

# WATER DISTRIBUTION SYSTEM IMPROVEMENTS TO SERVE WSU RESIDENCE HALL

PROJECT NO. 1742PPW

THE CITY OF WICHITA, KANSAS  
GARY JANZEN, P.E. - CITY ENGINEER

OCA 607853

## GENERAL NOTES

1. ALL WATER MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF WICHITA, KANSAS STANDARD SPECIFICATIONS FOR WATER MAIN INSTALLATIONS.
2. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF SEVENTY-TWO (72) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:  
  

KANSAS ONE-CALL	1-800-344-7233
OR LOCAL (WICHITA)	687-2470

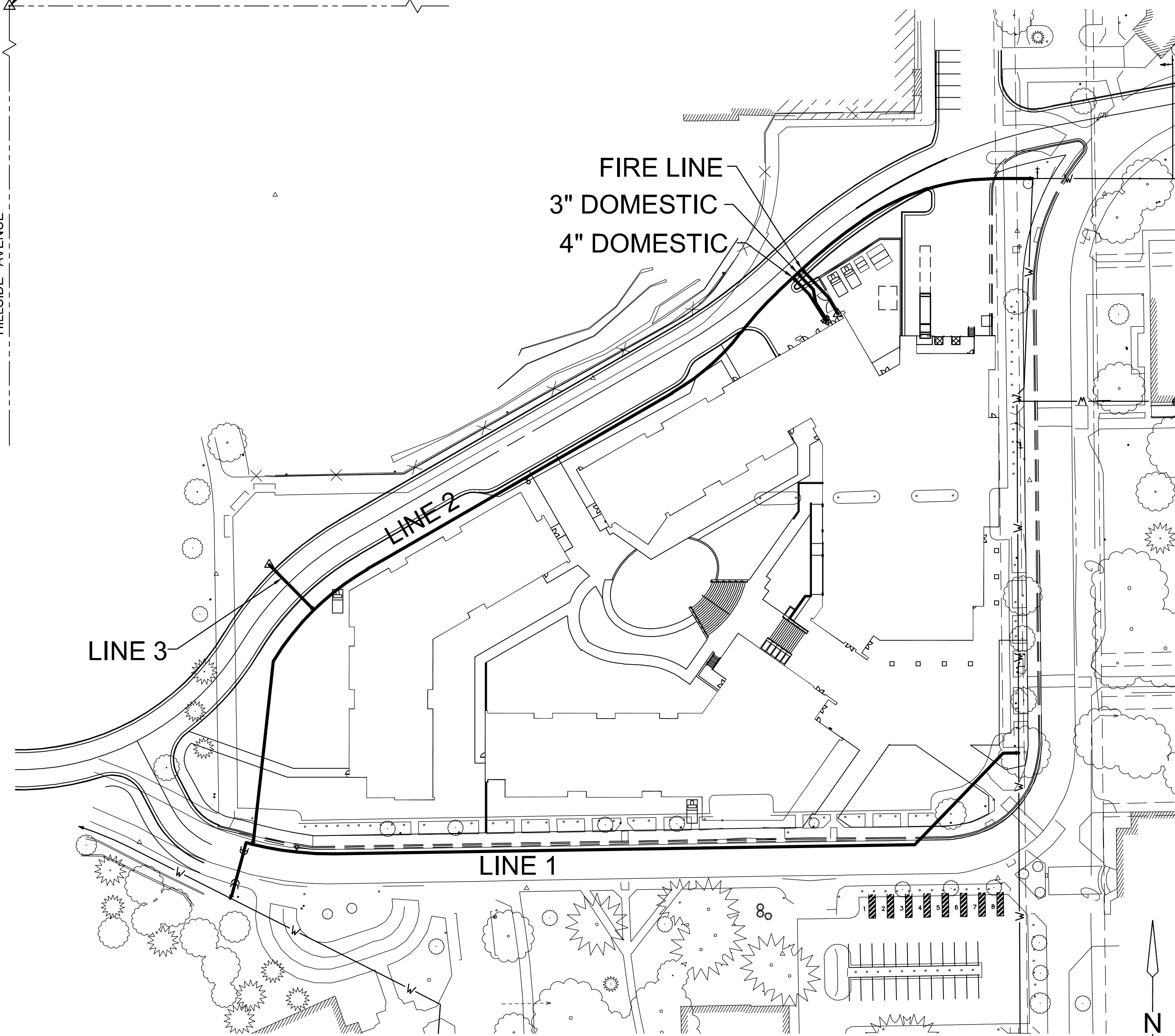
THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF EMERGENCY:

COX COMMUNICATIONS (CABLE)	262-0661
WESTAR (ELECTRIC)	383-9500
KANSAS GAS SERVICE (GAS)	832-3101
SBC (TELEPHONE)	800-870-8390
CITY OF WICHITA WATER & SEWER	262-6000
BLACK HILLS ENERGY (GAS)	800-303-0357
3. THE WATER MAIN SHALL BE CONSTRUCTED ON THE ALIGNMENT SHOWN ON THE PLANS. TREES AND SHRUBS IN PUBLIC RIGHT OF WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL, AND SHALL BE INCLUDED IN THE PRICE BID FOR THE INSTALLED WATER PIPE. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.
4. OPENING AND CLOSING WATER VALVES SHALL BE DONE SLOWLY TO PREVENT DAMAGE TO THE WATER DISTRIBUTION SYSTEM FROM WATER HAMMER. ALL VALVES CLOSED BY THE CONTRACTOR MUST BE REOPENED AS NEW CONSTRUCTION PERMITS. PROJECT INSPECTOR MUST ASCERTAIN THAT ANY VALVE CLOSED BY THE CONTRACTOR IS REOPENED. CONTRACTOR WILL BE PERMITTED TO OPERATE WATER VALVES ONLY WHEN THE PROJECT INSPECTOR ASSIGNED TO THE PROJECT IS PRESENT.
5. CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.
6. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
7. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ADJUTING CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO SITE RESTORATION.
9. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.
10. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA, AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.
11. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED AND TREE TRIMMINGS SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
12. ALL DISTURBED AREAS TO BE SEEDDED WITH RYE GRASS AT A RATE OF 200 LBS. PER ACRE WITHIN 10 DAYS OF CONSTRUCTION. CONTRACTOR TO PREPARE GROUND PER CITY SPECIFICATIONS. COST IS SUBSIDIARY TO SITE PREPARATION AND RESTORATION.
13. THE CONTRACTOR SHALL LAY A TRACER WIRE & SET TEST STATIONS ALONG ALL WATER LINE PIPE INSTALLED IN ACCORDANCE WITH CITY OF WICHITA SPECIFICATIONS & TRACER WIRE DETAIL ON DETAIL SHEET. COST IS SUBSIDIARY TO PIPE INSTALLATION.
14. CONTRACTOR TO COORDINATE CONSTRUCTION OF WATERLINE WITH OTHER CONSTRUCTION ACTIVITIES ON SITE. THIS INCLUDES SANITARY SEWER AND MASS GRADING PROJECTS.
15. WORK DONE UNDER THIS PROJECT IS SUBJECT TO THE CITY OF WICHITA REQUIREMENTS FOR "CONSTRUCTION OF INFRASTRUCTURE IMPROVEMENTS BY PRIVATE CONTRACTOR". THE CONTRACTOR SHALL BE FAMILIAR AND COMPLY WITH ALL OF THE REQUIREMENTS, INCLUDING BONDING, INSPECTION, TESTING, NOTIFICATION, PROVIDING AS-BUILT DRAWINGS, PAYING FOR ALL NECESSARY CONNECTIONS AND/OR STREET REPAIR FEES AND PROVIDING PIPE MATERIAL AND OTHER CERTIFICATIONS.
16. THE TOPOGRAPHIC SURVEY WAS PERFORMED BY PROFESSIONAL ENGINEERING CONSULTANTS, INC. ON JANUARY 15TH, 2013. THEY CAN BE REACHED AT (316)262-2691 FOR QUESTIONS REGARDING THE SURVEY, BENCHMARKS OR SITE CONTROL.

NW Cor., NW ¼,  
Sec. 11, T27E, R1W

21st STREET NO

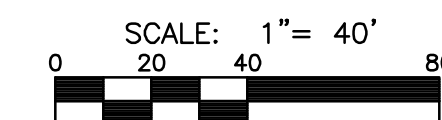
HILLSIDE AVENUE



## AS-BUILT PLANS - OCTOBER 2013

INSPECTED BY: LARRY SCHALLER, MKEC ENGINEERING CONSULTANTS, INC  
 CONSTRUCTED BY: DONDLINGER CONSTRUCTION  
 SUPERINTENDENT: MARTY DONDLINGER  
 SUPPLIER: HD SUPPLY WATERWORKS

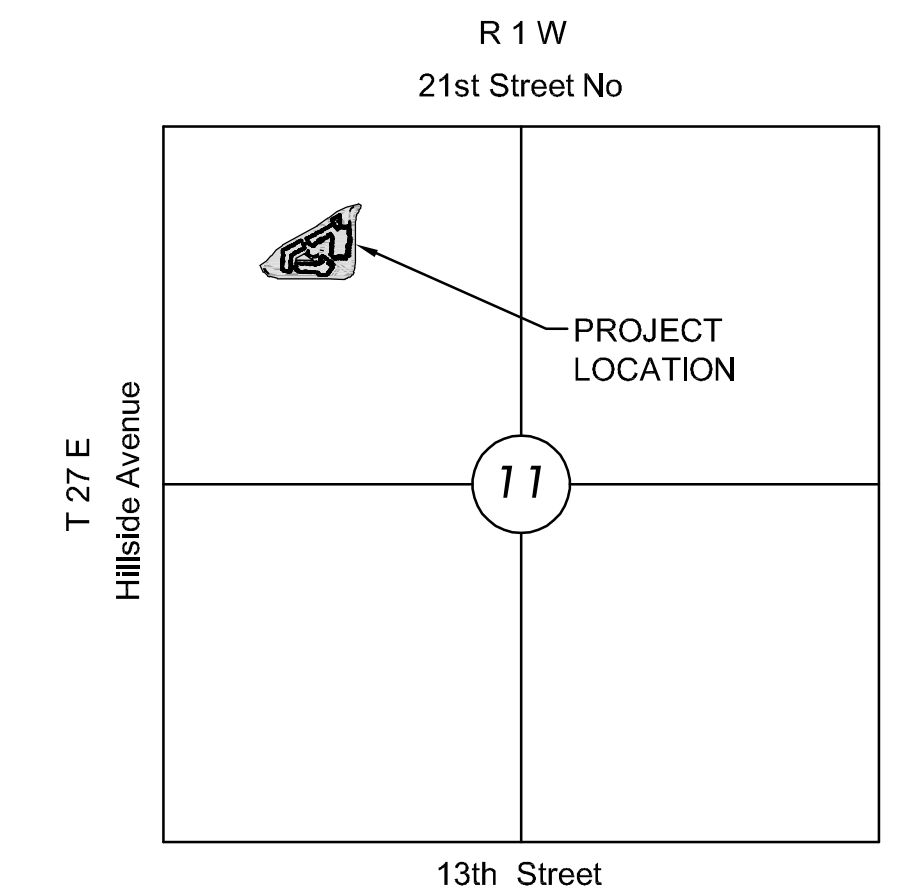
8" x 6" TEE:	1	8" GATE VALVE:	8	2" SCH 40:	20 LF
8" x 4" TEE:	1	6" GATE VALVE:	1	3" DICL:	40 LF
8" 90° BEND:	1	4" GATE VALVE:	1	8" DICL:	60 LF
8" 45° BEND:	6	8" C900:	1220 LF	6" DICL:	100 LF
8" 22.5° BEND:	1	6" SCH. 40:	500 LF	4" DICL:	40 LF
8" 11.25° BEND:	1	4" SCH. 40:	40 LF		
8" TEE:	3				



**NOTE:**  
WATER LINE VALVES TO BE OPERATED BY CONTRACTOR ONLY IF WATER INSPECTOR IS ON SITE.

### LEGEND

	EXISTING WATER
	PROPOSED WATER



VICINITY MAP  
No Scale

## INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-5	WATER DETAILS
6	WATER LINE 1
7	WATER LINE 2
8	WATER LINE 3 & FIRE LINE
9	DOMESTIC LINES

APPROVED AS NOTED  
BY CITY ENGINEER OF WICHITA,  
BY WICHITA WATER & SEWER DEPARTMENT,  
& BY WICHITA FIRE DEPARTMENT

Water Mains (Public Works) *[Signature]* 5-22-13  
 Water Mains (Water & Sewer Dept.) *[Signature]* 5-22-13  
 Fire Prot. Line (Fire Dept.) *[Signature]* 5-22-2013

### NOTE TO CONTRACTORS

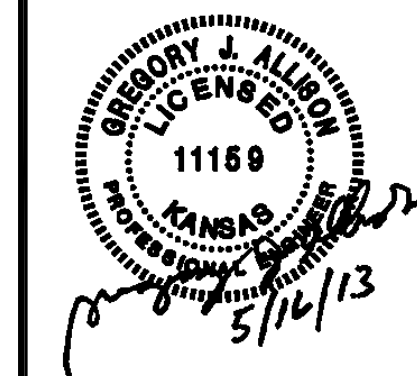
**Public Property:**  
 Inspection and testing for the waterline is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita Standard Construction Engineering Practices and certified by a Professional Engineer licensed in the state of Kansas. No work shall be performed in dedicated easements or public rights-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer. All construction and materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

**Private Property:**  
 Installation and testing for the fire protection line is to be performed by a City of Wichita Licensed Fire Protection Contractor in accordance with the fire codes as adopted by the City of Wichita. All materials and construction practices for the fire protection line shall comply with the fire codes as adopted by the City of Wichita (available from the City of Wichita Fire Department). The Contractor shall not commence work without notification to and approval of the Wichita Fire Department. Inspection of the fire protection line is to be provided by a licensed engineering firm under contract with the Owner/Developer and the Fire Department. The contractor shall not start work until the project inspector is assigned to the project and present on the site. Any work done without inspection will be required to be uncovered for inspection.

**NOTE:** ALL LINES TO BE INSTALLED BY OTHERS ARE SUBJECT TO OCI REVIEW



WATER DISTRIBUTION PLANS FOR  
**WSU RESIDENCE HALL**  
 WICHITA STATE UNIVERSITY

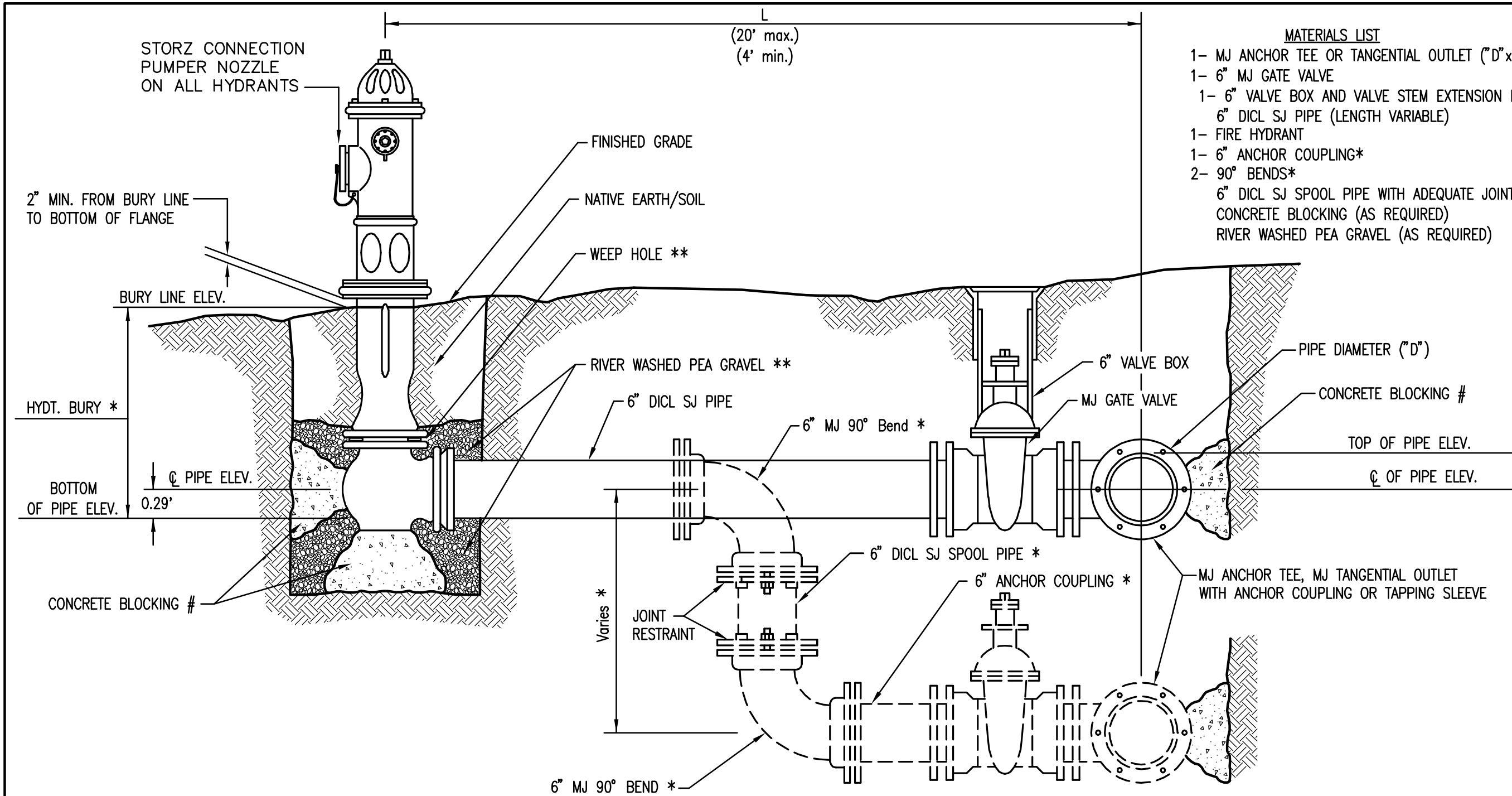


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## TITLE SHEET

PROJECT NO.	1742PPW	
DATE	DATE	
SCALE	AS NOTED	
DESIGNED	DRAWN	CHECKED
SPE	SPE	GJA
NO.	REVISION	DATE

SHEET NO.



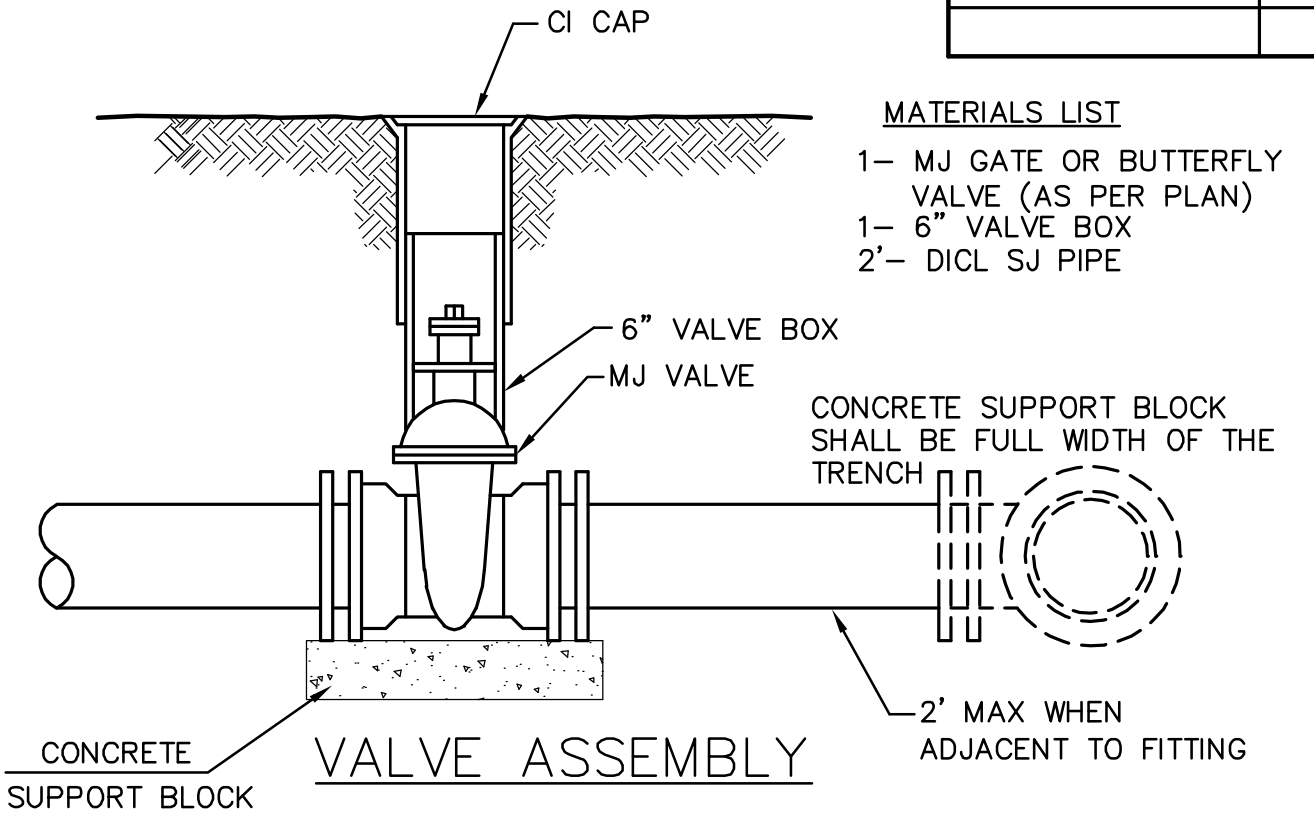
- MATERIALS LIST**
- 1- MJ ANCHOR TEE OR TANGENTIAL OUTLET (6" x 6")
  - 1- 6" MJ GATE VALVE
  - 1- 6" VALVE BOX AND VALVE STEM EXTENSION IF REQUIRED \*
  - 6" DICL SJ PIPE (LENGTH VARIABLE)
  - 1- FIRE HYDRANT
  - 1- 6" ANCHOR COUPLING\*
  - 2- 90° BENDS\*
  - 6" DICL SJ SPOOL PIPE WITH ADEQUATE JOINT RESTRAINT \*
  - CONCRETE BLOCKING (AS REQUIRED)
  - RIVER WASHED PEA GRAVEL (AS REQUIRED)

