERATOR EXTENSION ASSEMBLY	STD DWG W-30

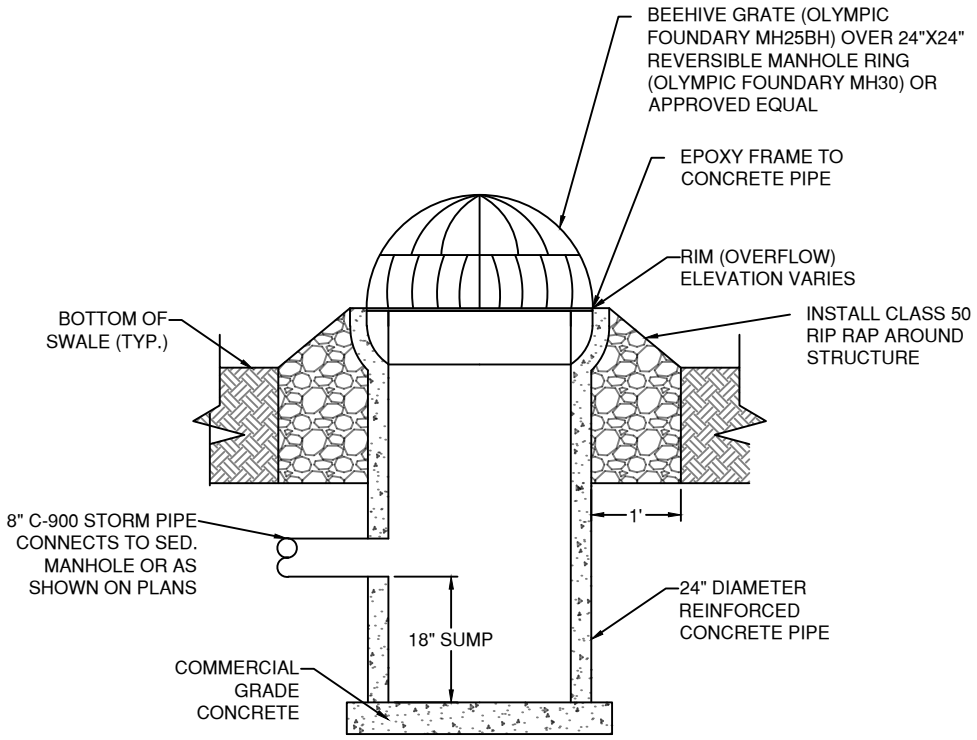
CITY OF BEND STANDARD DRAWINGS

Stormwater (STRM)



VEGETATED SWALE WITH OPTIONAL ROCK STORAGE RESERVOIR

NTS



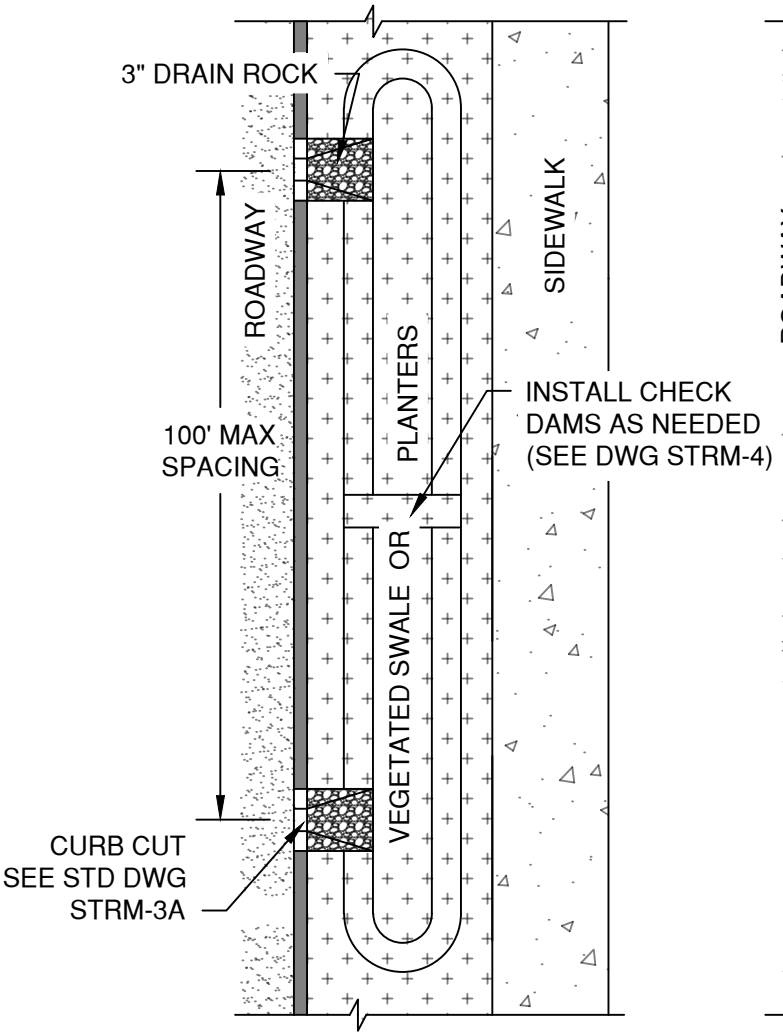
SWALE OVERFLOW STRUCTURE

NTS

NOTES:

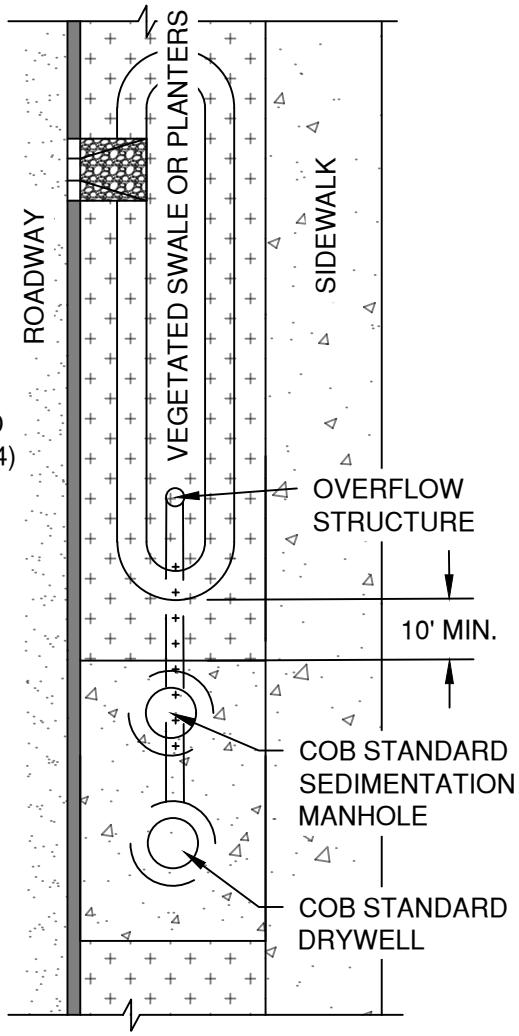
1. AMENDED TOPSOIL SHALL CONTAIN 20-30% TOPSOIL, 50-65% CLEAN SAND AND 5-20% COMPOST OR PEAT MOSS.
2. VOLUME AND DEPTH TO BE DETERMINED BY ENGINEER.
3. DRAIN ROCK AS REQUIRED FOR DRAINAGE CAPACITY. PEA GRAVEL TO BE USED TO PREVENT SOIL MIGRATION INTO DRAINAGE LAYER.
4. OPTIONAL ROCK RESERVOIR TO BE CONSTRUCTED WITH WASHED DRAIN ROCK WITH 40% VOIDS. NOT TO BE USED IN TREE WELLS.
5. AVOID COMPACTING SWALE AREA DURING CONSTRUCTION.
6. ADD HIGH POINT FLOW BYPASS TO AN APPROVED DISPOSAL POINT AS NECESSARY. OVERFLOW SHOULD PASS THROUGH A SEDIMENTATION MANHOLE OR PRE-TREATMENT PRIOR TO DISCHARGING TO A DRYWELL OR UIC.
7. AMENDED TOP SOIL CAN BE REPLACED WITH DRAIN ROCK FOR ROCK SWALES. ROCK SWALES CANNOT BE USED TO MEET PRETREATMENT REQUIREMENTS.
8. INSTALL CHECK DAMS AS REQURED AND PER DWG STRM-4.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	VEGETATED SWALE DETAIL	STD DWG STRM-2



VEGETATED SWALE/ PLANTER

NTS



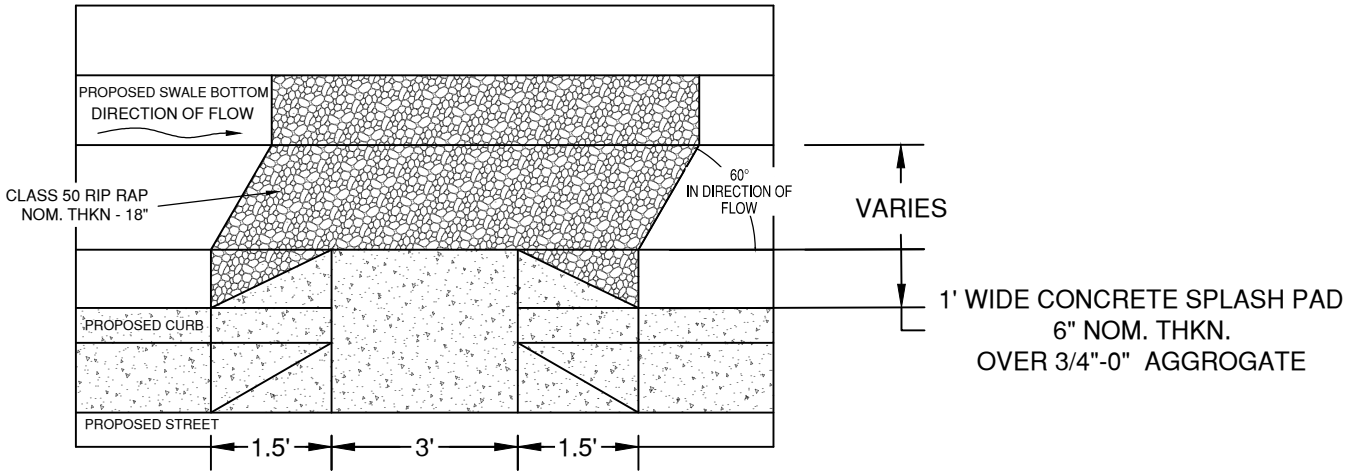
VEGETATED SWALE/ PLANTERS
W/ DRYWELL OVERFLOW

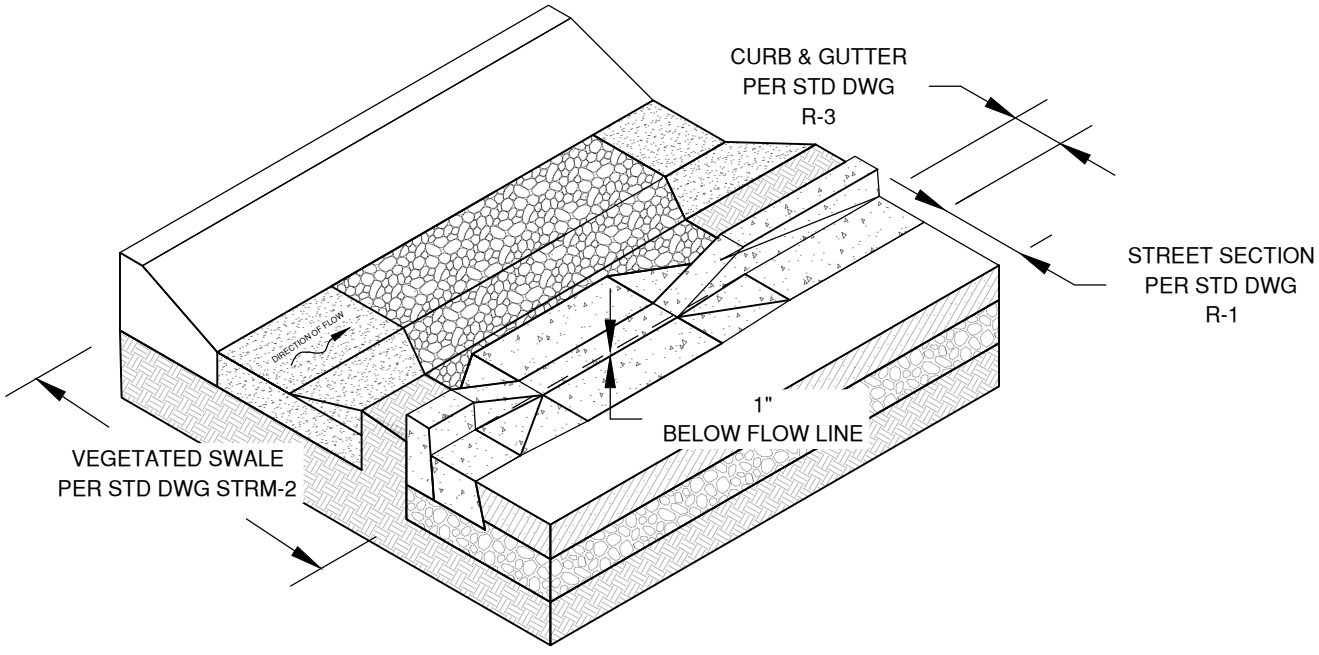
NTS

NOTES:

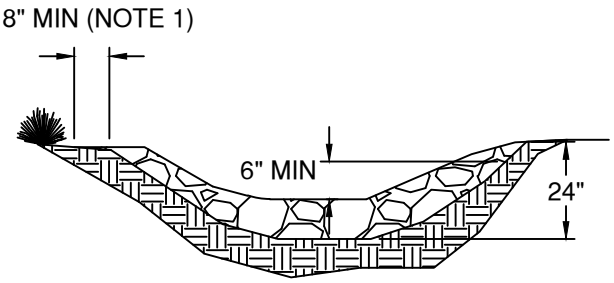
1. SWALE/SURFACE INFILTRATION FACILITIES NOT PERMITTED WITHIN PUES OR OVER FRANCHISE UTILITIES
2. VOLUME AND DEPTH TO BE DETERMINED BY ENGINEER.

DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV STORM			DATE 01/31/2022
REV / DATE			APPR
		TYPICAL SWALE LAYOUT	STD DWG STRM-3

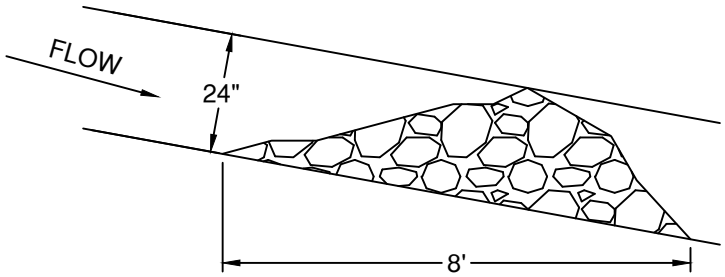




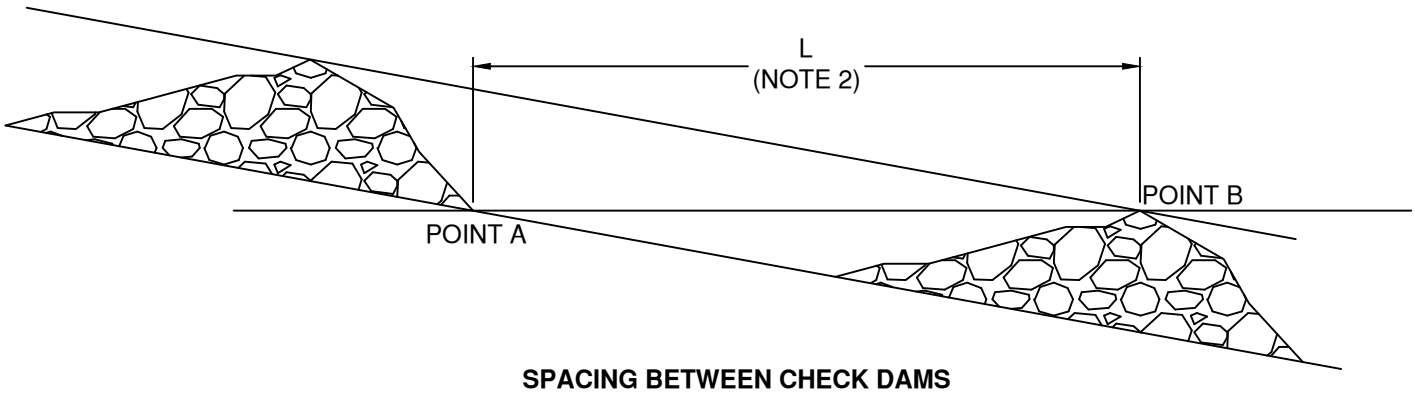
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TYPICAL CURB CUT	STD DWG STRM-3A



CHANNEL CROSS SECTION



CHECK DAM PROFILE

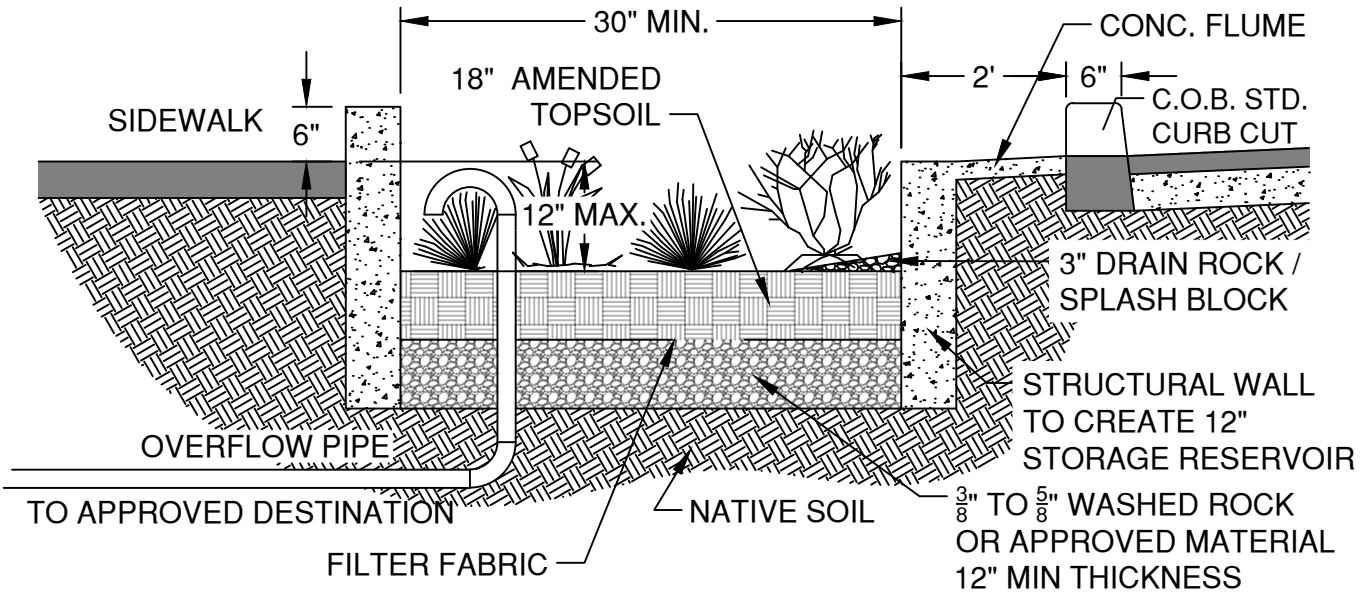


SPACING BETWEEN CHECK DAMS

NOTES:

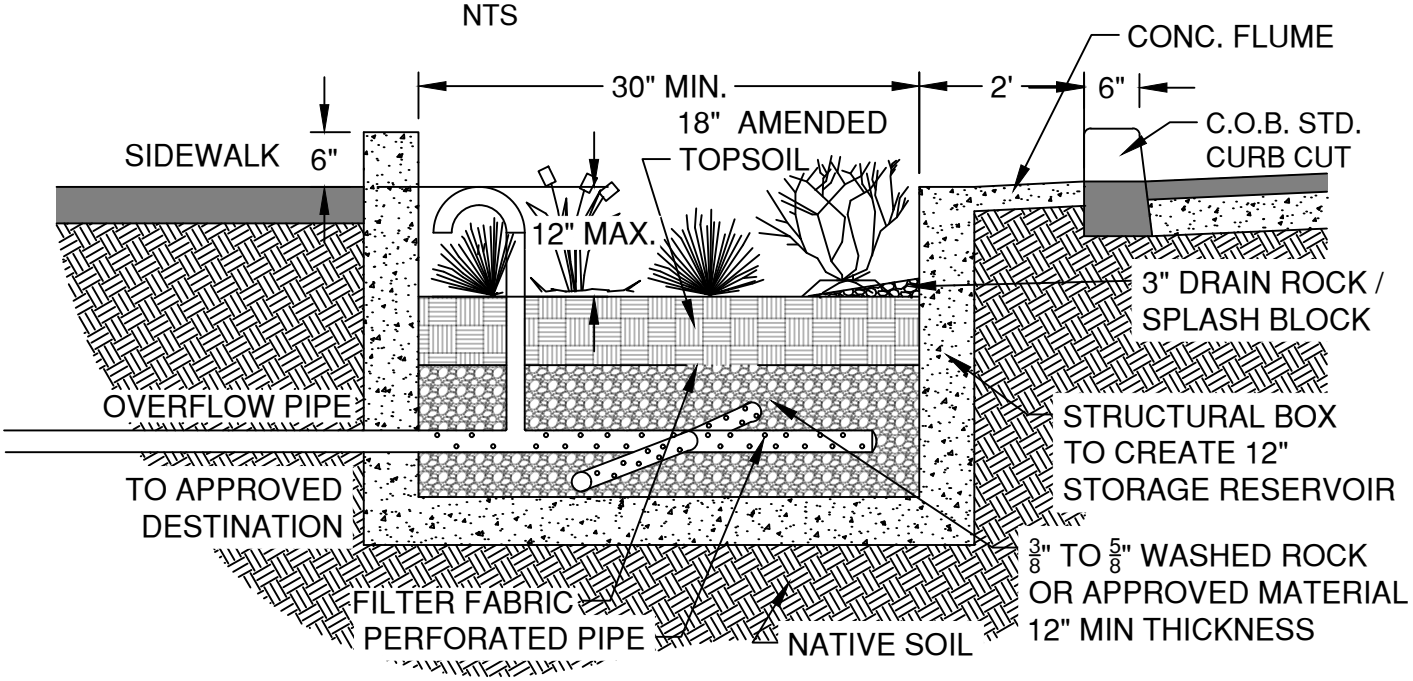
1. KEY STONE INTO THE CHANNEL BANKS AND EXTEND DAM A MINIMUM OF 18" TO PREVENT FLOW AROUND DAM.
2. L IS EQUAL TO THE DISTANCE SUCH THAT 'POINT A' AND 'POINT B' ARE OF EQUAL ELEVATION.
3. CHECK DAMS SHALL BE INSTALLED PER CENTRAL OREGON STORMWATER MANUAL (COSM) REQUIREMENTS.

DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV STORM			DATE 12/1/17
REV / DATE			APPR
	CITY OF BEND	CHECK DAM DETAIL	STD DWG STRM-4



INFILTRATION PLANTER TYPICAL SECTION

NTS



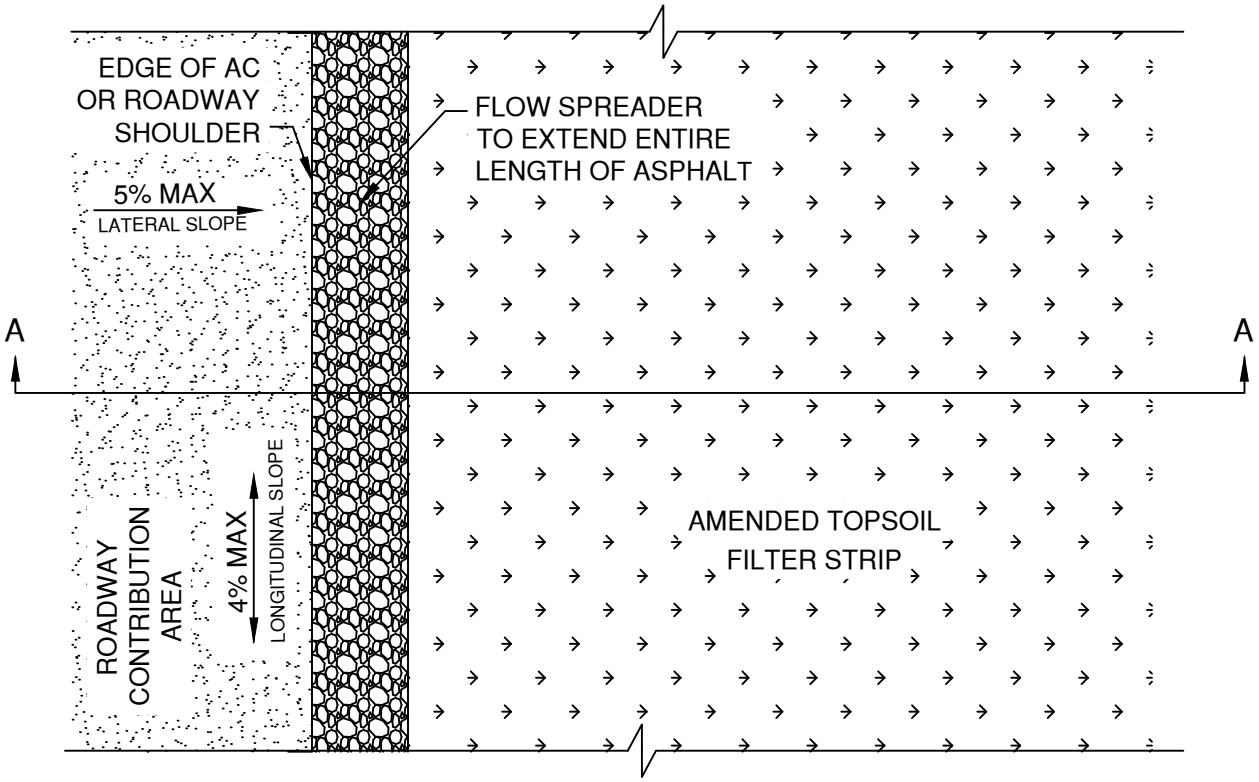
FLOW-THROUGH PLANTER TYPICAL SECTION

NTS

NOTE:

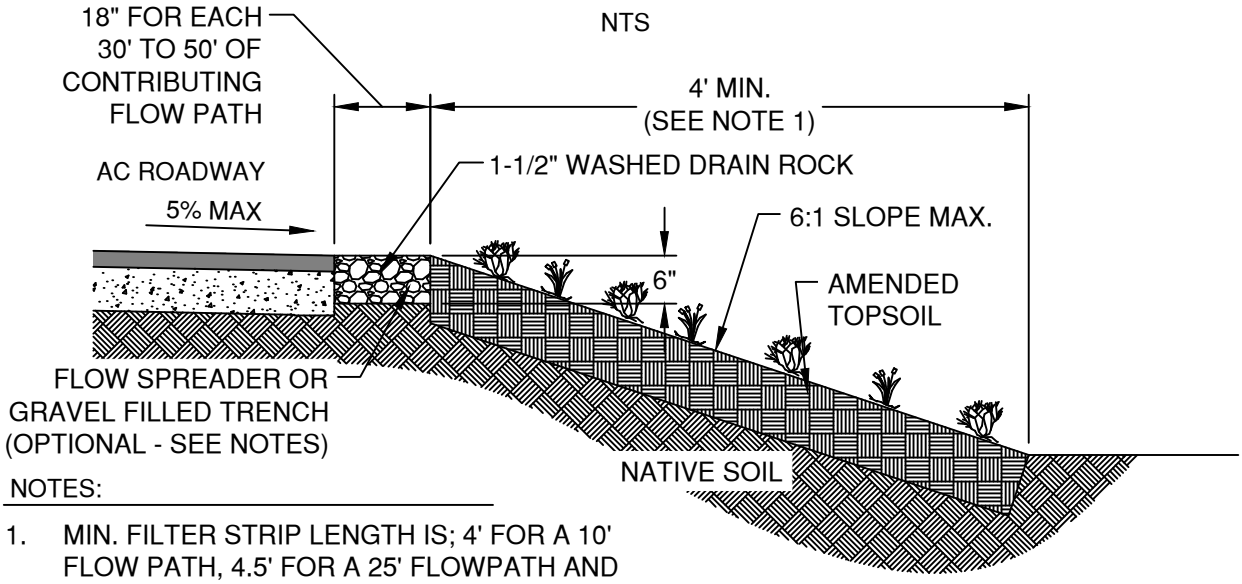
1. NOT FOR USE ALONG STREETS WITH POSTED SPEED ABOVE 25 MPH, UNLESS OUTSIDE THE CLEAR ZONE.
2. AMENDED TOPSOIL PER SPECIFICATION 01040
3. VOLUME AND DEPTH TO BE DETERMINED BY ENGINEER.
4. USE INFILTRATION PLANTER IF EXISTING SITE HAS AN INFILTRATION RATES > 0.5 IN/HR.
5. PLACE OVERFLOW PIPE 2" BELOW TOP OF PLANTER.
6. TO AVOID UIC REGULATION DO NOT USE PERFORATED PIPE OUTSIDE OF THE FLOW-THROUGH PLANTER OR WITH THE INFILTRATION PLANTER.

