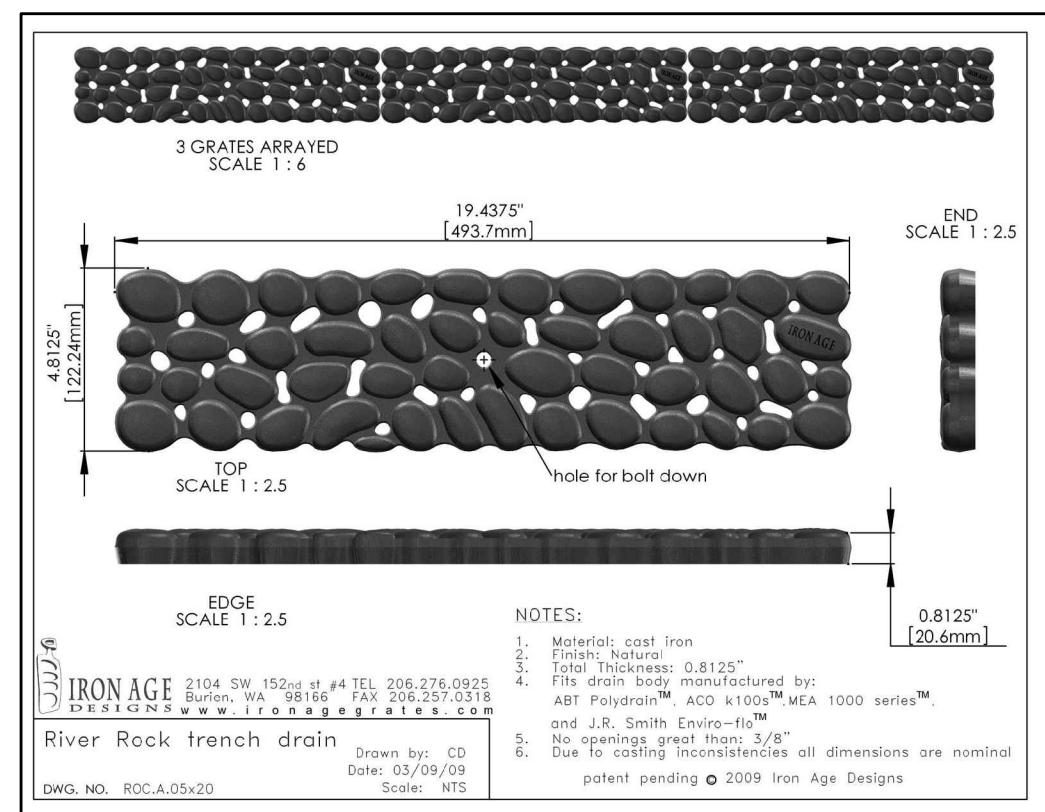
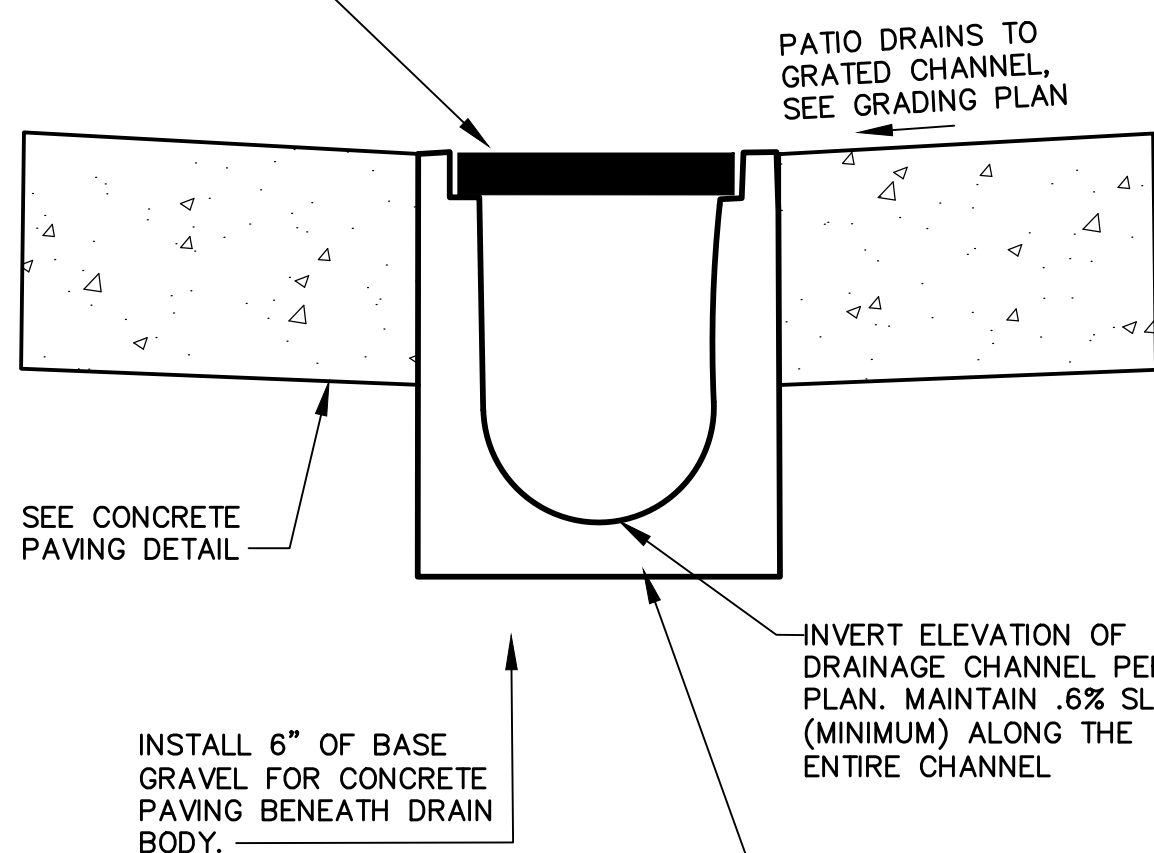