- \* IF THE REQUIRED HYDRANT BURY IS IN EXCESS OF 5', BUT LESS THAN 7', CONTRACTOR SHALL USE STANDARD 5" HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY. IF THE REQUIRED HYDRANT BURY IS GREATER THAN 7', CONTRACTOR SHALL USE 5" HYDRANT BURY, 2-MJ 90° BENDS, 6" ANCHOR COUPLING AND 6" DICL SPOOL PIPE AS NECESSARY FOR VERTICAL ADJUSTMENT. THE CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING AT HYDRANT AND MEGALUGS, ROD AND LUG OR SIMILAR RESTRAINT BETWEEN 90° BENDS TO SECURE ALL FITTINGS DURING TESTING AND OPERATION. THE CONTRACTOR SHALL PROVIDE A VALVE STEM EXTENSION PER DETAIL THIS SHEET.
- \*\* CAUTION WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES. PLACE 1 CUBIC FOOT OF RIVER WASHED PEA GRAVEL AROUND EACH WEEP HOLE.
- # CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

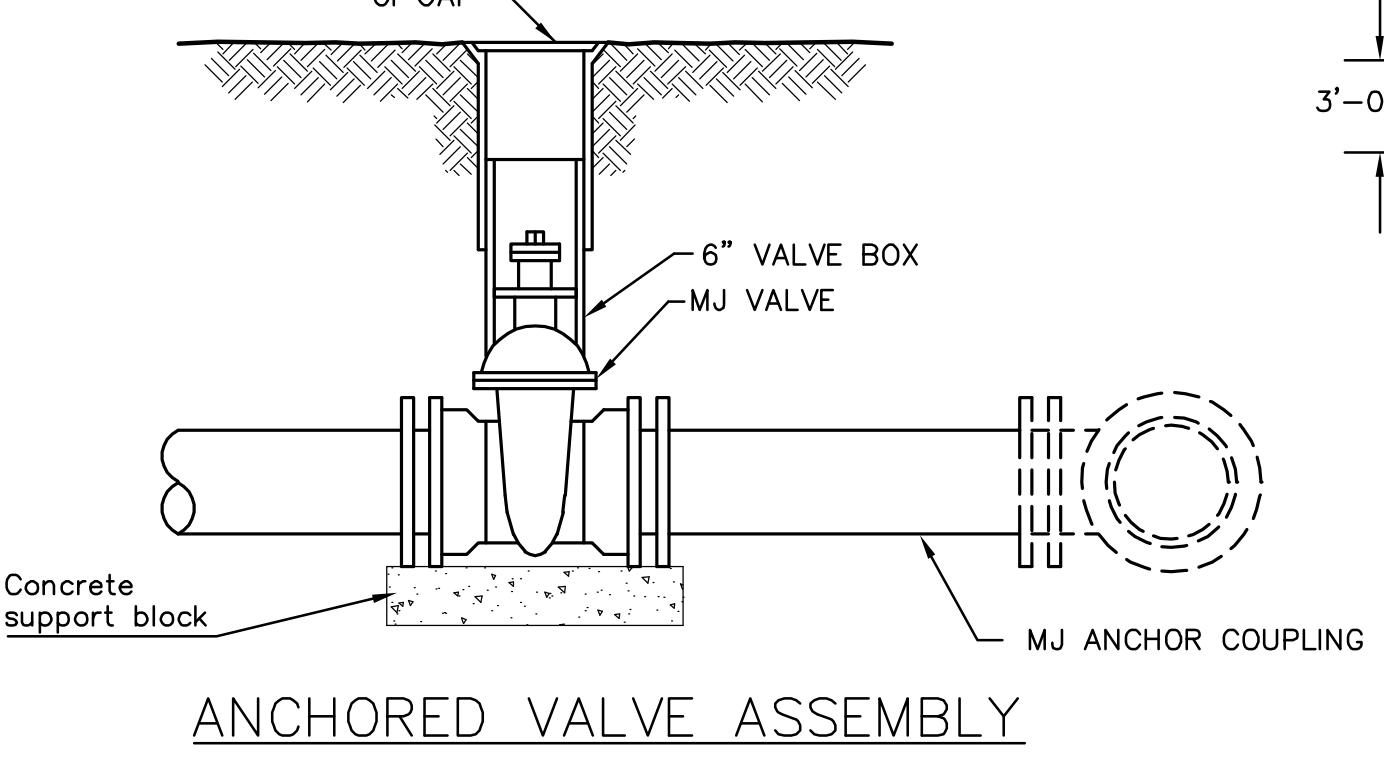
**FIRE HYDRANT ASSEMBLY**  
PER CITY OF WICHITA SPECIFICATIONS

**FIRE HYDRANTS REQUIRED**

STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*	VALVE STEM EXT. REQUIRED (ft)*
10+83.32, LINE 1	1389.49	1385.66	4.5	N/A
13+82.83, LINE 2	1387.01	1383.68	4.0	N/A

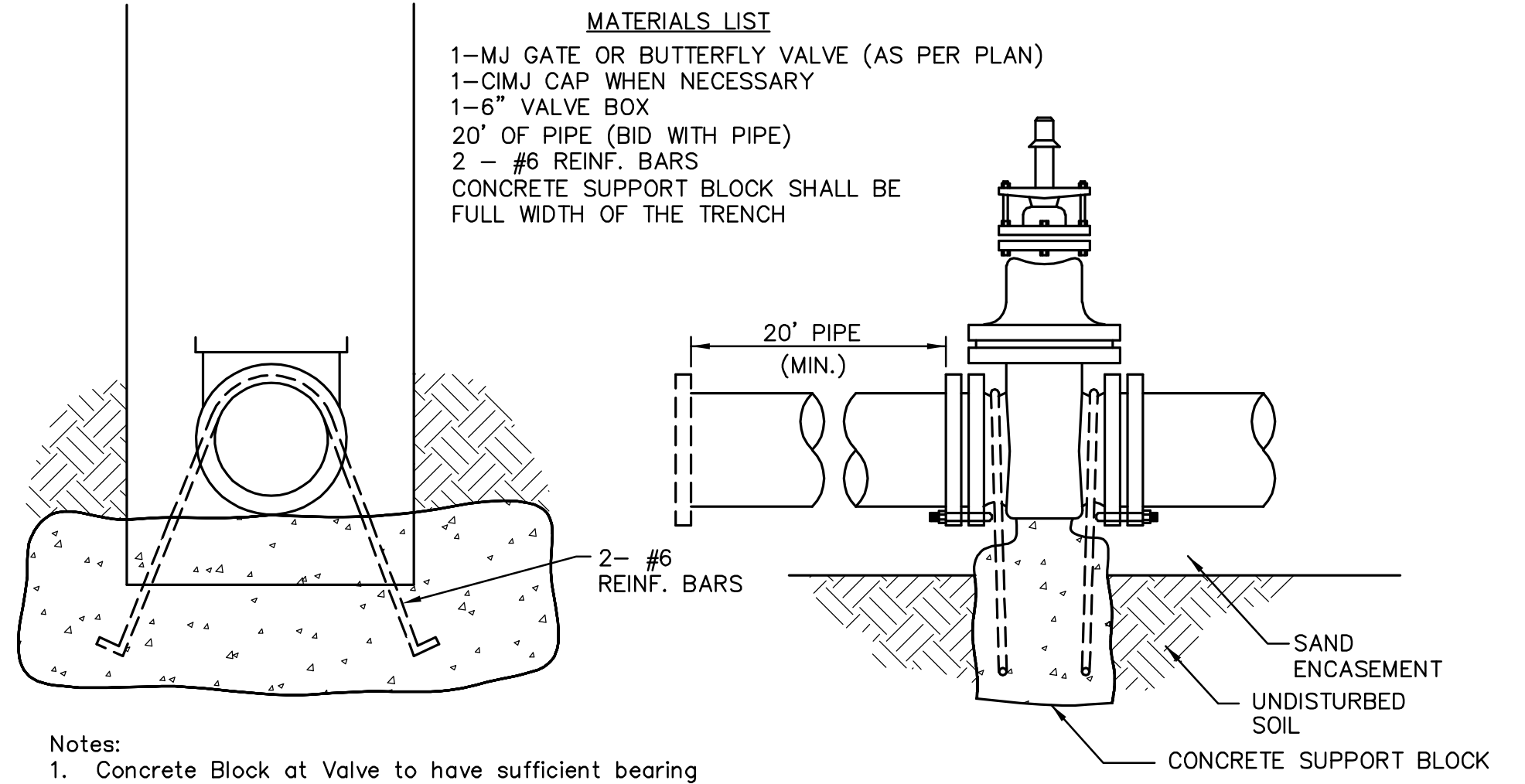


- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- MJ ANCHOR COUPLING (12" OR SMALLER)
  - 1- 6" VALVE BOX
  - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH



**ANCHORED VALVE ASSEMBLY**

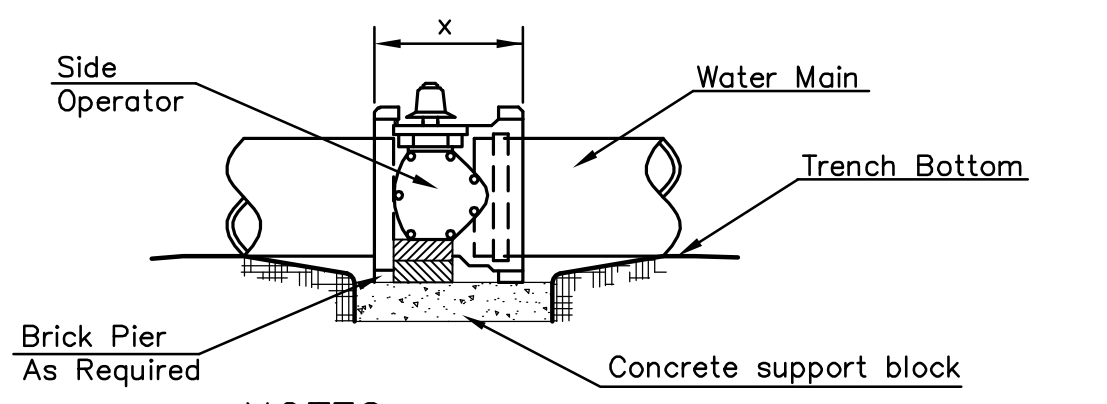
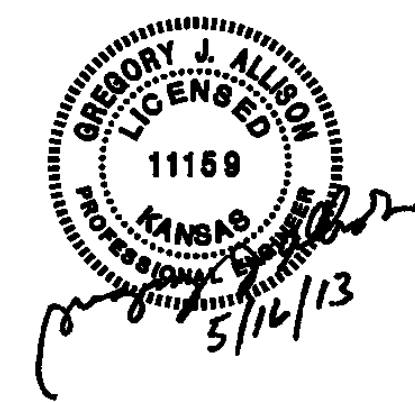
- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- CI MJ CAP WHEN NECESSARY
  - 1- 6" VALVE BOX
  - 20' OF PIPE (BID WITH PIPE)
  - 2- #6 REINF. BARS
  - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH



- Notes:
1. Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
  2. The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
  3. All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

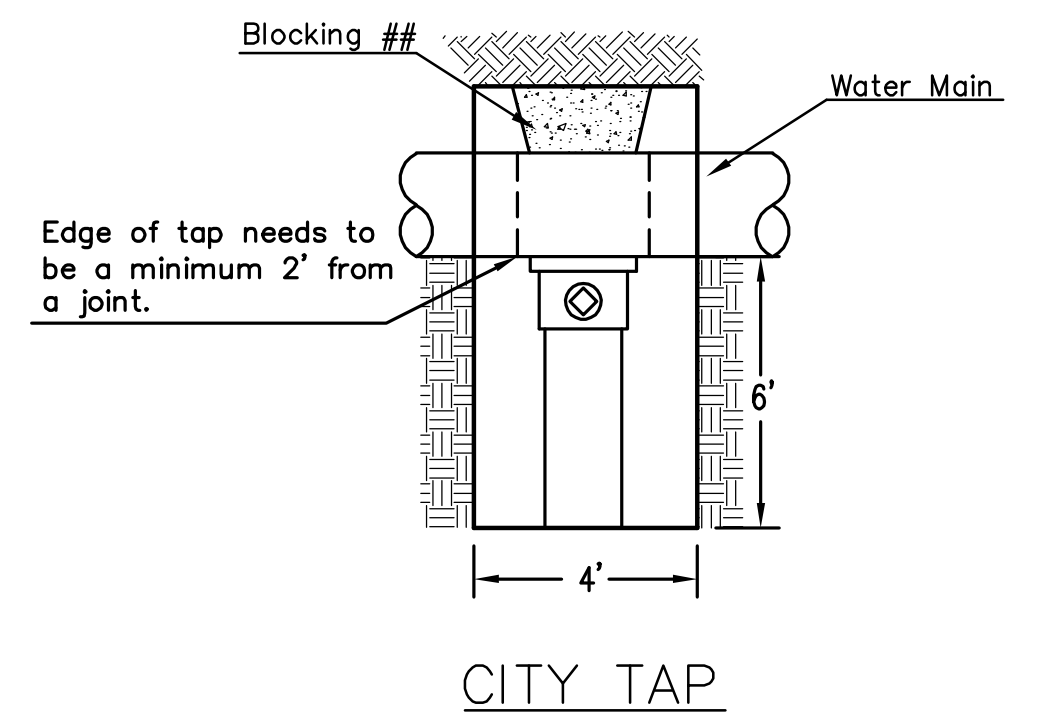
**THRUST AT VALVES**

VALVE	THRUST AT 150 #/sq
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.



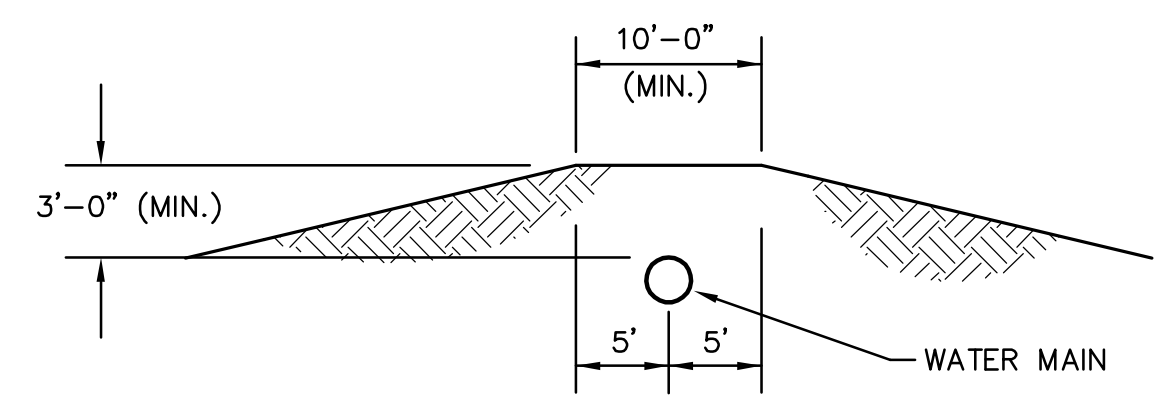
- NOTES**
1. This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. 24" and larger lines to be detailed on plans.
  2. 6" Valve Box and Cover required per City of Wichita Std. Specifications.
  3. Conc. Support Block to be full width of trench.

**CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION**



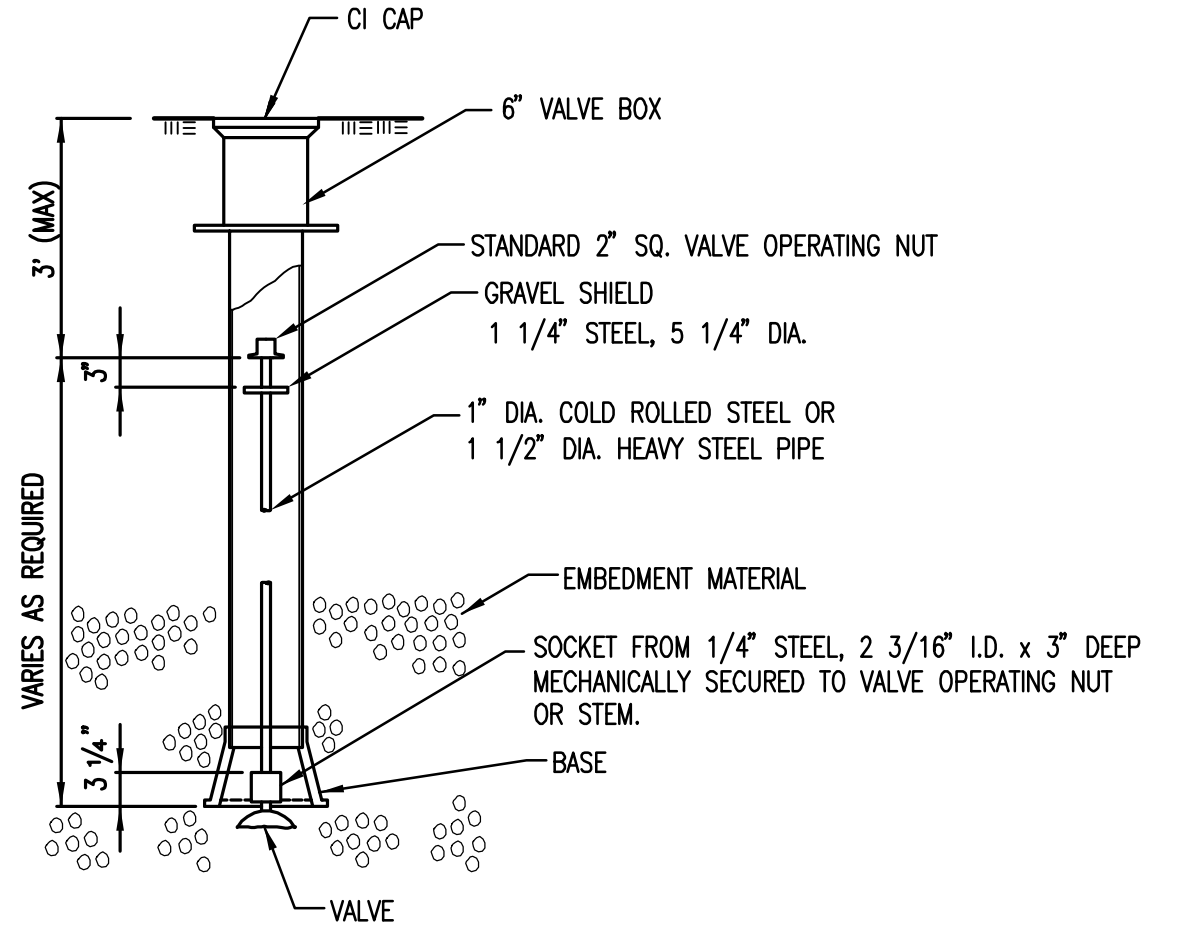
**CITY TAP**

- ## When the City of Wichita makes tap, blocking is to be done by Contractor



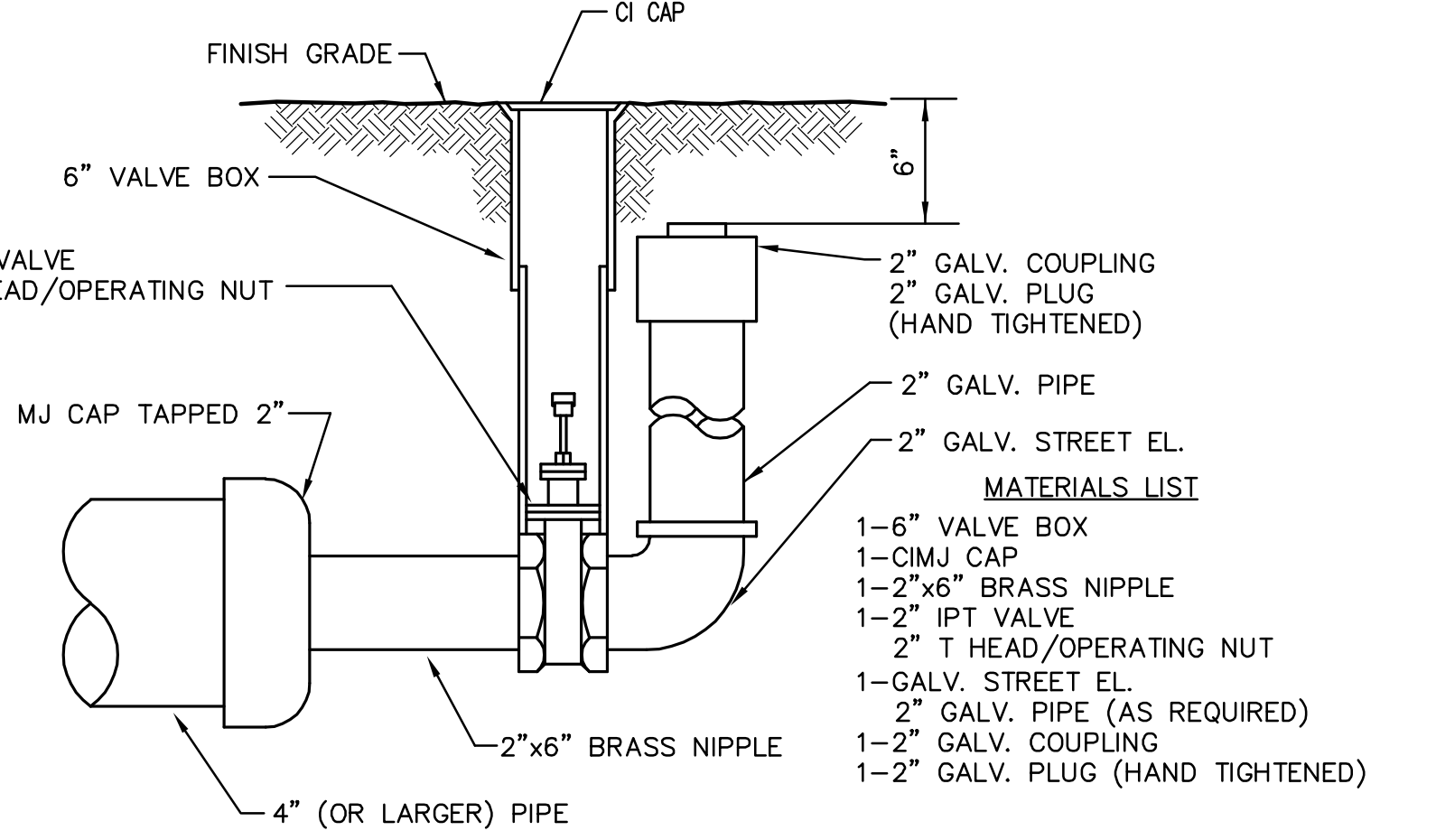
**PROTECTIVE FILL DETAIL**

MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN 3'. (COST SUBSIDIARY TO PIPE INSTALLATION)



**VALVE STEM EXTENSION DETAIL**

NOTE: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.