DRAWN AJD DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 STORMWATER PLANTER DETAIL	SCALE NTS DATE 01/31/2022 APPR STD DWG STRM-5



PLAN VIEW

NTS



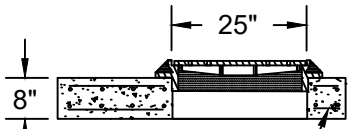
SECTION A-A

NTS

NOTES:

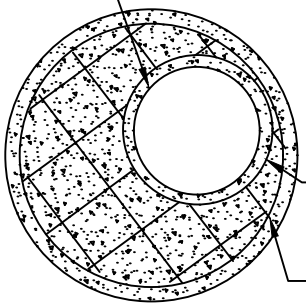
1. MIN. FILTER STRIP LENGTH IS; 4' FOR A 10' FLOW PATH, 4.5' FOR A 25' FLOWPATH AND 5.5' FOR A 30' FLOWPATH
2. AMENDED TOPSOIL PER SPECIFICATION 01040
3. FLOW SPREADER IS OPTIONAL. IF USED THE GRAVEL MUST BE WIDER THAN DEEP TO AVOID UIC REGULATIONS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER FILTER DETAIL	STD DWG STRM-6

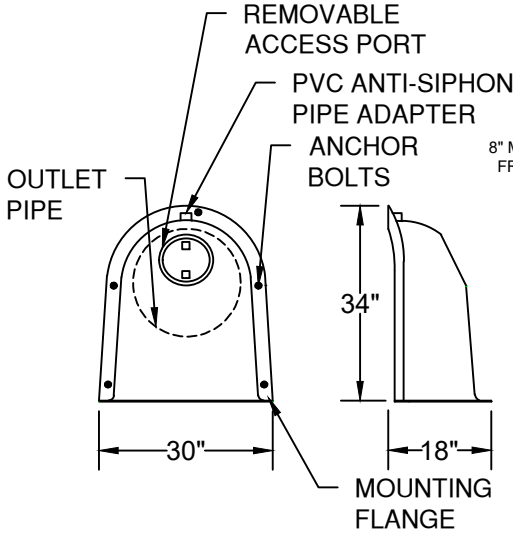


FLAT TOP
NTS

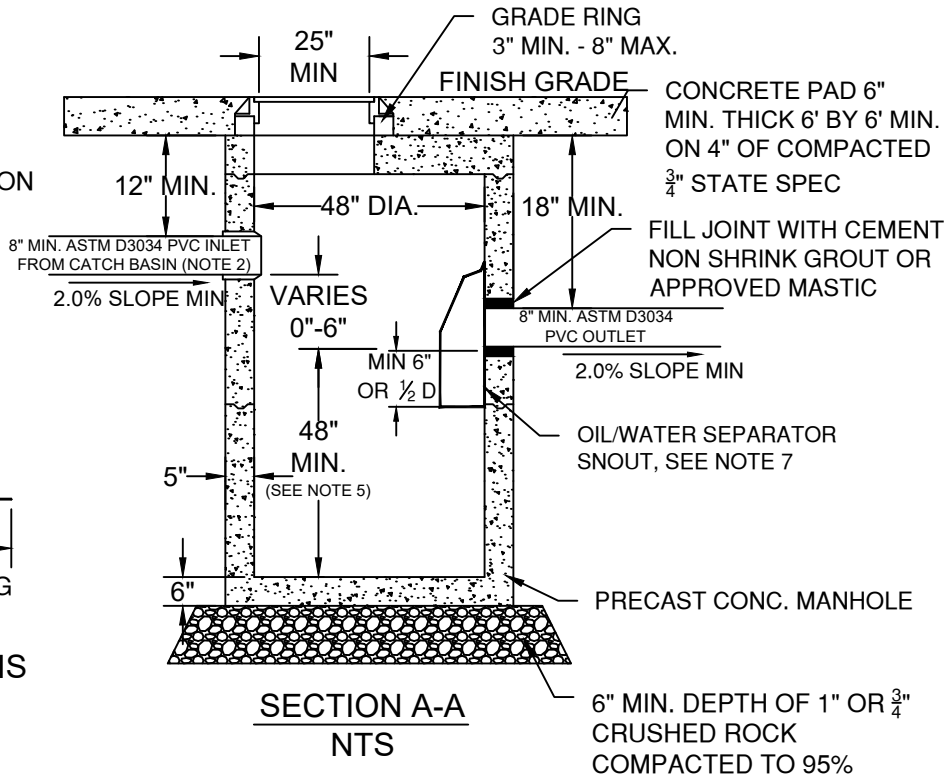
#4 BARS @ 12"
E.W. T. & B.



TOP VIEW



SNOUT OIL-WATER-DEBRIS
SEPARATOR
NTS

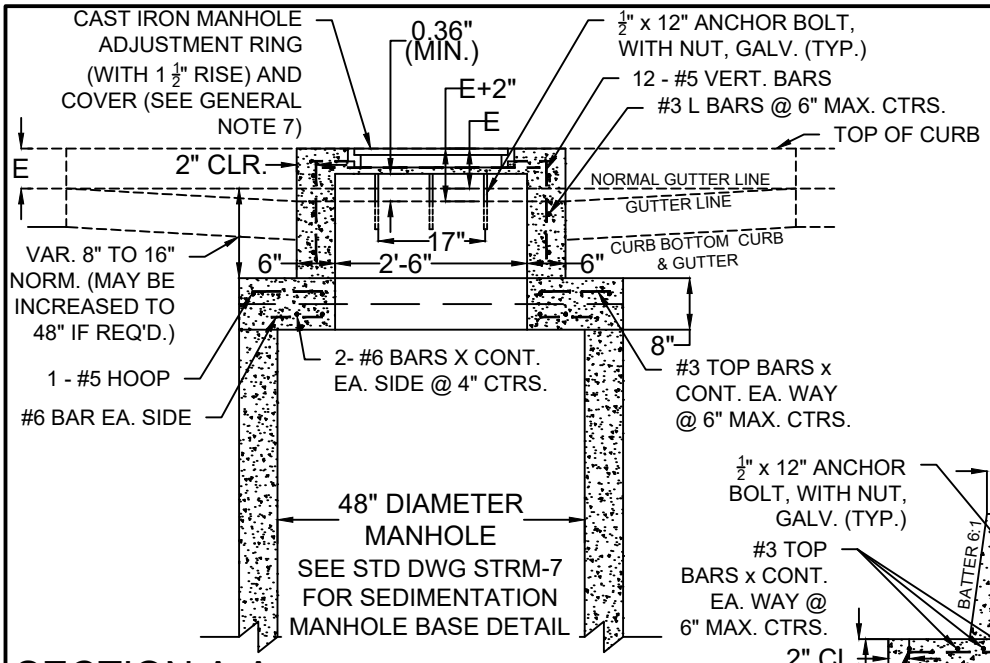


SECTION A-A
NTS

NOTES:

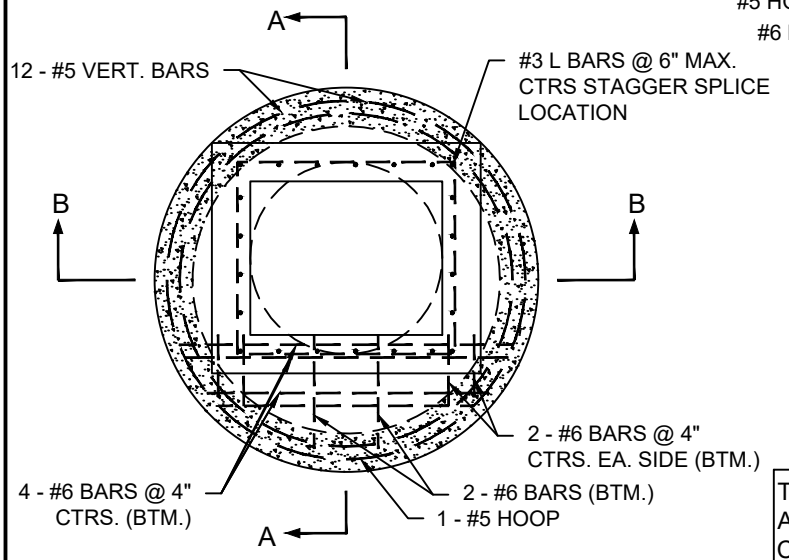
1. ALL PRE-CAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. AWWA C900 PIPE SHALL BE USED WITHIN TRAVEL AREAS. ASTM D3034 PIPE WHERE STORM PIPE WILL BE INSTALLED PERSANITARY SEWER REQUIREMENTS OR OUTSIDE OF TRAVEL AREAS.
3. MANHOLES SHALL BE PLACED OUTSIDE SIDEWALK, APRONS & STREET SURFACES UNLESS APPROVED BY THE CITY ENGINEER.
4. A 3 POINT MECHANICAL ADJUSTMENT SYSTEM SUCH AS RAD`S OR APPROVED EQUAL SHALL BE USED TO ADJUST MANHOLE FRAME AND COVER TO FINISH GRADE.
5. SUMP SIZE TO BE DESIGNED IN ACCORDANCE WITH COSM - 20 CF OF SUMP VOLUME FOR EACH 1.0 CFS DESIGN FLOW - NOT LESS THAN 48" DEPTH.
6. MANHOLES WITH MORE THAN 3 CONNECTIONS, OR PIPES 12" OR LARGER TO BE 60" MANHOLES
7. OIL/WATER SEPARATOR SNOUT BMP 24R, OR APPROVED EQUAL. SECURE TO MANHOLE WITH FIVE (5)$\frac{3}{8}$"x1-12" STAINLESS STEEL RED HEAD BOLTS, WASHERS AND NUTS, OR AS APPROVED BY MANUFACTURER.

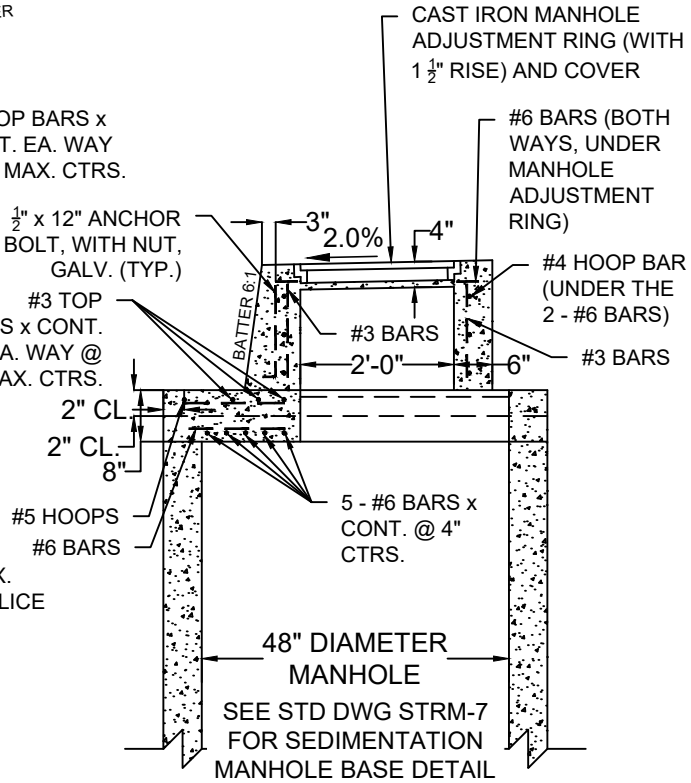
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	STORMWATER SEDIMENTATION MANHOLE	STD DWG STRM-7



SECTION A-A

NTS





SECTION B-B

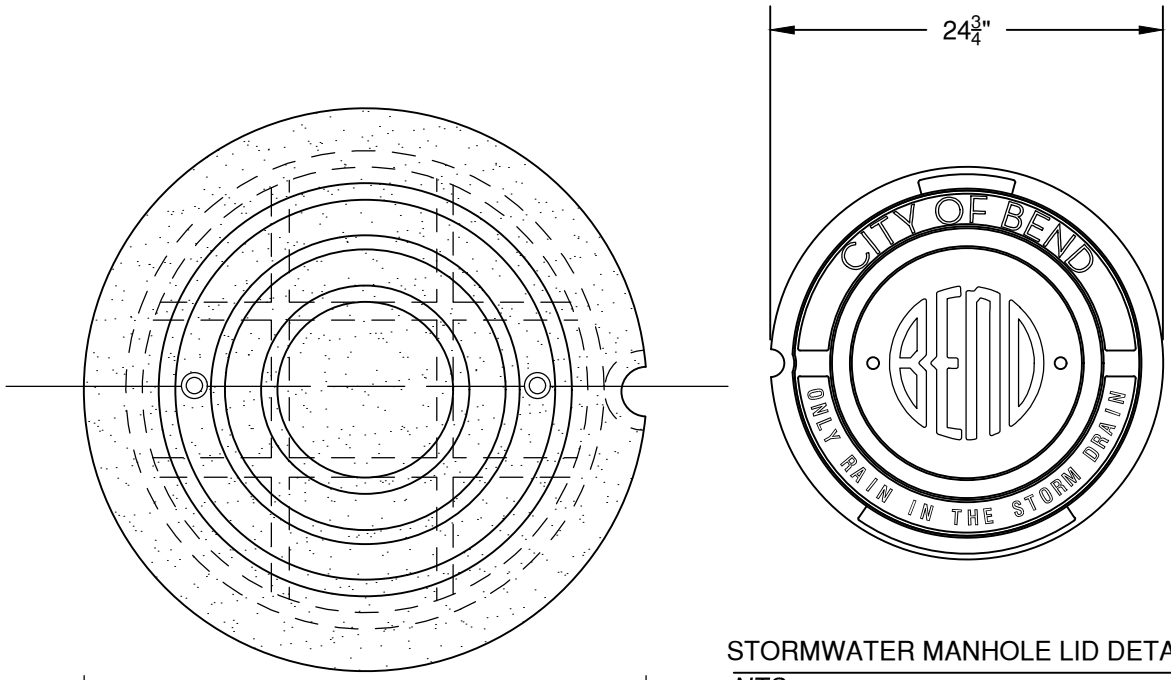
NTS

THIS SEDIMENTATION MANHOLE OPTION IS USED WHEN A CATCH BASIN OR INLET ARE PROPOSED AND A CONFLICT EXISTS PREVENTING INSTALLATION OF THE STANDARD SEDIMENTATION MANHOLE (STRM-7).

NOTES:

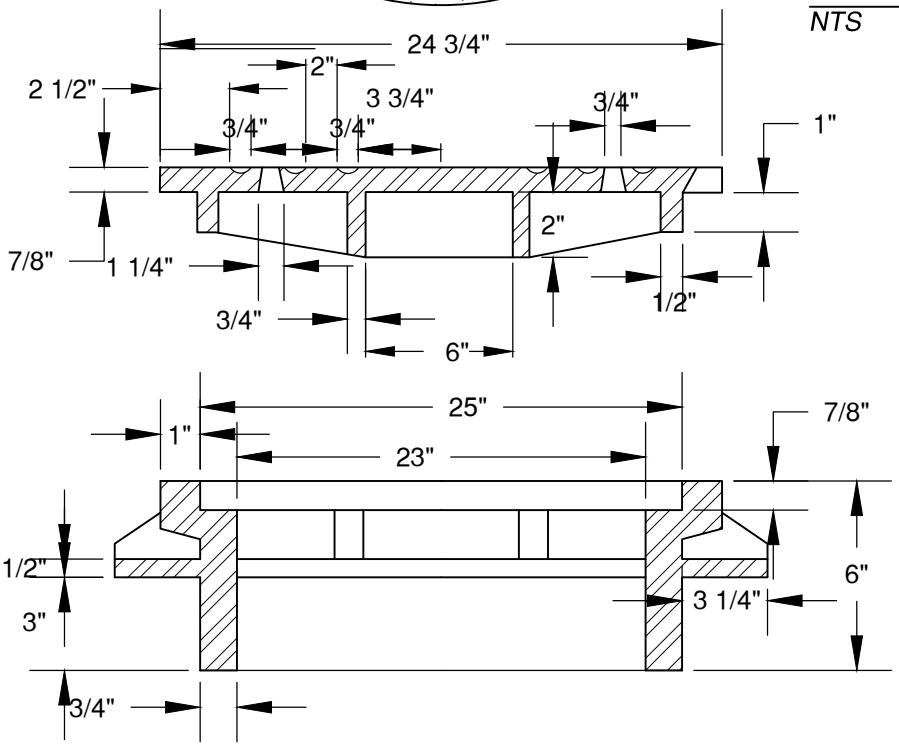
1. ALL REINFORCEMENT TO BE PLACED A MINIMUM OF 2" CLEAR OF NEAREST FACE OF CONCRETE UNLESS OTHERWISE SHOWN OR NOTED.
2. ALL PRECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C478.
3. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
4. INLET TOP MAY BE CAST-IN-PLACE OR PRECAST. ALL PRECAST INLETS SHALL CONFORM TO REQUIREMENTS OF ASTM C913.
5. VARY ANCHOR BOLT LENGTH AND REINFORCING BAR PLACEMENT AS REQUIRED BY CURB EXPOSURE E.
6. SEE COB STD DWG R-3 FOR CURB DETAILS.
7. SEE ODOT STD DWG RD356 FOR MANHOLE ADJUSTMENT RING. SEE COB STD DWG STRM-8 FOR CAST IRON MANHOLE ADJUSTMENT RING AND COVER.
8. SUMP SIZE TO BE DESIGNED IN ACCORDANCE WITH COSM - 20 CF OF SUMP VOLUME FOR EACH 1.0 CFS DESIGN FLOW - NOT LESS THAN 48" DEPTH.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER SEDIMENTATION MANHOLE - ALTERNATE	STD DWG STRM-7A



STORMWATER MANHOLE LID DETAIL

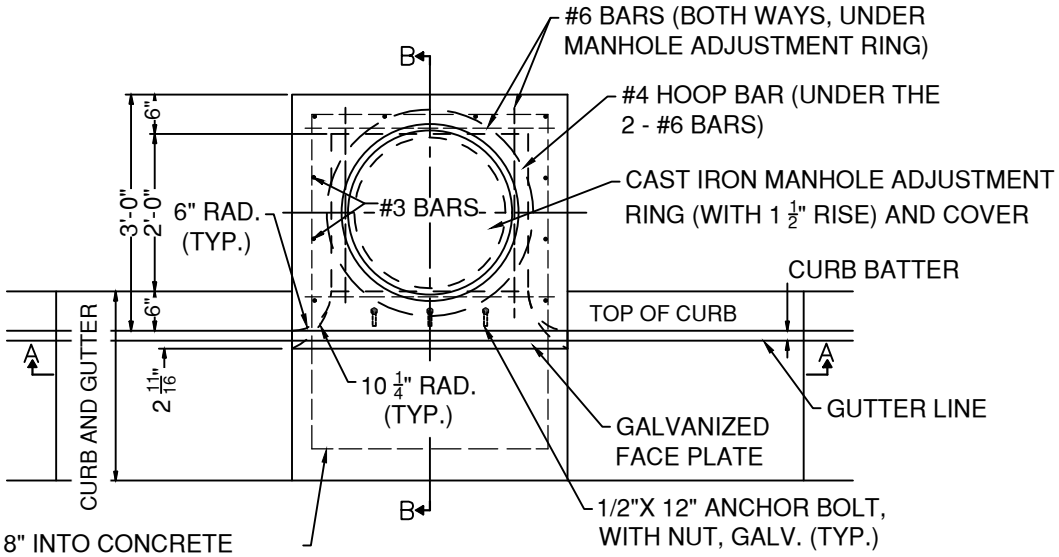
NTS



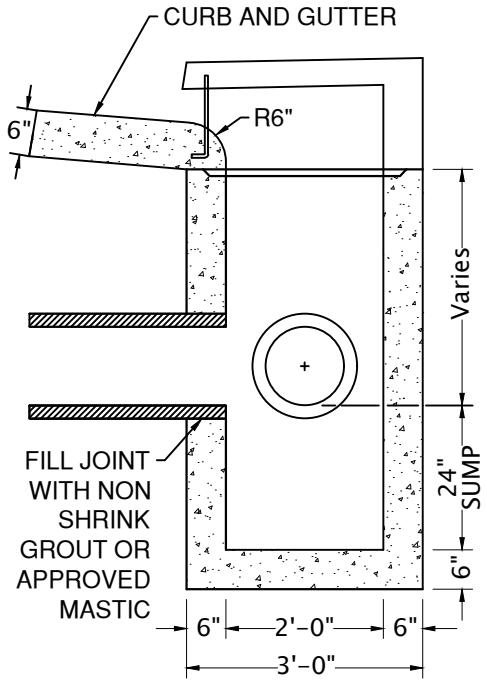
NOTE:

1. MANHOLE LID ONLY TO BE USED ON CITY OF BEND PUBLIC DRYWELLS AND SEDIMENTATION MANHOLES. PRIVATELY OWNED DRYWELLS AND SEDIMENT MANHOLES SHALL NOT USE A CITY OF BEND MANHOLE LID.
2. HINGED MANHOLE LIDS ARE NOT PERMITTED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. ALL MANHOLE LIDS SHALL BE PLACED OUTSIDE THE PATH OF TRAVEL OF SIDEWALKS AND DRIVEWAY APRONS.

