

PRIVATE WATER DISTRIBUTION SYSTEM IMPROVEMENTS

TO SERVE

# WSU - PERIMETER ROAD & PEDESTRIAN LINKAGE

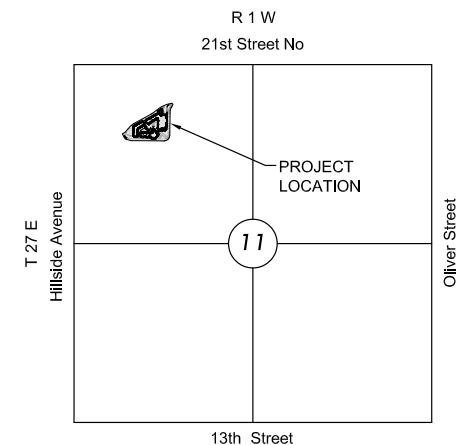
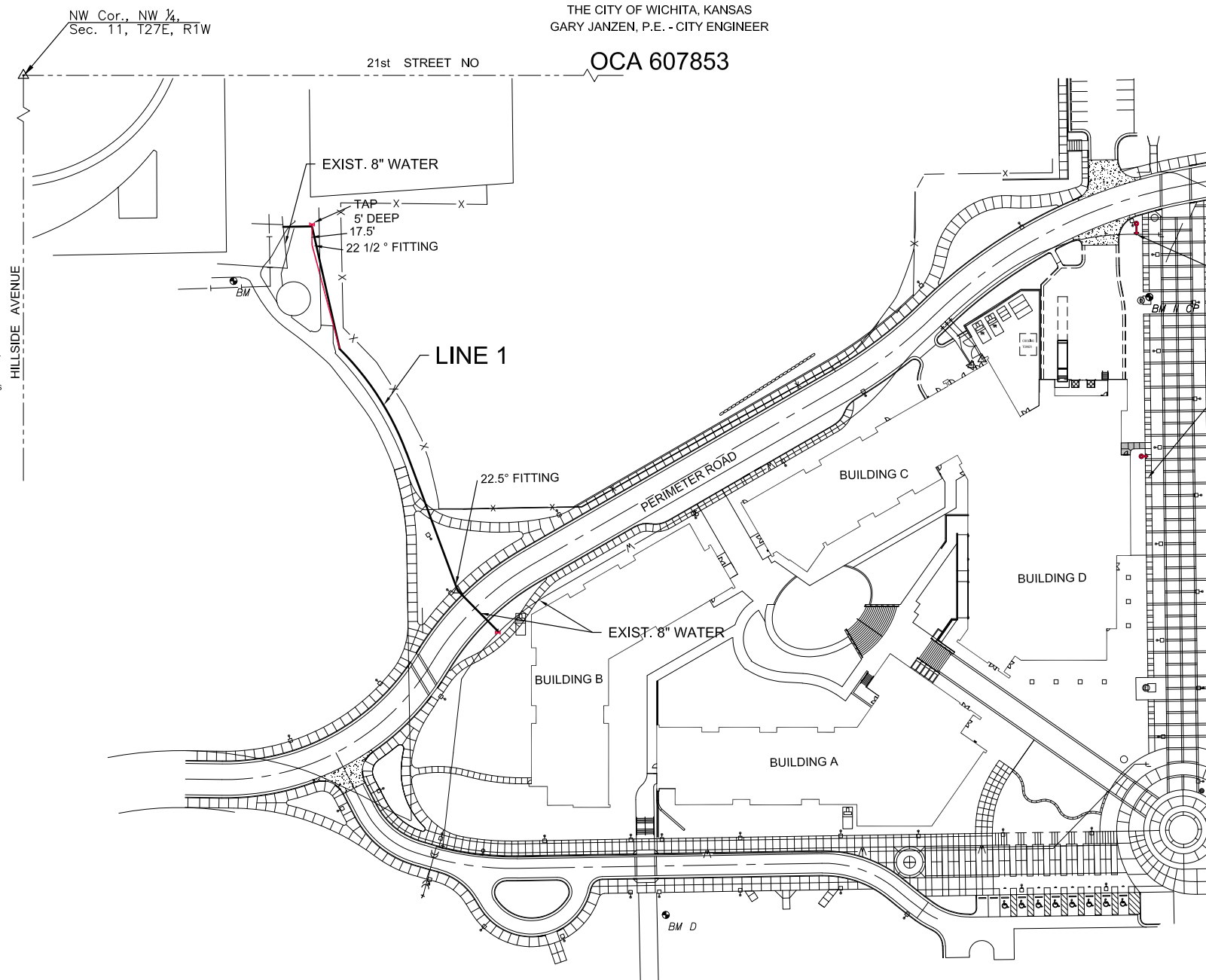
PROJECT NO. 1783PPW

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

OCA 607853

## GENERAL NOTES

- ALL WATER MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF WICHITA, KANSAS STANDARD SPECIFICATIONS FOR WATER MAIN INSTALLATIONS.
- 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) 282-0661  
WESTAR (ELECTRIC) 383-8600  
KANSAS GAS SERVICE (GAS) 832-3101  
SBC (TELEPHONE) 800-870-8390  
CITY OF WICHITA WATER & SEWER 292-8000  
BLACK HILLS ENERGY (GAS) 800-303-0357
- 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.
- 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.
- 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.
- THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.
- NO SERVICES WILL BE INSTALLED AS PART OF THIS PROJECT.
- RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED AND TREE TRIMMINGS SHALL BE DISPOSED 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.
- ALL DISTURBED AREAS TO BE SEEDED 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.
- 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.
- WORK DONE UNDER THIS PROJECT IS SUBJECT TO THE CITY OF WICHITA REQUIREMENTS FOR "CONSTRUCTION OF INFRASTRUCTURE IMPROVEMENTS BY PRIVATE CONTRACT." 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.



## INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
54	TITLE SHEET
55-56	WATER DETAILS
57	LINE 1 PLAN & PROFILE

F.H. 1  
F.H. 2

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

Water Mains (Public Works) *Jim Bink 1-9-14*  
Water Mains (Water & Sewer Dept.) *Doug Jolly 1-10-14*  
Fire Prot. Line (Fire Dept.) *Shane 1-10-2014*

### 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.

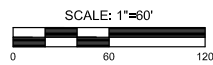
## LEGEND

- W — EXISTING WATER
- — PROPOSED WATER

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

## AS-BUILT PLANS - JANUARY 2015

INSPECTED BY: GENE RATH MKEC ENGINEERING  
CONSTRUCTED BY: DONDINGER CONSTRUCTION  
SUPERINTENDENT: CHRIS PETERSON  
SUPPLIER: NORTH AMERICAN PIPE  
AMERICAN FLOW CONTROL HYDRANTS



NOTE: ALL LINES TO BE INSTALLED BY  
OTHERS ARE SUBJECT TO MABCD REVIEW.

NOTE: CONTRACTOR TO VERIFY DEPTH  
AND LOCATION OF EXISTING UTILITIES  
PRIOR TO CONSTRUCTION.



