

CITY OF
FRANKFORT, KENTUCKY
SEWER DEPARTMENT

US 60 KSU SEWER RELOCATIONS

EROSION PREVENTION AND SEDIMENT CONTROL NOTES

THE APPROVED EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN SHALL BE IMPLEMENTED PRIOR TO ANY LAND-DISTURBING ACTIVITY ON THE CONSTRUCTION SITE. ANY MODIFICATIONS TO THE APPROVED EPSC PLAN MUST BE REVIEWED AND APPROVED BY CITY OF FRANKFORT'S MS4 COORDINATOR. EPSC BMP'S (BEST MANAGEMENT PRACTICES) SHALL BE INSTALLED PER THE PLAN AND MSD STANDARDS.

DETENTION BASINS, IF APPLICABLE, SHALL BE CONSTRUCTED FIRST AND SHALL PERFORM AS SEDIMENT BASINS DURING CONSTRUCTION UNTIL THE CONTRIBUTING DRAINAGE AREAS ARE SEEDED AND STABILIZED.

ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. SOIL TRACKED ONTO THE ROADWAY SHALL BE REMOVED DAILY.

SOIL STOCKPILES SHALL BE LOCATED AWAY FROM THE STREAMS, PONDS, SWALES, AND CATCH BASINS. STOCKPILES SHALL BE SEEDED, MULCHED, AND ADEQUATELY CONTAINED THROUGH THE USE OF SILT FENCE.

SEDIMENT-LADEN GROUNDWATER ENCOUNTERED DURING TRENCHING, BORING OR OTHER ACTIVITIES SHALL BE PUMPED TO A SEDIMENT TRAPPING DEVICE PRIOR TO BEING DISCHARGED INTO A STREAM, POND, SWALE, OR CATCH BASIN.

WHERE CONSTRUCTION OR LAND DISTURBING ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICAL, BUT NO LATER THAN 14 DAYS AFTER THE ACTIVITY HAS CEASED.

BENCHMARK

NOTE: ALL ELEVATIONS ARE BASED ON NAVD 1988 DATUM

SOURCE BENCHMARK GPS-#XX NAVD 1988, ELEV. XXX.XX

TBM #1 - SOUTHWEST PORTION OF US60. ELEV. 732.86 STA. 510+74.94 33.70' RT

TBM #2 - ACROSS FROM VALLEY VIEW DRIVE. ELEV. 767.66 STA. 518+77.00 34.48' RT

TBM #3 - SILVEY STREET AND DOUGLAS STREET. ELEV. 772.95 STA. 52+76.50 42.71' RT

UTILITY NOTE

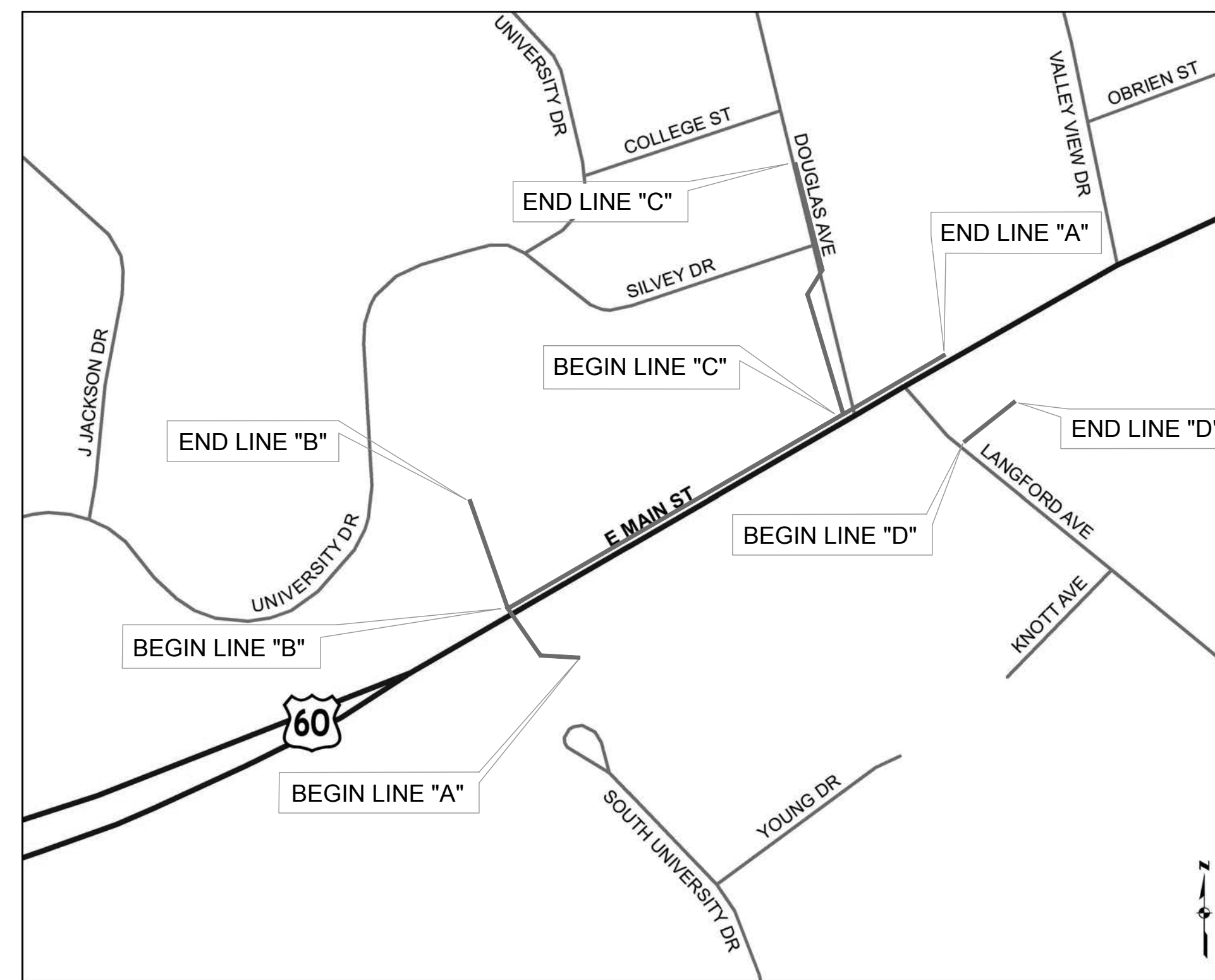
ALL UTILITIES ON THESE PLANS ARE APPROXIMATE. INDIVIDUAL SERVICE LINES ARE NOT SHOWN. THE CONTRACTOR OR SUBCONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER KENTUCKY 811 (TOLL FREE PHONE NO. 1-800-752-6007 OR LOCAL NO. 502-266-5123) FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. THIS NUMBER WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF EXISTING BELOW GROUND UTILITIES (I.E. CABLES, ELECTRIC WIRES, GAS & WATER LINES). WHEN CONTACTING THE KENTUCKY 811 CALL CENTER, PLEASE STATE THE WORK TO BE DONE IS FOR A PROPOSED CITY OF FRANKFORT, KENTUCKY SEWER OR DRAINAGE FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UTILITY REQUIREMENTS SET FORTH ON THE PLANS AND IN THE TECHNICAL SPECIFICATIONS & SPECIAL PROVISIONS.



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THESE PLANS AND SURVEY WERE MADE UNDER MY SUPERVISION AND THAT THE ANGULAR AND LINEAR MEASUREMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THE TOPOGRAPHIC FEATURES SHOWN WERE LOCATED OR VERIFIED AT THE TIME THE SURVEY WAS MADE. THE SURVEY INFORMATION SHOWN HEREON MEETS OR EXCEEDS THE MINIMUM STANDARDS OF GOVERNING AUTHORITIES.

SIGNATURE P.L.S. NO. DATE



INDEX OF DRAWINGS	
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SANITARY SEWER PLAN & PROFILE - LINE "A" STA. 10+00 TO STA. 16+00
3	SANITARY SEWER PLAN & PROFILE - LINE "A" STA. 16+00 TO STA. 21+63
4	SANITARY SEWER PLAN & PROFILE - LINE "B" STA. 20+00 TO STA. 22+34
5	SANITARY SEWER PLAN & PROFILE - LINE "C" STA. 30+00 TO STA. 34+31
6	SANITARY SEWER PLAN & PROFILE - LINE "D" STA. 40+00 TO STA. 42+87
7	CITY OF FRANKFORT STANDARD DETAIL SHEET G1
8	CITY OF FRANKFORT STANDARD DETAIL SHEET G2
9	CITY OF FRANKFORT STANDARD DETAIL SHEET G3
10	SEWER QUANTITIES

KYTC STANDARD DRAWINGS

GENERAL NOTES

1. THE CITY OF FRANKFORT, KENTUCKY SEWER DEPARTMENT STANDARD SPECIFICATIONS SHALL APPLY.
2. IN CASE OF DISCREPANCY BETWEEN THE TECHNICAL SPECIFICATIONS AND THE FRANKFORT SEWER DEPARTMENT STANDARD SANITARY SEWER CONSTRUCTION DETAIL DRAWINGS, THE STANDARD SEWER CONSTRUCTION DETAIL DRAWINGS SHALL PREVAIL.
3. UTILITIES SHOWN IN APPROXIMATE LOCATIONS. IN THE EVENT OF POSSIBLE CONFLICT WITH PROPOSED SEWERS, CONTRACTOR SHALL VERIFY VERTICAL & HORIZONTAL LOCATION OF UTILITY. IN THE EVENT THAT MINIMUM SEPARATION IS NOT MET, THE UTILITY SHALL BE RELOCATED.

LEGEND

- | | |
|-----------------------------------|-------------------------|
| BENCHMARK | CONTROL POINT |
| EXISTING STORM SEWER | RIGHT OF WAY |
| PROPOSED STORM SEWER | PROPOSED SANITARY SEWER |
| EXISTING FORCEMAIN | EXIST. PROPERTY LINE |
| PROPOSED FORCEMAIN | RIGHT OF WAY MONUMENT |
| WM - EXISTING WATER | EXISTING FENCE |
| EXISTING GAS | POWER POLE |
| OHE - EXISTING OVERHEAD ELECTRIC | T - TELEPHONE DUCT |
| OHT - EXISTING OVERHEAD TELEPHONE | E - ELECTRIC DUCT |

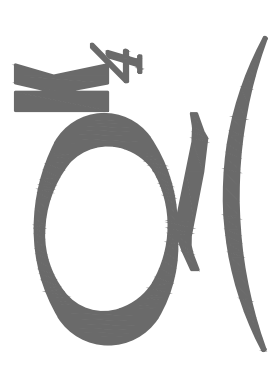
FINAL SUBMITTAL

NAME	DATE
DRAWN BY: MMH	05/01/12
DESIGNED BY: WKK	05/01/12
CHECKED BY: REC	05/01/12
RECORD DWG:	

NO.		DATE		REVISION		CHK'D	APPR'D	DATE	LAND SURVEYOR'S SEAL	PROFESSIONAL ENGINEER'S SEAL	DESIGN CONSULTANT	FINAL RECORD DRAWING	LAND SURVEYOR'S SEAL	APPROVALS	SCALE: AS SHOWN	DATE: 8/10/2015	SHEET NO.: 1 of 10
PLANS PREPARED AND SUBMITTED BY:											CONSTRUCTED BY:		US 60 KSU SANITARY SEWER RELOCATIONS City of Frankfort, Kentucky Sewer Department 1200 Kentucky Avenue Frankfort, Kentucky 40601 (502) 223-7857				
 1046 E. Chestnut Street, Louisville, Kentucky 40204 Phone: 502-585-2222 Facsimile: 502-581-0406 Internet: www.q4.com Kentucky • Indiana • Georgia • Tennessee											Company Name _____ Date _____ FINAL RECORD DRAWING BY: Company Name _____ Signature _____ Date _____						

Signature _____ Date _____
 CHECKED BY: ADJ 07/06/15
 DESIGNED BY: AAC 07/06/15
 DRAWN BY: AAC 07/06/15

FILE NAME:
 PLOT DATE: 11/02/2016

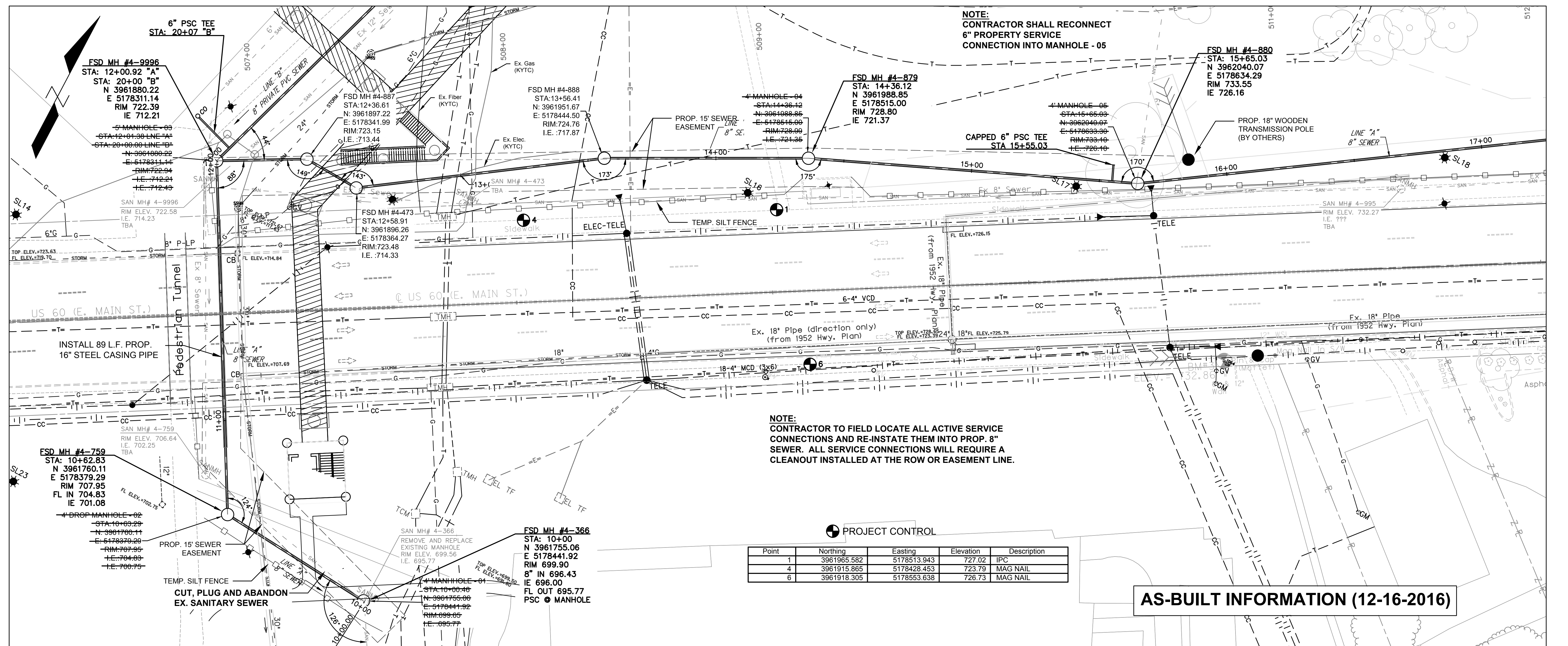
PLANS PREPARED AND SUBMITTED BY:
 Engineering
 Planning

 1046 E. Chestnut Street, Louisville, Kentucky 40204
 Phone: 502-582-2222 Fax: 502-581-0406 Internet: www.dpk4.com
 Kentucky - Indiana - Tennessee

CITY OF:
 FRANKFORT, KENTUCKY
 SEWER DEPARTMENT
 1200 KENTUCKY AVE.
 FRANKFORT, KY 40601
 502-223-7857

NO.	REVISION	DATE
1	MH3 wrong location	11/2/16
2	MH Numbers / PSC	1/24/17
3	PSC Locations	2/13/17

SHEET TITLE:
 LINE "A" PLAN & PROFILE STA. 10+00 TO 16+00
 PROJECT TITLE:
 CITY OF FRANKFORT
 US 60 - KSU
 SEWER RELOCATIONS

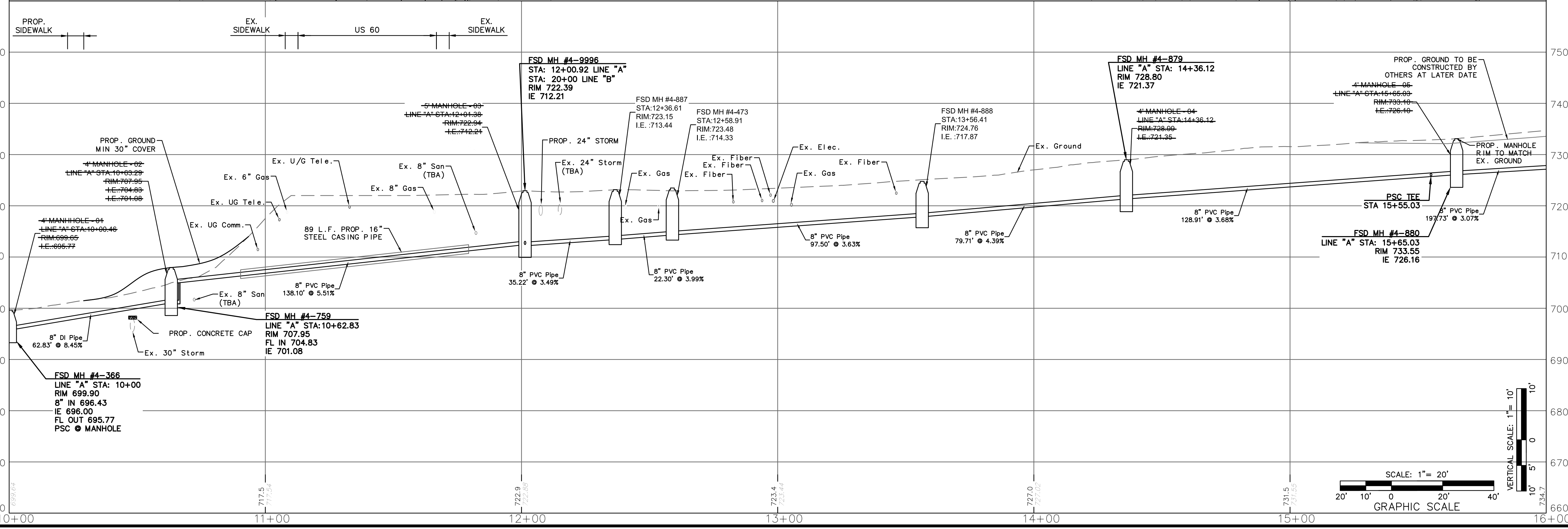
SHEET



PROJECT CONTROL

Point	Northing	Easting	Elevation	Description
1	3961965.582	5178513.943	727.02	IPC
4	3961915.865	5178428.453	723.79	MAG NAIL
6	3961918.305	5178553.638	726.73	MAG NAIL