- The existing sewer may be PVC. If this is the case then the connection shall be made using 18" bell and spigot joints, NOT Ferncos.
- All damaged piping shall be removed by saw cutting and replaced with new PVC. Contractor shall remove clay bell (by saw cutting) to facilitate Fernco installation. Saw cuts shall be square so that joints between new and existing pipes do not have gaps.
- Contractor is responsible for maintaining sewer flows while making the new storm drain connections. Base flow has been observed in the 24" clay sewer. As such, contractor should be prepared for bypass pumping. Bypass pumping shall be coordinated with the City. Contractor shall provide the City 24 hours notice.
- Bypass pumping may be required and shall be coordinated with the City.

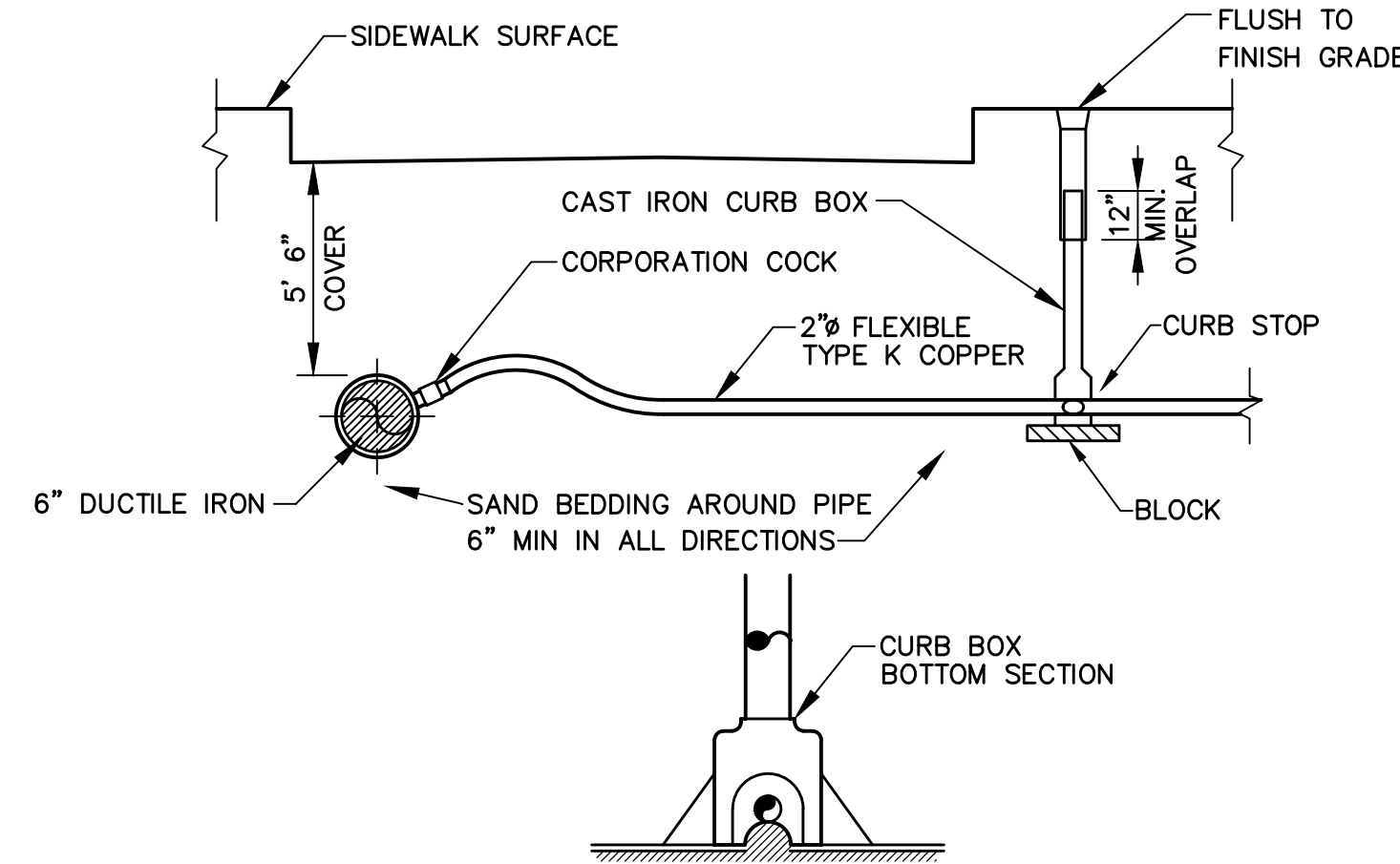
**SEWER SERVICE CONNECTION**  
NOT TO SCALE



