GENERAL NOTES

GENERAL

1. All construction shall be in strict accordance with the construction standards of the Town of Addison and governed by the North Central Texas Council of Government's (NCTCOG) Standard Specifications for Public Works Construction, 3RD Edition.
2. In case of conflict or contradictions between the construction standards of the Town of Addison and the NCTCOG specifications, the construction standards of the Town of Addison preside.
3. All water system installation details shall meet current Texas Commission on Environmental Quality (TCEQ) Title 30, Chapter 290 (Water Hygiene) regulations, American Water Works Association (AWWA) standards and manufacturer's recommendations.
4. The location of underground facilities indicated on the plans is taken from public records. It is the CONTRACTOR's responsibility to make arrangements with the owners of such underground facilities prior to working in the area to confirm their exact location and to determine whether any additional facilities other than those shown on the plans may be present. The CONTRACTOR shall preserve and protect all underground facilities.
5. Where existing utilities or service lines are cut, broken or damaged, the CONTRACTOR shall replace or repair the utilities or service lines with the same type of original material and construction, or better, unless otherwise shown or noted on the plans, at his own cost and expense. The CONTRACTOR shall immediately notify the Town at once of any conflicts in grades and alignment.
6. For franchise utility locator services, call 1-800-DIG-TESS.
7. The CONTRACTOR shall restore all areas disturbed by construction to original condition or better. Restored areas include, but are not limited to trench backfill, side slopes, fences, culvert pipes, drainage ditches, irrigation, sodding or seeding, driveways, private yards and roadways.

PIPE

1. All water mains shall be ANSI/AWWA C-900 PVC Pressure pipe with cast iron O.D. Pipe joints shall be rubber ring and integral thickened bell, assembled with a factory supplied lubricant. Water mains shall have a minimum class rating of 150-psi. Joint material for PVC shall conform to ASTM F471.
2. Embedment shall comply with NCTCOG Class "B+" embedment. A layer of geo-textile fabric shall be placed on top of the stone prior to the placement of the select or granular material. Finish backfill shall be native soil free of all rocks and clods greater than three inches (3") in diameter, compacted in six-inch (6") maximum loose lifts to a minimum of 95% Standard Proctor Density at zero to three percent (3%) of optimum moisture. Trenches under pavement shall be backfilled with flowable fill with a minimum compressive strength of 400psi to the level indicated by the pavement thickness. A batch design shall be submitted for any flowable fill used within the public rights-of-way.

FITTINGS

1. All DI fittings are to be Mueller brand or approved equal. All ductile iron or cast iron fittings shall be polywrapped per AWWA C105.
2. All fittings, valves, etc. shall be blocked with 3000 PSI concrete. All blocking shall be poured to avoid nuts and bolts.
3. All fittings, shall be ductile iron, full bodied, mechanical joint type and meet current AWWA specifications (C110, C153, C502, C509) with a minimum pressure rating of 250 PSI.
4. All fittings shall be secured with a mechanical joint restraint such as Megalug or approved equal.

SAFETY

1. All contractors and developers, with their employees and agents, shall comply with all applicable federal, state and local safety laws and regulations including but not limited to the Occupational Safety and Health Act of 1970, ordinances, rules, regulations and orders or any public authority having jurisdiction for the safety of persons or property to protect them from damage, injury or loss. The contractor shall provide, erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including providing and maintaining signs in accordance with the most current Barricade and Construction Standards from the Texas Manual of Uniform Control Devices (and other such barricades and signs as deemed necessary by the Town Engineer), promulgated safety regulations and notifying owners and users of adjacent utilities. Safety precautions shall include but not be limited to compliance with all federal, state and local standards, laws, ordinances and standards for design and implementation of trench safety, confined space, traffic control, and utility notification.
2. All excavation and trench operations shall be in accordance with 29 CFR Part 1926 Subpart P and all applicable Town and State regulations. Prior to commencing any excavation or trenching operation, the contractor shall submit to the Town Engineer an affidavit identifying the "Competent Person" as required by paragraph 1926.651(k)(1) that will work with each crew.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	BID TOTAL
1	SAWCUT, REMOVE & DISPOSE CONCRETE PAVEMENT	LF	11
2	SAWCUT, REMOVE & DISPOSE ASPHALT PAVEMENT	SY	2
3	CONSTRUCT 6" INTEGRAL CONCRETE CURB	LF	14
4	CONSTRUCT 4500 P.S.I. CONCRETE PAVEMENT	SY	13
5	CONSTRUCT ASPHALT PAVEMENT	SY	2
6	CONNECT TO EXISTING WATER	EA	2
7	FURNISH & INSTALL 8" C-900 CLASS 150 PVC WATER BY OPEN CUT	SY	25
8	FURNISH AND INSTALL DUCTILE IRON FITTINGS	EA	4
9	FURNISH AND INSTALL 2" FLUSH POINT	EA	1
10	FURNISH AND INSTALL FLOWABLE FILL FOR WATER	LF	25
11	BACKFILL POTHOLE	LS	1
12	TRAFFIC CONTROL PLAN	LS	1
13	TRENCH SAFETY	LF	25