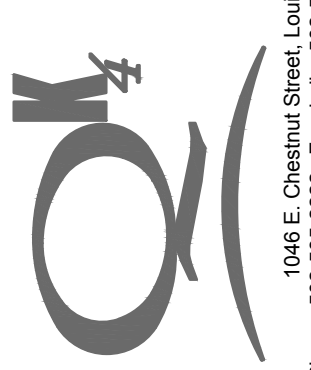
AS-BUILT INFORMATION (12-16-2016)



Signature _____ Date _____
CHECKED BY: ADJ 07/06/15
DESIGNED BY: AAC 07/06/15
DRAWN BY: AAC 07/06/15

FILE NAME: 14806_Working Sewer.dwg
PLOT DATE: 8/10/2015

PLANS PREPARED AND SUBMITTED BY:



Engineering
Planning

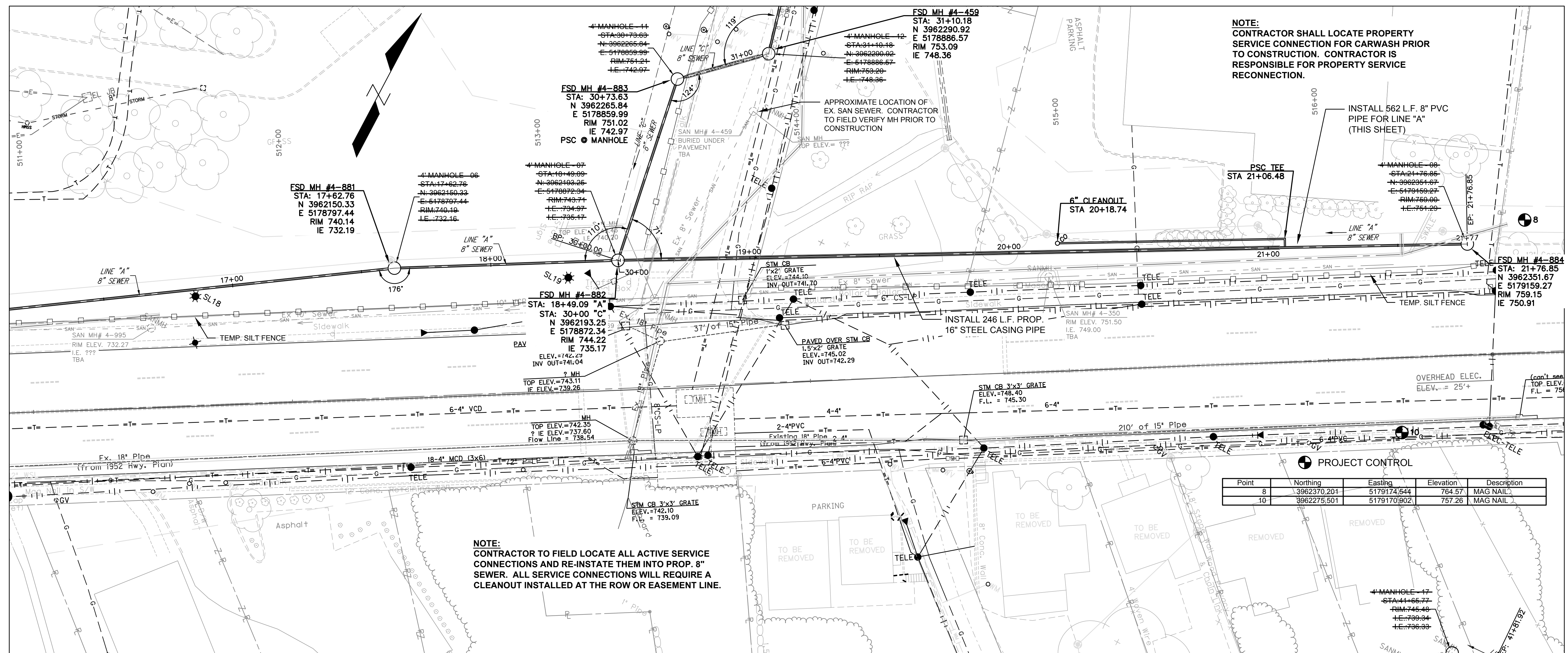
1046 E. Chestnut Street, Louisville, Kentucky 40204
Phone: 502-585-2222 Fax: 502-581-0000 Internet: www.gpk.com
Kentucky - Indiana - Georgia - Tennessee

CITY OF:
FRANKFORT, KENTUCKY
SEWER DEPARTMENT
1200 KENTUCKY AVE.
FRANKFORT, KY 40601
502-223-7857

NO.	REVISION	DATE
1	MH Numbers / PSC	1/24/17
2	PSC Locations	2/13/17

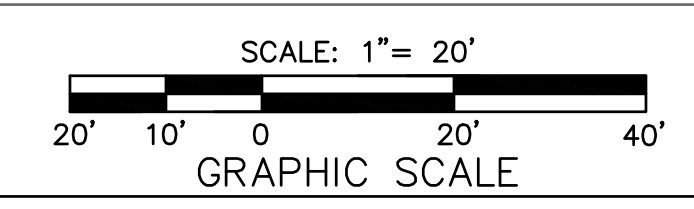
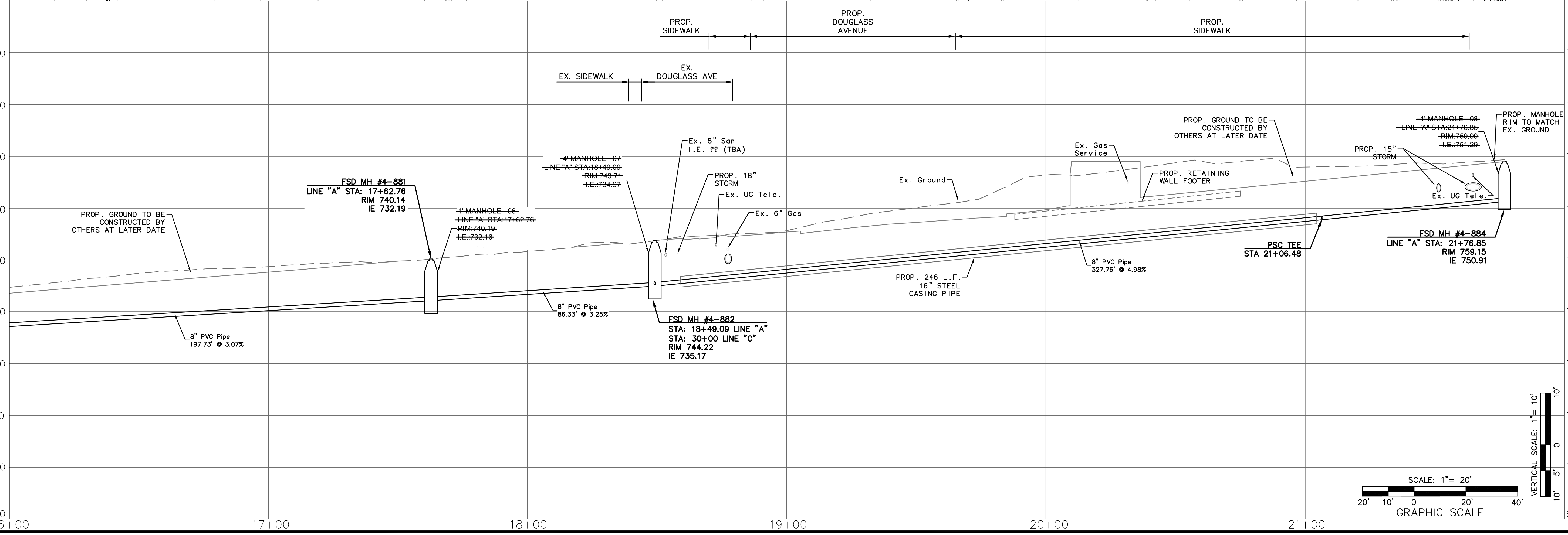
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LINE "A" PLAN & PROFILE STA. 16+00 TO 21+62

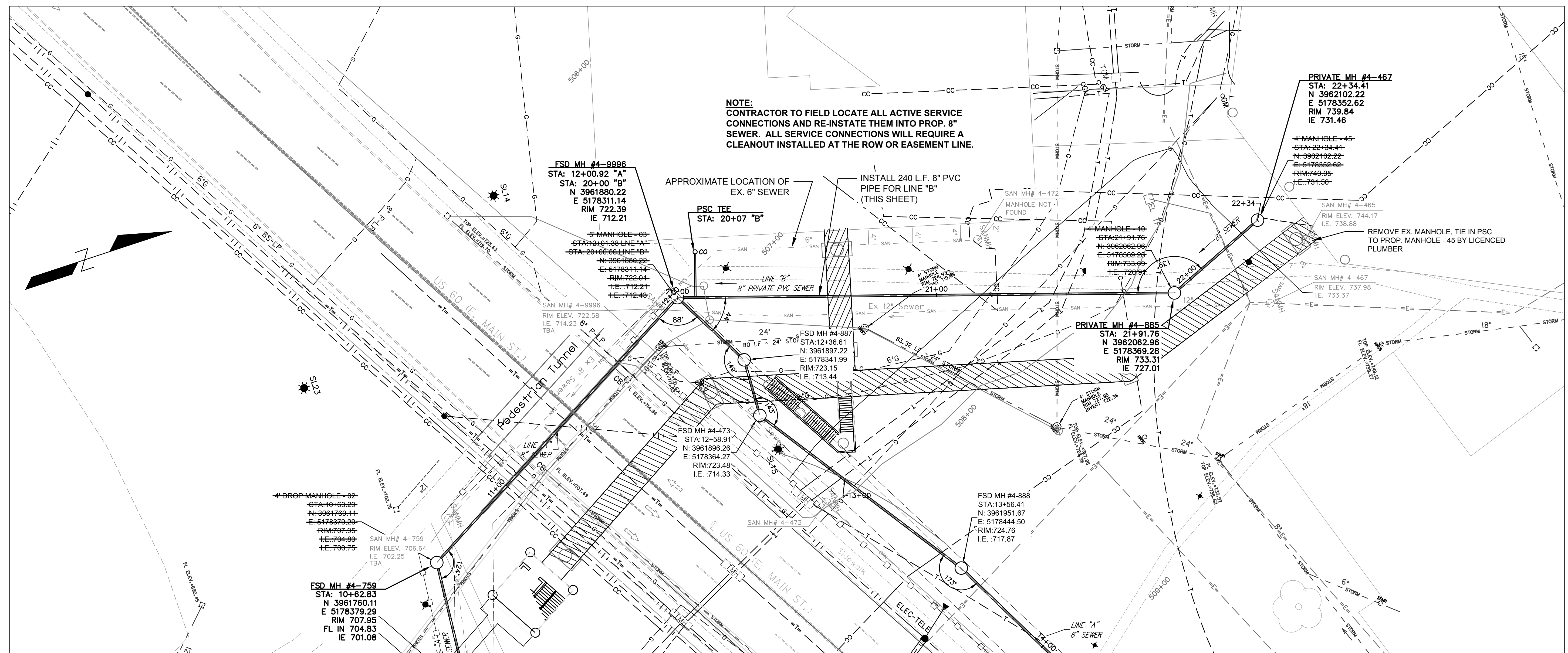
PROJECT TITLE:
CITY OF FRANKFORT
US 60 - KSU
SEWER RELOCATIONS



Point	Northing	Easting	Elevation	Description
8	3962370.201	5179174.644	764.57	MAG NAIL
10	3962275.501	5179170.902	757.26	MAG NAIL

NOTE:
CONTRACTOR TO FIELD LOCATE ALL ACTIVE SERVICE CONNECTIONS AND RE-INSTALL THEM INTO PROP. 8" SEWER. ALL SERVICE CONNECTIONS WILL REQUIRE A CLEANOUT INSTALLED AT THE ROW OR EASEMENT LINE.





Signature _____ Date _____

CHECKED BY:	ADJ	08/10/15
DESIGNED BY:	AAC	08/10/15
DRAWN BY:	AAC	08/10/15

FILE NAME: 14806_Working Sewer.dwg
PLOT DATE: 8/10/2015

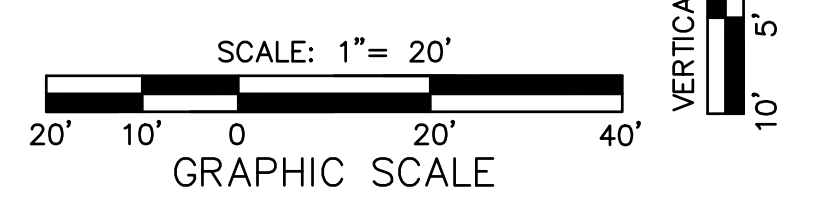
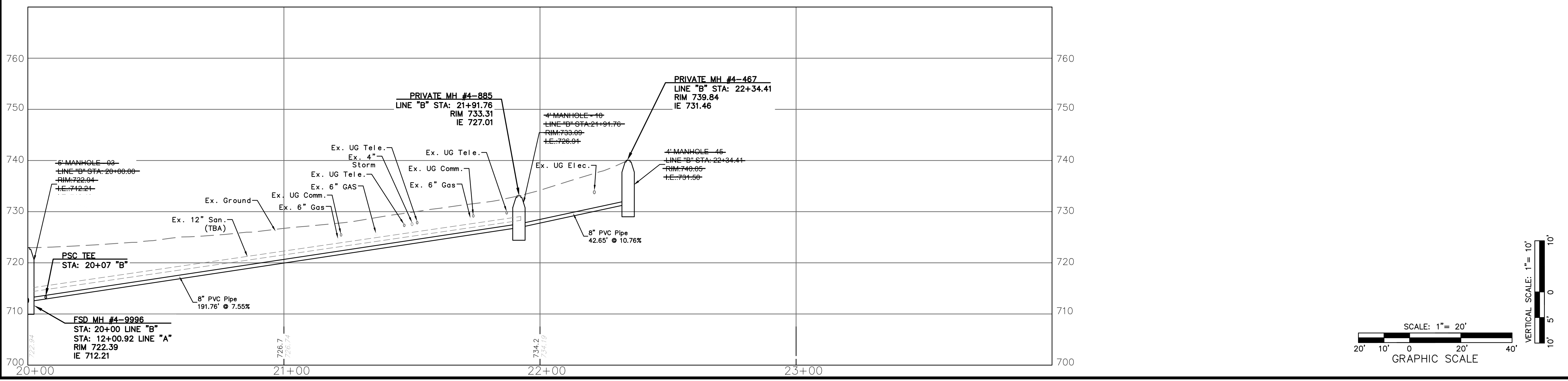
PLANS PREPARED AND SUBMITTED BY:

Engineering Planning

1046 E. Chestnut Street, Louisville, Kentucky 40204
Phone: 502-585-2222 Facsimile: 502-581-5430 Internet: www.ep4.com
Kentucky • Indiana • Georgia • Tennessee

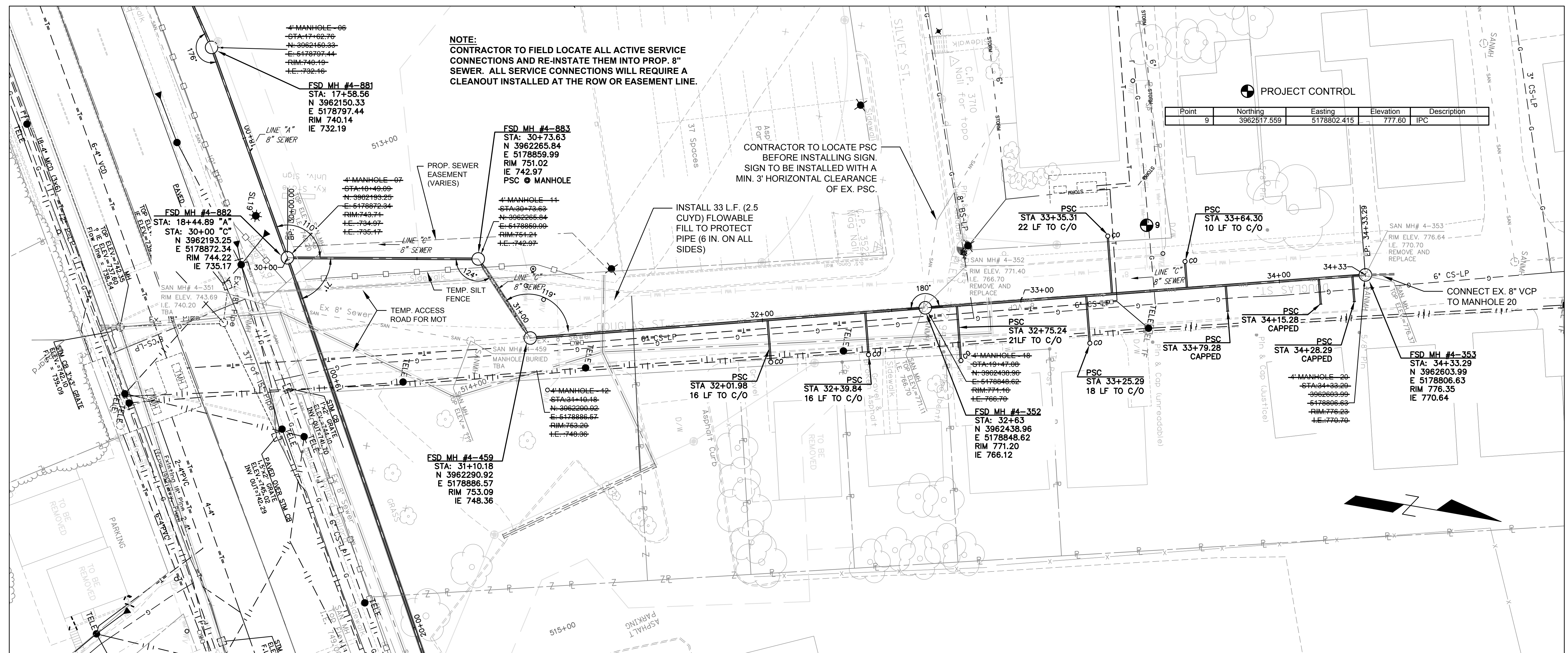
CITY OF:
FRANKFORT, KENTUCKY
SEWER DEPARTMENT
1200 KENTUCKY AVE.
FRANKFORT, KY 40601
502-223-7857

NO.	REVISION	DATE
1	MH Numbers / PSC	1/24/17
2	PSC Locations	2/13/17



SHEET TITLE:
LINE "B" STA. 20+00 TO 22+36 PLAN & PROFILE

PROJECT TITLE:
**CITY OF FRANKFORT
US 60 - KSU
SEWER RELOCATIONS**



Point	Northing	Easting	Elevation	Description
9	3962517.559	5178802.415	777.60	IPC

Signature	Date
CHECKED BY: ADJ	08/10/15
DESIGNED BY: AAC	08/10/15
DRAWN BY: AAC	08/10/15

