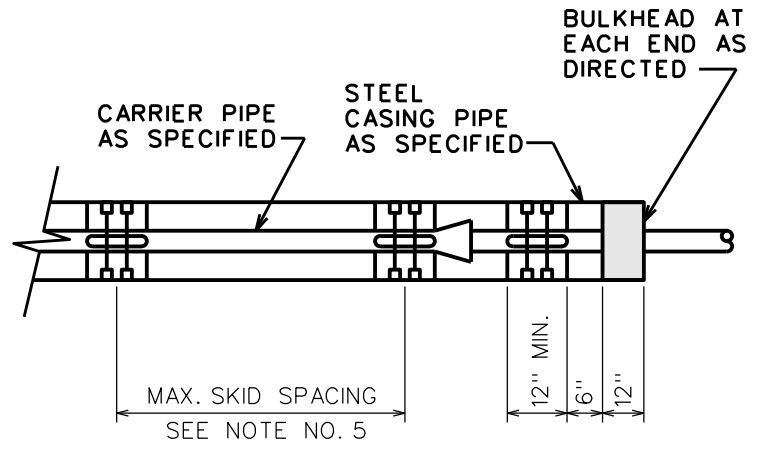
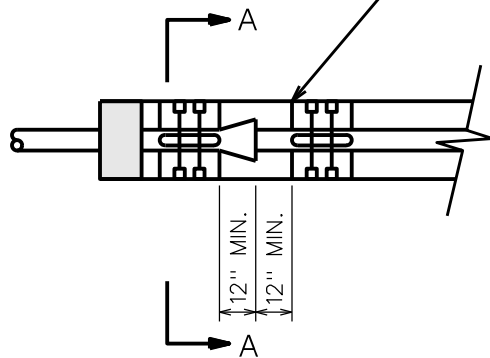


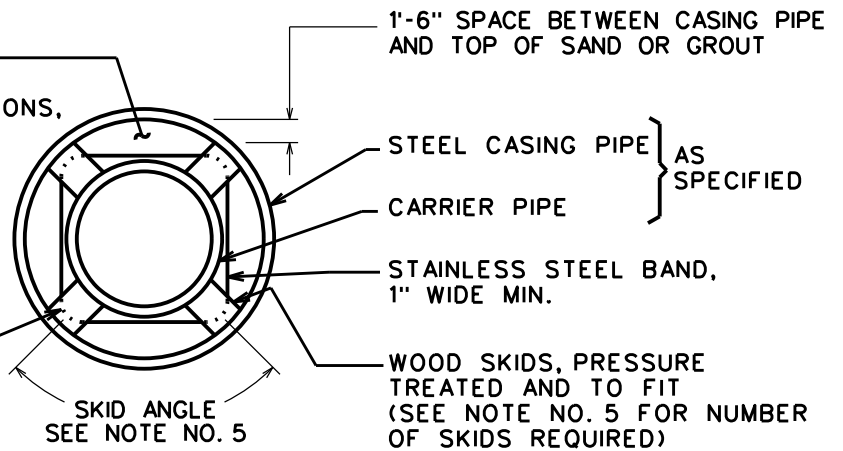
APPENDIX K
PWSA WATER AND SEWER
STANDARD DETAILS
FOR PRIVATE CONSTRUCTION

FILLET "FORWARD" EDGES OF SKIDS THAT SLIDE AGAINST WALL OF THE CASING PIPE



PLAN

FILL VOIDS BETWEEN CASING PIPE AND CARRIER PIPE WITH SAND OR GROUT PER SPECIFICATIONS, FOR MAXIMUM GROUTING PRESSURE, SEE NOTE NO. 5. IT MAY BE NECESSARY TO PROVIDE TEMPORARY VENT IN BULKHEAD.



SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE TYPICAL/MINIMUM UNLESS OTHERWISE SPECIFIED.
2. SKIDS MAY BE CONTINUOUS.
3. INSTALL PIPE WITHIN CASING PIPE BY PUSHING OR PULLING. PROTECT ENDS OF PIPE AS PER MANUFACTURER'S RECOMMENDATION.
4. LUBRICATE BETWEEN WOOD SKIDS AND CASING PIPE USING FLAX SOAP OR DRILLING MUD. DO NOT USE PETROLEUM LUBRICANTS.
5. METHOD OF INSTALLATION, CASING PIPE SIZE, NUMBER AND SIZE OF SKIDS, SKID ANGLE, SKID SPACING AND GROUTING PRESSURE SHALL BE DETERMINED IN THE FIELD AS PER THE RECOMMENDATIONS OF THE MANUFACTURER SUPPLYING THE CARRIER PIPE, UNLESS OTHERWISE SPECIFIED.
6. STAINLESS STEEL CASING SPACERS MAY BE UTILIZED IN LIEU OF WOOD SKIDS. (SEE NOTE 5 IF APPLICABLE)

5/19/2015

R E V I S I O N S	
1. RDH 10-20-00	
2. LRC 1-31-14	
Approved by:	

PGH₂O

Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority

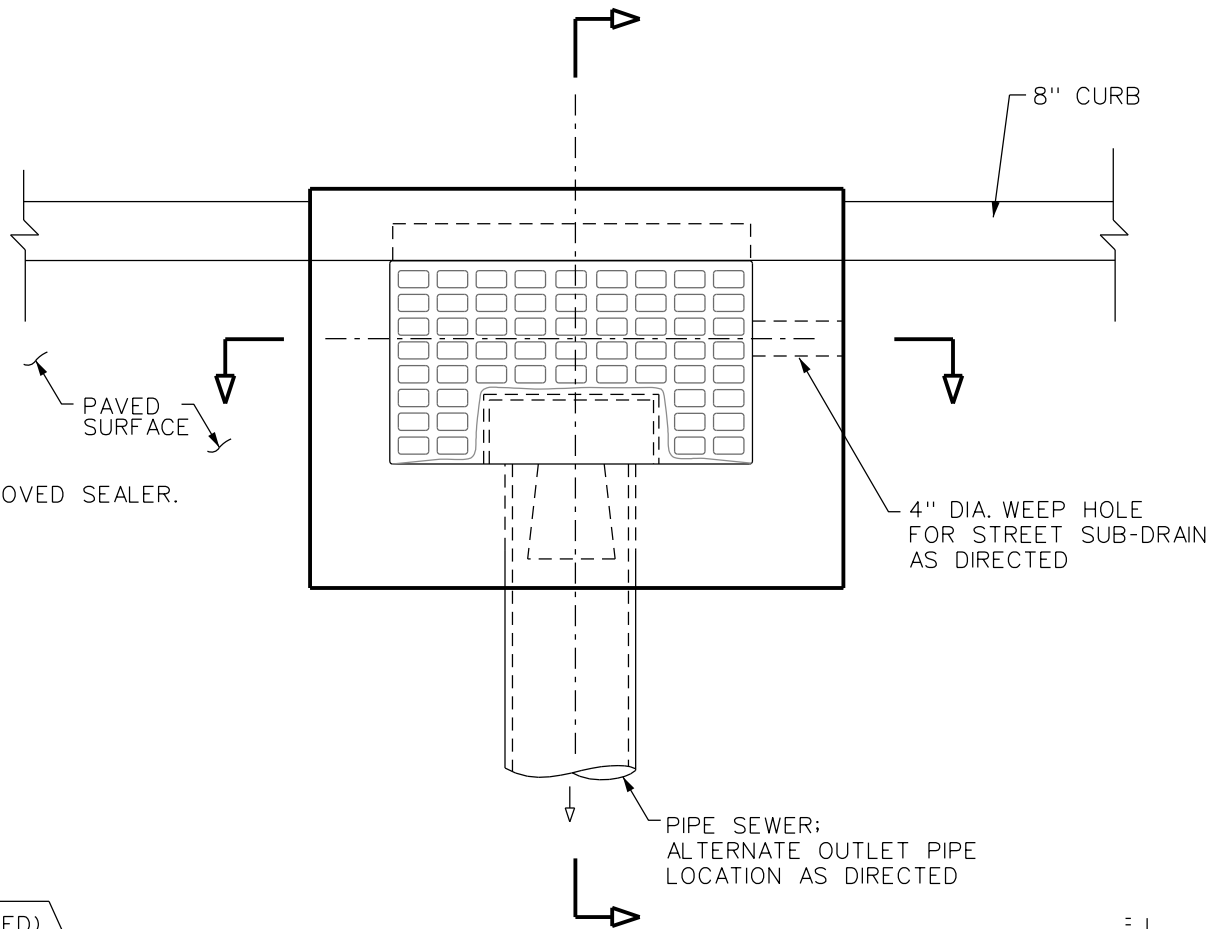
Carrier/Casing Pipe

Scale: N.T.S.	Supplemental Detail Drawing:
M:\pwsa\gis\det\Standards\stdcasingpipe.det	CP-1

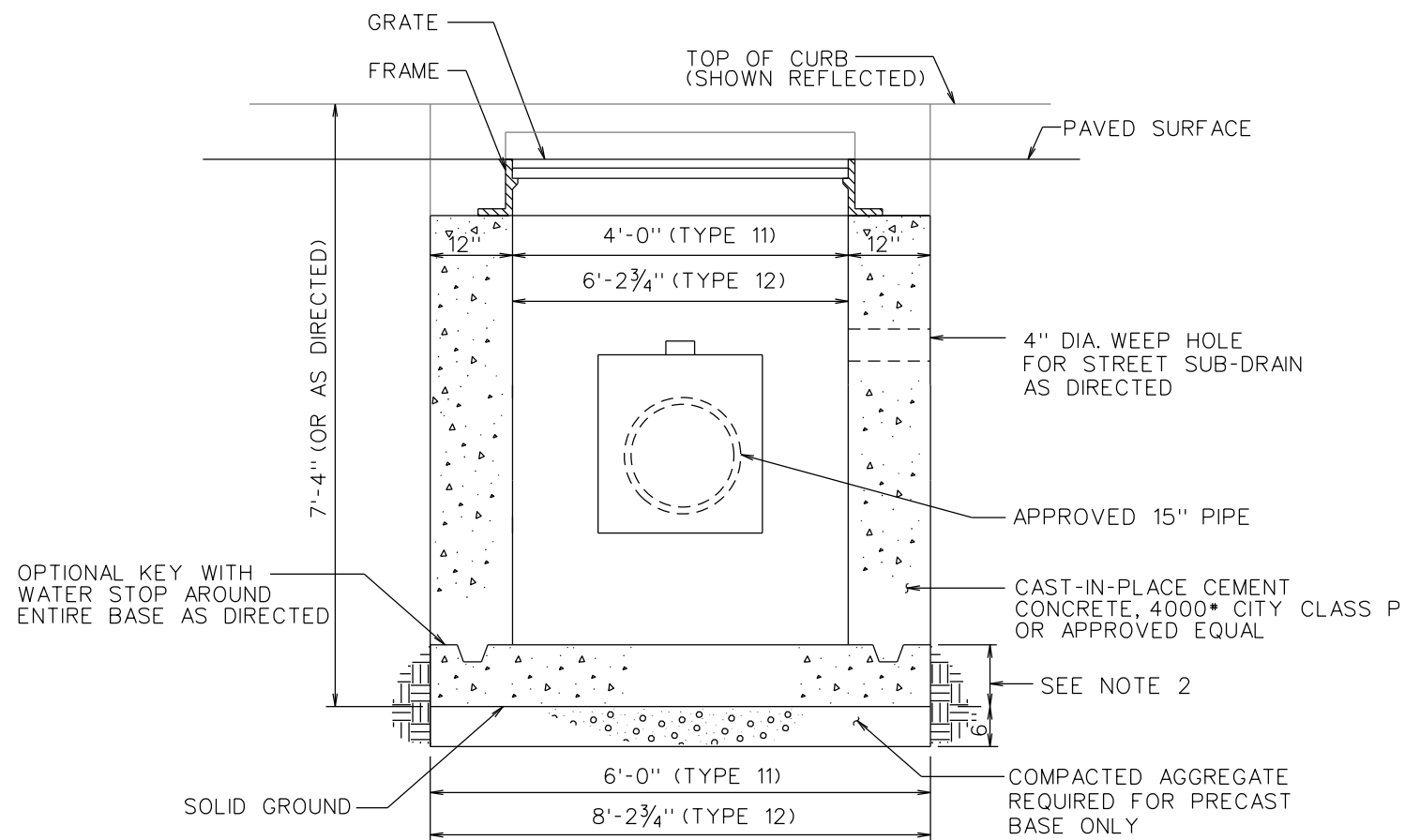
NOTES:

1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
3. ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
4. CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. HOOK AND TRAP EJIW 5954 AND EJIW 5944 OR APPROVED EQUAL.
7. HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL WITH APPROVED SEALER.

FRAME & GRATE SCHEDULE	
CB TYPE	
11	GRATING CASTING NO. 71 FRAME CASTING NO. 75
12	GRATING CASTING NO. 72 FRAME CASTING NO. 77
NOTE: CASTING NO'S. ARE CITY OF PITTSBURGH/PWSA STANDARDS	



PLAN



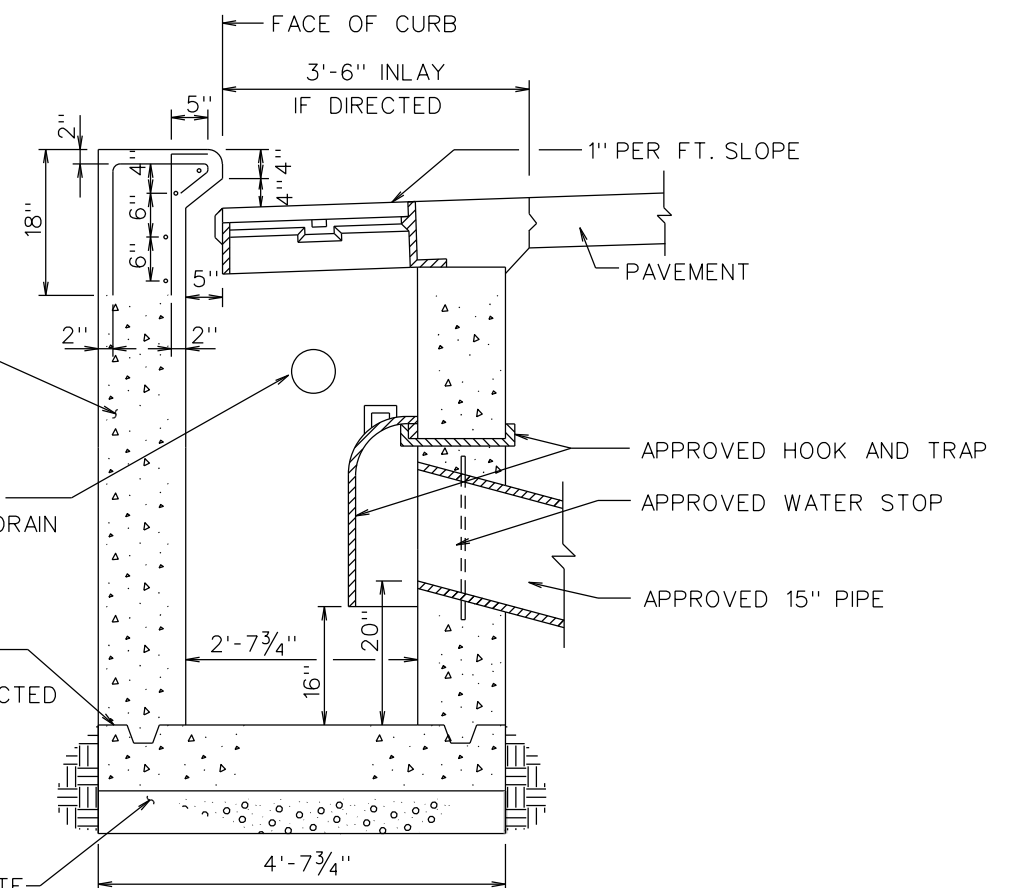
LONGITUDINAL SECTION

CAST-IN-PLACE CEMENT CONCRETE, CITY CLASS P OR APPROVED EQUAL

4" DIA. WEEP HOLE FOR STREET SUB-DRAIN AS DIRECTED

OPTIONAL KEY WITH WATER STOP AROUND ENTIRE BASE AS DIRECTED

COMPACTED AGGREGATE REQUIRED FOR PRECAST BASE ONLY



CROSS SECTION

R E V I S I O N S	
1. MSR	4-23-02
2. MAC	3-9-04
3. MAC	5-19-09
4. LRC	1-31-14

Approved by:



Pittsburgh Water & Sewer Authority

The Pittsburgh Water and Sewer Authority

Catch Basin Type 11 And Type 12

Scale: N.T.S.

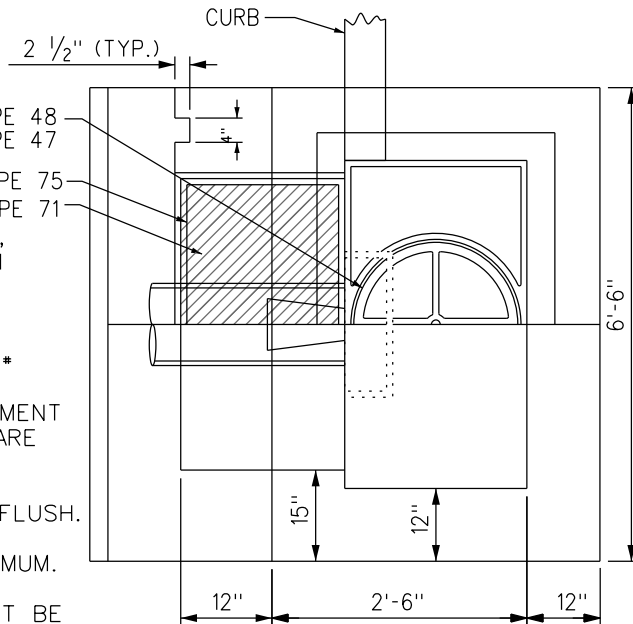
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Supplemental Detail Drawing: **CB11N12**

NOTES:

1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
3. ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
4. CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. CASTING NUMBERS ARE CITY OF PITTSBURGH/PWSA STANDARDS. HOOK PATTERN NO. 404; TRAP PATTERN NO.402-15 OR APPROVED EQUAL.
7. HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL WITH APPROVED SEALER.

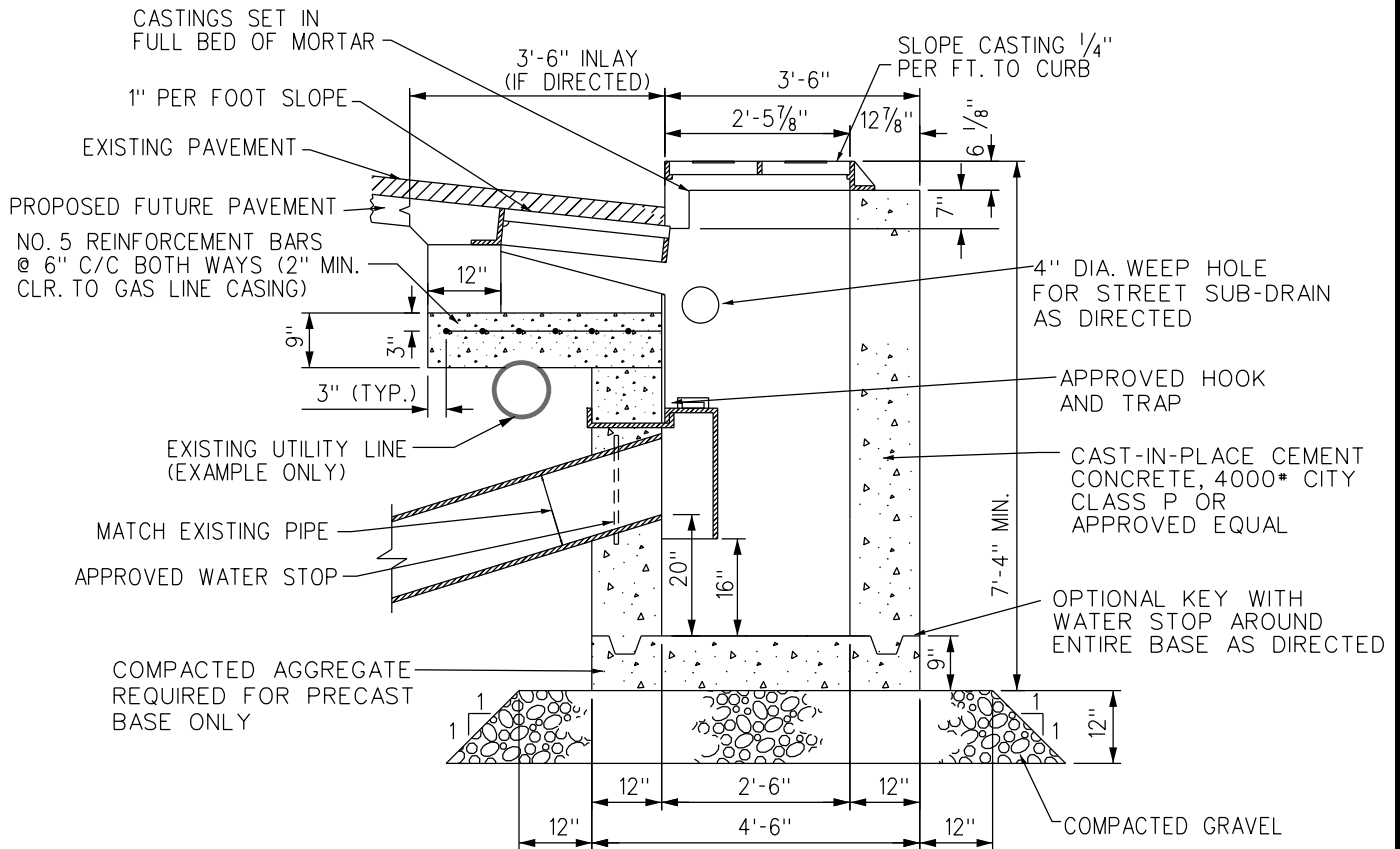
CASTING TYPE 48
 CASTING TYPE 47
 FRAME - TYPE 75
 GRATE - TYPE 71



FRAME GRATE & CASTING SCHEDULE

HOOK #404
 TRAP #402.15
 FRAME - TYPE 75
 GRATE - TYPE 71
 CASTING - TYPE 48
 CASTING - TYPE 47

SECTIONAL PLAN - STRAIGHT CURB



SECTIONAL ELEVATION

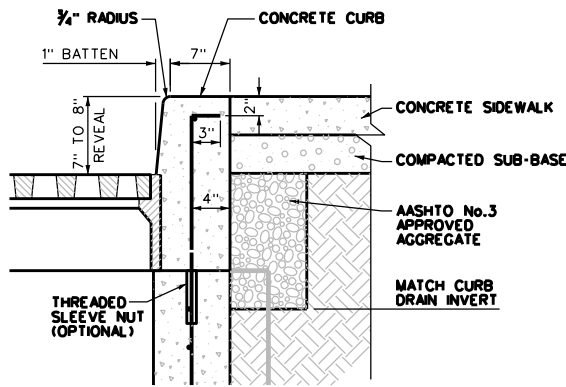
5/19/2015

R E V I S I O N S	
1. MSR 5-13-02	
2. MAC 6-04	
3. MAC 3-18-09	
4. LRC 1-31-14	
Approved by:	

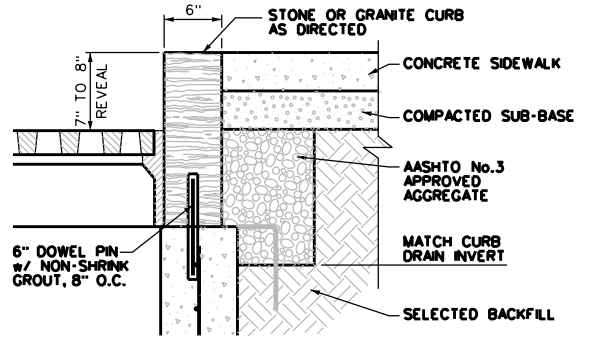


The Pittsburgh Water and Sewer Authority
CATCH BASIN TYPE 1 MODIFIED
(Over Existing Utility)

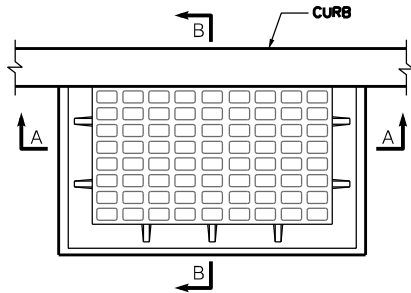
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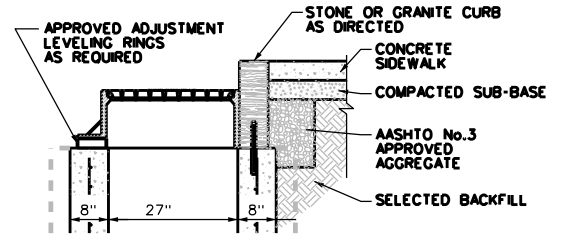
CONCRETE CURB DETAIL



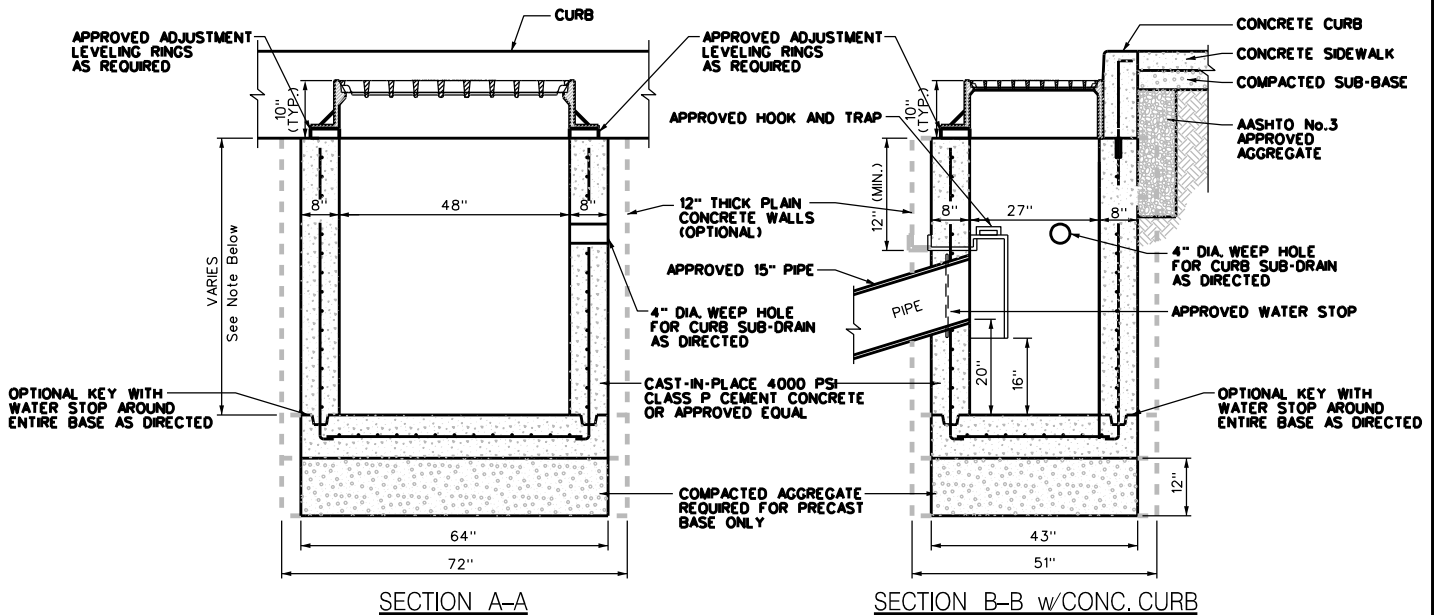
STONE CURB DETAIL



PLAN



SECTION B-B w/STONE CURB



SECTION A-A

SECTION B-B w/CONC. CURB

NOTES:

- SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
- CEMENT CONCRETE FOR CATCH BASIN WALL SHALL BE 4000 PSI CLASS P, 12" THICK PLAIN CONCRETE, OR 8" THICK REINFORCED CONCRETE FOR BASE AND WALLS. VERTICAL BARS FOR WALL No. 6 REBAR AT 6" O.C.; HORIZONTAL BARS FOR WALL AND/OR BASE SLAB No. 4 REBAR AT 12" O.C.
- ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
- CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
- PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR PWSA APPROVAL BEFORE CONSTRUCTION.
- CASTING NUMBERS ARE CITY OF PITTSBURGH/PWSA STANDARDS. HOOK PATTERN NO. 404; TRAP PATTERN NO. 402-15 OR APPROVED EQUAL.
- TYPICAL STORM INLET DEPTH IS 4' FROM BOX FLOOR TO TOP OF BOX WALL; TYPICAL CATCH BASIN DEPTH IS 6' FROM BOX FLOOR TO TOP OF BOX WALL.
- HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL AS DIRECTED.

5/19/2015

R E V I S I O N S	
1.	DWP 4-7-05
2.	MAC 3-18-09
3.	MAC 5-19-09
4.	LRC 1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority
**3-FLANGE FRAME
 TYPE 11 CATCH BASIN**

Scale: N.T.S.

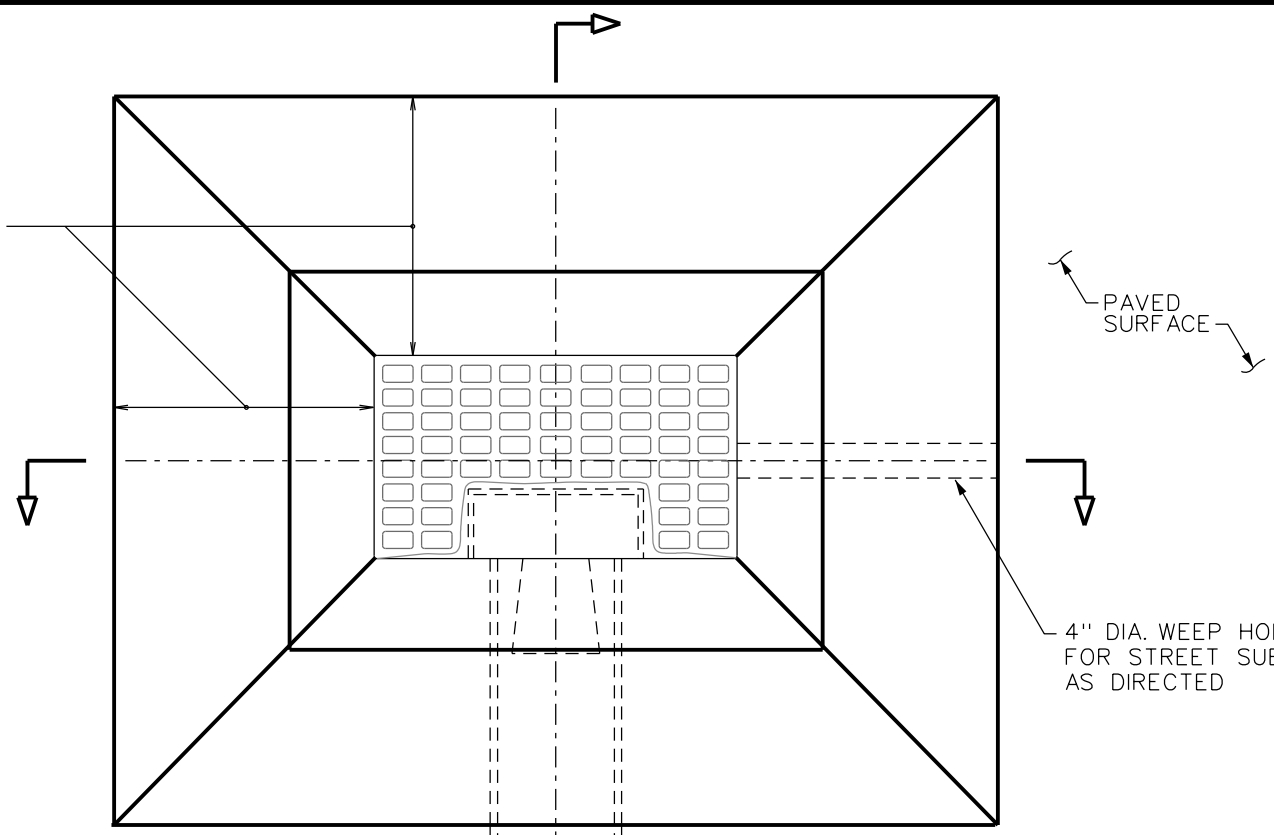
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Supplemental
 Detail Drawing:

CB2005

FRAME & GRATE SCHEDULE		
CB TYPE	FRAME NO.	GRATE NO.
9	NO. 76	NO. 71
10	NO. 78	NO. 72

CONCRETE APRON
3'-0" OR AS
DIRECTED



PAVED SURFACE

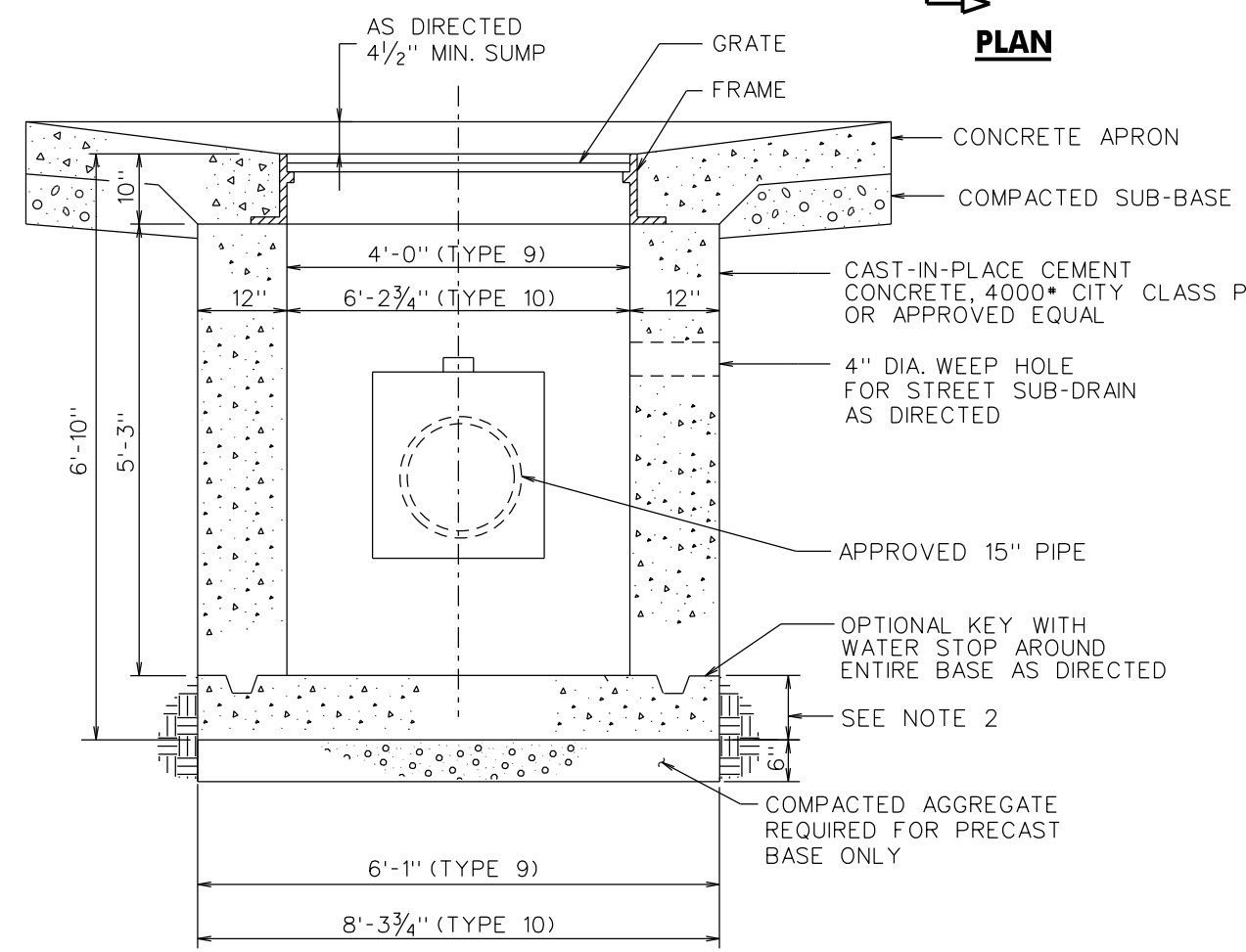
4" DIA. WEEP HOLE
FOR STREET SUB-DRAIN
AS DIRECTED

PIPE SEWER;
ALTERNATE OUTLET PIPE
LOCATION AS DIRECTED

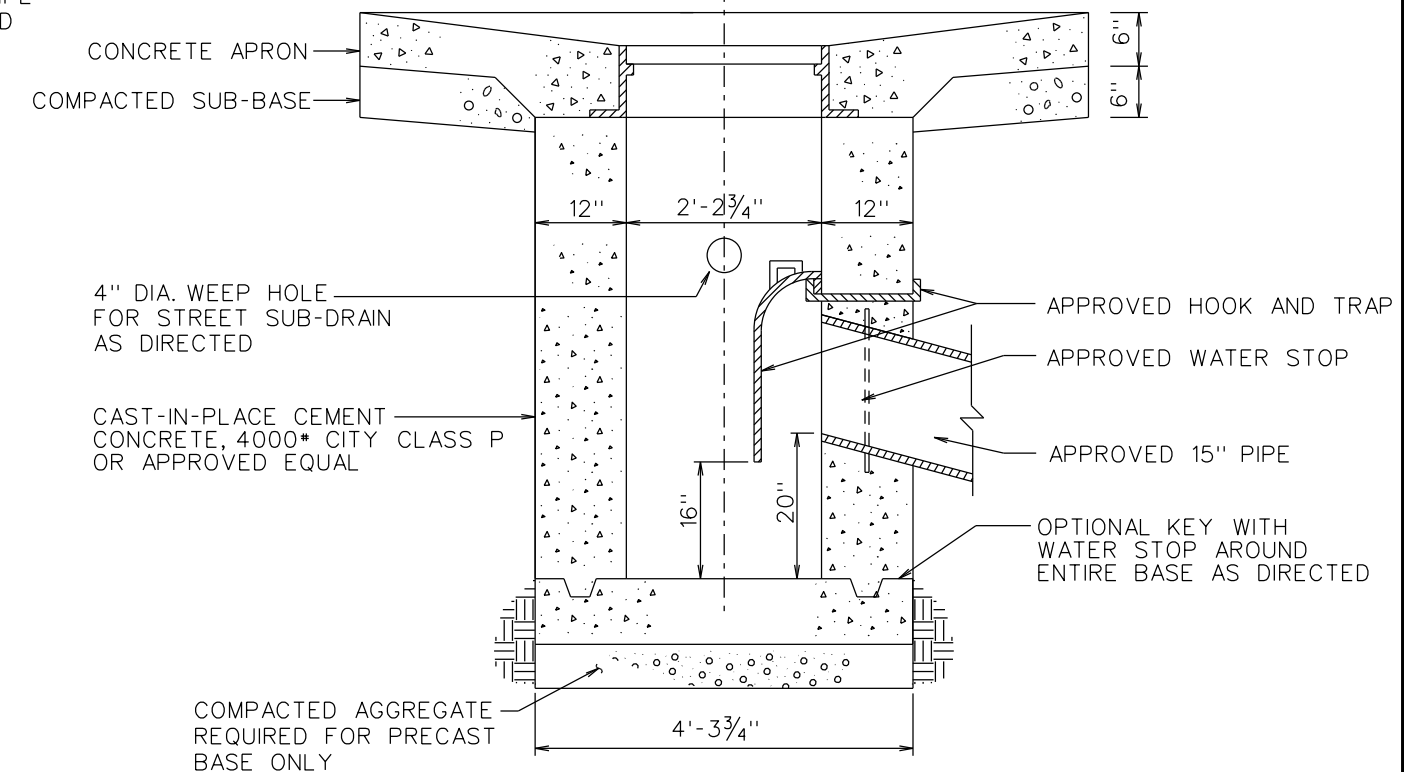
PLAN

NOTES:

1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE *6 VERTICAL BARS AT 12" C.C.
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5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. HOOK AND TRAP EJIW 5954 AND EJIW 5944 OR APPROVED EQUAL.
7. HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL WITH APPROVED SEALER.



LONGITUDINAL SECTION



CROSS SECTION

R E V I S I O N S	
1. MSR 4-23-02	5. LRC 1-31-14
2. MAC 3-9-04	
3. MAC 3-26-08	
4. MAC 5-19-09	

Approved by:



The Pittsburgh Water and Sewer Authority
Catch Basin Type 9 And Type 10
 Scale: N.T.S.
 Supplemental Detail Drawing: **CB9N10**

5/19/2015

CAST IRON BEEHIVE GRATE
SEE BELOW

PONDING
HEIGHT
VARIES

RISER MATERIAL AS SPECIFIED,
PVC OR CONCRETE PIPE CLASS IV

OUTFALL PIPE
SIZE AND TYPE
PER DESIGN PLANS

VARIES
SEE NOTE 1

SLOPED TO
DRAIN

BIORETENTION
SOIL MIX

FLOW

AASHTO No. 57 STONE
6" MINIMUM DEPTH

PRECAST OR POURED-IN-PLACE
CONCRETE BASE
6" MINIMUM THICKNESS

ELEVATION

GRATE TYPE TO BE "SEWER
PIPE FRAME/GRATE";
MANUFACTURED TO FIT THE
BELL END OF STANDARD
CONCRETE PIPE

FRAME WHEN REQUIRED
MEETING MANUFACTURER'S
SPECIFICATIONS

SEE NOTE 1

5½" TO 9"

2½" TO 3"

12" TO 24" RISER

14¾" TO 29"

DETAIL

NOTES:

1. MINIMUM OPENING SIZE IN GRATE SHALL BE 1¼" .
2. SIZE OF GRATE SHALL MATCH SIZE OF THE RISER, PER PLANS, SHALL FIT SNUG AND WATERTIGHT, AND SHALL BE REMOVEABLE FOR MAINTENANCE PURPOSES.
3. ALTERNATE MATERIAL TO CAST IRON SHALL BE ALLOWED AS APPROVED BY PWSA.

REVISIONS

1.	



**THE PITTSBURGH WATER AND SEWER AUTHORITY
OVERFLOW RISER
WITH BEEHIVE GRATE**

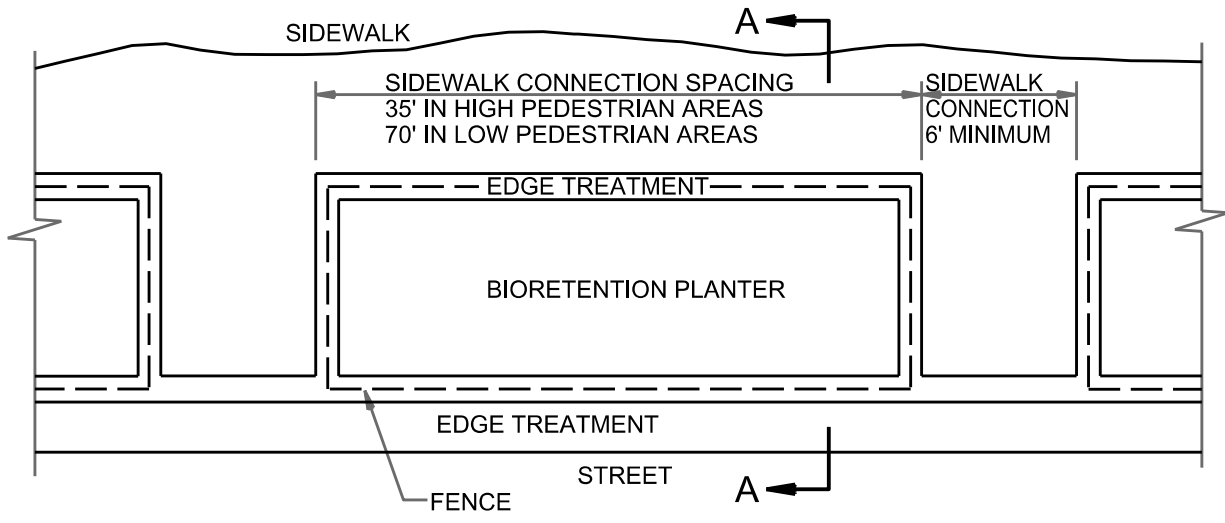
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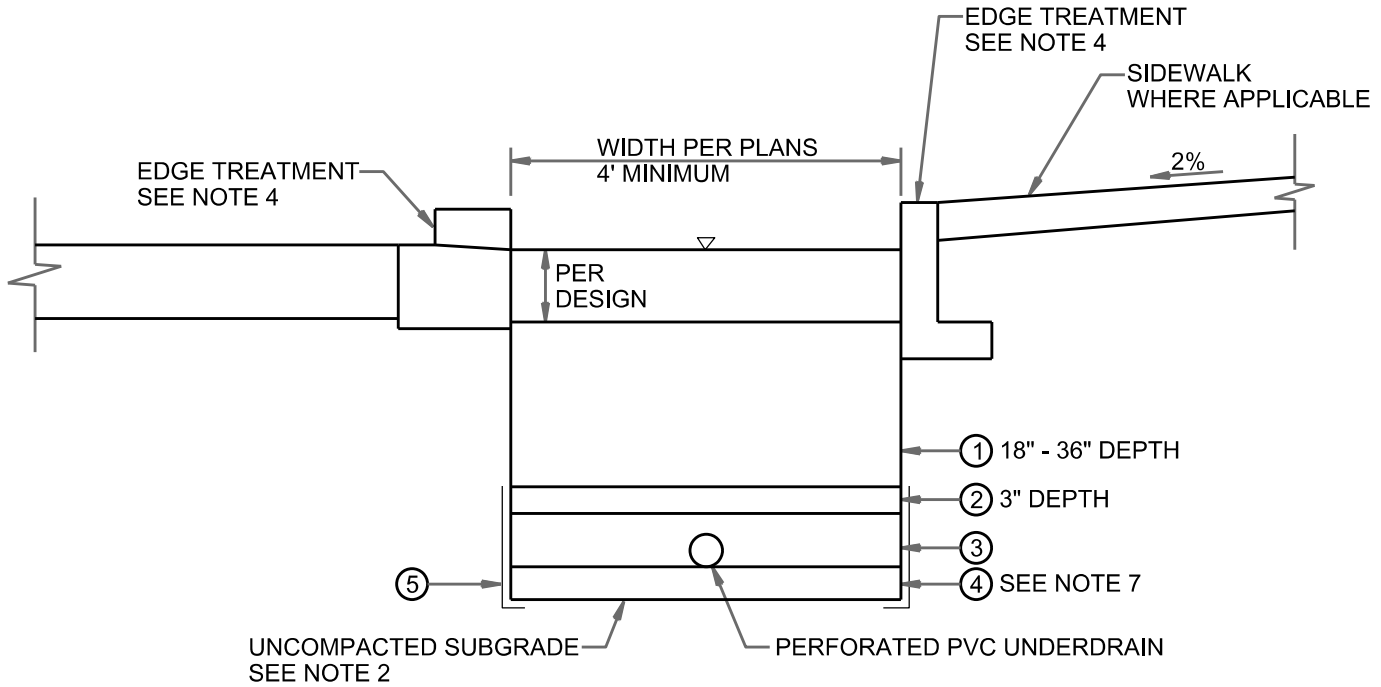
SUPPLEMENTAL
DETAIL
DRAWING:

GI-1

2/6/2015



PLAN



SECTION A-A

LEGEND:

- ① BIORETENTION SOIL
- ② CHOKER LAYER, SAND AND GRAVEL
- ③ AASHTO No. 57 STONE, DOUBLE-WASHED
- ④ INFILTRATION SUMP, AASHTO No. 57 STONE, DOUBLE-WASHED
- ⑤ GEOTEXTILE

NOTES:

1. BIORETENTION MATERIALS AND CONSTRUCTION SHALL MEET CURRENT APPROVED SPECIFICATION FOR "BIORETENTION, PLANTING AND STRUCTURAL SOILS".
2. SCARIFY SUBGRADE 3" MIN. BEFORE INSTALLATION.
3. SIDE SLOPES STEEPER THAN 3:1, MAY BE ALLOWED; HOWEVER, MUST BE APPROVED.
4. TREES AND PLANTINGS SHALL BE INSTALLED IN ACCORDANCE WITH DESIGN PLANS.
6. BOTTOM OF BIORETENTION SHALL BE AT LEAST 2' ABOVE THE SEASONAL HIGH WATER TABLE AS DETERMINED BY GEOTECHNICAL INVESTIGATION.
7. DEPTH OF INFILTRATION SUMP AS SHOWN ON DESIGN PLANS SHOULD BE SIZED TO ADDRESS STORMWATER MANAGEMENT REQUIREMENTS.

REVISIONS	
1.	

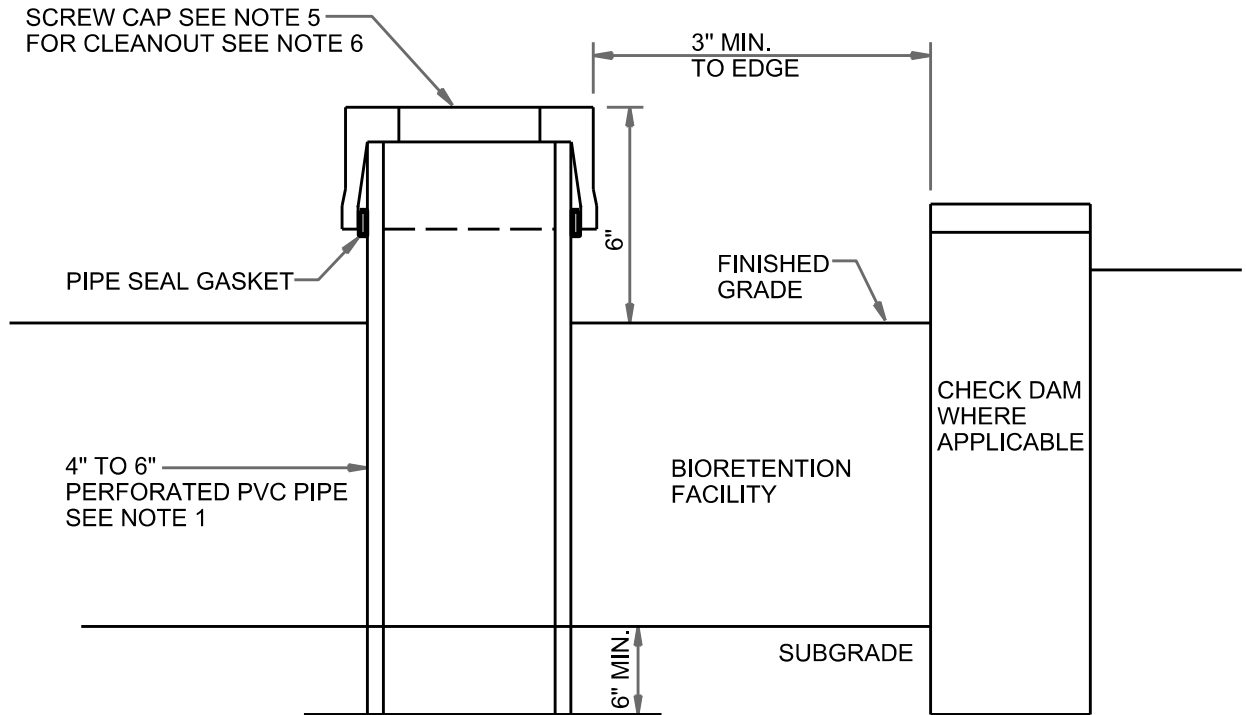


THE PITTSBURGH WATER AND SEWER AUTHORITY
BIORETENTION PLANTER ADJACENT TO ROADWAY (NO PARKING EGRESS)

SCALE: N.T.S.
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SUPPLEMENTAL DETAIL DRAWING:
GI-2

2/6/2015



OBSERVATION WELL IN BIORETENTION

NOTES:

1. PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 PVC OR EQUAL, AT LEAST 3 FEET LONG WITH AN INSIDE DIAMETER OF 4 TO 6 INCHES. PERFORATED PIPE IS REQUIRED FOR ALL OBSERVATION WELLS, OR CLEANOUTS USED AS OBSERVATION WELLS.
2. FACTORY ATTACHED BRASS OR HIGH IMPACT PLASTIC HEAD WITH RIBS TO PREVENT ROTATION WHEN REMOVING LOCKABLE CAP.
3. LOCKABLE CAP SHALL BE BRASS AND RATED FOR HS-20 LOADING IN VEHICULAR AREAS. MOUNTED FLUSH TO GRADE. LOCKABLE CAP MAY BE HIGH IMPACT PLASTIC THAT IS UV STABLE IN NON-VEHICULAR LOADING AREA, AT LEAST 6 INCHES ABOVE GRADE.
4. IN FACILITIES SUBJECT TO VEHICULAR TRAFFIC, CONCRETE APRONS AROUND CLEANOUTS ARE AN OPTION, AS SHOWN IN DESIGN PLANS.
5. CAP ON RISERS IN BIORETENTION FACILITY SHALL BE PVC SCREW IN PLUG.
6. FOR CLEANOUT IN BIORETENTION (NOT SHOWN), USE SIMILAR DETAIL, BUT USE PVC SCREW CAP SET 6 INCHES ABOVE FINISHED GRADE.
7. INSTALL CLEANOUT/SITE TEE PER ACHD PLUMBING CODE REQUIREMENTS OR AS DIRECTED BASED UPON FINAL PIPING CONFIGURATION.

REVISIONS	
1.	

PGH₂O

Pittsburgh
Water & Sewer
Authority

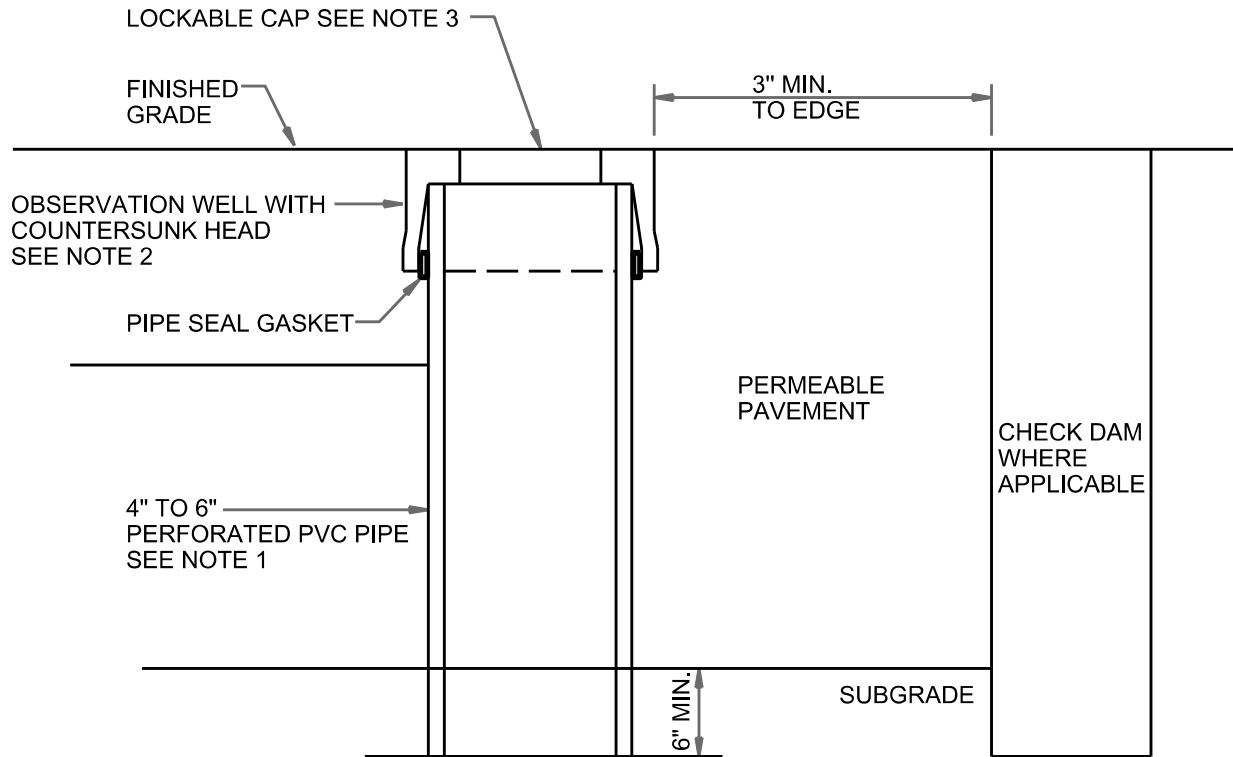
THE PITTSBURGH WATER AND SEWER AUTHORITY
STORMWATER FACILITY
UNDERDRAIN PIPE RISERS (1 of 3)

SCALE: N.T.S.
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SUPPLEMENTAL
DETAIL
DRAWING:

GI-3-1

2/6/2015



OBSERVATION WELL IN PERMEABLE PAVEMENT

NOTES:

1. PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 PVC OR EQUAL, AT LEAST 3 FEET LONG WITH AN INSIDE DIAMETER OF 4 TO 6 INCHES. PERFORATED PIPE IS REQUIRED FOR ALL OBSERVATION WELLS, OR CLEANOUTS USED AS OBSERVATION WELLS.
2. FACTORY ATTACHED BRASS OR HIGH IMPACT PLASTIC HEAD WITH RIBS TO PREVENT ROTATION WHEN REMOVING LOCKABLE CAP.
3. LOCKABLE CAP SHALL BE BRASS AND RATED FOR HS-20 LOADING IN VEHICULAR AREAS. MOUNTED FLUSH TO GRADE. LOCKABLE CAP MAY BE HIGH IMPACT PLASTIC THAT IS UV STABLE IN NON-VEHICULAR LOADING AREA, AT LEAST 6 INCHES ABOVE GRADE.
4. IN FACILITIES SUBJECT TO VEHICULAR TRAFFIC, CONCRETE APRONS AROUND CLEANOUTS ARE AN OPTION, AS SHOWN IN DESIGN PLANS.
5. CAP ON RISERS IN BIORETENTION FACILITY SHALL BE PVC SCREW IN PLUG.
6. FOR CLEANOUT IN BIORETENTION (NOT SHOWN), USE SIMILAR DETAIL, BUT USE PVC SCREW CAP SET 6 INCHES ABOVE FINISHED GRADE.
7. INSTALL CLEANOUT/SITE TEE PER ACHD PLUMBING CODE REQUIREMENTS OR AS DIRECTED BASED UPON FINAL PIPING CONFIGURATION.

REVISIONS	
1.	



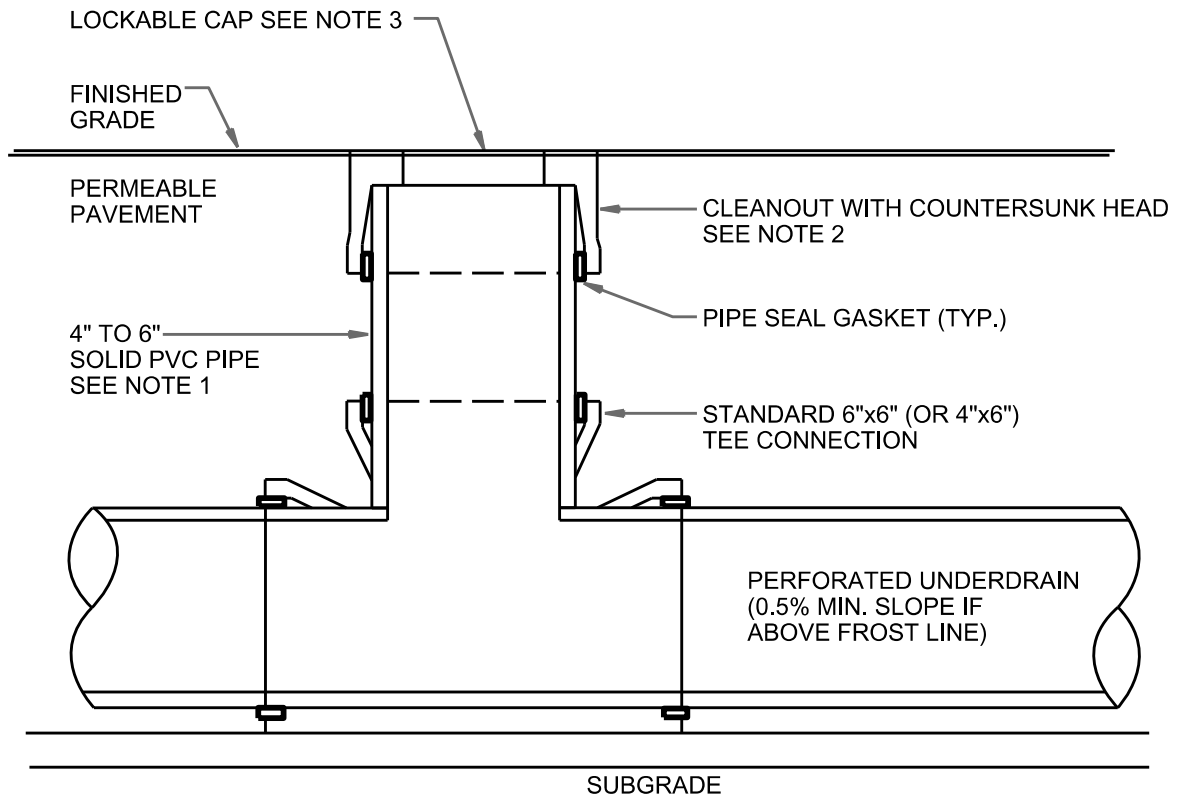
**THE PITTSBURGH WATER AND SEWER AUTHORITY
STORMWATER FACILITY
UNDERDRAIN PIPE RISERS (2 of 3)**

SCALE: N.T.S.
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SUPPLEMENTAL
DETAIL
DRAWING:

GI-3-2

2/6/2015



**CLEANOUT / OBSERVATION
WELL IN PERMEABLE
PAVEMENT (SEE NOTE 6)**

NOTES:

1. PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 PVC OR EQUAL, AT LEAST 3 FEET LONG WITH AN INSIDE DIAMETER OF 4 TO 6 INCHES. PERFORATED PIPE IS REQUIRED FOR ALL OBSERVATIONS WELLS, OR CLEANOUTS USED AS OBSERVATION WELLS.
2. FACTORY ATTACHED BRASS OR HIGH IMPACT PLASTIC HEAD WITH RIBS TO PREVENT ROTATION WHEN REMOVING LOCKABLE CAP.
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5. CAP ON RISERS IN BIORETENTION FACILITY SHALL BE PVC SCREW IN PLUG.
6. FOR CLEANOUT IN BIORETENTION (NOT SHOWN), USE SIMILAR DETAIL, BUT USE PVC SCREW CAP SET 6 INCHES ABOVE FINISHED GRADE.
7. INSTALL CLEANOUT/SITE TEE PER ACHD PLUMBING CODE REQUIREMENTS OR AS DIRECTED BASED UPON FINAL PIPING CONFIGURATION.

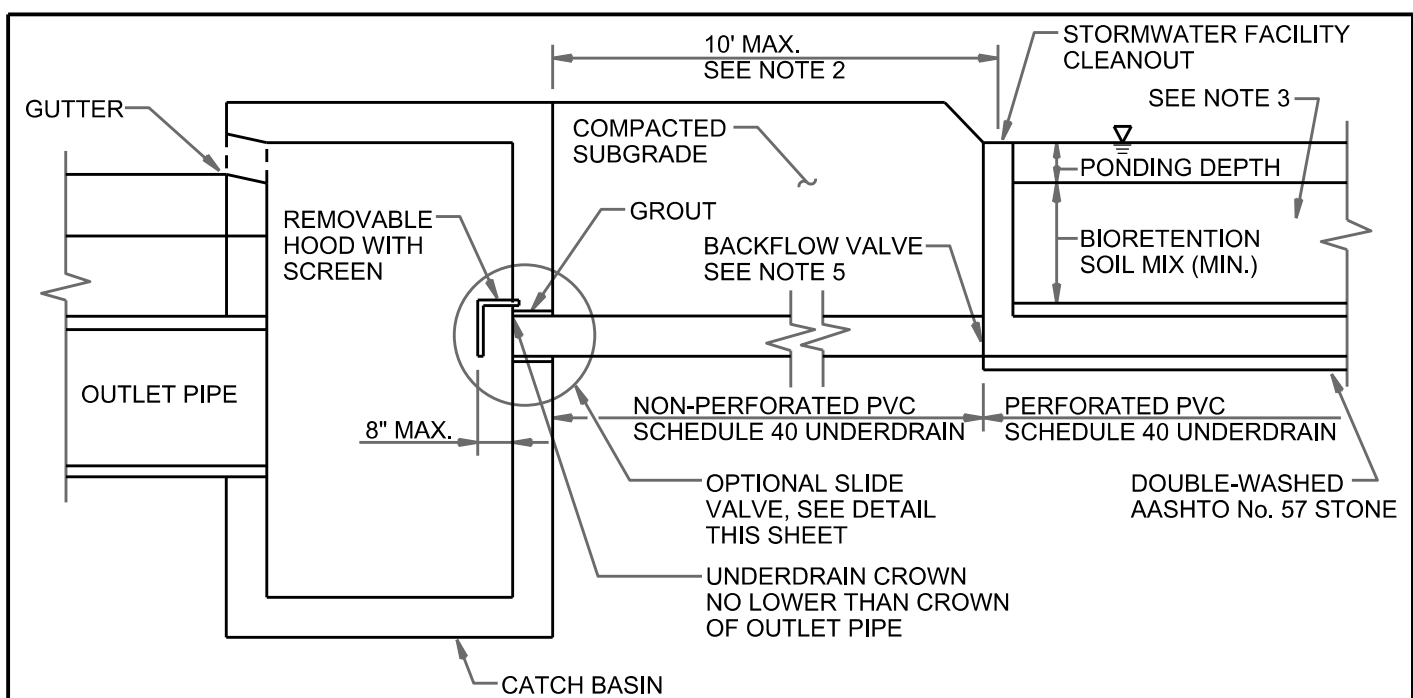
REVISIONS	
1.	



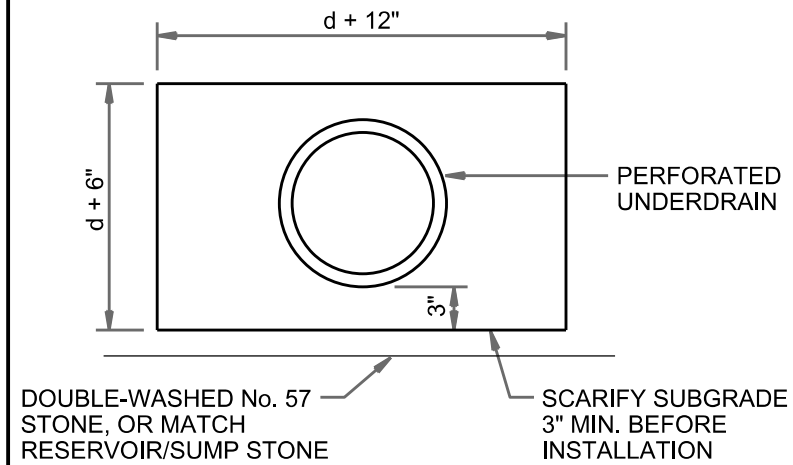
**THE PITTSBURGH WATER AND SEWER AUTHORITY
STORMWATER FACILITY
UNDERDRAIN PIPE RISERS (3 of 3)**

SCALE: N.T.S.	SUPPLEMENTAL DETAIL DRAWING:
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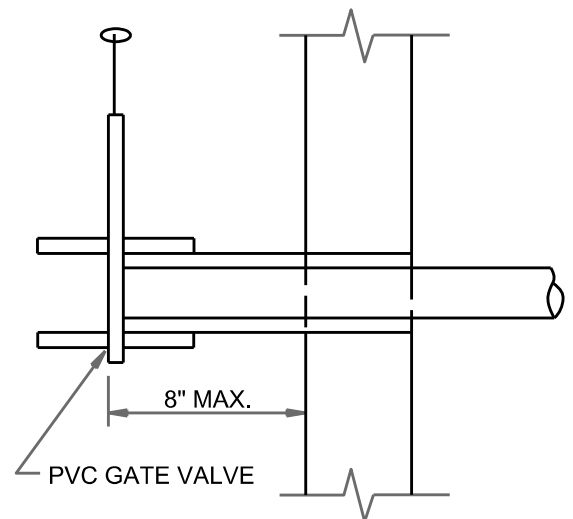
2/6/2015



**LID UNDERDRAIN CONNECTION
TO CATCH BASINS**



**UNDERDRAIN AND
BEDDING SECTION**



OPTIONAL SLIDE VALVE

- NOTES:**
1. CATCH BASIN CONNECTIONS FROM UNDERDRAINS SERVICING PRIVATE PROPERTY ARE PROHIBITED.
 2. WHEN STORMWATER FACILITY IS LOCATED > 10' FROM CATCH BASIN, PROVIDE ADDITIONAL CLEANOUT OUTSIDE OF STORMWATER FACILITY WITHIN 10' OF CATCH BASIN.
 3. STORMWATER FACILITY DEPICTED IS BIORETENTION PRACTICE. CONNECTOR TO CATCH BASIN WILL ALSO APPLY TO PERMEABLE PAVEMENTS AND BIOSWALES WITH UNDERDRAINS.
 4. OPTIONAL PVC GATE VALVE TO BE USED TO REGULATE FLOW IN UNDERDRAIN PIPE AS INDICATED IN PLANS. VALVE MAY ALSO BE USED IN OVERFLOW RISER AS DIRECTED.
 5. WHEN CONNECTING TO A COMBINED SEWER SYSTEM. A BACKFLOW VALVE WITH SERVICE ACCESS EXTENSION IS REQUIRED AT CONNECTION BETWEEN PERFORATED AND NON-PERFORATED PIPE.
 6. PVC SLOPE SHALL BE PER DESIGN MANUAL SECTION 33.14.4.4.

REVISIONS	
1.	