Department of Administration  
Office of Facilities & Procurement  
Management  
Design, Construction & Compliance  
800 SW Jackson, Suite 700  
Topeka, Kansas 66612-1216  
Phone 785-296-8899

WICHITA STATE UNIVERSITY  
NEW PERIMETER ROAD & PEDESTRIAN LINKAGE  
WICHITA, KANSAS  
DRAWN BY: KKL CHECKED BY: GJA  
DATE: 1/15/2014

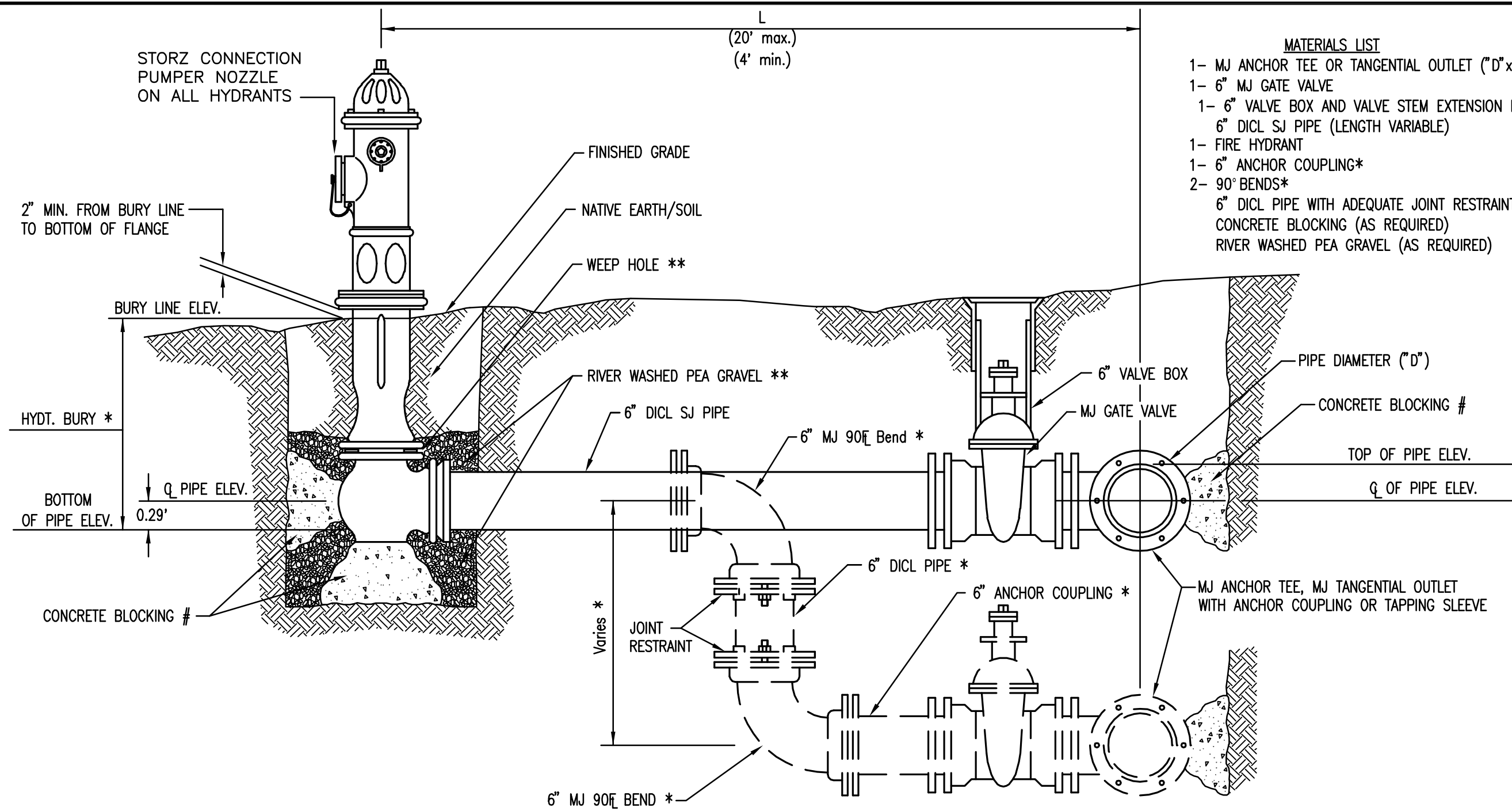
WATER TITLE SHEET

A-012273

54 OF 68

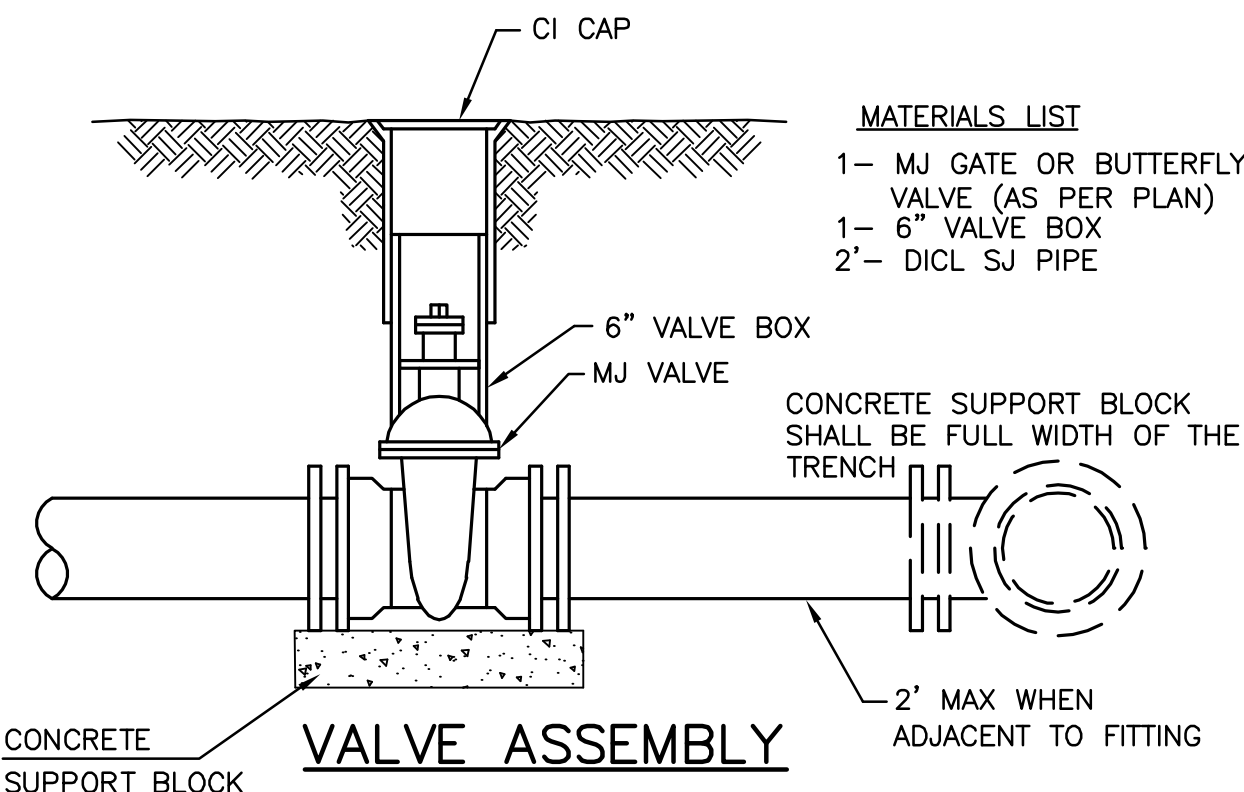
ORIGINAL CONTRACT DOCUMENTS

J:\PROJECTS\2013\10\10248\_WSU PERIMETER AND SERVICE ROADS\CAD\WTR\13248\_CTDWG

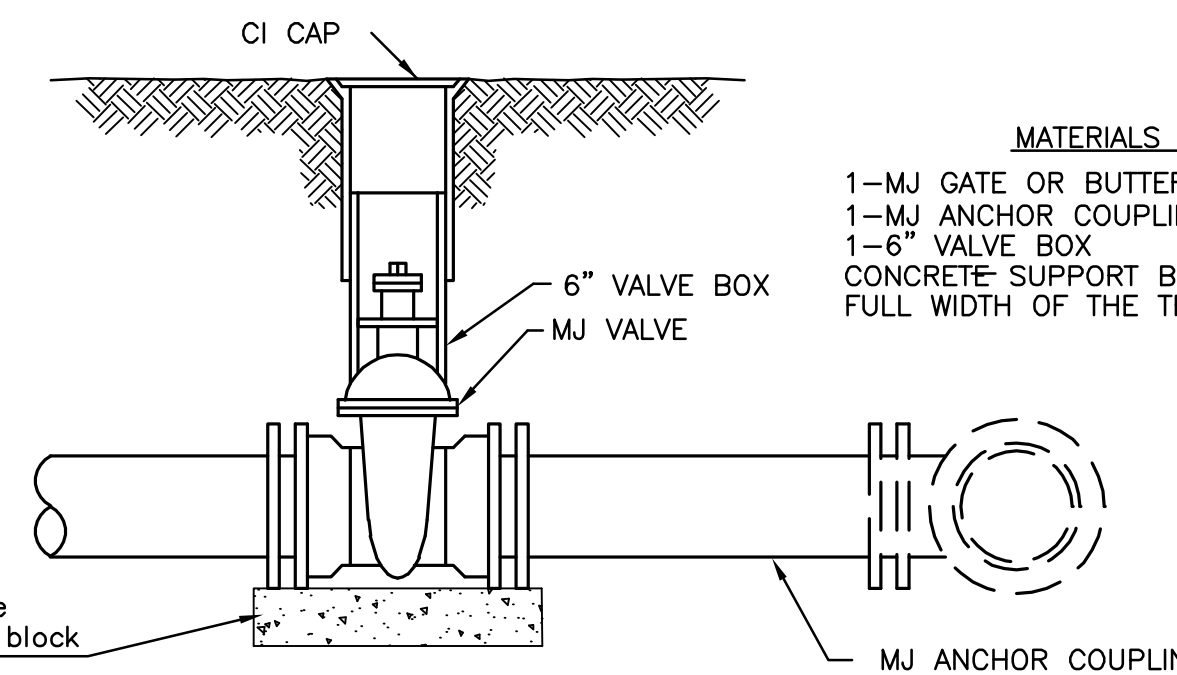


- MATERIALS LIST**
- 1- MJ ANCHOR TEE OR TANGENTIAL OUTLET (6" x 6")
  - 1- 6" MJ GATE VALVE
  - 1- 6" VALVE BOX AND VALVE STEM EXTENSION IF REQUIRED \*
  - 6" DI CL SJ PIPE (LENGTH VARIABLE)