DISINFECTING WATER MAINS

1. Chlorine for Disinfection

Calcium Hypochlorite in granular form conforming to ANSI/AWWA B300 must be used and must contain approximately 65 percent available chlorine by weight. The material should be stored in a cool, dry, and dark environment to minimize deterioration.

2. Basic Procedure

a. Inspecting materials to be used to ensure their integrity.
b. Preventing contaminating materials from entering the water main during storage and construction.
c. Remove, by flushing or other means, those materials that may have entered the water main.
d. Perform a hydrostatic test.
f. Protecting the existing distribution system from backflow caused by hydrostatic test and disinfection procedure.
g. Documenting that an adequate level of chlorine contacted each pipe to provide disinfection.
h. Determining the bacteriological quality by laboratory test after disinfection.
I. Final connection of the approved new water main to the active distribution system.

3. Preventive and Corrective Measures During Construction

a. General. Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing these organisms.
b. Keeping pipe dry and clean.
(1) Openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped.
(2) The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water and shall not contribute odors.
(3) If dirt enters the pipe during storage or installation, it shall be removed.
(4) The interior surface of all pipes and fittings shall be swabbed with a 1 to 5 percent hypochlorite disinfecting solution.

4. Flushing Method

The main shall be filled to eliminate air pockets and flushed to remove particulates. The flushing velocity in the main shall not be less than 2.5 ft/sec.

Required flow and openings to flush pipelines with a pressure of 40 psi

Pipe Inch	Flow gpm	1" Tap	1½" Tap	2" Tap	2½" Hydrant Outlets
6	200		1		1
8	400		2	1	1
10	600		3	2	1

5. Hydrostatic Test

The pipeline shall be tested with a hydraulic test pressure of not less than 200 psi over a period of not less than 2 hours. The rate of leakage of all pipe tested shall not exceed 11.65-gallons-per-inch of nominal diameter of the pipe per mile. If the tests indicate a leakage in excess of the acceptable rate, the Contractor shall be required to find and repair the leak. Even if the test requirements are met, all apparent leaks shall be stopped.