**2" BLOWOFF ASSEMBLY**

**STANDARD WATER ASSEMBLY DETAIL**

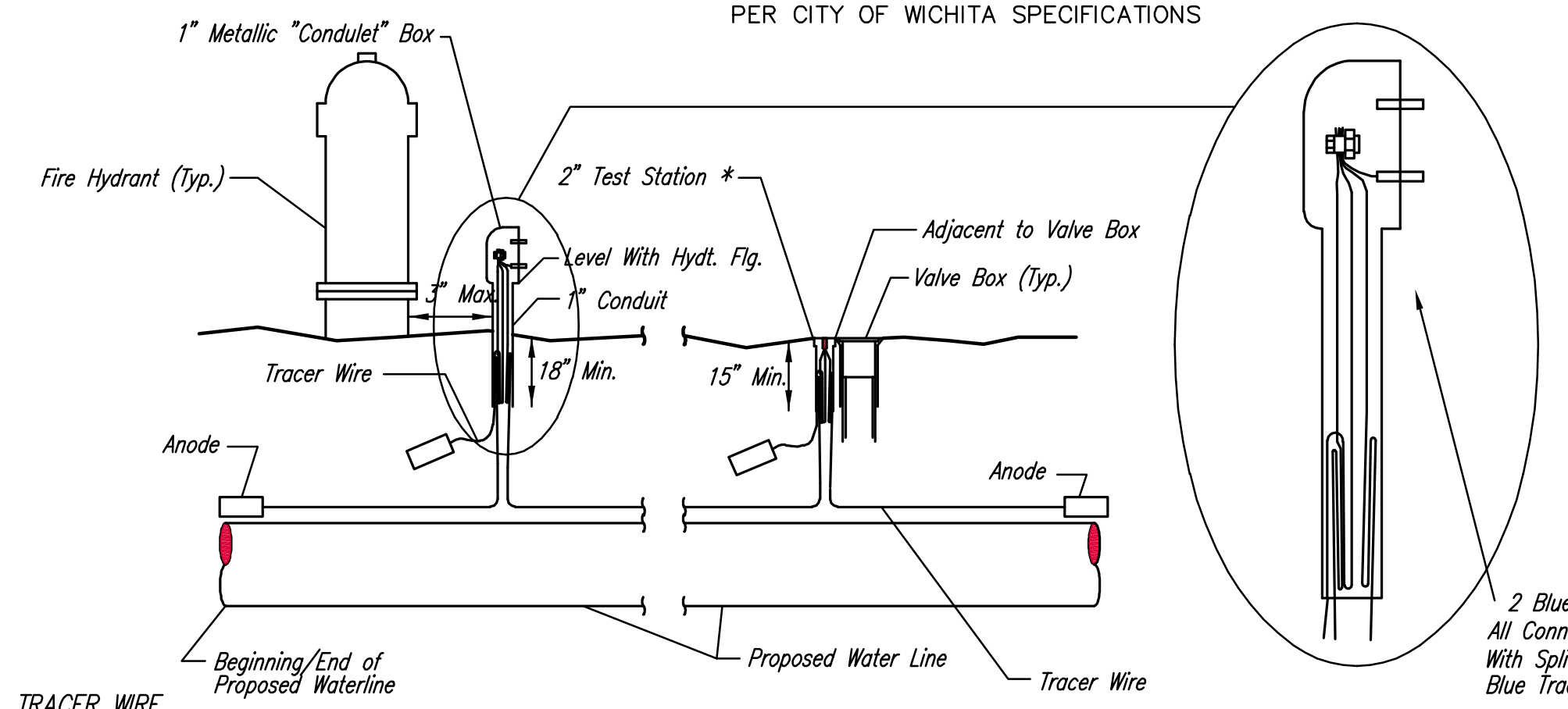
CITY ENGINEER  
**GARY JANZEN, P.E.**

PROJECT NUMBER	OCA NUMBER	DATE
1742PPW	607853	08/2012

CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-4501

DESIGN	DRAWN

SHEET  
**2 of 9**



- \* FLUSH STYLE TEST STATIONS SHALL ONLY BE USED IN PAVEMENT.

**TRACER WIRE**  
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of the waterlines. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 3 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.

**WIRE**  
The tracer wire shall be Blue No. 12 THHN annealed soft copper wire with thermal plastic insulation or Blue No. 12 AWG CCS with 30 mil HDPE insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.

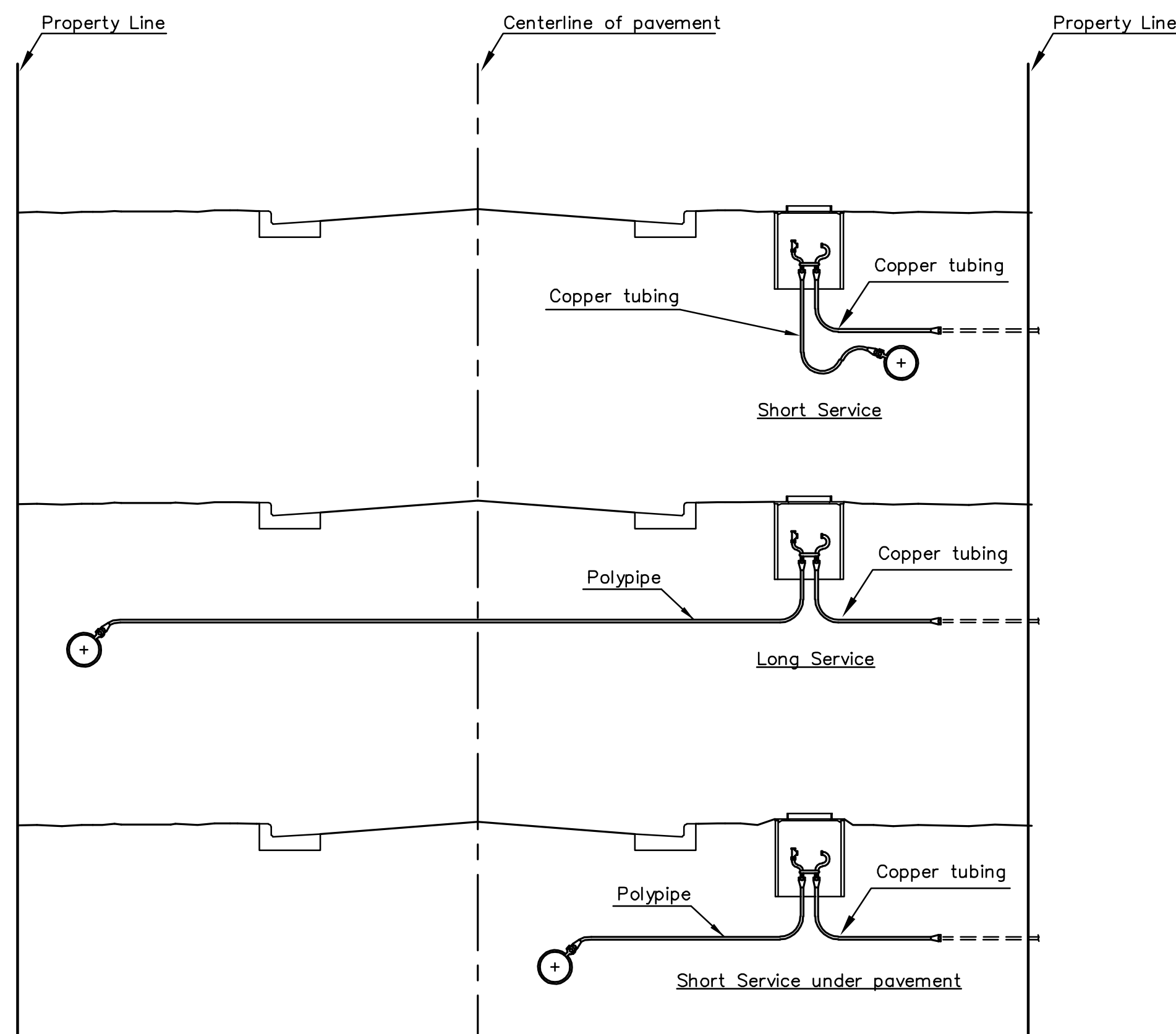
**TEST STATIONS**  
The test station for fire hydrant applications shall be a 1 inch galvanized "condulet" style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The "condulet" style test station shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

**ANODES**  
The anodes shall be 3 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

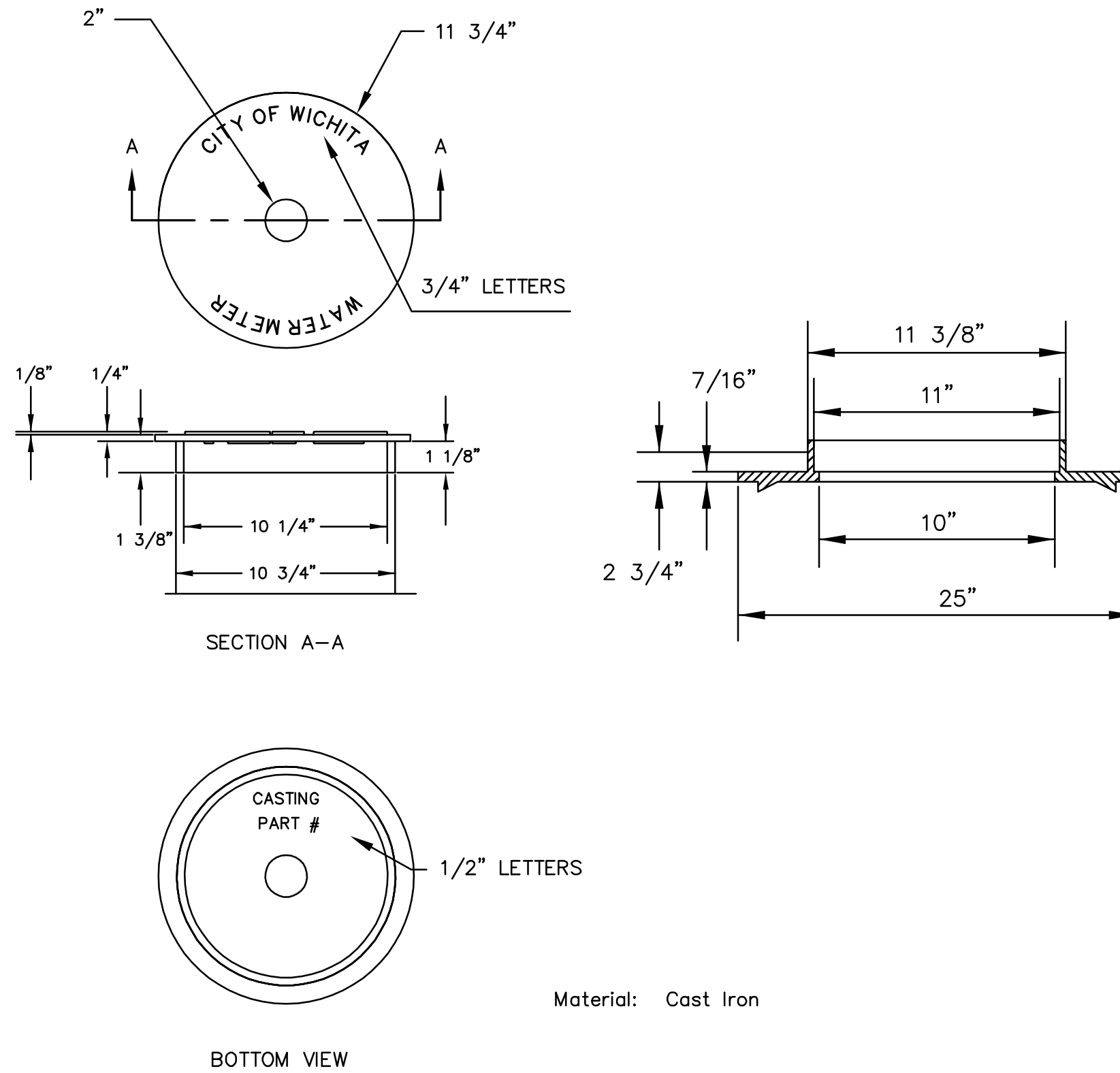
**TRACER WIRE DETAIL**

COST IS SUBSIDIARY TO PIPE INSTALLATION

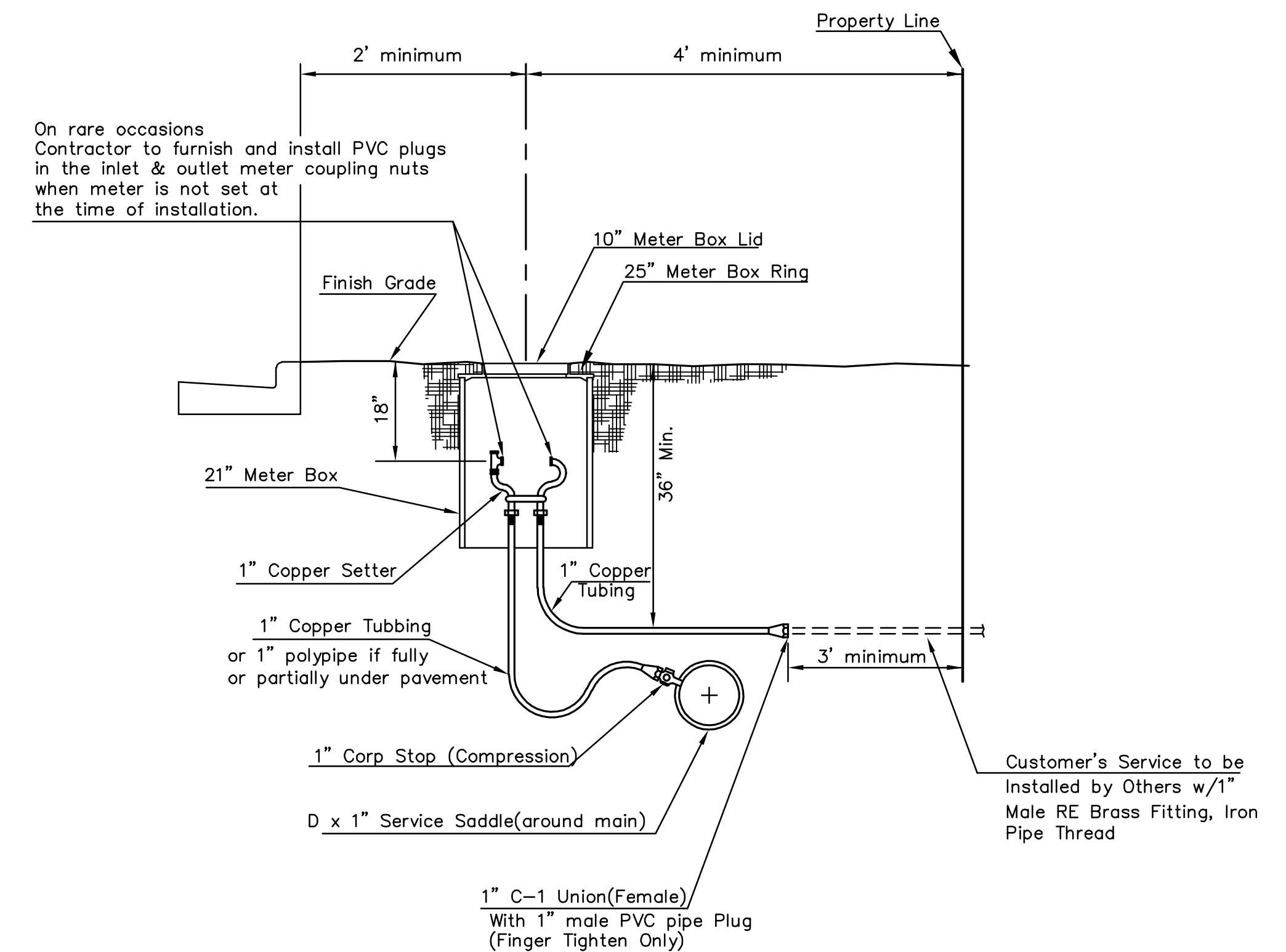
**ANCHORED VALVE ASSEMBLY, SPECIAL**



SERVICE TYPES

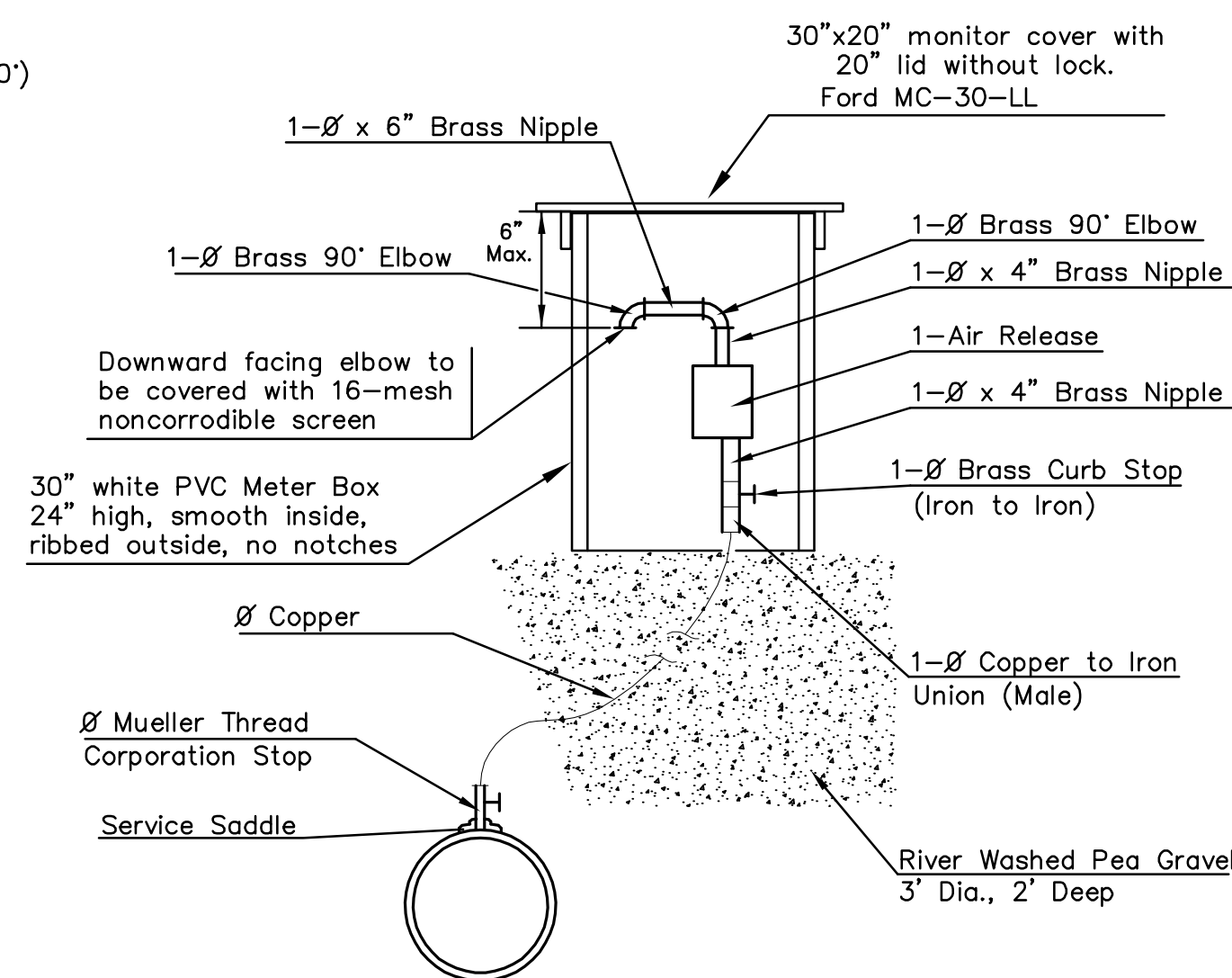


NOT TRAFFIC RATED RING & LID FOR 1" METER BOX

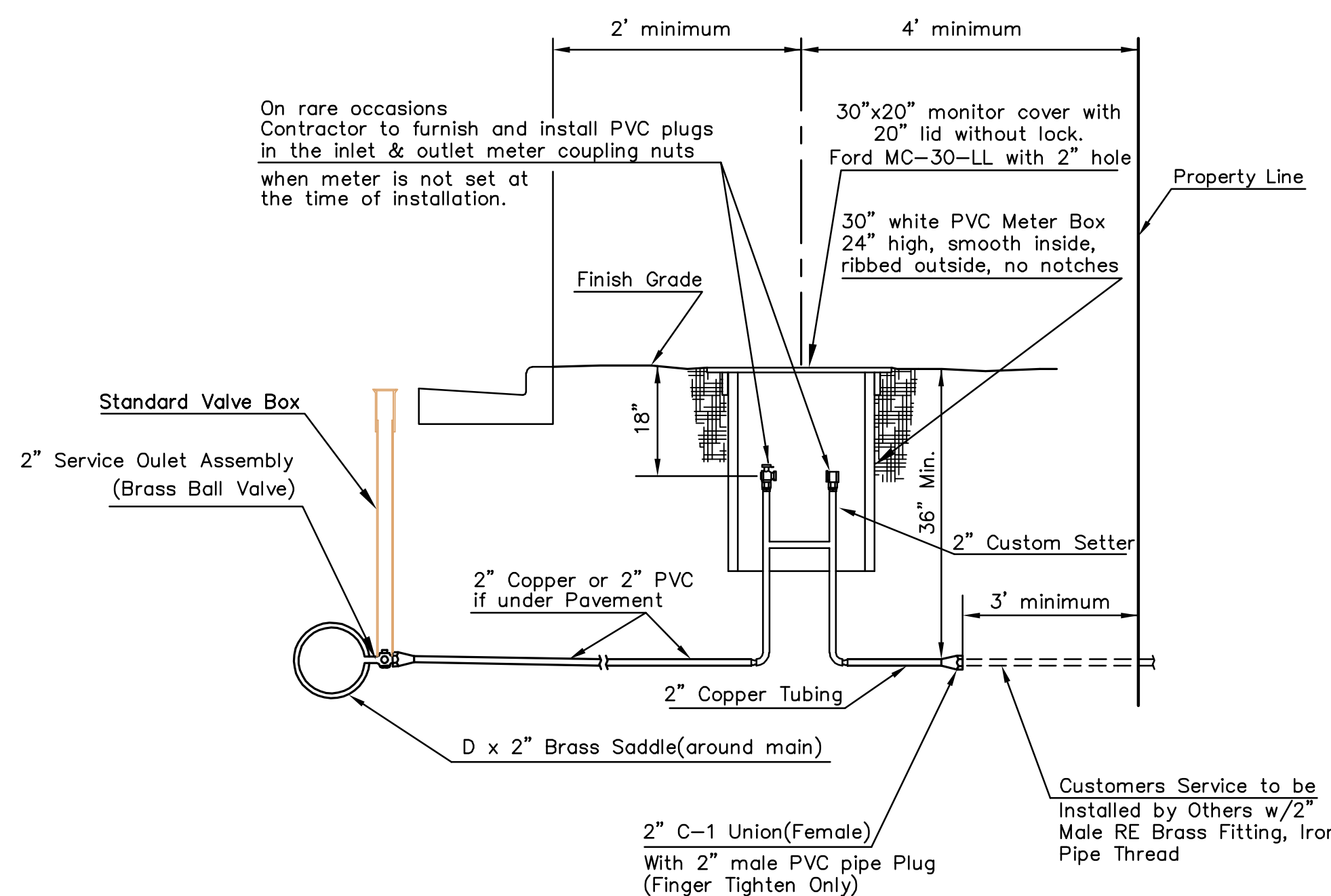


TYPICAL 1" METER SETTING

- 1 - Ø Mueller Thread Corporation Stop
- Ø Type "K" Copper Tubing
- 1 - Ø Copper to Iron Union (Male)
- 1 - Ø Brass Curb Stop (Iron to Iron)
- 2 - Øx4" Brass Nipple
- Air Release
- 2 - Ø Brass Elbows (90°)
- 1 - 1"x6" Brass Nipple
- 1 - 30" Monitor Cover
- 1 - 20" Meter Lid