FILE NAME: 14806_Working Sewer.dwg
PLOT DATE: 8/10/2015

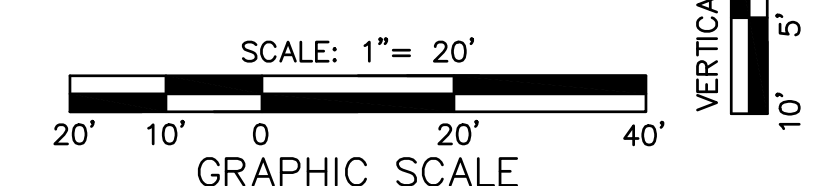
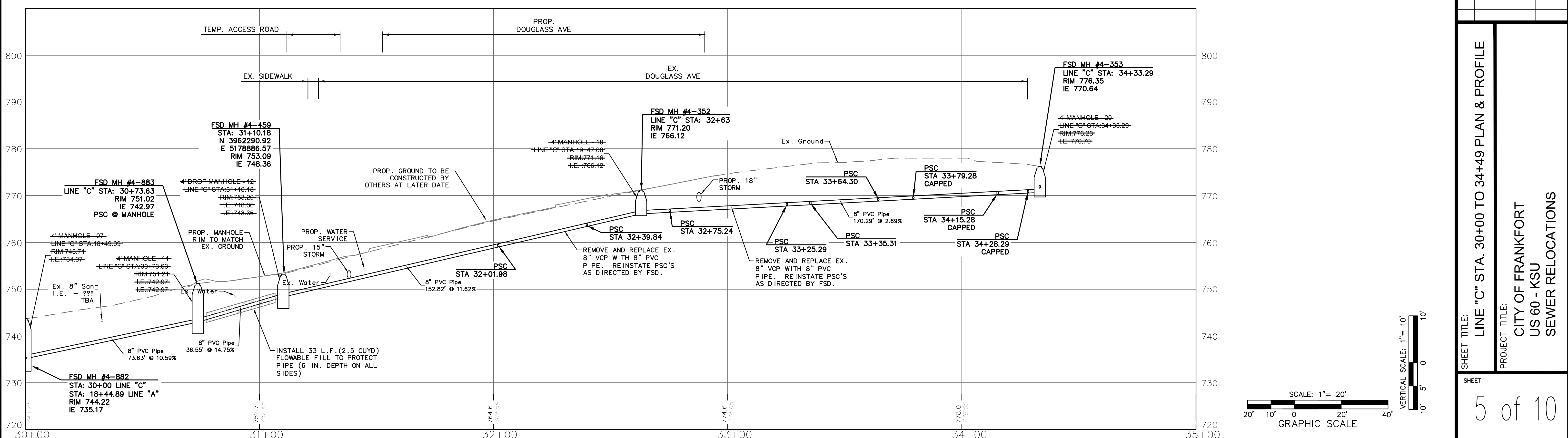
PLANS PREPARED AND SUBMITTED BY:

Engineering
Planning

1048 E. Chesnut Street, Louisville, Kentucky 40204
Phone: 502-586-2222 Fax: 502-581-0400 Internet: www.qk.com
Kentucky - Indiana - Georgia - Tennessee

CITY OF:
FRANKFORT, KENTUCKY
SEWER DEPARTMENT
1200 KENTUCKY AVE.
FRANKFORT, KY 40601
502-223-7857

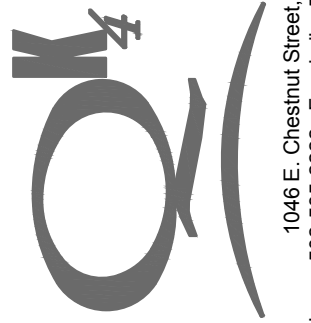
NO.	REVISION	DATE
1	UPSTREAM OF MANHOLE 11	05/03/16
2	MH Numbers / PSC	1/24/17
3	PSC Locations	2/13/17



SHEET TITLE:
LINE "C" STA. 30+00 TO 34+49 PLAN & PROFILE

PROJECT TITLE:
CITY OF FRANKFORT
US 60 - KSU
SEWER RELOCATIONS

PLANS PREPARED AND SUBMITTED BY:



Engineering
 Planning

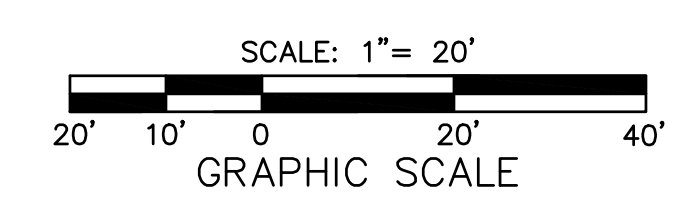
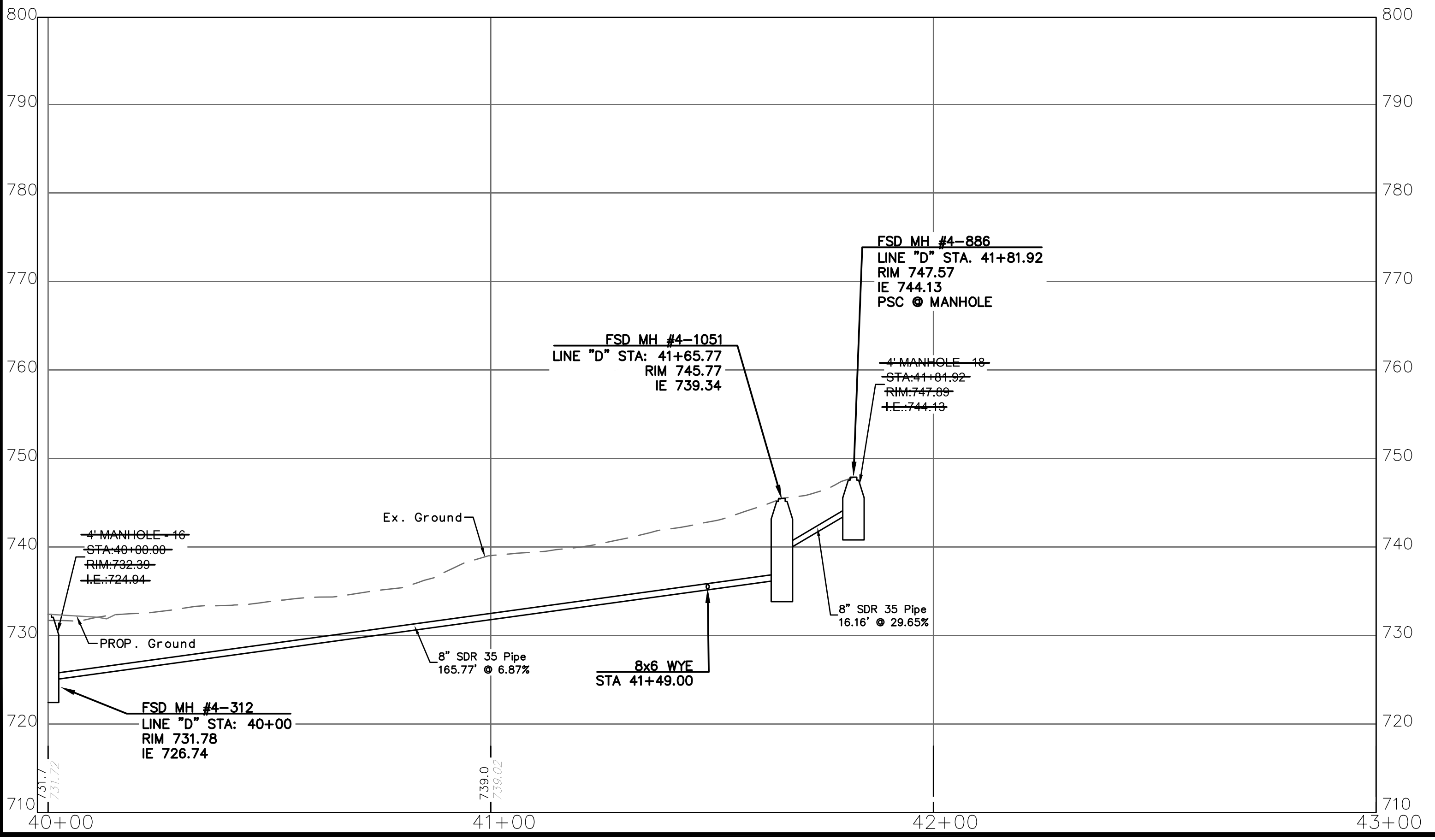
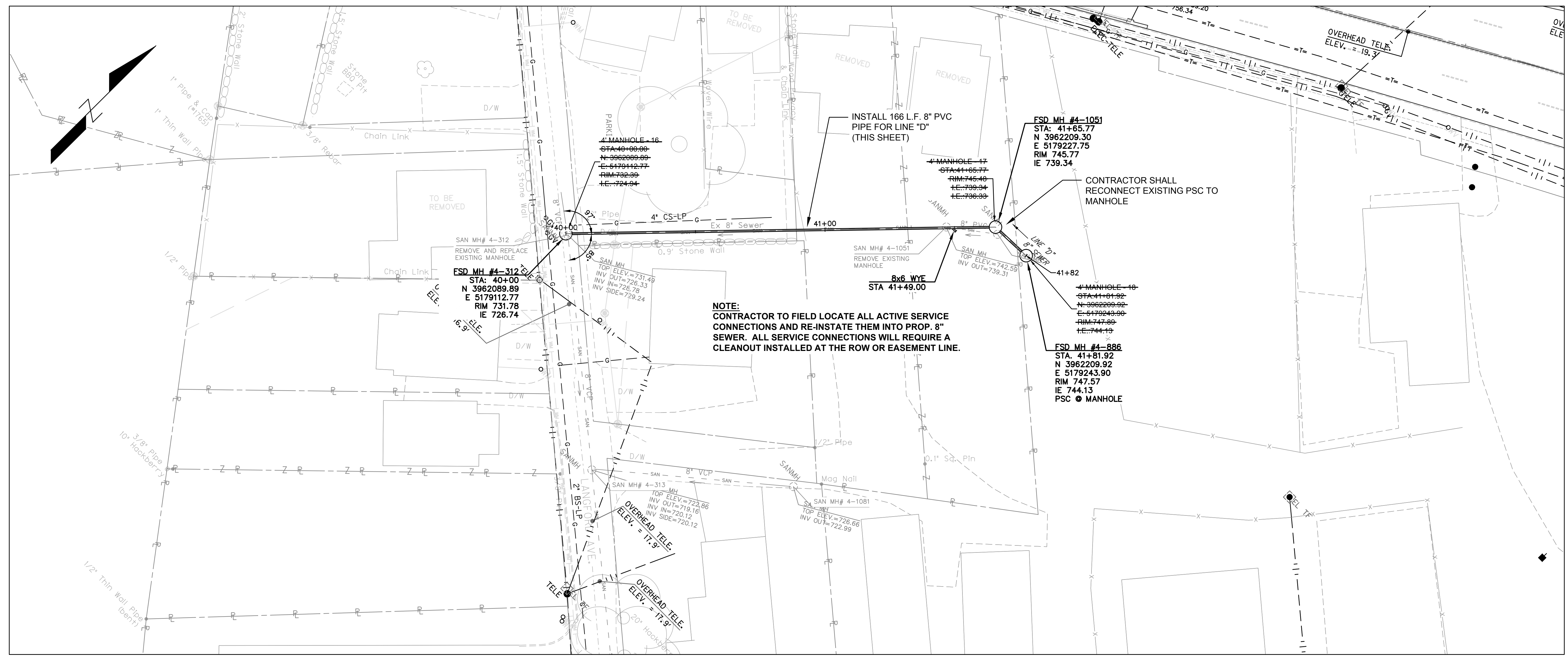
1046 E. Chestnut Street, Louisville, Kentucky 40204
 Phone: 502-585-2222 Fax: 502-581-0406 Internet: www.gk4.com
 Kentucky - Indiana - Georgia - Tennessee

CITY OF:
 FRANKFORT, KENTUCKY
 SEWER DEPARTMENT
 1200 KENTUCKY AVE.
 FRANKFORT, KY 40601
 502-223-7857

NO.	REVISION	DATE
1	MH Numbers / PSC	1/24/17
2	PSC Locations	2/13/17

SHEET TITLE:
 LINE "D" STA. 40+00 TO 41+66 PLAN & PROFILE

PROJECT TITLE:
 CITY OF FRANKFORT
 US 60 - KSU
 SEWER RELOCATIONS



MANHOLE CONSTRUCTION NOTES

- Manholes with precast base sections or bottom slabs must be provided, unless written permission is obtained prior to construction (See Standard Manhole detail). Invert of manhole shall be performed by the precast manufacturer and shall contain the Xypex admixture (see Note 13)
- Precast concrete sections and appurtenances shall conform to the ASTM Standard Specifications for precast reinforced concrete manhole sections, designation C478, latest revision.
- Manholes with precast holes for pipe must be provided with rubber boot (factory installed pipe to manhole gasket) to seal out water.
- Base slab is required for Manholes 5 ft. and larger in diameter and for manholes with a depth of 15 ft. or greater. Base slab can be round or square. The nominal dimension shall be 1 ft. wider than O.D. of Manhole. Base section shall be monolithic for 4 ft. diameter manholes. **Installation shall be inspected by FSD prior to backfilling.**
- All joints on manhole barrel sections shall have a two-way sealing system:
 - Butyl mastic joint sealant (Kent equivalent).
 - Exterior joint collar consisting of polypropylene fabric with rubberized mastic coating (MacWrap or equivalent).

Exterior joint collars must be inspected by FSD prior to backfilling. Butyl mastic joint sealant is also required between the manhole cone, adjusting sections, and frame.
- All manholes shall be installed with internal or external manhole frame (chimney) seals (Cretex or equivalent).
- Invert elevation of inflow pipe shall equal or exceed the invert elevation of the outflow pipe. Minimum vertical drop across Manhole is 0.10 ft. The bench and invert of the manhole shall have a smooth finish.
- For a vertical drop of 2.0 feet or more through a manhole, a drop manhole is required. New manholes shall be outside drop construction. Connections to existing manholes shall be inside drop construction.
- Pipes shall not enter the cone section of the Manhole or at the manhole joints.
- The manhole lids must have "FSD" cast in the lid. (See Frame and Cover detail)
- The manhole frames must be anchored with four (4) 5/8" stainless steel anchor nuts and bolts.
- Cast-in-place concrete shall be Kentucky Dept. of Highways Class "A", with a minimum 28-day compressive strength of 3,500 PSI.
- For all manholes, concrete structures, and concrete pipe, Xypex Admix C-1000R with red dye shall be added to the concrete during batching operations to provide chemical resistance and waterproofing. The Xypex Admix C-1000R shall be added at 3.5% including dye, of the required weight of Portland Cement. The amount of cement shall remain the same and shall not be reduced. A colorant shall be added at the Xypex manufacturing plant.

14. Minimum Manhole diameters based on inflow and outflow pipe sizes (outside diameter) are as follows:

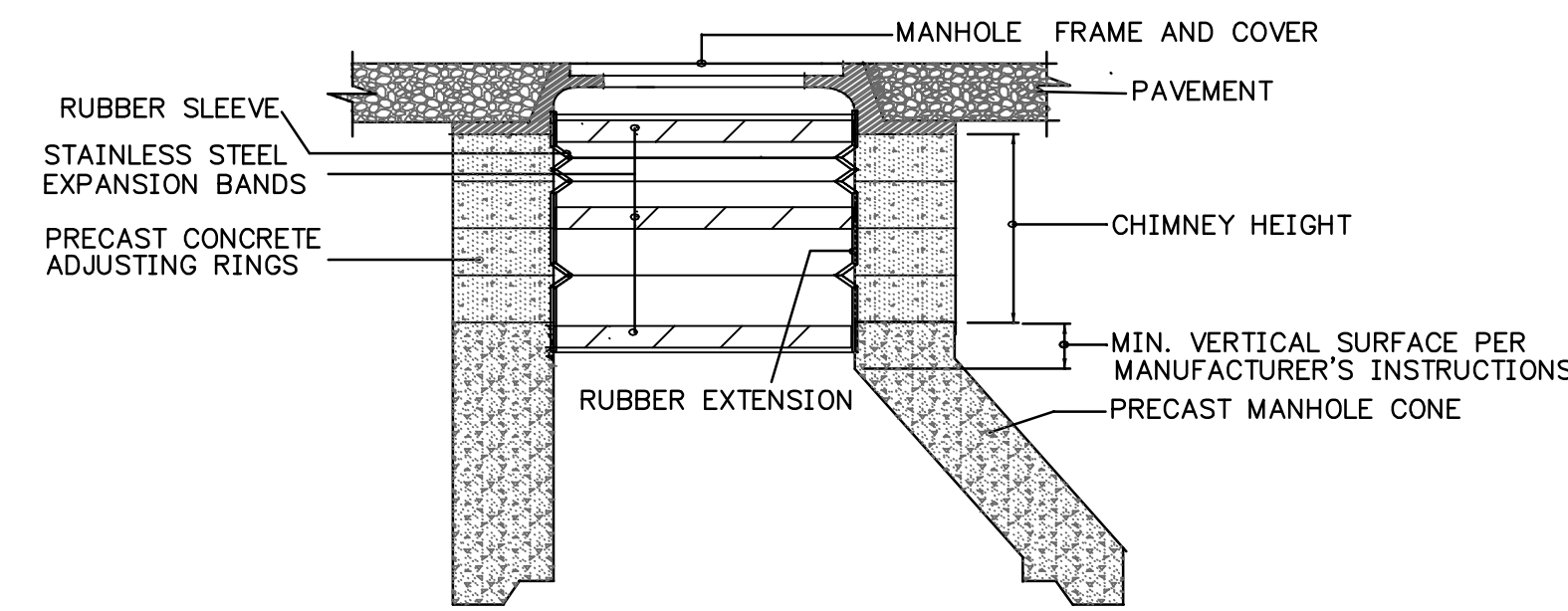
MANHOLE DIA.	MAX. PIPE O.D. ALLOWED*
4 ft.	30 in.
5 ft.	44 in.
6 ft.	51 in.
8 ft.	72 in.

* For straight through pipes to a 45° deflection. Deflection angles greater than 45° for 12 inch or larger sewers will require special approval of the Frankfort Sewer Department (FSD).

15. Manholes exceeding 15 feet in depth, manholes 5 ft. or larger in diameter and all drop manholes must be approved by the Frankfort Sewer Dept. prior to construction. The precast supplier should be given the manhole depth to properly design reinforcement.

16. All manholes shall be installed with a polyethylene watertight diaphragm (Parsons Rainstopper) under lid. Diaphragm shall have lifting straps and shall not have valves.

