

# GENERAL NOTES:

1. Contractor will be required to provide notice to utility companies a minimum of seventy-two (72) hours prior to any excavation, as follows:

Kansas One-Call 687-2470

The Contractor must notify the following in case of an emergency:

Cox Communications 262-4270  
 Kansas Gas Service 1-888-482-4950  
 Westar Energy 383-8650  
 Black Hills Energy 1-800-303-0357  
 AT&T 262-2245  
 City of Andover Public Works 733-1303  
 Conoco Phillips Pipeline Co. 1-877-267-2290  
 Southern Star Pipeline Co. 529-6600  
 Kinder-Morgan Pipeline Co. 1-888-844-5658

2. Utility service lines, poles, valve boxes, meters, and etcetera are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

3. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted 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, in the opinion of the Engineer, that 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.

4. 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. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

5. The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days notice prior to start of construction.

6. 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.

7. All existing and proposed erosion control measures including silt fencing, erosion control mat, straw bales, inlet barriers, and const. entrance shall be maintained throughout construction by the contractor and until project is accepted by the City of Andover. The on-site engineer shall complete weekly reports on the status of erosion control measures. The contractor shall be required to comply with maintenance and/or replacement of erosion control measures as determined by the on-site engineer until project is accepted by City of Andover. Maintenance and/or replacement of erosion control measures to be paid by L.S. bid item "Site Clearing & Restoration".

8. All excess excavation shall remain on-site and shall be stockpiled or spread at a location determined by the engineer.

9. The Contractor shall adjust water valve boxes and fire hydrants as directed by the Engineer at the price bid for said adjustments. The Water Department shall field locate water valves one time during construction when requested by Contractor. It shall be the Contractor's responsibility to preserve such field locations during the construction process. Water valves, water valve boxes or fire hydrants damaged during construction shall be repaired by the Contractor at his own expense.

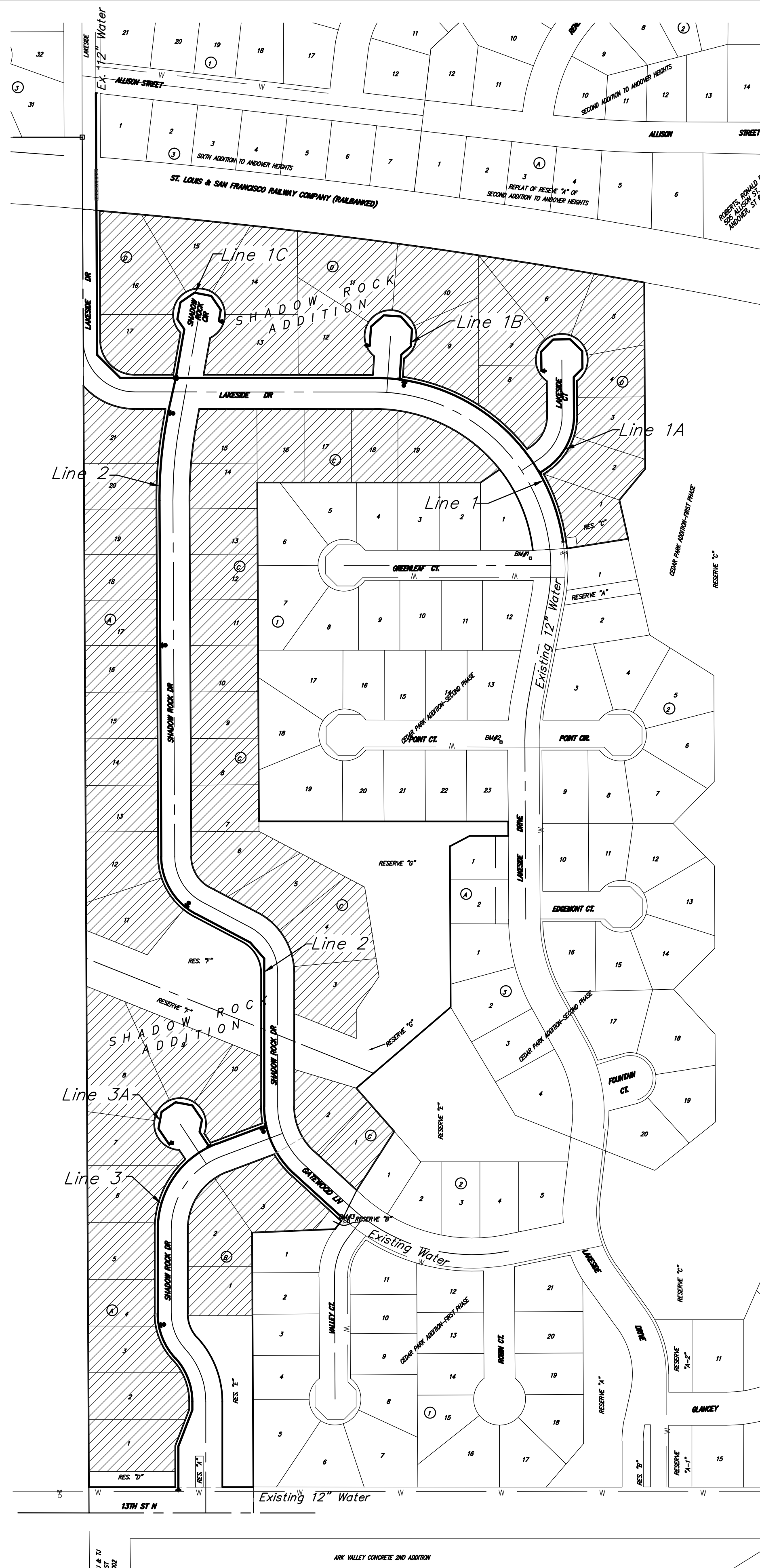
10. Opening and closing of water valves shall be done slowly to prevent damage to the water distributions system from water hammer. All valves closed by the contractor must be reopened as new construction permits. Project inspector must ascertain that any valve closed by the Contractor is reopened. Contractor will be permitted to operate water valves only when the project inspector assigned to the project is present.

11. All areas disturbed during construction shall be seeded at 300 lbs./acre with Rye Grass immediately following construction in that area. Contractor shall prepare ground per City Specifications.

12. Baughman Company will provide staking information at the time of construction. Contractor to give 72 hours notice for construction staking.

13. All necessary protective fill shall be subsidiary to the appropriate bid item associated with the size of pipe being construction and shall be bid as such. (See sheet 6.)

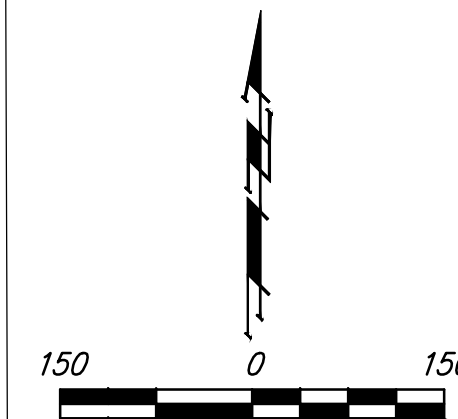
14. Contractor will be required to dispose of any material excavated or disturbed by his operations as necessary for the construction of the project as designed, as directed by the Engineer. The Engineer may request or allow the Contractor to use the material for compacted backfill, compacted fill or approve or allow the stockpiling of the material adjacent to the work. In all cases, the material must remain within the limits of the railbanked right of way, and must not be removed to another location.



# WATER DISTRIBUTION SYSTEM to serve SHADOW ROCK ADDITION

## CITY OF WICHITA, KANSAS

Gary Janzen, P.E. City Engineer  
 Project Number  
 1793 PPW (607853)



**AS BUILT PLANS**  
 Contractor: Mies Construction Co.  
 Inspector: Fred Smith, Baughman Co.  
 pdf by: KEK 6/9/14

American Flow Valves  
 American Darling Fire Hydrants  
 Northern Pipe

### Benchmarks

BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE-CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

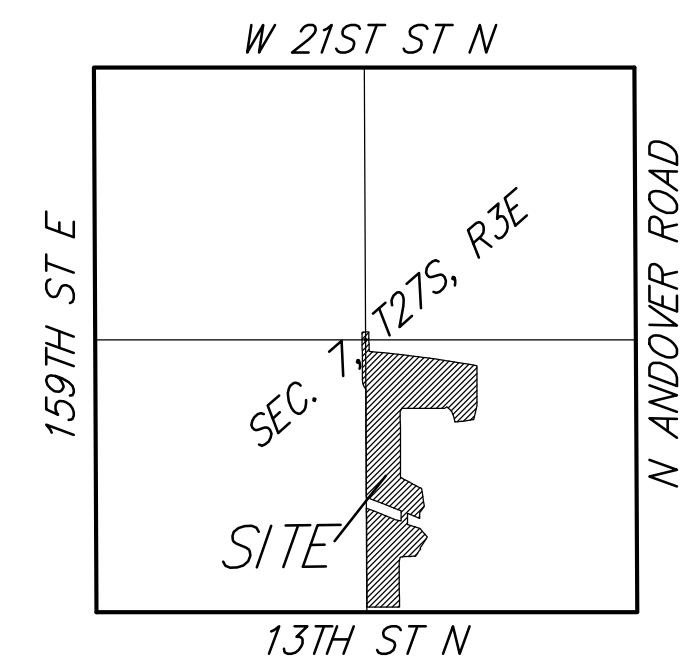
BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)

### Sheet Index

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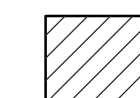
APPROVED AS NOTED  
 BY CITY ENGINEER OF WICHITA,  
 BY WICHITA WATER & SEWER DEPARTMENT,  
 & BY WICHITA FIRE DEPARTMENT  
 Public Works *Rebecca Dziel 2/26/2014*  
 Water & Sewer *John Todd 2-26-14*  
 Fire *N/A*

**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 right-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 or 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 material 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 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.

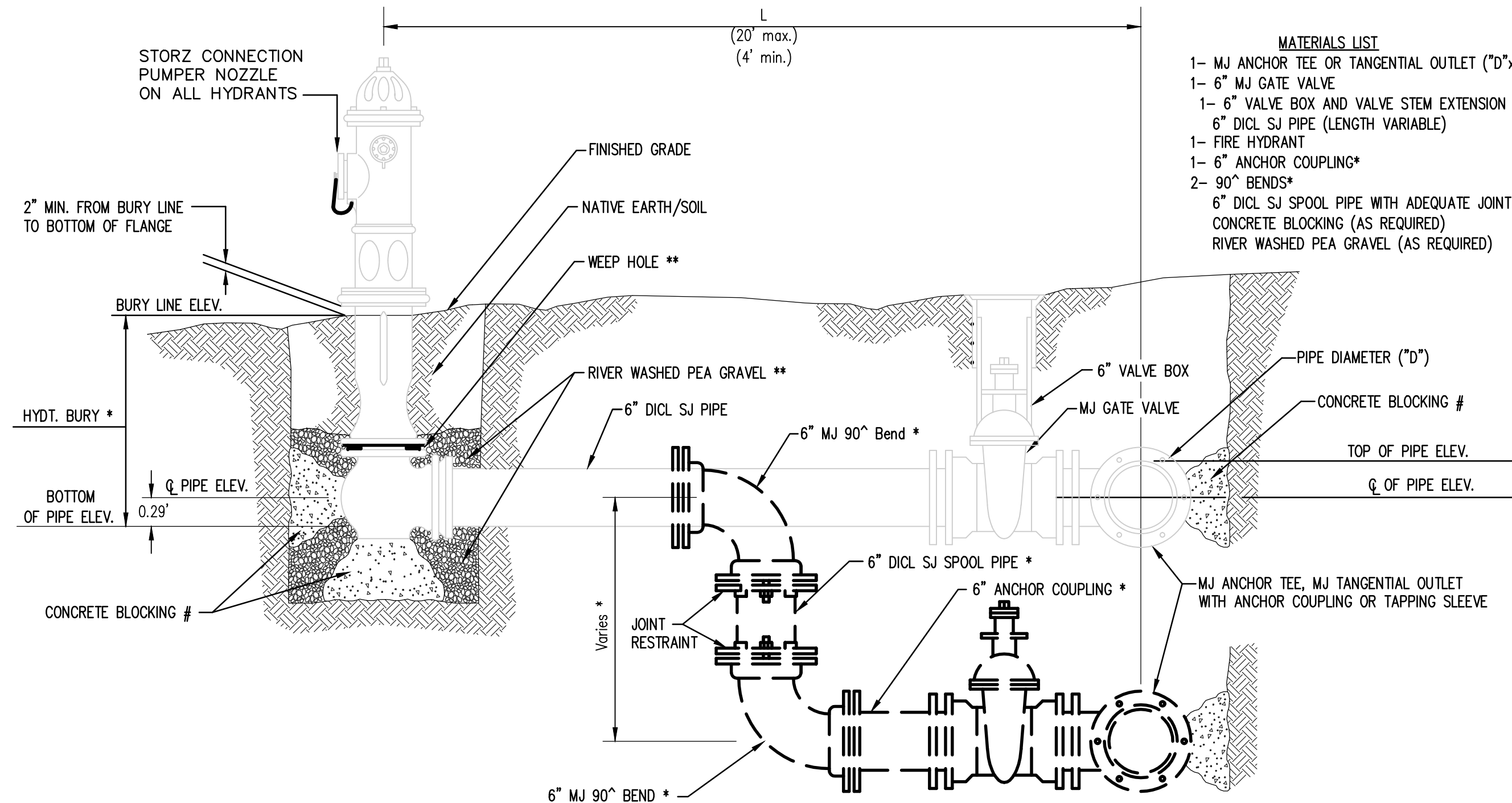


### Vicinity Map

Benefit District



Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149  
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE



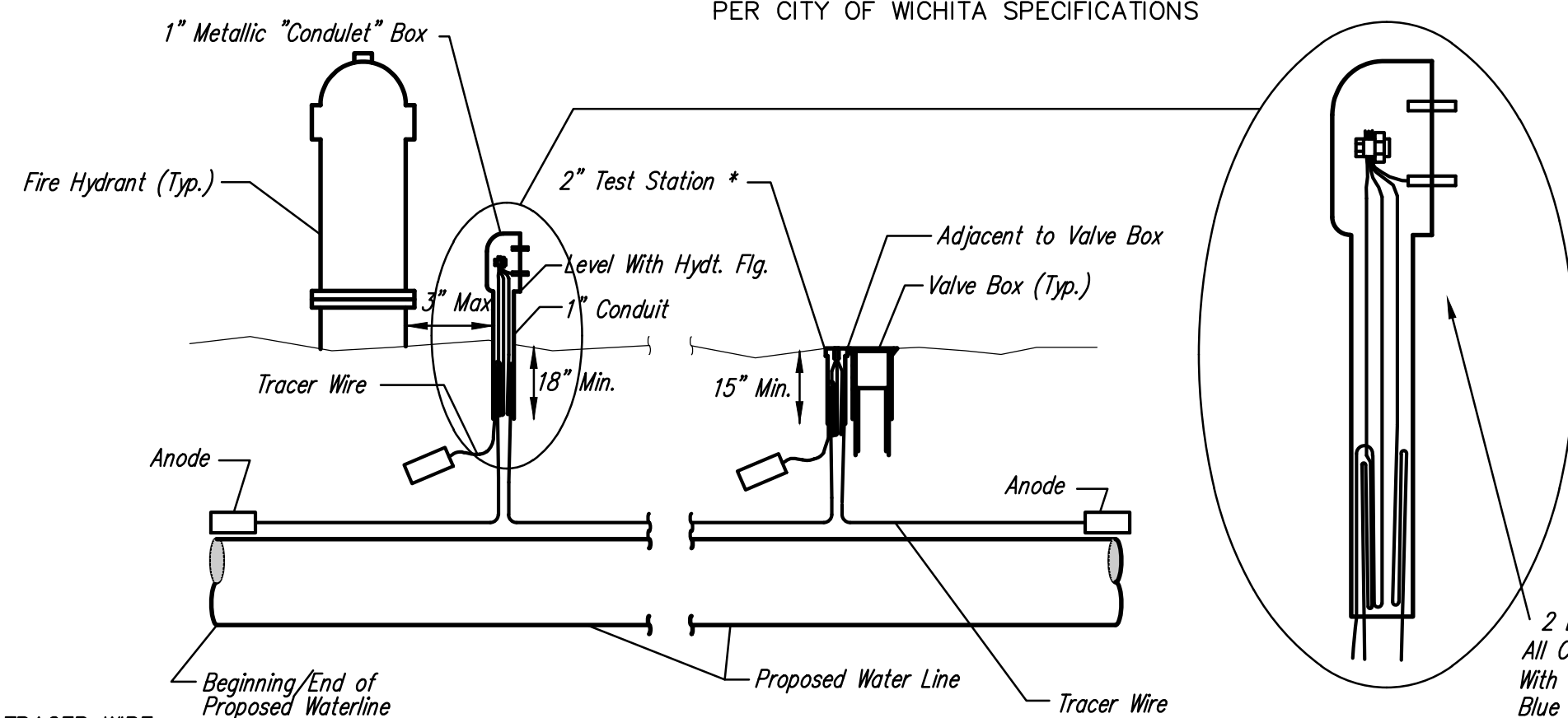
- MATERIALS LIST**
- 1- MJ ANCHOR TEE OR TANGENTIAL OUTLET ("D"x 6")
  - 1- 6" MJ GATE VALVE
  - 1- 6" VALVE BOX AND VALVE STEM EXTENSION IF REQUIRED \*
  - 6" DICL SJ PIPE (LENGTH VARIABLE)
  - 1- FIRE HYDRANT
  - 1- 6" ANCHOR COUPLING\*
  - 2- 90° BENDS\*
  - 6" DICL SJ SPOOL PIPE WITH ADEQUATE JOINT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



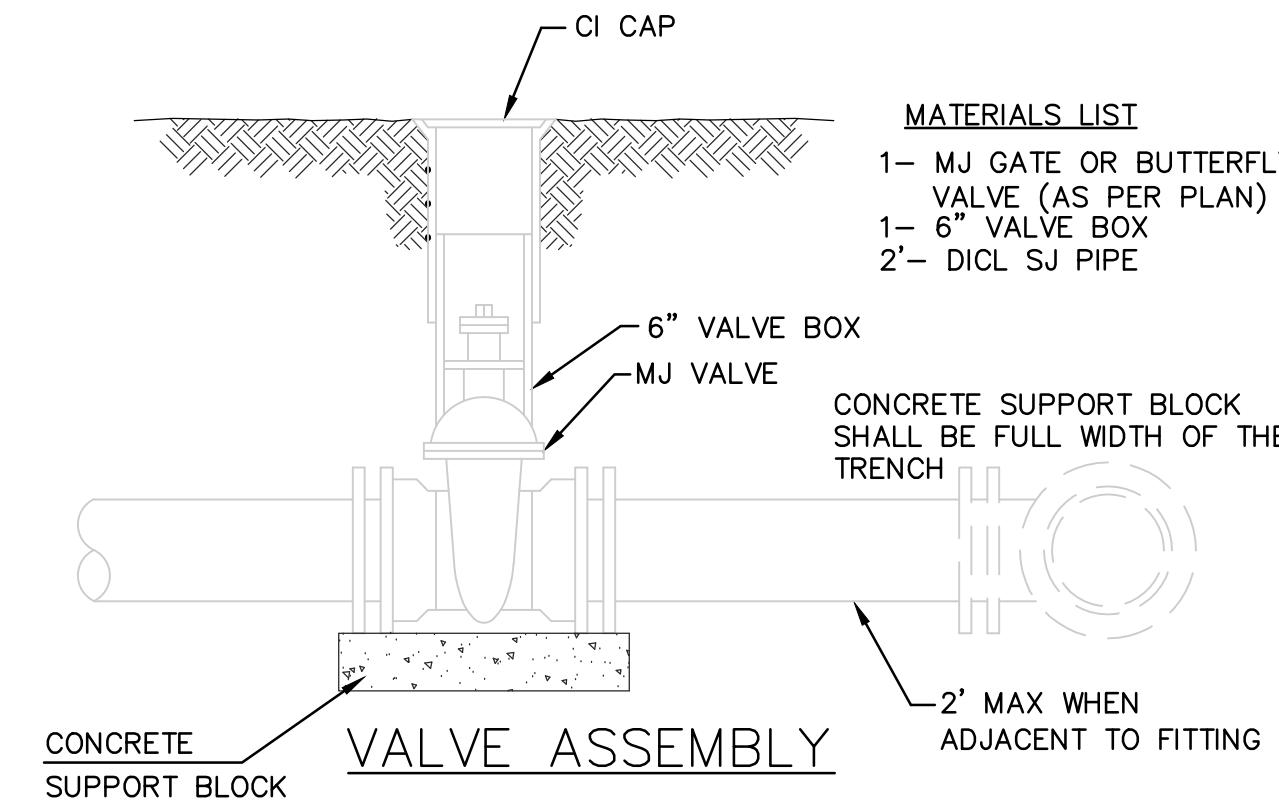
**TRACER WIRE**  
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used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

**WIRES**  
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.

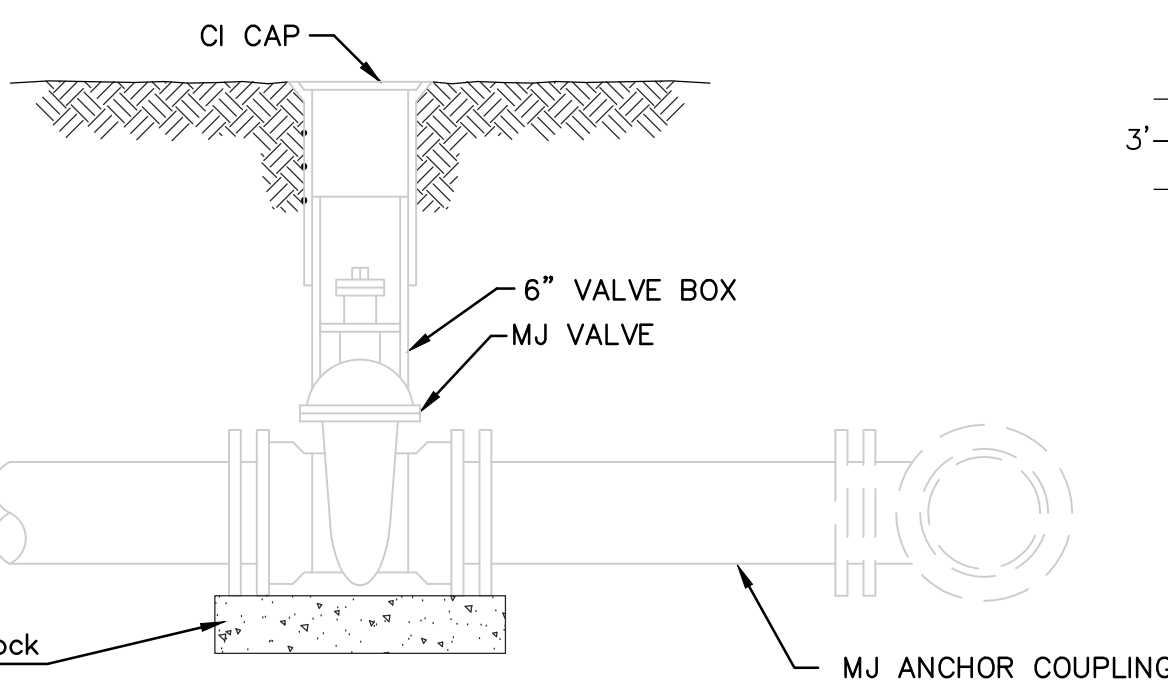
**ANODES**  
The anodes shall be 3 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

**TRACER WIRE DETAIL**  
COST IS SUBSIDIARY TO PIPE INSTALLATION

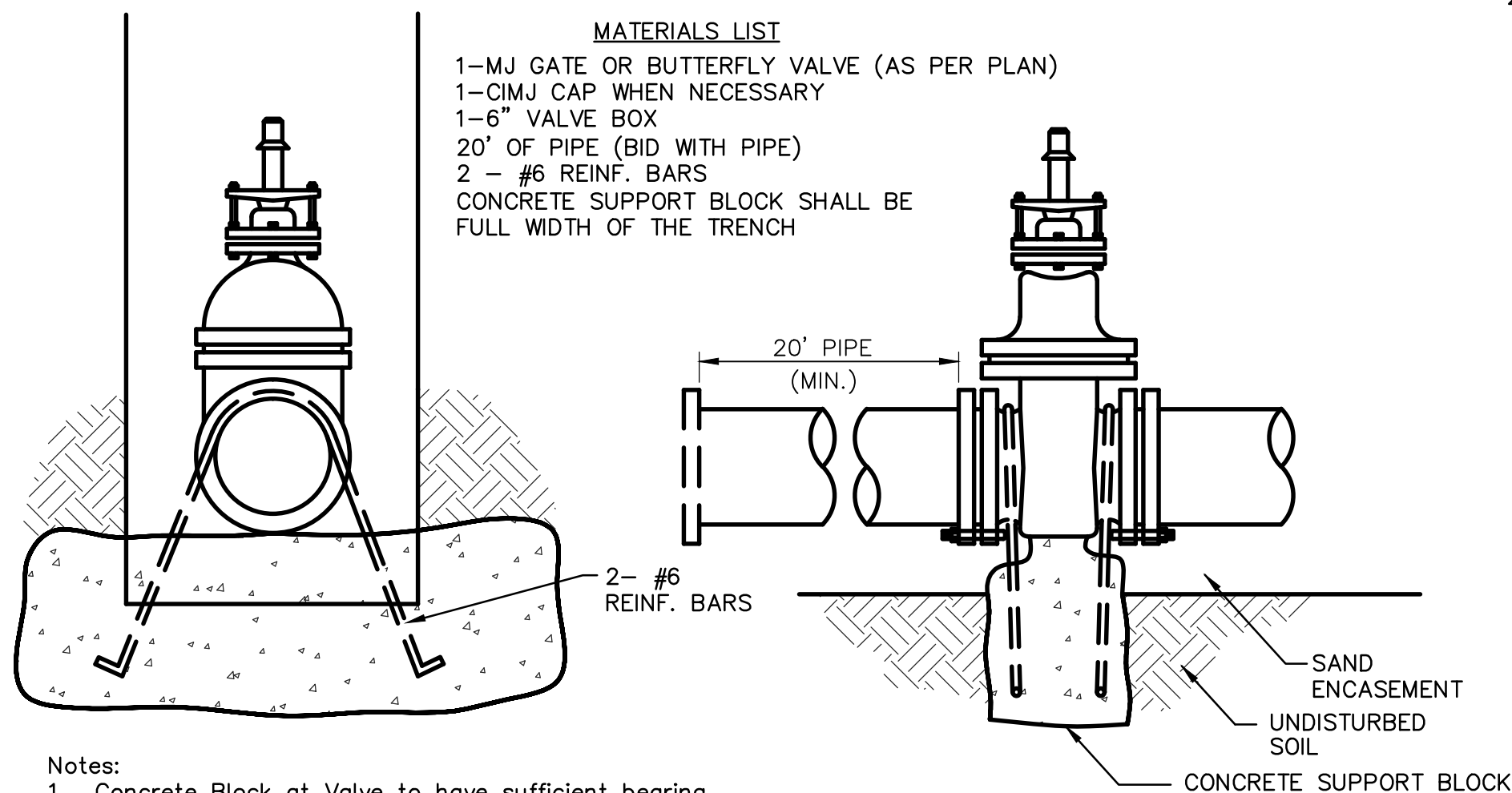


- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- 6" VALVE BOX
  - 2- DICL SJ PIPE