  - 1- FIRE HYDRANT
  - 1- 6" ANCHOR COUPLING\*
  - 2- 90° BENDS\*
  - 6" DI CL PIPE WITH ADEQUATE JOINT RESTRAINT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

FIRE HYDRANTS REQUIRED				
F.H. #	STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	VALVE STEM EXT. REQUIRED (ft)*
1	PERIMETER RD STA. 16+36.84, 29.78' RT.	1396.59	1391.26	6.0'
2	BASELINE 1 STA. 12+41.04, 26.34' RT.	1399.50	UNKNOWN - CONTRACTOR TO FIELD VERIFY	

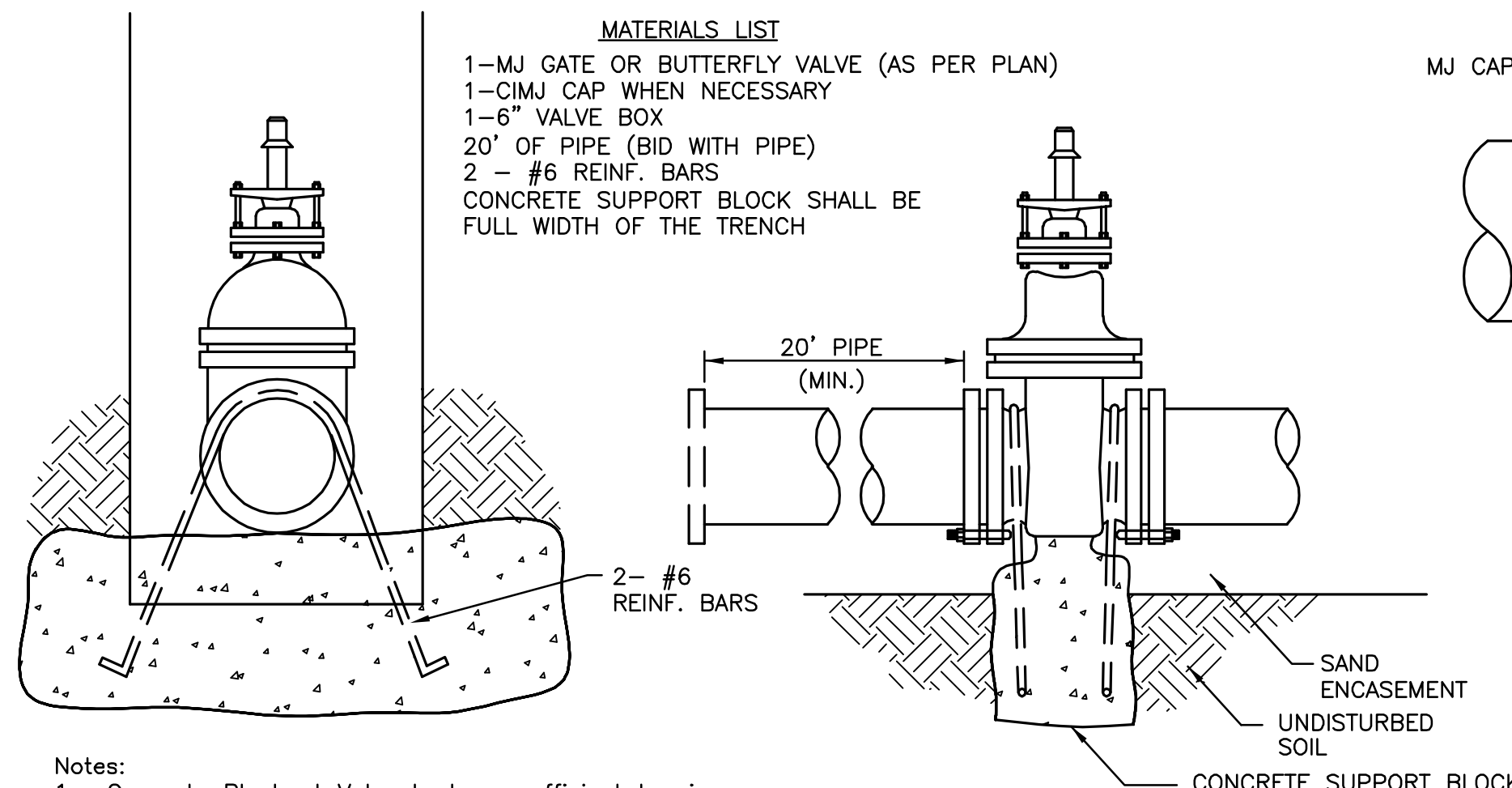


- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- 6" VALVE BOX
  - 2- DI CL SJ PIPE



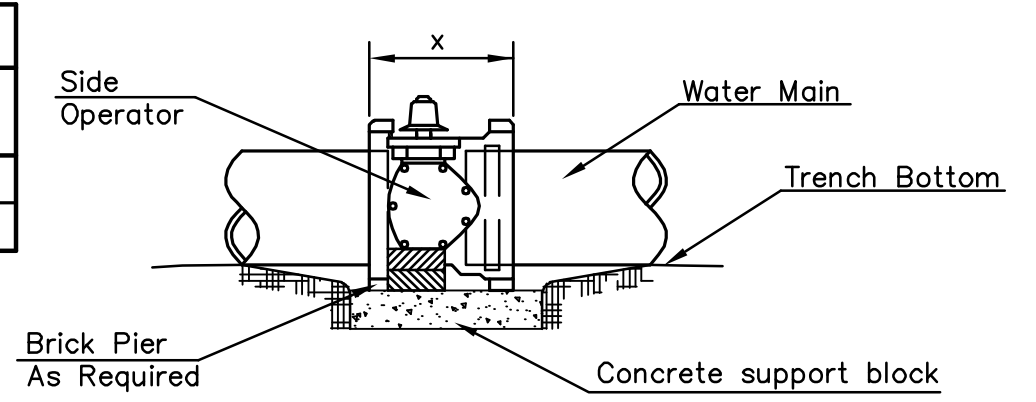
- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- MJ ANCHOR COUPLING (12" OR SMALLER)
  - 1- 6" VALVE BOX
  - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