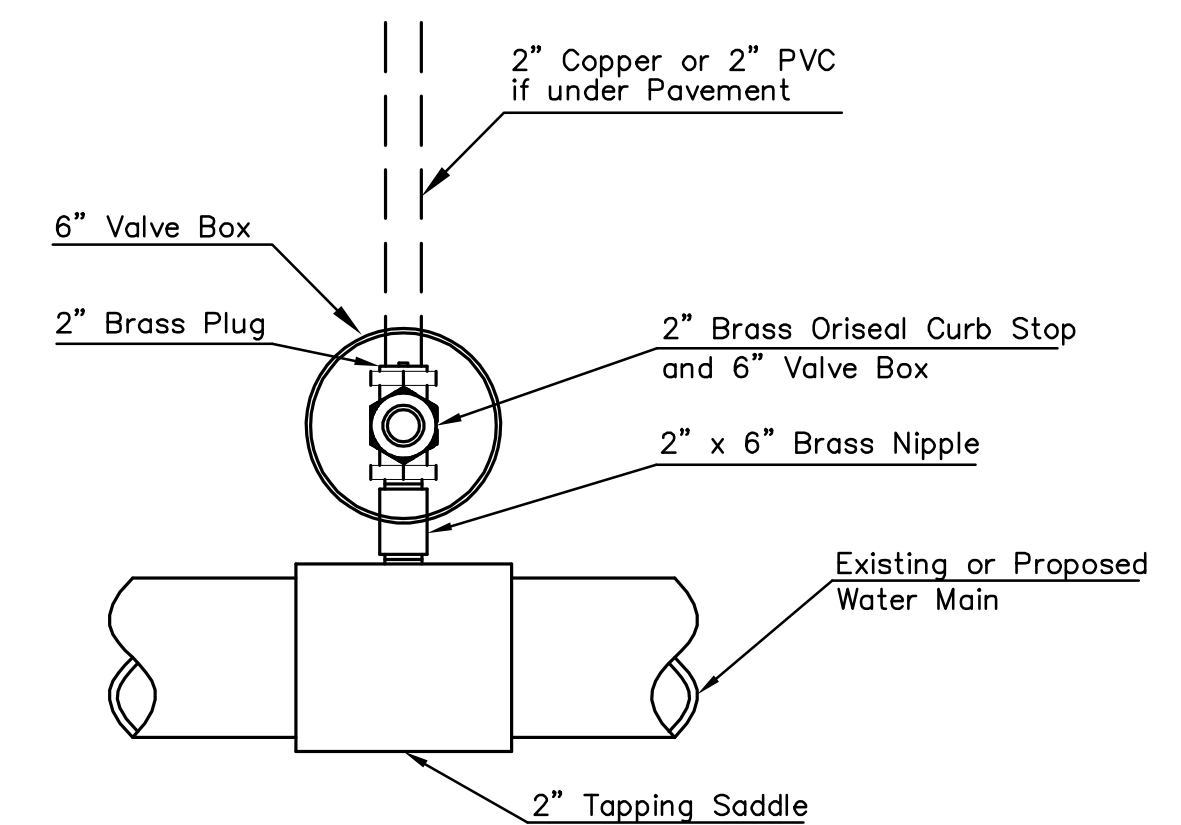


MATERIALS FOR 1" or 2" AIR RELEASE ASSEMBLY  
Ø = 1" or 2"



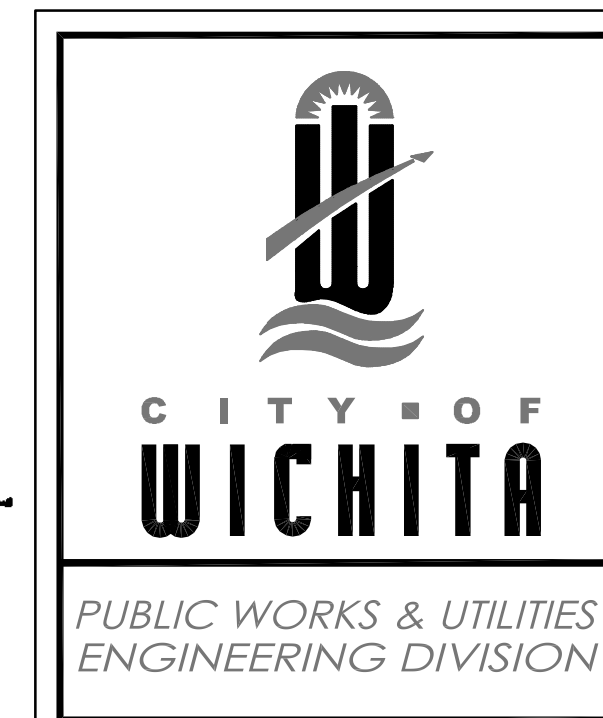
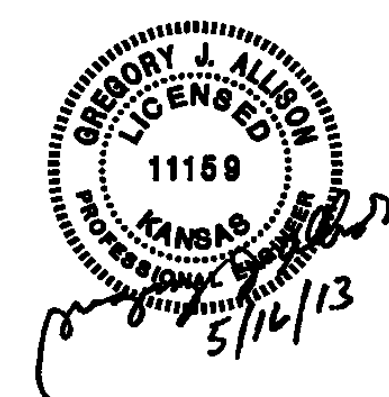
TYPICAL 2" METER SETTING

Note: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.



Note: Where the 2" Service Outlet Assembly is to be used to connect a 2" main to another main, the 2" valve shall be a 2" IPT Gate Valve. 2" ball or globe valves shall not be approved for this use.

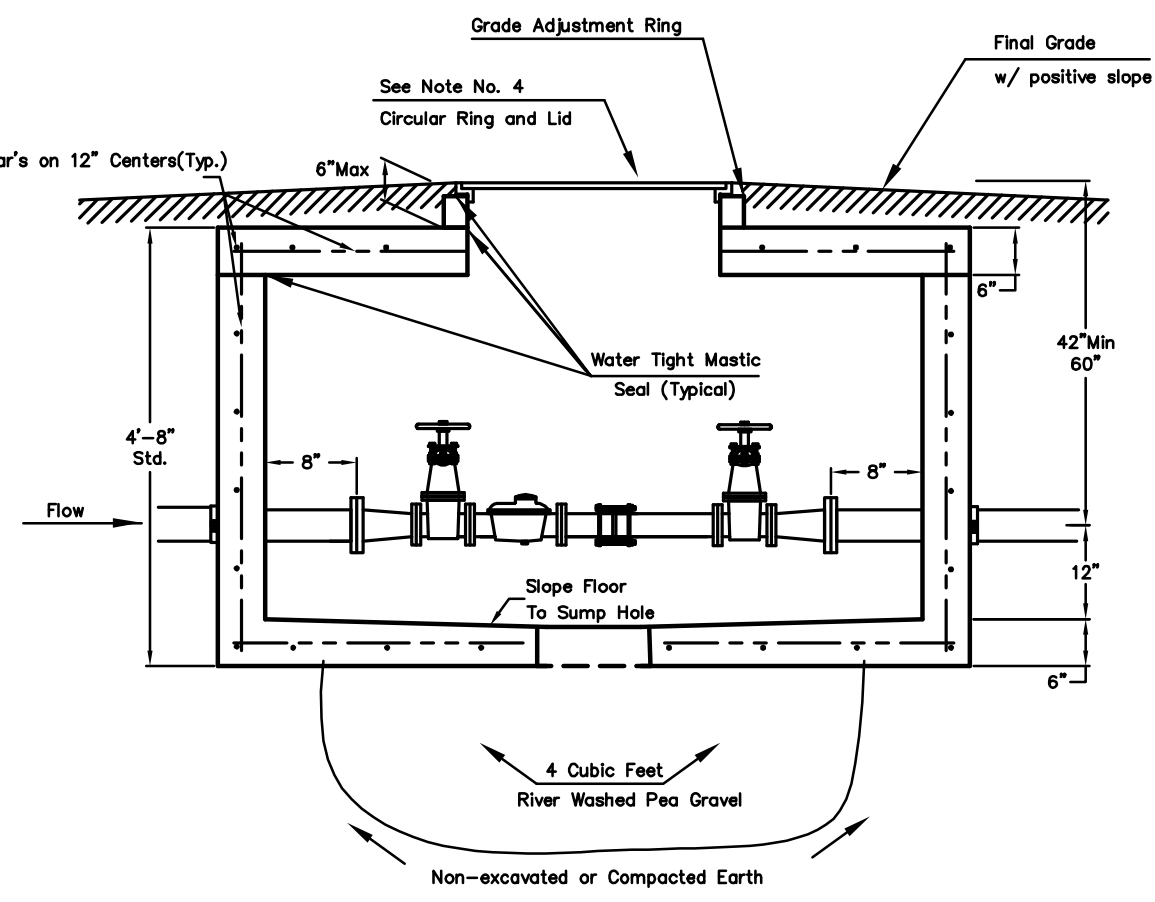
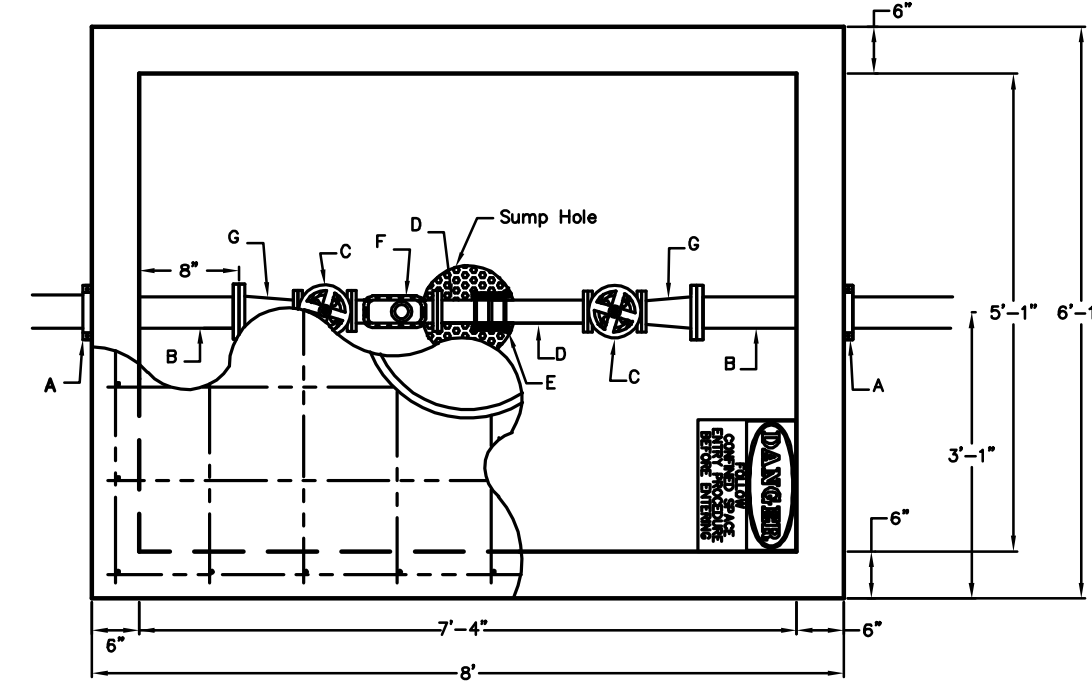
2" SERVICE OUTLET ASSEMBLY



STANDARD WATER SERVICE DETAIL		
CITY ENGINEER		
GARY JANZEN, P.E.		
PROJECT NUMBER	OCA NUMBER	DATE
1742PPW	607853	08/2012
CITY ENGINEER'S OFFICE		DESIGN
CITY HALL - SEVENTH FLOOR		DRAWN
455 NORTH MAIN STREET		SHEET
WICHITA, KANSAS 67202-1620		3 of 9
(316) 268-4501		

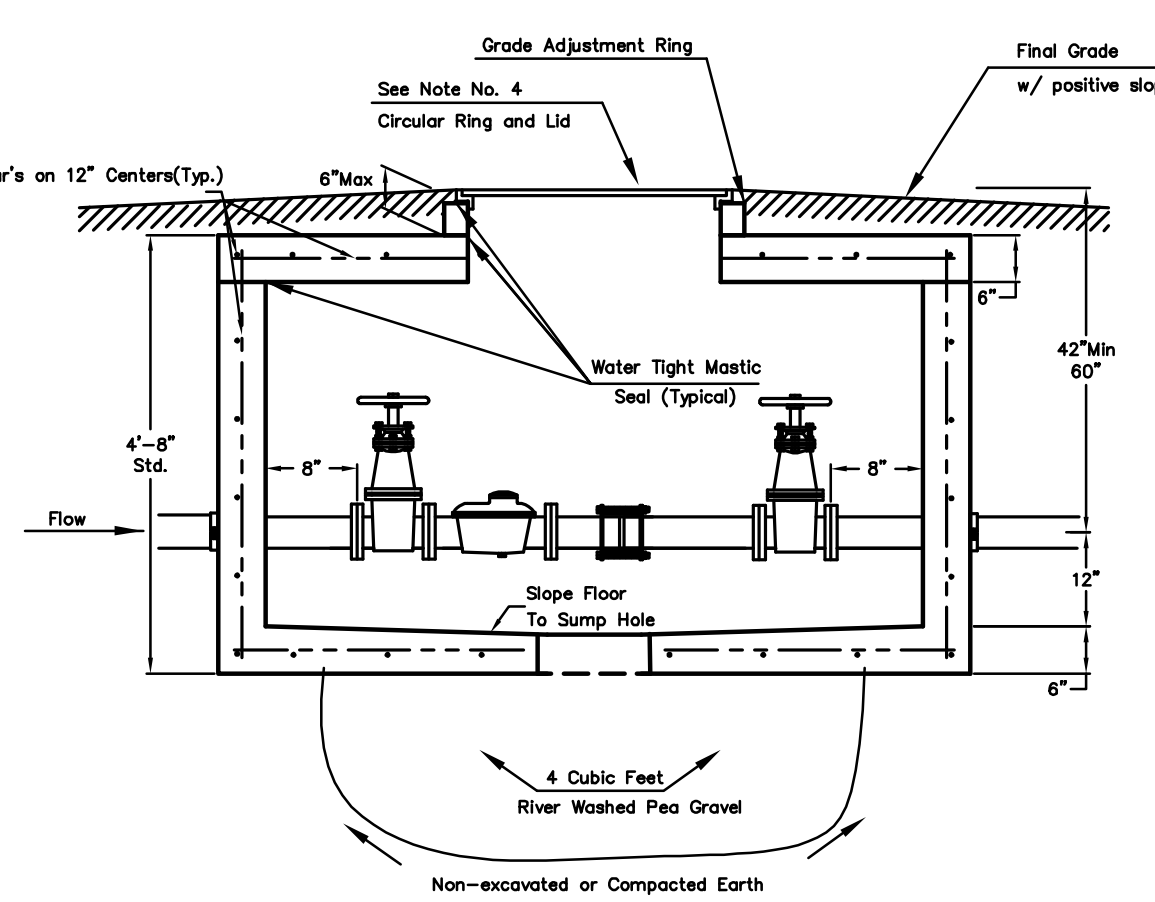
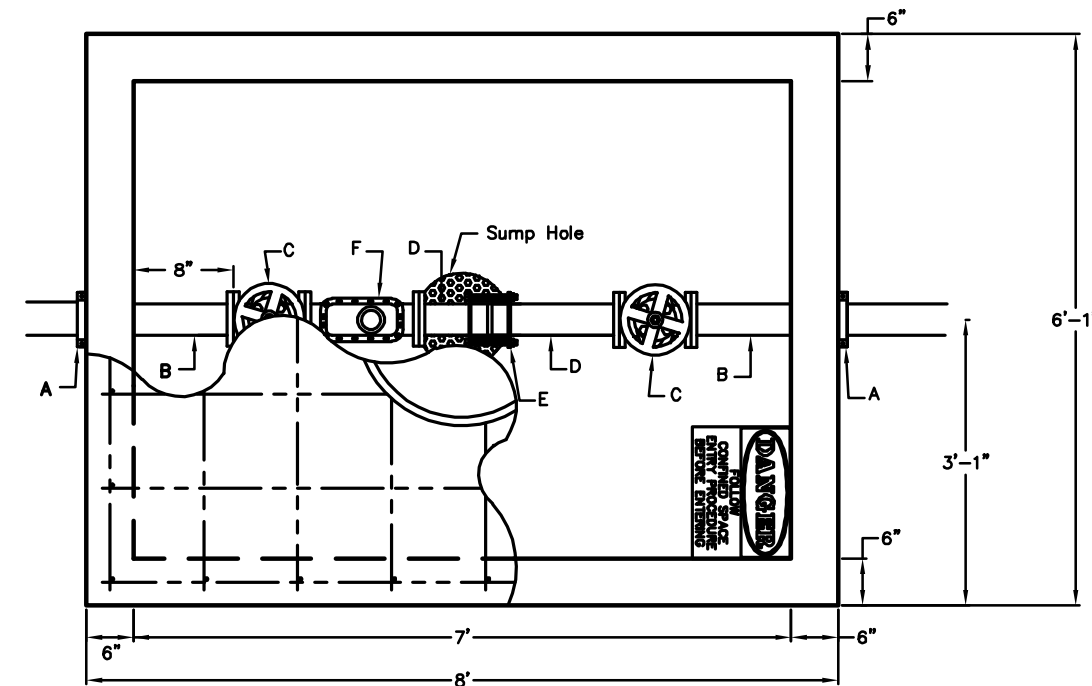
**Notes For All Services - 3" thru 12":**

- When the standard vault dimensions are not applicable, such as when additional space is required for special pipe, fittings, additional meters, etc. the design engineer shall design a vault with the required dimensions for Public Works and Utilities approval.
- The vault shall be poured concrete, cement blocks (voids to be completely filled with 2500 P.S.I. concrete), or approved precast structure (such as Clutter Inc. vaults approved 8/1/2000). The intent of these details shall not be limited by drawings or standards of precast structures.
- Vault location to be determined by Public Works and Utilities prior to construction and approved by Department's field supervisor prior to installation. A final inspection will be required for acceptance. Vault location standards include but not limited to: not to be located where subjected to vehicular loads, not to be located in any right-of-way or utility easement, and must be located on the property being served.
- The manhole ring and lid shall be Neenah R-6034 Frame with Type "C" Solid Lid and Drop Down Handle or US Foundry APS-30x30 (Aluminum). Where applicable the standard 10" Public Works and Utilities pattern meter reading lid and ring shall be located directly above water meter register. All meter registers shall have an approved lid directly vertical above. All joints of concrete or metal to concrete in the construction of the vault shall have an approved water tight mastic joint seal.
- Any fittings or appurtenances required to achieve proper elevation of pipe through the vault shall be provided by the contractor and appropriately noted on as-builts submitted by the inspecting engineer. Such fittings shall be a minimum of 2' from the exterior wall of vault.
- For all domestic services larger than 3" the contractor shall provide an outlet flange connection as shown 8" from the inside wall. Inlet and outlet wall sleeves shall be provided and installed by the contractor and shall be in alignment with one another. The inlet and outlet pipe shall be ductile iron pipe, cement lined, Class 150 per Standard Specifications and shall be continuous through vault wall and joint no less than 2' from the exterior wall of vault. Flanges of inlet and outlet pipes shall be in proper alignment and bolt pattern shall be rotated in such a way that valves and other fittings shall be in their proper vertical alignment when installed.
- For all services 4" and larger the contractor shall install a mega lug, restrained joint, or approved equal on the exterior walls of the vault, which shall be manufactured of ductile iron conforming to ASTM A 536-80, heat treated to a minimum hardness of 370 BHN and have a working pressure of at least 250 P.S.I. For all services smaller than 4" the contractor shall install an approved vault clamp on the exterior walls of the vault.
- All valves, meters, assemblies, and fittings shall be provided with sufficient concrete or other approved supports to the vault floor.
- The "Confined Space Warning" sign shall be fastened to the top of all vaults. If necessary for landscaping or site considerations, the sign may be fastened to the vault lid if it does not impede access to the handle. Acceptable materials: Aluminum 73415HH, Plastic 73439HH, or S.A. Vinyl 73463HH.
- All meters shall have an electronic read register compatible with the current City of Wichita meter reading system. All detector meters shall be an 5/8 cubic foot Badger meter with ERT register or approved equal. Gallon meters shall not be accepted.
- Additional Notes For Fire Services:**
  - A post indicator valve (PIV) is an option for the outlet valve and may be requested by the architect or owner. The PIV is not required by City of Wichita ordinance.
  - When Siamese connections are required by the Wichita Fire Department, refer to the current City Code Section 15.
  - If due to any reason the completed vault retains ground or drainage water in excess of 4" in depth from the floor of the vault, the property owner shall be responsible for providing and installing an appropriate automatic sump pump or approved equal, as well as any other appurtenances required to make such system function as intended.
  - The property owner is responsible for completing an "Application for Private Fire Protection" prior to final acceptance of the project.