17. If an existing manhole is modified, it shall be brought up to current specifications, including testing.



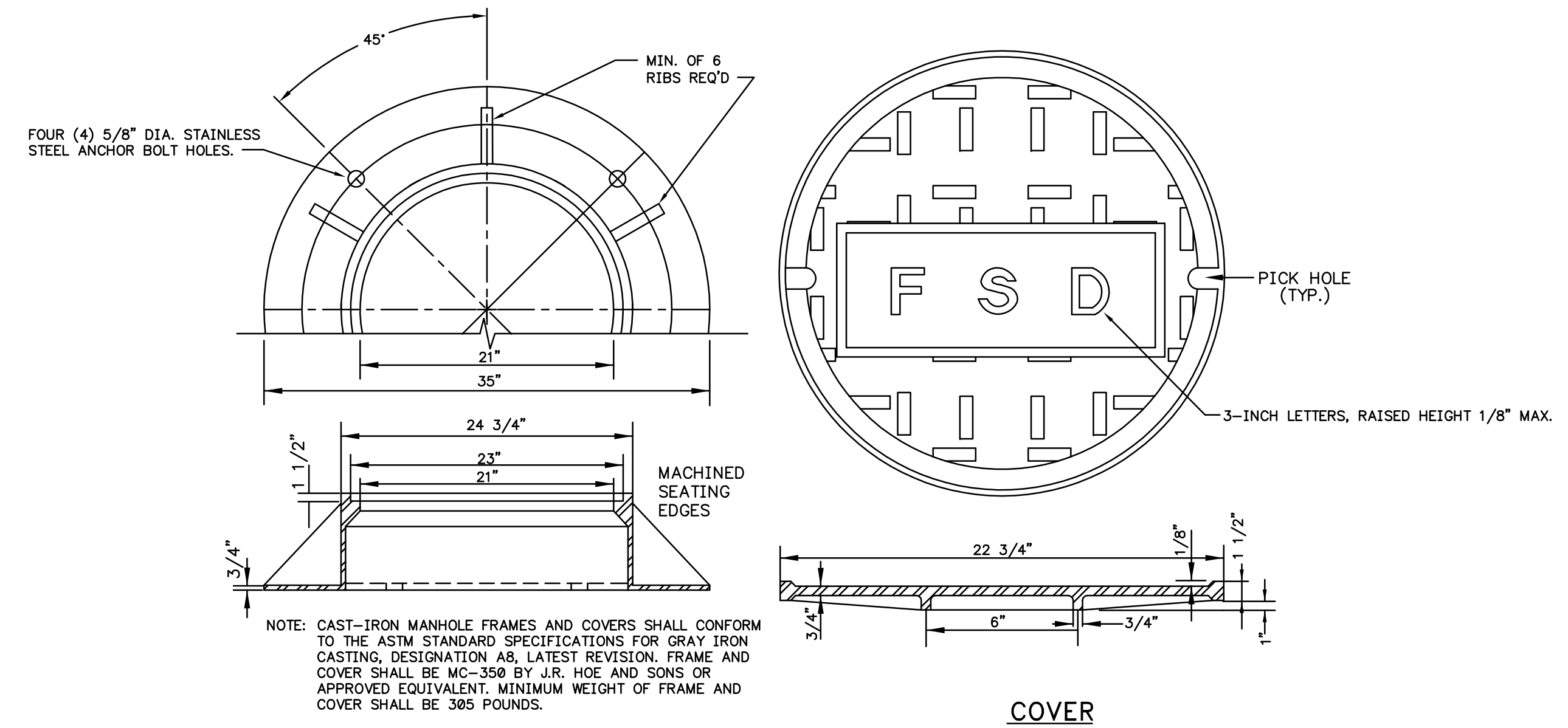
SECTION

NOTES:

- See manufacturer's instructions for seal and extension combinations needed to span from the frame to the top of the cone on manholes with various chimney heights. Frame offsets or diameter differentials will reduce these span heights.
- An external chimney seal may be installed instead of an internal chimney seal for new manholes. **Exterior chimney seals must be inspected by FSD prior to backfilling.**

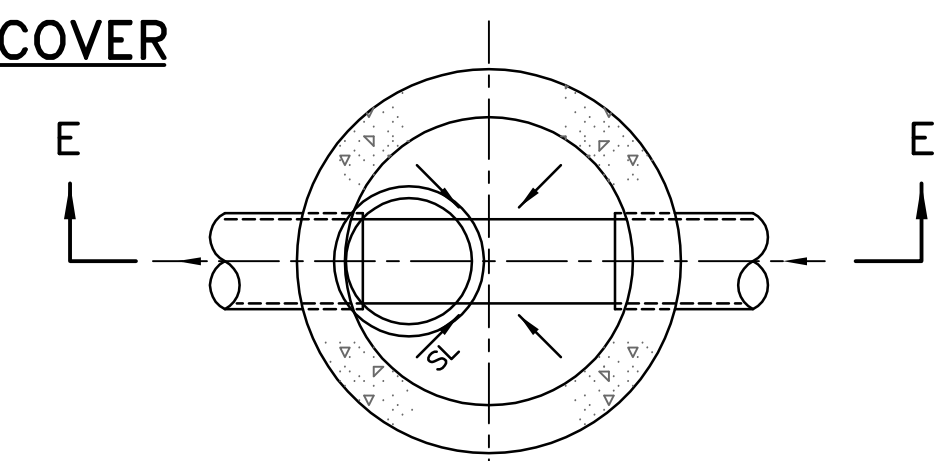
INTERNAL MANHOLE CHIMNEY SEAL W/EXTENSION - PRECAST MANHOLE

N.O. SCALE

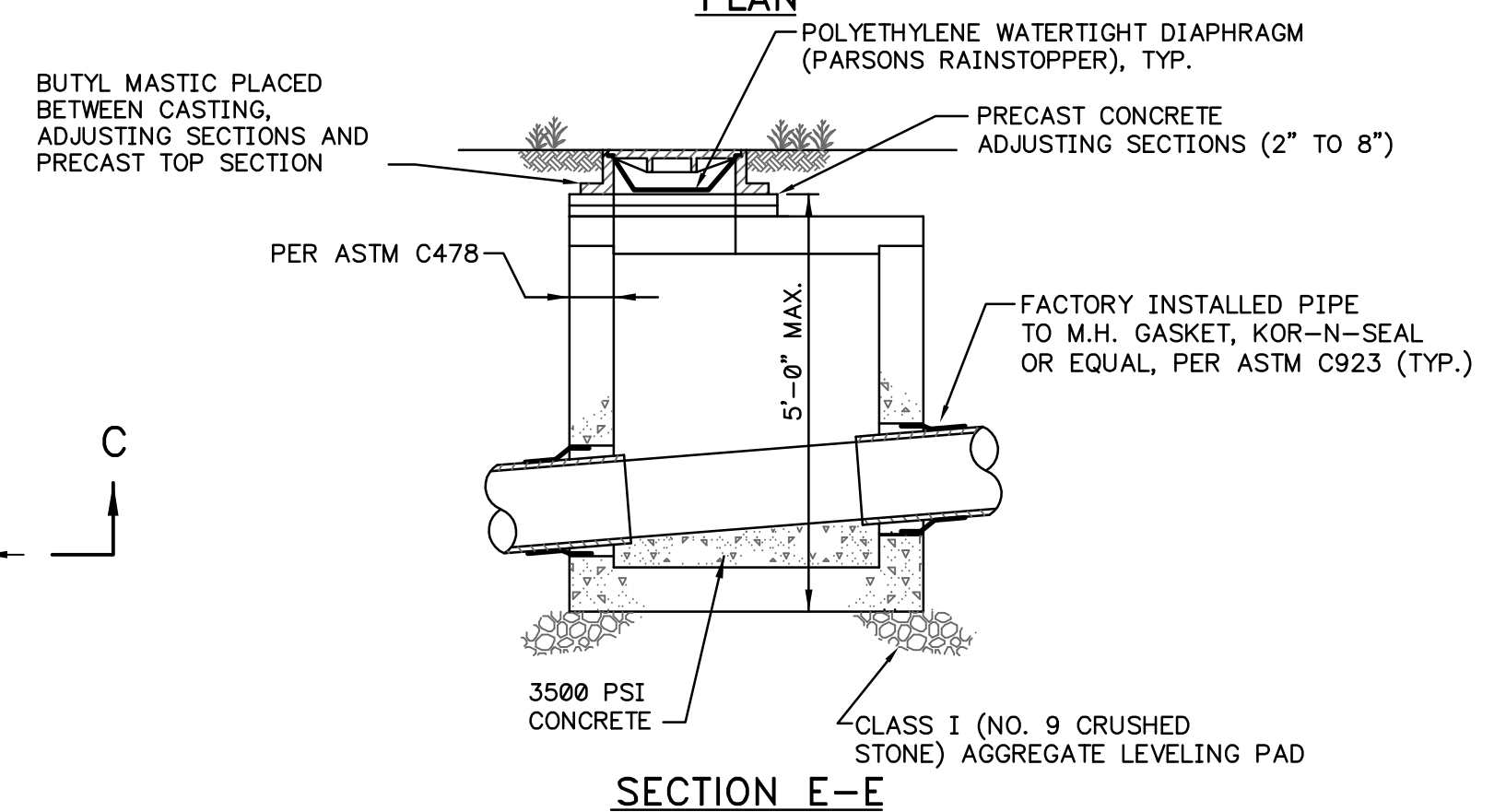


MANHOLE FRAME AND COVER

N.T.S.

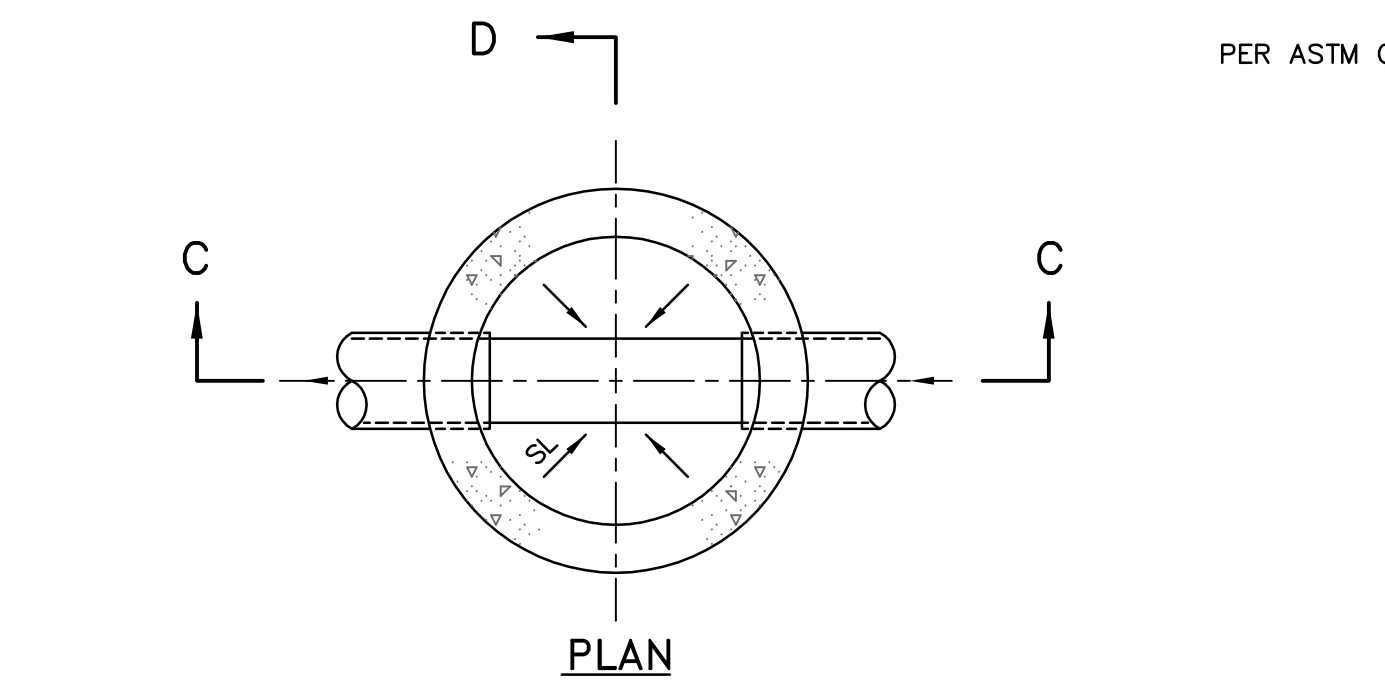


PLAN

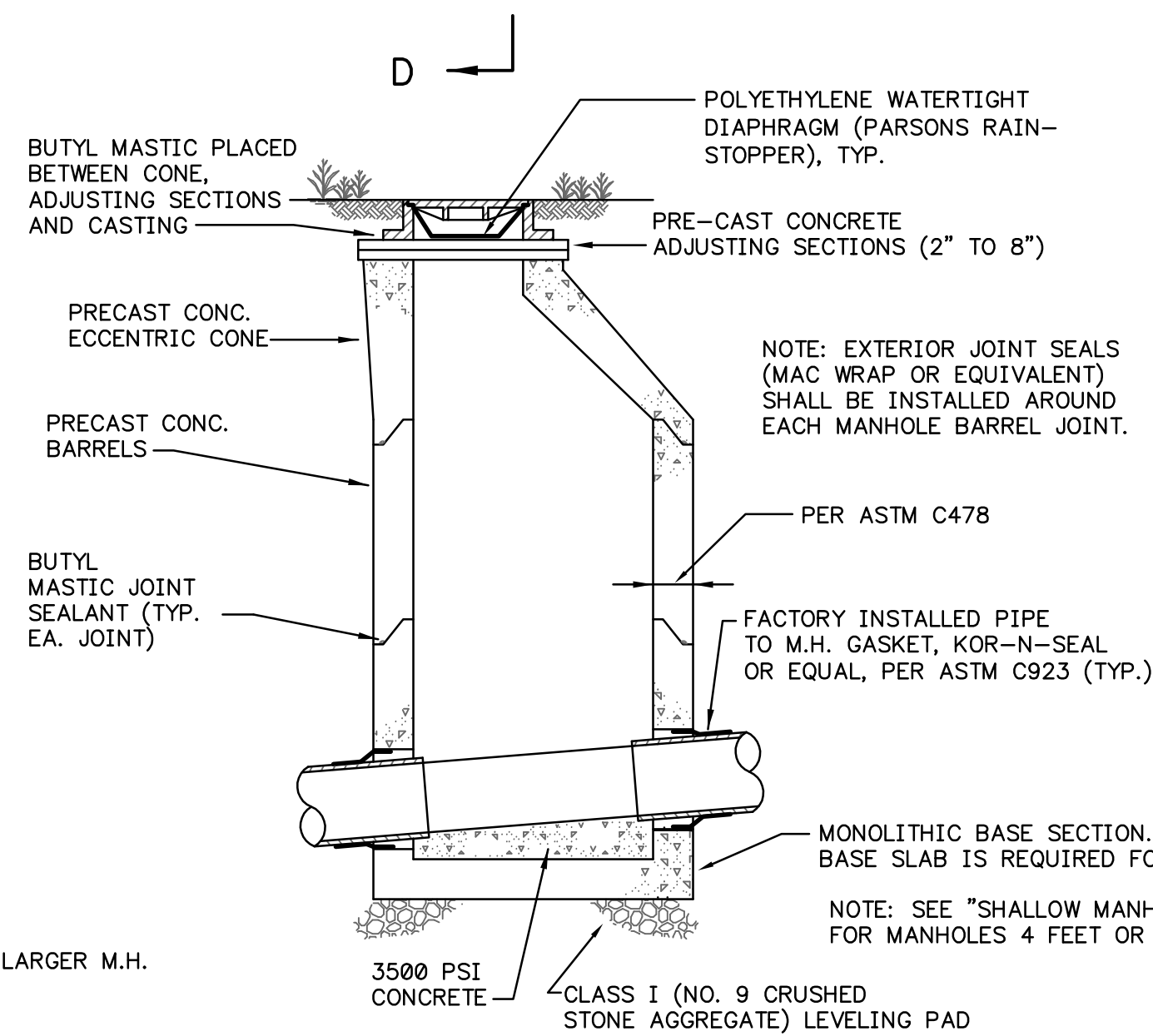


SHALLOW MANHOLE

N.T.S.