**ANCHORED VALVE ASSEMBLY, SPECIAL**



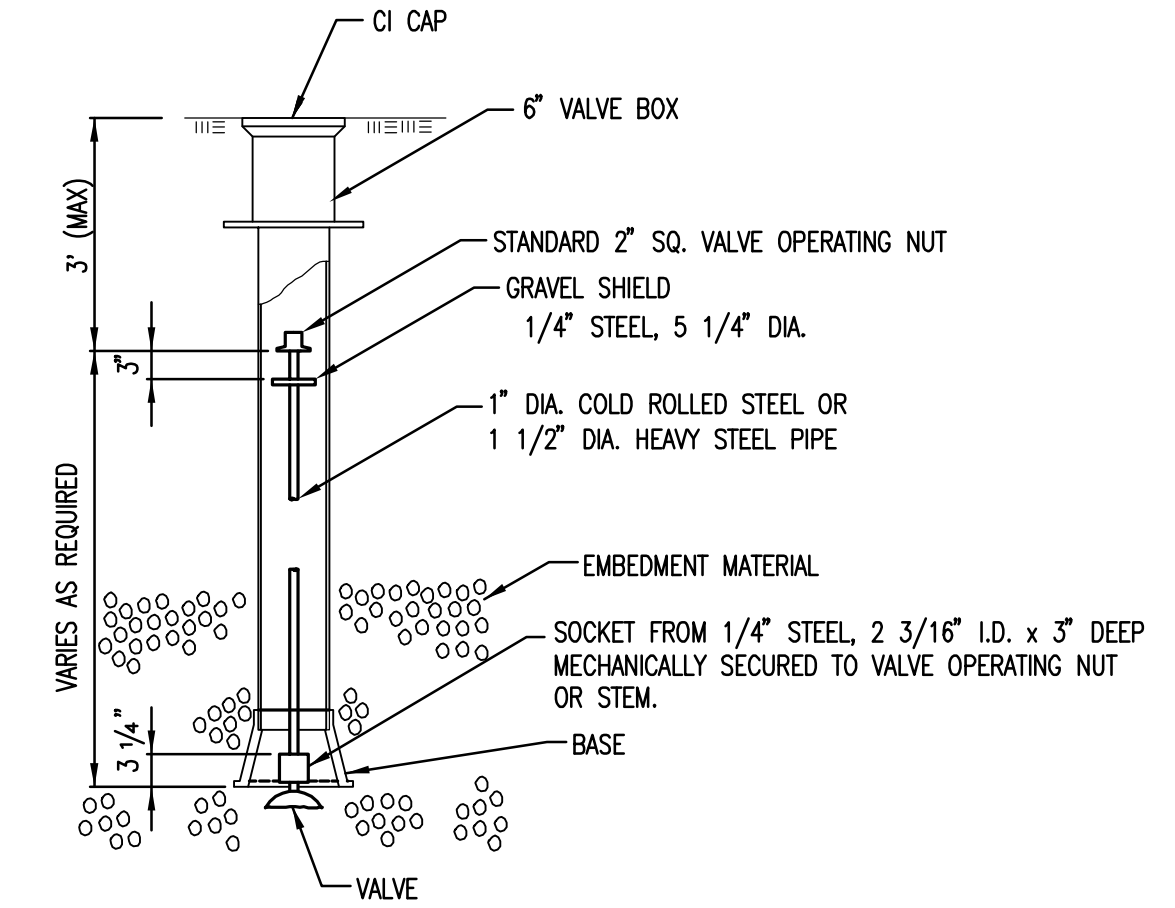
- Notes:**
1. Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
  2. The thrust block be constructed such that bolts, nuts, and other 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 #/
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.



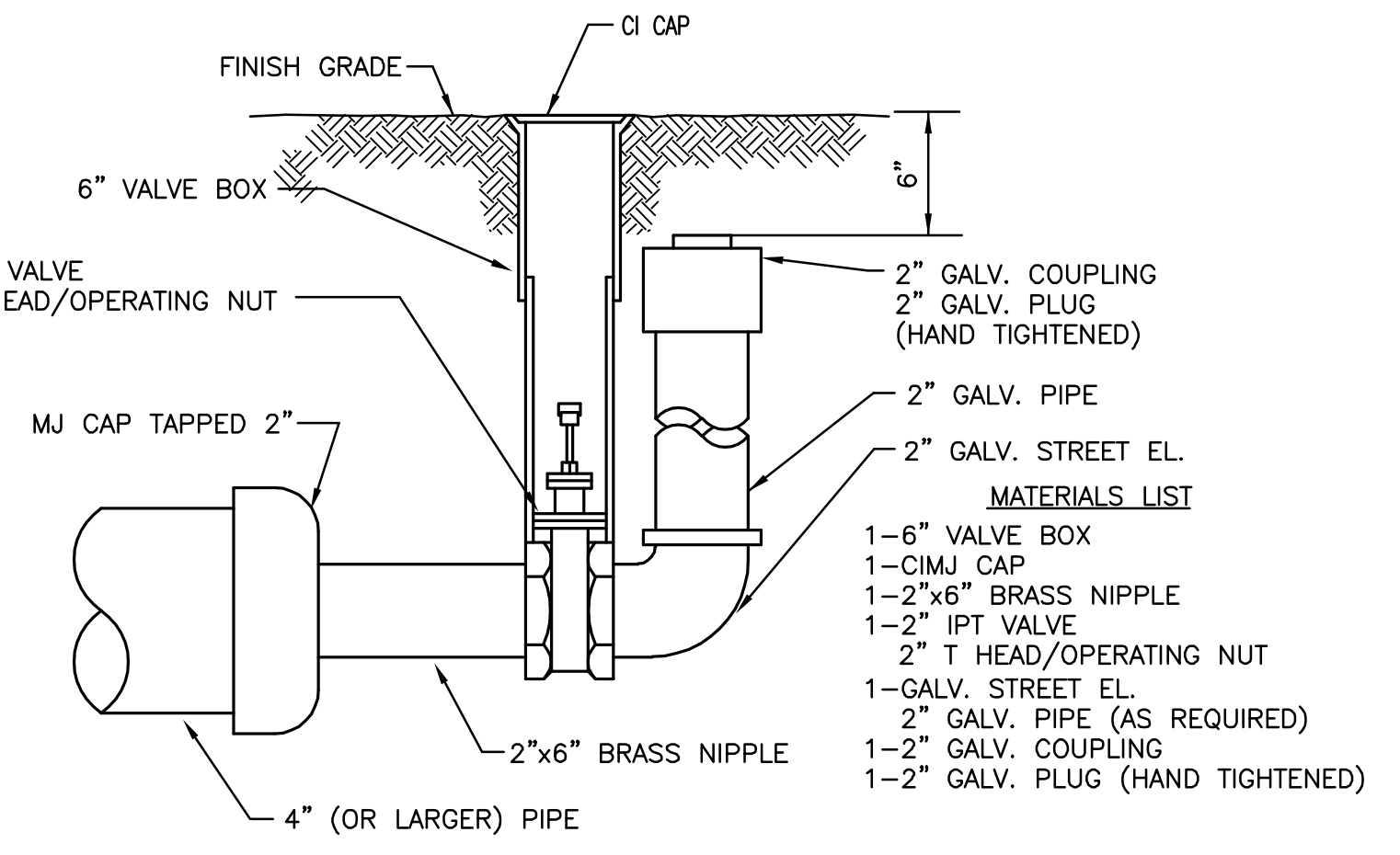
- NOTES**
1. This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. 24" and larger lines to be detailed on plans.
  2. 6" Valve Box and Cover required per City of Wichita Std. Specifications.
  3. Conc. Support Block to be full width of trench.

**CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION**

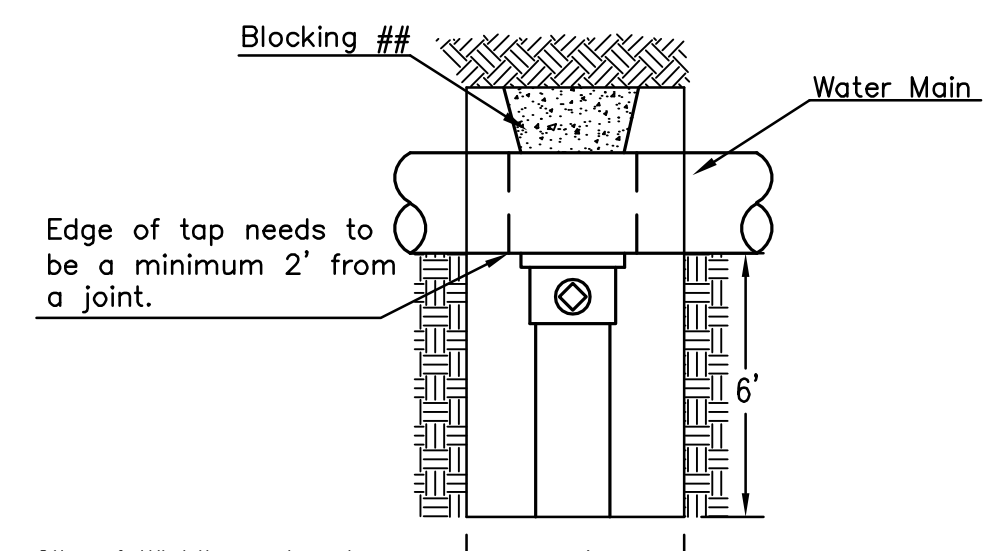


**VALVE STEM EXTENSION DETAIL**

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



**2" BLOWOFF ASSEMBLY**

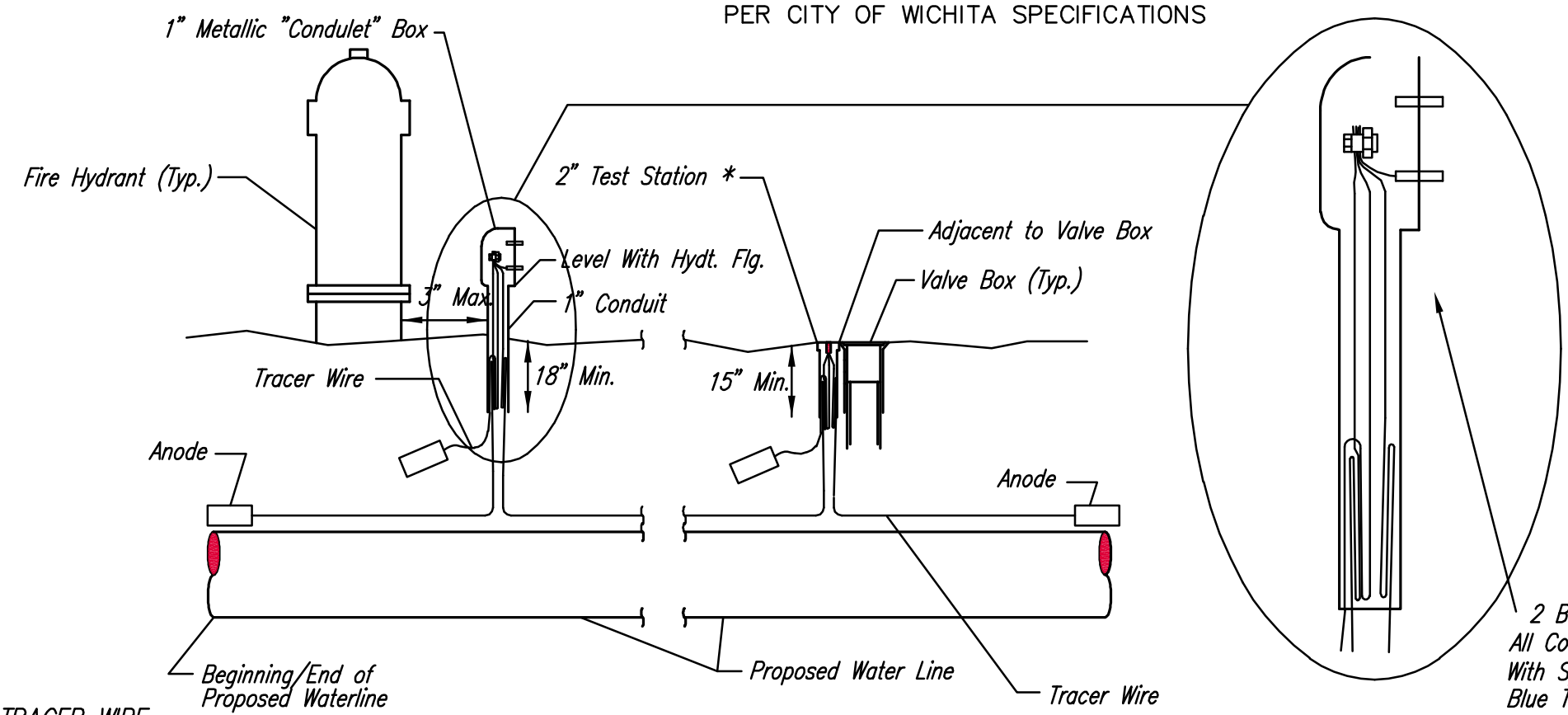


**CITY TAP**

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

- \* 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" DI CL PIPE AS NECESSARY FOR VERTICAL ADJUSTMENT. THE CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING AT HYDRANT AND MEGALUGS, 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**



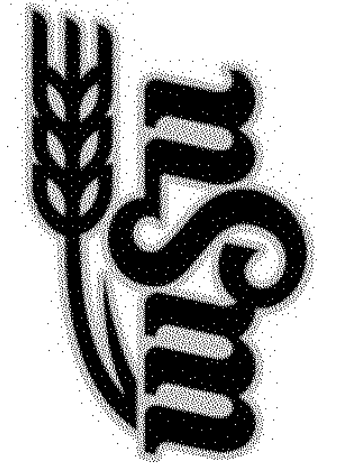
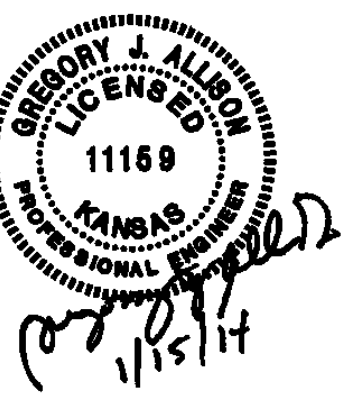
**TRACER WIRE**  
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used 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 "conduit" 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**



Department of Administration  
Office of Facilities & Procurement Management  
Design, Construction & Compliance  
800 SW Jackson, Suite 700  
Topeka, Kansas 66612-1216  
Phone 785-296-8899