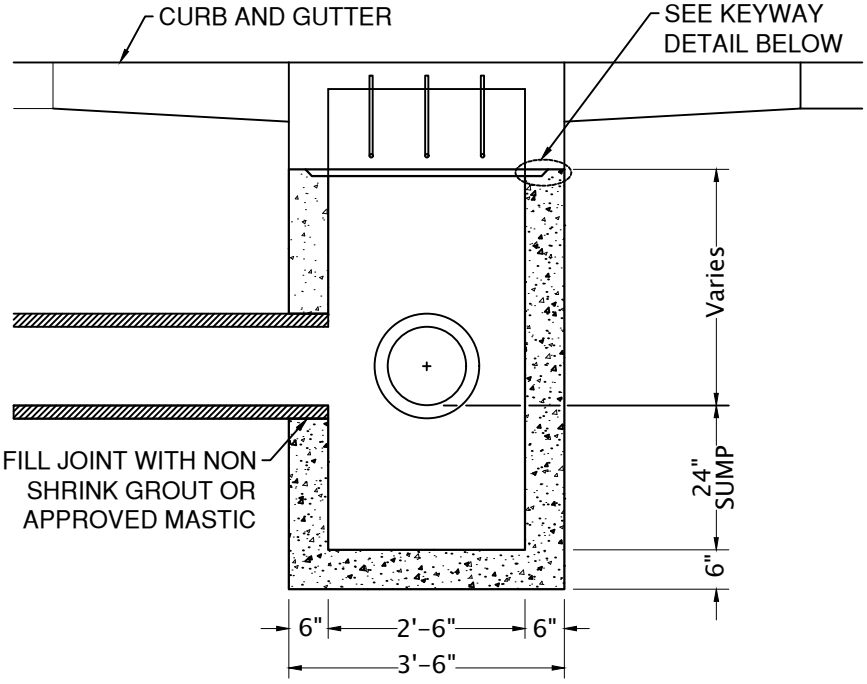
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STORMWATER MANHOLE LID DETAIL	STD DWG STRM-8



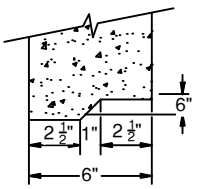
PLAN VIEW



SECTION B - B



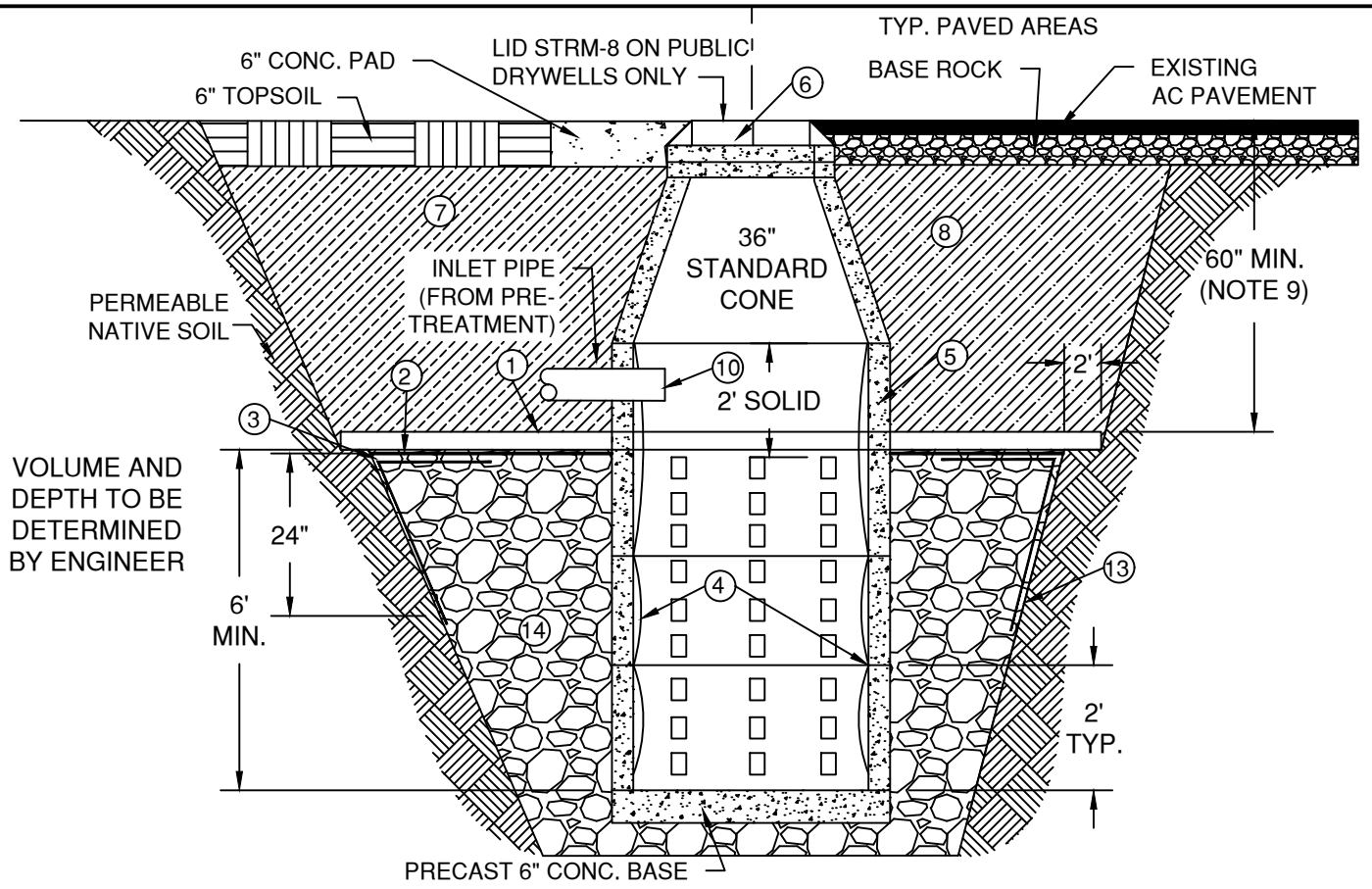
SECTION A - A



KEYWAY DETAIL

NOTES:
1. REMOVE SUFFICIENT CURB TO POUR BACK WALL. TOP SECTION MAY BE POURED MONOLITHIC WITH SIDEWALK.
2. CURB INLETS TO BE USED ON ARTERIAL AND COLLECTOR ROADWAYS.
3. "E" = CURB EXPOSURE.
4. SEE COB STD DWG STRM-8 FOR CAST IRON MANHOLE ADJUSTMENT RING AND COVER.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 03/22/2023
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD CATCH BASIN SPECIAL INLETS	STD DWG STRM-9

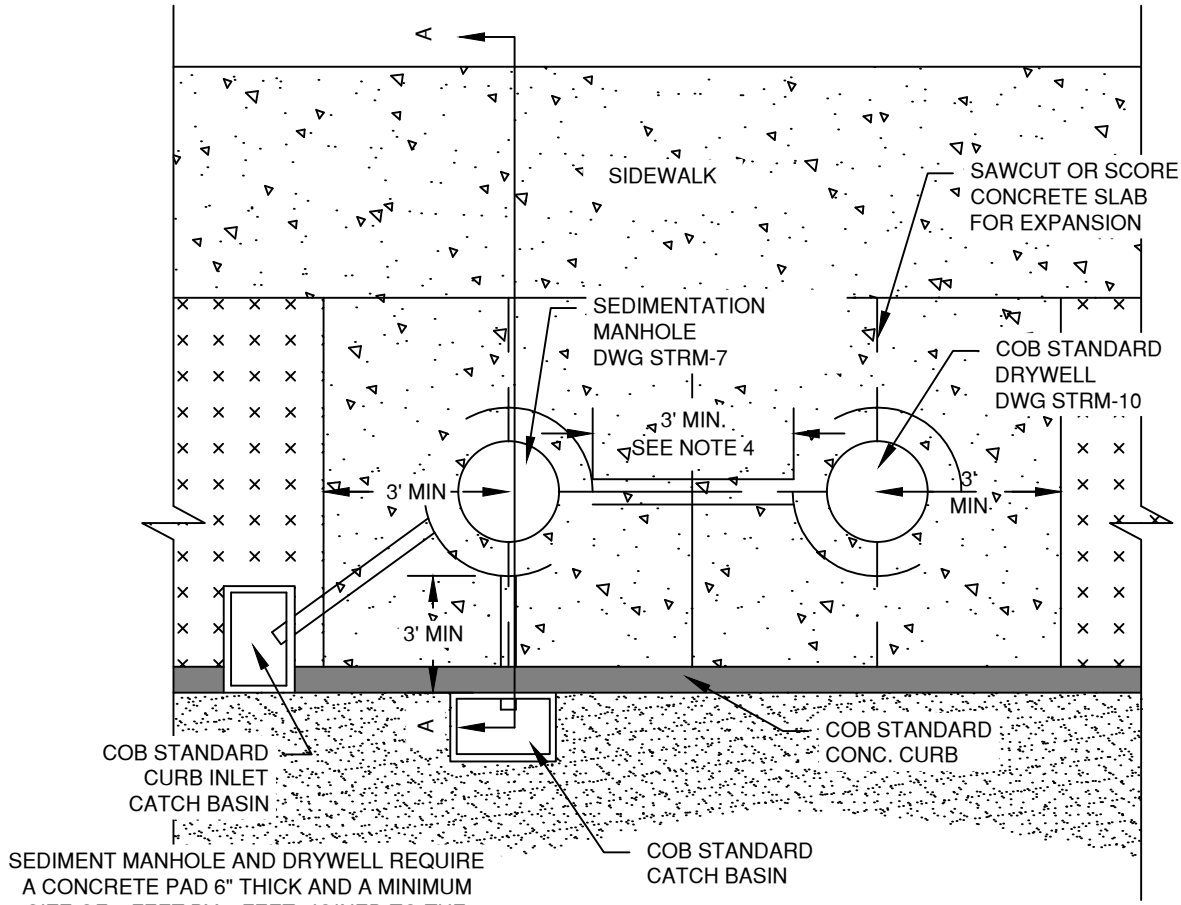


NOTES:

* SEE ALSO THE CITY OF BEND STANDARDS AND SPECIFICATIONS FOR DESIGN CRITERIA

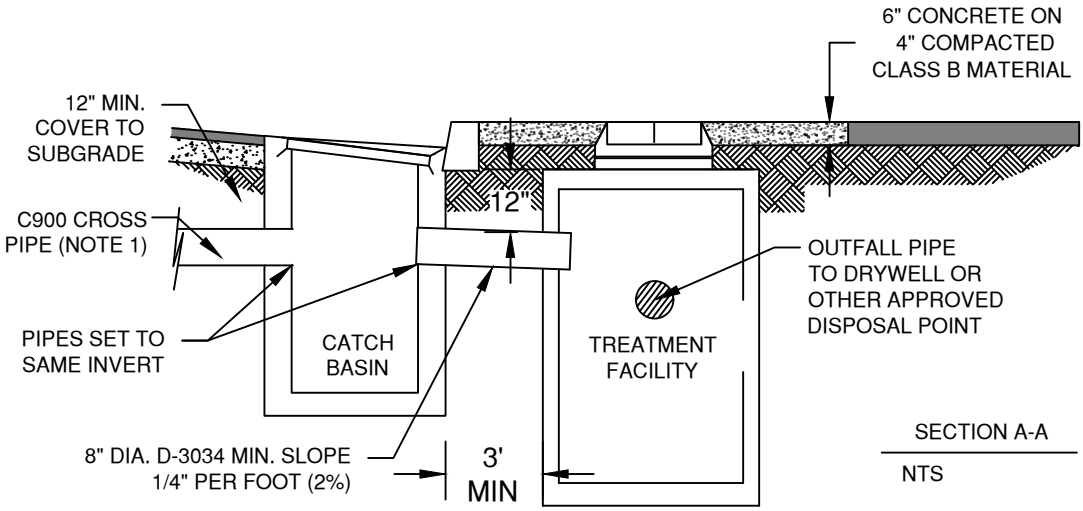
1. 6" CONCRETE CAP, SECTION 00440 COMMERCIAL GRADE CONCRETE, EXTEND TO UNDISTURBED MATERIAL 2' MIN. REQUIRED WITHIN ALL CITY OF BEND RIGHT OF WAY UNLESS NOTED OTHERWISE.
2. MOISTURE BARRIER-2 LAYERS OF 4 MIL POLY. ON ALL ROCK INSTALLATIONS.
3. NONWOVEN GEOFABRIC CONFORMING TO DRAINAGE GEOTEXTILE, OREGON TABLE 02320-1 REQUIRED ON ALL EARTH OR GRAVEL EXCAVATIONS TO 24" INTO ROCK. LAP 24" WITH MOISTURE BARRIER.
4. LINE INSIDE OF PERFORATED BARREL WITH HEAVY WEIGHT VINYL SCREEN, SUCH AS FULL FLOW VINYL SCREEN THAT MEETS THE REQUIREMENTS OF SPECIFICATION SECTION 00470. LINER SHALL BE FULLY AND CONTINUOUSLY ANCHORED, TOP AND BOTTOM OF EACH SECTION. ATTACH BY OVERLAPPING 12" MIN. BETWEEN JOINT OF MANHOLE CONE AND PERFORATED BARREL SECTION. INLET PIPE SHALL BE EXTENDED THROUGH THE SCREEN IF SCREEN IS ATTACHED ABOVE THE PIPE.
5. PRE-CAST SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE
6. STANDARD RING AND COVER REQUIRED IN RIGHT-OF-WAY AREAS. NO SLOTTED COVERS WILL BE ALLOWED IN LIEU OF A CATCH BASIN.
7. CLASS "A" BACKFILL COMPACTED TO 95.0% OPTIMUM DRY DENSITY (AASHTO T-99).
8. CLASS "B" BACKFILL COMPACTED TO 95.0% OPTIMUM DRY DENSITY (AASHTO T-99).
9. PERFORATIONS TO BE 60" BELOW EXISTING UNDISTURBED GROUND.
10. INLET PIPE MUST BE DESIGNED SO IT CAN BE PLUGGED IN CASE OF SPILL. ALL PIPE PENETRATIONS ARE TO BE GROUTED OR WATER-TIGHT SEALED. PIPE INLETS NOT TO ENTER DRYWELL WITH PERFORATED BARREL.
11. DRYWELL RIMS TO BE PLACED OUTSIDE OF SIDEWALK, APRON & STREET SURFACES UNLESS APPROVED BY THE CITY ENGINEER.
12. PLANS SHALL PROVIDE VOLUME AND AREA OF ROCK PLACEMENT. ROCK PLACEMENT SHALL BE OUTSIDE WATER/SEWER TRENCHES. WHERE ROCK ENTERS PRIVATE PROPERTY, A DRAINAGE EASEMENT SHALL BE RECORDED.
13. GEOFABRIC TO BE EXTENDED FROM THE CONCRETE CAP TO BOTTOM OF DRYWELL STRUCTURE. WHERE THE EXCAVATION IS WITHIN SOLID ROCK (NO SIDEWALL SLOUGHING), GEOFABRIC CAN BE WAIVED AT ENGINEER'S DISCRETION
14. CLEAN 2"-3" CRUSHED OR RIVER RUN DRAIN ROCK PER SECTION 00470.18.

DRAWN AJD DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 STANDARD PRE-CAST DRYWELL	SCALE NTS DATE 03/22/2023 APPR STD DWG STRM-10



PLAN VIEW

NTS



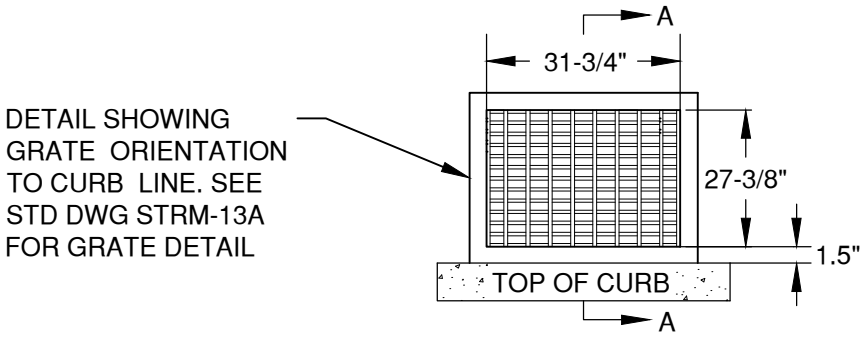
SECTION A-A

NTS

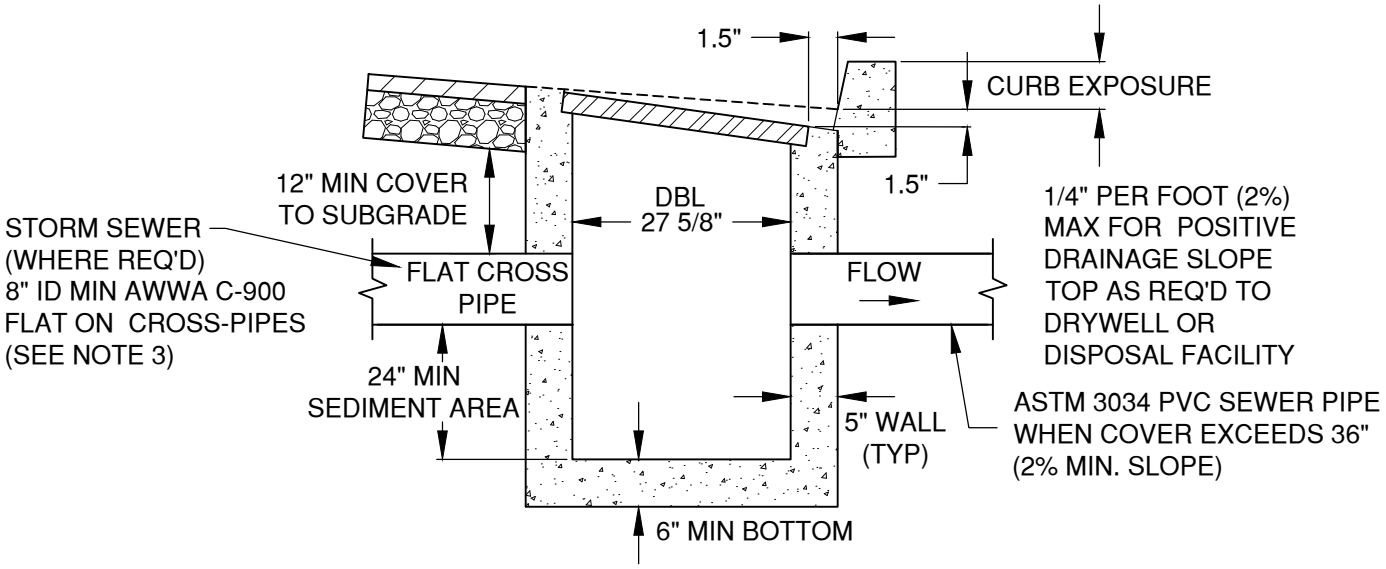
NOTES:

1. CROSS PIPE ELEV MAY REQUIRE OTHER UTILITIES (SEWER, WATER, ETC) TO BE LOWERED TO PROVIDE MINIMUM SEPARATIONS
2. ALL PIPE PENETRATIONS ARE TO BE GROUTED OR WATER TIGHT SEALED.
3. DRYWELL AND TREATMENT FACILITY NOT TO BE PLACED IN DRIVEWAY OR SIDEWALK UNLESS APPROVED BY THE CITY ENGINEER.
4. WHEN DRY UTILITIES WILL BE INSTALLED BETWEEN STRUCTURES, PROVIDE MINIMUM 5' SEPARATION.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRYWELL W/ MANUFACTURED TREATMENT LAYOUT	STD DWG STRM-11



PLAN VIEW

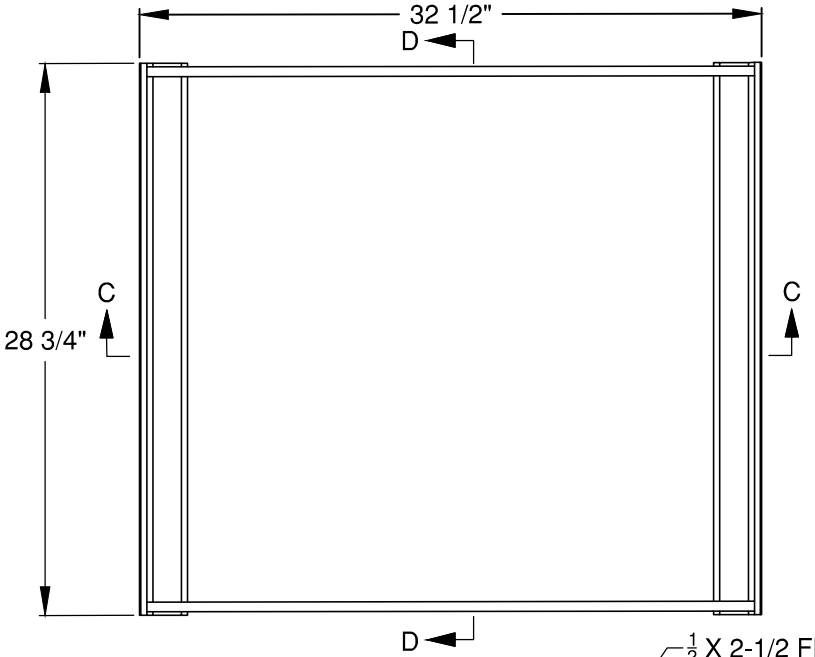


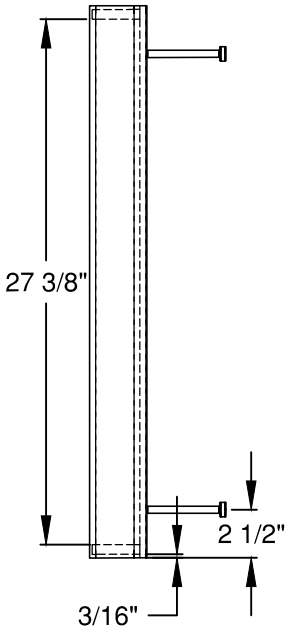
SECTION A-A

NOTES:

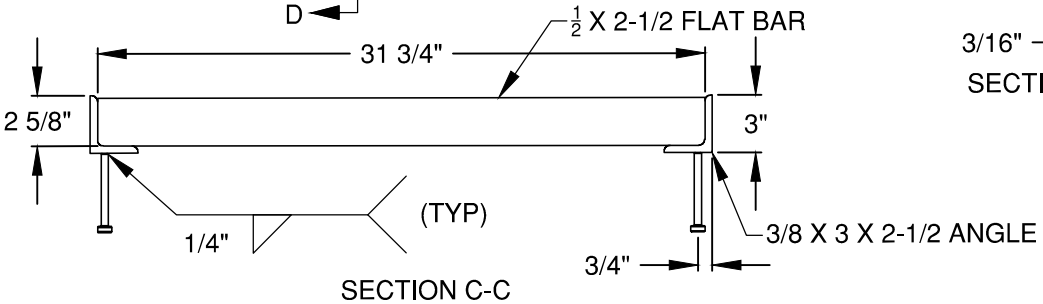
1. UNLESS OTHERWISE SPECIFIED, ALL CATCH BASINS TO BE DOUBLE CATCH BASIN
2. BACKFILL TO BE COMPACTED TO 95% OF OPTIMUM PER SPECIFICATION SECTION 00330.43
3. CROSS PIPE ELEV MAY REQUIRE OTHER UTILITIES (SEWER, WATER, ETC) TO BE LOWERED TO PROVIDE MINIMUM SEPARATIONS
4. ALL PIPE CONNECTIONS TO BE GROUTED PER SPECIFICATION SECTION 00470.40
5. CONTRACTOR IS RESPONSIBLE TO KEEP CATCH BASIN CLEAN AND FREE OF SEDIMENT DURING CONSTRUCTION
6. CONTRACTOR IS RESPONSIBLE TO COVER AND BARRICADE ALL CATCH BASINS UNTIL GRATE IS INSTALLED
7. STANDARD CATCH BASINS ARE LIMITED TO LOCAL STREETS AND SHALL NOT BE USED ON ARTERIAL & COLLECTOR ROADWAYS. CURB INLETS ARE TO BE USED ON ARTERIAL & COLLECTOR ROADWAYS.
8. SEE DRG R-11 FOR PAVEMENT RESURFACING

DRAWN AJD		CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 03/22/2023
REV	DATE	710 NW WALL ST., BEND, OREGON 97701	APPR
		STANDARD CATCH BASIN	STD DWG STRM-12



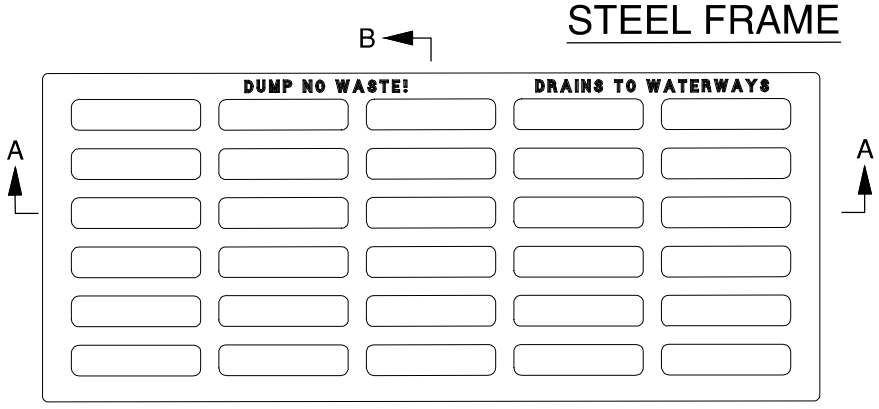


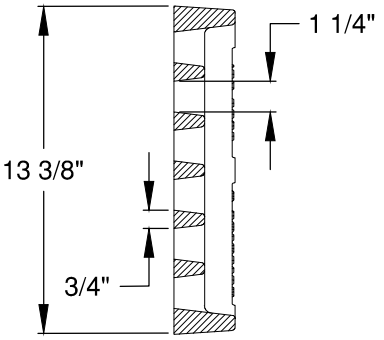
SECTION D-D



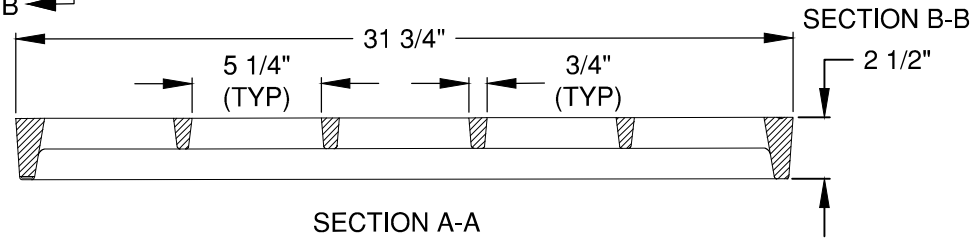
SECTION C-C

STEEL FRAME





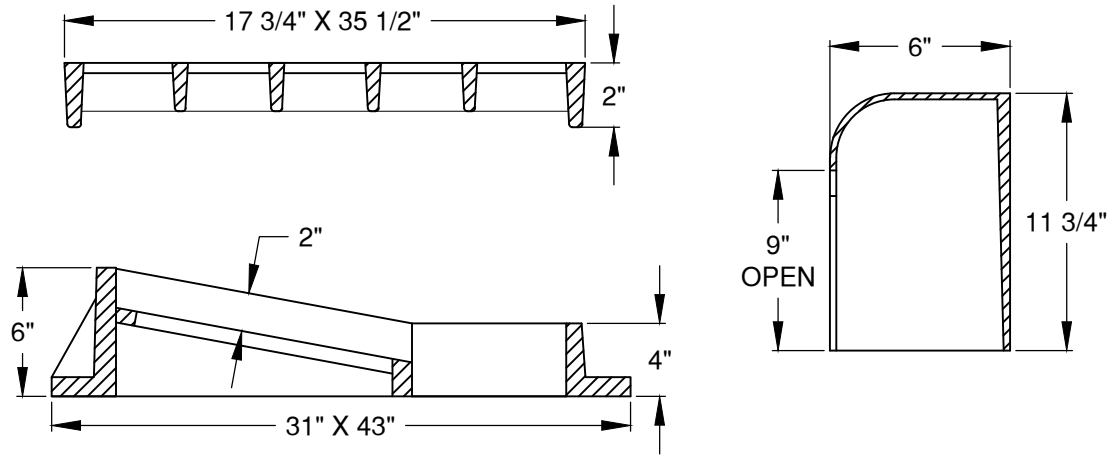
SECTION B-B



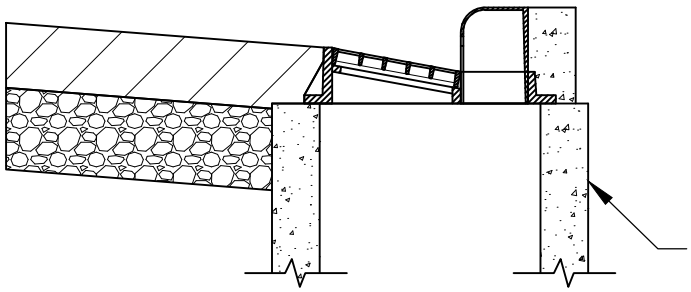
SECTION A-A

DUCTILE IRON GRATE

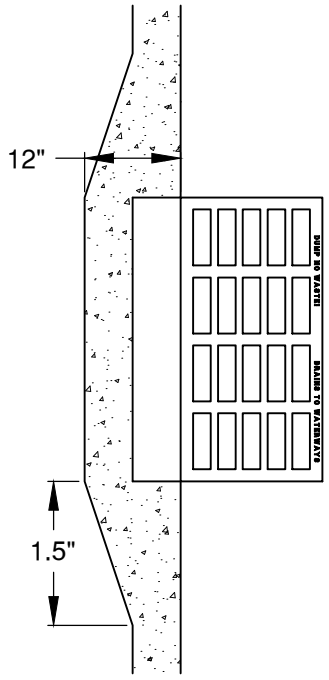
DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV STORM			DATE 01/31/2022
REV / DATE			APPR
		STORMWATER GRATE	STD DWG STRM-13A