- 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

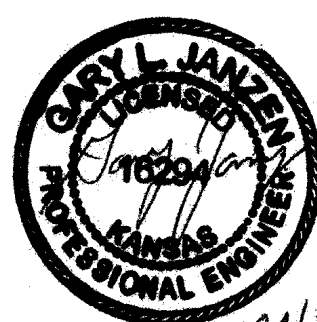


**ANCHORED VALVE ASSEMBLY**

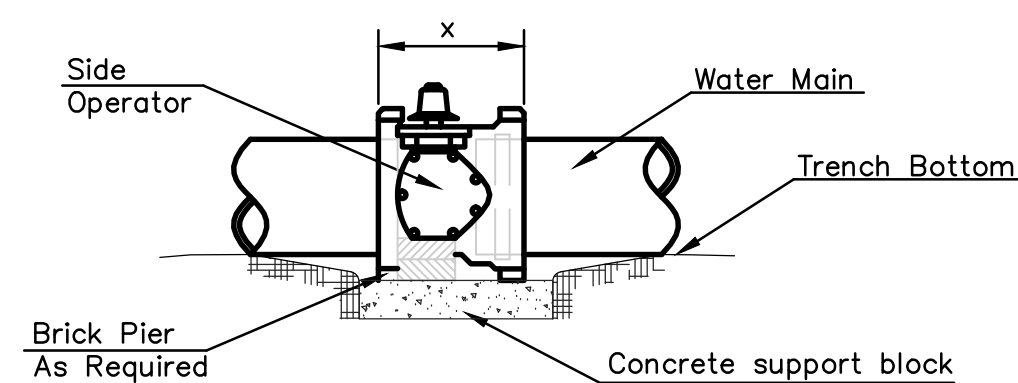


- Notes:**
- Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
  - The thrust block shall be constructed such that bolts, nuts, and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



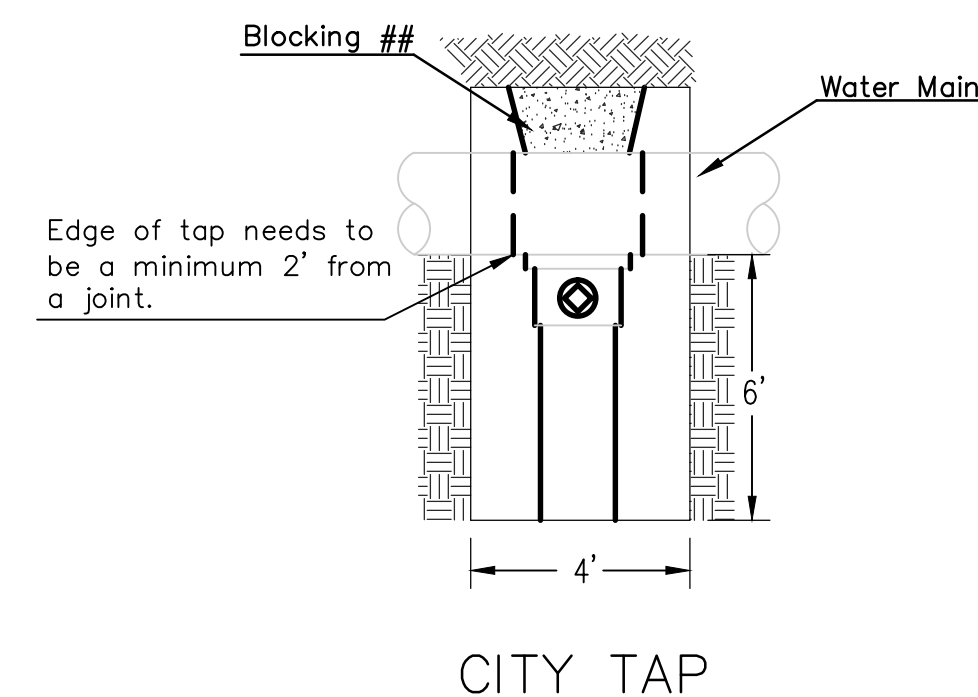
**ANCHORED VALVE ASSEMBLY, SPECIAL**



**NOTES**

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

**CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION**

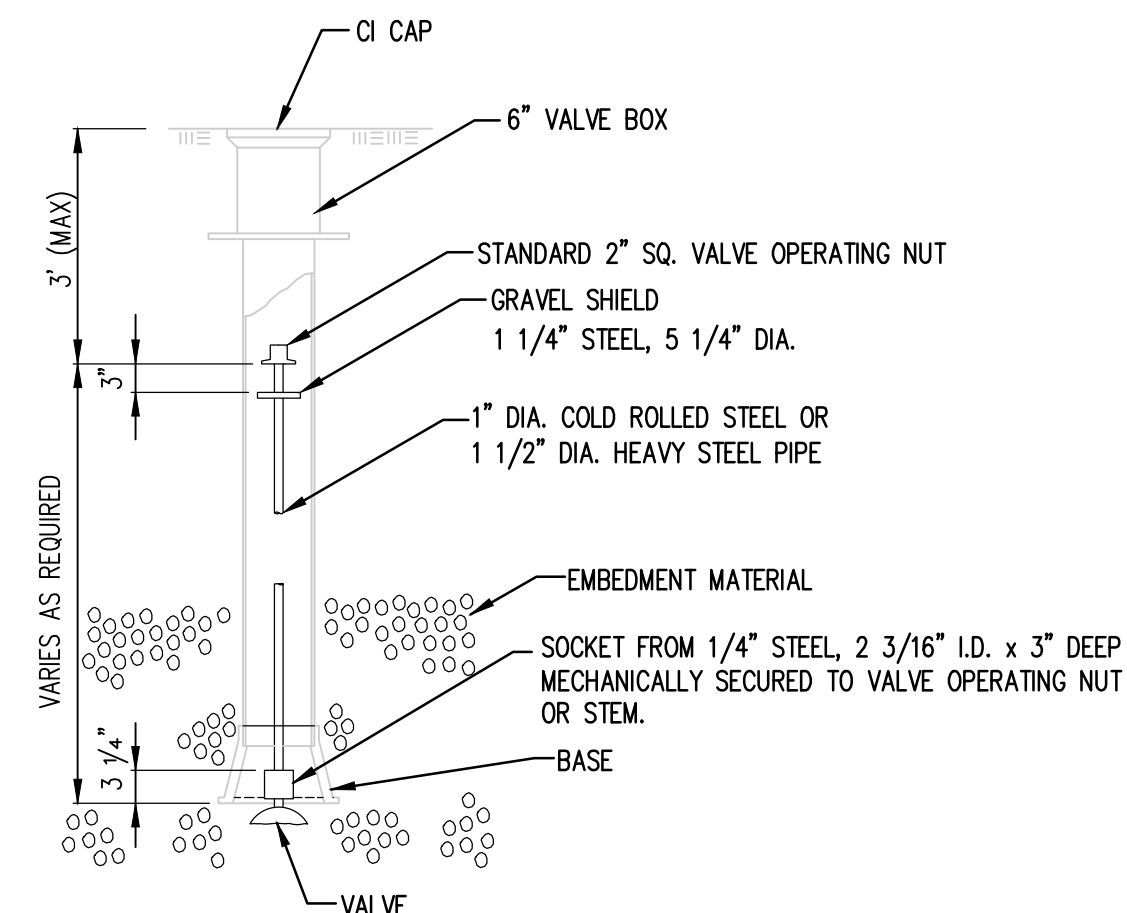


Edge of tap needs to be a minimum 2' from a joint.

