

STANDARD WASTEWATER CONSTRUCTION DETAILS

PREPARED FOR:
Town of Zionsville, Indiana



TOWN OF ZIONSVILLE
1100 WEST OAK STREET
ZIONSVILLE, INDIANA 46077

PREPARED BY:
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INDIANAPOLIS, INDIANA 46250
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November, 2019



Tim Haak, Mayor

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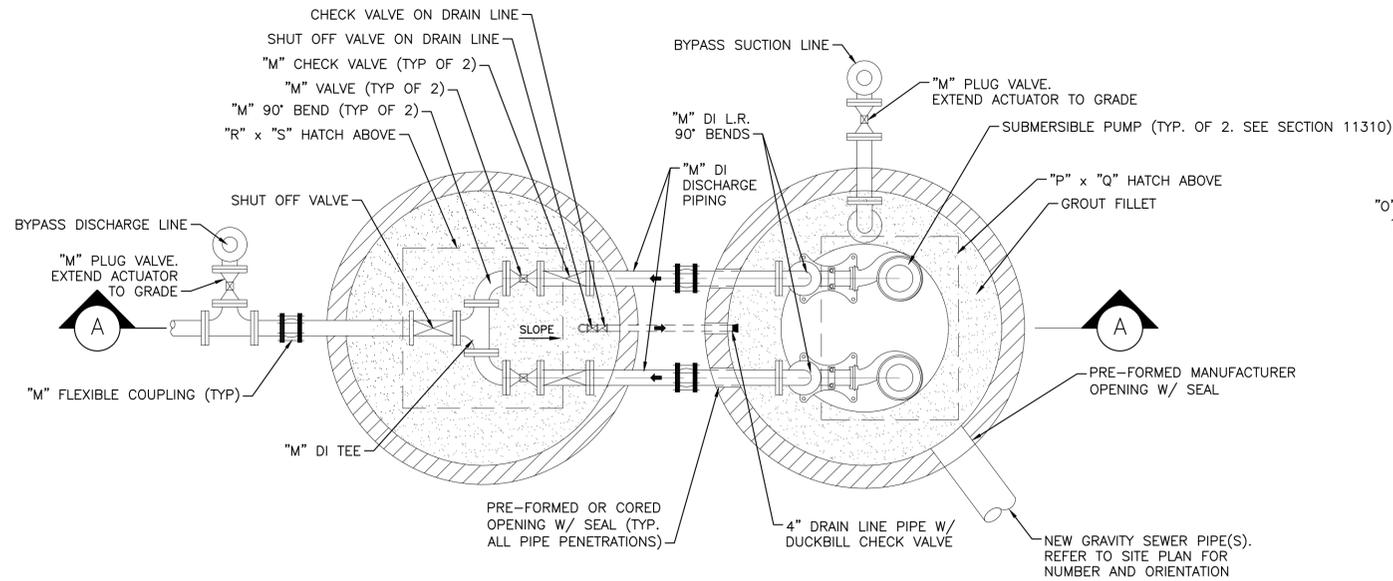
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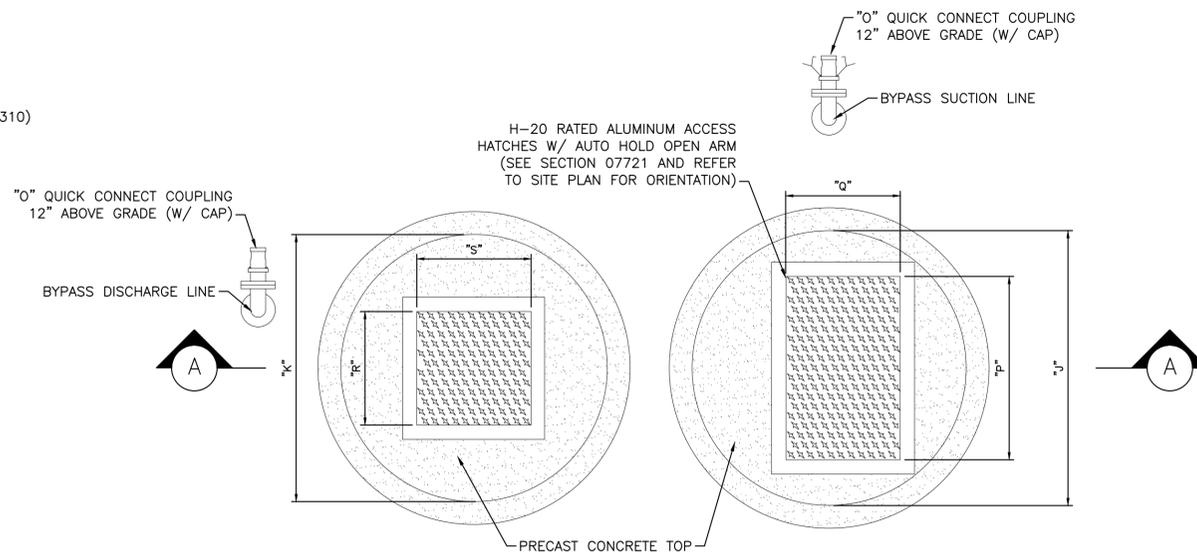
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ALLOWABLE PUMPS

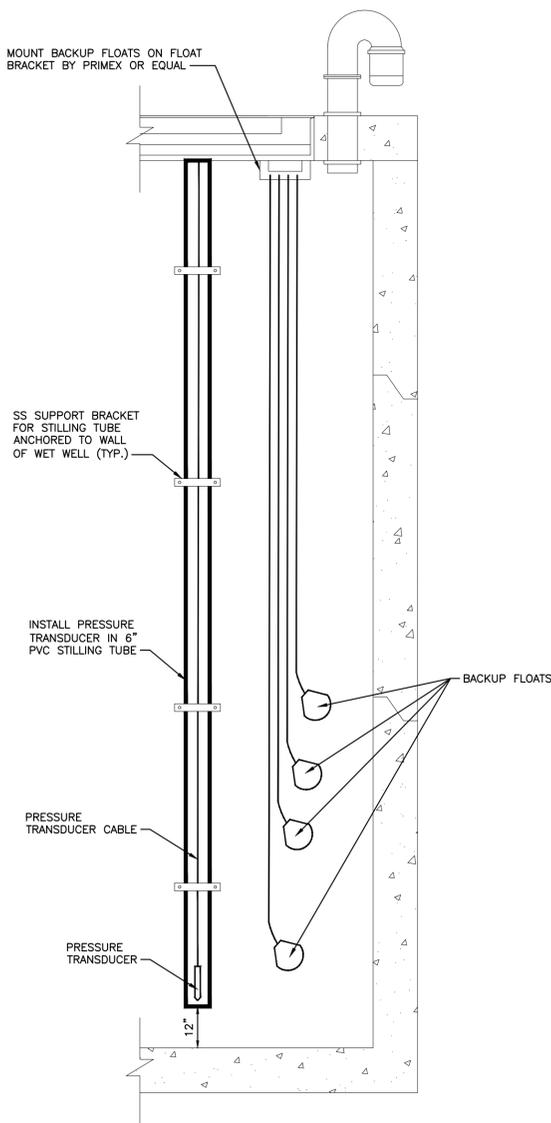
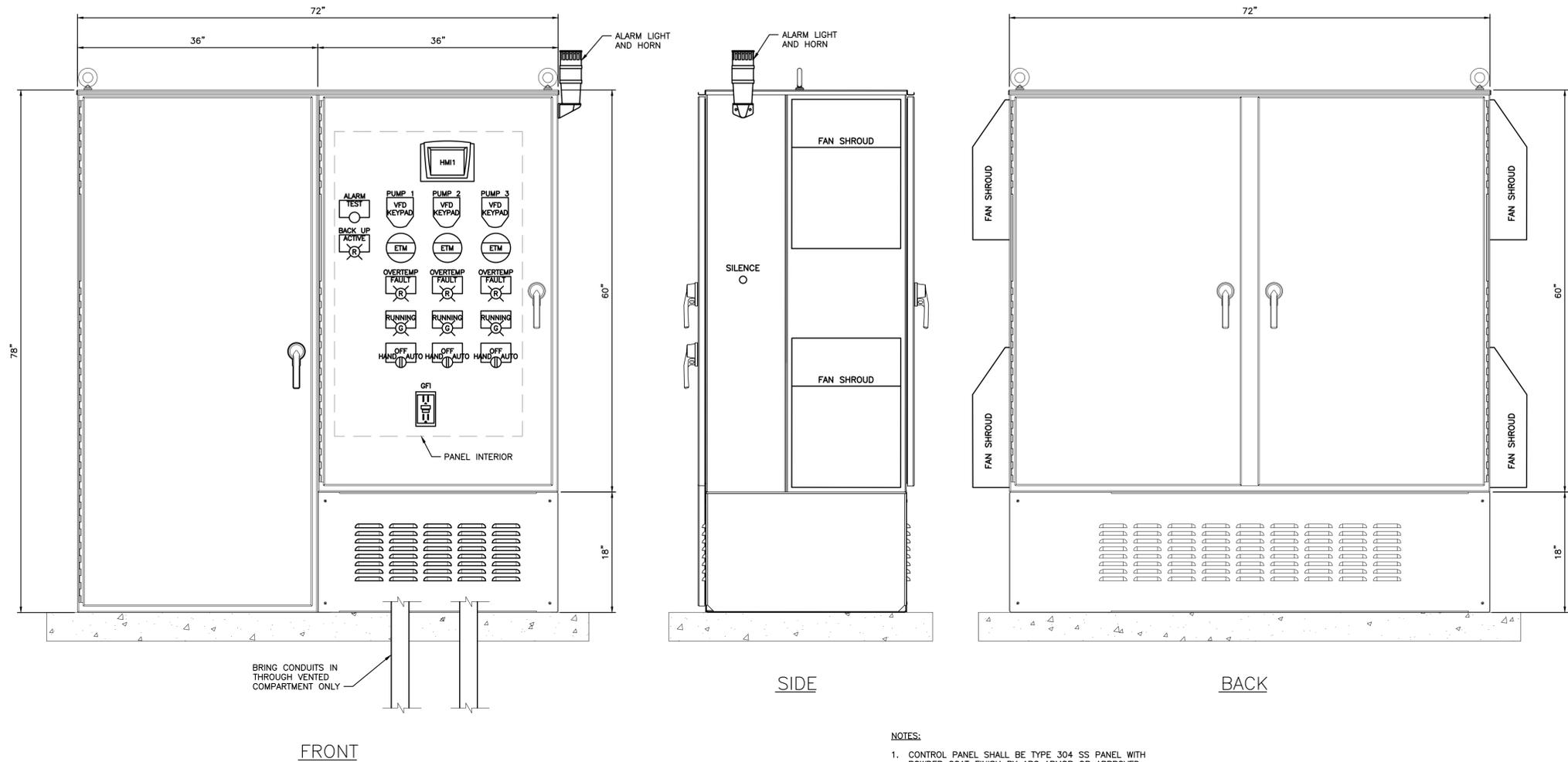
- ALLOWABLE PUMP MANUFACTURERS:
- KSB FOR PUMPS 10 HP AND LARGER
 - MYERS FOR PUMPS LESS THAN 10 HP

VALVE VAULT
WET WELL AND VALVE VAULT PLAN – BELOW COVER
NOT TO SCALE



VALVE VAULT
WET WELL AND VALVE VAULT PLAN – AT GRADE
NOT TO SCALE

ELEVATION AND DIMENSION TABLE		
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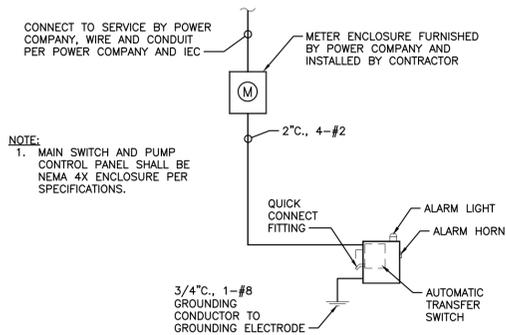


PRESSURE TRANSDUCER AND
BACKUP FLOAT INSTALLATION

NOTES:

- CONTROL PANEL SHALL BE TYPE 304 SS PANEL WITH POWDER COAT FINISH BY ARC ARMOR OR APPROVED EQUAL.
- INSTALL CORROSION INHIBITORS IN EACH COMPARTMENT OF THE CONTROL PANEL.

CONTROL PANEL



NOTE:
1. MAIN SWITCH AND PUMP CONTROL PANEL SHALL BE NEMA 4X ENCLOSURE PER SPECIFICATIONS.

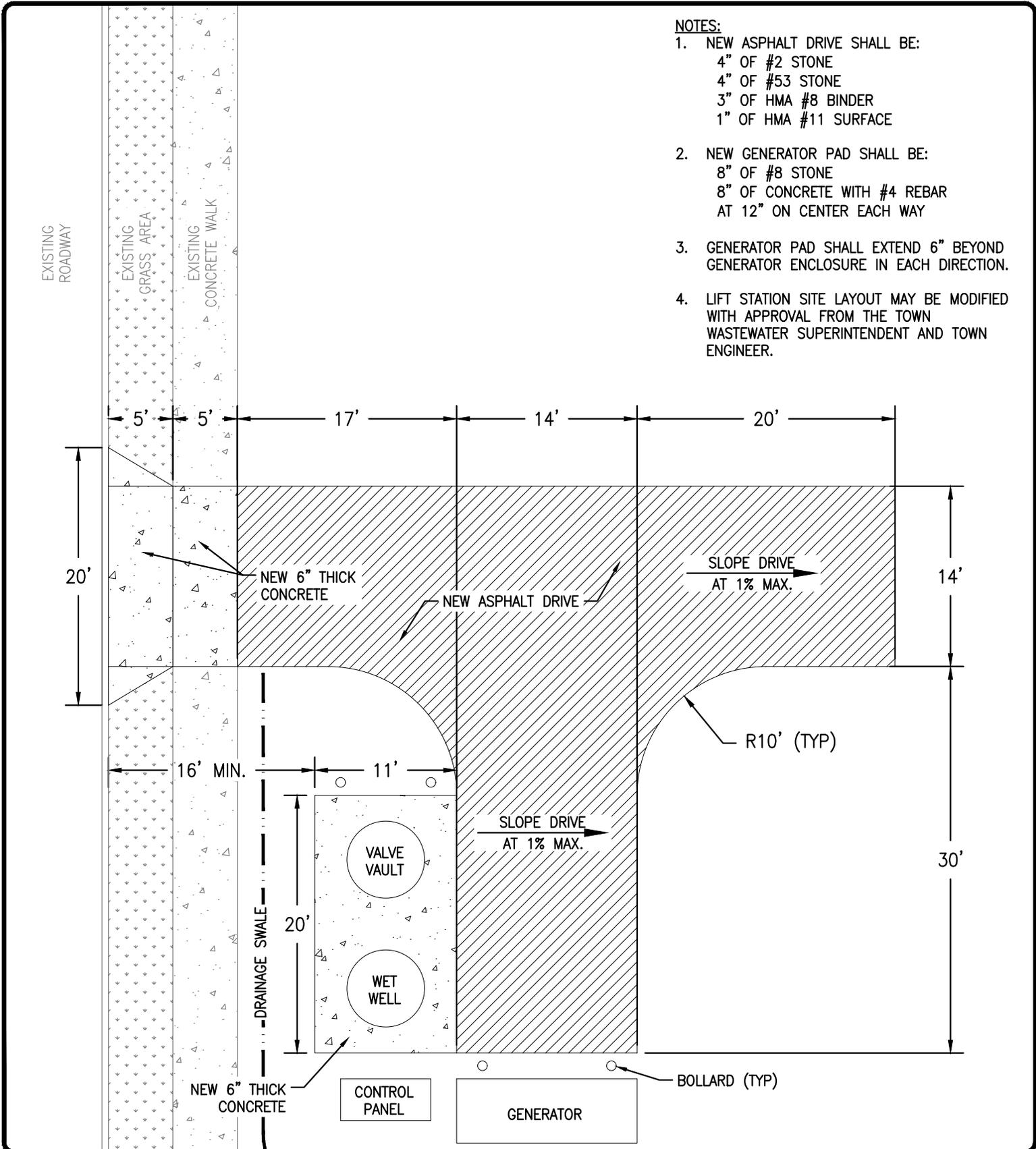
LIFT STATION POWER
DISTRIBUTION SCHEMATIC

