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 THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGN PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PROJECT AND CLIENT FOR WHICH IT WAS PREPARED. REVIEW OF, AND IMPROPER RELIANCE ON, THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

**PARKER WATER AND SANITATION GENERAL NOTES**

- ALL CONSTRUCTION SHALL COMPLY WITH PARKER WATER AND SANITATION DISTRICT SPECIFICATIONS.
- THE CONTRACTOR SHALL CONTACT ALL APPROPRIATE UTILITY COMPANIES AND THE TOWN OF PARKER PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ANY EXISTING UTILITY (INCLUDING DEPTHS) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. ALL EXISTING UTILITIES SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR. DAMAGED UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- ALL ITEMS SHOWN ON THE PLANS AS EXISTING ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE ACTUAL LOCATIONS MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, HE SHALL CONTACT THE ENGINEER IMMEDIATELY.
- THE DISTRICT ENGINEER AND OTHER APPROVING AGENCIES ARE TO BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN, AT HIS EXPENSE, ALL PERMITS THAT ARE NECESSARY TO PERFORM THE PROPOSED WORK.
- ALL CONCRETE SHALL BE A MINIMUM OF CLASS A, 6 SACK, TYPE II, 3000-POUND COMPRESSION STRENGTH.
- THE DESIGN ENGINEER SHALL SUBMIT ONE (1) SET OF ROLLED "AS-BUILT" BLUELINE PRINTS AND ELECTRONIC FILES TO THE DISTRICT ENGINEER FOR APPROVAL PRIOR TO PRINTING MYLAR SEPIAS FOR THE DISTRICT. AFTER APPROVAL HAS BEEN GRANTED BY THE DISTRICT ENGINEER, FULL SIZE MYLAR SEPIA PRINTS SHALL BE TRANSMITTED TO THE PARKER WATER AND SANITATION DISTRICT OFFICE.
- ALL BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY. COMPACTION TESTS MUST BE SUBMITTED TO DISTRICT ENGINEER PRIOR TO PROBATIONARY ACCEPTANCE.
- TRENCHES SHALL BE EXCAVATED AND THE PIPE EXPOSED FOR THE INSPECTION AT ANY LOCATION ON THE PROJECT IF SO ORDERED BY THE INSPECTOR.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF LINES (WATER AND SEWER) FOR UP TO TWO (2) YEARS FROM THE DATE OF PROBATIONARY ACCEPTANCE OF THE LINES BY THE DISTRICT. ANY MALFUNCTION DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE CONTRACTOR TO THE SATISFACTION OF THE DISTRICT ENGINEER AT NO EXPENSE TO THE DISTRICT.**
- SURFACE GRADES ARE TO BE WITHIN PLUS OR MINUS ONE FOOT OF FINISHED GRADE AND VERIFICATION OF COMPACTION RESULTS OBTAINED PRIOR TO THE INSTALLATION OF WATER AND SEWER LINES. RESULTS MUST BE SUBMITTED TO THE DISTRICT ENGINEER.
- NO WORK SHALL BE BACKFILLED UNTIL THE CONSTRUCTION HAS BEEN INSPECTED AND APPROVED FOR BACKFILLING BY THE DISTRICT ENGINEER OR REPRESENTATIVE OF THE DISTRICT ENGINEER.
- ALL SERVICES WILL BE PERMANENTLY MARKED ON CURB FACE AS FOLLOWS:  
 PARKER WATER AND SANITATION DISTRICT P--7  
 DISTRICT PLAN APPROVAL PROCEDURES  
 2008 REVISION  
 "X" FOR SANITARY SERVICE SEWERS  
 "V" FOR WATER SERVICES
- NO TREES SHALL BE ALLOWED IN EASEMENTS OR WITHIN 8' OF ANY WATER OR SANITARY SEWER MAINS IN RIGHT OF WAY.
- THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS WHICH HAVE BEEN APPROVED BY THE PARKER WATER AND SANITATION DISTRICT AND THE DISTRICT ENGINEER AND ONE (1) COPY OF THE LATEST PARKER WATER AND SANITATION DISTRICT SPECIFICATION MANUAL.

**ADDITIONAL NOTES**

- ALL SANITARY SEWER AND STORM SEWER IMPROVEMENTS SHOWN HEREON SHALL BE PRIVATE. ALL WATER MAIN IMPROVEMENTS SHALL BE PUBLIC. REFER TO SPECIFIC PLAN SHEETS FOR MATERIALS AND ADDITIONAL DETAILS.
- TOWN OF PARKER REQUIRES 25' STORM SEWER EASEMENT.
- PARKER WATER AND SANITATION DISTRICT REQUIRES 30' EXCLUSIVE EASEMENT OR 50' NON-EXCLUSIVE EASEMENT.

**SANITARY SEWER NOTES**

- ALL SANITARY SEWER CONSTRUCTION SHALL CONFORM TO THE PARKER WATER AND SANITATION DISTRICT SPECIFICATION.
- ALL SEWER MAINS SHALL BE PVC, ASTM D-3034, SDR 35 OR APPROVED EQUAL. ALL SEWER MAIN SIZE IS 8" IN DIAMETER UNLESS OTHERWISE NOTED.
- SEWER LINES SHALL BE INSTALLED 5.0 FEET SOUTH OR WEST OF STREET CENTERLINE, UNLESS OTHERWISE SHOWN ON PLANS. SEWER LINES SHALL BE 10.00 FEET FROM WATER LINES EXCEPT WHEN CROSSING EACH OTHER SEWER LINES WHICH CROSS LESS THAN 1.50 FEET VERTICALLY FROM THE WATER MAIN SHALL BE ENCASED IN CONCRETE AS PER PARKER WATER AND SANITATION DISTRICT STANDARD AND SPECIFICATIONS. USE RUBBER GASKETS FOR PVC ENCASEMENT.
- SEWER RIM ELEVATIONS SHOWN ARE APPROPRIATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. RING AND COVER SHALL BE SET IN CENTERED CONCRETE RINGS WITH RAM-NECK FOR ADJUSTMENT TO MATCH FINAL PAVEMENT ELEVATIONS.
- THE CONTRACTOR AND SURVEY CREW SHALL VERIFY ELEVATIONS OF EXISTING SEWER LINES AND MANHOLES TO BE TIED TO PRIOR TO CONSTRUCTION OR STAKING OF SANITARY SEWER.
- NO UNDERDRAIN SYSTEM WILL BE ALLOWED TO BE PLACED IN MAINLINE OR SEWER SERVICE TRENCHES.
- SEWER SERVICE TEES FOR EACH UNIT SHALL BE STAKED BY A SURVEY CREW AND FURNISHED AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL FURNISH TO THE ENGINEER "AS CONSTRUCTED" LOCATION OF SEWER WYES SHALL BE USED RATHER THAN TEES.
- ALL MANHOLES SHALL BE 48-INCHES IN DIAMETER WITH 24-INCH RING AND COVER, ECCENTRIC CONE UNLESS OTHERWISE SPECIFIED.
- PIPE BEDDING SHALL BE CLASS "B" AND SHALL CONFORM TO ASTM C-33 OR D-448 GRADATION NO. 6 OR NO. 67.
- AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING WILL BE HELD AT THE OFFICE OF THE DISTRICT ENGINEER AND ATTENDED BY THE CONTRACTOR AND REPRESENTATIVES OF THE OTHER APPROVING AGENCIES. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE DISTRICT ENGINEER TO SCHEDULE THIS MEETING.
- ALL PIPE LENGTHS ARE APPROXIMATE.
- THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS WHICH HAVE BEEN APPROVED BY THE PARKER WATER AND SANITATION DISTRICT AND THE DISTRICT ENGINEER AND ONE (1) COPY OF THE LATEST PARKER WATER AND SANITATION DISTRICT SPECIFICATION MANUAL.
- ALL MANHOLES SHALL HAVE SHAPED INVERTS. PARKER WATER AND SANITATION DISTRICT P-9
- ALL SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH THE PARKER WATER AND SANITATION DISTRICT STANDARDS AND SPECIFICATIONS PRIOR TO ACCEPTANCE OR ANY CONNECTION TO AN EXISTING SEWER LINE.
- PRIOR TO START WORK WHERE SEWER MAIN TO BE INSTALLED INTO EXISTING DISTRICT SEWER SYSTEMS. THE NEAREST MANHOLE TO THE POINT OF TIE-IN SHALL BE PLUGGED WITH A PLUMBER'S PLUG ON THE INLET SIDE BY THE CONTRACTOR. THIS PLUG SHALL REMAIN IN PLACE UNTIL FINAL ACCEPTANCE BY THE DISTRICT. ITS PURPOSE SHALL BE TO PREVENT ANY MUD, WATER OR OTHER MATERIALS FROM ENTERING THE LINE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PUMPING AND CLEANING THESE MANHOLES AND REMOVING THE PLUG WHEN SO INSTRUCTED BY THE DISTRICT.
- PRIOR TO PROBATIONARY ACCEPTANCE WALK-THROUGH, THE CLIENT SHALL JET CLEAN THE ENTIRE SANITARY SEWER SYSTEM AND PUMP OUT AT THE PLUGGED MANHOLE.
- DOUBLE CLEANOUTS SHALL BE PROVIDED WITHIN 5 FEET OF EACH BUILDING CONNECTION. REFER TO MEP PLANS FOR CONTINUATION INSIDE BUILDING.
- ALL SANITARY SERVICES TO CONNECT TO MAIN VIA WYE CONNECTION.
- AT ALL POTABLE WATER MAIN AND SANITARY SEWER CROSSINGS WHERE THE PROPOSED SANITARY SEWER LINE LIES ABOVE THE PROPOSED WATER MAIN OR WITHIN 18" BELOW THE WATER MAIN, A CONCRETE ENCASEMENT IS TO BE PROVIDED ALONG THE SANITARY SEWER PIPE FOR 10 FT ON EITHER SIDE OF THE CROSSING. CONCRETE ENCASEMENT TO BE PROVIDED PER THE PWSO SECTION 9.3.2.
- AT ALL STORM SEWER AND SANITARY SEWER CROSSINGS WHERE THE PROPOSED SANITARY SEWER LINE LIES ABOVE THE PROPOSED STORM SEWER OR WITHIN 18" BELOW THE STORM SEWER, A CONCRETE ENCASEMENT IS TO BE PROVIDED ALONG THE SANITARY SEWER PIPE FOR 10 FT ON EITHER SIDE OF THE CROSSING. CONCRETE ENCASEMENT TO BE PROVIDED PER THE PWSO SECTION 9.3.2.
- PROVIDE WATER LOWERING PER PWSO WATER DETAIL #27 WHERE CONFLICTS WITH STORM SEWER AND WATER SERVICES MAY EXIST.

**WATER MAIN NOTES**

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE PARKER WATER AND SANITATION DISTRICT ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST REVISIONS. ALL WORK SHALL BE INSPECTED AND APPROVED BY PERSONNEL OF THE PARKER WATER SANITATION DISTRICT AND THE DISTRICT ENGINEER.
- ALL WATER MAINS SHALL BE PER PWSO MATERIALS SPECIFICATIONS.
- ALL BENDS, PLUGS, REDUCERS, AND FIRE HYDRANTS TO BE RODDED OR MEGA-LUGGED. ALL FITTINGS SHALL BE WRAPPED WITH 8-MIL MINIMUM THICKNESS POLYETHYLENE MATERIAL PER PWSO MATERIALS SPECIFICATIONS.
- THERE SHALL BE A MINIMUM COVER OF 4.5 FEET OVER ALL WATER MAINS.
- FIRE HYDRANTS SHALL CONFORM TO AWWA C-502 "DRY BARREL FIRE HYDRANTS". PIPE HYDRANT ASSEMBLIES SHALL INCLUDE ALL PIPE, FITTINGS, VALVES, MATERIALS, AND LABOR WHICH ARE NECESSARY TO INSTALL THE HYDRANT COMPLETE IN PLACE. SEE MATERIALS SPECIFICATIONS FOR APPROVED MODELS.
- ALL BENDS, TEES, FIRE HYDRANTS, BLOW-OFFS AND PLUGS AT DEAD END MAINS SHALL BE PROTECTED FROM THRUST BY USING CONCRETE THRUST BLOCKS.
- PRECAUTIONS SHALL BE TAKEN TO PROTECT THE INTERIOR OF PIPES, FITTINGS, AND VALVES AGAINST CONTAMINATION. ALL OPENINGS IN THE PIPELINE SHALL BE CLOSED WITH WATERTIGHT PLUGS WHEN PIPE LAYING IS STOPPED AT THE CLOSE OF THE DAY'S WORK OR FOR OTHER REASONS, SUCH AS REST BREAKS OR MEAL PERIODS. THE MORE CLOSELY THE RATE OF DELIVERY IS CORRELATED TO THE RATE OF PIPE LAYING, THE LOWER THE RISK OF CONTAMINATION.
- CHLORINATION AND FLUSHING: ALL WATER MAINS SHALL BE INSTALLED AND CHLORINATED PER PARKER WATER AND SANITATION STANDARDS AND SPECIFICATIONS. THE LINES SHALL BE CHLORINATED IN ACCORDANCE WITH ANSI/AWWA C-651-92. "DISINFECTING WATER MAINS." PARKER WATER AND SANITATION DISTRICT REQUIRES THE INITIAL DOSAGE RATE OF DISINFECTION BE AT LEAST 50 MG PER LITER. CHLORINE TABLETS SHOULD BE ADHERED TO THE TOP OF THE PIPE SECTION WITH PERMATAX NO.1 (RED). THE CHLORINATION OF ANY FINISHED PIPELINE SHALL BE DONE PRIOR TO THE HYDROSTATIC TESTING.
- HYDROSTATIC TESTING: ALL WATER MAINS SHALL BE TESTED PER THE REQUIREMENTS OF THE PARKER WATER AND SANITATION DISTRICT STANDARDS AND SPECIFICATIONS. ALL PIPE SHALL BE FIELD PRESSURE TESTED TO A MINIMUM OF 150 PSI. ALL TESTING SHALL BE DONE IN THE PRESENCE OF A PARKER WATER AND SANITATION DISTRICT INSPECTOR. LEAKAGE FOR EACH SECTION OF PIPE BETWEEN LINES VALVES SHALL NOT EXCEED THE LIMITS SET FORTH IN THE PARKER WATER AND SANITATION DISTRICT STANDARDS AND SPECIFICATIONS.
- VALVES IN STREETS ARE TO BE LOCATED AT PROPERTY LINE EXTENSIONS EXCEPT FOR TAPPING TEES WHERE AN ADDITIONAL VALVE SHALL BE PLACED ON THE TAPPING TEE. OTHER VALVE LOCATIONS, SUCH AS WHERE CROSS PANS EXIST, ARE SHOWN ON THE PLANS.
- WHEN NECESSARY TO LOWER OR RAISE WATER LINES AT STORM DRAINS AND OTHER UTILITY CROSSING, A MINIMUM CLEARANCE OF 1.50 FEET SHALL BE MAINTAINED BETWEEN OUTSIDE OF PIPES.
- THE CONTRACTOR SHALL NOTIFY THE PARKER WATER AND SANITATION DISTRICT AND THE DISTRICT ENGINEER AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP, THE CONTRACTOR MUST NOTIFY THE DISTRICT ENGINEER 48 HOURS PRIOR TO RE-START.
- PIPE BEDDING SHALL BE A CLEAN, WELL-GRADED SAND OR SQUEEGEE SAND IN ACCORDANCE WITH PARKER WATER AND SANITATION DISTRICT STANDARDS AND SPECIFICATIONS, LATEST REVISION.
- THE CONTRACTOR SHALL NOTIFY THE PUBLIC UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PROCEEDING WITH THE EXCAVATION. ALL WORK PERFORMED IN THE AREA OF THE PUBLIC UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THESE AGENCIES.
- COMPACTION OF ALL TRENCHES MUST BE ATTAINED IN ACCORDANCE WITH THE SOILS REPORTS AND COMPACTION TEST RESULTS SUBMITTED TO THE DISTRICT ENGINEER PRIOR TO PROBATIONARY ACCEPTANCE.
- VALVE BOXES: TYLER SCREW-TYPE 6 INCHES CAST IRON VALVE BOX ASSEMBLY SERIES 6860 WITH NO. 160 OVAL BASE. CLAY AND BAILEY SCREW-TYPE 6 INCH CAST IRON VALVE BOX ASSEMBLY NO. P-108 WITH NO. 106 LARGE OVAL BASE.
- ALL PIPE LENGTHS ARE APPROXIMATE.
- AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING WILL BE HELD AT THE OFFICE OF THE DISTRICT ENGINEER AND ATTENDED BY THE CONTRACTOR AND REPRESENTATIVE OF OTHER APPROVING AGENCIES. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE DISTRICT ENGINEER.

NO.	REVISION	BY	DATE


  
 2017 KIMLEY-HORN AND ASSOCIATES, INC.  
 4582 South Ulster Street, Suite 1500  
 Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
**WATER AND SANITARY SEWER NOTES**

**PRELIMINARY**  
 FOR REVIEW ONLY  
 NOT FOR  
 CONSTRUCTION  

  
 Kimley-Horn and Associates, Inc.

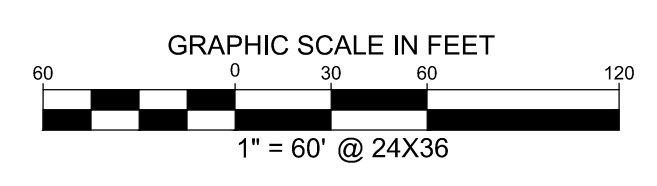
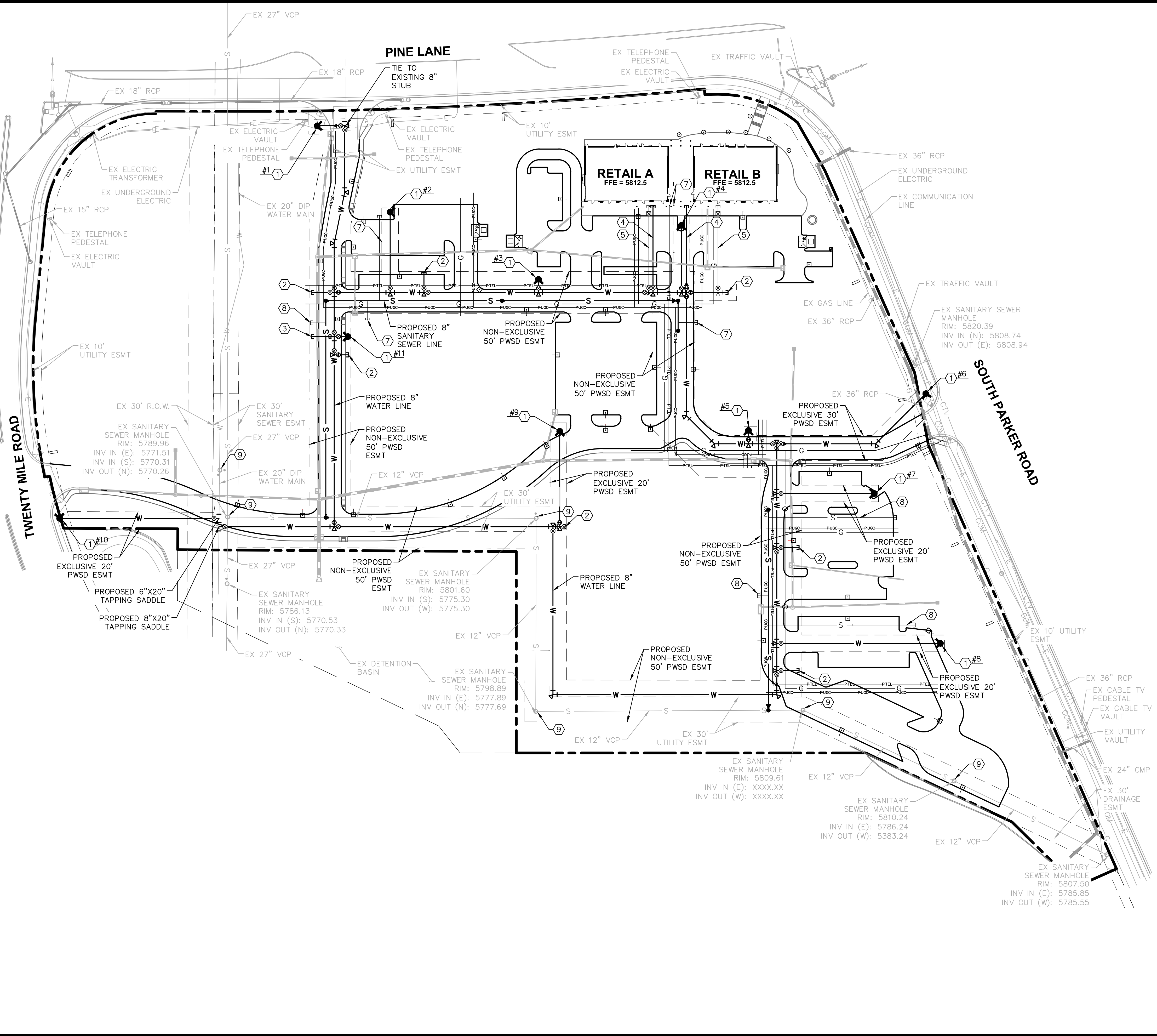
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**UTILITY LEGEND**

- EXISTING PROPERTY LINE
- - - EXISTING EASEMENT
- - - PROPOSED EASEMENT
- S — PROPOSED SANITARY SEWER LINE
- W — PROPOSED WATER LINE
- G — PROPOSED UNDERGROUND GAS LINE
- PUGC — PROPOSED UNDERGROUND ELECTRIC LINE
- PTEL — PROPOSED UNDERGROUND TELEPHONE LINE
- [Symbol] — PROPOSED STORM DRAINAGE LINE
- [Symbol] — EXISTING STORM DRAINAGE LINE
- G — EXISTING GAS LINE
- W — EXISTING WATER LINE
- S — EXISTING SANITARY SEWER LINE
- [Symbol] PROPOSED FIRE HYDRANT W/ BOLLARDS
- [Symbol] PROPOSED METER
- [Symbol] PROPOSED WATER VALVE
- [Symbol] PROPOSED TEE / BEND
- [Symbol] EXISTING SANITARY SEWER MANHOLE
- [Symbol] PROPOSED SANITARY SEWER MANHOLE W/ FLOW ARROWS

**SITE KEYNOTES**

- ① PROPOSED FH W/ 6" GATE VALVE
- ② PROPOSED 8" STUB W/TEMP BLOW-OFF
- ③ PROPOSED 6" FIRE SERVICE W/TEMP BLOW-OFF
- ④ PROPOSED 4" FIRE SERVICE REF. ARCH/MEP PLANS
- ⑤ PROPOSED 1 1/2" WATER SERVICE
- ⑥ PROPOSED 2" WATER SERVICE
- ⑦ PROPOSED 4" SEWER SERVICE
- ⑧ PROPOSED 6" SEWER SERVICE
- ⑨ ADJUST EXISTING STRUCTURE TO PROPOSED GRADE

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO WATER UTILITY STANDARDS. THE NUMBER AND LOCATIONS OF THE FIRE HYDRANTS AS SHOWN ON THE OVERALL UTILITY PLAN ARE CORRECT AS SPECIFIED BY THE TOWN OF PARKER, COMMUNITY DEVELOPMENT DEPARTMENT.

FIRE CODE OFFICIAL OR DESIGNATED REPRESENTATIVE \_\_\_\_\_ DATE \_\_\_\_\_  
 (NOTE - UNDERGROUND FIRE LINE (UFL) SUBMITTAL DOCUMENTS MUST MEET THE REQUIREMENTS OF NFPA 24 WHEN SUBMITTING FOR REVIEW.)