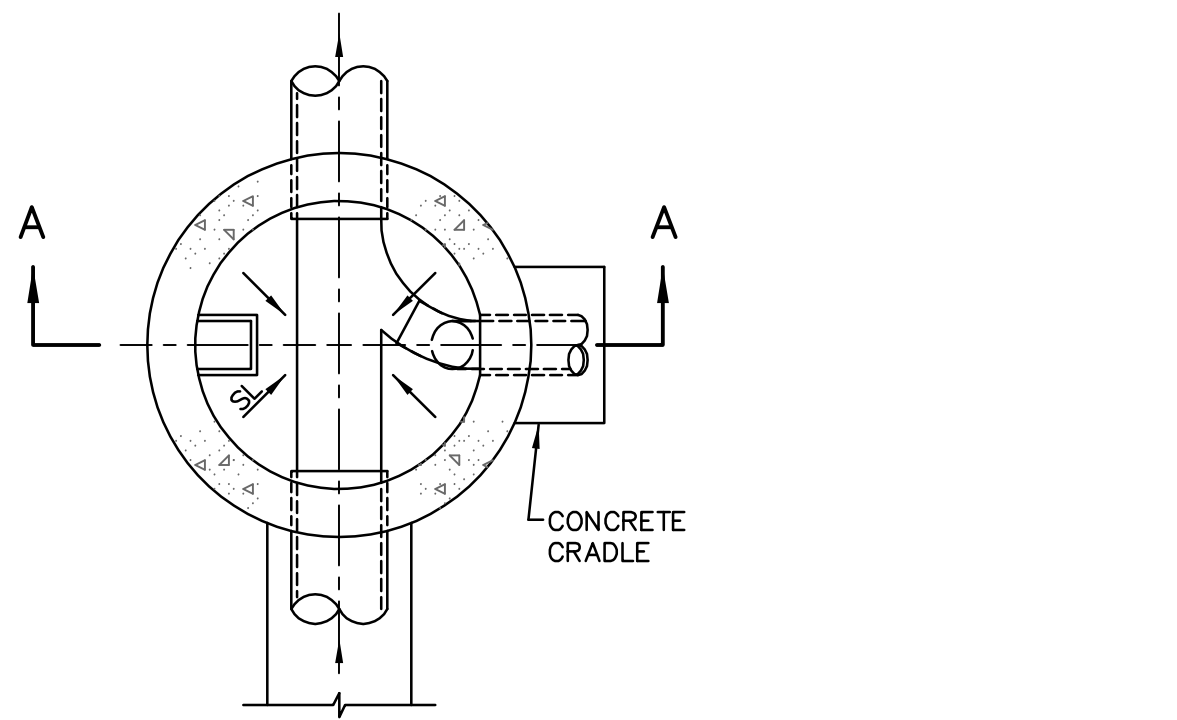


PLAN

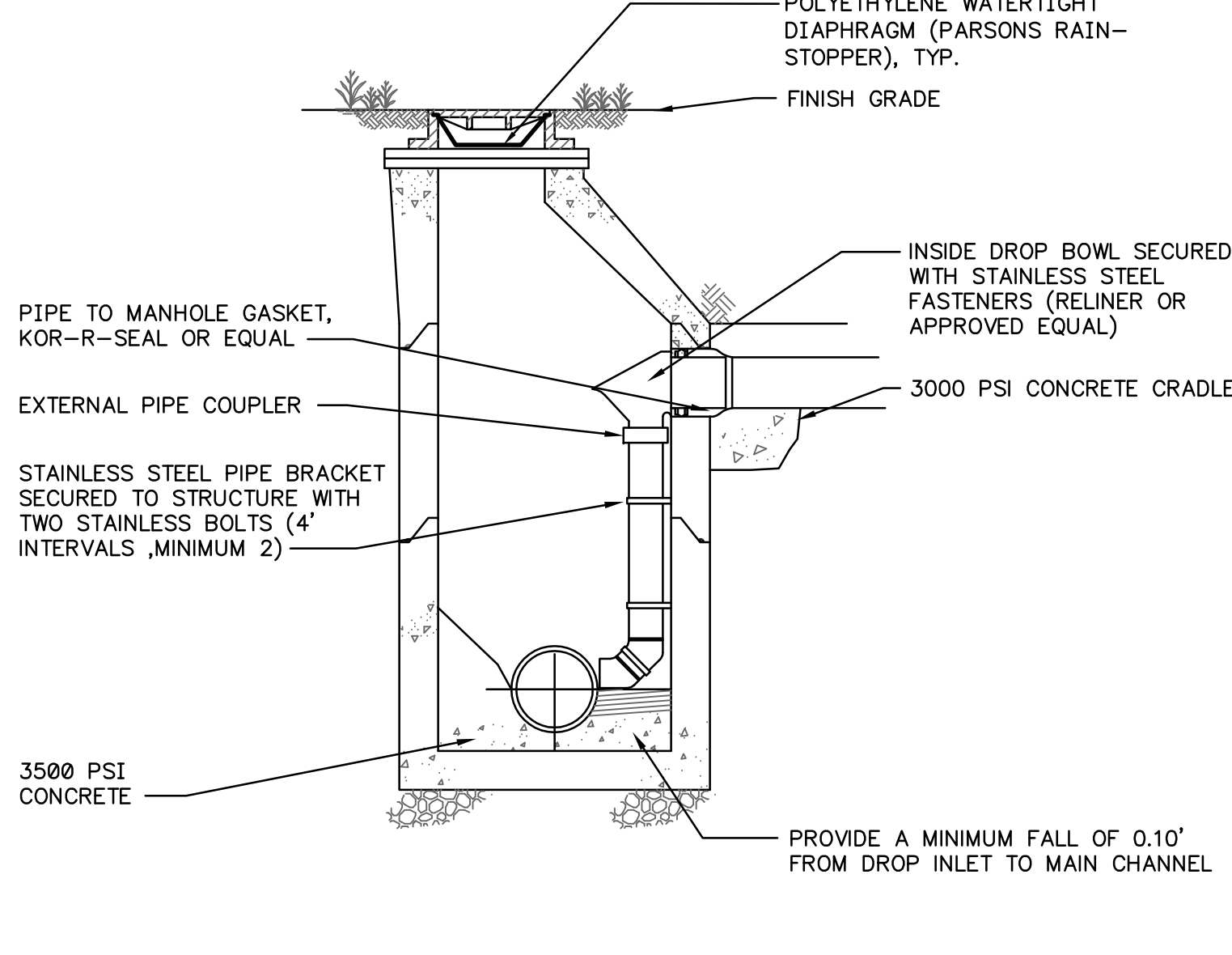


STANDARD MANHOLE

N.T.S.



PLAN

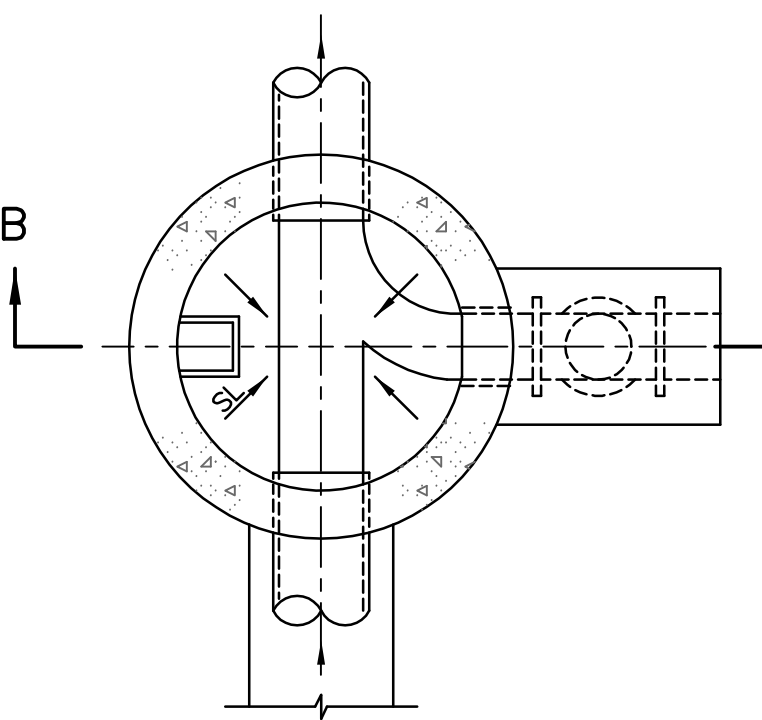


SECTION A-A

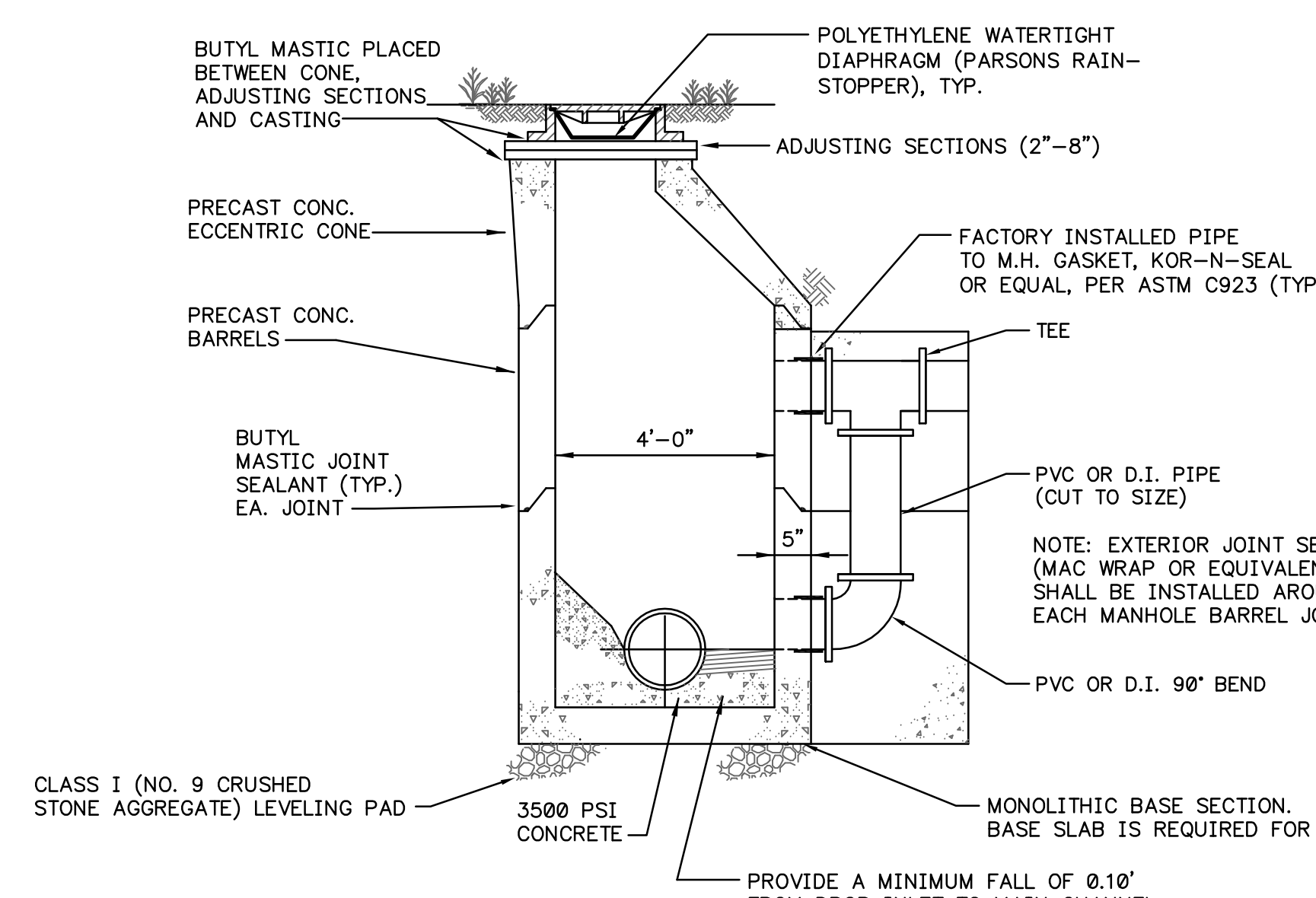
INSIDE DROP MANHOLE

N.T.S.

(FOR CONNECTION TO EXISTING MANHOLES ONLY)



PLAN



SECTION B-B

PRECAST OUTSIDE DROP MANHOLE

N.T.S.

L:\2008\06416 Frankfort\STANDARD SANITARY SEWER DETAILS-1.dwg, 1/27/2010 9:35:06 AM

CITY OF FRANKFORT, KENTUCKY SEWER DEPARTMENT
STANDARD SANITARY SEWER CONSTRUCTION DETAILS



SCALE: N.T.S.	
DATE: JANUARY 2010	
JOB NO.:	
DESIGNED:	
DRAWN:	
CHECKED:	
Q/C:	
OWNER APPROVAL:	
BY:	TITLE:
REVISIONS:	
NO.:	DATE:
ISSUED	MAY 2001
R-1	MARCH 2004
R-2	APRIL 2007
R-3	JANUARY 2010

DRAWING: **G1**
OF 3

GENERAL SPECIFICATIONS

- PVC sewer pipe shall be SDR 35 and shall conform to ASTM D3634. For bury depths greater than 15 feet, SDR 26 PVC pipe or ductile iron pipe (DIP) is required. DIP shall conform to ANSI A21.50 (AWWA C 150) latest revision. Pipe materials other than PVC or DIP must be approved by the Frankfort Sewer Department (FSD) prior to installation.
- Gravity lines, force mains and lateral lines must be encased in #9 crushed stone as shown on standard details. Top: 12 inches. Bottom and Sides: 6 inches. See Case I and Case II Backfill Detail, this sheet.
- Mylar sewer line identification tape is required for all sewer mains, manholes, and laterals.
- All sewer lines must be installed in a dedicated right-of way or sewer easement. The minimum easement width is 15 feet, with the main line centered in the easement. Easement documents must be prepared, reviewed and approved by the City Attorney. Easements shall be properly recorded, with a copy of the stamped documents provided to FSD. Easements are required for any sewer mains crossing through private property.
- A complete set of As-Built drawings shall be provided to the FSD after the construction has been completed.
- Each sheet of the As-Built drawings shall be sealed (or stamped), signed, and dated by a Professional Engineer licensed in the Commonwealth of Kentucky. Revisions to the As-Built drawings must be stamped, signed, and dated on each page.
- Buildings must be set-back from the sewer easement so the building foundation will not be undermined. The set-back must be greater than a 45-degree line from the edge of the trench at the pipe invert to its intersection with the foundation elevation.
- Sewers on 20% slope or greater shall be anchored securely with concrete (or equivalent) pipe anchors, see drawing 3 for detail.
- Aerial crossings, when necessary, shall be designed and constructed in accordance with Ten State Standards. Support shall be provided for all pipe joints. The supports shall be designed to prevent frost heave, overturning, and settlement. Precautions against freezing, such as insulation and increased slope, shall be provided. The impact of flood waters and debris shall be considered.
- The FSD requires that each lot have a separate lateral that does not cross into any other lots. The laterals must extend five (5) feet into the lot. Each lot must have a 6-inch double wye installed at the right-of-way line. The cleanout stub shall extend 3 to 5 feet above ground. See dwgs. 2 & 3 for details.
- After all installation and testing requirements are met and the easements are approved and recorded, the Director will allow the FSD to issue tap permits.
- The FSD tap permits are issued from the main office at 1200 Kentucky Avenue. The FSD will charge a capacity fee for each additional apartment unit, house, or building based on number and size of water meters on lot. See ordinance for details.
- The lowest floor of any structure to be provided service must be a minimum of one (1) foot higher than the rim elevation of the nearest sanitary manhole in accordance with City of Frankfort code of Ordinances, No. 52.04.E.3. If these requirements cannot be met, an ejector or grinder pump will be required to serve the structure. The pump installation must be approved by FSD prior to the sewer connection being permitted.
- After the plumber has connected the building lateral to the sewer, he shall contact the FSD for an inspection of the tie-in. The FSD personnel will place a sticker on the structure indicating "approved" or "not approved" and FAX the results to the City-County Planning Office.
- These drawings and specifications represent standards adopted by the Frankfort Sewer Department. These drawings are not a substitute for detailed design and engineering. Sewers shall be designed in accordance with the Recommended Standards for Wastewater Facilities, 1997 Edition (Ten States Standards). Construction plans and specifications must be approved by the Kentucky Division of Water (DOW). A construction permit must be obtained from DOW before sewers can be installed.
- Field changes to approved plans must be authorized by the Design Engineer and submitted to the FSD for review and approval.
- The FSD reserves the right to check for compliance with the Department's specifications and standards at any time during construction and prior to the Department's acceptance of the sewers. Failure to construct to FSD standards will result in removal and replacement at the contractor's expense.**

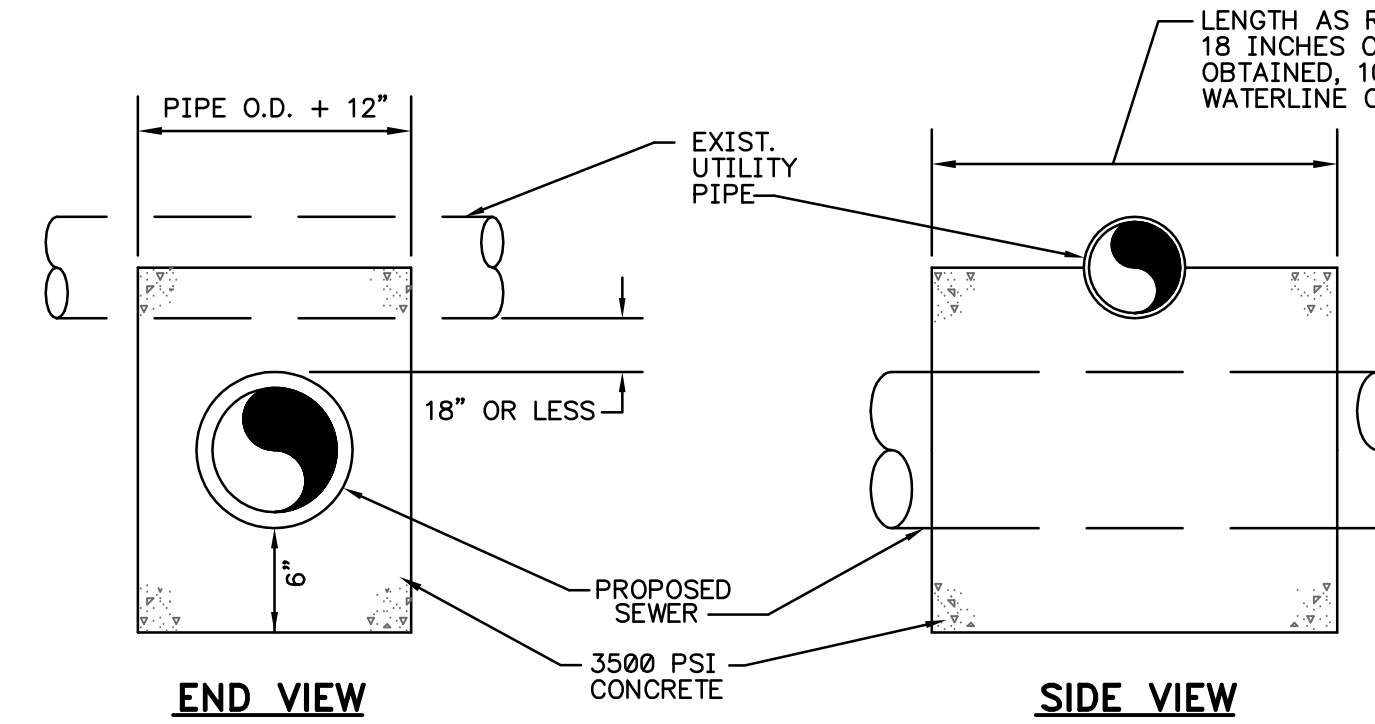
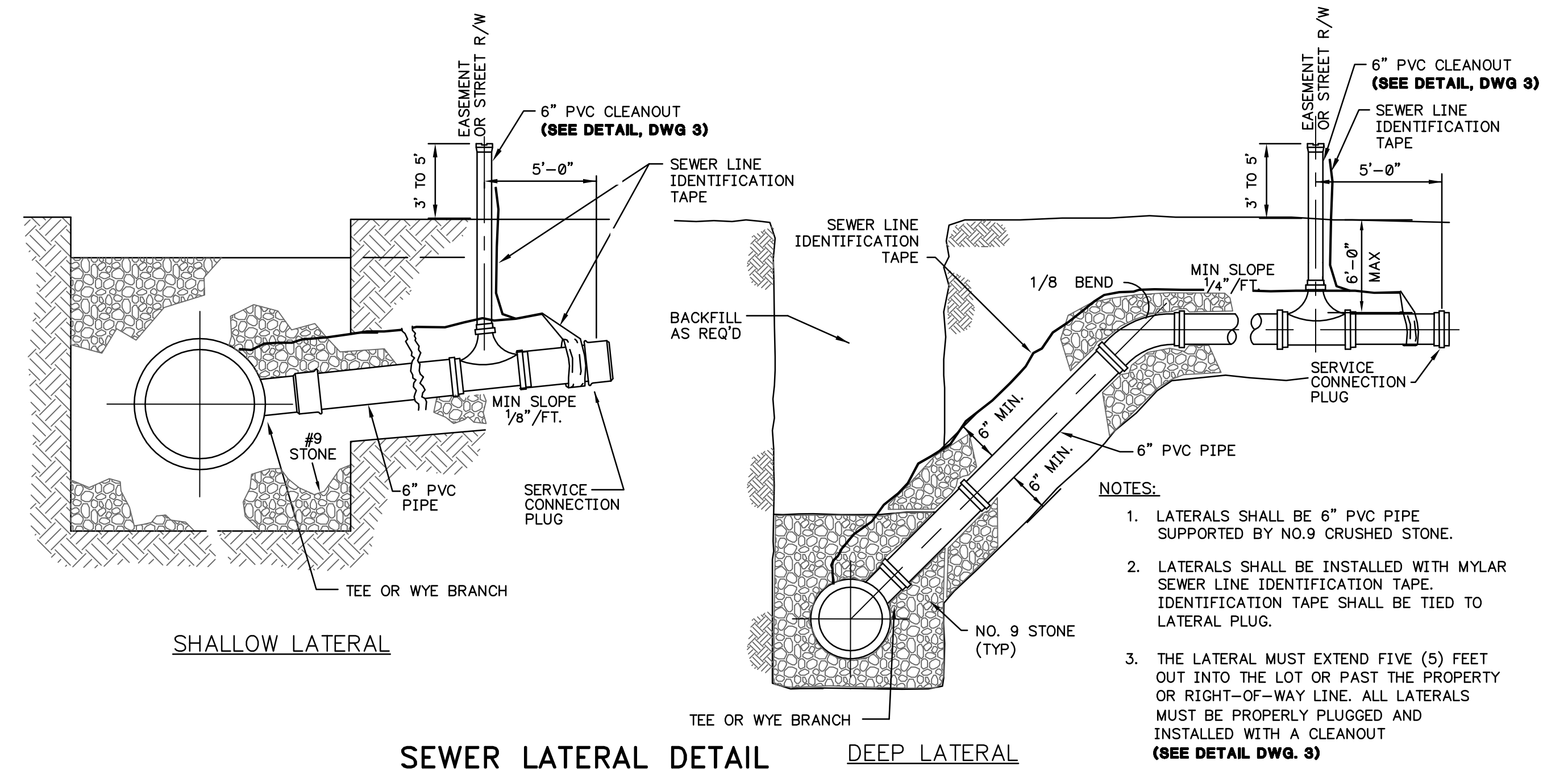
TESTING REQUIREMENTS