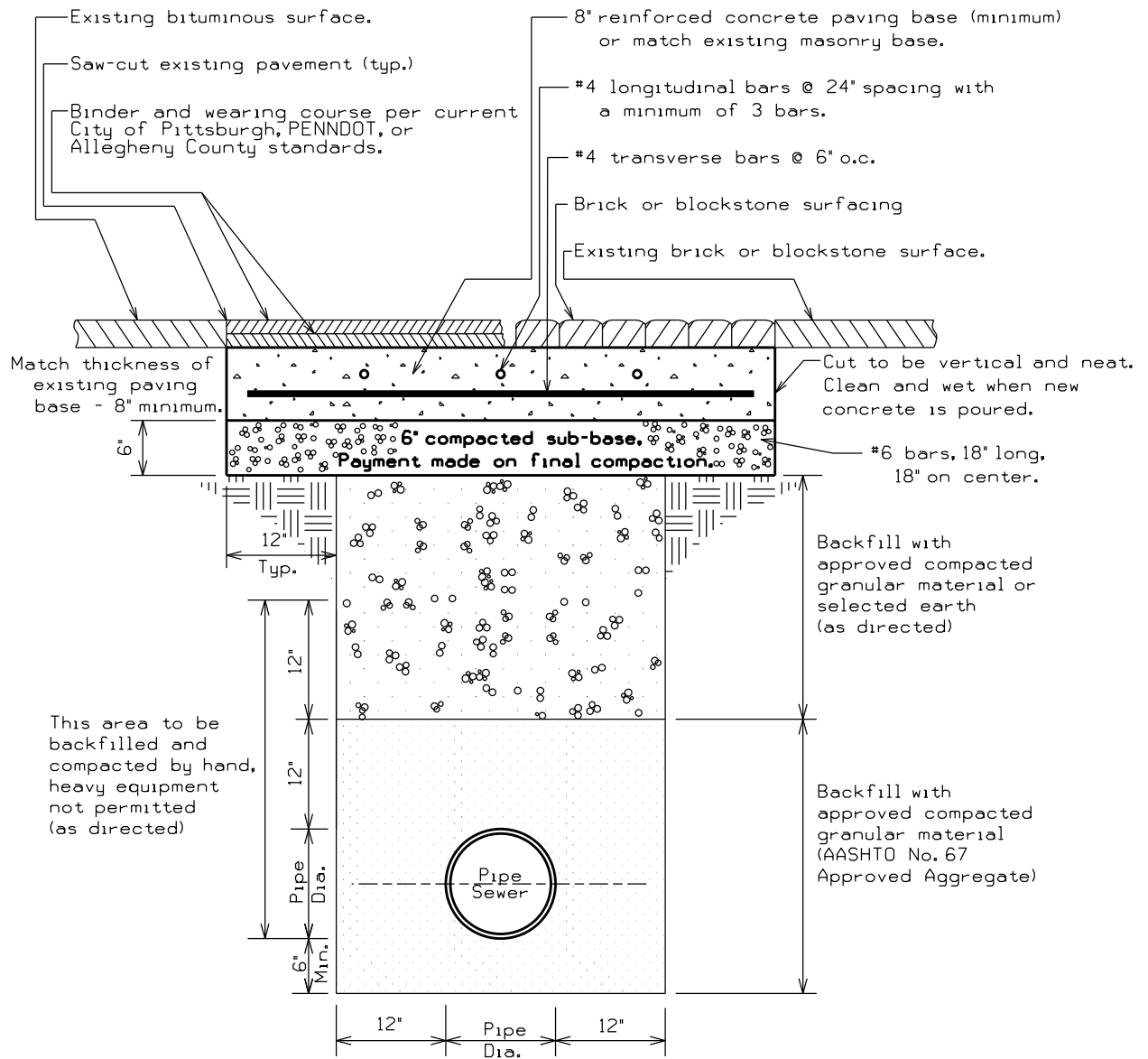


**THE PITTSBURGH WATER AND SEWER AUTHORITY
STORMWATER FACILITY UNDERDRAIN
BEDDING & CATCH BASIN CONNECTION**

SCALE: N.T.S. SUPPLEMENTAL DETAIL DRAWING: **GI-4**

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2/6/2015



NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart: →

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

5/19/2015

R E V I S I O N S	
1.	MSR 4-18-01
2.	LRC 1-31-14
Approved by:	

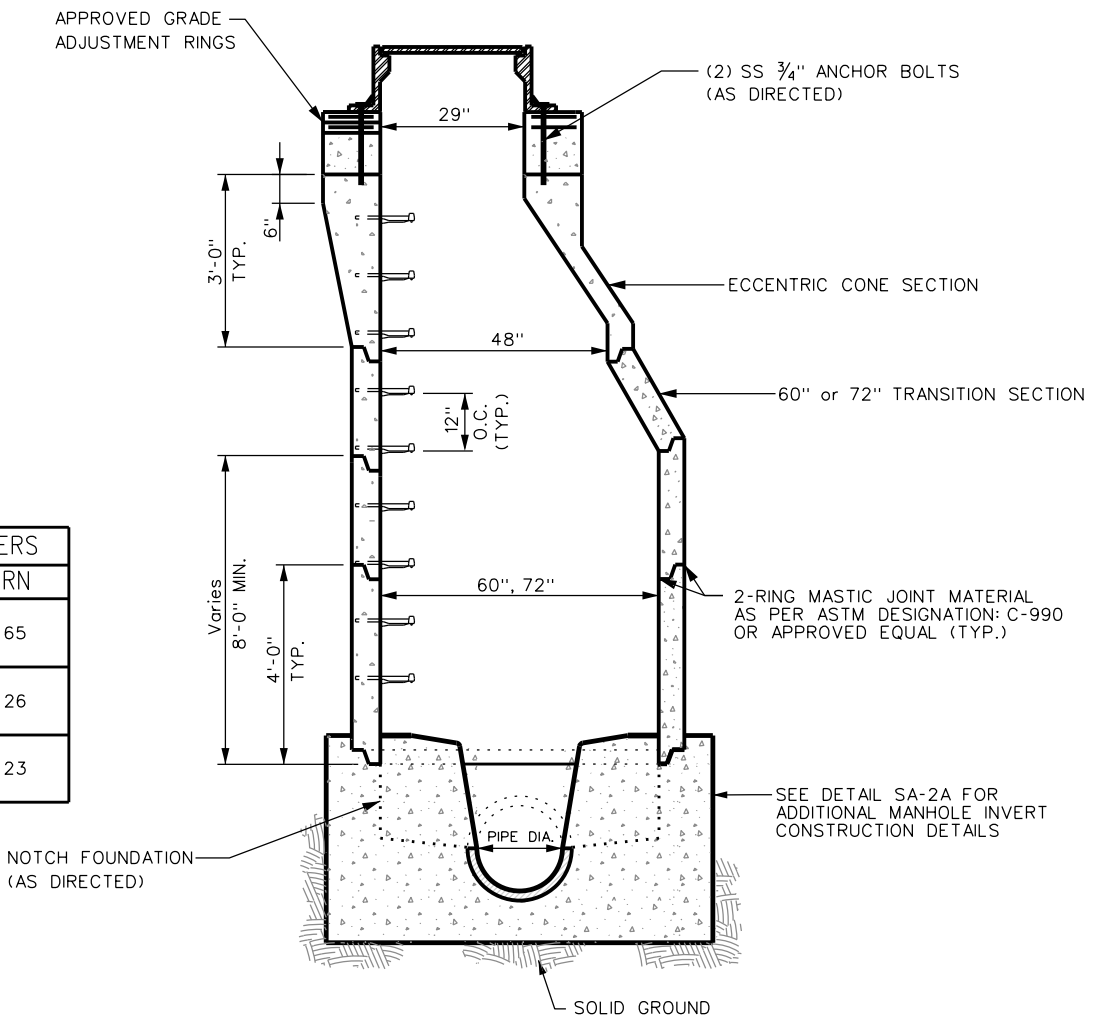


The Pittsburgh Water and Sewer Authority

SEWER LINE TRENCH AND REPAVING


Scale: N.T.S.	Supplemental Detail Drawing: SA-1
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MANHOLE FRAME NUMBERS		
LOCATION	DEPTH	PATTERN
SIDEWALKS & GRASS	6"	No. 65
CONCRETE & BITUMINOUS STREETS	9"	No. 26
BRICK & BLOCK STREETS	13"	No. 23

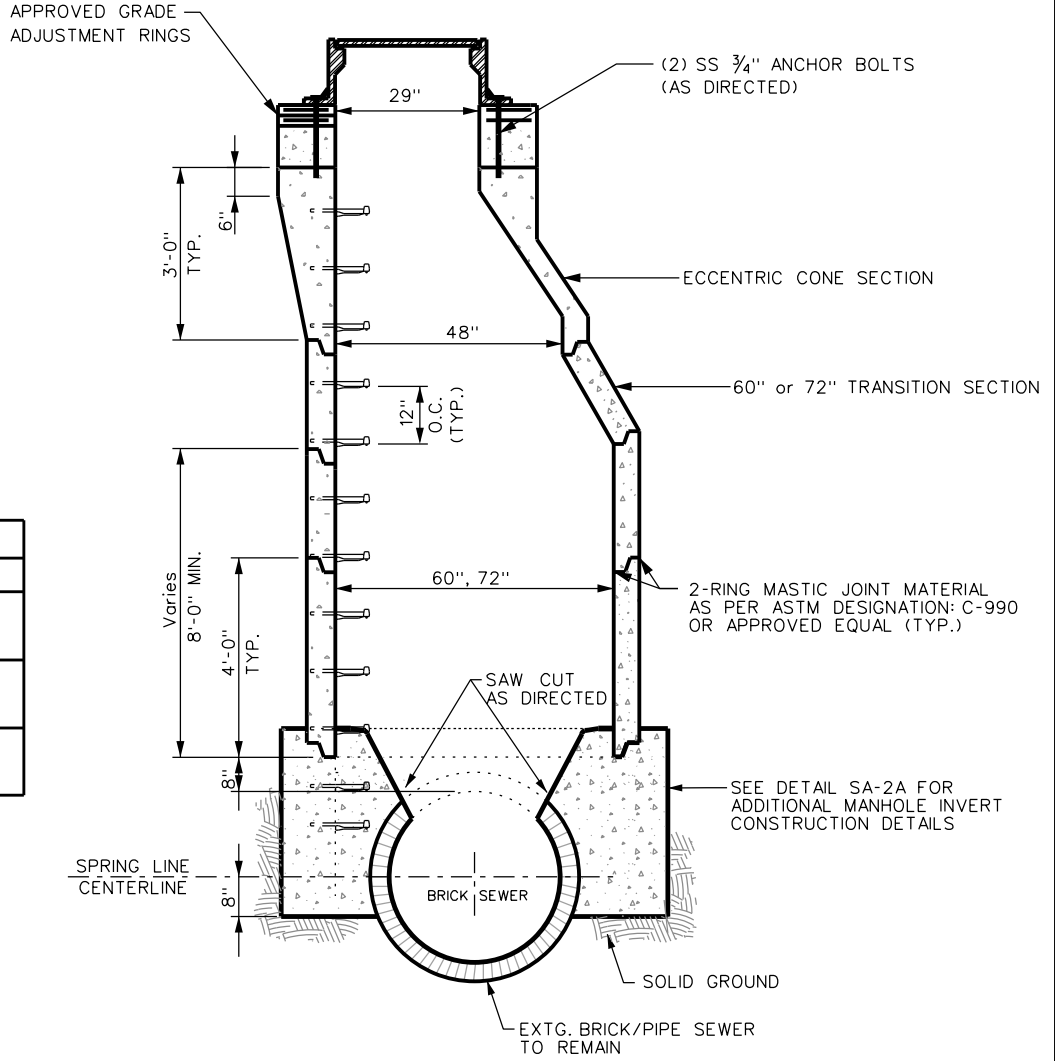


- NOTES:
1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
 2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
 3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
 4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

5/4/2016

R E V I S I O N S			The Pittsburgh Water and Sewer Authority	
1. MSR 4-18-01	5. DWP 10-15-05		60", 72" Diameter Precast Concrete Manhole	
2. RDH 4-29-02	6. MAC 4-17-06			
3. RDH 6-04	7. LRC 1-31-14			
4. MAC 3-2-05				
Approved by:		Pittsburgh Water & Sewer Authority	Scale: N.T.S.	Supplemental Detail Drawing: SA-10
			M:\pwsa\gis\det\Standards\stdsal0.det	

MANHOLE FRAME NUMBERS		
LOCATION	DEPTH	PATTERN
SIDEWALKS & GRASS	6"	No. 65
CONCRETE & BITUMINOUS STREETS	9"	No. 26
BRICK & BLOCK STREETS	13"	No. 23



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

5/4/2016

R E V I S I O N S	
1.	LRC 1-31-14
Approved by:	

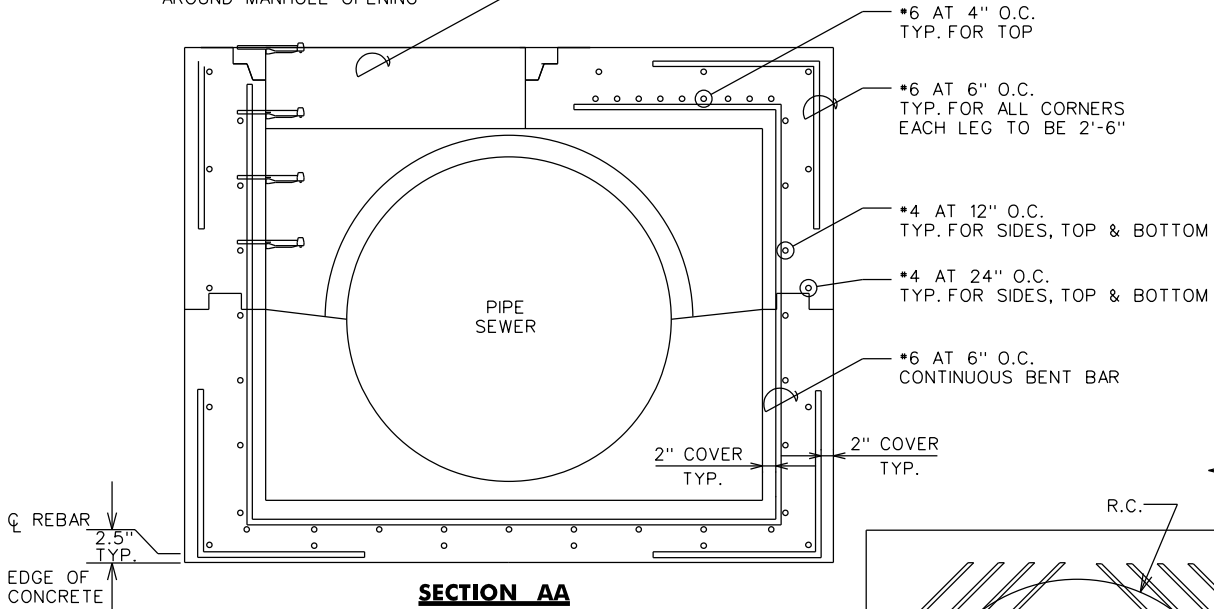


The Pittsburgh Water and Sewer Authority
60", 72" Diameter
Precast Concrete Manhole
Over Existing Brick Pipe Sewer

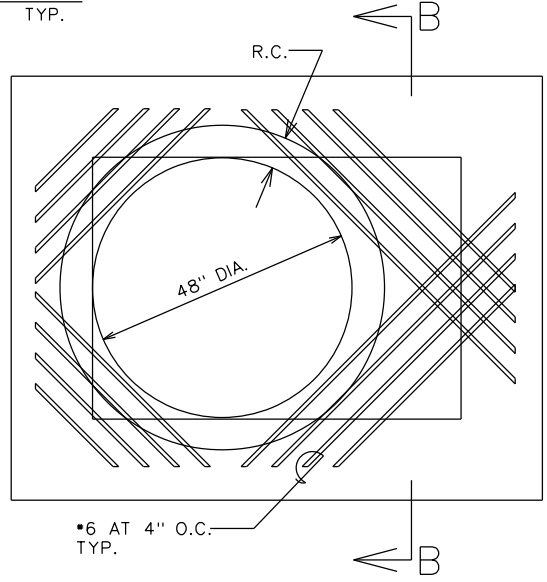
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Supplemental Detail Drawing: **SA-10A**

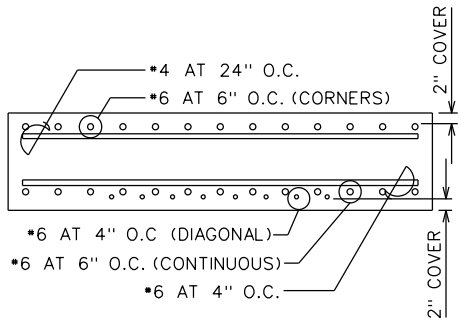
ADJUST LENGTH AS NEEDED
AROUND MANHOLE OPENING



**SECTION AA
REINFORCEMENT BAR LAYOUT**



ADDITIONAL REINFORCEMENT BAR LAYOUT PLAN



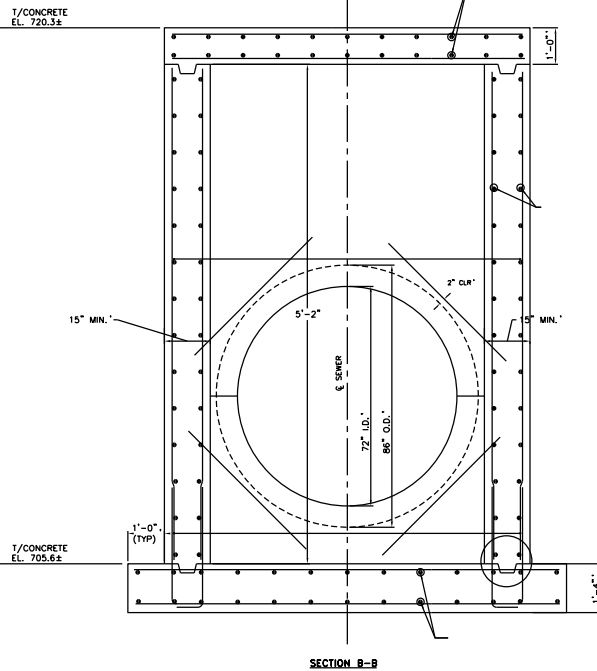
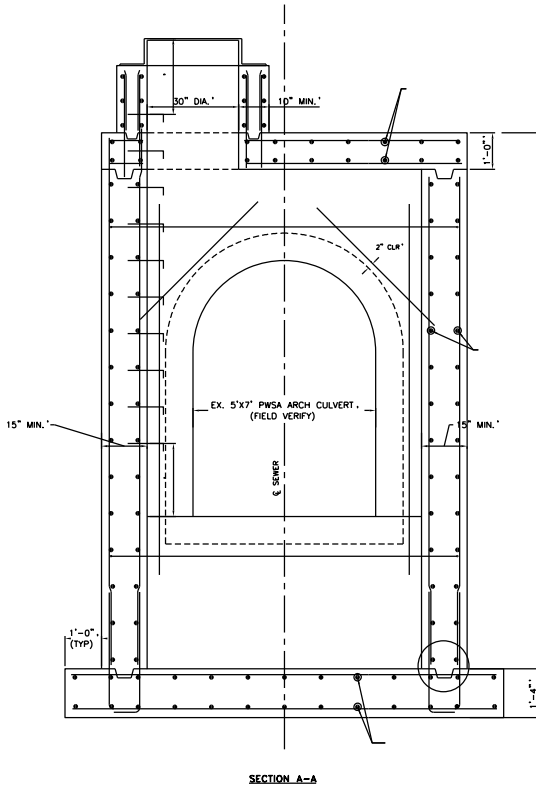
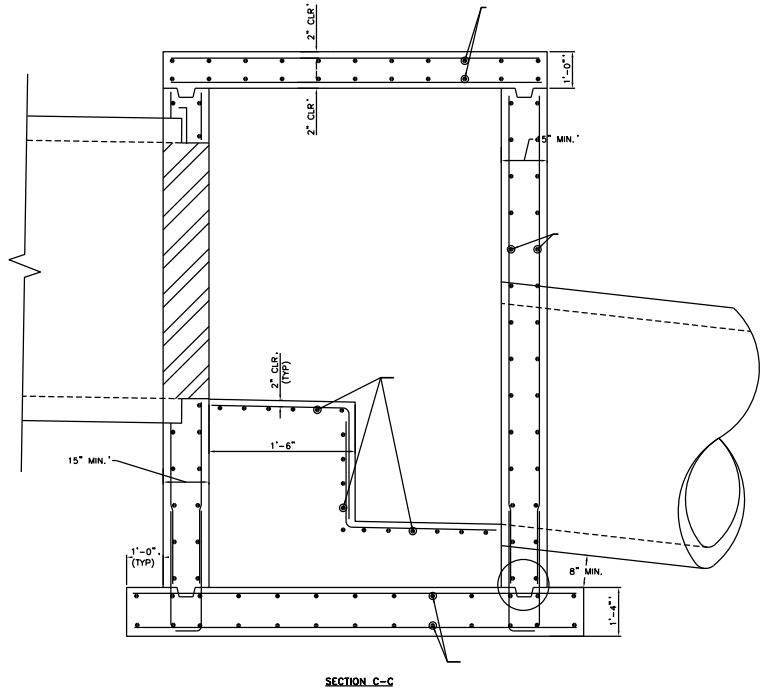
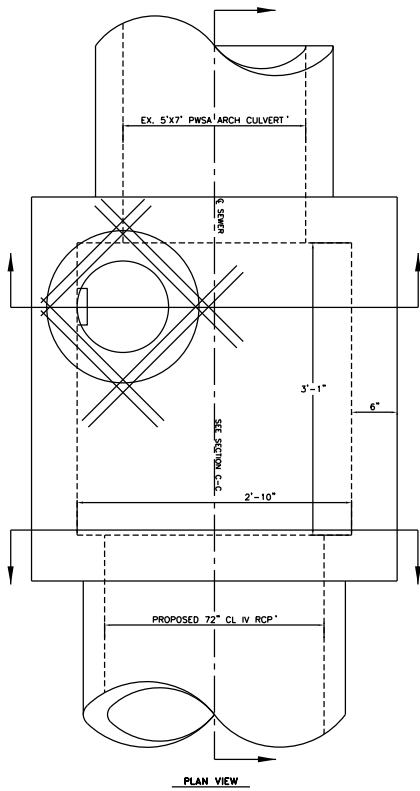
SECTION BB

5/19/2015

R E V I S I O N S	
1. JEK 11-18-96	
2. MAC 3-2-05	
3. DWP 10-15-05	
4. LRC 1-31-14	
Approved by:	



<p>The Pittsburgh Water and Sewer Authority</p> <p>Reinforced Concrete Box Manhole</p>	
<p>Scale: N.T.S.</p>	<p>Supplemental Detail Drawing: SA-10B-1</p>
<p>M:\pwsa\gis\det\Standards\stdsal0b.det</p>	



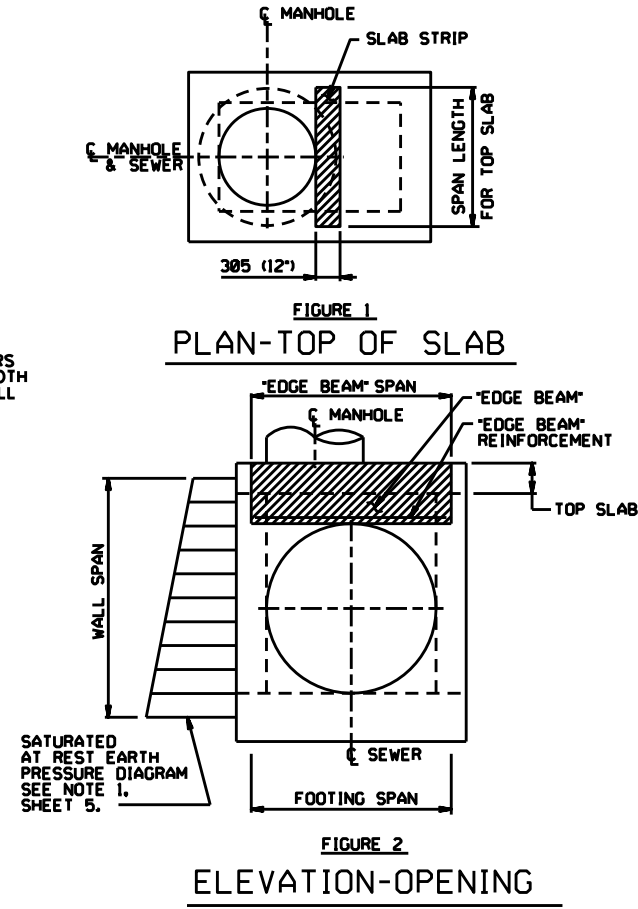
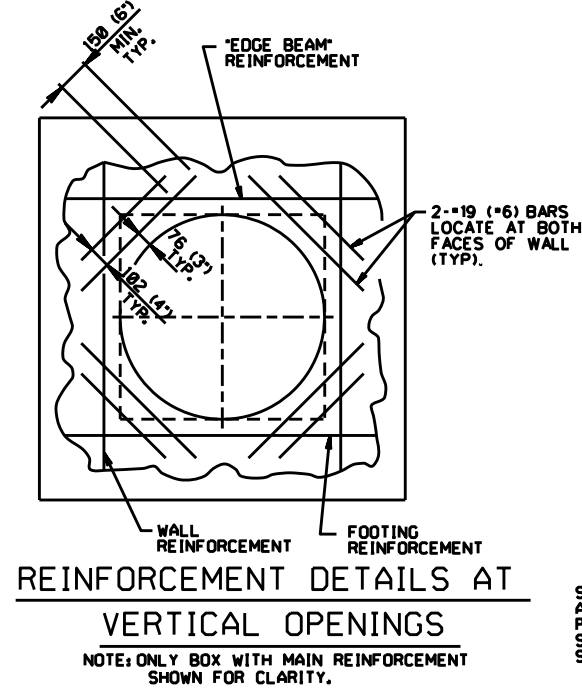
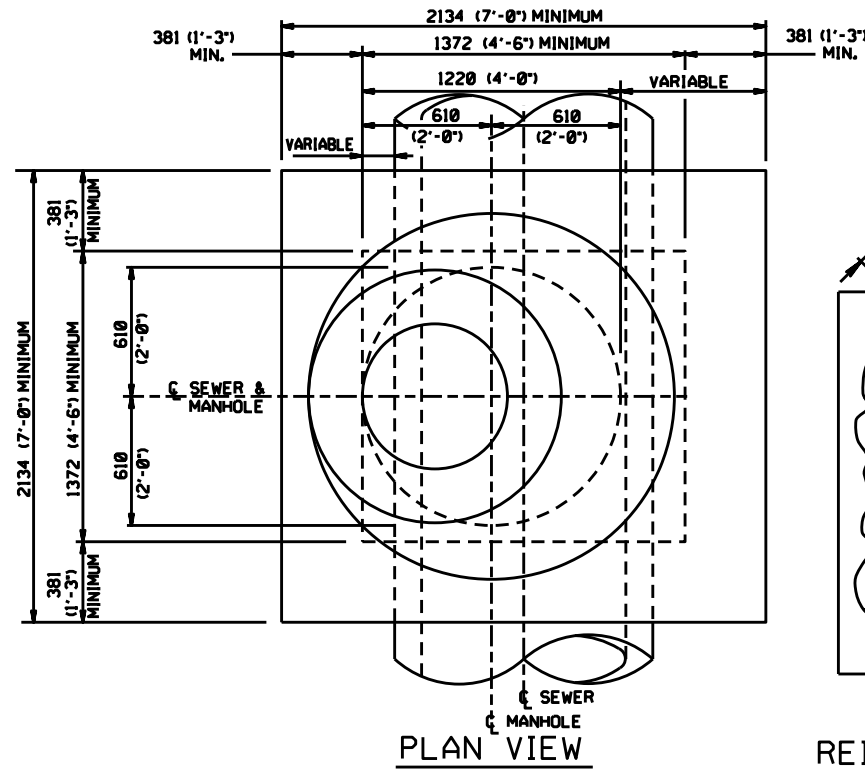
- NOTES:**
1. USE CLASS "P" CONCRETE UNLESS OTHERWISE NOTED.
 2. CHAMFER ALL EXPOSED EDGES 1".
 3. REBAR TO BE GRADE 60 STEEL, EPOXY COATED IN ACCORDANCE WITH ASTM-D3863.
 4. PROVIDE A MINIMUM OF 3" OF CONCRETE COVER ON REINFORCEMENT BARS UNLESS OTHERWISE NOTED.

5/19/2015

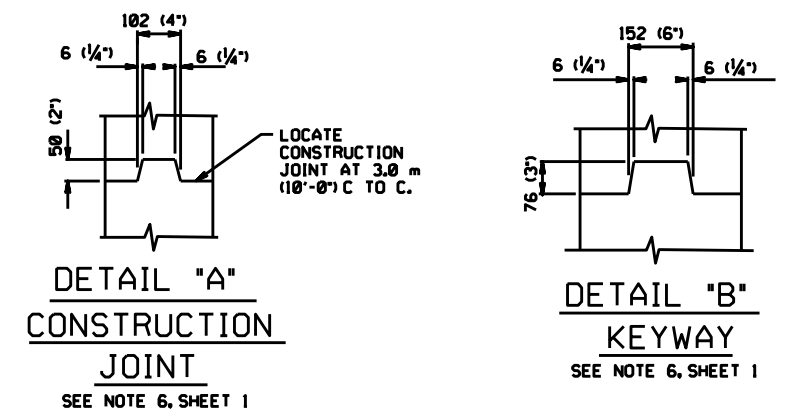
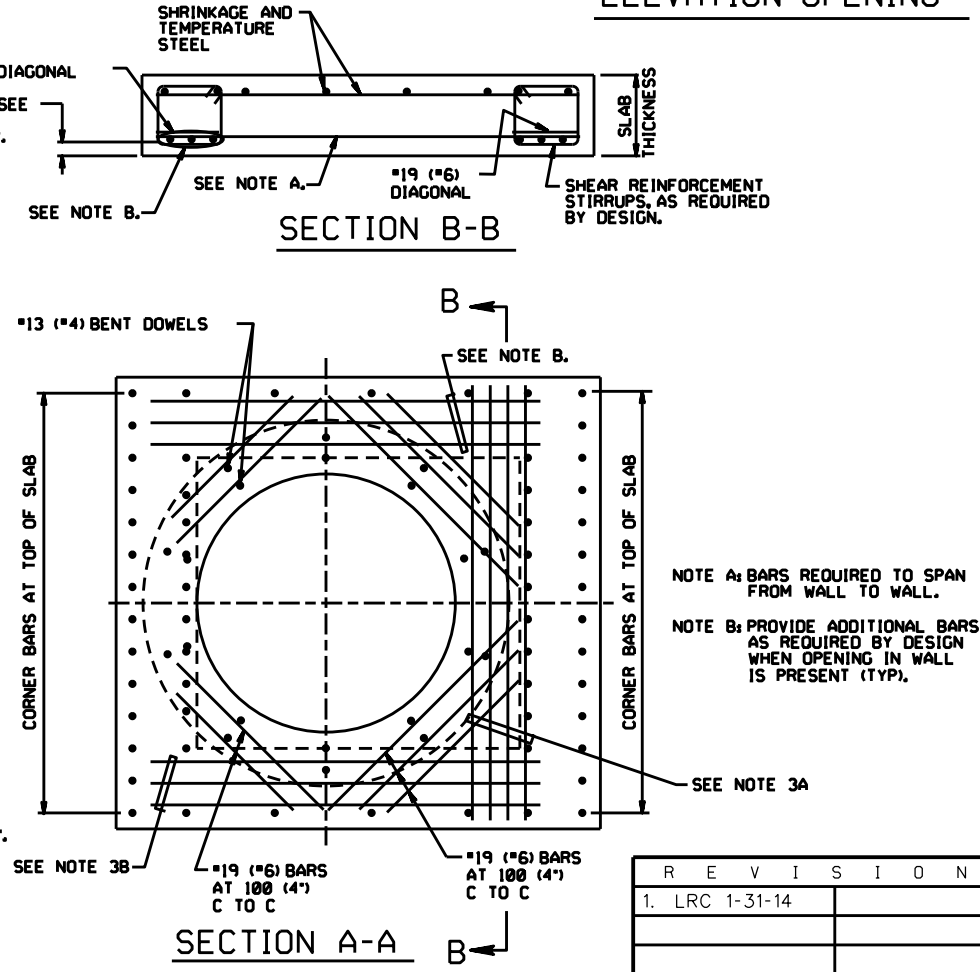
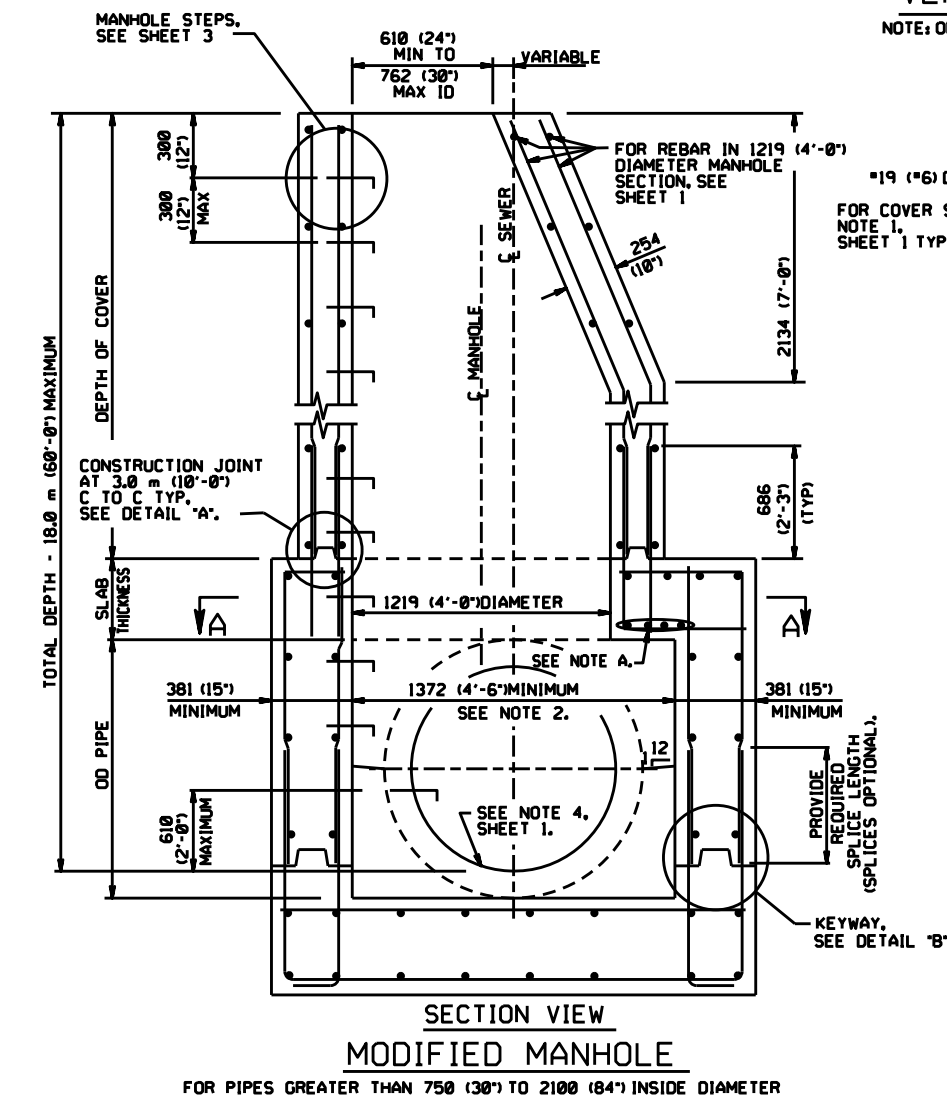
R E V I S I O N S	
1.	LRC 1-31-14
Approved by:	



<p>The Pittsburgh Water and Sewer Authority</p> <p>Reinforced Concrete Box Manhole</p>	
<p>Scale: N.T.S.</p> <p>M:\pwsa\gis\det\Standards\stdsal0b.det</p>	<p>Supplemental Detail Drawing: SA-10B-2</p>



- NOTES**
- FOR CONSTRUCTION REQUIREMENTS SEE NOTE 1, SHEET 1. FOR DESIGN REQUIREMENTS SEE NOTE 1, SHEET 5.
 - INCREASE BOX SIZE WHEN REQUIRED TO KEEP WALLS OF MANHOLE BOX SECTION FLUSH WITH THE OPENING FOR PIPES LARGER THAN 1050 (42") ID. INDICATE THE BOX SIZE ON THE CONSTRUCTION PLANS OR SHOP DRAWINGS BASED ON THE DESIGN PROCEDURES PROVIDED BELOW.
 - DESIGN PROCEDURE FOR MANHOLE BOX SECTION:
 - DESIGN ALL MEMBERS FOR MOMENT, CRACK CONTROL & SHEAR AT DISTANCE d (EFFECTIVE DEPTH OF MEMBER) FROM FACE OF SUPPORT. CALCULATE ALL SPAN LENGTHS FROM THE CENTER OF THE SUPPORTS.
 - 3A. TOP SLAB
 - DESIGN A 305 (12") WIDE SLAB STRIP FOR ONE-WAY ACTION TO CARRY DEAD LOAD, LIVE LOAD, AND WEIGHT OF EARTH, SPAN THE STRIP, SIMPLY SUPPORTED, ACROSS THE WIDTH OF THE BOX OR IN THE SHORT DIRECTION. SEE FIGURE 1 FOR DETAILS.
 - PLACE ADDITIONAL BARS IN THE SLAB AT 45° AROUND THE MANHOLE OPENING. SEE SECTION A-A FOR DETAILS.
 - 3B. 'EDGE BEAM'
 - VIEWS SHOWING THE CONFIGURATION OF MANHOLE BOX SECTION ILLUSTRATE 'EDGE BEAMS' TO BE THE SAME DEPTH AS THE TOP SLAB, TO ACHIEVE REQUIRED CAPACITY WHERE NECESSARY, INCREASE DEPTH OF 'EDGE BEAM' BY PROVIDING ADDITIONAL CLEARANCE BETWEEN THE SLAB AND TOP OF OPENING. LOCATE HORIZONTAL STEEL FOR BEAM ABOVE THE SOFFIT OF THE OPENING. SEE FIGURE 2 FOR DETAILS.
 - DESIGN THE 'EDGE BEAMS', SPANNING THE LENGTH OF THE BOX, TO CARRY A UNIFORMLY DISTRIBUTED LOAD EQUAL TO THE REACTION FROM THE SLAB.
 - 3C. WALLS
 - DESIGN THE WALLS TO CARRY THE AXIAL LOAD, DUE TO EARTH LOAD, LIVE LOAD, AND DEAD LOAD APPLIED DIRECTLY TO THE WALL, IN ADDITION TO REACTIONS FROM THE 'EDGE BEAMS', AND THE VERTICAL MOMENT CAUSED BY SATURATED AT REST EARTH PRESSURE. SEE FIGURE 2 FOR PRESSURE DIAGRAM. CONSIDER THE WALL SIMPLY SUPPORTED BETWEEN TOP SLAB AND FOOTING. PROVIDE THE SAME REINFORCEMENT ON THE OUTSIDE FACE.
 - 3D. FOOTING
 - DESIGN SPAN NORMAL TO PIPE TO CARRY POSITIVE MOMENT OF $1/10 WL^2$ AND NEGATIVE MOMENT OF $1/12 WL$ WHERE W IS THE UNIFORM BEARING PRESSURE. DO NOT TAKE INTO ACCOUNT THE CONCRETE IN THE CHANNEL WHEN CALCULATING CAPACITY OF THE FOOTING.
 - AS A MINIMUM, PROVIDE NO.13 (NO.4) BARS AT 300 (12") CENTERS, TOP AND BOTTOM OF SLAB IN THE OPPOSITE DIRECTION.



REVISIONS	
1.	LRC 1-31-14
Approved by:	

PGH₂O

Pittsburgh Water & Sewer Authority

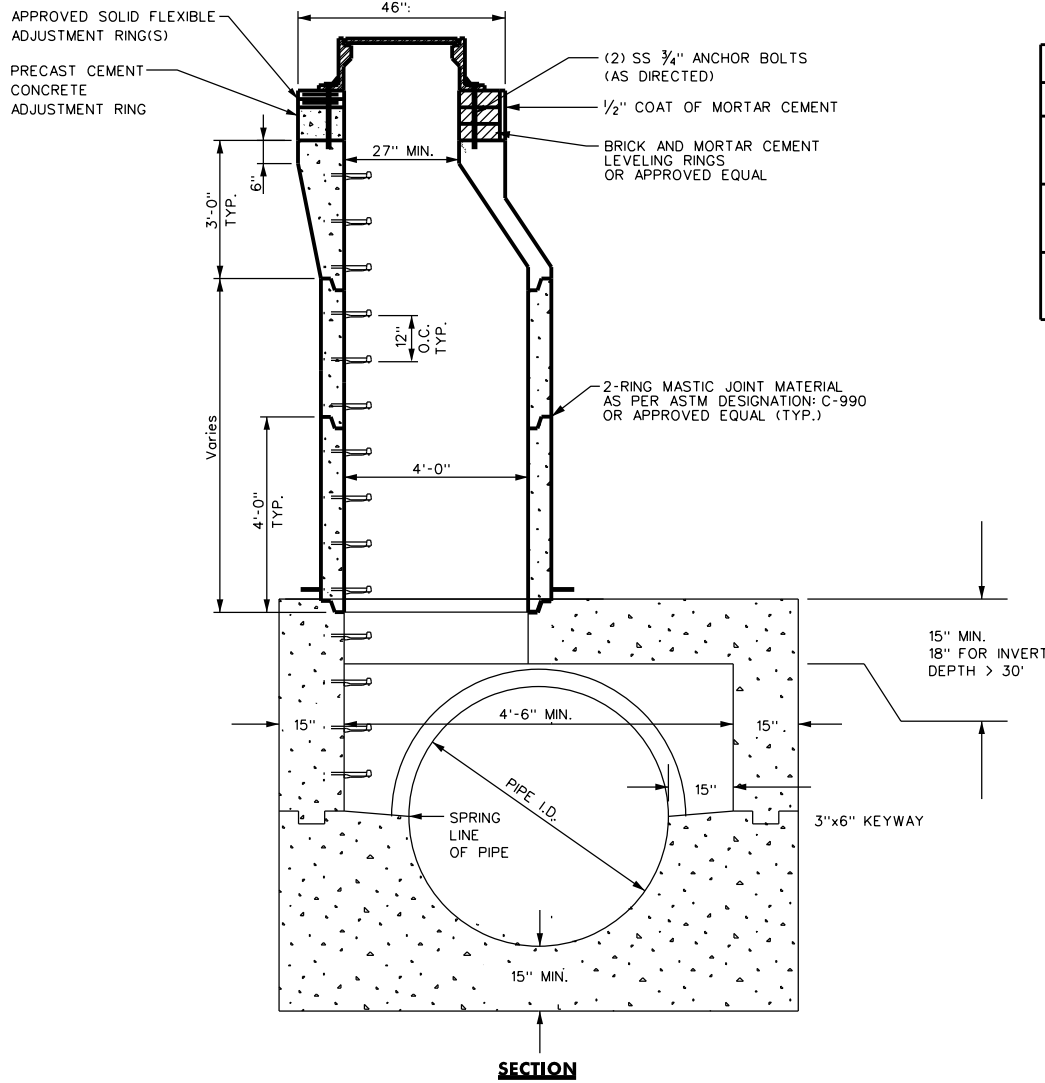
The Pittsburgh Water and Sewer Authority

Reinforced Concrete Box Manhole

Scale: N.T.S.

Supplemental Detail Drawing: SA-10B-3

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MANHOLE FRAME NUMBERS		
LOCATION	DEPTH	PATTERN #
SIDEWALKS & GRASS	6"	65
CONCRETE & BITUMINOUS STREETS	9"	26
BRICK & BLOCK STREETS	13"	23

SECTION

5/19/2015

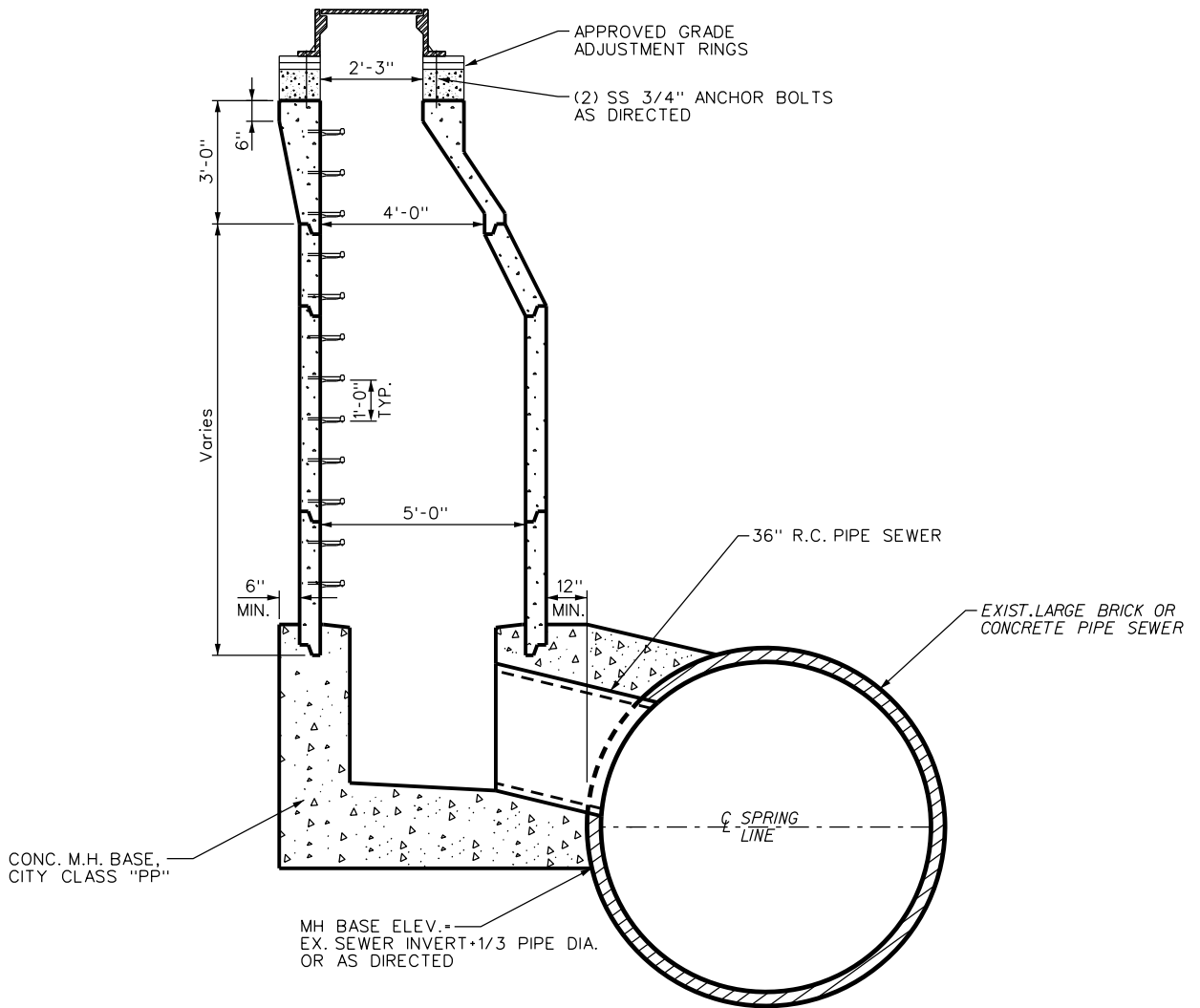
R E V I S I O N S	
1. JEK 11-18-96	
2. MAC 3-2-05	
3. DWP 10-15-05	
4. LRC 1-31-14	
Approved by:	

PGH₂O
Pittsburgh
Water & Sewer
Authority

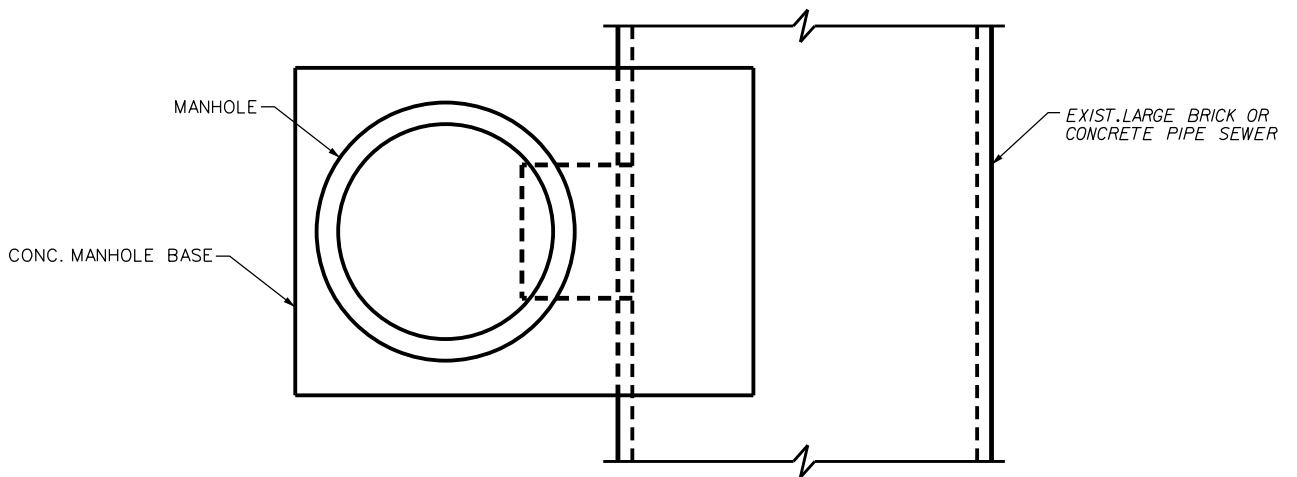
The Pittsburgh Water and Sewer Authority
Reinforced Concrete Box Manhole

Scale: N.T.S.
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Supplemental
Detail Drawing: **SA-10B-4**



SECTION



PLAN

5/5/2016

R E V I S I O N S	
1. MAC 3-1-04	
2. LRC 1-31-14	

Approved by:



Pittsburgh
Water & Sewer
Authority

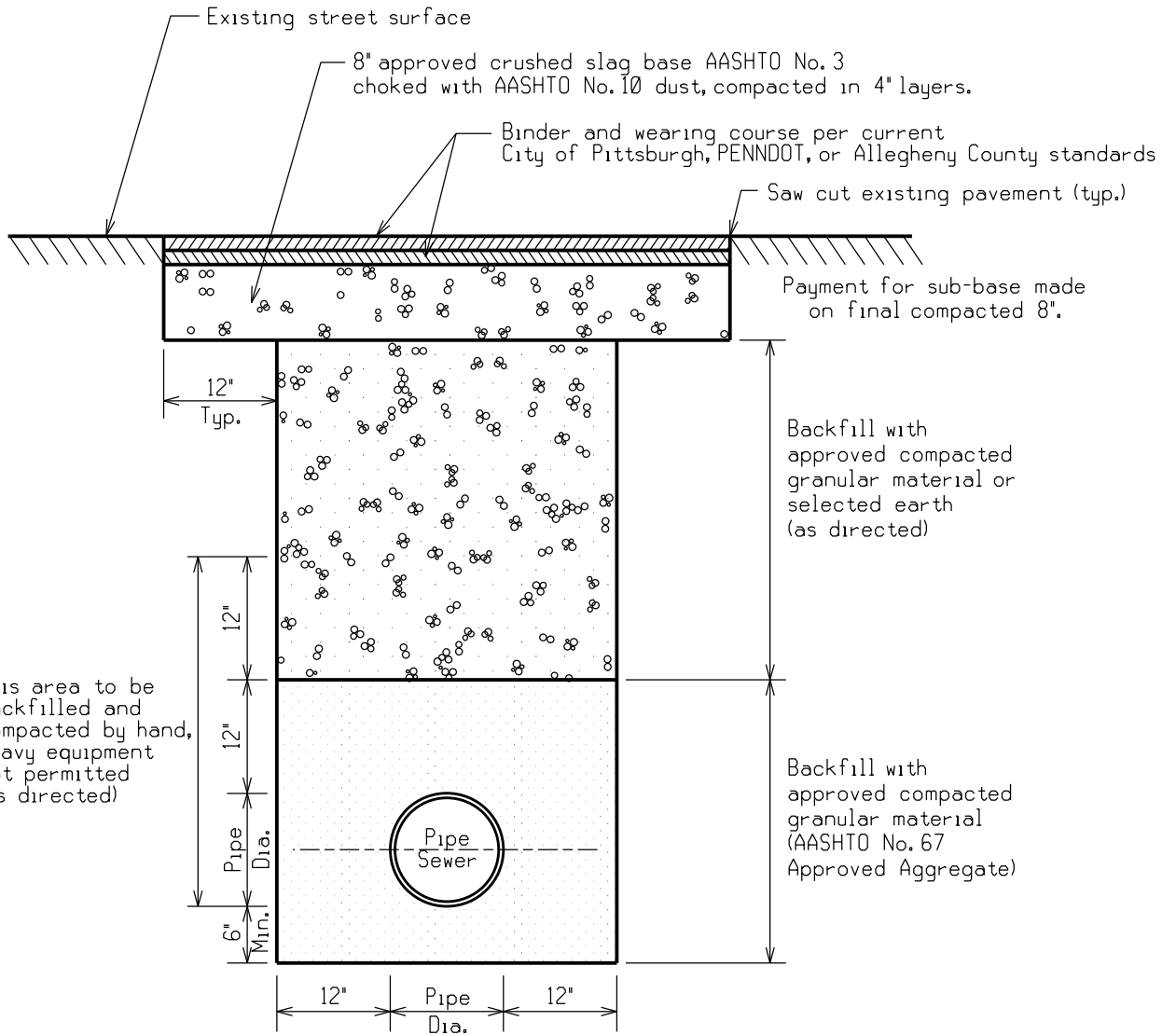
The Pittsburgh Water and Sewer Authority
**Manhole On Large Diameter Sewer
Offset / Side Connection**

Scale: N.T.S.

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Supplemental
Detail Drawing:

SA-10C



NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	

Approved by:

PGH₂O

Pittsburgh
Water & Sewer
Authority

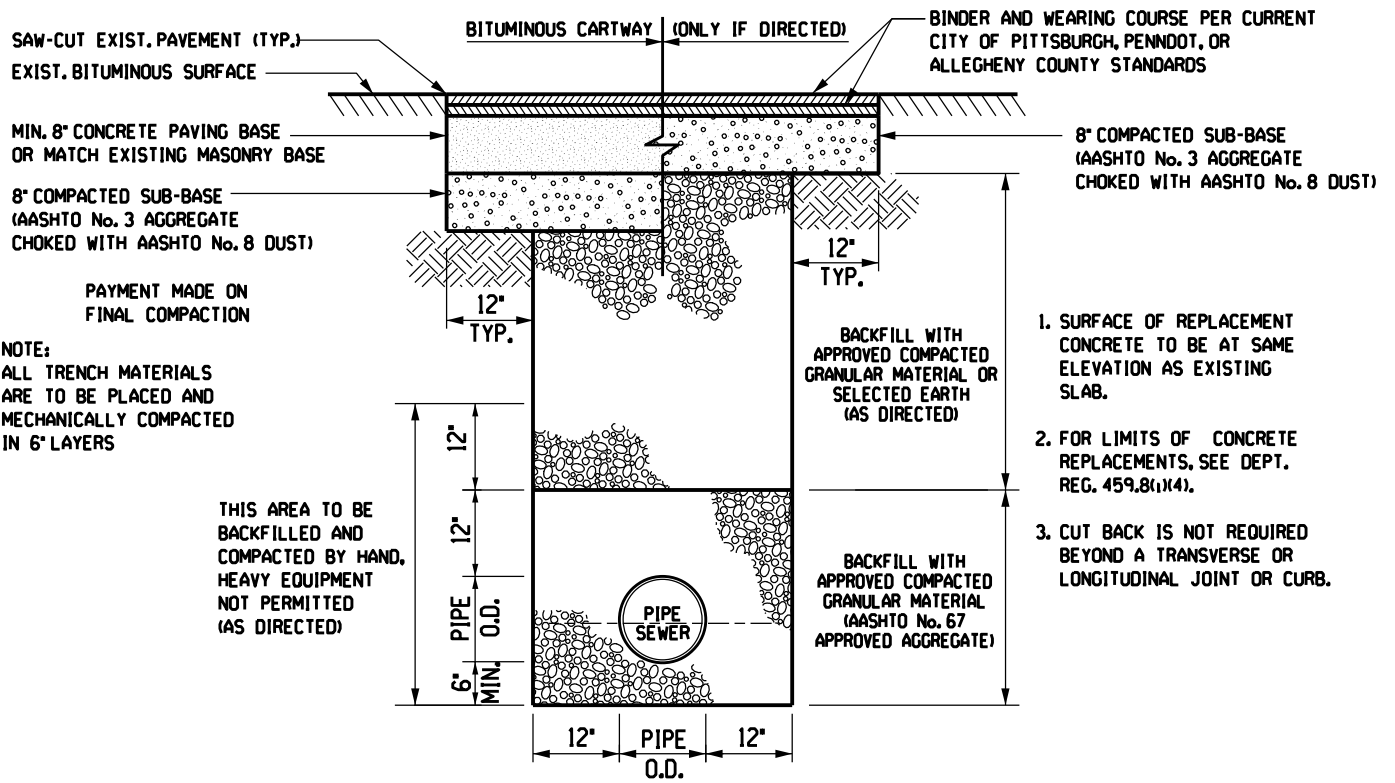
The Pittsburgh Water and Sewer Authority

**Sewer Line Trench And Repaving
Unimproved Streets And Driveways**

Scale: N.T.S.

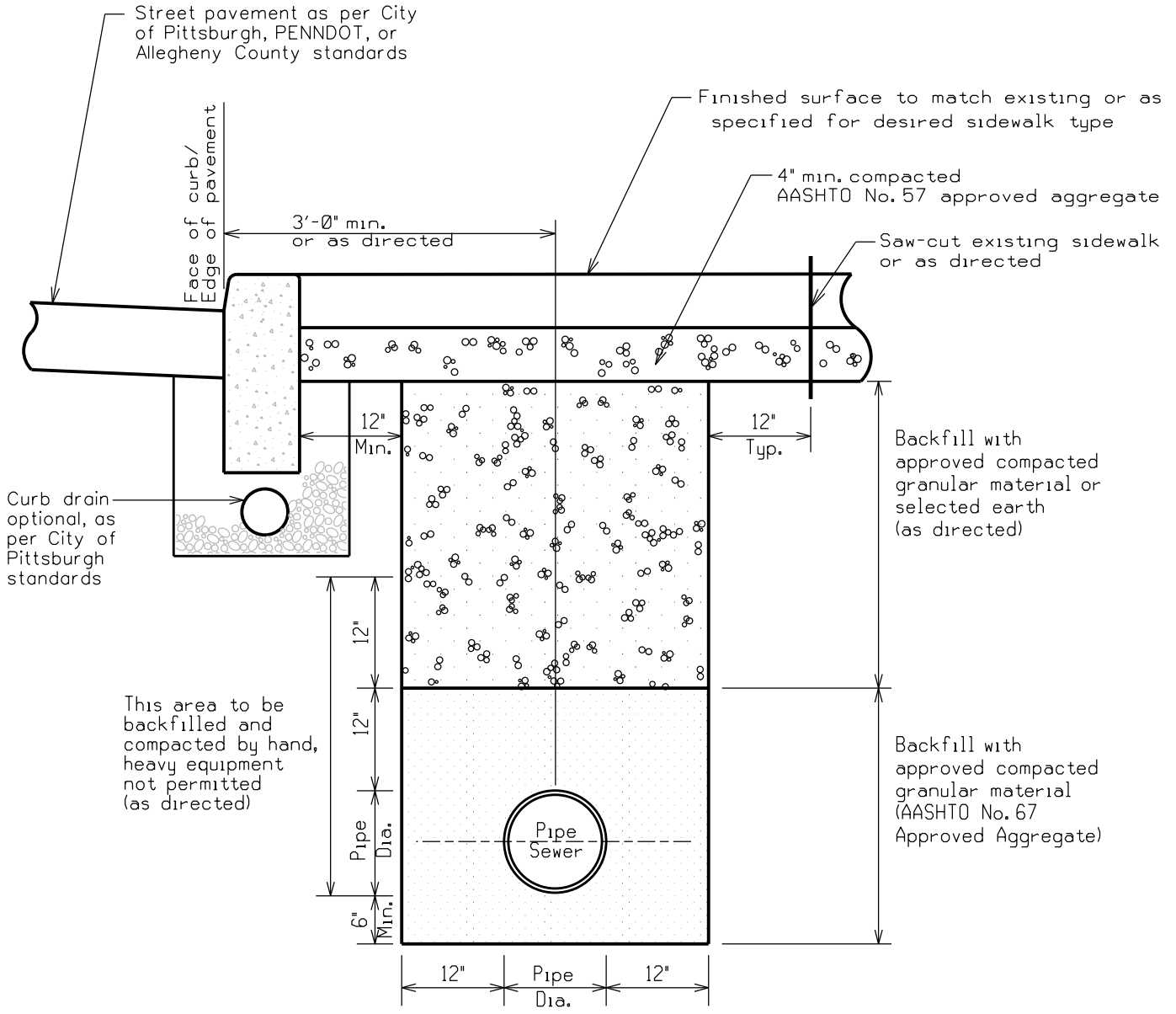
Supplemental
Detail Drawing: **SA-1A**

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5/19/2015

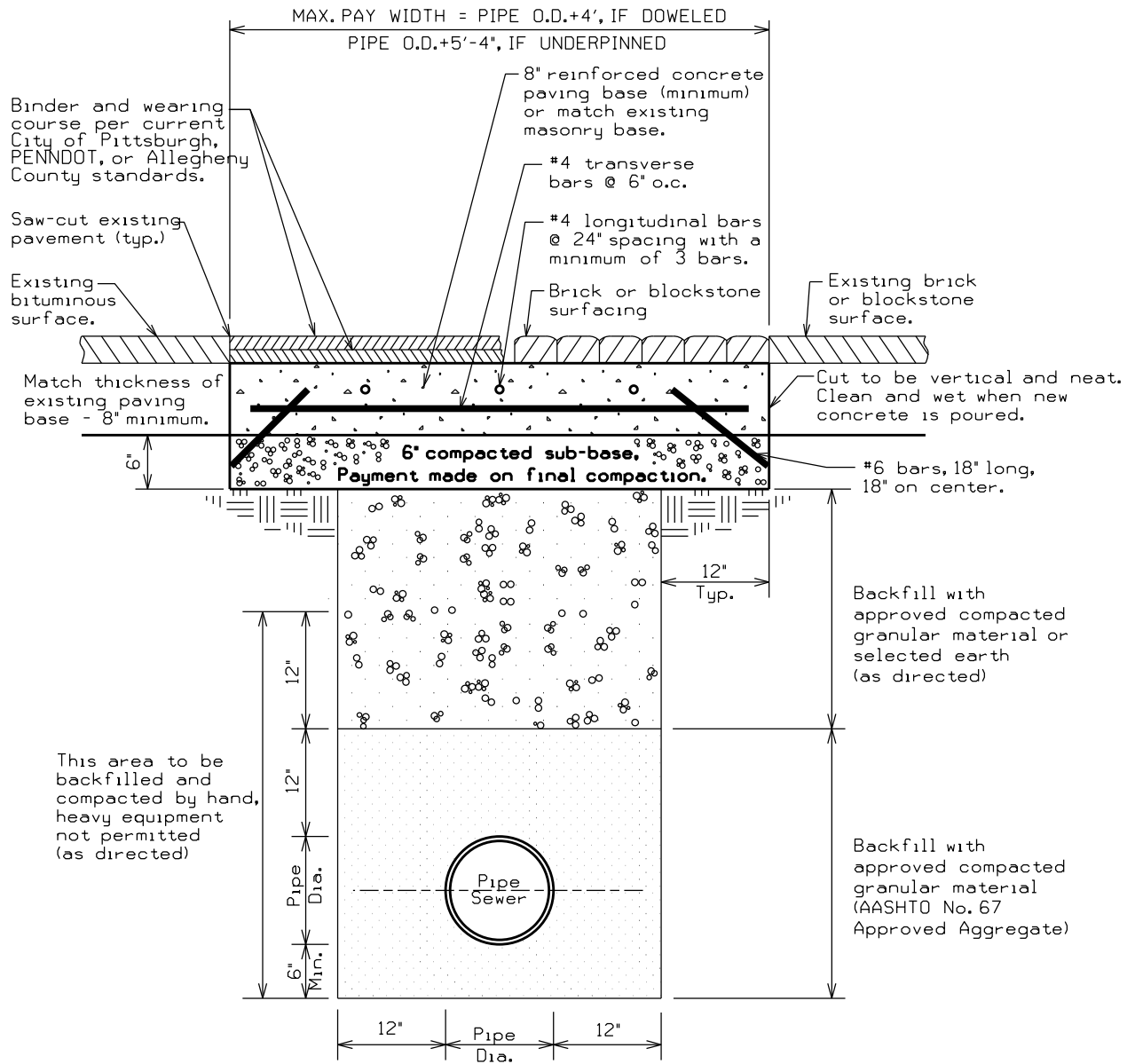
R E V I S I O N S			The Pittsburgh Water and Sewer Authority	
1.	MAC 3-1-04		Sewer Line Trench	
2.	LRC 1-31-14			
Approved by:		Pittsburgh Water & Sewer Authority	Scale: N.T.S.	Supplemental Detail Drawing: SA-1B
			M:\pwsa\gis\det\Standards\stdsalb.det	



- NOTES
1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
 2. Trench bedding may need to be modified in poor compaction areas.
 3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

5/19/2015

R E V I S I O N S			The Pittsburgh Water and Sewer Authority	
1.	LRC 1-31-14		Sewer Line Trench In Sidewalk Area	
			Scale: N.T.S.	Supplemental Detail Drawing: SA-1C
Approved by: _____			M:\pwsa\gis\det\Standards\stdsalc.det	



NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart: →

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

5/19/2015

R E V I S I O N S	
1.	LRC 1-31-14



The Pittsburgh Water and Sewer Authority
**Sewer Construction Excavation Limits
 And Trench Repaving**

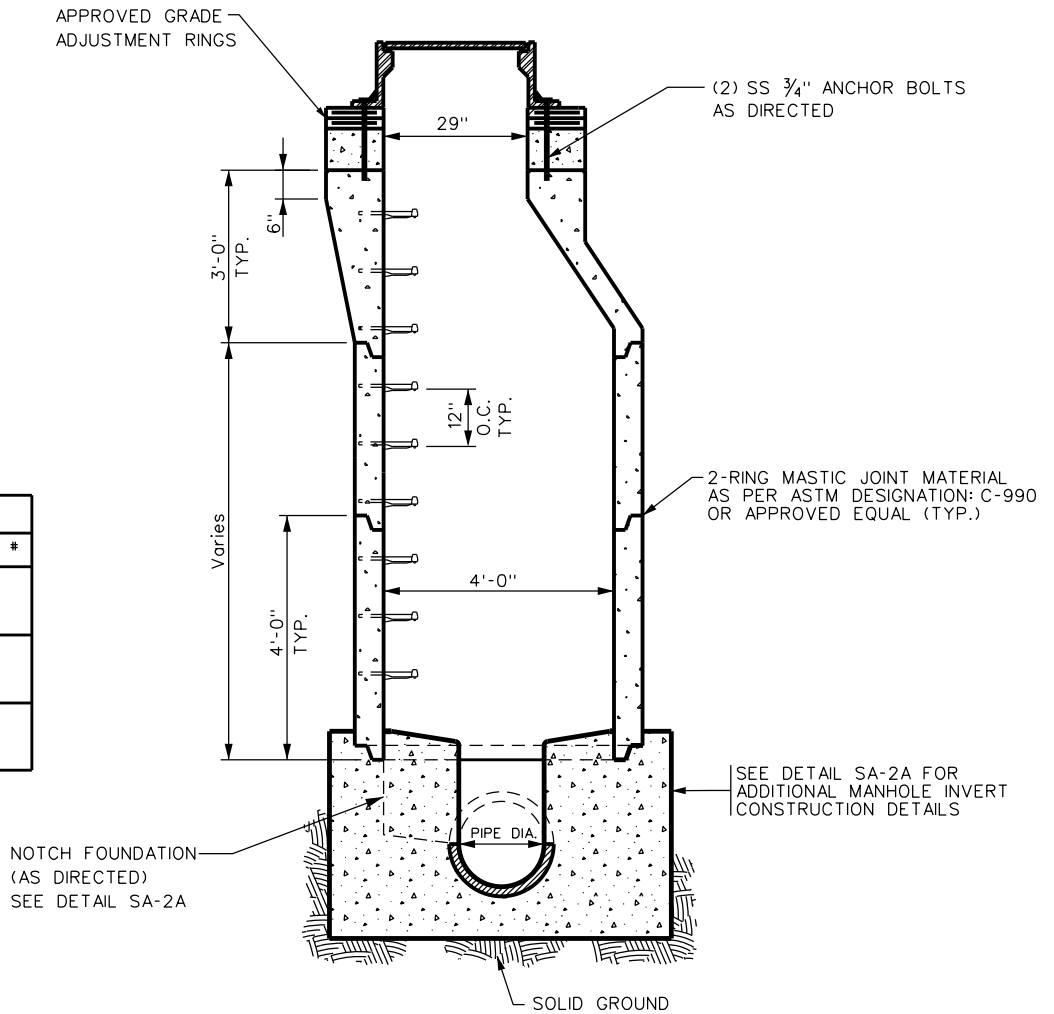
Scale: N.T.S.

Supplemental Detail Drawing: **SA-1EXC**

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Approved by:

MANHOLE FRAME NUMBERS		
LOCATION	DEPTH	PATTERN #
SIDEWALKS & GRASS	6"	65
CONCRETE & BITUMINOUS STREETS	9"	26
BRICK & BLOCK STREETS	13"	23



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

5/4/2016

R E V I S I O N S	
1. DWP 4-2-01	5. MAC 5-16-06
2. MAC 6-04	6. LRC 1-31-14
3. MAC 3-2-05	
4. DWP 10-15-05	

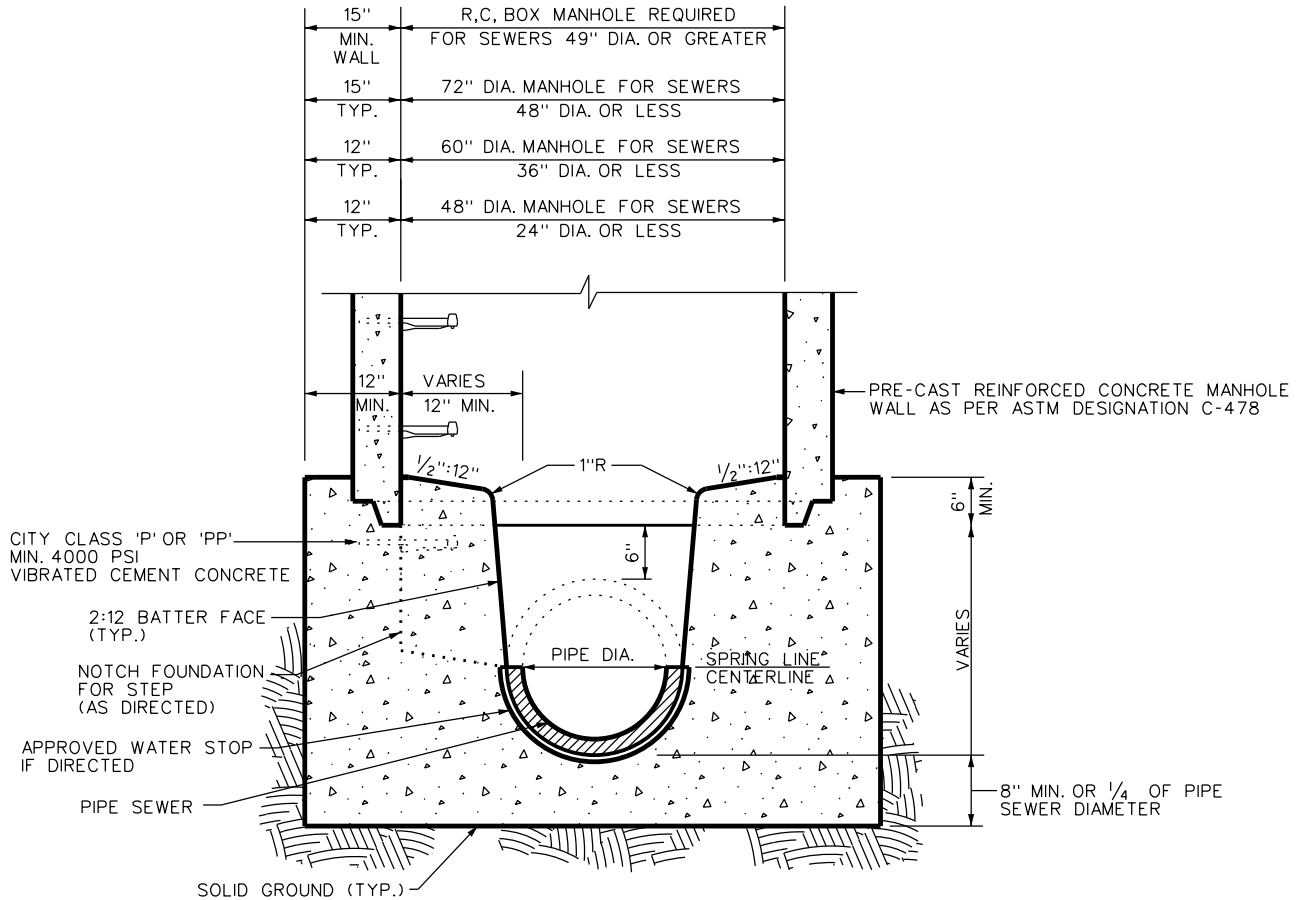
Approved by:

Pittsburgh Water & Sewer Authority

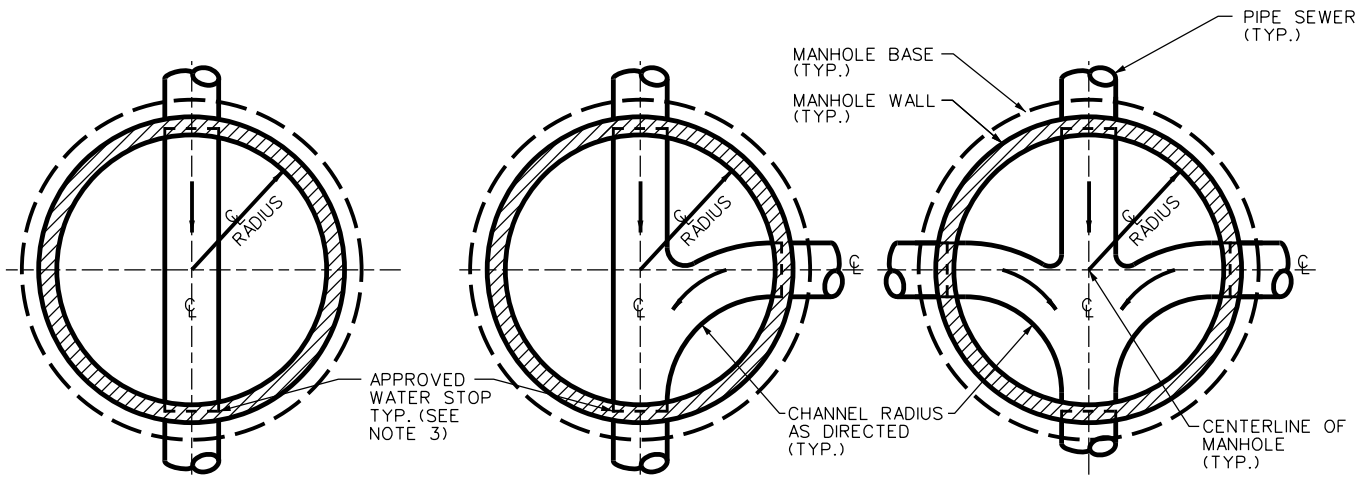
The Pittsburgh Water and Sewer Authority

48" Diameter Manhole

Scale: N.T.S.	Supplemental Detail Drawing: SA-2
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SECTION OF MANHOLE INVERT



PLAN VIEW OF MANHOLE INVERT - SINGLE, TWO-WAY, THREE-WAY

NOTES:

1. ADDITIONAL AND/OR ALTERNATE PIPE SEWER LAYOUT CONNECTIONS WILL BE APPROVED AS DIRECTED.
2. REINFORCED CEMENT CONCRETE BOX MANHOLE MAY BE ORDERED FOR MULTIPLE CONNECTIONS OR SPECIAL CONDITIONS, AS DIRECTED.
3. ALL PLASTIC PIPE SEWERS OR CONNECTIONS MUST HAVE APPROVED WATER STOPS OR FLEXIBLE BOOT TYPE CONNECTIONS, AS DIRECTED.
4. APPROVED MANHOLE STEPS REQUIRED IN BASE, MUST BE PER ASTM A615, C478, D4101 AND AASHTO M199. INSTALL MANHOLE STEPS AT 12" O.C. AND NOTCH FOUNDATION AS DIRECTED. PROPOSED STEPS SHALL NOT BE PLACED IN BARREL OF FLOW LINE.
5. CLASS A MANHOLES ARE 1-WAY WITH INVERT FORMED WITH SPLIT PIPE EMBEDDED IN CONCRETE. CLASS B MANHOLES ARE 2-WAY OR 3-WAY WITH INVERT MOULDED IN CONCRETE BASE.

R E V I S I O N S	
1. MSR 4-18-01	5. DWP 10-14-05
2. JLK 9-17-03	6. MAC 4-17-06
3. MAC 6-04	7. MAC 1-12-09
4. MAC 3-2-05	8. LRC 1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority
Cast-In-Place Manhole Invert

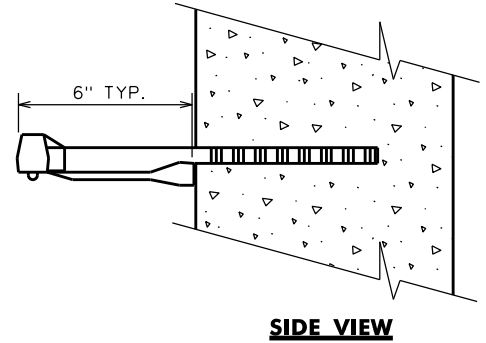
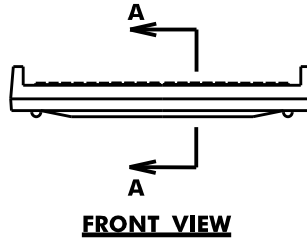
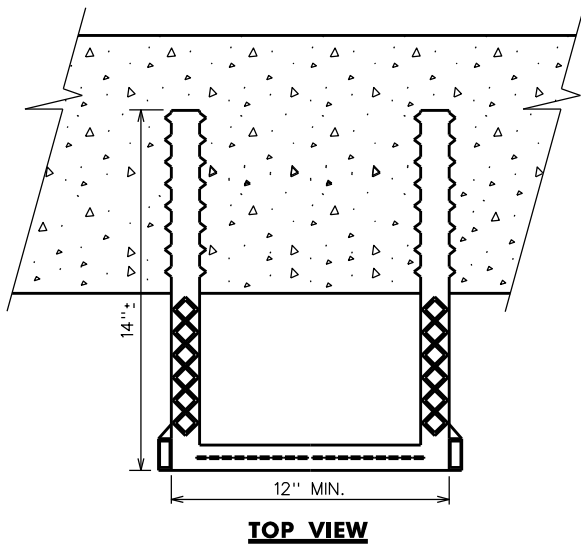
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Supplemental
 Detail Drawing:

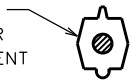
SA-2A

5/19/2015

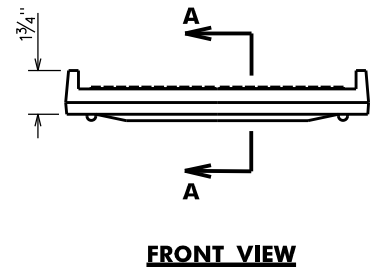
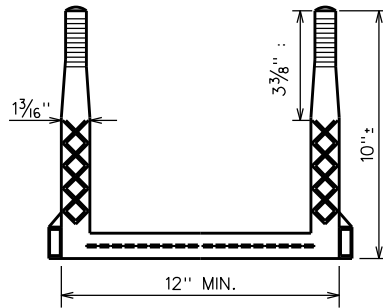
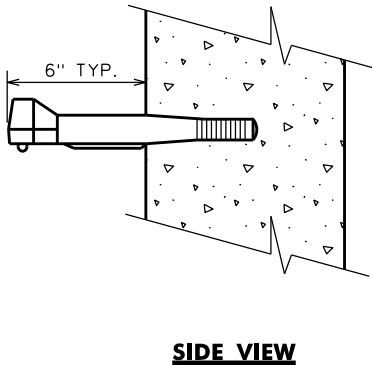


TYPE 1 CAST-IN-PLACE

COPOLYMER POLYPROPYLENE
PLASTIC STEP WITH No. 4 BAR
GRADE 60 STEEL REINFORCEMENT



SECTION A-A



TYPE 2 PRE-DRILLED HOLE

NOTES:

1. TYPICAL STEPS, SPACING AND MATERIAL AS PER ASTM C478 AND AASHTO M199.
2. PLASTIC SHALL BE A COPOLYMER POLYPROPYLENE MEETING THE REQUIREMENTS OUTLINED IN ASTM D4101, TYPE II, GRADE 49108.
3. STEEL REINFORCING BAR SHALL BE No. 4 GRADE 60 DEFORMED STEEL BAR AND CONFORMING TO THE REQUIREMENTS OF ASTM A615.
4. USE TYPE 1 FOR CAST-IN-PLACE VAULTS. USE TYPE 2 FOR NEW PRECAST MANHOLES OR WHEN ADDING STEPS TO EXISTING STRUCTURES.
5. ALL STEPS SHALL BE SET VERTICALLY AT 12" O.C.

