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## **WCID No. 17 CONSTRUCTION NOTES**

### **GENERAL NOTES**

1. Contractors are responsible for quality of workmanship and schedule of work. Water and wastewater utilities shall be installed by experienced personnel familiar with the work and supervised by a qualified foreman.
2. Contractor must obtain a street cut permit from Travis County Transportation & Natural Resources Department before beginning construction within the right-of-way of a public street, alley, or easement. Prior to beginning any construction, a City (Lakeway, Bee Cave or Austin) and County permit must be posted on the job site.
3. At least forty-eight hours (48 hours) before beginning ANY utility construction in public R.O.W. or public easement, the contractor shall notify Travis County Transportation & Natural Resources Inspection Division, WCID No. 17 and the applicable City. Contact WCID No. 17 forty-eight hours (48 hours) prior to connecting to existing lines.
4. The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.
5. The contractor shall contact the Austin area "One Call" system at "811" (1-800-344-8377) for existing utility locations at least forty-eight hours (48 hours) prior to beginning any excavation. In advance of construction, the contractor shall verify the locations of all utilities to be tied to, or altered, or subject to damage/inconvenience by the construction operations. (Note: "One Call" does not take care of all utility locations.)
6. Before any pipe is laid, subgrade must be established and curb and finished grade stakes installed.
7. Pressure taps: The contractor shall do all excavation and shall furnish, install, and air test the sleeves and valve. When a contractor makes a tap into WCID No. 17 facilities, a WCID No. 17 Inspector must be present. "Size on Size" taps will not be permitted unless made by use of an approved heavy duty MJ ductile iron tapping sleeve. Air tests on wet taps are 100 psi (pounds per square inch) for ten (10) minutes.
8. Erosion controls shall be in place prior to construction start.

9. No dry utilities (i.e. electric, gas, telephone) shall be located nearer than five feet (5') horizontally and two feet (2') vertically of water or wastewater lines or facilities.
10. No trees shall be planted within seven feet (7') of a water or wastewater line or service.

#### PIPING / VALVES

- i. All mains shall have a maximum 48 inches (48") of cover from finished grade to top of pipe unless otherwise noted on the approved plans.
- ii. All ductile iron pipe and fittings to be wrapped with minimum 8 Mil. Polyethylene.
- iii. All pipes shall be marked with 12 inch (12") detectable tape for ease of identification. (See standard details for water appurtenances.)
- iv. No yellow mine or SDR35 pipe may be used.
- v. All water lines twelve inches (12") in diameter or above shall be ductile iron – class 350 or approved class.
- vi. Only ARI plastic air relief valves for water and wastewater are acceptable.
- vii. All valve piping in lift station dry wells and force main cleanouts shall be painted to prevent corrosion with a rust resistant paint **approved by WCID No. 17**.
- viii. All gravity wastewater mains must be eight inch (8") minimum.
- ix. All water or wastewater lines which cross under 24 inch (24") or larger RCP pipe with a separation of two feet (2') or less shall be sleeved or capped with six inch (6") concrete to five feet (5') either side of the RCP.
- x. Maximum allowable deflection of pipe joints is one-half (1/2) of manufacturers standards. Deflections to be approved by the inspector at installation.
- xi. If a valve operating nut is to be deeper than thirty-six inches (36"), an extension must be added to bring the nut to within twenty-four inches (24") of finished grade.
- xii. If a valve is to be located outside a pavement area, the contractor will mark the valve location with a "V" marker. Valves will be raised to finished grade prior to paving.
- xiii. Fire hydrants north of Mansfield Dam shall be set with City of Austin threads. Those located south of Mansfield Dam shall follow the National Standard Thread with steamer connector of four and one-half inches (4.5"). Colors – Bases shall be painted silver and the bolt and caps shall be painted the designated color per the gallon per minute (GPM) flow as follows:

Class AA	Light Blue	1500 or Higher GPM
Class A	Green	1000 – 1499 GPM
Class B	Orange	500 – 999 GPM
Class C	Red	Less than 500 GPM
Class D	Black or Bagged	Out of Service

- xiv. Water lines which are stubbed out shall be required to pass driveways and have a valve and a twenty foot (20') section installed for future use. **All valves and fittings shall be megalugged or restrained.**
- xv. If any water or wastewater main or service line is intended to be constructed under a wall or other structure which would render the line inaccessible for repair, that line shall be sleeved for ten feet (10') either side of the wall. The sleeve shall allow for the removal of the length of line under the wall.
- xvi. No valves will be opened which connect new services to the existing system without prior District approval and a **District Representative present**. Sewer lines will be flushed and water lines will be properly disinfected and tested prior to connecting to the existing system.
- xvii. All water lines which are dead-ended shall have fire hydrants or approved two foot (2') blow off valves installed for flushing.