DECORATIVE CAST IRON TRENCH GRATE BY IRON AGE DESIGNS AS SHOWN ABOVE. INSTALL PER MANUFACTURES RECCOMENDATIONS  
<http://www.ironagegrates.com/installation-gallery/trench-drain-grates>

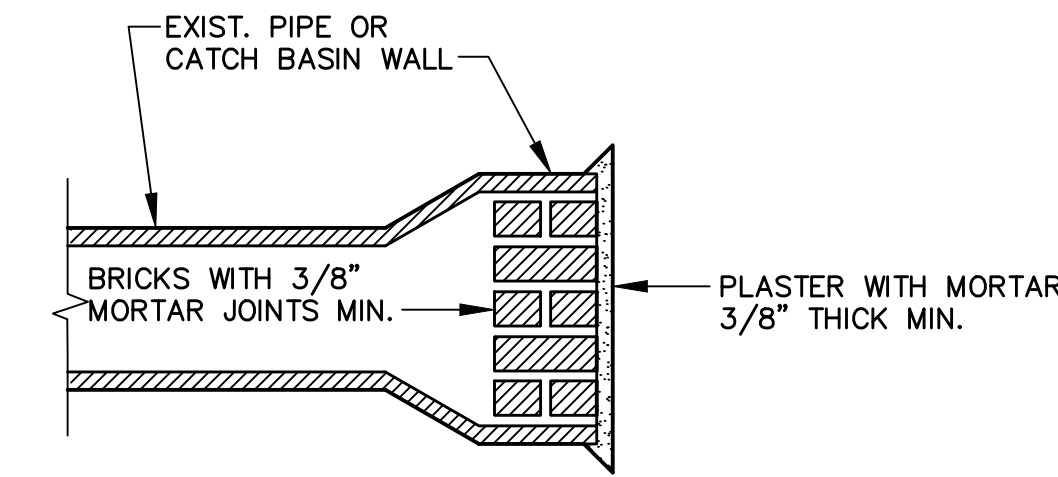


**GRATED CHANNEL DRAIN IN PATIO AREA**  
NOT TO SCALE

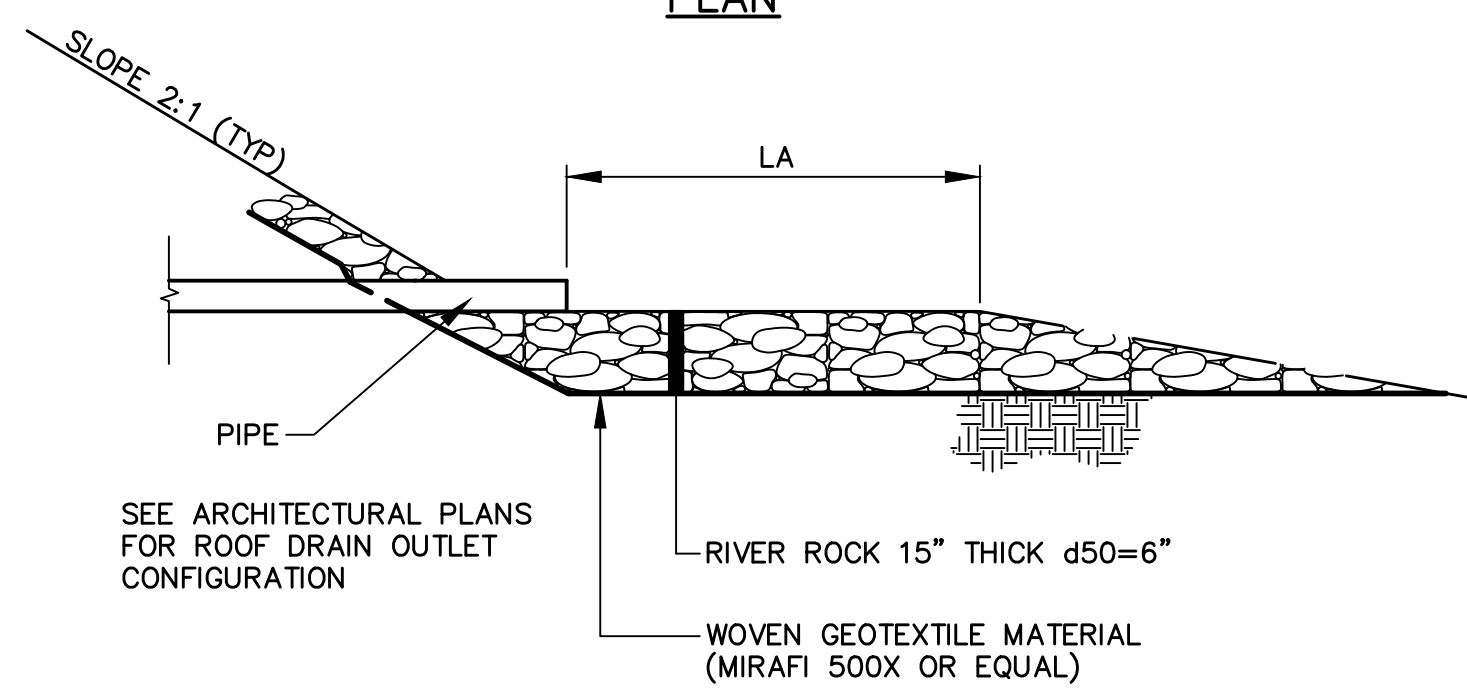


ALL MATERIALS AND WORKMANSHIP SHALL MEET PORTLAND WATER DISTRICT STANDARDS  
CONTRACTOR TO COORDINATE WITH PDW FOR SERVICE TAP