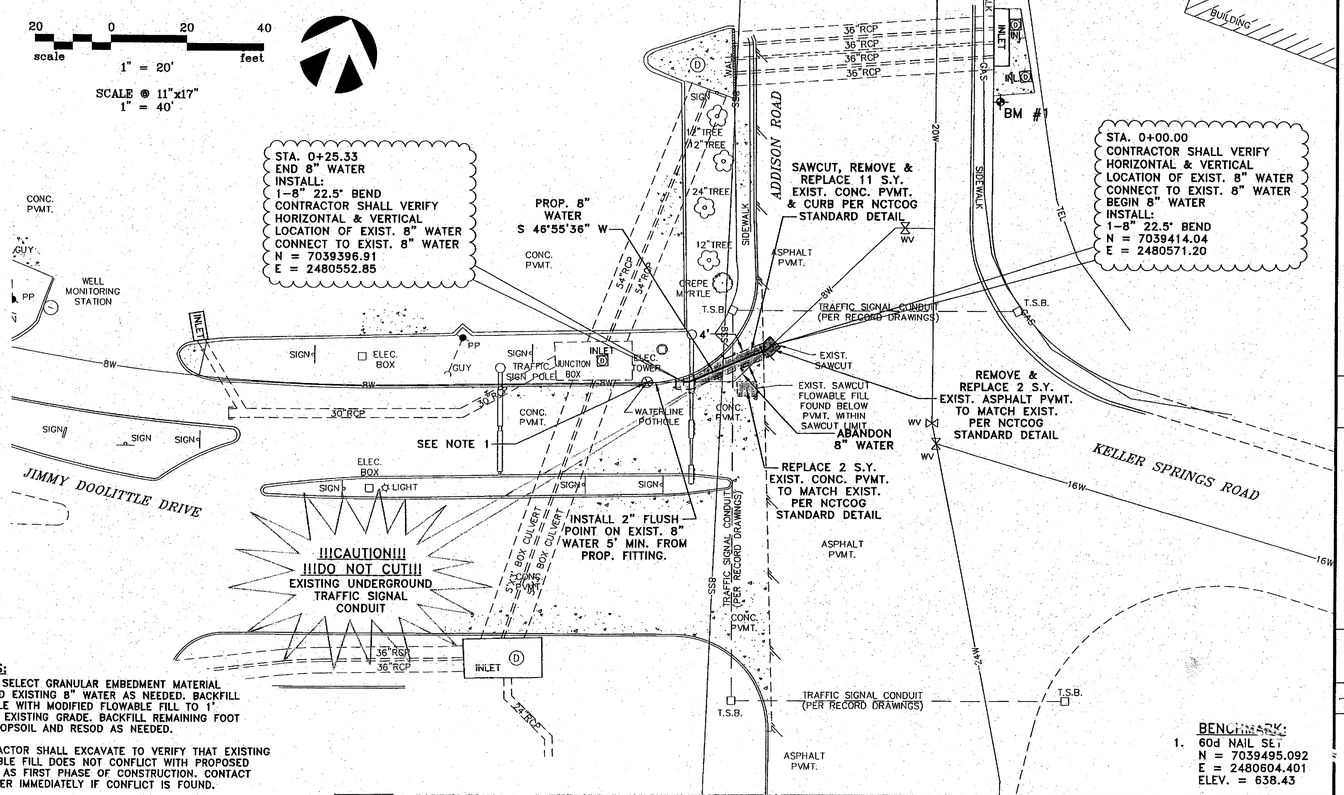
The hydrostatic pump shall be connected to a system where the amount of leakage can be determined by measurement or gauge. The 200-psi pressure shall be maintained over the entire 2-hour test period. The leakage shall be determined by comparing the quantity of water in the measuring system at the beginning of the test and quantity of water at the end of the test. The difference in these quantities shall be the leakage. An alternate method is to add water to the measuring system during the test. At the end of the 2-hour test, the quantity of water added shall be the leakage.