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR OF ENGINEERING \_\_\_\_\_ DATE \_\_\_\_\_

NO.	REVISION	BY	DATE

**Kimley»Horn**  
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 DRAWN BY: CTM  
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**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
**OVERALL UTILITY PLAN**

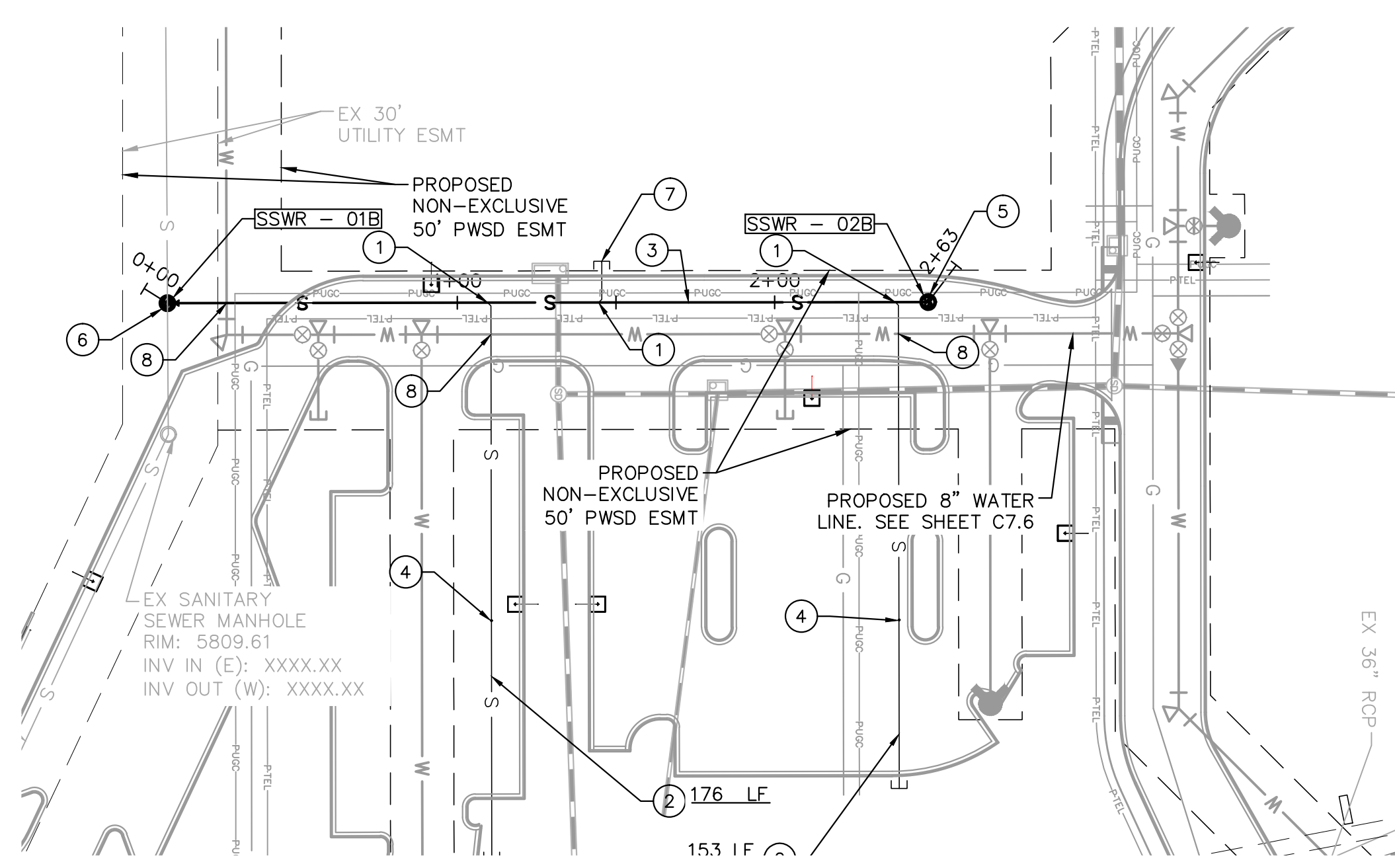
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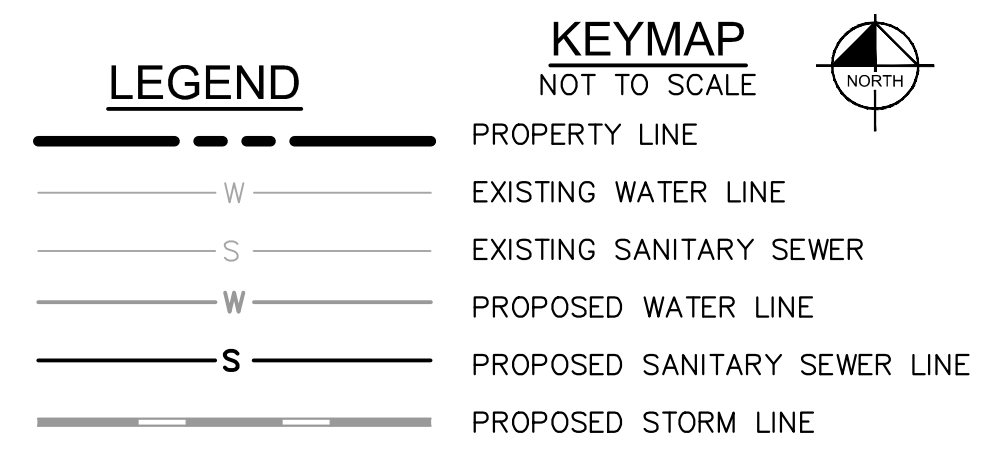
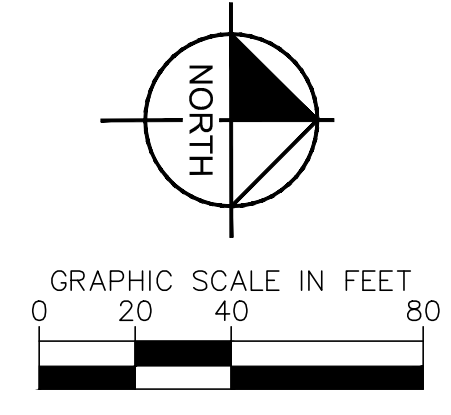
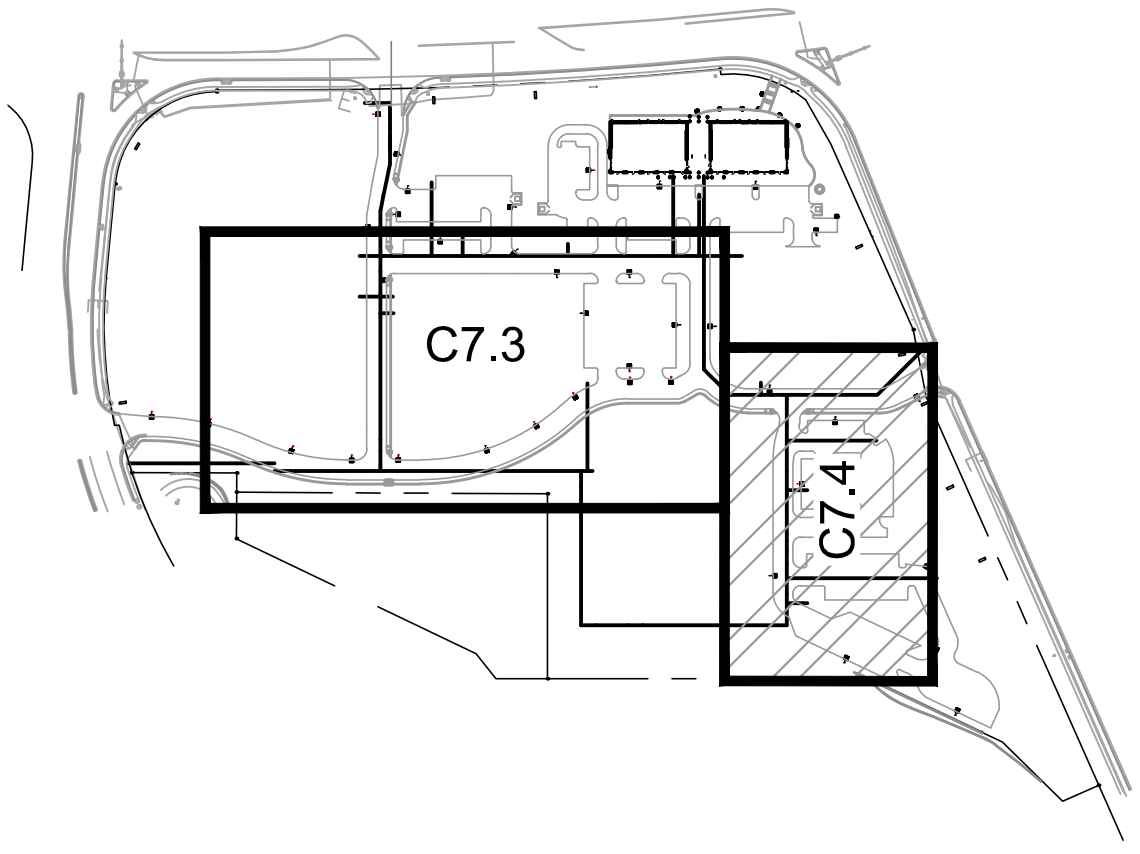


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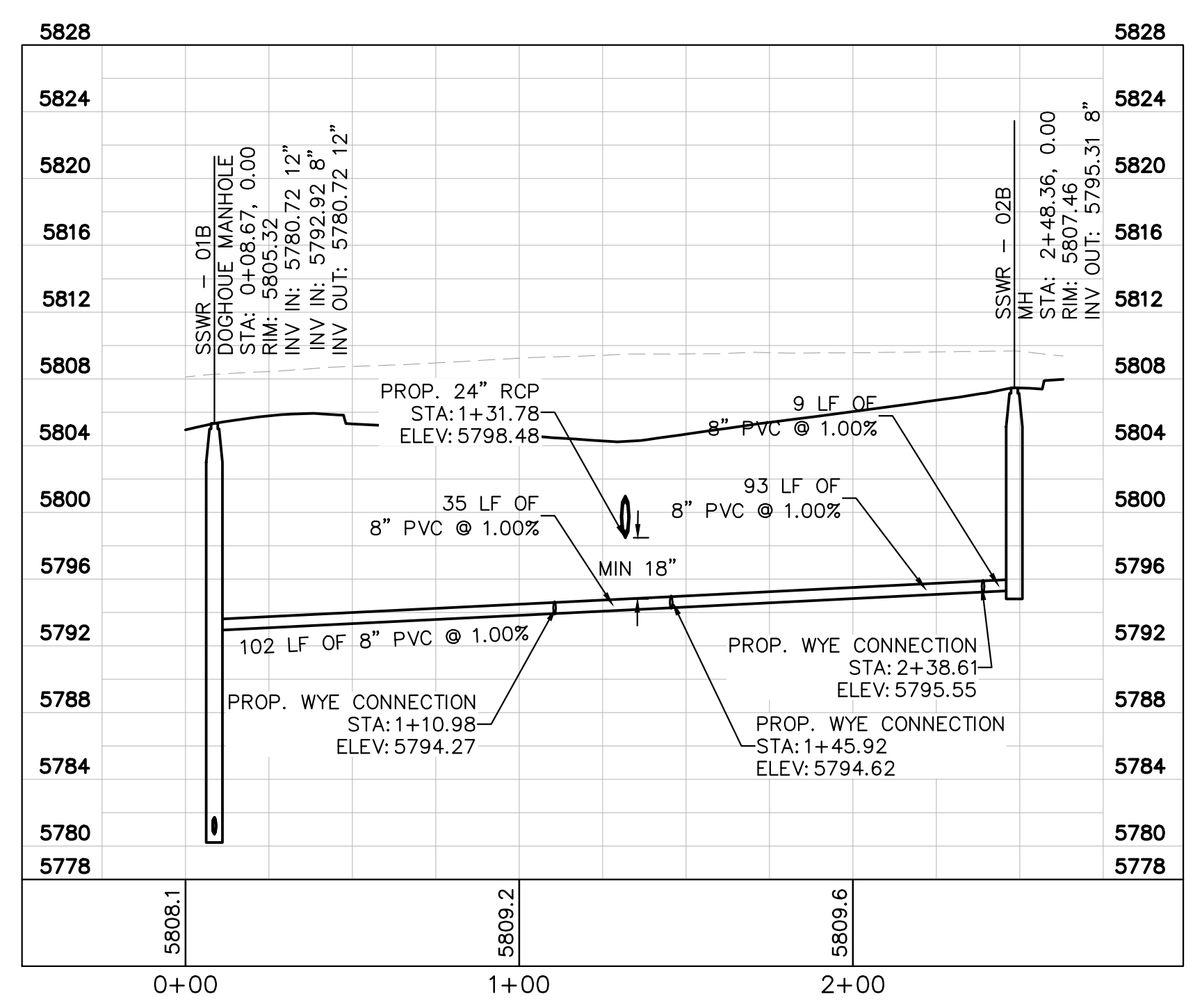
**KEY NOTES**

- ① WYE CONNECTION INTO PROPOSED 8" PVC SANITARY SEWER MAIN
- ② 4" SDR 35 PVC SANITARY SEWER LINE LATERAL, LENGTH PER PLAN, SLOPE 2% MINIMUM
- ③ 8" SDR 35 PVC PUBLIC SANITARY SEWER LINE, LENGTH AND SLOPE PER PROFILE.
- ④ PROPOSED CLEANOUT. SEE DETAILS.
- ⑤ PROPOSED SANITARY SEWER MANHOLE. SEE DETAILS.
- ⑥ PROPOSED DOGHOUSE MANHOLE. SEE DETAILS.
- ⑦ 6" SDR 35 PVC PUBLIC SANITARY SEWER LINE, LENGTH AND SLOPE PER PROFILE.
- ⑧ PROPOSED WATER/SEWER CROSSING TO MAINTAIN 18" VERTICAL SEPARATION



**SANITARY SEWER NOTES**

1. ALL SANITARY SEWER CONSTRUCTION SHALL CONFORM TO THE PARKER WATER AND SANITATION DISTRICT SPECIFICATION.
2. ALL SEWER MAINS SHALL BE PVC, ASTM D-3034, SDR 35 OR APPROVED EQUAL. ALL SEWER MAIN SIZE IS 8" IN DIAMETER UNLESS OTHERWISE NOTED.
3. SEWER RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. RING AND COVER SHALL BE SET IN CENTERED CONCRETE RINGS WITH RAM-NECK FOR ADJUSTMENT TO MATCH FINAL PAVEMENT ELEVATIONS.
4. THE CONTRACTOR AND SURVEY CREW SHALL VERIFY ELEVATIONS OF EXISTING SEWER LINES AND MANHOLES TO BE TIED TO PRIOR TO CONSTRUCTION OR STAKING OF SANITARY SEWER.
5. NO UNDERDRAIN SYSTEM WILL BE ALLOWED TO BE PLACED IN MAINLINE OR SEWER SERVICE TRENCHES.
6. SEWER SERVICE TEES FOR EACH UNIT SHALL BE STAKED BY A SURVEY CREW AND FURNISHED AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL FURNISH TO THE ENGINEER "AS CONSTRUCTED" LOCATION OF TEES. SEWER WYES SHALL BE USED RATHER THAN TEES.
7. ALL MANHOLES SHALL BE 48-INCHES IN DIAMETER WITH 24-INCH RING AND COVER, ECCENTRIC CONE UNLESS OTHERWISE SPECIFIED.
8. PIPE BEDDING SHALL BE CLASS "B" AND SHALL CONFORM TO ASTM C-33 OR D-448 GRADATION NO. 6 OR NO. 67.
9. AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING WILL BE HELD AT THE OFFICE OF THE DISTRICT ENGINEER AND ATTENDED BY THE CONTRACTOR AND REPRESENTATIVES OF THE OTHER APPROVING AGENCIES. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE DISTRICT ENGINEER TO SCHEDULE THIS MEETING.
10. ALL PIPE LENGTHS ARE APPROXIMATE.
11. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS WHICH HAVE BEEN APPROVED BY THE PARKER WATER AND SANITATION DISTRICT AND THE DISTRICT ENGINEER AND ONE (1) COPY OF THE LATEST PARKER WATER AND SANITATION DISTRICT SPECIFICATION MANUAL.
12. ALL MANHOLES SHALL HAVE SHAPED INVERTS.
13. ALL SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH THE PARKER WATER AND SANITATION DISTRICT STANDARDS AND SPECIFICATIONS PRIOR TO ACCEPTANCE OR ANY CONNECTION TO AN EXISTING SEWER LINE.
14. PRIOR TO START WORK WHERE SEWER MAIN TO BE INSTALLED INTO EXISTING DISTRICT SEWER SYSTEMS, THE NEAREST MANHOLE TO THE POINT OF TIE-IN SHALL BE PLUGGED WITH A PLUMBER'S PLUG ON THE INLET SIDE BY THE CONTRACTOR. THIS PLUG SHALL REMAIN IN PLACE UNTIL FINAL ACCEPTANCE BY THE DISTRICT. ITS PURPOSE SHALL BE TO PREVENT ANY MUD, WATER OR OTHER MATERIALS FROM ENTERING THE LINE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PUMPING AND CLEANING THESE MANHOLES AND REMOVING THE PLUG WHEN SO INSTRUCTED BY THE DISTRICT.
15. PRIOR TO PROBATIONARY ACCEPTANCE WALK-THROUGH, THE CLIENT SHALL JET CLEAN THE ENTIRE SANITARY SEWER SYSTEM AND PUMP OUT AT THE PLUGGED MANHOLE.
16. DOUBLE CLEANOUTS SHALL BE PROVIDED WITHIN 5 FEET OF EACH BUILDING CONNECTION. REFER TO MEP PLANS FOR CONTINUATION INSIDE BUILDING.
17. ALL SANITARY SERVICES TO CONNECT TO MAIN VIA WYE CONNECTION.
18. AT ALL POTABLE WATER MAIN AND SANITARY SEWER CROSSINGS WHERE THE PROPOSED SANITARY SEWER LINE LIES ABOVE THE PROPOSED WATER MAIN OR WITHIN 18" BELOW THE WATER MAIN, A CONCRETE ENCASEMENT IS TO BE PROVIDED ALONG THE SANITARY SEWER PIPE FOR 10 FT ON EITHER SIDE OF THE CROSSING. CONCRETE ENCASEMENT TO BE PROVIDED PER THE PWS D SECTION 9.3.2.
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20. PROVIDE WATER LOWERING PER PWS D WATER DETAIL #27 WHERE CONFLICTS WITH STORM SEWER AND WATER SERVICES MAY EXIST.



**SANITARY SEWER MAIN PROFILE**  
STRUCTURE SSWR-01B TO SSWR-02B

HORIZONTAL SCALE: 1"=40'  
VERTICAL SCALE: 1"=8'

**CAUTION**  
CONTRACTOR IS TO VERIFY PRESENCE AND EXACT UTILITIES PRIOR TO CONSTRUCTION.



NO.	REVISION	BY	DATE	APPR

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DRAWN BY: CTM  
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DATE: 8/17/17

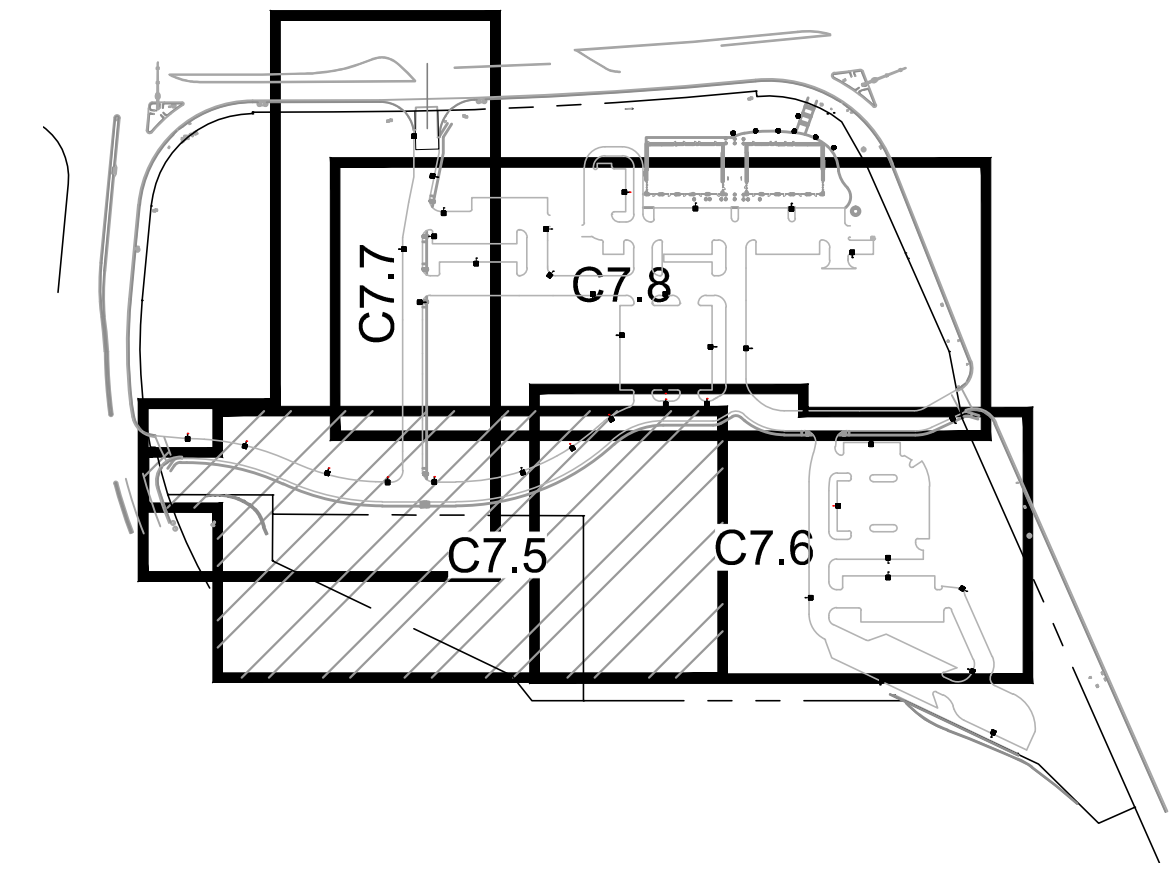
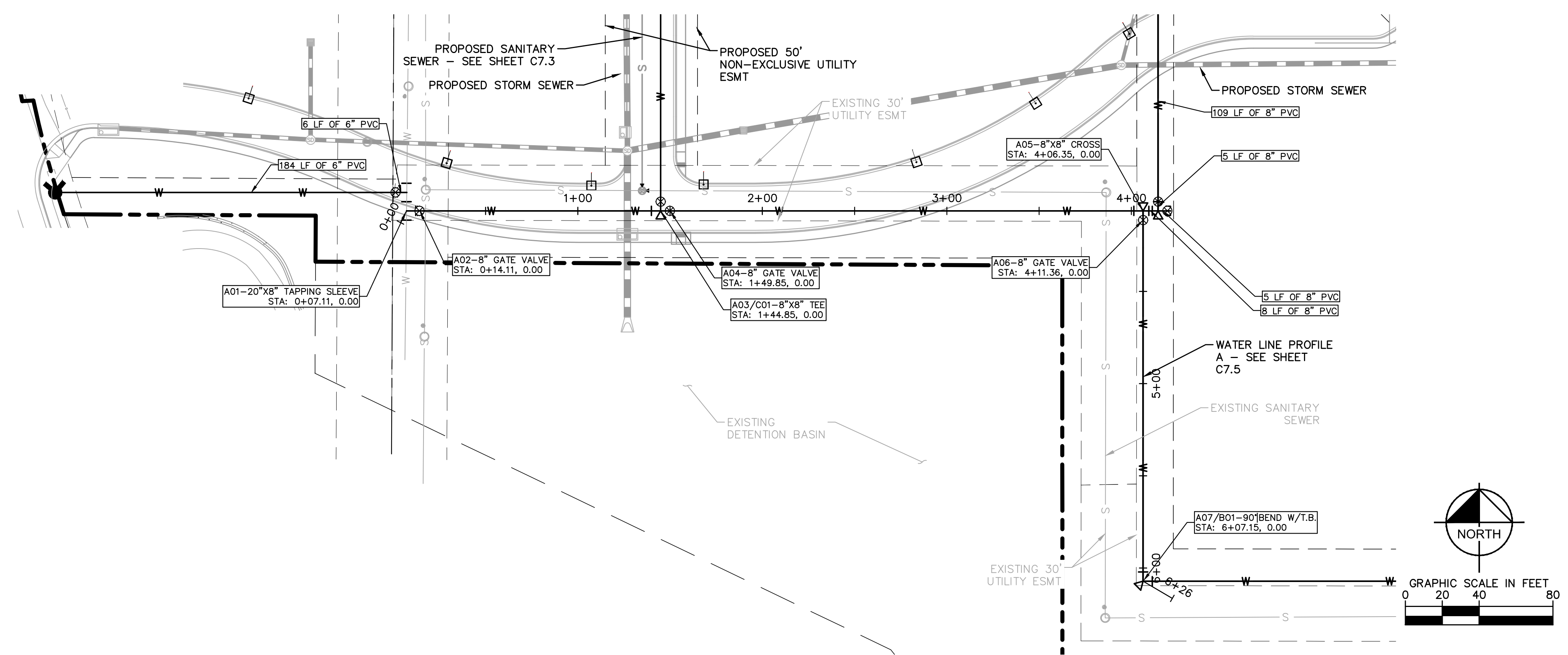
**PARKER & PINE**  
PARKER, CO  
CONSTRUCTION DOCUMENTS  
**SANITARY SEWER PLAN AND PROFILE**

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**Kimley»Horn**  
Kimley-Horn and Associates, Inc.