CAST IRON COMBINATION CATCH BASIN INLET



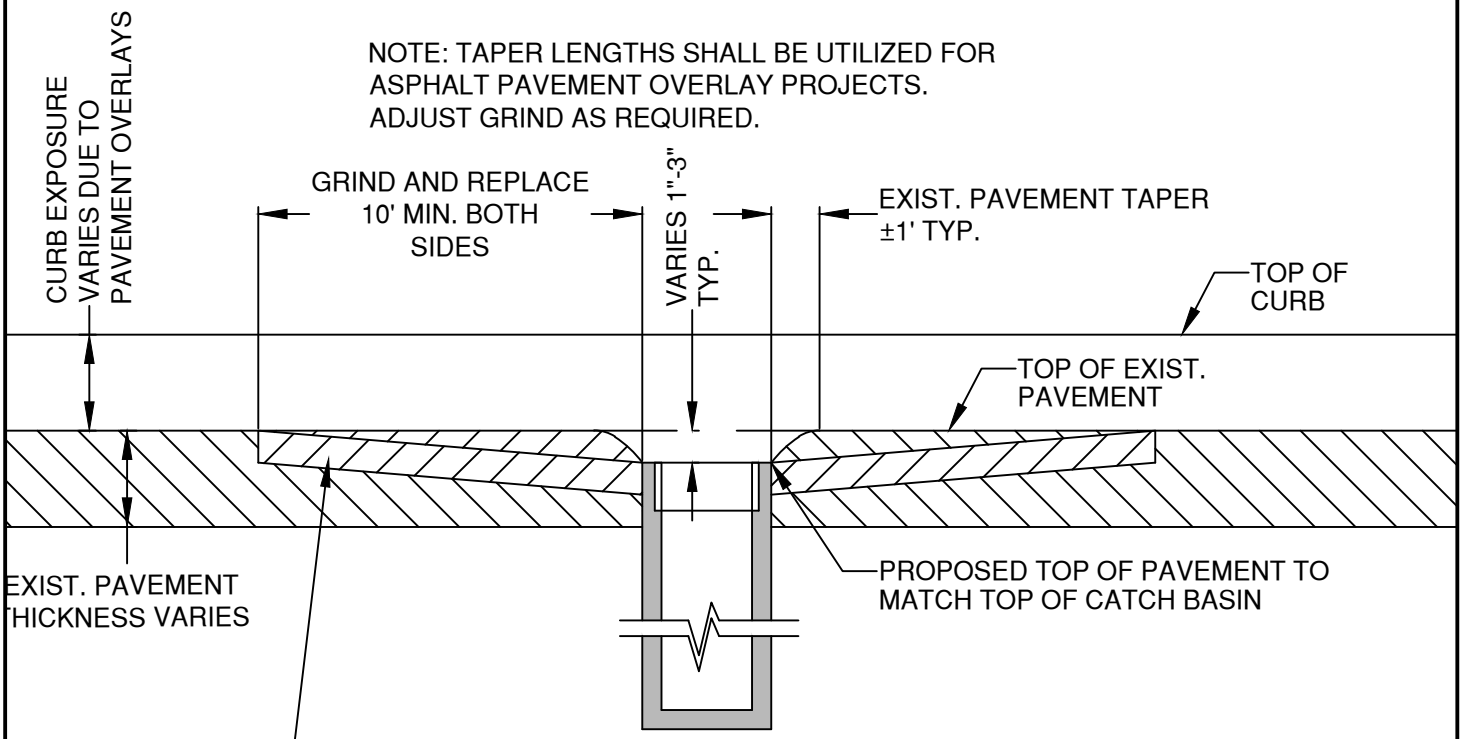
STANDARD CATCH BASIN BASE. SEE STD DWG STRM-12



NOTES:
1. SEE NOTES ON STD DWG STRM-12
2. COMBINATION CATCH BASIN INLET TO BE USED ON COLLECTOR AND LOCAL STREETS WHEN THE ROAD GRADE EXCEED 6%

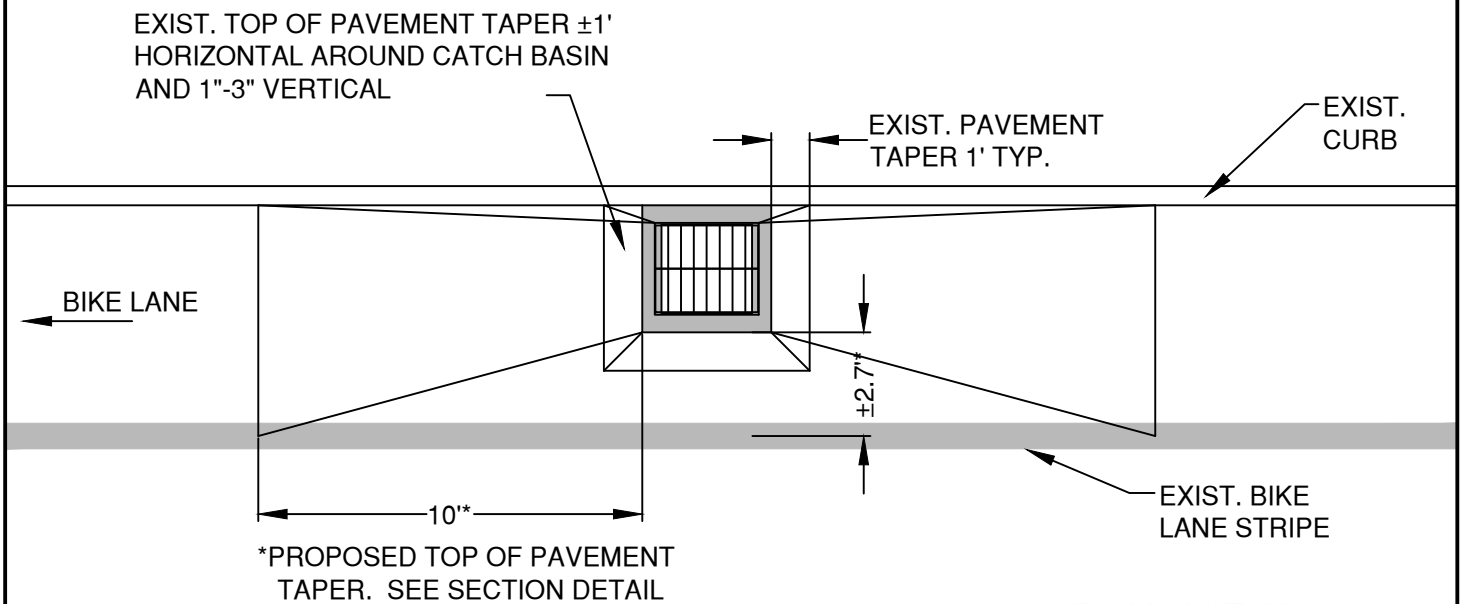
DRAWN AJD DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 COMBINATION CATCH BASIN INLET	SCALE NTS DATE 01/31/2022 APPR STD DWG STRM-13B

NOTE: TAPER LENGTHS SHALL BE UTILIZED FOR ASPHALT PAVEMENT OVERLAY PROJECTS. ADJUST GRIND AS REQUIRED.



SECTION VIEW

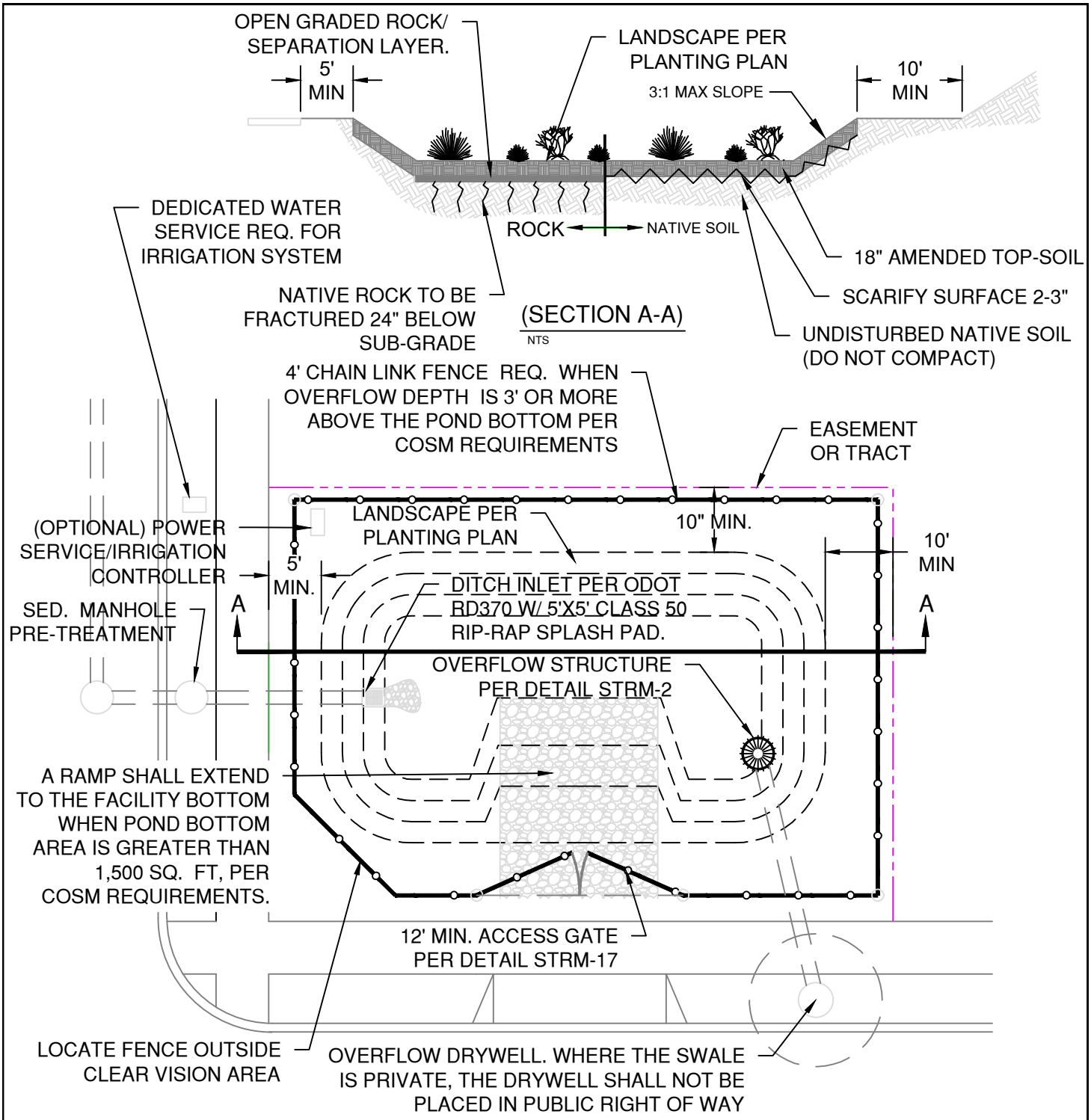
SCALE:
HORIZONTAL: 1"=5'
VERTICAL: 1"=1'



PLAN VIEW

SCALE:
HORIZONTAL: 1"=5'

DRAWN LJC DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 EXISTING CATCH BASIN PAVEMENT RESURFACING	SCALE NTS DATE 3/31/19 APPR STD DWG STRM-14

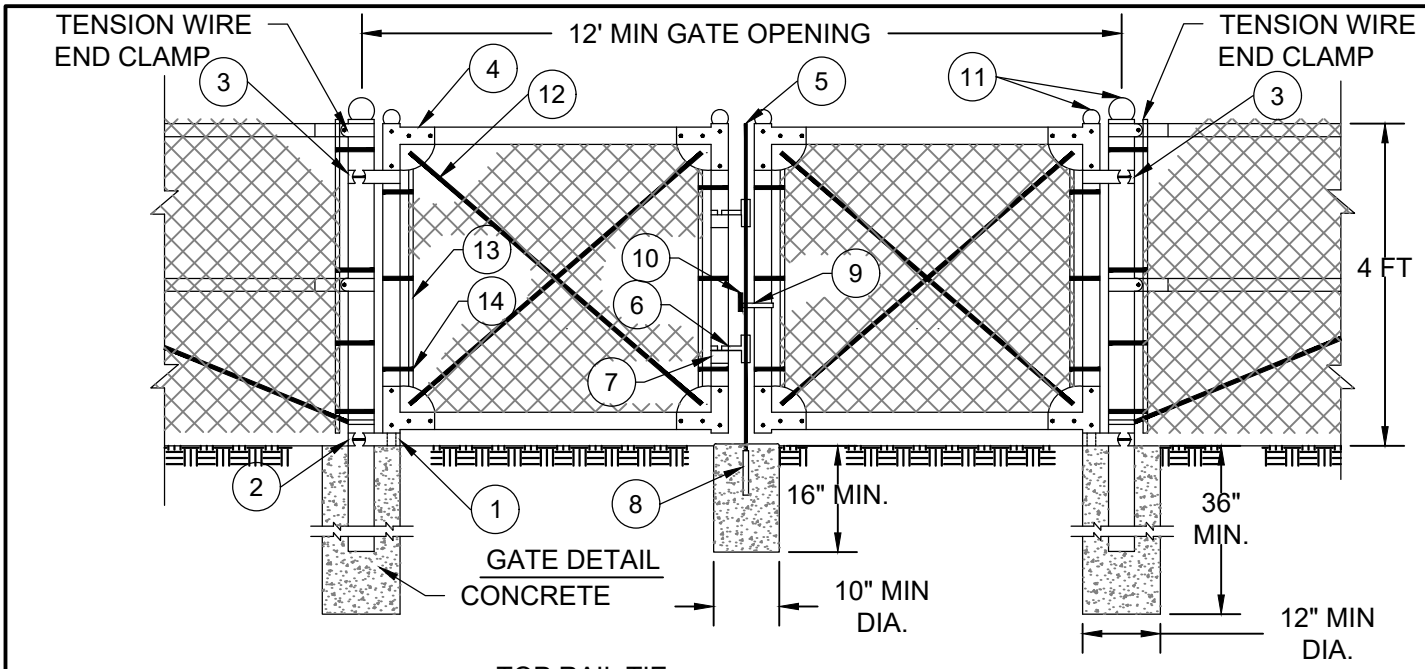


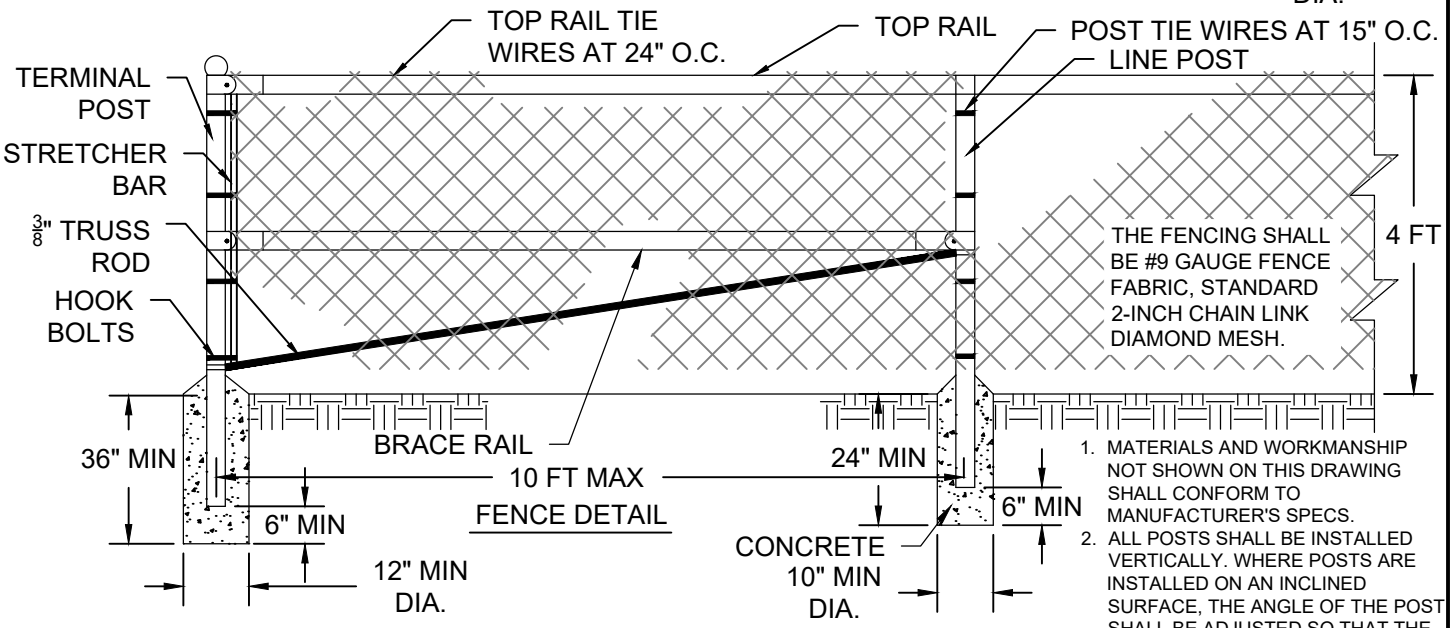
(SECTION A-A)
NTS

EXTENDED DETENTION DRY POND (PLAN VIEW)
NTS

NOTE:
THE WATER QUALITY TREATMENT STORM SHOULD DRAIN WITHIN 48 HOURS. IF ADDITIONAL STORAGE IS INCLUDED IN THE POND FOR LARGER STORM EVENTS, THE TOTAL FACILITY SHOULD DRAIN WITHIN 72 HOURS FOLLOWING THE PEAK DESIGN STORM EVENT.

DRAWN CJH DIV STORM REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 INFILTRATION POND DETAIL	SCALE NTS DATE 1/2021 APPR STD DWG STRM-16





1. MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO MANUFACTURER'S SPECS.
2. ALL POSTS SHALL BE INSTALLED VERTICALLY. WHERE POSTS ARE INSTALLED ON AN INCLINED SURFACE, THE ANGLE OF THE POST SHALL BE ADJUSTED SO THAT THE POST WILL BE VERTICAL.

PART NO.	DESCRIPTION
1	STRAIGHT PLUG
2	BOTTOM HINGE
3	TOP HINGE
4	CORNER ELBOW
5	PLUNGER ROD
6	LATCH FORK
7	FORK CATCH
8	PLUNGER ROD CATCH
9	LOCK KEEPER GUIDE
10	LOCK KEEPER W/ CITY LOCK
11	ORNAMENTAL TOPS
12	TRUSS RODS
13	STRETCHER BAR
14	HOOK BOLTS

GATE FRAME MEMBERS SIZE & WEIGHT		
GATE LEAF WIDTH OF 6 FT OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS/FT
ROUND	1.66	2.27
*ROUND	1.66	1.84
* GRADE B HIGH STRENGTH STEEL		

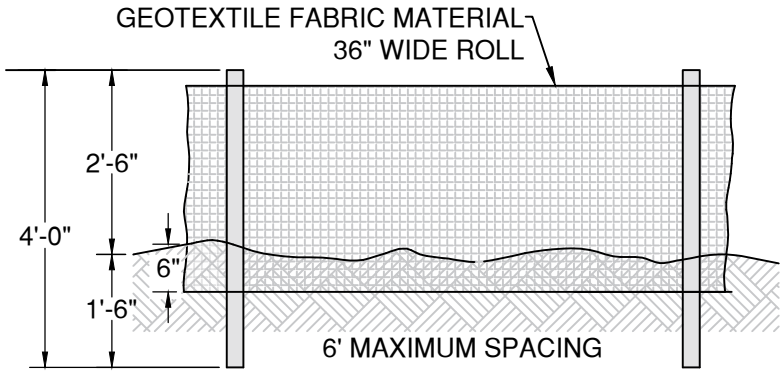
GATE POST SIZE AND WEIGHT		
GATE LEAF WIDTH OF 6 FT OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS/FT
ROUND	2.875	5.79
*ROUND	2.875	4.64
* GRADE B HIGH STRENGTH STEEL		

SHAPE, SIZE AND WEIGHT REQUIREMENTS FOR FENCE POSTS AND RAILS			
ITEM	SHAPE	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS/FT.
** TERMINAL POST	ROUND	2.375	3.65
	*ROUND	2.375	3.12
LINE POSTS	ROUND	1.90	2.72
	*ROUND	1.90	2.28
TOP & BRACE RAILS	ROUND	1.66	2.27
	*ROUND	1.66	1.84
* GRADE B HIGH STRENGTH STEEL			
** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS			

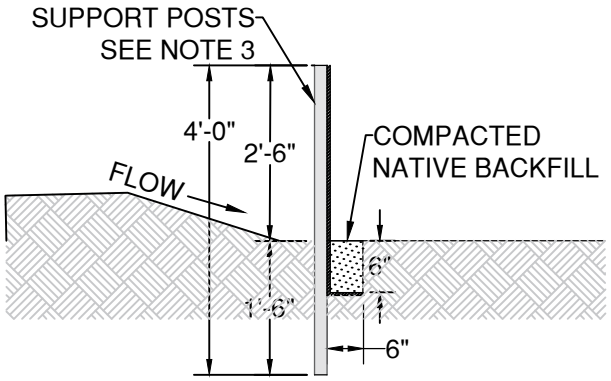
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV STORM		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		CHAINLINK FENCE DETAIL	STD DWG STRM-17

CITY OF BEND STANDARD DRAWINGS

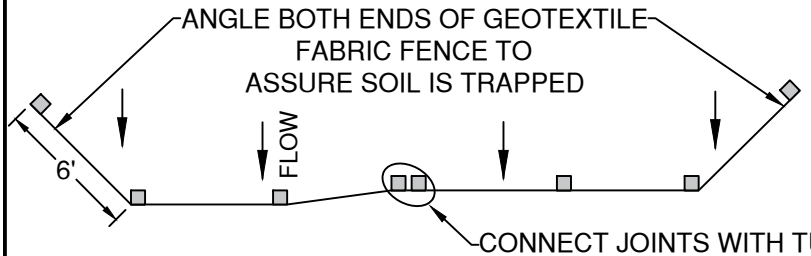
Erosion (E)



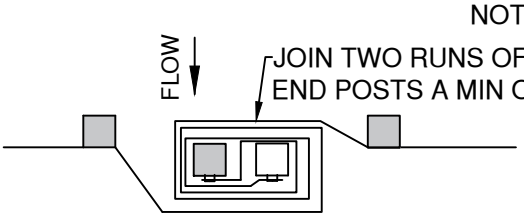
FRONT VIEW



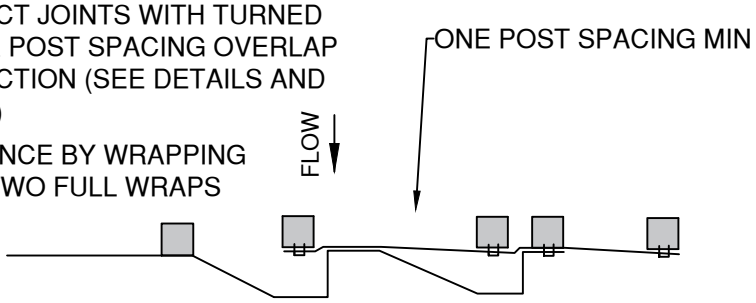
PROFILE VIEW



PLAN VIEW



TURNED END CONNECTION

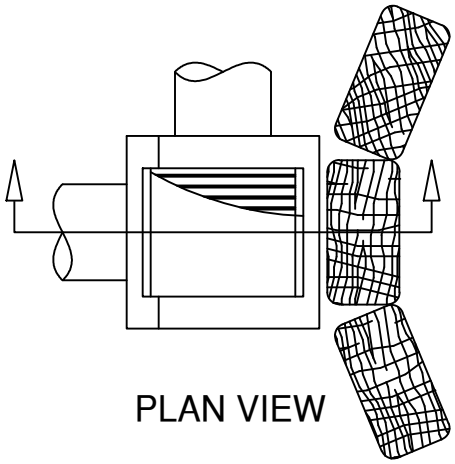


POST SPACING OVERLAP CONNECTION

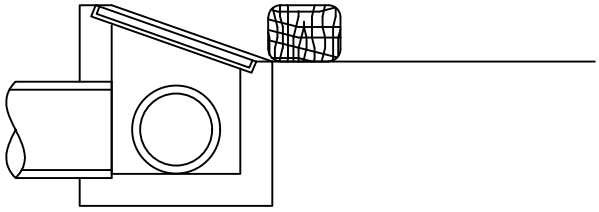
NOTES:

1. FABRIC WITHOUT SEWN-IN SLEEVES IS NOT RECOMMENDED. IF USED, INSTALL FENCE POSTS PER MANUFACTUER RECOMMENDATIONS.
2. THE GEOTEXTILE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, GEOTEXTILE SHALL BE SPLICED TOGETHER AT A SUPPORT POST UTILIZING A TURNED END OR POST SPACING OVERLAP CONNECTION.
3. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND INSTALLED INTO THE GROUND 18 INCHES MIN. FENCE POSTS SHALL BE 2" X 2" FIR, PINE, OR STEEL. THE GEOTEXTILE FABRIC FENCE SHALL BE INSTALLED TO FOLLOW THE SLOPE CONTOURS, TO MAXIMIZE PONDING EFFICIENCY WHERE FEASIBLE.
4. BURY BOTTOM OF THE GEOTEXTILE FABRIC 6 INCHES BELOW GRADE. BACKFILL AND COMPACT.
5. POSTS SHALL BE INSTALLED WITHIN THE SLEEVE ON THE UPHILL SIDE GEOTEXTILE FABRIC.
6. GEOTEXTILE FABRIC FENCE SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED.
7. GEOTEXTILE FABRIC FENCES SHALL BE INSPECTED BY APPLICANT/CONTRACTOR AFTER EACH RAIN OR SNOW EVENT AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
8. MAXIMUM RECOMMENDED FENCE WIDTH IS 500 FEET. MAXIMUM TRIBUTARY AREA IS 0.25 ACRE PER 100' OF FENCE. MAXIMUM RECOMMENDED SLOPE LENGTH IS 100'.