#### FLUSHING, TESTING AND DISINFECTION

- A. Wastewater facility testing will be done in accordance with TCEQ rules. District 17 requires camera tests, air tests, vacuum tests on manholes, and mandrel tests on wastewater lines. WCID No. 17 inspectors will provide procedures.
- B. Air pressure tests on wet taps shall be 100 psi (pounds per square inch) for ten (10) minutes.
- C. Camera testing of wastewater lines shall be done only after castings are raised, manholes coated, and hydro jetting completed.
- D. Contractors are responsible for flushing water lines. Schedule with WCID No.17 inspector.
- E. All material tests, including soil density tests and related soil analysis, shall be accomplished by a qualified laboratory.
- F. All force mains and water mains shall be pressure tested at 200 psi for ten (10) minutes and 150 psi for sixty (60) minutes with zero pressure loss unless otherwise specified by WCID No. 17 representative. [Site conditions may require variation on test procedures.]
- G. Water line testing and disinfection shall be performed in accordance with AWWA Standards and TCEQ rules. Contractor will provide any fittings, valves and other appurtenances

necessary for disinfection. All mains will be chlorinated for twenty-four (24) hours at 50 ppm (parts per million) chlorine using pre-dissolved injection systems only.

## WASTEWATER

- a. All force mains shall be white with brown poly wrap stating "Force Main."
- b. Force mains shall have brown "Force Main" twelve inch (12") wide magnetic tape placed eighteen inches (18") below finish grades.
- c. Lift stations which are not composite or fiberglass will be coated inside with LaFarge aluminum silicate compound to an approved thickness of one inch (1") minimum.
- d. HDPE or composite rings for manholes are acceptable. All manhole covers will be the bolt down type regardless of location.
- e. Existing wastewater manholes which are to be tied into and wet wells being modified must be refurbished to new condition. Refurbishment includes removing the old coating (if not calcium aluminate) and recoating with a minimum one-half inch (1/2") calcium aluminate for manholes and one inch (1") for wet wells. If the ring and cover is not at least thirty-two inches (32") in diameter, the ring and cover will be upgraded.
- f. Manhole frames and covers shall be raised to finished pavement grade by the contractor prior to final construction / paving.
- g. Manholes not in pavement must be one foot (1') above finished grade.

## REQUIREMENTS FOR GPS LOCATION OF IMPROVEMENTS AND AS-BUILT DOCUMENTATION

Improvements shall be located using Global Positioning System (GPS) as they are installed and used to produce the As-Built Drawings for each project. Digital and hard copies of these and other project documents shall be supplied to and approved by Travis County WCID No. 17 (District) prior to project acceptance.

- a. GPS Requirements
  1. GPS locations shall be taken with a minimum accuracy of:
    - i. Horizontal: +/- 4"
    - ii. Vertical: +/- 6"
  2. GPS locations shall be taken, and the resulting drawing prepared in, State Plane Coordinate System (NAD 1983 State Plane Texas Central FIPS 4203 Feet).
  3. GPS points shall be delivered in three dimensions (x, y and z coordinates).
  4. GPS points shall be taken for all changes in alignment of the piping and at all appurtenances and improvements, including:
    - i. Water Lines and Force Mains:
      1. Fittings: Including bends, tees, crosses and plugs.

2. Valves.
  3. Fire Hydrants and Flush Valves: Take GPS location at bottom flange of hydrant.
  4. Services: Take GPS location on center of lid.
  5. Force Main Cleanouts: Take GPS location on center of cover.
  - ii. Gravity Wastewater Lines:
    1. Manholes: Take GPS locations at the center of the top cover and the flowline.
  - iii. Storm Sewer Systems:
    1. Manholes and Junction Boxes: Take GPS locations at the center of the top cover and the flowline.
    2. Curb Inlets: Take GPS location at center of top of inlet.
    3. Area Inlets: Take GPS location at center of top of inlet.
    4. Headwalls: Take GPS location at center of outfall (flowline).
- b. Drawing Requirements
1. As-Built Plans shall be prepared using the GPS locations of the utilities.
  2. The As-Built Drawing shall be delivered in DWG format and in model space.
  3. Drawings shall be drawn in U.S. Survey Feet at a 1:1 scale and in the State Plane Coordinate System (NAD 1983 State Plane Texas Central FIPS 4203 Feet).
  4. Improvements shall be on distinct and separate layers, with descriptive layer names that indicate the type of improvement. Pipe line layers shall also indicate the nominal size of the pipe line.
  5. The As-Built Drawing shall be delivered with lines that are solid, continuous and snapped at all intersections.
    - i. Water Lines and Force Mains shall be split and snapped at all system valves, fittings and appurtenances.
    - ii. Gravity Wastewater Lines and Storm Sewer Lines shall be straight two-point lines that are split and snapped at Manholes and/or Junction Boxes, and shall be drawn in the direction of their physical flow. The beginning point of the line shall be its upstream end.
- c. Submission Procedure
1. The following shall be submitted to the District:
    - i. As-Built drawing in DWG format,
    - ii. Full-size paper copy of the full As-Built Plans, stamped or noted as such,
    - iii. Digital copy in PDF format of the full As-Built Plans, iv. Digital copy in PDF format of the project's Design/Engineering Report, Submittals and Operation & Maintenance Manual(s).
  2. Digital files shall be submitted on a USB flash drive, or other medium approved by the District.
  3. All Plans, Files and Information submitted shall be the property of the District upon delivery.