PROJECT NO.  
096502001  
DRAWING NAME  
096502001SS

C7.4

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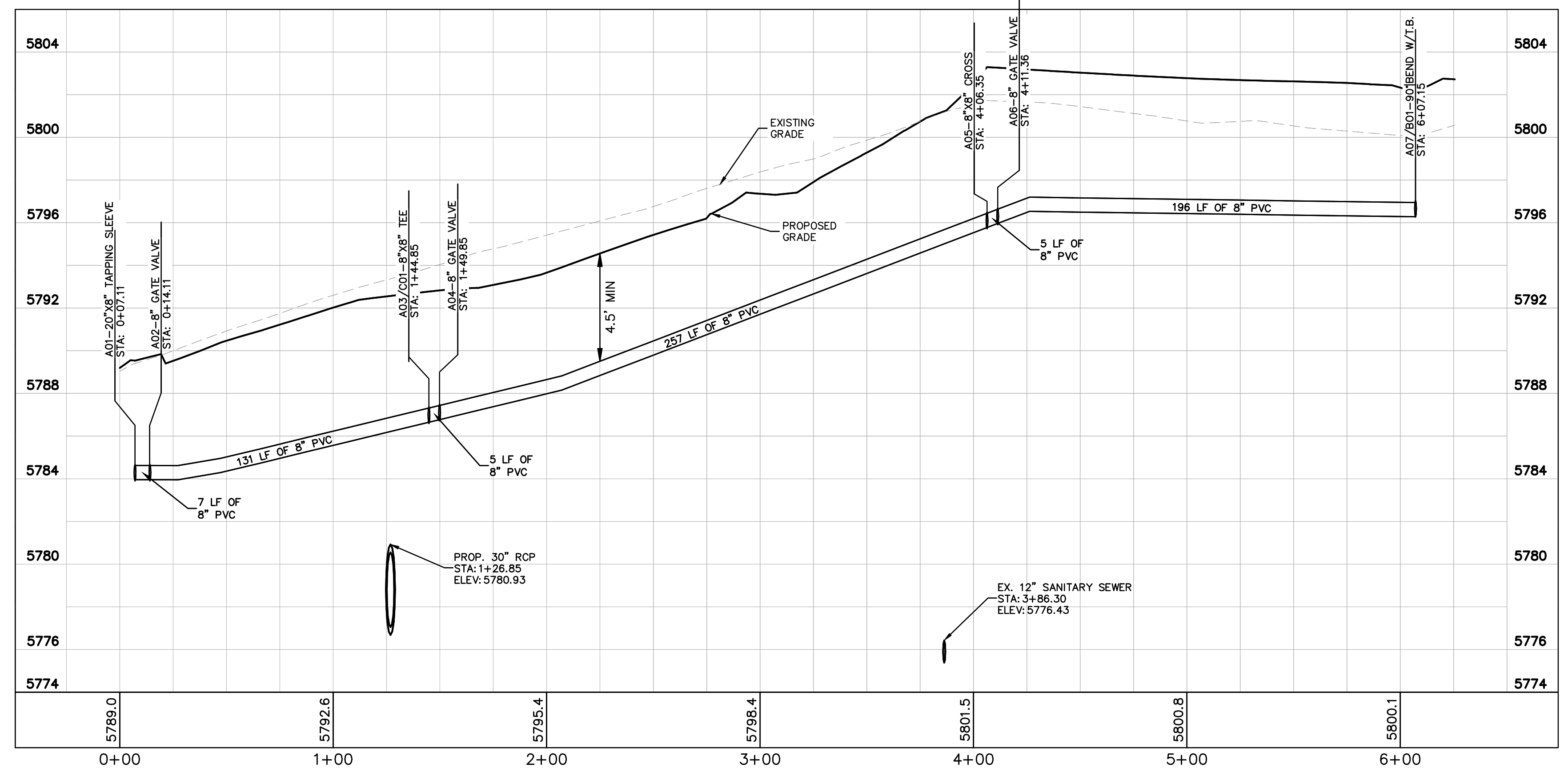
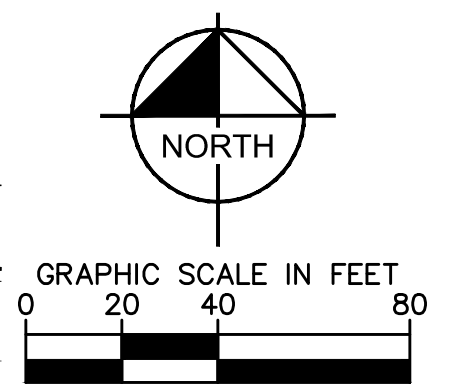


**LEGEND**

---	PROPERTY LINE
---	EXISTING WATER LINE
---	EXISTING SANITARY SEWER
---	PROPOSED WATER LINE
---	PROPOSED SANITARY SEWER LINE
---	PROPOSED STORM LINE

**KEYMAP**  
NOT TO SCALE

**NORTH**



**WATER MAIN PROFILE A**  
 STRUCTURE A01 TO A07

HORIZONTAL SCALE: 1"=40'  
 VERTICAL SCALE: 1"=4'

**WATER NOTES**

- CONTRACTOR TO POTHOLE EXISTING UTILITY LINES AT WATER LINE CROSSING AREAS PRIOR TO CONSTRUCTION.
- WATER LINE CONNECTION ELEVATION TO EXISTING WATER MAINS IS APPROXIMATE. CONTRACTOR TO POTHOLE AND VERIFY TIE IN ELEVATION PRIOR TO CONSTRUCTION OF WATER MAIN.
- CONTRACTOR TO MEET THE INSTALLATION REQUIREMENTS BY THE PARKER WATER AND SANITATION DISTRICT DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS.
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- 36 UNIT (BUILDING 8) SHALL PROVIDE INTERNAL BACK FLOW PREVENTERS AND 1-1/2" DOMESTIC METER.
- VERTICAL BENDS AND DEFLECTIONS MAYBE UTILIZED TO PROVIDE VERTICAL CHANGES IN ACCORDANCE WITH PWSD STANDARDS AS NEEDED.
- AT ALL POTABLE WATER MAIN AND SANITARY SEWER CROSSINGS WHERE THE PROPOSED SANITARY SEWER LINE LIES ABOVE THE PROPOSED WATER MAIN OR WITHIN 18" BELOW THE WATER MAIN, A CONCRETE ENCASEMENT IS TO BE PROVIDED ALONG THE SANITARY SEWER PIPE FOR 10 FT ON EITHER SIDE OF THE CROSSING. CONCRETE ENCASEMENT TO BE PROVIDED PER THE PWSD SECTION 9.3.2.
- AT ALL STORM SEWER AND SANITARY SEWER CROSSINGS WHERE THE PROPOSED SANITARY SEWER LINE LIES ABOVE THE PROPOSED STORM SEWER OR WITHIN 18" BELOW THE STORM SEWER, A CONCRETE ENCASEMENT IS TO BE PROVIDED ALONG THE SANITARY SEWER PIPE FOR 10 FT ON EITHER SIDE OF THE CROSSING. CONCRETE ENCASEMENT TO BE PROVIDED PER THE PWSD SECTION 9.3.2.
- ALL WATER LINES SHALL BE INSTALLED AT LEAST 4.5 FEET BELOW THE OFFICIAL STREET GRADE AND IN ALL OTHER PLACES AT LEAST 4.5 FEET BELOW THE SURFACE OF THE GROUND.

NO.	REVISION	BY	DATE

**Kimley»Horn**  
 2017 KIMLEY-HORN AND ASSOCIATES, INC.  
 4582 South Ulster Street, Suite 1500  
 Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

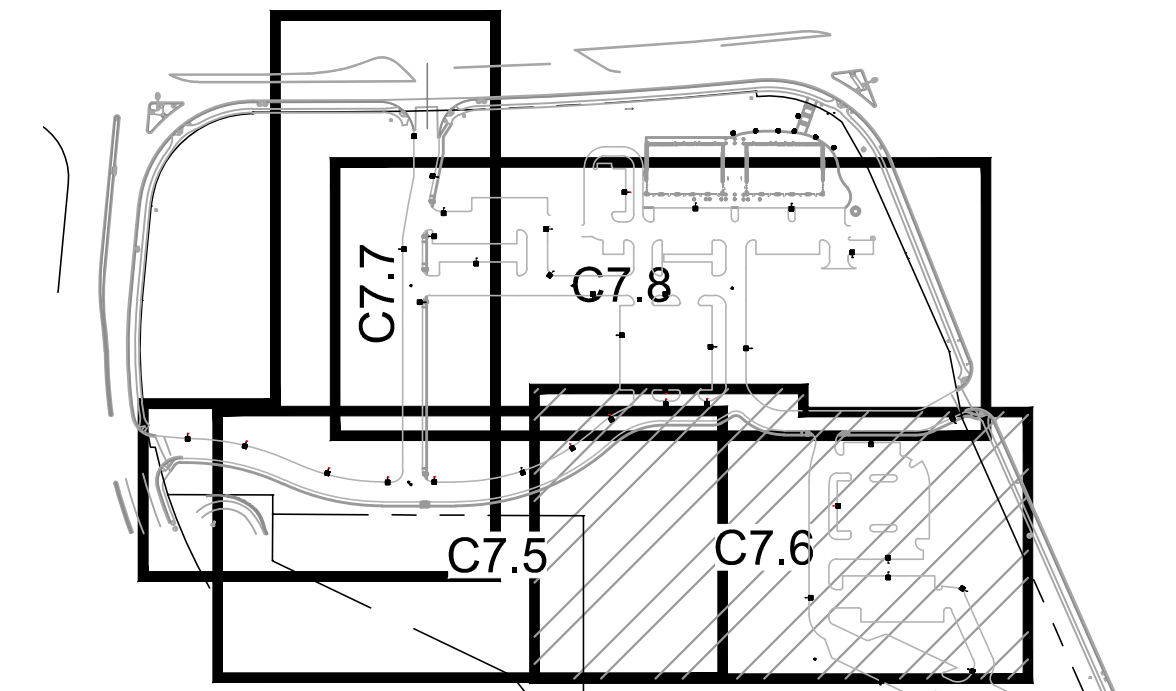
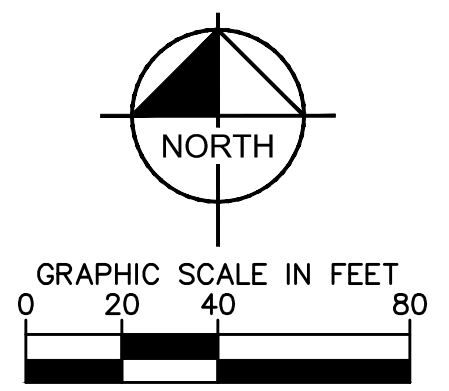
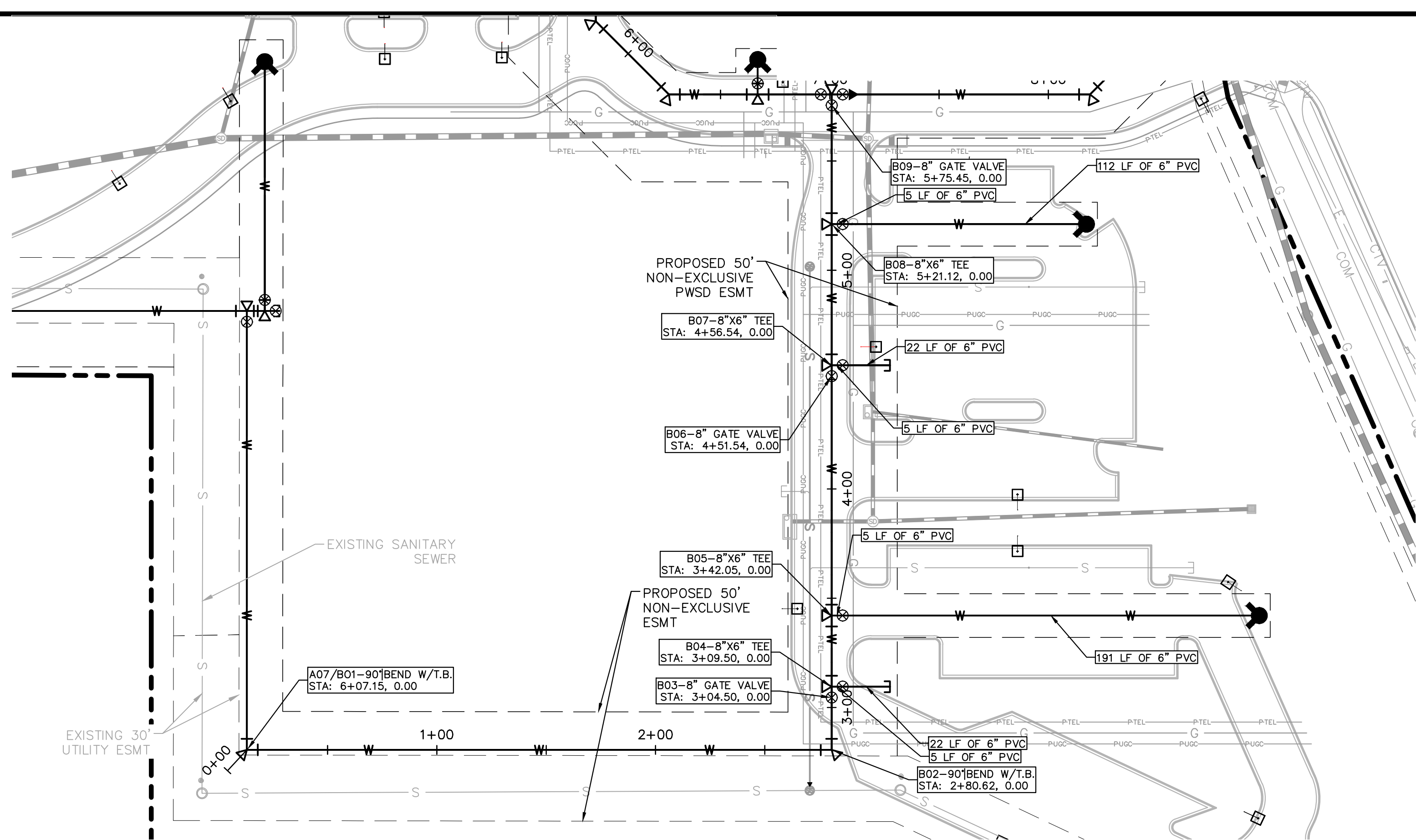
**PARKER & PINE**  
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 CONSTRUCTION DOCUMENTS  
**WATER PLAN AND PROFILE - A**

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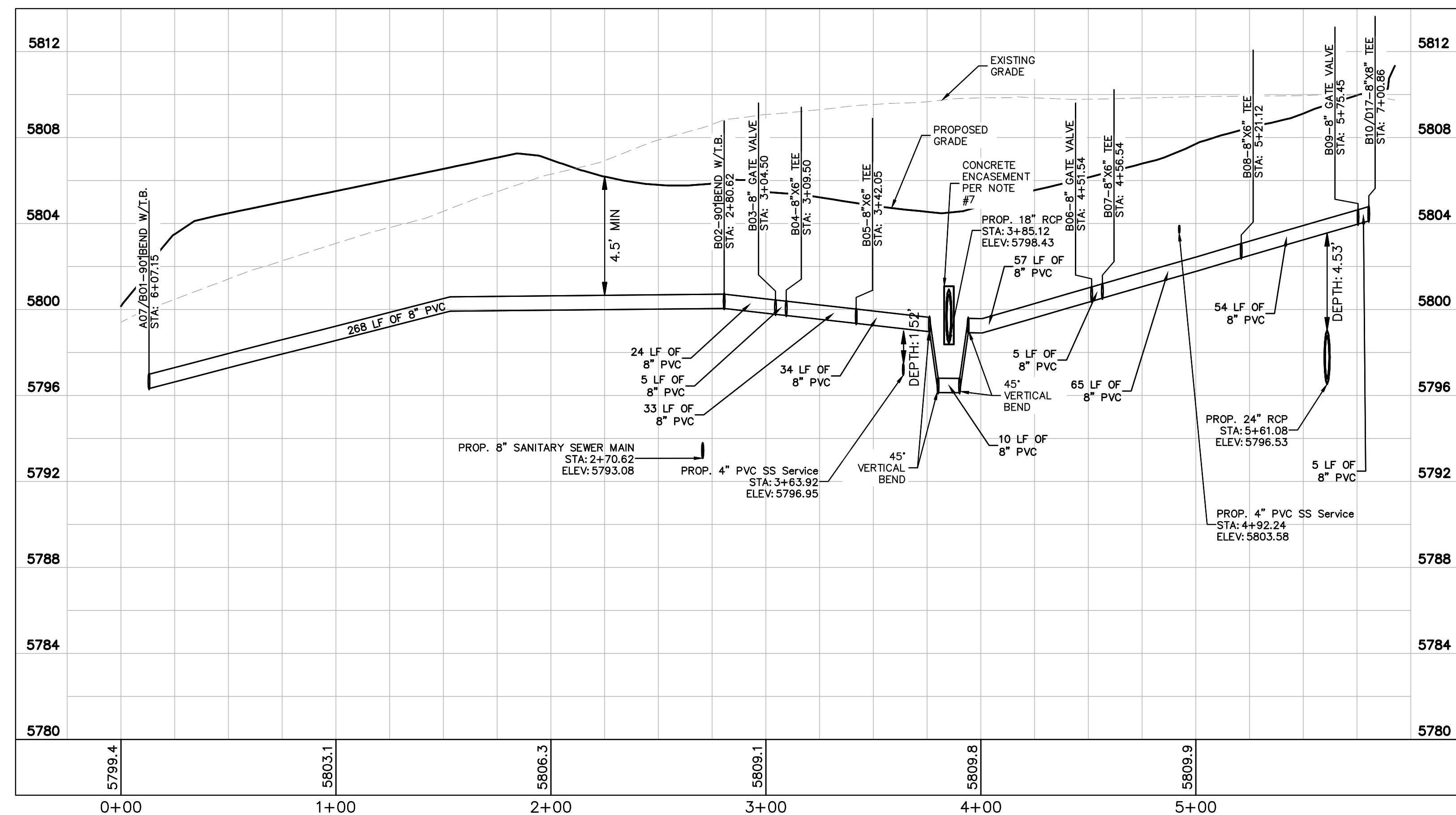
PROJECT NO.  
 096502001  
 DRAWING NAME  
 096502001 WT-PP  
**C7.5**



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LEGEND	
	PROPERTY LINE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER
	PROPOSED WATER LINE
	PROPOSED SANITARY SEWER LINE
	PROPOSED STORM LINE



**WATER MAIN PROFILE B**  
 STRUCTURE B01 TO B12

HORIZONTAL SCALE: 1"=40'  
 VERTICAL SCALE: 1"=4'

**WATER NOTES**

- CONTRACTOR TO POTHOLE EXISTING UTILITY LINES AT WATER LINE CROSSING AREAS PRIOR TO CONSTRUCTION.
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NO.	REVISION	BY	DATE	APPR

**Kimley»Horn**  
 2017 KIMLEY-HORN AND ASSOCIATES, INC.  
 4582 South Ulster Street, Suite 1500  
 Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
**WATER PLAN AND PROFILE - B**

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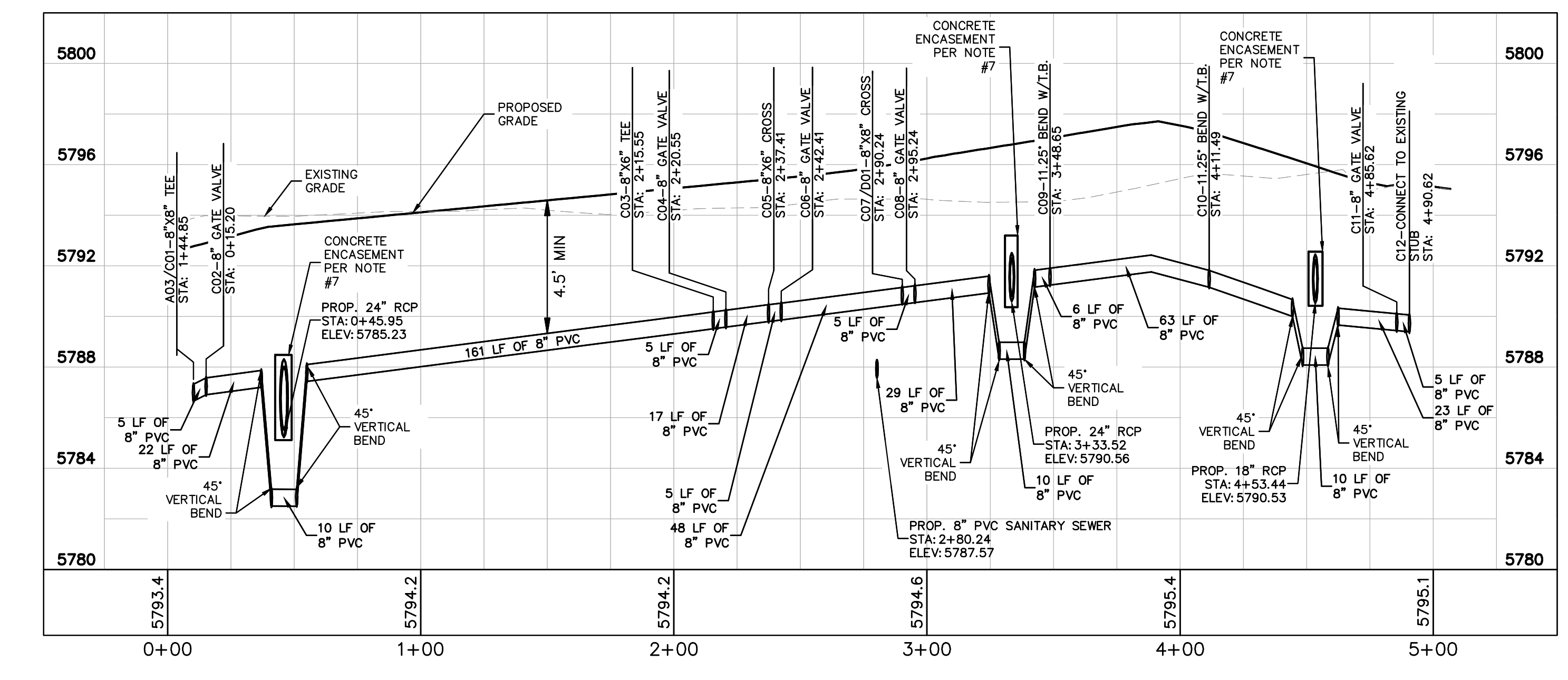
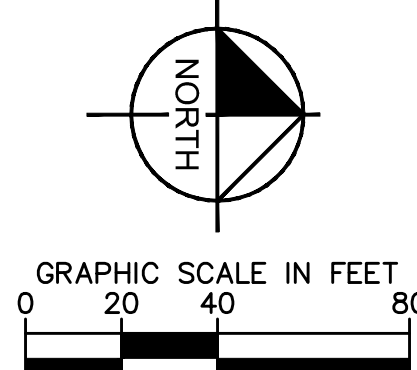
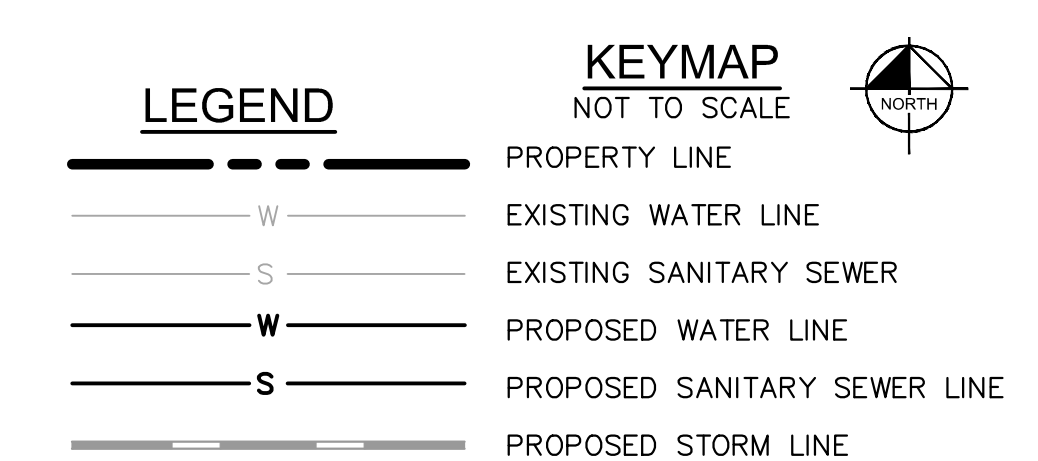
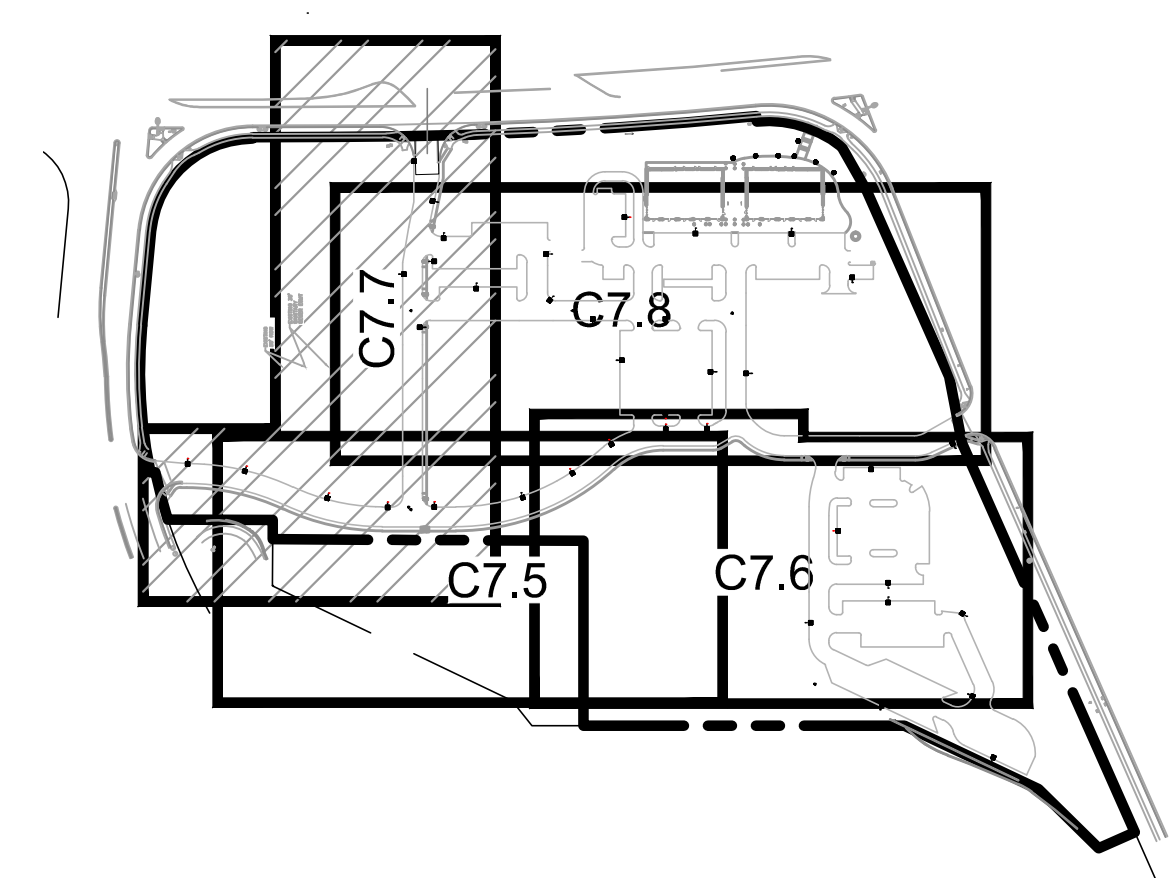
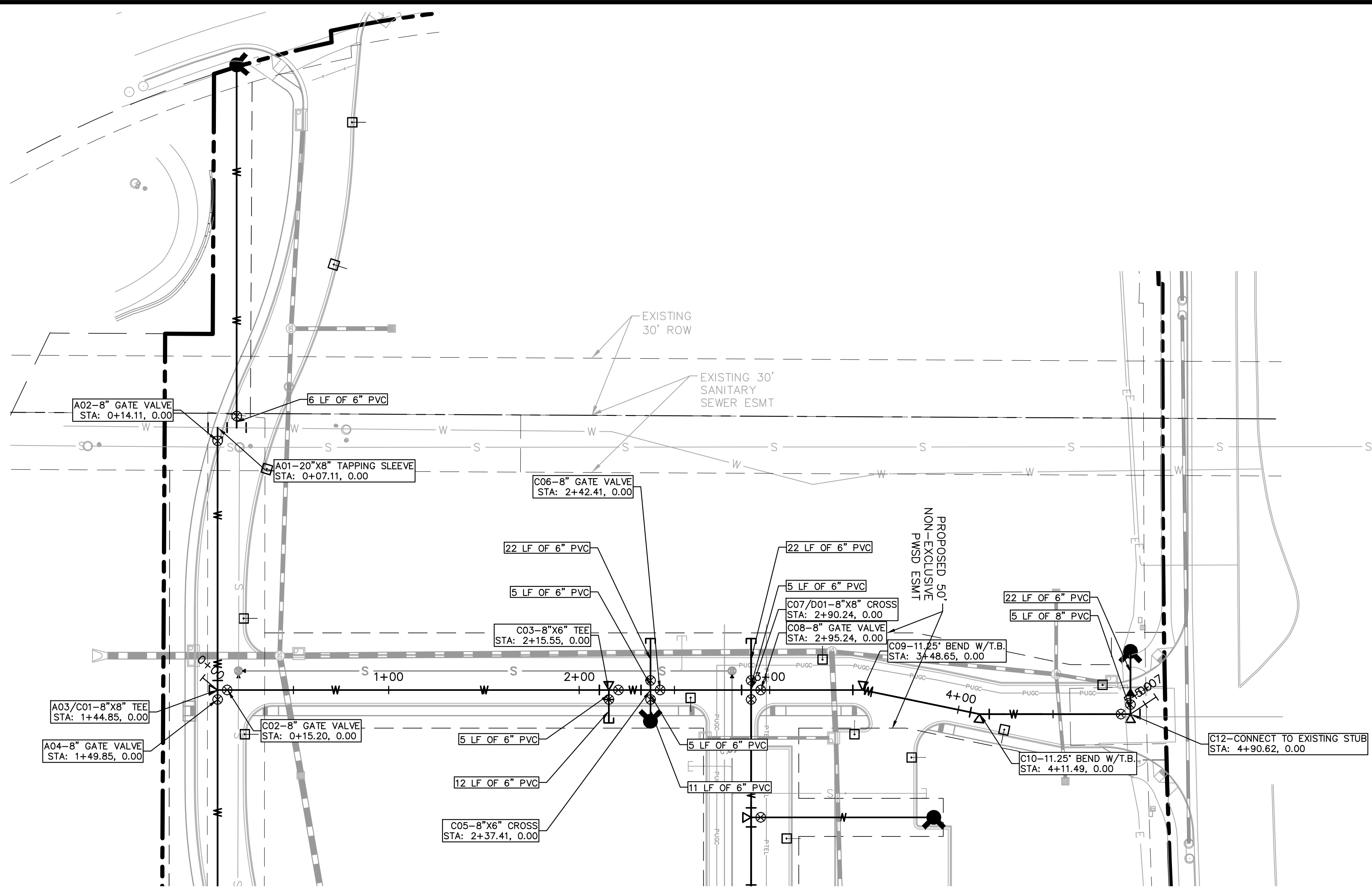
PROJECT NO.  
 096502001