PUMP STATION ELECTRICAL NOTES:

- ALL ANCHOR BOLTS AND MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
- SET EQUIPMENT ON 8" CONCRETE PAD WITH #4s @ 12" O.C. BOTH WAYS. DIMENSIONS AS REQUIRED FOR SIZE OF EQUIPMENT. EXTEND CONCRETE PAD BEYOND EQUIPMENT A MINIMUM OF 6". INSTALL 12" CRUSHED STONE BASE UNDER CONCRETE PAD.
- 480Y/277 VOLT SERVICE SHALL BE PROVIDED IF AVAILABLE FROM THE UTILITY COMPANY.
- ELECTRICAL SERVICE CONDUCTORS TO BE INSTALLED BY ELECTRIC UTILITY SHALL BE 480Y/277 VOLT, 3 PHASE, 4 WIRE.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR INSTALLATION OF ADDITIONAL CONDUIT REQUIRED FOR SERVICE CONDUCTORS.
- NOTIFY THE TOWN OF ZIONSVILLE WITH ANY EXCEPTIONS TO THIS SHEET.

NOTES:

1. NEW ASPHALT DRIVE SHALL BE:
 4" OF #2 STONE
 4" OF #53 STONE
 3" OF HMA #8 BINDER
 1" OF HMA #11 SURFACE
2. NEW GENERATOR PAD SHALL BE:
 8" OF #8 STONE
 8" OF CONCRETE WITH #4 REBAR
 AT 12" ON CENTER EACH WAY
3. GENERATOR PAD SHALL EXTEND 6" BEYOND GENERATOR ENCLOSURE IN EACH DIRECTION.
4. LIFT STATION SITE LAYOUT MAY BE MODIFIED WITH APPROVAL FROM THE TOWN WASTEWATER SUPERINTENDENT AND TOWN ENGINEER.

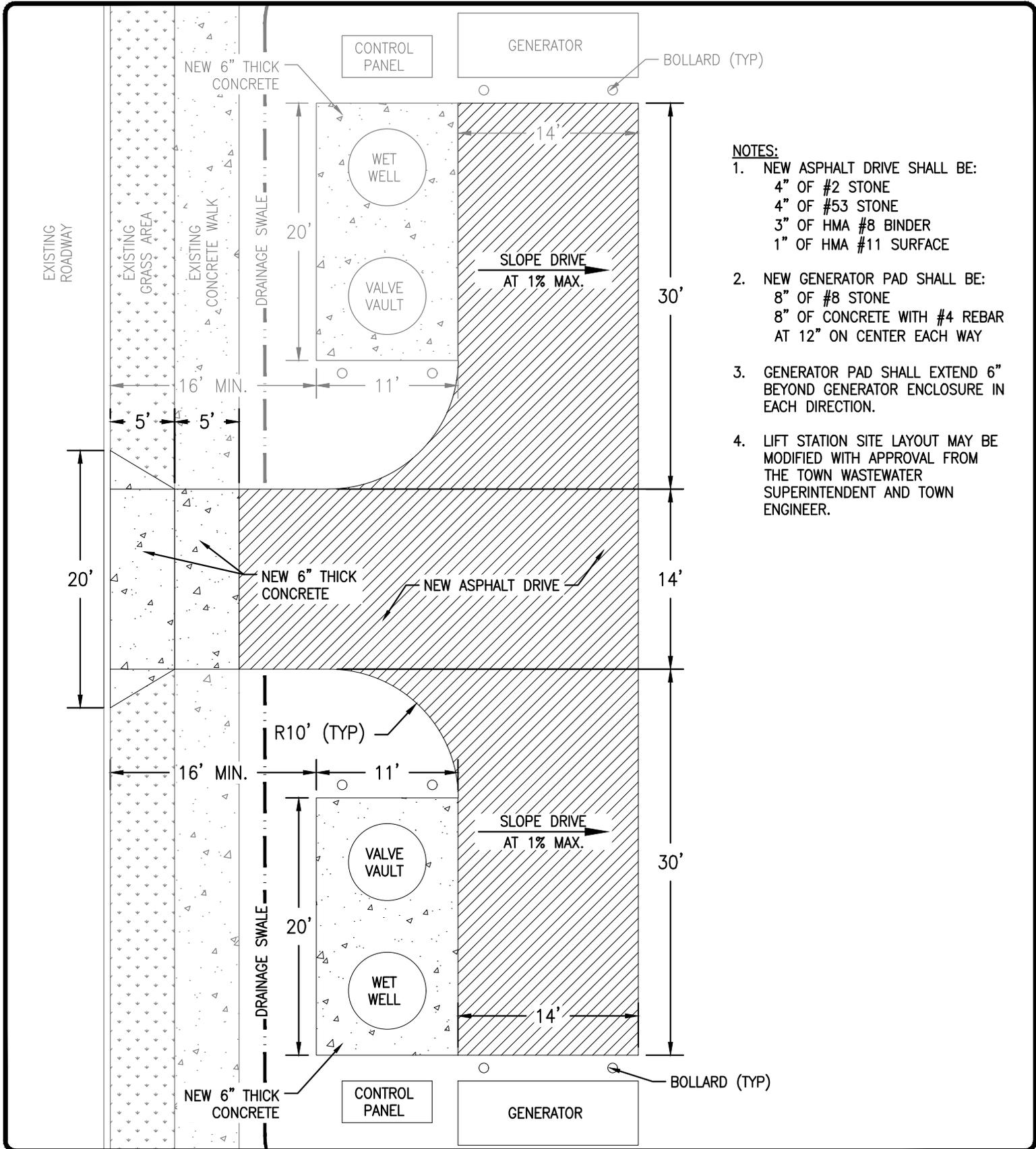


**TYPICAL LIFT STATION SITE PLAN
 OPTION A**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019
BLN BEAM-LONGEST-NEFF
DETAIL NO.
LS-3A



NOTES:

1. NEW ASPHALT DRIVE SHALL BE:
 4" OF #2 STONE
 4" OF #53 STONE
 3" OF HMA #8 BINDER
 1" OF HMA #11 SURFACE
2. NEW GENERATOR PAD SHALL BE:
 8" OF #8 STONE
 8" OF CONCRETE WITH #4 REBAR
 AT 12" ON CENTER EACH WAY
3. GENERATOR PAD SHALL EXTEND 6" BEYOND GENERATOR ENCLOSURE IN EACH DIRECTION.
4. LIFT STATION SITE LAYOUT MAY BE MODIFIED WITH APPROVAL FROM THE TOWN WASTEWATER SUPERINTENDENT AND TOWN ENGINEER.

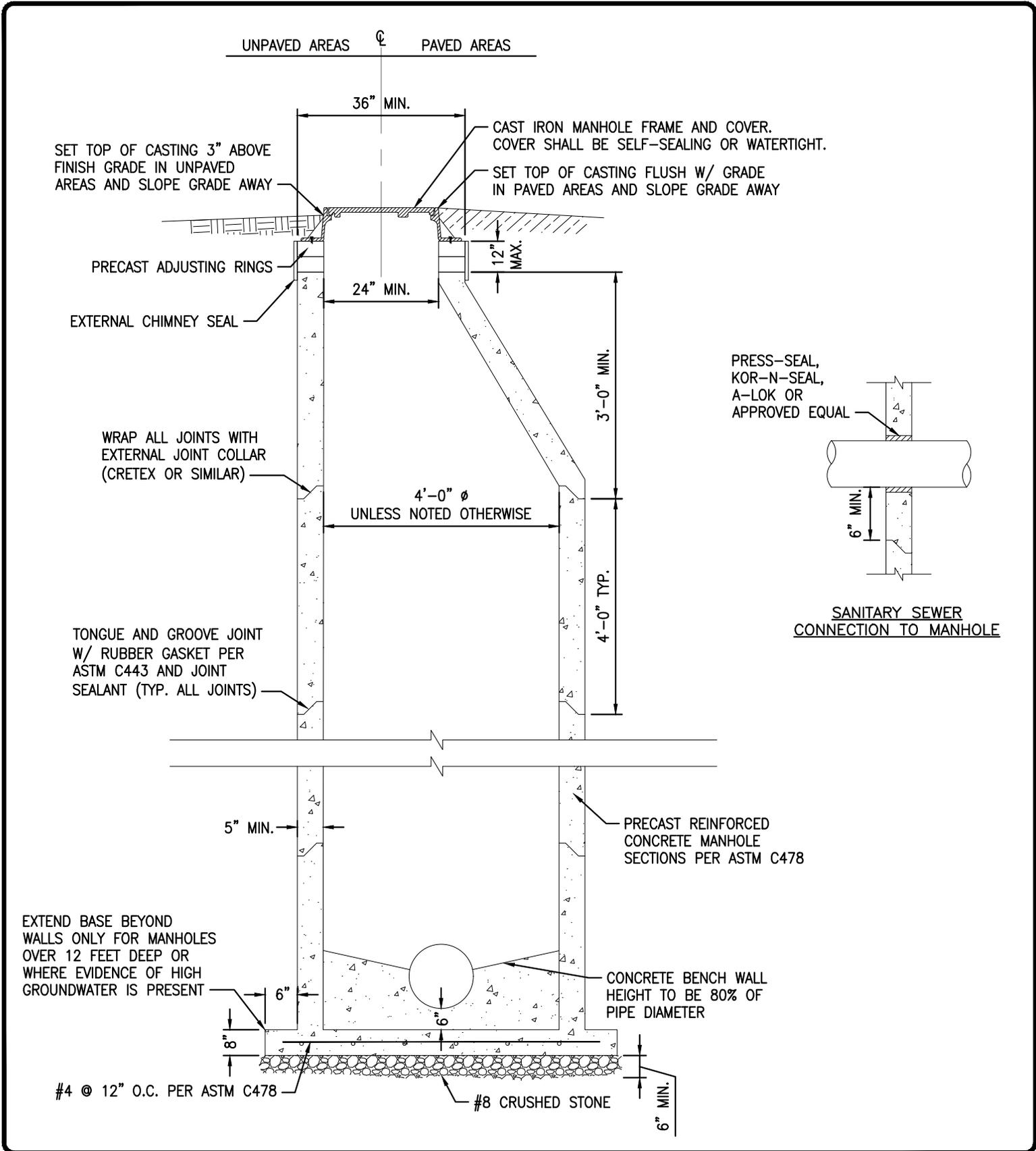


**TYPICAL LIFT STATION SITE PLAN
 OPTION B**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019
BLN BEAM-LONGEST-NEFF
DETAIL NO.
LS-3B

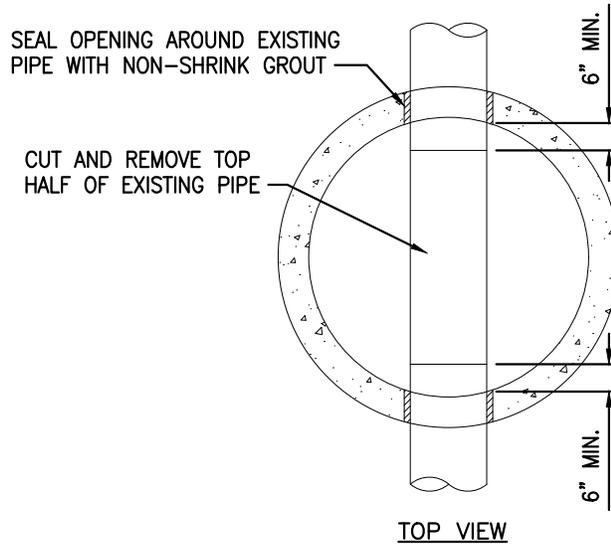
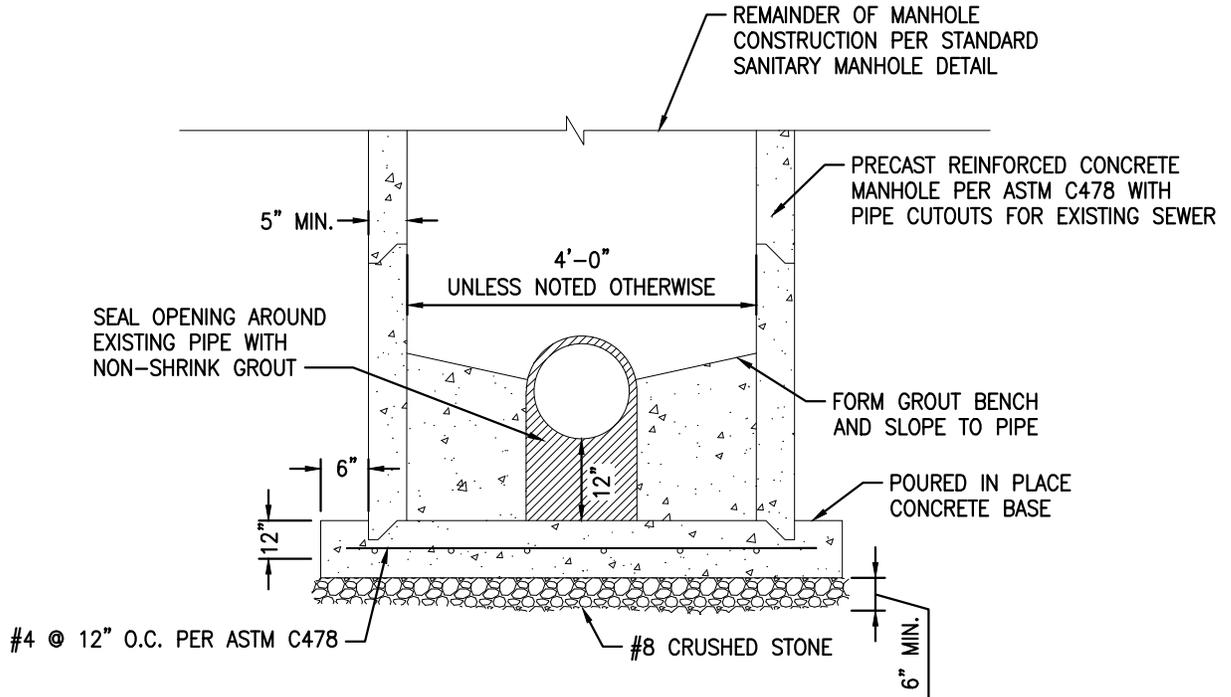


STANDARD SANITARY MANHOLE

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-1	



NOTES:

1. DOGHOUSE MANHOLES SHALL ONLY BE ALLOWED WHERE SPECIFIED ON THE PLANS OR WITH PRIOR WRITTEN APPROVAL OF THE WASTEWATER SUPERINTENDENT OR TOWN ENGINEER.
2. PROTECT AND SUPPORT EXISTING SEWER DURING EXCAVATION.