- The following tests shall be conducted on gravity sewer lines and manholes:
 - Visual inspection by FSD inspector
 - Video inspection
 - Mandrel deflection test (for PVC pipe)
 - Low pressure air test
 - Vacuum test for manholes
 Testing and inspection shall be conducted no earlier than 30 days after final trench backfill. As-built drawings shall be submitted for approval prior to testing. Any re-testing that is required will be subject to charges under the current Review/Inspection/Testing fee schedule as established by City of Frankfort Code of Ordinances No 52.04.G.
- After the punch list items are completed and the As-built drawings are received by the FSD, the FSD will televise the main lines to evaluate their condition. Repairs, if necessary, shall be made at the builder's expense prior to the acceptance of the sewers.
- The Mandrel (go/no-go) device shall be cylindrical in shape and constructed with nine (9) evenly spaced arms of prongs. The Mandrel dimension shall be 95 percent of the flexible pipe's published ASTM average inside diameter. Deflection shall not exceed 5 percent of the pipe's average inside diameter. The Mandrel shall be hand pulled by the contractor through all sewer lines.
- Low pressure air tests shall be conducted using equipment specifically designed and manufactured for the purpose of testing sewer lines using low pressure air. The equipment shall be provided with an air regulator valve or air safety valve so set pressure in the pipeline cannot exceed 8 psig. The test shall be made on each manhole-to-manhole section of piping after placement of the backfill. At least two minutes shall be allowed for the air pressure to stabilize in the section under test. After the stabilization period, testing will commence in accordance with UNI-B-6, latest revision.
- Manholes shall be vacuum tested after installation and after backfilling, with all connections in place. The vacuum test shall include testing of the seal between the cast iron frame and the concrete cone, slab or grade rings. Test equipment for manholes shall be top-mounted. A vacuum of 10 inches of mercury shall be drawn on the manhole. The manhole shall be considered to pass the vacuum test if it holds at least 9 inches of mercury for the following time durations:

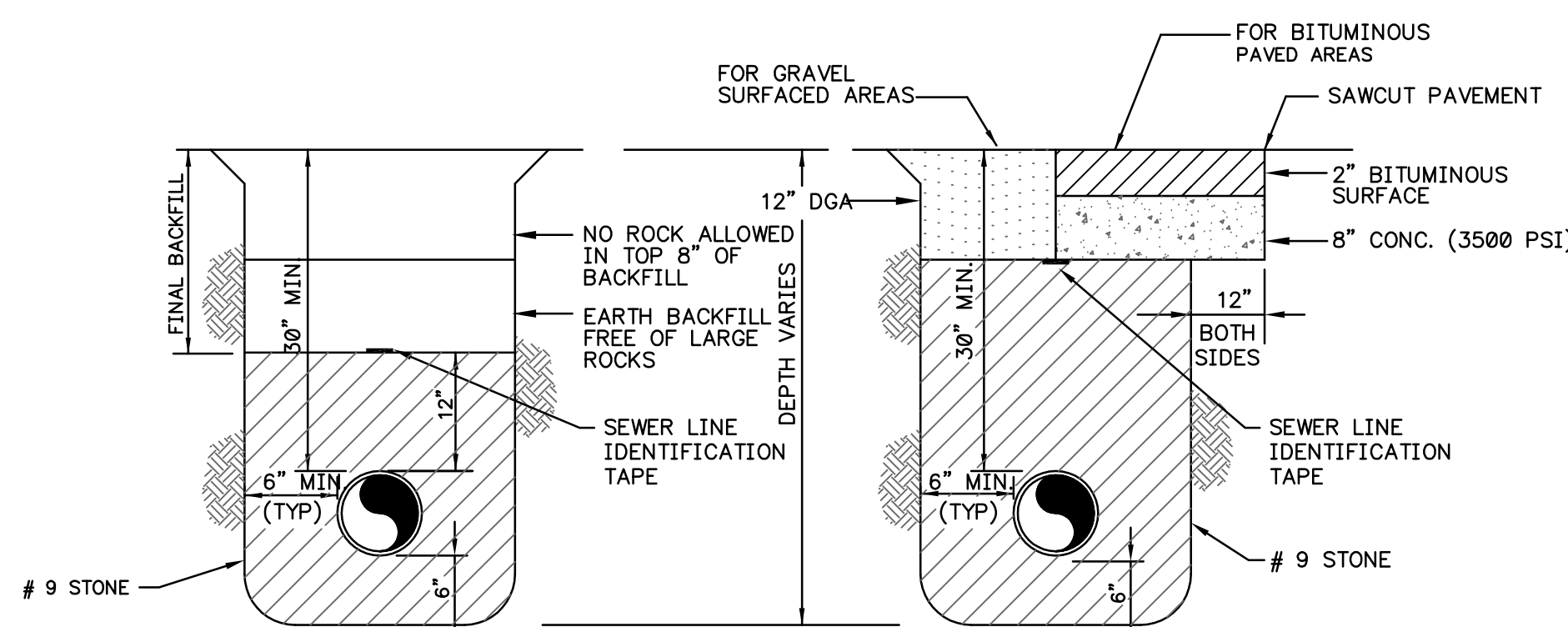
Manhole Depth	Time (Minutes)		
	4 ft. Dia.	5 ft. Dia.	6 ft. Dia.
20 feet or less	1	2	3
20.1 to 30 feet	2	3	4

If a manhole fails the vacuum test, it shall be repaired and retested.

- Acceptance testing shall not be scheduled until punchlist items are completed and the as-built drawings have been submitted to the Frankfort Sewer Dept. (FSD). The contractor must schedule the test 24 hours in advance and will be required to call the morning of the test to ensure FSD personnel are available to witness the test. The FSD inspector will walk the project first and check for compliance with the Department's Construction Specifications and Standards. **FSD personnel must witness all tests. The Director will review the test results.**
- All tests shall be performed by the contractor. The contractor shall provide all equipment, appurtenances, and labor necessary to properly conduct the tests. The contractor is responsible for the ultimate performance of the sewer line and manholes within the above test requirements.

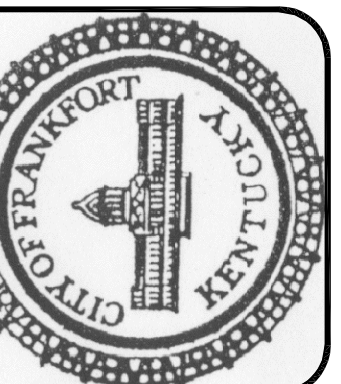
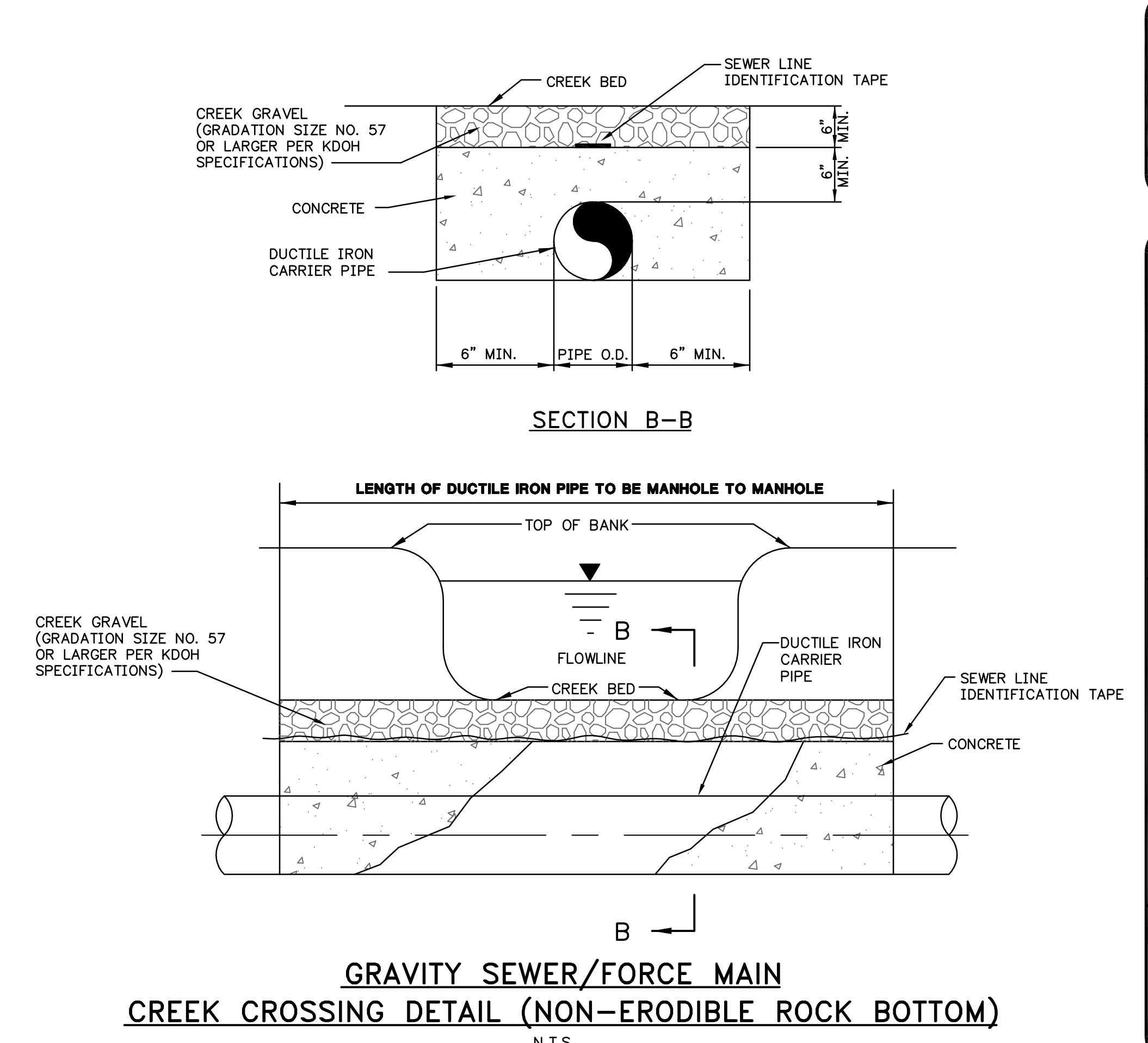
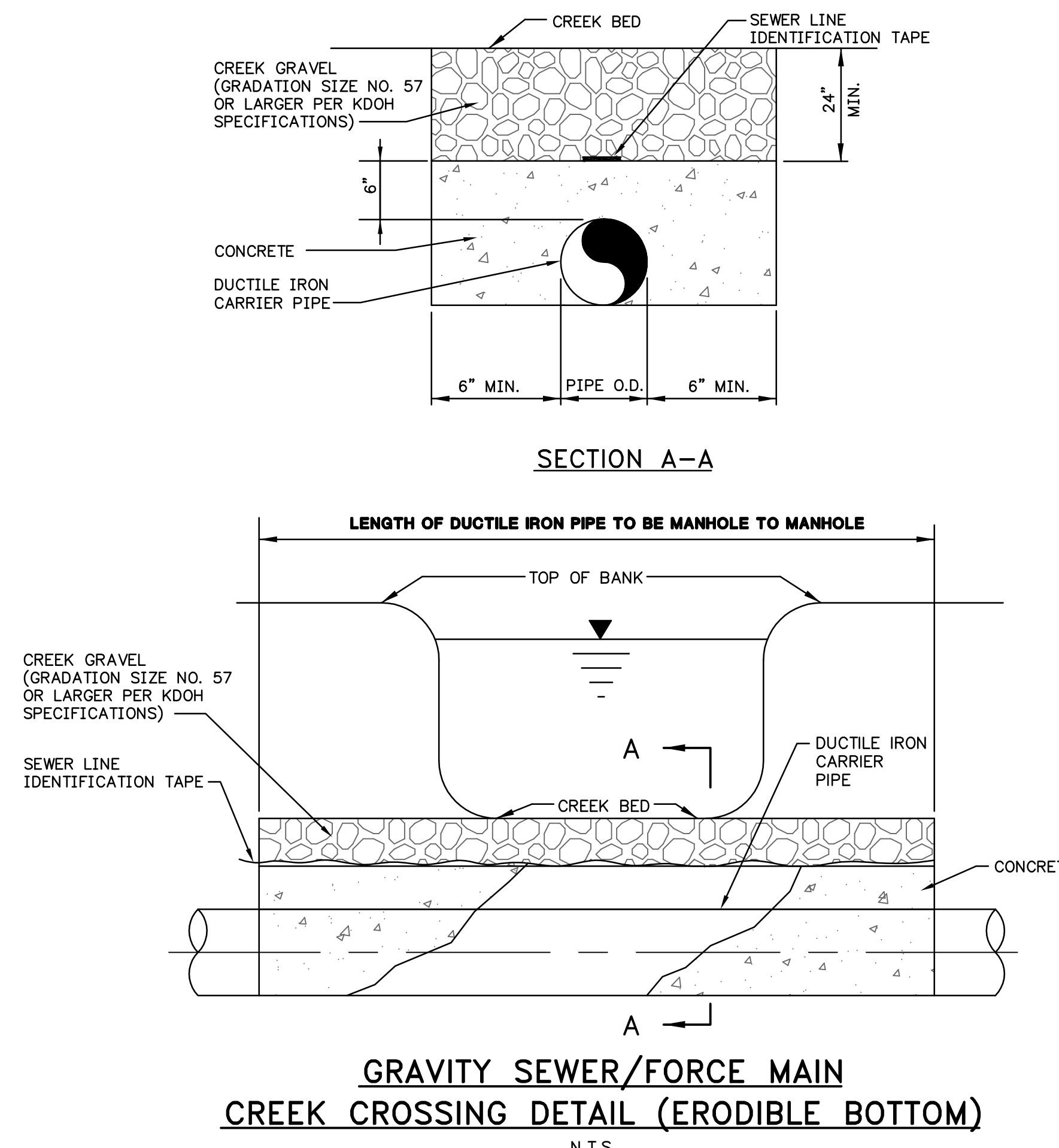


- NOTES:**
- CONCRETE ENCASEMENT SHALL BE USED WHEN THE CLEARANCE BETWEEN THE PROPOSED SANITARY SEWER PIPE AND ANY EXISTING UTILITY PIPE IS 18 INCHES OR LESS. THE CONCRETE SHALL EXTEND TO AT LEAST THE SPRING LINE OF EACH PIPE INVOLVED. PIPE MAY NEED TO BE ANCHORED TO AVOID FLOATATION DURING CONCRETE PLACEMENT.
 - "UTILITY PIPE" INCLUDES UNDERGROUND WATER, NATURAL GAS, TELEPHONE, ELECTRICAL CONDUIT, STORM SEWER OR TYPICALLY NON-CONTAMINATING FACILITIES.
 - PROPOSED SEWER PIPE TO BE FULLY ENCASED WHETHER ABOVE OR BELOW EXISTING UTILITY PIPE.



GRAVITY SEWER & LATERAL LINES TRENCHING AND BACKFILLING DETAILS
N.T.S.

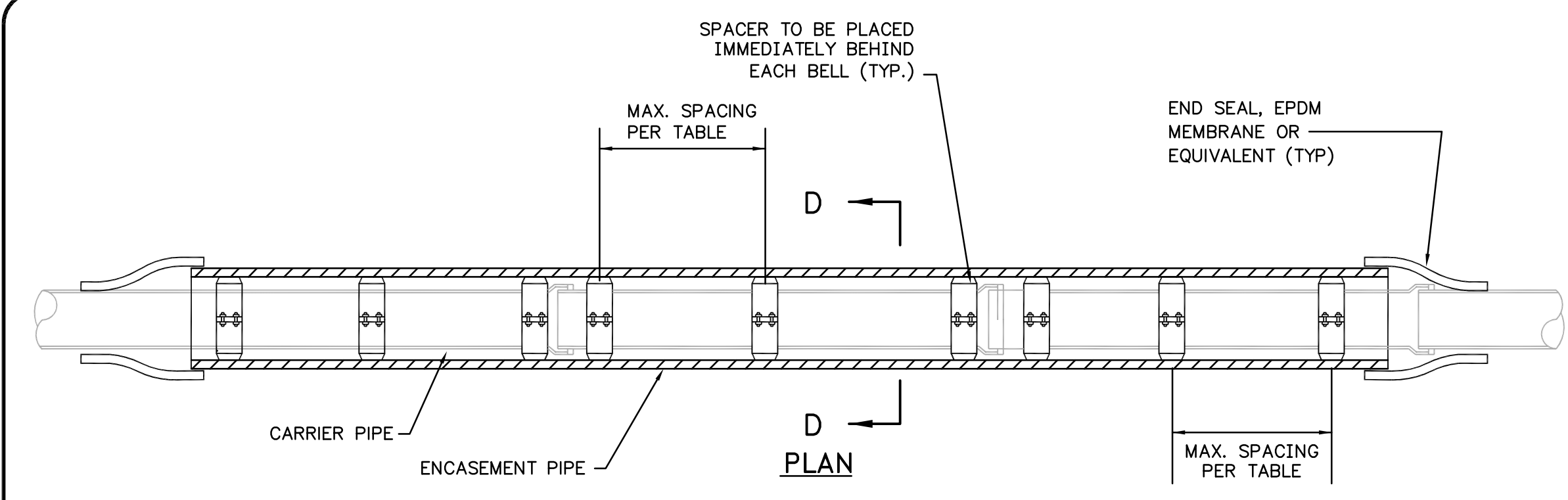
- TRAFFIC SHALL BE DETOURED OR A PLATE SHALL BE PLACED OVER THE CONCRETE UNTIL 3500 PSI COMPRESSIVE STRENGTH HAS BEEN ATTAINED.
- DEPTH OF BACKFILL FOR SDR 35 PVC PIPE SHALL NOT EXCEED 15 FEET. DEEPER INSTALLATIONS WILL REQUIRE HEAVY WALL (SDR 26) PVC PIPE OR DUCTILE IRON PIPE.
- TRENCHES SHALL BE SHORED, SLOPED, OR SHIELDED AS NECESSARY TO PROTECT WORKERS AND CONFORM TO OSHA REGULATIONS.