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

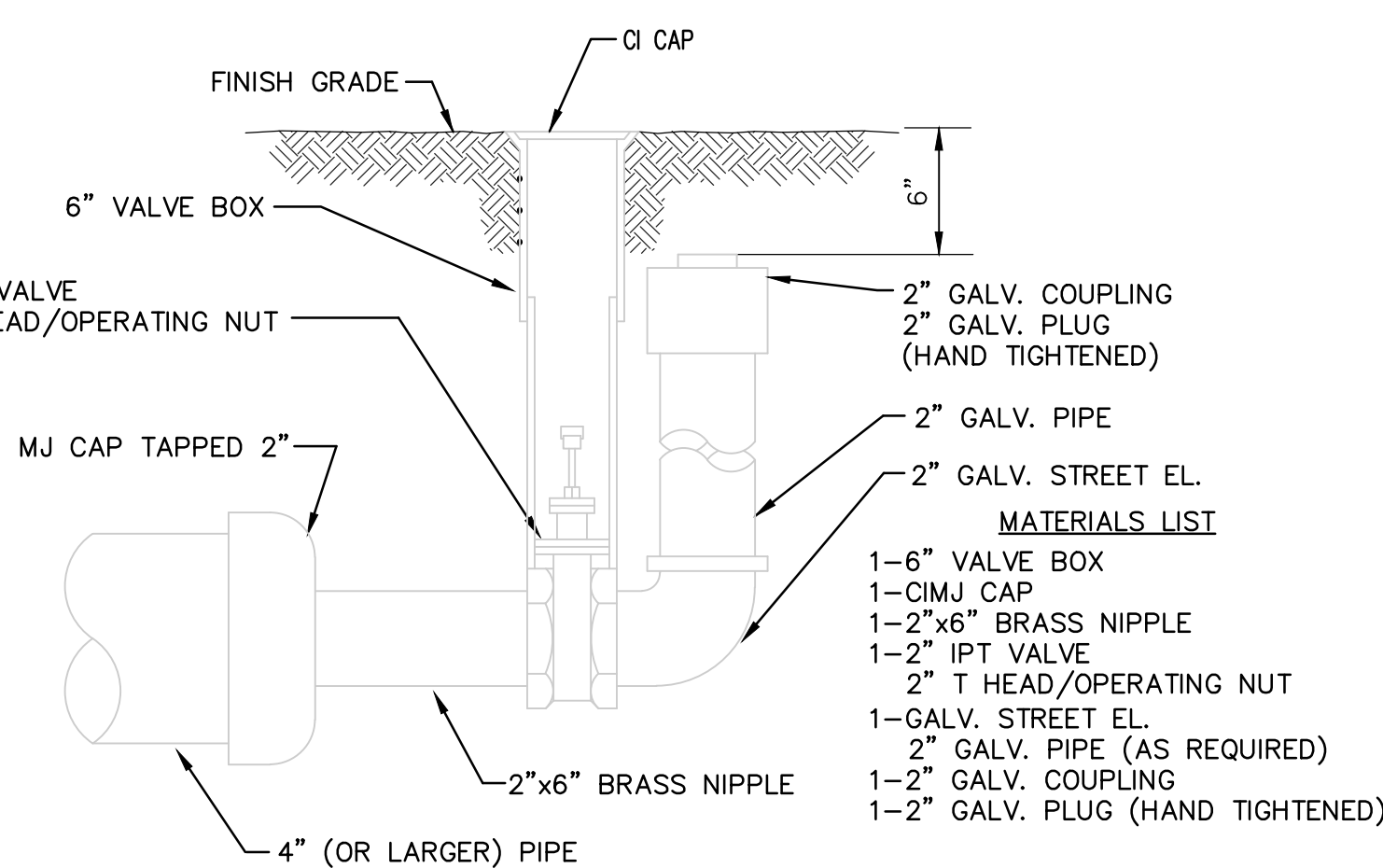
**PROTECTIVE FILL DETAIL**

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**

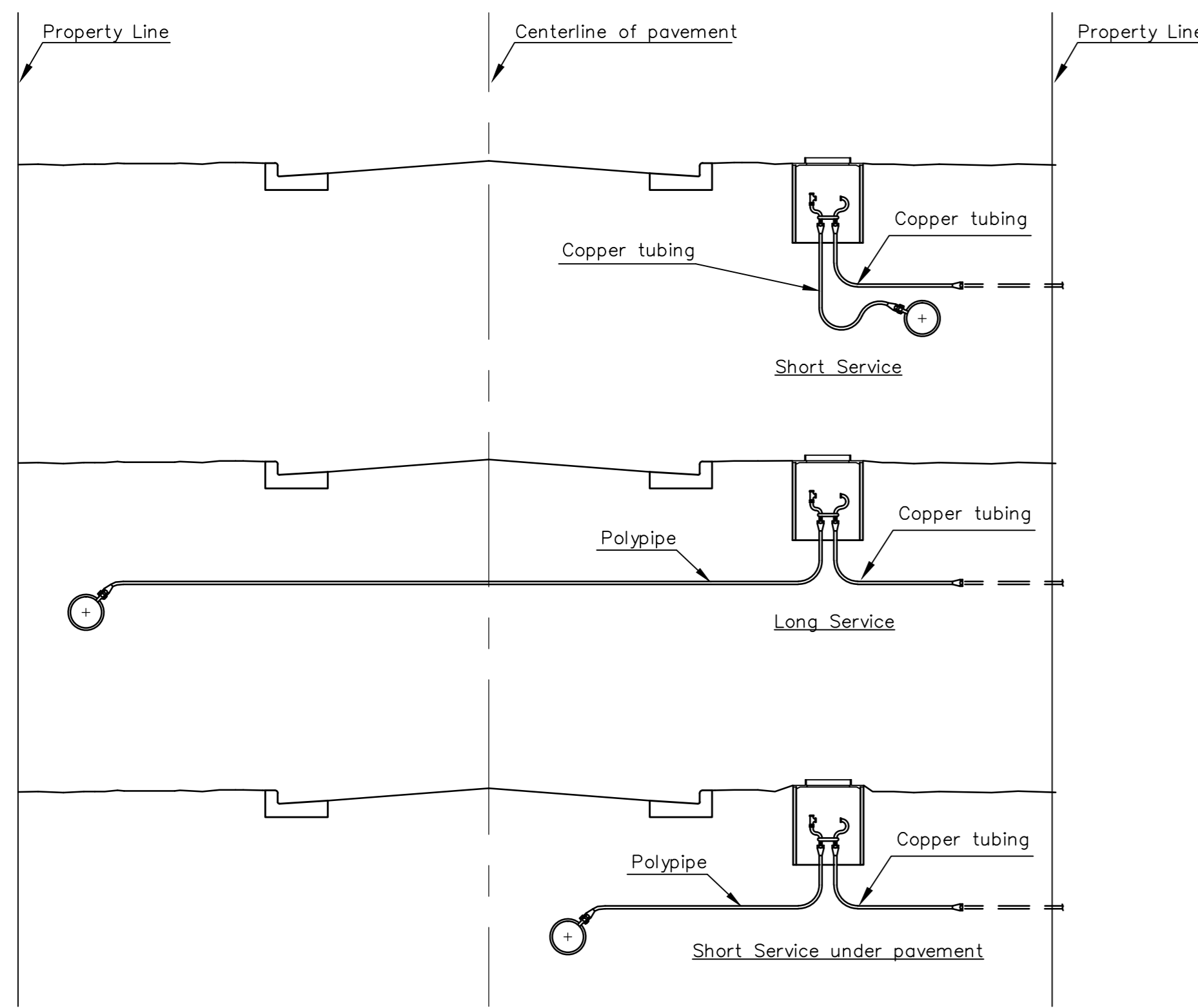
CITY ENGINEER  
**GARY JANZEN, P.E.**

PROJECT NUMBER 1793 PPW	(607853)	DATE 02/14
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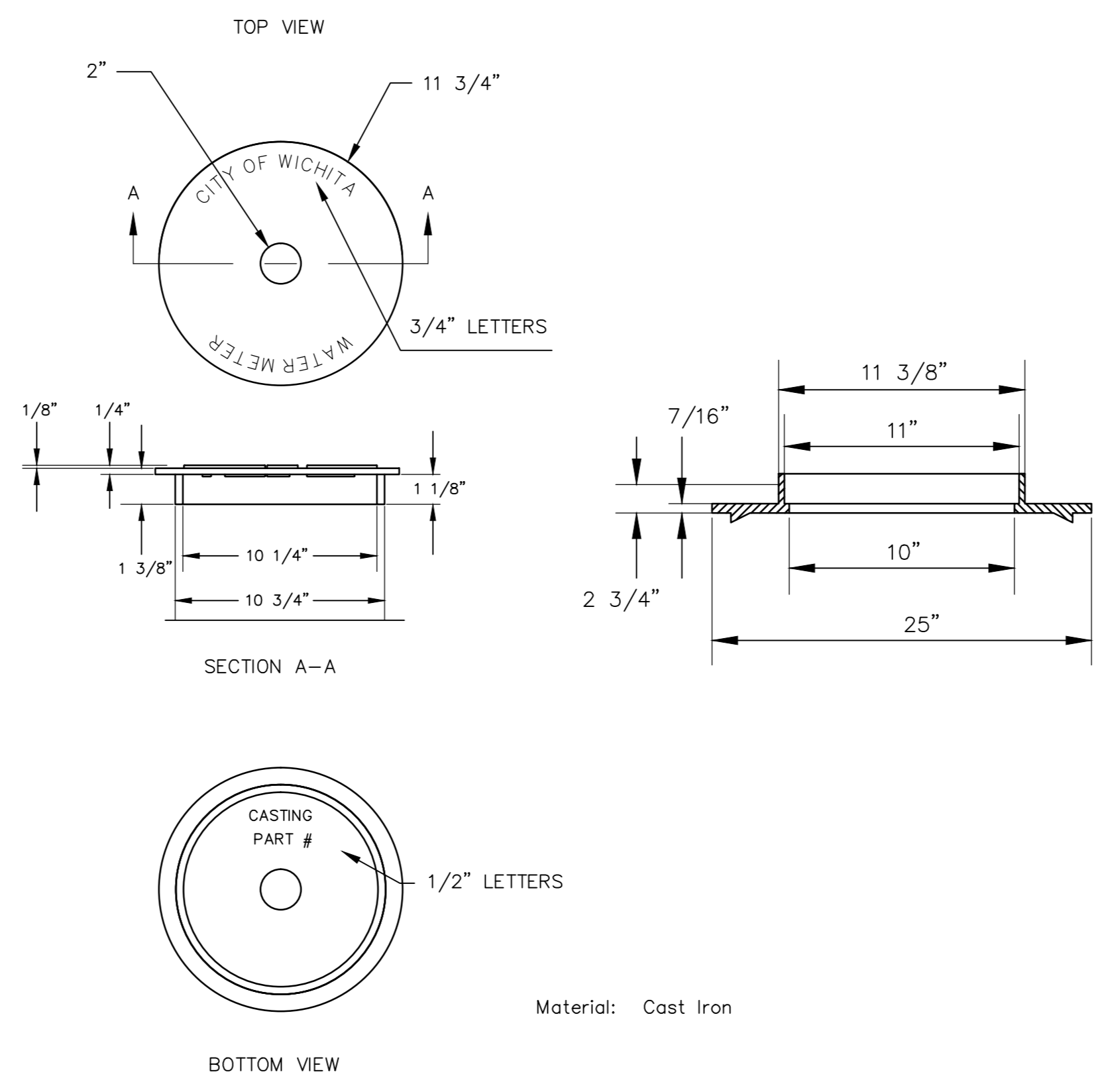
CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-4501

SHEET

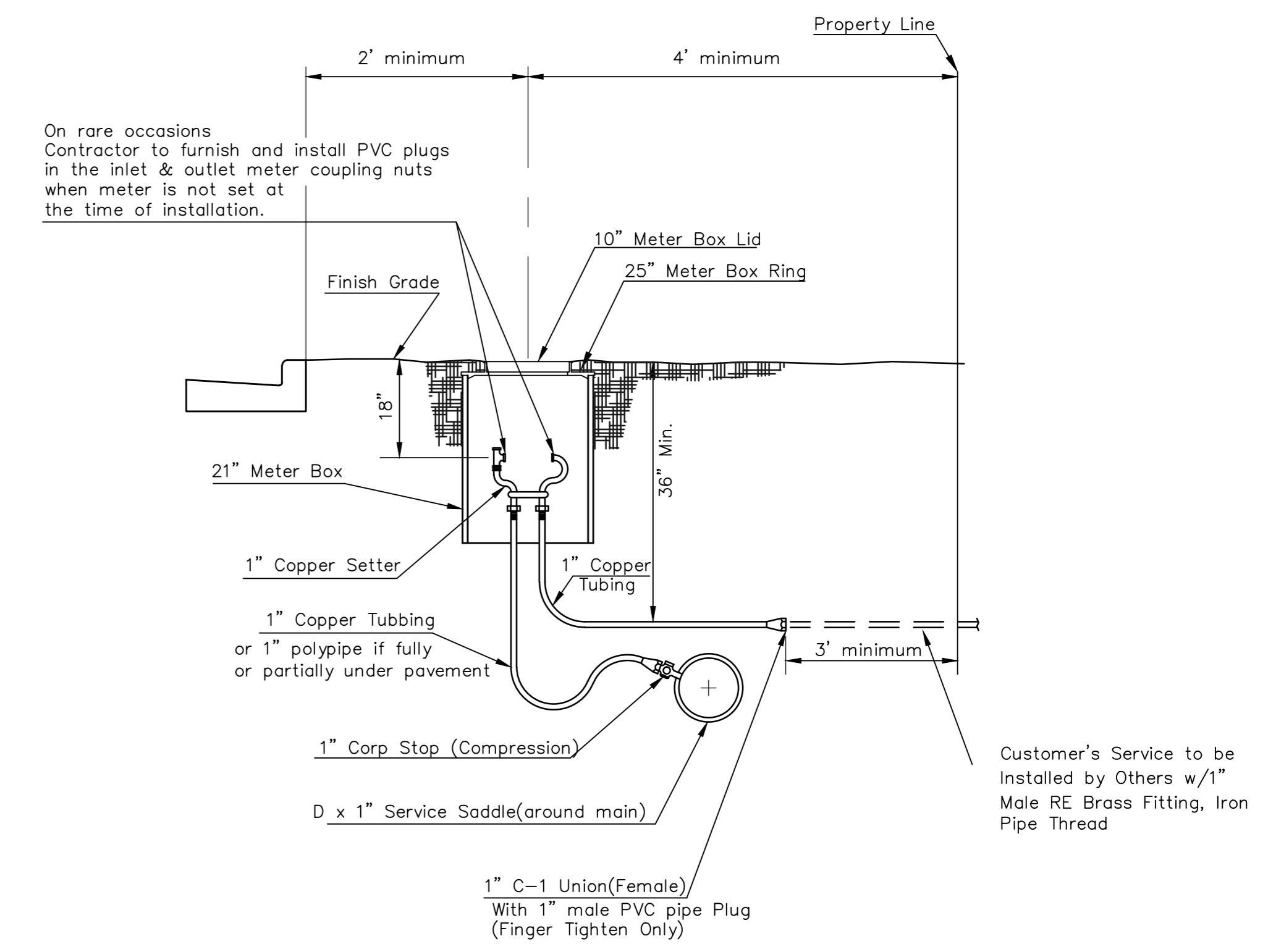
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SERVICE TYPES