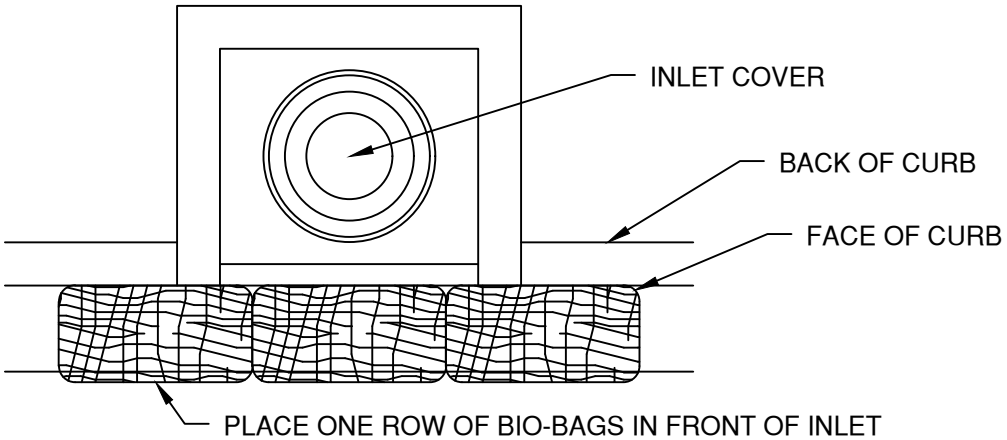
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		SEDIMENT FENCE DETAIL	STD DWG E-1



PLAN VIEW



DITCH INLET

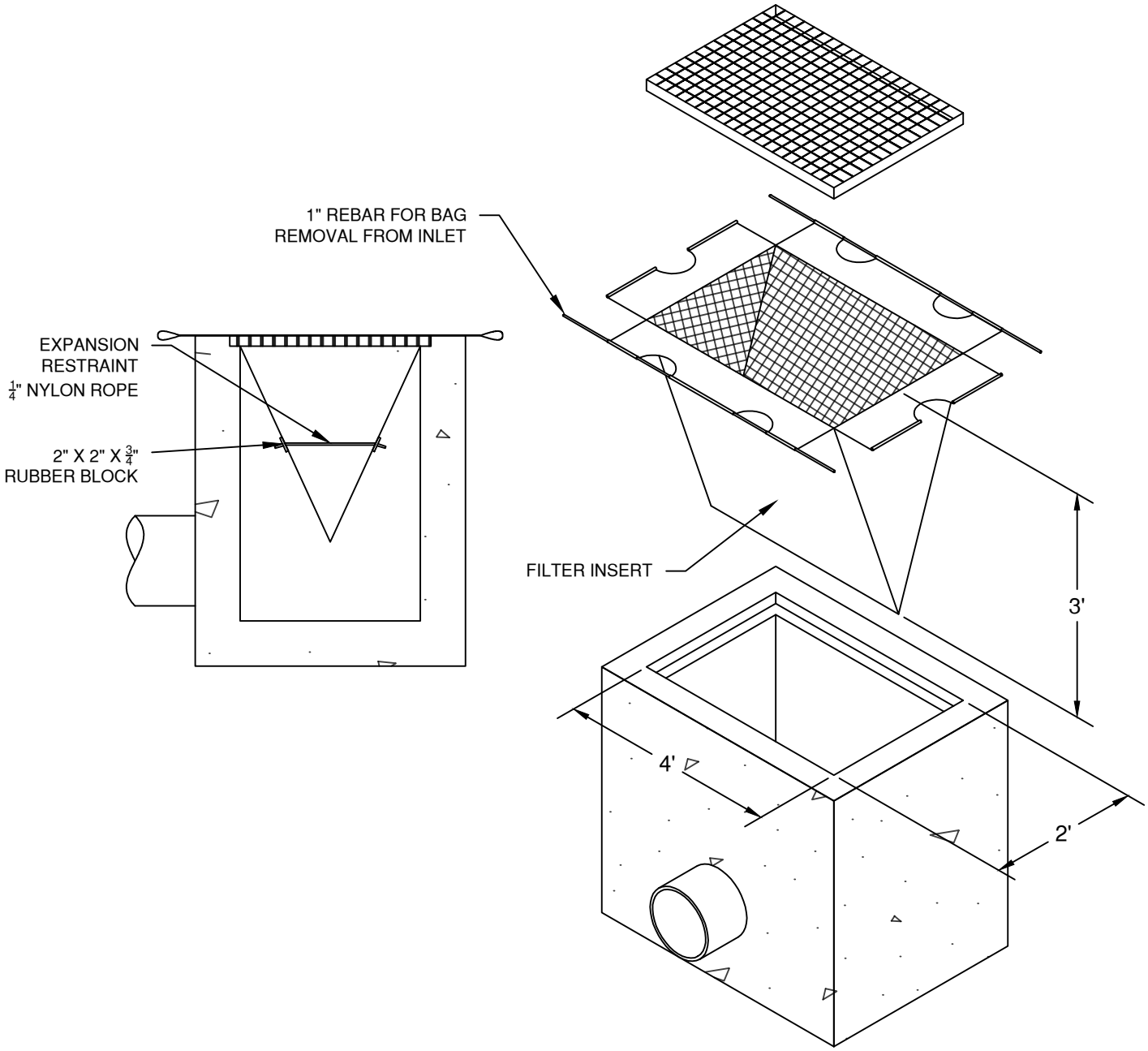


CURB INLET BIO-BAG INLET PROTECTION

NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO-BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"X2"X3' WOOD STAKES OR APPROVED EQUAL.
3. BIO-FILTER BAGS MUST BE REMOVED AND HAULED OFF-SITE FOR DISPOSAL BY THE CONTRACTOR UPON PROJECT STABILIZATION.
4. BIO-FILTER BAGS MAY BE USED SHORT TERM WITH UTILITY WORK AND WITH PHASING OF DEVELOPMENT.
5. APPROVED EQUAL SHALL BE USED ON ROADS WITH BIKE LANES
6. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UPHILL AREA IS PERMANENTLY STABILIZED.
7. AT NO TIME SHALL MORE THAN 2-INCHES OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND BIO-FILTER BAGS.
8. NEW SEDIMENT BARRIERS SHALL BE INSTALLED AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

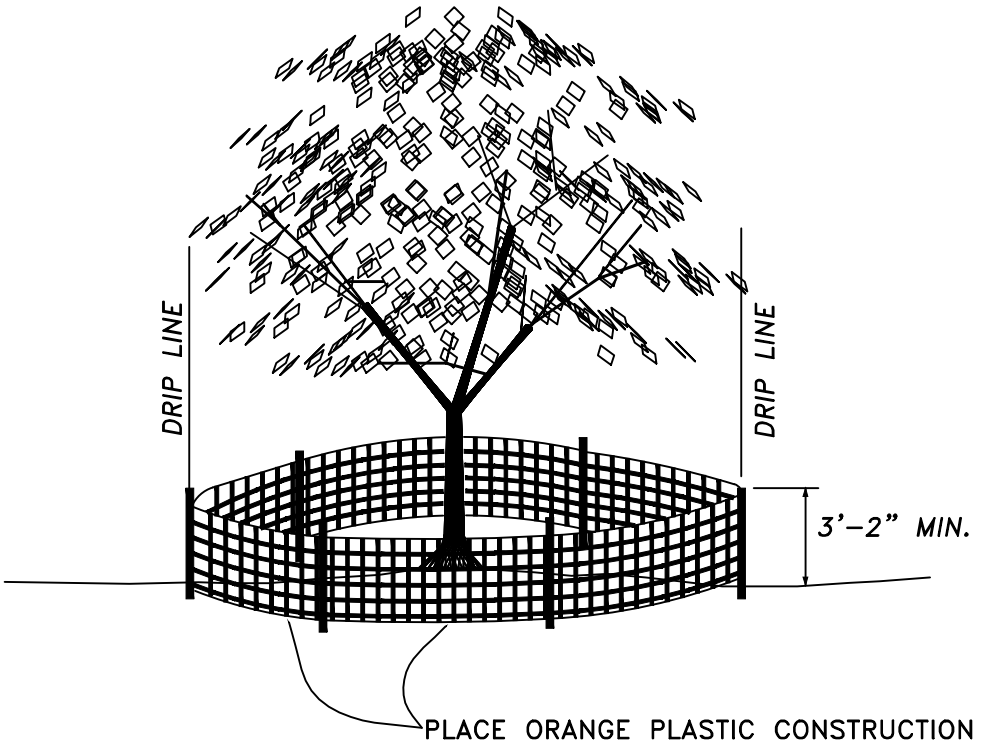
DRAWN AJD	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV EROSION			DATE 01/31/2022
REV / DATE			APPR
		BIO-FILTER BAG INLET PROTECTION	STD DWG E-2A



NOTES:

1. INSTALL PRE-FABRICATED FILTER INSERTS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. FIELD FABRICATED INSERTS ARE NOT PERMITTED.
3. PRE-FABRICATED INSERTS WITH A PROVISION FOR OVERFLOW ARE REQUIRED AND ARE TO BE ACCOMPANIED BY ADDITIONAL BMPS TO PREVENT THE POTENTIAL OF SEDIMENTS ENTERING PROJECT STORM SYSTEMS.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		FILTER INSERT INLET PROTECTION	STD DWG E-2B

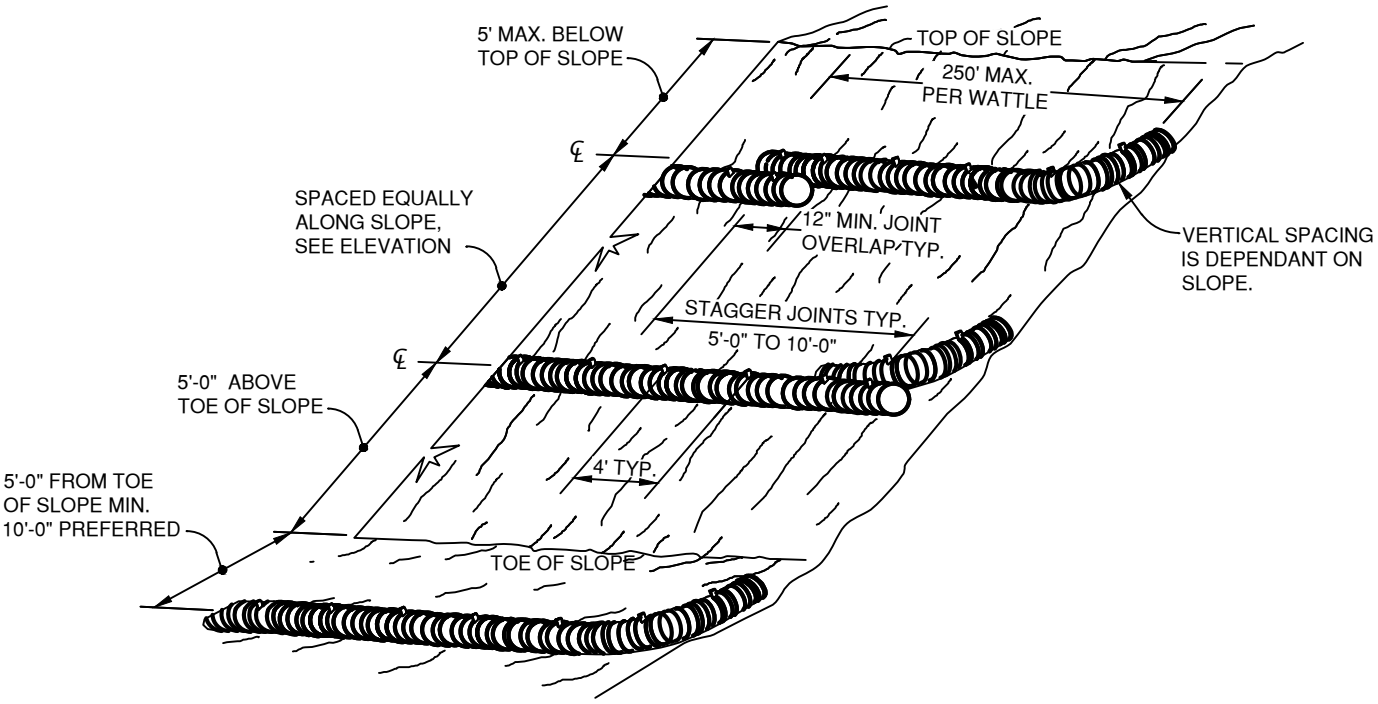


PLACE ORANGE PLASTIC CONSTRUCTION FENCING AROUND TREE OR PROTECTED VEGETATION PERIMETERS AT DRIP LINE, PRIOR TO ANY CONSTRUCTION ACTIVITIES ON SITE.

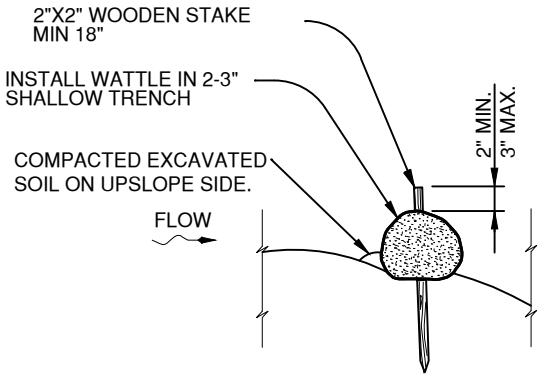
NOTE:

1. USE WOOD OR METAL FENCE POSTS. POST SPACING & DEPTH SHALL BE INSTALLED TO ADEQUATELY SUPPORT THE FENCE IN AN UPRIGHT MANNER.
2. MAXIMUM FENCE OPENINGS SHALL BE 2"X2".

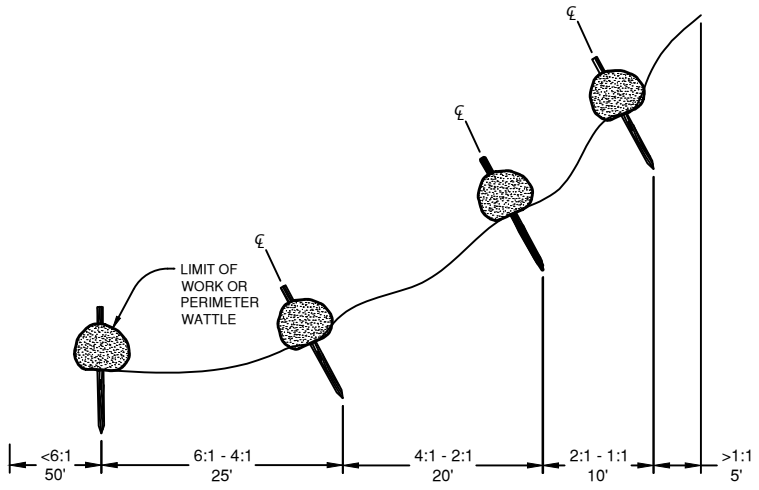
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 12/1/17
REV / DATE: 12/1/17		710 NW WALL ST., BEND, OREGON 97701	APPR
		TREE/VEGETATION PROTECTION FENCING	STD DWG E-3



SLOPE APPLICATION - PERSPECTIVE VIEW

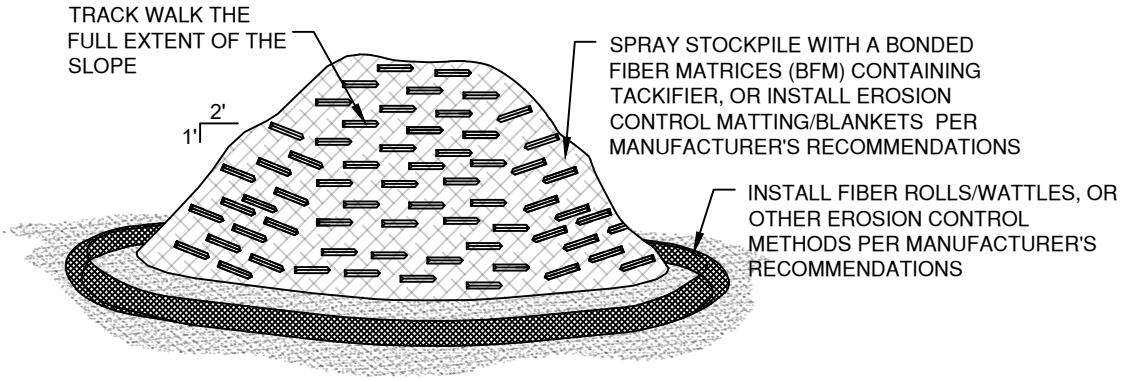


STAKING DETAIL

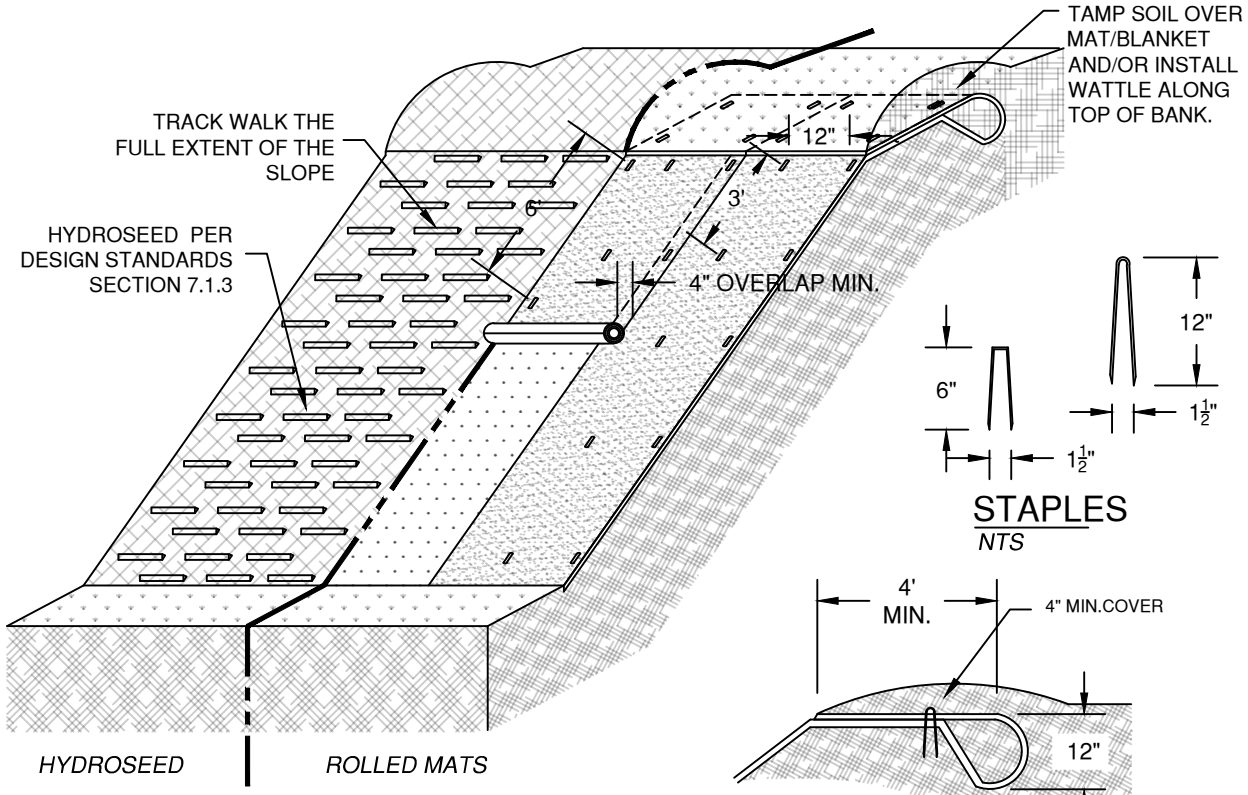


SLOPE APPLICATION - PLAN VIEW

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		STRAW WATTLE	STD DWG E-4



STOCKPILE STABILIZATION
NTS



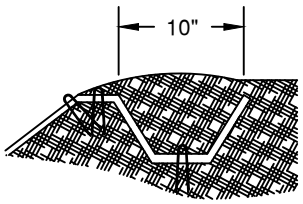
ISOMETRIC VIEW
NTS

STAPLES
NTS

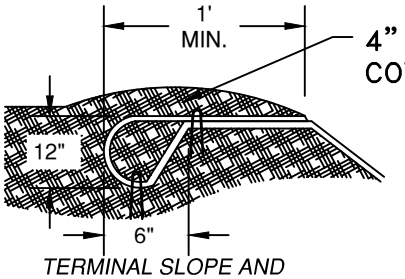
TOP BERM
NTS

NOTES:
1. PRIOR TO A SITE'S FINAL APPROVAL, ALL DISTURBED STEEP SLOPES MUST BE TREATED FOR LONG-TERM EROSION CONTROL. DISTURBED GROUND OF LESSER SLOPES SHALL BE TREATED FOR EROSION CONTROL IF SEDIMENTS HAS THE POTENTIAL TO LEAVE THE SITE.
2. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWN SLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, AND ORGANIC DEBRIS.
4. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH
6. INSTALL SEDIMENT CONTROLS (I.E. STRAW WATTLES) IN CONJUNCTION WITH EROSION CONTROLS (I.E. ROLLED MATS, OR HYDROSEED) AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

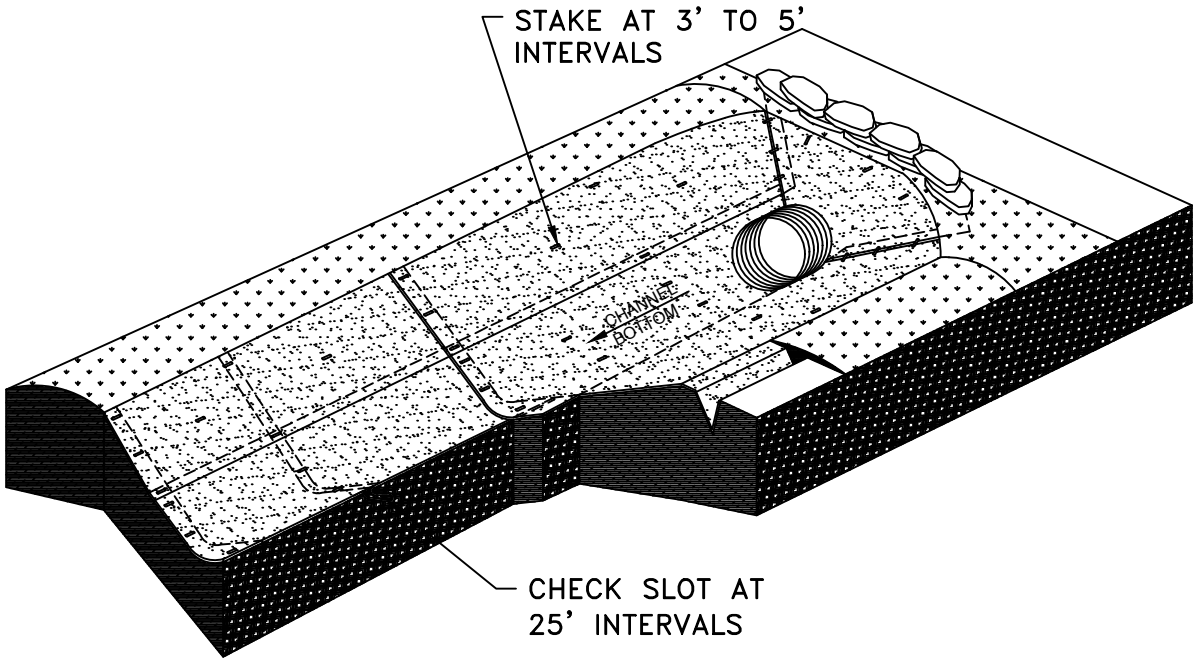
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
	CITY OF BEND	SLOPE / STOCKPILE STABILIZATION	STD DWG E-5

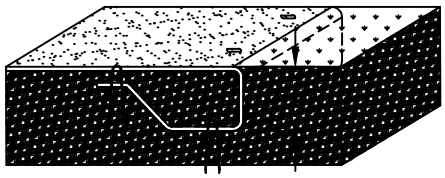


LONGITUDINAL ANCHOR TRENCH
NTS

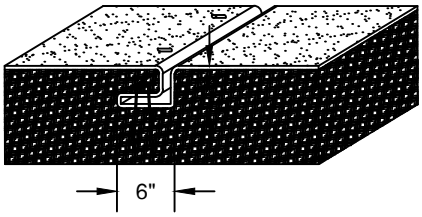


TERMINAL SLOPE AND
CHANNEL ANCHOR TRENCH
NTS





INITIAL ANCHOR TRENCH
NTS

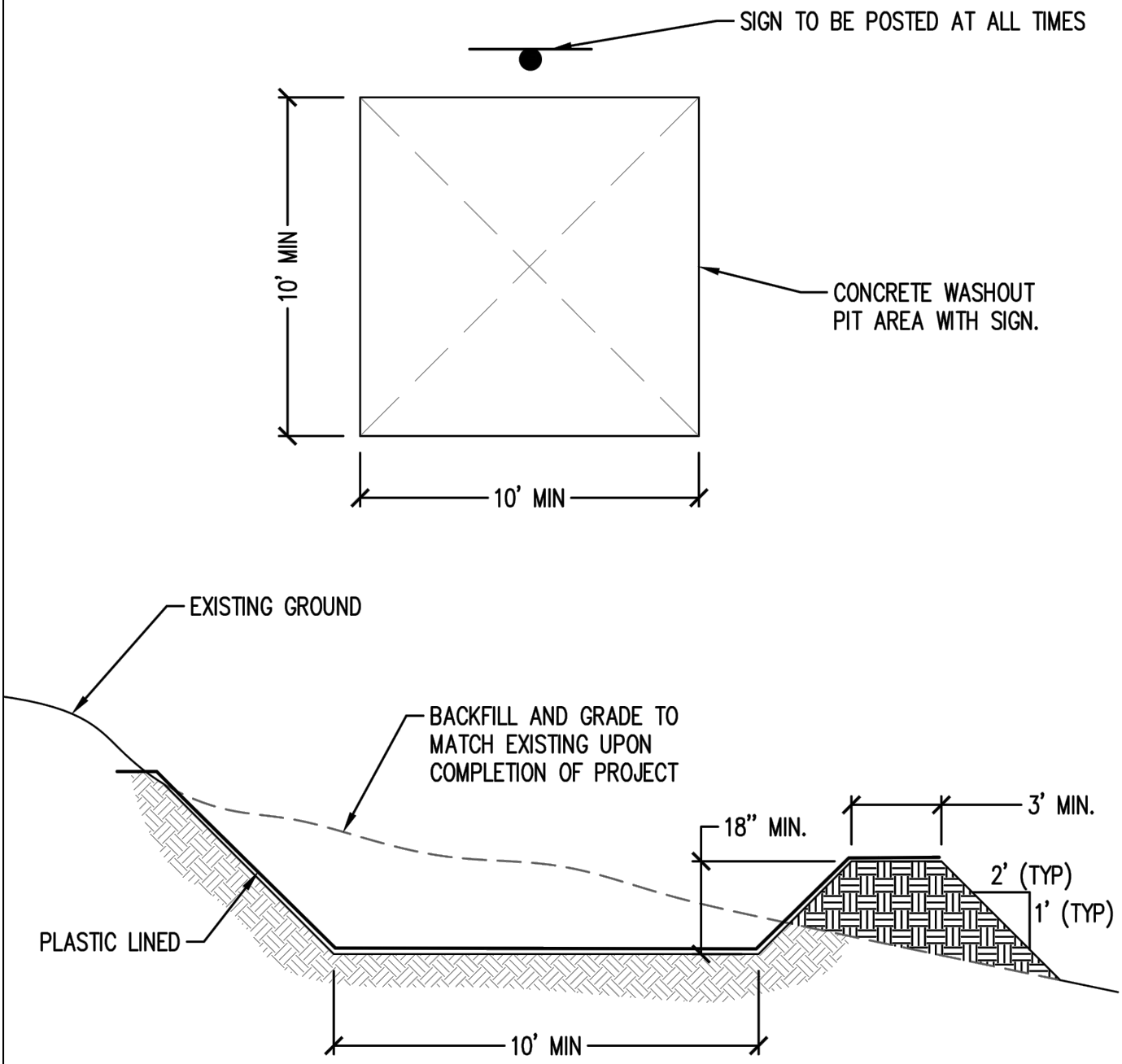


INTERMITTENT CHECK SLOT
NTS

NOTES:
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS RECOMMENDATIONS.
2. STAKING OR STAPLING LAYOUT PER MANUFACTURES RECOMMENDATIONS.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
4. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
5. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH.