DRAWING NAME  
 096502001 WT-PP

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**WATER MAIN PROFILE C**  
 STRUCTURE C01 TO C16  
 HORIZONTAL SCALE: 1"=40'  
 VERTICAL SCALE: 1"=4'

- WATER NOTES**
- CONTRACTOR TO POTHOLE EXISTING UTILITY LINES AT WATER LINE CROSSING AREAS PRIOR TO CONSTRUCTION.
  - WATER LINE CONNECTION ELEVATION TO EXISTING WATER MAINS IS APPROXIMATE. CONTRACTOR TO POTHOLE AND VERIFY TIE IN ELEVATION PRIOR TO CONSTRUCTION OF WATER MAIN.
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**Kimley»Horn**  
 2017 KIMLEY-HORN AND ASSOCIATES, INC.  
 4582 South Ulster Street, Suite 1500  
 Denver, Colorado 80237 (303) 228-2300

NO.	REVISION	BY	DATE	APPR

**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
**WATER PLAN AND PROFILE - C**

DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

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**Kimley»Horn**  
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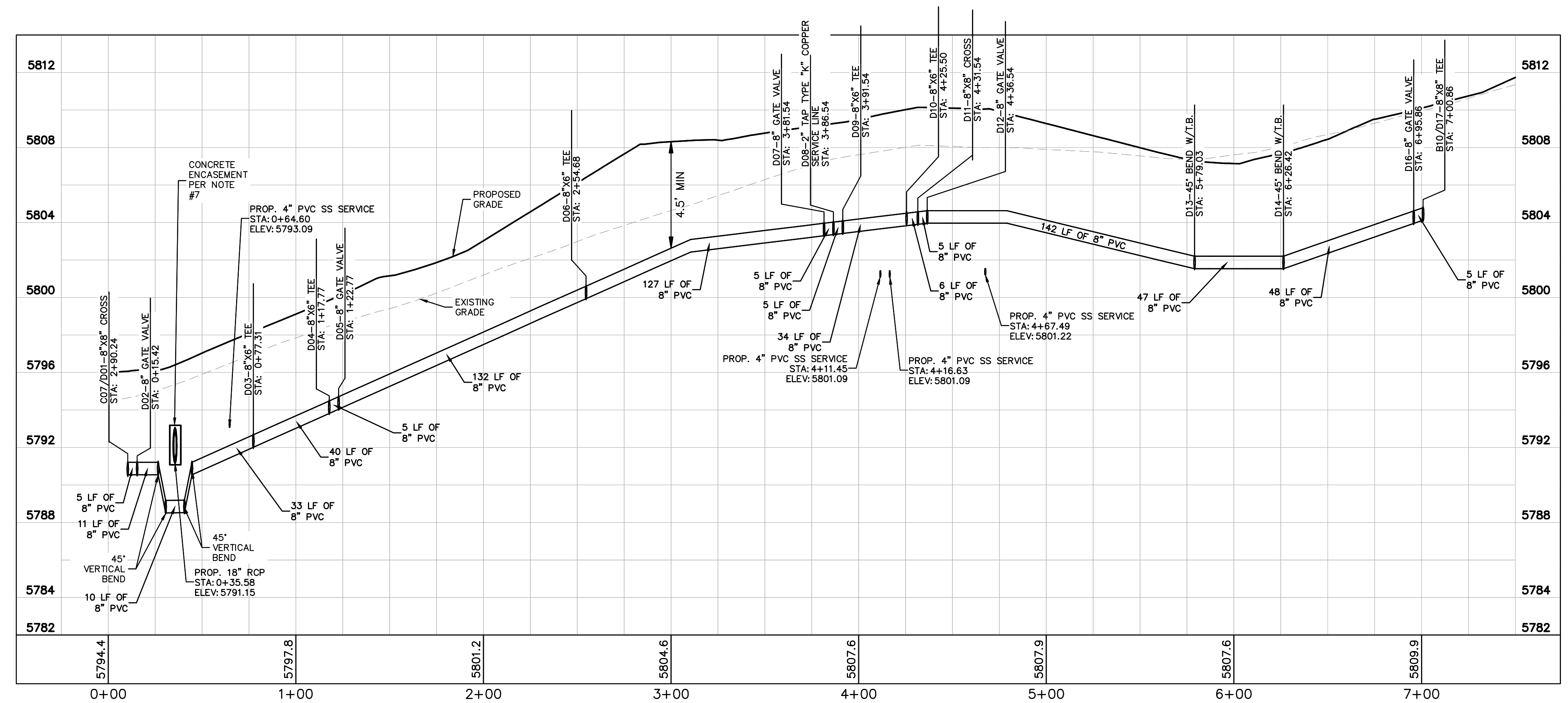
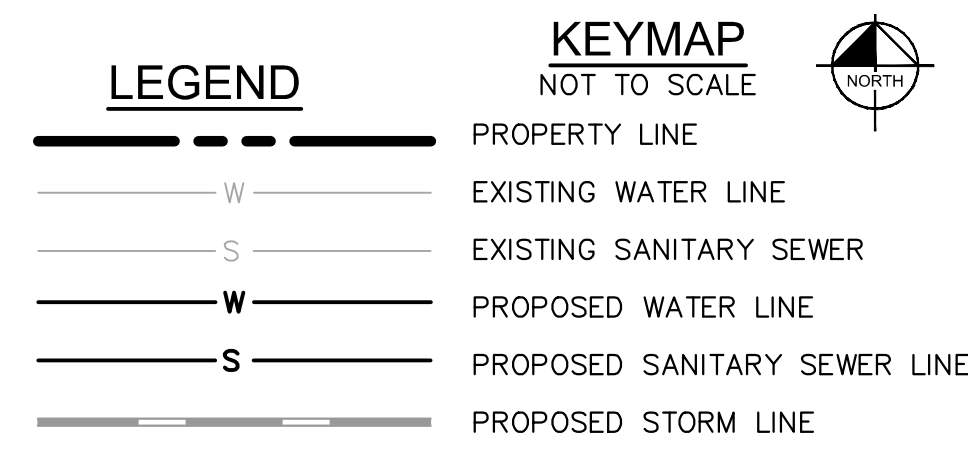
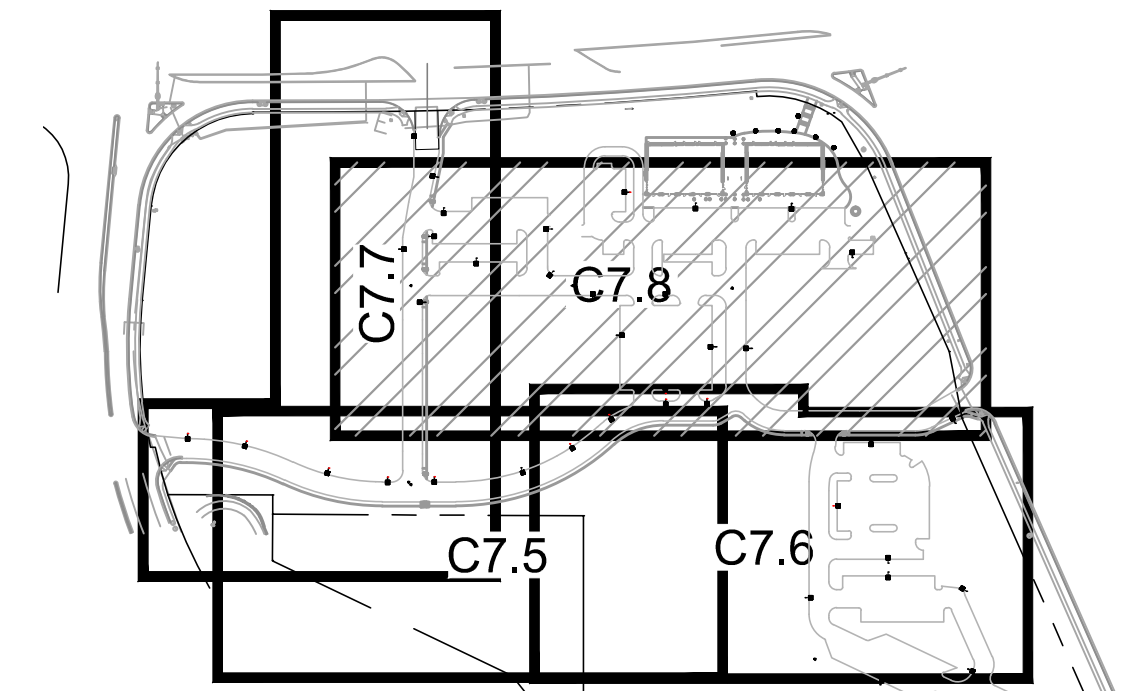
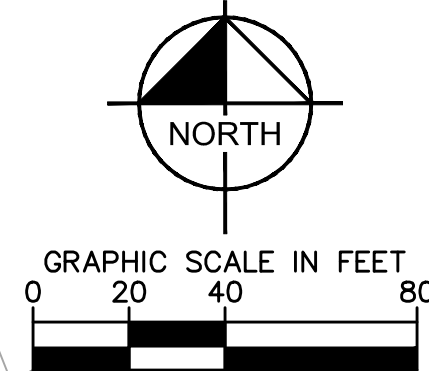
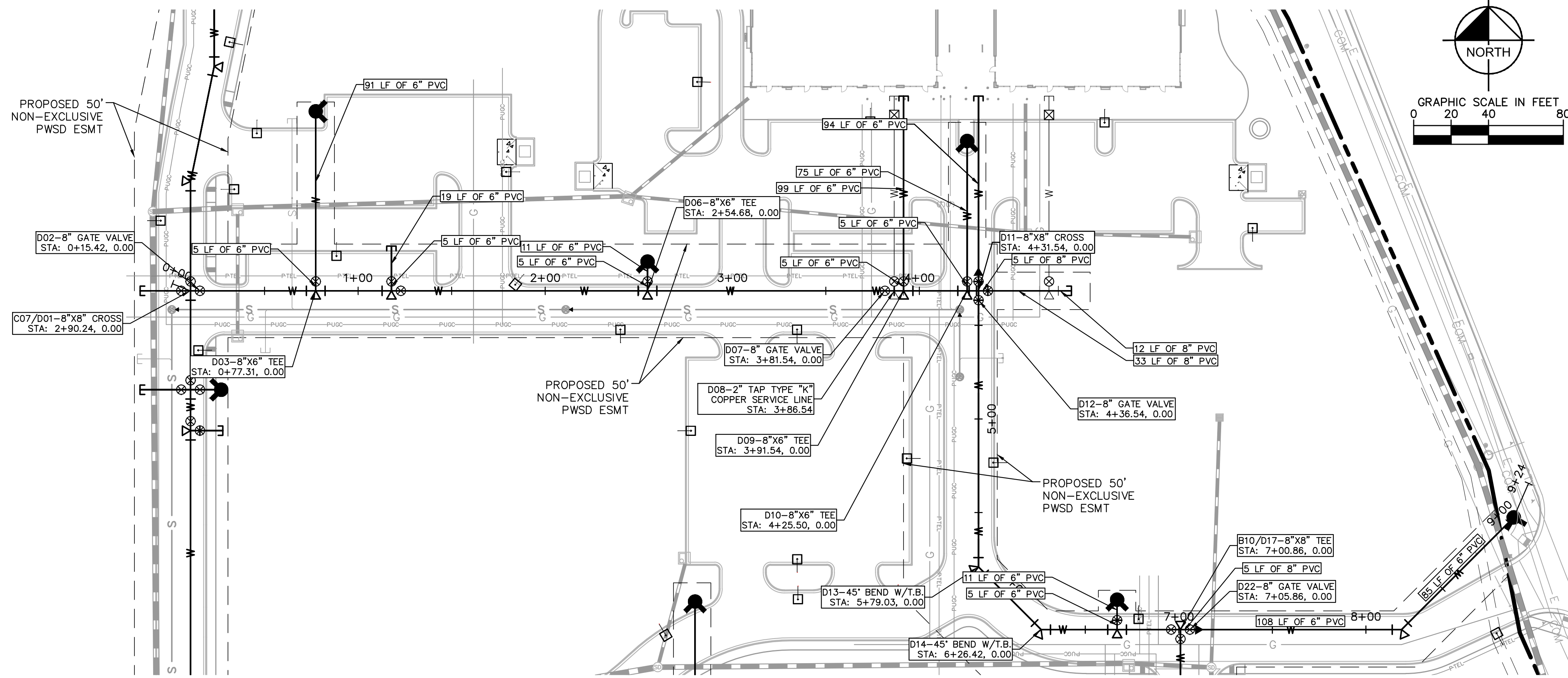
PROJECT NO.  
096502001

DRAWING NAME  
096502001 WT-PP

**811** Know what's below.  
 Call before you dig.

C7.7

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**WATER MAIN PROFILE D**  
 STRUCTURE D01 TO D21

HORIZONTAL SCALE: 1"=40'  
 VERTICAL SCALE: 1"=4'

**WATER NOTES**

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NO.	REVISION	BY	DATE	APPR

**Kimley-Horn**  
 2017 KIMLEY-HORN AND ASSOCIATES, INC.  
 4582 South Ulster Street, Suite 1500  
 Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
**WATER PLAN AND PROFILE - D**

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**Kimley-Horn**  
 Kimley-Horn and Associates, Inc.

PROJECT NO.  
 096502001  
 DRAWING NAME  
 096502001 WT-PP  
**C7.8**



**INSPECTION POLICY:**

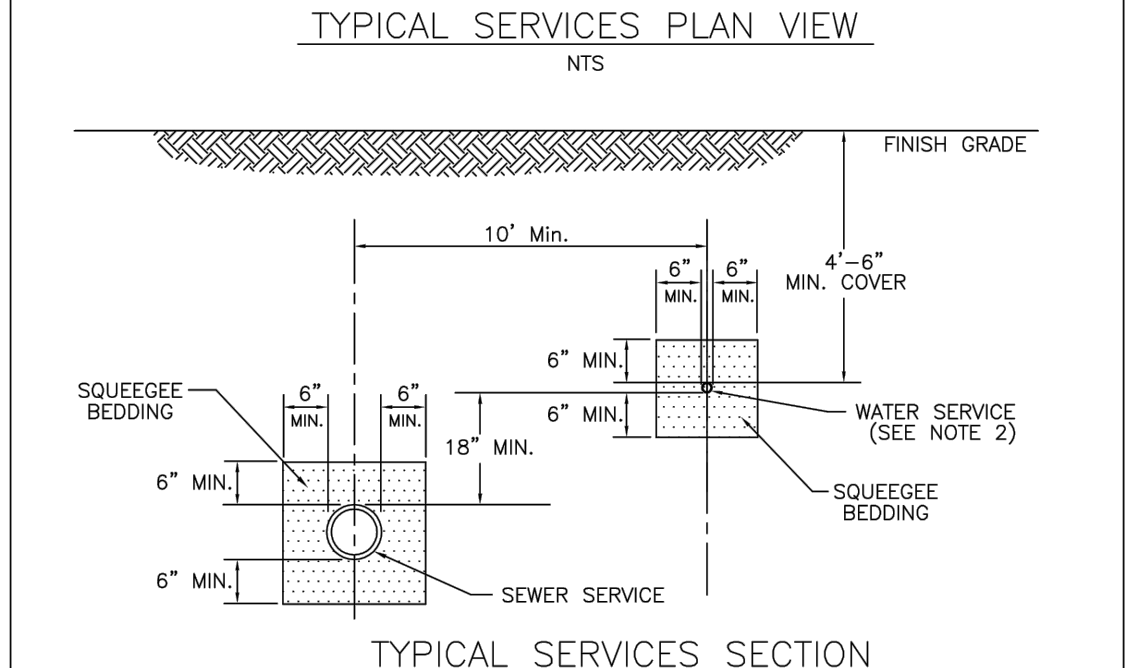
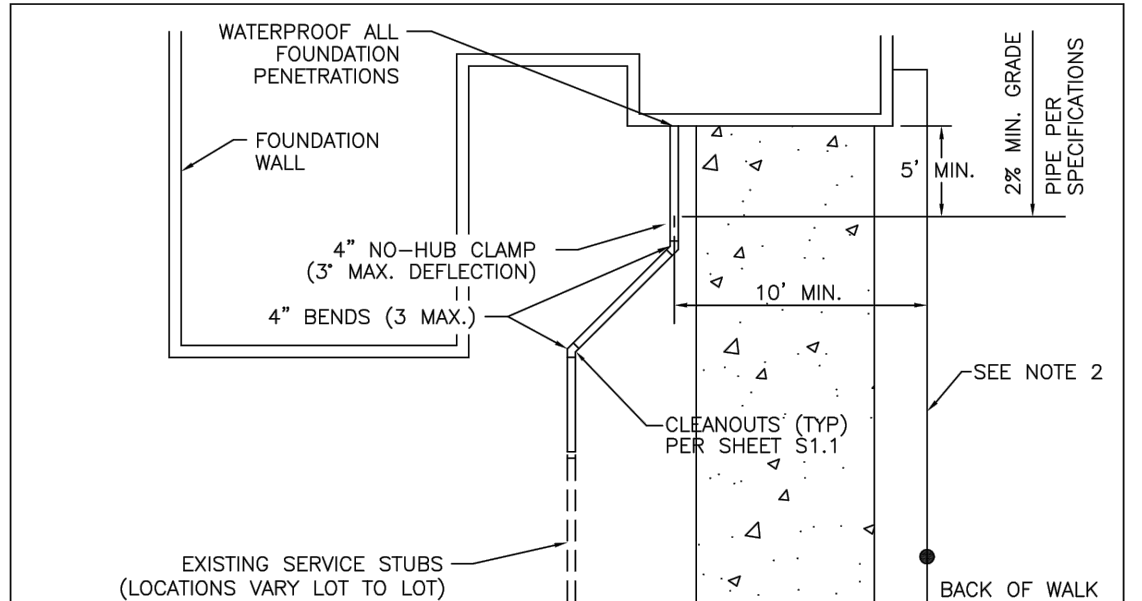
1. ALL SERVICE INSPECTIONS MUST BE SCHEDULED WITH THE DISTRICT OFFICE AT LEAST 24 HOURS IN ADVANCE OF THE REQUESTED INSPECTION.
2. IF THE CONTRACTOR IS NOT READY FOR INSPECTION WHEN THE INSPECTOR ARRIVES AT THE SITE, A RE-INSPECTION WILL HAVE TO BE SCHEDULED IN ACCORDANCE WITH NOTE 1 ABOVE AND A RE-INSPECTION FEE CHARGED.
3. SHOULD THE SERVICE LINES BE DAMAGED BY LATER CONSTRUCTION, AN INSPECTION OF THE REPAIR WILL BE REQUIRED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE.
4. THE CONTRACTOR SHALL LEAVE ALL PIPE AND FITTINGS EXPOSED FOR THE INSPECTOR TO OBSERVE. INSPECTORS WILL NOT ENTER ANY EXCAVATIONS TO CHECK MATERIALS. THE TOP LAYER OF BEDDING CAN BE ADDED AFTER THE INSPECTION HAS BEEN COMPLETED.
5. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.
6. LOTS WITHOUT BUILDING ADDRESSES OR LOT AND BLOCK NUMBERS BEFORE DISTRICT INSPECTION OR METER SET WILL FAIL AUTOMATICALLY.
7. CONTRACTOR MUST BE PRESENT AT TIME OF INSPECTION UNLESS COORDINATED WITH DISTRICT INSPECTOR.