NOT TRAFFIC RATED RING & LID FOR 1" METER BOX

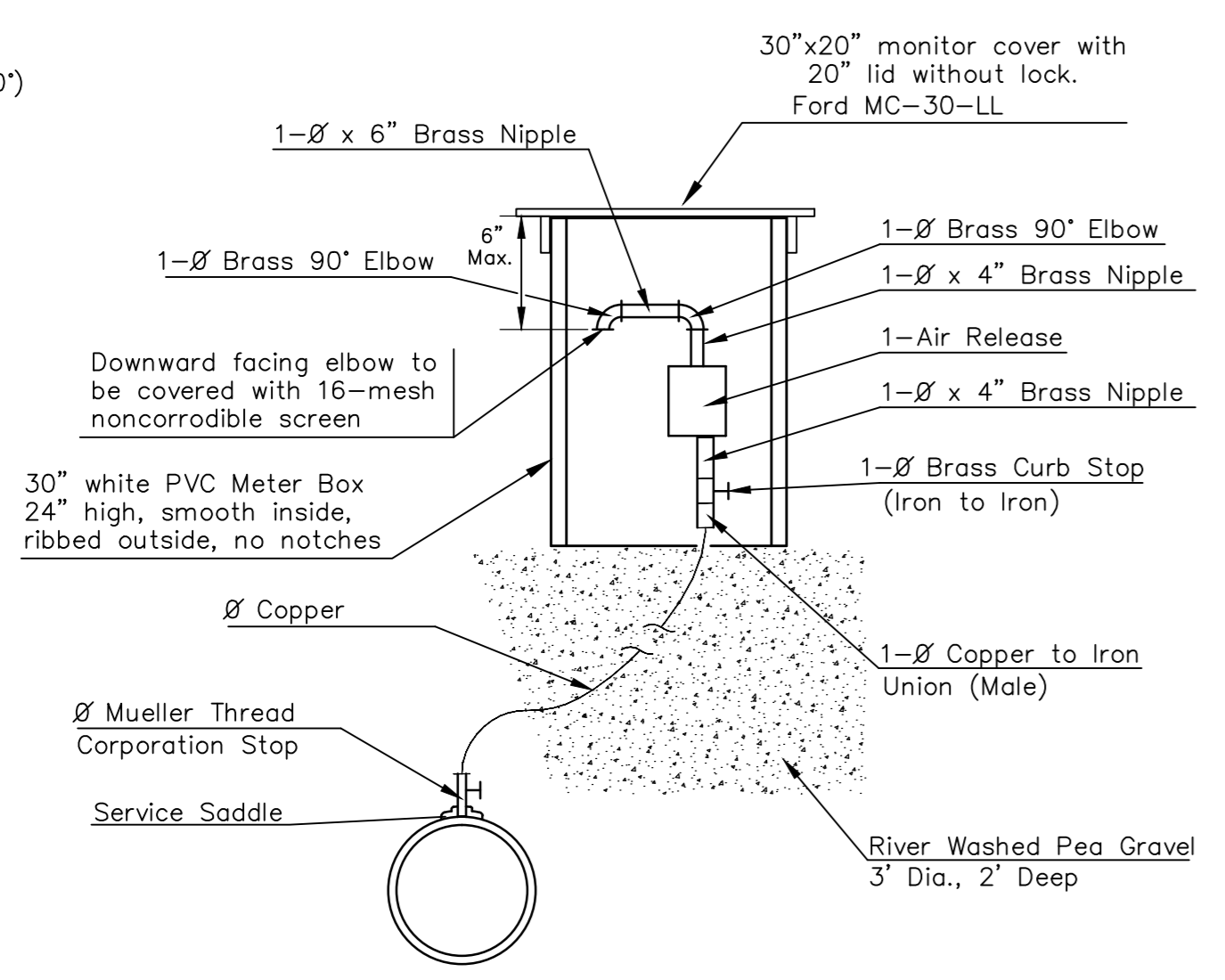


TYPICAL 1" METER SETTING

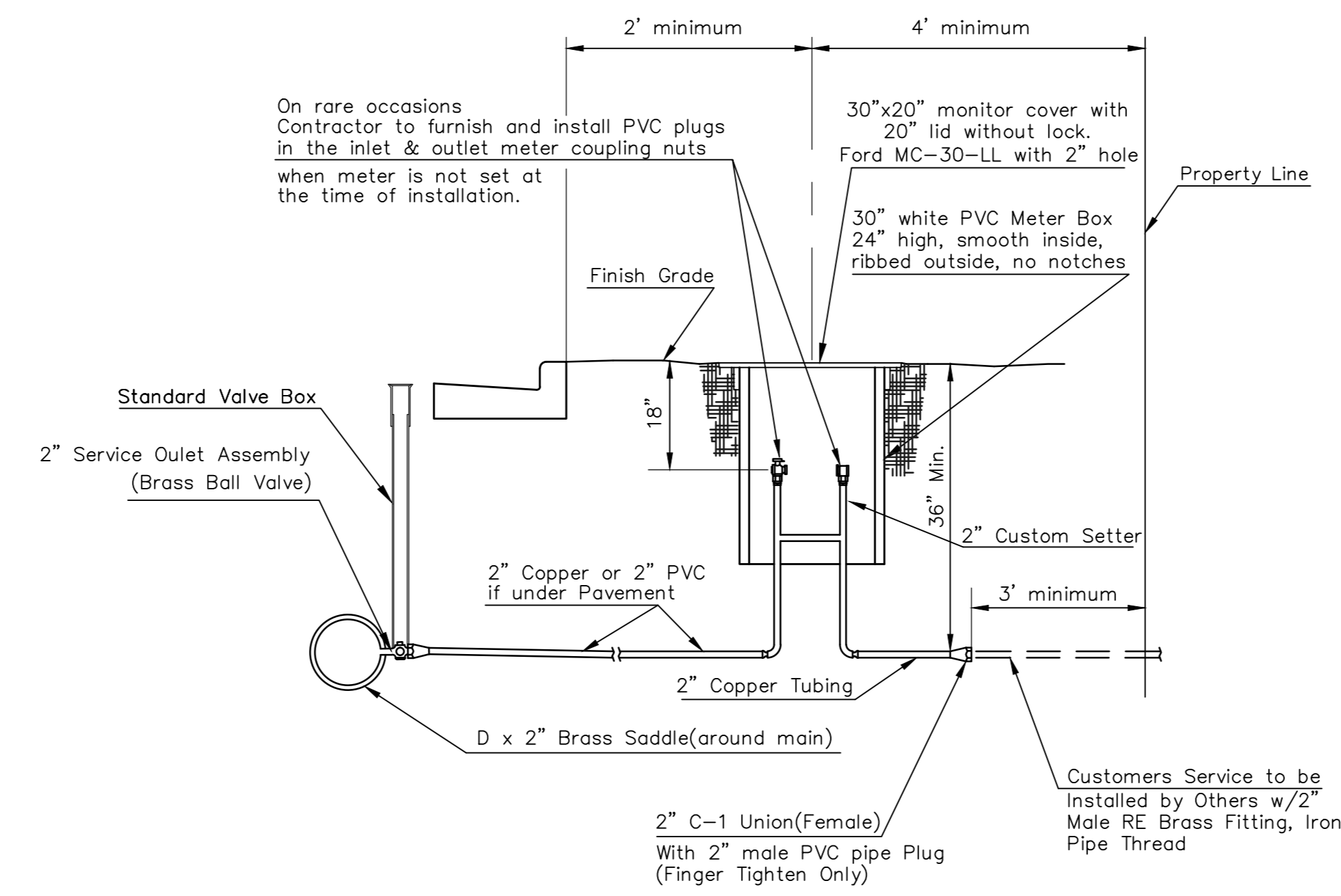
NOTE:

THE 1 1/2" AIR RELEASE ASSEMBLY WILL TYPICALLY BE USED ON WATER MAINS 24" AND SMALLER, AS SPECIFICALLY DESIGNATED IN THE PLANS. COMBINATION AIR RELEASE ASSEMBLIES WILL BE SPECIFICALLY DESIGNED FOR PROJECTS WITH LARGER MAINS, AND WILL BE INCLUDED IN THE PLANS.

- 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

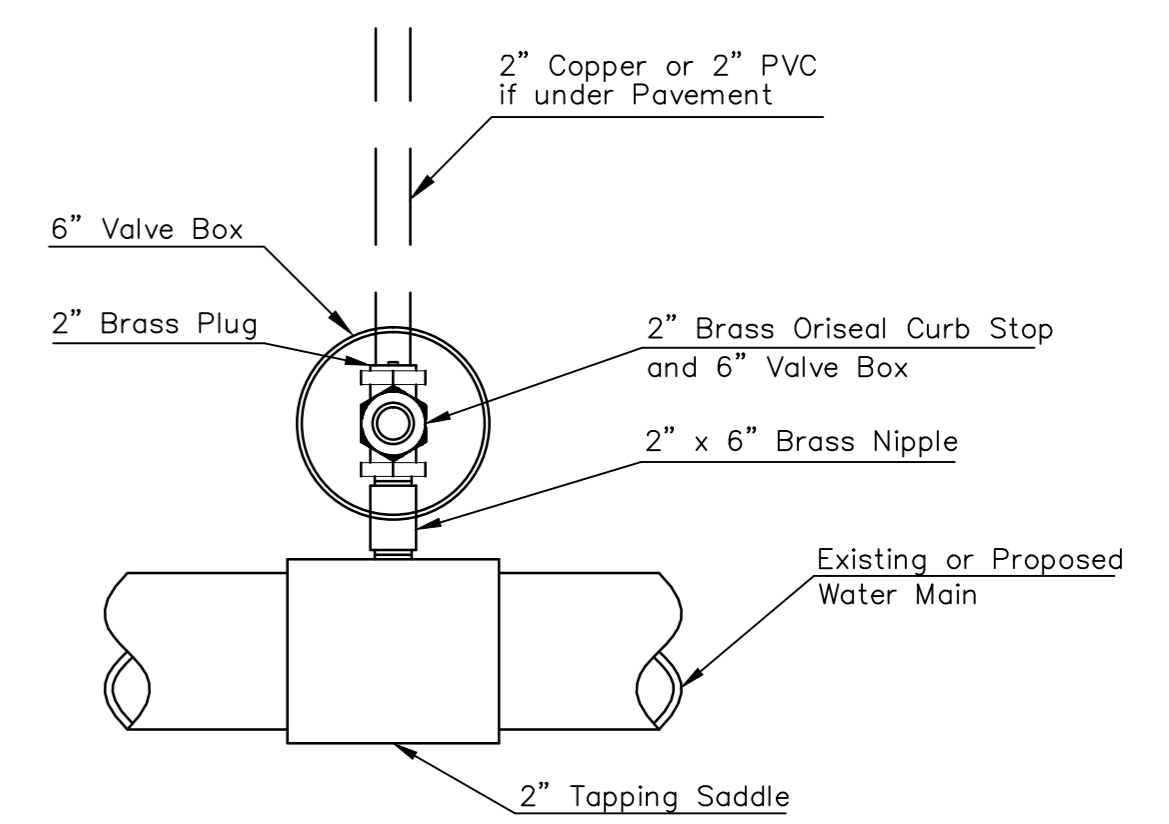


MATERIALS FOR 1" or 2" AIR RELEASE ASSEMBLY  
Ø = 1" or 2"