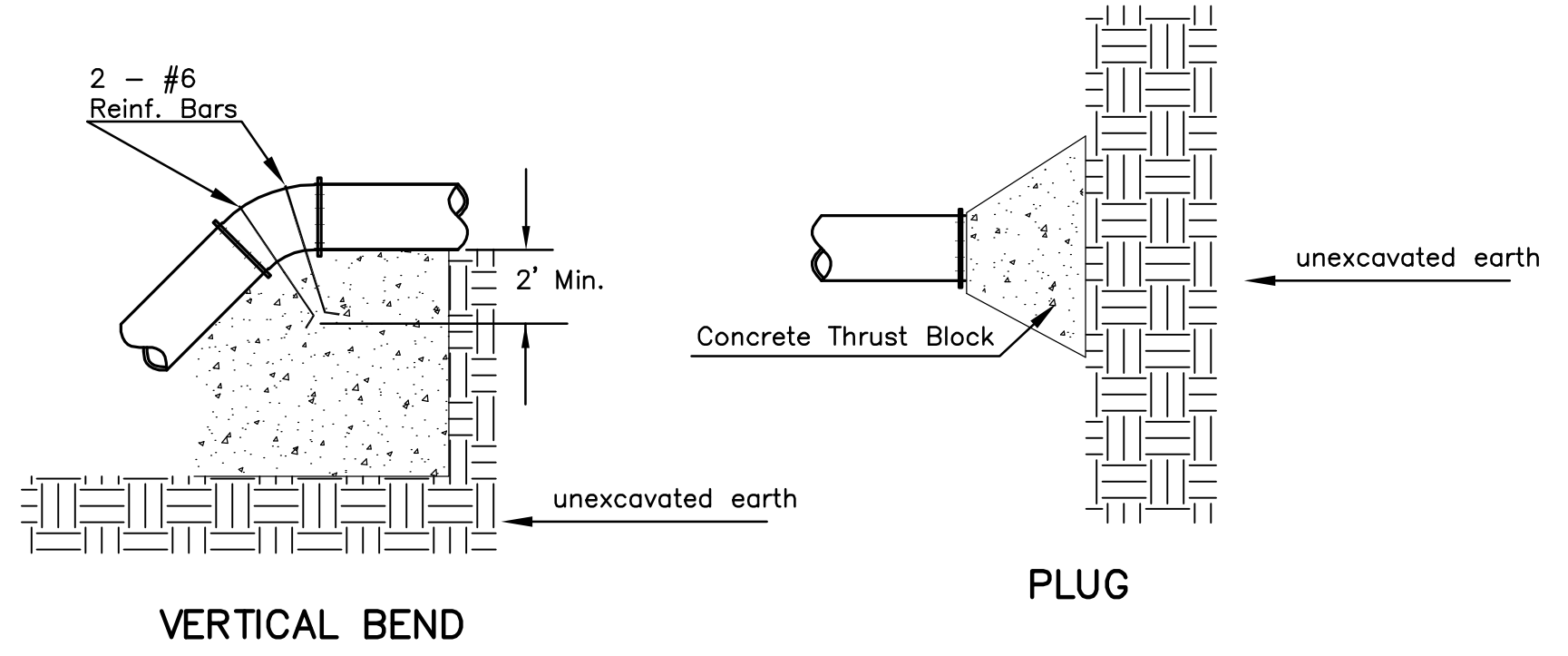
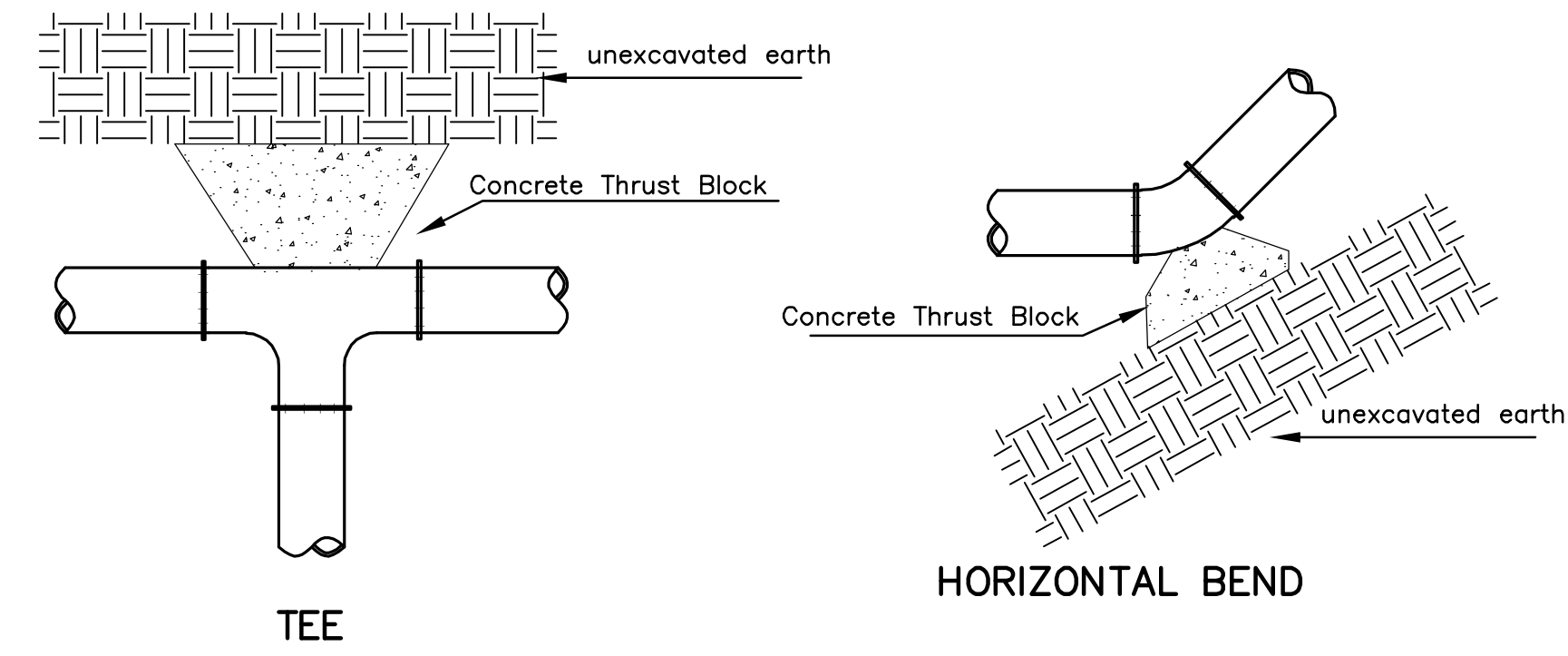
WICHITA STATE UNIVERSITY  
NEW PERIMETER ROAD & PEDESTRIAN LINKAGE  
WICHITA, KANSAS  
DRAWN BY: SPE  
CHECKED BY: GJA