**INSTALLATION NOTES:**

- SEWER**
1. ACCEPTABLE PIPE MATERIALS ARE TO BE SDR 35 PVC PIPE, ABS PIPE AND PVC SCHD 40 PIPE. APPROVED BEDDING IS TO BE SQUEEGEE.
  2. NO-HUB CLAMPS SHALL BE USED TO JOIN 2 MALE PIPE ENDS WITH A MAXIMUM DEFLECTION OF 3'.
  3. MINIMUM GRADE SHALL BE 2X.
  4. INSTALLATION SHALL INCLUDE NO MORE THAN 3 BENDS. 90° BENDS ARE NOT ALLOWED. SOLVENT WELDED PIPE WILL NOT BE ALLOWED.
  5. CLEAN-OUTS SHALL BE INSTALLED AT 100' INTERVALS AND EVERY CHANGE IN DIRECTION. CLEAN-OUTS ARE NOT REQUIRED FOR SERVICES LESS THAN 100' UNLESS THERE ARE CHANGES IN DIRECTION. PROVIDE DUAL CLEAN-OUT WITHIN 5 FEET OF FOUNDATION.
  6. STRESSING OF THE PIPE BETWEEN FITTINGS WILL NOT BE ALLOWED.
  7. SEWER SERVICE LINE SHALL NOT BE LOCATED UNDER CONCRETE SURFACE.
  8. ALL SERVICES WILL BE PERMANENTLY MARKED ON CURB FACE AS FOLLOWS:  
 "X" FOR SANITARY SEWER SERVICE  
 "W" FOR WATER SERVICES

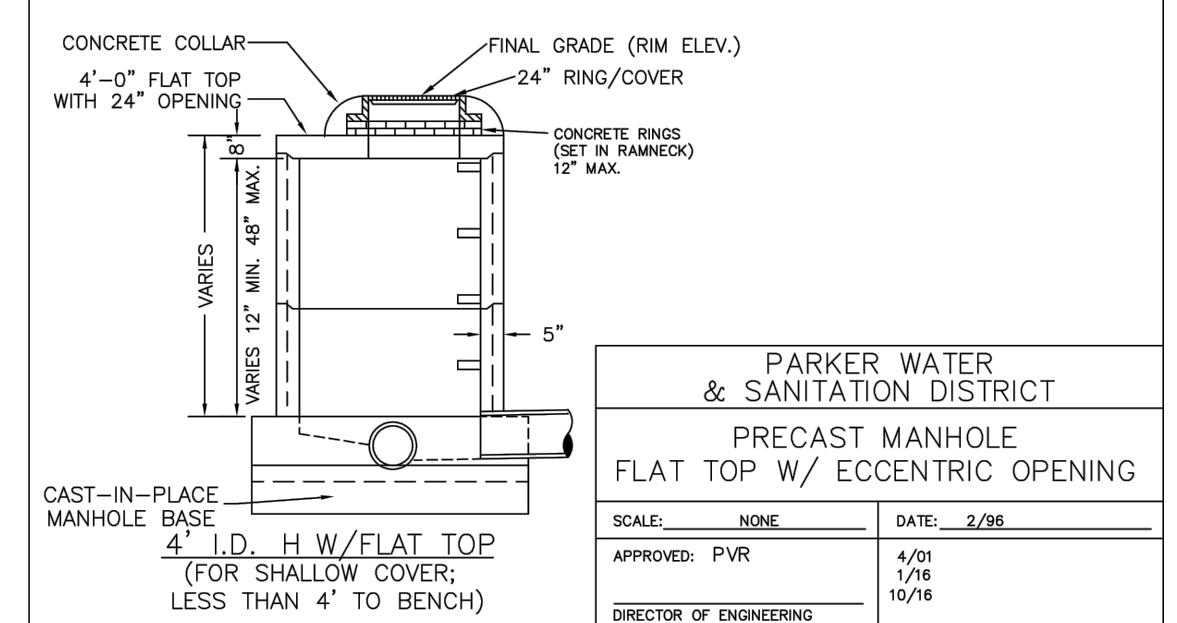
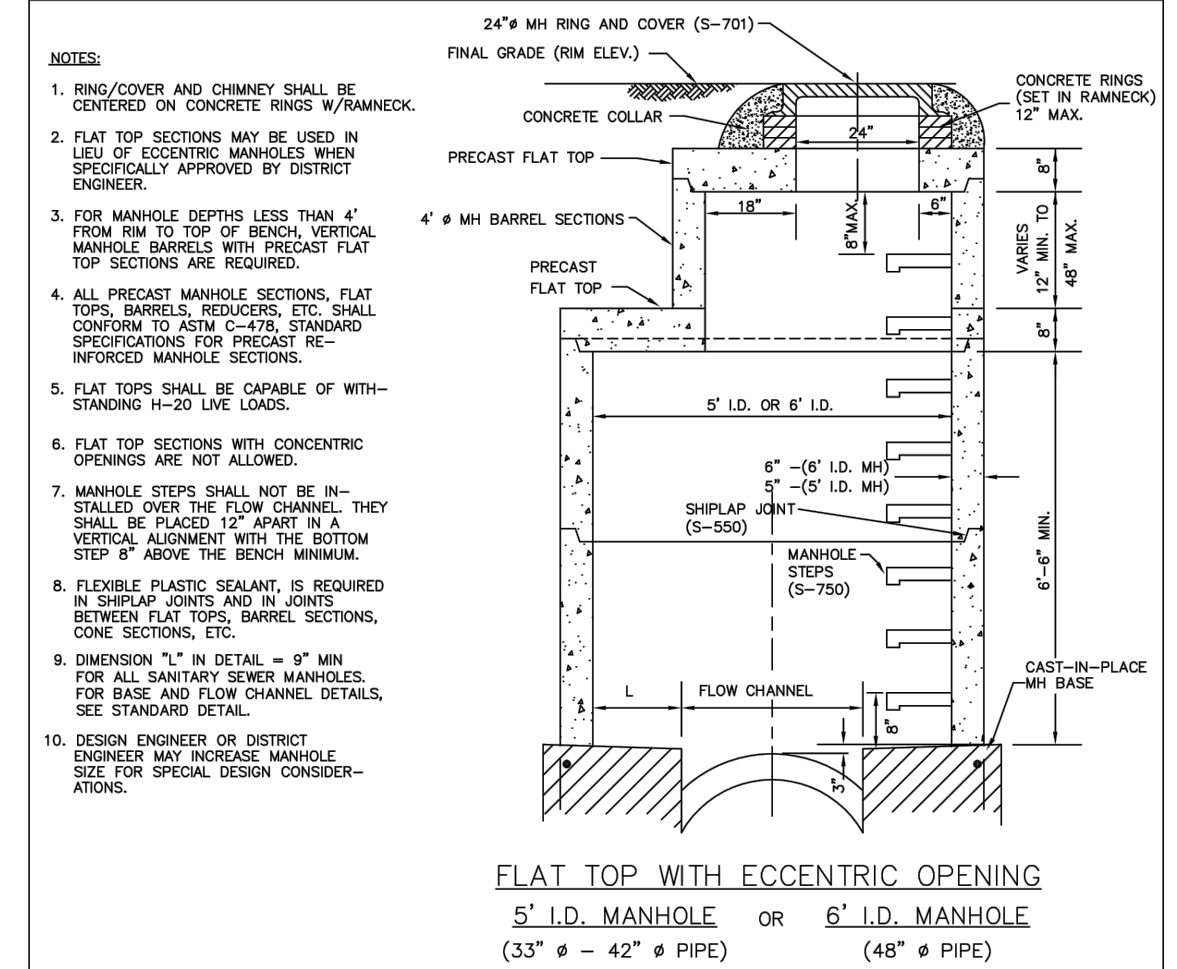
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DISTRICT POLICIES & INSTALLATION NOTES FOR SEWER SERVICES	
SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/02 01/16
DIRECTOR OF ENGINEERING	

2016 REVISION



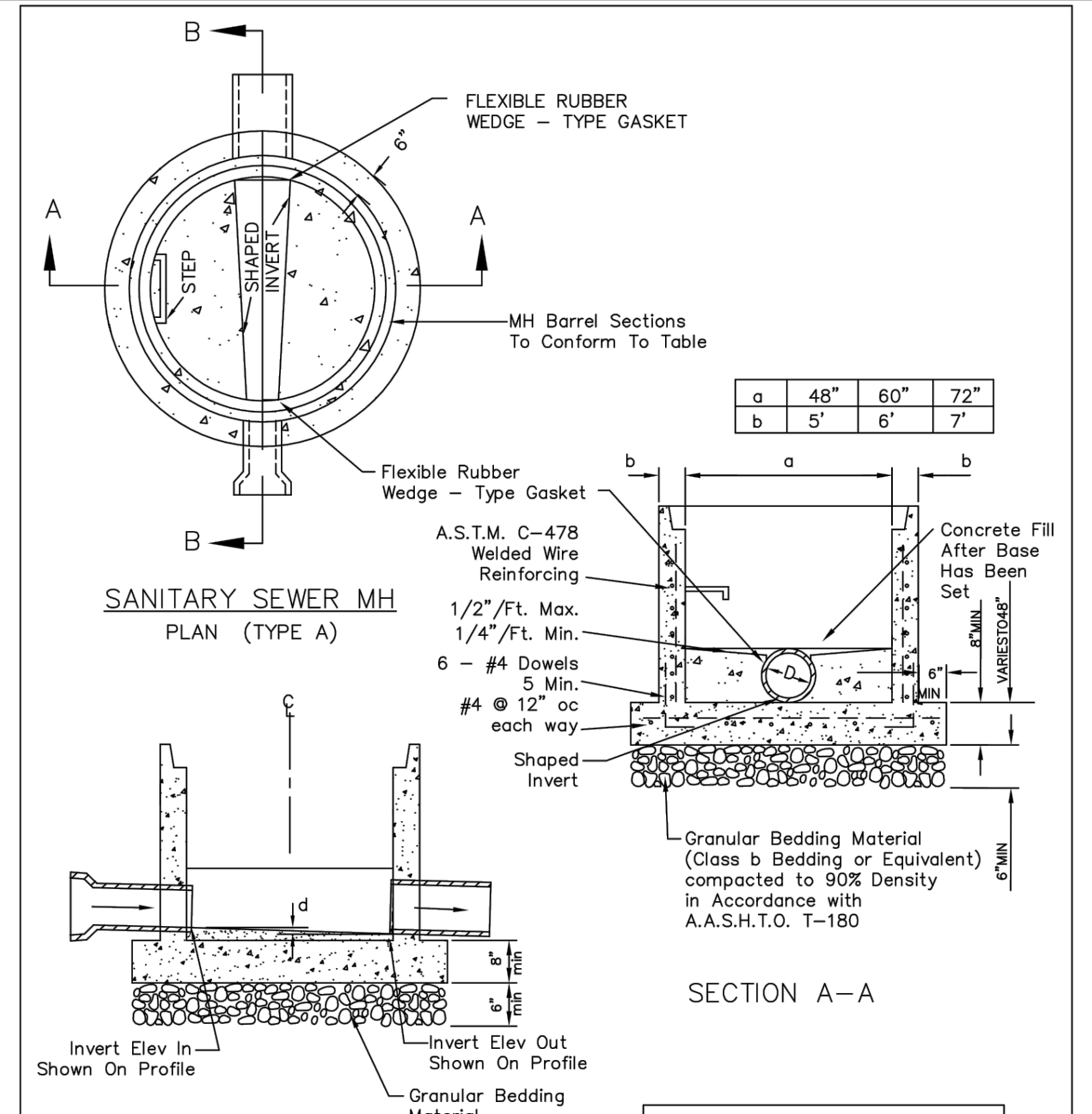
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SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/02 01/16
DIRECTOR OF ENGINEERING	

2016 REVISION



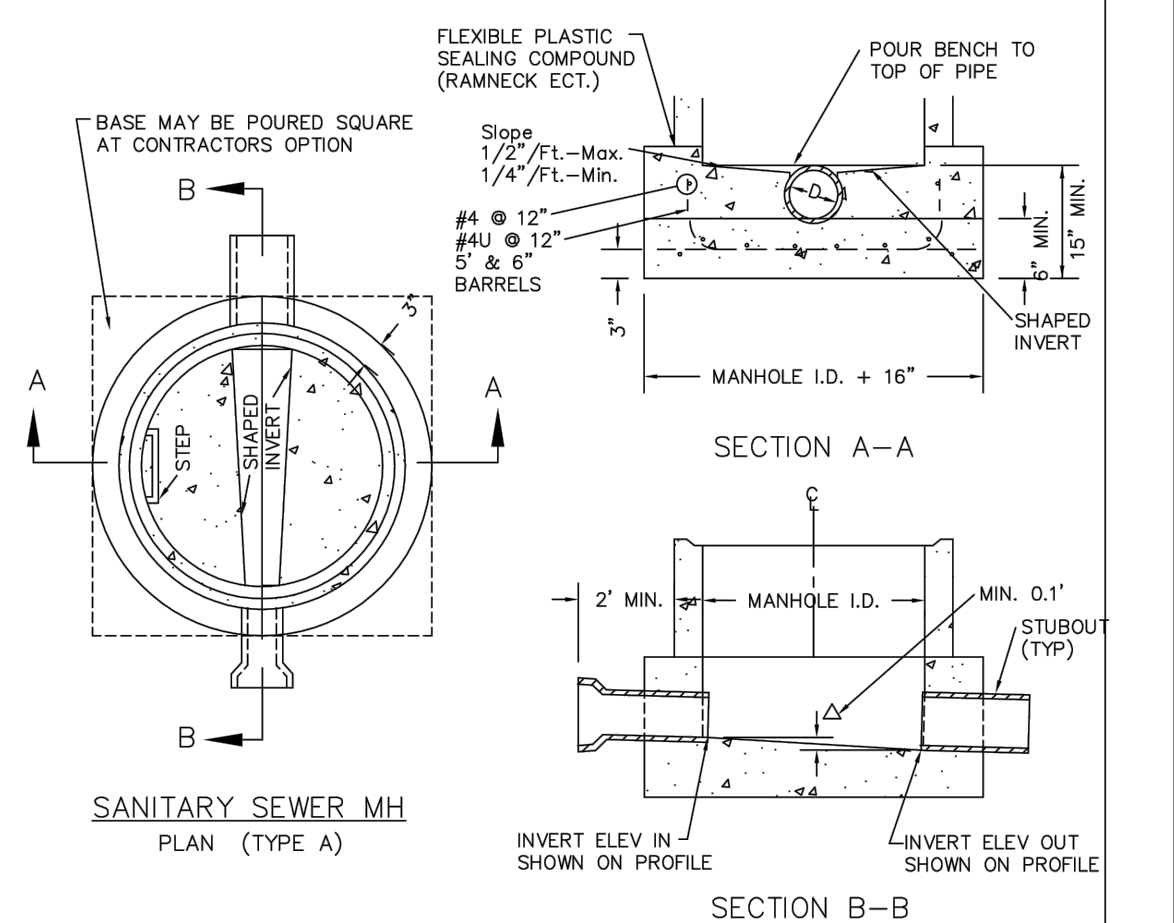
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PRECAST MANHOLE FLAT TOP W/ ECCENTRIC OPENING	
SCALE: NONE	DATE: 2/98
APPROVED: PVR	4/01 1/16
DIRECTOR OF ENGINEERING	10/16

2016 REVISION



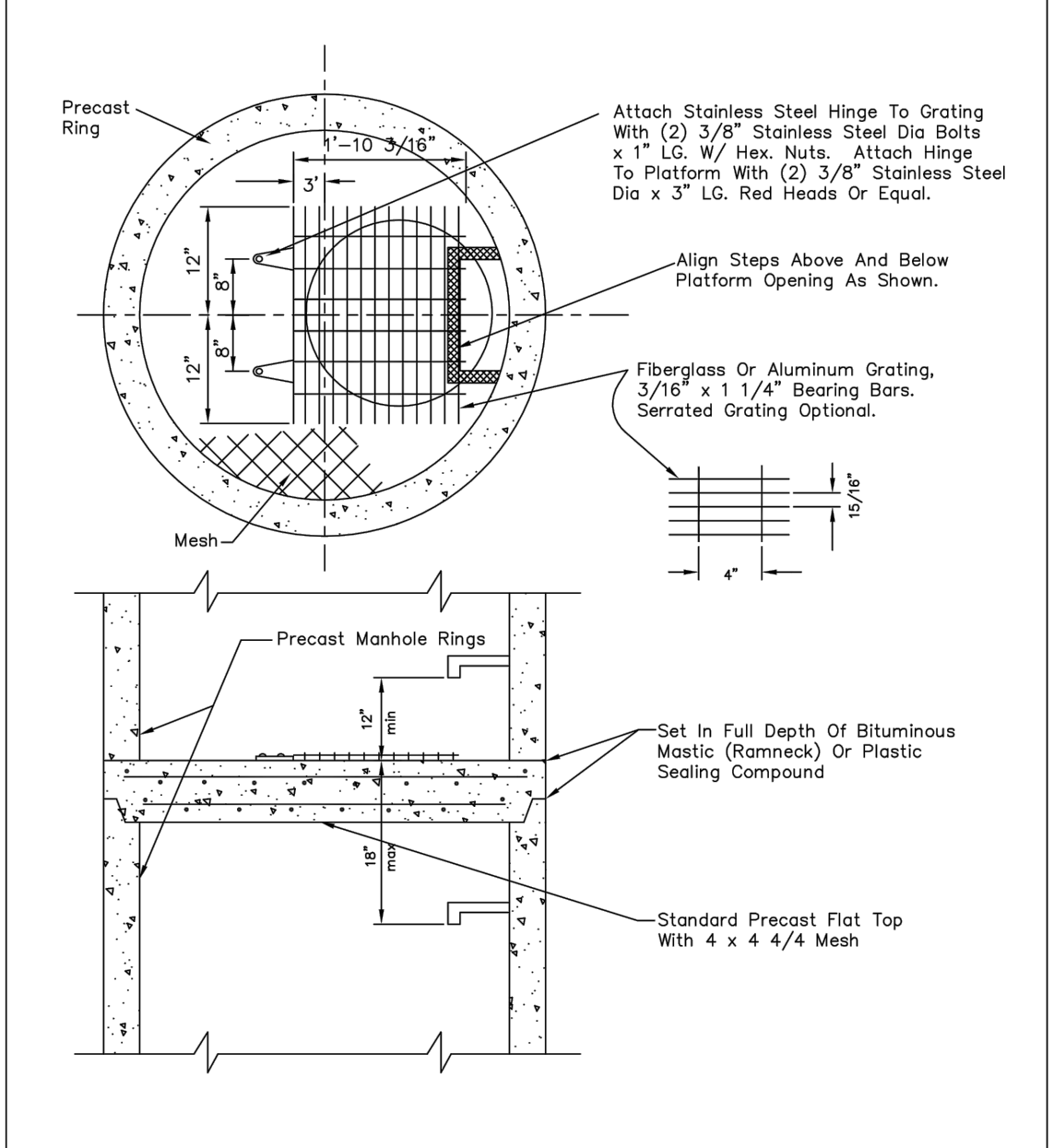
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PRECAST MANHOLE BASE DETAIL	
SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/02 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION



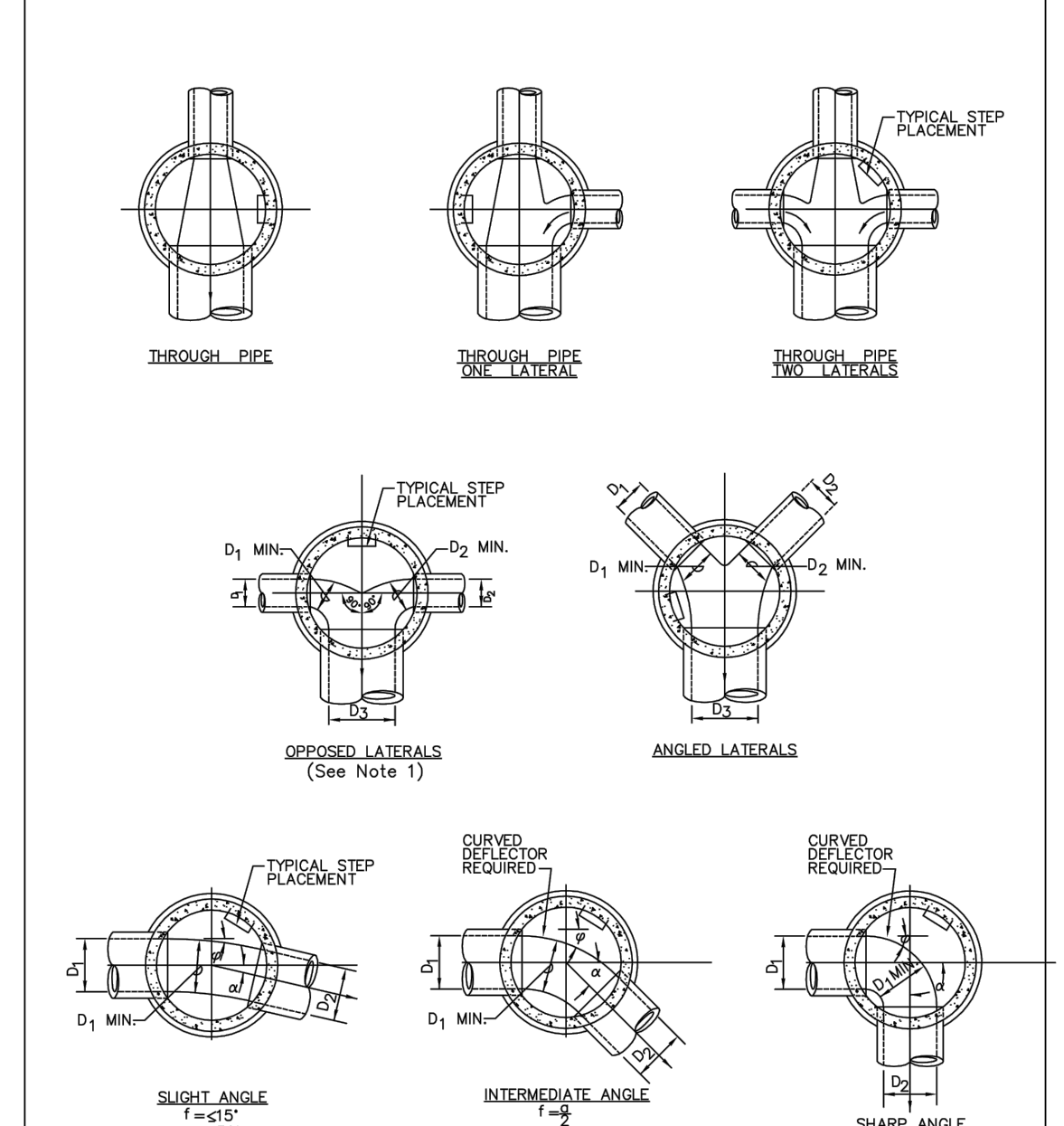
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CAST-IN-PLACE MANHOLE BASE DETAIL	
SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/02 01/16
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2016 REVISION



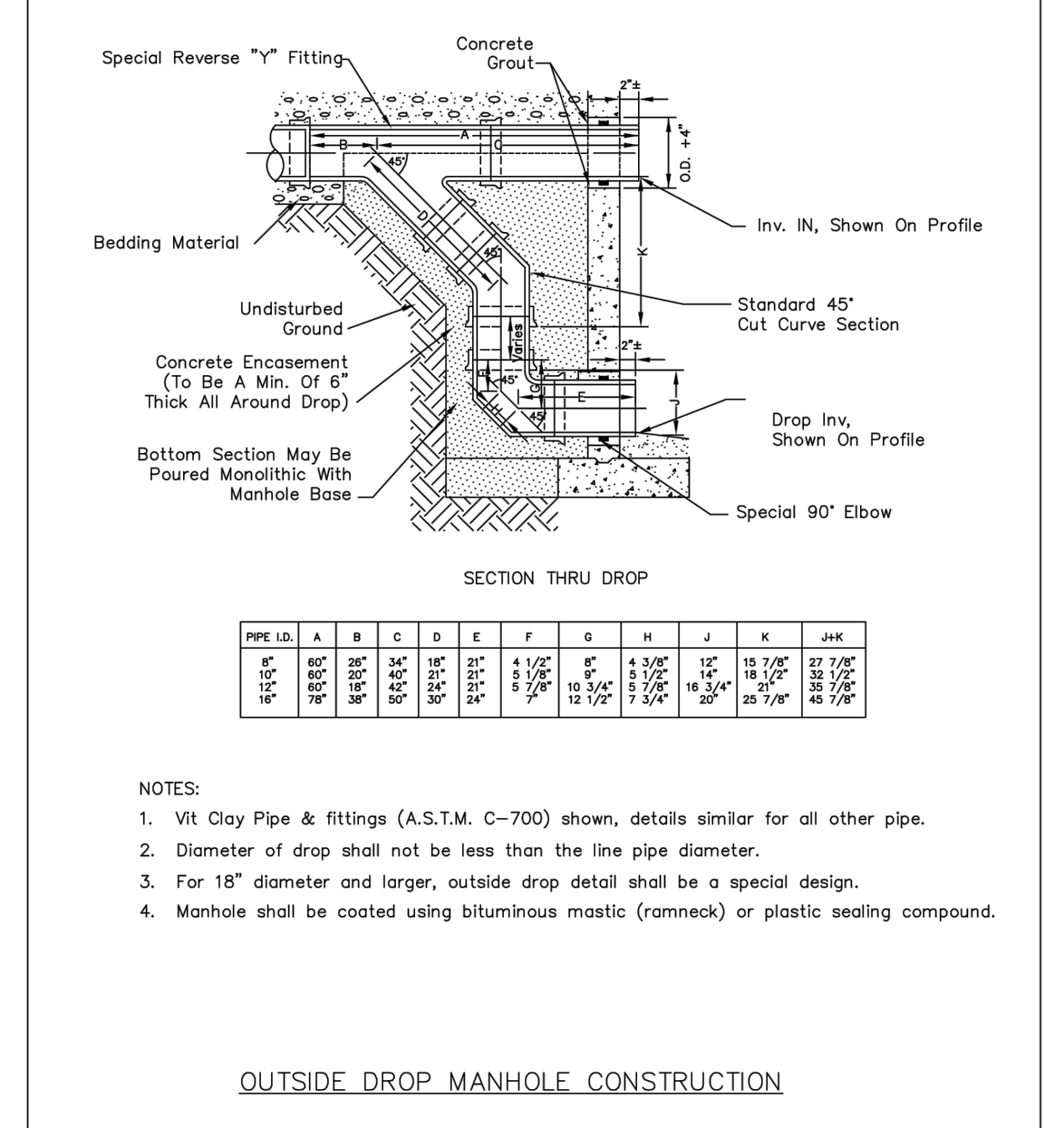
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SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/16 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION



PARKER WATER & SANITATION DISTRICT	
TYPICAL BASE CHANNELIZATION DETAILS	
SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/16 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION



PARKER WATER & SANITATION DISTRICT	
OUTSIDE DROP MANHOLE CONSTRUCTION	
SCALE: NONE	DATE: 2/98
APPROVED: PVR	01/16 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION

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DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

**PARKER & PINE**  
 PARKER, CO  
 CONSTRUCTION DOCUMENTS  
 UTILITY DETAILS

**PRELIMINARY**  
 FOR REVIEW ONLY  
 NOT FOR CONSTRUCTION  
**Kimley-Horn**  
 Kimley-Horn and Associates, Inc.

PROJECT NO.  
 096502001  
 DRAWING NAME  
 096502001UT-DT

C7.9

1. A. Ver. 01/09/2009 - revised user: m. CAD (D) in brackets. 08/09/2010 - DT. Aug. Miller. T. 12/12/2016. 10:20 AM. THIS DOCUMENT, TOGETHER WITH THE CONCRETE AND DESIGN PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PROJECT AND LEGAL USE FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

**CONCRETE ARCH**

Lower limit of sloping or benching of trench walls

Plain or Reinforced Concrete Continuous  $f_c = 3500$  psi min.