**TYPICAL COPPER DOMESTIC SERVICE DETAIL**  
NOT TO SCALE



**MASONRY PLUG DETAIL**  
NOT TO SCALE

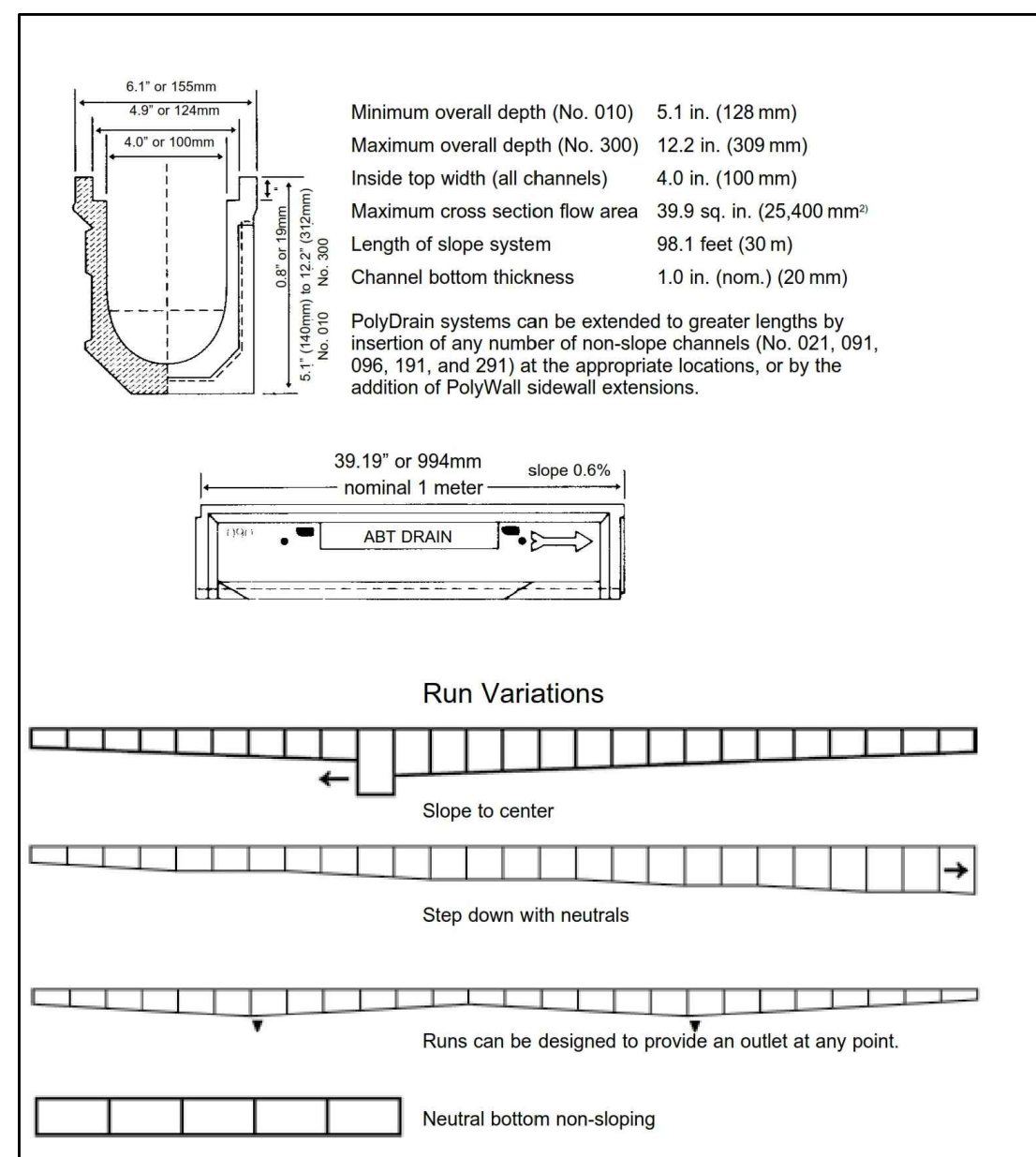


**APRON SCHEDULE\***

PIPE	RIPRAP**			RIPRAP**	
	d50 SIZE (FT)	THICKNESS t (INCH)	LENGTH LA (FT) (MIN)	WIDTH W1 (FT)	WIDTH W2 (FT)
12" OR LESS	0.5'	12"	10'	3.0'	12'