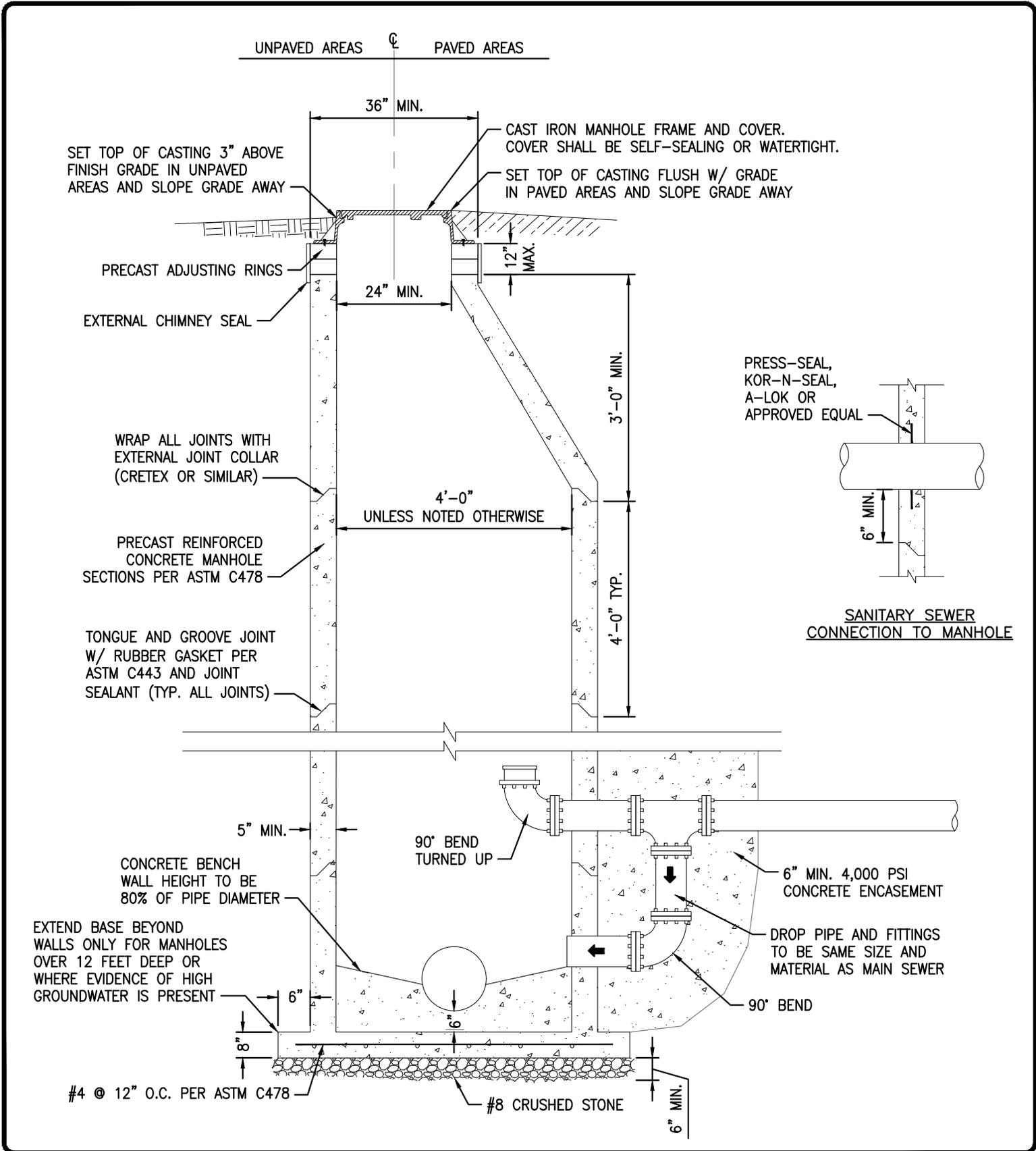


DOGHOUSE SANITARY MANHOLE

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-2	

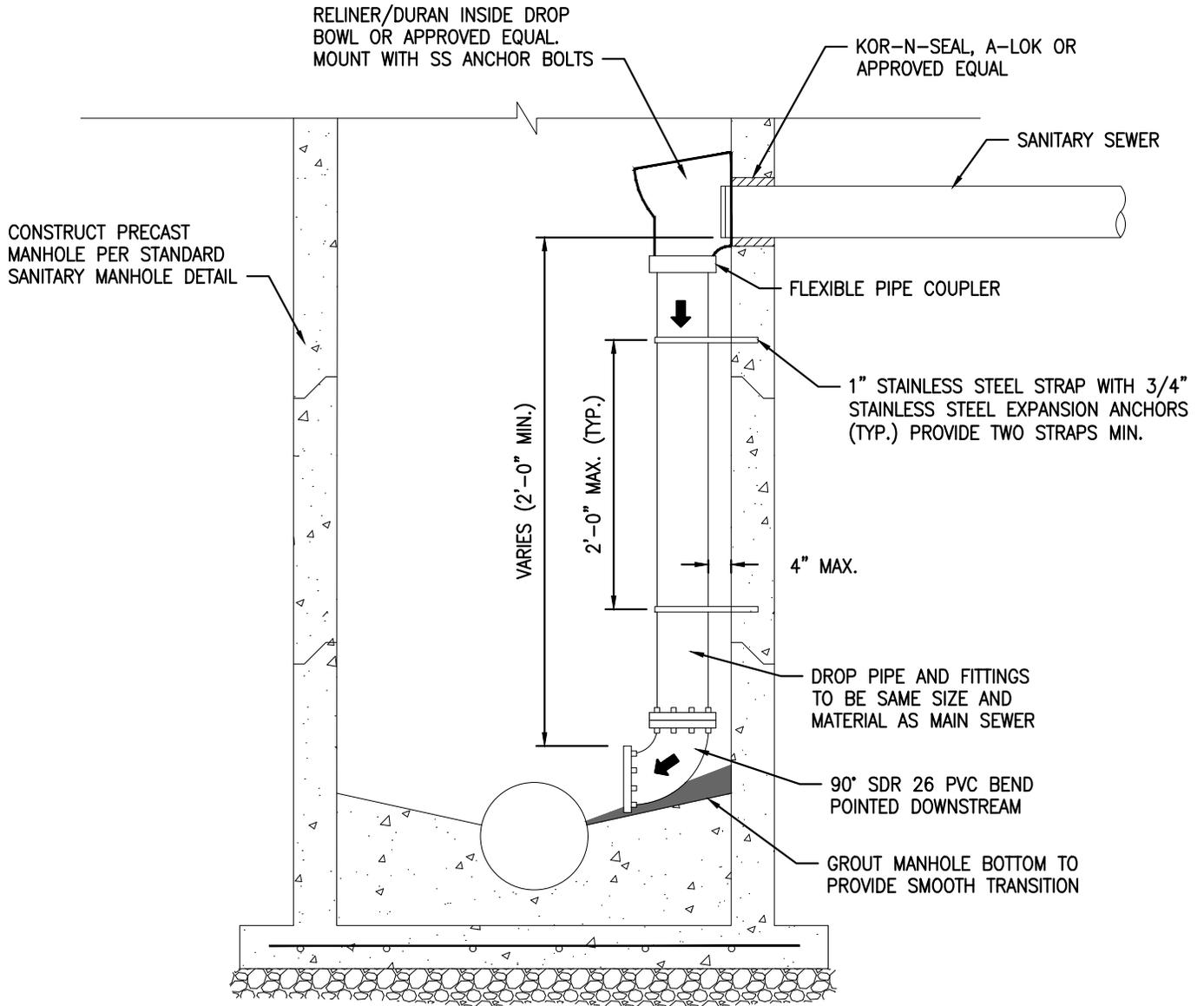


**OUTSIDE DROP
SANITARY MANHOLE**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019
BLN BEAM-LONGEST-NEFF
DETAIL NO.
S-3

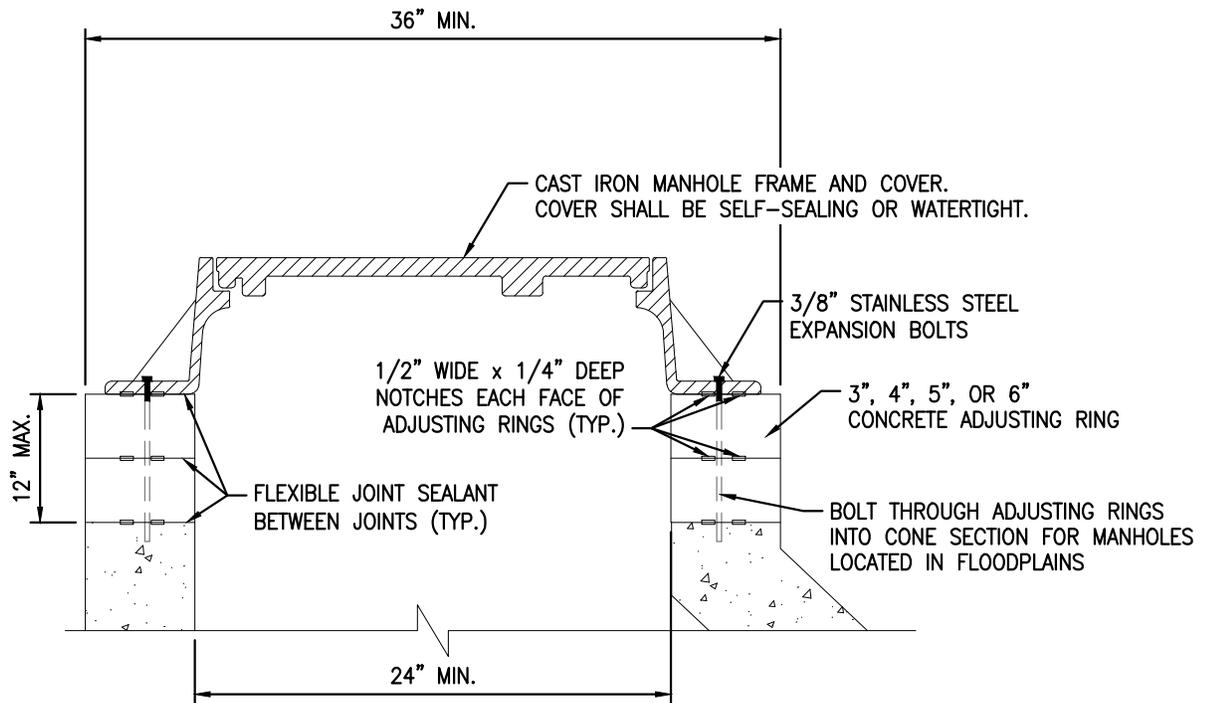
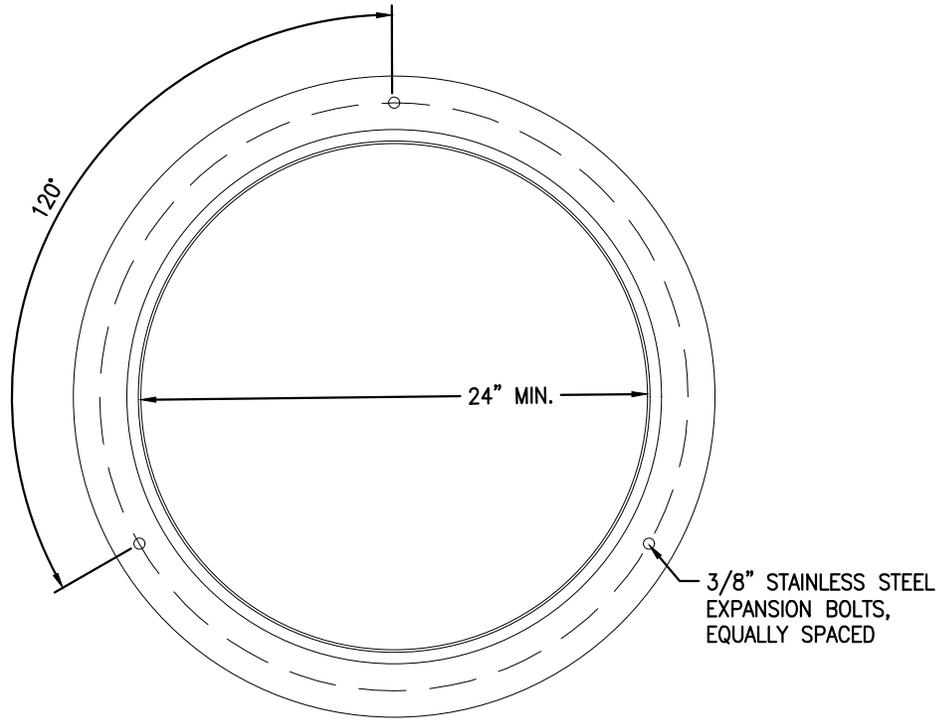


**INSIDE DROP
SANITARY MANHOLE**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019
BLN <small>BEAM-LONGEST-NEFF</small>
DETAIL NO.
S-4