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	5. MAC 4-21-06
2. MAC 6-04	6. LRC 1-31-14
3. MAC 3-2-05	
4. DWP 10-14-05	

Approved by:



The Pittsburgh Water and Sewer Authority

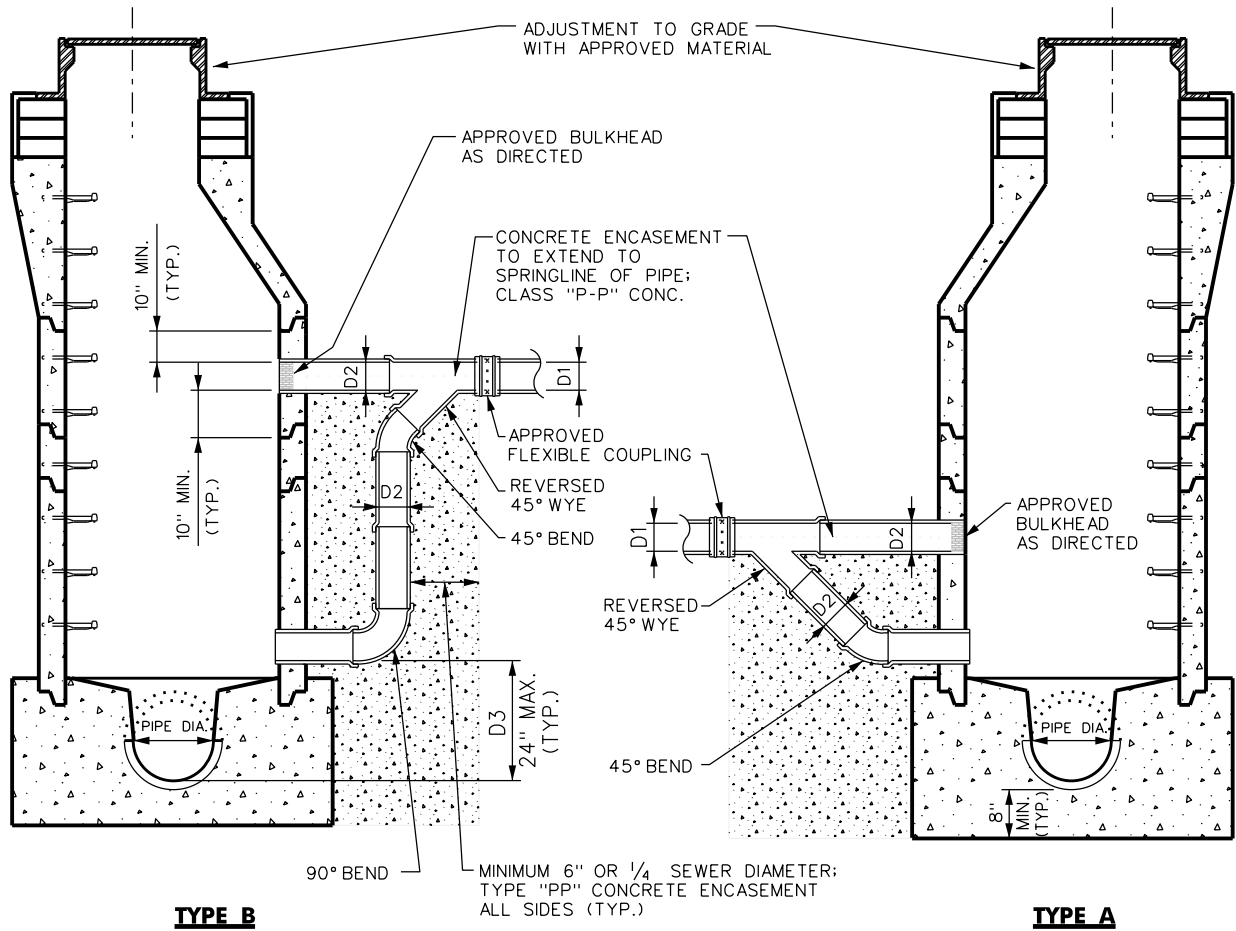
Plastic Manhole Steps

Scale: N.T.S.

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Supplemental
Detail Drawing:

SA-2B



INLET SIZE (D1)	8"	10"	12"	14"	15"	16"	18"	24"
DROP SIZE (D2)	10"	12"	15"	15"	15"	16"	18"	24"

NOTES:

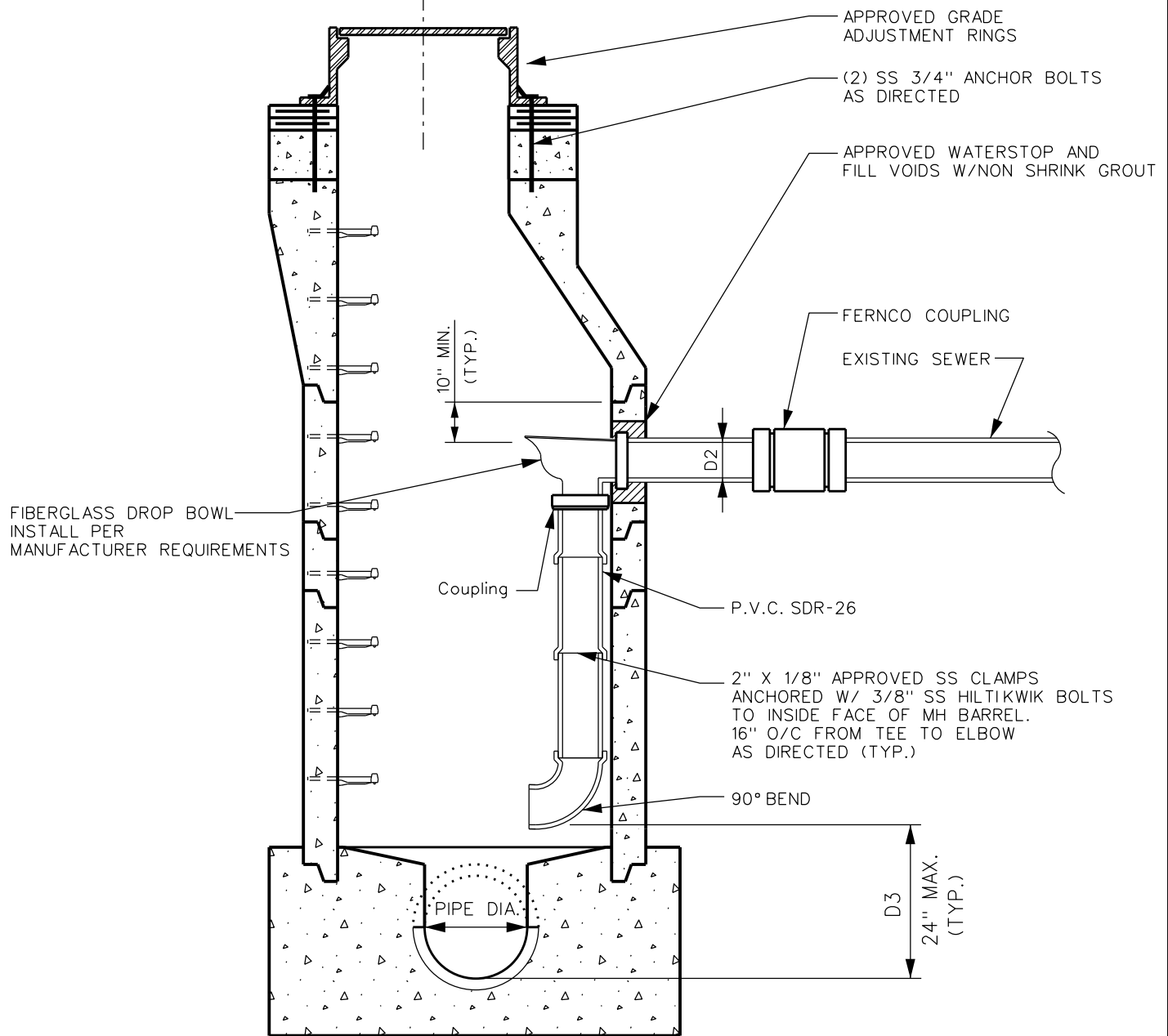
1. ALL PROVISIONS OF THE STANDARD MANHOLE DETAIL (SA-2, SA-2A, SA-10, OR SA-10A, AS APPROPRIATE) INCLUDING, BUT NOT LIMITED TO, APPLICABLE ASTM DESIGNATION STANDARDS, DIMENSIONS, AND MATERIALS, APPLY TO DROP MANHOLES.
2. ALL CEMENT ENCASED PIPE MUST BE RIGID PIPE ONLY (R.C., V.C., D.I., ETC.)
3. USE TYPE "P" CEMENT CONCRETE WHEN THE VERTICAL DROP BETWEEN THE INVERT OF THE PIPE AND MANHOLE IS GREATER THAN 3'-9".
4. SEE DETAIL SA-2A FOR ADDITIONAL MANHOLE INVERT CONSTRUCTION DETAILS.
5. PRECAST MANHOLE SECTIONS SHALL COMPLY WITH ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	5. MAC 5-15-06
2. MAC 6-04	6. LRC 1-31-14
3. MAC 3-2-05	
4. DWP 10-14-05	
Approved by:	



The Pittsburgh Water and Sewer Authority	
Outside Drop Manhole	
Scale: N.T.S.	Supplemental Detail Drawing: SA-2C
M:\pwsa\gis\det\Standards\stdsa2c.det	



NOTES:

1. ALL PROVISIONS OF THE STANDARD MANHOLE DETAIL (SA-2, SA-2A, SA-10, OR SA-10A, AS APPROPRIATE) INCLUDING, BUT NOT LIMITED TO, APPLICABLE ASTM DESIGNATION STANDARDS, DIMENSIONS, AND MATERIALS, APPLY TO DROP MANHOLES.
2. ALL CEMENT ENCASED PIPE MUST BE RIGID PIPE ONLY (R.C., V.C., D.I., ETC.)
3. USE TYPE "P" CEMENT CONCRETE WHEN THE VERTICAL DROP BETWEEN THE INVERT OF THE PIPE AND MANHOLE IS GREATER THAN 3'-9".
4. SEE DETAIL SA-2A FOR ADDITIONAL MANHOLE INVERT CONSTRUCTION DETAILS.
5. PRECAST MANHOLE SECTIONS SHALL COMPLY WITH ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.

5/5/2017

R E V I S I O N S	
1.	LRC 1-31-14

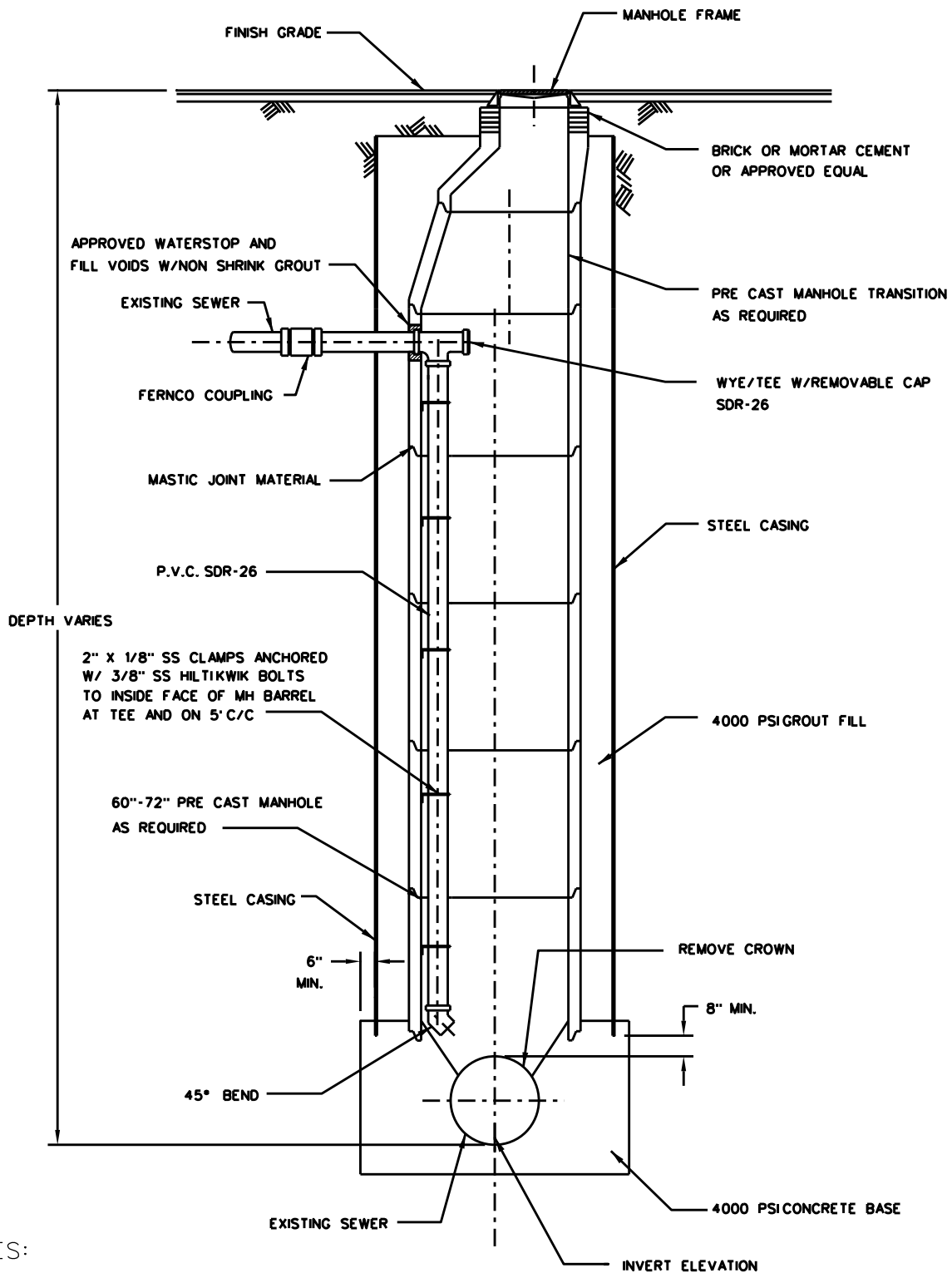
PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority

Inside Drop Manhole

Scale: N.T.S.	Supplemental Detail Drawing: SA-2D
M:\pwsa\gis\det\Standards\stdsa2d.det	

Approved by:



NOTES:

1. ALL PROVISIONS OF THE STANDARD MANHOLE DETAIL (SA-2, SA-2A, SA-10, OR SA-10A, AS APPROPRIATE) INCLUDING, BUT NOT LIMITED TO, APPLICABLE ASTM DESIGNATION STANDARDS, DIMENSIONS, AND MATERIALS, APPLY TO DROP MANHOLES.
2. ALL CEMENT ENCASED PIPE MUST BE RIGID PIPE ONLY (R.C., V.C., D.I., ETC.)
3. USE TYPE "P" CEMENT CONCRETE WHEN THE VERTICAL DROP BETWEEN THE INVERT OF THE PIPE AND MANHOLE IS GREATER THAN 3'-9".
4. SEE DETAIL SA-2A FOR ADDITIONAL MANHOLE INVERT CONSTRUCTION DETAILS.

R E V I S I O N S	
1.	LRC 1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority

Inside Drop For Shaft-Type Manhole

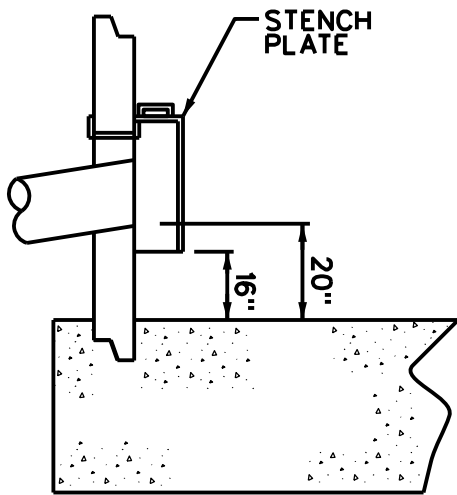
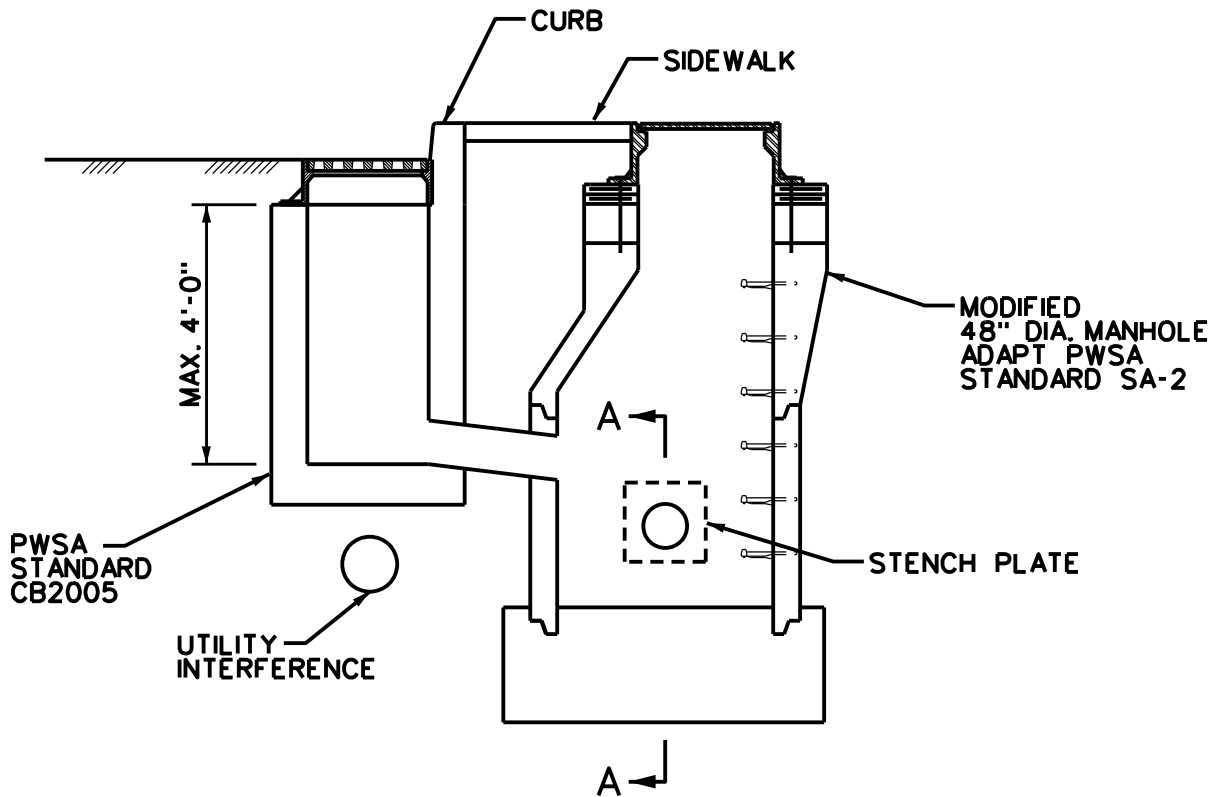
Scale: N.T.S.

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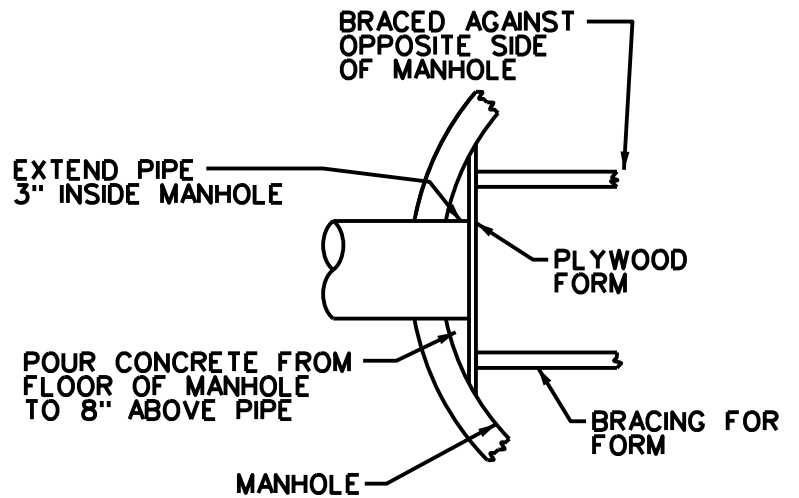
Supplemental
Detail Drawing:

SA-2E

5/19/2015



SECTION A-A



STENCH PLATE FORMING DETAIL

(TRAP AT MANHOLE)

5/4/2016

R E V I S I O N S	

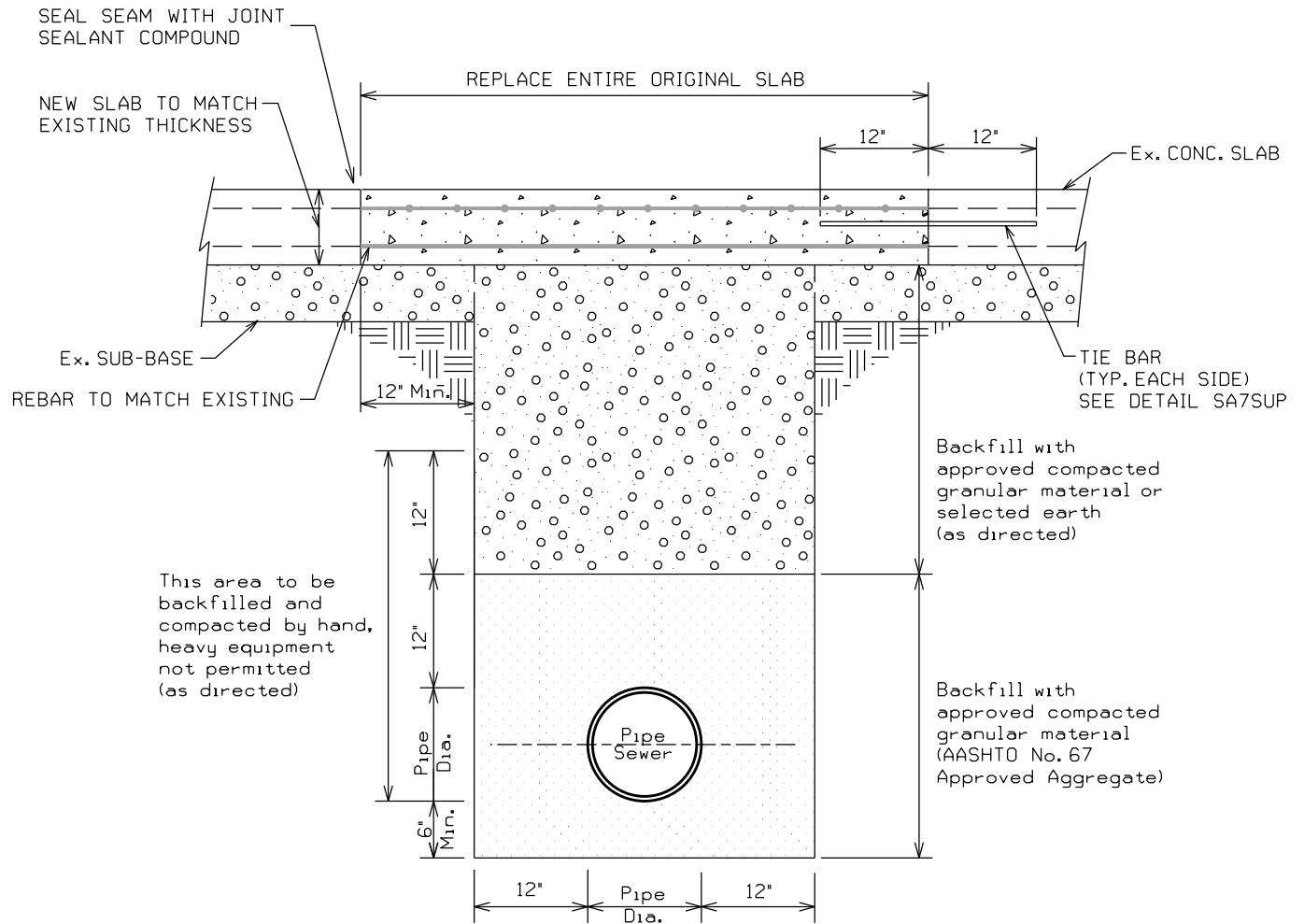
PGH₂O
 Pittsburgh
 Water & Sewer
 Authority

The Pittsburgh Water and Sewer Authority
**Manhole-Inlet Combination
 With Standard CB2005**

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdsa2g.det

Supplemental
 Detail Drawing: **SA-2G**

Approved by:



This area to be backfilled and compacted by hand, heavy equipment not permitted (as directed)

Backfill with approved compacted granular material or selected earth (as directed)

Backfill with approved compacted granular material (AASHTO No. 67 Approved Aggregate)

NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart: →

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

5/19/2015

R E V I S I O N S	
1.	MSR 4-23-01
2.	RDH 6-14-06
3.	LRC 1-31-14

Approved by: _____



The Pittsburgh Water and Sewer Authority
CONCRETE STREET TRENCH REPAVING FOR PIPE SEWER

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdsa7.det

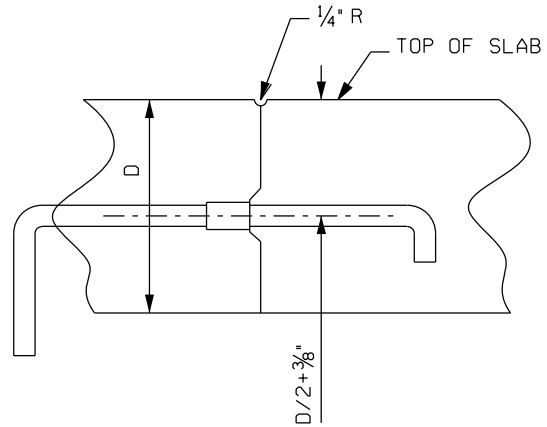
Supplemental Detail Drawing: **SA-7**

TABLE "A" - TIE BAR SIZES

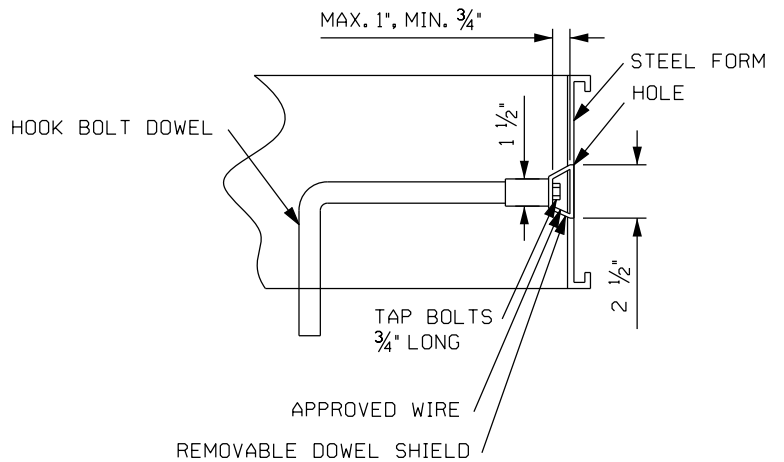
ROADWAY WIDTH	PAVEMENT DEPTH	TIE BAR SIZE (SEE DETAIL)	TIE BARS SPACING
48'-0"	10"	A	30" C TO C
	9"	A	30" C TO C
	8"	B	30" C TO C
	7"	B	30" C TO C
40'-0"	10"	A	30" C TO C
	9"	B	30" C TO C
	7"	B	30" C TO C
36'-0" & LESS	10"	B	30" C TO C
	9"	B	30" C TO C
	8"	B	30" C TO C
	7"	B	30" C TO C

TABLE "B" - DOWEL BAR SIZES FOR LOAD TRANSFER UNITS

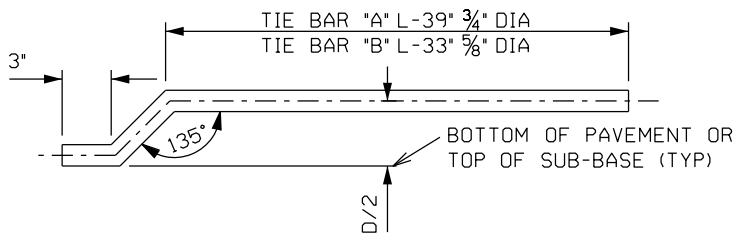
PAVEMENT DEPTH	MINIMUM DIAMETER	LENGTH	SPACING
7"	7/8"	14"	12" C TO C
8"	1"	14"	12" C TO C
9"	1 1/8"	16"	12" C TO C
10"	1 1/4"	18"	12" C TO C



COMPLETE INSTALLATION

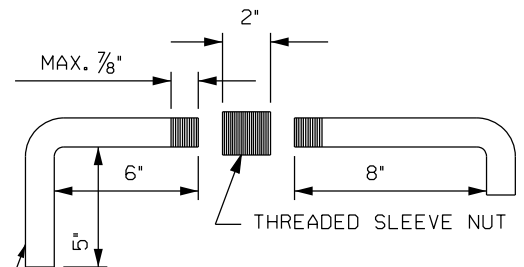


PARTIAL INSTALLATION



DETAIL - TIE BARS "A" & "B"

THIS SIDE IN FIRST LANE CONSTRUCTION



SLEEVE NUT: STEEL PIPE OR HEXAGONAL STEEL BAR 1 1/16" x 1 7/8" LONG OR HIGH STRENGTH STEEL BAR 2 7/32" x 2" LONG. THE ASSEMBLED DOWEL SHALL WITHSTAND A MINIMUM LOAD OF 15,000 LBS.

EITHER 3/16" DIA. WITH ROLLED THREADS OR 5/8" DIA. WITH CUT THREADS.

DETAIL OF HOOK BOLT DOWEL

HOOK BOLT DETAILS

REVISIONS

- MSR 4-23-01
- LRC 1-31-14



Pittsburgh Water & Sewer Authority

The Pittsburgh Water and Sewer Authority

Concrete Street Tie Bar

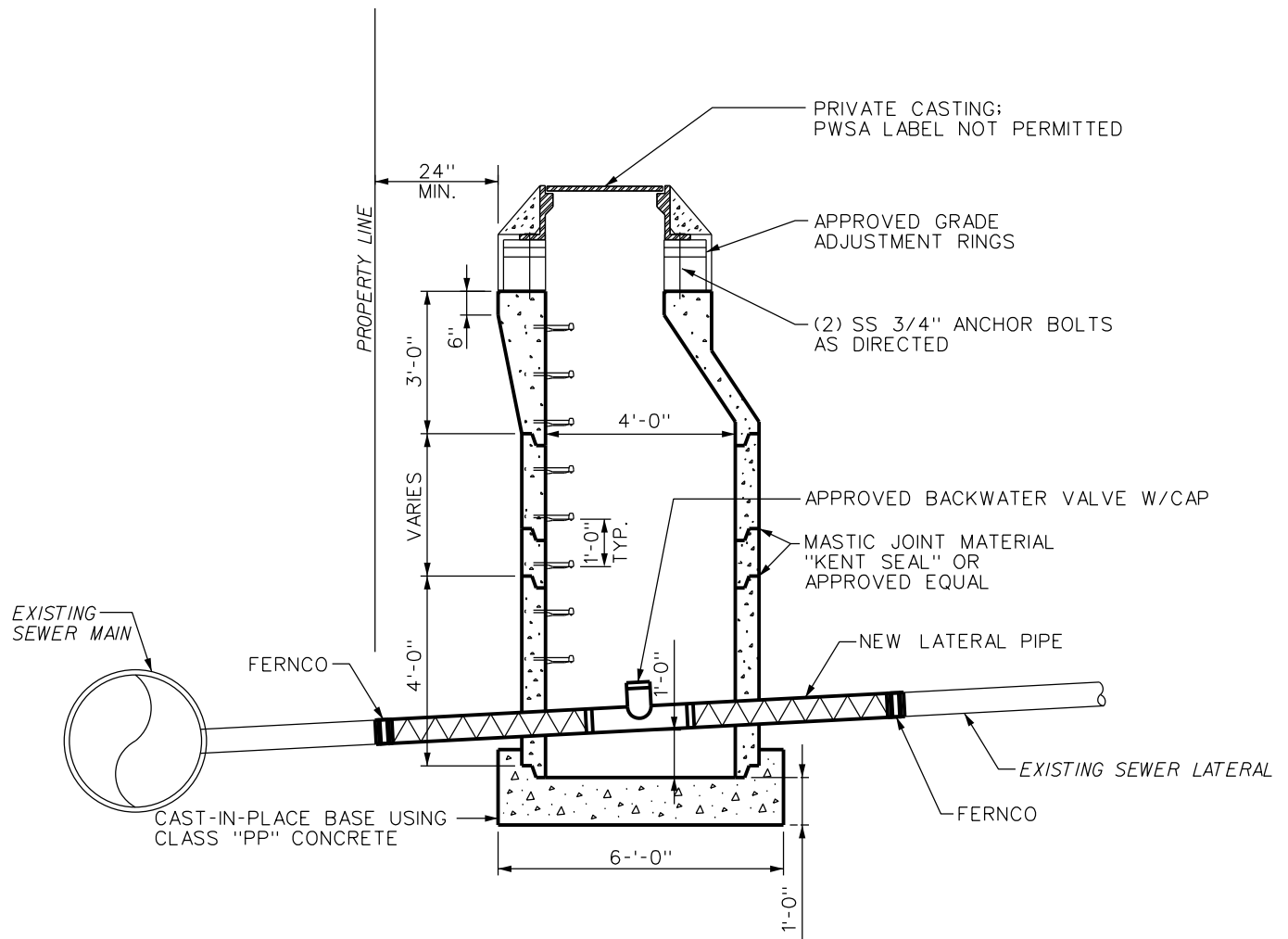
Approved by:

Scale: N.T.S.

Supplemental Detail Drawing: **SA-7SUP**

M:\pwsa\gis\det\Standards\stdsa7sup.det

5/19/2015



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

R E V I S I O N S	
1. MAC 3-3-04	
2. MAC 6-04	
3. MAC 3-2-05	
4. LRC 1-31-14	
Approved by:	

PGH₂O
**Pittsburgh
Water & Sewer
Authority**

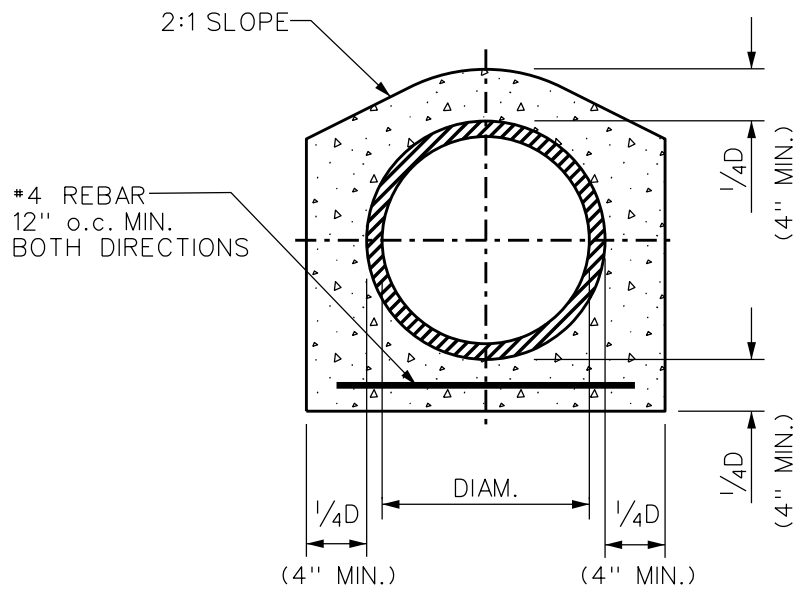
The Pittsburgh Water and Sewer Authority
Backwater Valve Manhole
(Private)

Scale: N.T.S.

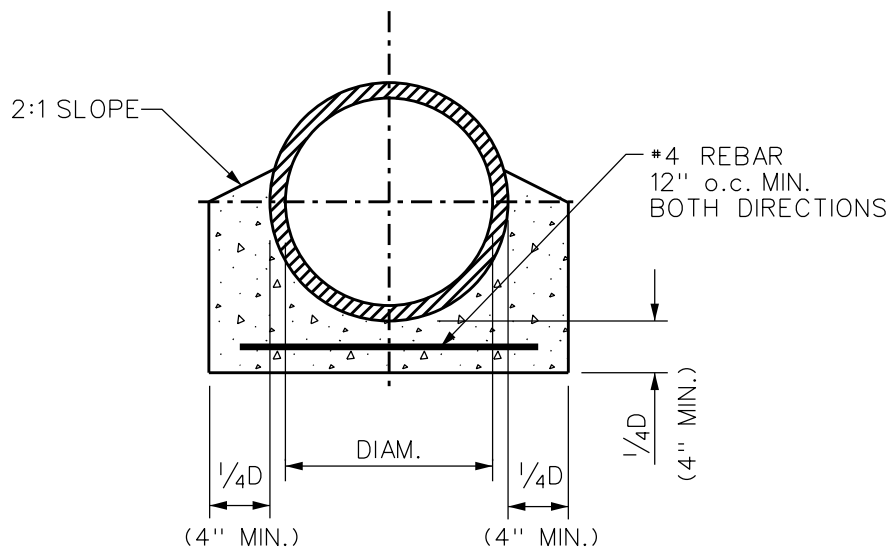
**Supplemental
Detail Drawing: SA-BV**

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5/4/2016



TYPE A CONCRETE ENCASEMENT REINFORCEMENT



TYPE B CONCRETE CRADLE REINFORCEMENT

NOTES:

1. CEMENT CONCRETE REINFORCEMENT SHALL BE MINIMUM 28 DAY, VIBRATED, 4000* AIR-ENTRAINED.
2. DETAILS SHOWN ARE FOR MINIMUM GENERAL CONDITIONS. SPECIFIC CERTAIN SOIL CONDITIONS MAY REQUIRE ADDITIONAL ENGINEERING REINFORCEMENT DESIGN.

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. JEK 2-20-03	
3. MAC 3-2-04	
4. JLK 10-28-04	

Approved by:



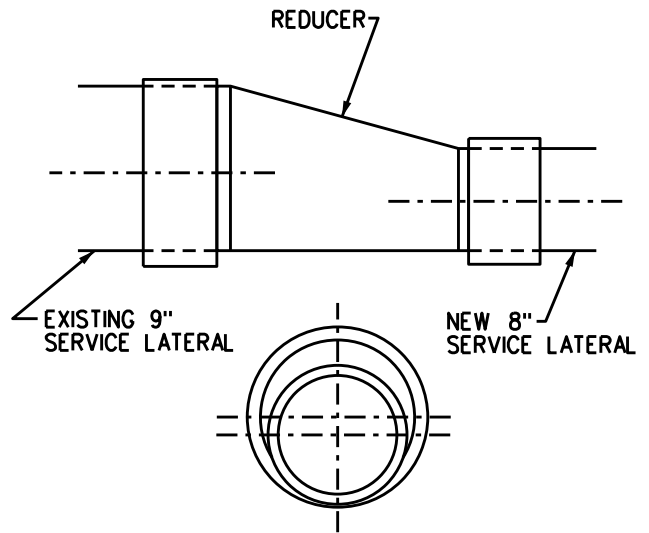
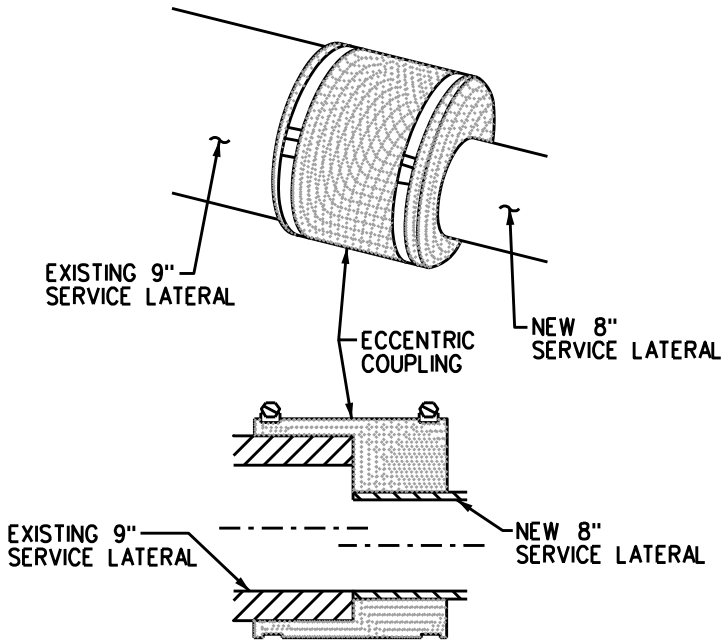
The Pittsburgh Water and Sewer Authority
Concrete Reinforcement For Rigid Pipe

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdsace.det

Supplemental
 Detail Drawing:

SA-CE



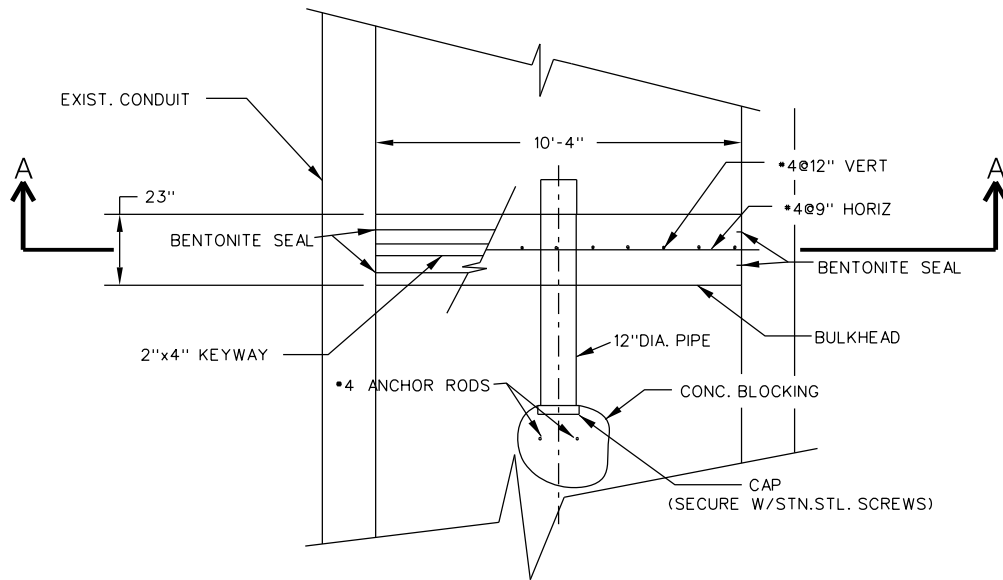
5/19/2015

R E V I S I O N S	
1. LRC 1-31-14	
Approved by:	

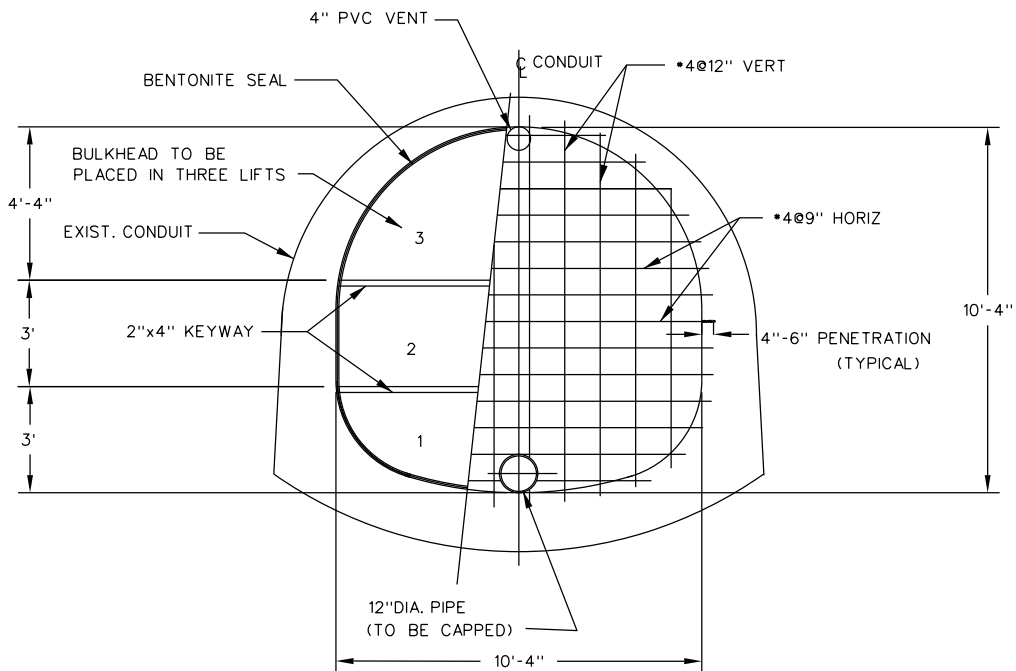
PGH₂O
 Pittsburgh
 Water & Sewer
 Authority

The Pittsburgh Water and Sewer Authority
ECCENTRIC COUPLING ON PIPE

Scale: N.T.S.	Supplemental Detail Drawing: SA-EC
M:\pwsa\gis\det\standards\stdsaec.det	



PLAN



SECTION A-A

5/19/2015

R E V I S I O N S	
1. LRC 1-31-14	

Approved by:



Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority

Large Diameter Pipe Sewer Bulkhead

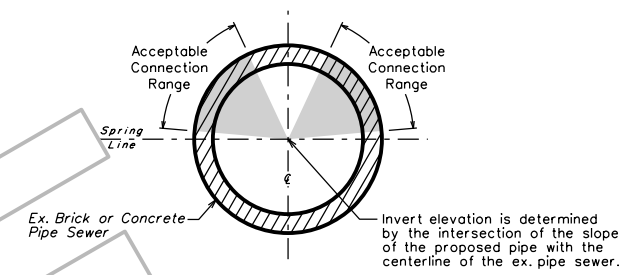
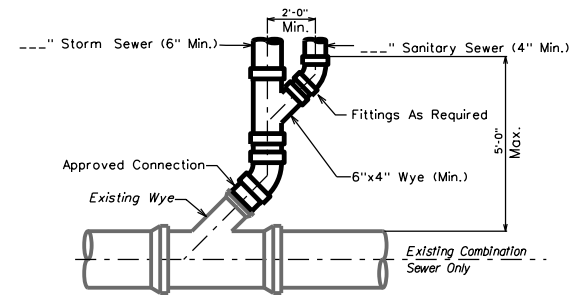
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Supplemental
Detail Drawing:

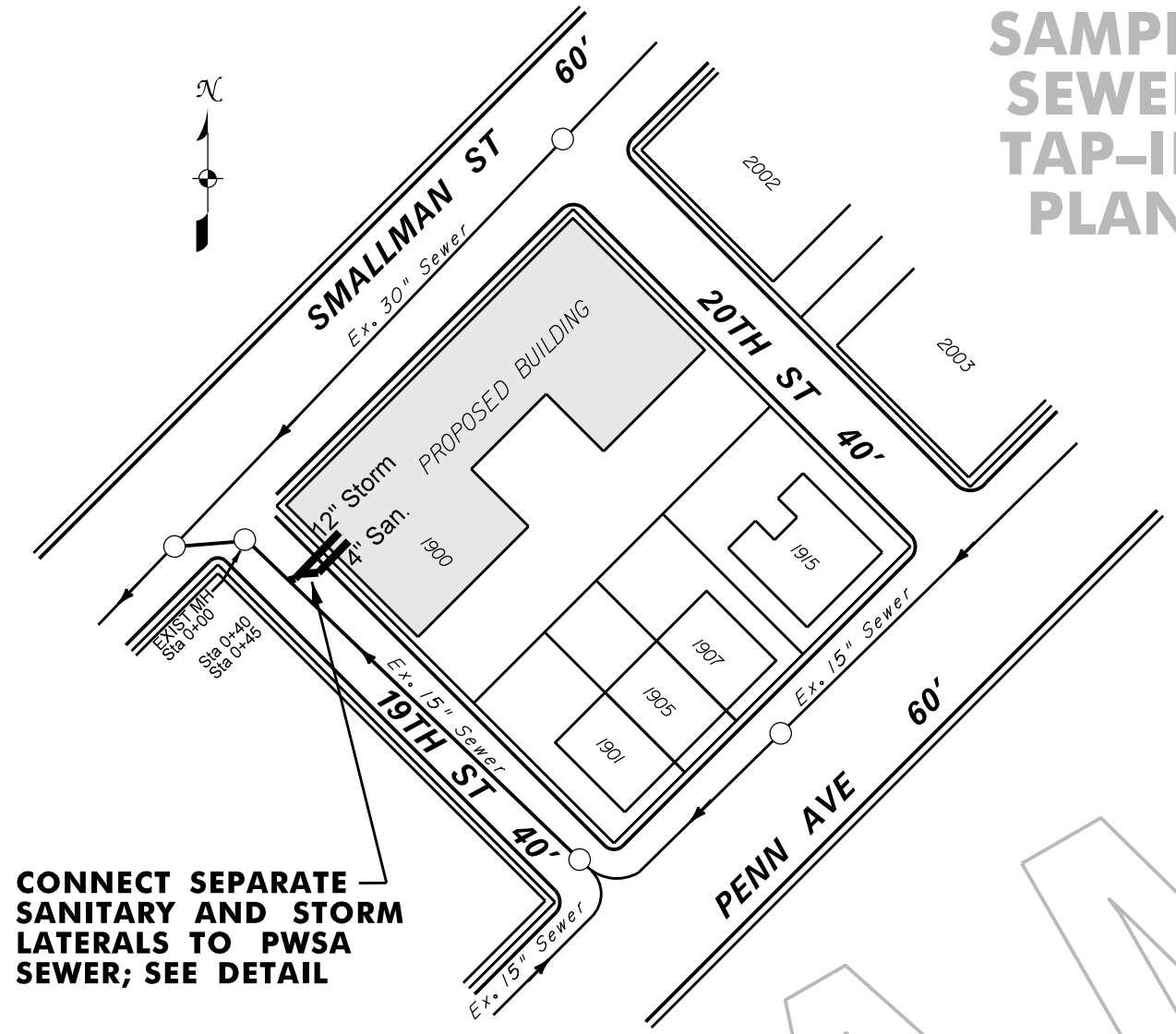
SA-LDB

SAMPLE SEWER TAP-IN PLAN



SEPARATED HOUSE LATERALS ONE CONNECTION TO MAIN

PIPE SEWER ZONE CONNECTION DETAIL



CONNECT SEPARATE SANITARY AND STORM LATERALS TO PWSA SEWER; SEE DETAIL

LOCATION MAP

(MUST BE TO ENGINEERING SCALE)

NOTE: DRAWING TO BE 24"x36"

WATER AND SEWER FLOW DATA

Water Consumption		GPD
Sanitary Flow		GPD
Storm Flow		CFS
PWSA Application Number (Assigned by PWSA)		
DEP Approval Date (Assigned by PWSA)		

THE PITTSBURGH WATER & SEWER AUTHORITY

- APPROVAL FOR:
- NEW WATER TAP, BACKFLOW PREVENTER AND METER INSTALLATION
 - NEW SANITARY AND/OR STORM SEWER TAP
 - INCREASE IN FLOW AT EXISTING SEWER AND/OR WATER CONNECTION
 - SEWER TAP TERMINATION
 - WATER TAP TERMINATION

* DISCLAIMER
Signatures / Approvals by PWSA are for the physical connections to the water and/or sewer system only.
Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design.

Project Coordinator/Project Management Engineer/Reviewer
APPROVAL _____ **DATE** _____

Manager of Development Services _____

Deputy Director of Engineering and Construction _____

Director of Engineering and Construction _____

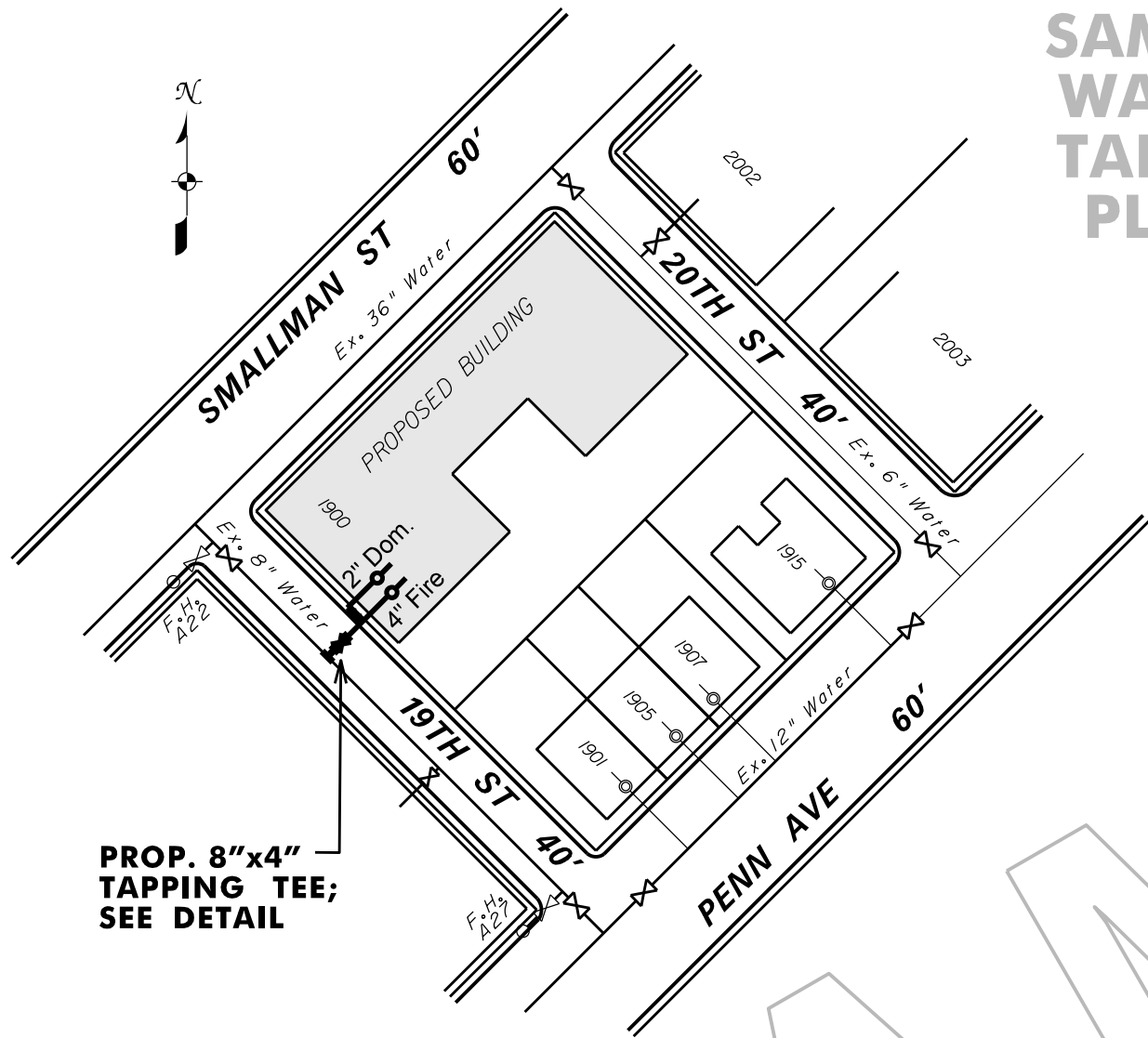
APPLICANT NAME

BUILDING NAME / DEVELOPMENT NAME
SERVICE ADDRESS

DATE

ACC. NO.

SAMPLE WATER TAP-IN PLAN



PROP. 8"x4" TAPPING TEE; SEE DETAIL

LOCATION MAP

(MUST BE TO ENGINEERING SCALE)

'City of Pittsburgh Only'

Please be advised of the following requirements for installing fire service (Underground) mains and their appurtenances in the City of Pittsburgh.

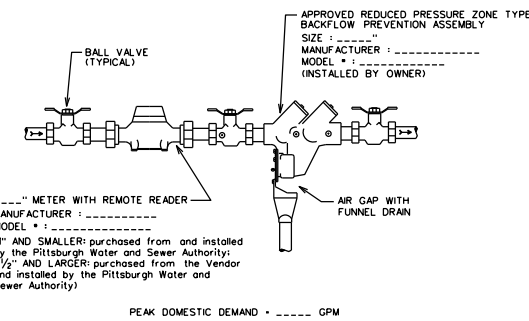
A permit must be obtained from the Bureau of Building Inspection (BBI), prior to installing the underground fire service main. Application for this permit must be made by a contractor, that is registered with the City, and must include 3 sets of the *Water Tap-In*Plan* bearing the approval stamp of PWSA. Once the drawings have been reviewed, approved, and the permit issued; all required thrust blocking must be inspected, for compliance with NFPA 13, by a City Building Inspector before it is backfilled. A *Contractor's Material and Test Certificate for Underground Piping* must then be completed, and given to the City approved Fire Inspector that is hired to witness the flush and hydrostatic tests. They will then forward the test results to BBI.

FAILURE TO COMPLY MAY RESULT IN FINES AND/OR A STOP WORK ORDER.

NOTE:
Permits for the interior sprinkler/standpipe system will not be issued until all underground installations have been inspected, and approved.

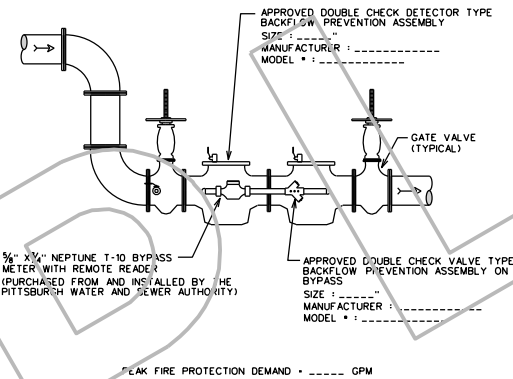
To contact BBI, call (412) 255-2181.

NOTE: DRAWING TO BE 24"x36"



TYPICAL PLUMBING SCHEMATIC DOMESTIC

NOT TO SCALE



TYPICAL PLUMBING SCHEMATIC FIRE PROTECTION

NOT TO SCALE

WATER AND SEWER FLOW DATA

Water Consumption	GPD
Sanitary Flow	GPD
Storm Flow	CFS
PWSA Application Number (Assigned by PWSA)	
DEF Approval Date (Assigned by PWSA)	

HYDRANT FLOW TEST DATA

(REQUIRED FOR 1" OR LARGER TAPS)

Date of Test: ___/___/___ Hydrant Permit Number: _____

Test Performed By: _____

	FLOW HYDRANT	PRESSURE HYDRANT
Hydrant Number		
Location		
Static Pressure (PSI)	XXXXXXXXXXXXXX	
Residual Pressure (PSI)	XXXXXXXXXXXXXX	
Flow Observed (GPM)		XXXXXXXXXXXXXX

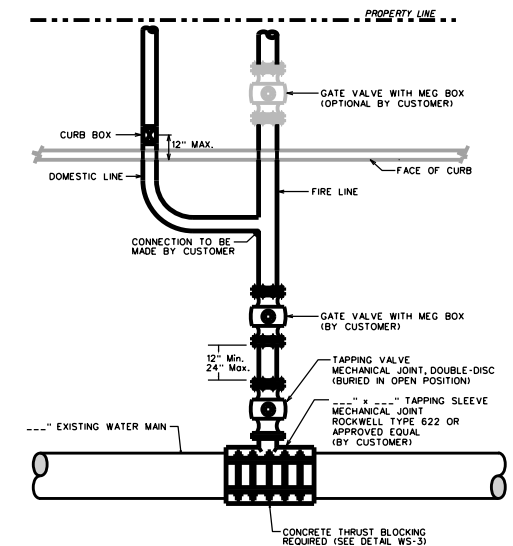
Fire Protection Demands:

Sprinkler System Peak Demand _____GPM _____PSI

Inside House Demand _____ GPM

Outside House Demand _____GPM

Domestic System Peak Demand _____ GPM



NOTE:
CUSTOMER IS RESPONSIBLE FOR MAINTAINING AND OWNS FROM THE TAPPING TEE ASSEMBLY TO THE BUILDING. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).

TAPPING TEE DETAIL

NOT TO SCALE

APPLICANT NAME

BUILDING NAME /DEVELOPMENT NAME
SERVICE ADDRESS

DATE

ACC. NO.

THE PITTSBURGH WATER & SEWER AUTHORITY

APPROVAL FOR:

- ____ NEW WATER TAP, BACKFLOW PREVENTER AND METER INSTALLATION
- ____ NEW SANITARY AND/OR STORM SEWER TAP
- ____ INCREASE IN FLOW AT EXISTING SEWER AND/OR WATER CONNECTION
- ____ SEWER TAP TERMINATION
- ____ WATER TAP TERMINATION

* DISCLAIMER

Signatures / Approvals by PWSA are for the physical connections to the water and/or sewer system only.

Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design.

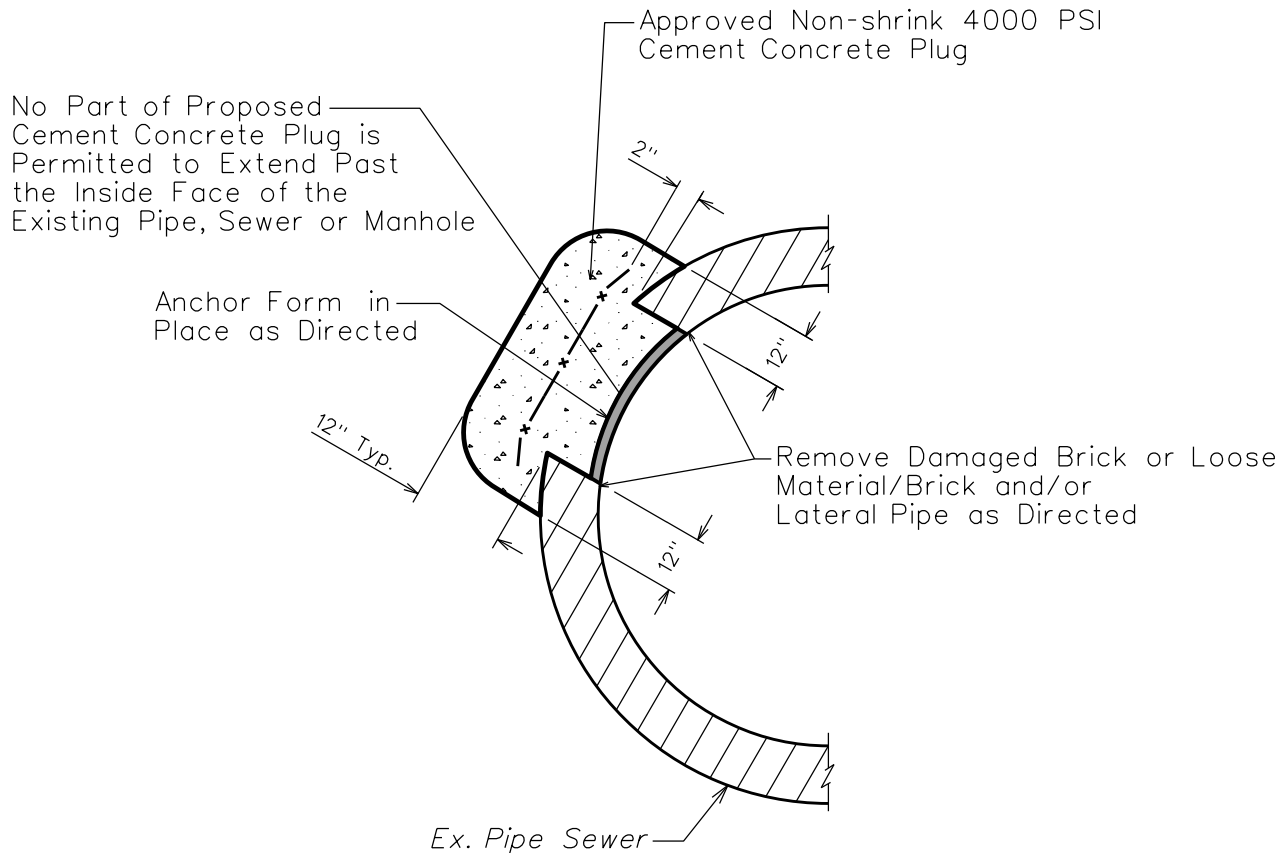
Project Coordinator/Project Management Engineer/Reviewer **DATE**

APPROVAL **DATE**

Manager of Development Services

Deputy Director of Engineering and Construction

Director of Engineering and Construction



R E V I S I O N S	
1. MAC 3-2-04	
2. LRC 1-31-14	

Approved by:

PGH₂O
 Pittsburgh
 Water & Sewer
 Authority

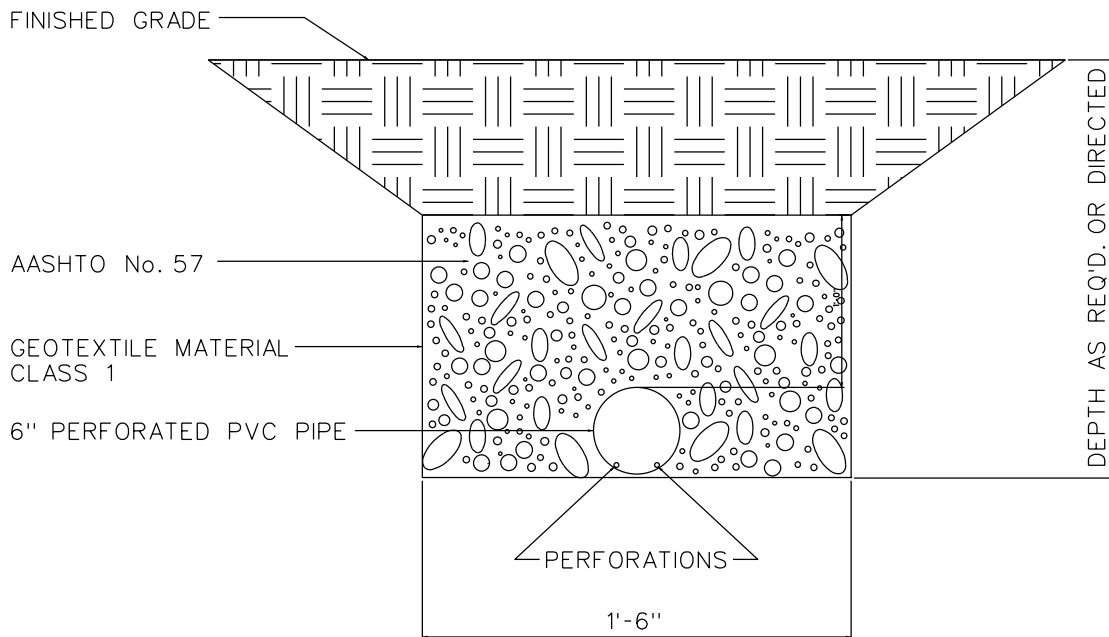
The Pittsburgh Water and Sewer Authority
**Cement Concrete Plug
 For Brick Sewer/ Manhole**

Scale: N.T.S.
 M:\pwsa\gis\det\standards\stdsccp.det

Supplemental
 Detail Drawing: **SC-CP**

5/19/2015

GRAVEL DRAIN WITH 6" PERFORATED PIPE



5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	



**Pittsburgh
Water & Sewer
Authority**

The Pittsburgh Water and Sewer Authority

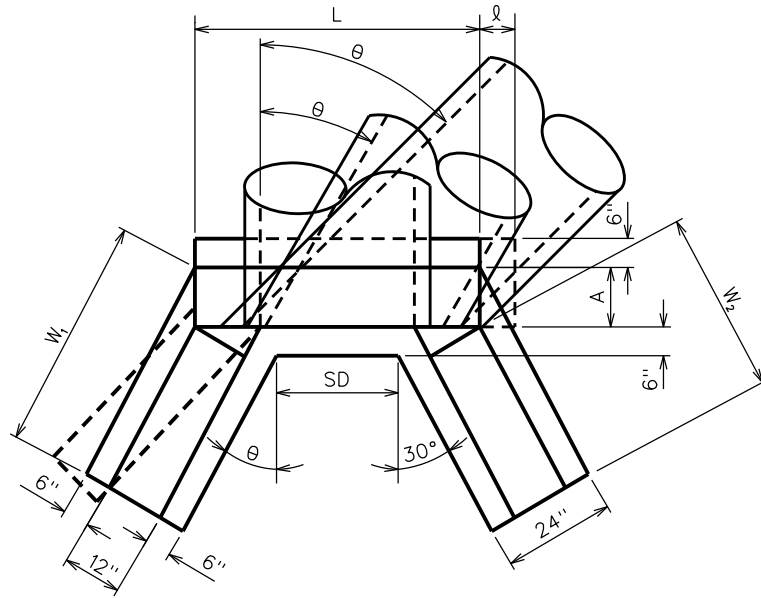
Sub-Drain With Pipe

Approved by: _____

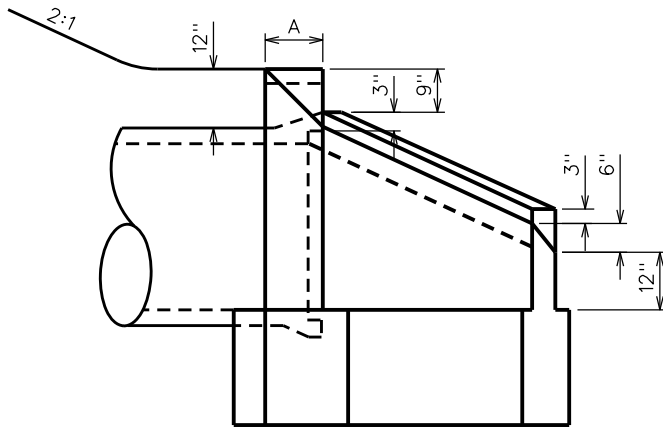
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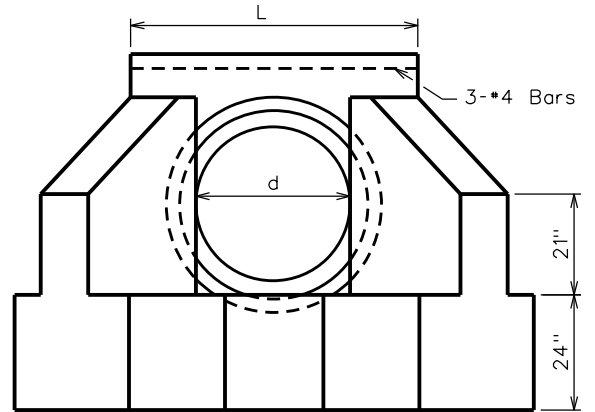
**Supplemental
Detail Drawing: SD-1**



TOP VIEW



SIDE VIEW



END VIEW

$$SD = \frac{d}{\cos \theta} = \frac{d}{\sin \text{Skew} \pm}$$

$$L = SD + 2.3'$$

$$W_1 = \frac{2d - 2'}{\cos \theta} \quad (\text{For } 2:1 \text{ Slope})$$

$$W_1 = \frac{X}{\cos \theta} \quad (d - 0.5 - \frac{1.0}{X})$$

(For Variable Slope when X Equals Horizontal Dimension of the Slope Designation)

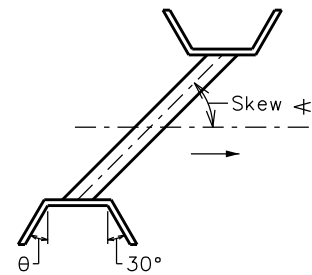


TABLE A
2:1 EMBANKMENT SLOPES

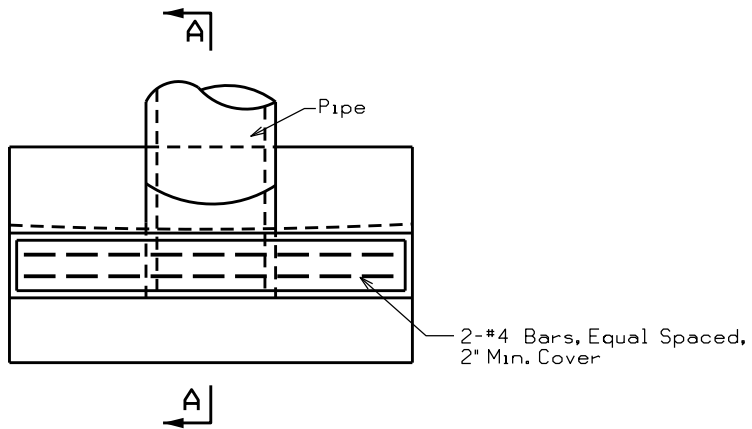
Diameter of Pipe d	SKEW ± 90° TO 60° θ = 30°			SKEW ± 55° θ = 35°			SKEW ± 50° θ = 40°			SKEW ± 45° θ = 45°			SKEW ± 40° θ = 50°			SKEW ± 30° θ = 60°			SKEW ± 20° θ = 70°			SKEW ± 10° θ = 80°			A	
	L	W ₁	W ₂	L	W ₁	W ₂	L	W ₁	W ₂	L	W ₁	W ₂	L	W ₁	W ₂	L	W ₁	W ₂	L	W ₁	W ₂	L	W ₁	W ₂		
36"	5.8	0	4.6	6.0	.33	4.9	6.2	.5	5.2	6.5	.67	5.7	7.0	.75	6.2	8.3	1.33	8.0	11.1	1.75	11.7	19.6	5.0	23.0	4.6	12
42"	6.3	0	5.8	6.6	.33	6.1	6.9	.5	6.5	7.3	.67	7.1	7.8	.75	7.8	9.3	1.33	10.0	12.5	1.75	14.6	22.5	5.0	28.8	5.8	12
48"	6.9	0	6.9	7.2	.33	7.3	7.5	.5	7.8	8.0	.67	8.5	8.5	.75	9.4	10.3	1.33	12.0	14.0	1.75	17.5	25.3	5.0	34.6	6.9	12
54"	7.5	0	8.0	7.8	.33	8.5	8.2	.5	9.1	8.7	.67	9.9	9.3	.75	10.9	11.3	1.33	14.0	15.5	1.75	20.5	28.2	5.0	40.3	8.0	12
60"	8.1	0	9.2	8.4	.33	9.8	8.8	.5	10.4	9.4	.67	11.3	10.1	.75	12.5	12.3	1.33	16.0	16.9	1.75	23.4	31.1	5.0	46.0	9.2	15
72"	9.2	0	11.5	9.6	.33	12.2	10.1	.5	13.0	10.8	.67	14.1	11.7	.75	15.6	14.3	1.33	20.0	19.8	1.75	29.2	36.9	5.0	57.6	11.5	15

5/19/2015

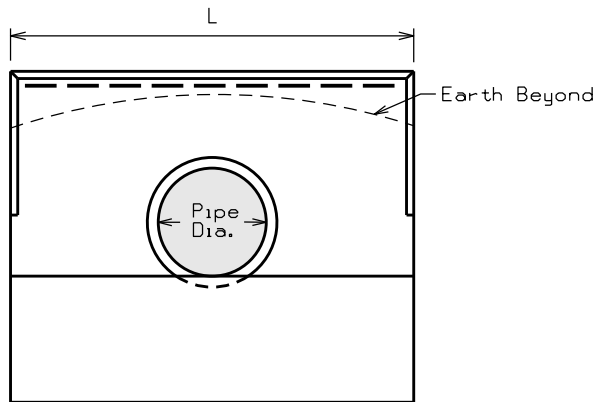
R E V I S I O N S	
1.	MAC 3-17-04
2.	LRC 1-31-14
Approved by:	

PGH₂O
Pittsburgh
Water & Sewer
Authority

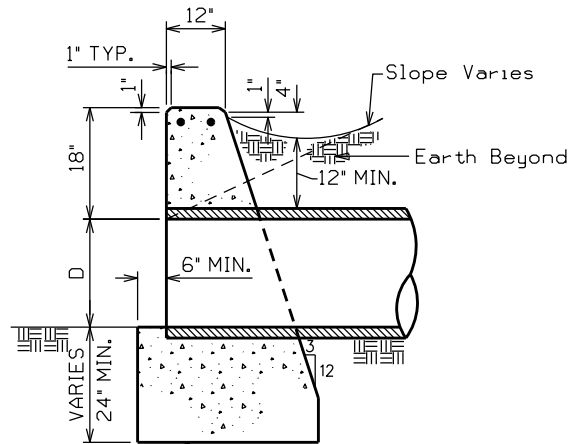
The Pittsburgh Water and Sewer Authority
Type D-W Endwall / Headwall
Scale: N.T.S.
Supplemental Detail Drawing: **SEWHW1**
M:\pwsa\gis\det\Standards\stdsewhw1.det



PLAN



ELEVATION



Depth as required or directed for good bearing and frost protection.

SECTION A-A

NOTES:

Use City Class P (4000 psi) Cement Concrete or better.

Chamfer exposed edges one inch.