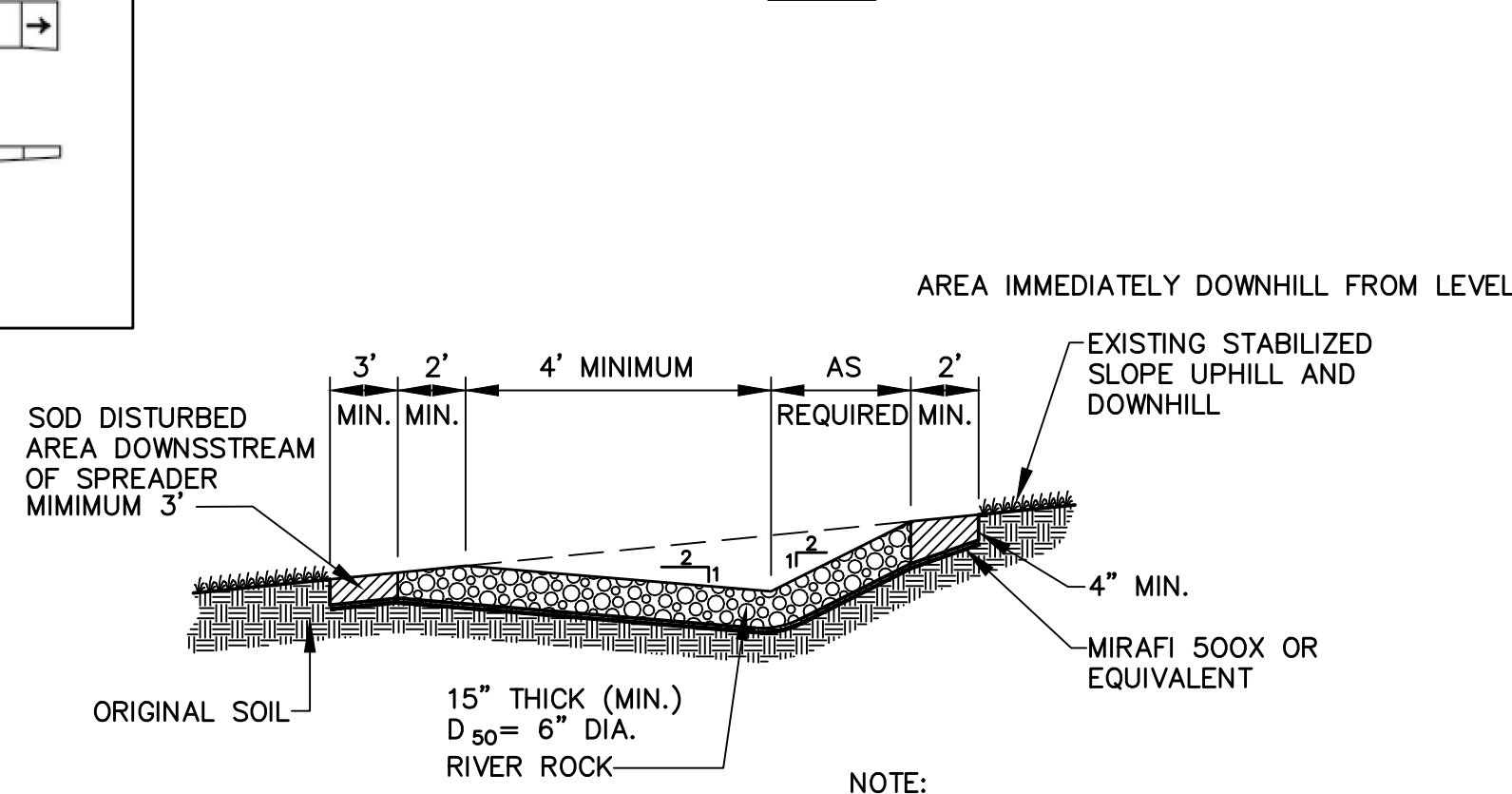
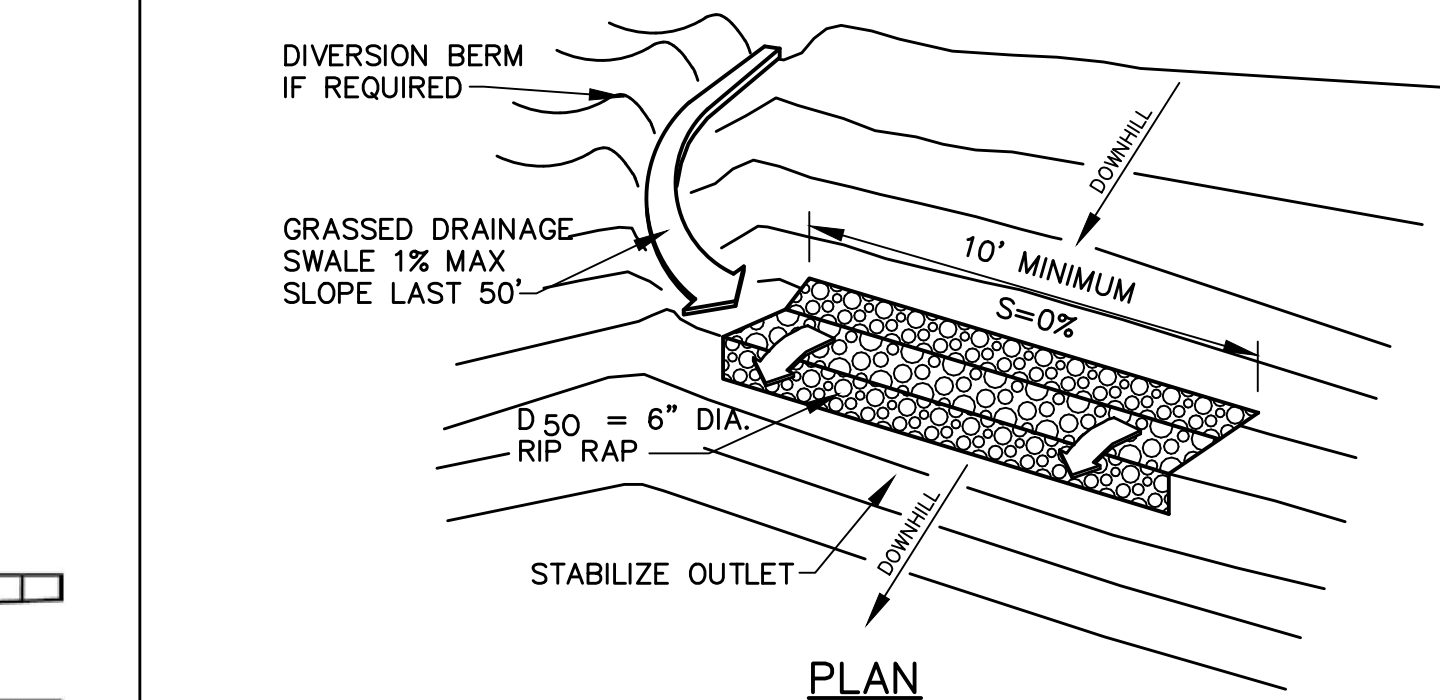
\* SEE PLANS FOR SHAPE/SIZE OF ENERGY DISSIPATORS  
\*\* RIP RAP SHALL CONSIST OF ROUND NATURAL STONE SUCH AS RIVER ROCK