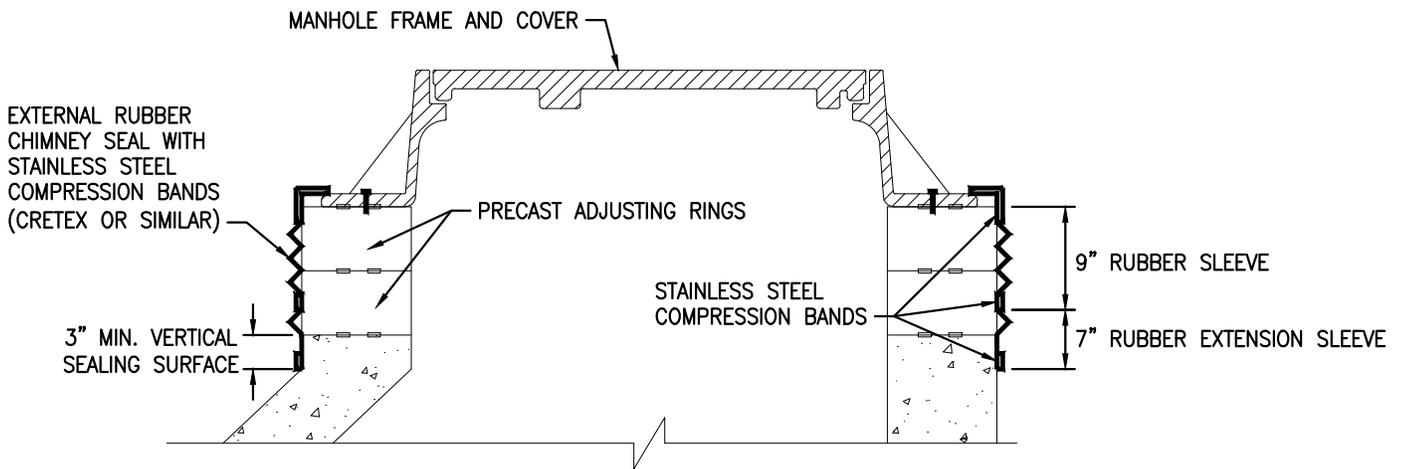
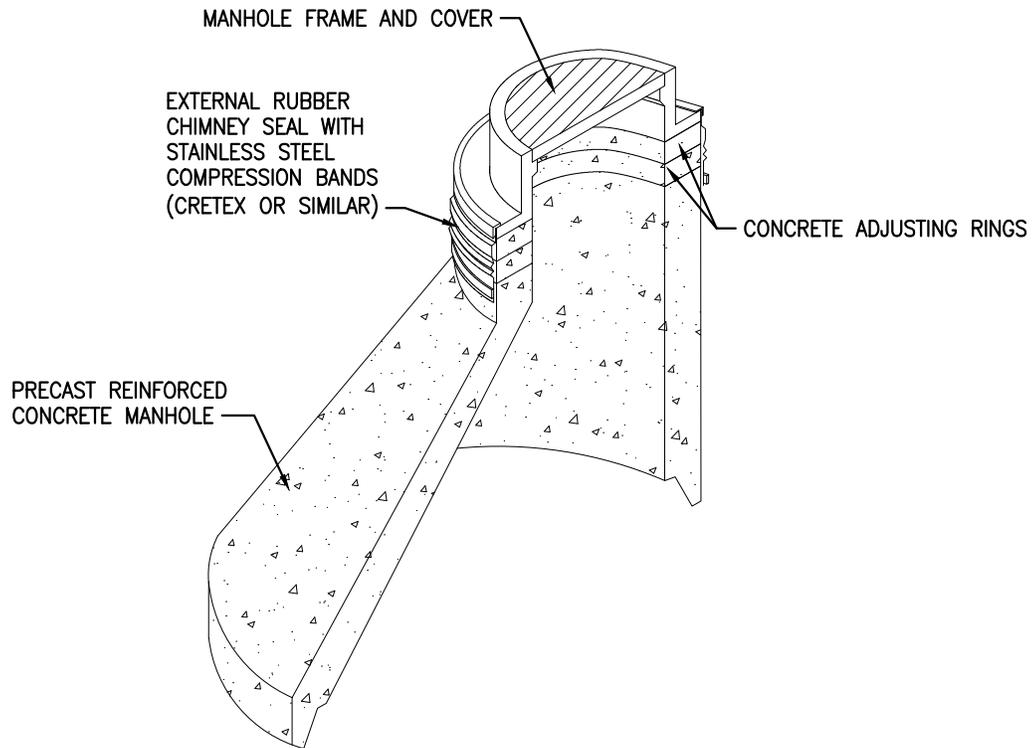


ADJUSTING RING

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019
BLN BEAM-LONGEST-NEFF
DETAIL NO.
S-5



NOTES:

1. ADD RUBBER EXTENSION SLEEVES AS NECESSARY TO COMPLETELY COVER THE HEIGHT OF CONCRETE ADJUSTING RINGS. EXTERIOR CHIMNEY SEAL SHALL OVERLAP MANHOLE CONE SECTION A MINIMUM OF 3".

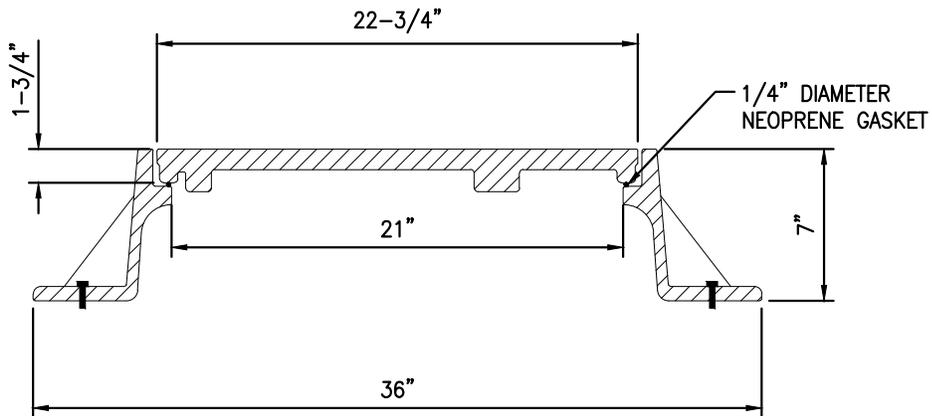
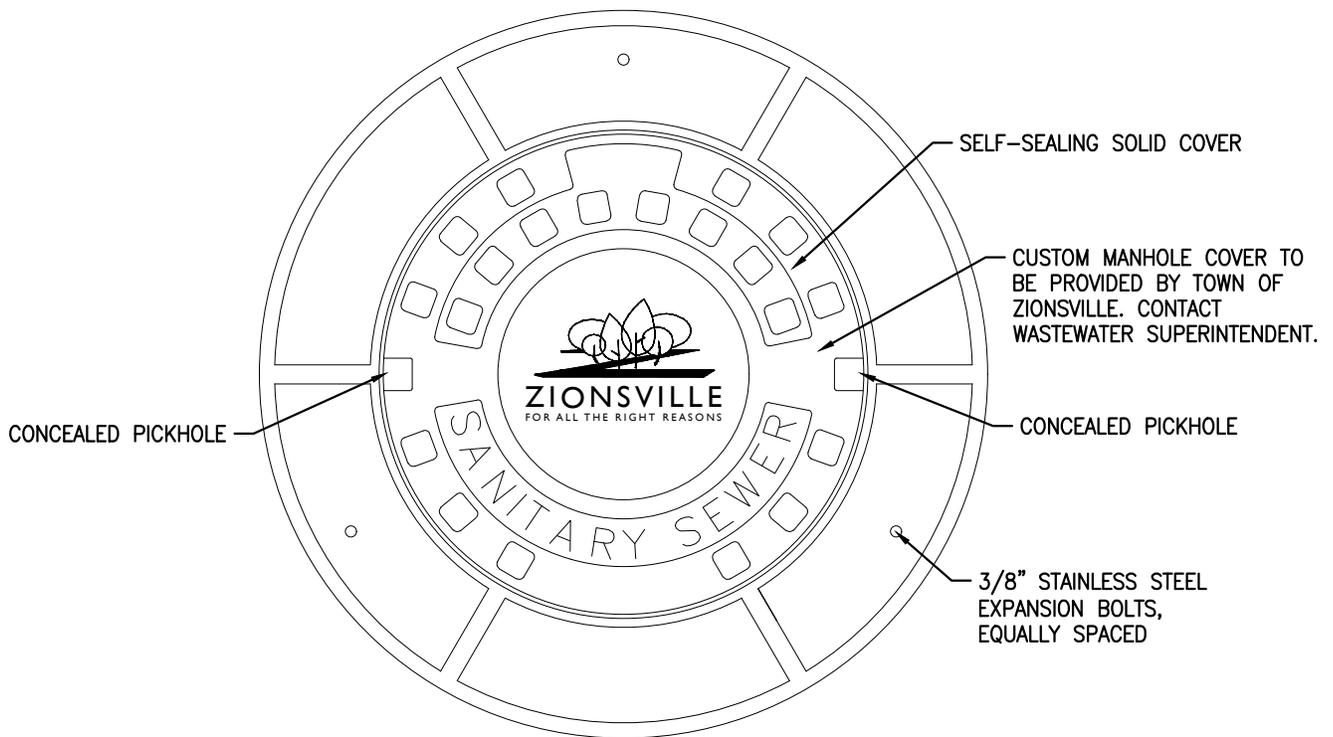


EXTERNAL CHIMNEY SEAL

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-6	



NOTES:

1. FRAME SHALL BE CATALOG NUMBER 1022 AS MANUFACTURED BY EAST JORDAN IRON WORKS. LID SHALL BE PROVIDED BY TOWN OF ZIONSVILLE.

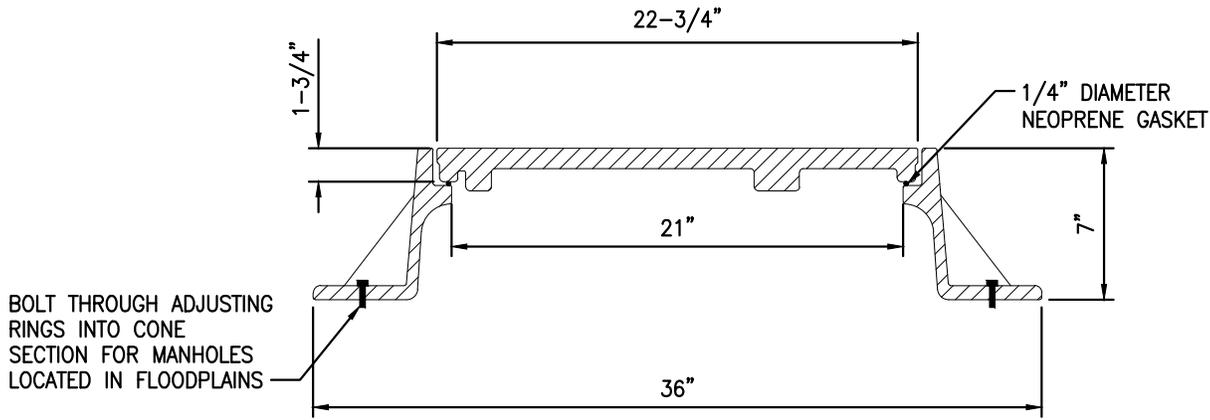
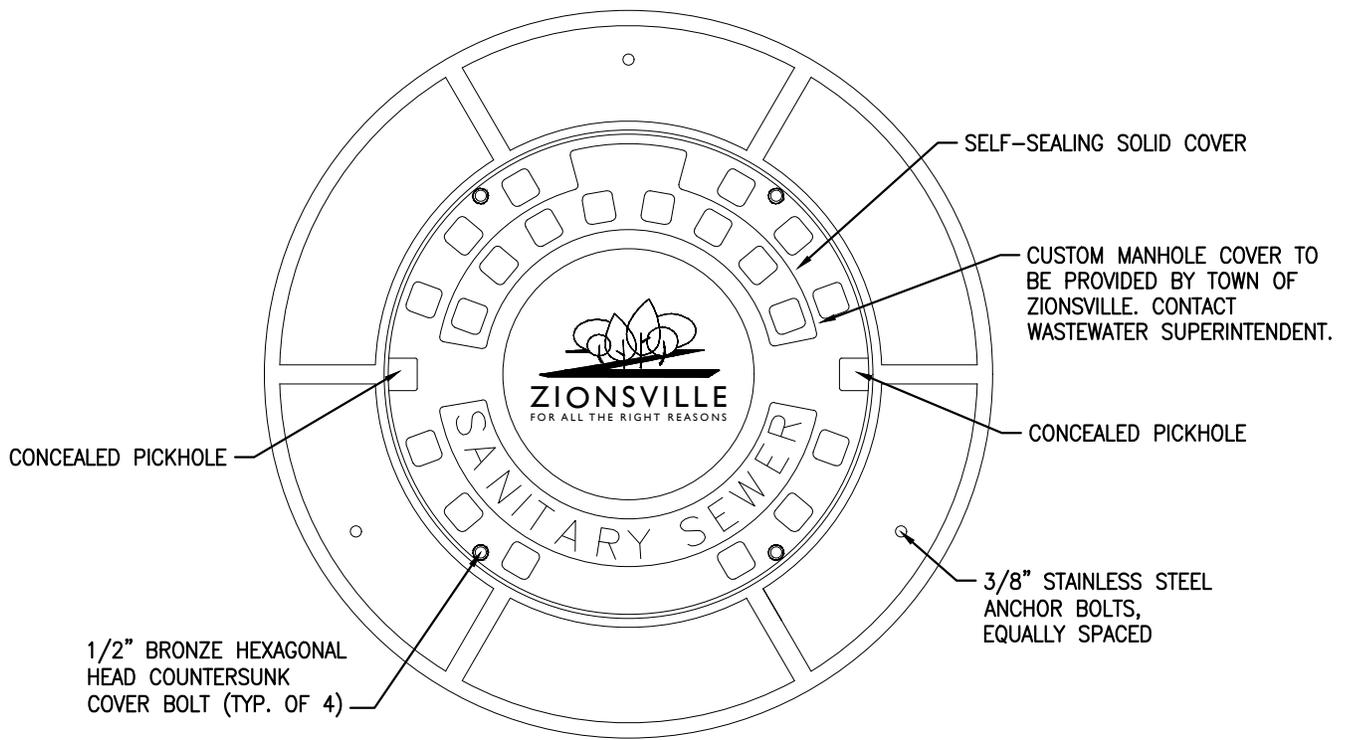


**SANITARY MANHOLE
FRAME AND COVER**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-7	



- NOTES:**
1. FRAME SHALL BE CATALOG NUMBER 1022 AS MANUFACTURED BY EAST JORDAN IRON WORKS. LID SHALL BE PROVIDED BY TOWN OF ZIONSVILLE.
 2. BOLT-DOWN FRAME AND COVER SHALL BE USED ON MANHOLES THAT EXTEND MORE THAN 3" ABOVE FINISH GRADE.
 3. BOLT-DOWN FRAME AND COVER SHALL BE USED ON MANHOLES LOCATED WITHIN THE LIMITS OF A LEGAL DRAIN OR FEMA DESIGNATED FLOODPLAIN.