WATER DETAILS 1

A-012273

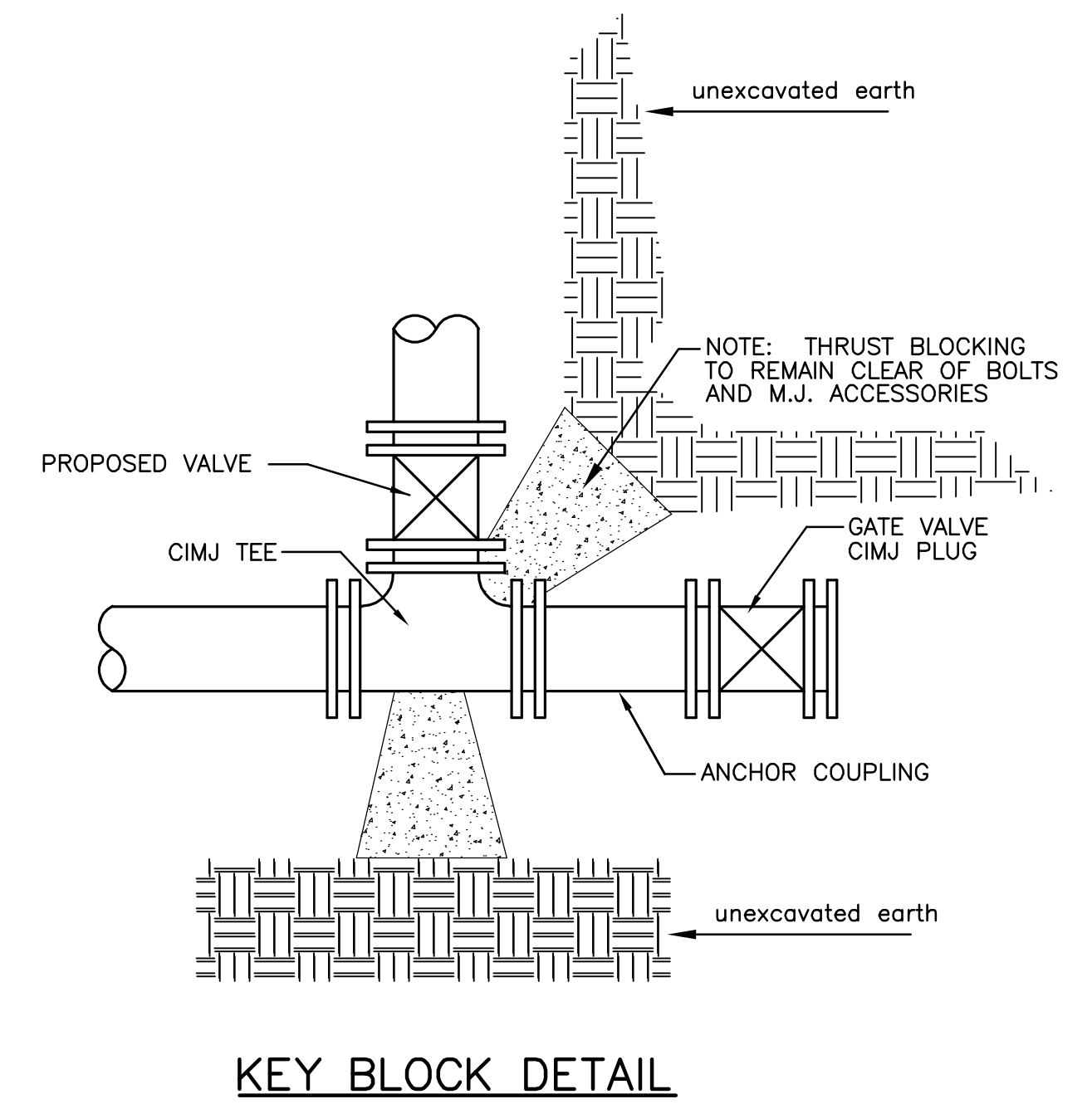
55 OF 68

ORIGINAL CONTRACT DOCUMENTS



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



STA. 10+48.50, LINE 1  
PERIMETER RD. STA. 12+96.87,  
20.50' LT.  
N=1698449.91, E=1660718.23  
REMOVE EXIST. CAP AND INSTALL  
1-8"X34.25"X24"(DROP)  
MJ X PE OFFSET  
1-8" DIMJ 22.5° BEND  
(ACTUAL DEF=24'14'41")  
CONNECT TO EXIST 8" WATER

STA. 10+88.36, LINE 1  
N=1698487.28, E=1660704.37  
1-8" DIMJ 22.5° VERTICAL BEND

STA. 11+02.01, LINE 1  
N=1698500.08, E=1660699.63  
1-8" DIMJ 22.5° VERTICAL BEND

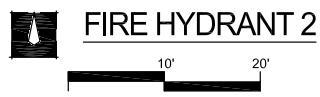
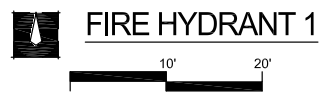
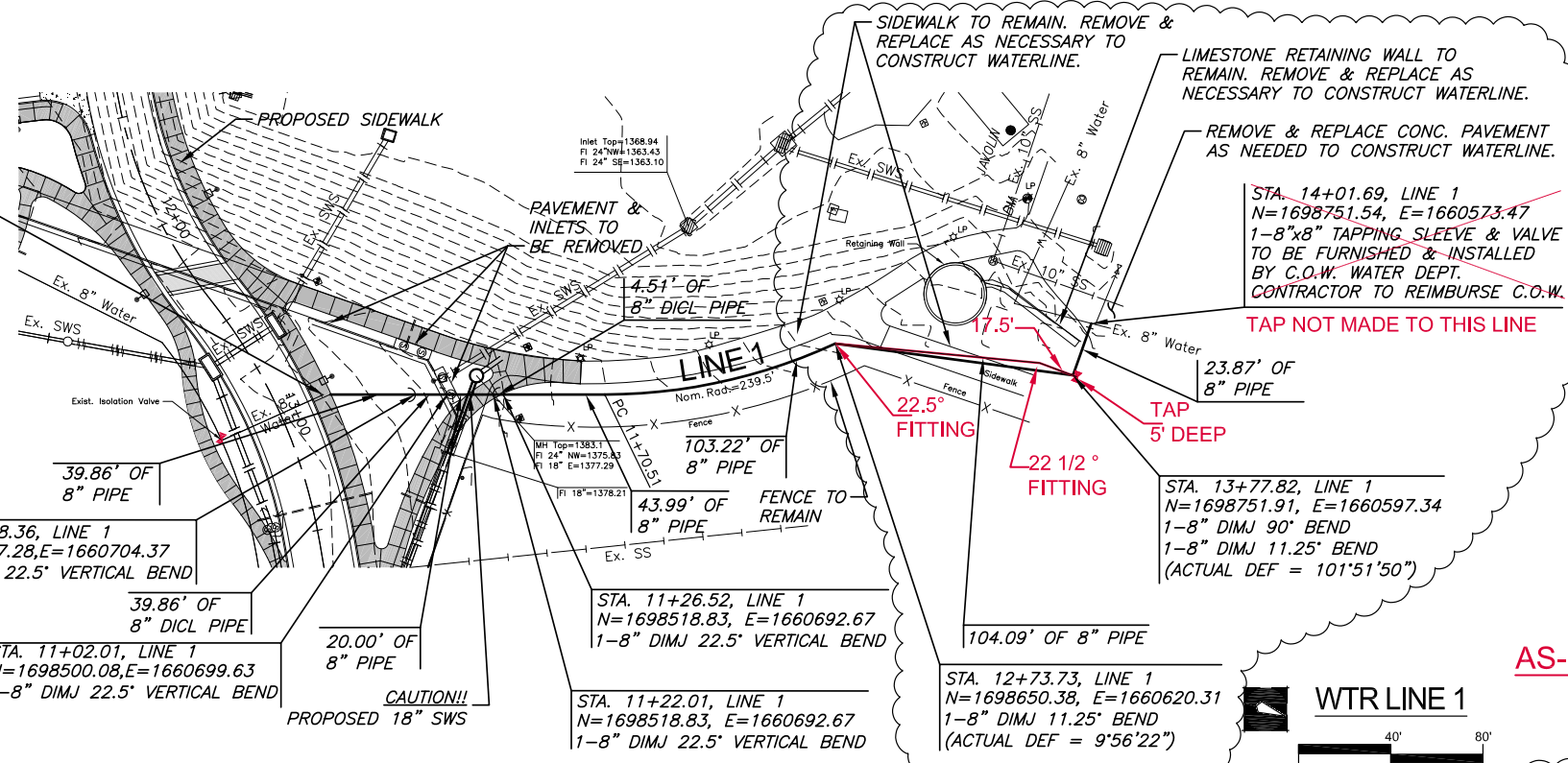
STA. 11+26.52, LINE 1  
N=1698518.83, E=1660692.67  
1-8" DIMJ 22.5° VERTICAL BEND

STA. 11+22.01, LINE 1  
N=1698518.83, E=1660692.67  
1-8" DIMJ 22.5° VERTICAL BEND

STA. 12+73.73, LINE 1  
N=1698650.38, E=1660620.31  
1-8" DIMJ 11.25° BEND  
(ACTUAL DEF = 9'56'22")

STA. 13+77.82, LINE 1  
N=1698751.54, E=1660597.34  
1-8" DIMJ 90° BEND  
1-8" DIMJ 11.25° BEND  
(ACTUAL DEF = 101'51'50")