**ENERGY DISSIPATER (RIVER ROCK) DETAIL**

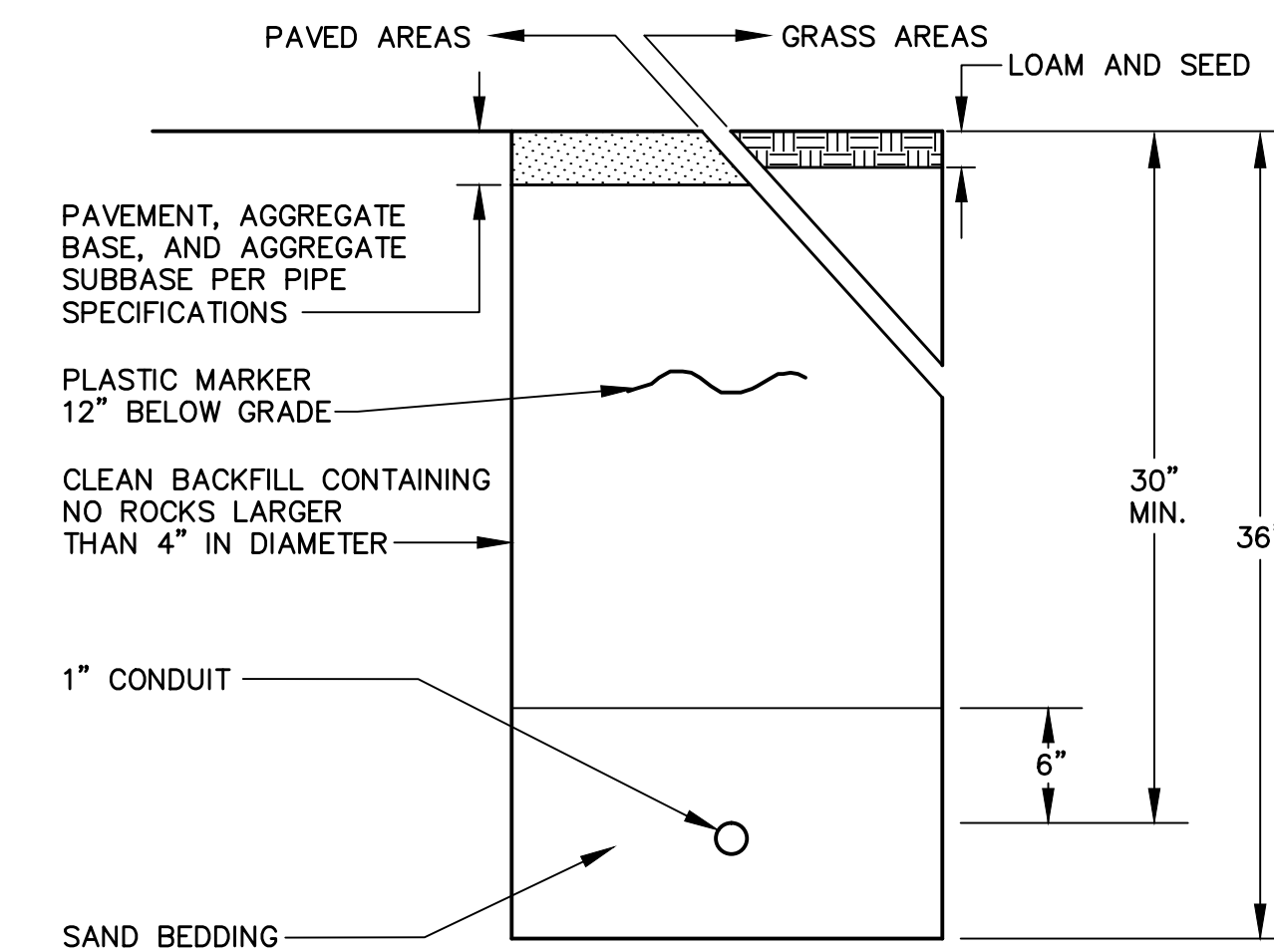


INSTALL ABT POLYDRAIN DRAIN BODY PER MANUFACTURES INSTRUCTIONS. ATTACH CAST IRON GRATE TO DRAIN BODY.  
[HTTP://WWW.ABTDRAINS.COM/POLY-DRAIN/POLYDRAIN](http://www.abtdrains.com/poly-drain/polydrain)