Densely compacted backfill hand-tamped (90% density, AASHTO T-180) in open areas and 95% density, AASHTO T-99 in all public R.O.W.

Compacted Granular Material (Class "B" Bedding)

$B_c = \text{Pipe O.D.}$

$B_w = \text{Cradle Width}$

$B_s = \text{Specified Trench Width}$

Bedding Trench (Vertical Walls)

**CONCRETE CRADLE**

Lower limit of sloping or benching of trench walls

Densely compacted backfill hand-tamped (90% density, AASHTO T-180) in open areas and 95% density, AASHTO T-99 in all public R.O.W.

Compacted Granular Material Class "B" Bedding

Plain or Reinforced Concrete Continuous  $f_c = 3500$  psi min.

Bedding trench (Vertical Walls) (eaveless)

$B_c = \text{Pipe O.D.}$

$B_w = \text{Cradle Width}$

$B_s = \text{Specified Trench Width}$

NOTE: The Design Engineer shall be responsible for structural design of the concrete cradle and/or concrete arch.

NOMINAL DIAMETER (D)	MINIMUM THICKNESS (t)	MIN. WIDTH OF CRADLE (B <sub>w</sub> )
18" & smaller	6"	B <sub>c</sub> + 8"
21" to 24"	6"	B <sub>c</sub> + 8"
27" to 33"	8"	B <sub>c</sub> + 8"
36" to 42"	10"	1.25 B <sub>c</sub>
48" & larger	1/4 D	1.25 B <sub>c</sub>

**PARKER WATER & SANITATION DISTRICT**

**TRENCHING AND BEDDING DETAIL - CLASS "A"**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

DIRECTOR OF ENGINEERING

SHEET 54.2

2016 REVISION

WATERTIGHT/AIRTIGHT MECHANICAL SEAL OR NON SHRINK GROUT W/ WATER STOP

PROPOSED SANITARY SEWER

EXISTING SANITARY SEWER

STEPS

NEW MANHOLE BENCHING SHALL BE TO CROWN OF NEW PIPE SLOPE BENCHING NOT LESS THAN 1/2" PER FOOT OR MORE THAN 1-1/2" PER FOOT (SEE ALSO NOTE 1)

DRILL EXISTING BENCH AND SET REBAR IN EPOXY.

CUT WITH CORE DRILL PIPE SIZE + 4" (MIN)

EXISTING BENCHING SHALL BE THOROUGHLY CLEANED PRIOR TO POURING NEW BENCHING

**MANHOLE INVERT TIE-IN**

NOTES

1 - NEW BENCH SHALL INCLUDE REINFORCEMENT TO CONTROL CONCRETE CRACKING.

**PARKER WATER & SANITATION DISTRICT**

**MANHOLE INVERT TIE-IN DETAIL**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

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SHEET 54.9

2016 REVISION

FRAME

SECTION ON CENTER OF FRAME

COVER

SECTION OF COVER

SECTION B-B

SECTION C-C

SECTION A-A

THE WORD "SEWER" TO BE RAISED 3/16"

**PARKER WATER & SANITATION DISTRICT**

**IN-LINE CLEANOUT SECTIONS**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

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SHEET 54.12

2016 REVISION

WYE

WYE

NOTE: TAPS IN STAGGERED CONFIGURATION AT 10 O'CLOCK AND 2 O'CLOCK

SECTION A - A

DISTRICT RESPONSIBILITY

**DOMESTIC SEWER TAPPING DETAIL**

Sewer service connections shall be positioned at either the 2 o'clock or the 10 o'clock position on the circumference of the sewer main. On new installations, tee or wye fittings shall be used. When tapping into existing sewer main, a saddle connection and approved coring method shall be used. The minimum distance between service connections made along the pipe shall be 3 feet. The minimum distance from either the bell or spigot end of a pipe shall be 3 feet. The minimum distance from the center of a manhole to a service connection shall be either 7 feet or the transition point from the manhole trench to the normal pipe trench, whichever is greater. A maximum of 4 sewer service connections shall be allowed per 20 foot length of pipe. In all cases, a specific soils investigation should be conducted to assure that the external loading will be within allowable limits regardless of the number of taps involved.

**PARKER WATER & SANITATION DISTRICT**

**DOMESTIC SEWER TAPPING DETAIL**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

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SHEET 54.13

2016 REVISION

RAISED LETTERS (1/8" H)

SEWER

4 3/4"

HALF PLAN

STANDARD LIFTING SLOT DETAIL

MACHINED SEAT

**PARKER WATER & SANITATION DISTRICT**

**24" DIAMETER RING AND COVER**

NOTE:

- Casting Specifications: ASTM A-48 With A Minimum Tensile Strength of 25 KSI (Class 25)
- All Casting To Be Dipped in Asphalt Base Coat (Or Approved Equal).
- No other manhole lids will be accepted without prior approval from the District Engineer.

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

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SHEET 53.9

2016 REVISION

ALUMINUM STEP

CONCRETE WALL SECTION

STEPS TO BE HOOKED BEHIND REINFORCING WHEN CONCRETE SECTIONS ARE CAST.

VERTICAL SPACING 12" MIN. 16" MAX. WITH BOTTOM STEP 6"-8" ABOVE BENCH

REINFORCING

TYPICAL INSTALLATION

TOE POCKET DETAILS

STANDARD EXTRUDED ALUMINUM MANHOLE STEP

ALUMINUM STEP

NOTE:

- ALUMINUM ALLOY SPECIFICATIONS
  - FED. SPEC. QQ-A-200/8 (ALUMINUM-MAGNESIUM-SILICATE ALLOY)
  - MINIMUM TENSILE STRENGTH=35,000 p.s.i.
  - MINIMUM YIELD STRENGTH=35,000 p.s.i.
  - MINIMUM ELONGATION=10% IN 2"
- MINIMUM LOAD CAPACITY (APPLIED AT CENTER OF STEP)
  - 1,000 LB. WITH 4" PROJECTION FROM WALL
  - 1,500 LB. WITH 4" PROJECTION FROM WALL
- WEIGHT PER STEP=2.23 POUNDS
- STEPS TO BE CAST (DIAMETERED) IN MANHOLE WALL IN STRAIGHT LINE, VERTICALLY, AT THE SAME TIME THE BARREL OR CONE SECTIONS ARE CAST.
- VERTICAL SPACING BETWEEN STEPS SHALL BE CONSISTENT IN EACH INDIVIDUAL MANHOLE.
- TOE POCKETS ARE REQUIRED IN STORM SEWER MANHOLES IF TOP OF BENCH IS MORE THAN 18" ABOVE INVERT. TOE POCKETS ARE NOT REQUIRED IN SANITARY SEWER MANHOLES UNLESS OTHERWISE SPECIFIED.

**PARKER WATER & SANITATION DISTRICT**

**STANDARD EXTRUDED ALUMINUM MANHOLE STEP**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

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SHEET 53.10

2016 REVISION

ALUMINUM & S.L.

1/2 B<sub>a</sub>

1/2 B<sub>b</sub>

1/2 B<sub>d</sub>

1/2 B<sub>d</sub>

1/2 B<sub>d</sub>

1/2 B<sub>d</sub>

3" Top for seal removal

Original Ground Surface of Final Grade Elevation

max. limits of excavation

Bedding Trench (Vertical walls brooded or shored if necessary to meet safety requirements)

Lower limit of sloping or benching of trench walls

Bedding Spigots to be placed in 6" holes (6" dia) and fully compacted by hand tampers. For all spigots, bedding to 90% density, AASHTO T-180 in open areas and 95% density, AASHTO T-99 in all public R.O.W.

Pipe Bedding as Specified (Class "A" or Class "B")

NOTE: If solid sheeting or shoring is used, it shall be cut off at top of pipe and left in place.

**TYPICAL TRENCH DETAIL**

NOTES

- Sloping or benching of trench side walls, where permitted shall be in accordance with applicable Federal, State and local safety regulations.
- Trench shall be brooded and shored as necessary to afford safe working conditions or to protect adjacent utilities, structures, etc. Unless otherwise specified on the plans, no payment will be made for removal, replacement or relocation of curb and gutters, utilities, structures, etc. outside the maximum limits of excavation or shoring and the contractor shall be responsible for protection of same.
- If excavation "B<sub>1</sub>" > "C", then existing asphalt pavement shall be removed and replaced up to the surface. Minimum support pay width, B<sub>1</sub> & B<sub>2</sub> shall then be based upon this actual width.

STREET WIDTH	ASPHALT BASE COURSE (t <sub>1</sub> )	ASPHALT WEARING SURFACE (t <sub>2</sub> )	TOTAL THICKNESS (t <sub>3</sub> )
UP TO 36'	4"	2"	6"
36' TO 44'	4"	3"	7"
44' TO 48'	5"	3"	8"
WIDER THAN 48'	6"	3"	9"

**PARKER WATER & SANITATION DISTRICT**

**SEWER TRENCHING AND BEDDING DETAIL**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

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SADDLE CONNECTION

DISTRICT RESPONSIBILITY

PIPE JOINT (W/ ELASTOMERIC SEAL)

SECTION QUADRANT 1 SHOWN

STRAP GUIDES

RUBBER GASKET

PIPE WALL

STAINLESS STEEL STRAP TO BE PLACED AT RIGHT ANGLES TO PIPE SURFACE (5 FT-LBS TORQUE)

SADDLE STEM

BEVEL THIS SIDE OF HOLE IN PIPE AT 45° ANGLE SO THAT SADDLE STEM WILL FIT PROPERLY

**P.V.C. SADDLE CONNECTION DETAIL**

NOTE:

- SADDLE FITTINGS TO BE PER ASTM D3034.
- CONNECTION SHALL BE Y - SADDLE WITH TWO BONDS

**PARKER WATER & SANITATION DISTRICT**

**P.V.C. SADDLE CONNECTION DETAIL**

SCALE: NONE DATE: 2/98

APPROVED: PVR 10/16

DIRECTOR OF ENGINEERING

SHEET 54.14

2016 REVISION

NO.	REVISION	BY	DATE	APPR

**Kimley & Horn**

2017 KIMLEY-HORN AND ASSOCIATES, INC.  
4582 South Ulster Street, Suite 1500  
Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: DLS  
DRAWN BY: CTM  
CHECKED BY: DLS  
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PARKER, CO  
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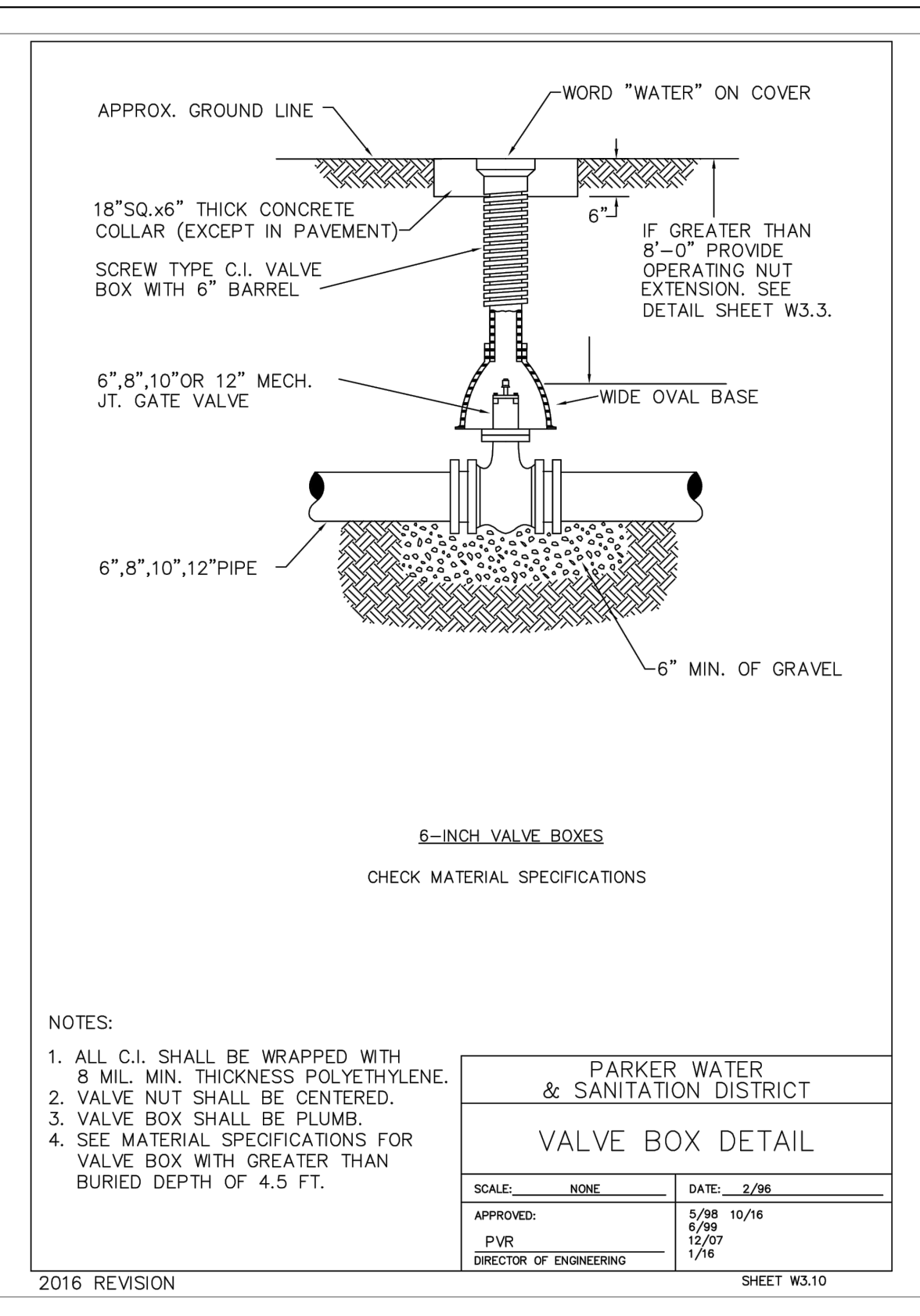
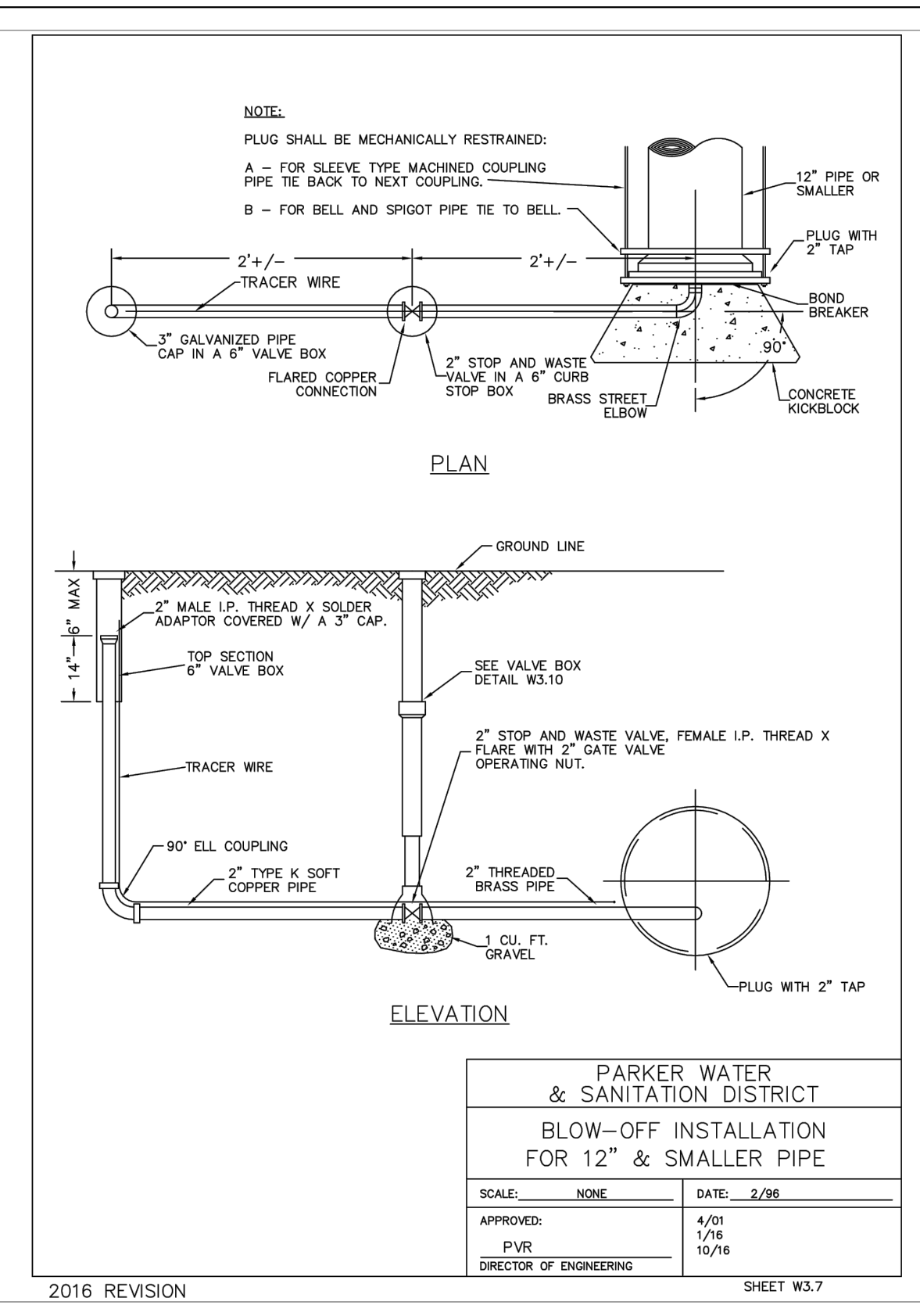
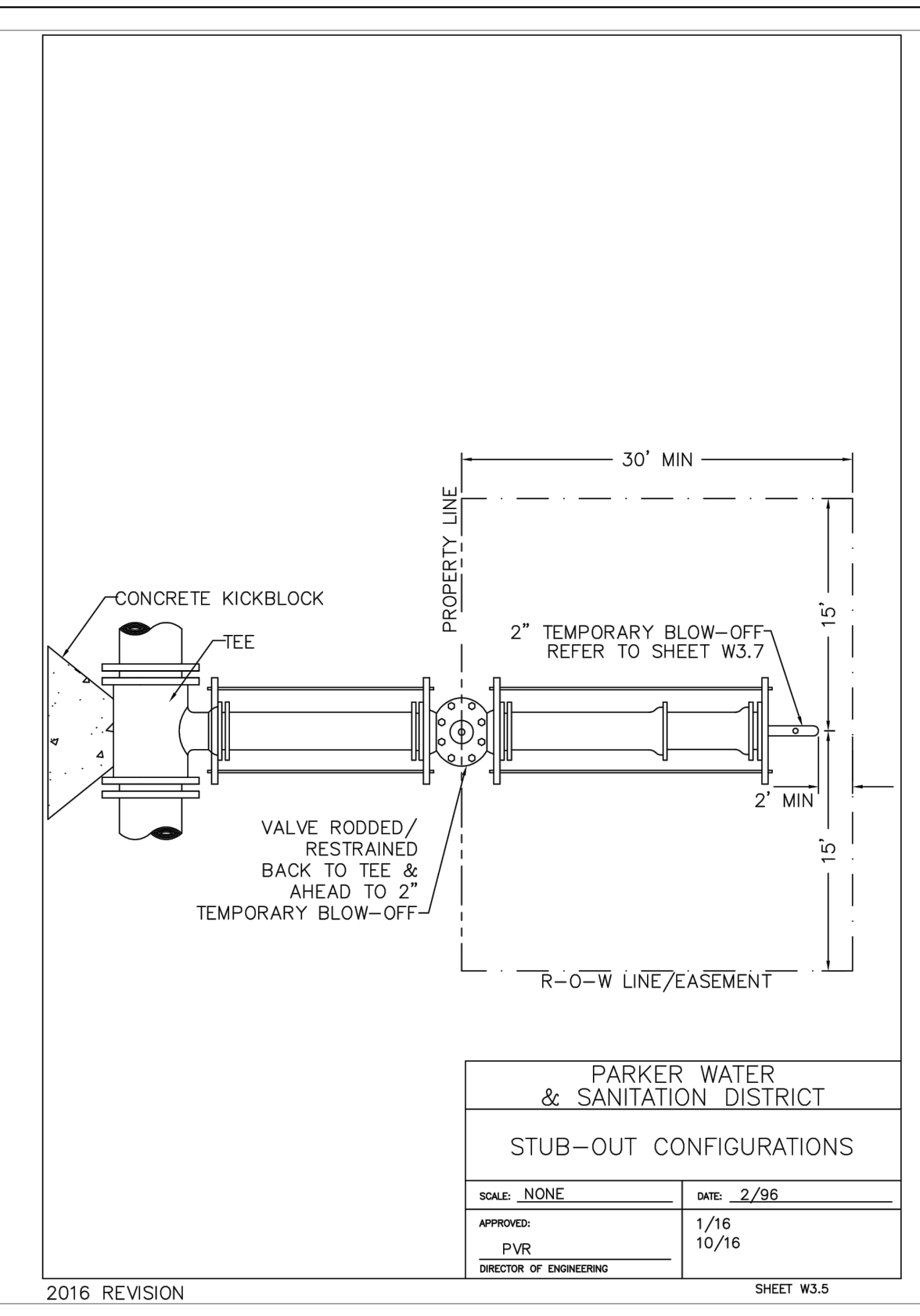
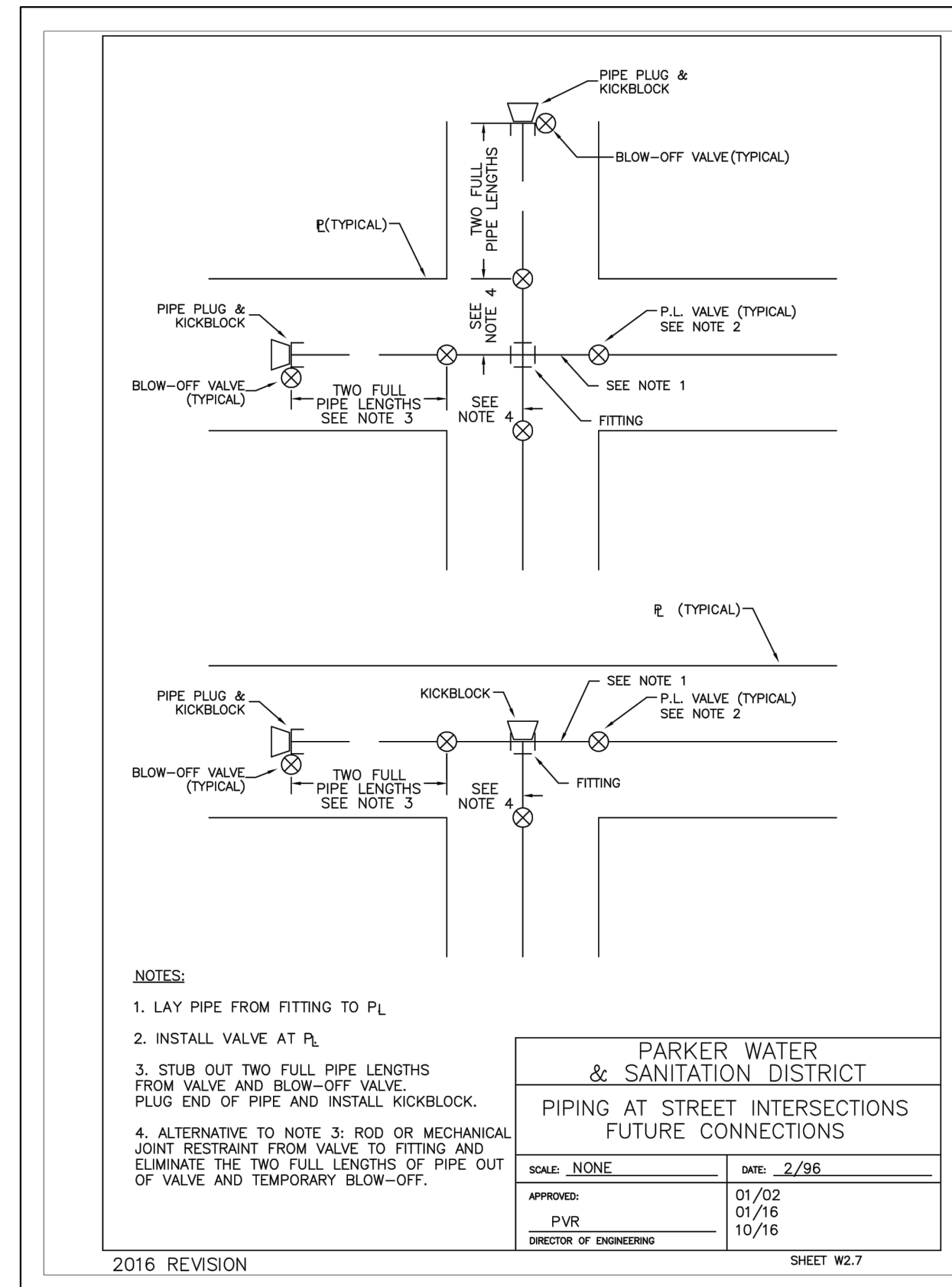
**Kimley & Horn**  
Kimley-Horn and Associates, Inc.