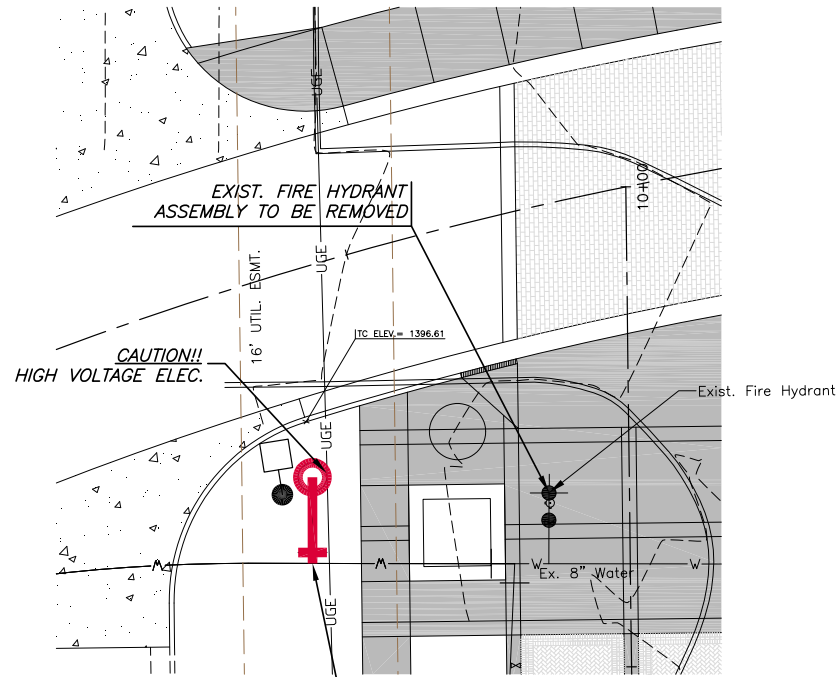
STA. 14+01.69, LINE 1  
N=1698751.54, E=1660573.47  
1-8"x8" TAPPING SLEEVE & VALVE  
TO BE FURNISHED & INSTALLED  
BY C.O.W. WATER DEPT.  
CONTRACTOR TO REIMBURSE C.O.W.



AS-BUILT PLANS - JANUARY 2015

**FIRE HYDRANT 1**

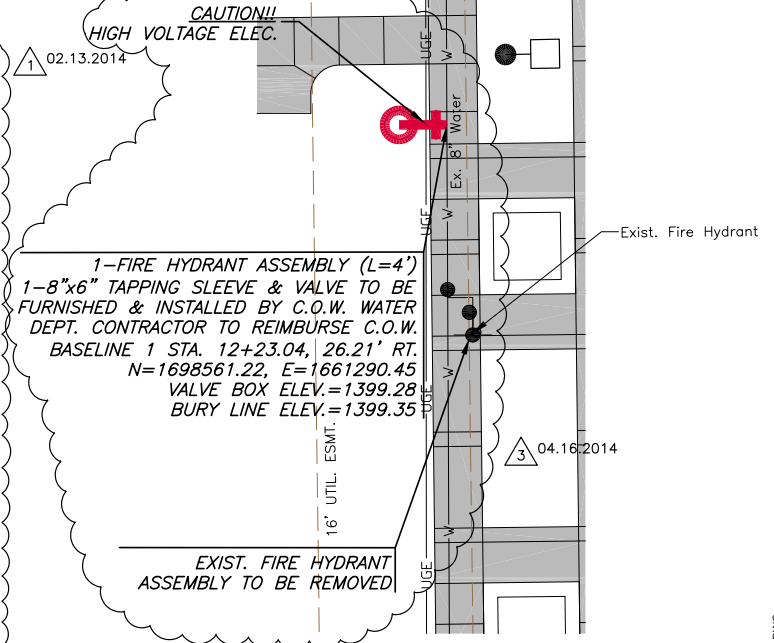
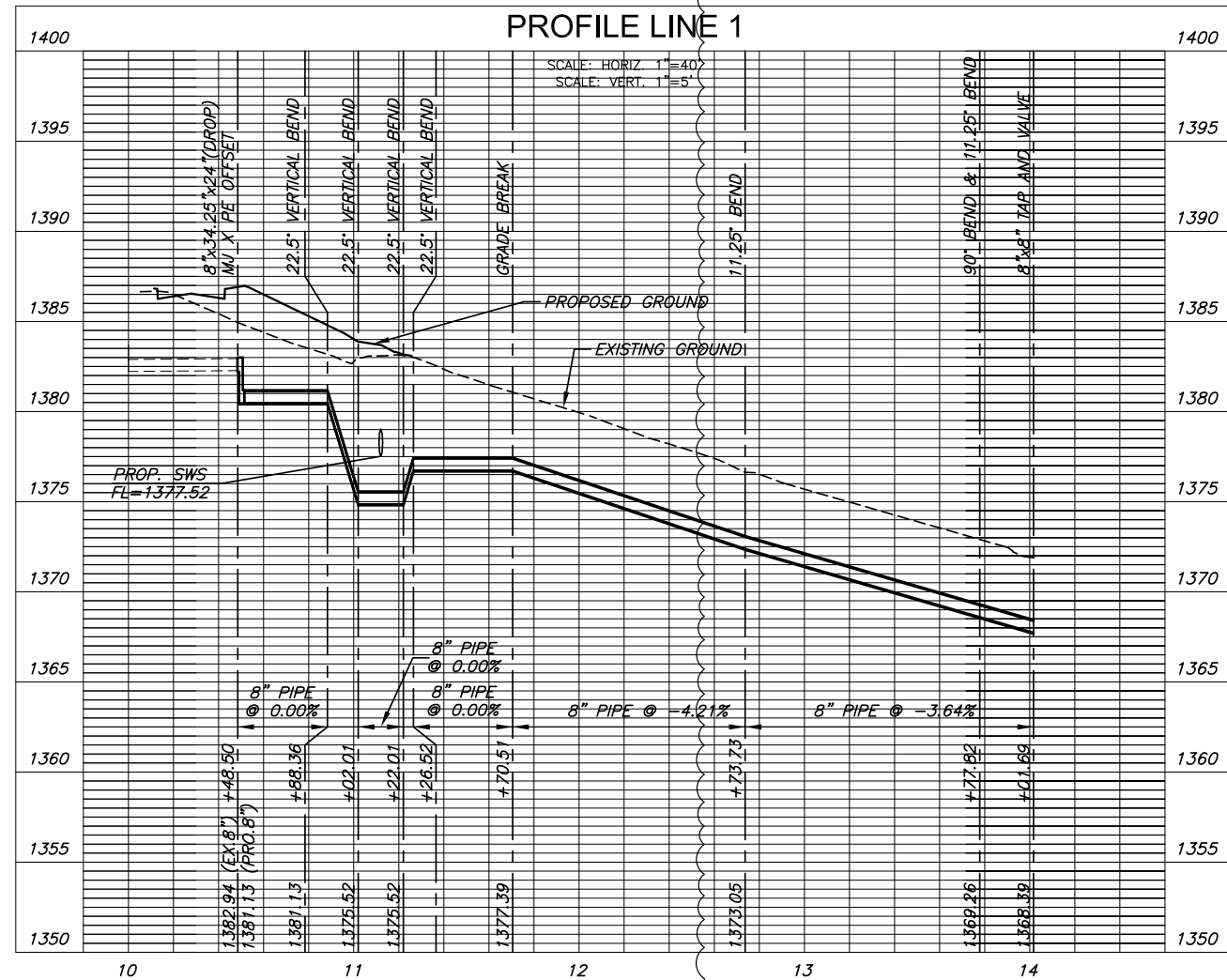
**FIRE HYDRANT 2**



1-FIRE HYDRANT ASSEMBLY (L=9')  
PERIMETER RD. STA. 19+36.84, 29.78' RT.  
N=1698745.33, E=1661281.35  
VALVE BOX ELEV.=1396.75  
BURY LINE ELEV.=1396.59

NOTE:  
CONTRACTOR TO VERIFY LOCATION  
AND ELEVATION OF EXIST. WATER  
LINES & ALL OTHER UTILITIES  
PRIOR TO CONSTRUCTION.

**PLAN LINE 1  
PROFILE LINE 1**



1-FIRE HYDRANT ASSEMBLY (L=4')  
1-8"x6" TAPPING SLEEVE & VALVE TO BE  
FURNISHED & INSTALLED BY C.O.W. WATER  
DEPT. CONTRACTOR TO REIMBURSE C.O.W.  
BASELINE 1 STA. 12+23.04, 26.21' RT.  
N=1698561.22, E=1661290.45  
VALVE BOX ELEV.=1399.28  
BURY LINE ELEV.=1399.35

NOTE:  
FIELD ADJUST WATERLINE  
AS NEEDED.