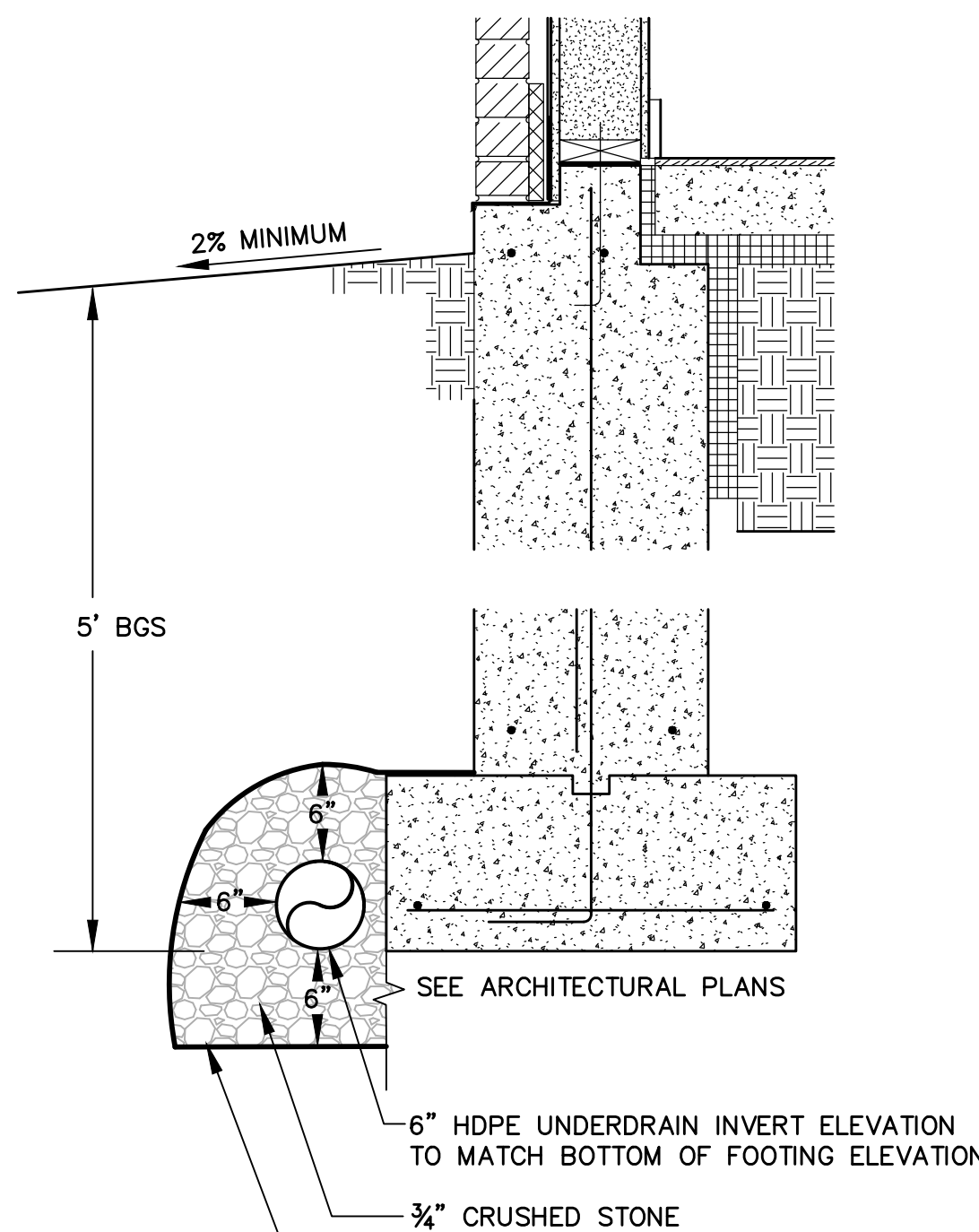
CONTRACTOR MAY USE ONE OF THE OTHER DRAIN BODY MANUFACTURES LISTED ON THE IRONAGE CUT SHEET ABOVE AS AN APPROVED EQUAL; PROVIDED THEY CAN CONFIRM/DEMONSTRATE THAT THIS WOULD BE COMPATIBLE WITH THE PROPOSED GRADES AND DESIGN INTENT.