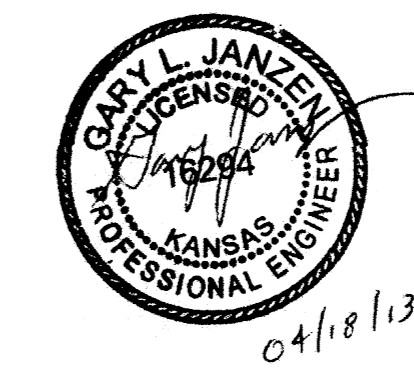
TYPICAL 2" METER SETTING

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



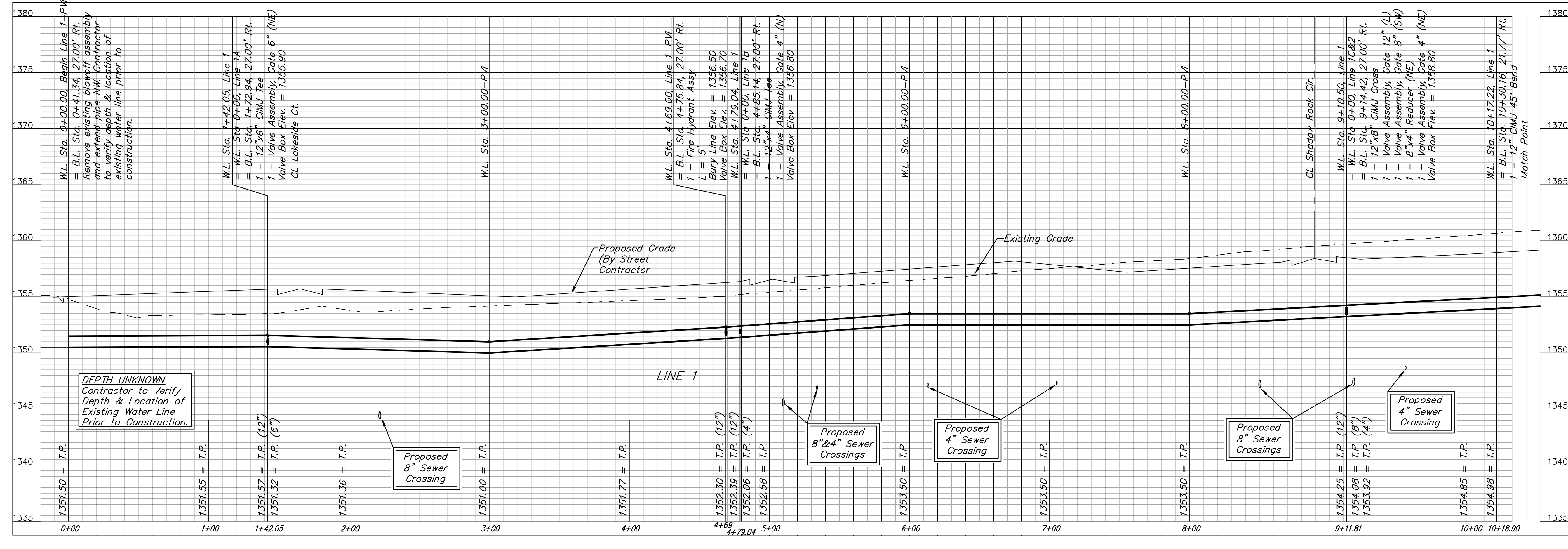
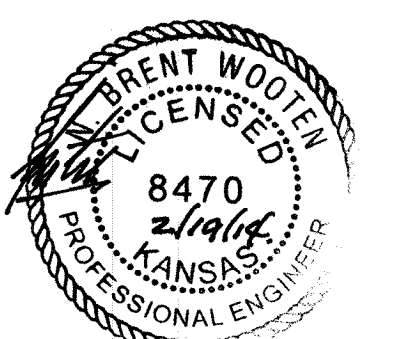
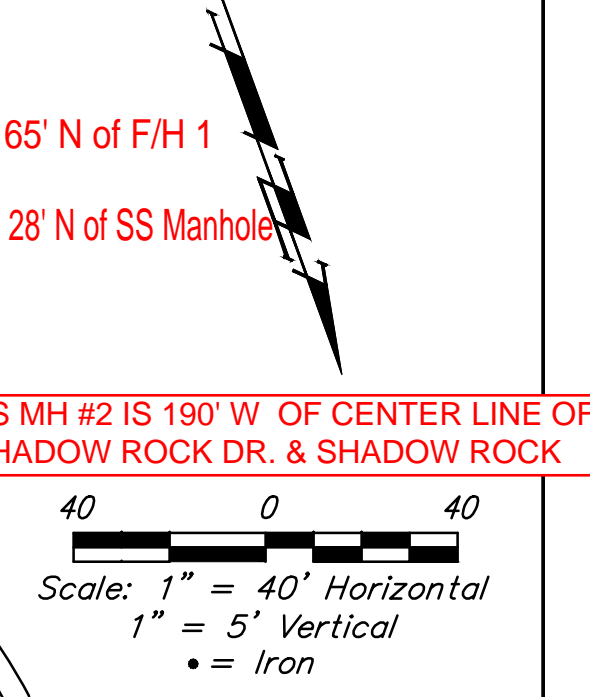
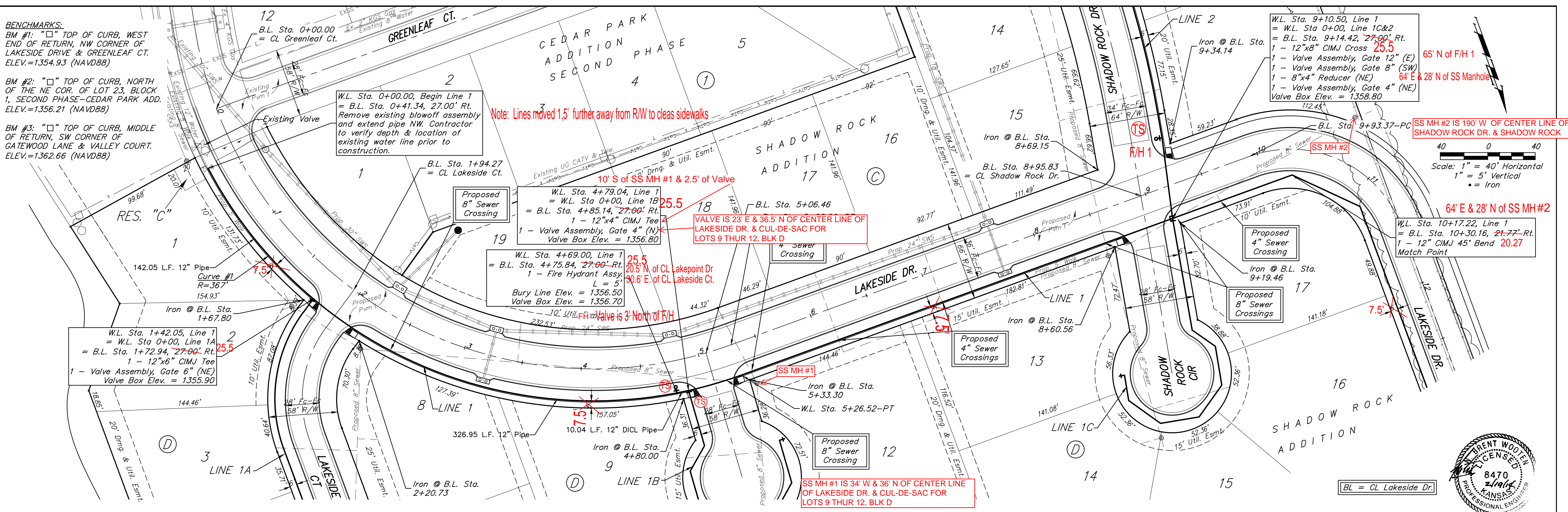
Note: Where the 2" Service Outlet Assembly is to be used to connect a 2" main to another main, the 2" valve shall be a 2" IPT Gate Valve. 2" ball or globe valves shall not be approved for this use.

2" SERVICE OUTLET ASSEMBLY



<b>STANDARD WATER SERVICE DETAIL</b>		
CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER 1793 PPW	OGA NUMBER (607853)	DATE 03/14
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		SHEET <b>2A of 14</b>

**BENCHMARKS:**  
 BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)  
 BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE-CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)  
 BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)



Curve #1  
 Curve Data Based on Waterline  
 Rad. = 367' Delta = 82°06'46" Tangent = 319.66'  
 Arc = 526.44' L.C. = 482.09' Def. Ft. = 4.67932'

Station	Arc	6' Right	Defl.	Total Defl.
0+00.00	-	-	0°00'00"	0°00'00"
0+25.00	25.00	25.38	1°56'59"	1°56'59"
0+50.00	25.00	25.38	1°56'59"	3°53'58"
0+75.00	25.00	25.38	1°56'59"	5°50'57"
1+00.00	25.00	25.38	1°56'59"	7°47'56"
1+25.00	25.00	25.38	1°56'59"	9°44'55"
1+42.05	17.05	17.31	1°19'47"	11°04'42"
1+50.00	7.95	8.07	0°37'12"	11°41'54"
1+75.00	25.00	25.38	1°56'59"	13°38'53"
1+98.12	23.12	23.47	1°58'11"	15°27'04"
2+00.00	1.88	1.91	0°08'48"	15°35'52"
2+25.00	25.00	25.38	1°56'59"	17°32'51"
2+50.00	25.00	25.38	1°56'59"	19°29'50"
2+75.00	25.00	25.38	1°56'59"	21°26'49"
3+00.00	25.00	25.38	1°56'59"	23°23'48"
3+25.00	25.00	25.38	1°56'59"	25°20'47"
3+50.00	25.00	25.38	1°56'59"	27°17'46"
3+75.00	25.00	25.38	1°56'59"	29°14'45"
4+00.00	25.00	25.38	1°56'59"	31°11'44"
4+25.00	25.00	25.38	1°56'59"	33°08'43"
4+50.00	25.00	25.38	1°56'59"	35°05'42"
4+75.00	25.00	25.38	1°56'59"	37°02'41"
4+79.04	4.04	4.10	0°18'54"	37°21'35"
5+00.00	20.96	21.28	1°38'05"	38°59'40"
5+25.00	25.00	25.38	1°56'59"	40°56'39"
5+26.44	1.44	1.46	0°06'44"	41°03'23"

**Baughman** SHADOW ROCK ADDITION  
**LINE 1**  
 WATER DISTRIBUTION SYSTEM

Baughman Company, P.A. 515 Ellis St. Wichita, KS 67211 P 316-262-2771 F 316-262-0149  
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER: \_\_\_\_\_ DESIGN: NBW DRAWN: TMS  
 REVISIONS: \_\_\_\_\_ APPROVED: DATE: 01/14  
 SCALE: Noted SHEET: 3 OF 14

C:\Projects\Shadow Rock Addition\_1310P993\WTR\_Plans.dwg 13-12-0991

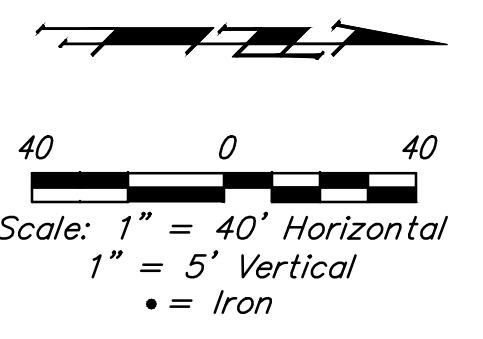
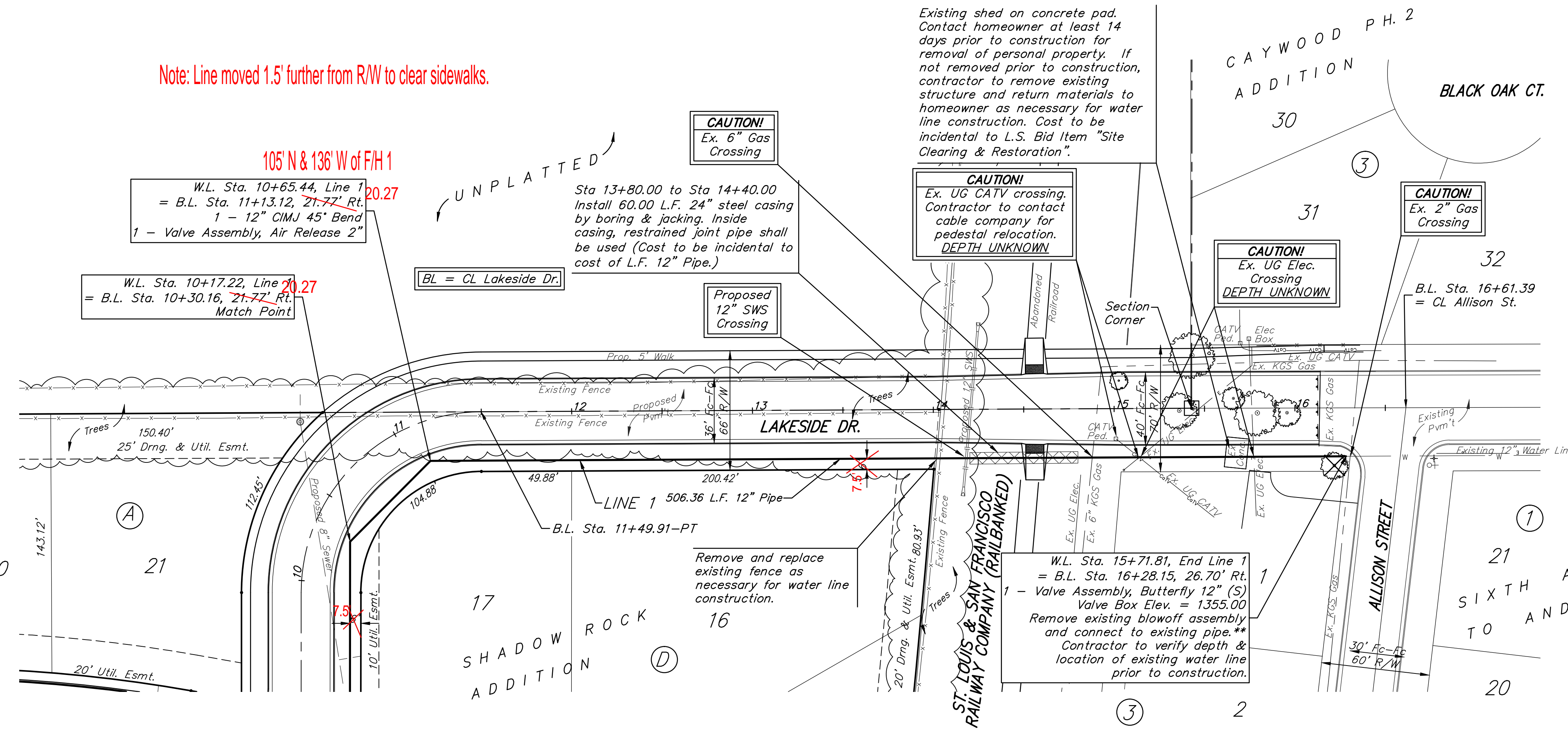
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BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE-CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