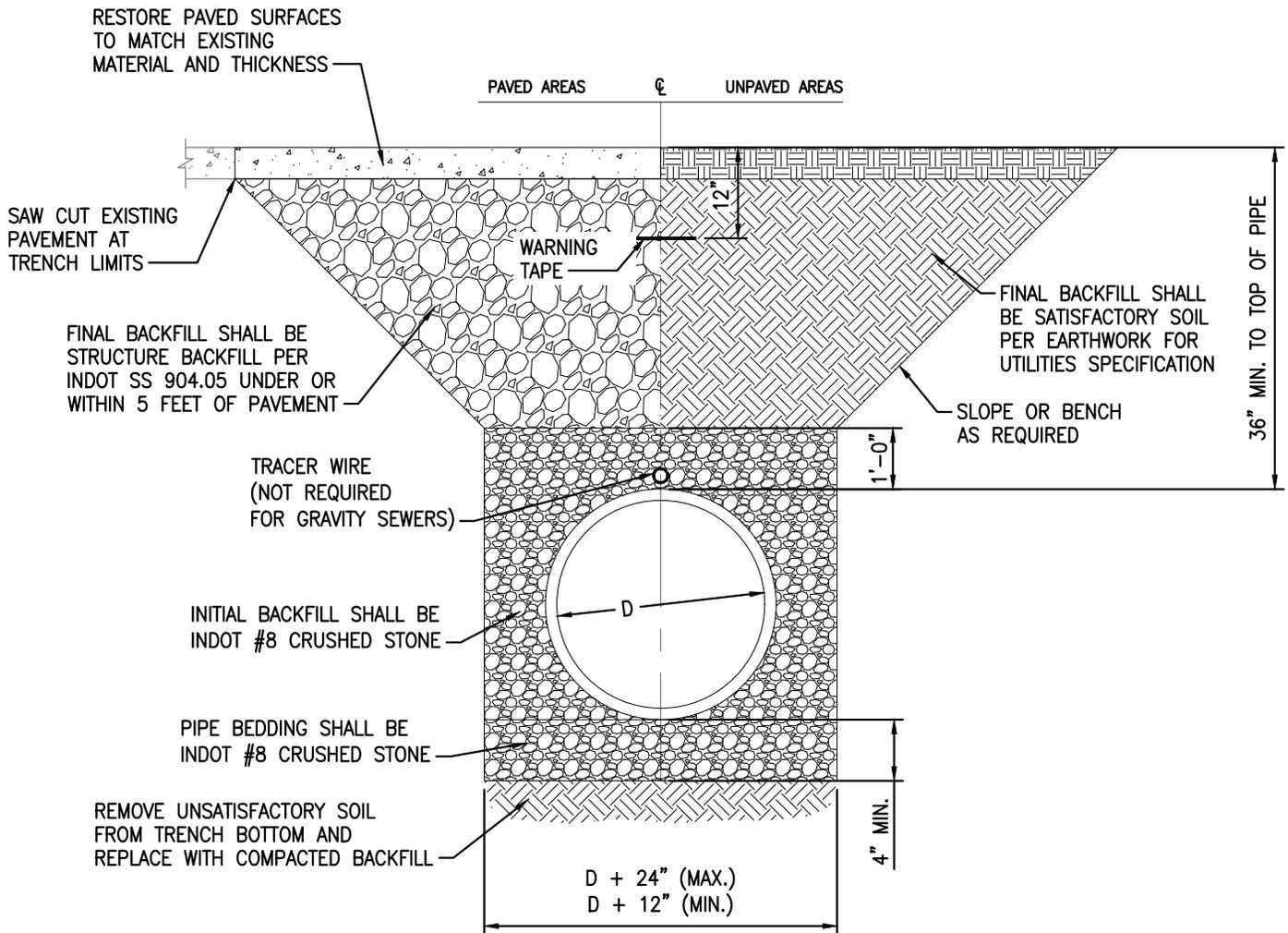


**SANITARY MANHOLE
BOLT-DOWN FRAME AND COVER**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-8	



NOTES:

1. FLOWABLE FILL MAY BE USED AS BACKFILL ONLY WITH PRIOR APPROVAL FROM THE WASTEWATER SUPERINTENDENT OR TOWN ENGINEER.

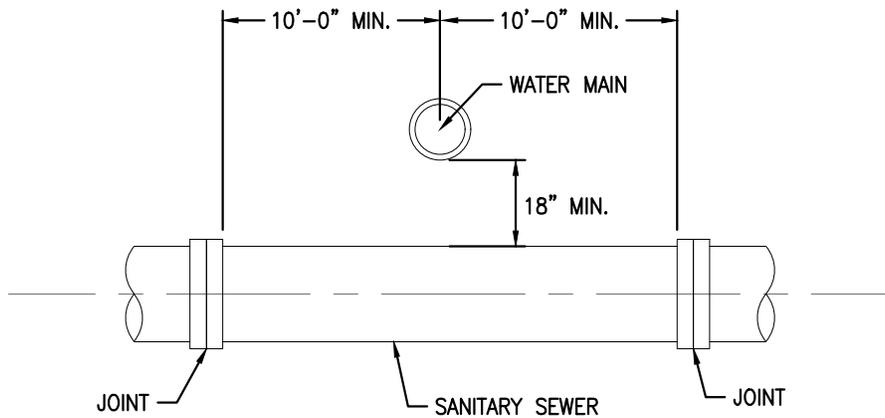
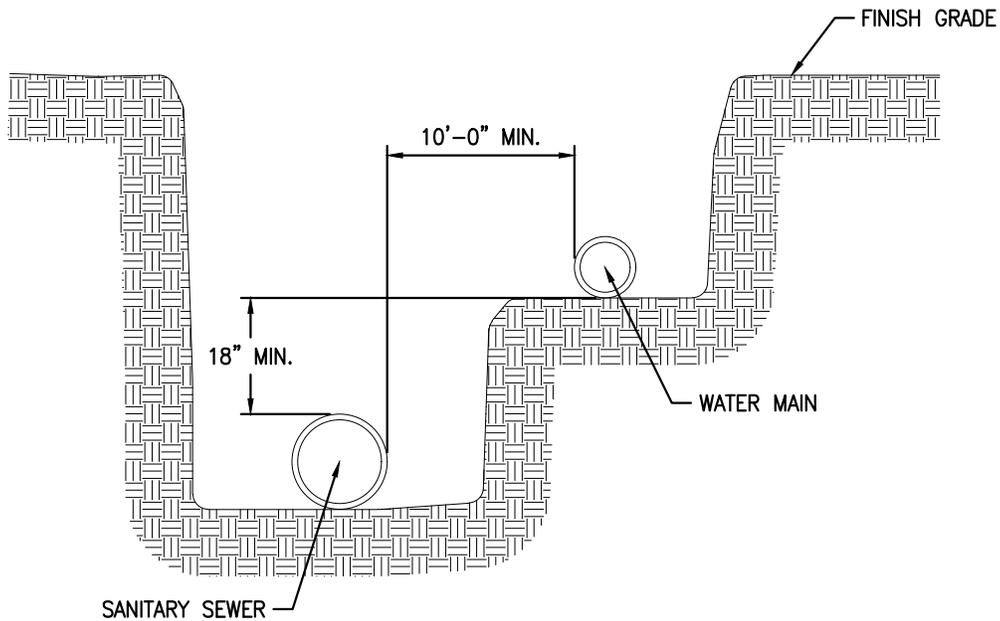


**SANITARY SEWER
TRENCH AND BEDDING**

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-9	



NOTES:

1. IF THE MINIMUM VERTICAL OR HORIZONTAL SEPARATION INDICATED CANNOT BE MET, THE SANITARY SEWER PIPE MATERIAL SHALL BE DR18 AWWA C900 PVC, DR21 AWWA C905 PVC, OR CLASS 51 DUCTILE IRON.
2. IF VERTICAL SEPARATION BETWEEN THE WATER MAIN AND SANITARY SEWER IS LESS THAN 12", A 4,000 PSI CONCRETE CRADLE MUST BE PROVIDED FOR SUPPORT. A MINIMUM CLEAR DISTANCE OF 3" BETWEEN THE WATER AND SANITARY MUST BE PROVIDED TO MAINTAIN STRUCTURAL INTEGRITY OF THE CONCRETE.



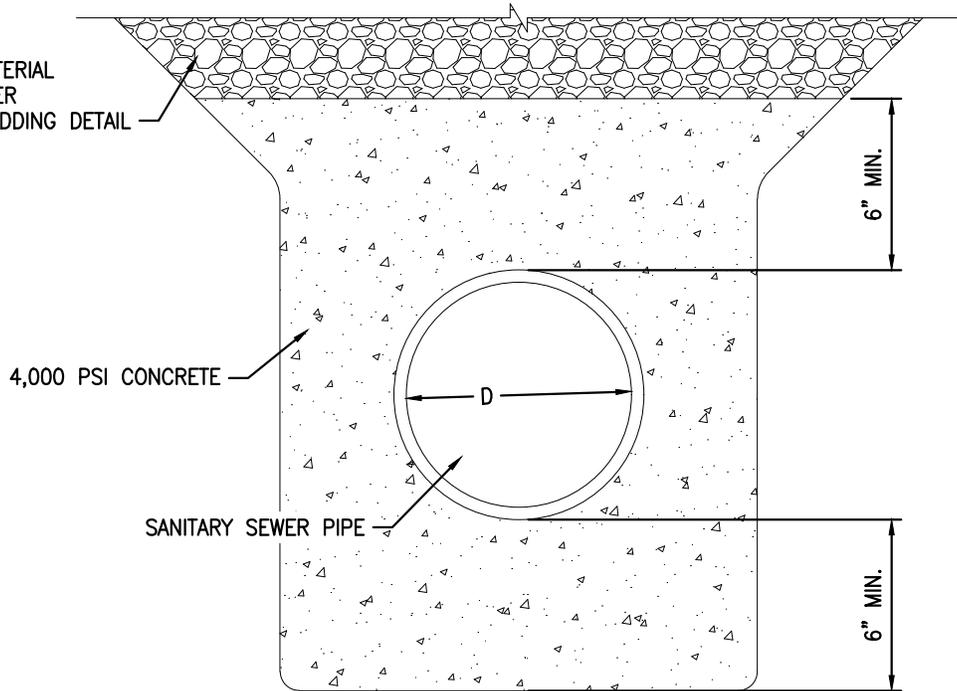
WATER AND SEWER CROSSING

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN <small>BEAM-LONGEST-NEFF</small>	
DETAIL NO.	
S-10	

FINAL BACKFILL MATERIAL
PER SANITARY SEWER
TRENCHING AND BEDDING DETAIL



NOTES:

1. DO NOT BACKFILL UNTIL CONCRETE HAS ADEQUATELY CURED.
2. CONCRETE ENCASEMENT TO BE USED WHEN COVER OVER SANITARY PIPE IS LESS THAN 4 FEET, OR WHEN DIRECTED BY THE TOWN ENGINEER.



CONCRETE ENCASEMENT

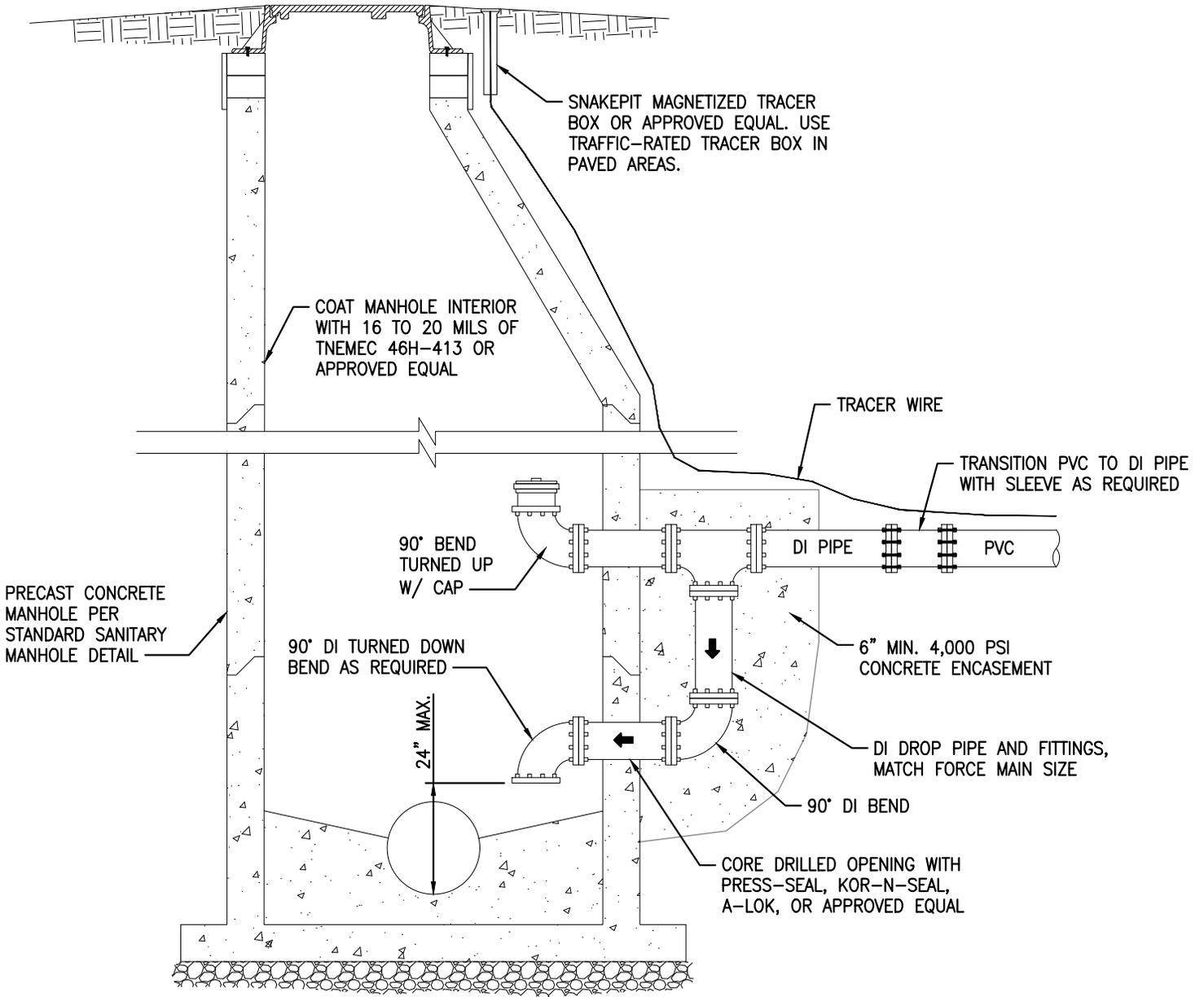
STANDARD CONSTRUCTION DETAILS
TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019

BLN
BEAM-LONGEST-NEFF

DETAIL NO.