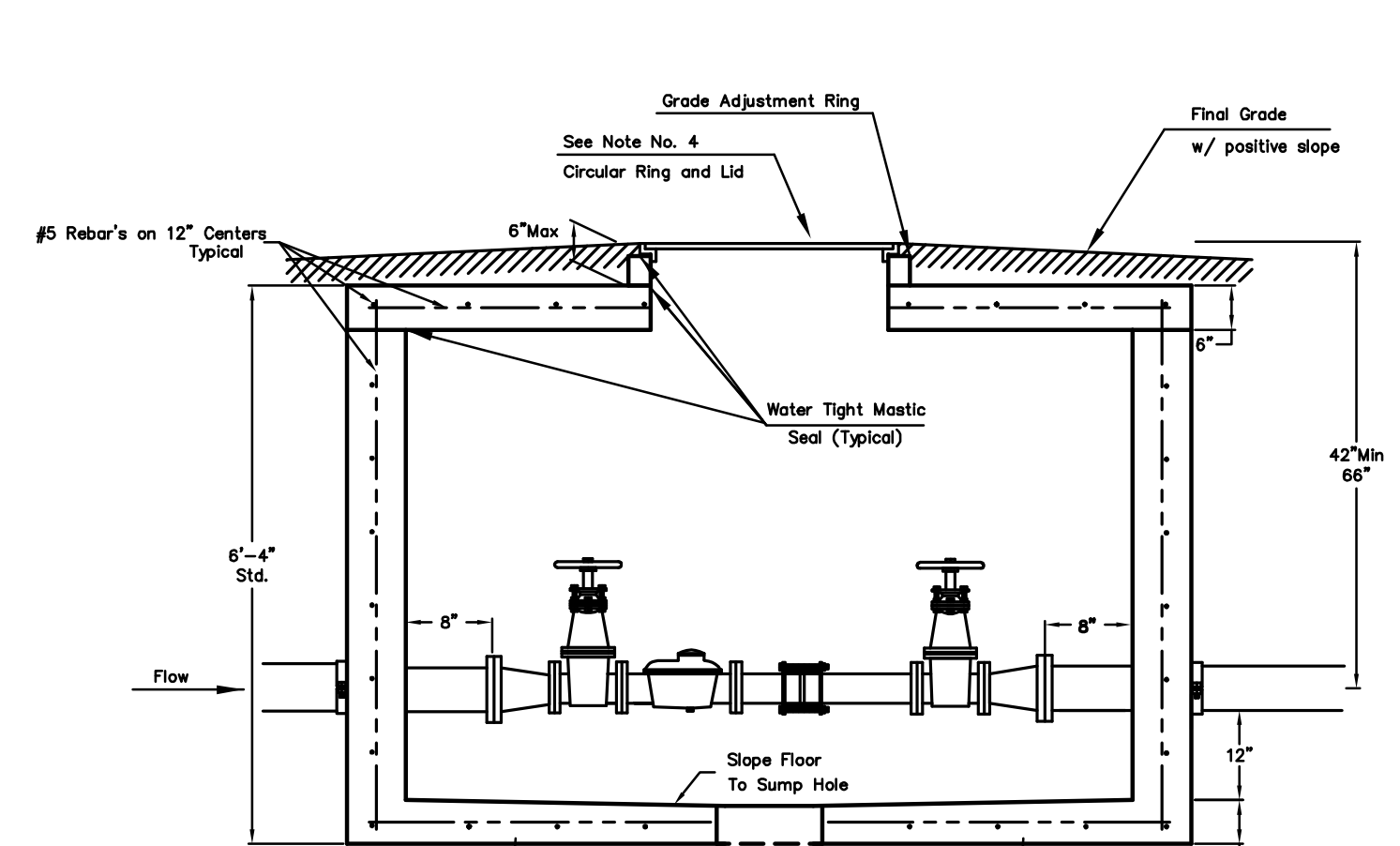
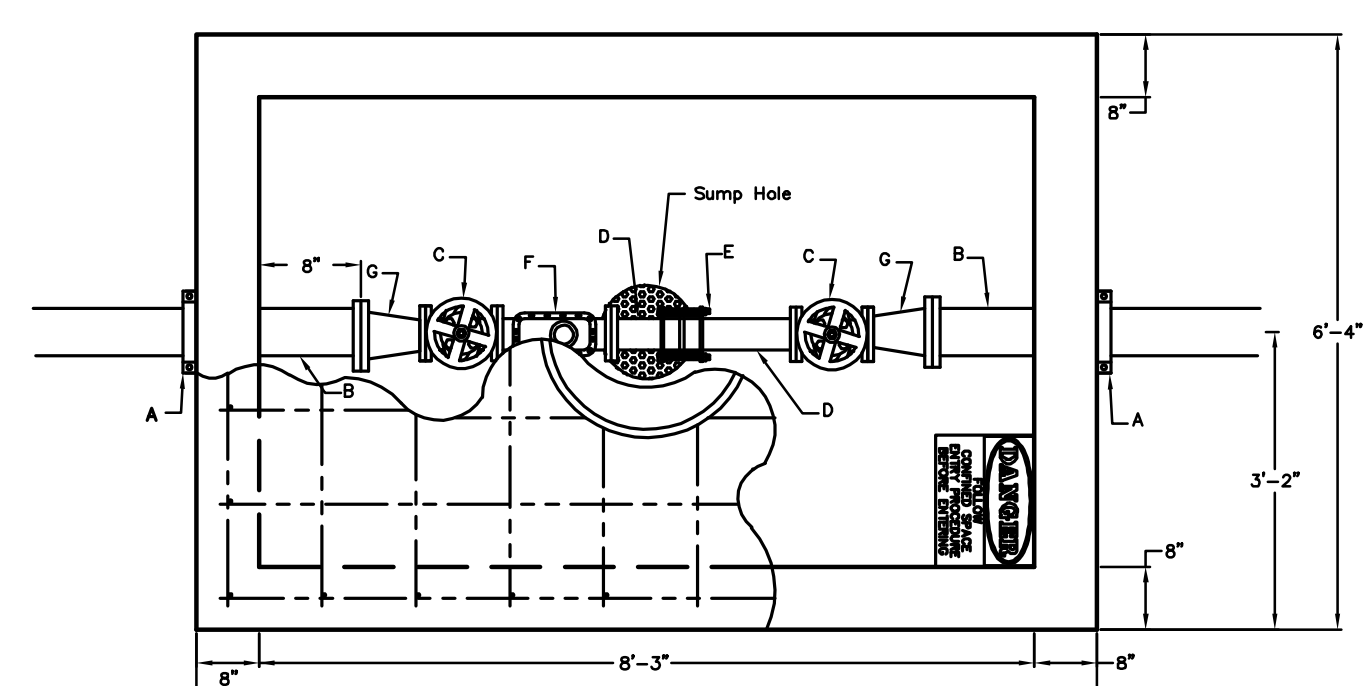
- A - 4" Vault Clamp
- B - Min. 3' Piece of 4" FL x PE DICL Pipe
- C - 3" Flange Non-rising Stem Gate Wheel Valve
- D - 3" FL x PE Pipe
- E - 3" Flex Coupling
- F - 3" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-350DR Cubic Foot Meter with AMR Register.
- G - 3" x 4" FL Reducer

### 3" Domestic Service



- A - 4" Vault Clamp
- B - Min. 3' Piece of 4" FL x PE DICL Pipe
- C - 4" Flange Non-rising Stem Gate Wheel Valve
- D - 4" FL x PE Pipe
- E - 4" Flex Coupling
- F - 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-1000DR Cubic Foot Meter with AMR Register.

### 4" Domestic Service

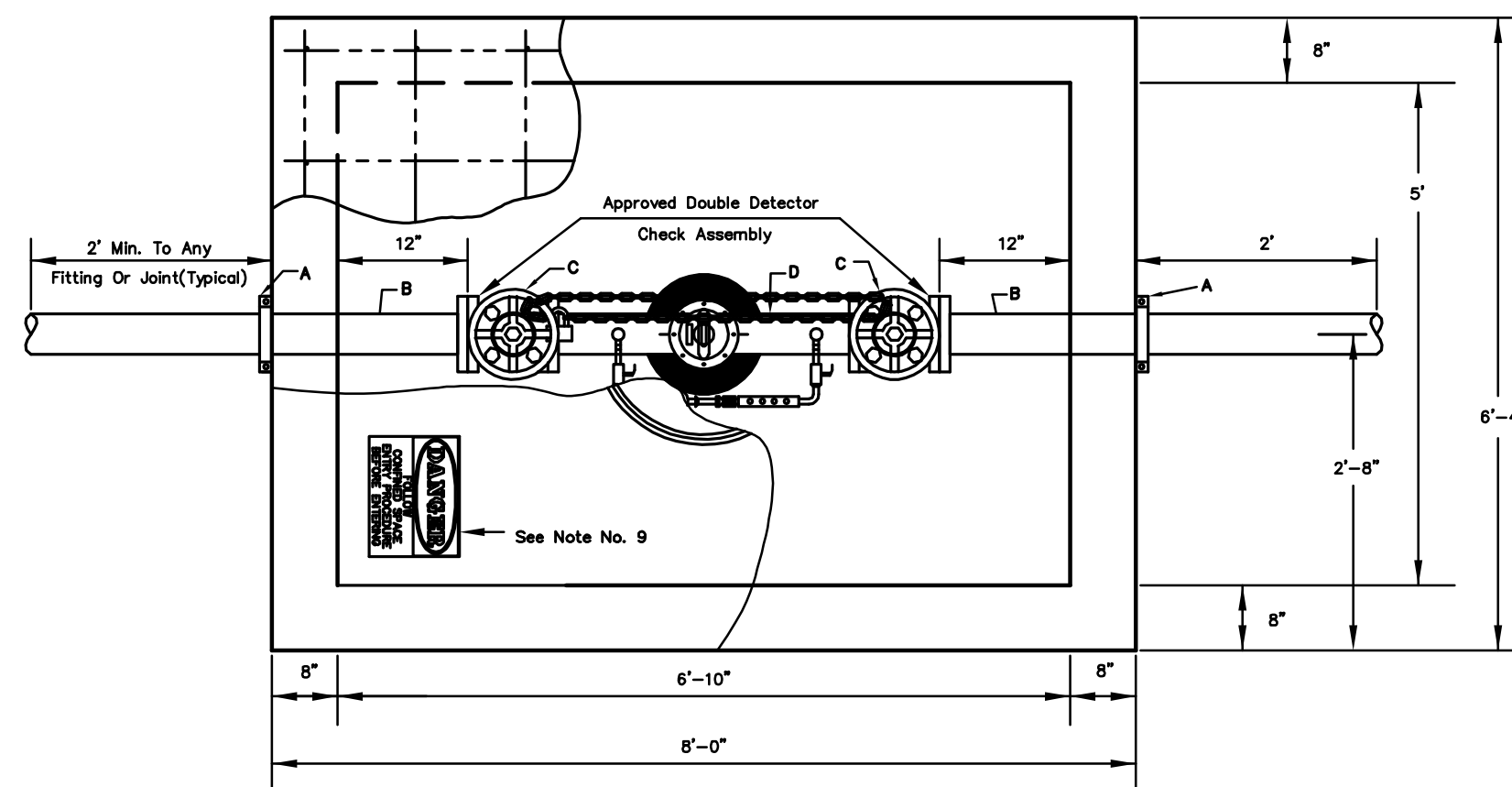


- A - 6" Mega Lug (See Note 7)
- B - Min. 3' Piece of 6" FL x PE DICL Pipe
- C - 4" Flange Non-rising Stem Gate Wheel Valve
- D - 4" FL x PE Pipe
- E - 4" Flex Coupling
- F - 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-1000DR Cubic Foot Meter with AMR Register.
- G - 6" x 4" Flange Reducer

### 6" Domestic Service with 4" meter

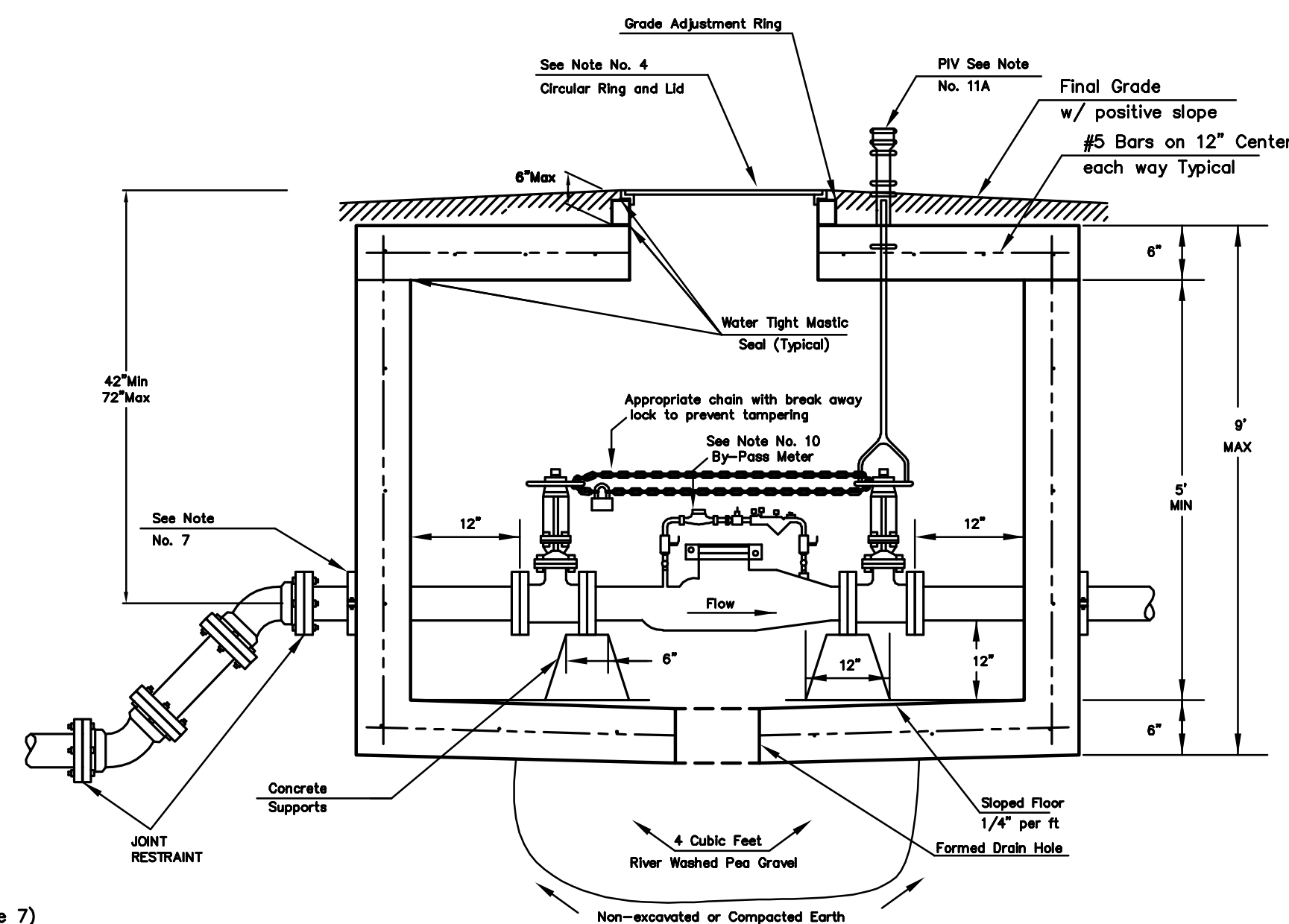
NOTE:

INSPECTOR FROM PUBLIC WORKS AND UTILITIES TO BE CONTACTED 24 HOURS PRIOR TO INSTALLATION TO SET VAULT.  
CONTACT: 316-219-8928 OR 316-219-8929



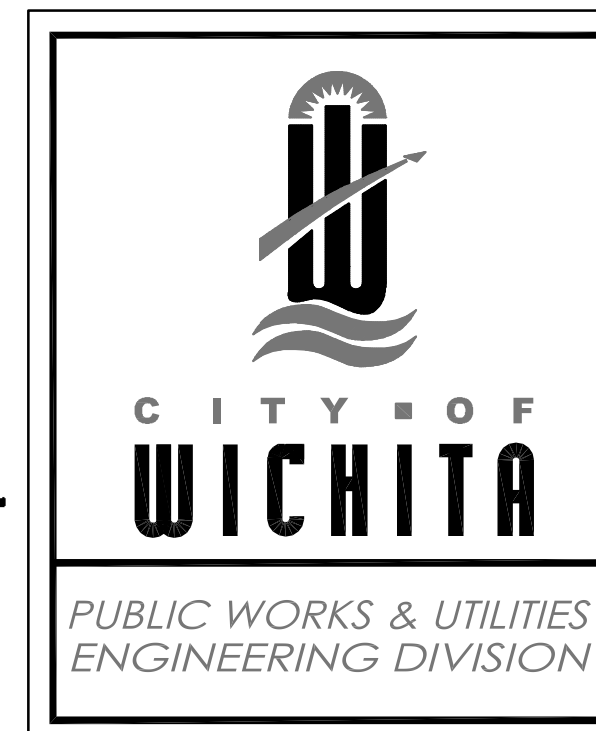
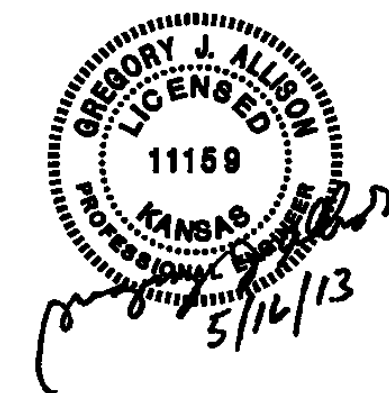
- A - Mega Lug (See Note 7)
- B - Min. 3'-8" Piece of FL x PE DICL Pipe
- C - Flange Gate Valve, Wheel Operated
- D - Ames Model 3001SS or approved equal with metered(cubic foot) by-pass assembly

### 4" thru 8" Fire Service



NOTE:

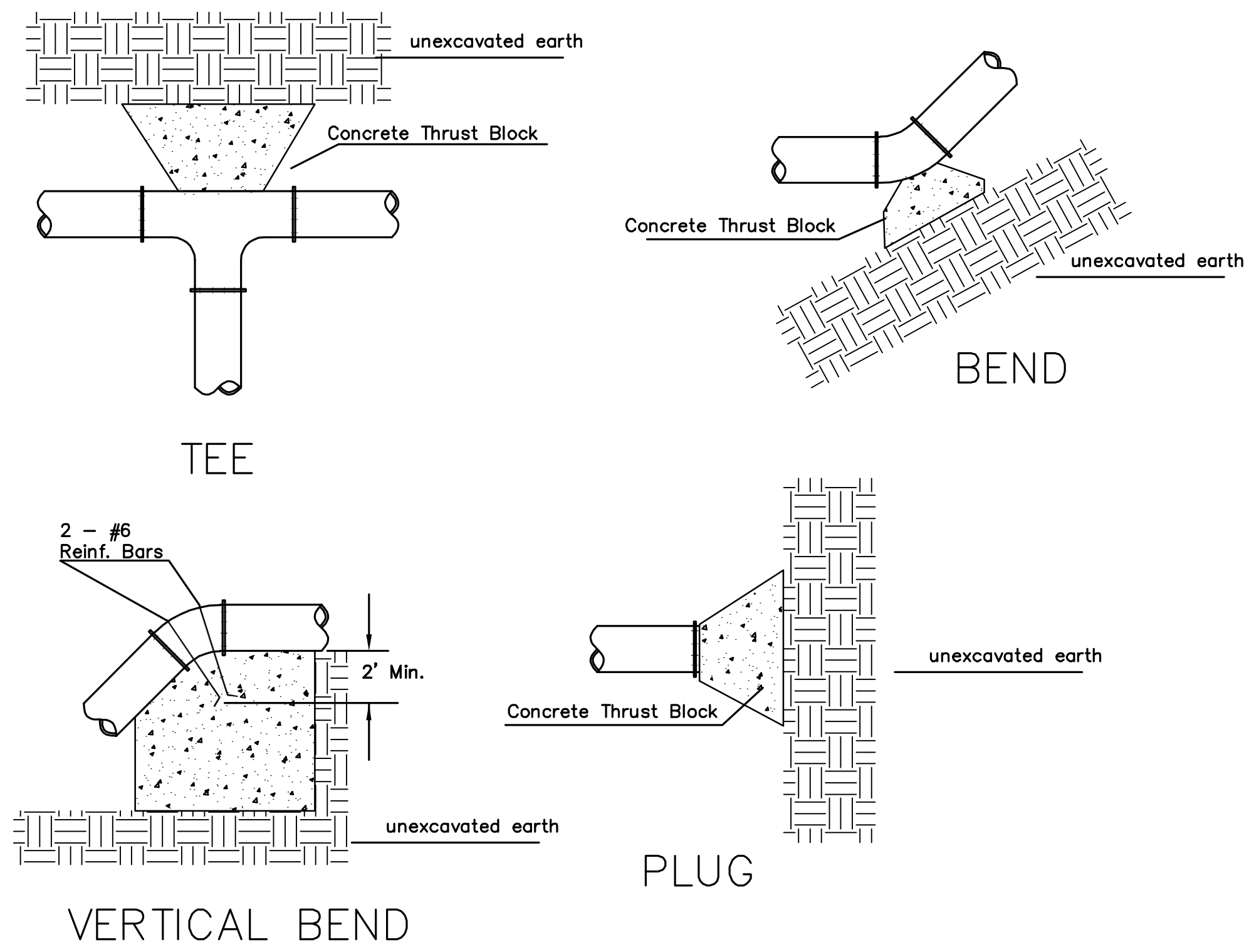
Domestic Services larger than 6" shall be custom designed by Engineer.