SCALE: N.T.S.
DATE: JANUARY 2010
JOB NO.:
DESIGNED:
DRAWN:
CHECKED:
Q/C:
OWNER APPROVAL:
BY:
TITLE:
REVISIONS:
NO. DATE:
ISSUED MAY 2001
R-1 MARCH 2004
R-2 APRIL 2007
R-3 JANUARY 2010

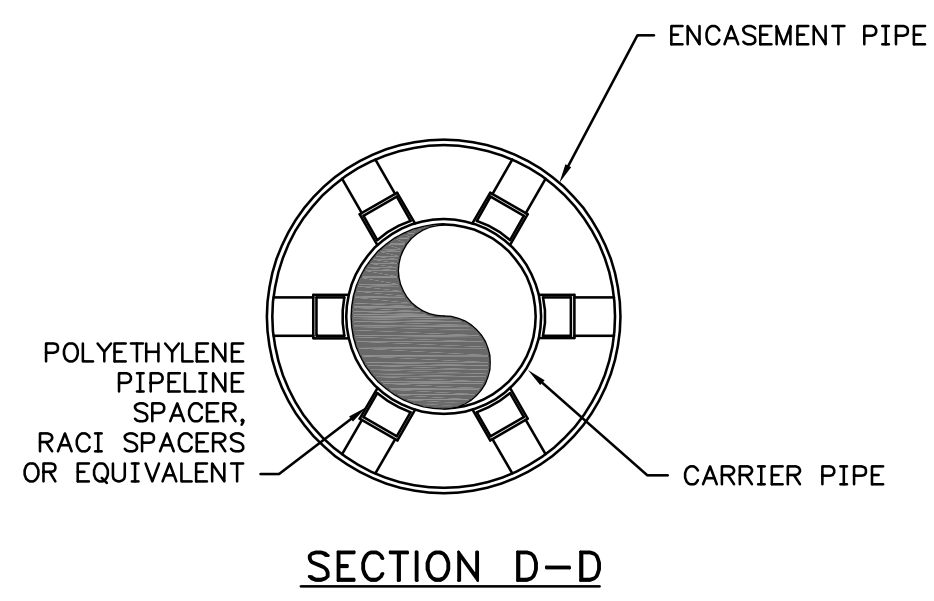


SCALE: N.T.S.
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 BY:
 TITLE:
 REVISIONS:
 NO. DATE:
 ISSUED MAY 2001
 R-1 MARCH 2004
 R-2 APRIL 2007
 R-3 JANUARY 2010



MAXIMUM SPACING DISTANCE FOR PIPELINE SPACERS

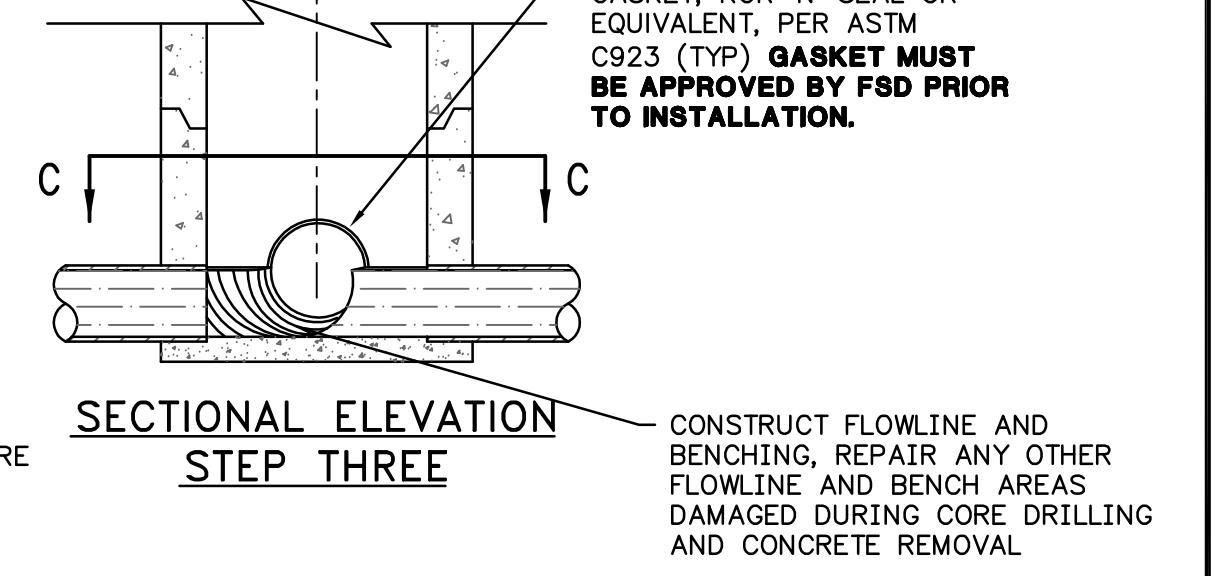
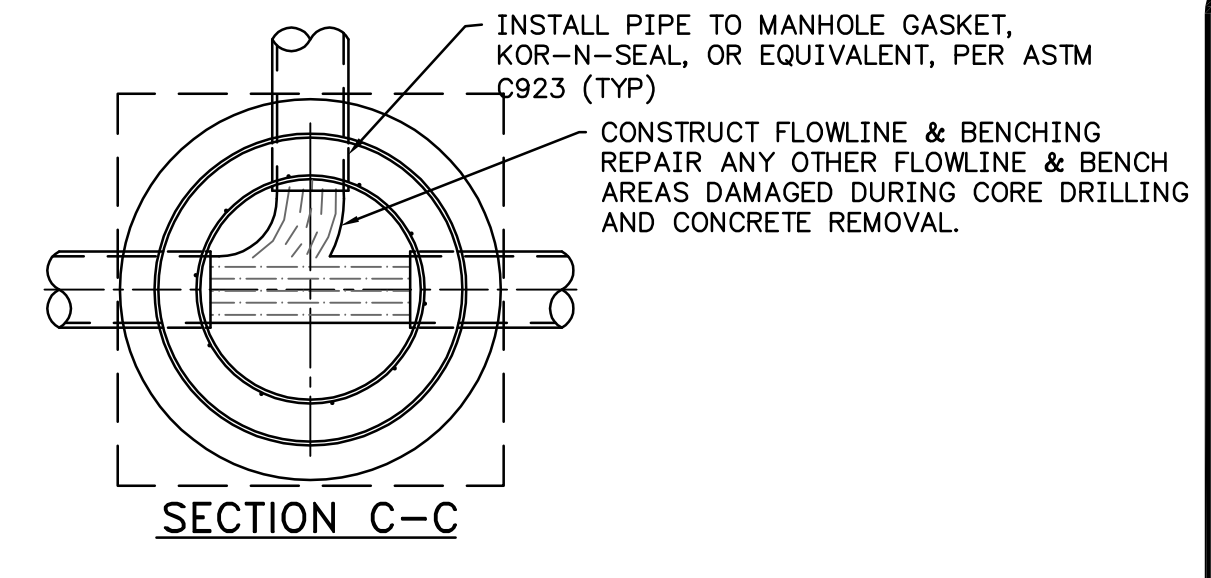
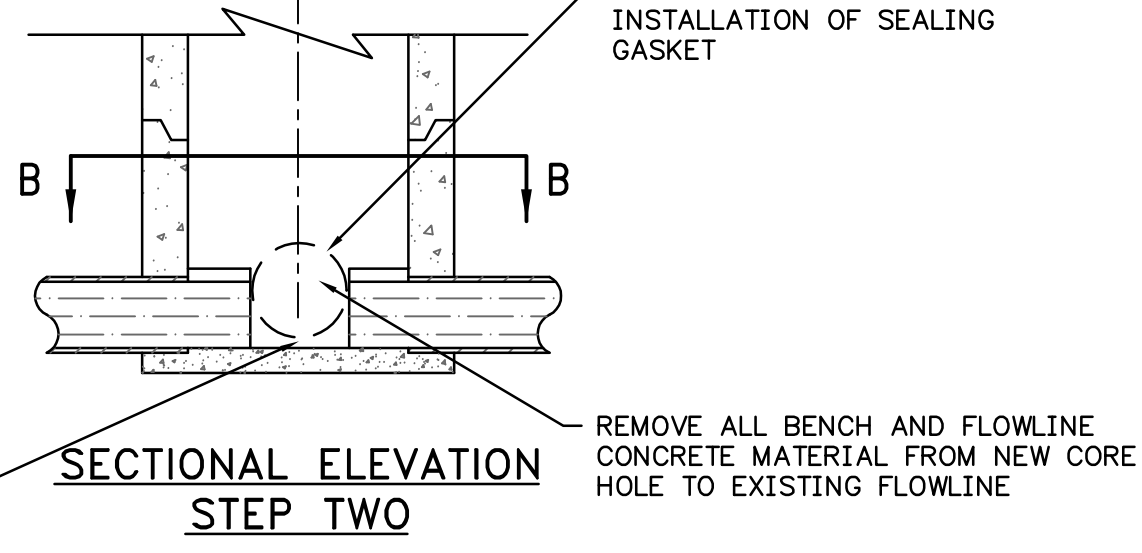
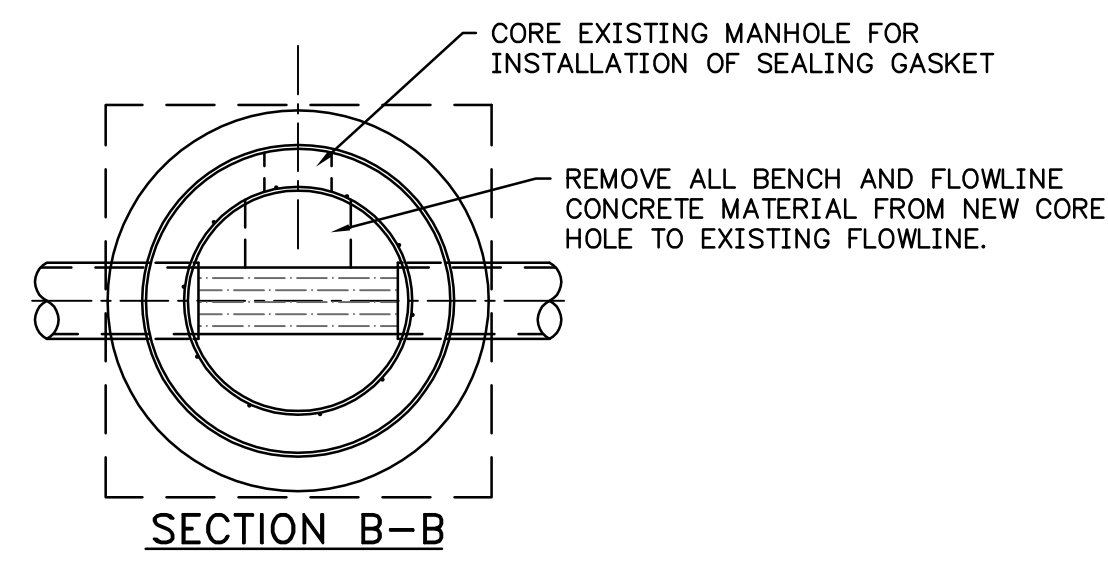
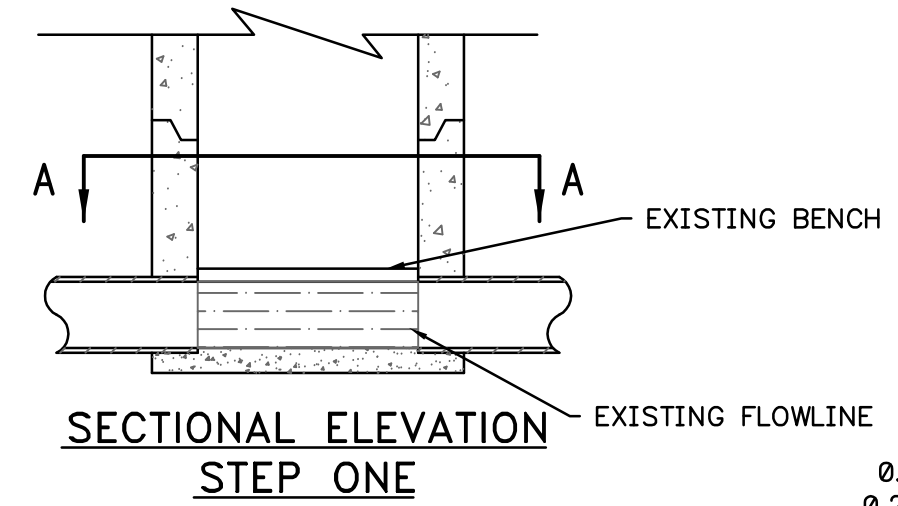
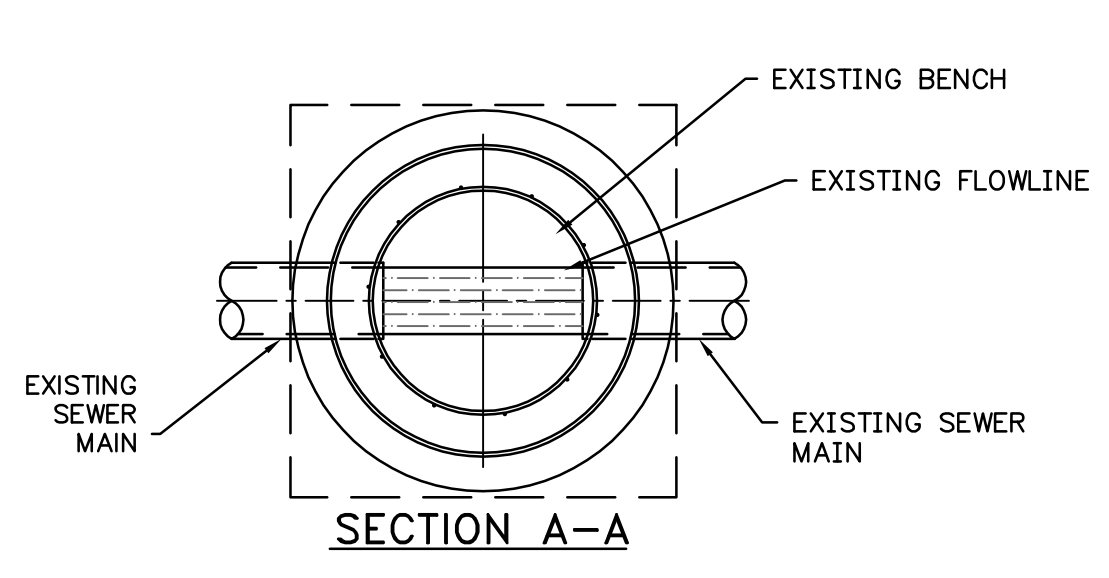
CARRIER PIPE DIA. (INCHES)	MAX. SPACING (FEET)
2-2 1/2	4
3-8	7
10-26	10
28	9
30	8
32	7
34	6
36-38	5.5
40-44	5
46-48	4



TYPICAL ENCASEMENT PIPE INSTALLATION

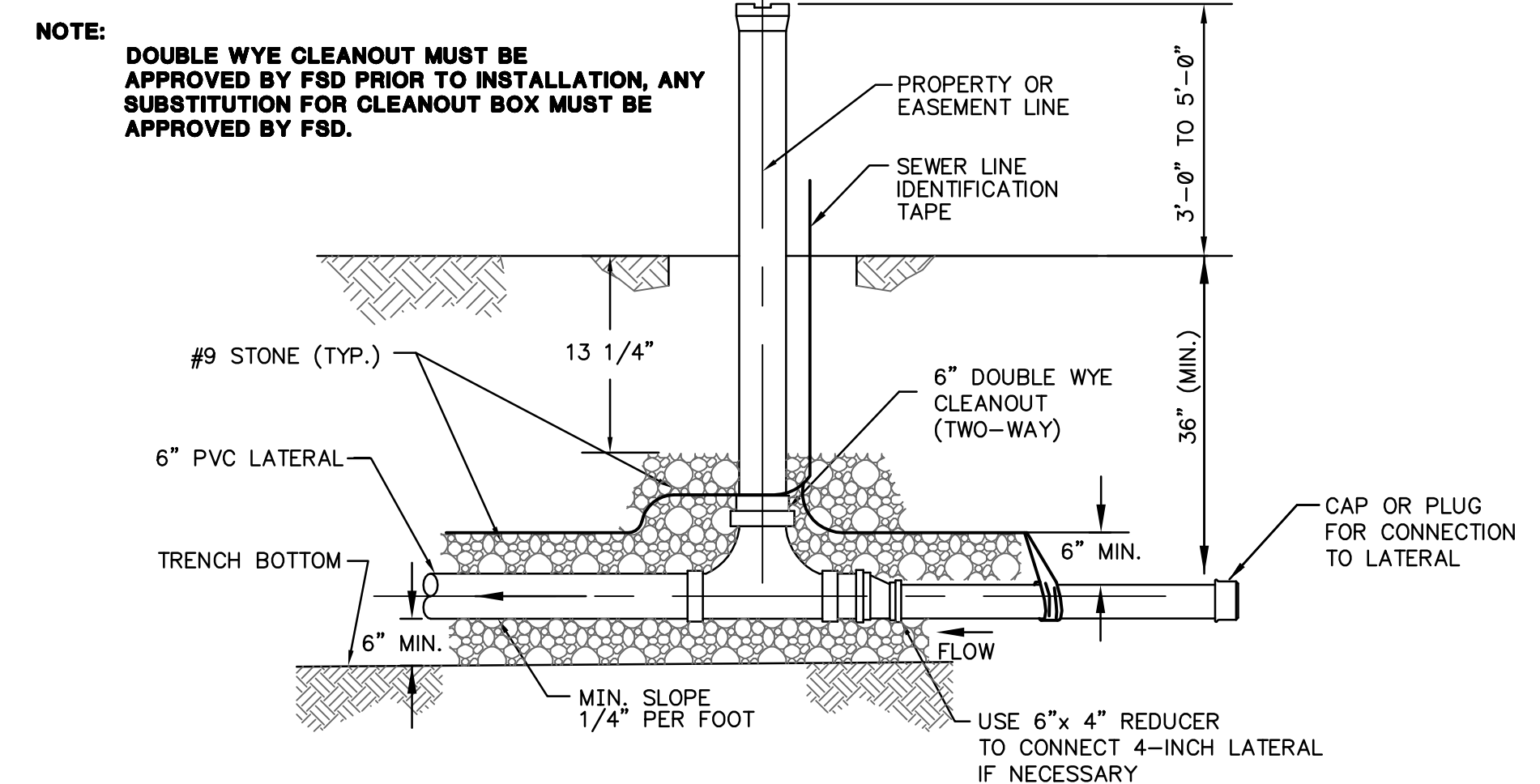
- NOTES:**
- ENCASEMENT PIPE SHALL BE NEW GRADE B STEEL PIPE, INSTALLED WITHOUT BENDS.
 - ALL JOINTS IN ENCASEMENT PIPE SHALL BE WELDED. WELDS SHALL BE SOLID BUTT-WELDS WITH A SMOOTH NON-OBSSTRUCTING JOINT INSIDE AND SHALL CONFORM TO AMERICAN WELDING SOCIETY SPECIFICATIONS.
 - MINIMUM ENCASEMENT PIPE WALL THICKNESS SHALL BE AS FOLLOWS, UNLESS USE OF A REDUCED THICKNESS IS SPECIFICALLY GRANTED BY THE FSD:
- | PIPE NOMINAL DIAMETER (INCHES) | MINIMUM ENCASEMENT PIPE THICKNESS (INCHES) |
|--------------------------------|--|
| 14 & UNDER | 0.250 |
| 16-22 | 0.375 |
| 24-36 | 0.500 |
| 42-48 | 0.625 |
- FSD MUST BE ON SITE TO WITNESS INSTALLATION OF CARRIER PIPE.**
 - PIPELINE SPACERS SHALL BE SELECTED AND INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.