S-11



FORCE MAIN DISCHARGE TO MANHOLE

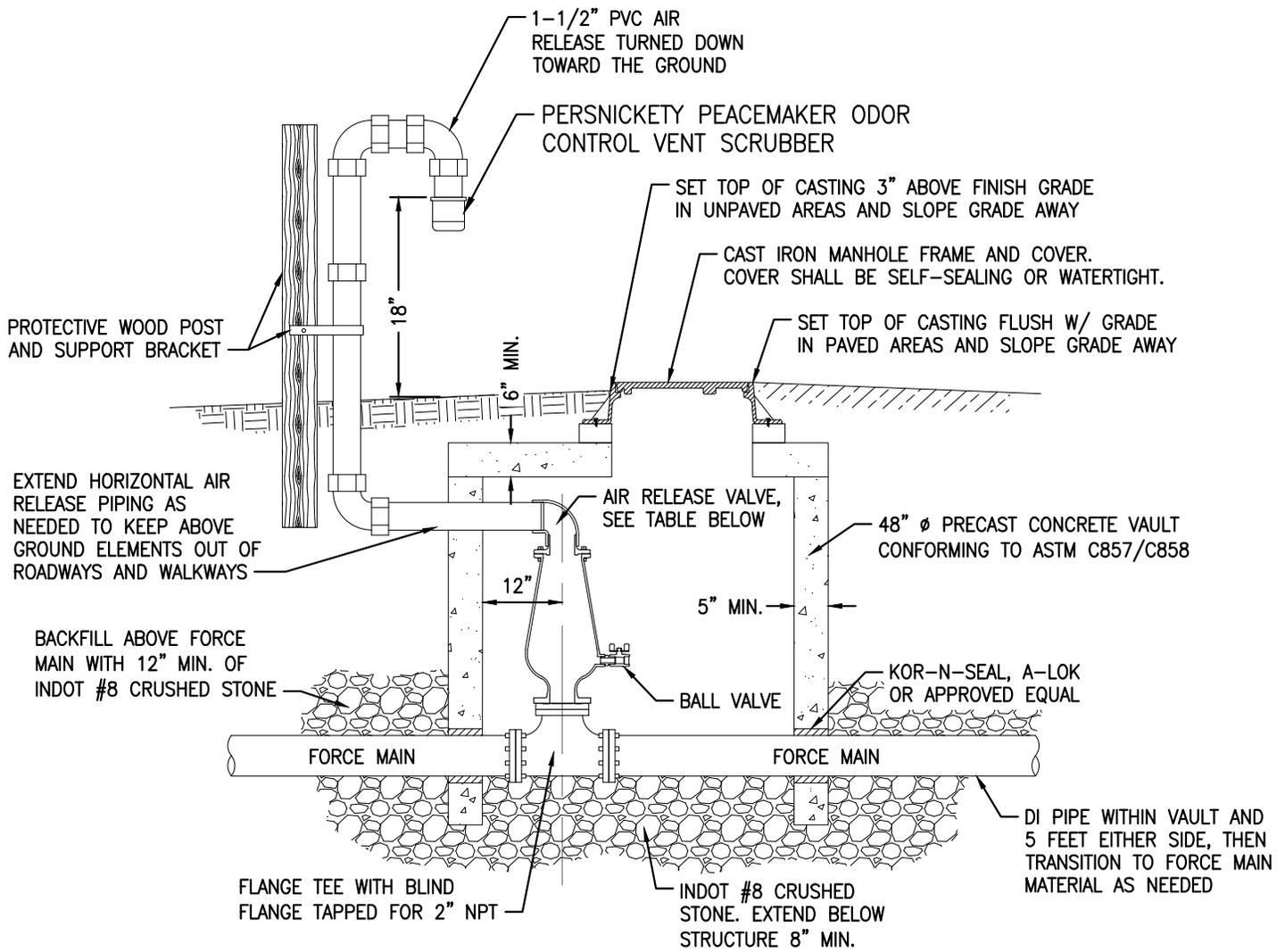
**STANDARD CONSTRUCTION DETAILS
TOWN OF ZIONSVILLE**

DRAWN: DCW
DATE: NOV. 2019

BLN
BEAM-LONGEST-NEFF

DETAIL NO.

S-12



FORCE MAIN SIZE	ARV SIZE	ARV MODEL
4" Ø OR SMALLER	2" Ø	ARI D-025, ARI D-025L, OR EQUAL
6"-12" Ø	3" Ø	ARI D-025, ARI D-025L, OR EQUAL
12" Ø OR LARGER	3" Ø	ARI D-26 OR EQUAL

NOTES:

1. INSTALL AIR RELEASE VALVES AT ALL HIGH POINTS IN FORCE MAIN.
2. PROVIDE ODOR CONTROL MEDIA UNIT WITH FRESH AIR INTAKE AT REQUEST OF WASTEWATER SUPERINTENDENT OR TOWN ENGINEER.

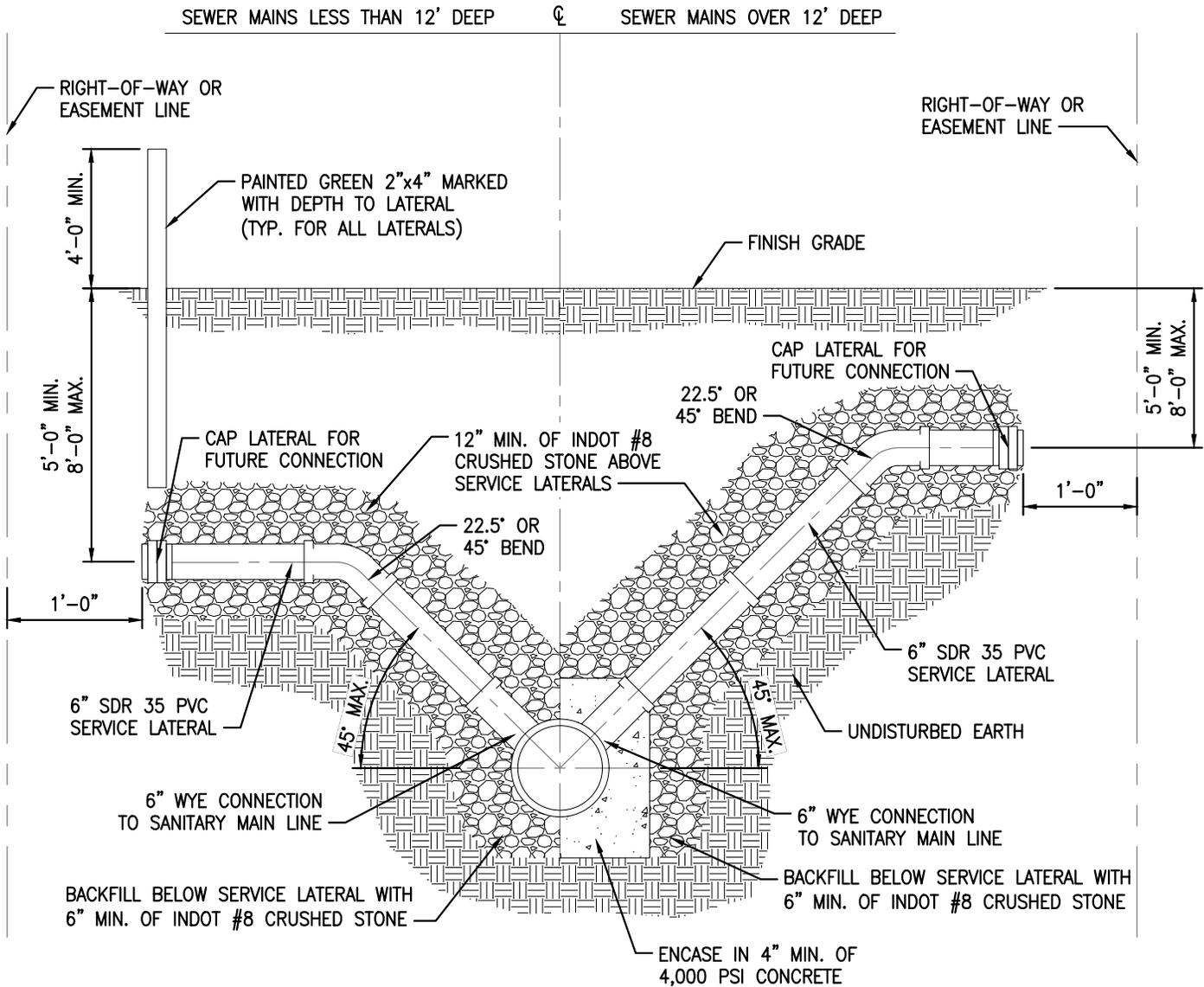


AIR RELEASE VALVE

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
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DETAIL NO.	
S-13	



- NOTES:**
1. CONTRACTOR SHALL NOT BACKFILL CONNECTION UNTIL TOWN HAS INSPECTED AND RECORDED MEASUREMENTS AND ELEVATIONS.
 2. SERVICE LATERAL SHALL BE SLOPED AT 2% MINIMUM.
 3. SEPARATION OF WYE FITTINGS FOR OPPOSITE SIDE LATERALS SHALL BE 1'-0" MIN.
 4. SEPARATION OF WYE FITTINGS FOR SAME SIDE LATERALS SHALL BE 5'-0" MIN.
 5. ALL PIPING FROM WYE TO BEND FITTING SHALL BE SDR 26 INSTEAD OF SDR 35 FOR MAIN LINES DEEPER THAN 20'.
 6. FINISHED FLOOR ELEVATION OF CONNECTED BUILDINGS SHALL BE SET 12" MIN. ABOVE RIM ELEVATION OF UPSTREAM MANHOLE TO PREVENT SANITARY BACKUPS. OTHERWISE, BACKFLOW PREVENTION MUST BE PROVIDED ON THE SERVICE CONNECTION.
 7. FLEXIBLE TEE SADDLES SHALL HAVE STAINLESS STEEL SERIES 300 CLAMPS TIGHTENED TO 60 INCH-POUNDS OF TORQUE MIN.

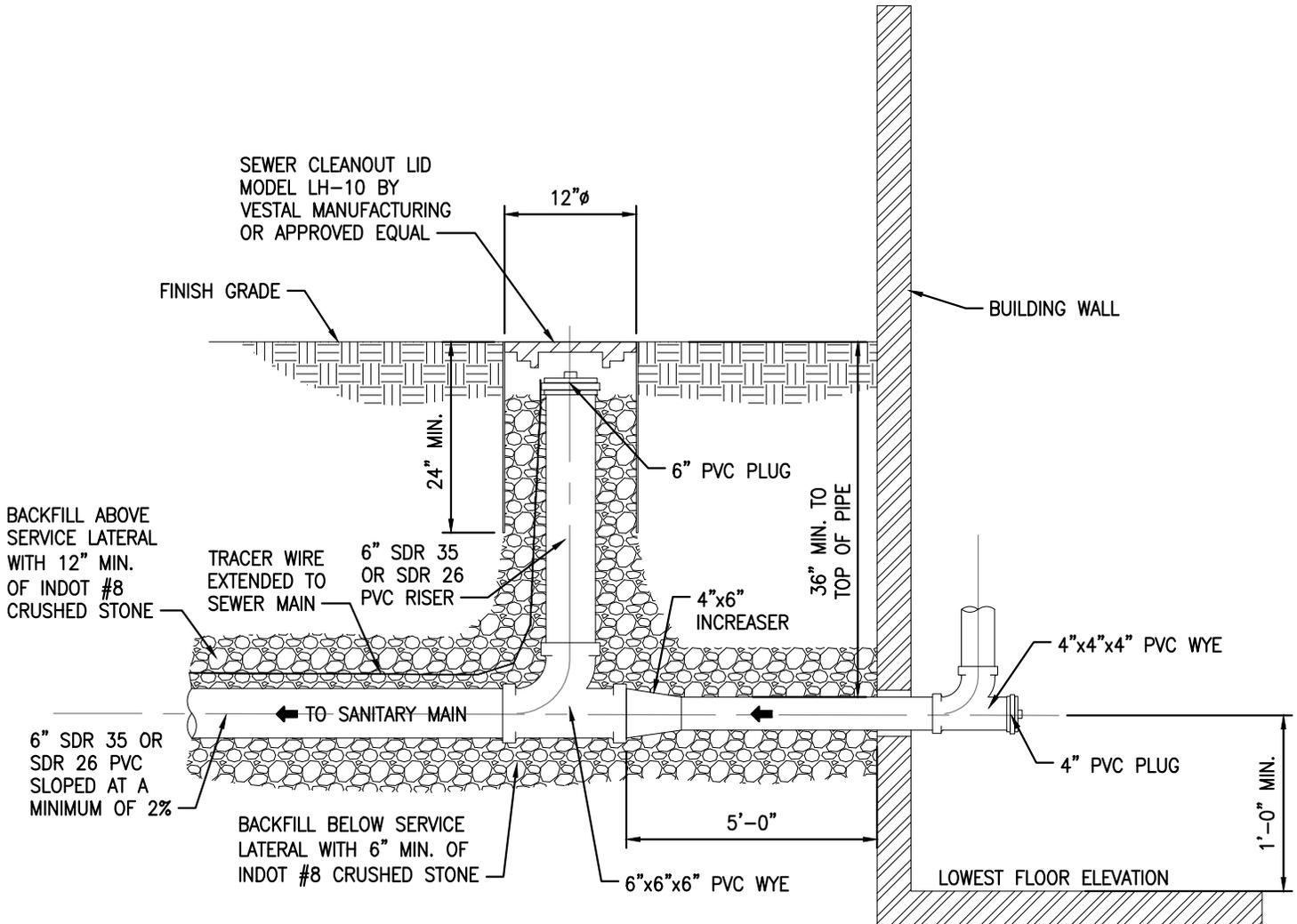


SERVICE LATERAL CONNECTION

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
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DETAIL NO.	
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NOTES:

1. LOWEST FLOOR ELEVATION RECEIVING GRAVITY SERVICE MUST BE A MINIMUM OF ONE FOOT ABOVE THE TOP OF THE NEAREST MANHOLE RIM ELEVATION.
2. A CLEANOUT IS REQUIRED AT EACH BEND GREATER THAN 45 DEGREES AND EVERY 100 FEET ALONG A SANITARY LATERAL.
3. THERE SHALL BE NO BASEMENT DRAINS CONNECTED TO THE SANITARY MAIN.
4. SDR 26 PVC SHALL BE USED IN LIEU OF SDR 35 PVC FOR INSTALLATIONS UNDER PAVED SURFACES.