CHANNEL STABILIZATION
NTS

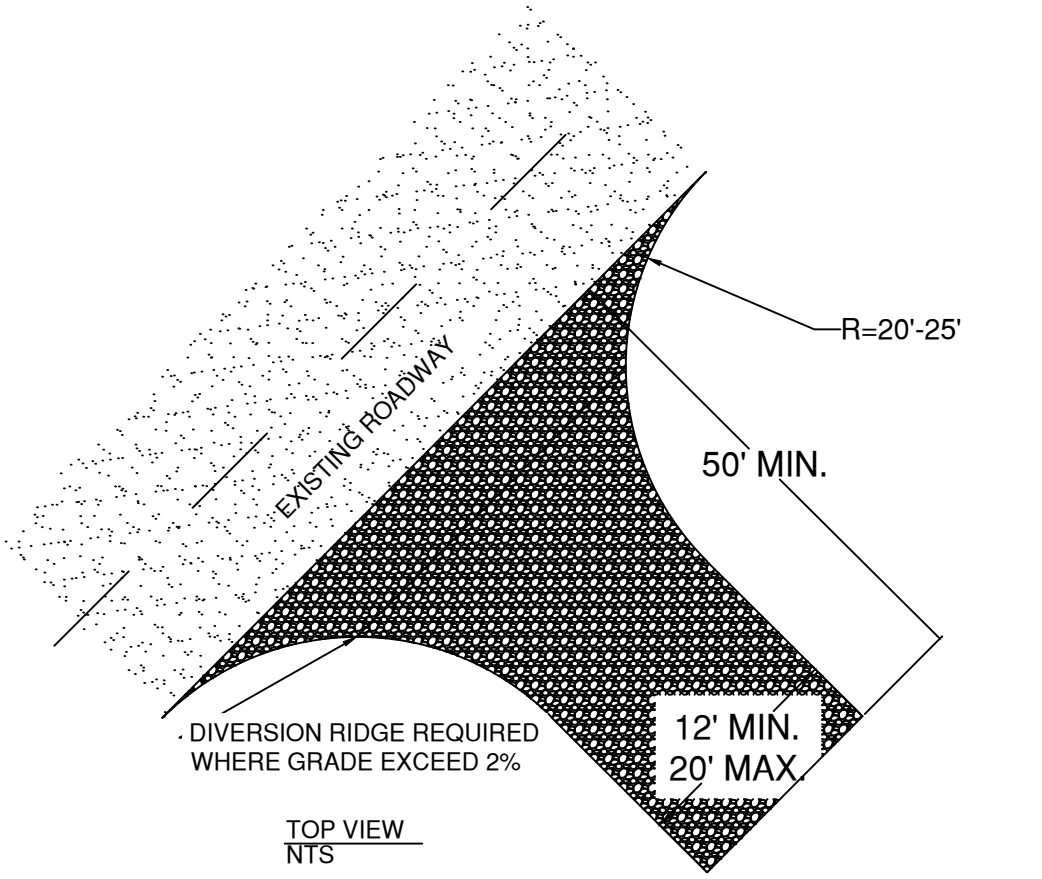
DRAWN LJC	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701	SCALE NTS
DIV EROSION			DATE 10/01/21
REV / DATE: 12/1/17			APPR
		EROSION BLANKET - CHANNEL INSTALLATION	STD DWG E-6



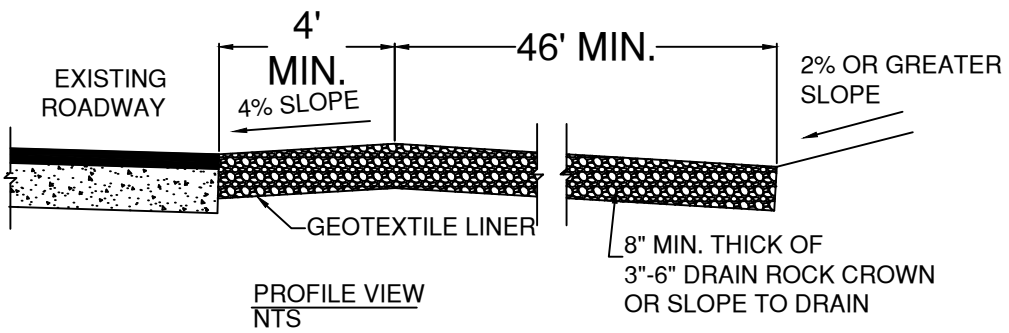
NOTES:

1. REMOVE AND LEGALLY DISPOSE OF WASTE MATERIAL WHEN IT ACCUMULATES TO $\frac{2}{3}$ OF WET STORAGE CAPACITY OF PIT.
2. CONCRETE WASHOUT AREA TO BE REPAIRED AND/OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE.
3. UPON COMPLETION OF CONSTRUCTION ACTIVITIES REQUIRING CONCRETE WASHOUT, THE WASHOUT SHALL BE REMOVED AND THE AREA RESTORED TO FINISH GRADE AND EXISTING CONDITION.
4. CONTRACTOR SHALL TAKE PRECAUTIONS SO AS TO NOT OVERFLOW PIT.

DRAWN LJC DIV EROSION REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 CONCRETE TRUCK WASHOUT	SCALE NTS DATE 12/1/17 APPR STD DWG E-7



TOP VIEW
NTS



PROFILE VIEW
NTS

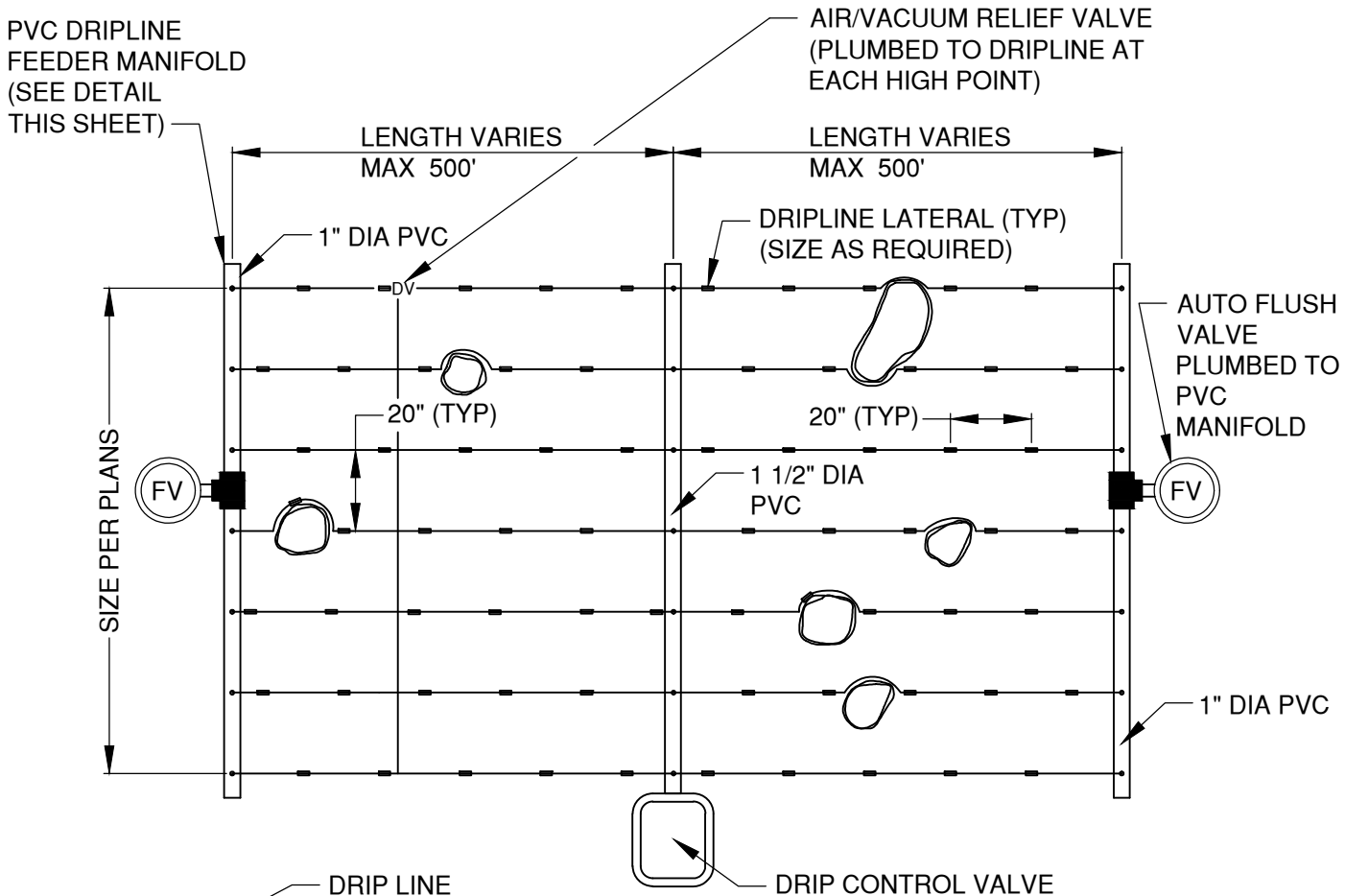
NOTES:

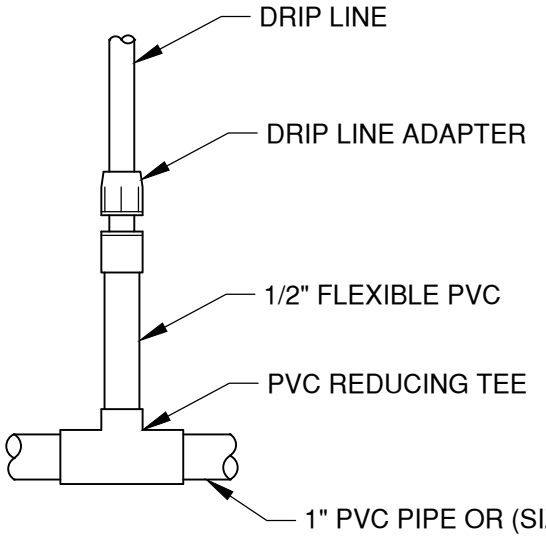
1. CONSTRUCTION ENTRANCE TO BE INSTALLED PRIOR TO ANY OTHER WORK ON SITE AND IS APPLICABLE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED.
2. TIRE WASH FACILITY MAY BE REQUIRED ON SITE TO PREVENT TRACKING ONTO EXISTING ROADWAY. IF REQUIRED, CONSTRUCT TIRE WASH FACILITY PER ODOT STD DWG RD1060.
3. THE CONSTRUCTION AND USE OF THIS ENTRANCE IN NO WAY NEGATES THE CONTRACTOR`S RESPONSIBILITIES TO PREVENT TRACKING OF MATERIAL ONTO EXISTING ROADWAY.
4. MUST BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR DIRECT FLOW OF MUD/SEDIMENT ONTO STREETS. PERIODIC TOP DRESSING WITH STONE AND/OR CLEANOUT OR REPAIR SHALL BE NECESSARY.
5. ANY MATERIAL THAT STILL MAKES IT ONTO THE ROAD MUST BE SWEPT UP IMMEDIATELY. WASHING THE STREET IS NOT PERMITTED.

DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV EROSION		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		GRAVEL CONSTRUCTION ENTRANCE	STD DWG E-8

CITY OF BEND STANDARD DRAWINGS

Landscaping (L)



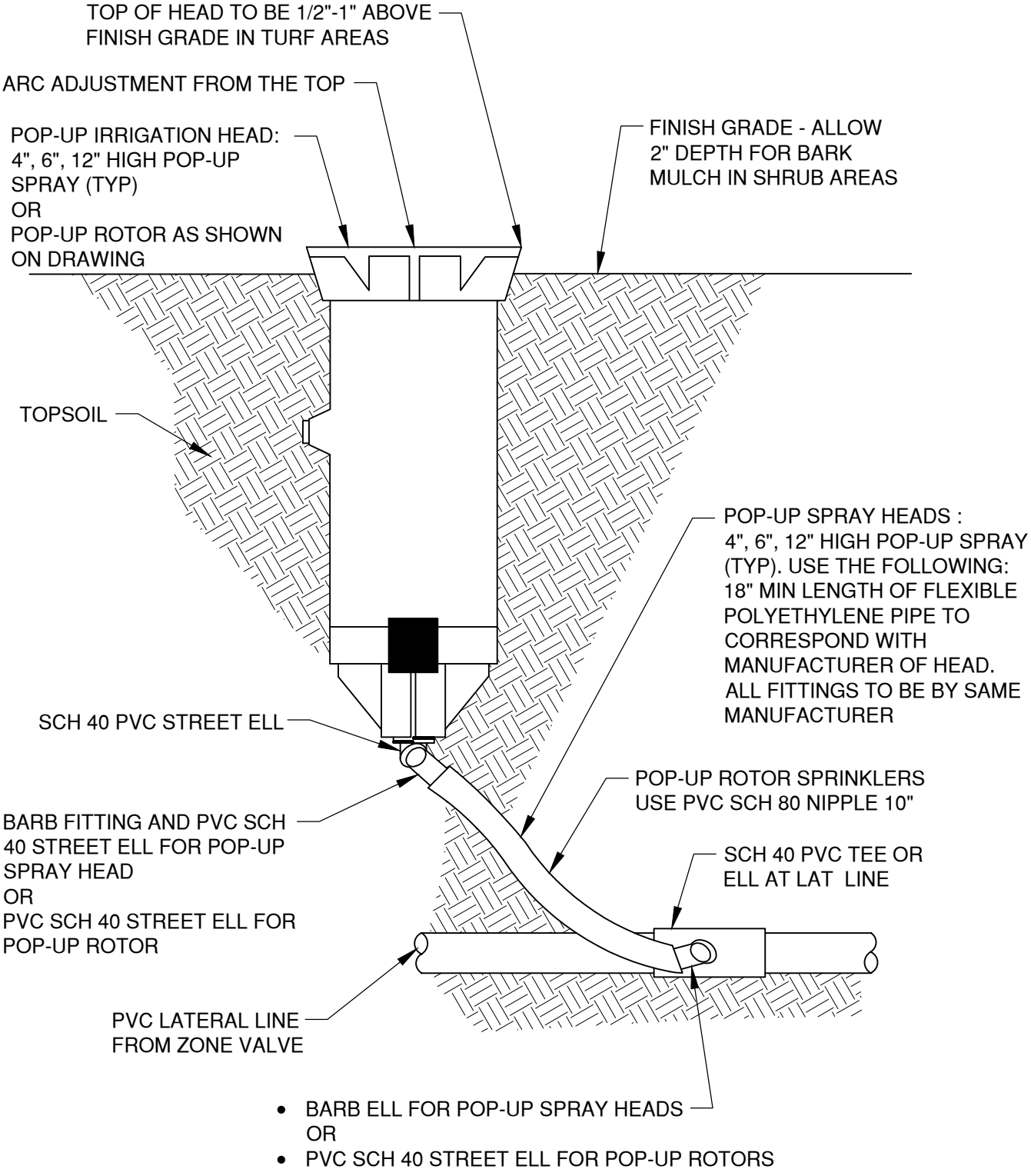


TYPICAL PVC DRIPLINE MANIFOLD CONNECTION

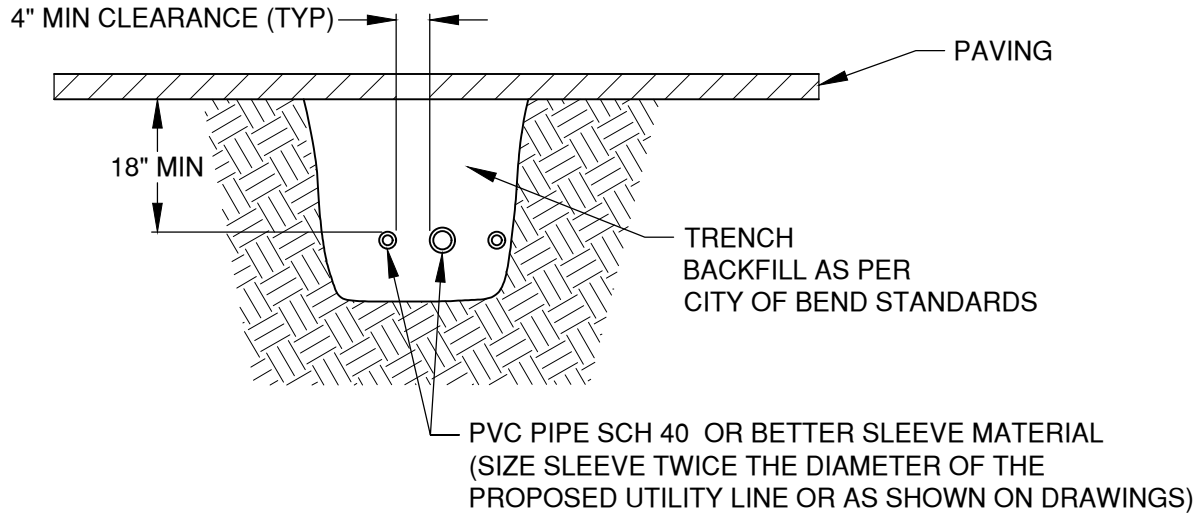
NOTES:

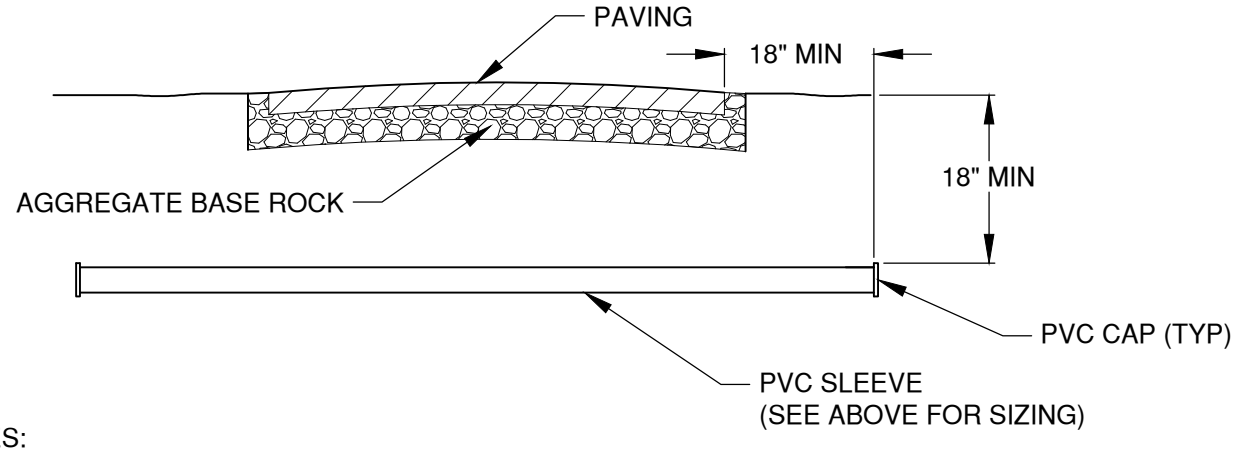
1. RELOCATE DRIP LINES AROUND OBSTACLES AS NEEDED

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		PLANTING OR TURF BED DRIP LAYOUT	STD DWG L-1



DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		SPRINKLER HEAD AND JOINTS	STD DWG L-2

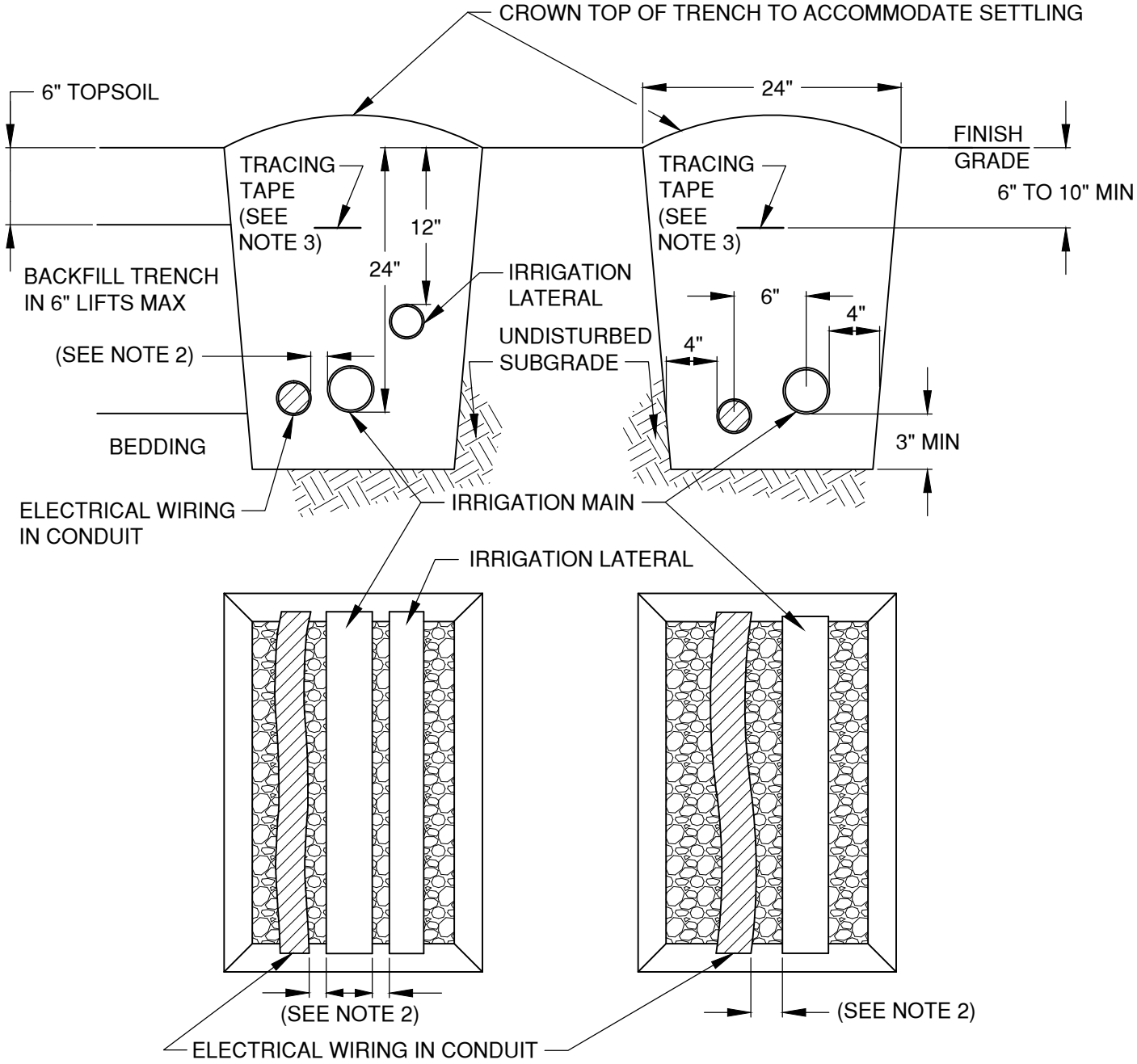




NOTES:

1. COMPACTION SHALL MEET 00405.46C PER CITY OF BEND SPECIAL PROVISIONS
2. 12" MIN COVER UNDER SIDEWALKS
3. SEE STD DWGS R-10 AND R-11 FOR TRENCH BACKFILL AND ROAD RESTORATION REQUIREMENTS.

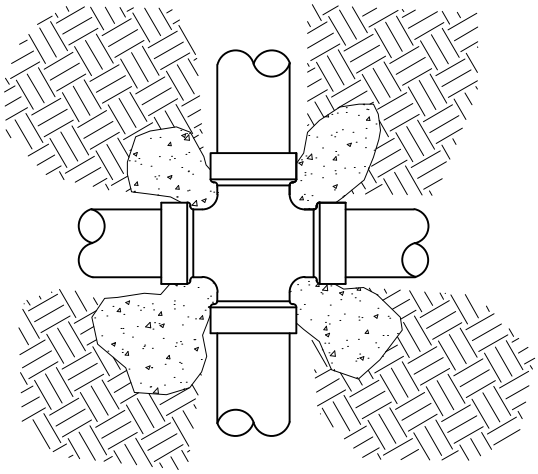
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 01/31/2022
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION SLEEVE UNDER PAVING	STD DWG L-3



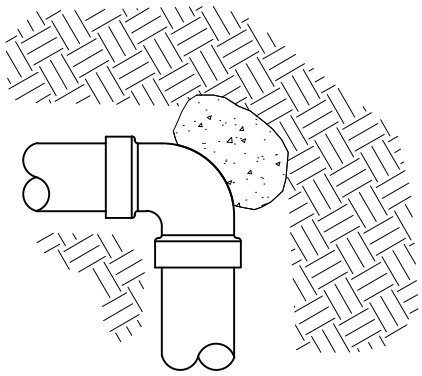
NOTES:

1. MINIMUM DEPTH OVER PVC PIPE:
   - 10" FOR 1-1/4" OR SMALLER
   - 12" FOR 1-1/2" TO 2" PIPE
   - 14" FOR 2-1/2" TO 3" LATERALS
   - 18" FOR MAINLINE PIPING AND SLEEVES
2. CLEARANCE BETWEEN PIPE:
   - 4" FOR PIPE 2" AND SMALLER
   - 6" FOR LARGER PIPE
3. PROVIDE A DETECTABLE TAPE OR WIRE USING A CONTINUOUS MINIMUM 14 GAUGE SINGLE STRAND LOCATOR WIRE IN TRENCH A MINIMUM 6" TO 10" BELOW FINISH GRADE. TRACING TAPE OR WIRE SHALL BE LOCATED A MINIMUM 6" ABOVE PIPING ON MAINLINE INSTALLATIONS

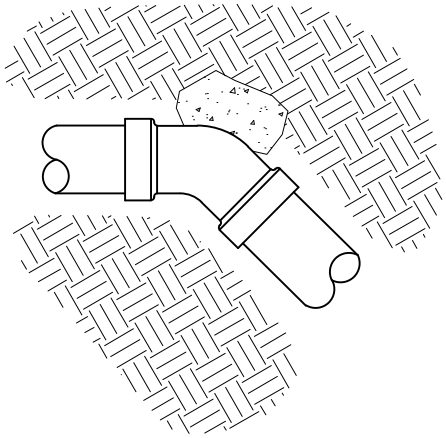
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV / DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION - TYPICAL TRENCH	STD DWG L-4



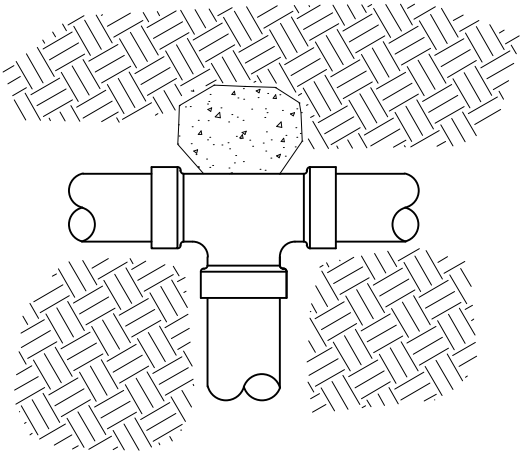
CROSS



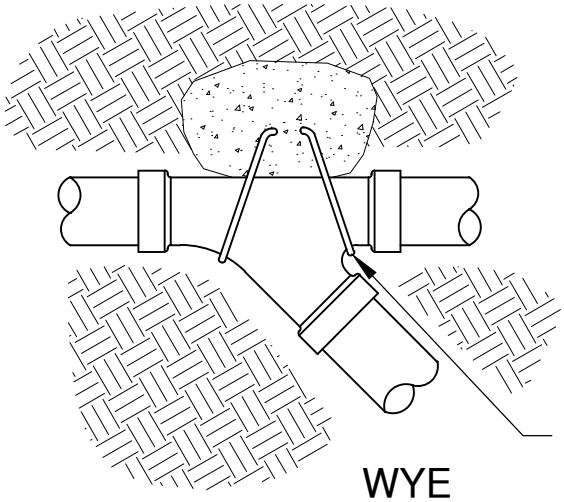
ELL



45° ELL



TEE



WYE

NOTES:

1. SUPPLY LINES 3" IN DIAMETER AND LARGER SHALL RECEIVE THRUST BLOCKS
2. USE A MINIMUM 1 CU FT OF CONCRETE IN EACH THRUST BLOCK POUR

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION FITTINGS	STD DWG L-5

1 30" LINEAR LENGTH OF WIRE, COILED

2 WATER PROOF CONNECTION (1 OF 2)

3 ID TAG

4 VALVE BOX WITH COVER: AMETEK STANDARD OR EQUAL

5 FINISH GRADE/TOP OF MULCH ALLOW 2" DEPTH MIN FOR BARK IF LOCATED IN SHRUB BED

6 REMOTE CONTROL VALVE: AS SPECIFIED ON DRAWING

7 PVC SCHEDULE 40 PIPE

8 PVC SADDLE FEMALE THREAD

9 TREATED WOOD OR BRICK SUPPORT (LENGTH AS REQ'D.)

10 CONTROL WIRING 24 VAC

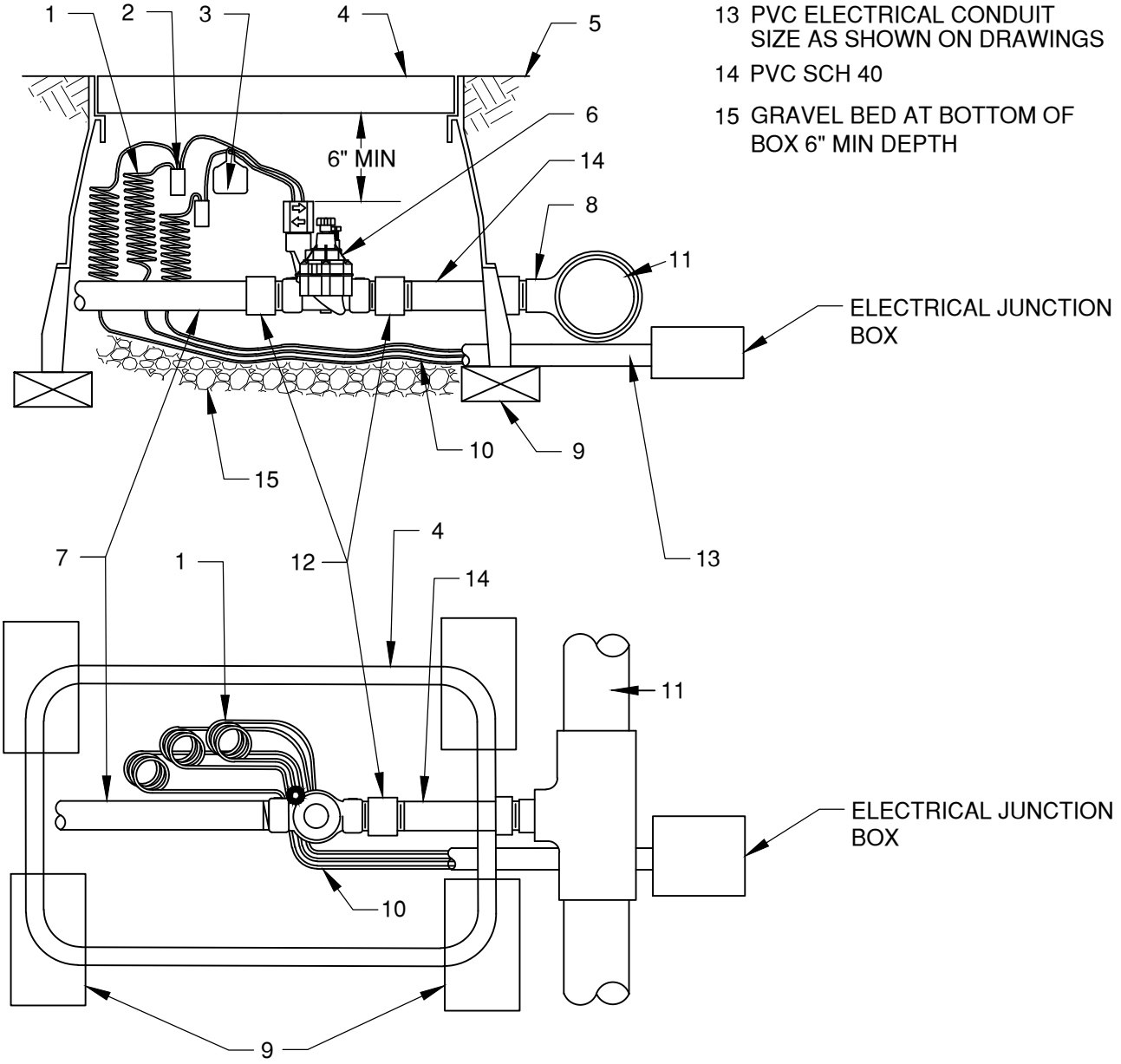
11 PVC MAINLINE PIPE

12 SCH 80 MALE ADAPTER

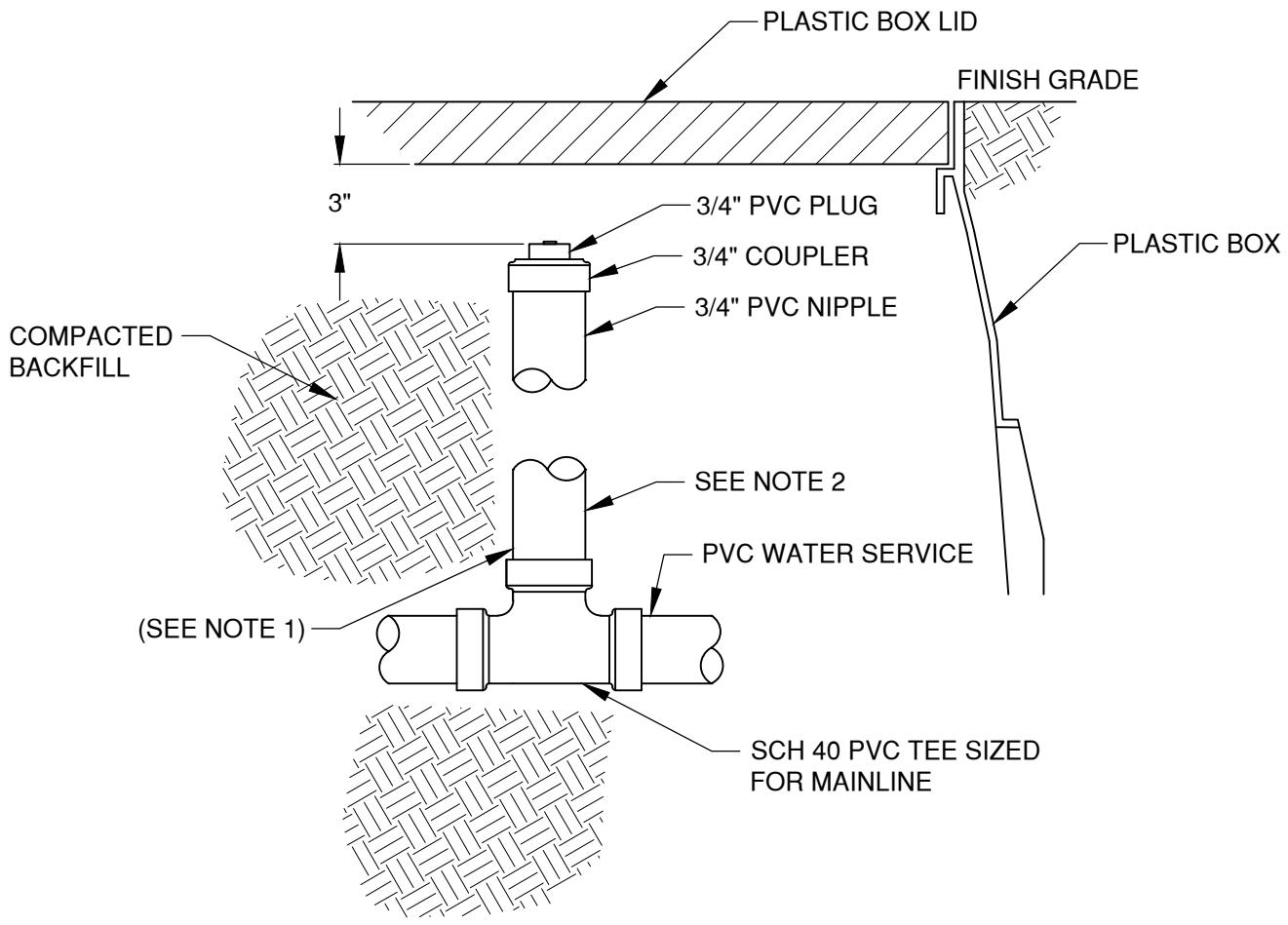
13 PVC ELECTRICAL CONDUIT SIZE AS SHOWN ON DRAWINGS

14 PVC SCH 40

15 GRAVEL BED AT BOTTOM OF BOX 6" MIN DEPTH



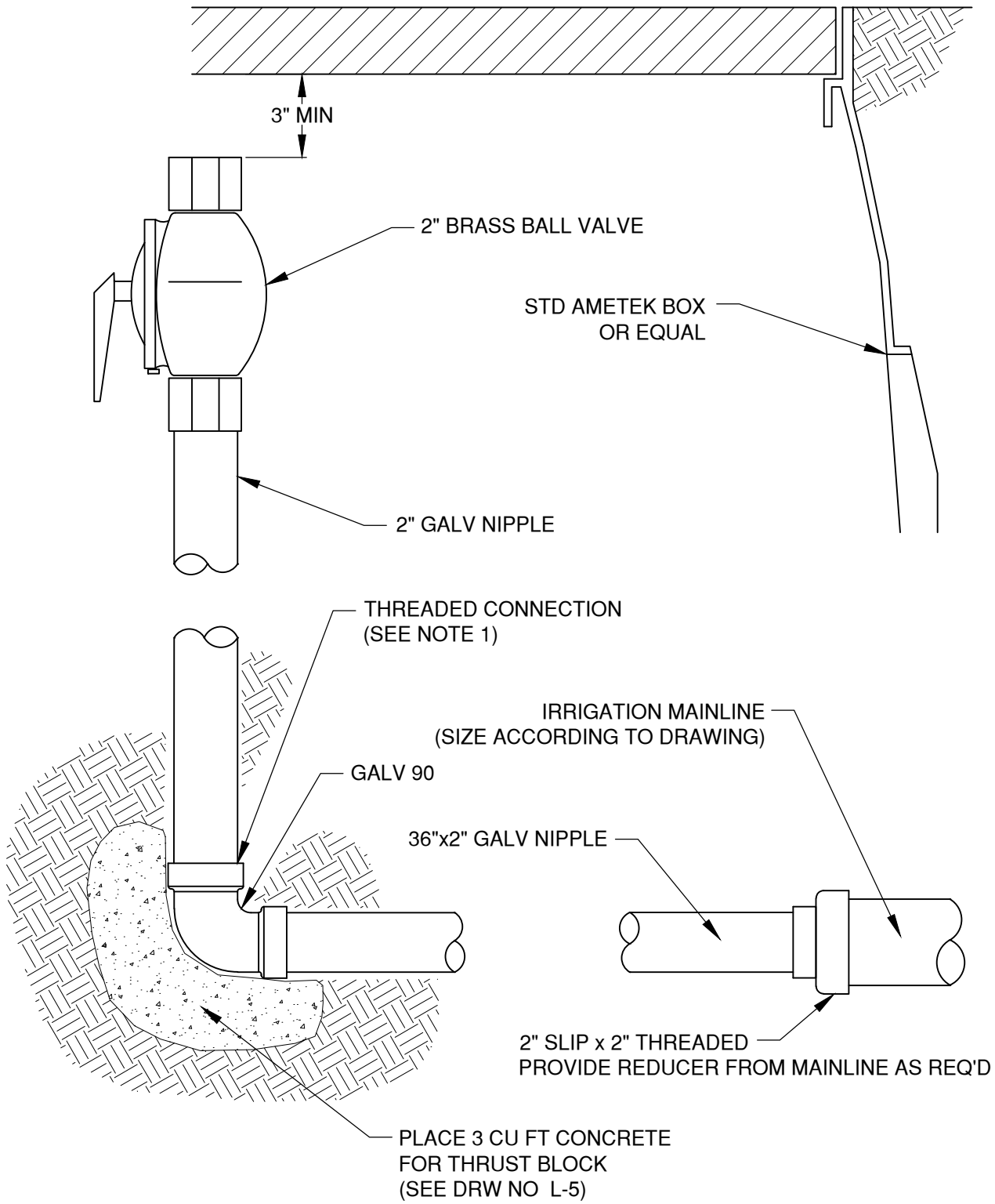
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV 1 / DATE 12/10/21		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION REMOTE CONTROL VALVE	STD DWG L-6



NOTES:

1. PROVIDE PVC BUSHINGS AS REQUIRED TO REDUCE SIZE FROM TEE.
2. QUICK COUPLER ASSEMBLY REQUIRED, SEE STD DWG L-9.
3. PROVIDE ALL THREADED PVC CONNECTIONS WITH A NON-HARDENING JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATION.

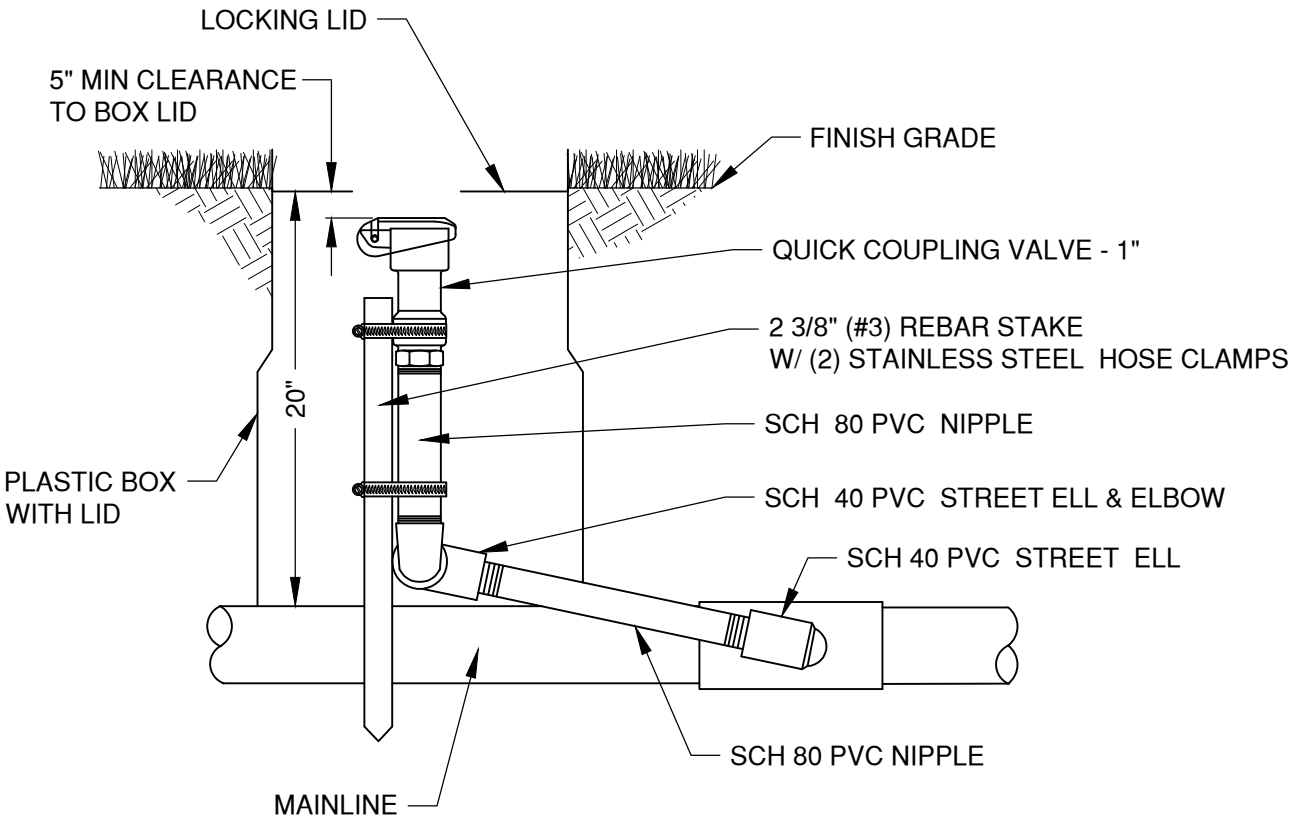
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV 1 / DATE 12/10/21		710 NW WALL ST., BEND, OREGON 97701	APPR
		IRRIGATION BLOW OUT	STD DWG L-7



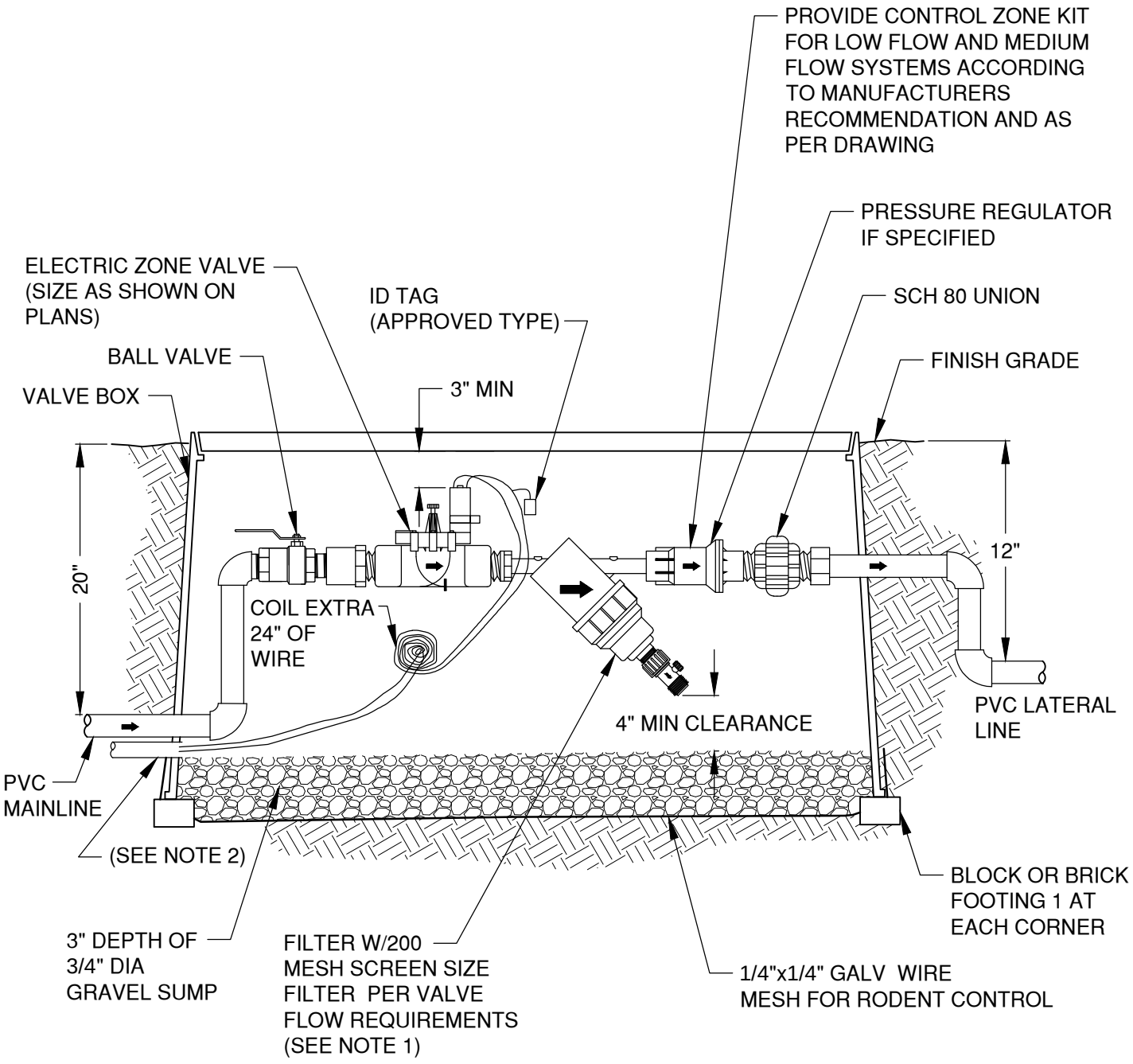
NOTES:

1. PROVIDE ALL THREADED CONNECTIONS WITH A NON-HARDENING, JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATION

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		TERMINATION POINT	STD DWG L-8



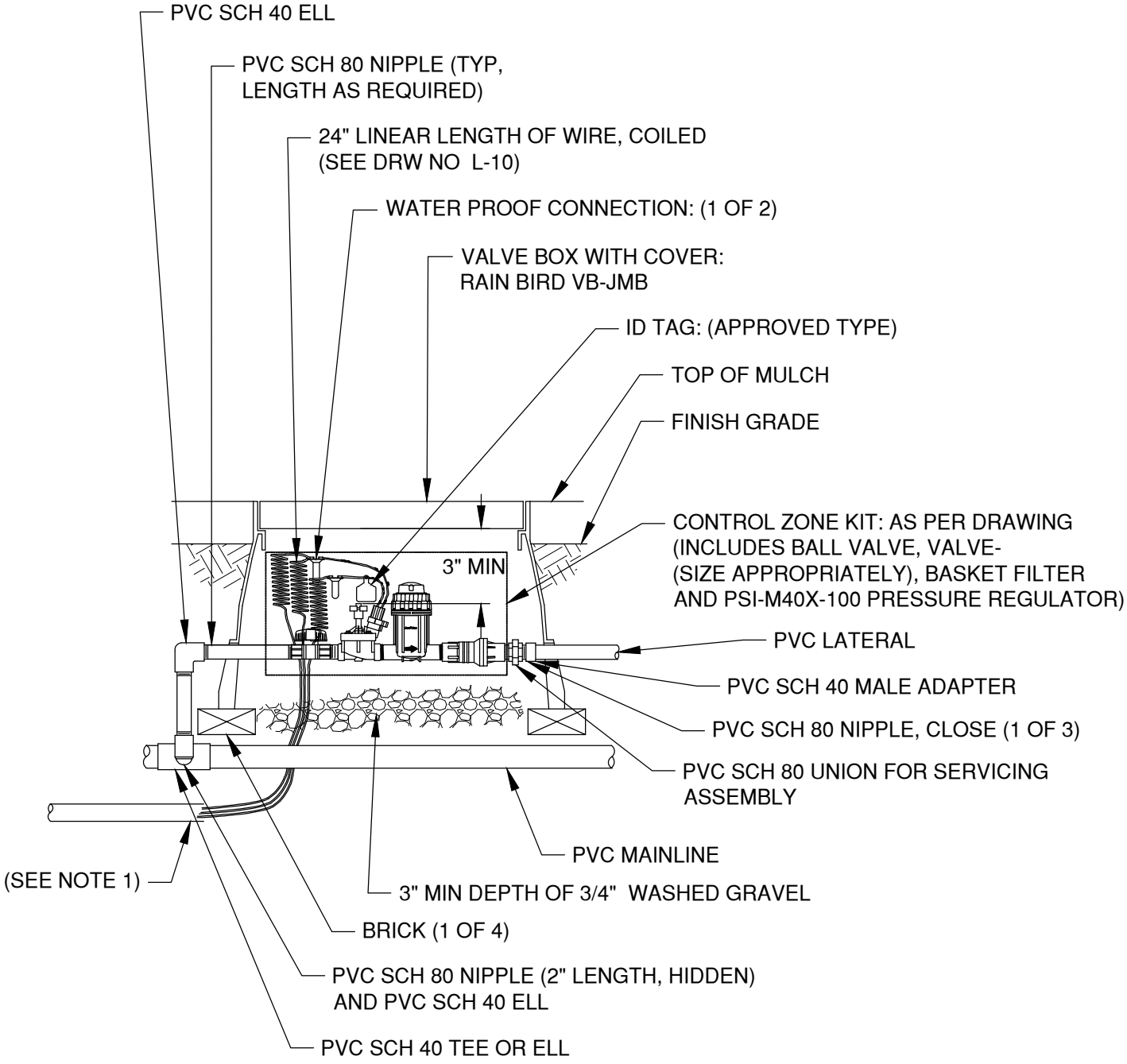
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		QUICK COUPLING VALVE	STD DWG L-9



NOTES:

1. PROVIDE ADEQUATE SPACE FOR SERVICING THE SYSTEM
2. ALL ELECTRICAL WIRE TO BE INSTALLED IN APPROVED CONDUIT

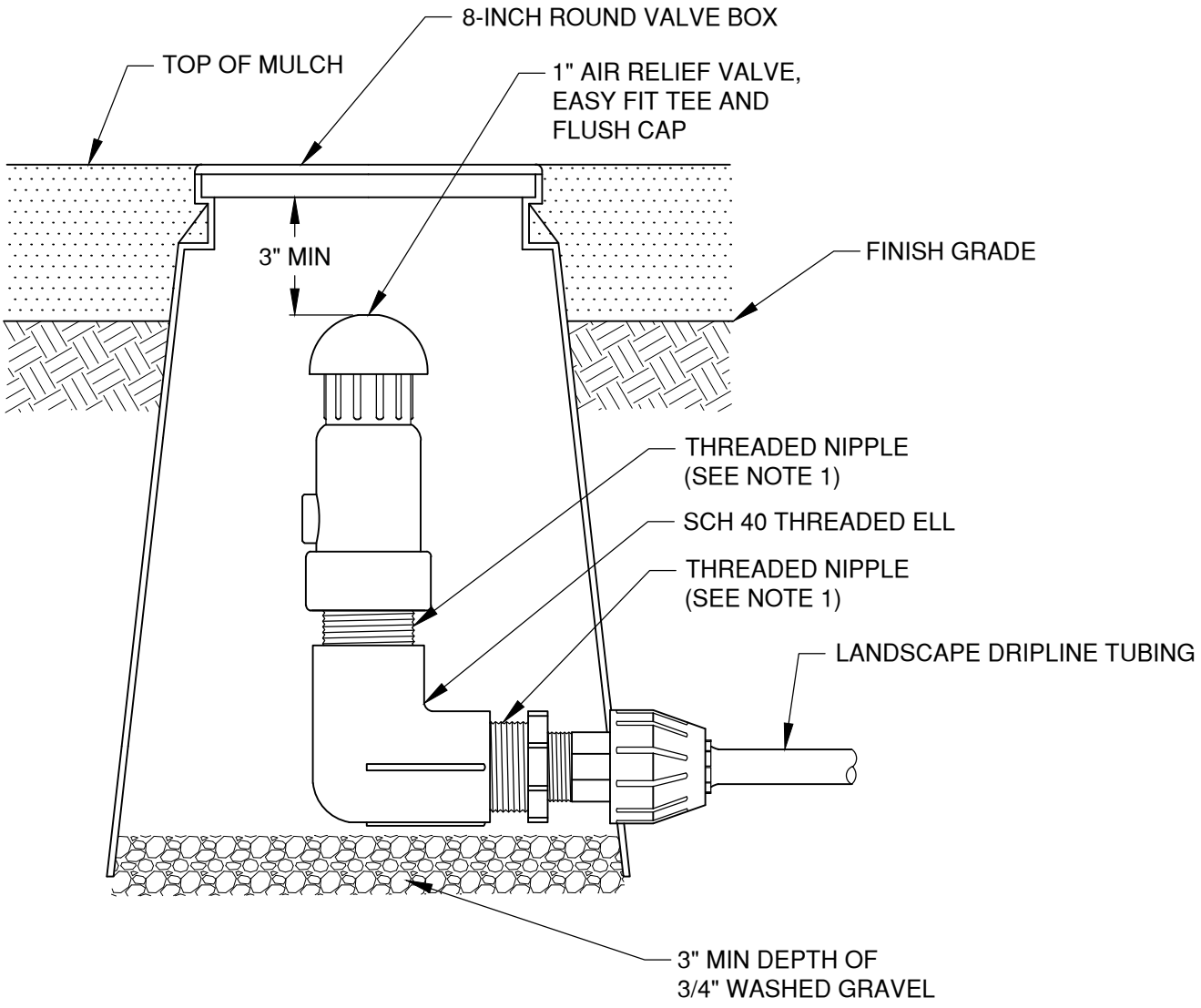
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRIP CONTROL VALVE, FILTER, AND REGULATOR	STD DWG L-10