### STANDARD VAULT DETAILS AND METER ASSEMBLIES

CITY ENGINEER  
**GARY JANZEN, P.E.**

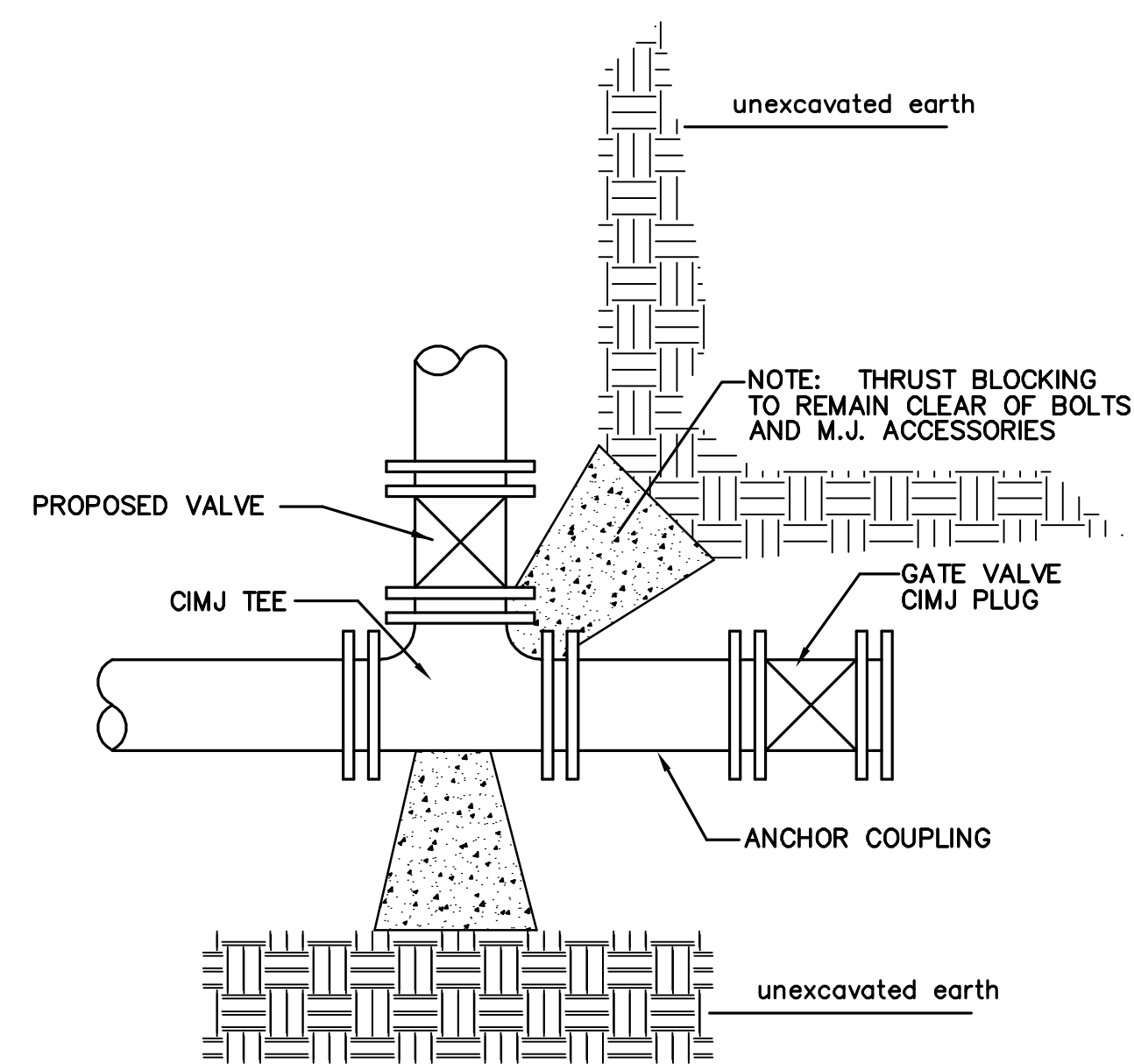
PROJECT NUMBER	OCA NUMBER	DATE
1742PPW	607853	08/2012
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		
DESIGN	DRAWN	SHEET
		<b>4 of 9</b>



TRENCH COMPACTION IN ROAD RIGHT-OF-WAY

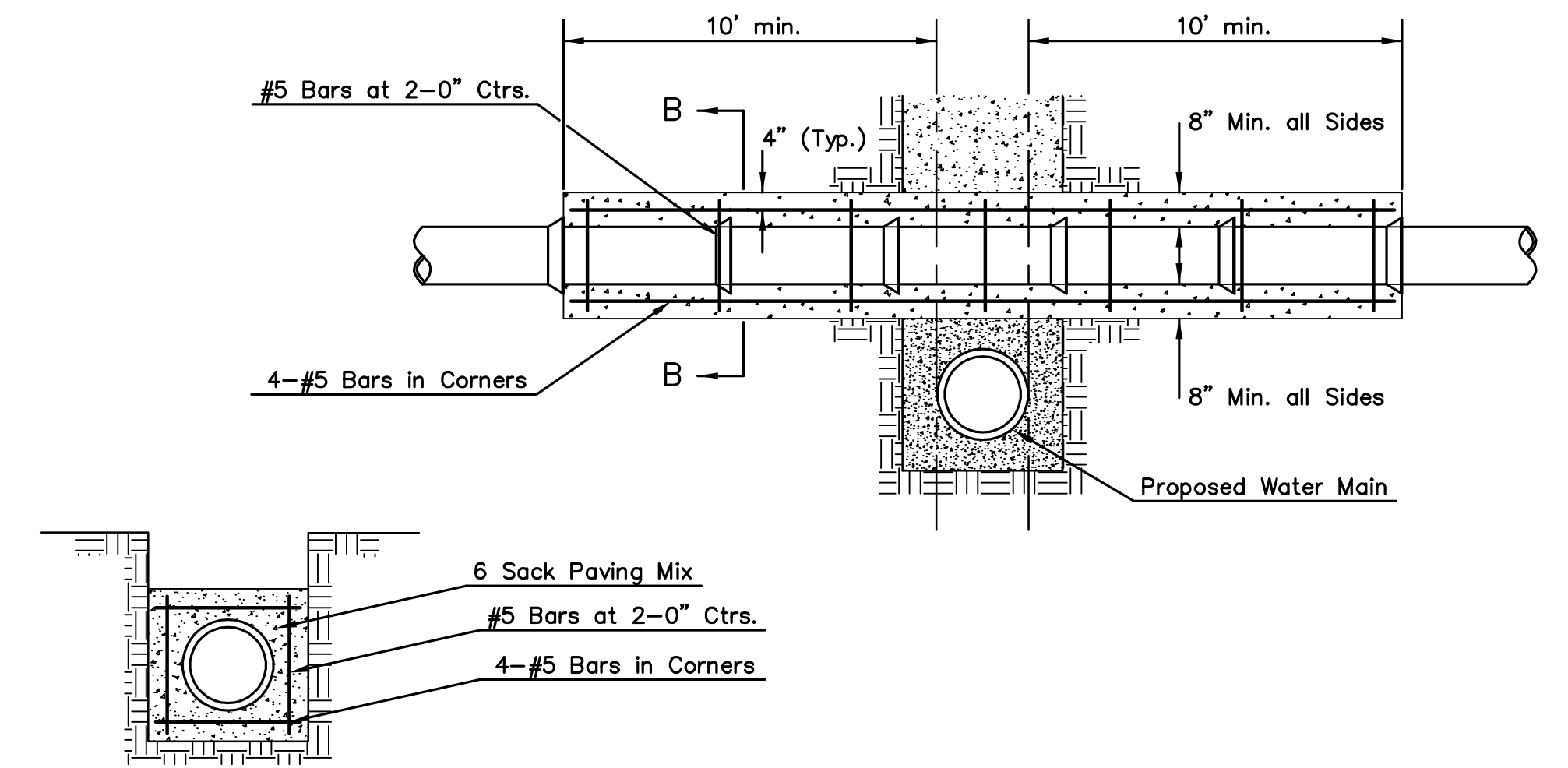
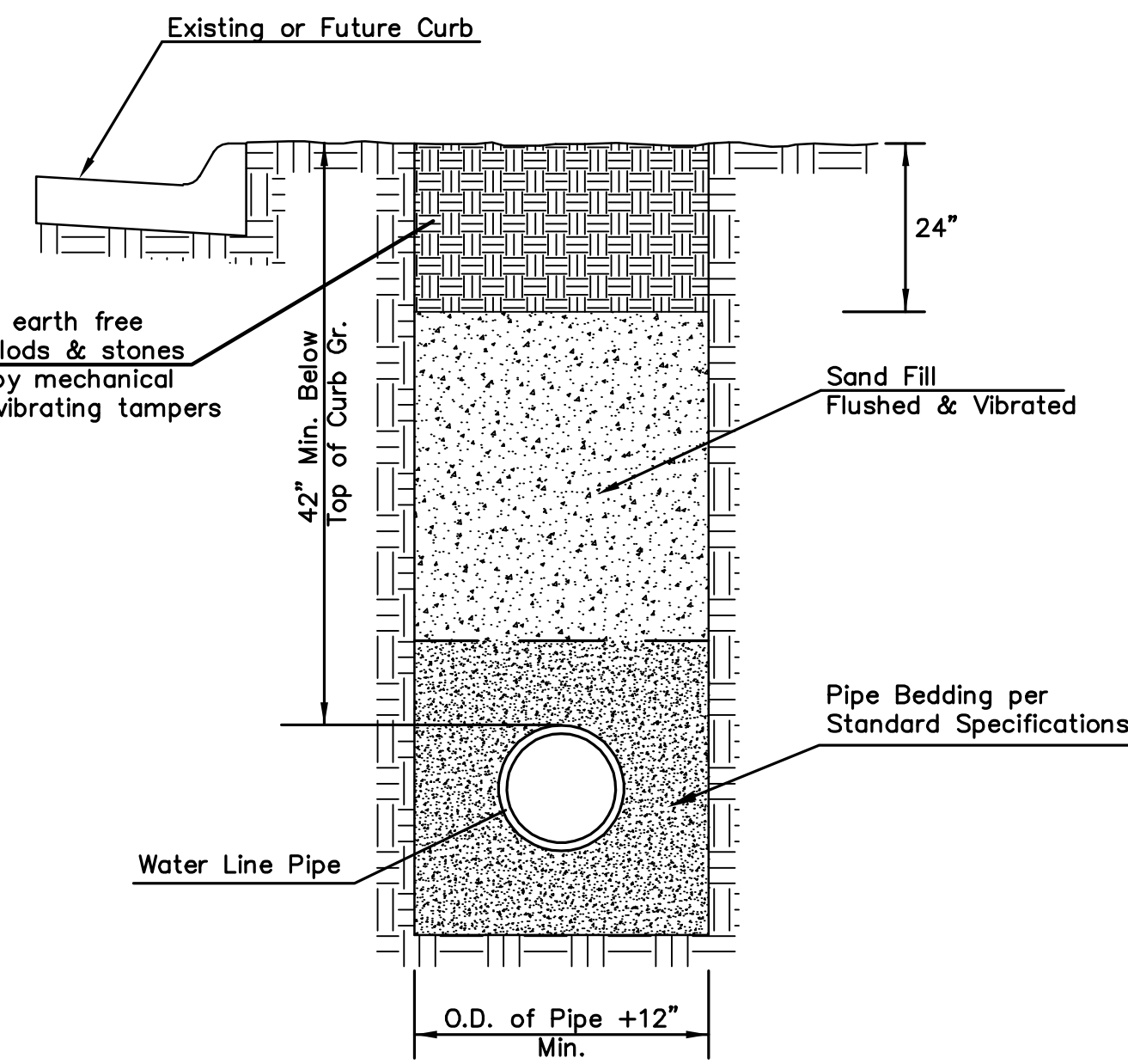
PIPE SIZE	THRUST AT FITTINGS IN TONS—AT 150#/IN P					
	PLUG	90°	45°	22 1/2°	11 1/4°	TEE
6"	2.8	3.95	2.15	1.09	.55	2.8
8"	4.9	6.95	3.75	1.90	.96	4.9
12"	11.4	16.1	8.75	4.45	2.25	11.4
16"	20.15	28.5	15.4	7.85	3.95	20.15
20"	31.15	44.0	23.85	12.15	6.10	31.15
24"	44.55	63.0	34.1	17.4	8.75	44.55

TYPICAL THRUST BLOCKS



KEY BLOCK DETAIL

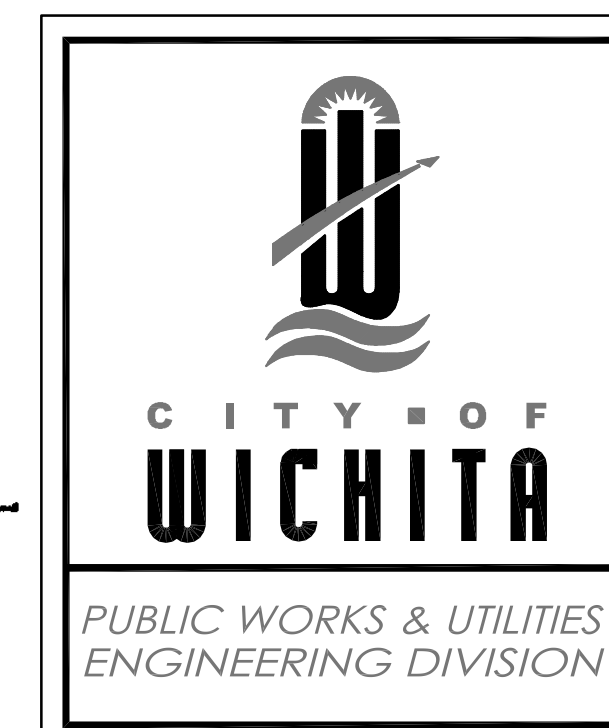
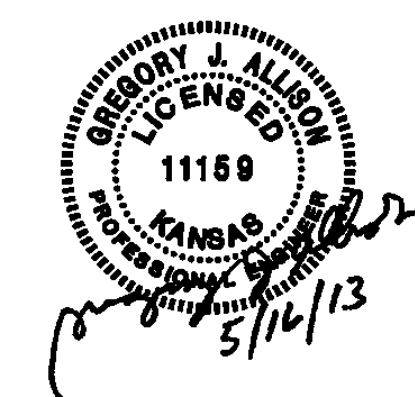
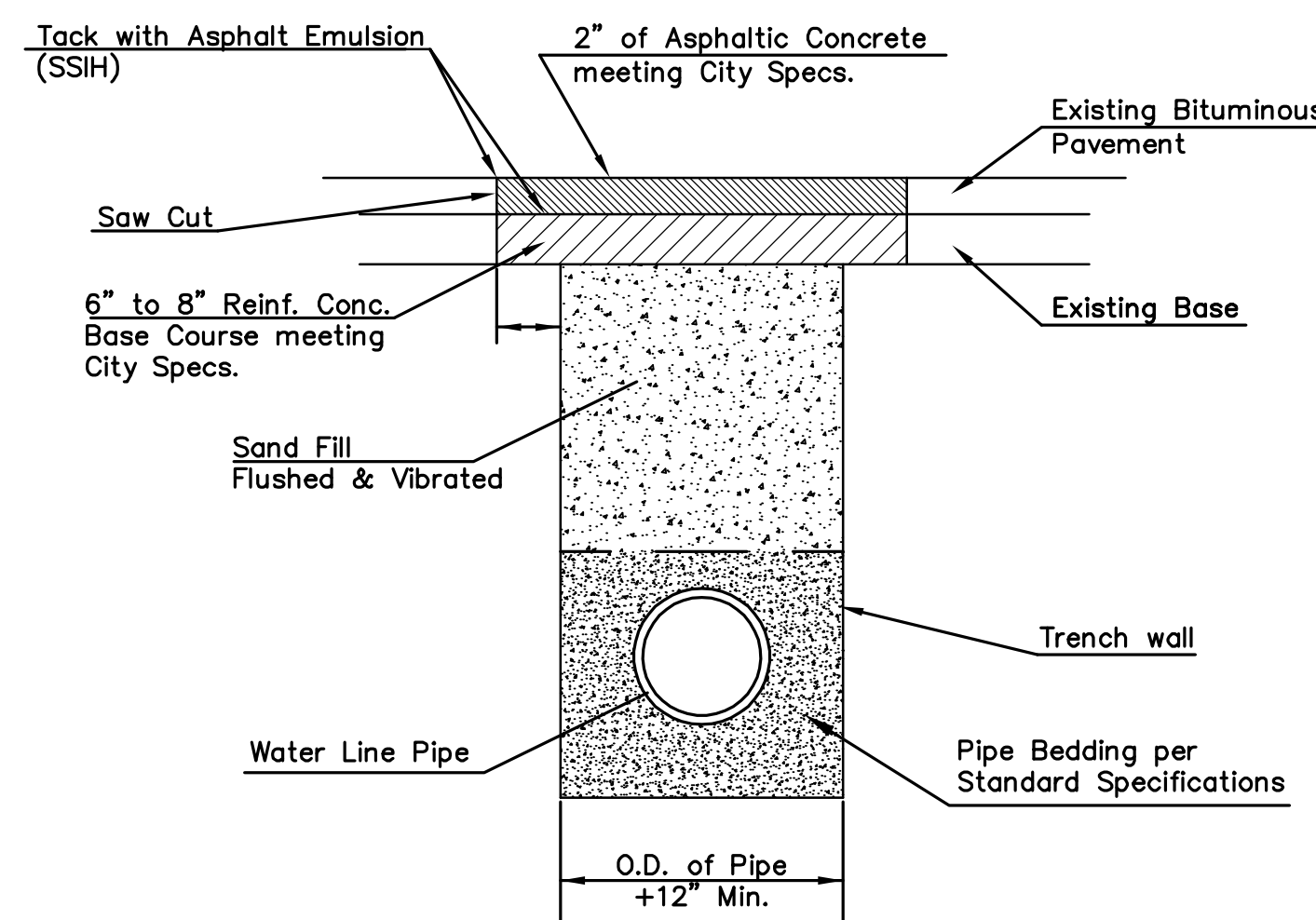
PAVEMENT REPLACEMENT & TRENCH COMPACTION UNDER EXISTING AND PROPOSED CITY ROADS UNLESS OTHERWISE NOTED ON PLANS



SECTION B-B

REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER

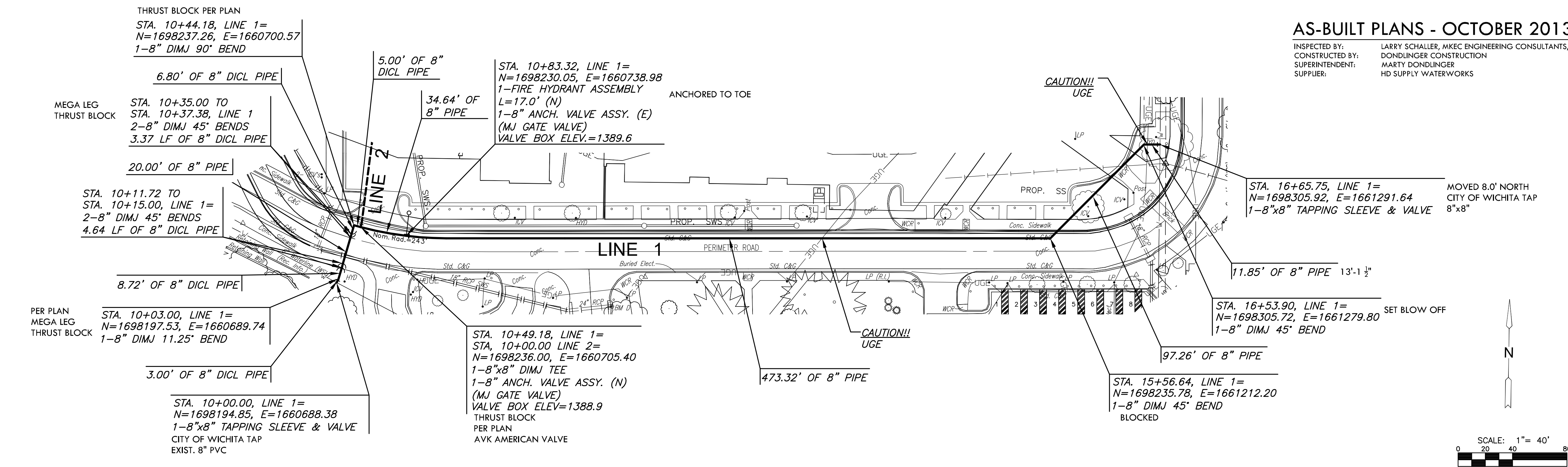
Note: Encasement to begin and end at a Bell on Sanitary Sewer Pipe.