**SANITARY CLEANOUT AND NEW
LATERAL INSTALLATION**

**STANDARD CONSTRUCTION DETAILS
TOWN OF ZIONSVILLE**

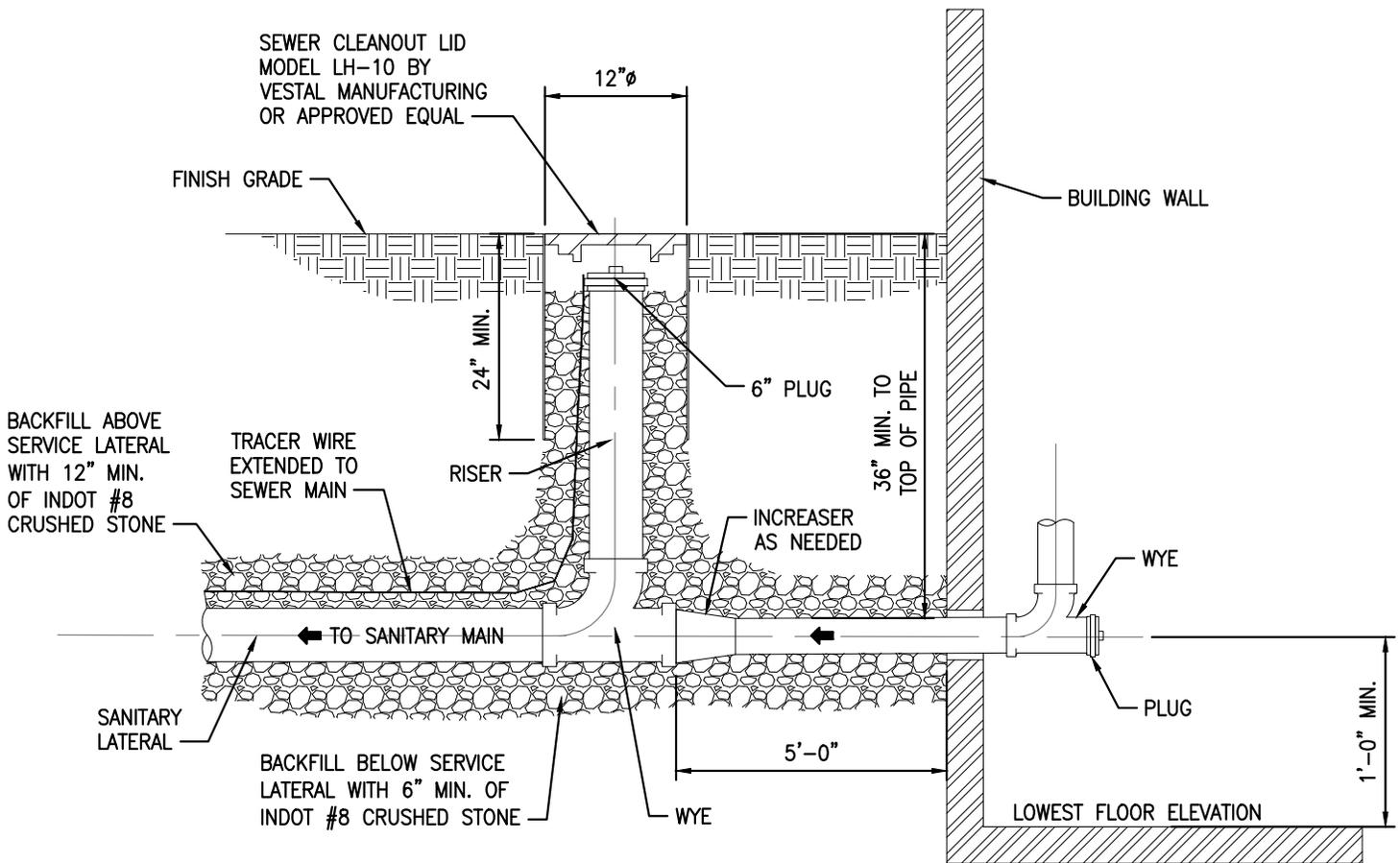
DRAWN: DCW
DATE: NOV. 2019

BLN
BEAM-LONGEST-NEFF

DETAIL NO.

S-15





EX. PIPE MATERIAL	EX. PIPE SIZE	NEW PIPE MATERIAL	NEW PIPE SIZE
ORANGEBURG	≤6"	SDR 35 PVC	6"
CAST IRON	≤6"	SDR 35 PVC	6"
DUCTILE IRON	≤6"	SDR 35 PVC	6"
SCHEDULE 40 PVC	≤6"	SCH. 40 OR SDR 35 PVC	6"
SDR 35 PVC	≤6"	SDR 35 PVC	6"
SDR 26 PVC	≤6"	SDR 26 PVC	6"
CLAY PIPE	≤6"	SDR 35 PVC	6"
ORANGEBURG	>6"	SDR 35 PVC	MATCH EX.
CAST IRON	>6"	SDR 35 PVC	MATCH EX.
DUCTILE IRON	>6"	SDR 35 PVC	MATCH EX.
SCHEDULE 40 PVC	>6"	SCH. 40 OR SDR 35 PVC	MATCH EX.
SDR 35 PVC	>6"	SDR 35 PVC	MATCH EX.
SDR 26 PVC	>6"	SDR 26 PVC	MATCH EX.
CLAY PIPE	>6"	SDR 35 PVC	MATCH EX.

LATERAL REPAIR AND REPLACEMENT NOTES:

- LATERAL SHALL BE REMOVED AND REPLACED IN ITS ENTIRETY IF THE EXISTING PIPE MATERIAL IS ORANGEBURG PIPE.
- LATERAL SHALL BE REMOVED AND REPLACED IN ITS ENTIRETY IF GREATER THAN 50% OF THE TOTAL LATERAL LENGTH REQUIRES REPAIR OR REPLACEMENT AS DETERMINED BY BUILDING INSPECTOR.
- LATERAL SHALL BE REMOVED AND REPLACED IN ITS ENTIRETY IF GREATER THAN 50% OF THE TOTAL LATERAL LENGTH HAS BEEN REPAIRED PREVIOUSLY, AS DETERMINED BY BUILDING INSPECTOR.
- EXTERIOR CLEANOUTS ARE REQUIRED. INSTALL AS SHOWN FOR ALL LATERALS WHERE NO EXTERIOR CLEANOUT EXISTS.
- PROVIDE CCTV VIDEO INSPECTION OF ALL LATERALS FOLLOWING REPAIR OR REPLACEMENT. APPROVAL OF REPAIRED OR REPLACED LATERAL IS DEPENDENT ON REVIEW AND ACCEPTANCE OF CCTV INSPECTION BY WASTEWATER SUPERINTENDENT AND TOWN ENGINEER.
- CONTACT BUILDING INSPECTOR A MINIMUM OF 24 HOURS PRIOR TO FINAL INSPECTION. APPROVAL OF LATERAL IS DEPENDENT ON ACCEPTANCE BY BUILDING INSPECTOR.

GENERAL NOTES:

- LOWEST FLOOR ELEVATION RECEIVING GRAVITY SERVICE MUST BE A MINIMUM OF ONE FOOT ABOVE THE RIM ELEVATION OF THE NEAREST MANHOLE.
- A CLEANOUT IS REQUIRED AT EACH BEND GREATER THAN 45 DEGREES AND EVERY 100 FEET ALONG A SANITARY LATERAL.
- THERE SHALL BE NO BASEMENT DRAINS CONNECTED TO THE SANITARY MAIN.
- EXISTING INTERIOR PIPING MAY BE SMALLER THAN 4" DIAMETER.
- VARIATIONS FROM THE REQUIRED PIPE MATERIAL MUST BE APPROVED BY THE WASTEWATER SUPERINTENDENT OR BUILDING INSPECTOR.



EXISTING LATERAL REPAIR OR REPLACEMENT

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW	DATE: NOV. 2019
BLN BEAM-LONGEST-NEFF	
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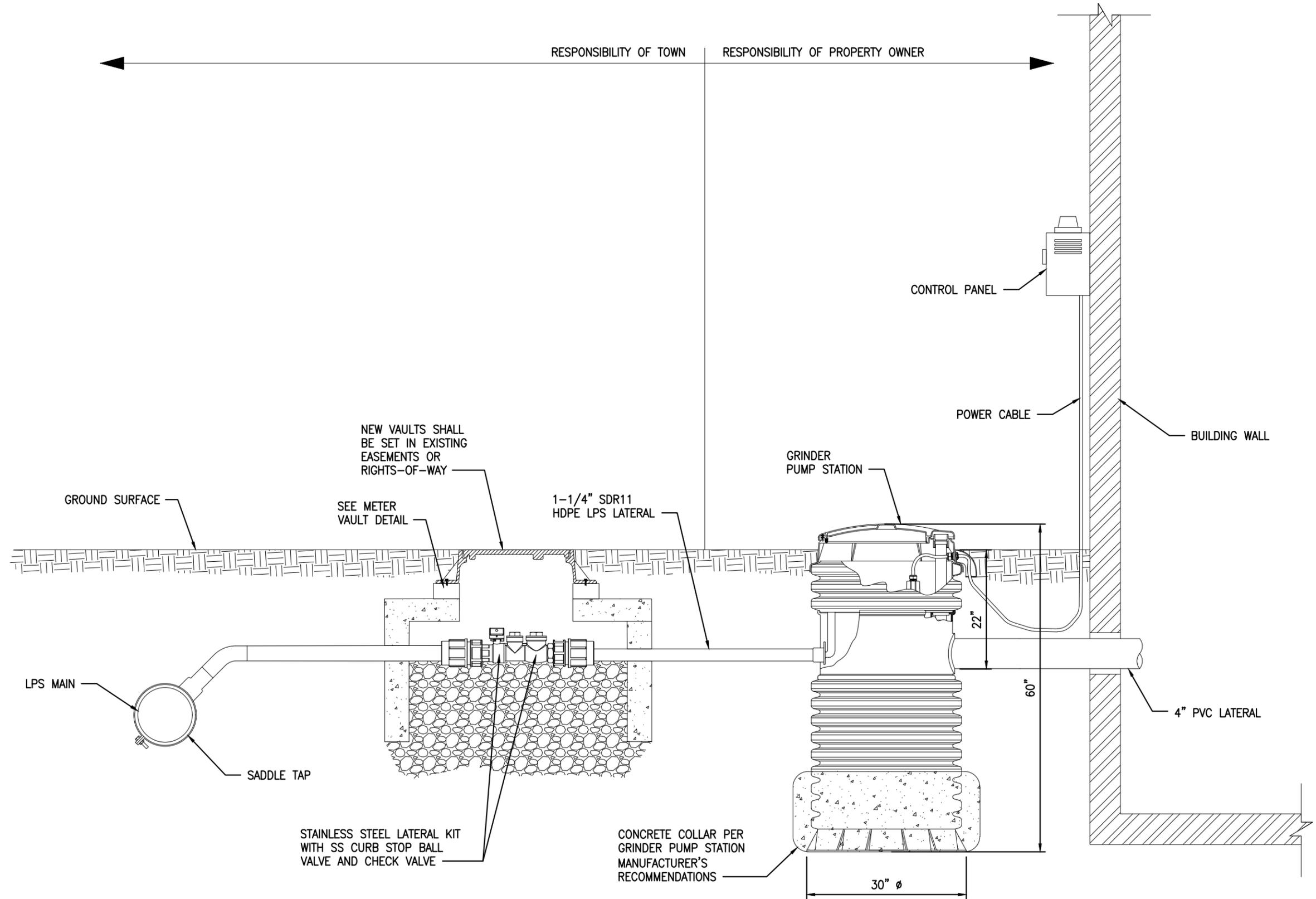
**GRINDER PUMP AND LOW PRESSURE
SEWER LATERAL INSTALLATION**