NOTES:

1. ALL ELECTRICAL WIRE TO BE INSTALLED IN APPROVED CONDUIT

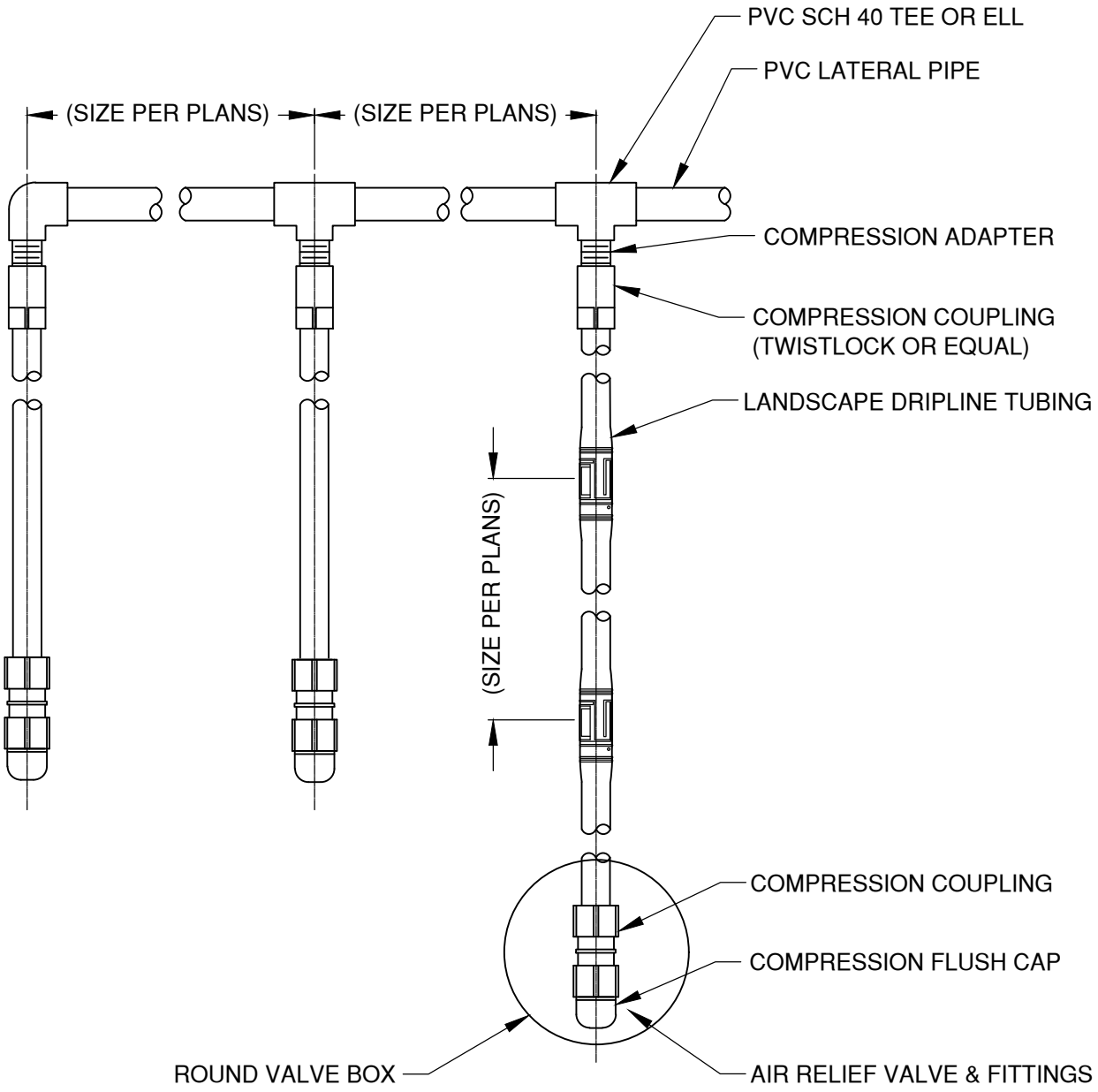
DRAWN LJC DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 1" COMM. CONTROL ZONE KIT WITH BASKET FILTER	SCALE NTS DATE 12/1/17 APPR STD DWG L-12



NOTES:

1. PROVIDE ALL THREADED CONNECTIONS WITH A NON-HARDENING, JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATIONS

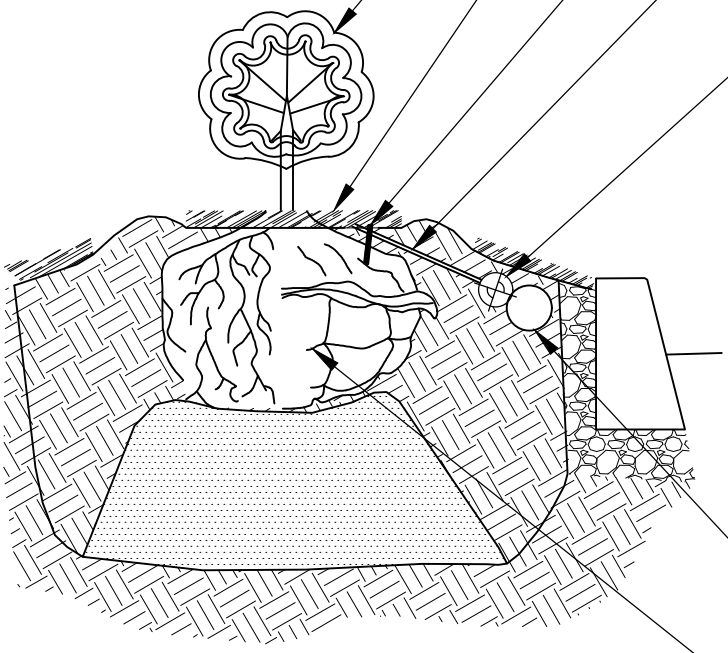
DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		AIR RELIEF VALVE IN KIT - AR VALVE KIT	STD DWG L-13



NOTES:

1. LATERAL AND EMITTER SPACING DEPENDS ON SOIL TYPE, AND PLANT SPECIES.
2. SEE OSS - DET 6110 - PLANTING OR TURF BED DRIP LAYOUT FOR OVERALL SPECIFICATION

DRAWN LJC	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 12/1/17
REV 1 / DATE 12/10/21		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRIP IRRIGATION MAINLINE LAYOUT	STD DWG L-14



SHRUB

MULCH AS SPECIFIED - ABOVE 1/2" DRIP LINE. 1/2" DRIP LINE TO BE LOCATED ON TOP OF FINISHED GRADE AND STAKED UNDERNEATH MULCH

STAKE AT END OF VINYL EMITTER DISTRIBUTION TUBING WITH END OF TUBE ABOVE FINISH GRADE

1/4" VINYL EMITTER DISTRIBUTION TUBING. STAKE AT END OF TUBING NEAR ROOT BALL, WITH 1/4" TUBING STAKE

DRIP EMITTERS PLUGGED INTO POLY DRIPLINE TUBING WITH SELF-PIERCING BARB CONNECTORS AT SHRUB LOCATIONS. SEE PLAN FOR QUANTITY. PROVIDE EMITTERS EVENLY SPACED AROUND SHRUB AS SPECIFIED, WITH A MIN OF 2 DISTRIBUTION POINTS PER PLANT

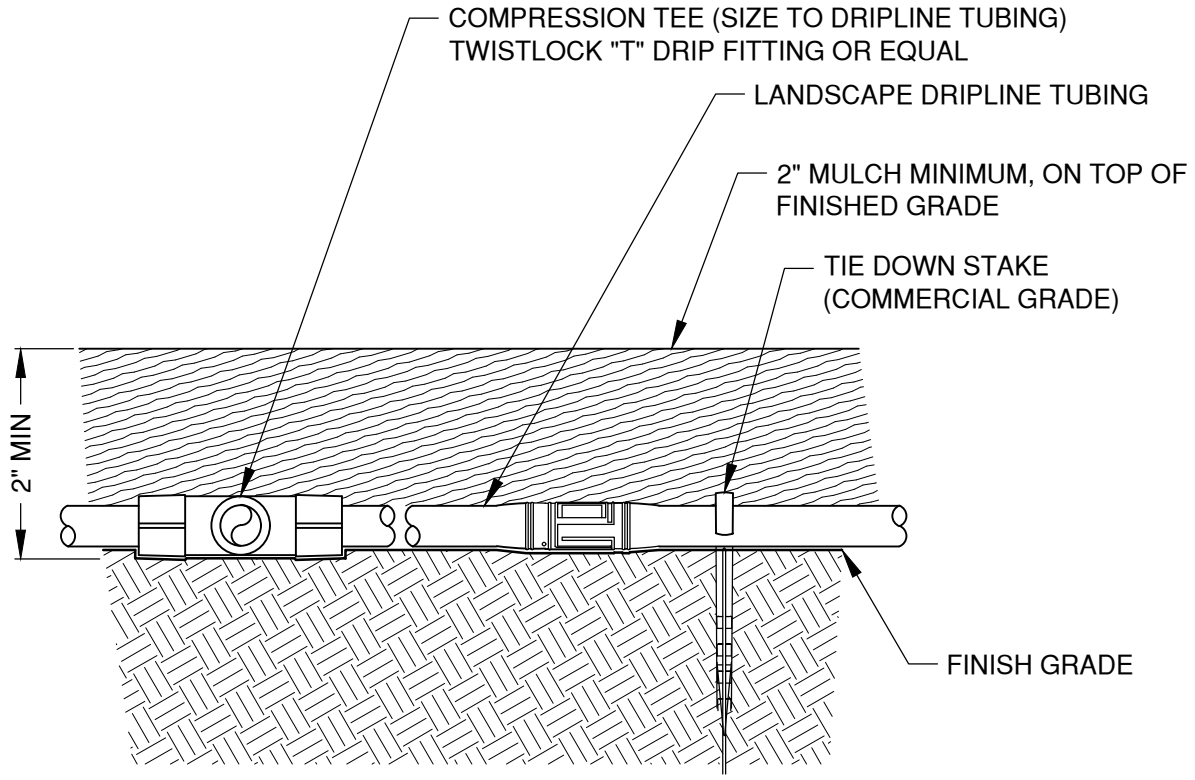
1/2" POLYETHYLENE DRIPLINE TUBING 2" BELOW FINISH GRADE AND STAKED 4' O/C

PLANT ROOTBALL/CONTAINER SOIL

NOTES:

1. USE MANUFACTURERS RECOMMENDED TOOL TO PERFORATE 1/2" POLYETHYLENE TUBING, FOR BARB CONNECTION POINTS OF ENTRY

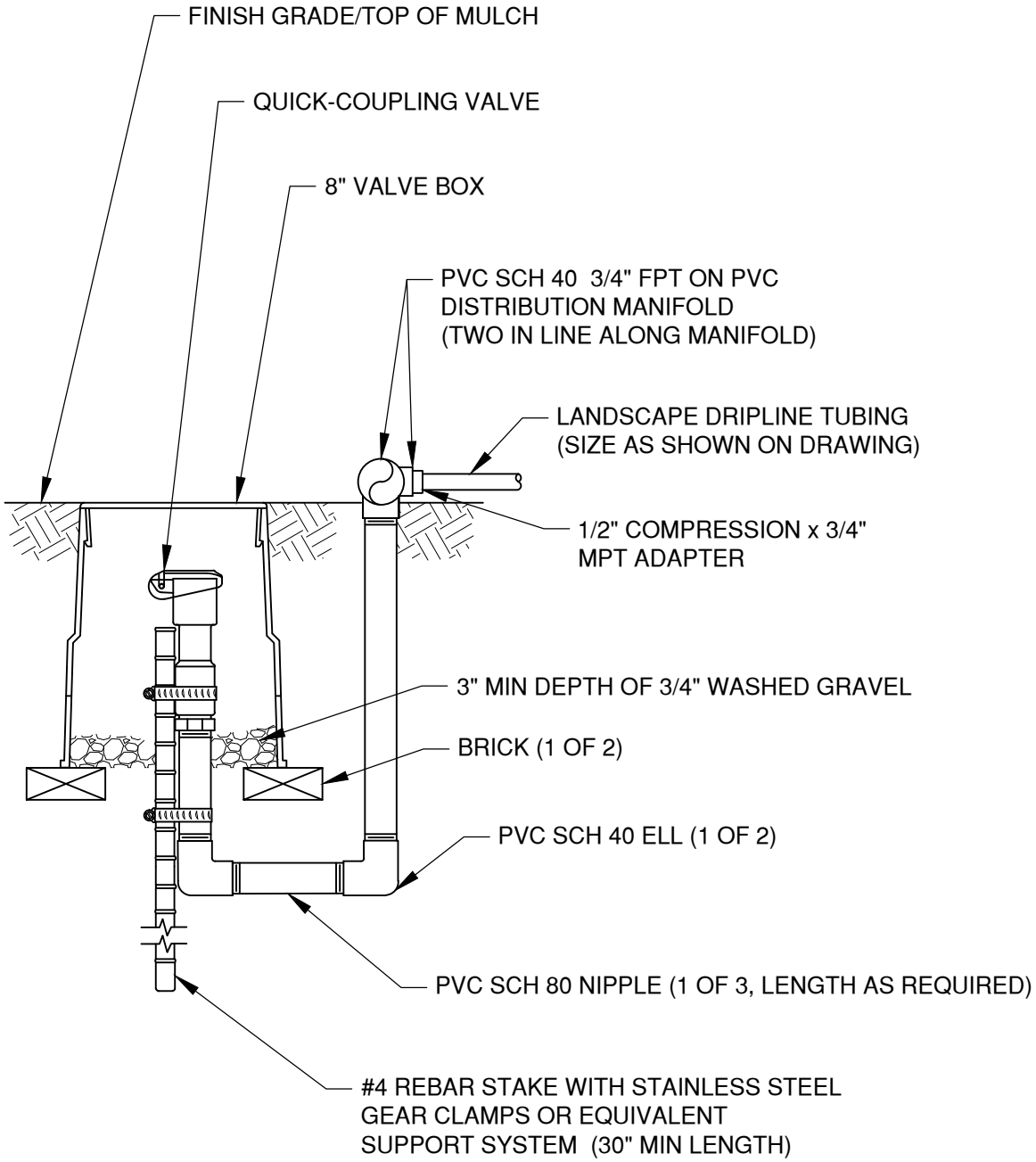
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		POINT SOURCE DRIP EMITTER	STD DWG L-15



NOTES:

1. IF PUTTING LANDSCAPE DRIPLINE UNDER SOIL, DO NOT BURY MORE THAN 2" BELOW GRADE AND INCLUDE AIR RELIEF VALVE (SEE DRW NO L-13 "AIR RELIEF VALVE KIT-AR VALVE KIT")

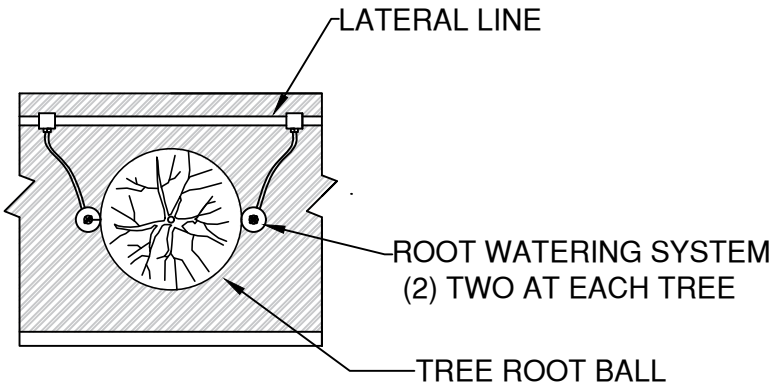
DRAWN AJD	CITY OF BEND	CITY OF BEND	SCALE NTS
DIV LNDSCP		STANDARD DRAWING	DATE 01/31/2022
REV DATE		710 NW WALL ST., BEND, OREGON 97701	APPR
		DRIPLINE 2" BELOW GRADE POTABLE SYSTEM	STD DWG L-16



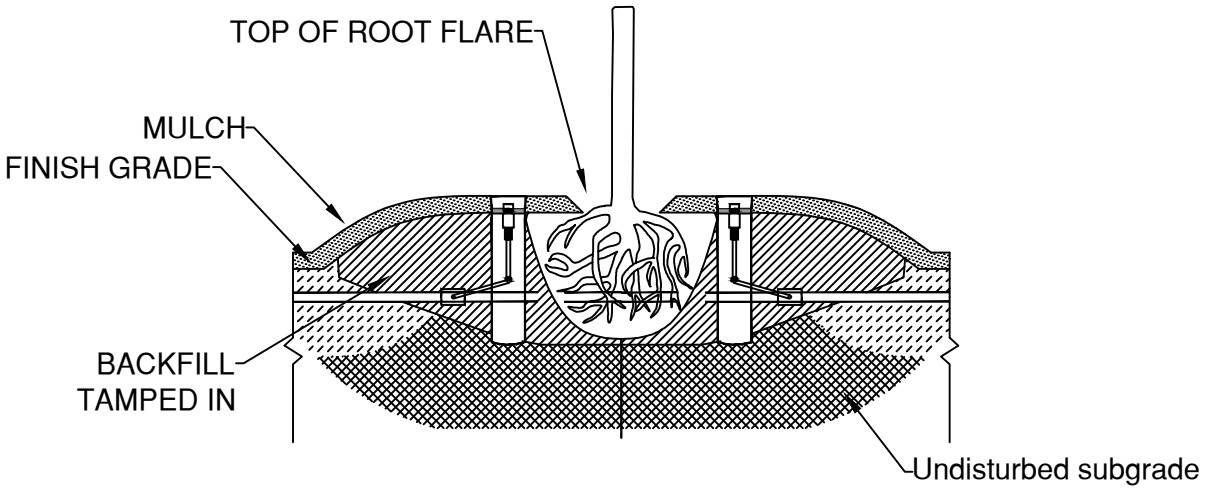
NOTES:

1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE

DRAWN LJC DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 LANDSCAPE DRIPLINE FLUSH POINT POTABLE SYSTEM	SCALE NTS DATE 12/1/17 APPR STD DWG L-17



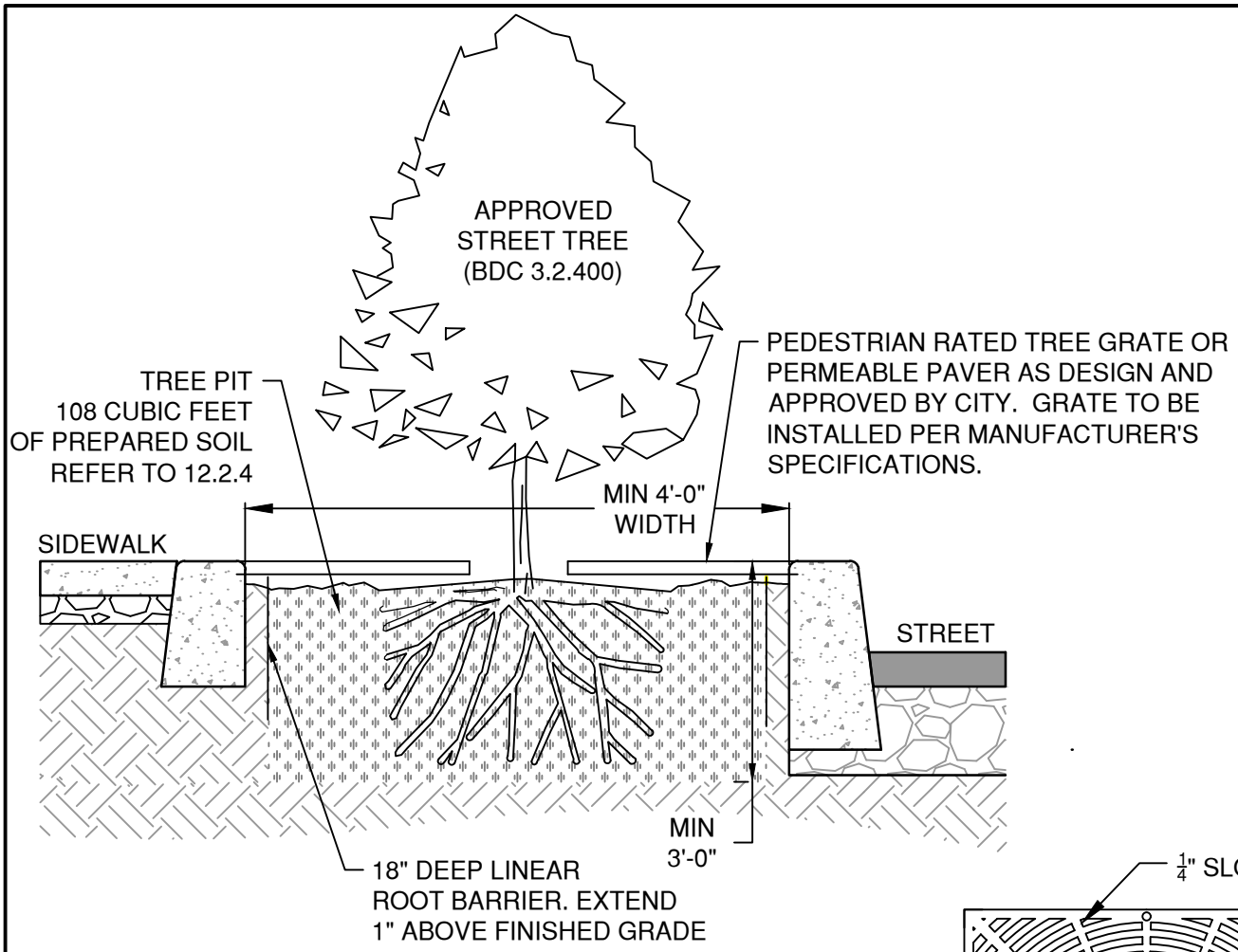
PLAN

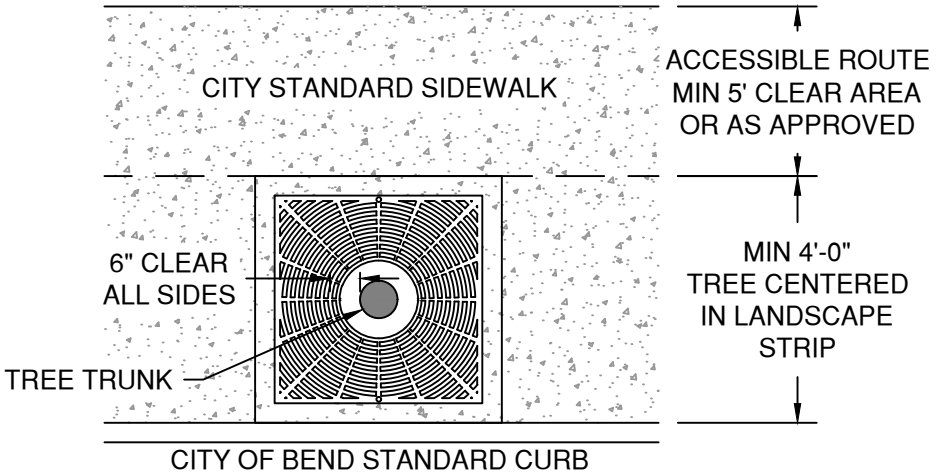


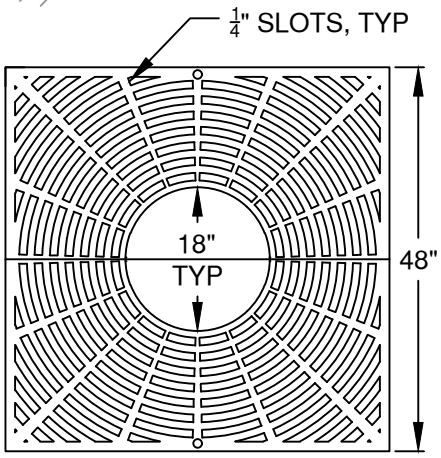
SECTION

NOTES:
1. POSITION UNITS SPACE AROUND ROOT BALL OF TREE
2. INSTALL UNITS SO TOP PF RWS (RAIN BIRD RWS-BCG) IS EVEN WITH GROUND SURFACE. LIMIT RWS TO NO DEEPER THAN BOTTON OF ROOT BALL

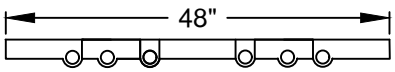
DRAWN AJD DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TREE ROOT WATERING SYSTEM DETAIL	SCALE NTS DATE 01/31/2022 APPR STD DWG L-18







TREE GRATE - PLAN



TREE GRATE - PROFILE

NOTES:
1. MINIMUM TREE WELL DIMENSIONS DICTATED BY BEND DEVELOPMENT CODE 12.2.4.1.
2. VEGETATION WITHIN THE TREE WELL SHALL HAVE DRIP SYSTEM IRRIGATION INSTALLED PER L-18.
3. TREE GRATE SHALL BE EJ 8954 PLAZA SET, OR APPROVED EQUAL.

DRAWN AJD DIV LNDSCP REV DATE	CITY OF BEND	CITY OF BEND STANDARD DRAWING 710 NW WALL ST., BEND, OREGON 97701 TREE WELL DETAIL	SCALE NTS DATE 01/31/2022 APPR STD DWG L-19