6. Sampling

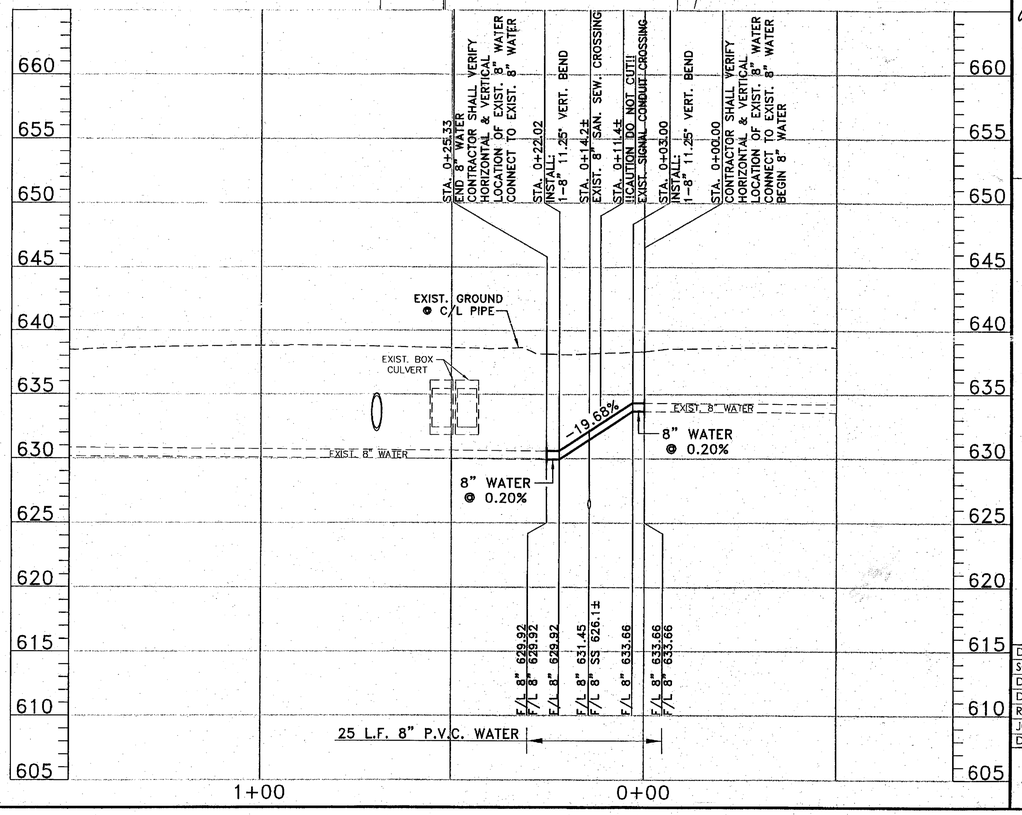
a. The Owner's Inspector shall take water samples from a suitable tap (not through a fire hydrant) for analysis by the North Texas Municipal Water District laboratory. The sample(s) shall be transported by City staff to the laboratory at 9:00 AM on Tuesdays and Thursdays. Samples may not be taken earlier than 3:00 PM on the day prior to delivery. The Owner's Inspector shall notify the Contractor of the results.
b. Samples shall be tested in accordance with Standard Methods for the Examination of Water and Wastewater. Samples for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate. Samples shall be taken of water that has stood in the new conduit for at least 16-hours.
c. Unsatisfactory test results shall require a repeat of the flushing process and resampling as required above until a satisfactory sample is obtained.

7. Measurement and Payment

Measurement and payment for hydrostatic testing and disinfection shall not be applicable. The Contractor shall provide materials, equipment and services in support of both purging and disinfection of the conduit. All costs for these services shall be included in the unit bid price in the proposal per foot of pipe complete in place, and no other compensation shall be allowed.



NOTES:
1. PLACE SELECT GRANULAR EMBEDMENT MATERIAL AROUND EXISTING 8" WATER AS NEEDED. BACKFILL POTHOLE WITH MODIFIED FLOWABLE FILL TO 1' BELOW EXISTING GRADE. BACKFILL REMAINING FOOT WITH TOPSOIL AND RESOD AS NEEDED.
2. CONTRACTOR SHALL EXCAVATE TO VERIFY THAT EXISTING FLOWABLE FILL DOES NOT CONFLICT WITH PROPOSED WATER AS FIRST PHASE OF CONSTRUCTION. CONTACT ENGINEER IMMEDIATELY IF CONFLICT IS FOUND.



BENCHMARK:

1. 60d NAIL SET
N = 7039495.092
E = 2480604.401
ELEV. = 638.43

gra Grantham & Associates
Civil Engineering
1919 S. SHILOH ROAD, SUITE 440, L.B. 8
GARLAND, TEXAS 75042
(972) 864-2333 [TEL]
(972) 864-2334 [FAX]

NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			
5			
6			

GRANTHAM & ASSOCIATES F-005438

STATE OF TEXAS
P. CHRISTOPHER ROBINSON
101252
REGISTERED PROFESSIONAL ENGINEER

THE SEAL APPEARING OF THIS DOCUMENT WAS AUTHORIZED BY P. CHRISTOPHER ROBINSON ON 7/27/09
ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

TOWN OF ADDISON

WATER LINE REPAIR - NORTHEAST CORNER OF ADDISON ROAD & KELLER SPRINGS ROAD

8" WATER LINE - PLAN & PROFILE

DATE:	JULY 2009
SCALE:	1"=20'(H) 1"=6'(V)
DRAWN BY:	G&A
DESIGN:	PCR
REVIEWED:	PCR
JOB NO:	1103-09
DWG:	1103WATPP01

SHEET 1 OF 1