**STANDARD CONSTRUCTION DETAILS
TOWN OF ZIONSVILLE**

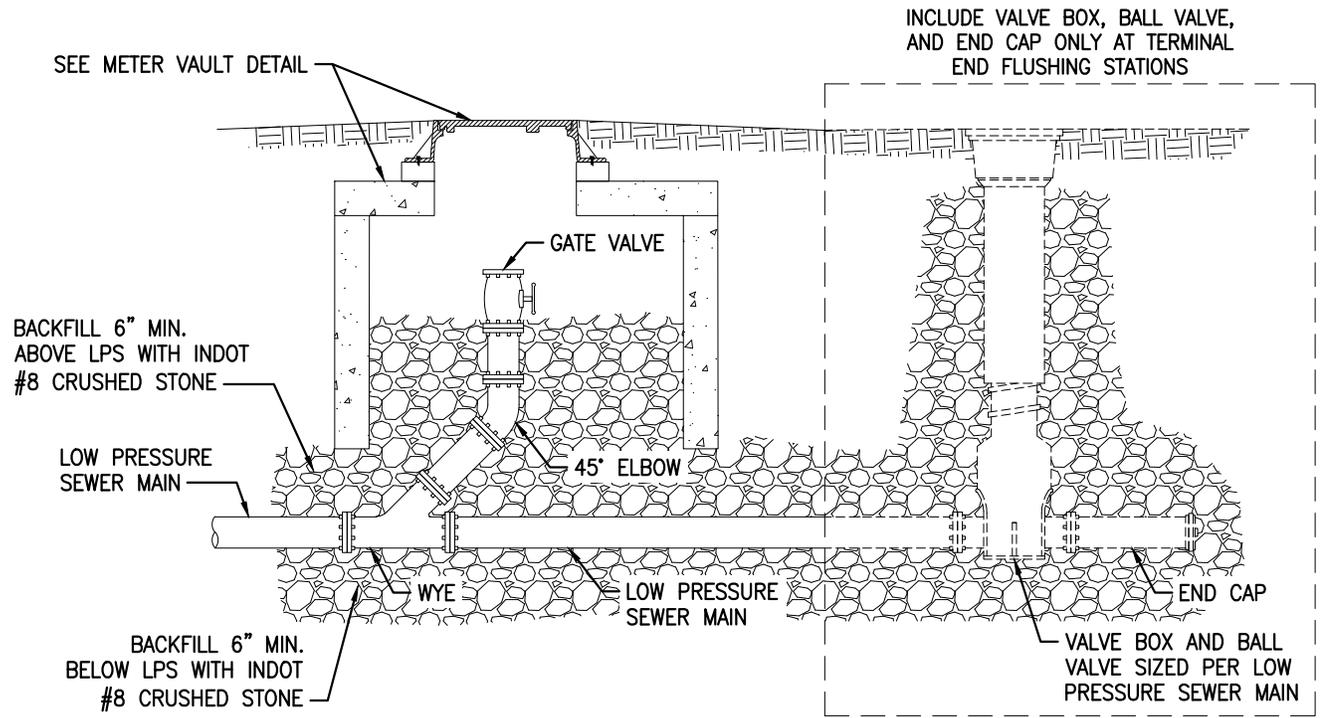
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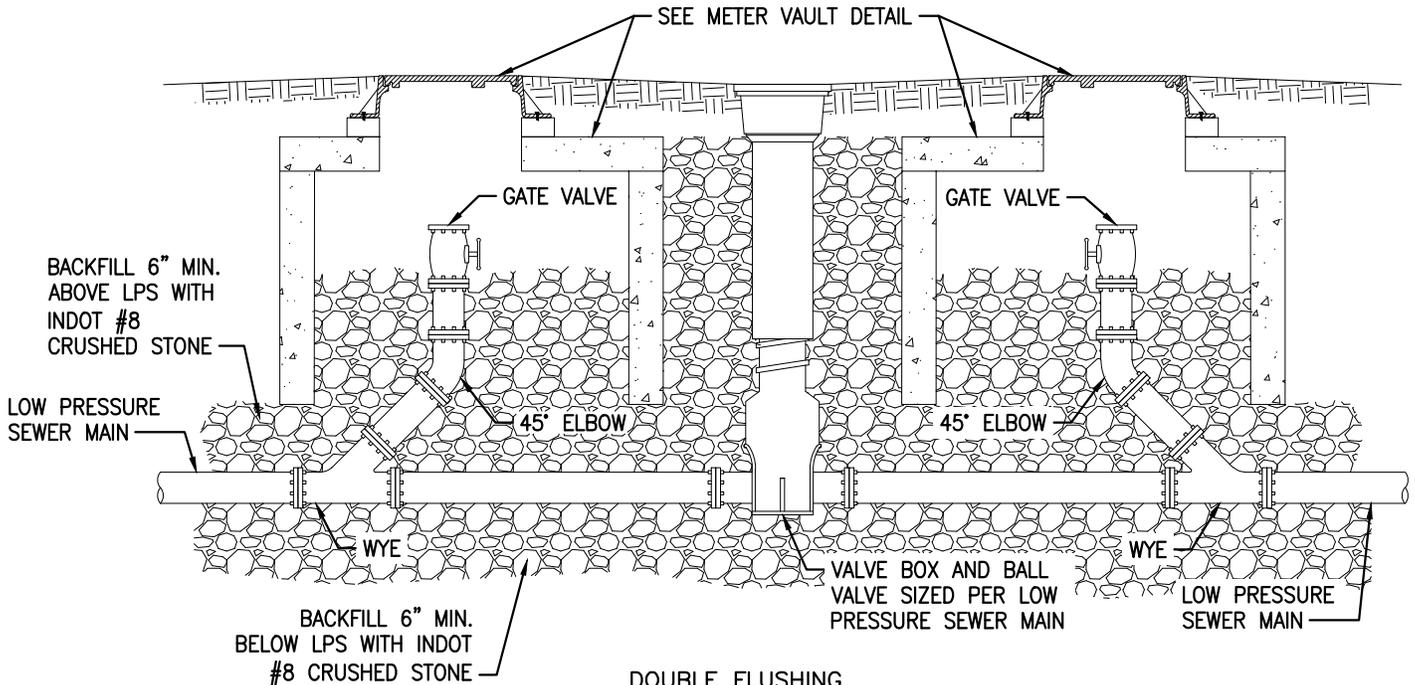
DETAIL NO.
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- NOTES:**
- GRINDER PUMPS SHALL BE MANUFACTURED BY ZOELLER, eONE, MYERS, OR APPROVED EQUAL.
 - MAINTENANCE OF EXISTING VAULTS LOCATED OUTSIDE OF RIGHT-OF-WAY OR EASEMENTS SHALL BE THE RESPONSIBILITY OF PROPERTY OWNER.



SINGLE FLUSHING CONNECTION ON LPS MAIN



DOUBLE FLUSHING CONNECTION ON LPS MAIN

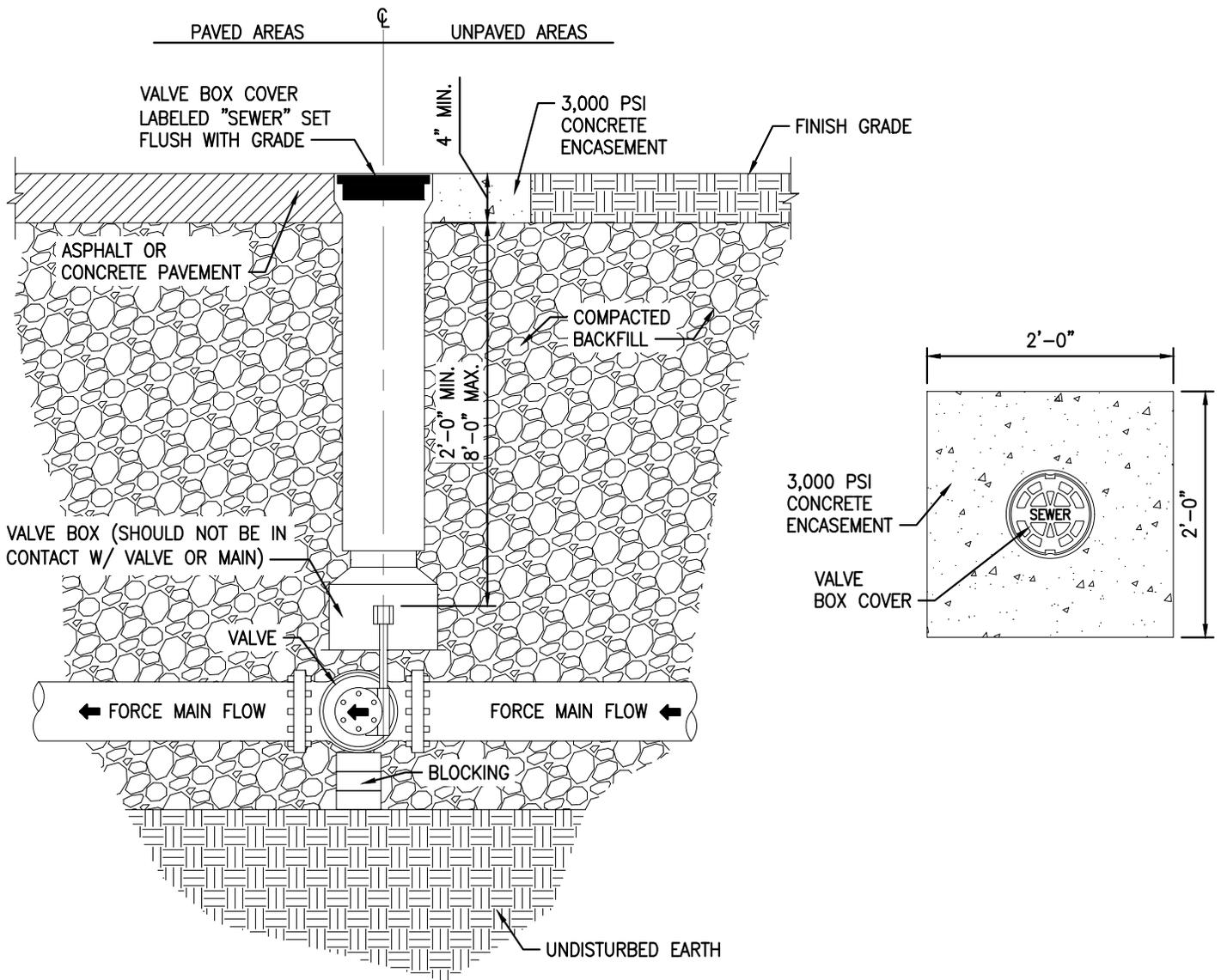


FLUSHING CONNECTIONS ON LOW PRESSURE SEWER MAIN

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN: DCW
DATE: NOV. 2019
BLN <small>BEAM-LONGEST-NEFF</small>
DETAIL NO.
S-18



NOTES:

1. USE ONLY MANUFACTURED VALVE BOX EXTENSIONS.
2. PROVIDE AN EXTENSION KIT FROM THE VALVE MANUFACTURER IF VALVE OPERATING NUT IS GREATER THAN 6'-0" FROM GRADE.

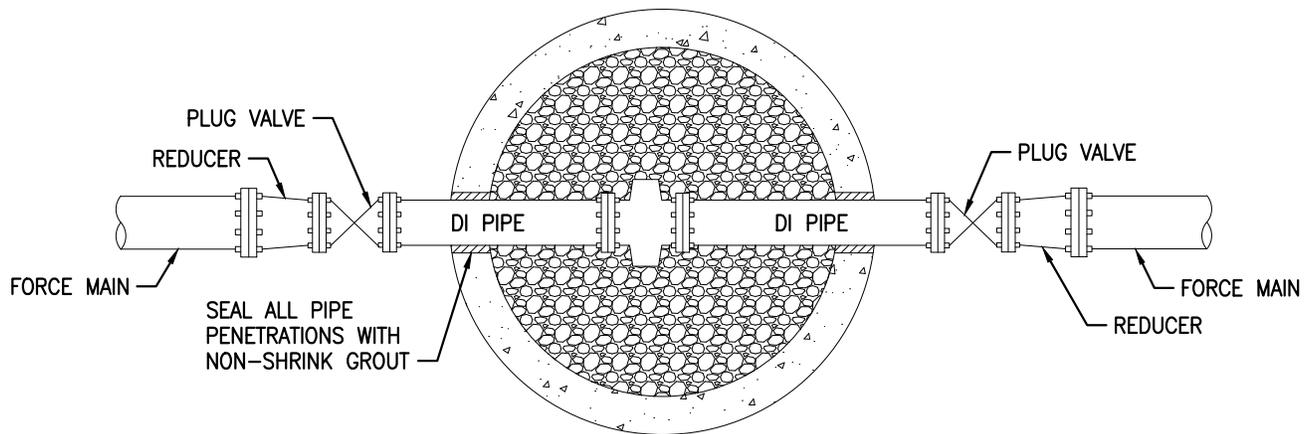
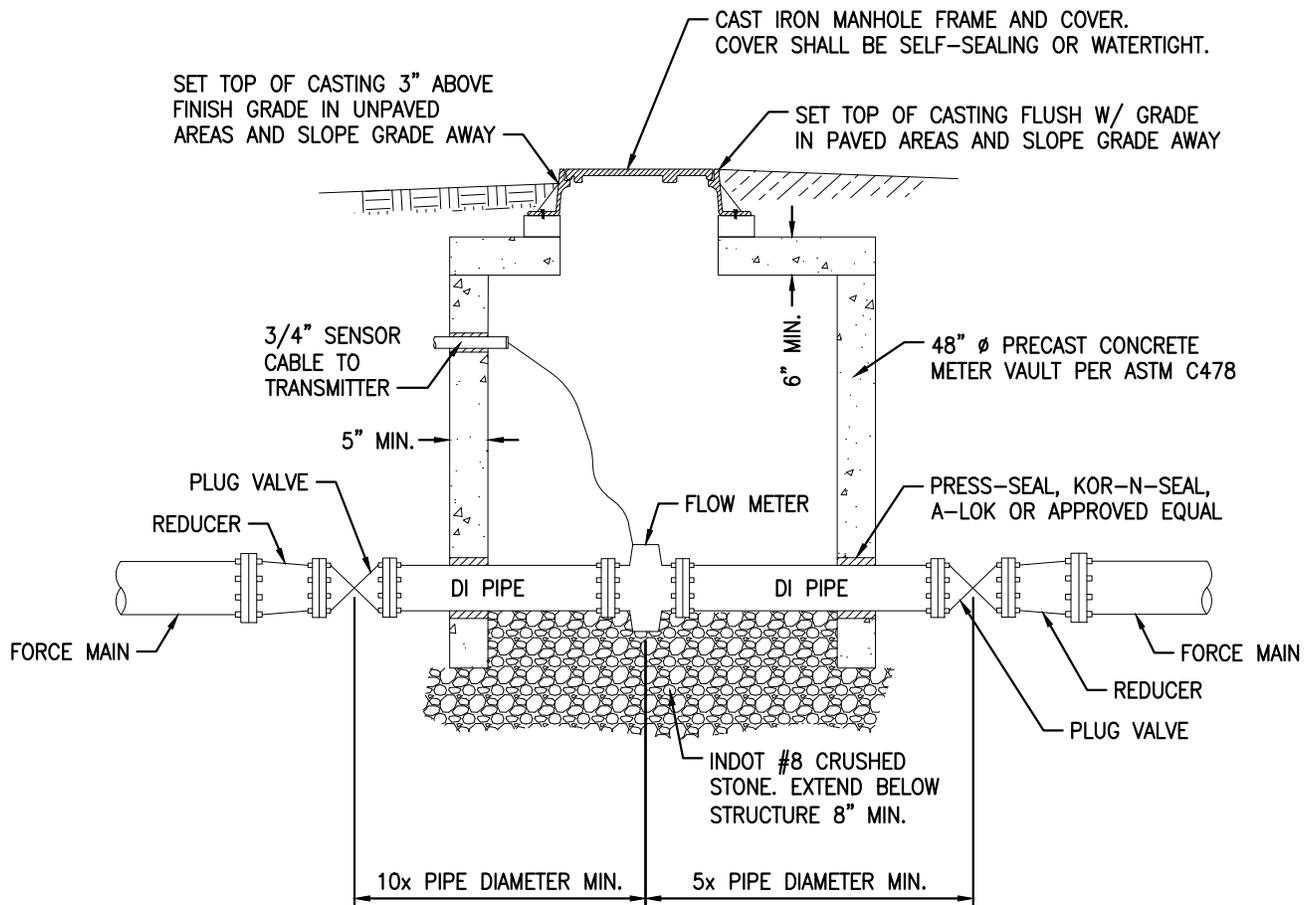


PLUG VALVE INSTALLATION

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

DRAWN:	DCW
DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
S-19	



NOTES:

1. A FLOW METER IS REQUIRED ON ALL LIFT STATION DISCHARGES. FLOW METERS AT LIFT STATIONS SHALL BE CONTAINED IN THE VALVE VAULT AS SHOWN IN DETAIL LS-1 WHERE POSSIBLE. WHERE NOT POSSIBLE, THIS DETAIL SHALL BE USED.
2. ENSURE THAT A MINIMUM DISTANCE OF 10 TIMES THE PIPE DIAMETER UPSTREAM AND 5 TIMES THE PIPE DIAMETER DOWNSTREAM ARE FREE FROM BENDS AND APPURTENANCES.



FLOW METER VAULT

STANDARD CONSTRUCTION DETAILS

TOWN OF ZIONSVILLE

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DATE:	NOV. 2019
BLN BEAM-LONGEST-NEFF	
DETAIL NO.	
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