**LEVEL SPREADER DETAIL**  
NOT TO SCALE

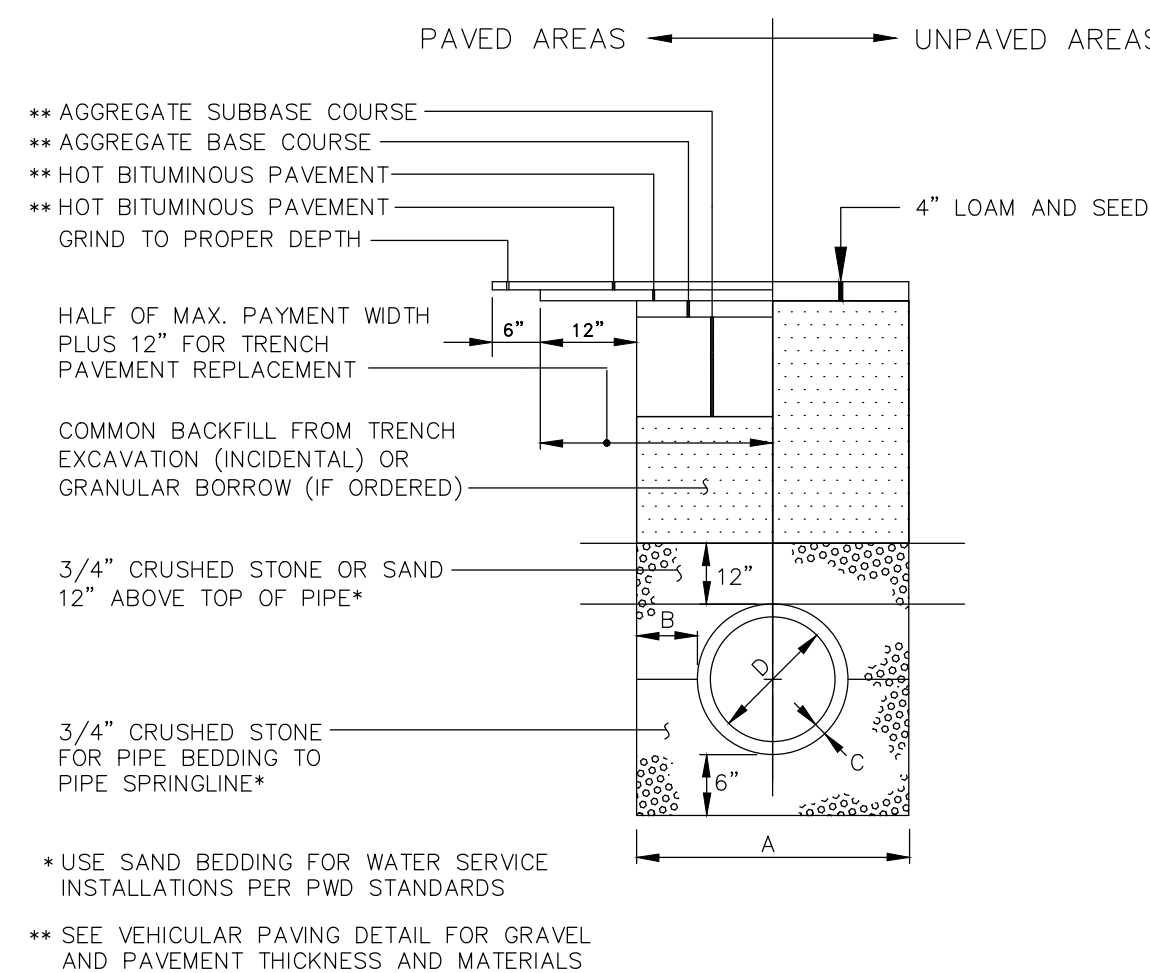


**STREET LIGHTING CONDUIT TRENCH DETAIL**  
NOT TO SCALE



**FOOTING DRAIN DETAIL**  
NOT TO SCALE

NOTES:  
DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.  
ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.



\* USE SAND BEDDING FOR WATER SERVICE INSTALLATIONS PER PWD STANDARDS  
\*\* SEE VEHICULAR PAVING DETAIL FOR GRAVEL AND PAVEMENT THICKNESS AND MATERIALS

**TYPICAL PIPE TRENCH INSTALLATION**  
NOT TO SCALE

- NOTES:
- ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
  - DIMENSION B SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES DIMENSION B SHALL BE AT LEAST 9".
  - DIMENSION A IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION A SHALL BE BASED ON PIPE DIAMETER D, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0

**TYPICAL PIPE INSTALLATION - NOTES**  
NOT TO SCALE

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**Civil Details**

No.	Revision/Issue	Date
C	Pricing Documents	8-31-15
B	90% Design Review	6-22-15
A	City Permitting	7-1-14

Design by:	Checked by:
JIM	SUB
Drawn by:	Approved by:
JIM	SUB

Project:  
131.06132

Sheet No:  
**C102**