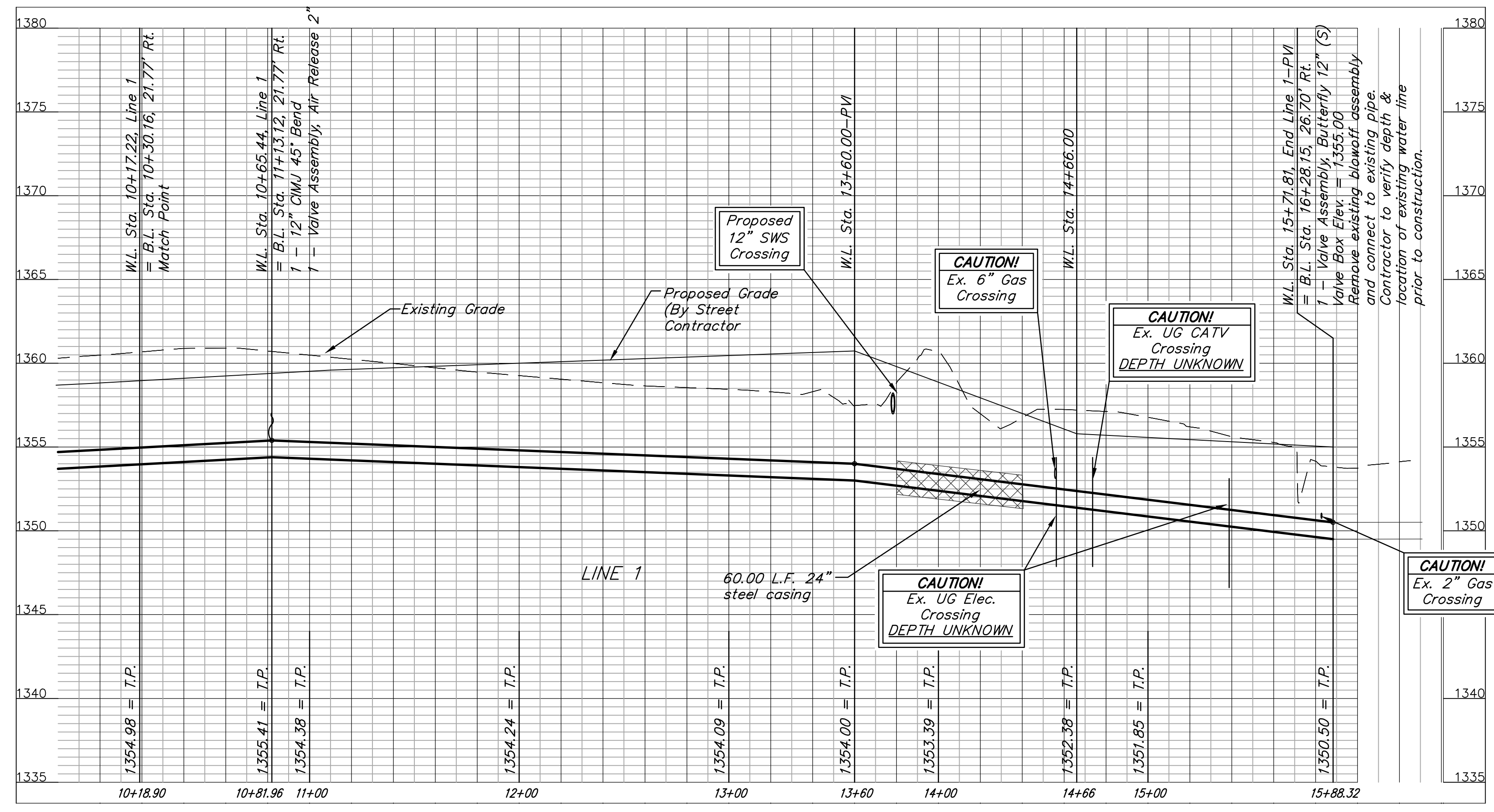
BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)

Note: Line moved 1.5' further from R/W to clear sidewalks.

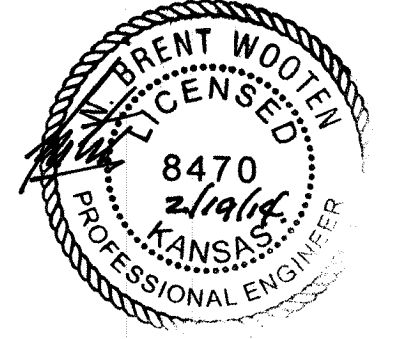


\*\*Location of existing valves not known. Contractor to coordinate valve shutoff so that existing homeowners along Allison Street are not inconvenienced.

Trees shall be removed as necessary for water line construction. To be paid for as lump sum bid item "Site Clearing & Restoration". All other trees shall remain and be protected from damage during construction. Overhanging limbs shall be trimmed by the Contractor only as necessary for construction and with approval of the Engineer. Cost of tree trimming to be included in bid item "Site Clearing & Restoration."



DEPTH UNKNOWN Contractor to Verify Depth & Location of Existing Water Line Prior to Construction.



	SHADOW ROCK ADDITION	
	LINE 1 WATER DISTRIBUTION SYSTEM	
<small>Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P 316-262-2771 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE</small>		
PROJECT NUMBER	DESIGN NBW	DRAWN TMS
REVISIONS:	APPROVED	DATE 01/14
	SCALE Noted	SHEET
	4 OF 14	
<small>C:\A\projects\Shadow Rock Addition_13-10-P993\WTR Plans.dwg 13-12-E991</small>		

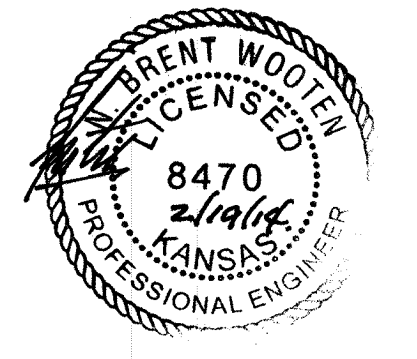
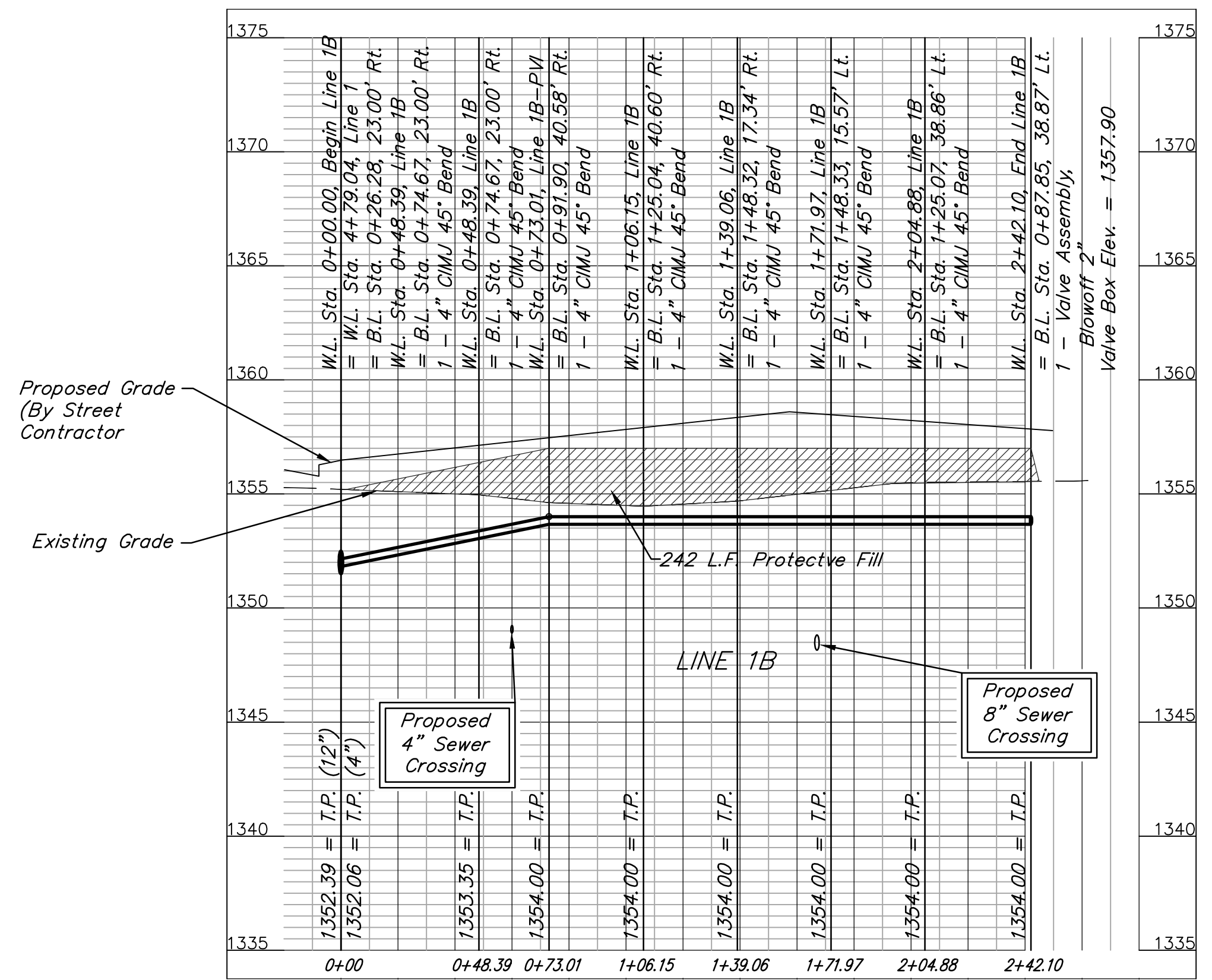
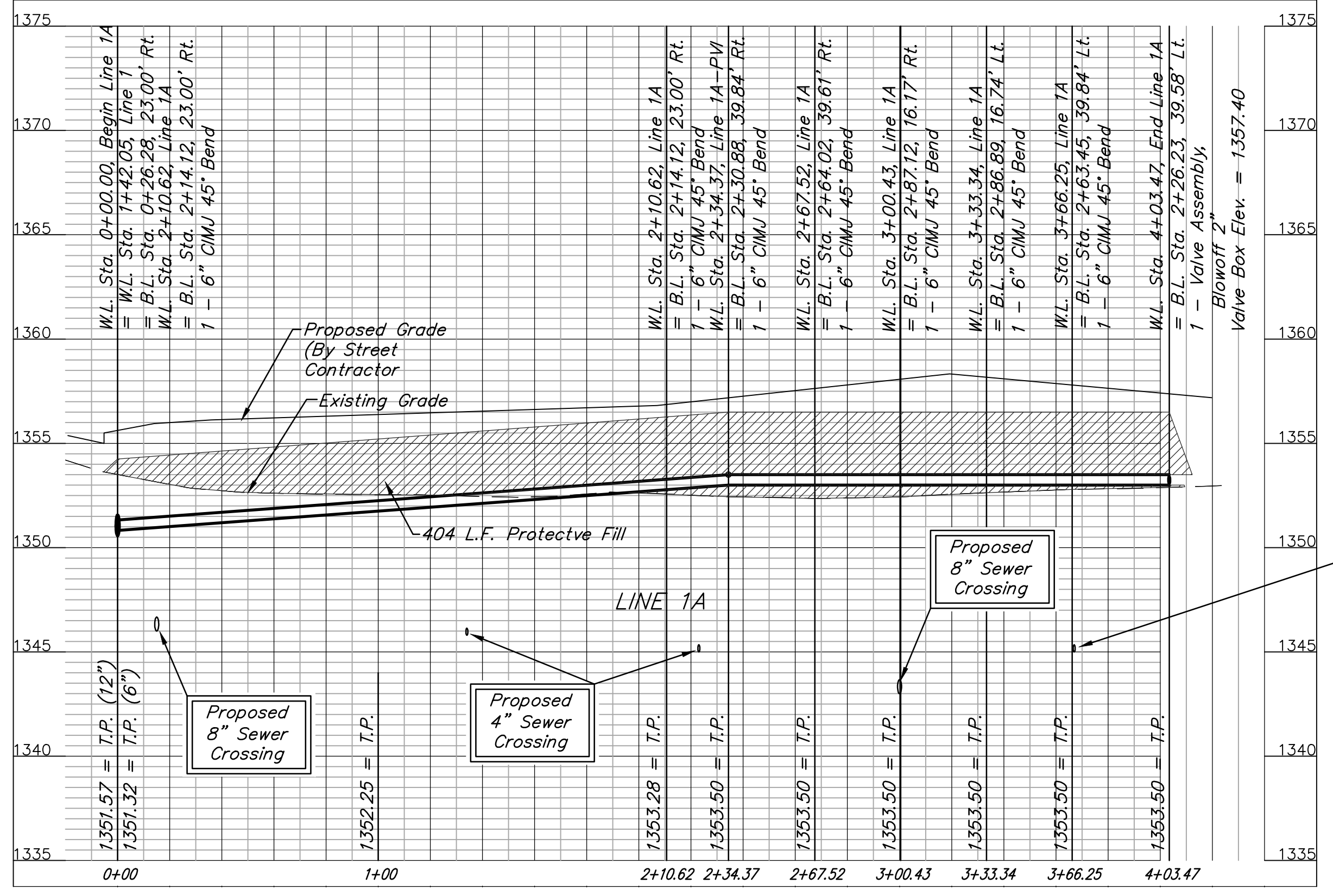
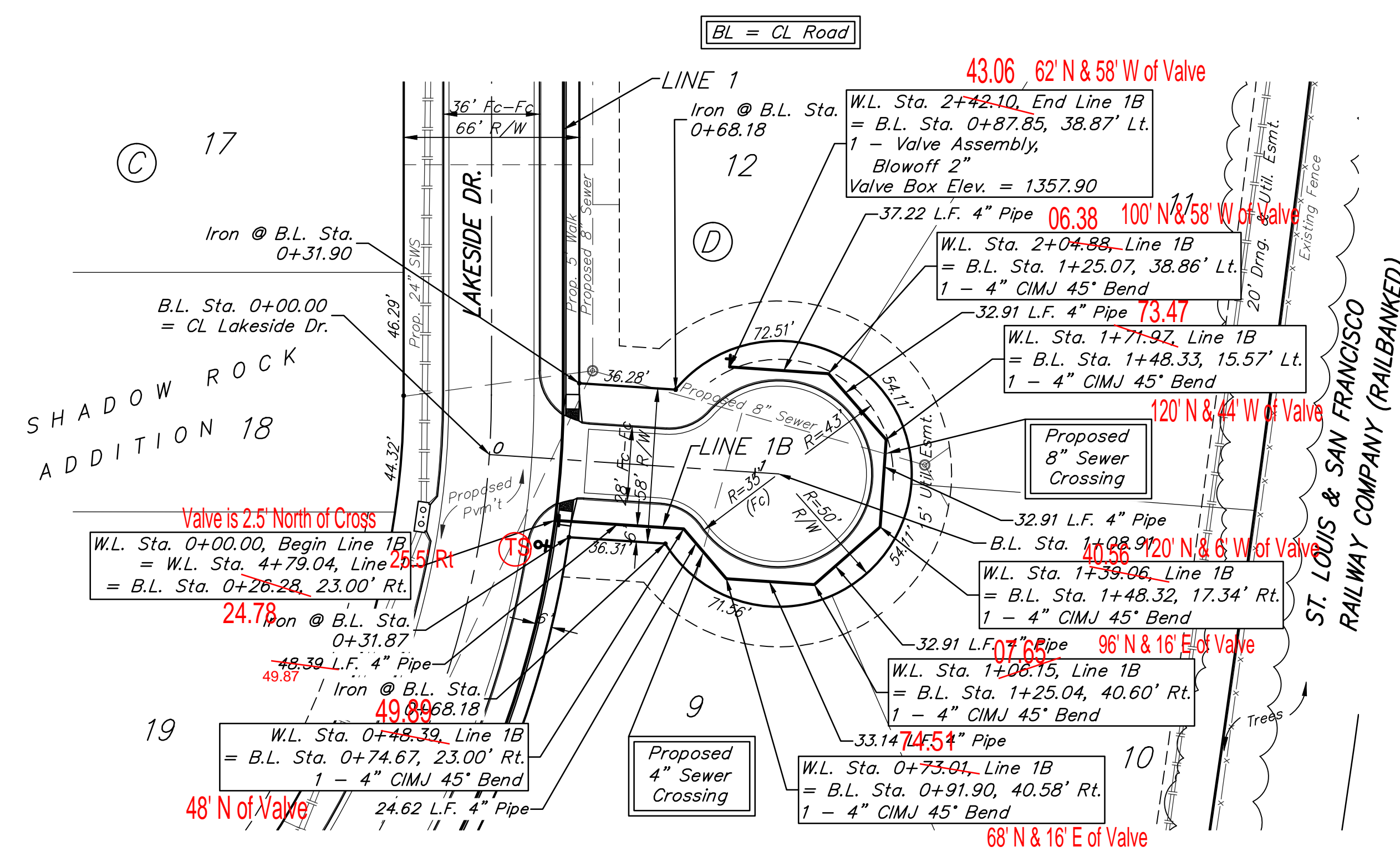
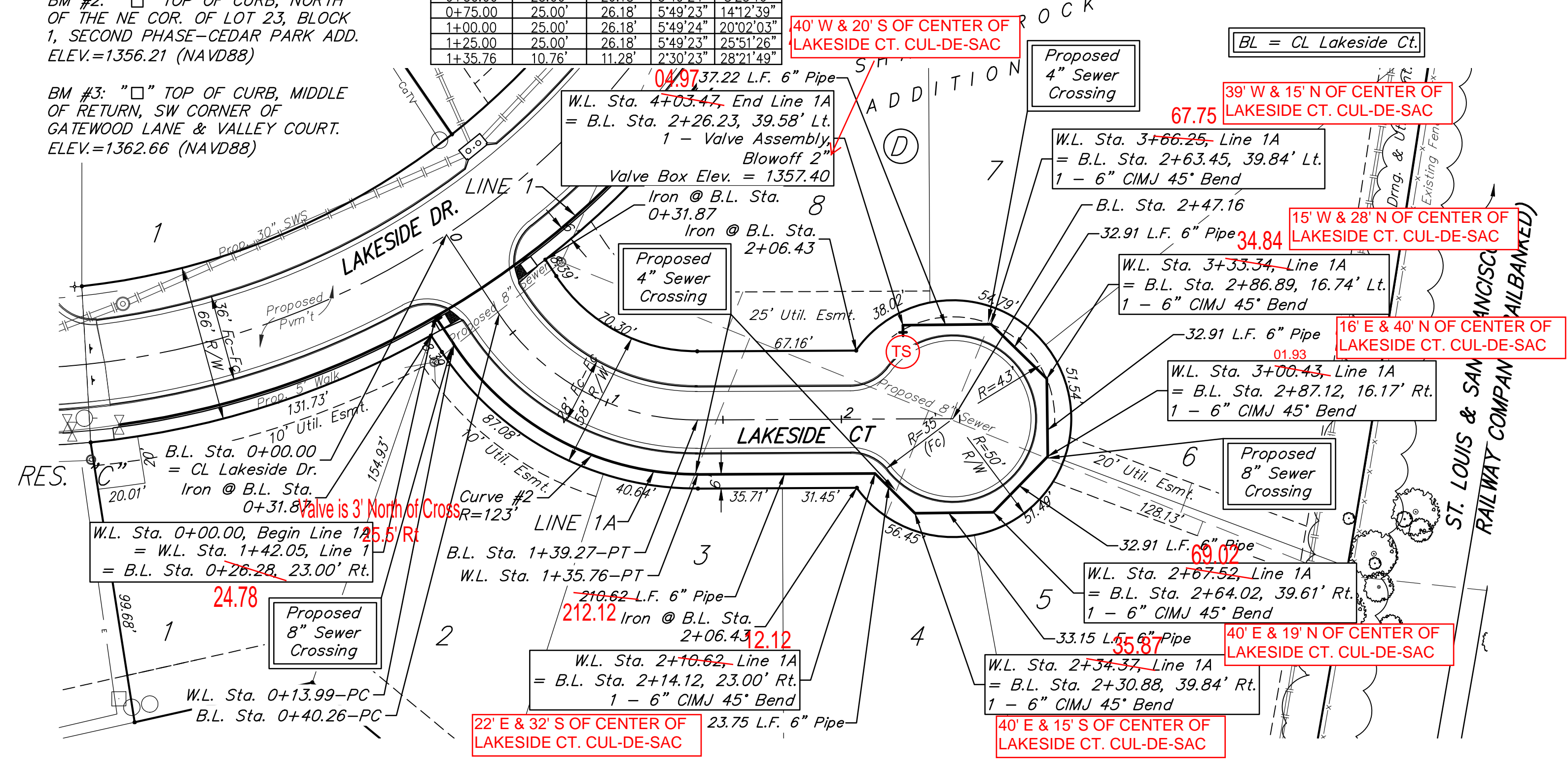
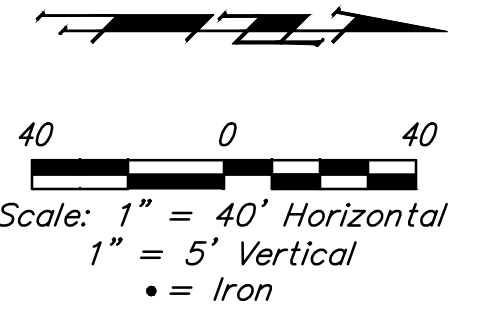
**BENCHMARKS:**  
 BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1356.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE-CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)