Pipe Dia.	L
18" and 21"	5'
24" and 27"	7'
30" and 33"	9'

5/19/2015

R E V I S I O N S	
1. MAC 3-1-04	
2. LRC 1-31-14	

Approved by:



The Pittsburgh Water and Sewer Authority

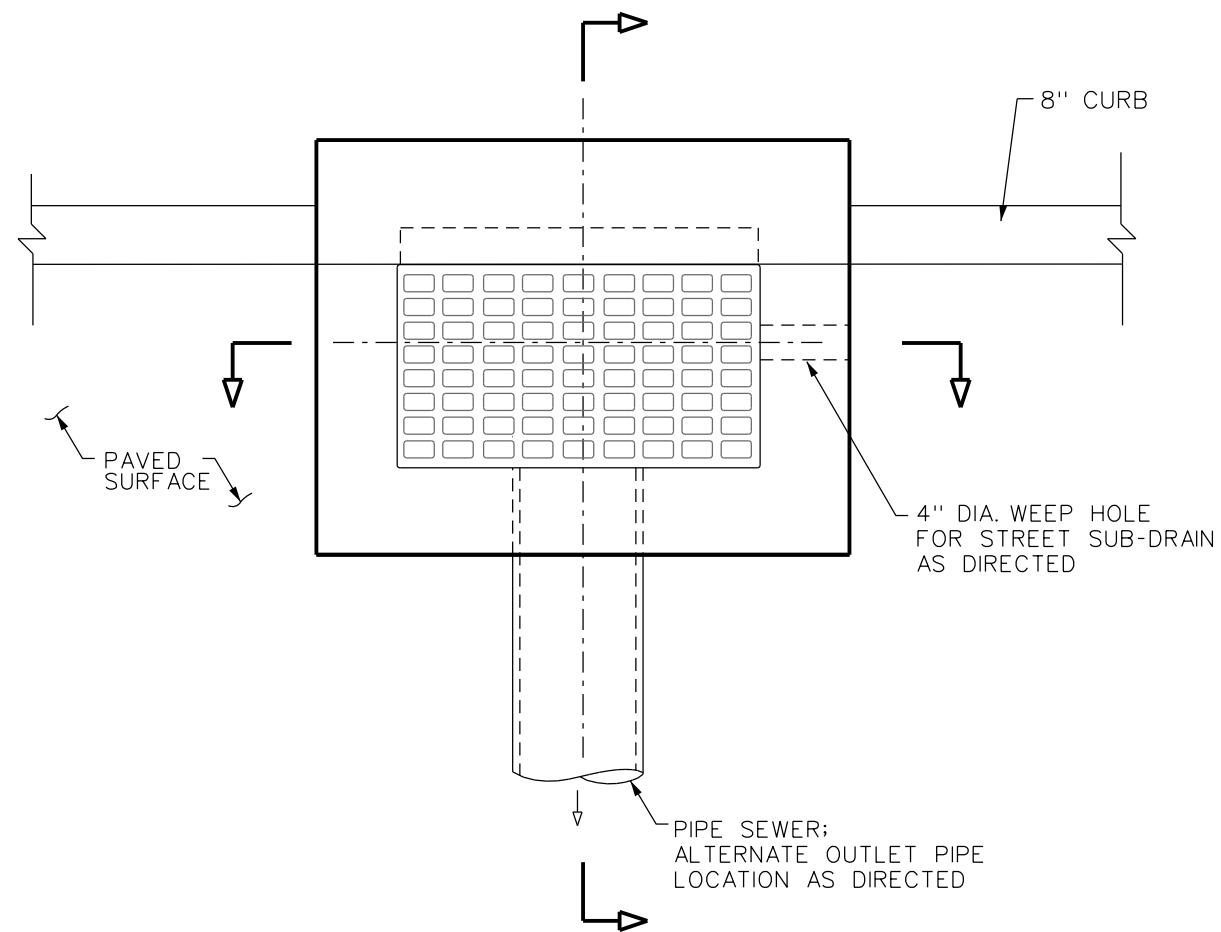
Straight Concrete Endwall / Headwall

Scale: N.T.S.

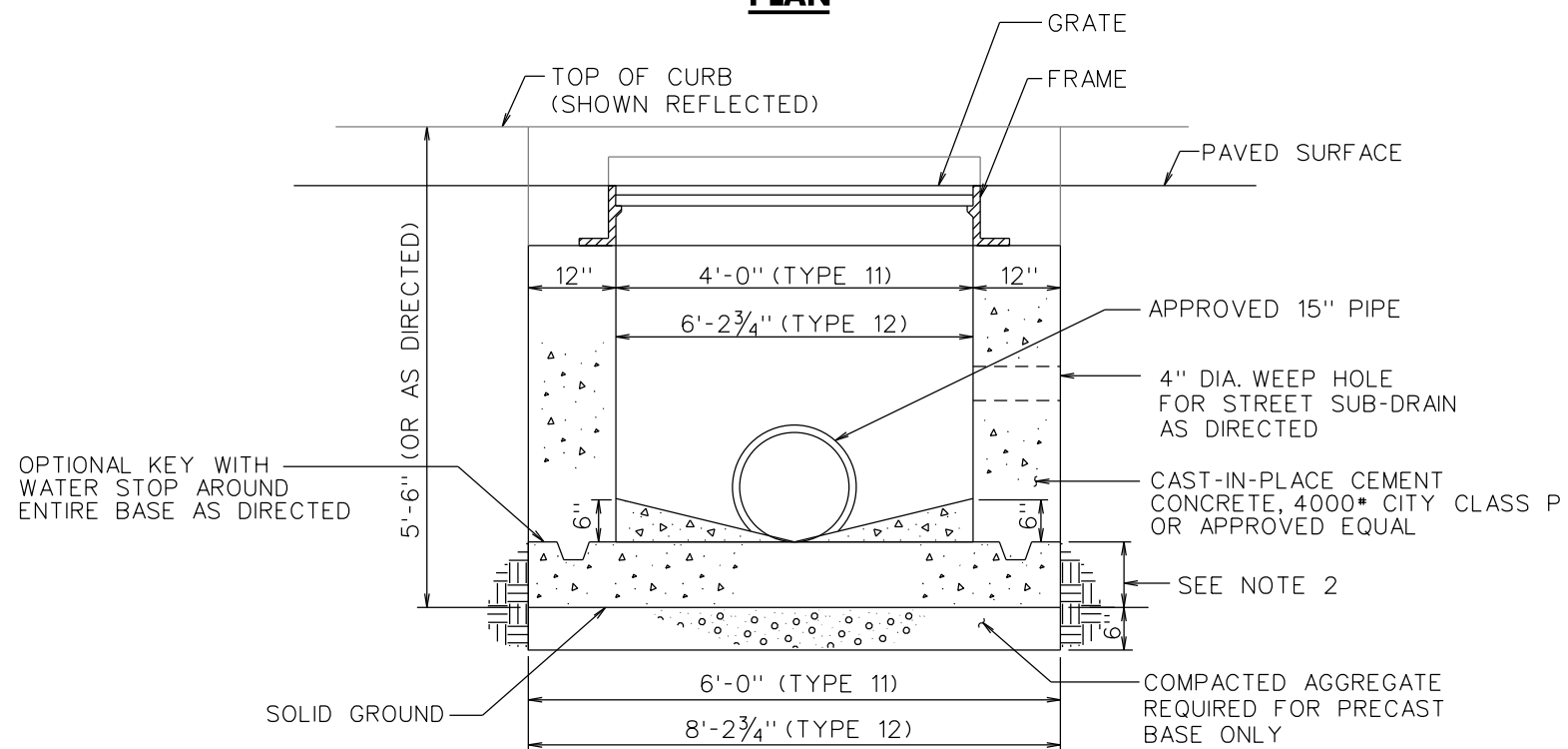
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Supplemental
Detail Drawing:

SEWHW2



PLAN



LONGITUDINAL SECTION

NOTES:

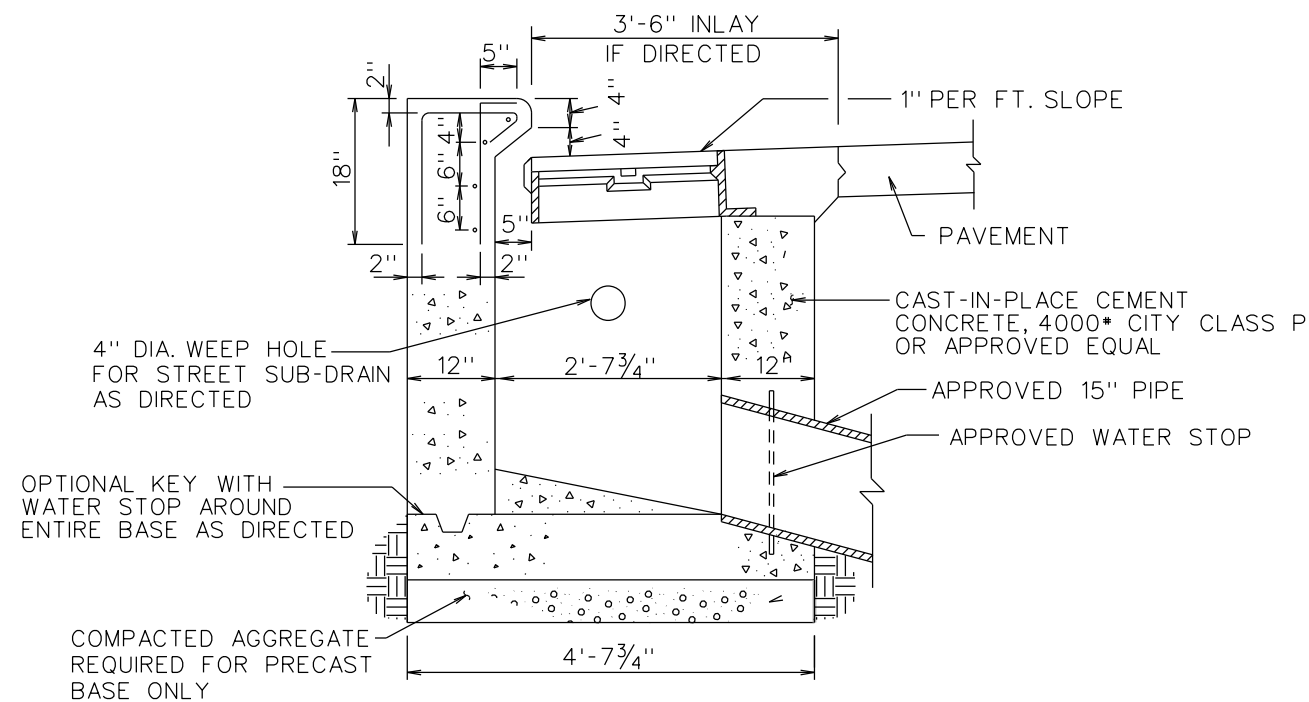
1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
3. ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
4. CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. HOOD AND TRAP MUST BE SEALED TO STORM INLET WALL WITH APPROVED SEALER.

FRAME & GRATE SCHEDULE

CB TYPE

11	GRATING CASTING NO. 71 FRAME CASTING NO. 75
12	GRATING CASTING NO. 72 FRAME CASTING NO. 77

NOTE: CASTING NO'S. ARE CITY OF PITTSBURGH/PWSA STANDARDS



CROSS SECTION

R E V I S I O N S	
1. MSR	4-23-02
2. MAC	3-9-04
3. MAC	5-19-09
4. LRC	1-31-14

Approved by:

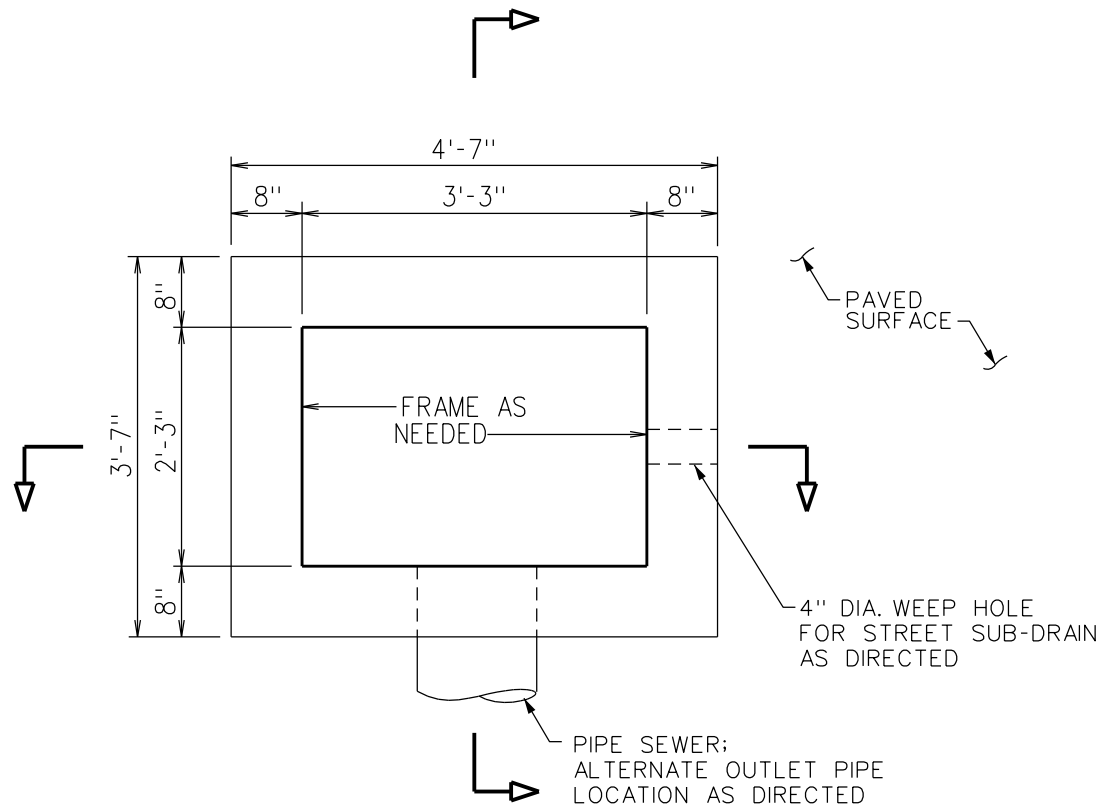


The Pittsburgh Water and Sewer Authority
Storm Inlet Type 11 And Type 12

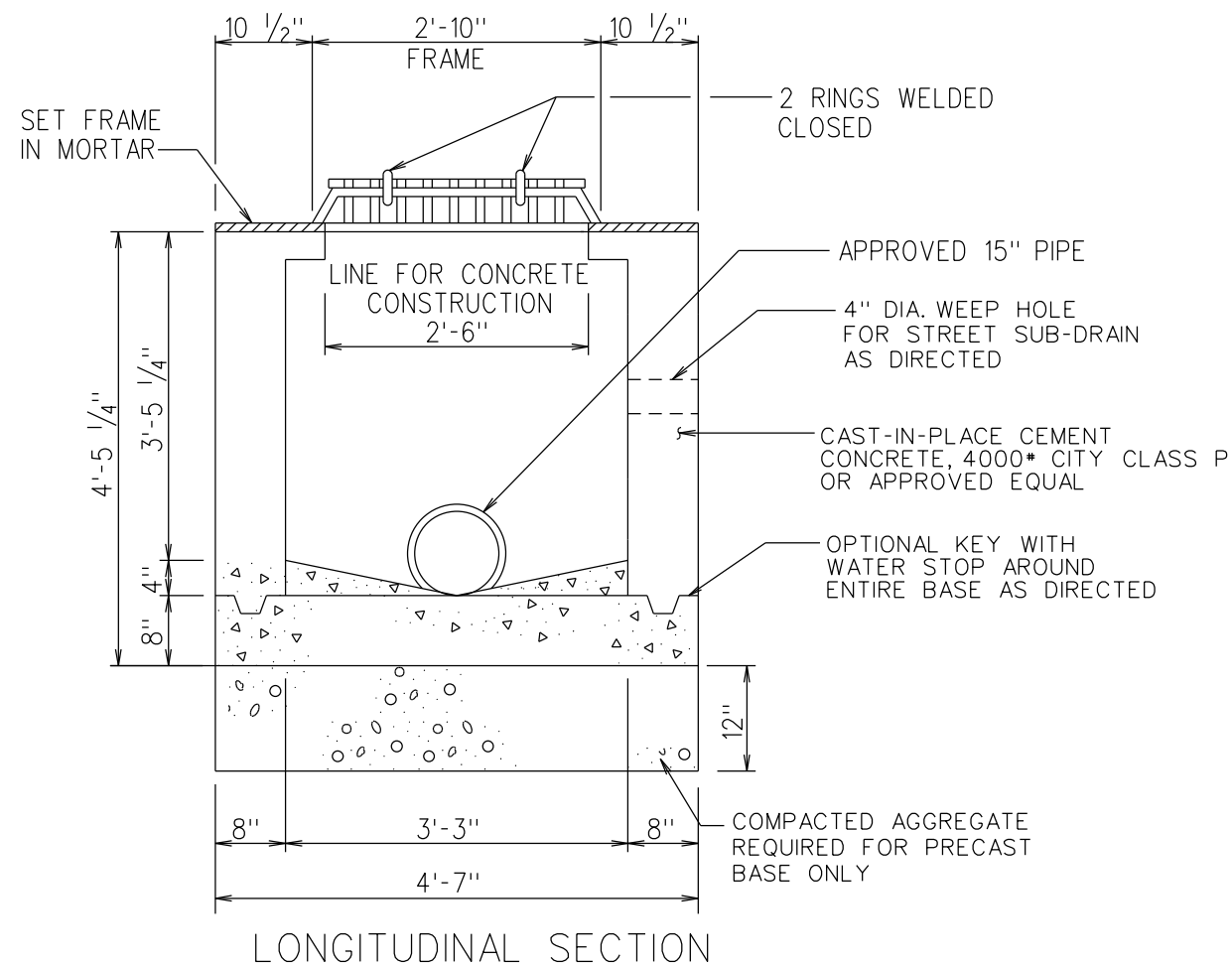
Scale: N.T.S.

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Supplemental Detail Drawing: **SI11N12**



PLAN

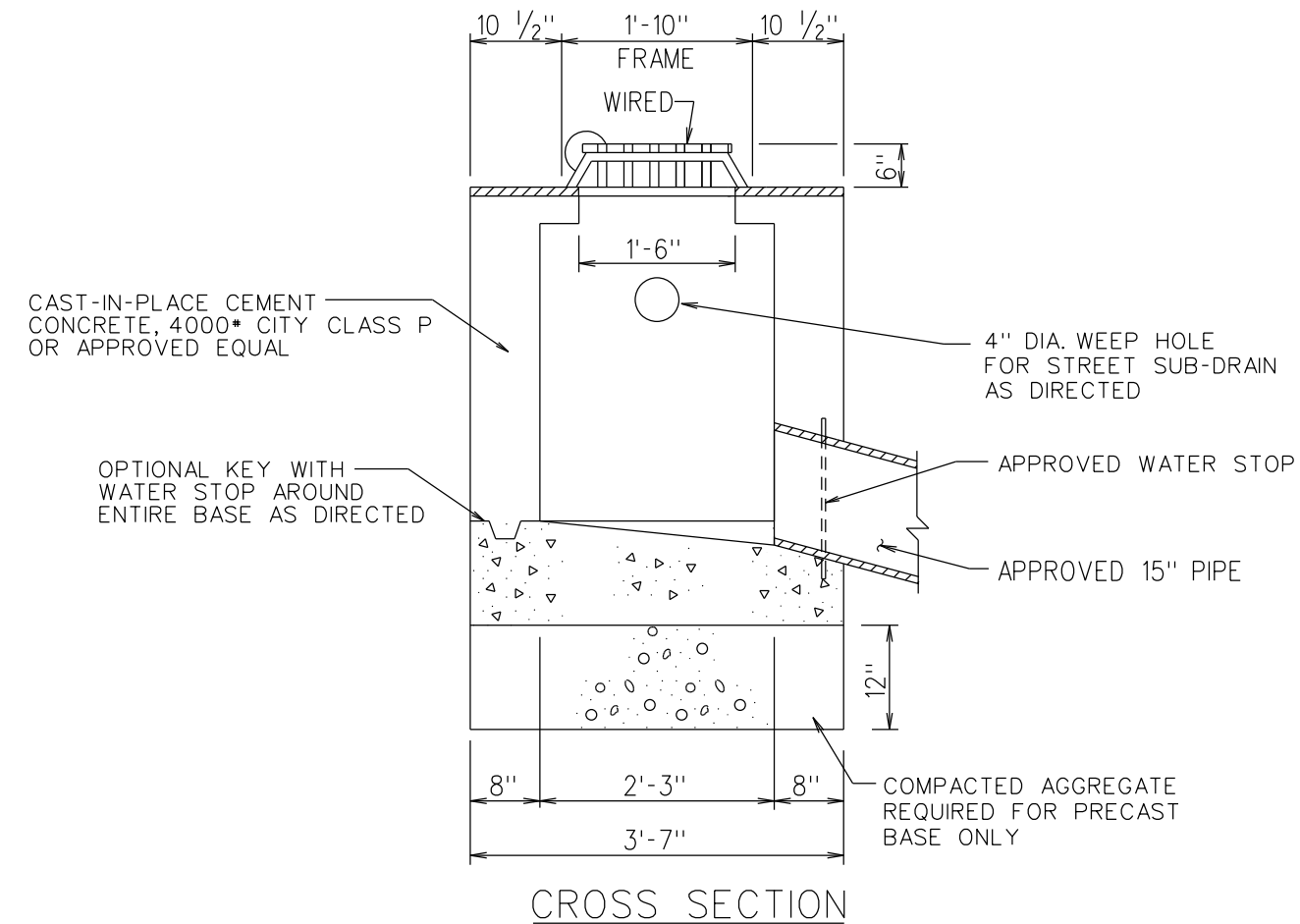


LONGITUDINAL SECTION

NOTES:

1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P, 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
3. ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
4. CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. HOOD AND TRAP MUST BE SEALED TO STORM INLET WALL WITH APPROVED SEALER.

FRAME & GRATE SCHEDULE		
CB TYPE	FRAME NO.	GRATE NO.
BASKET	TYPE AC	TYPE C



CROSS SECTION

R E V I S I O N S	
1. MSR 4-23-02	
2. MAC 3-9-04	
3. LRC 1-31-14	
Approved by:	



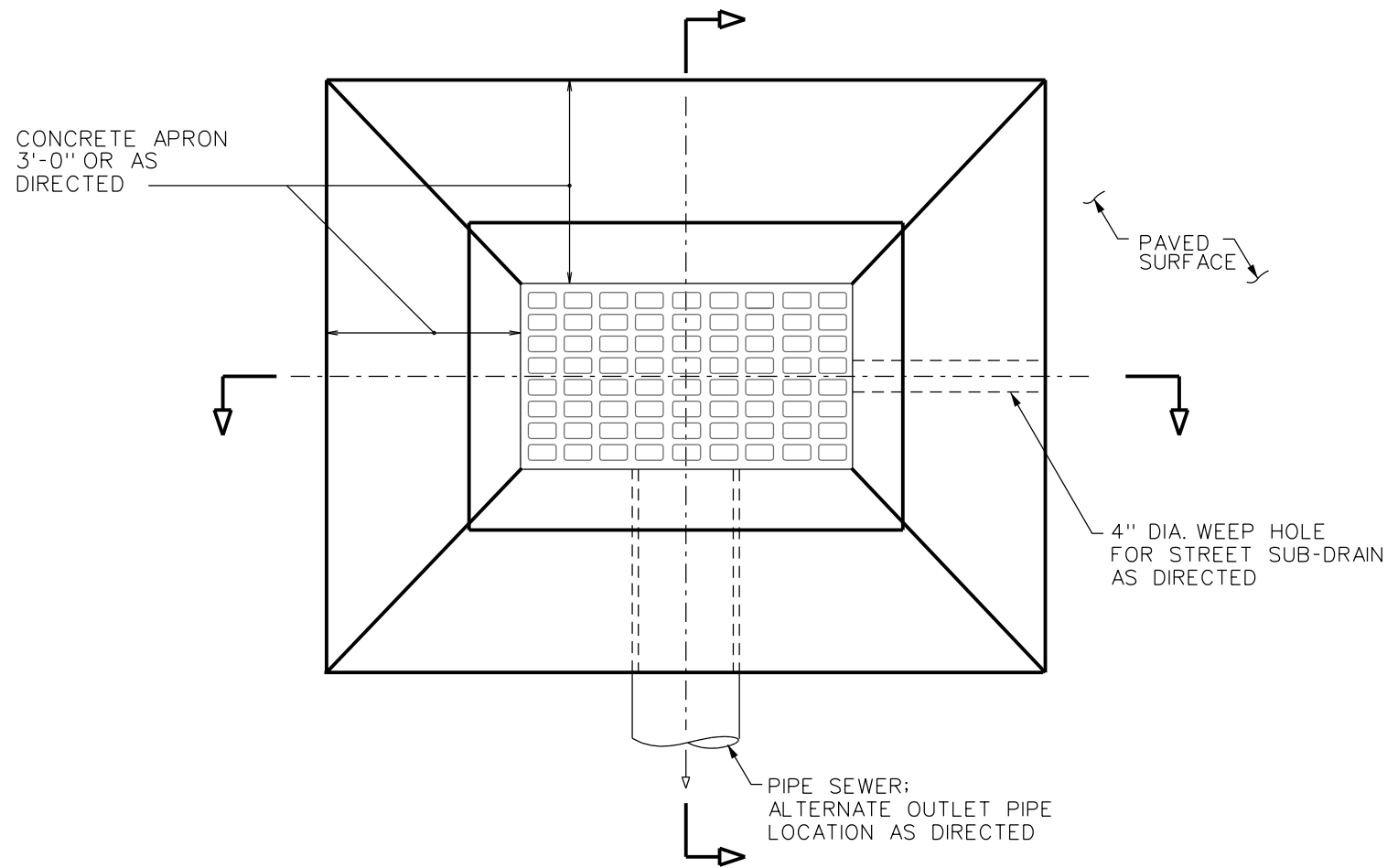
The Pittsburgh Water and Sewer Authority

Storm Inlet Type 5 Basket Grate

Scale: N.T.S.

Supplemental Detail Drawing: **SI5**

M:\pwsa\gis\det\Standards\stds5.det

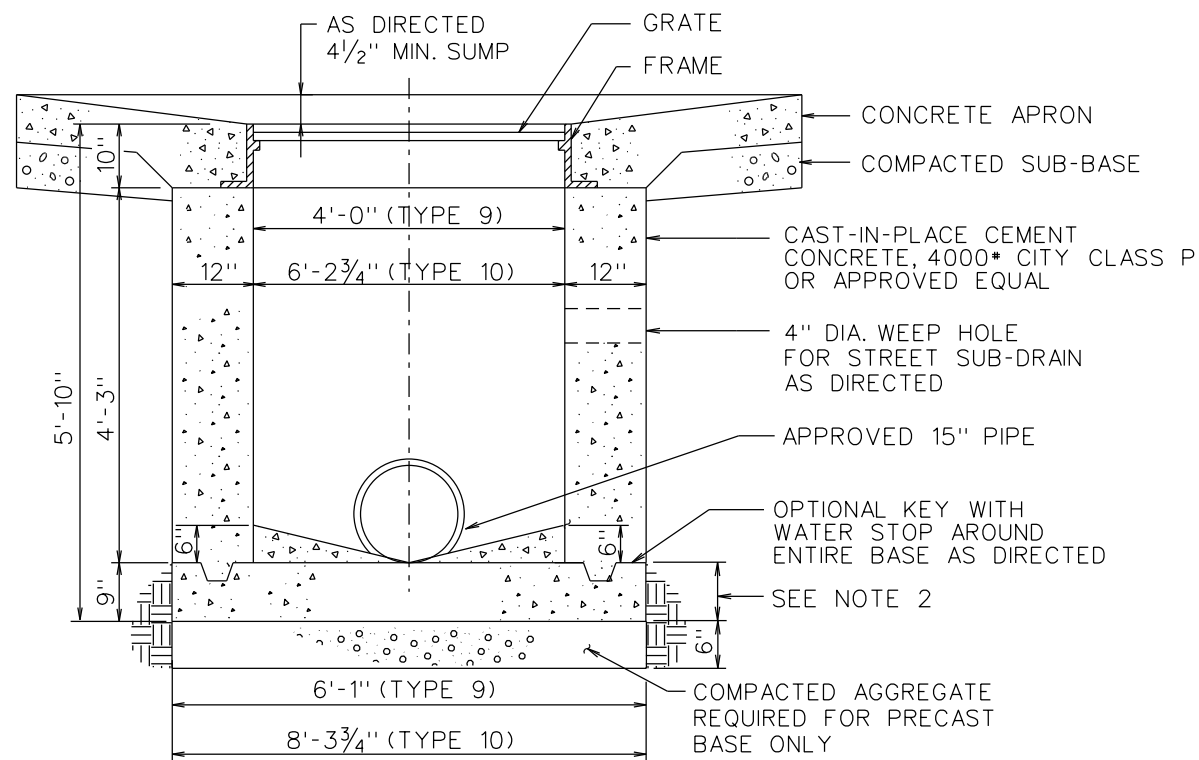


PLAN

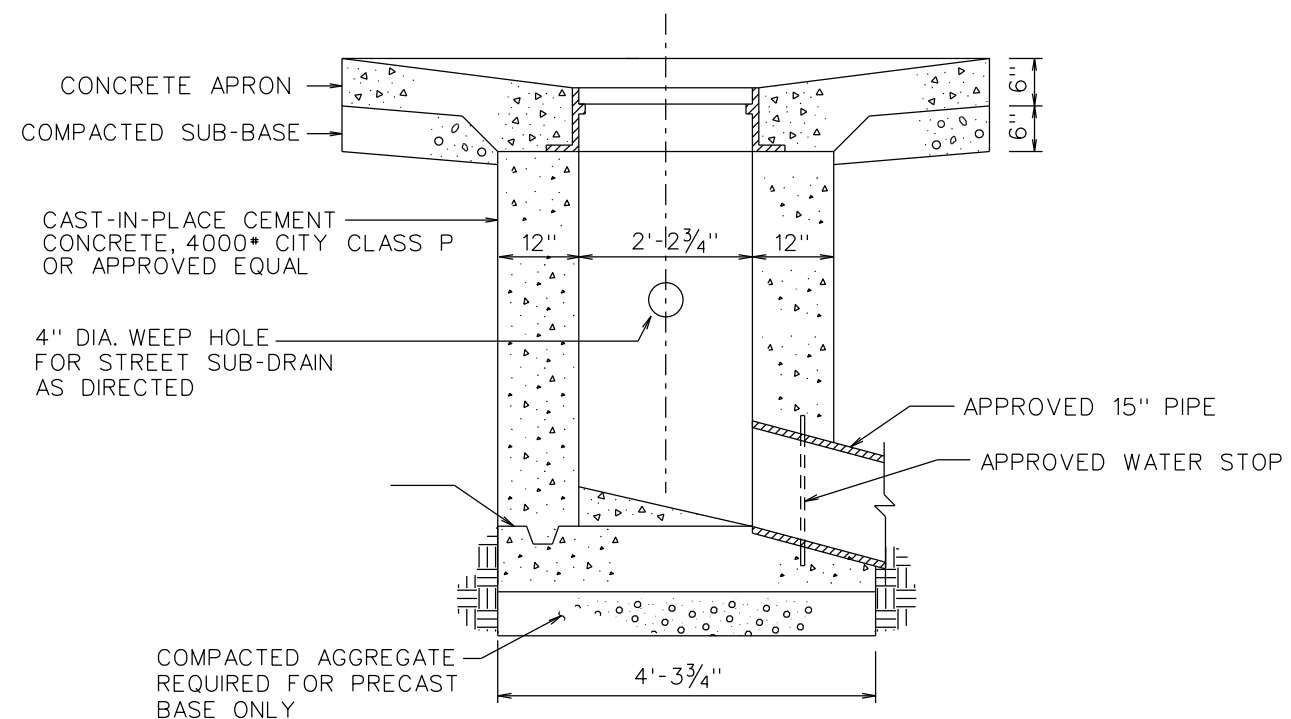
FRAME & GRATE SCHEDULE		
SITYPE	FRAME	GRATE
9	TYPE AB	TYPE A
10	TYPE BB	TYPE B

NOTES:

1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
3. ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
4. CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. HOOD AND TRAP MUST BE SEALED TO STORM INLET WALL WITH APPROVED SEALER.



LONGITUDINAL SECTION



CROSS SECTION

R E V I S I O N S	
1. MSR	4-23-02
2. MAC	3-9-04
3. MAC	5-19-09

Approved by:



Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority

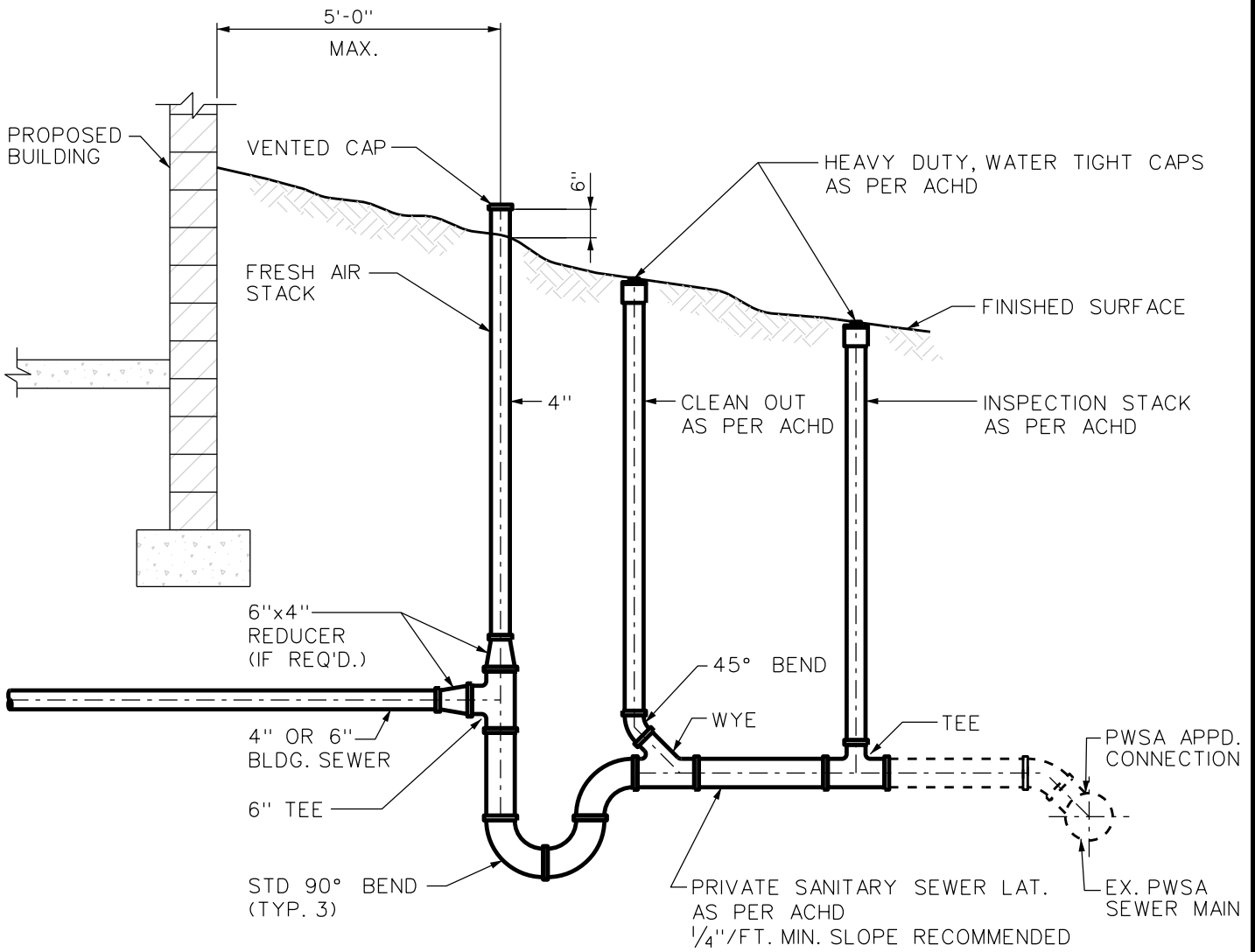
Storm Inlet Type 9 And Type 10

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stds\9n10.det

Supplemental
Detail Drawing:

SI9N10



ACCEPTABLE PIPE GRADES: SDR 35 OR ASTM 3034 SCH 40 PVC MAY BE USED.

NOTES:

1. CONTRACTOR MUST CONTACT PWSA FOR SEWER INSPECTION PRIOR TO BACKFILLING TAP CONNECTION ON SEWER MAIN.
2. 4" DIA. PIPE MAY BE USED ON SEPERATE SANITARY CONNECTION.

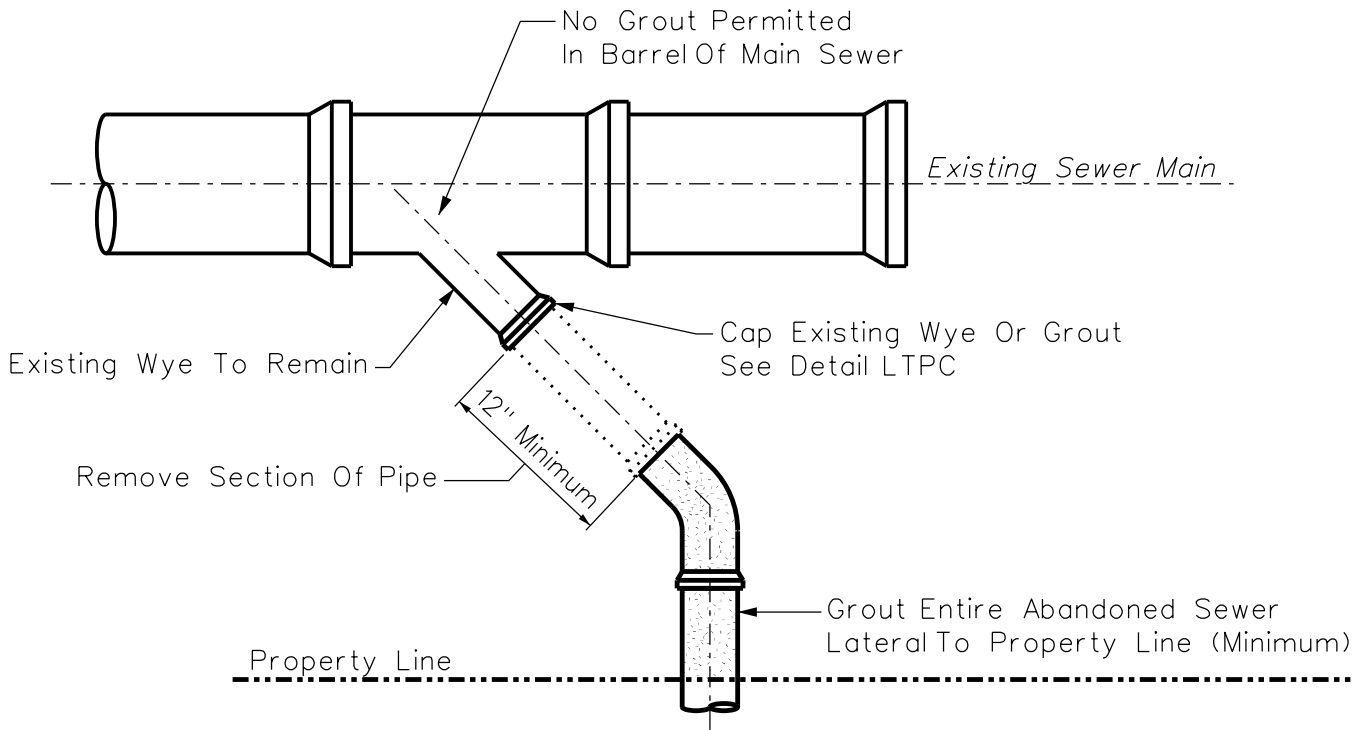
5/19/2015

R E V I S I O N S	
1.	MSR 4-18-01
2.	LRC 1-31-14
Approved by:	

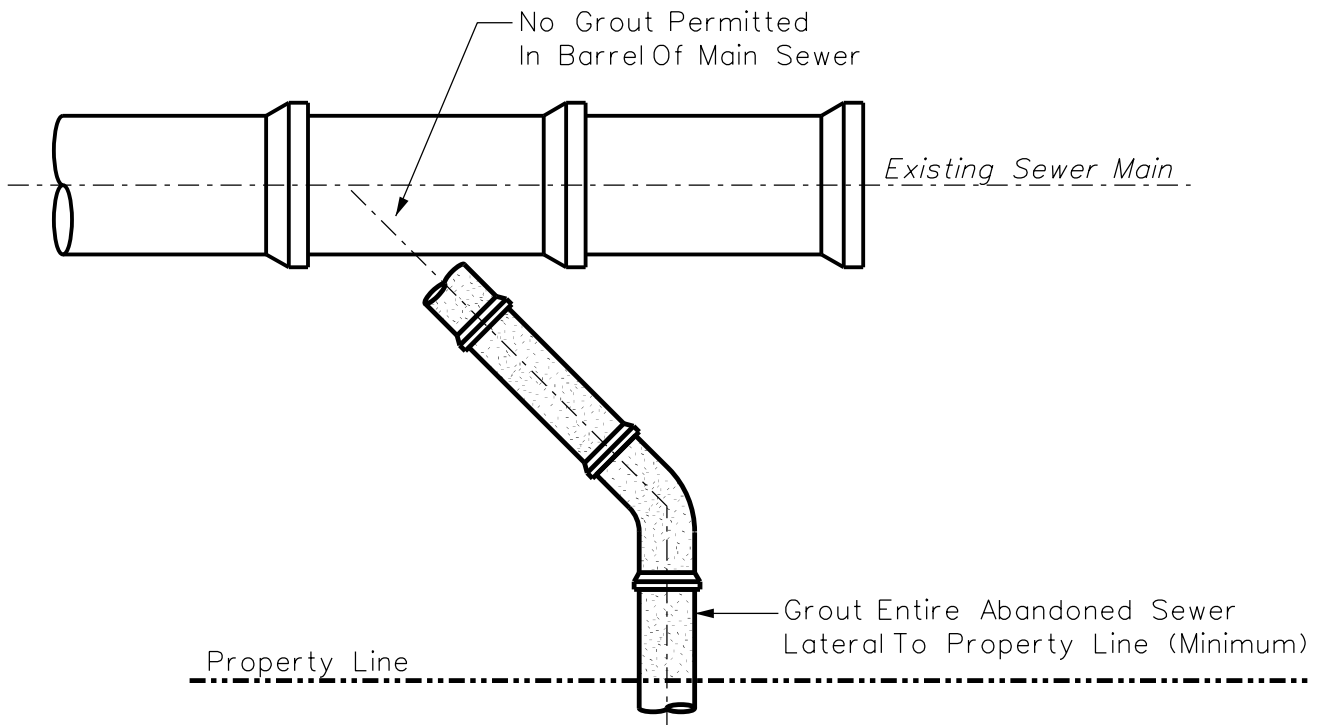
PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
House Sewer Lateral

Scale: N.T.S.	Supplemental Detail Drawing: SLD-1
M:\pwsa\gis\det\Standards\stds\dl.det	



PLAN VIEW ALT. 1



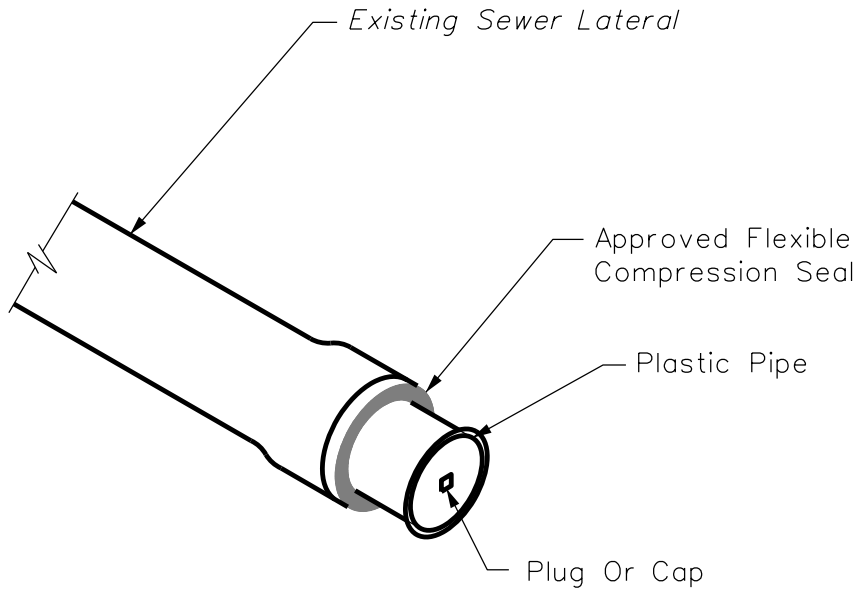
PLAN VIEW ALT. 2

5/19/2015

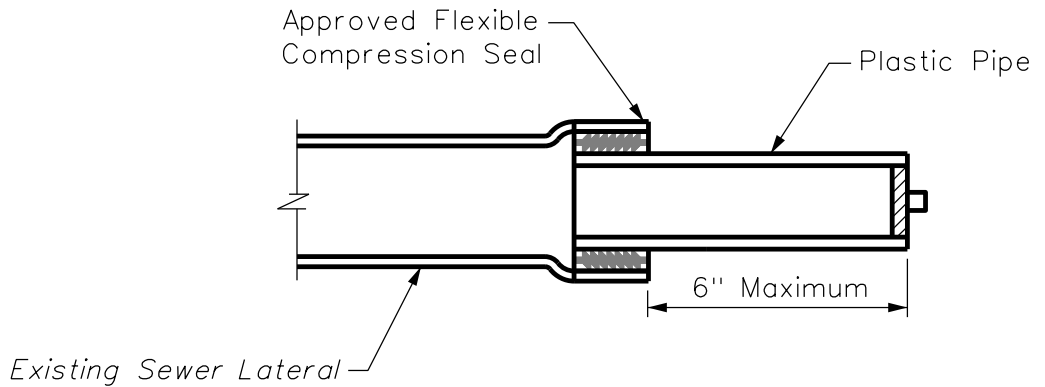
R E V I S I O N S	
1. MAC 3-13-03	
2. LRC 1-31-14	
Approved by:	



The Pittsburgh Water and Sewer Authority	
Termination Sewer Lateral	
Scale: N.T.S.	Supplemental Detail Drawing: SLT1
M:\pwsa\gis\det\Standards\stdsl.tl.det	



PIPE SEWER END DETAIL w/COMPRESSION JOINT SEALER



PIPE SEWER END SECTION

5/19/2015

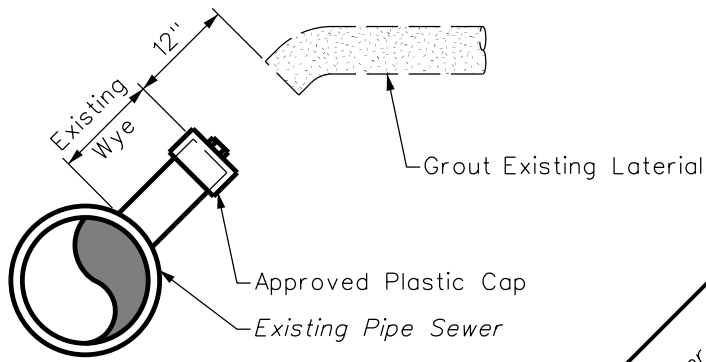
R E V I S I O N S	
1. MAC 3-13-03	
2. LRC 1-31-14	
Approved by:	

PGH₂O
Pittsburgh
Water & Sewer
Authority

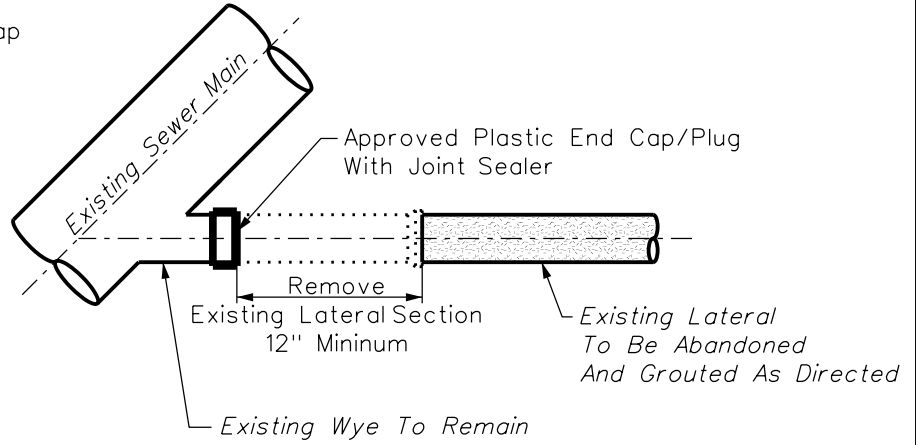
The Pittsburgh Water and Sewer Authority
**Plastic Pipe Sewer End Cap
Compression Joint Sealer**

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdslt2.det

Supplemental
Detail Drawing: **SLT2**

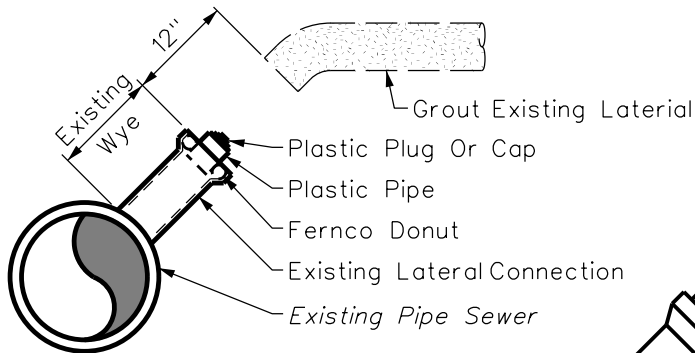


SECTION

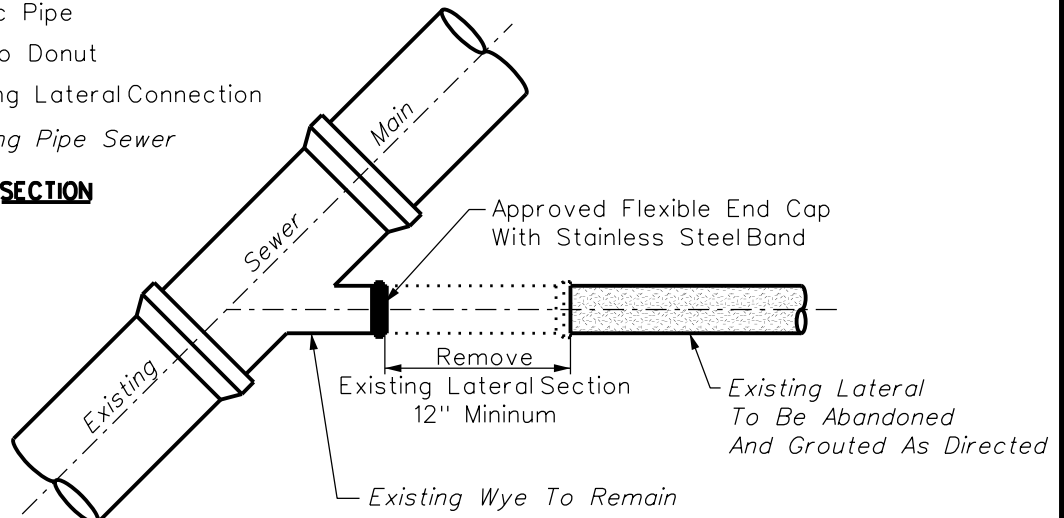


PLAN

APPROVED PLASTIC CAP/PLUG DETAIL



SECTION



PLAN

APPROVED FLEXIBLE COMPRESSION CAP DETAIL

5/19/2015

R E V I S I O N S	
1. MAC 3-13-03	
2. LRC 1-31-14	

Approved by:



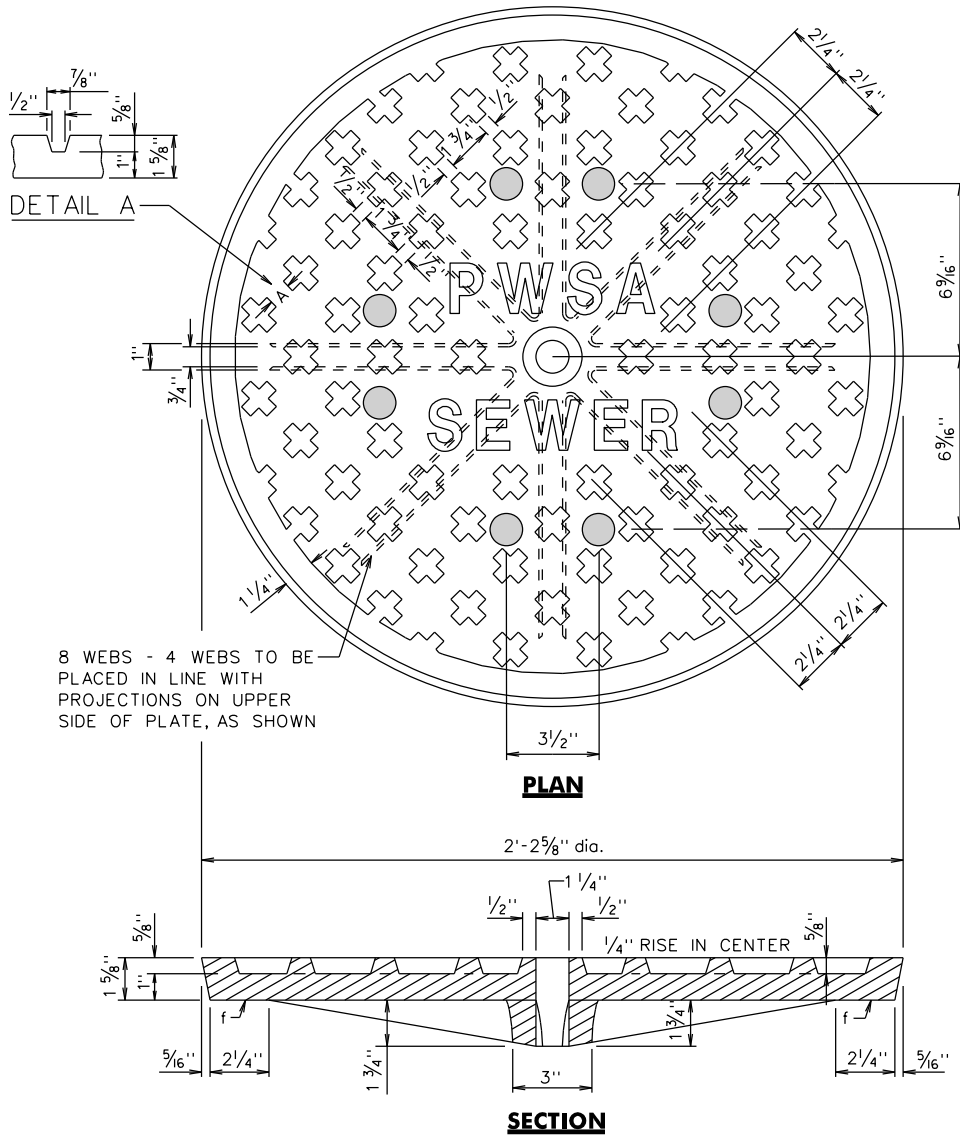
The Pittsburgh Water and Sewer Authority
**Termination House Lateral
 Wye Connection To Main**

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdslt3.det

Supplemental
 Detail Drawing:

SLT3



NOTES:

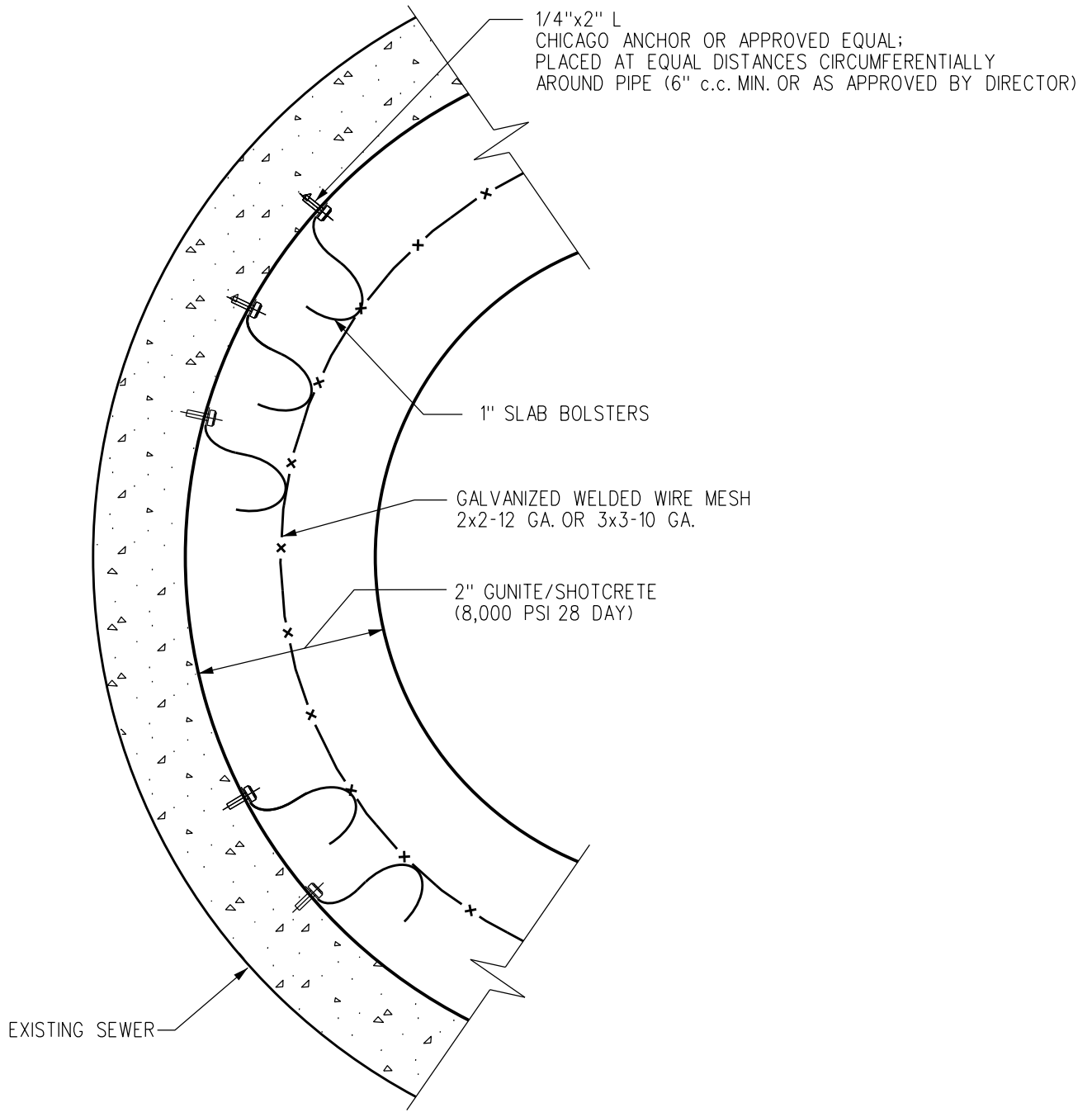
1. 2" HIGH LETTERING SHALL NOTE "PWSA" AND "SEWER" FOR ALL COMBINATION AND SANITARY SEWERS. FOR STORM ONLY SEWERS, CHANGE THE LABEL "SEWER" TO "STORM".
2. FRAMES AND COVERS MUST BE MACHINED TO INSURE GOOD BEARING AND PROPER FIT IN ANY POSITION.
3. VENT HOLES IN LID REQUIRED FOR COMBINATION AND SANITARY SEWERS (AS DIRECTED). VENT HOLES IN LID FOR STORM SEWERS ARE OPTIONAL.
4. CAST IRON SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS, ASTM DESIGNATION: A48 CLASS No. 30B MINIMUM STRENGTH.

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. MAC 3-2-05	
3. DWP 10-20-05	
4. MAC 8-13-07	
Approved by:	



The Pittsburgh Water and Sewer Authority	
Sewer Manhole Cover Casting	
Scale: N.T.S.	Supplemental Detail Drawing: SMHCOV
M:\pwsa\gis\det\Standards\stdsmhcov.det	



1/4"x2" L
 CHICAGO ANCHOR OR APPROVED EQUAL;
 PLACED AT EQUAL DISTANCES CIRCUMFERENTIALLY
 AROUND PIPE (6" c.c. MIN. OR AS APPROVED BY DIRECTOR)

1" SLAB BOLSTERS

GALVANIZED WELDED WIRE MESH
 2x2-12 GA. OR 3x3-10 GA.

2" GUNITES/SHOTCRETE
 (8,000 PSI 28 DAY)

EXISTING SEWER

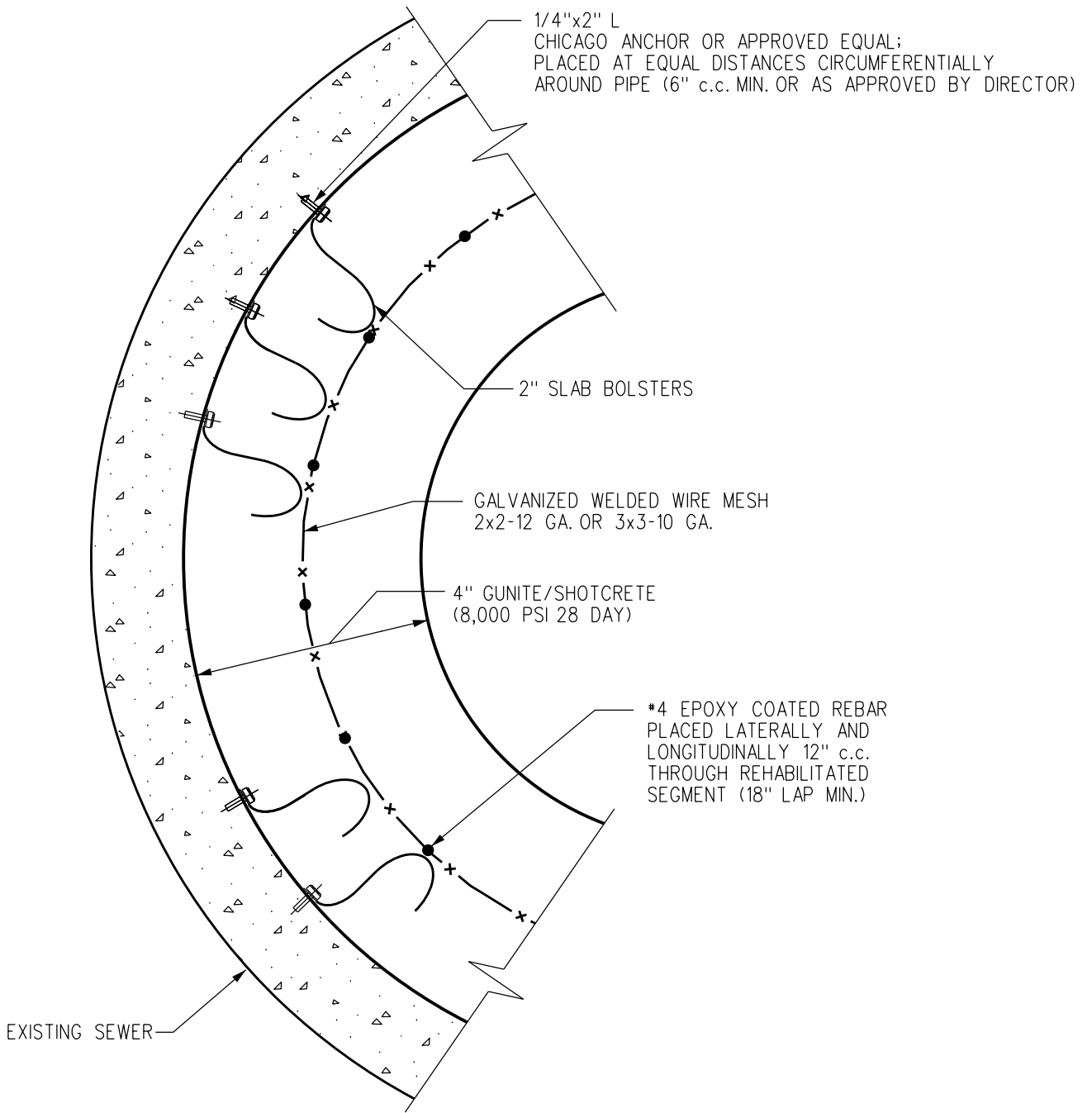
5/19/2015

R E V I S I O N S	
1. MSR	6-4-02
2. RDH	12-2-05
3. LRC	1-31-14
Approved by:	

PGH₂O
 Pittsburgh
 Water & Sewer
 Authority

The Pittsburgh Water and Sewer Authority
**GUNITES / SHOTCRETE
 REHABILITATION
 (2" THICK)**

Scale: N.T.S.	Supplemental Detail Drawing: SR2
M:\pwsa\gis\det\Standards\stdsr2.det	



5/19/2015

R E V I S I O N S	
1. MSR	6-4-02
2. RDH	12-2-05
3. LRC	1-31-14

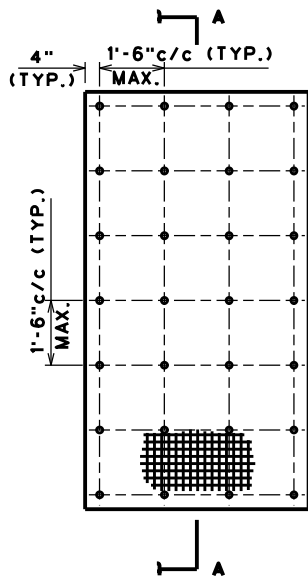
Approved by: _____

PGH₂O
Pittsburgh
Water & Sewer
Authority

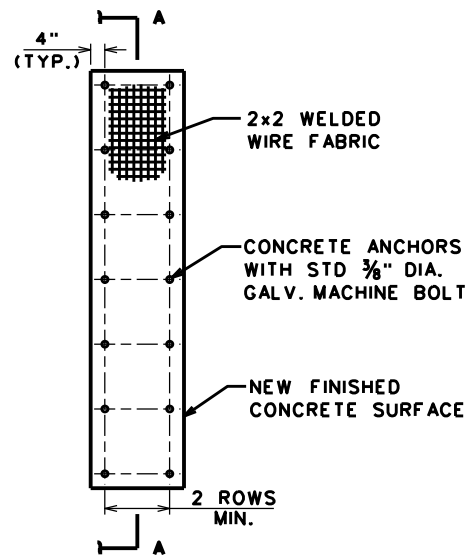
The Pittsburgh Water and Sewer Authority
**GUNITE / SHOTCRETE
REHABILITATION
(4" THICK)**

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdsr4.det

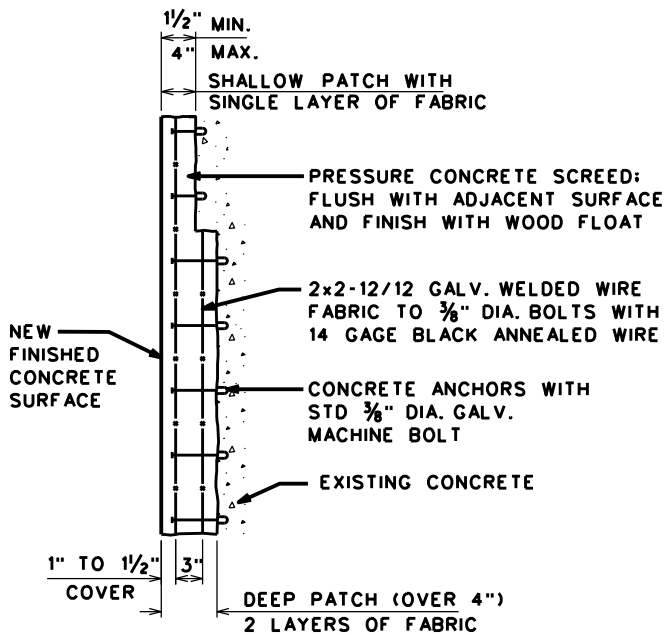
Supplemental
Detail Drawing: **SR4**



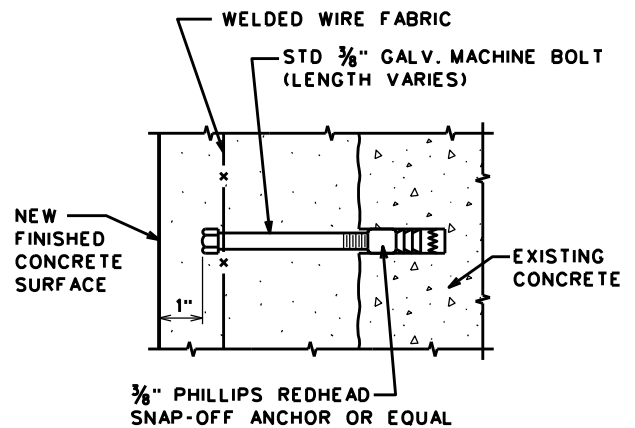
LARGE PATCH



SMALL PATCH



SECTION A-A (TYP.)



ANCHOR DETAIL

5/19/2015

R E V I S I O N S	
1. MSR 6-3-01	
2. LRC 1-31-14	
Approved by:	



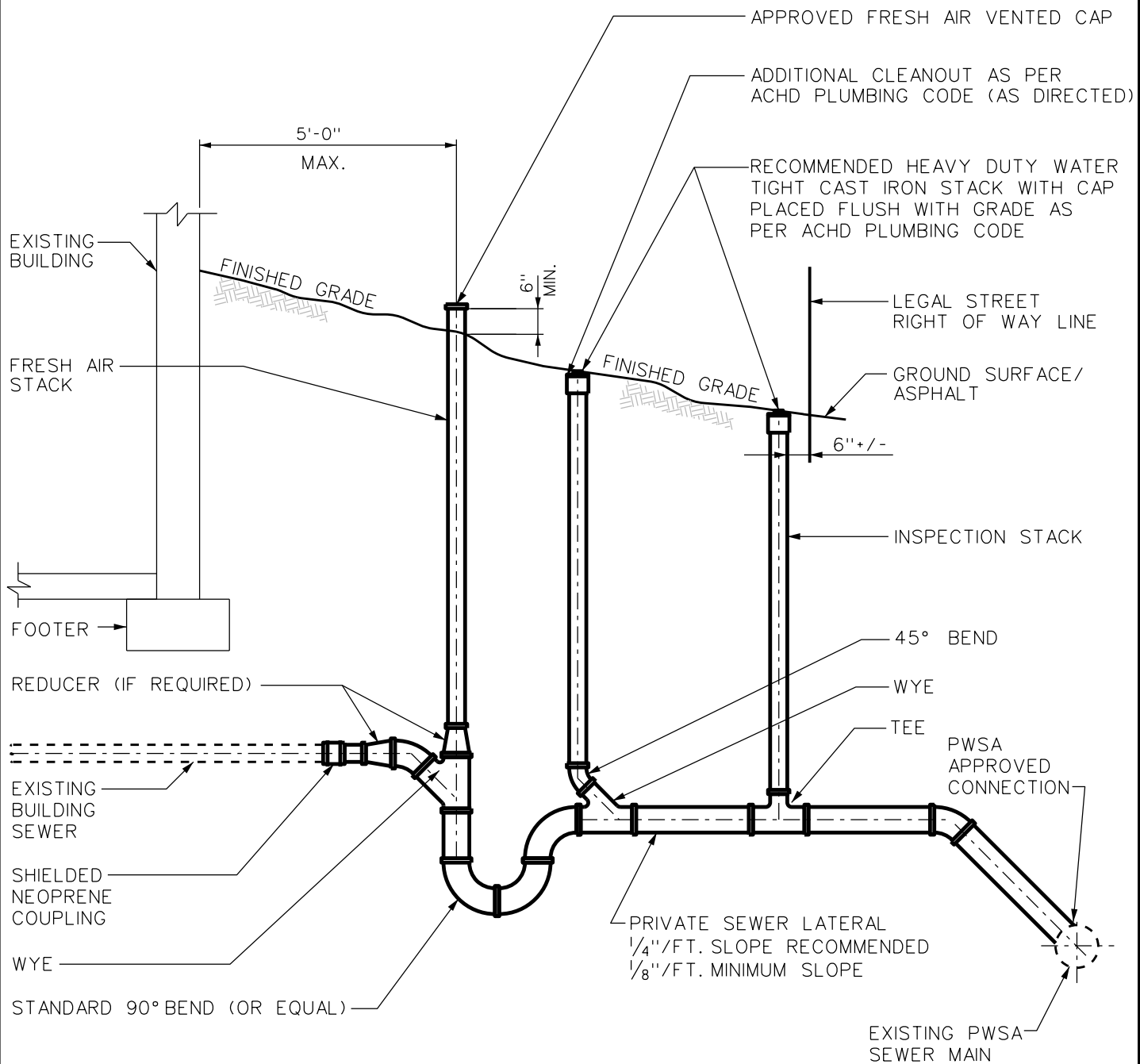
The Pittsburgh Water and Sewer Authority

Structural Repair

Scale: N.T.S.

Supplemental Detail Drawing: **SRD**

M:\pwsa\gis\det\Standards\stdsrd.det



NOTE:
 CONTRACTOR MUST CONTACT PWSA AND/OR ACHD FOR ALL REQUIRED TAP-IN PERMITS AND TRUNK LINE SEWER CONNECTION INSPECTION PRIOR TO BACKFILLING. ALL PIPE TO BE BEDDED AND SURROUNDED BY FIRMLY COMPACTED CLEAN SELECTED MATERIAL. THE PIPE MUST BE INSTALLED SURROUNDED BY COMPACTED CLEAN SELECTED BACKFILL. REFER TO CURRENT ACHD PLUMBING CODE ARTICLE XV FOR ADDITIONAL SPECIFICATIONS.

5/19/2015

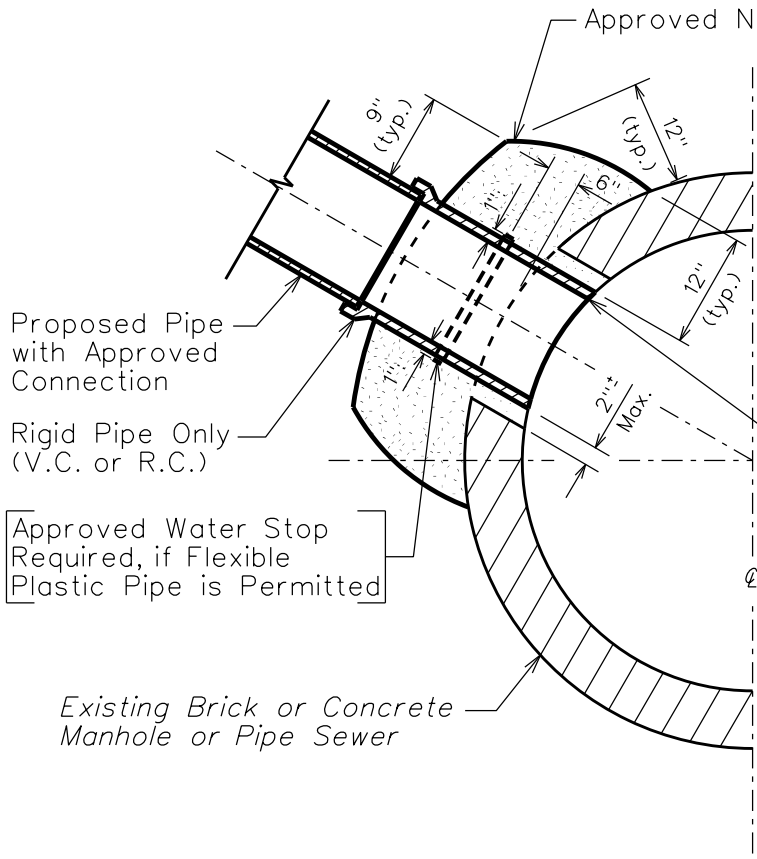
R E V I S I O N S	
1. MSR 4-18-01	
2. MAC 3-2-05	
3. DWP 10-20-05	
4. LRC 1-31-14	
Approved by:	



The Pittsburgh Water and Sewer Authority

Private Sewer Lateral Reconnection

Scale: N.T.S.	Supplemental Detail Drawing: SS-1
M:\pwsa\gis\det\Standards\stdssl.det	



Note:

Core drill neat hole into existing manhole/pipe sewer no greater than 30% of the manhole/pipe sewer diameter. No part of the proposed work shall extend past the inside face of the existing manhole/pipe sewer. (Direct connection of a sewer lateral to a PWSA manhole is not permitted)

Proposed Pipe with Approved Connection

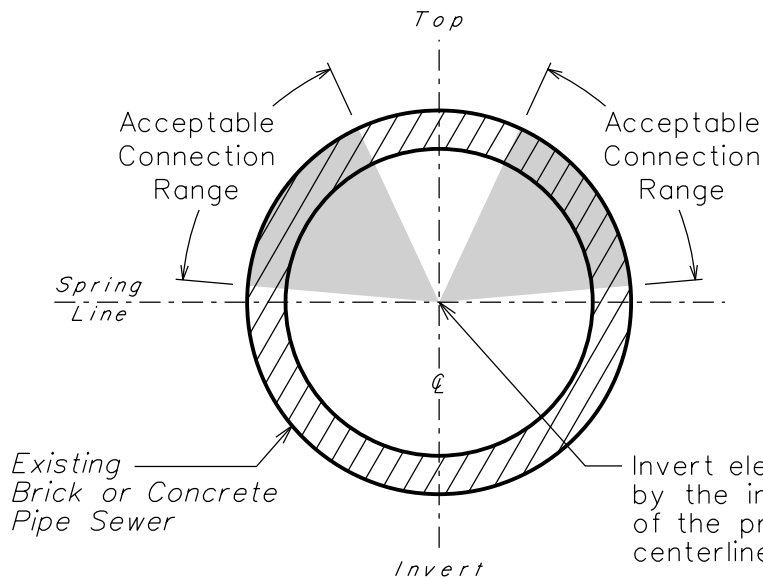
Rigid Pipe Only (V.C. or R.C.)