MISCELLANEOUS WATER DETAILS		
CITY ENGINEER GARY JANZEN, P.E.		
PROJECT NUMBER 1742PPW	OCA NUMBER 607853	DATE 08/2012
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		DESIGN DRAWN SHEET 5 of 9

PLOTTED: Monday, December 02, 2013 @ 01:20PM

J:\PROJECTS\2013\1301010067\_PSP\_WSU\_RESIDENCE\_HALL\CIVIL\CAD\WTR\13067\_C1.DWG



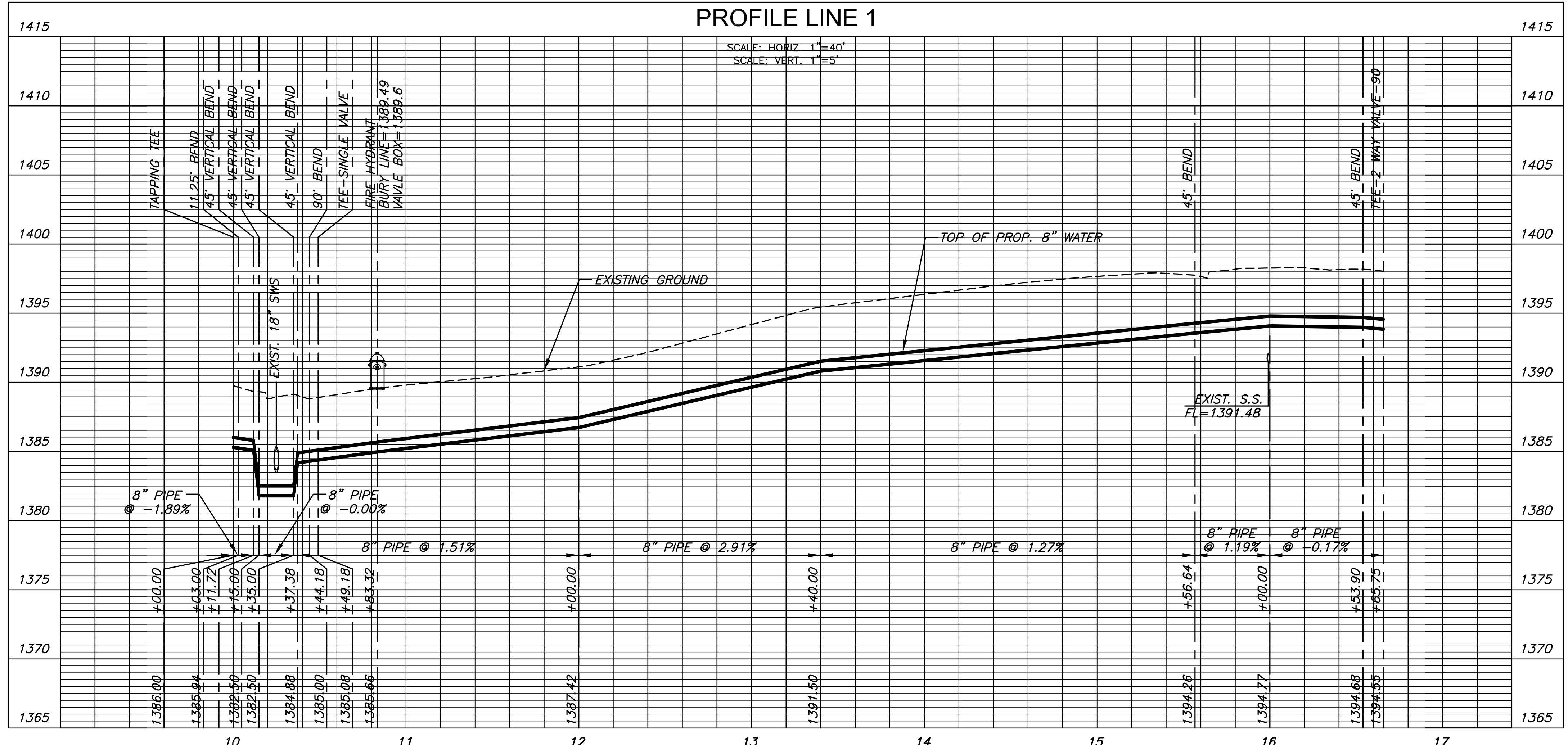
**AS-BUILT PLANS - OCTOBER 2013**

INSPECTED BY: LARRY SCHALLER, MKEC ENGINEERING CONSULTANTS, INC.  
 CONSTRUCTED BY: DONDLINGER CONSTRUCTION  
 SUPERINTENDENT: MARTY DONDLINGER  
 SUPPLIER: HD SUPPLY WATERWORKS

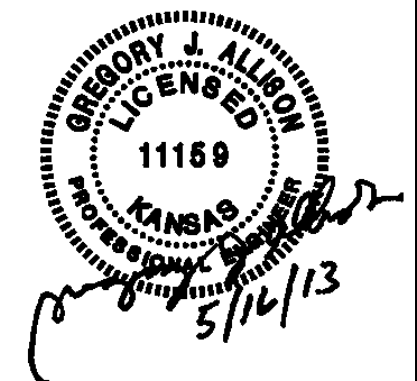


**PLAN LINE 1  
 PROFILE LINE 1**

**NOTE:**  
 CONTRACTOR TO VERIFY  
 LOCATION AND ELEVATION OF  
 EXIST. 8" WATER LINE AND  
 ALL UTILITIES PRIOR TO  
 CONSTRUCTION.



WATER DISTRIBUTION PLANS FOR  
**WSU RESIDENCE HALL**  
 WICHITA STATE UNIVERSITY



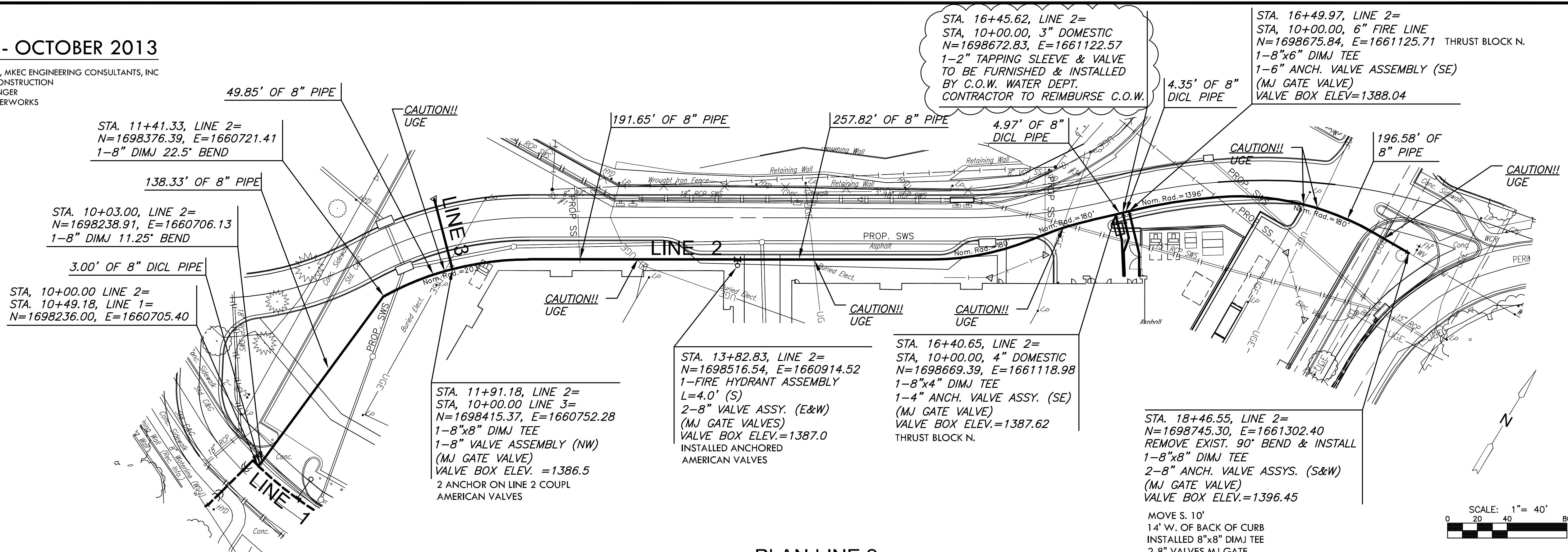
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**LINE 1 PLAN & PROFILE**

PROJECT NO.	1742PPW	
DATE	DATE	
SCALE	AS SHOWN	
DESIGNED	DRAWN	CHECKED
SPE	KKL	GJA
#	----	###/###/###
NO.	REVISION	DATE

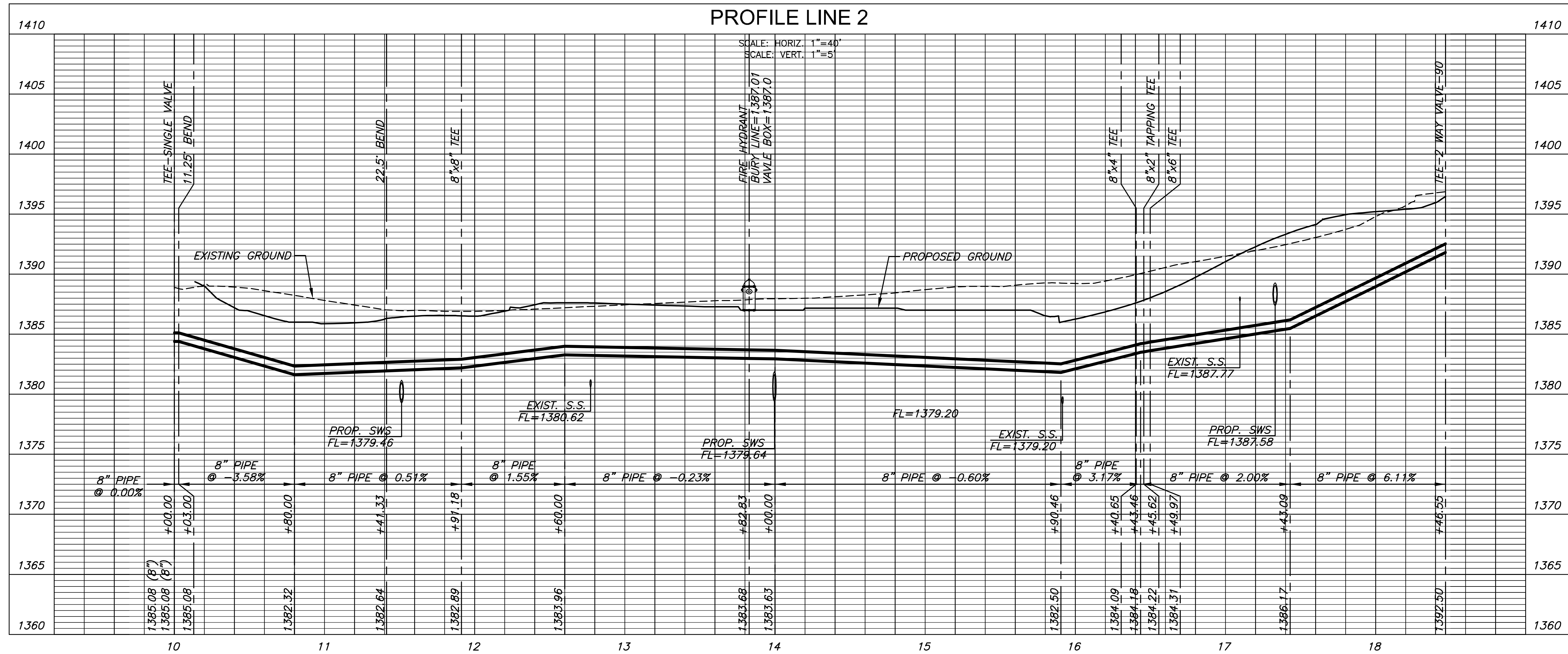
**AS-BUILT PLANS - OCTOBER 2013**

INSPECTED BY: LARRY SCHALLER, MKEC ENGINEERING CONSULTANTS, INC.  
 CONSTRUCTED BY: DONDLINGER CONSTRUCTION  
 SUPERINTENDENT: MARTY DONDLINGER  
 SUPPLIER: HD SUPPLY WATERWORKS

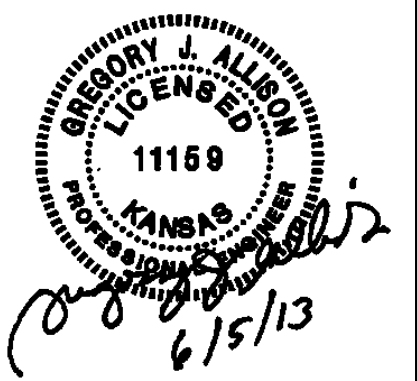


**PLAN LINE 2  
 PROFILE LINE 2**

NOTE:  
 CONTRACTOR TO VERIFY  
 LOCATION AND ELEVATION OF  
 EXIST. 8" WATER LINE AND  
 ALL UTILITIES PRIOR TO  
 CONSTRUCTION.



WATER DISTRIBUTION PLANS FOR  
**WSU RESIDENCE HALL**  
 WICHITA STATE UNIVERSITY



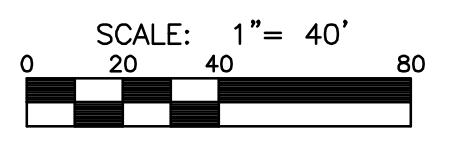
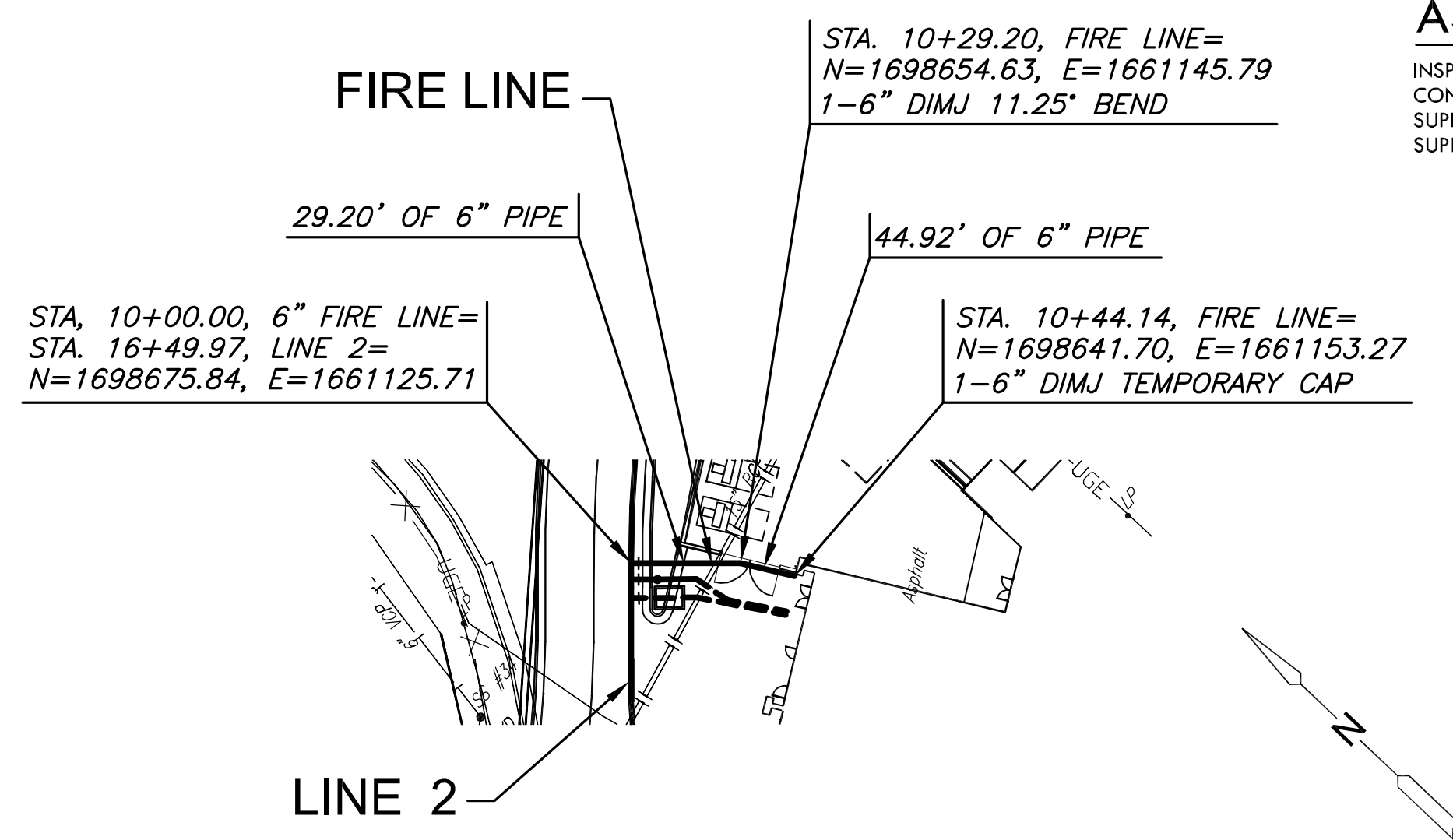
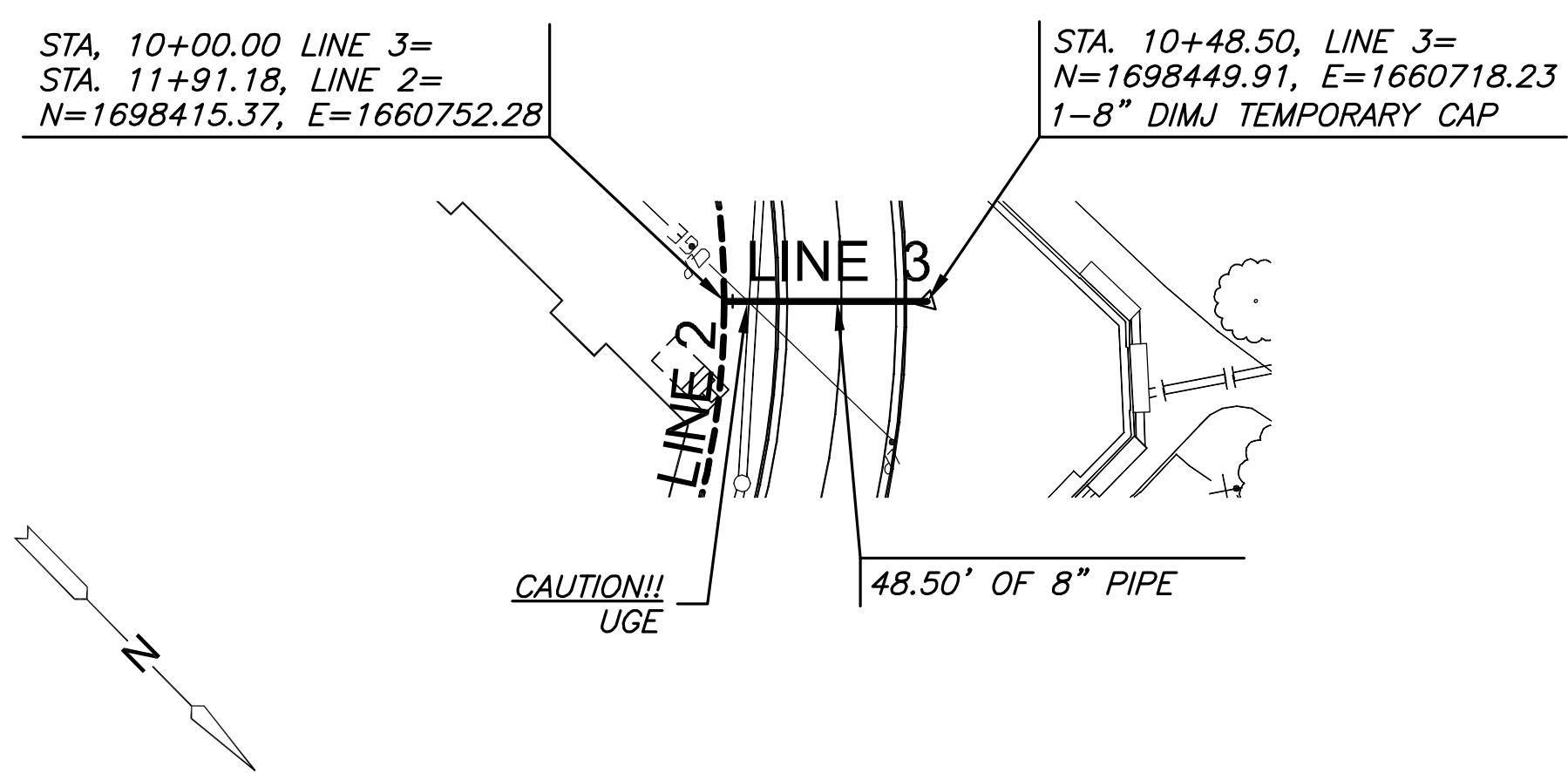
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**LINE 2 PLAN & PROFILE**