PROJECT NO.  
096502001

DRAWING NAME  
096502001UT-DT

C7.10

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**INSPECTION POLICY:**

- ALL SERVICE INSPECTIONS MUST BE SCHEDULED AT LEAST 24 HOURS IN ADVANCE OF THE REQUESTED INSPECTION.
- SERVICE INSPECTIONS WILL OCCUR BETWEEN 1:00 P.M. AND 3:00 P.M. SPECIFIC INSPECTION TIMES ARE NOT AVAILABLE.
- IF THE CONTRACTOR IS NOT READY FOR INSPECTION WHEN THE INSPECTOR ARRIVES AT THE SITE OR SERVICE FAILS, A RE-INSPECTION WILL HAVE TO BE SCHEDULED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE AND A RE-INSPECTION FEE CHARGED.
- SHOULD THE SERVICE LINES BE DAMAGED BY LATER CONSTRUCTION, AN INSPECTION OF THE REPAIR WILL BE REQUIRED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE.
- THE CONTRACTOR SHALL LEAVE ALL PIPE AND FITTINGS EXPOSED FOR THE INSPECTOR TO OBSERVE. INSPECTORS WILL NOT ENTER ANY EXCAVATIONS TO CHECK MATERIALS. THE TOP LAYER OF BEDDING CAN BE ADDED AFTER THE INSPECTION HAS BEEN COMPLETED.
- ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.
- LOTS WITHOUT BUILDING ADDRESSES BEFORE DISTRICT INSPECTION OR METER SET WILL FAIL AUTOMATICALLY.
- CONTRACTOR MUST BE PRESENT AT TIME OF INSPECTION, UNLESS COORDINATED WITH DISTRICT INSPECTOR.

**INSTALLATION NOTES:**

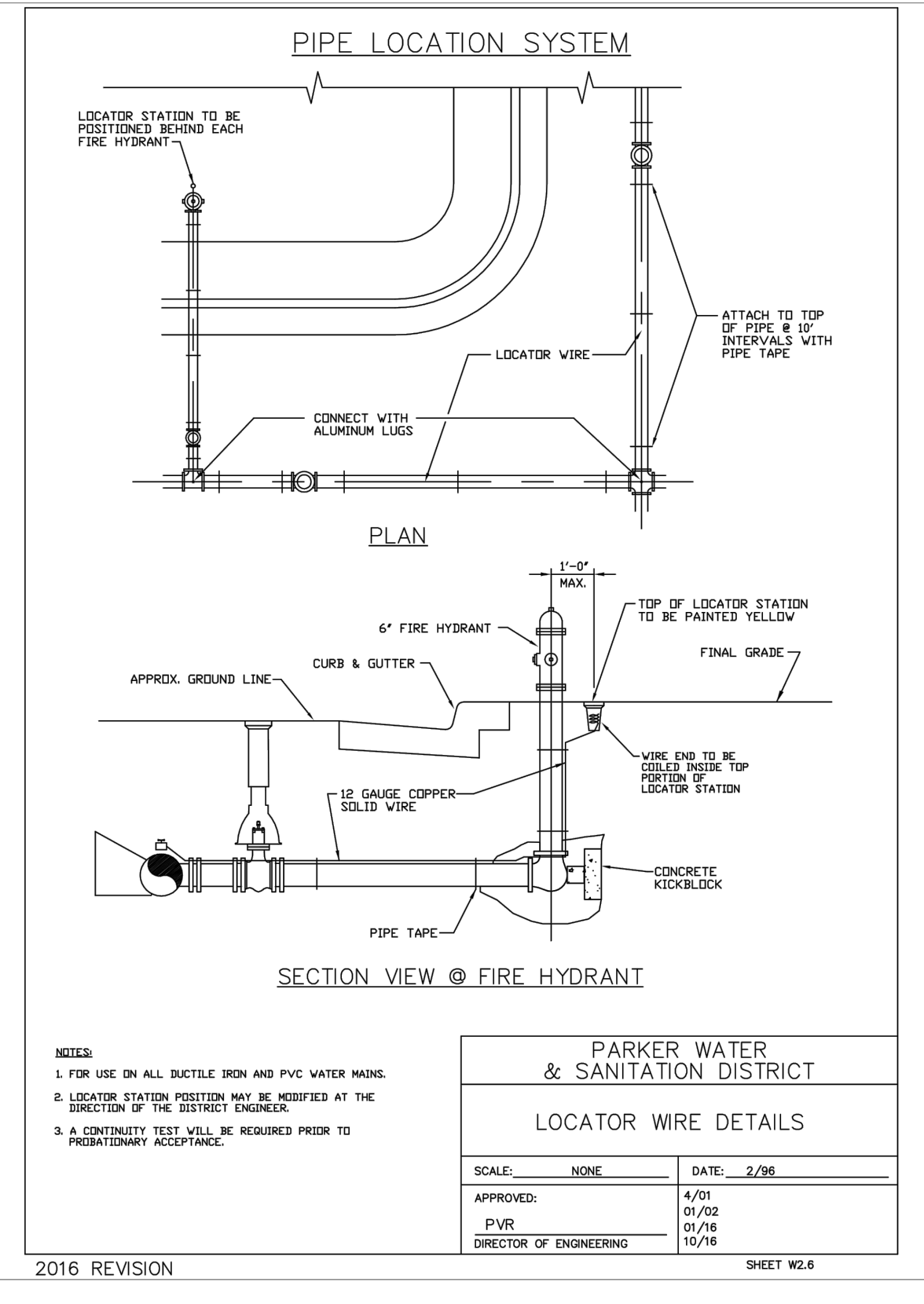
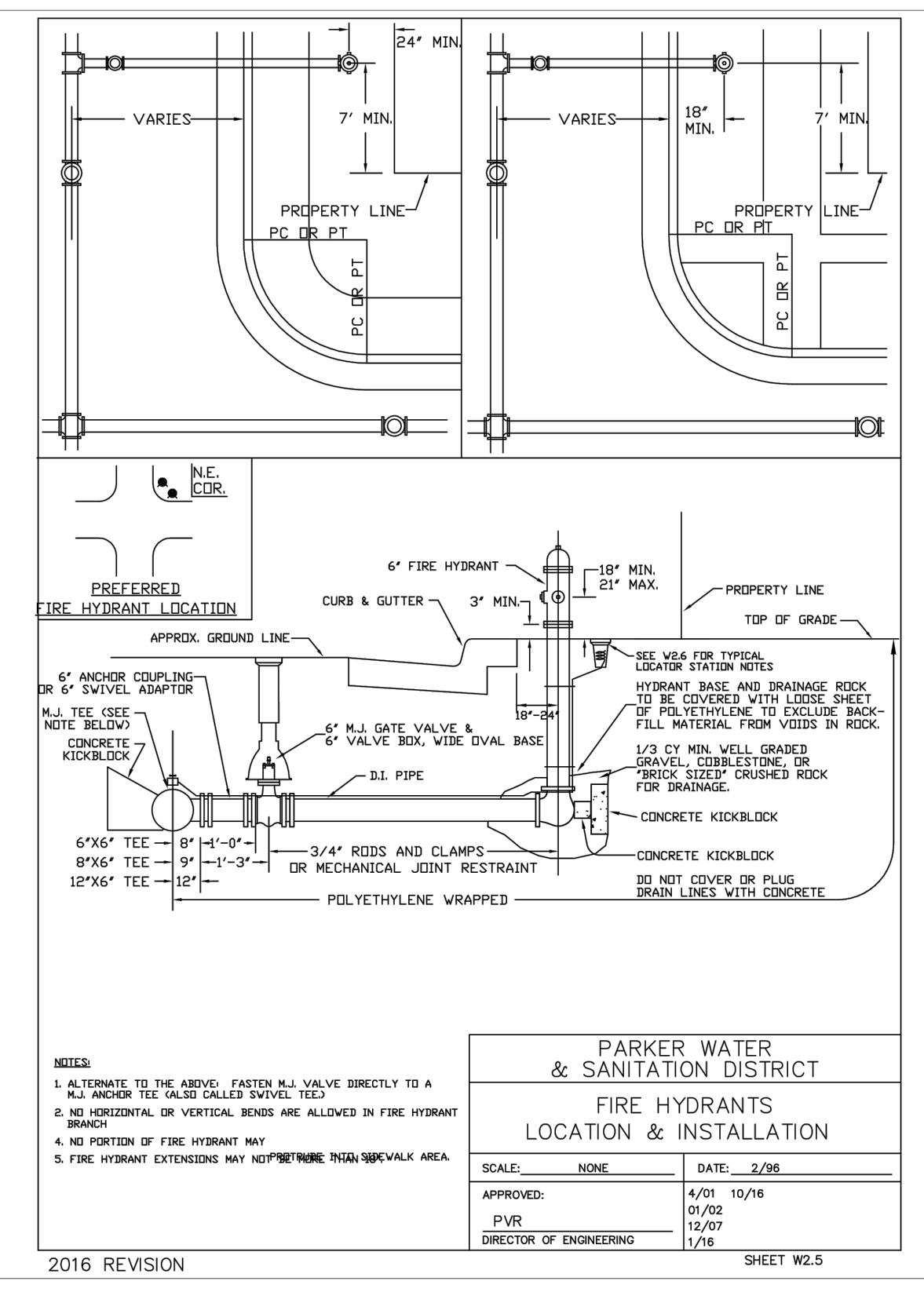
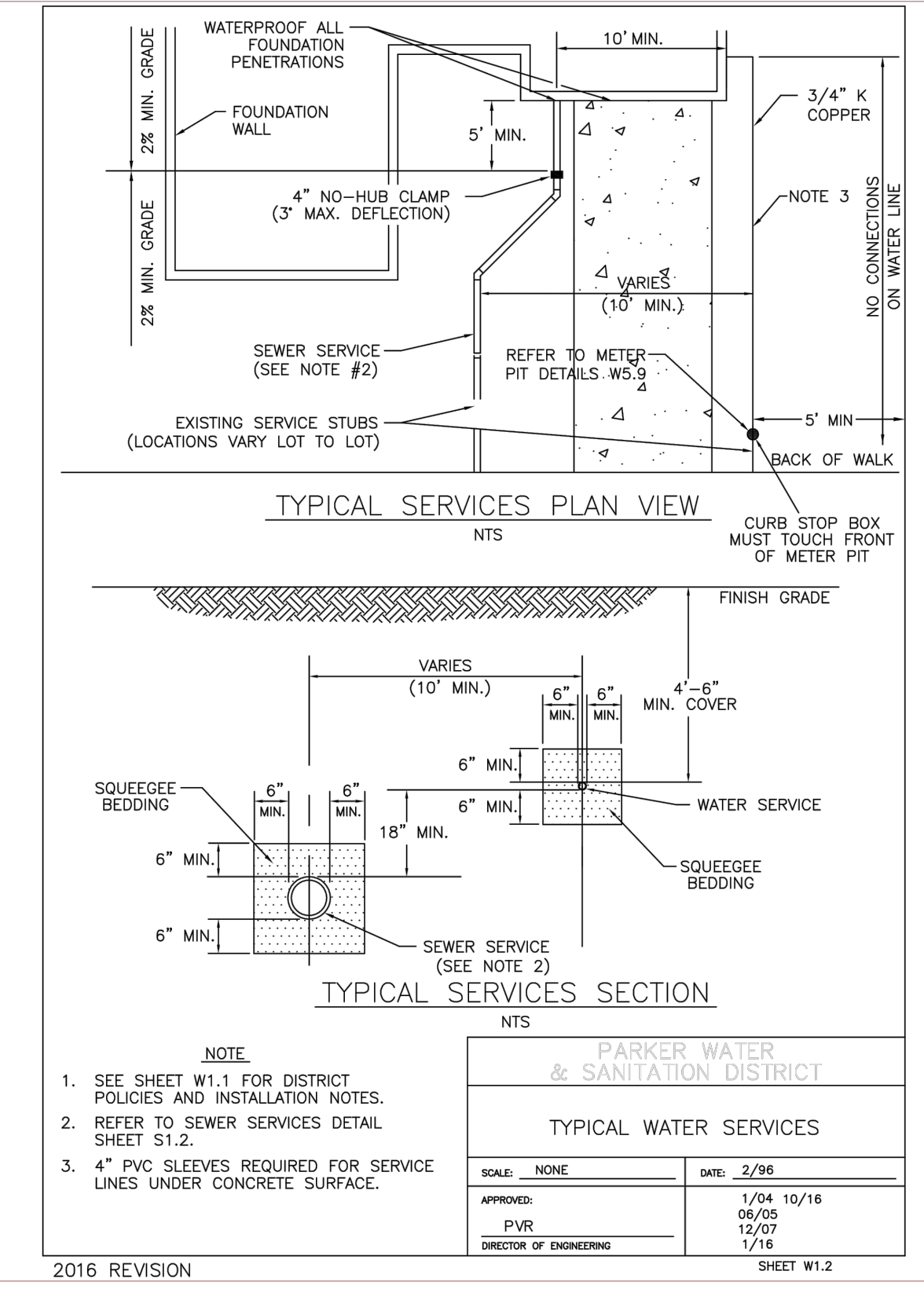
**WATER**

- ACCEPTABLE PIPE MATERIALS SHALL BE K-COPPER TUBING, (3/4" MIN.)
- APPROVED BEDDING TO BE SQUEEGEE.
- ONLY ONE COUPLING WILL BE ALLOWED BETWEEN THE STUB-IN AND BUILDING. COMPRESSION COUPLINGS WILL NOT BE ALLOWED ON NEW CONSTRUCTION. SILVER SOLDERED JOINTS MUST BE USED ON SERVICES LARGER THAN 3/4". SILVER SOLDERED JOINTS MUST BE INSPECTED BY PWSO PRIOR TO BURIAL. FLARED COUPLINGS WILL BE ALLOWED ON ALL SERVICES 3/4" AND SMALLER.
- A WATER SERVICE WHICH CROSSES A SEWER SERVICE CAN DO SO ONLY AT A 45-90° ANGLE. WATER SERVICES SHALL BE LOCATED A MINIMUM OF 18" ABOVE SEWER SERVICE.
- WATER SERVICE FOUNDATION PENETRATIONS SHALL BE WATERPROOFED USING MASTIC OR OTHER APPROVED METHOD. CRAWL SPACE REQUIRES CONTINUOUS COPPER WITH A 1" BURY.
- CURB STOP MUST BE PLUMB AND CENTERED OVER THE NUT. IT SHOULD BE STRAPPED TO THE METER PIT (RESIDENTIAL INSTALLATIONS) OR CENTERED OVER THE EASEMENT LINE (COMMERCIAL INSTALLATIONS). THE ASSEMBLY MUST BE AT OR SLIGHTLY ABOVE FINISHED GRADE.
- MOVED CURB BOXES MUST BE INSPECTED BY PWSO PRIOR TO BURIAL.
- WATERLINE MUST BE ATTACHED TO A SUPPORT BOARD THAT IS MOUNTED TO THE WALL.
- NO VOIDS ALLOWED UNDER WATERLINES FROM STOP BOX TO FOUNDATION.
- CURBSTOP BOXES AND METER PITS CANNOT BE IN DRIVEWAYS.
- ONLY 3/4" (JUMPER) PIPES (RESIDENCES) ARE ALLOWED. (JUMPER) PIPES WILL BE REMOVED PRIOR TO METER SET DATE.
- ALL SERVICES WILL BE PERMANENTLY MARKED ON CURB FACE AS FOLLOWS:  
 "X" FOR SANITARY SEWER SERVICE  
 "W" FOR WATER SERVICES
- NO SPLICES OR FLARED COUPLINGS ALLOWED ON SERVICES LARGER THAN 3/4". SILVER SOLDERED JOINTS MUST BE USED IN MOVING STOPBOXES ON SERVICES LARGER THAN 3/4". SILVER SOLDERED JOINTS MUST BE INSPECTED BY PWSO PRIOR TO BURIAL. FLARED COUPLINGS WILL BE ALLOWED ON ALL SERVICES 3/4" AND SMALLER.

**PARKER WATER & SANITATION DISTRICT**  
**DISTRICT POLICIES & INSTALLATION**  
**NOTES FOR WATER SERVICES**

SCALE: NONE DATE: 2/96  
 APPROVED: 1/04 DATE: 1/16  
 PVR 12/07  
 DIRECTOR OF ENGINEERING

2016 REVISION SHEET W1.1



NO.	REVISION	BY	DATE

**Kimley-Horn**  
 2017 KIMLEY-HORN AND ASSOCIATES, INC.  
 4582 South Ulster Street, Suite 1500  
 Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: DLS  
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PROJECT NO.  
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C7.11

1. User: c:\pwworking\kimley-horn\projects\096502001\DWG\_Miller\_Tier 12/19/2016 10:09 AM  
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**CLAMP DETAILS**

**DIMENSIONS**

PIPE DIA.	BAR SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	PIPE DIA.
4	1-1/2	9-3/4	7-1/2	3-1/2	1	1	6-3/4	4-7/8	2-3/4	1-11/16	1-1/4	1-1/4	3-1/2	2-1/2	2-1/2	4
6	2-1/2	13	9-1/2	4	1-1/2	2	10-1/4	7-7/8	4-1/8	2-1/8	1-1/4	1-1/4	3-7/8	3-1/2	3-1/2	6
8	3-1/2	15	12-3/4	4-3/4	1-1/2	2	11-1/4	8-1/4	5-1/8	2-1/4	1-1/4	1-1/4	4-1/2	4-1/2	4-1/2	8
12	5-1/2	21-1/2	17-1/2	6-3/4	1-1/2	2	14-1/2	11-1/2	6	3-1/2	1-1/2	1-1/2	4-1/2	4-1/2	4-1/2	12
16	7-1/2	27-1/2	21-1/2	8-1/2	1-1/2	2	18-3/4	14-1/2	8-3/8	4-1/2	1-1/2	1-1/2	5-1/2	5-1/2	5-1/2	16
20	9-1/2	33-1/2	27-1/2	10-1/2	1-1/2	2	24-3/4	19-1/2	10-1/8	5-1/2	1-1/2	1-1/2	6-1/2	6-1/2	6-1/2	20
24	11-1/2	39-1/2	33-1/2	12-1/2	1-1/2	2	30-3/4	24-1/2	12-1/8	6-1/2	1-1/2	1-1/2	7-1/2	7-1/2	7-1/2	24

**TABLE OF DIMENSIONS FOR CLAMPS**

NOTE: ALL DIMENSIONS IN INCHES. CLAMPS MAY NOT BE USED ON PVC PIPE.

**PARKER WATER & SANITATION DISTRICT  
CLAMP DETAILS AND DIMENSIONS**

SCALE: NONE DATE: 2/96

APPROVED: 12/07/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.15

**HARNES LUG DIMENSIONS**

CARRIER PIPE NOMINAL DIA.	STUD DIA.	A	W	Z	T	H	E	H1	Y	X
4" TO 16"	3/4"	5"	1-1/2"	3-3/4"	3/8"	4-1/8"	3-1/8"	2"	4-1/2"	5"
20"	1"	5-3/4"	1-3/4"	4-7/16"	3/8"	4-1/2"	3-1/4"	2"	5-1/4"	5-11/16"

**PARKER WATER & SANITATION DISTRICT  
HARNES LUG DETAILS**

SCALE: NONE DATE: 2/96

APPROVED: 1/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.16

**MECHANICAL JOINT RESTRAINT**

NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	RZ INCHES	J INCHES	F INCHES	M INCHES
4"	2	2	11.12	9.5	7.00	0.88
6"	6	4	13.37	11.75	9.15	1.00
10"	8	6	15.62	14.00	11.20	1.00
12"	8	6	17.88	16.25	13.30	1.25
4"	4	2				
6"	6	3	11.12	9.5	7.00	0.88
8"	6	4	13.37	11.75	9.15	1.00
10"	8	6	15.62	14.00	11.20	1.00
12"	8	6	17.88	16.25	13.30	1.25

**PARKER WATER & SANITATION DISTRICT  
MECHANICAL JOINT RESTRAINT DETAILS**

SCALE: NONE DATE: 2/96

APPROVED: 2/00/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.17

**11-1/4, 22-1/2 & 90° BENDS**

**DEAD END**

**TYPICAL CROSS SECTION**

**MINIMUM BEARING SURFACE AREA (IN SQUARE FEET)**

PIPE SIZE	90°	45°	TEE OR DEAD END
4"	1.00	1.00	1.00
6"	1.00	1.00	1.00
8"	1.00	1.00	1.00
10"	1.00	1.00	1.00
12"	1.00	1.00	1.00
16"	1.00	1.00	1.00
20"	1.00	1.00	1.00
24"	1.00	1.00	1.00

**PARKER WATER & SANITATION DISTRICT  
CONCRETE KICKBLOCKS BEARING SURFACES AND INSTALLATION**

SCALE: NONE DATE: 2/96

APPROVED: 4/01/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.18

**LENGTH OF TIED PIPE**

PIPE SIZE	4"	6"	8"	10"	12"	16"	20"	24"
PIPE DIA.	D	L	L	L	L	L	L	L
TIE ROD	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"
WASHER	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"
90° BEND	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"
45° BEND	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"
22-1/2° BEND	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"
11-1/4° BEND	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"	5/4"

**PARKER WATER & SANITATION DISTRICT  
LENGTH OF TIED PIPE**

SCALE: NONE DATE: 2/96

APPROVED: 4/01/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.11

**TIE ROD DETAIL**

**WASHER DETAIL**

**TIE RODS**

A	B	C
ROD DIAMETER	ROD LENGTH	ROD LENGTH
3/4"	1-1/4"	1-1/4"
1"	1-1/2"	1-1/2"
1-1/4"	2"	2"

**WASHERS**

D	E	F	G
WIDTH <td>HOLE DIAMETER <td>LENGTH <td>THICKNESS </td></td></td>	HOLE DIAMETER <td>LENGTH <td>THICKNESS </td></td>	LENGTH <td>THICKNESS </td>	THICKNESS
3"	1-1/8"	5"	3/8"
4"	1-3/8"	7"	5/8"

**PARKER WATER & SANITATION DISTRICT  
TIE ROD AND WASHER DETAILS**

SCALE: NONE DATE: 2/96

APPROVED: 1/16/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.12

**TIE ROD COUPLING DETAIL**

**SECTION "A-A"**

**PARKER WATER & SANITATION DISTRICT  
TIE ROD COUPLING**

SCALE: NONE DATE: 2/96

APPROVED: 1/16/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.13

**FLANGE LUG DETAIL**

**DIMENSIONS (IN INCHES)**

PIPE DIA.	N	O	P	Q	R	S	U	V
4"	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
6"	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4	2-1/4
8"	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4	3-1/4
10"	4-1/4	4-1/4	4-1/4	4-1/4	4-1/4	4-1/4	4-1/4	4-1/4
12"	5-1/4	5-1/4	5-1/4	5-1/4	5-1/4	5-1/4	5-1/4	5-1/4
16"	7-1/4	7-1/4	7-1/4	7-1/4	7-1/4	7-1/4	7-1/4	7-1/4
20"	9-1/4	9-1/4	9-1/4	9-1/4	9-1/4	9-1/4	9-1/4	9-1/4
24"	11-1/4	11-1/4	11-1/4	11-1/4	11-1/4	11-1/4	11-1/4	11-1/4