Approved Water Stop Required, if Flexible Plastic Pipe is Permitted

Existing Brick or Concrete Manhole or Pipe Sewer

NOTE:

When tapping existing manholes, caution should be taken not to impact manhole steps.



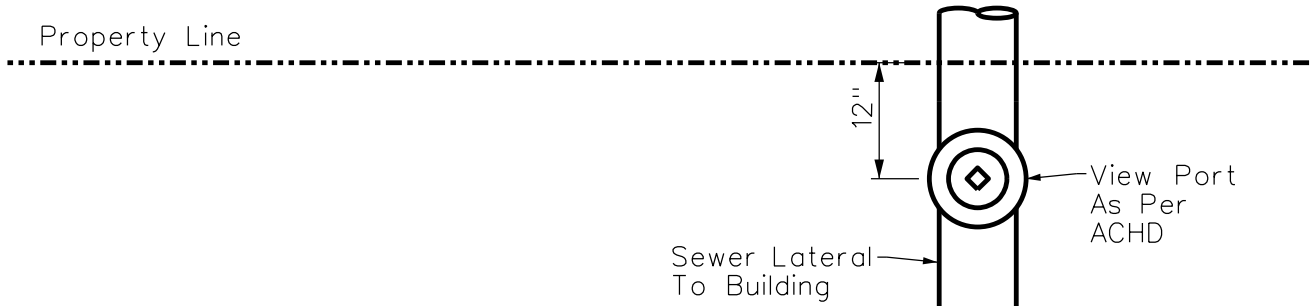
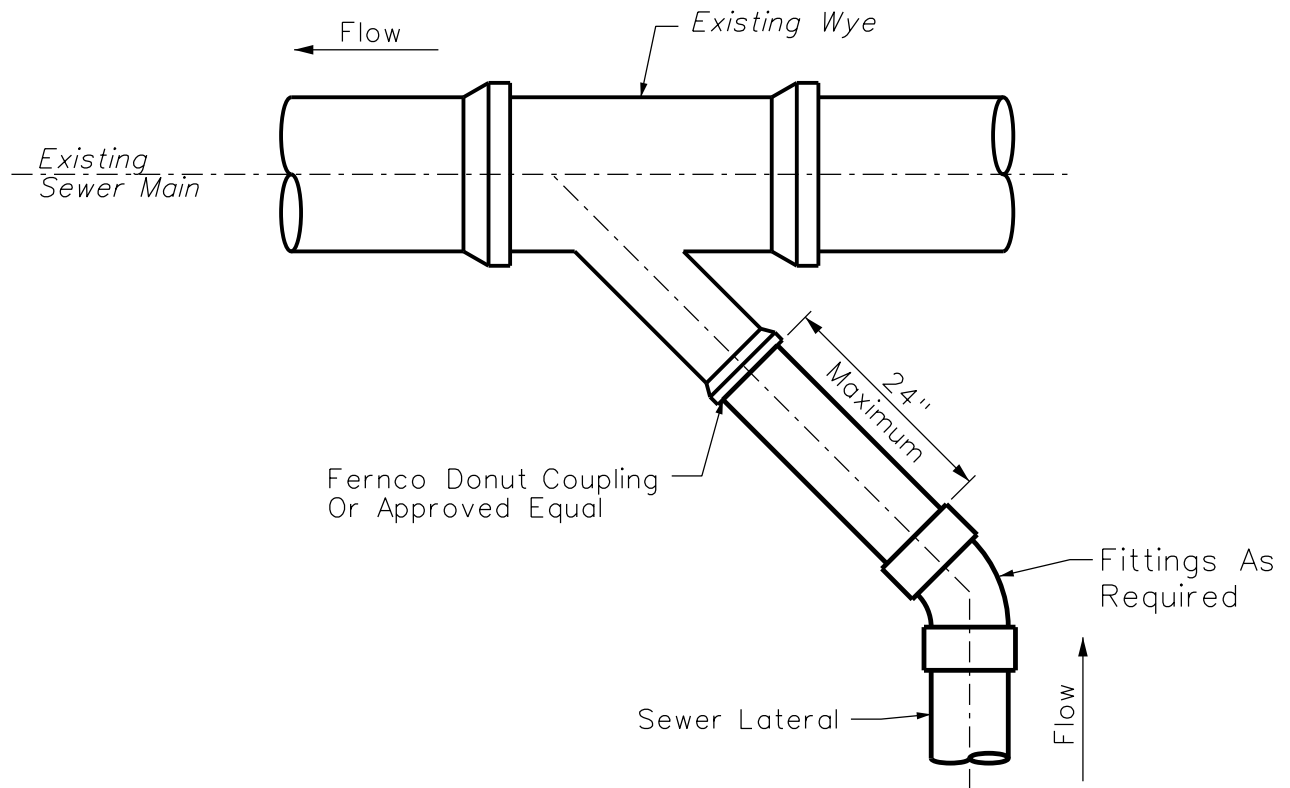
Invert elevation is determined by the intersection of the slope of the proposed pipe with the centerline of the existing pipe sewer.

5/19/2015

R E V I S I O N S	
1.	MSR 4-18-01
2.	DWP 9-15-05
3.	MAC 11-3-08
4.	LRC 1-31-14
Approved by:	



The Pittsburgh Water and Sewer Authority Manhole / Pipe Sewer Cored Wye Connection	
Scale: N.T.S.	Supplemental Detail Drawing: SSC-1
<small>M:\pwsa\gis\det\Standards\stdssc1.det</small>	



PLAN VIEW

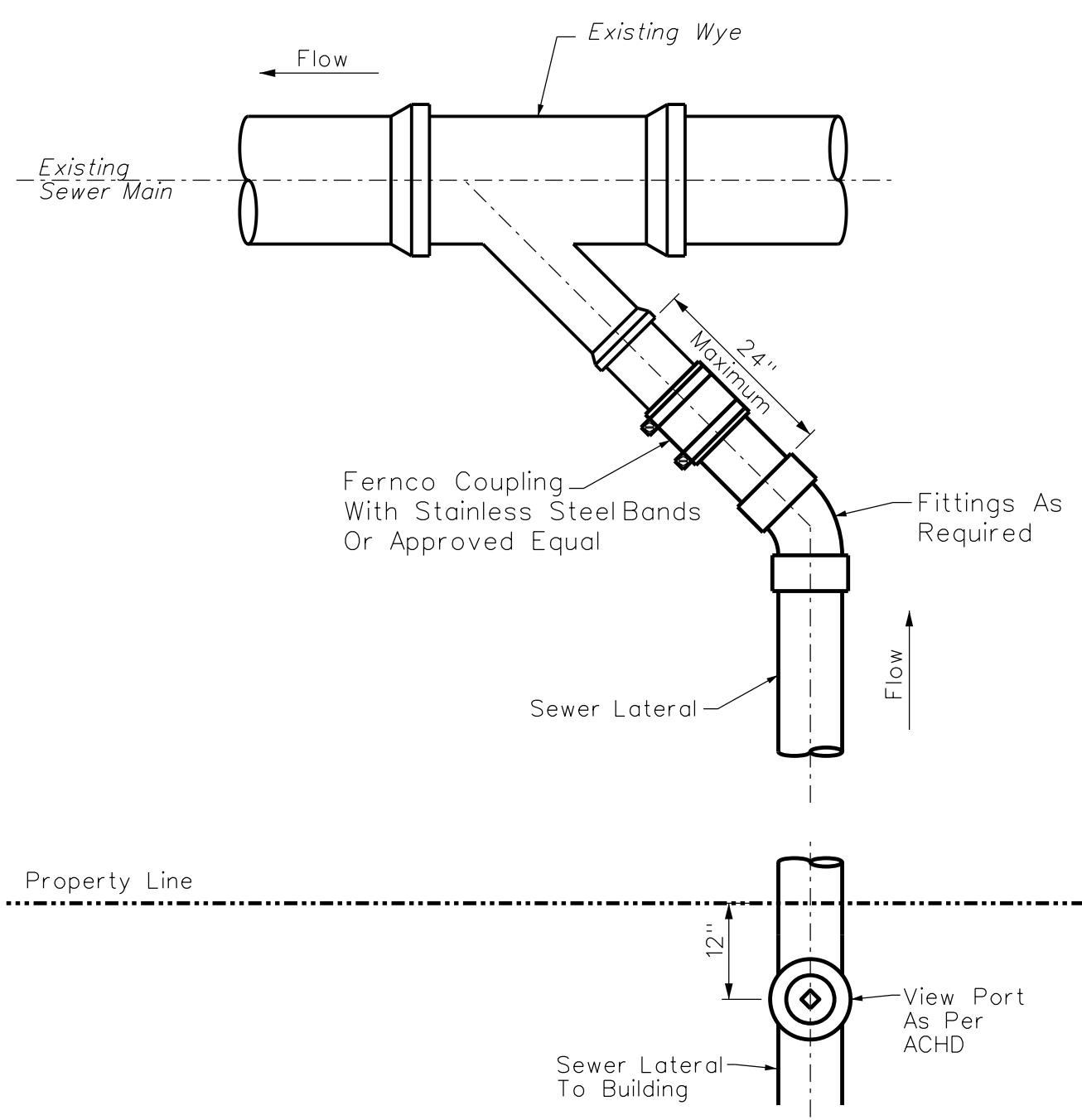
5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	
Approved by:	

PGH₂O
 Pittsburgh
 Water & Sewer
 Authority

The Pittsburgh Water and Sewer Authority
Sewer Tap To Existing Sewer Wye

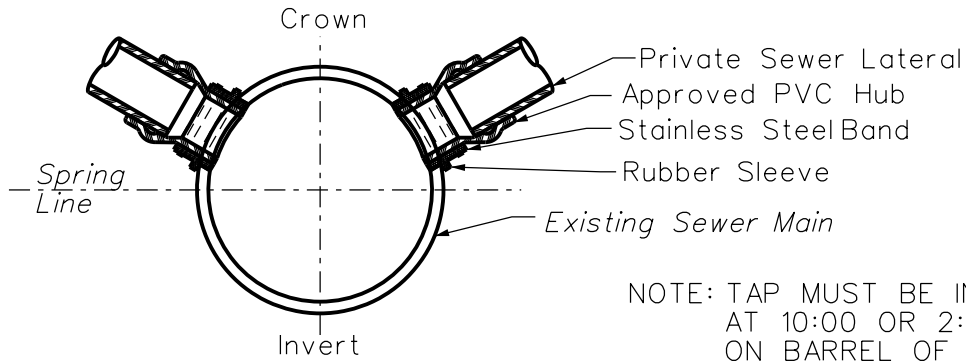
Scale: N.T.S.	Supplemental Detail Drawing:
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PLAN VIEW

5/19/2015

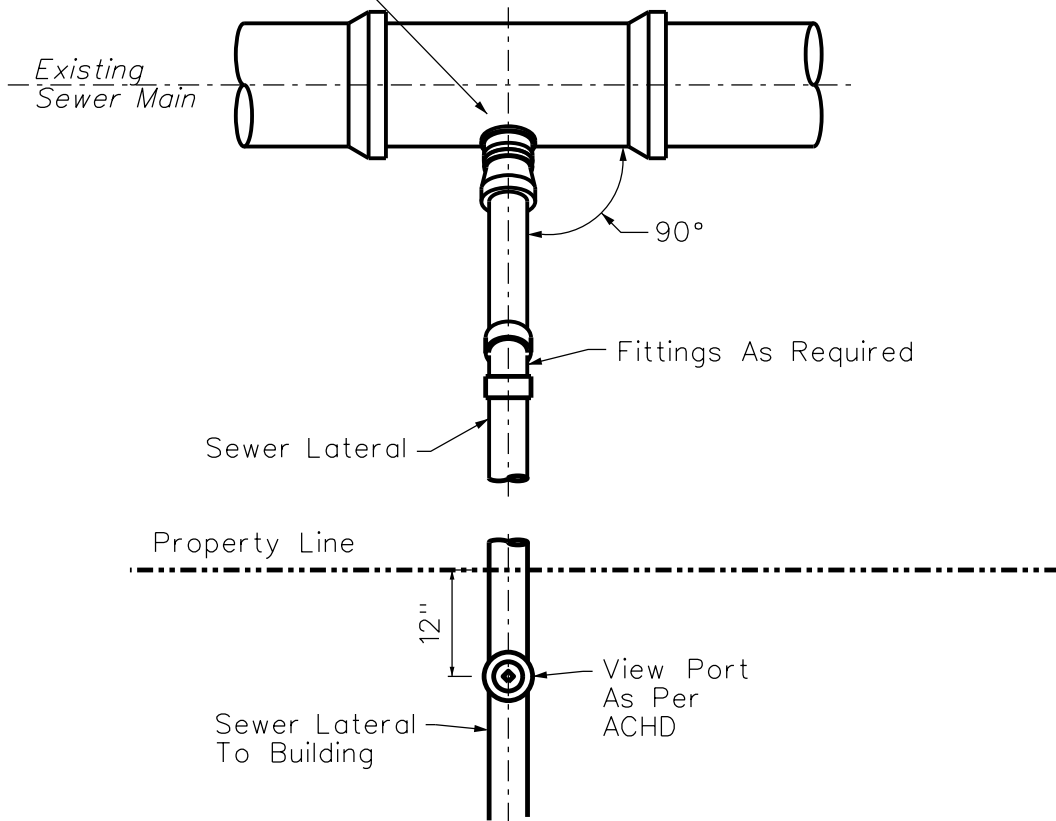
<p style="text-align: center;">R E V I S I O N S</p>			<p>The Pittsburgh Water and Sewer Authority</p> <p>Sewer Tap To Existing Sewer Wye</p>	
<p>1. MSR 4-18-01</p>			<p>Scale: N.T.S.</p>	<p>Supplemental Detail Drawing: ST-2</p>
<p>Approved by:</p>			<p>M:\pwsa\gis\det\Standards\stdst2.det</p>	



NOTE: TAP MUST BE INSTALLED AT 10:00 OR 2:00 O'CLOCK ON BARREL OF SEWER MAIN.

INSERTA TEE CONNECTION DETAIL
OR APPROVED EQUAL

APPROVED INSERTA TEE CONNECTIONS WITH PVC HUB, RUBBER GASKET, AND STAINLESS STEEL BAND OR APPROVED EQUAL. CORE DRILL NEAT HOLE INTO EXISTING PIPE SEWER; NO GREATER THAN 25% OF EXISTING PIPE SEWER DIAMETER PERMITTED.



PLAN VIEW

5/19/2015

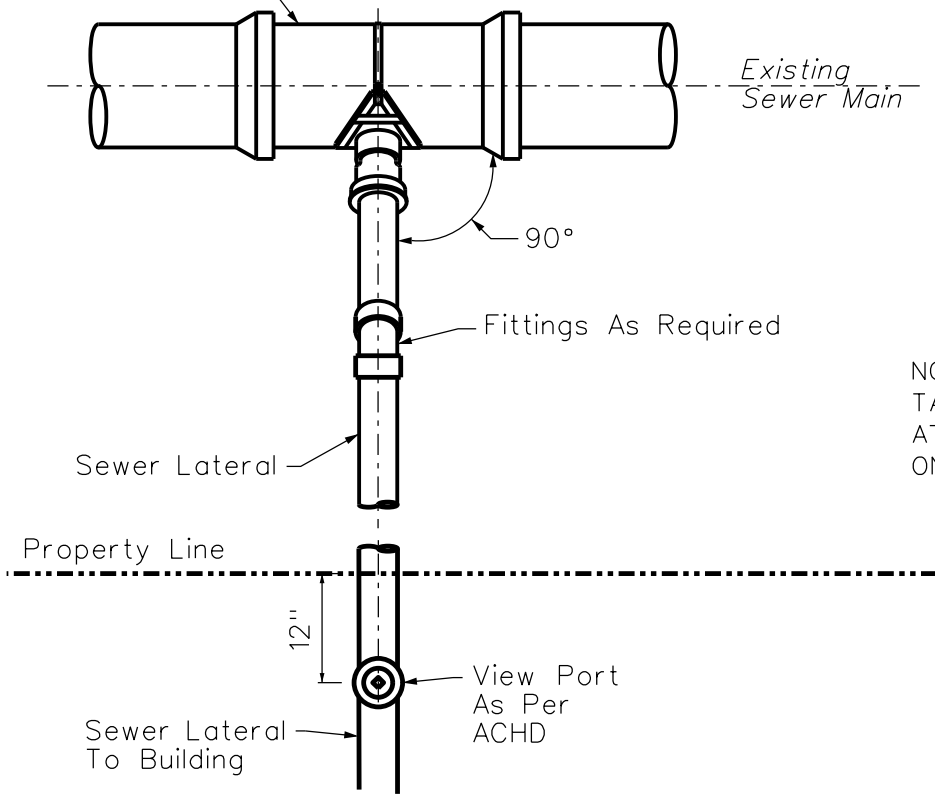
R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	
Approved by:	

PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Sewer Tap Tee Connection
To Existing Sewer Main**

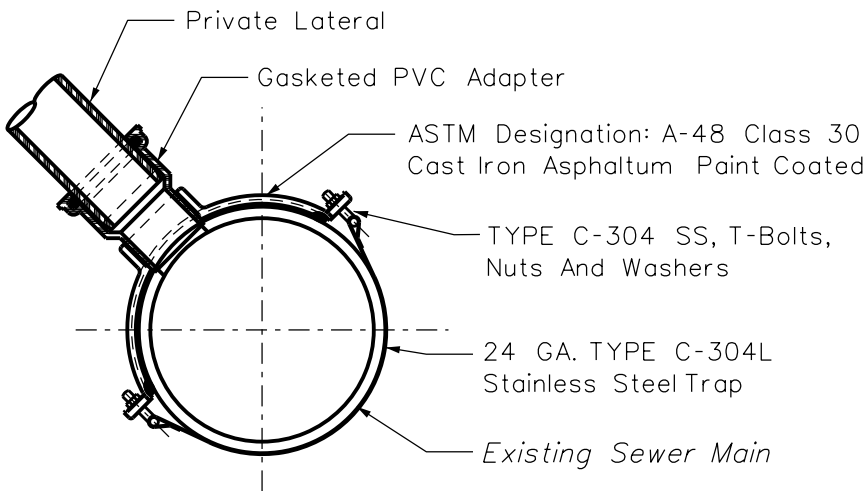
Scale: N.T.S.	Supplemental Detail Drawing: ST-3
M:\pwsa\gis\det\Standards\stdst3.det	

APPROVED SADDLE CONNECTIONS GENECO SEALTITE CAST IRON SADDLE WITH O-RING AND STAINLESS STEEL STRAP, OR FERNCO EZ TAP SEWER SADDLE. CORE DRILL NEAT HOLE INTO EXISTING PIPE SEWER; NO GREATER THAN 25% OF EXISTING PIPE SEWER DIAMETER PERMITTED.



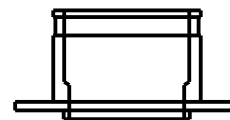
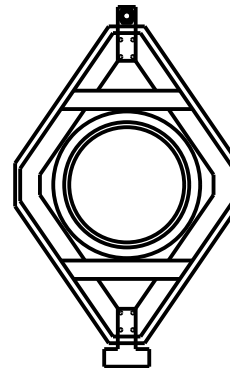
PLAN VIEW

NOTE:
TAP MUST BE INSTALLED AT 10:00 OR 2:00 O'CLOCK ON BARREL OF SEWER MAIN.



SEALTITE SEWER PIPE SADDLE OR APPROVED EQUAL ALT. #1

SECTION VIEW



FERNCO EZ TAP SEWER PIPE SADDLE OR APPROVED EQUAL ALT. #2

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	
2. MAC 3-2-05	
3. LRC 1-31-14	

Approved by:



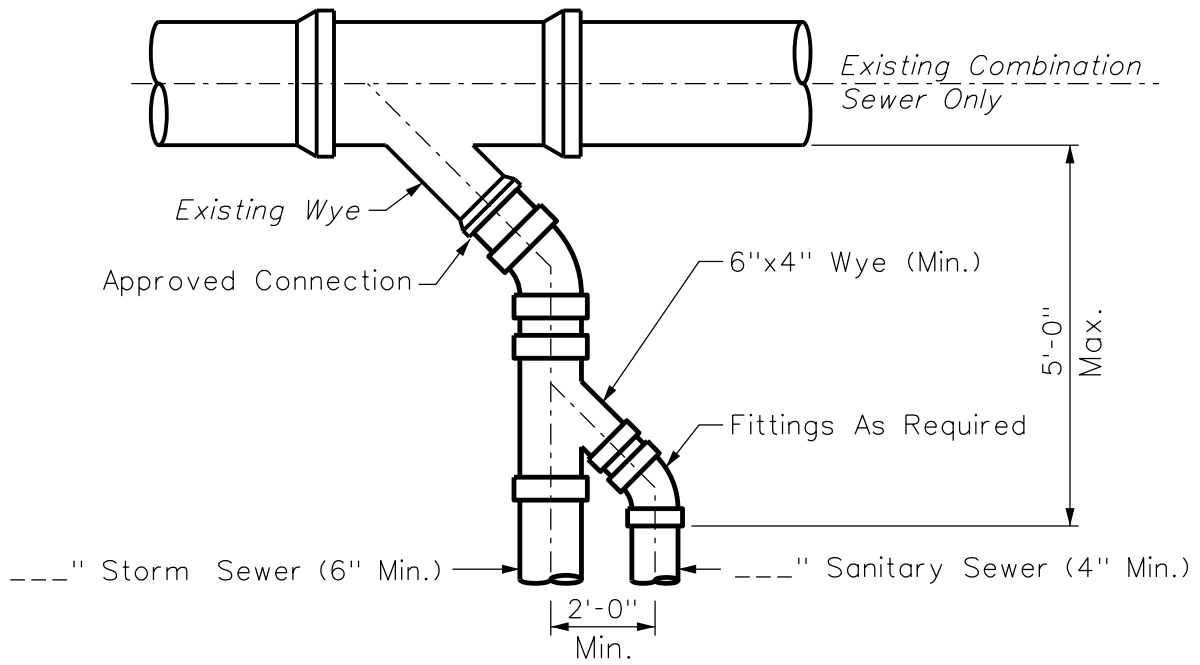
The Pittsburgh Water and Sewer Authority
**Sewer Tap Saddle Connection
To Existing Sewer Main**

Scale: N.T.S.

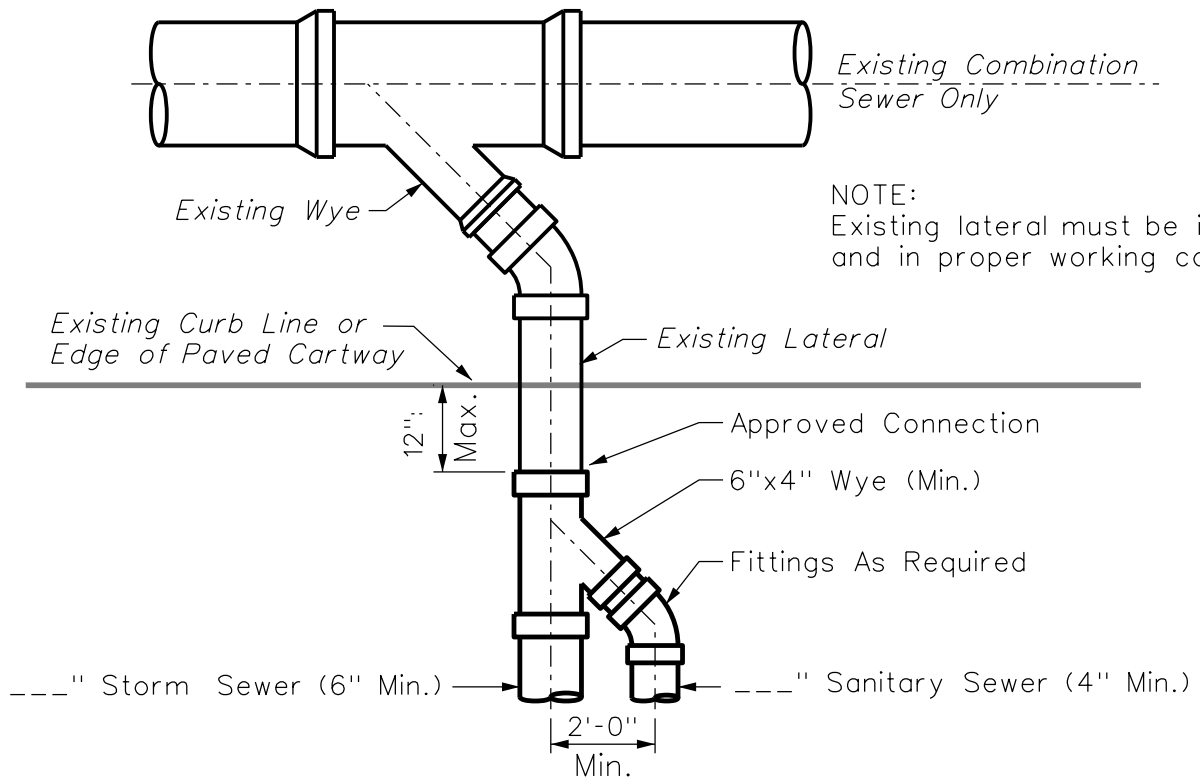
M:\pwsa\gis\det\Standards\stdst4.det

Supplemental
Detail Drawing:

ST-4



NEW CONSTRUCTION
PLAN VIEW DETAIL



NOTE:
Existing lateral must be inspected and in proper working condition.

MODIFICATION TO EXISTING STRUCTURE OR FACILITY
PLAN VIEW DETAIL

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	
2. DWP 12-16-04	
3. LRC 1-31-14	

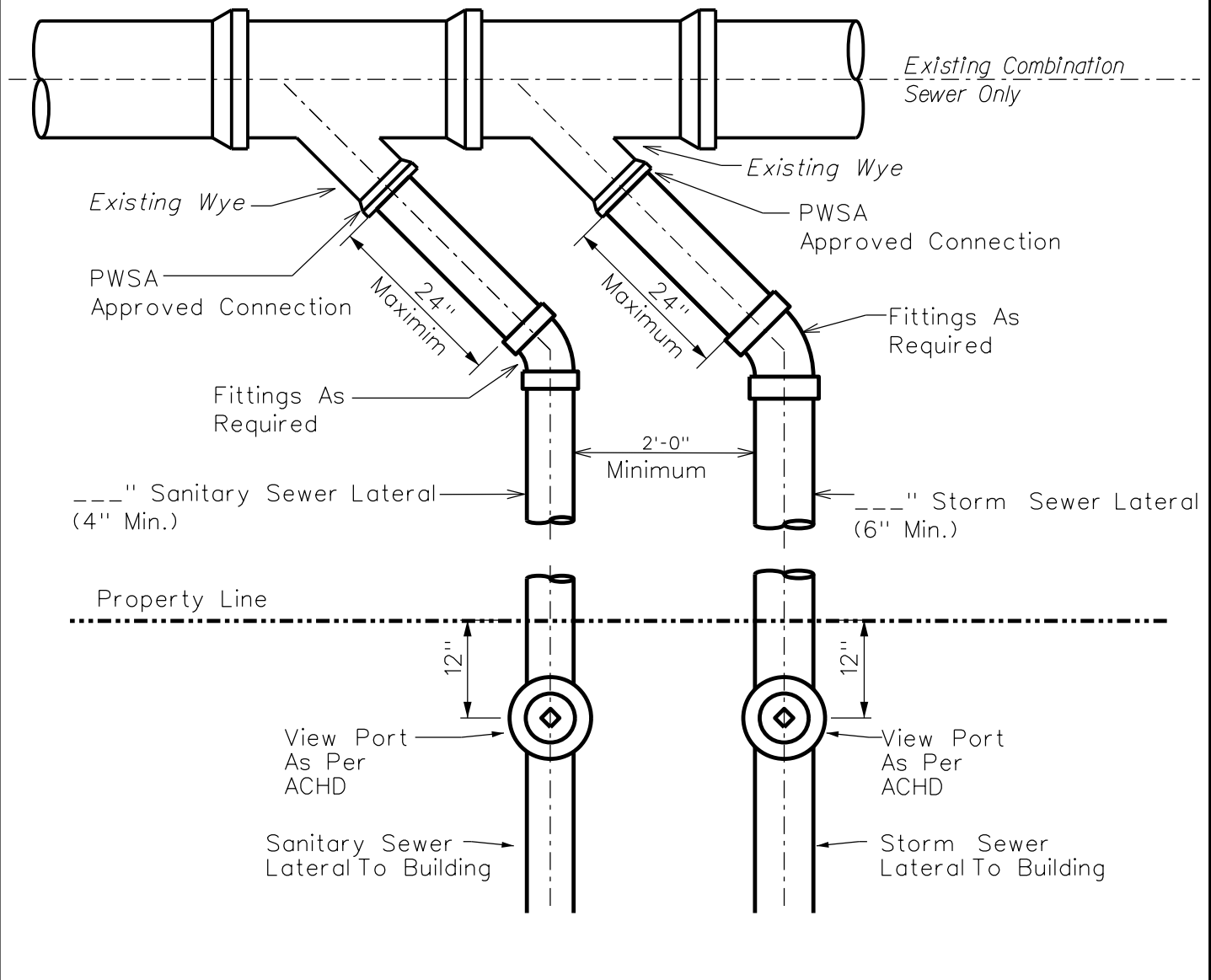
Approved by:



The Pittsburgh Water and Sewer Authority
**Separated House Lateral
One Connection To Main**

Scale: N.T.S.
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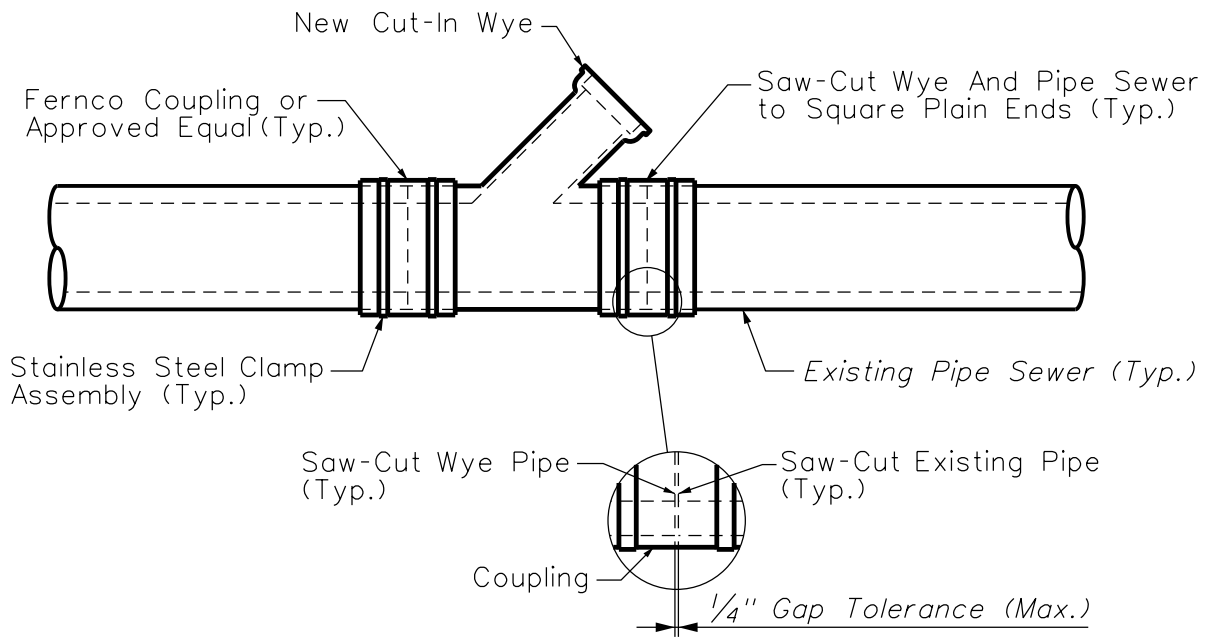
Supplemental Detail Drawing: **ST-5**



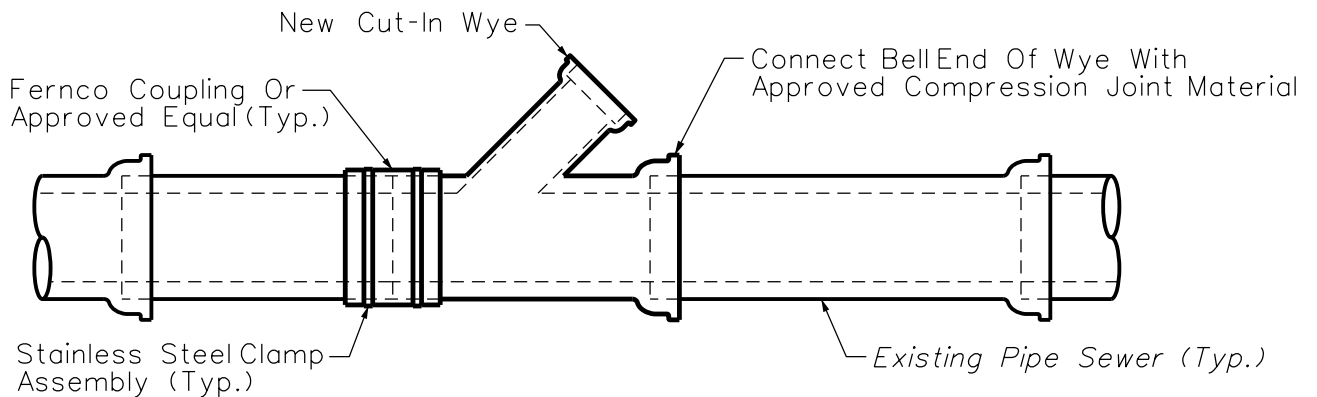
PLAN VIEW

5/19/2015

<p style="text-align: center;">R E V I S I O N S</p> <p>1. MSR 4-18-01</p> <p>2. LRC 1-31-14</p>			<p>The Pittsburgh Water and Sewer Authority</p> <p>Separated House Lateral Wye Connections To Main</p>	
<p>Approved by:</p>			<p>Scale: N.T.S.</p> <p>M:\pwsa\gis\det\Standards\stdst6.det</p>	<p>Supplemental Detail Drawing: ST-6</p>



ALT. No.1



ALT. No.2

NOTES:

1. SAW-CUT EXISTING PIPE SEWER, NO BREAK-IN OR HAMMER CONNECTIONS PERMITTED. JOINTS MUST BE INSPECTED BY PWSA BEFORE AND AFTER FLEXIBLE COUPLINGS ARE INSTALLED.
2. WYE MATERIAL WILL MATCH SEWER MAIN MATERIAL.
3. PIPE MAIN I.D. OF NEW WYE SECTION WILL MATCH I.D. OF EXISTING PIPE SEWER MAIN.
4. WYE LOCATION WILL BE LOCATED AT 2 O'CLOCK OR 10 O'CLOCK ON BARREL OF PIPE SEWER.

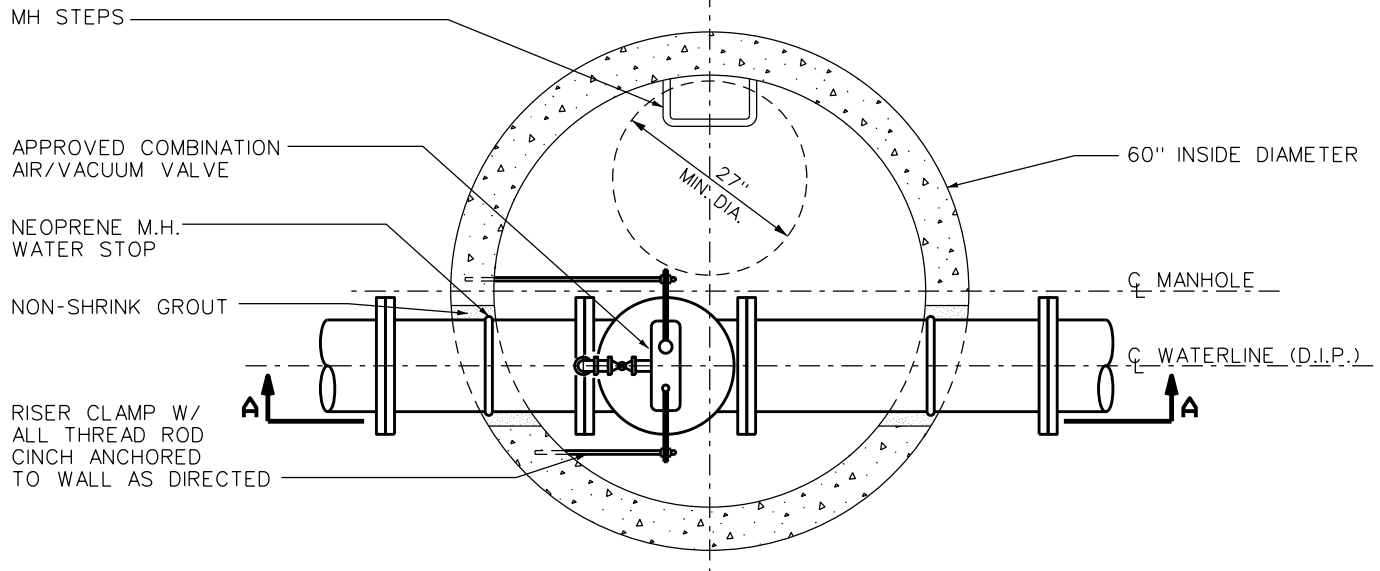
5/19/2015

R E V I S I O N S	
1. JLK	8-14-02
2. MAC	1-5-04
3. LRC	1-31-14

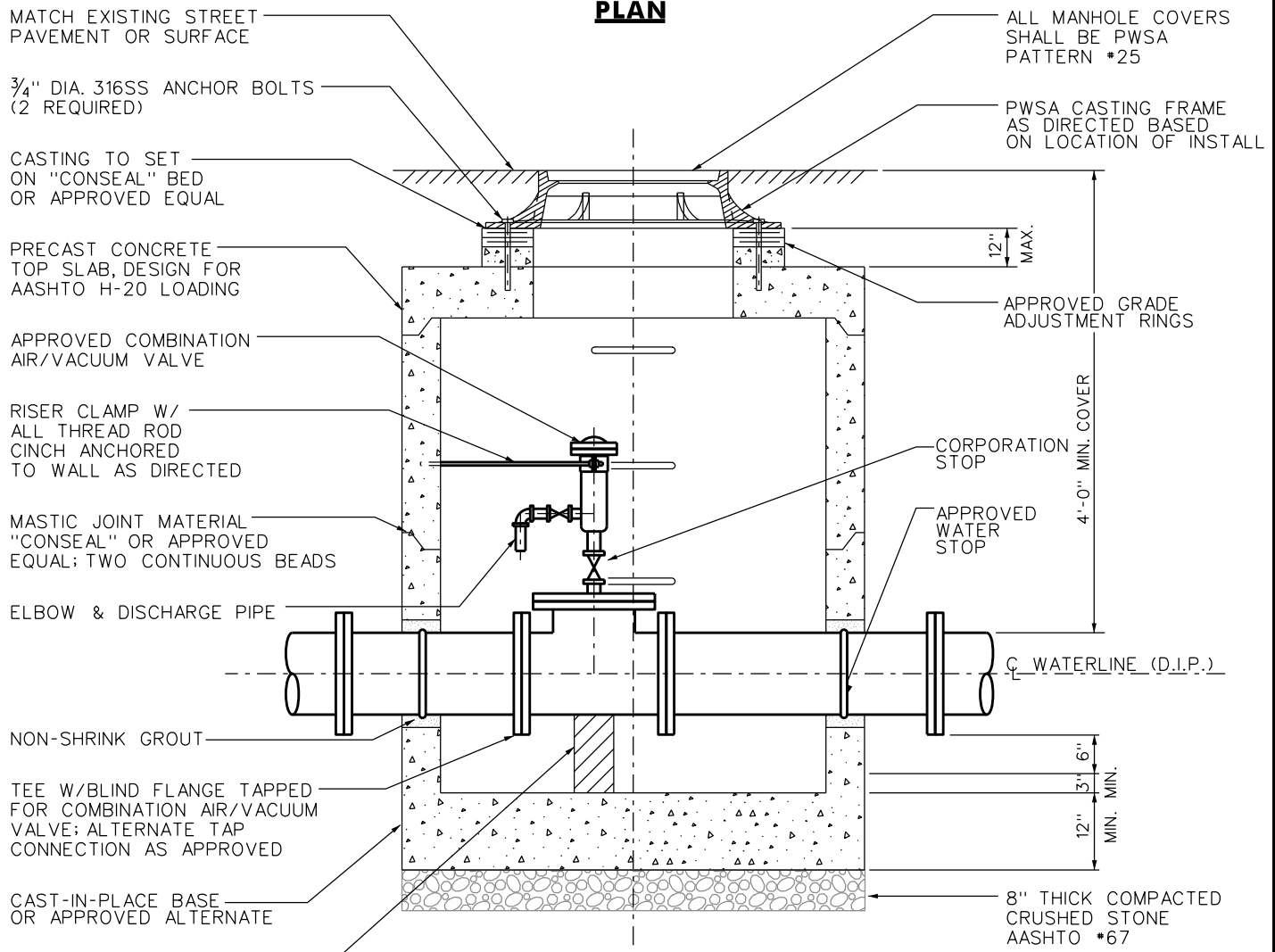
Approved by: _____



The Pittsburgh Water and Sewer Authority	
Cut-In Wye Pipe Transition	
Scale: N.T.S.	Supplemental Detail Drawing: ST-7
M:\pwsa\gis\det\Standards\stdst7.det	



PLAN



SECTION A-A

NOTE:
INSULATED WRAP/JACKET AROUND CORPORATION STOP TO AIR/VACUUM VALVE
THERMAL ENERGY PRODUCTS EW.2T.NM.SH.SC.BS, OR APPROVED EQUAL.

R E V I S I O N S	
1.	MSR 4-18-01
2.	LRC 1-31-14

PGH₂O
Pittsburgh
Water & Sewer
Authority

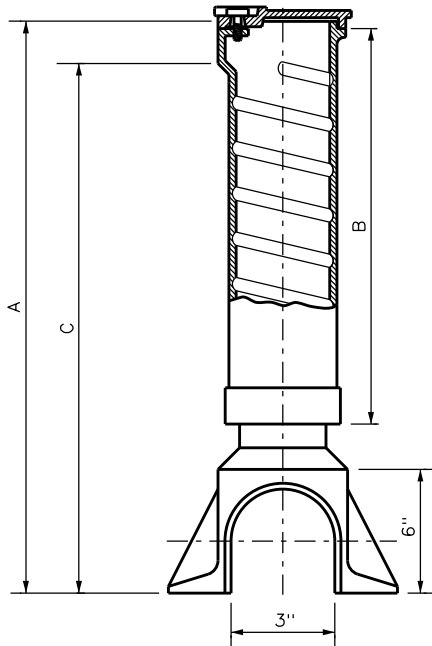
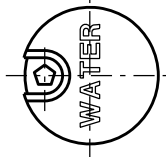
The Pittsburgh Water and Sewer Authority
**Waterline Combination Air / Vacuum Valve
And Manhole**

Approved by:

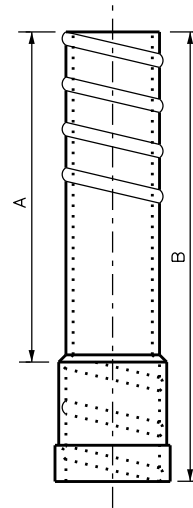
Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdwav1.det

Supplemental
Detail Drawing: **WAV-1**

5/4/2016



TOP SECTION, BOTTOM SECTION AND COVER



SERVICE BOX EXTENSION

SIZE NO.	INCREASES LENGTH-A	OVERALL LENGTH-B	WEIGHT
155	20	22.75	13.1
156	24	26.75	17.7

SIZE NO.	EXTENSION RANGE - A	TOP SECTION & COVER			BOTTOM SECTION			TOTAL WEIGHT
		NO.	WEIGHT	DIM. B	NO.	WEIGHT	DIM. C	
2	24" - 39"	9	19.6	18	2	14.1	23.0	32.7

NOTES:

1. SERVICE BOX SHALL BE BINGHAM & TAYLOR BUFFALO STYLE (3" OLD STYLE), No. 4930 OR APPROVED EQUAL.
2. DIMENSIONS IN INCHES; WEIGHT IN POUNDS.
3. LABELED "WATER" ON THE COVER.

5/19/2015

R E V I S I O N S	
1. MAC	3-12-04
2. MAC	8-15-07
3. MAC	12-28-07
4. LRC	1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority

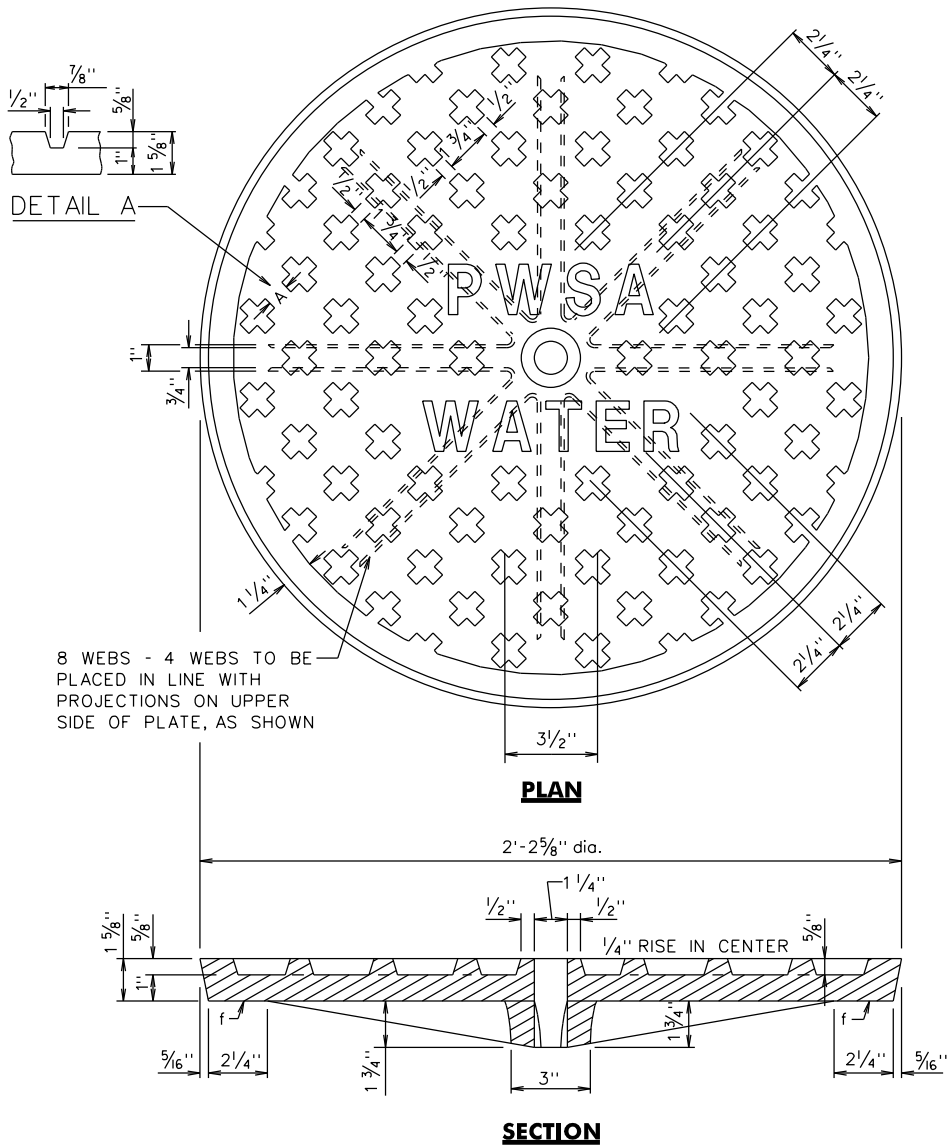
3" Curb Service Box

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdwcb1.det

Supplemental Detail Drawing:

WCB-1



NOTES:

1. 2" LETTERING SHALL NOTE "PWSA" AND "WATER" (TYP.)
2. FRAMES AND COVERS MUST BE MACHINED TO INSURE GOOD BEARING AND PROPER FIT IN ANY POSITION.
3. CAST IRON SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS, ASTM DESIGNATION: A48 CLASS No. 30B MINIMUM STRENGTH.

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. MAC 3-2-05	
3. DWP 10-20-05	
4. MAC 8-14-07	
Approved by:	

PGH₂O

Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority

Water Manhole Cover Casting

Scale: N.T.S.

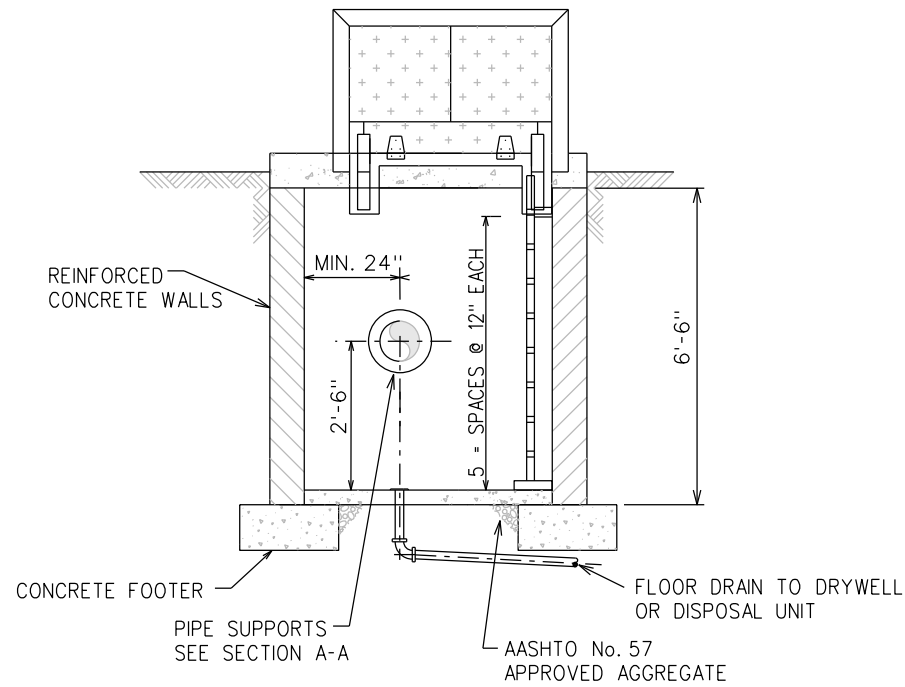
Supplemental Detail Drawing: **WMHCOV**

M:\pwsa\gis\det\Standards\stdwmhcov.det

APPROVED METER LAYING LENGTHS									
METER SIZE	BYPASS SIZE	W1	A	B	C	D	E	F	TOTAL
3"	3"	30"				*			
4"	4"	30"	CALCULATED			*	CALCULATED		
6"	6"	36"		BY		*		BY	
8"	6"	36"	CONTRACTOR			*	CONTRACTOR		
10"	6"	36"				*			

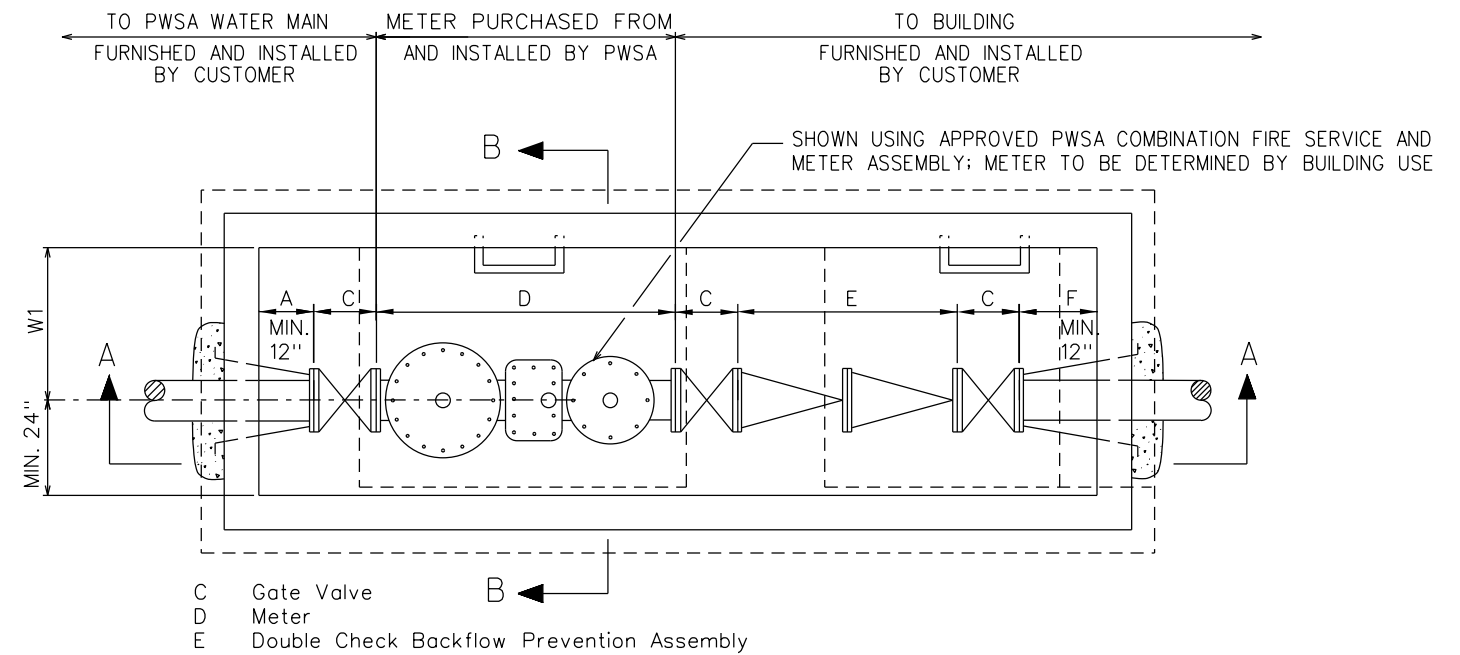
* SIZED PER PWSA APPROVED METER VENDOR

NOTE: METERS ARE THE PROPERTY OF THE PITTSBURGH WATER AND SEWER AUTHORITY AND CANNOT BE REPLACED, REMOVED, RELOCATED, OR REPAIRED BY ANY PARTY OTHER THAN THE PITTSBURGH WATER AND SEWER AUTHORITY.



SECTION B-B

SCALE = N.T.S.

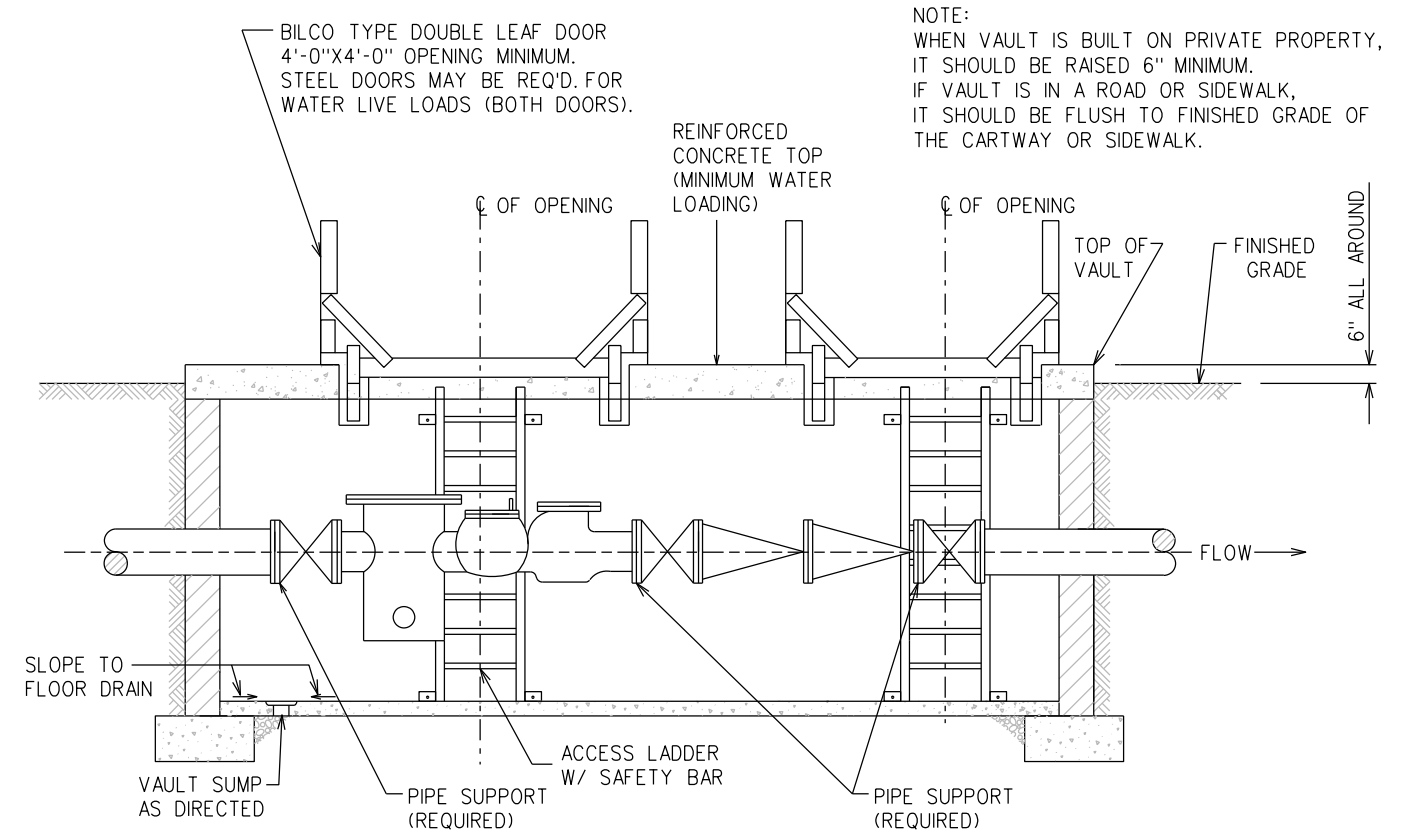


PLAN

SCALE = N.T.S.

NOTES:

1. VAULT DESIGN TO BE APPROVED BY PA REGISTERED PROFESSIONAL ENGINEER; MINIMUM LOAD DESIGN AASHTO H20 LOADING, OR EXPECTED LOADING, WHICHEVER IS MORE SEVERE. DESIGN MUST PROVIDE FOR ALL EXPECTED FIELD CONDITIONS, INCLUDING A SAFE WORKING ENVIRONMENT FOR MAINTENANCE PERSONNEL PER OSHA STANDARDS.
2. PRECAST VAULTS INCLUDING HARDWARE ARE AVAILABLE AND CUSTOMERS SHOULD VERIFY DESIGN BY THEIR ENGINEER. ACTUAL VAULT LENGTH WILL VARY BY METER SIZE REQUIRED.
3. VAULT AND METER INSTALLATION IS THE PITTSBURGH WATER AND SEWER AUTHORITY STANDARD FOR OPTIMUM PERFORMANCE AND DESIGNED FOR INSTALLATION AND SERVICING. ALTERNATE DESIGNS MAY BE REQUIRED TO SUIT PREVAILING CONDITIONS.
4. THE PITTSBURGH WATER AND SEWER AUTHORITY MAY REQUIRE INSTALLATION OF SUMP PUMP FOR DRAINAGE.
5. IF BOX IS PROVIDED WITH ELECTRICAL SUPPLY, PLEASE SUPPLY OUTSIDE DISCONNECT AND MAKE PROVISIONS FOR SUMP PUMP (FUTURE).
6. CUSTOMER TO CONSTRUCT METERING VAULT AS SHOWN TO MINIMUM DIMENSIONS AND GENERAL CONFIGURATION.
7. PWSA APPROVED PIPE SUPPORTS, TIE RODS, ANCHORS AND TRUST BRACING AT FITTINGS AND VALVES SHALL BE PROVIDED TO ALLOW PIPING TO SUFFICIENTLY STAND WITH REMOVAL OF METERS. FRICTION CLAMPS ARE NOT PERMITTED FOR RESTRAINT OF PIPING SYSTEMS.
8. DOUBLE CHECK BACKFLOW PREVENTION DEVICE IS REQUIRED AS SHOWN AND/OR ADDITIONAL BACKFLOW PREVENTION DEVICE OF REDUCED PRESSURE (RPZ TYPE). THE RPZ TYPE DEVICE MUST BE INSTALLED ON THE SERVICE LINE INSIDE AT THE POINT WHERE IT ENTERS THE BUILDING. PRINCIPLE DESIGN MAY BE REQUIRED. (TYPE AND MANUFACTURER OF BACKFLOW DEVICE MAY AFFECT DIMENSIONS.) ASSEMBLY PER ASSE STANDARD No. 1015. MANDATORY TEST REQUIRED AT TIME OF INSTALLATION PER IPC 312.9.2.
9. 3" VALVES AND OVER ARE FLANGED, 125 PSICLASS FLANGE WITH 125 PSIDRILLING.
10. IT WILL BE NECESSARY FOR THE CUSTOMER TO INSTALL PROPER DRAINAGE OR PROVIDE OTHER MECHANICAL MEANS TO KEEP THE VAULT DEWATERED.
11. WATER SERVICE WILL NOT BE PROVIDED UNTIL THE VAULT IS COMPLETED AS DETAILED. THE PITTSBURGH WATER AND SEWER AUTHORITY TO REVIEW FINAL LOCATION AND CONDITION OF VAULT BY CUSTOMER FOR DIMENSIONS AND OVERALL CONFIGURATION.
12. GATE VALVES MUST BE SAME SIZE AS METERS.
13. ALL VALVES AND BACKFLOW PREVENTION DEVICES ARE TO BE MAINTAINED BY CUSTOMERS.
14. BILCO TYPE DOOR TO BE CENTERED OVER METER ASSEMBLY AND APPROVED ACCESS LADDER.
15. METER ASSEMBLY WILL NOT BE INSTALLED UNTIL ALL PIPING IS COMPLETED IN THE VAULT. IT IS RECOMMENDED THAT A FILLER PIECE BE INSTALLED TO ASSURE PROPER ALIGNMENT OF FLANGES. METER AND MXU ASSEMBLY TO BE PURCHASED FROM AND INSTALLED BY THE PITTSBURGH WATER AND SEWER AUTHORITY.
16. TIE RODS TO BE EMBEDDED IN CONCRETE OR BOLTED TO STEEL PLATES ON EXTERIOR WALLS. THE PITTSBURGH WATER AND SEWER AUTHORITY IS TO INSPECT BEFORE BACKFILLING OF SAID VAULT.



SECTION A-A

SCALE = N.T.S.

R E V I S I O N S	
1.	MSR 4-23-01
2.	RDH 1-13-06
3.	LRC 1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority

Meter Vault For 3" And Larger

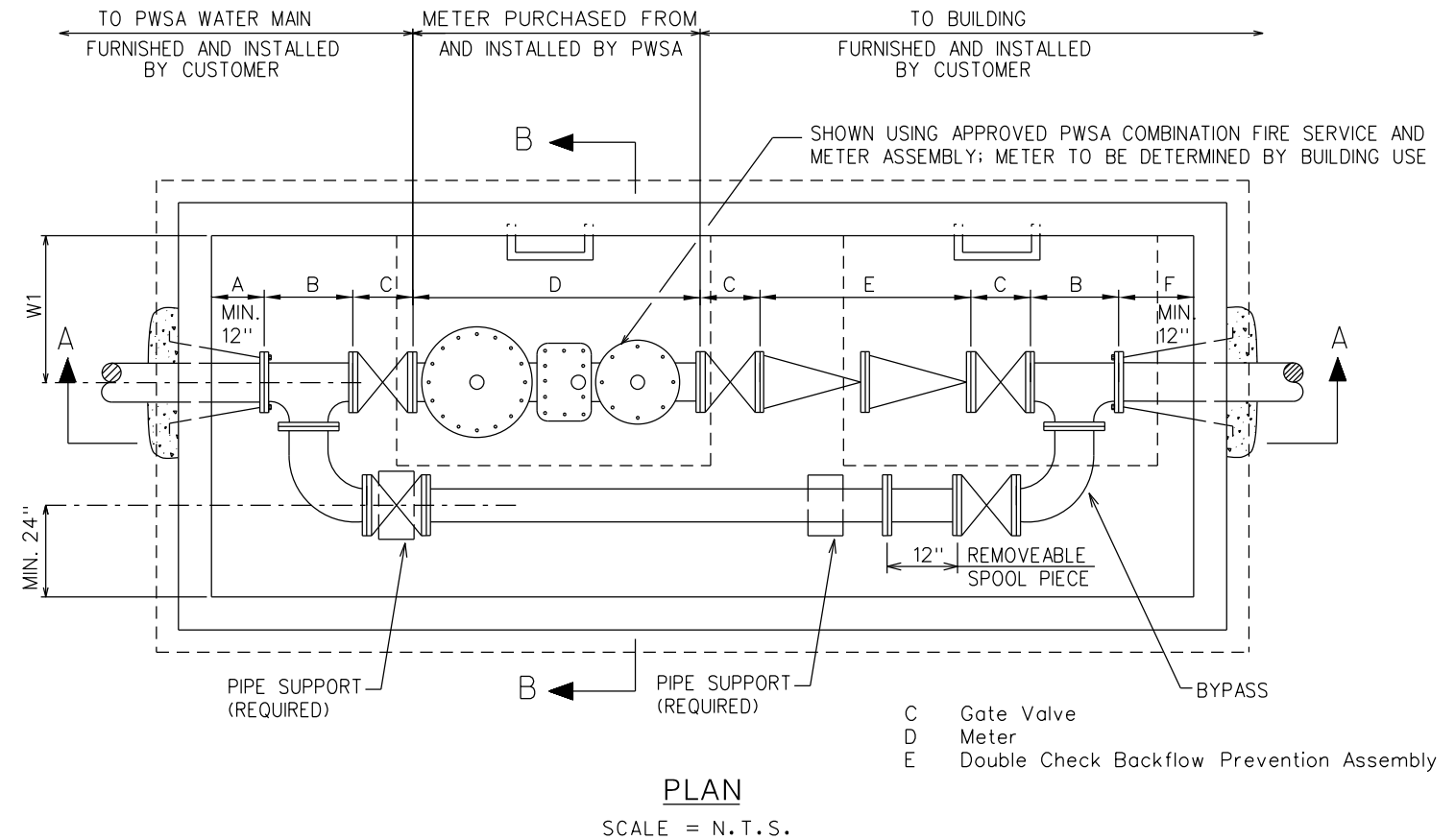
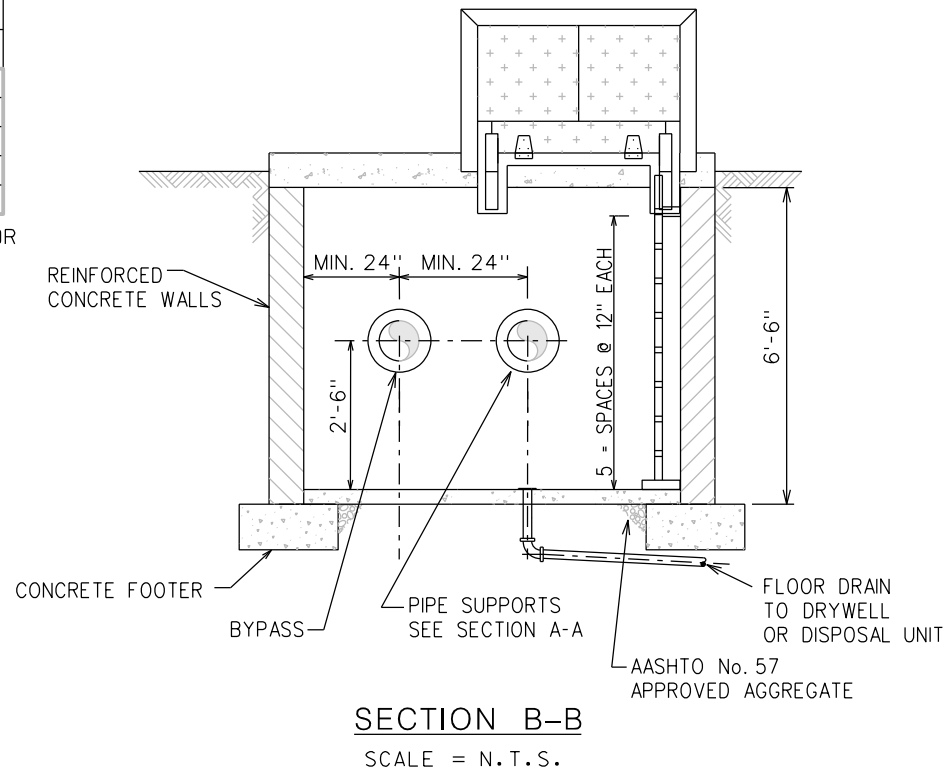
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Supplemental Detail Drawing: **WMV**

APPROVED METER LAYING LENGTHS									
METER SIZE	BYPASS SIZE	W1	A	B	C	D	E	F	TOTAL
3"	3"	30"				*			
4"	4"	30"	CALCULATED			*	CALCULATED		
6"	6"	36"		BY		*		BY	
8"	6"	36"	CONTRACTOR			*	CONTRACTOR		
10"	6"	36"				*			

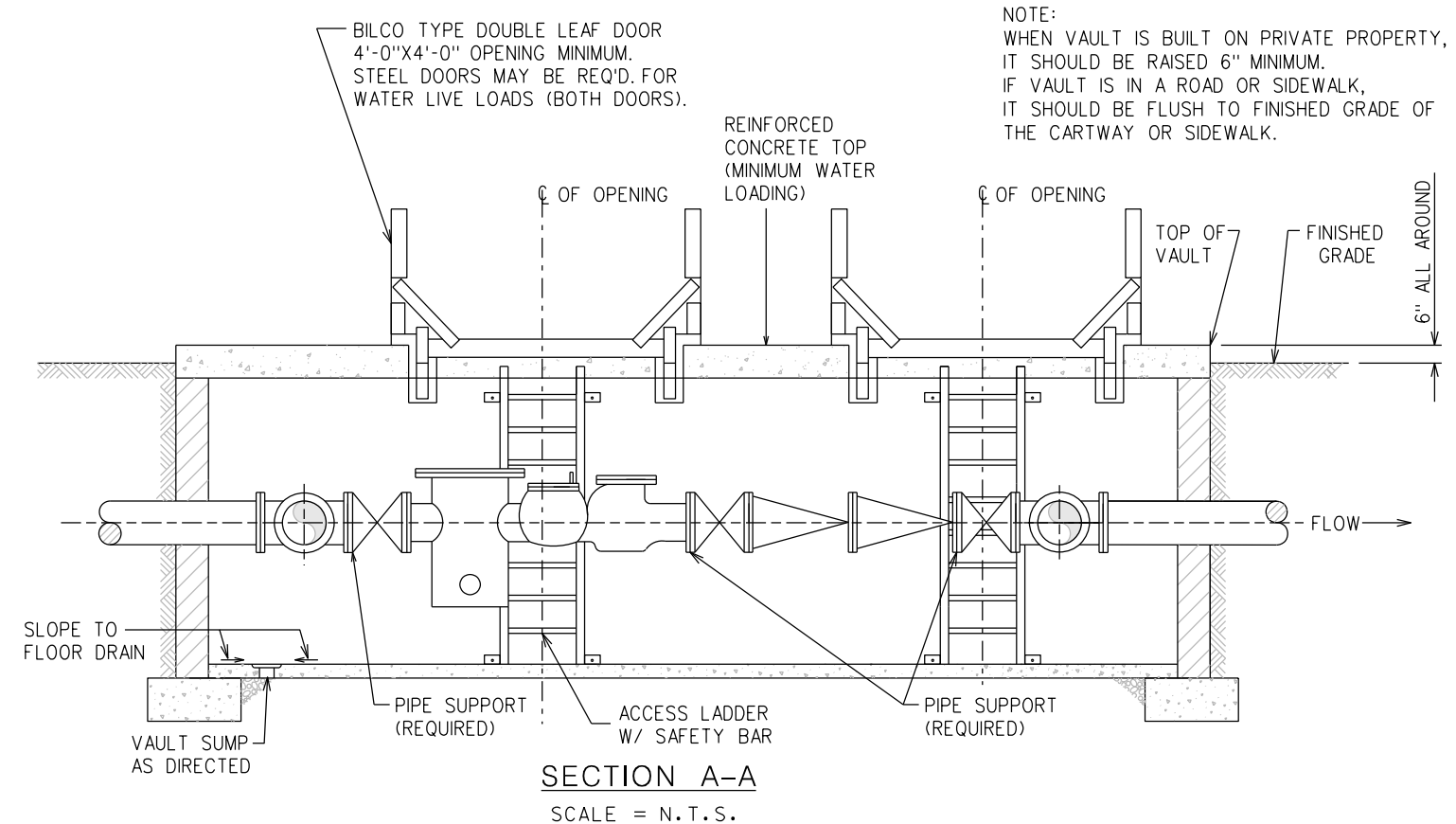
* SIZED PER PWSA APPROVED METER VENDOR

NOTE: METERS ARE THE PROPERTY OF THE PITTSBURGH WATER AND SEWER AUTHORITY AND CANNOT BE REPLACED, REMOVED, RELOCATED, OR REPAIRED BY ANY PARTY OTHER THAN THE PITTSBURGH WATER AND SEWER AUTHORITY.