- NOTE:**
- ANCHORS SHALL BE SPACED ACCORDING TO TEN STATE STANDARDS (1997 EDITION), SEWERS ON 20 PERCENT (%) SLOPES OR GREATER:
 - NOT OVER 36 FEET (11m) CENTER TO CENTER ON GRADES 20 PERCENT (%) AND UP TO 35 PERCENT (%);
 - NOT OVER 24 FEET (7.3m) CENTER TO CENTER ON GRADES 35 PERCENT (%) AND UP TO 50 PERCENT (%);
 - NOT OVER 16 FEET (4.93m) CENTER TO CENTER ON GRADES 50 PERCENT (%) AND OVER, 50 PERCENT (%);
 - ANCHORS SHALL BEGIN NO GREATER THAN FOUR (4) FEET FROM ANY MANHOLE IN WHICH AN ANCHORED PIPE ENTERS OR EXITS THE MANHOLE IN EACH LINE SECTION WITH A SLOPE OF 20% OR GREATER.



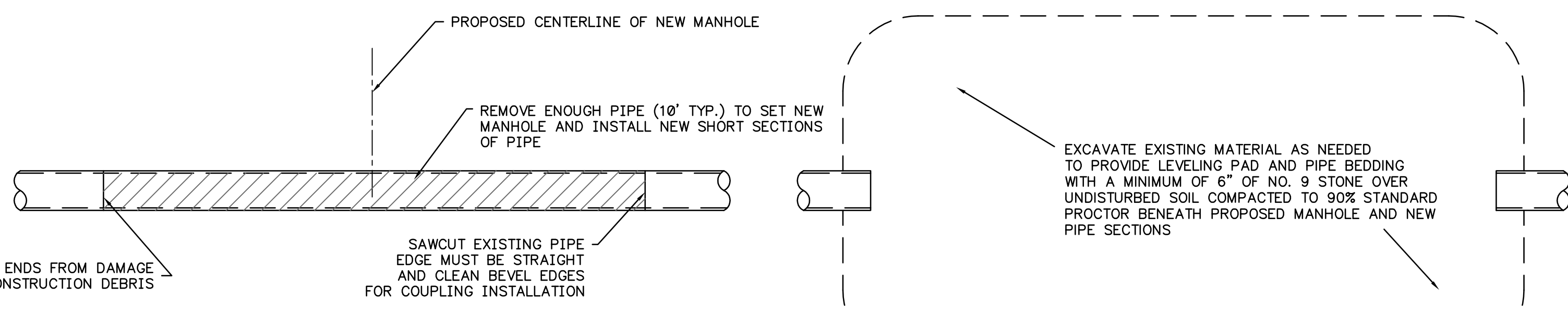
CONNECTION TO EXISTING MANHOLE DETAIL

NOTE: FINAL INSTALLATION MUST BE APPROVED BY FRANKFORT SEWER DEPARTMENT PRIOR TO BACKFILLING.



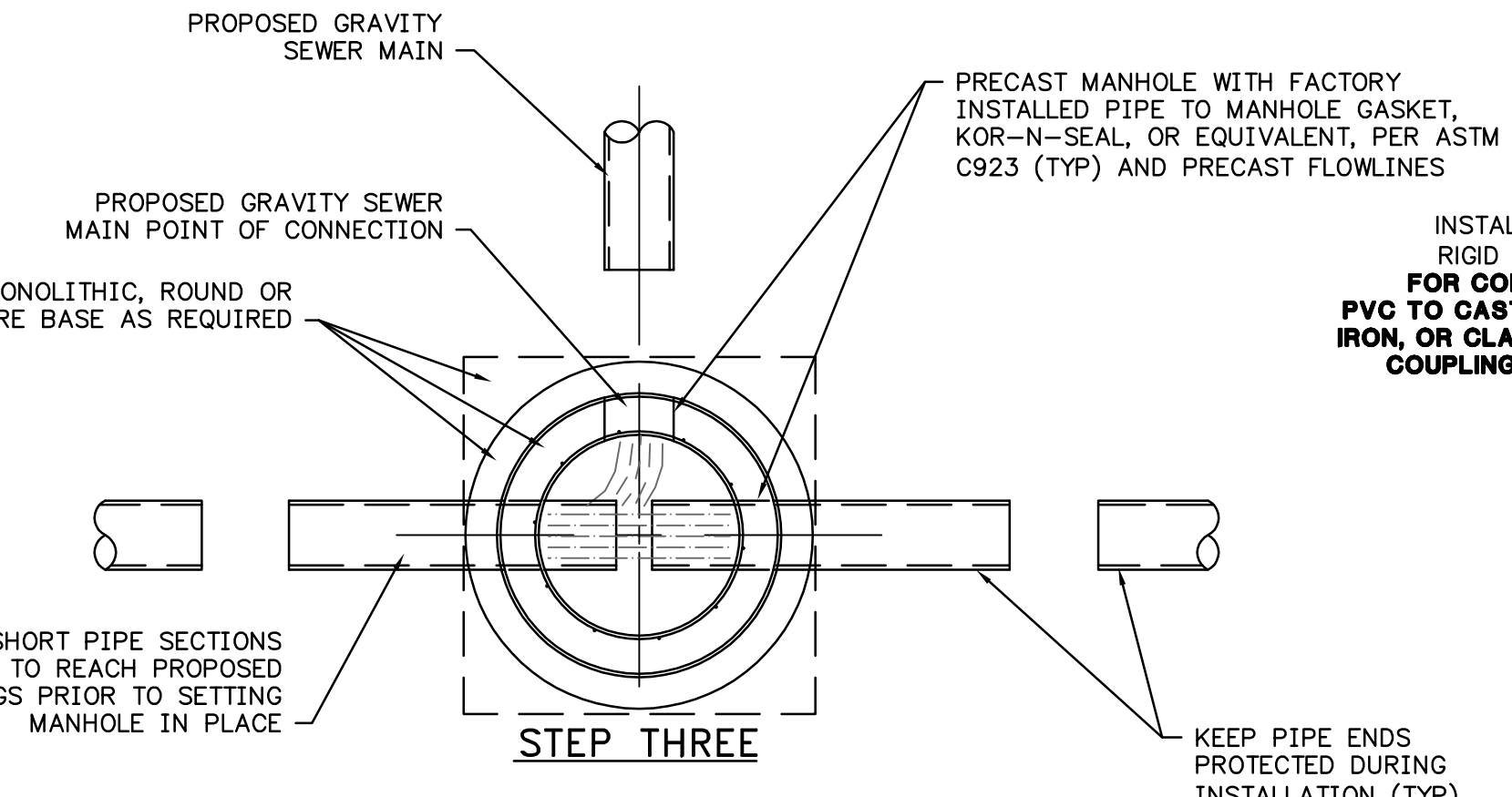
CLEANOUT DETAIL

NOTE: DOUBLE WYE CLEANOUT MUST BE APPROVED BY FSD PRIOR TO INSTALLATION, ANY SUBSTITUTION FOR CLEANOUT BOX MUST BE APPROVED BY FSD.

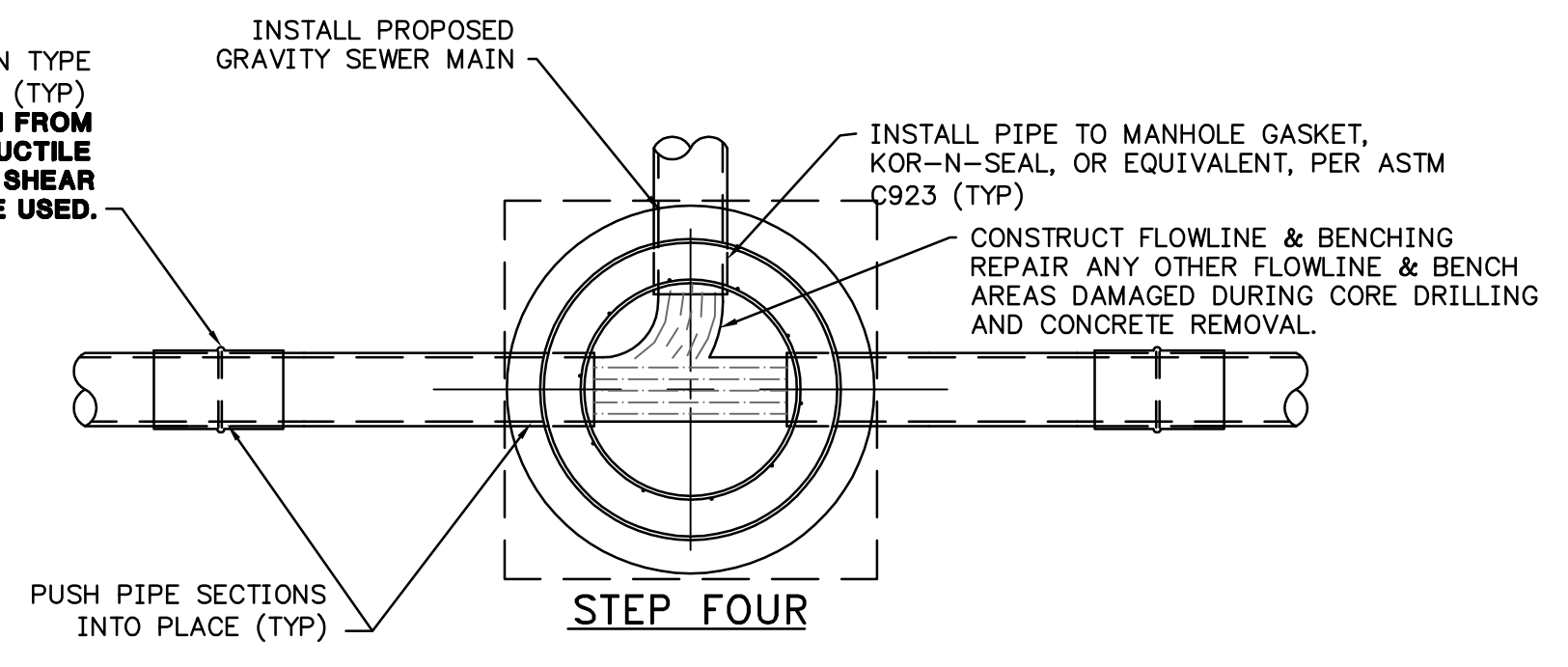


STEP ONE

STEP TWO



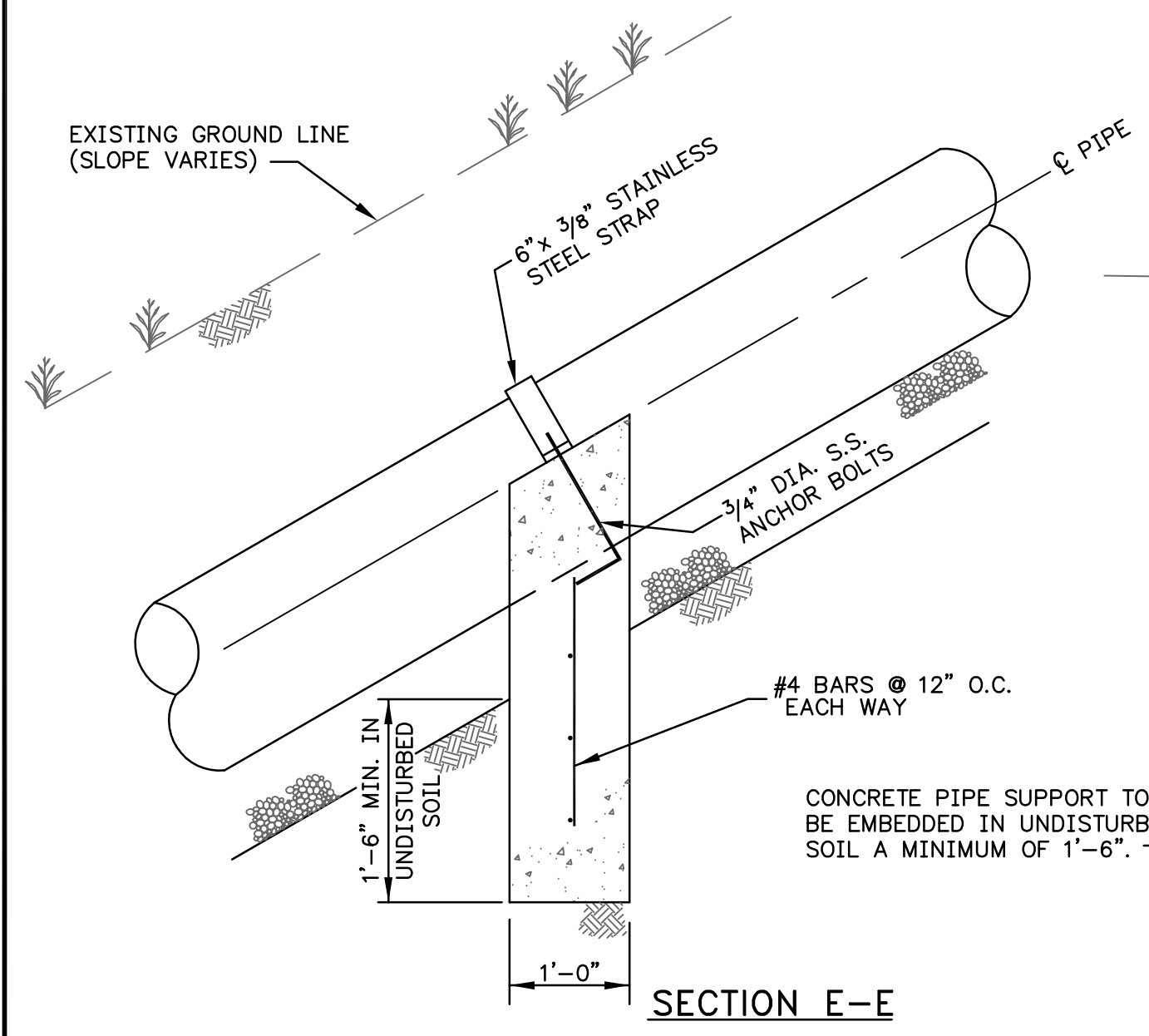
STEP THREE



STEP FOUR

CONNECTION TO EXISTING SANITARY SEWER MAIN

NOTE: FINAL INSTALLATION MUST BE APPROVED BY FRANKFORT SEWER DEPARTMENT PRIOR TO BACKFILLING.



PIPE ANCHOR DETAIL

N.T.S.

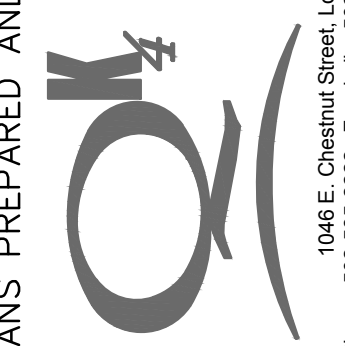
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Signature _____ Date _____

CHECKED BY:	ADJ	10/19/15
DESIGNED BY:	AAC	07/06/15
DRAWN BY:	AAC	10/19/15

FILE NAME:14806_Working Sewer.dwg
PLOT DATE: 10/19/2015

PLANS PREPARED AND SUBMITTED BY:



1046 E. Chestnut Street, Louisville, Kentucky 40204
Phone: 502-585-2222 Fax: 502-581-0406 Internet: www.gk4.com
Kentucky - Indiana - Georgia - Tennessee

CITY OF:
FRANKFORT, KENTUCKY
SEWER DEPARTMENT
1200 KENTUCKY AVE.
FRANKFORT, KY 40601
502-223-7857

NO.	REVISION	DATE
1	LINE "c"	05/03/16

SHEET TITLE: **SANITARY SEWER QUANTITIES**

PROJECT TITLE:
CITY OF FRANKFORT
US 60 - KSU
SEWER RELOCATIONS

US 60 - KSU SEWER RELOCATION QUANTITIES				
ITEM NO.	DESCRIPTION	SHEET - LINE	UNIT	QUANTITY
	S 8" PVC PIPE	2 - LINE "A"	LF	600
		3 - LINE "A"	LF	562
		4 - LINE "B"	LF	240
		5 - LINE "C"	LF	428
		6 - LINE "D"	LF	166
		TOTAL	LF	1996
	S ENCASEMENT STEEL OPEN CUT RANGE 4	2 - LINE "A"	LF	64
		3 - LINE "A"	LF	246
		TOTAL	LF	310
	S MANHOLE	2 - LINE "A"	EACH	5
		3 - LINE "A"	EACH	3
		4 - LINE "B"	EACH	2
		5 - LINE "C"	EACH	4
		6 - LINE "D"	EACH	3
		TOTAL	EACH	17
	S MANHOLE REMOVE	2 - LINE "A"	EACH	1
		4 - LINE "B"	EACH	1
		5 - LINE "C"	EACH	2
		TOTAL	EACH	4
	TEMP SILT FENCE	TOTAL	LF	1200
	SILT TRAP TYPE C	TOTAL	EACH	4
	S BYPASS PUMPING	TOTAL	EACH	1
	FLOWABLE FILL	5 - LINE "C"	CUYD	6
	S LATERAL LONG SIDE 06 INCH	2 - LINE "A"	EACH	2
		3 - LINE "A"	EACH	1
		4 - LINE "B"	EACH	1
		5 - LINE "C"	EACH	2
		TOTAL	EACH	6
	S LATERAL SHORT SIDE 06 INCH	3 - LINE "A"	EACH	1
		4 - LINE "B"	EACH	1
		5 - LINE "C"	EACH	7
		6 - LINE "D"	EACH	2
		TOTAL	EACH	11