**PARKER WATER & SANITATION DISTRICT  
FLANGE LUG DETAIL**

SCALE: NONE DATE: 2/96

APPROVED: 1/16/16/16 PVR DIRECTOR OF ENGINEERING

2016 REVISION SHEET W3.14

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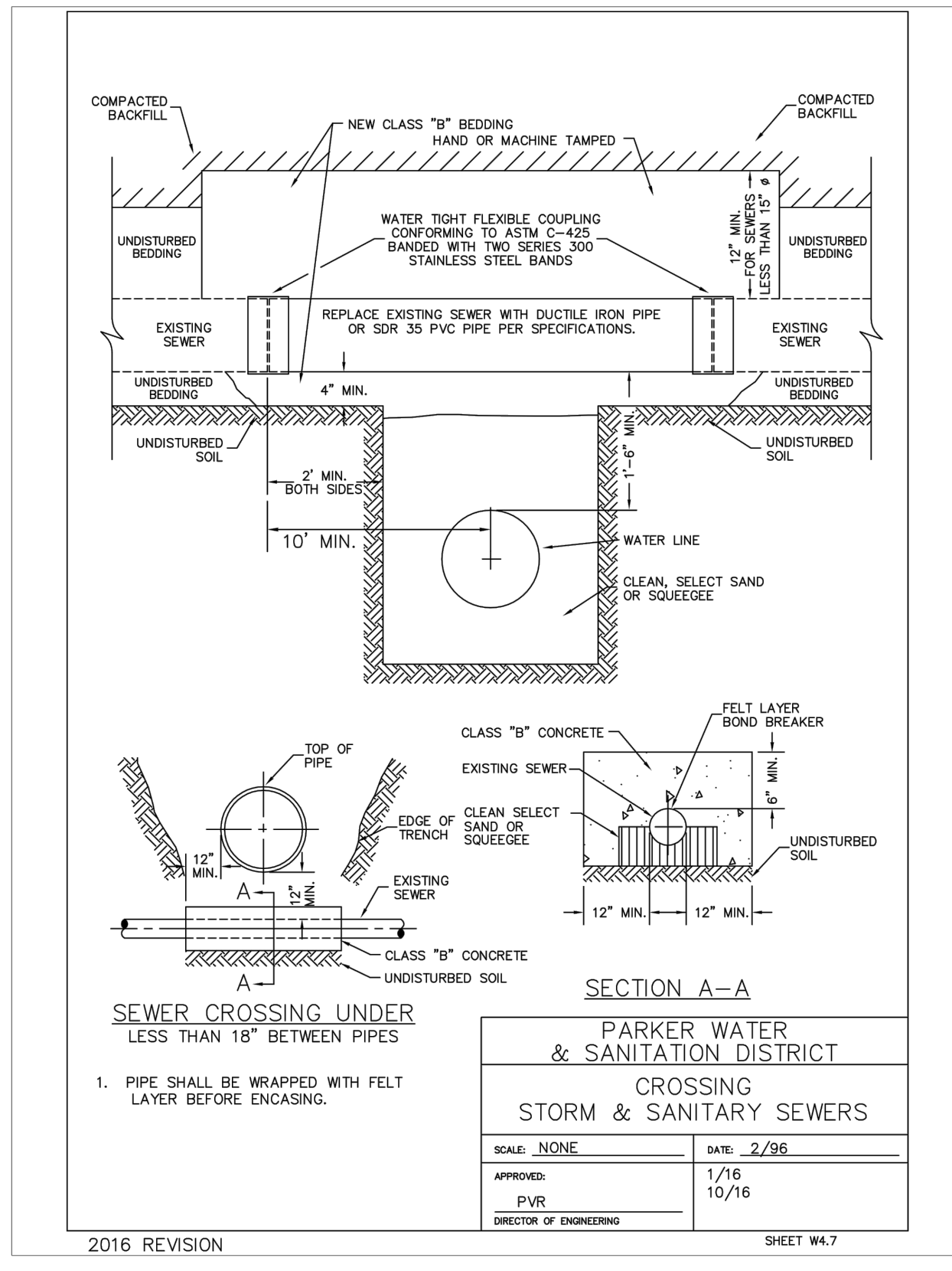
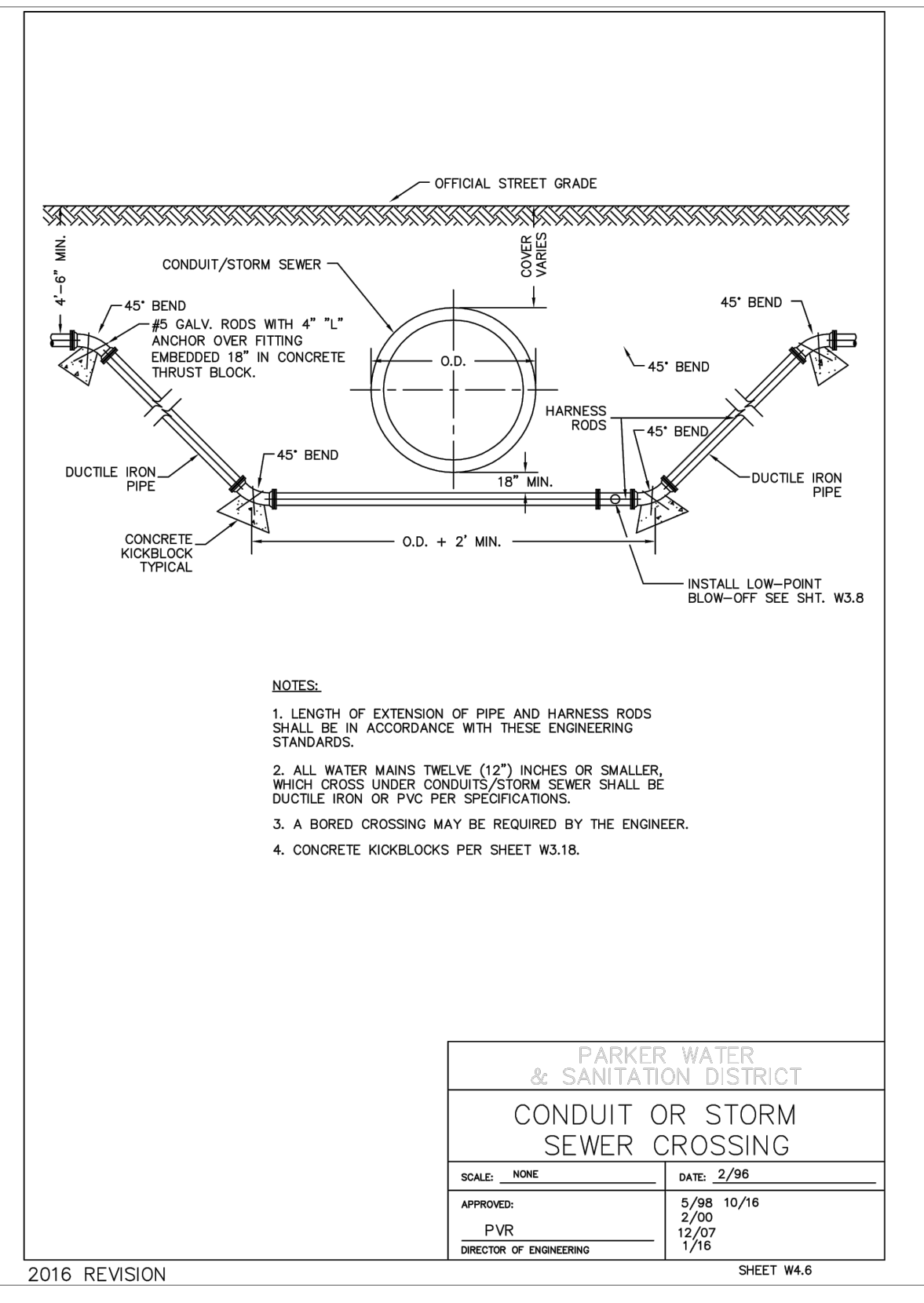
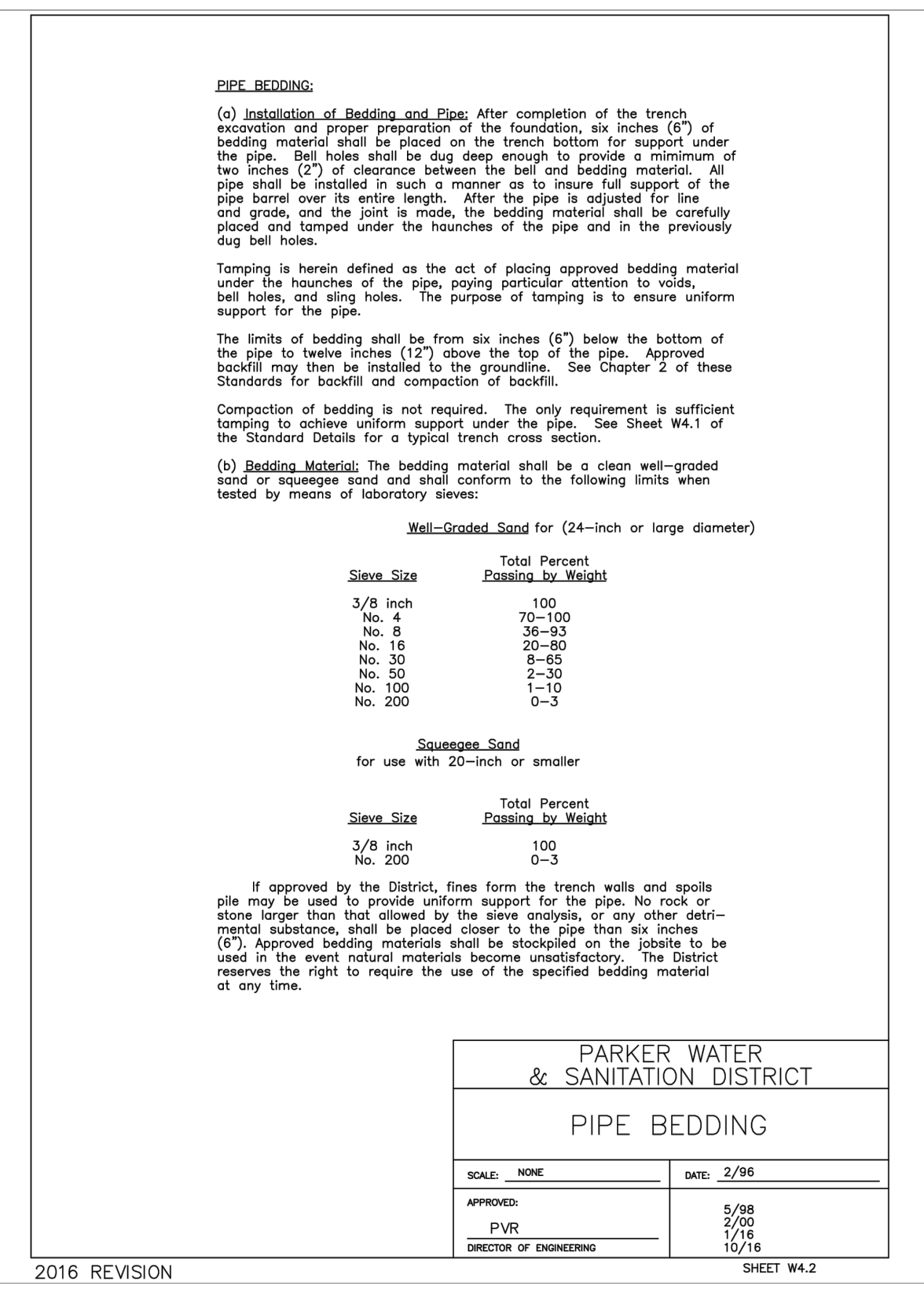
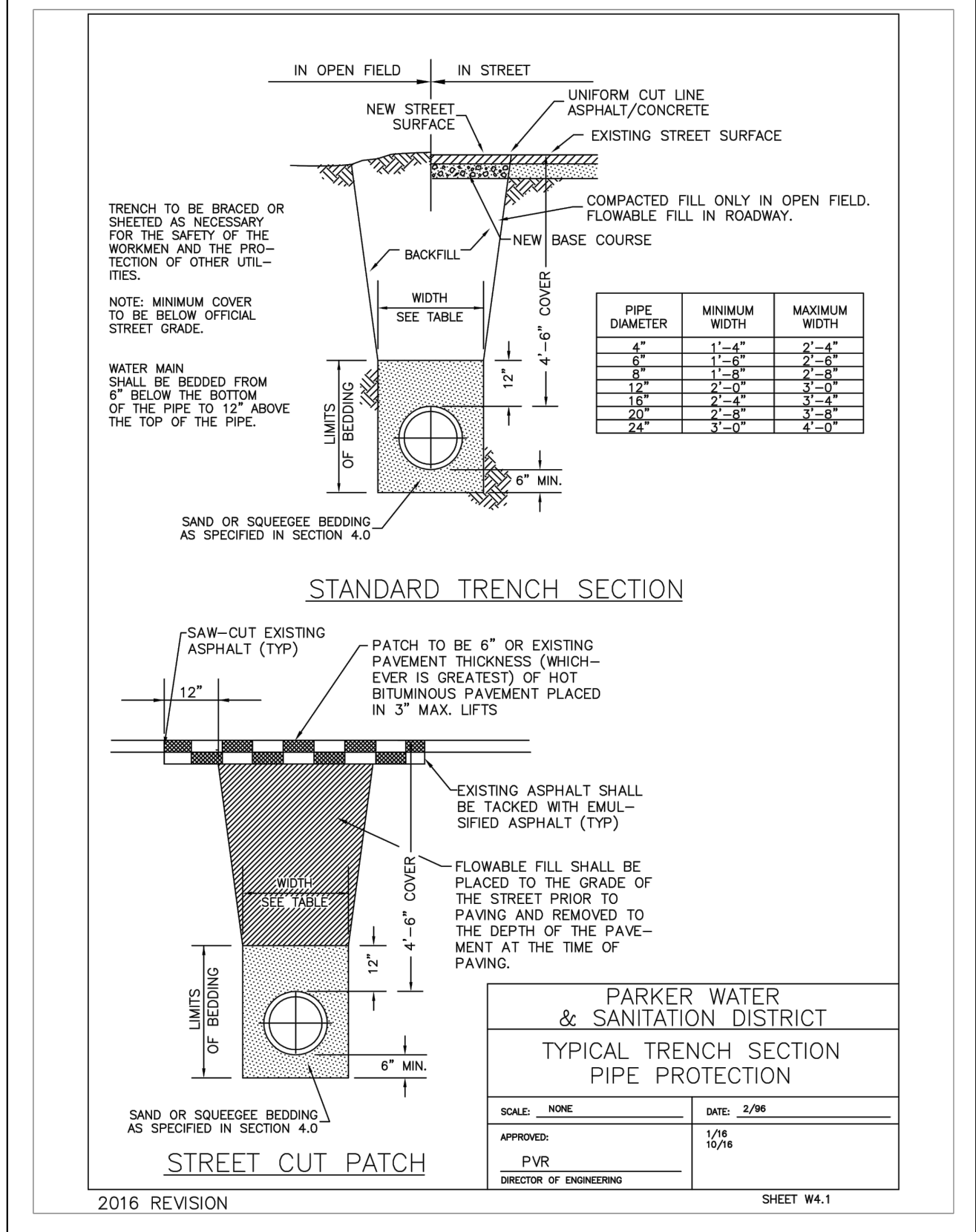
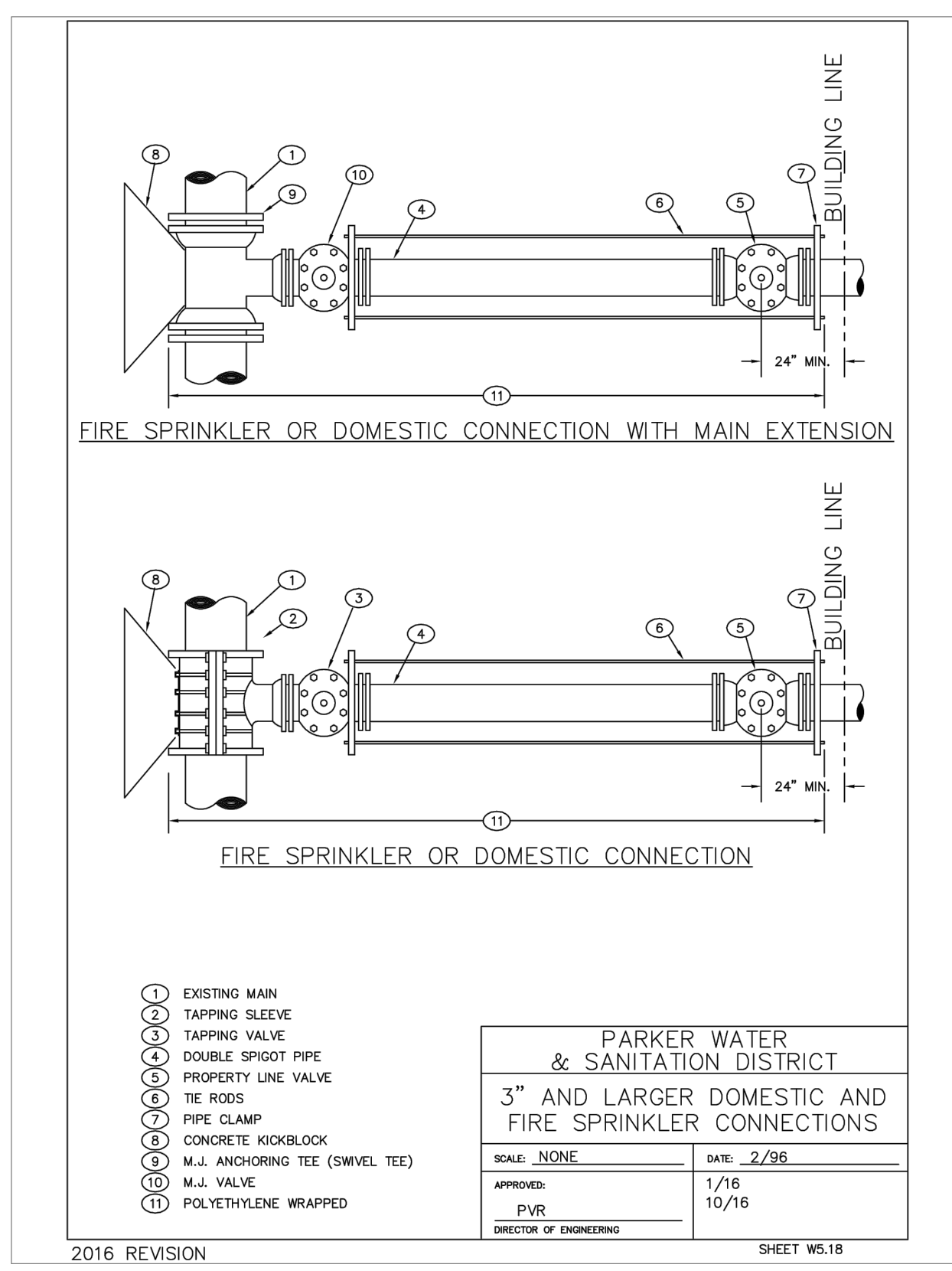
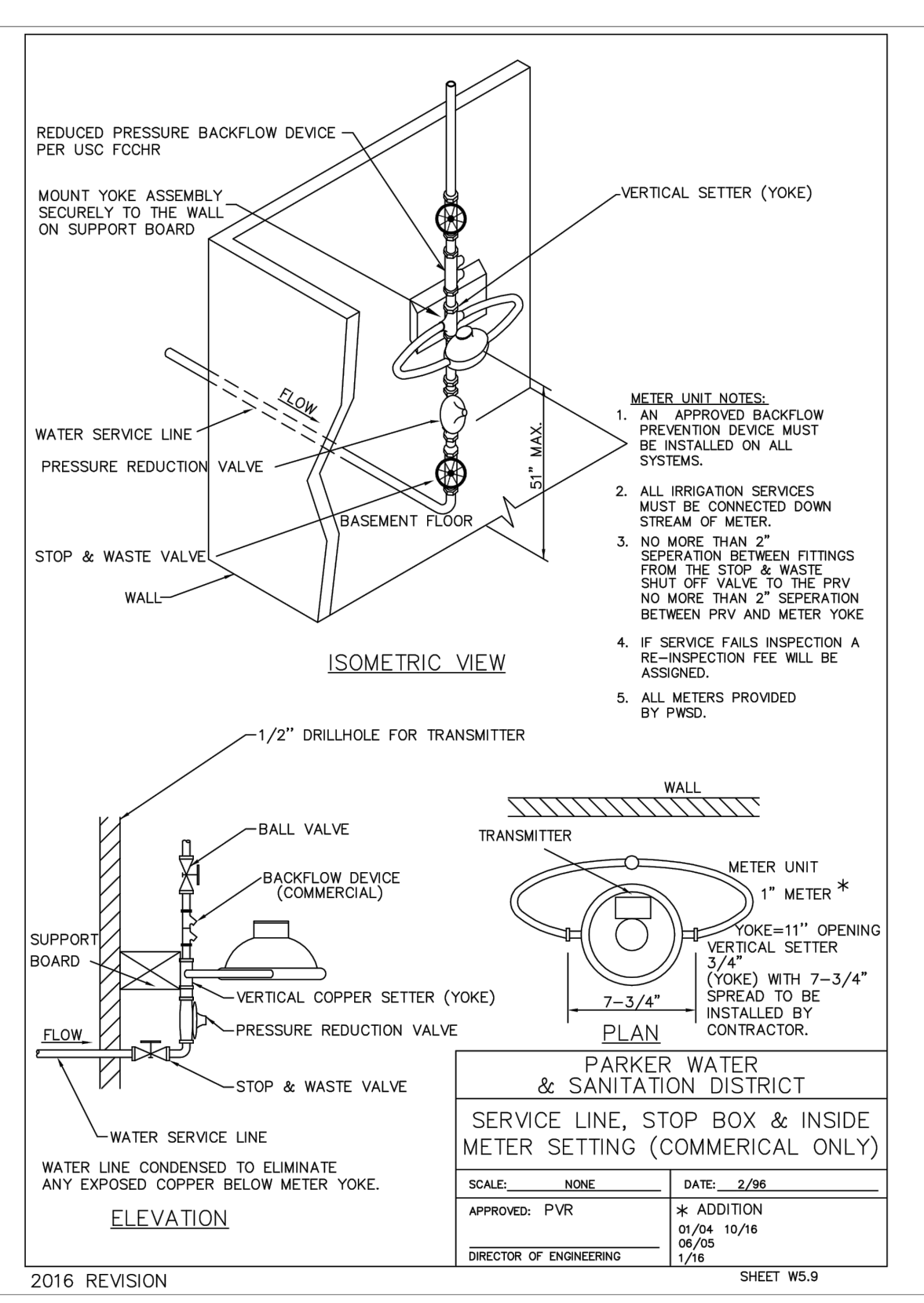
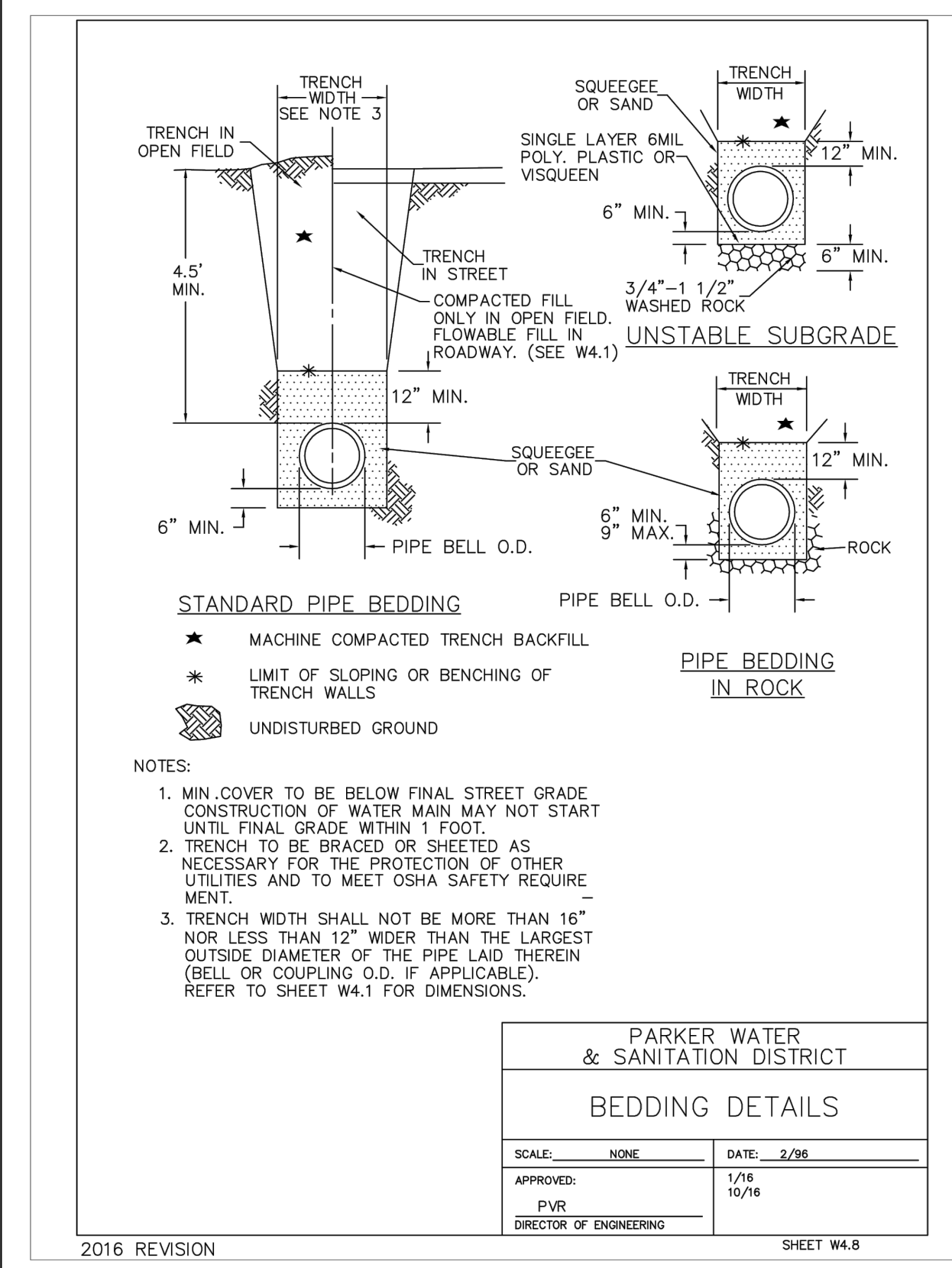
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 DRAWING NAME  
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NO.	REVISION	BY	DATE

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DESIGNED BY: DLS  
 DRAWN BY: CTM  
 CHECKED BY: DLS  
 DATE: 8/17/17

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