NOTES:

1. VAULT DESIGN TO BE APPROVED BY PA REGISTERED PROFESSIONAL ENGINEER; MINIMUM LOAD DESIGN AASHTO H20 LOADING, OR EXPECTED LOADING, WHICHEVER IS MORE SEVERE. DESIGN MUST PROVIDE FOR ALL EXPECTED FIELD CONDITIONS, INCLUDING A SAFE WORKING ENVIRONMENT FOR MAINTENANCE PERSONNEL PER OSHA STANDARDS.
2. PRECAST VAULTS INCLUDING HARDWARE ARE AVAILABLE AND CUSTOMERS SHOULD VERIFY DESIGN BY THEIR ENGINEER. ACTUAL VAULT LENGTH WILL VARY BY METER SIZE REQUIRED.
3. VAULT AND METER INSTALLATION IS THE PITTSBURGH WATER AND SEWER AUTHORITY STANDARD FOR OPTIMUM PERFORMANCE AND DESIGNED FOR INSTALLATION AND SERVICING. ALTERNATE DESIGNS MAY BE REQUIRED TO SUIT PREVAILING CONDITIONS.
4. THE PITTSBURGH WATER AND SEWER AUTHORITY MAY REQUIRE INSTALLATION OF SUMP PUMP FOR DRAINAGE.
5. IF BOX IS PROVIDED WITH ELECTRICAL SUPPLY, PLEASE SUPPLY OUTSIDE DISCONNECT AND MAKE PROVISIONS FOR SUMP PUMP (FUTURE).
6. CUSTOMER TO CONSTRUCT METERING VAULT AS SHOWN TO MINIMUM DIMENSIONS AND GENERAL CONFIGURATION.
7. PWSA APPROVED PIPE SUPPORTS, TIE RODS, ANCHORS AND TRUST BRACING AT FITTINGS AND VALVES SHALL BE PROVIDED TO ALLOW PIPING TO SUFFICIENTLY STAND WITH REMOVAL OF METERS. FRICTION CLAMPS ARE NOT PERMITTED FOR RESTRAINT OF PIPING SYSTEMS.
8. DOUBLE CHECK BACKFLOW PREVENTION DEVICE IS REQUIRED AS SHOWN AND/OR ADDITIONAL BACKFLOW PREVENTION DEVICE OF REDUCED PRESSURE (RPZ TYPE). THE RPZ TYPE DEVICE MUST BE INSTALLED ON THE SERVICE LINE INSIDE AT THE POINT WHERE IT ENTERS THE BUILDING. PRINCIPLE DESIGN MAY BE REQUIRED. (TYPE AND MANUFACTURER OF BACKFLOW DEVICE MAY AFFECT DIMENSIONS.) ASSEMBLY PER ASSE STANDARD No. 1015. MANDATORY TEST REQUIRED AT TIME OF INSTALLATION PER IPC 312.9.2.
9. 3" VALVES AND OVER ARE FLANGED, 125 PSICLASS FLANGE WITH 125 PSIDRILLING.
10. IT WILL BE NECESSARY FOR THE CUSTOMER TO INSTALL PROPER DRAINAGE OR PROVIDE OTHER MECHANICAL MEANS TO KEEP THE VAULT DEWATERED.
11. WATER SERVICE WILL NOT BE PROVIDED UNTIL THE VAULT IS COMPLETED AS DETAILED. THE PITTSBURGH WATER AND SEWER AUTHORITY TO REVIEW FINAL LOCATION AND CONDITION OF VAULT BY CUSTOMER FOR DIMENSIONS AND OVERALL CONFIGURATION.
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14. BILCO TYPE DOOR TO BE CENTERED OVER METER ASSEMBLY AND APPROVED ACCESS LADDER.
15. METER ASSEMBLY WILL NOT BE INSTALLED UNTIL ALL PIPING IS COMPLETED IN THE VAULT. IT IS RECOMMENDED THAT A FILLER PIECE BE INSTALLED TO ASSURE PROPER ALIGNMENT OF FLANGES. METER AND MXU ASSEMBLY TO BE PURCHASED FROM AND INSTALLED BY THE PITTSBURGH WATER AND SEWER AUTHORITY.
16. TIE RODS TO BE EMBEDDED IN CONCRETE OR BOLTED TO STEEL PLATES ON EXTERIOR WALLS. THE PITTSBURGH WATER AND SEWER AUTHORITY IS TO INSPECT BEFORE BACKFILLING OF SAID VAULT.



R E V I S I O N S	
1. MSR	4-23-01
2. DWP	9-15-05
3. LRC	1-31-14

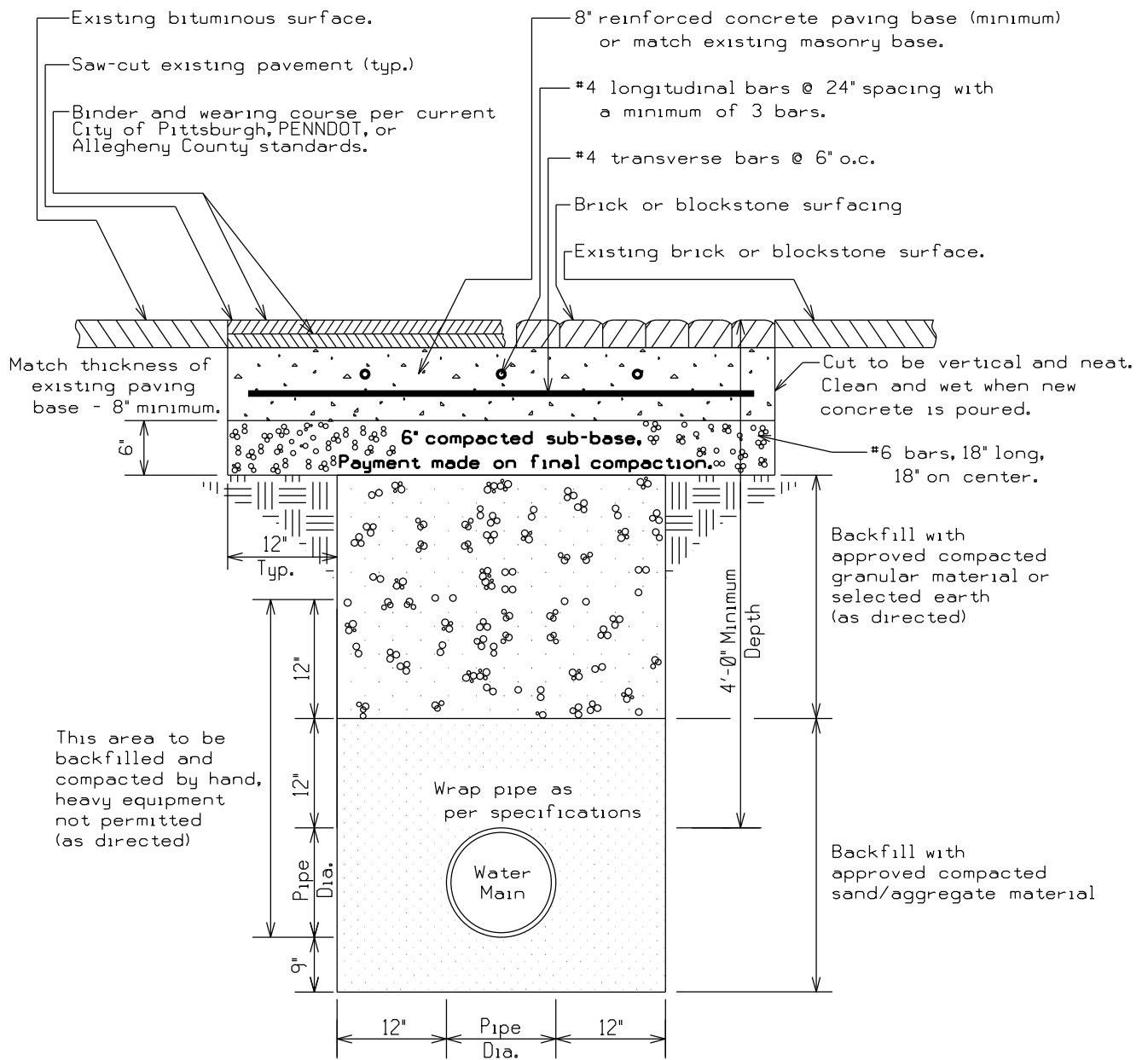
Approved by:

PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Meter Vault For
3" And Larger
With Bypass**

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdwmvb.det

Supplemental
Detail Drawing: **WMVB**



NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart:

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

5/19/2015

R E V I S I O N S	
1. MSR 4-18-01	
2. MAC 8-13-07	
3. LRC 1-31-14	

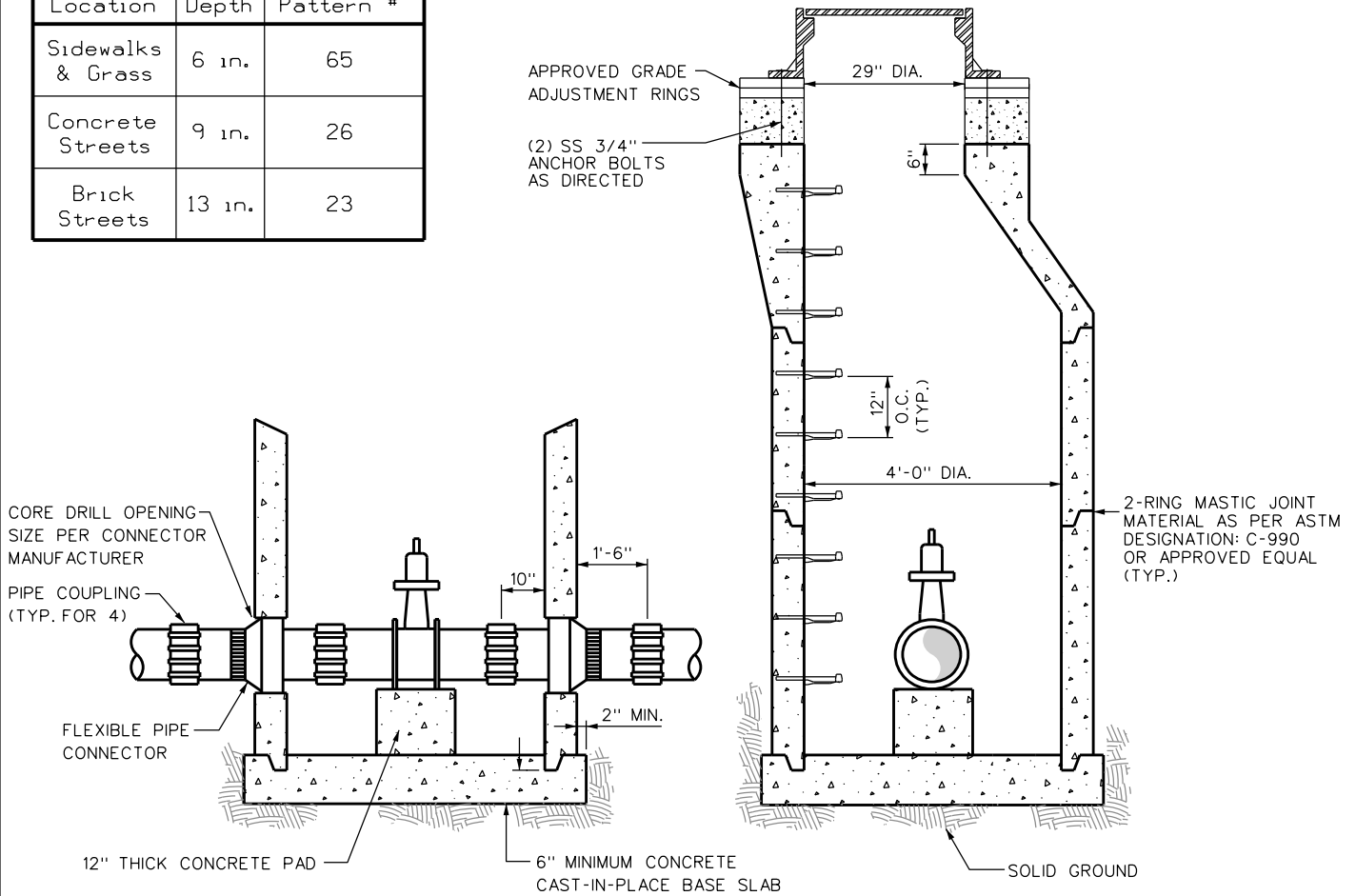
Approved by:

The Pittsburgh Water and Sewer Authority
Water Line Trench And Repaving

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdwsl.det

Supplemental Detail Drawing: **WS-1**

Manhole Frames		
Location	Depth	Pattern #
Sidewalks & Grass	6 in.	65
Concrete Streets	9 in.	26
Brick Streets	13 in.	23



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.
5. FOR 120 PSI OR GREATER, VALVE BYPASS IS REQUIRED.

5/4/2016

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 3-2-05	
3. DWP 10-20-05	
4. LRC 1-31-14	
Approved by:	

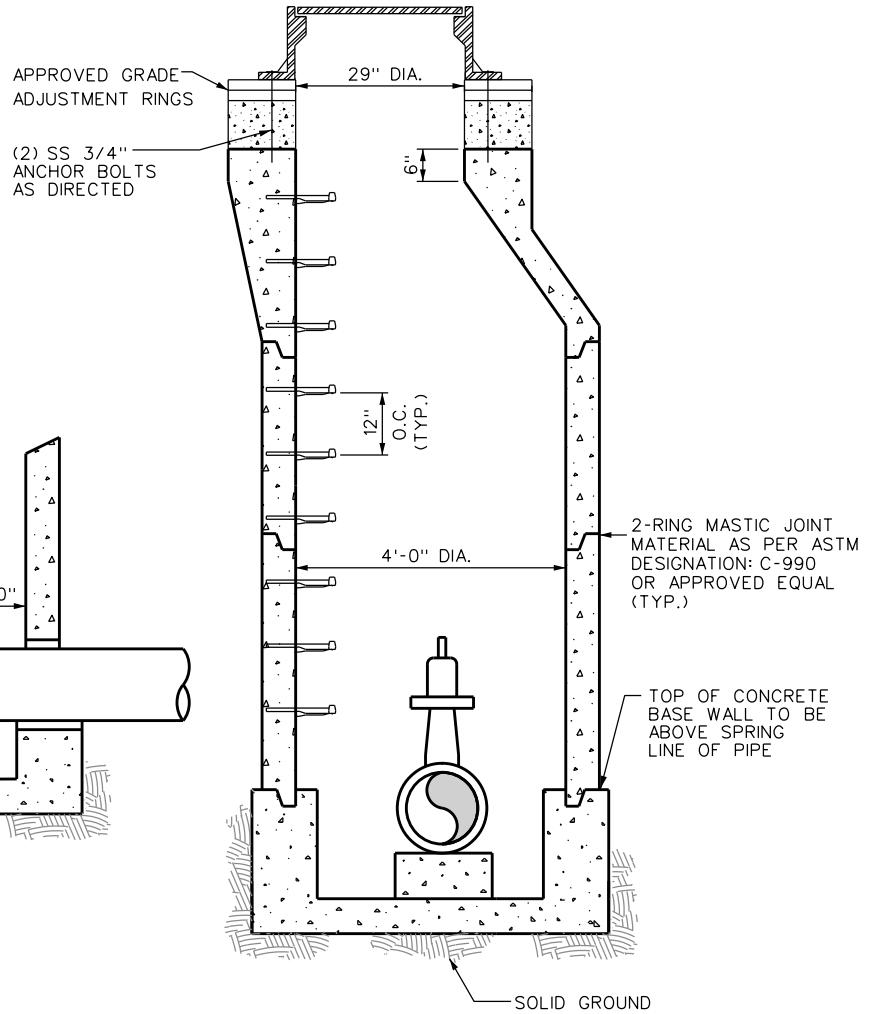
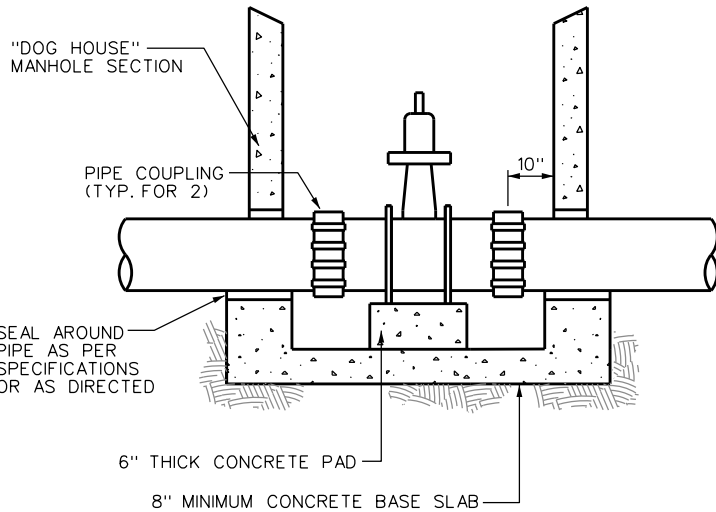
PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Vertical Large Diameter Valve
In Concrete Manhole
(Precast Base)**

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdwsl0.det

Supplemental
Detail Drawing: **WS-10**

Manhole Frames		
Location	Depth	Pattern #
Sidewalks & Grass	6 in.	65
Concrete Streets	9 in.	26
Brick Streets	13 in.	23



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.
5. FOR 120 PSI OR GREATER, VALVE BYPASS IS REQUIRED.

5/4/2016

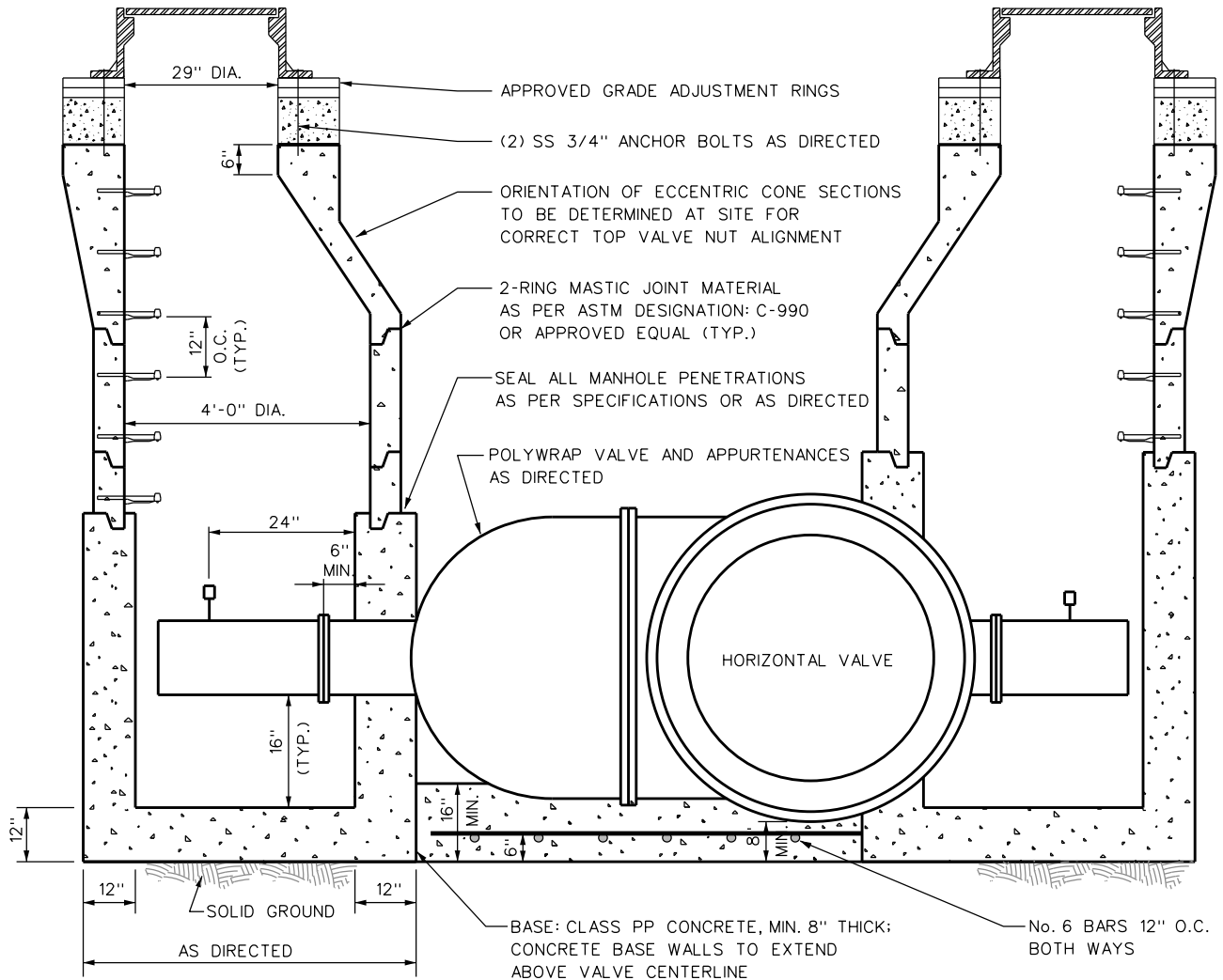
R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 3-2-05	
3. DWP 10-20-05	
4. LRC 1-31-14	
Approved by:	



The Pittsburgh Water and Sewer Authority Vertical Large Diameter Valve In Concrete Manhole (Cast-In-Place Base)	
Scale: N.T.S. <small>M:\pwsa\gis\det\Standards\stdwsl0a.det</small>	Supplemental Detail Drawing: WS-10A

Manhole Frames

Location	Depth	Pattern #
Sidewalks & Grass	6 in.	65
Concrete Streets	9 in.	26
Brick Streets	13 in.	23



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 3-2-05	
3. LRC 1-31-14	

Approved by:



The Pittsburgh Water and Sewer Authority
**Horizontal Valve
 (16" Or Greater)
 With Two Manhole Layout**

Scale: N.T.S.

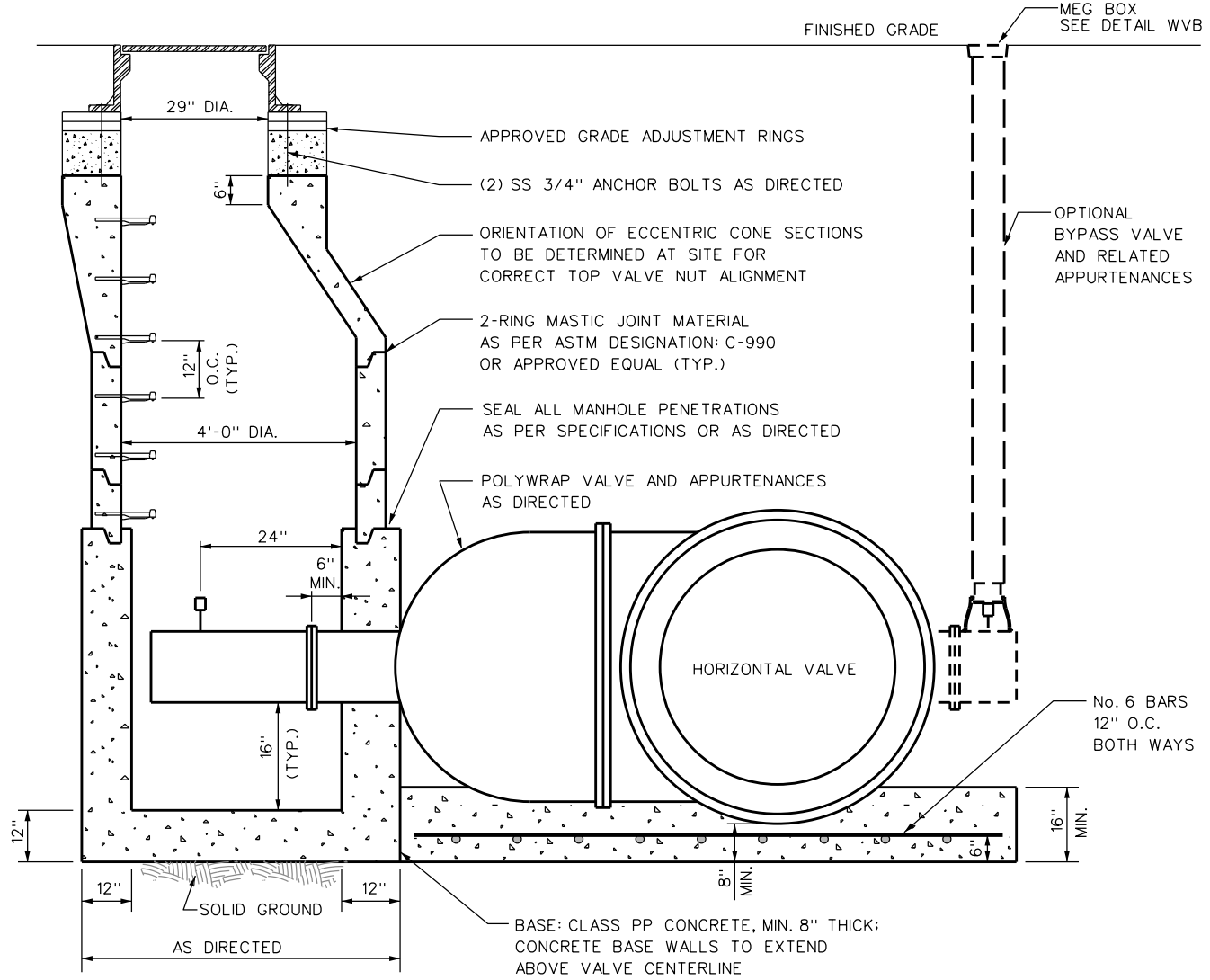
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Supplemental
 Detail Drawing:

WS-10B

5/4/2016

Manhole Frames		
Location	Depth	Pattern #
Sidewalks & Grass	6 in.	65
Concrete Streets	9 in.	26
Brick Streets	13 in.	23



NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

5/4/2016

R E V I S I O N S	
1.	LRC 1-31-14
Approved by:	

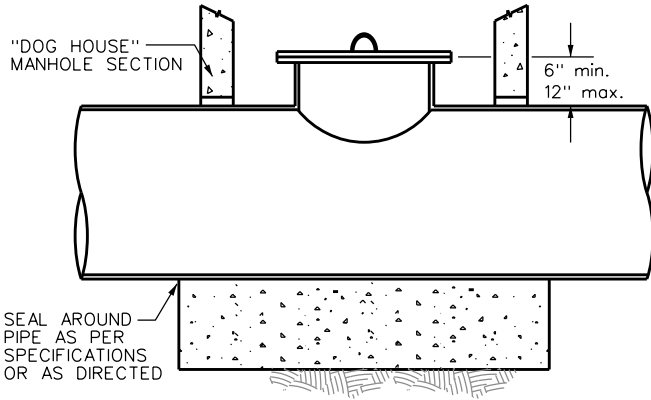
PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
Horizontal Valve
(16" Or Greater)
With Manhole and MEG Box

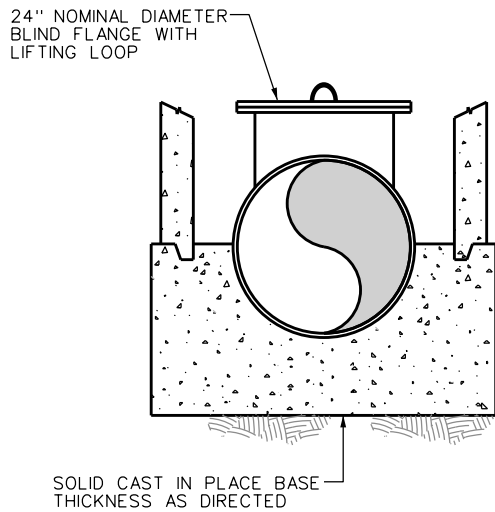
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Manhole Frames

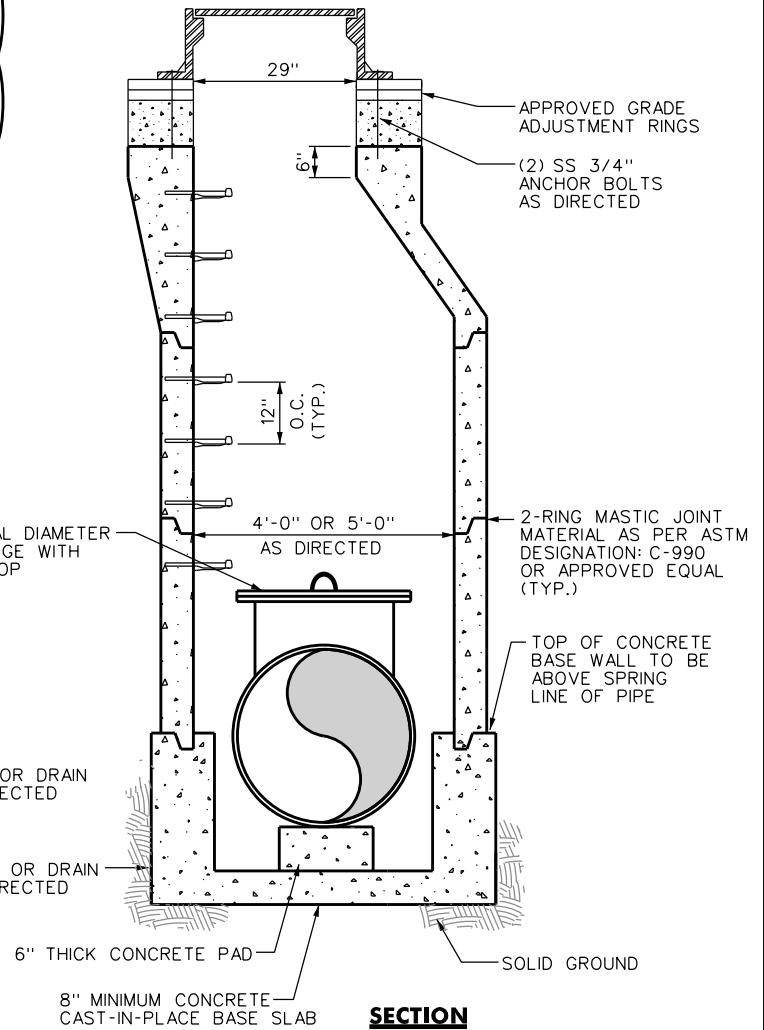
Location	Depth	Pattern #
Sidewalks & Grass	6 in.	65
Concrete Streets	9 in.	26
Brick Streets	13 in.	23



**PROFILE
MANHOLE CONSTRUCTION ON
EXISTING MANHEAD**



**SECTION
MANHOLE CONSTRUCTION ON
EXISTING MANHEAD**



**SECTION
MANHOLE CONSTRUCTION ON
NEW MANHEAD**

NOTES:

1. PRECAST MANHOLE SECTIONS SHALL BE AS PER ASTM C478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. MANHOLE FRAMES PER SECTION 02082. FINAL GRADE ADJUSTMENT RINGS PER SECTION 02281.
4. MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM D1227.

R E V I S I O N S	
1. JEK 1-5-00	
2. MAC 3-2-05	
3. DWP 10-20-05	
4. LRC 1-31-14	

Approved by:



The Pittsburgh Water and Sewer Authority

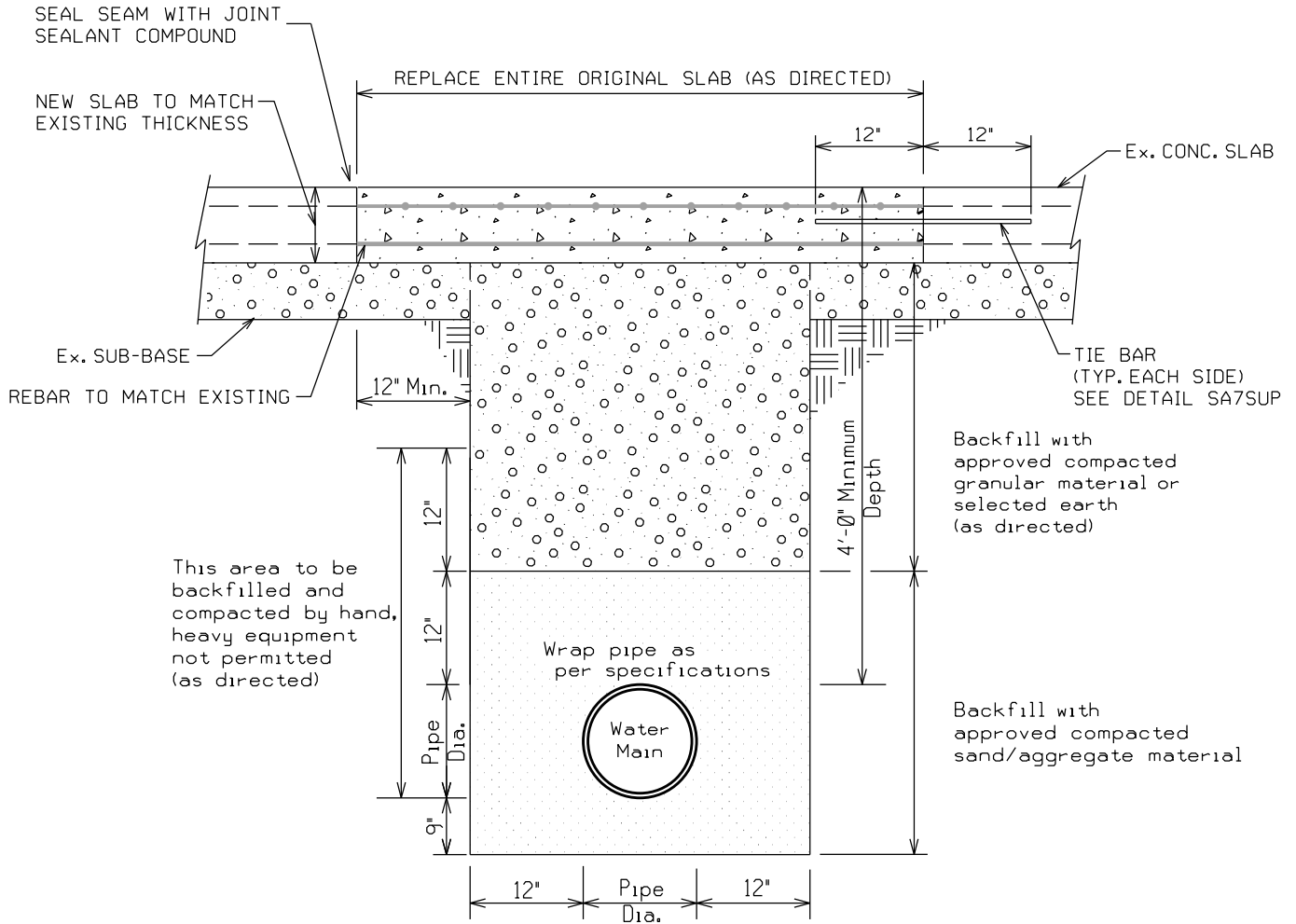
Manhead Manhole

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdwsl0mh.det

Supplemental
Detail Drawing: **WS-10MH**

5/4/2016



NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart:

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

5/19/2015

R E V I S I O N S	
1.	MSR 4-23-01
2.	RDH 6-14-06
3.	LRC 1-31-14

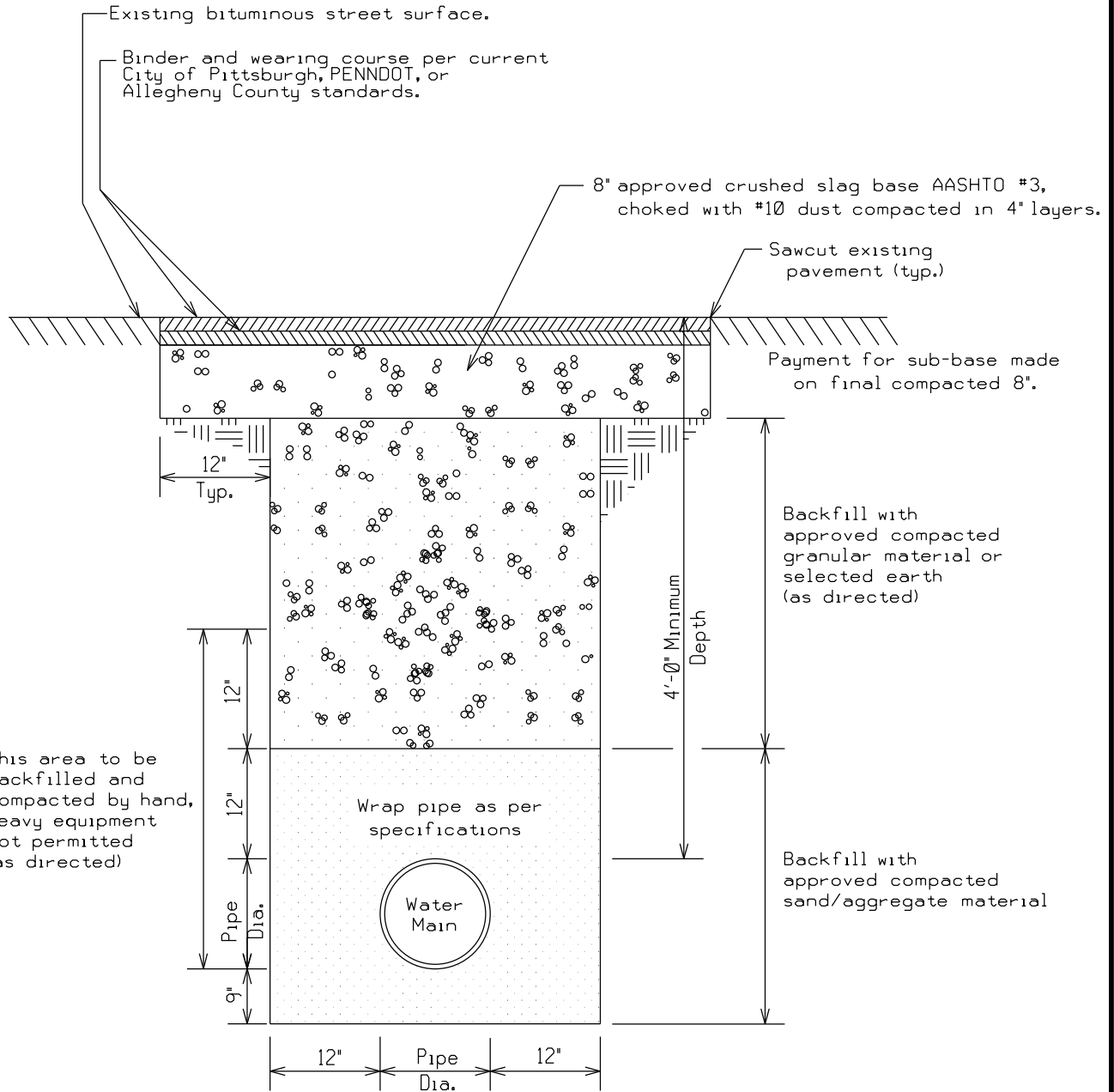


**The Pittsburgh Water and Sewer Authority
CONCRETE STREET TRENCH REPAVING
FOR WATER MAIN**

Approved by:

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdwsla.det

Supplemental Detail Drawing: **WS-1A**



NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

5/19/2015

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 8-13-07	
3. LRC 1-31-14	

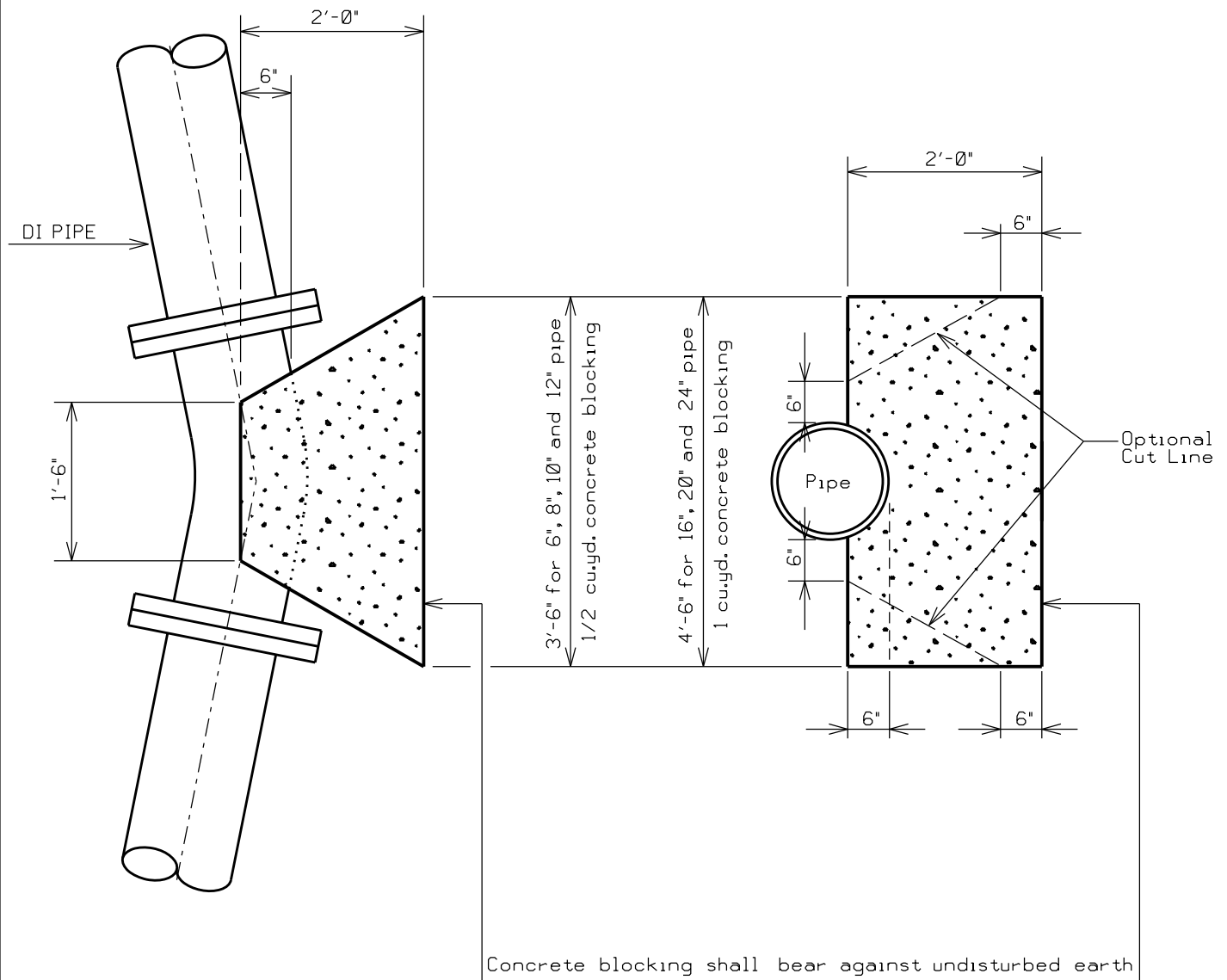
PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Water Line Trench And
Bituminous Repaving**

Approved by:

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdws2.det

Supplemental
Detail Drawing: **WS-2**



NOTES:

1. Concrete thrust blocking shall be provided at all tees, bends, caps, and plugs.
In addition, all pipe bends shall be harnessed with mechanical joint retainer glands, using either set screw or lug type retaining system, as directed.
2. Concrete thrust blocks shall be minimum 4000 PSI cement concrete.
3. See detail WS-VB and WS-VBL for vertical bends requirements.

5/19/2015

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 8-13-07	
3. LRC 1-31-14	

Approved by:

PGH₂O
Pittsburgh
Water & Sewer
Authority

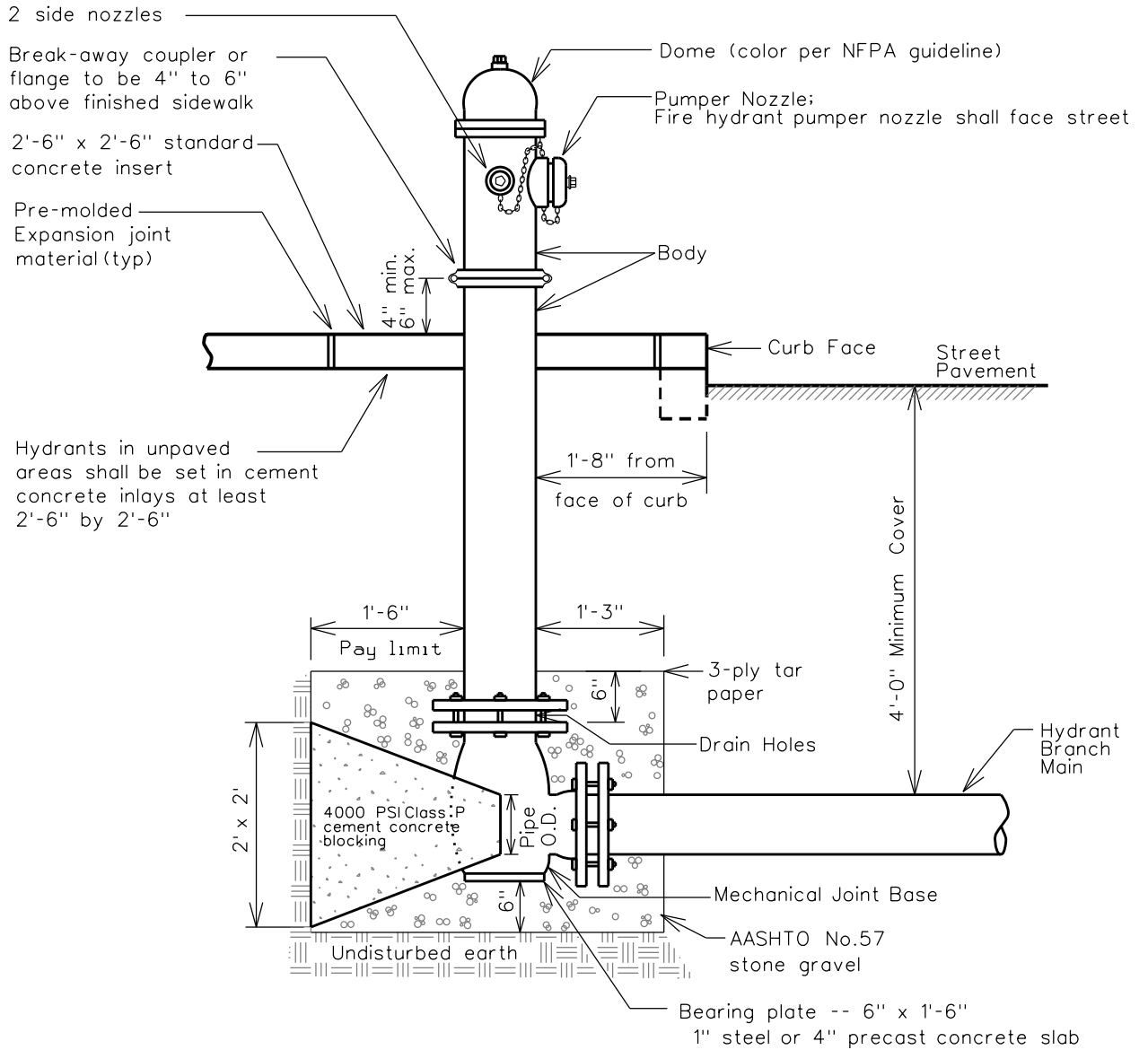
The Pittsburgh Water and Sewer Authority
Concrete Blocking For Pressure Pipe

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdws3.det

Supplemental
Detail Drawing:

WS-3



NOTE:

FOR HYDRANT PAINTING REQUIREMENTS, REFER TO STANDARD DETAIL WS-HYD.

5/19/2015

R E V I S I O N S	
1.	MSR 4-23-01
2.	MAC 8-13-07
3.	LRC 6-05-08
4.	LRC 1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority

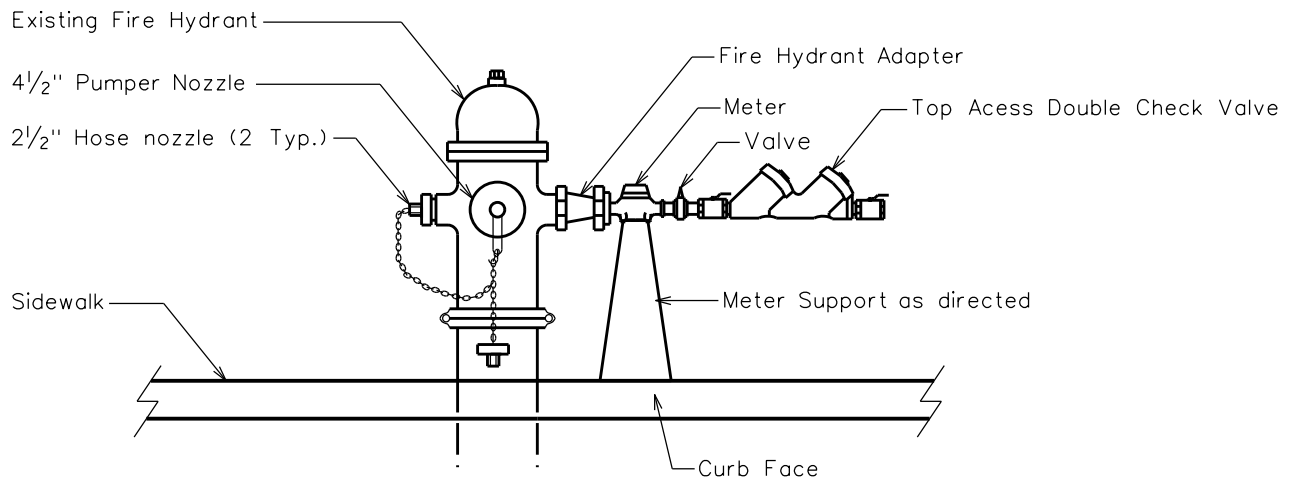
Fire Hydrant Installation

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdws4.det

Supplemental Detail Drawing:

WS-4



NOTES:


1. ANY DAMAGE CAUSED TO THE FIRE HYDRANT AND/OR METER IS THE RESPONSIBILITY OF THE CUSTOMER.
2. THE P.W.S.A. WILL SUPPLY THE FIRE HYDRANT ADAPTOR AND METER.
3. THE P.W.S.A. WILL INSTALL THE METER AND OPERATING VALVE.
4. THE CUSTOMER IS RESPONSIBLE FOR PROTECTING THE FIRE HYDRANT AND METER FROM VANDALISM AND COLD WEATHER.
5. THE METER MUST BE SUPPORTED AS APPROVED BY THE P.W.S.A.
6. THE CUSTOMER IS RESPONSIBLE FOR PURCHASING AND INSTALLING THE DOUBLE CHECK BACKFLOW PREVENTER.
7. ONLY P.W.S.A. IS PERMITTED TO OPERATE THE FIRE HYDRANT; WATER FLOW IS TO BE CONTROLLED BY THE INSTALLED VALVE.
9. THE CUSTOMER IS RESPONSIBLE FOR MAINTAINING A SAFE PEDESTRIAN ENVIRONMENT.
10. WHEN WORK IS COMPLETED, THE CUSTOMER MUST CONTACT P.W.S.A. AT 412-255-2429 TO SCHEDULE THE DISCONNECT AND REMOVAL OF APPURTENANCES. AT THIS TIME, A FINAL READING OF THE METER WILL BE MADE AND THE CUSTOMER WILL BE INVOICED FOR THE WATER USAGE.

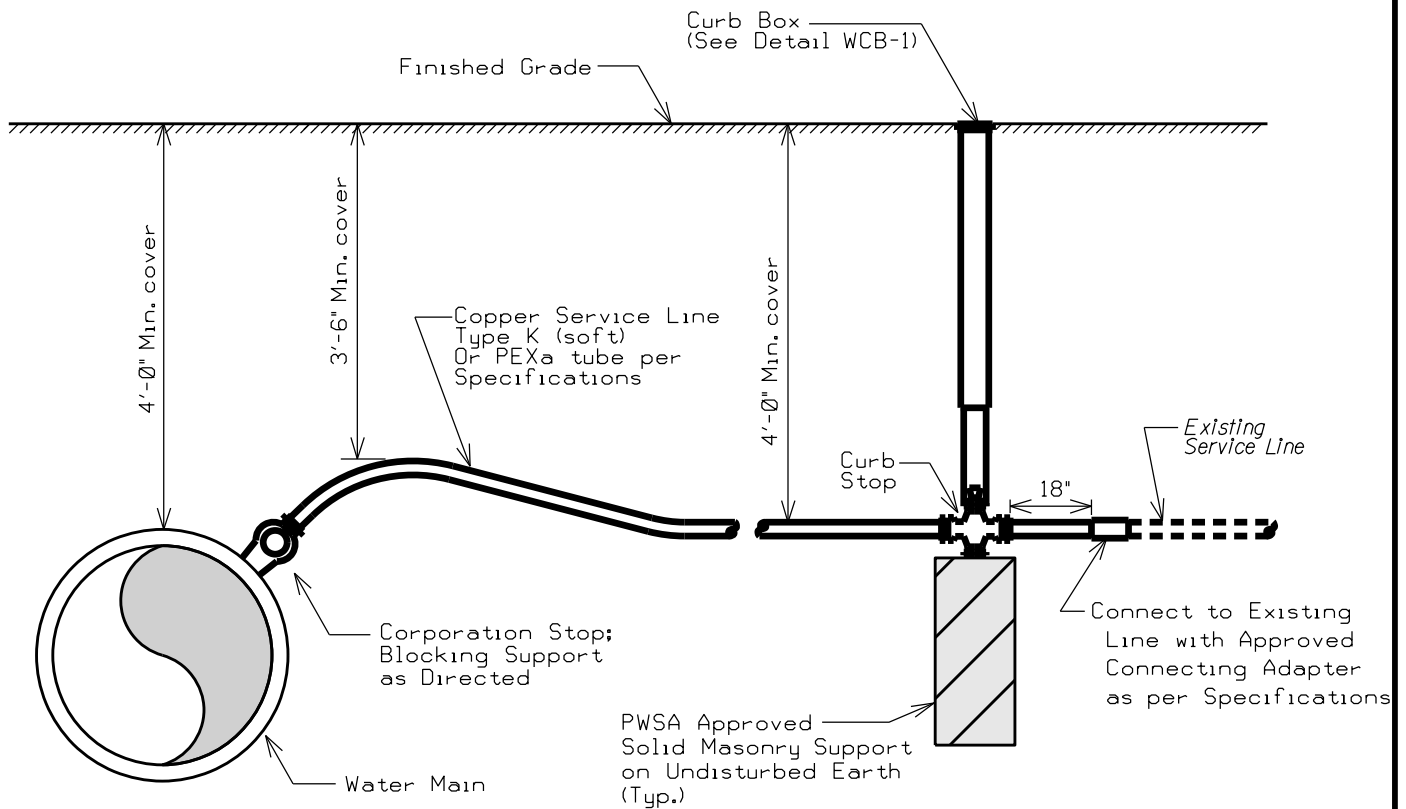
I HAVE READ THE NOTES ABOVE AND UNDERSTAND MY RESPONSIBILITIES.

SIGN HERE _____ DATE _____

PRINT HERE _____

5/19/2015

R E V I S I O N S		The Pittsburgh Water and Sewer Authority	
1. LRC 1-31-14		Fire Hydrant With Metered Installation	
		Scale: N.T.S.	Supplemental Detail Drawing: WS-4M
Approved by: _____		M:\pwsa\gis\det\Standards\stdws4m.det	



Note:

1. For PEXa Pipe Installation, Corporation And Curb Stops Shall Be Compression Type Fitting And Shall Have Tracer Wire Installed Per Manufacturer's Specifications.

2. Polywrap all metallic pipe, fittings and valves.

2/22/2016

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 9-1-05	
3. MAC 8-13-07	
4. MAC 1-2-08	

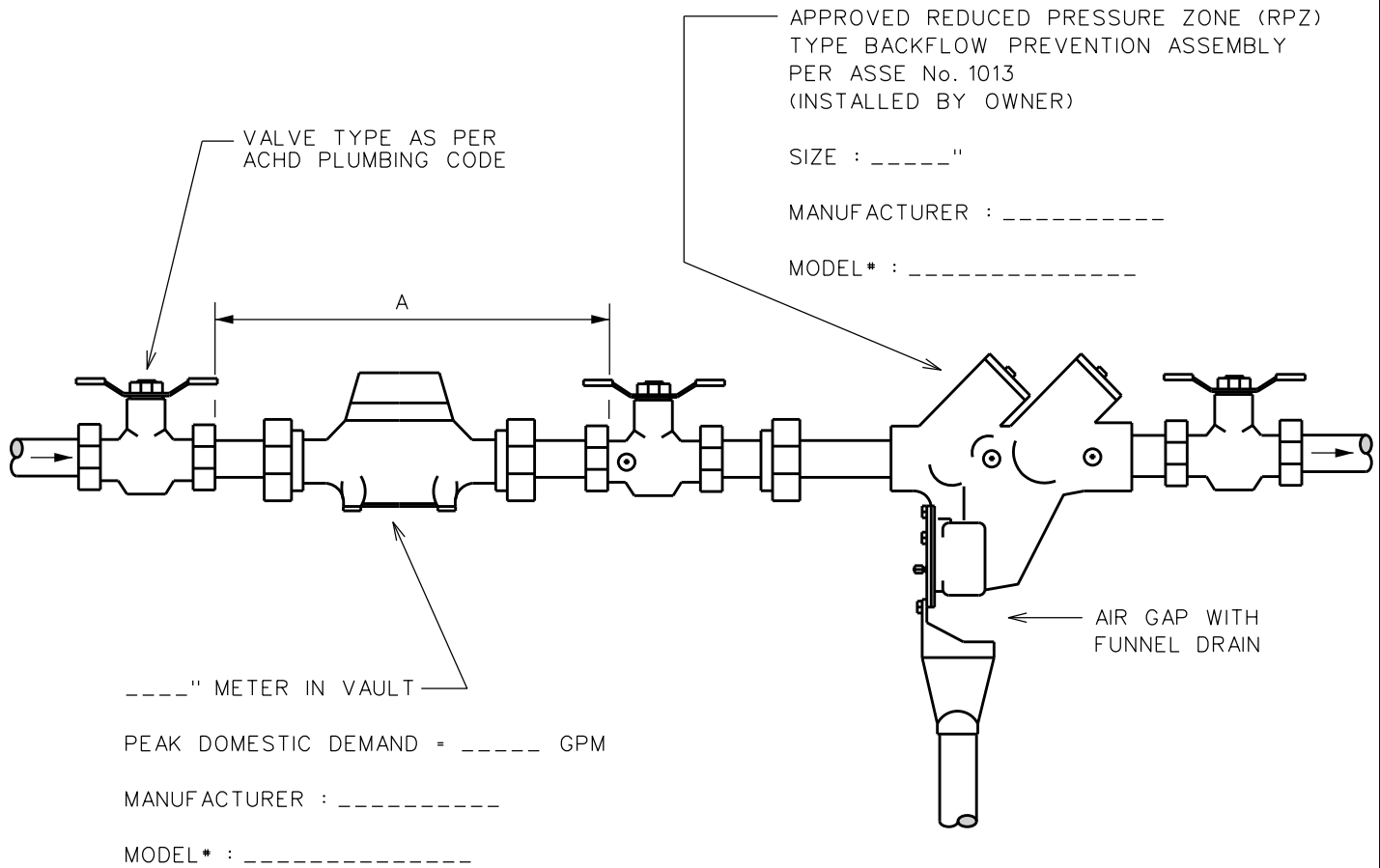
Approved by:

PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Water Service Line
Reconnection To Existing Service**

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdws5.det

Supplemental
Detail Drawing: **WS-5**



_____" METER IN VAULT
 PEAK DOMESTIC DEMAND = _____ GPM
 MANUFACTURER : _____
 MODEL * : _____

NOTES

- METER TO BE INSTALLED IN A WARM, NON-FREEZING, ACCESSIBLE AREA WITHIN DWELLING, A MINIMUM OF 2' FROM FLOOR AND A MAXIMUM OF 3' FROM POINT OF ENTRY AND/OR FROM INSIDE WALL.
- SEE ACHD PLUMBING CODE FOR ADDITIONAL PIPING AND PRESSURE REGULATOR REQUIREMENTS.
- PROPER METER ACCESS REQUIRED. METER SETTING CAN NOT BE IN A RESTRICTED AREA (e.g. UNDER STEPS, BEHIND FURNACE OR HOT WATER TANK), OR IN OTHER OBSTRUCTED AREAS IN ANY WAY.
- METER SETTING VALUES:

SIZE	COUPLING SPACE A	METER TAIL-PIECE	FLOW (GPM)
5/8"	12.5"	1/2"	20
5/8x3/4"	12.5"	3/4"	20
3/4"	14.25"	3/4"	30
1"	16.5"	1"	50

- THE METER AND MXU SHALL BE PURCHASED FROM AND INSTALLED BY PWSA.
- METER ASSEMBLY SETTINGS MUST BE INSTALLED BY THE CUSTOMER BEFORE THE METER WILL BE SET, INCLUDING METER SIGNAL WIRING.
- CUSTOMER SHALL PROVIDE PROPER DRAIN AT METER SETTING LOCATION.
- METER MUST BE INSTALLED IN A HORIZONTAL POSITION ONLY.
- CUSTOMER TO PROVIDE DATA FOR PROPER PWSA SIZING AND PEAK DOMESTIC DEMAND.

7/7/2015

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. DWP 9-15-05	
3. MAC 8-13-07	
4. MAC 4-14-09	

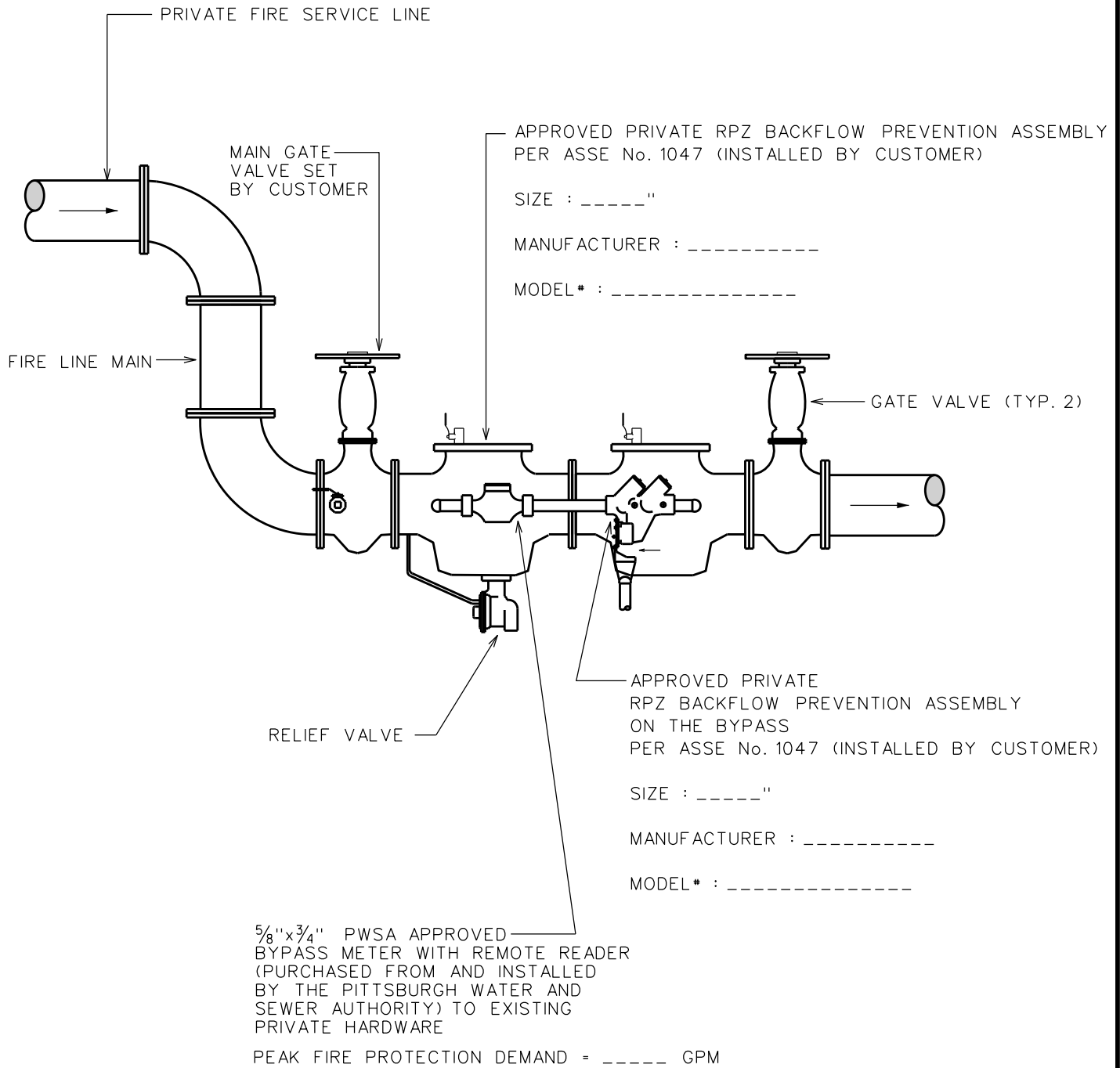
Approved by: _____



The Pittsburgh Water and Sewer Authority

**Domestic Service Internal Meter Setting
Commercial And Multi-Family**

Scale: N.T.S.	Supplemental Detail Drawing: WS-5CDI
M:\pwsa\gis\det\Standards\stdws5cdi.det	



NOTES:

1. ALL ITEMS SHOWN EXCEPT THE BYPASS METER AND MIU SHALL BE FURNISHED AND INSTALLED BY THE CUSTOMER.
2. CUSTOMER TO PROVIDE DATA FOR CORRECT SIZE, MODEL, MANUFACTURER, AND PEAK FIRE DEMAND.
3. INSTALLATION OF ASSEMBLY IS PERMITTED IN VAULT, AS DIRECTED.
4. MANDATORY TEST REQUIRED AT TIME OF INSTALLATION PER IPC 312.9.2. FIELD TESTING REQUIREMENTS AND REPORTING SHALL BE PER ASSE No. 5013 2.0 AND 3.0.

5/19/2015

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. DWP 9-15-05	
3. MAC 8-13-07	
4. BDB 1-9-12	

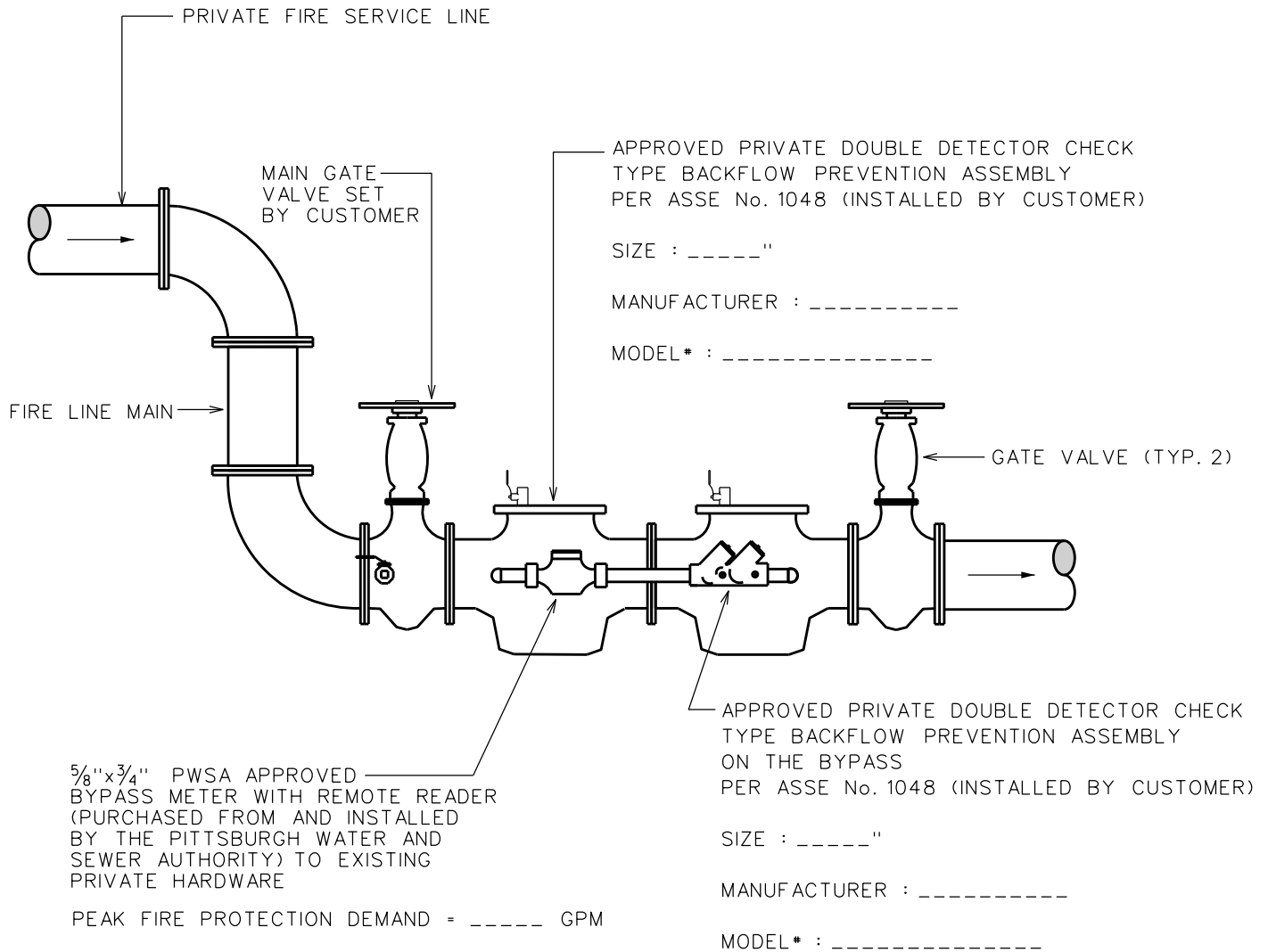
PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Typical Plumbing Schematic
High Hazard Fire Protection Service**

Approved by:

Scale: N.T.S.
M:\pwsa\gis\det\Standards\stdws5fphh.det

Supplemental Detail Drawing: **WS-5FPHH**




5/8"x3/4" PWSA APPROVED BYPASS METER WITH REMOTE READER (PURCHASED FROM AND INSTALLED BY THE PITTSBURGH WATER AND SEWER AUTHORITY) TO EXISTING PRIVATE HARDWARE

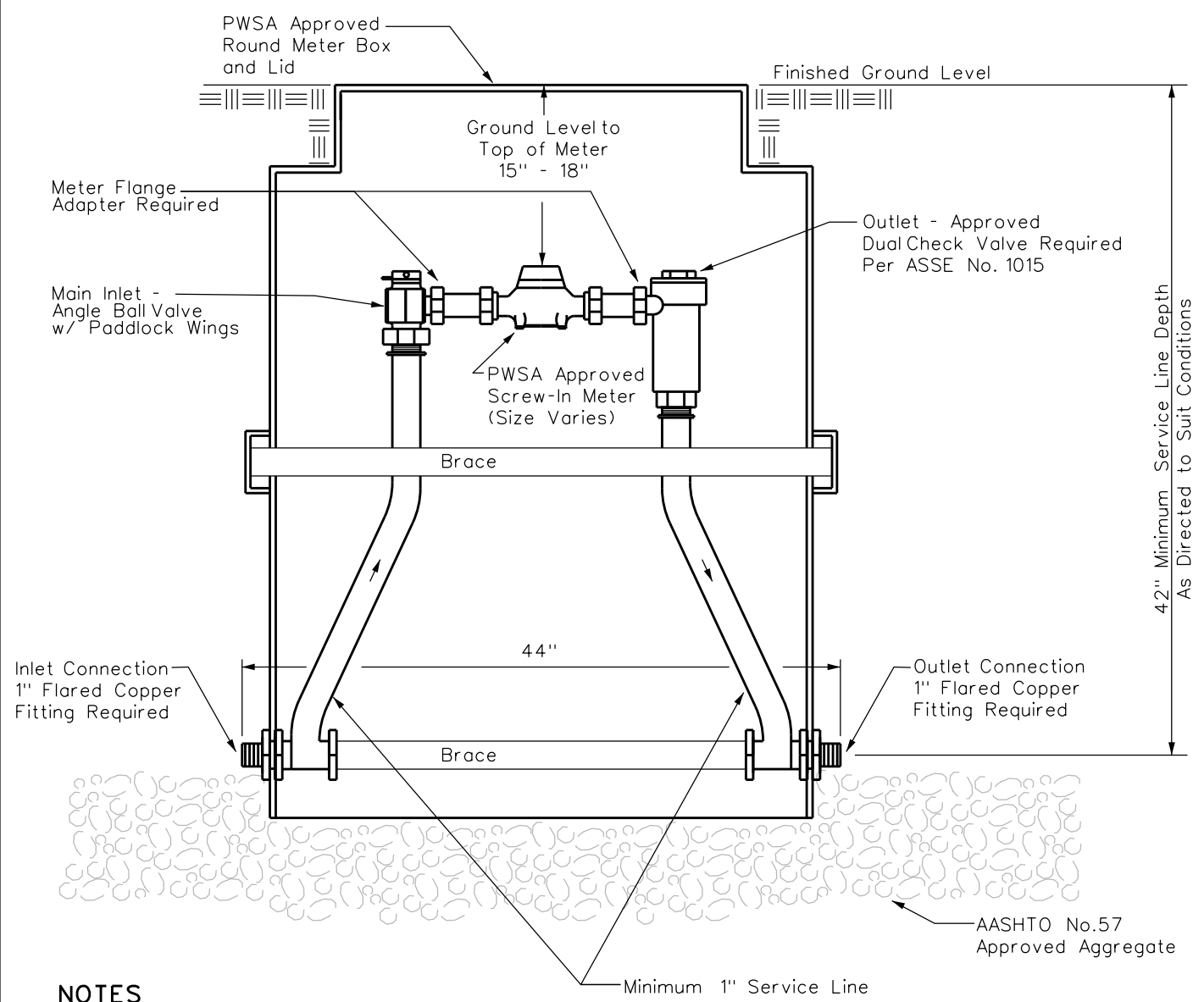
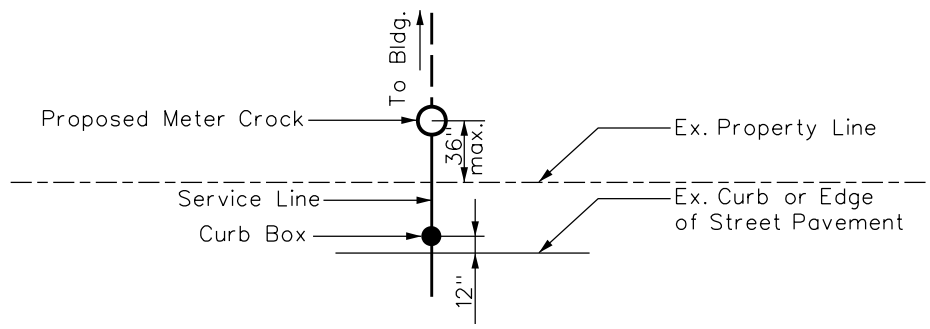
PEAK FIRE PROTECTION DEMAND = _____ GPM

NOTES:

1. ALL ITEMS SHOWN EXCEPT THE BYPASS METER AND MIU SHALL BE FURNISHED AND INSTALLED BY THE CUSTOMER.
2. CUSTOMER TO PROVIDE DATA FOR CORRECT SIZE, MODEL, MANUFACTURER, AND PEAK FIRE DEMAND.
3. INSTALLATION OF ASSEMBLY IS PERMITTED IN VAULT, AS DIRECTED.
4. MANDATORY TEST REQUIRED AT TIME OF INSTALLATION PER IPC 312.9.2. FIELD TESTING REQUIREMENTS AND REPORTING SHALL BE PER ASSE No. 5013 2.0 AND 3.0.

5/19/2015

R E V I S I O N S			The Pittsburgh Water and Sewer Authority	
1.	MSR 4-23-01		Typical Plumbing Schematic	
2.	DWP 9-15-05		Low Hazard Fire Protection Service	
3.	MAC 8-13-07		Scale: N.T.S.	Supplemental
4.	LRC 1-31-14		Detail Drawing: WS-5FPLH	
Approved by:		Pittsburgh Water & Sewer Authority		M:\pwsa\gis\det\Standards\stdws5fplh.det



NOTES

- METER SETTING ASSEMBLY MUST BE FORD, OR EQUAL, COPPERSETTER WITH DUAL CHECK VALVE OR APPROVED EQUAL PER ASSE No. 1015, COMPLETE WITH MXU.
- METER BOX SETTING AND PIPE ASSEMBLY TO BE CONSTRUCTED BY THE PROPERTY OWNER. THE PWSA IS ONLY RESPONSIBLE FOR THE METER AND MXU READING DEVICE. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OTHER ITEMS, INCLUDING PROTECTING THE PWSA METER AND MXU FROM ABUSE AND/OR FREEZING.
- METER CROCK BASE TO REMAIN OPEN TO BASE MATERIAL, DO NOT SEAL.