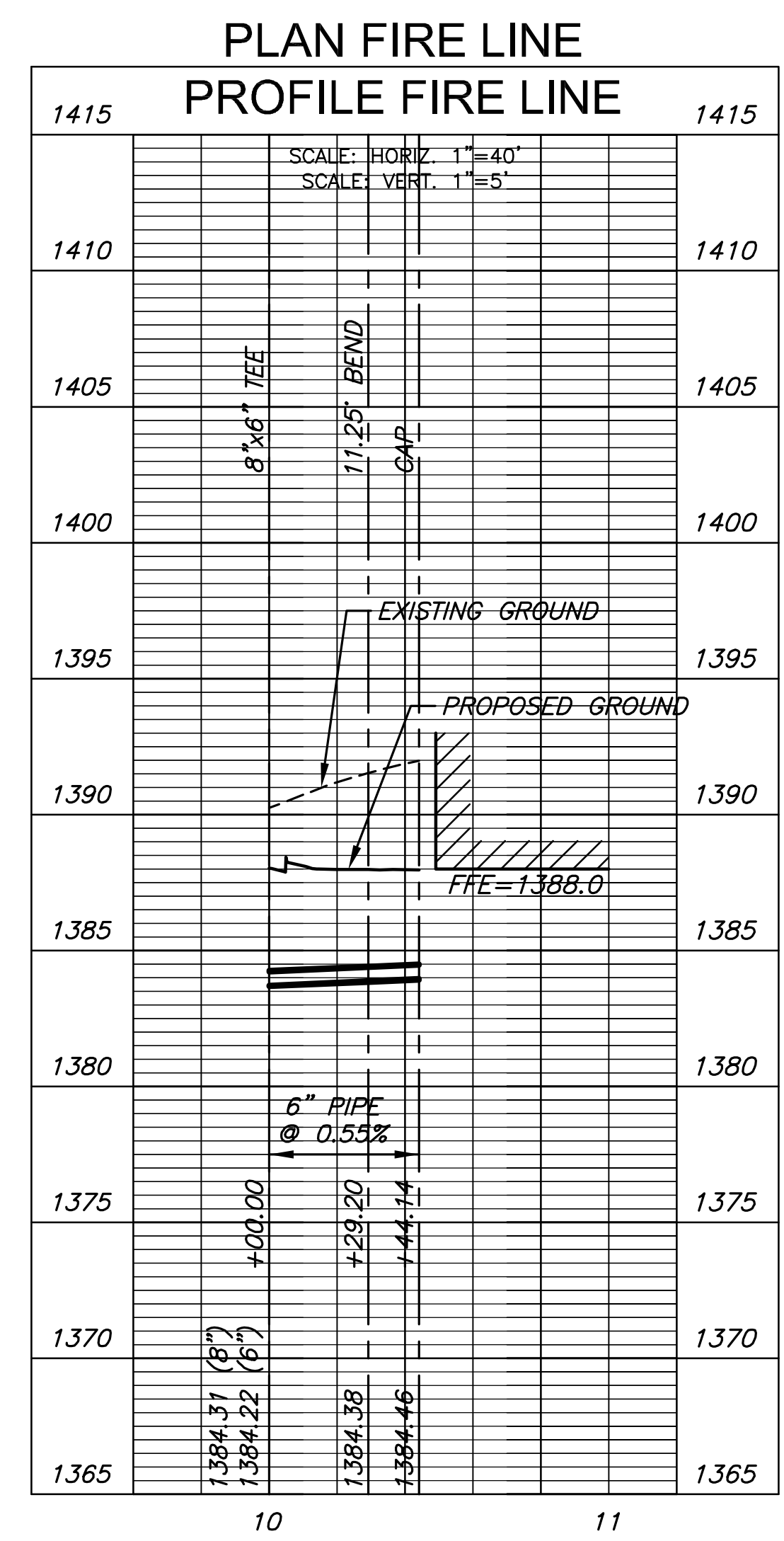
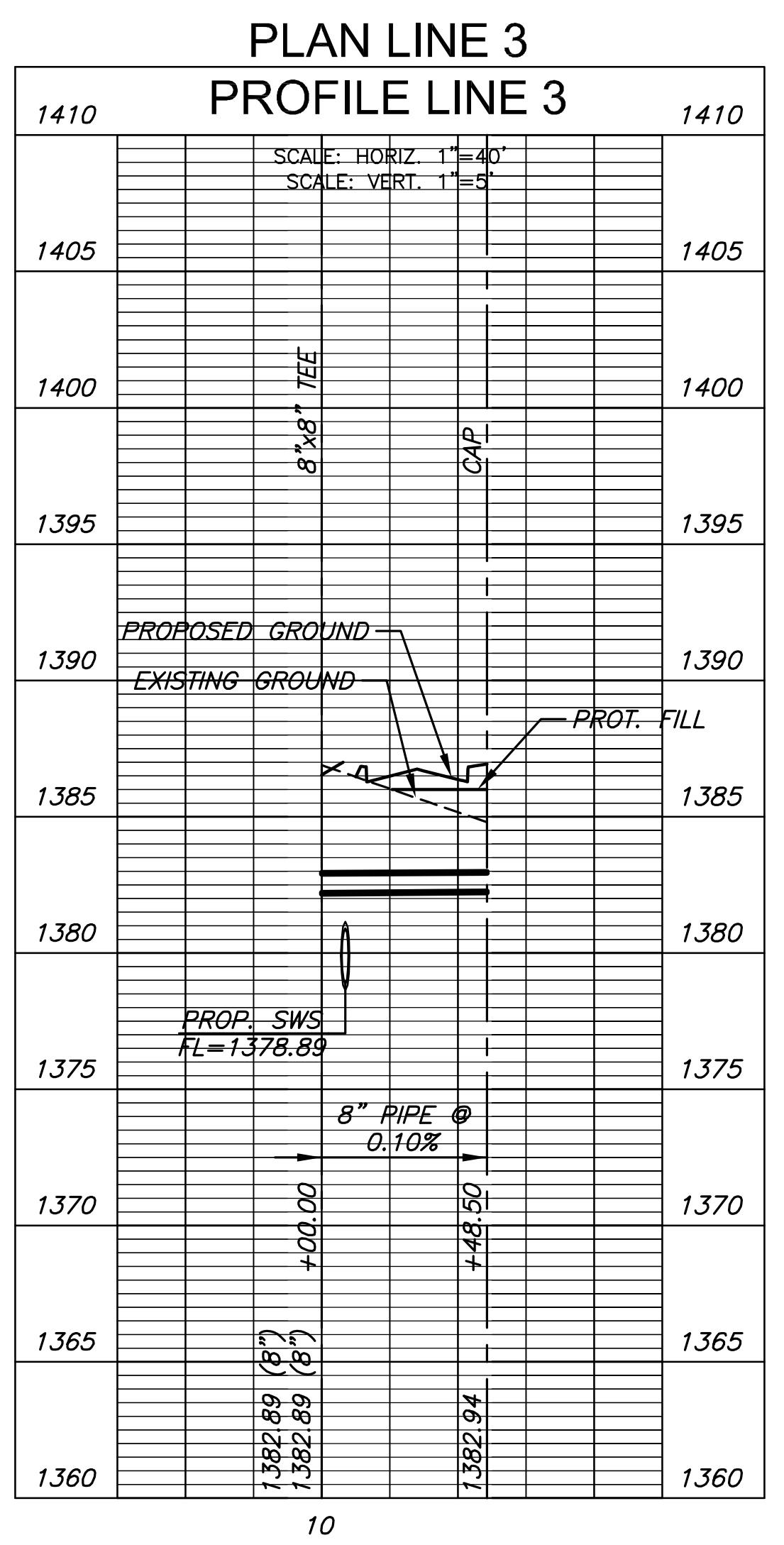
PROJECT NO.	1742PPW	
DATE	DATE	
SCALE	AS SHOWN	
DESIGNED	DRAWN	CHECKED
SPE	KKL	GJA
NO.	REVISION	DATE
1	3" DOMESTIC LINE	06/05/13

**AS-BUILT PLANS - OCTOBER 2013**

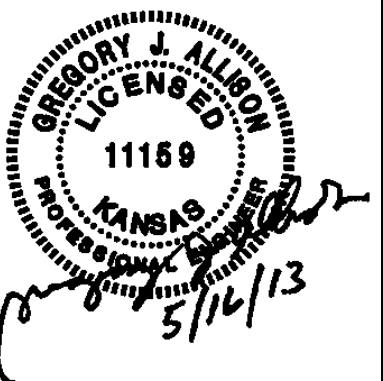
INSPECTED BY: LARRY SCHALLER, MKEC ENGINEERING CONSULTANTS, INC  
 CONSTRUCTED BY: DONDLINGER CONSTRUCTION  
 SUPERINTENDENT: MARTY DONDLINGER  
 SUPPLIER: HD SUPPLY WATERWORKS



NOTE:  
 CONTRACTOR TO VERIFY  
 LOCATION AND ELEVATION OF  
 EXISTING UTILITY LINES PRIOR  
 TO CONSTRUCTION.



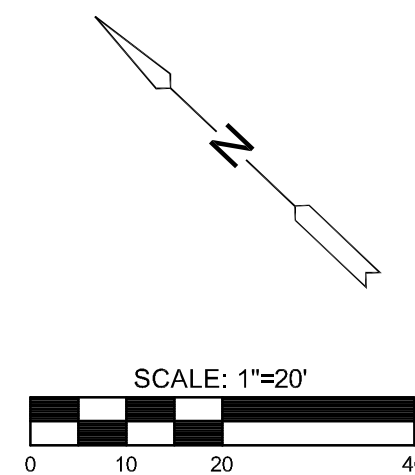
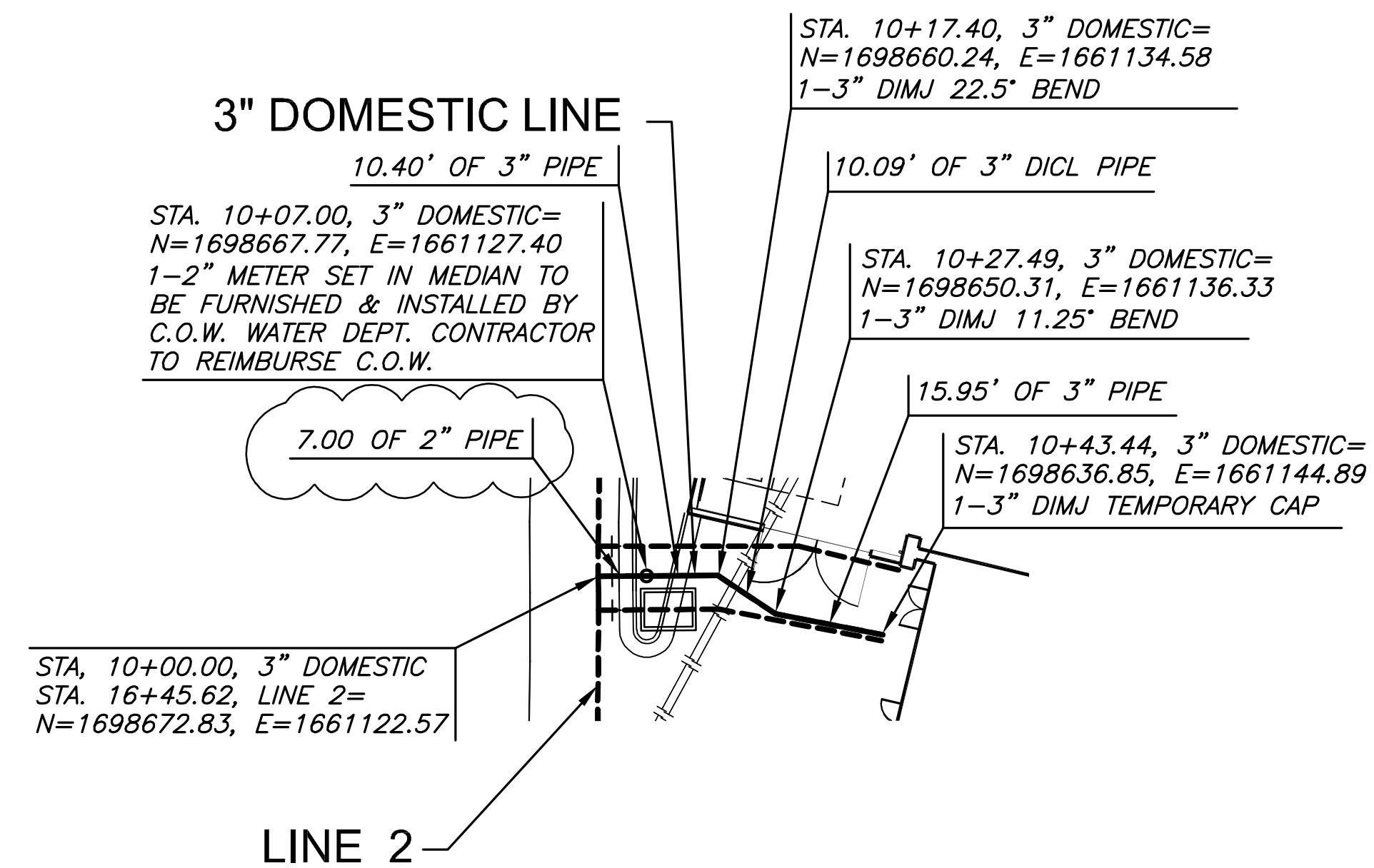
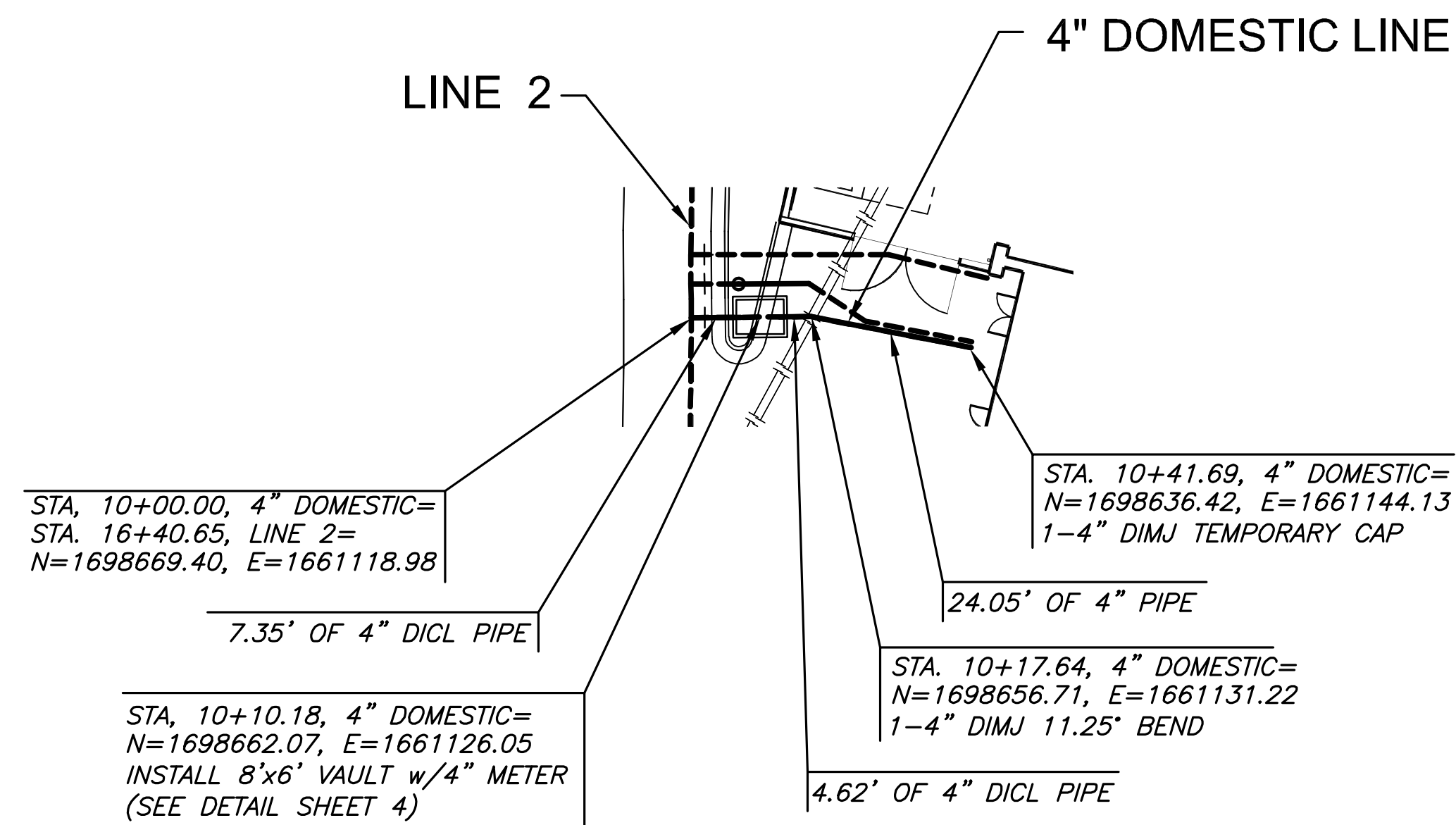
WATER DISTRIBUTION PLANS FOR  
**WSU RESIDENCE HALL**  
 WICHITA STATE UNIVERSITY



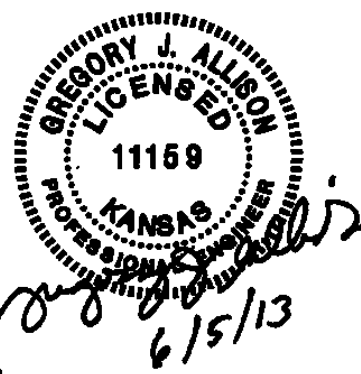
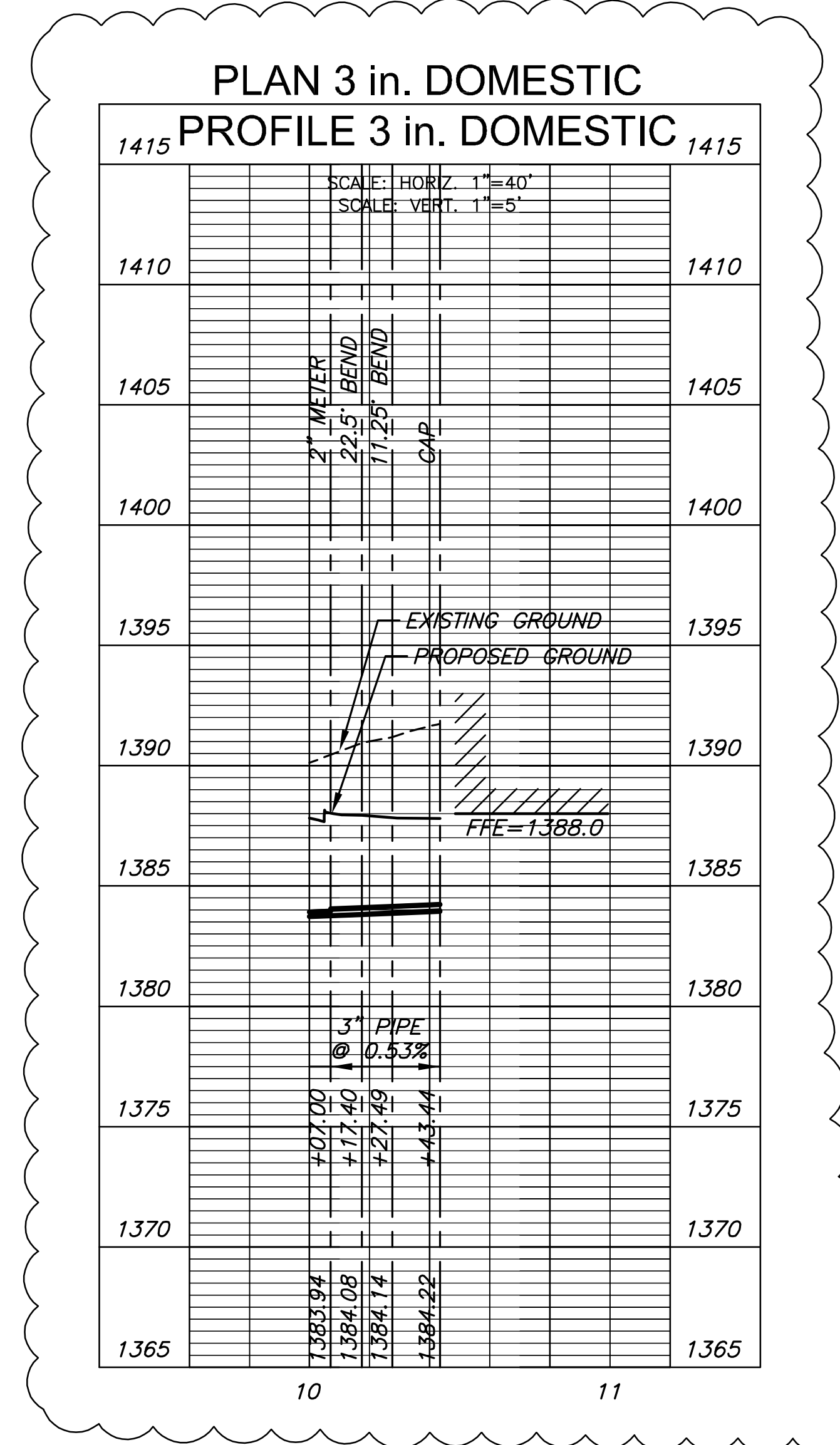
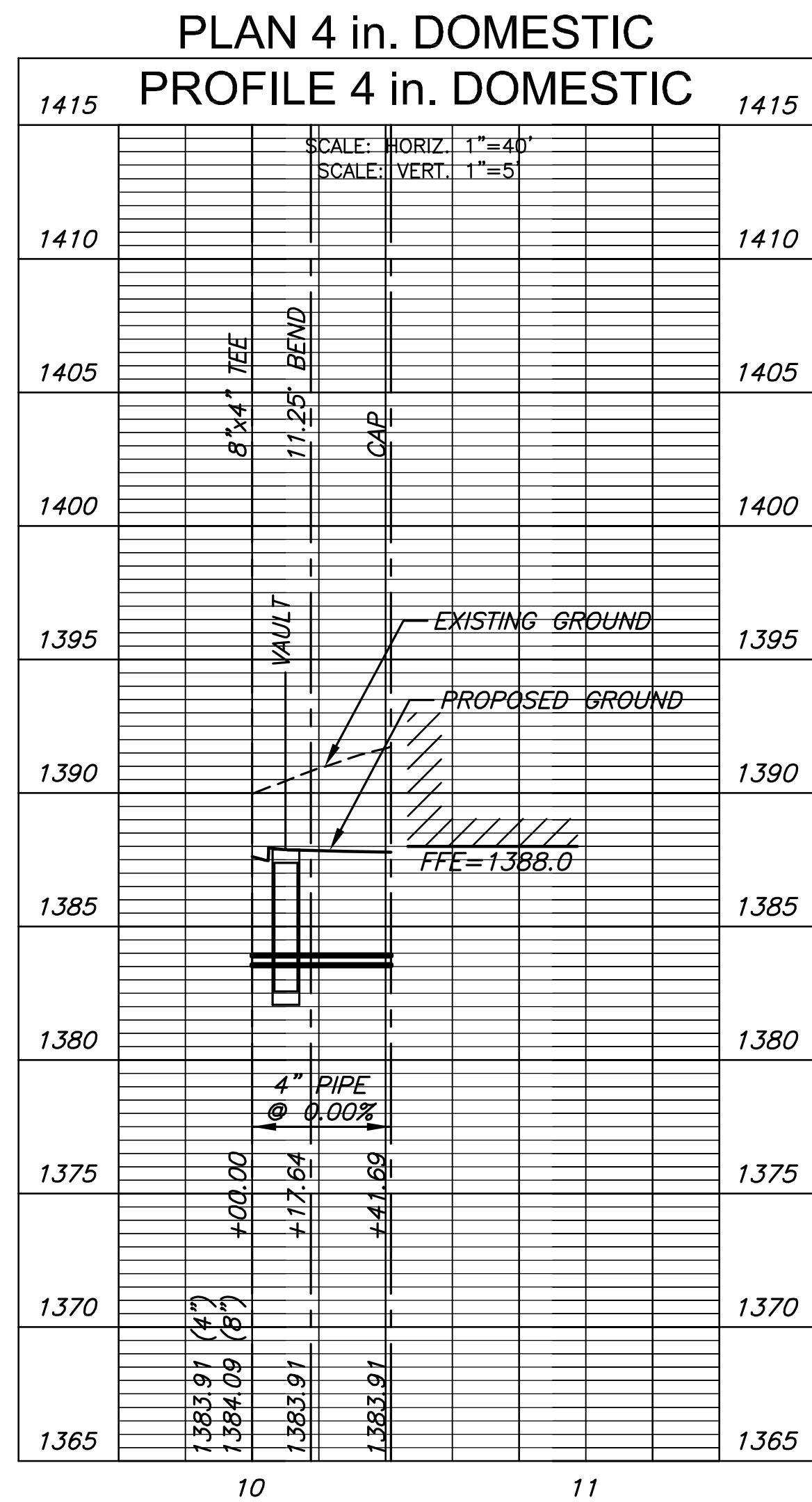
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**LINE 3 AND  
 FIRE LINE PLAN  
 & PROFILE**

PROJECT NO.	1742PPW	
DATE	DATE	
SCALE	AS SHOWN	
DESIGNED	DRAWN	CHECKED
SPE	KKL	GJA
#	----	##/##/##
NO.	REVISION	DATE



NOTE:  
CONTRACTOR TO VERIFY  
LOCATION AND ELEVATION OF  
EXISTING UTILITY LINES PRIOR  
TO CONSTRUCTION.



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**DOMESTIC LINES PLAN & PROFILE**

PROJECT NO.	1742PPW	
DATE	DATE	
SCALE	AS SHOWN	
DESIGNED	DRAWN	CHECKED
SPE	KKL	GJA

NO.	REVISION	DATE
1	3" DOMESTIC LINE	06/05/13

SHEET NO.