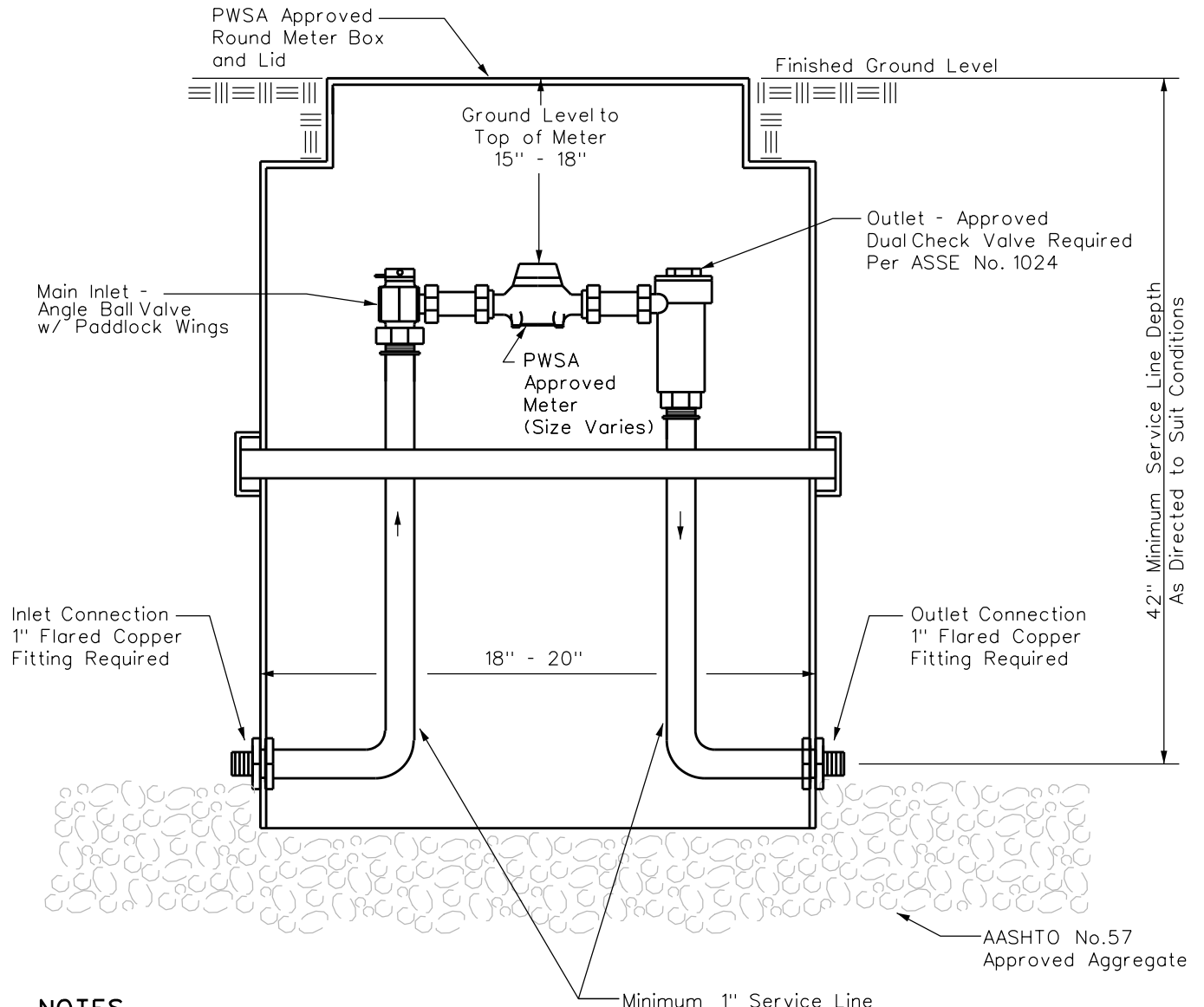
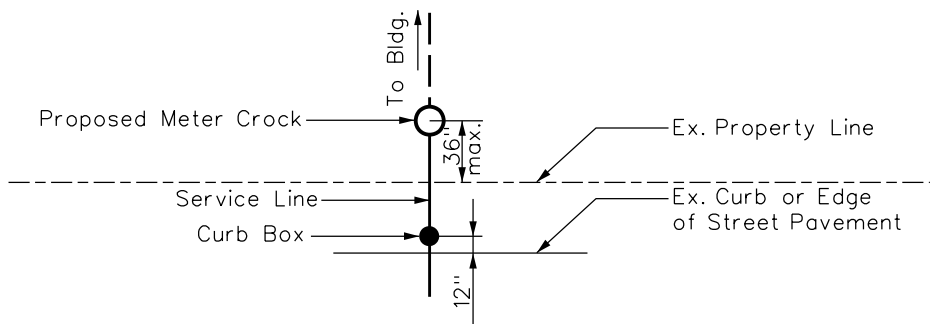
10/27/2015

R E V I S I O N S	
1. MSR 4-23-01	
2. DWP 9-15-05	
3. MAC 8-16-07	
4. LRC 1-31-14	
Approved by:	



The Pittsburgh Water and Sewer Authority
Commercial Service
External Setting 1-1/2" - 2" Meter


Scale: N.T.S.	Supplemental Detail Drawing: WS-5MPC
M:\pwsa\gis\det\Standards\stdws5mpc.det	

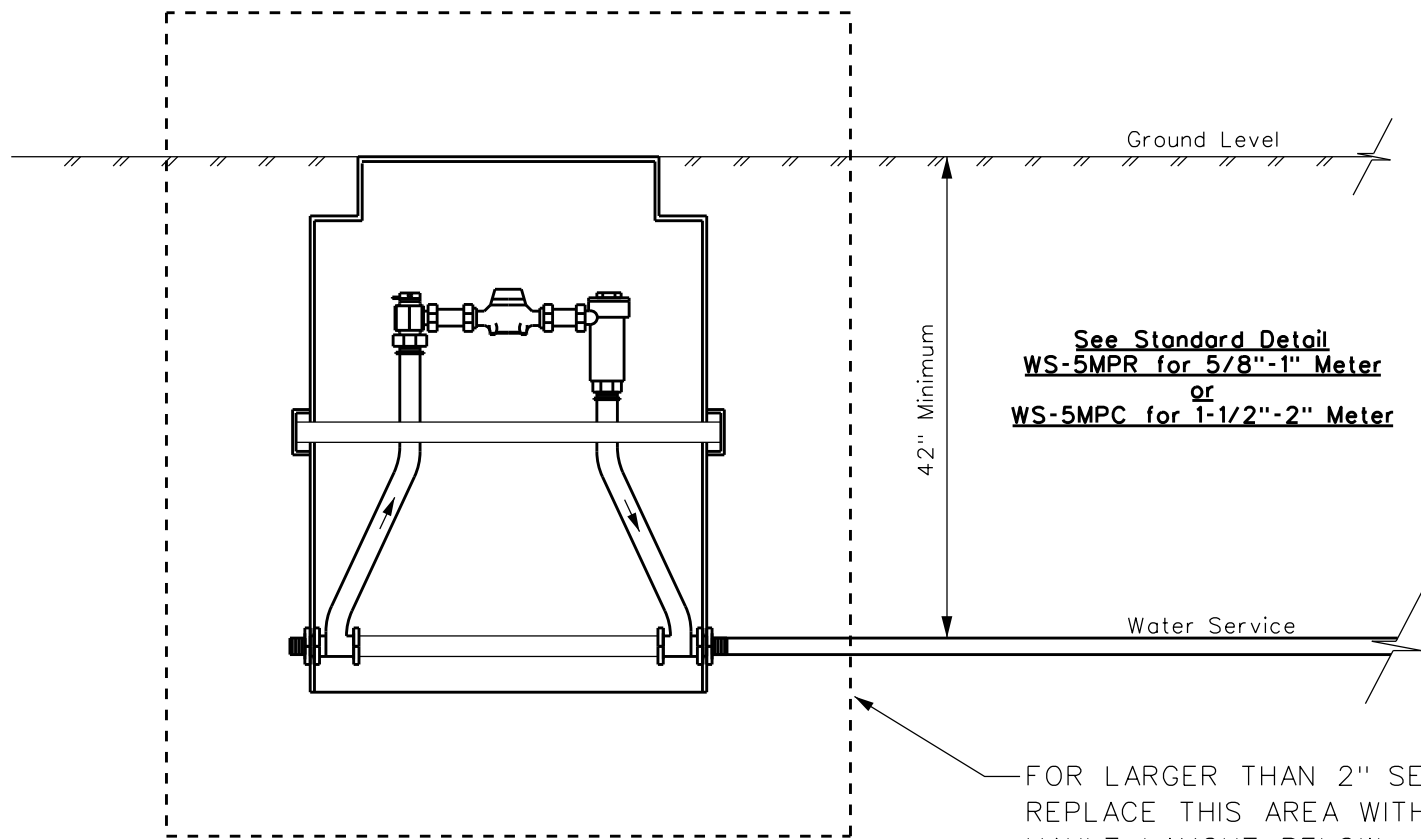


NOTES

1. METER SETTING ASSEMBLY MUST BE FORD, OR EQUAL, COPPERSETTER WITH DUAL CHECK VALVE OR APPROVED EQUAL PER ASSE No. 1024, COMPLETE WITH MXU.
2. METER BOX SETTING AND PIPE ASSEMBLY TO BE CONSTRUCTED BY THE PROPERTY OWNER. THE PWSA IS ONLY RESPONSIBLE FOR THE METER AND MXU READING DEVICE. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OTHER ITEMS, INCLUDING PROTECTING THE PWSA METER AND MXU FROM ABUSE AND/OR FREEZING.
3. METER CROCK BASE TO REMAIN OPEN TO BASE MATERIAL, DO NOT SEAL.

5/19/2015

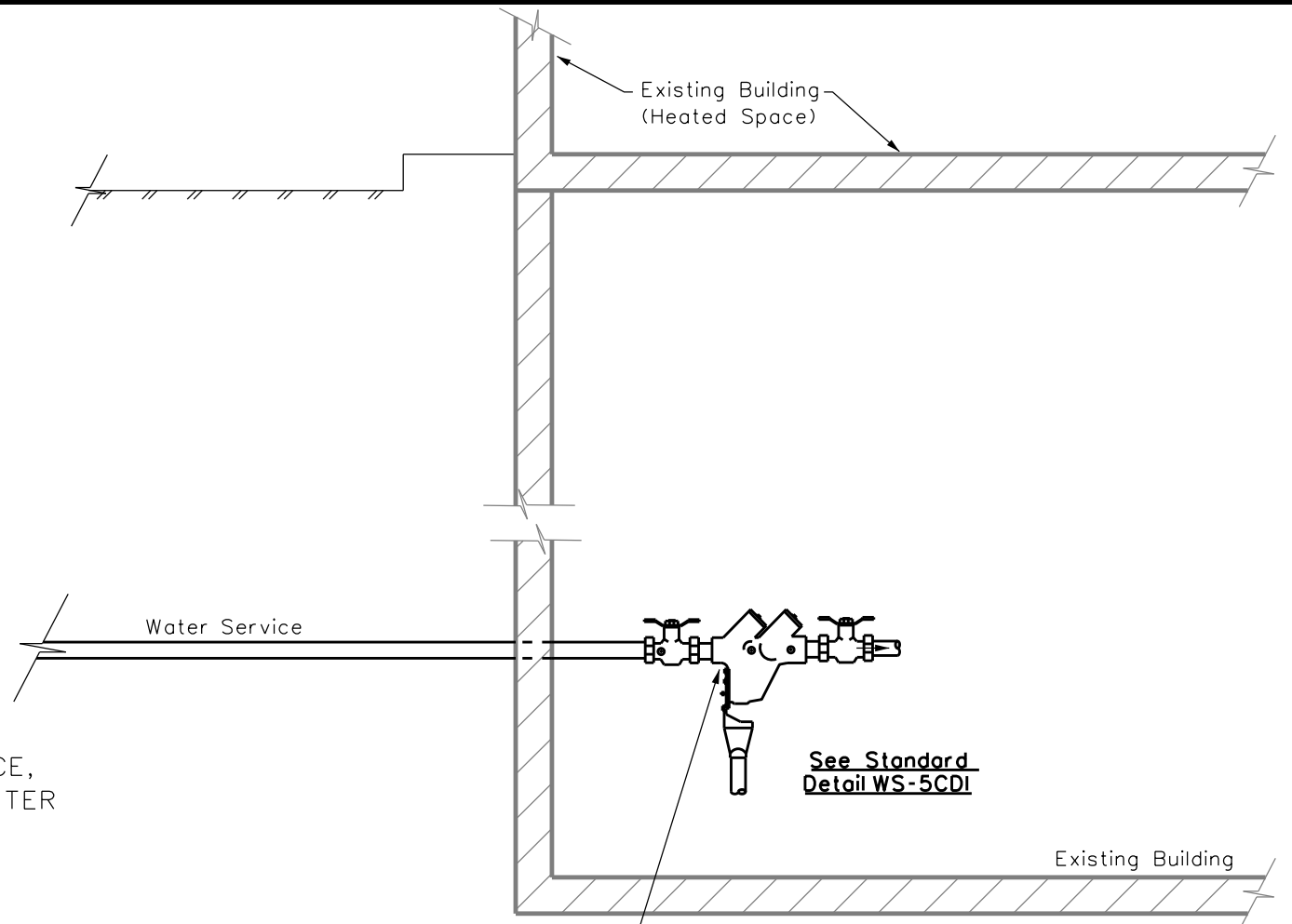
R E V I S I O N S			The Pittsburgh Water and Sewer Authority	
1. MSR 4-23-01			Residential Domestic Service External Setting 5/8" - 1" Meter	
2. DWP 9-15-05			Scale: N.T.S.	
3. MAC 8-16-07			Supplemental Detail Drawing: WS-5MPR	
4. LRC 1-31-14			M:\pwsa\gis\det\Standards\stdws5mpr.det	
Approved by:		Pittsburgh Water & Sewer Authority		



METER BOX LAYOUT

See Standard Detail
 WS-5MPR for 5/8"-1" Meter
 or
 WS-5MPC for 1-1/2"-2" Meter

FOR LARGER THAN 2" SERVICE,
 REPLACE THIS AREA WITH METER
 VAULT LAYOUT BELOW



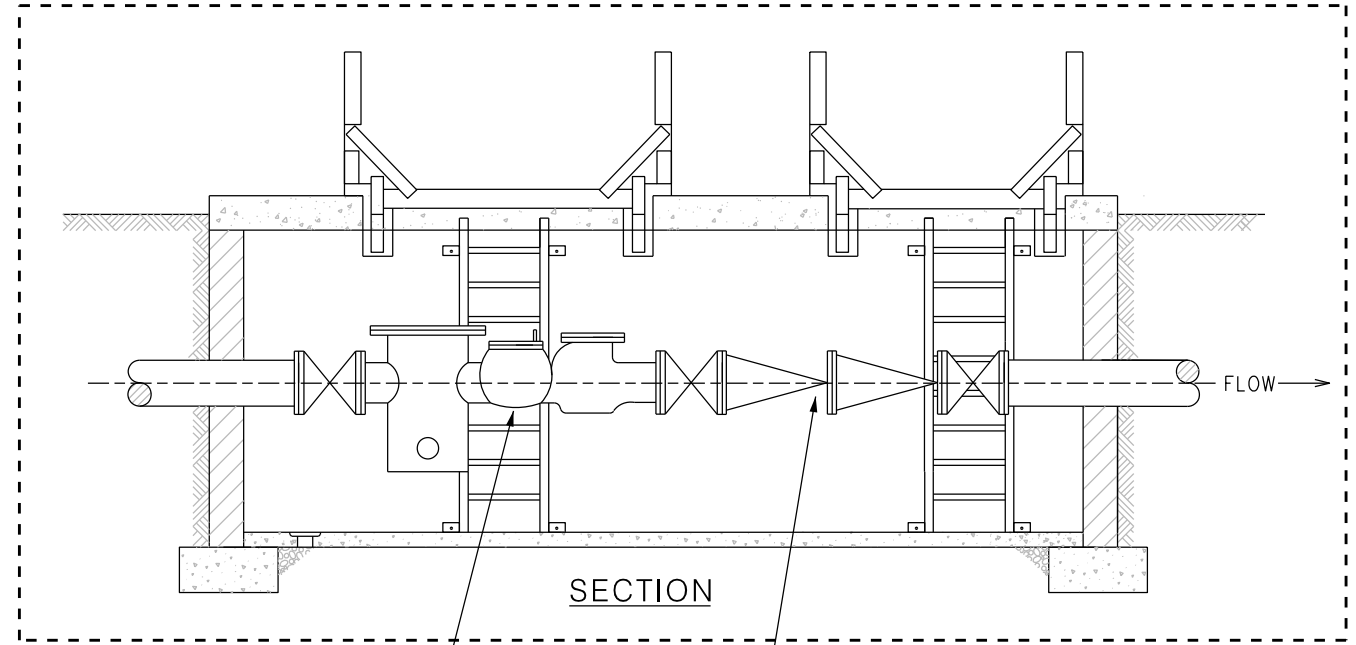
See Standard
 Detail WS-5CDI

RPZ DATA
 APPROVED REDUCED PRESSURE ZONE (RPZ)
 TYPE BACKFLOW PREVENTION ASSEMBLY
 PER ASSE No. 1013
 (INSTALLED BY OWNER)

SIZE : _____"

MANUFACTURER : _____

MODEL* : _____



SECTION

See Standard
 Detail WMV

METER SET DATA
 PEAK DOMESTIC DEMAND = _____ GPM
 METER SIZE : _____"

DOUBLE DETECTOR CHECK DATA
 APPROVED DOUBLE DETECTOR CHECK
 TYPE BACKFLOW PREVENTION ASSEMBLY
 PER ASSE No. 1048 (INSTALLED BY OWNER)

SIZE : _____"

MANUFACTURER : _____

MODEL* : _____

METER VAULT LAYOUT

NOTES:

1. Meter Box Setting for use on water service meters 2" and under.
2. Meter Vault required on meters larger than 2".
3. Mandatory test required at time of installation per IPC 312.9.2.

10/27/2015

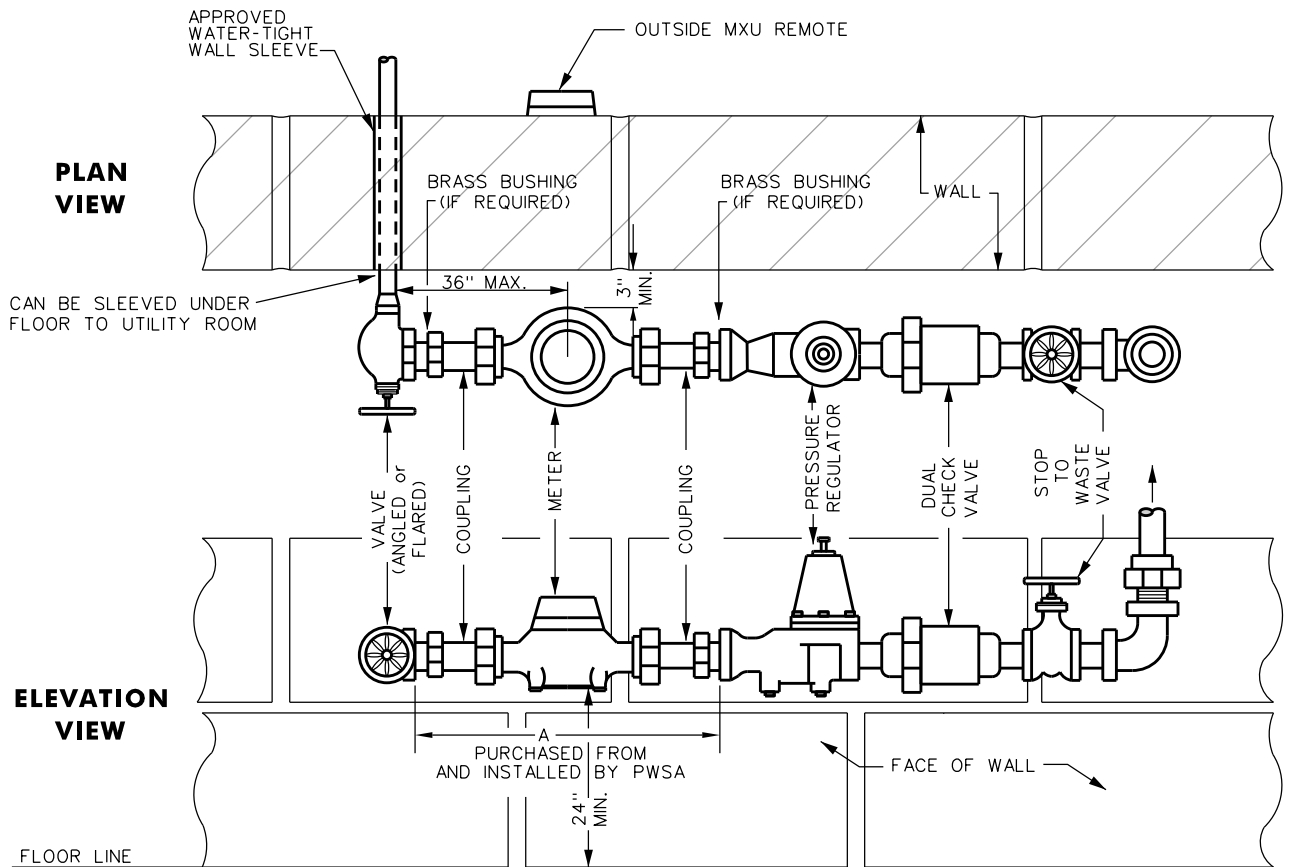
R E V I S I O N S		
1.	RDH	8-8-07
2.	MJM	3-30-10
3.	LRC	1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority
**Domestic Service External Meter Setting
 Commercial And Multi-Family**

Scale: N.T.S.
 Supplemental Detail Drawing: **WS-5MPRPZ**



PEAK DOMESTIC DEMAND = ----- GPM

NOTES

1. METER TO BE INSTALLED IN A WARM, NON-FREEZING, ACCESSIBLE AREA WITHIN DWELLING, A MINIMUM OF 2' FROM FLOOR AND A MAXIMUM OF 3' FROM POINT OF ENTRY AND/OR FROM INSIDE WALL.

2. SEE ACHD PLUMBING CODE FOR ADDITIONAL PIPING AND PRESSURE REGULATOR REQUIREMENTS.

3. PROPER METER ACCESS REQUIRED. METER SETTING CAN NOT BE IN A RESTRICTED AREA (e.g. UNDER STEPS, BEHIND FURNACE OR HOT WATER TANK), OR IN OTHER OBSTRUCTED AREAS IN ANY WAY.

4. METER SETTING VALUES:

SIZE	COUPLING SPACE A	METER TAIL-PIECE	FLOW (GPM)
5/8"	12.5"	1/2"	20
5/8x3/4"	12.5"	3/4"	20
3/4"	14.25"	3/4"	30
1"	16.5"	1"	50

5. THE METER AND MXU SHALL BE PURCHASED FROM AND INSTALLED BY PWSA.

6. METER ASSEMBLY SETTINGS MUST BE INSTALLED BY THE CUSTOMER BEFORE THE METER WILL BE SET, INCLUDING METER SIGNAL WIRING.

7. CUSTOMER SHALL PROVIDE PROPER DRAIN AT METER SETTING LOCATION.

8. METER MUST BE INSTALLED IN A HORIZONTAL POSITION ONLY.

9. CUSTOMER TO PROVIDE DATA FOR PROPER PWSA SIZING AND PEAK DOMESTIC DEMAND.

10. APPROVED BACKFLOW PREVENTER REQUIRED, PER ASSE No. 1024.

REVISIONS

1.	MSR 4-23-01
2.	DWP 9-15-05
3.	MAC 8-13-07
4.	LRC 1-31-14

Approved by:



Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority

Domestic Meter Setting Specifications Indoor Residential 5/8" - 1" Meter

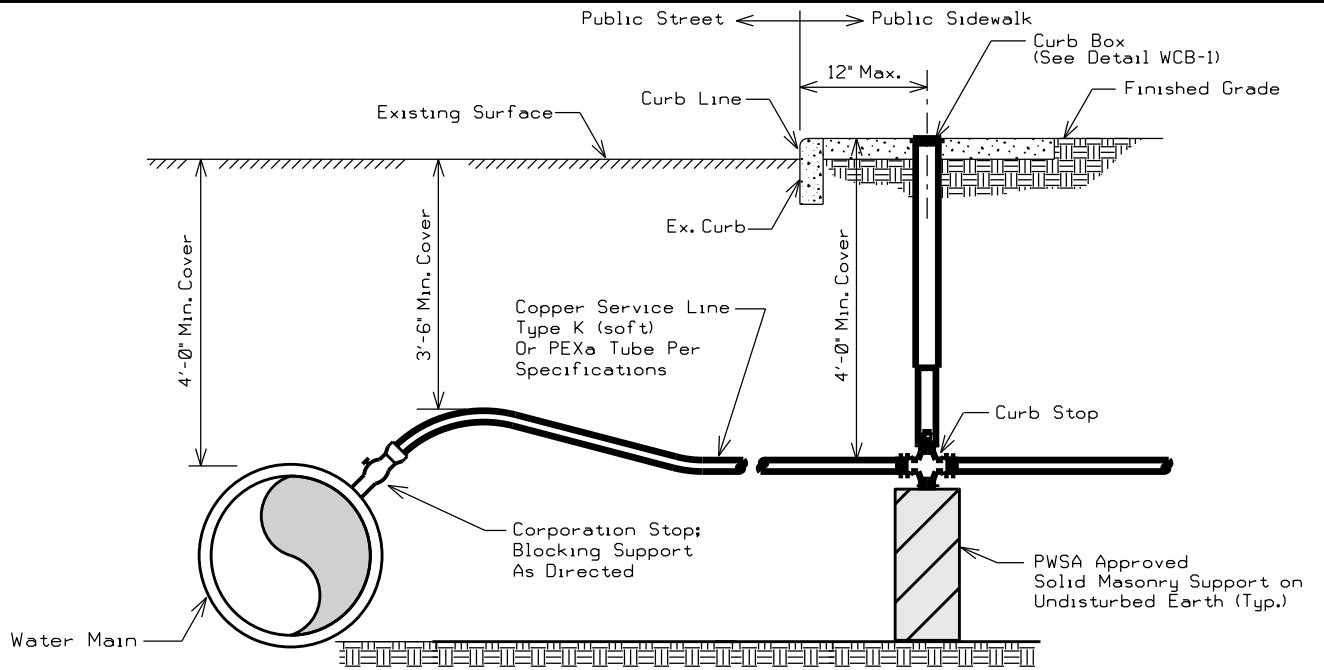
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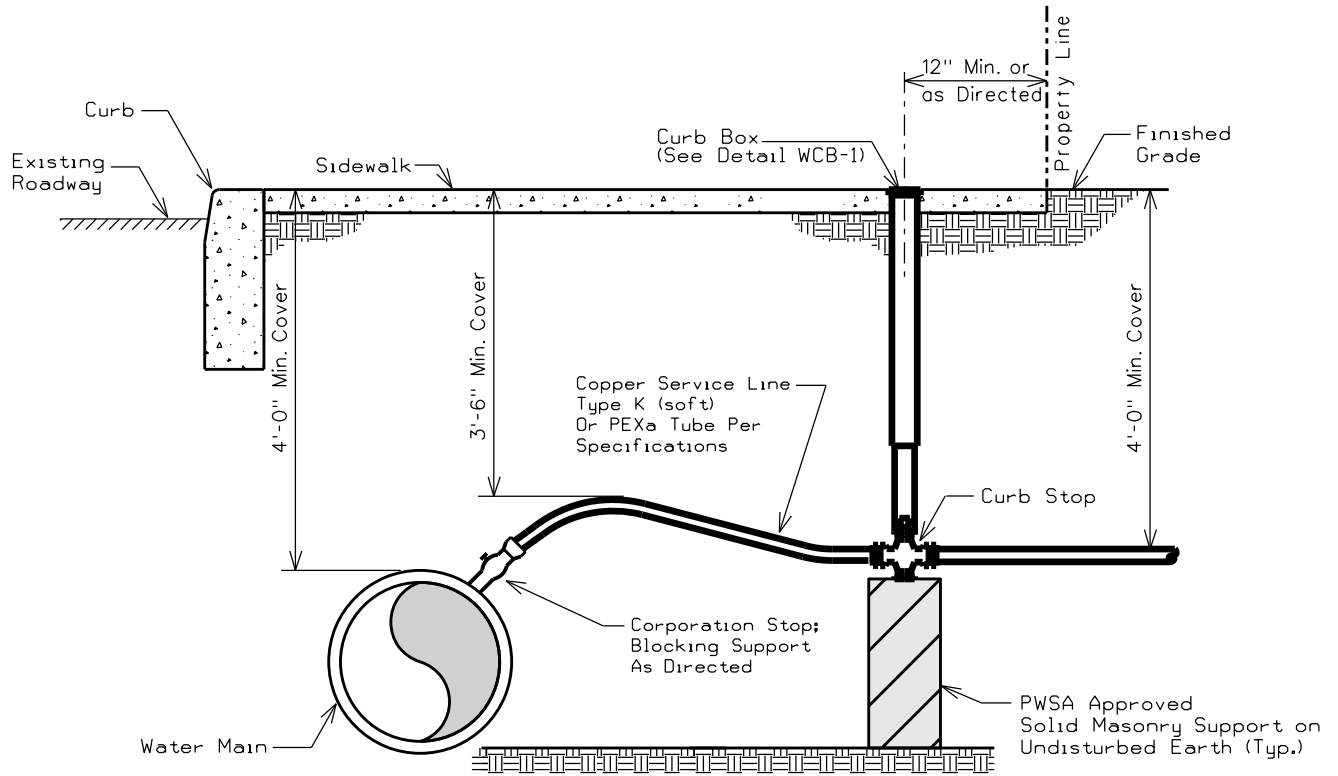
Supplemental
Detail Drawing:

WS-5MS

5/19/2015



SECTION - 1" AND 1-1/2" INSTALLATION STREET MAIN



SECTION - 1" AND 1-1/2" INSTALLATION SIDEWALK MAIN

NOTES:

1. Only one PWSA meter will be installed per each service tap.
2. Domestic Service is 1' min. from PWSA main to meter.
3. For PEXa pipe installation, corporation and curb stops shall be compression type fitting and shall have tracer wire installed per manufacturer's specifications.
4. Polywrap all metallic pipe, fittings and valves.

2/22/2016

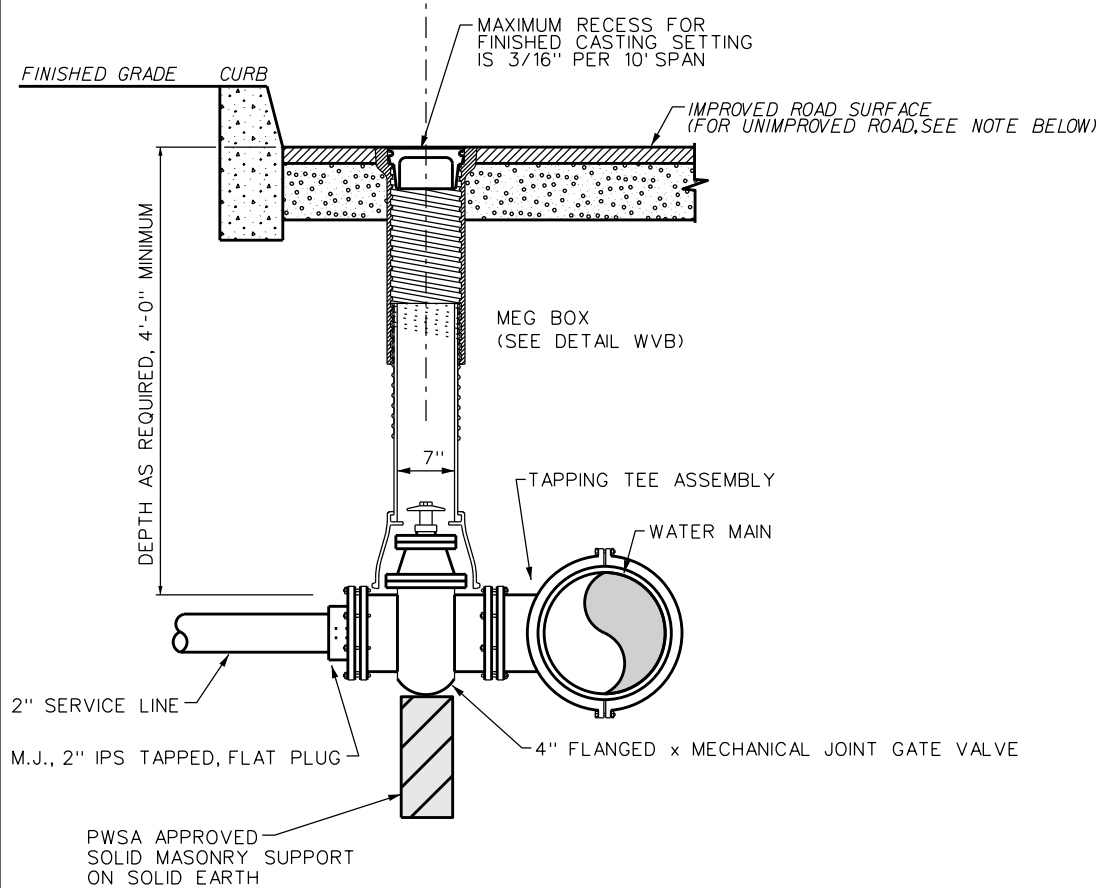
R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 9-1-05	
3. MAC 8-10-07	
4. MAC 1-2-08	

Approved by:

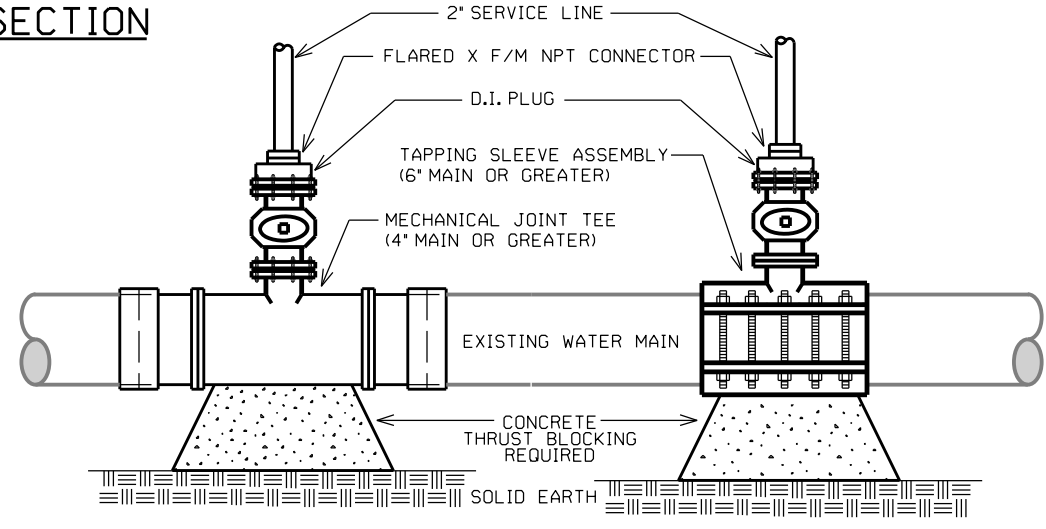
The Pittsburgh Water and Sewer Authority
Water Service Line
1" And 1-1/2 " Domestic / Fire
New Installation

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdws5nt.det

Supplemental Detail Drawing: **WS-5NT**



SECTION



Cut-In Tee OR Tapping Tee

PLAN

NOTES:

1. ALL FITTINGS SHALL HAVE THRUST BLOCKS (SEE DETAIL WS-3).
2. STANDARD GATE BOX LID: TWO NOTCH OPENINGS REQUIRED. DIAMETER TO MATCH BOX.
3. GATE BOX EXTENSION: GATE BOX EXTENSION RINGS ARE NOT TO BE USED IN NEW WORK.
4. MEG BOX MATERIAL SHALL BE CAST IRON.
5. IF MEG BOX IS LOCATED IN AN UNIMPROVED AREA, THEN A 30"X30"X 8"D CONCRETE PAD APRON CENTERED AROUND THE MEG BOX IS REQUIRED.
6. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
7. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.
8. ONLY ONE PWSA METER WILL BE INSTALLED PER EACH SERVICE TAP.
9. MAIN LINE SHUT REQUIRED AND MUST BE COORDINATED AT THE PWSA PERMITS COUNTER.

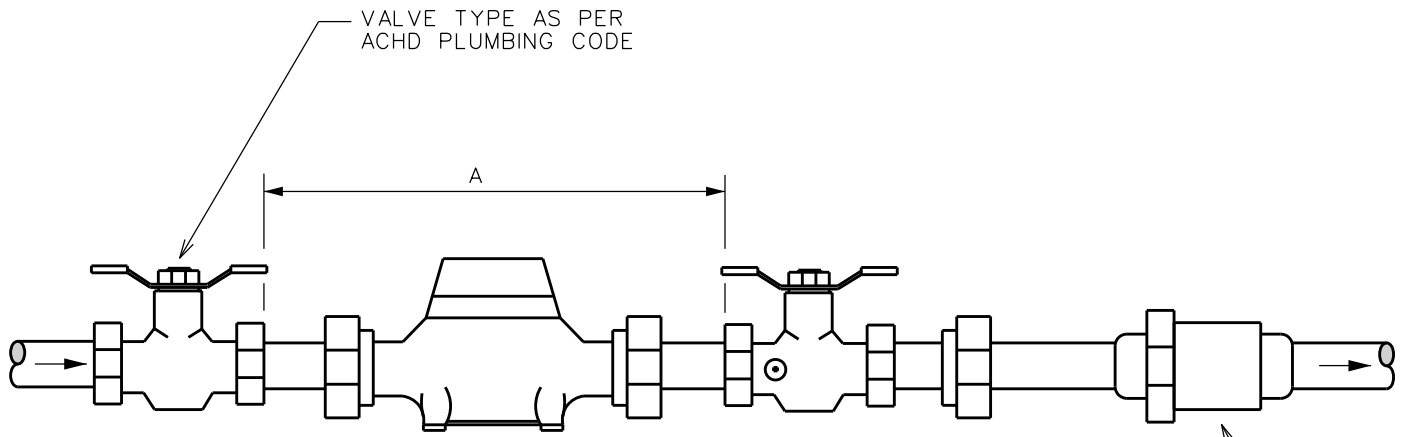
5/19/2015

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 9-1-05	
3. MAC 8-10-07	
4. MAC 1-2-08	
Approved by:	

PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Water Service Line
2" Domestic / Fire
New Installation**

Scale: N.T.S.	Supplemental Detail Drawing: WS-5NT2
M:\pwsa\gis\det\Standards\stdws5nt2.det	



-----" METER IN VAULT

PEAK DOMESTIC DEMAND = ----- GPM

MANUFACTURER : -----

MODEL * : -----

APPROVED DUAL CHECK VALVE
 BACKFLOW PREVENTION ASSEMBLY
 PER ASSE No. 1024
 (INSTALLED BY OWNER)

SIZE : -----"

MANUFACTURER : -----

MODEL * : -----

NOTES

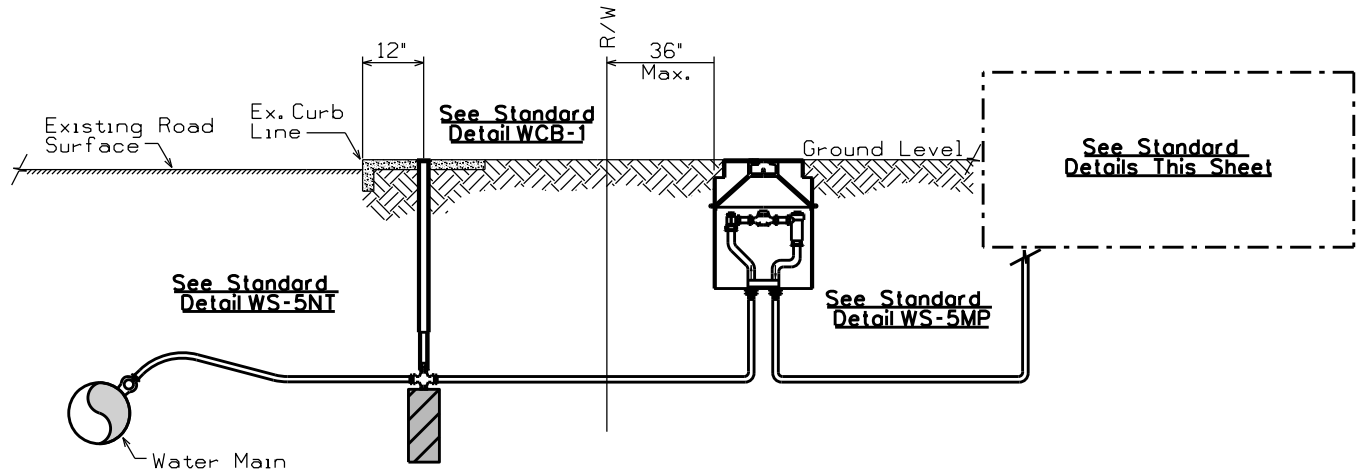
- METER TO BE INSTALLED IN A WARM, NON-FREEZING, ACCESSIBLE AREA WITHIN DWELLING, A MINIMUM OF 2' FROM FLOOR AND A MAXIMUM OF 3' FROM POINT OF ENTRY AND/OR FROM INSIDE WALL.
- SEE ACHD PLUMBING CODE FOR ADDITIONAL PIPING AND PRESSURE REGULATOR REQUIREMENTS.
- PROPER METER ACCESS REQUIRED. METER SETTING CAN NOT BE IN A RESTRICTED AREA (e.g. UNDER STEPS, BEHIND FURNACE OR HOT WATER TANK), OR IN OTHER OBSTRUCTED AREAS IN ANY WAY.
- METER SETTING VALUES:

- THE METER AND MXU SHALL BE PURCHASED FROM AND INSTALLED BY PWSA.
- METER ASSEMBLY SETTINGS MUST BE INSTALLED BY THE CUSTOMER BEFORE THE METER WILL BE SET, INCLUDING METER SIGNAL WIRING.
- CUSTOMER SHALL PROVIDE PROPER DRAIN AT METER SETTING LOCATION.
- METER MUST BE INSTALLED IN A HORIZONTAL POSITION ONLY.
- CUSTOMER TO PROVIDE DATA FOR PROPER PWSA SIZING AND PEAK DOMESTIC DEMAND.

SIZE	COUPLING SPACE A	METER TAIL-PIECE	FLOW (GPM)
5/8"	12.5"	1/2"	20
5/8x3/4"	12.5"	3/4"	20
3/4"	14.25"	3/4"	30
1"	16.5"	1"	50

7/7/2015

<p>R E V I S I O N S</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">1. MSR 4-23-01</td> <td style="width: 50%;">5. LRC 1-31-14</td> </tr> <tr> <td>2. DWP 9-15-05</td> <td></td> </tr> <tr> <td>3. MAC 8-13-07</td> <td></td> </tr> <tr> <td>4. MAC 4-14-09</td> <td></td> </tr> </table>	1. MSR 4-23-01	5. LRC 1-31-14	2. DWP 9-15-05		3. MAC 8-13-07		4. MAC 4-14-09			<p>The Pittsburgh Water and Sewer Authority</p> <p>Domestic Service Internal Meter Setting Residential And Low Hazard</p>
1. MSR 4-23-01	5. LRC 1-31-14									
2. DWP 9-15-05										
3. MAC 8-13-07										
4. MAC 4-14-09										
<p>Approved by:</p>	<p>Pittsburgh Water & Sewer Authority</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Scale: N.T.S.</td> <td style="width: 50%;">Supplemental Detail Drawing: WS-5RDI</td> </tr> <tr> <td colspan="2" style="font-size: small;">M:\pwsa\gis\det\Standards\stdws5rd1.det</td> </tr> </table>	Scale: N.T.S.	Supplemental Detail Drawing: WS-5RDI	M:\pwsa\gis\det\Standards\stdws5rd1.det					
Scale: N.T.S.	Supplemental Detail Drawing: WS-5RDI									
M:\pwsa\gis\det\Standards\stdws5rd1.det										

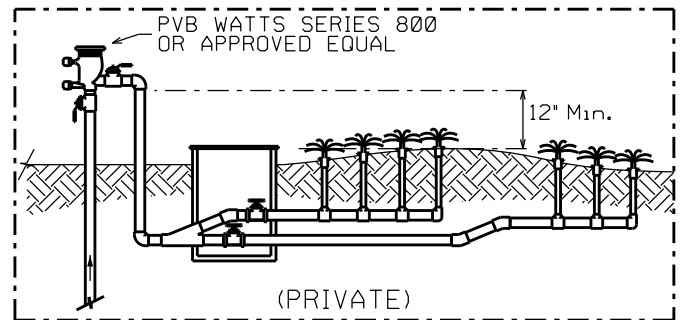
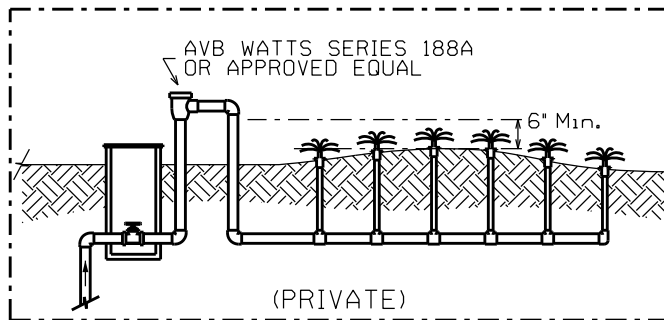


ATMOSPHERIC VACUUM BREAKER (AVB):

1. **ONE AVB REQUIRED FOR EACH IRRIGATION ZONE; NO (ON/OFF VALVES) ALLOWED DOWNSTREAM OF THE AVB.**
2. EACH AVB MUST BE INSTALLED A MINIMUM OF SIX INCHES (6") ABOVE THE HIGHEST POINT OF WATER IN THE ZONE IT PROTECTS.
3. NO CHEMICAL OR FERTILIZER CAN BE INTRODUCED INTO AN IRRIGATION SYSTEM PROTECTED WITH AVB'S.
4. NO PUMPS OR SOURCES FOR BACK PRESSURE ON DOWNSTREAM SIDE OF AN AVB.
5. ANTI-SIPHON, SINGLE ZONE.
6. **CAN ONLY BE PRESSURIZED A MAXIMUM OF A 12 HOUR PERIOD OUT OF 24 HOURS.**

PRESSURE VACUUM BREAKER (PVB):

1. **ONLY ONE PVB REQUIRED TO PROTECT THE WHOLE SYSTEM; (ON/OFF VALVES) CAN BE LOCATED DOWNSTREAM OF THE PVB.**
2. PVB'S MUST BE INSTALLED A MINIMUM OF (12") ABOVE THE HIGHEST POINT OF WATER IN THE SPRINKLER SYSTEM.
3. PVB'S MUST BE TESTED BY A STATE-CERTIFIED BACKFLOW ASSEMBLY TESTER WHEN INSTALLED, ANNUALLY, OR WHEN MOVED/REPAIRED.
4. NO CHEMICAL OR FERTILIZER CAN BE INTRODUCED INTO AN IRRIGATION SYSTEM PROTECTED WITH PVB'S.
5. NO PUMPS OR SOURCES OF BACK PRESSURE ON DOWNSTREAM SIDE OF (AFTER) A PVB.
6. **CAN BE PRESSURIZED A FULL 24 HOURS.**



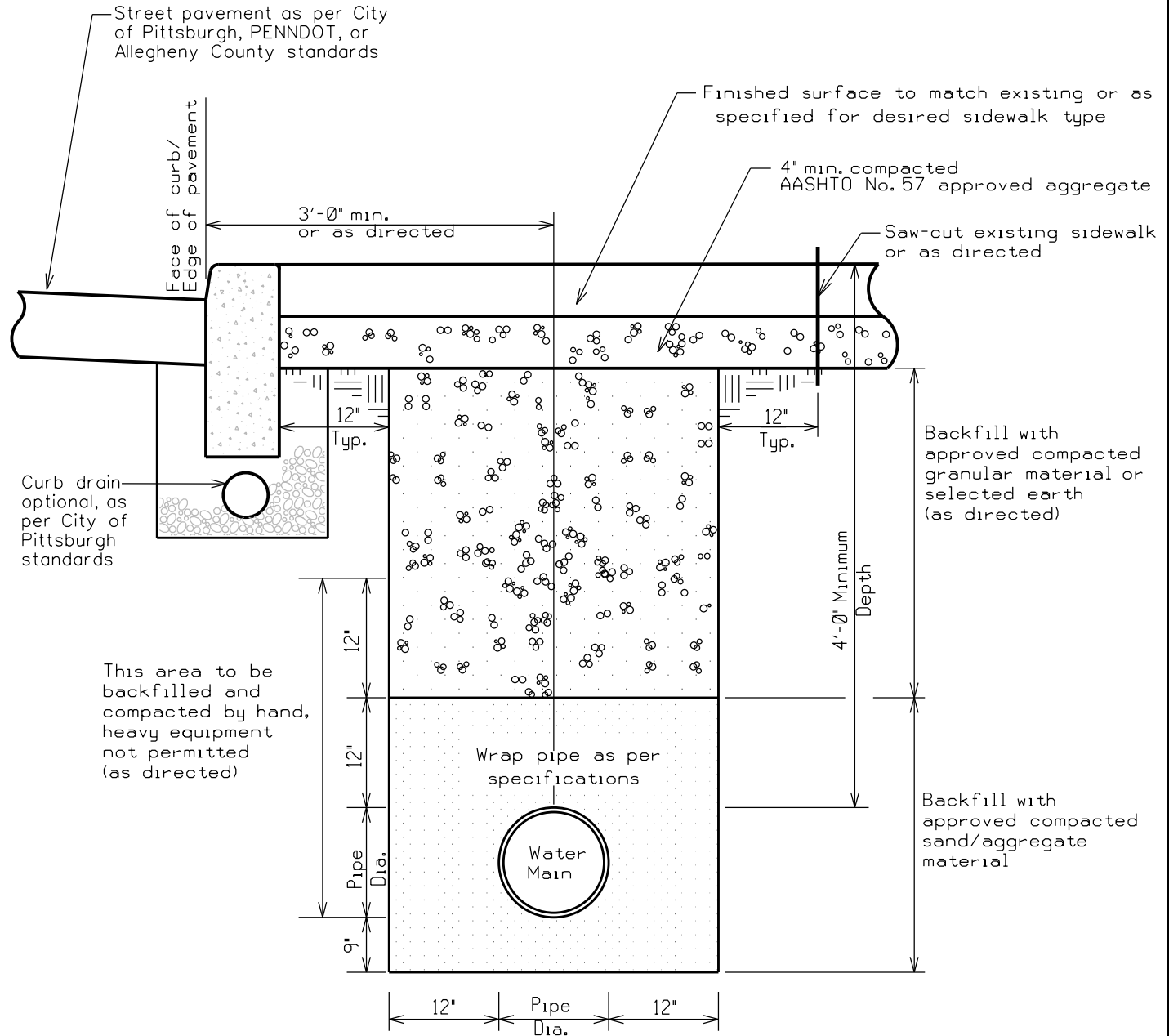
5/19/2015

R E V I S I O N S	
1. RJM 8-5-10	
2. LRC 1-31-14	
Approved by:	

PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
SPRINKLER BACKFLOW PREVENTION

Scale: N.T.S.	Supplemental Detail Drawing: WS-5SVB
M:\pwsa\gis\det\Standards\stdws5svb.det	



NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

5/19/2015

R E V I S I O N S	
1. MSR 4-23-01	
2. LRC 1-31-14	
Approved by:	

PGH₂O

Pittsburgh
Water & Sewer
Authority

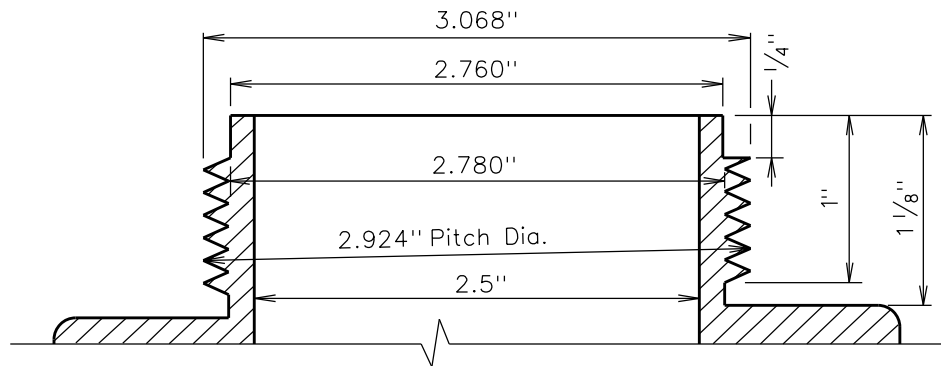
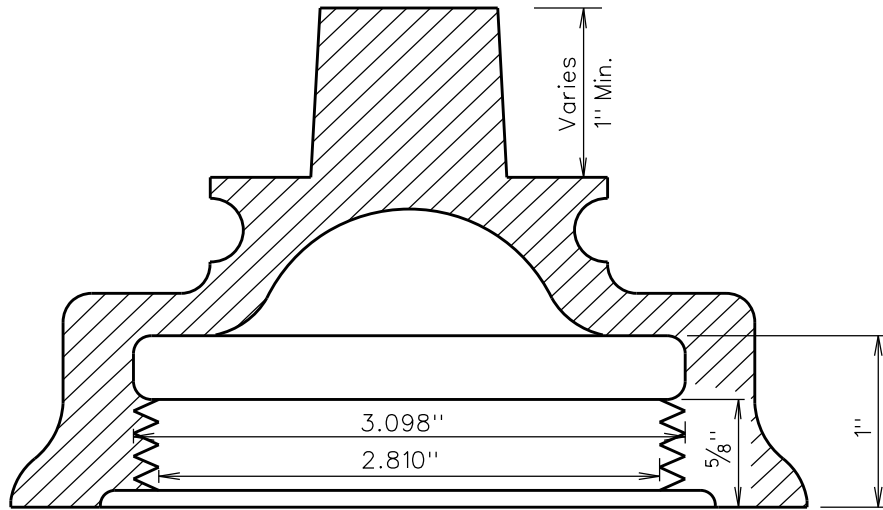
The Pittsburgh Water and Sewer Authority

Water Line Trench In Sidewalk Area

Scale: N.T.S.

Supplemental Detail Drawing: **WS-7**

M:\pwsa\gis\det\Standards\stdws7.det



No. of Threads: 6
 Style: 60 degree V

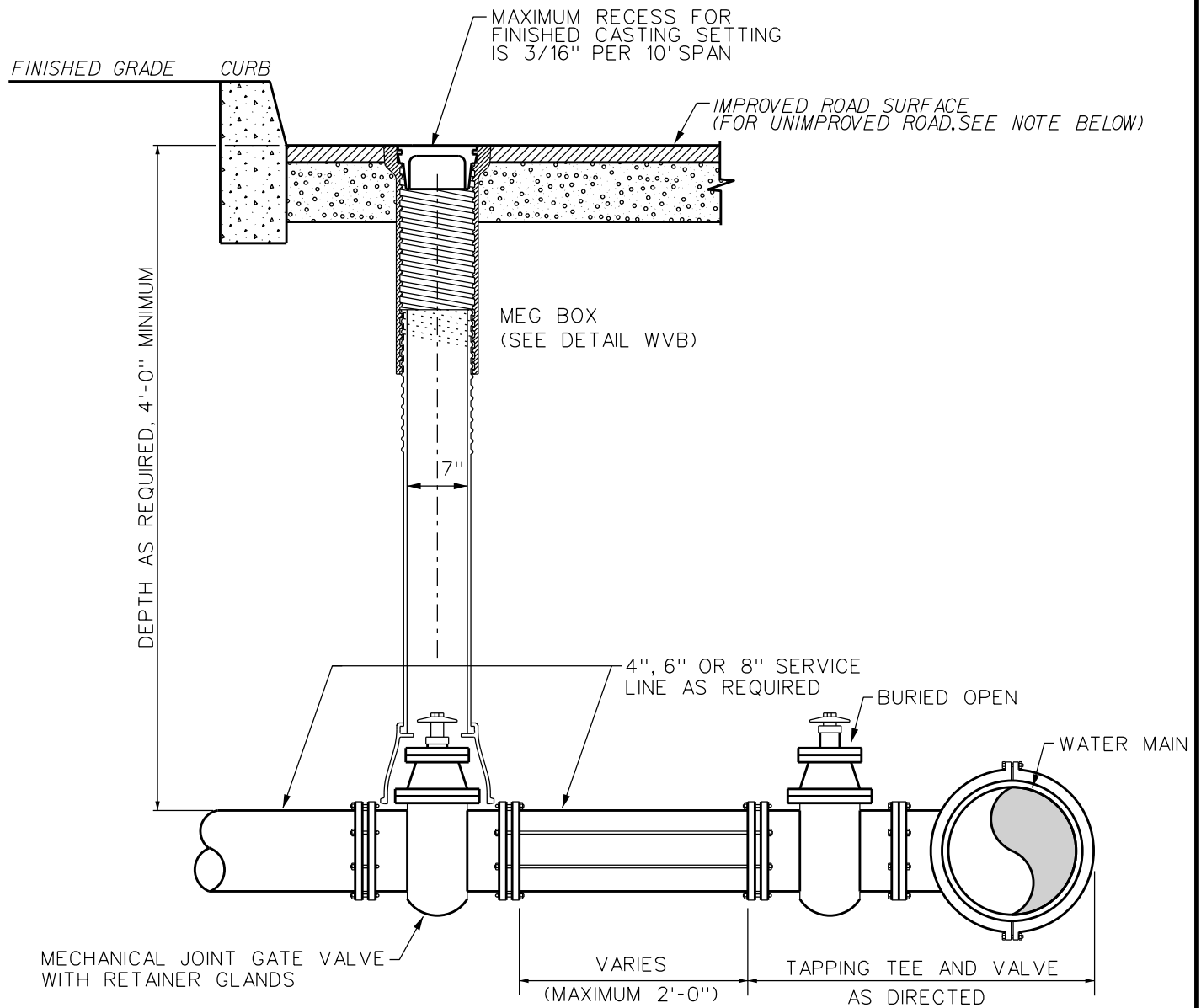
5/19/2015

R E V I S I O N S	
1.	JEK 11-21-96
2.	LRC 1-31-14
Approved by:	

PGH₂O
 Pittsburgh
 Water & Sewer
 Authority

The Pittsburgh Water and Sewer Authority
Thread Design For Hydrant Hose Nozzle

Scale: N.T.S.	Supplemental Detail Drawing: WS-8
M:\pwsa\gis\det\Standards\stdws8.det	



NOTES:

1. ALL PIPING TO BE RESTRAINED WITH RODDING AND/OR RETAINER GLANDS.
2. ALL FITTINGS SHALL HAVE THRUST BLOCKS (SEE DETAIL WS-3).
3. STANDARD GATE BOX LID: TWO NOTCH OPENINGS REQUIRED. DIAMETER TO MATCH BOX.
4. GATE BOX EXTENSION: GATE BOX EXTENSION RINGS ARE NOT TO BE USED IN NEW WORK.
5. A MAXIMUM OF 3 EXTENSION RINGS CAN BE USED PER EXISTING GATE BOX.
6. MEG BOX MATERIAL SHALL BE CAST IRON.
7. IF MEG BOX IS LOCATED IN AN UNIMPROVED AREA, THEN A 30"x30"x 8"D CONCRETE PAD APRON CENTERED AROUND THE MEG BOX IS REQUIRED.
8. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
9. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

5/19/2015

R E V I S I O N S	
1.	MSR 4-23-01
2.	MAC 11-2-07
3.	LRC 1-31-14

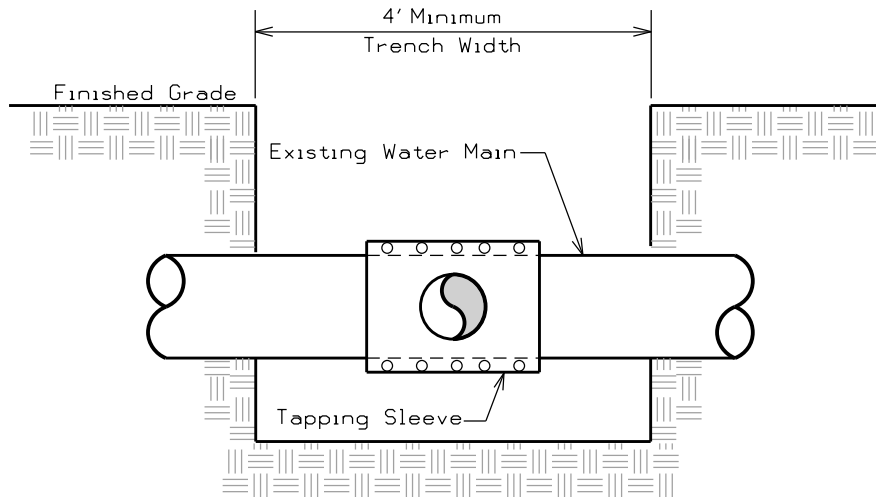
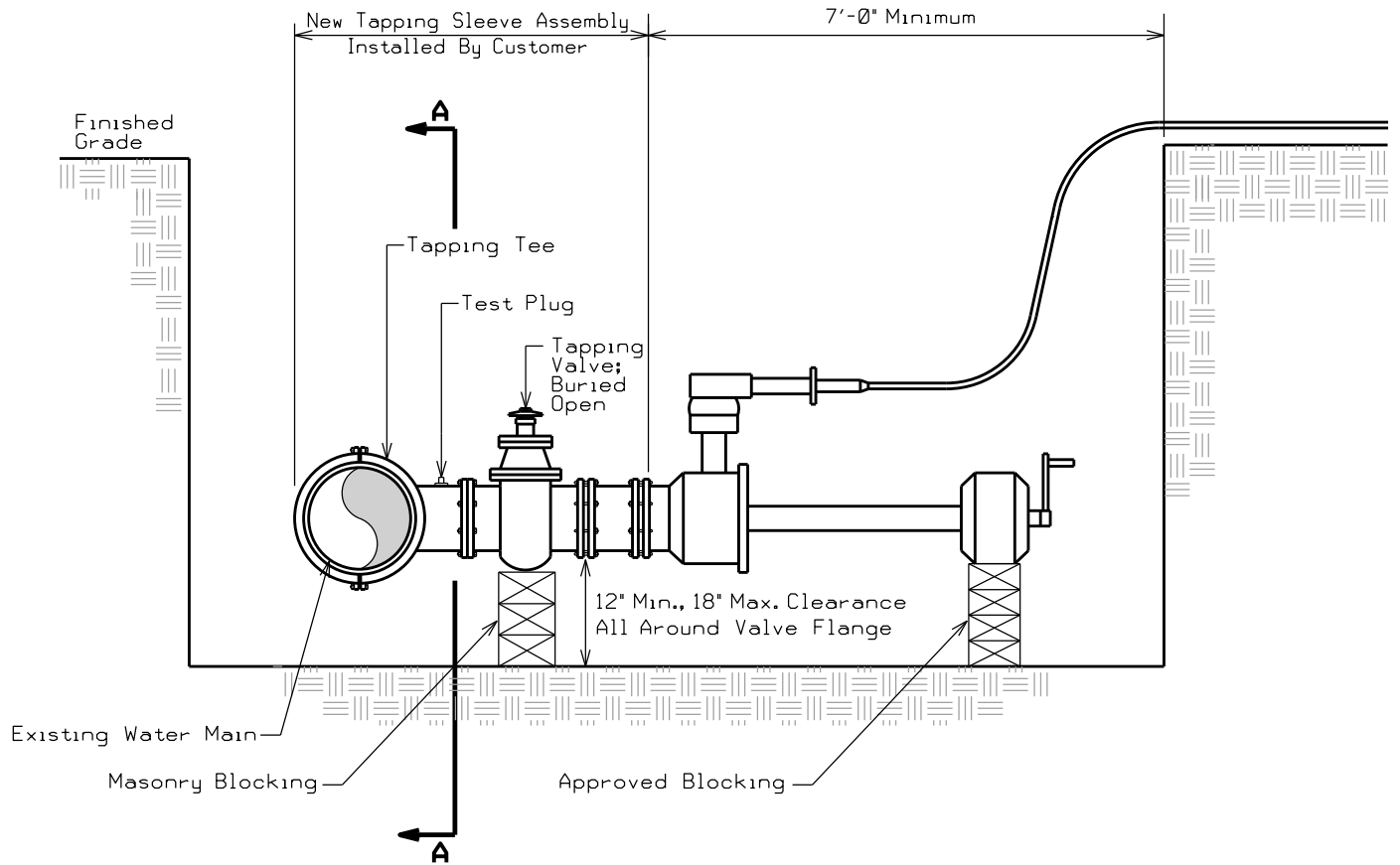
Approved by:



The Pittsburgh Water and Sewer Authority
Service Connection 4" Through 8"

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdwsa.det

Supplemental Detail Drawing: **WS-A**



SECTION A-A

NOTES:

1. Tapping sleeve and tapping gate to be installed on water main by the contractor. PWSA will make the actual tap.
2. Tapping machine to be mounted and operated by PWSA.
3. Excavation and shoring required as per current OSHA standards.
4. Contractor must supply equipment to lower tapping machine in to trench.
5. All valves must be "right turn to open".

5/19/2015

R E V I S I O N S	
1. MSR	4-23-01
2. MAC	8-15-01
3. MAC	8-13-07
4. LRC	1-31-14

Approved by:



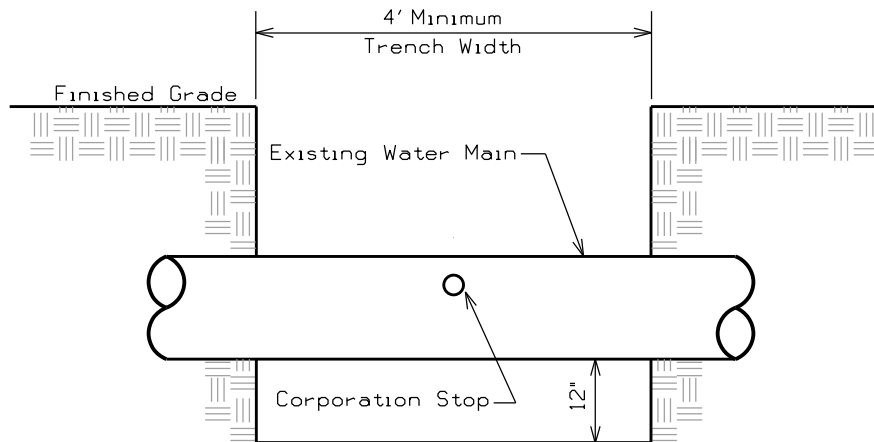
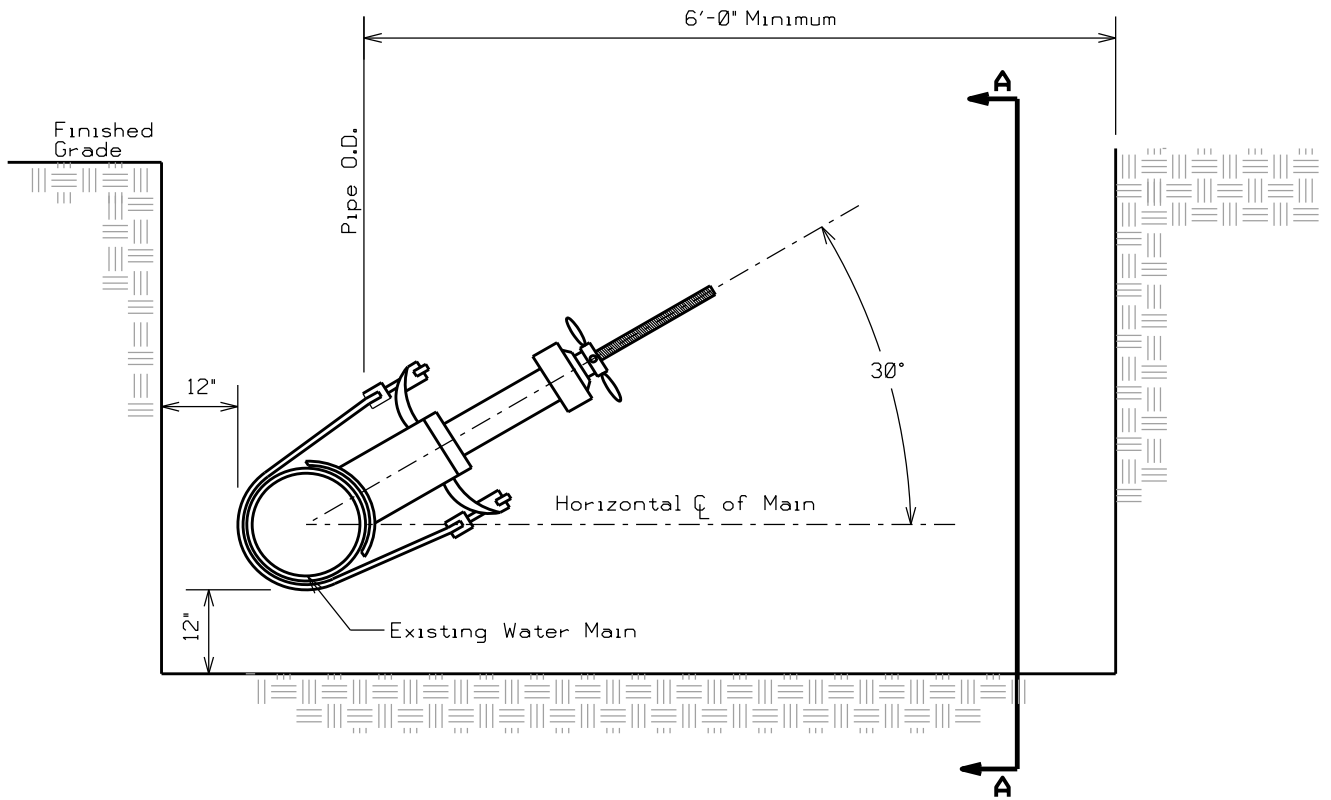
The Pittsburgh Water and Sewer Authority
**Trench Requirements For
 4" Through 12" Live Water Tap**

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdwsb.det

Supplemental
 Detail Drawing:

WS-B



SECTION A-A

NOTE:

1. PWSA will make the actual tap.
2. Excavation and shoring required as per current OSHA standards.

5/19/2015

R E V I S I O N S	
1.	MSR 4-23-01
2.	MAC 8-13-07
3.	LRC 1-31-14

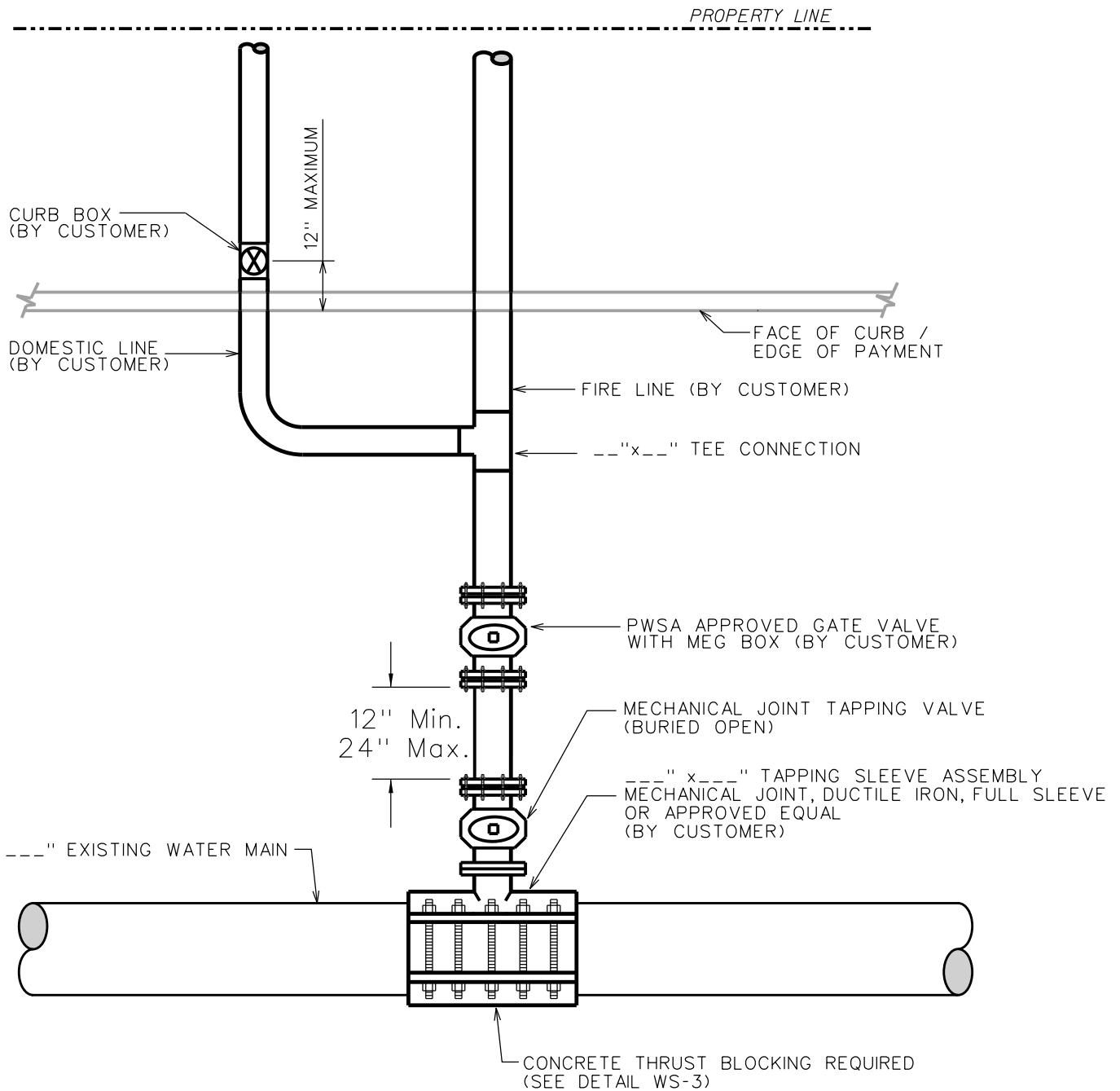
Approved by:



The Pittsburgh Water and Sewer Authority

**Trench Requirements For
1", 1-1/2" And 2" Water Service Tap**

Scale: N.T.S.	Supplemental Detail Drawing: WS-C
M:\pwsa\gis\det\standards\stdwsc.det	



NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUSTOMER IS REQUIRED TO ENTER VALUES FOR ALL DIMENSION FIELDS ABOVE.
4. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
5. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
6. CUSTOMER IS RESPONSIBLE FOR, MAINTAINS, AND OWNS, INCLUDING THE TAPPING TEE ASSEMBLY, FROM THE MAIN TO THE BUILDING.
7. ADDITIONAL BACKFLOW PREVENTION (RPZ TYPE) REQUIRED INTERNALLY ON COMMERCIAL OR HIGH HAZARD PROPERTIES.
8. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
9. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

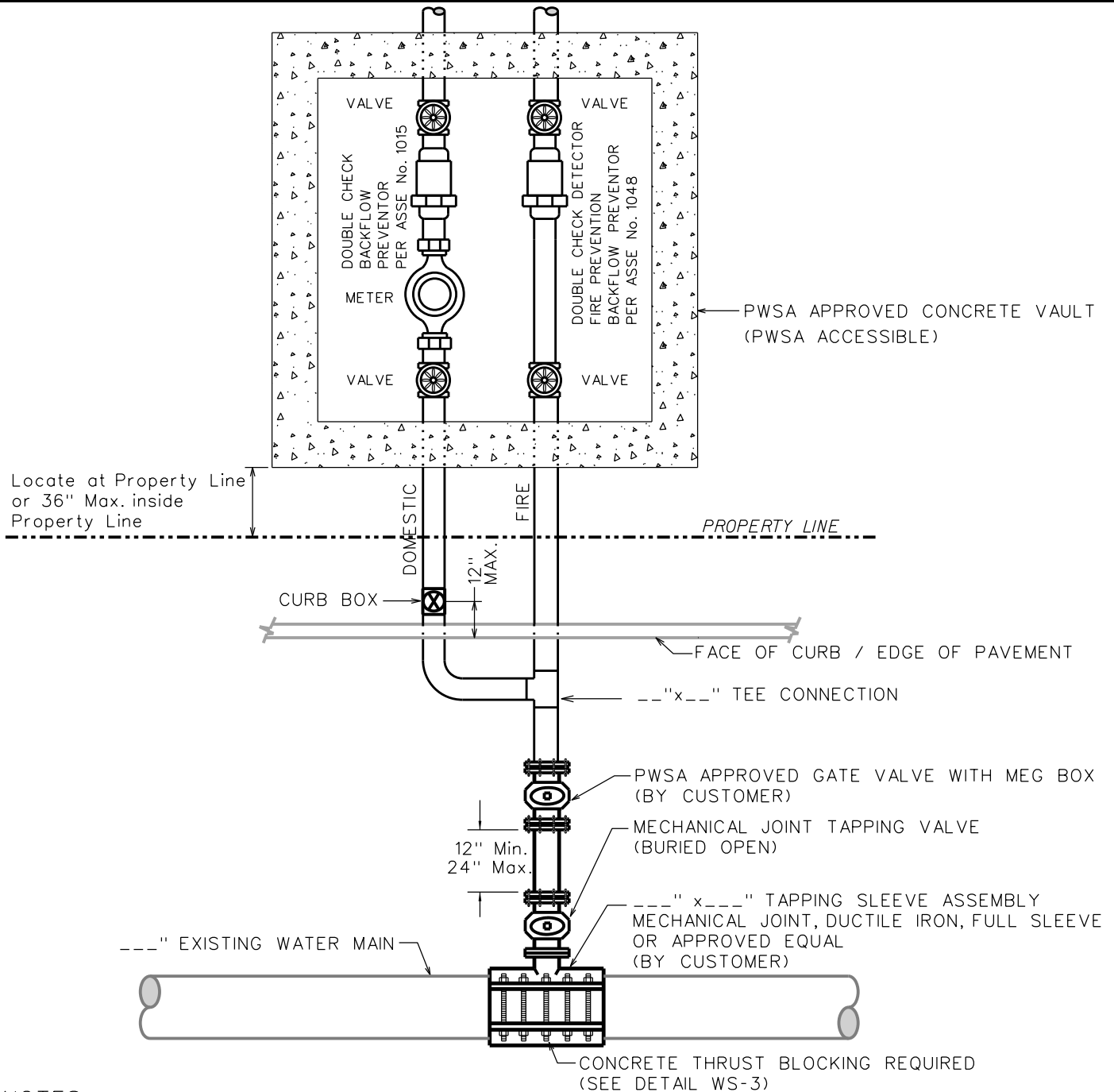
5/19/2015

R E V I S I O N S	
1. MSR 4-23-01	5. MAC 11-1-07
2. MAC 9-9-05	6. LRC 1-31-14
3. DWP 9-15-05	
4. MAC 12-13-05	

Approved by: _____



The Pittsburgh Water and Sewer Authority	
Single Service Connection	
(4" And larger)	
Scale: N.T.S.	Supplemental Detail Drawing: WS-C1
M:\pwsa\gis\det\Standards\stdwsc1.det	



NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUSTOMER IS REQUIRED TO ENTER VALUES FOR ALL DIMENSION FIELDS ABOVE.
4. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
5. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
6. CUSTOMER IS RESPONSIBLE FOR VAULT AND CONDUIT MAINTENANCE, AND OWNS, INCLUDING THE TAPPING TEE ASSEMBLY, FROM THE MAIN TO THE BUILDING.
7. ADDITIONAL BACKFLOW PREVENTION (RPZ TYPE) REQUIRED INTERNALLY ON COMMERCIAL OR HIGH HAZARD PROPERTIES.
8. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
9. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

5/19/2015

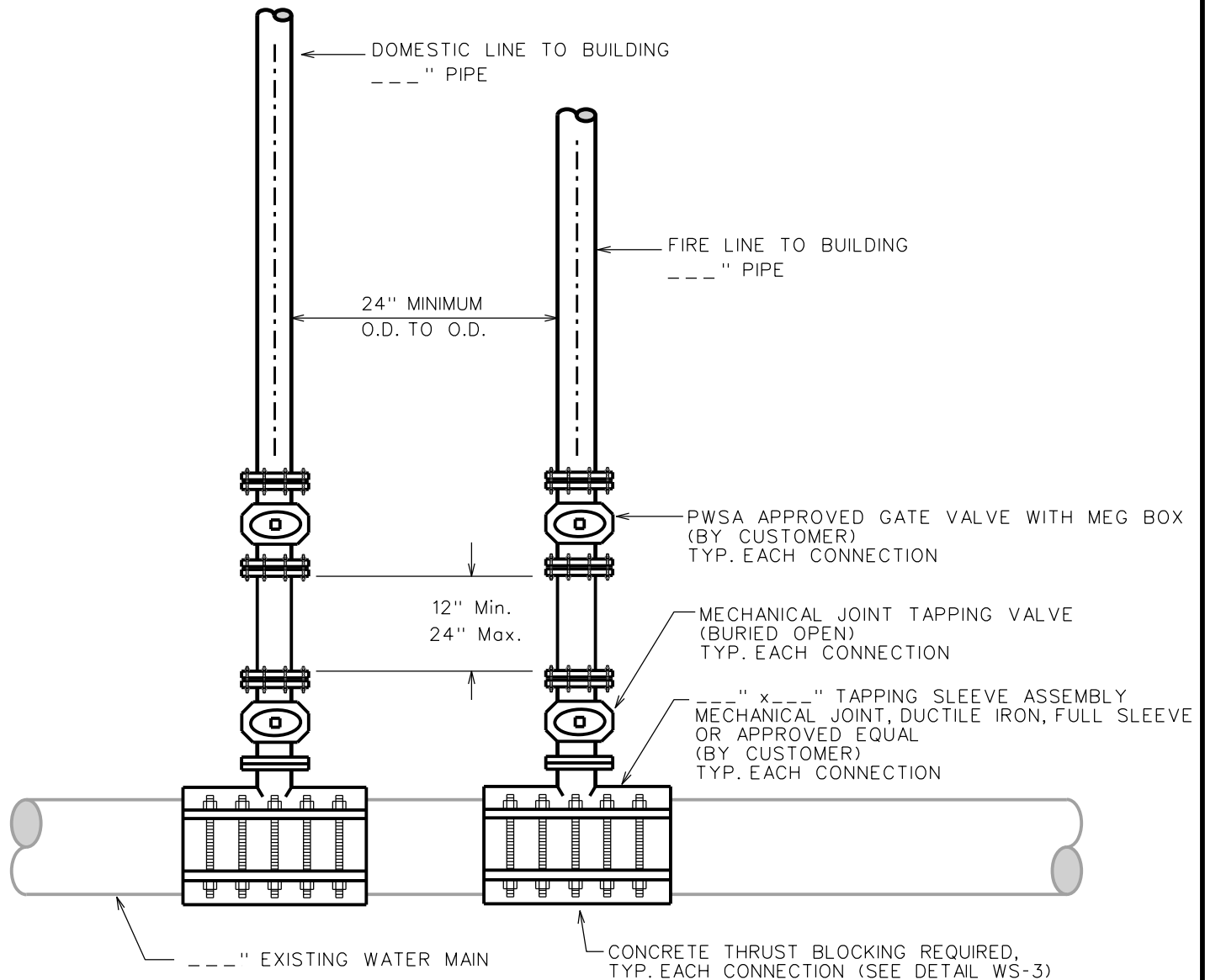
R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. DWP 9-15-05	
3. RDH 10-19-05	
4. MAC 11-1-07	

Approved by:

Pittsburgh Water & Sewer Authority

**The Pittsburgh Water and Sewer Authority
Commercial And Multi-Family
Water Service Connection For
Fire And Domestic Tap-In Vault**

Scale: N.T.S.	Supplemental Detail Drawing: WS-C1V
M:\pwsa\gis\det\Standards\stdwsc1v.det	



NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUSTOMER IS REQUIRED TO ENTER VALUES FOR ALL DIMENSION FIELDS ABOVE.
4. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
5. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
6. CUSTOMER IS RESPONSIBLE FOR, MAINTAINS, AND OWNS, INCLUDING THE TAPPING TEE ASSEMBLY, FROM THE MAIN TO THE BUILDING.
7. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
8. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

5/19/2015

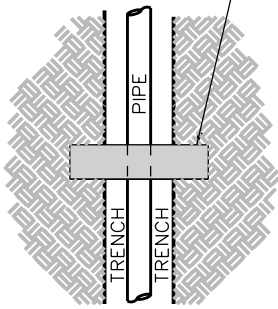
R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 7-26-04	
3. MAC 9-9-05	
4. DWP 9-15-05	
Approved by:	

Pittsburgh Water & Sewer Authority

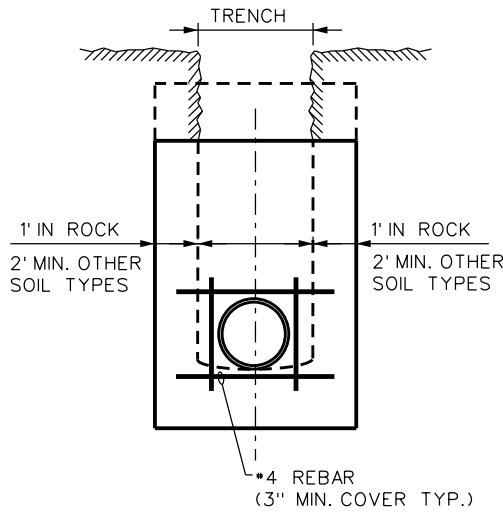
The Pittsburgh Water and Sewer Authority
Separate Domestic And Fire Service Connection (4" And Larger)

Scale: N.T.S.	Supplemental Detail Drawing: WS-C2
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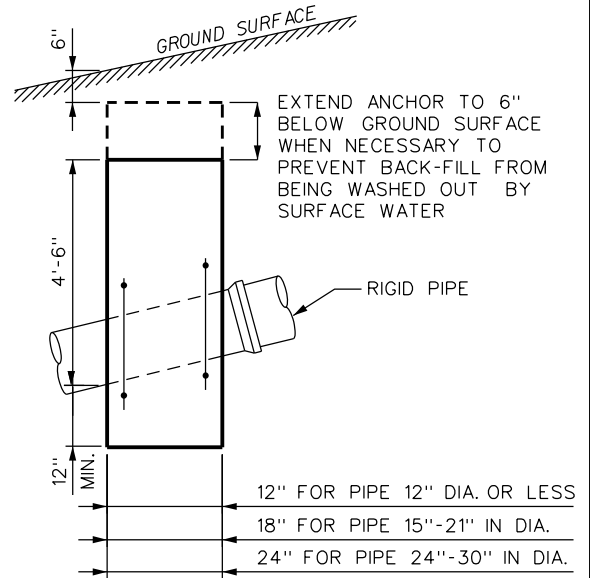
CONCRETE ANCHOR
4000 PSI @ 28 DAYS



Plan

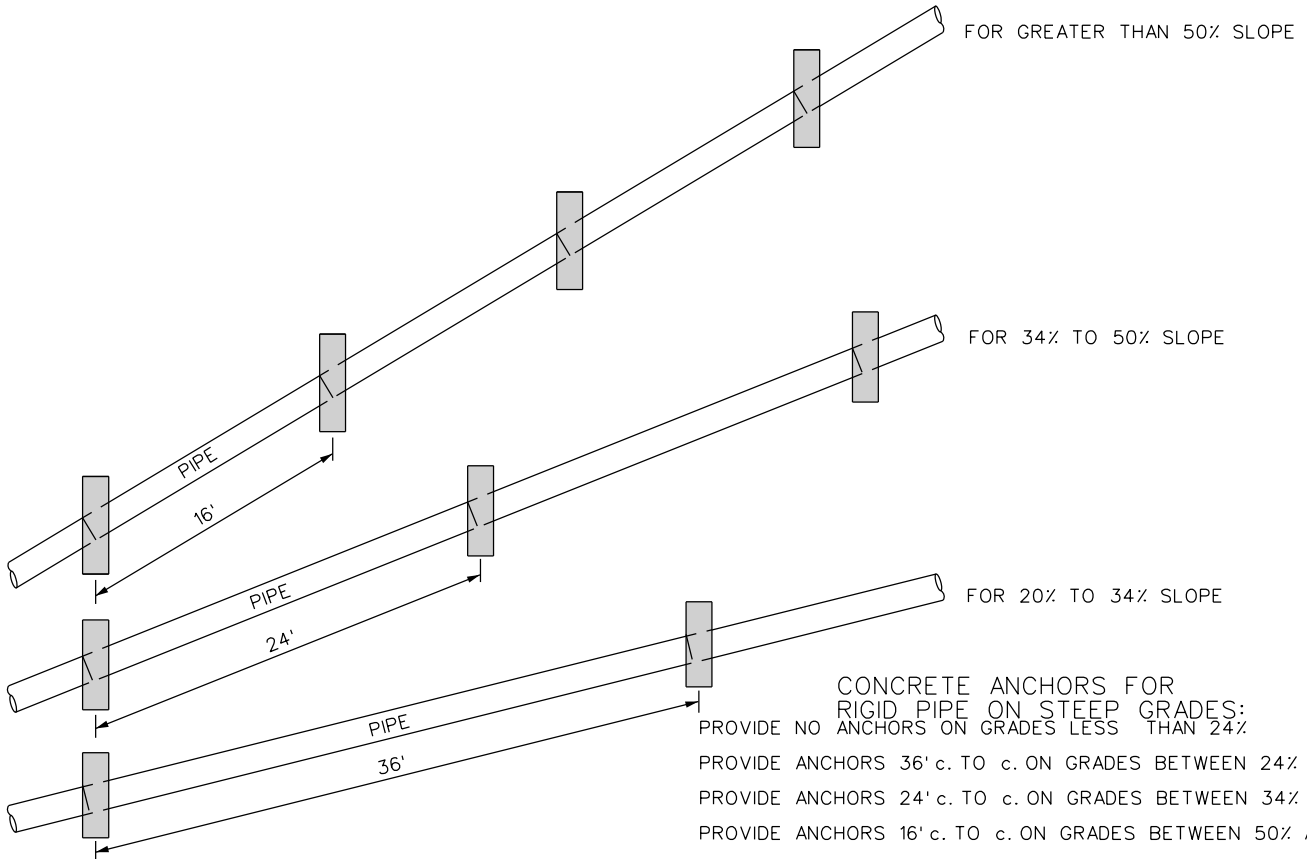


Section



Profile

CONCRETE ANCHORS



CONCRETE ANCHORS FOR RIGID PIPE ON STEEP GRADES:
 PROVIDE NO ANCHORS ON GRADES LESS THAN 24%.
 PROVIDE ANCHORS 36' c. TO c. ON GRADES BETWEEN 24% AND 34%.
 PROVIDE ANCHORS 24' c. TO c. ON GRADES BETWEEN 34% AND 50%.
 PROVIDE ANCHORS 16' c. TO c. ON GRADES BETWEEN 50% AND 70%.
 FOR CONDITIONS OTHER THAN SHOWN HERE; ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR AS ORDERED IN THE FIELD BY THE DIRECTOR.
 PLACE CONCRETE ANCHOR AGAINST DOWNGRADE SIDE OF BELL.

R E V I S I O N S	
1. JEK	2-6-03
2. MAC	3-2-04
3. LRC	1-31-14

Approved by:



The Pittsburgh Water and Sewer Authority

Concrete Anchor

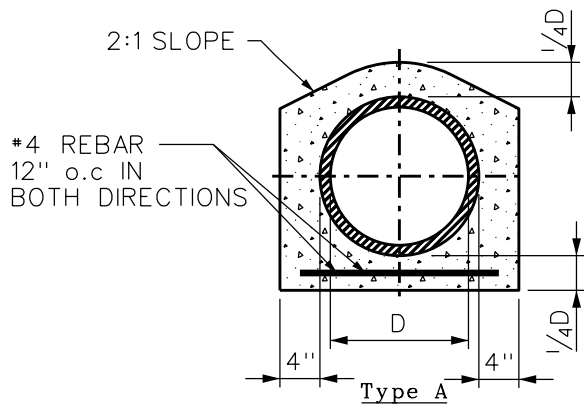
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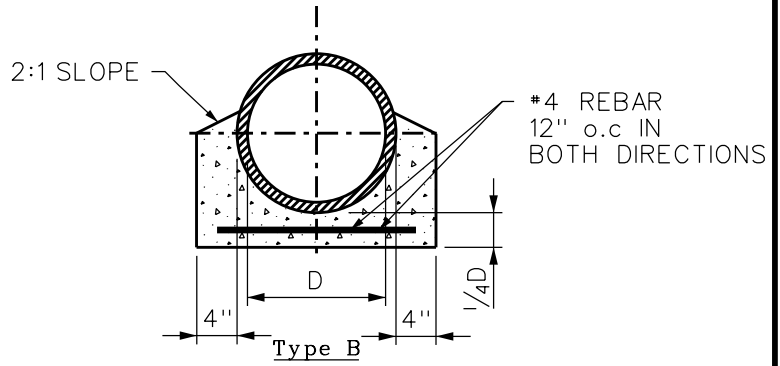
Supplemental
Detail Drawing:

WS-CA

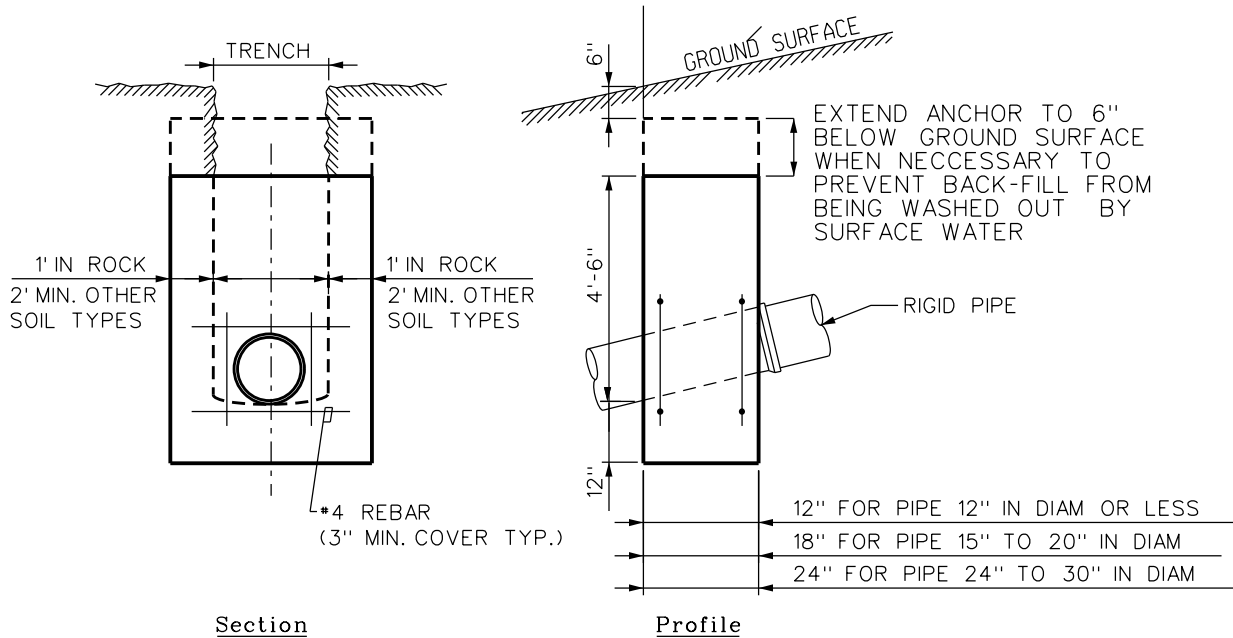
2/10/2017



CONCRETE ENCASEMENT REINFORCEMENT



CONCRETE CRADLE REINFORCEMENT



CONCRETE ANCHORS

CONCRETE ANCHORS FOR RIGID PIPE ON STEEP GRADES:

PROVIDE NO ANCHORS ON GRADES LESS THAN 24%.

PROVIDE ANCHORS 36' c. TO c. ON GRADES BETWEEN 24% AND 34%.

PROVIDE ANCHORS 24' c. TO c. ON GRADES BETWEEN 34% AND 50%.

PROVIDE ANCHORS 16' c. TO c. ON GRADES BETWEEN 50% AND 70%.

FOR CONDITIONS OTHER THAN SHOWN HERE; ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR AS ORDERED IN THE FIELD BY THE DIRECTOR.

5/19/2015

R E V I S I O N S	
1.	MSR 4-18-01
2.	JEK 2-20-03
3.	LRC 1-31-14

Approved by:



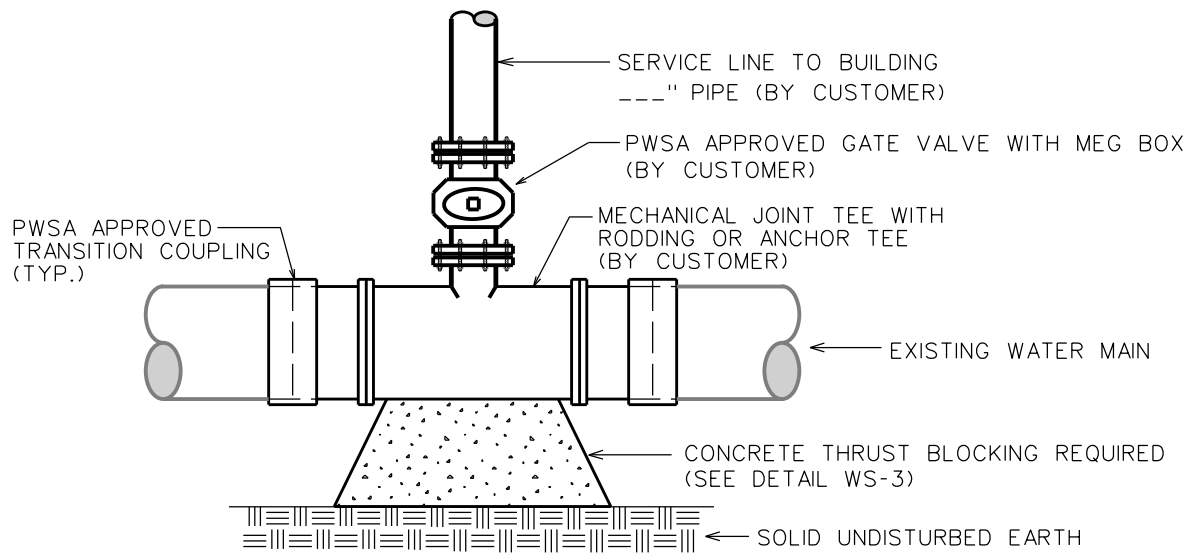
The Pittsburgh Water and Sewer Authority
**Concrete Reinforcement
 For Rigid Pipe**

Scale: N.T.S.

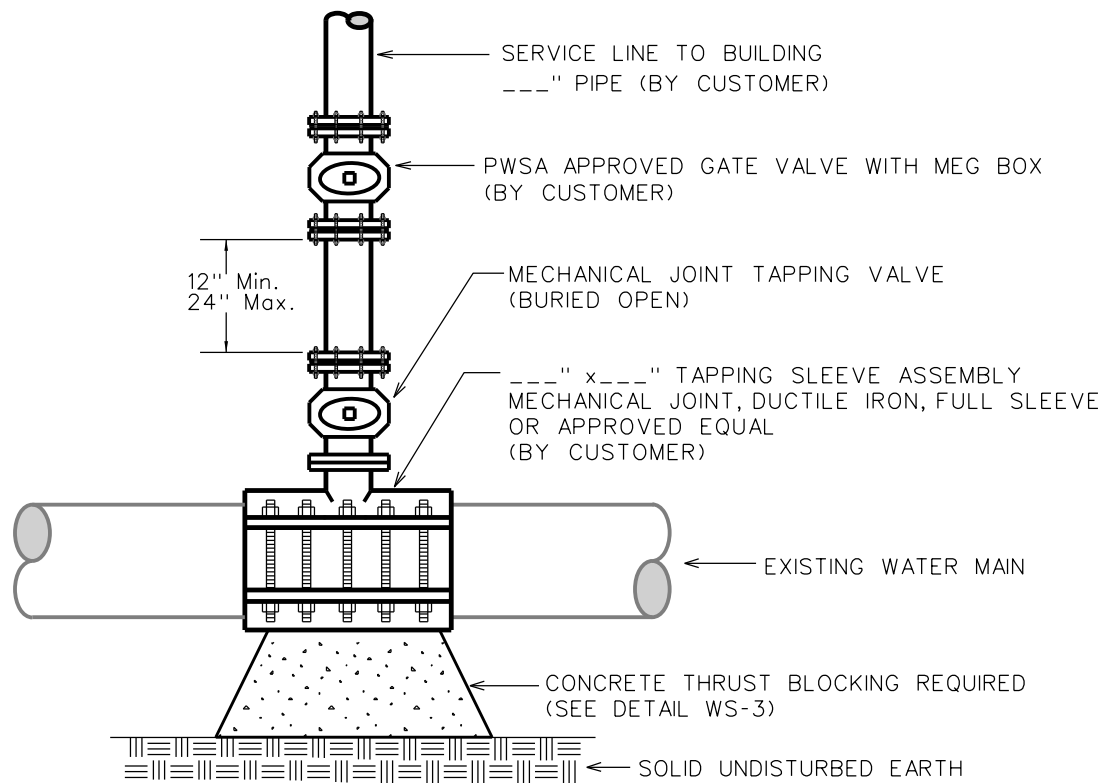
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Supplemental
 Detail Drawing:

WS-CE



Cut-In Tee



Tapping Tee

NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
4. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
5. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
6. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.
7. MJxMJ TAPPING SLEEVE MAY BE SUBMITTED TO PWSA FOR AN APPROVED OPTION.

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 7-26-04	
3. DWP 9-15-05	
4. MAC 11-1-07	

Approved by:



The Pittsburgh Water and Sewer Authority
Cut-In Tee And Tapping Tee

Scale: N.T.S.

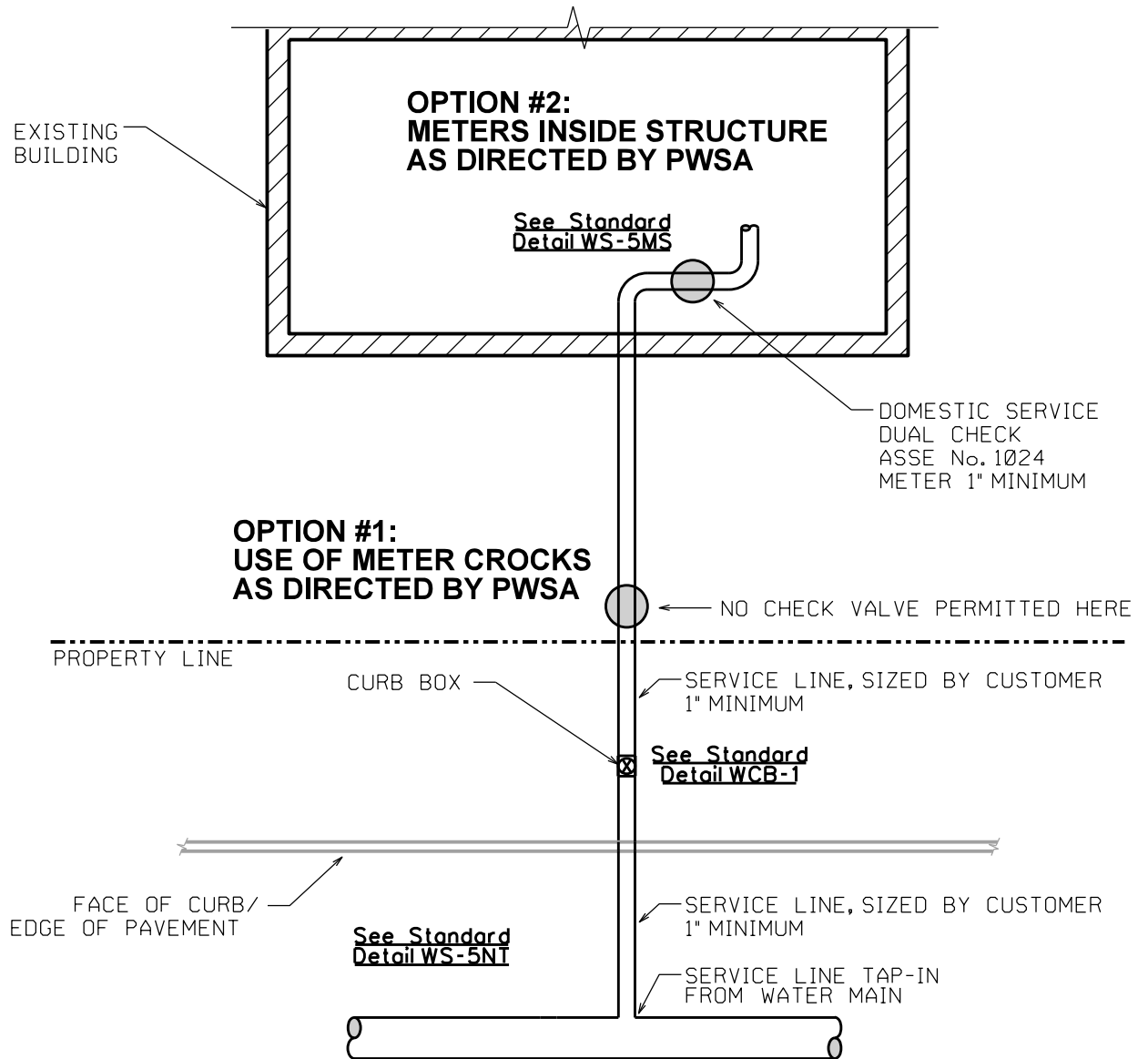
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Supplemental Detail Drawing: **WS-CTT**

12/14/2016

DOMESTIC METER:

- SIZE
- MODEL
- MAKE
- GPM
- PSI



EFFECTIVE 4/1/2010
PER IBC CODES 2010

R E V I S I O N S	
1. LRC 1-31-14	

Approved by:



The Pittsburgh Water and Sewer Authority
**Residential Domestic
 And Fire Service Connection
 Multi-Purpose System**

Scale: N.T.S.

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Supplemental
Detail Drawing: **WS-RDF1**

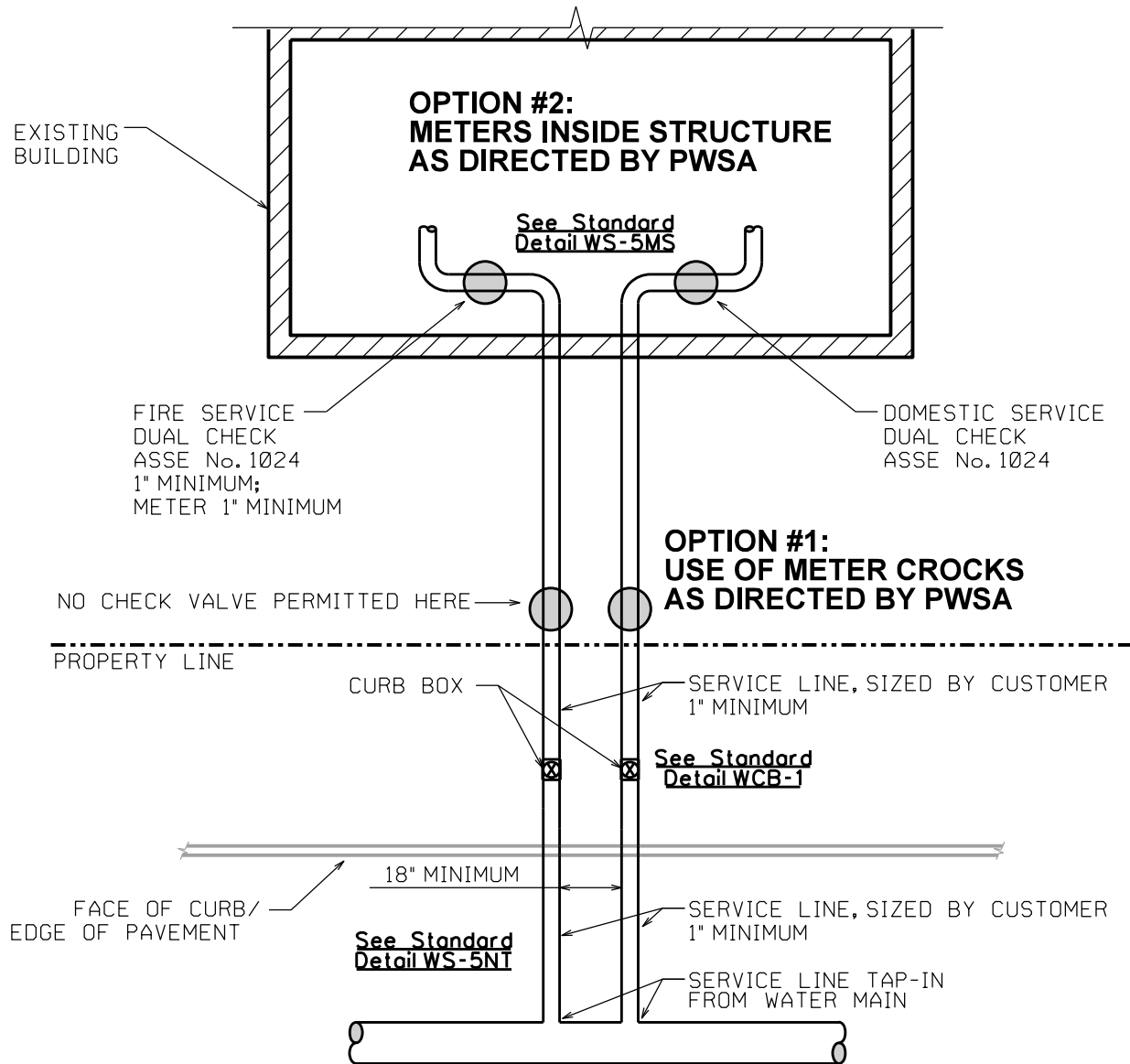
6/25/2015

FIRELINE METER:

- SIZE
- MODEL
- MAKE
- GPM
- PSI

DOMESTIC METER:

- SIZE
- MODEL
- MAKE
- GPM
- PSI



EFFECTIVE 4/1/2010
PER IBC CODES 2010

6/25/2015

R E V I S I O N S	
1.	LRC 1-31-14

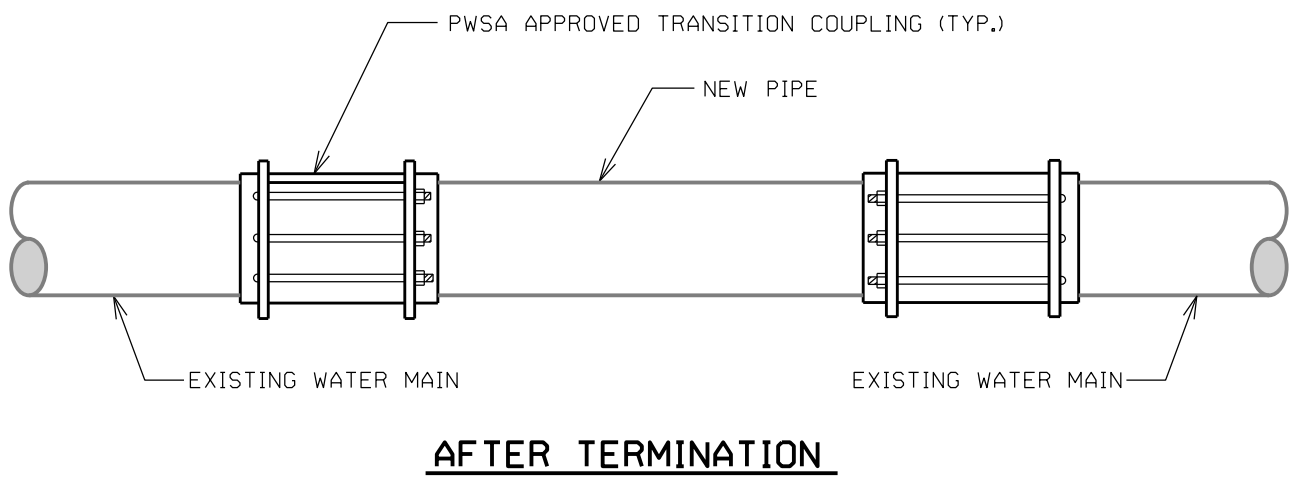
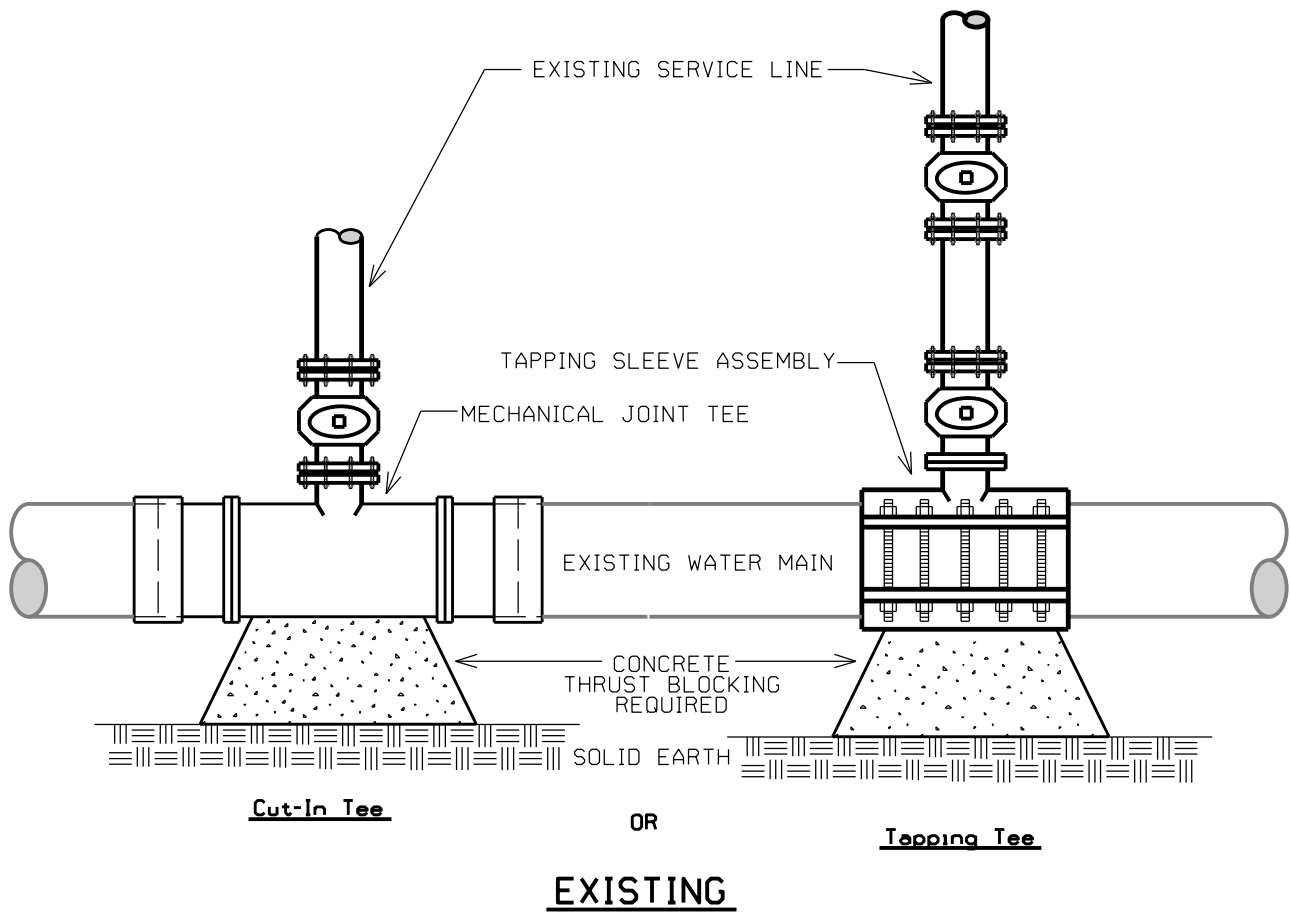
Approved by: _____

PGH₂O
Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
**Residential Domestic
And Fire Service Connection
Stand-Alone System**

Scale: N.T.S.
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Supplemental
Detail Drawing: **WS-RDF2**

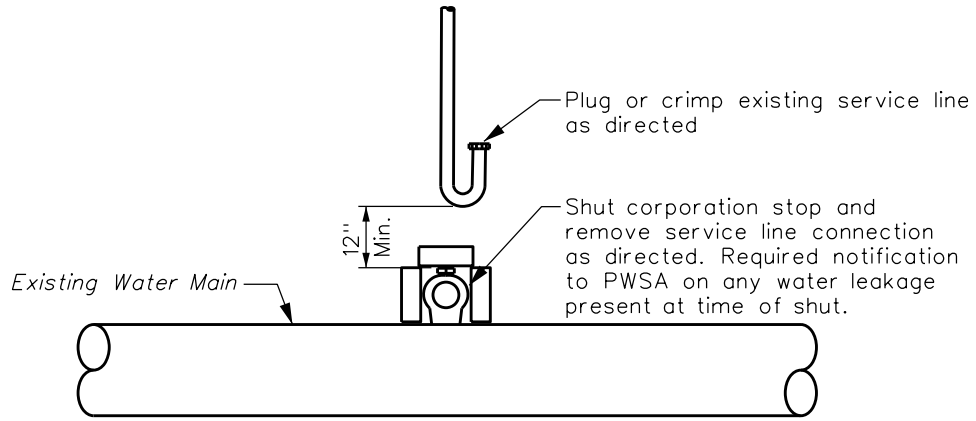


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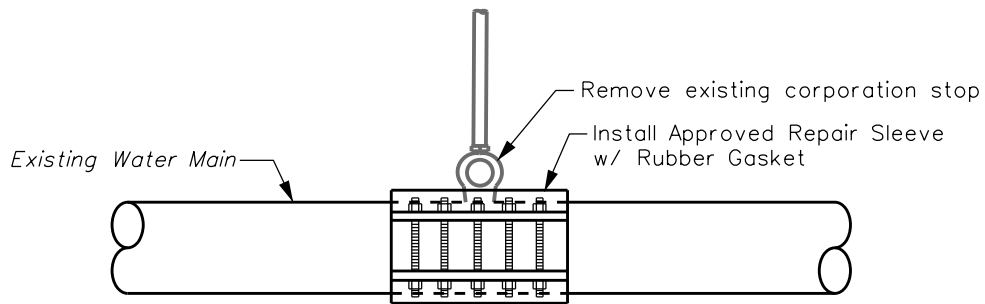
1. CUT AND REMOVE EXISTING TEE; INSTALL SIZE ON SIZE SPOOL PIECE CONNECTING TO EXISTING MAIN AT EACH END WITH TRANSITION SLEEVES, AS DIRECTED.
2. MAIN LINE SHUT REQUIRED AND MUST BE COORDINATED AT THE PWSA PERMITS COUNTER.

5/19/2015

R E V I S I O N S			The Pittsburgh Water and Sewer Authority	
1. MSR 4-23-01			Typical Water Tap Service Termination	
2. MAC 8-10-07			For 4" And Larger Connection	
3. LRC 1-31-14				
Approved by:		Pittsburgh Water & Sewer Authority	Scale: N.T.S.	Supplemental Detail Drawing: WS-STL
			M:\pwsa\gis\det\Standards\stdwsstl.det	



OPTION 1



OPTION 2

(IF REQUIRED BY PWSA)

NOTES:

1. OPTION 2 REQUIRES MAIN LINE SHUT; THIS WOULD BE ADDITIONAL PWSA CHARGE.
2. TERMINATION OPTION FROM ABOVE AS DIRECTED BY THE PWSA.

5/19/2015

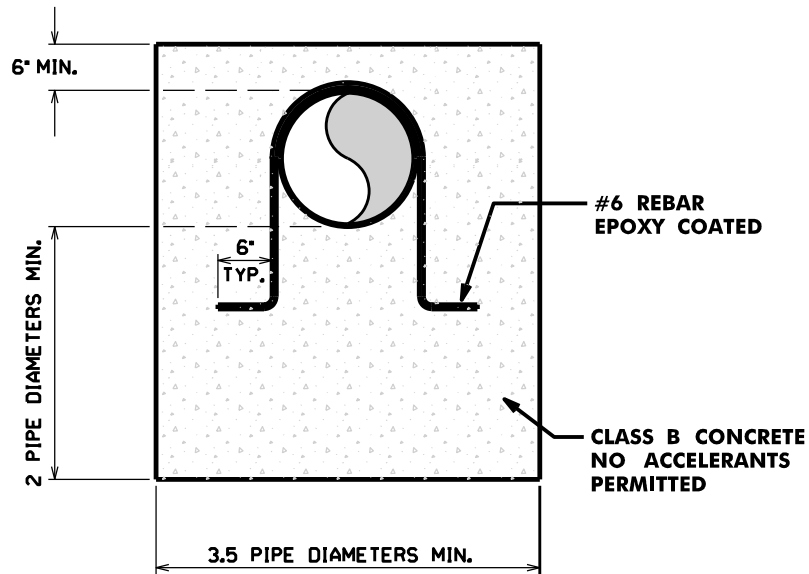
R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. RDH 3-13-03	
3. DWP 9-15-05	
4. MAC 8-10-07	

Approved by:

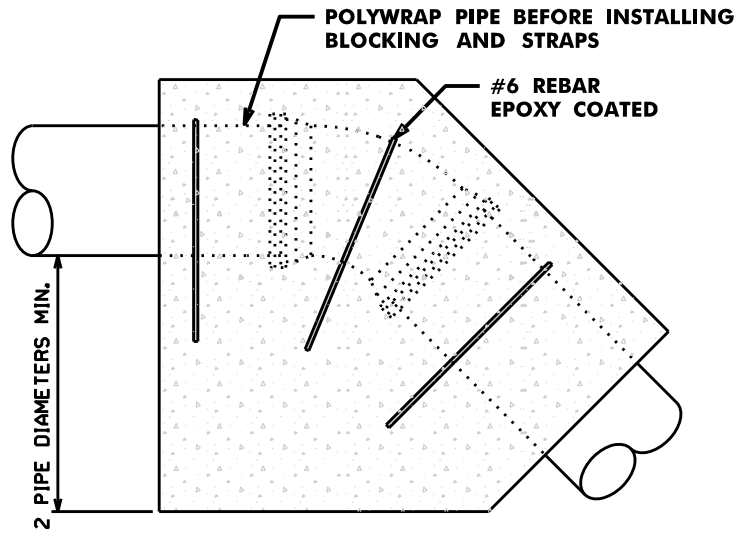


The Pittsburgh Water and Sewer Authority
**Typical Water Tap Service Termination
 For 2" And Smaller Connection**

Scale: N.T.S.	Supplemental Detail Drawing: WS-ST5
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SECTION



LONGITUDINAL SECTION

NOTE:

1. THE DETAIL REPRESENTS THE APPROXIMATE BLOCKING CONFIGURATION AND ASSUMES SOLID SOIL AND PROPER BURIAL.
2. EXACT SHAPE AND SIZE TO BE DETERMINED IN THE FIELD.
3. POOR SOIL CONDITIONS WILL GREATLY INCREASE THE SIZE OF THE CONCRETE BLOCK.

5/19/2015

R E V I S I O N S	
1. JEK 2-20-03	
2. LRC 1-31-14	
Approved by:	

PGH₂O

Pittsburgh
Water & Sewer
Authority

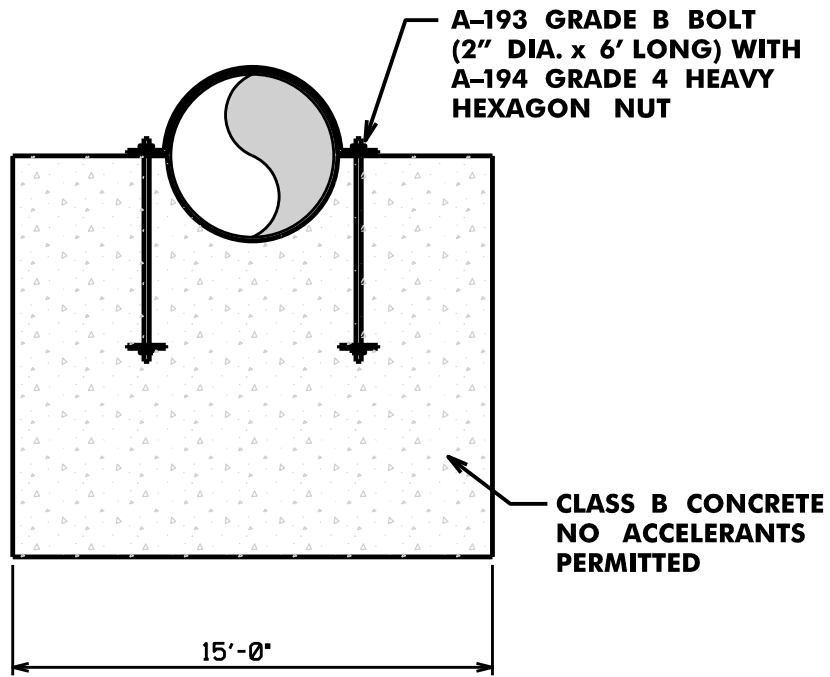
The Pittsburgh Water and Sewer Authority

**Vertical Thrust Block
For Small Pipe**

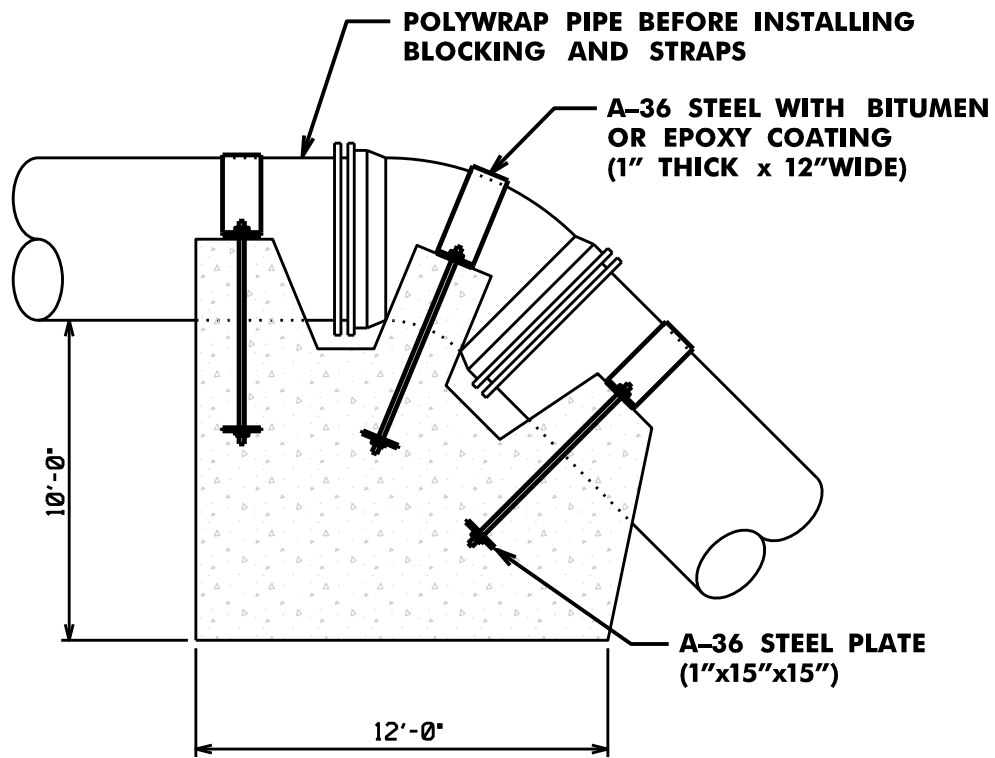
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Supplemental
Detail Drawing: **WS-VB**

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SECTION



LONGITUDINAL SECTION

NOTE:

1. THE DETAIL REPRESENTS THE APPROXIMATE BLOCKING CONFIGURATION AND ASSUMES SOLID SOIL AND PROPER BURIAL.
2. EXACT SHAPE AND SIZE TO BE DETERMINED IN THE FIELD.
3. POOR SOIL CONDITIONS WILL GREATLY INCREASE THE SIZE OF THE CONCRETE BLOCK.

R E V I S I O N S	
1. JEK 2-20-03	
2. LRC 1-31-14	



The Pittsburgh Water and Sewer Authority
**Vertical Thrust Block
 For Large Pipe**

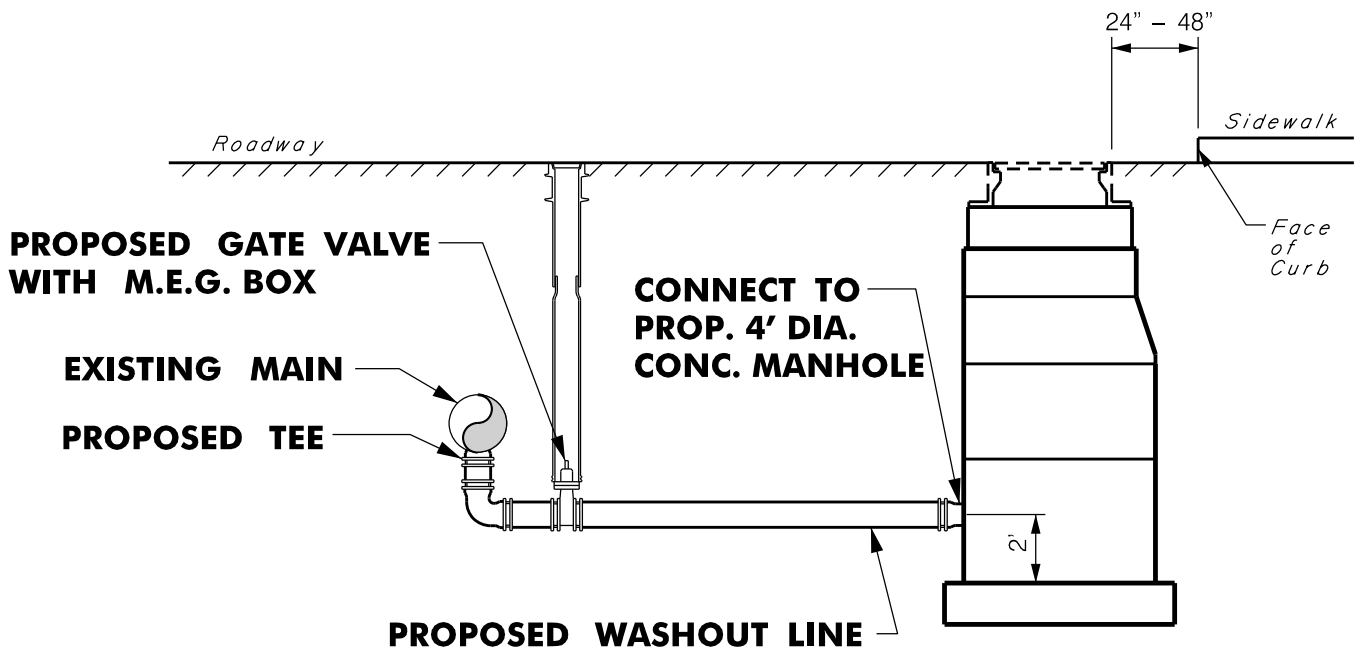
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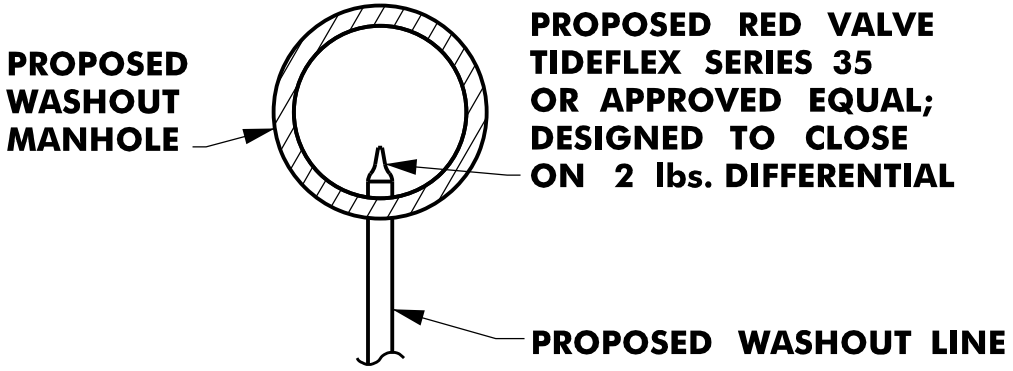
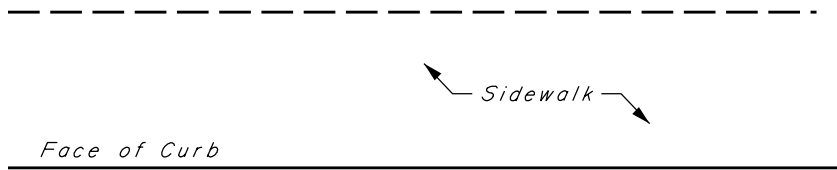
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Supplemental
 Detail Drawing: **WS-VBL**

5/19/2015



PROFILE
SCALE: NTS



PLAN
SCALE: NTS

8/25/2015

R E V I S I O N S	
1.	LRC 1-31-14
Approved by:	

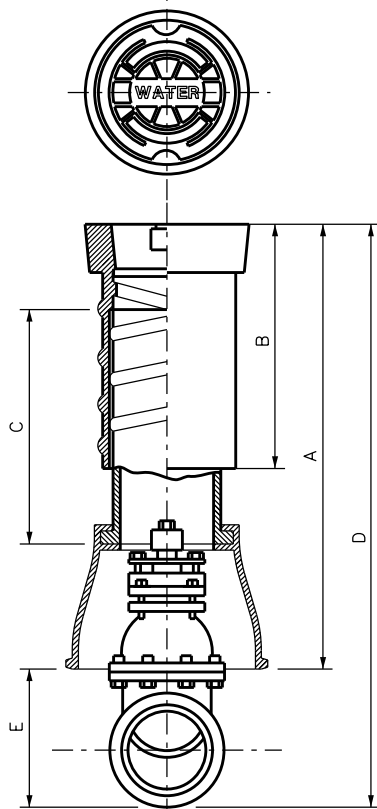
PGH₂O

Pittsburgh
Water & Sewer
Authority

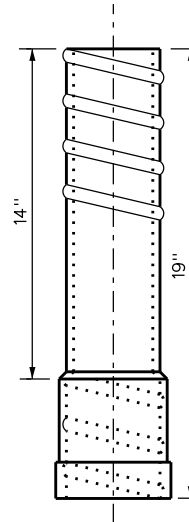
The Pittsburgh Water and Sewer Authority

WASHOUT SUMP MANHOLE

Scale: N.T.S.	Supplemental Detail Drawing: WS-WSM
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TOP SECTION, BOTTOM SECTION AND COVER



VALVE BOX EXTENSION

SIZE NO.	EXTENSION RANGE - A	TOP SECTION & COVER			BOTTOM SECTION			No. 6 BASE WT	TOTAL WEIGHT
		NO.	DIM. B	WEIGHT	NO.	DIM. C	WEIGHT		
II	21" - 27"	74	9.00	58.5	80	8.00	14.0	45.0	117.50
I	27" - 39"	75	15.25	81.5	81	14.00	24.5	45.0	151.00
J	33" - 45"	75	15.25	81.5	82	20.00	30.0	45.0	156.50
K	39" - 51"	75	15.25	81.5	83	26.25	41.0	45.0	167.50
L	39" - 60"	76	26.00	111.0	83	26.25	41.0	45.0	197.00

TABLE FOR DETERMINING LENGTH OF BOX NEEDED

SIZE OF VALVE	BOTTOM BASE TO BOTTOM TRENCH (DIM. E)	No. BASE USED	DEPTH OF TRENCH (DIM. D)									
			36"	42"	48"	54"	60"	66"	72"	78"	84"	
3	8"	4	II	I	J	K	L	L	L*	L*	O*	
4	13-1/2"	4	II	I	J	J	K	L	L	L*	L*	
6	15"	6	II	II	J	J	J	K	L	L*	L*	
8	19"	6		II	I	J	J	K	L	L	L*	
10	24"	6			II	I	I	K	K	L	L	
12	31"	160				II	I	J	K	K	L	
14	36-1/2"	160					II	I	J	J	K	
16	41-1/4"	160						II	I	I	J	

* LONGER BOXES MADE BY ADDING EXTENSIONS TO SIZE L. FOR VALVE CLOSER TO SURFACE, USE NO. 140 ROUND BASE AND REDUCE LENGTH SHOWN ABOVE BY 6 INCHES.

NOTES:

1. MEDIUM EXTENSION GATE VALVE BOX SHALL BE BINGHAM & TAYLOR No. 5001, OR APPROVED EQUAL.
2. MADE OF CAST IRON, SCREW TYPE, 3-PIECE BOX w/ LID AND #6 BASE, 7" DIAMETER SHAFT.
3. LABELED "WATER" ON THE COVER.

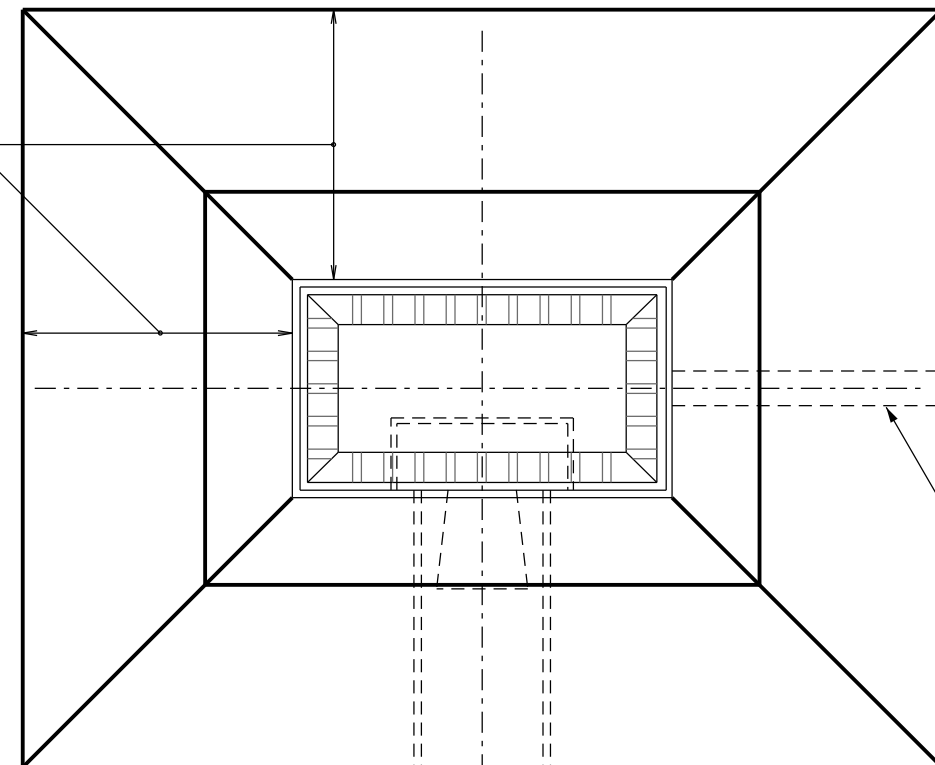
5/19/2015

<p>R E V I S I O N S</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">1.</td> <td style="width: 90%;">LRC 1-31-14</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>	1.	LRC 1-31-14								<p>The Pittsburgh Water and Sewer Authority</p> <p>Valve Box (Medium Extension Gate Box)</p>
1.	LRC 1-31-14									
<p>Approved by: _____</p>	<p>Pittsburgh Water & Sewer Authority</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Scale: N.T.S.</td> <td style="width: 50%;">Supplemental Detail Drawing: WVB</td> </tr> <tr> <td colspan="2" style="font-size: small;">M:\pwsa\gis\det\Standards\stdwvb.det</td> </tr> </table>	Scale: N.T.S.	Supplemental Detail Drawing: WVB	M:\pwsa\gis\det\Standards\stdwvb.det					
Scale: N.T.S.	Supplemental Detail Drawing: WVB									
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FRAME & GRATE SCHEDULE

CB TYPE	FRAME No.	GRATE No.
5	NO. 69	NO.68

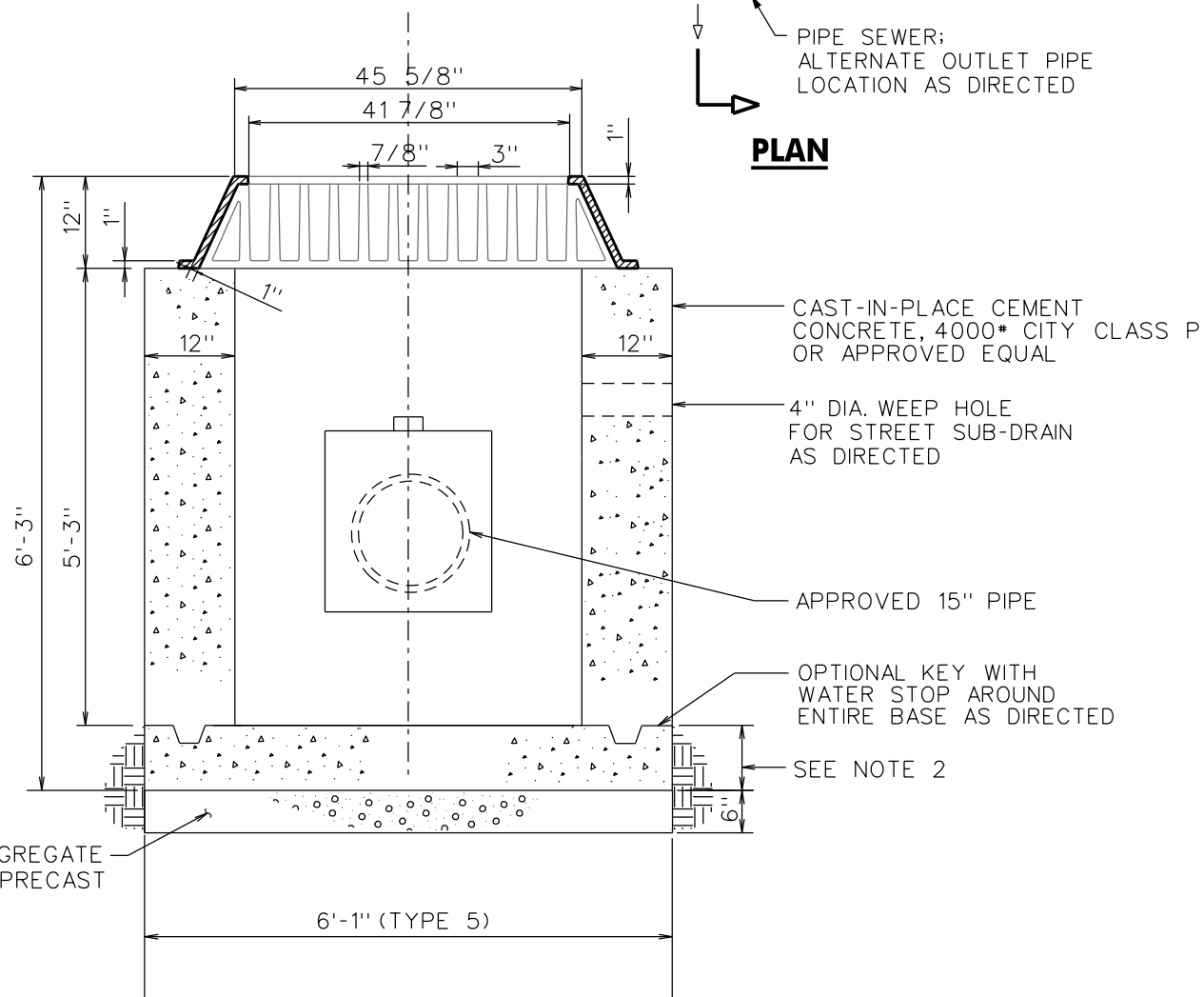
CONCRETE APRON
3'-0" OR AS
DIRECTED



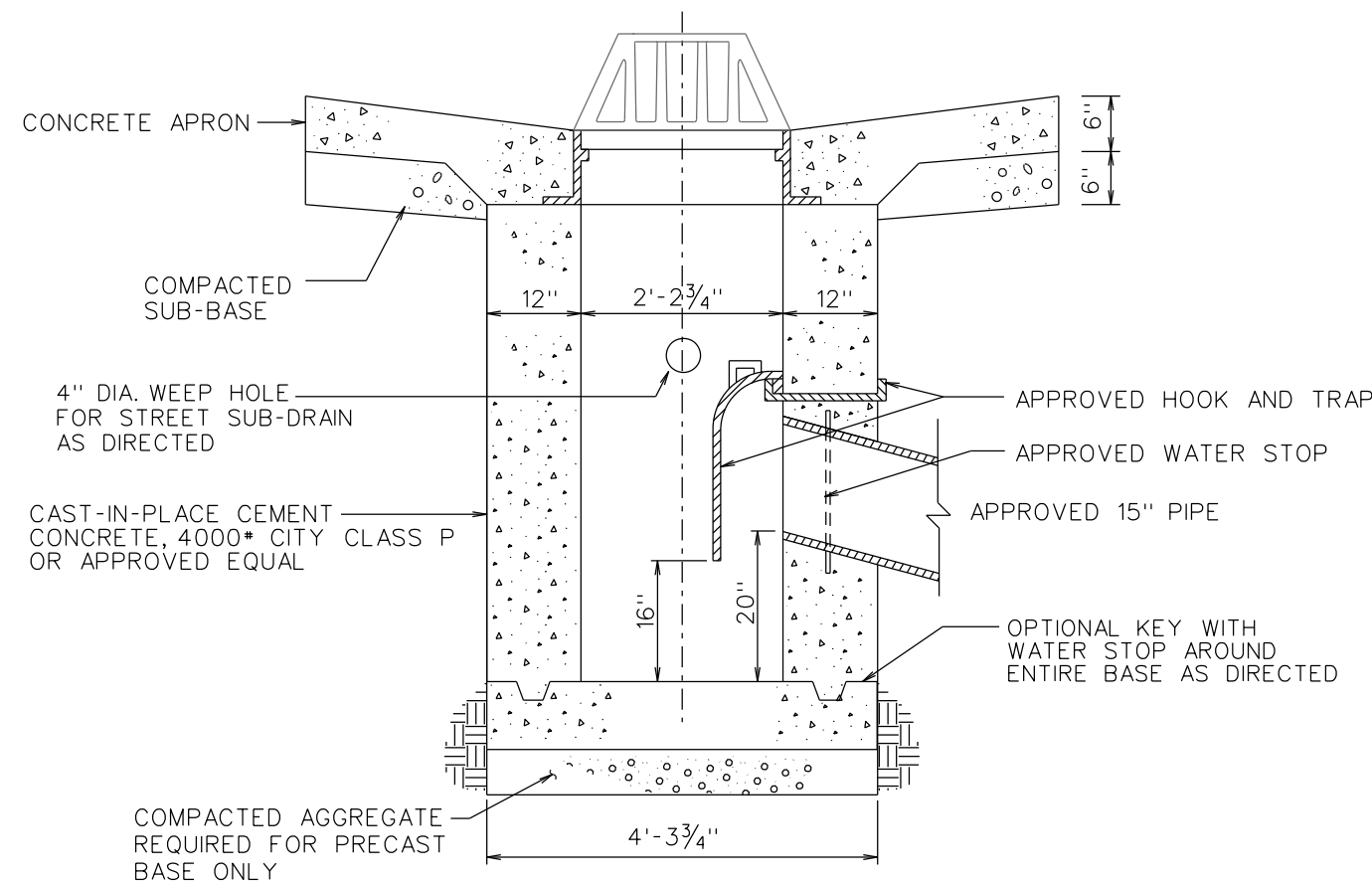
NOTES:

1. SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
2. CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
3. ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
4. CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
5. PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
6. HOOK AND TRAP EJIW 5954 AND EJIW 5944 OR APPROVED EQUAL.
7. HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL WITH APPROVED SEALER.

PLAN



LONGITUDINAL SECTION



CROSS SECTION

R E V I S I O N S	
1.	
Approved by:	



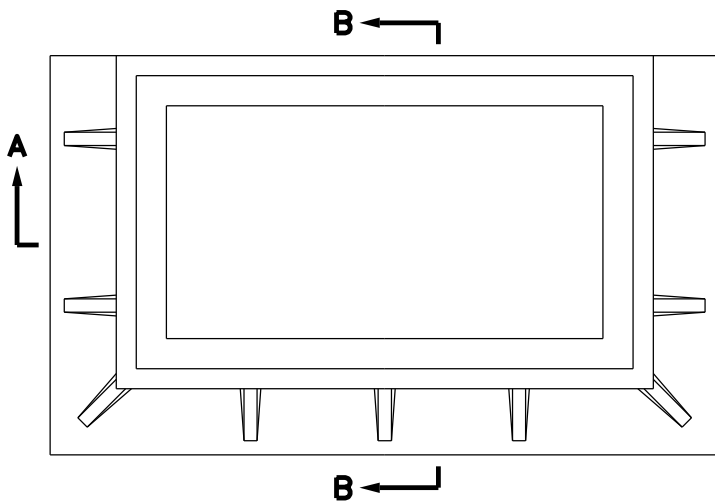
The Pittsburgh Water and Sewer Authority

Catch Basin Type 5 Basket Grate

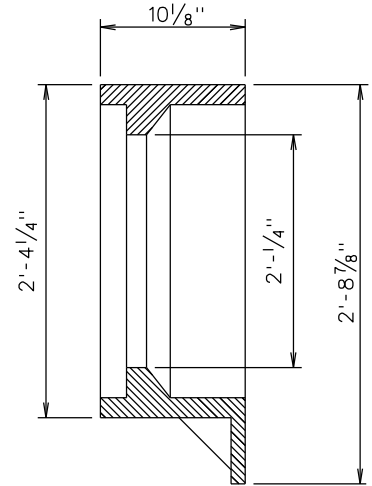
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Supplemental Detail Drawing: **CB5**

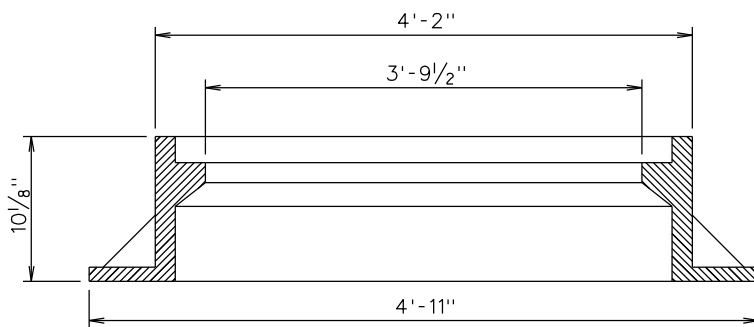
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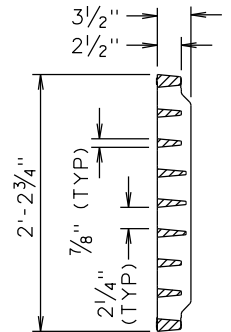
PLAN-FRAME



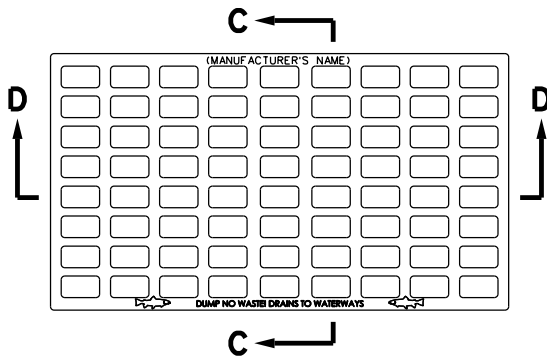
SECTION B-B



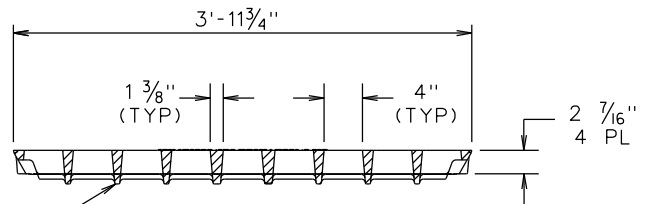
SECTION A-A



SECTION C-C



PLAN-GRATE



SECTION D-D

5355M8
ASTM A48 CL35B
MO/DAY/YR
00535571

R E V I S I O N S	
1. JLK	9-16-03
2. MAC	5-16-06
3. RJM	6-18-10



Pittsburgh
Water & Sewer
Authority

The Pittsburgh Water and Sewer Authority
INLET
3-FLANGE CAST IRON
FRAME AND GRATE

Approved by:

Scale: N.T.S.

Supplemental
Detail Drawing:

IFG

5/19/2015

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