Curve #2				
Curve Data Based on Waterline				
Rad. = 123'	Delta = 56°43'38"	Tangent = 66.40'		
Arc = 121.77'	L.C. = 116.87'	Def. Ft. = 13.97566'		
Station	Arc	Chord	Defl.	Total Defl.
0+13.99	0'	0'00.00	0'	0'00.00
0+25.00	11.01'	11.54'	2°33'52"	2°33'52"
0+50.00	25.00'	26.18'	5°49'24"	8°23'16"
0+75.00	25.00'	26.18'	5°49'24"	14°12'39"
1+00.00	25.00'	26.18'	5°49'24"	20°02'03"
1+25.00	25.00'	26.18'	5°49'24"	25°51'26"
1+35.76	10.76'	11.28'	2°30'23"	28°21'49"

For radii under 200', contractor shall use short pipe lengths.



**Baughman** SHADOW ROCK ADDITION  
**LINES 1A & 1B**  
 WATER DISTRIBUTION SYSTEM

Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P: 316-262-2771 F: 316-262-0149  
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN	DRAWN
	NBW	TMS
REVISIONS:	APPROVED	DATE
		01/14
	SCALE	
	Noted	
	SHEET	

**5 OF 14**

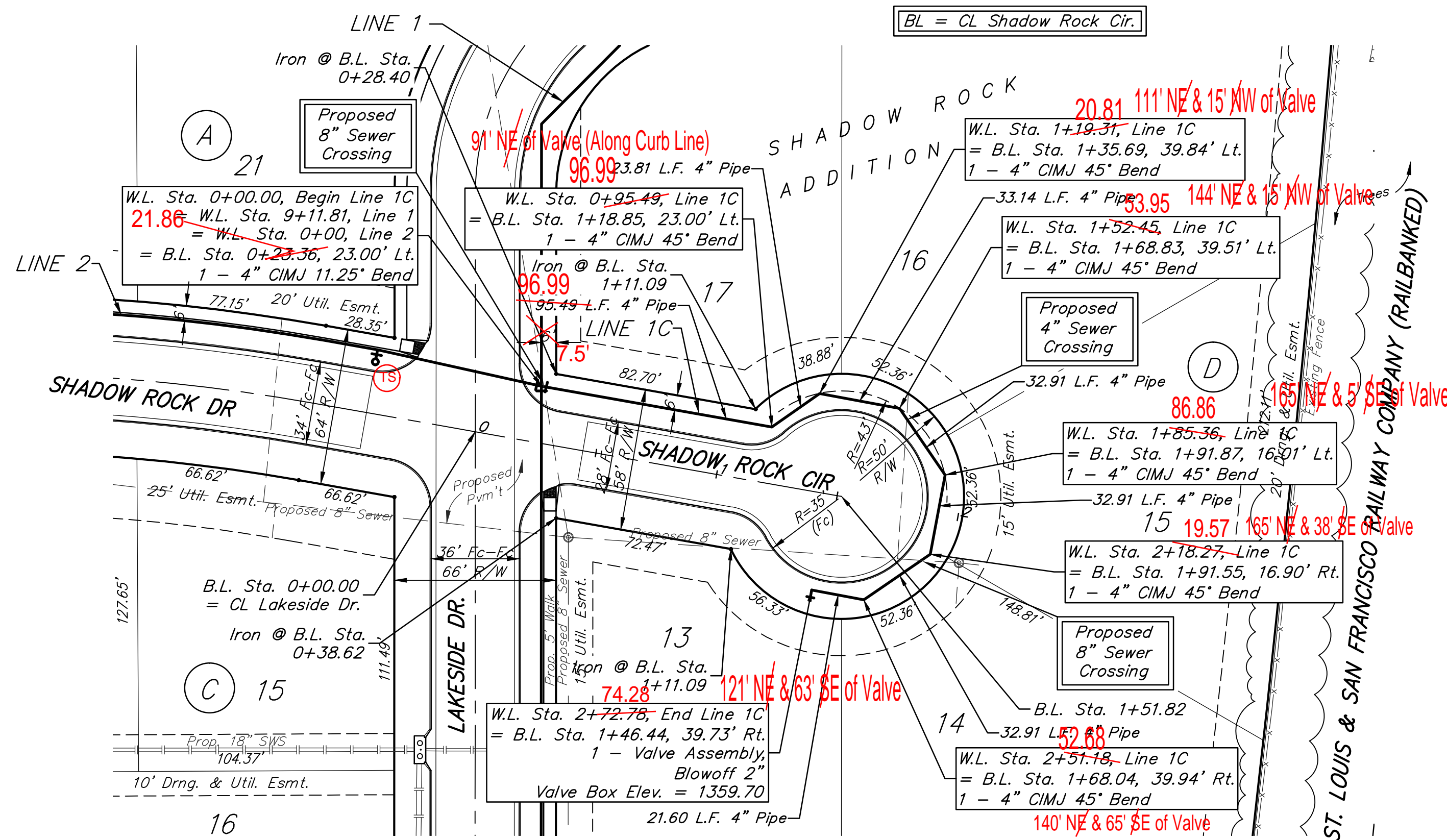
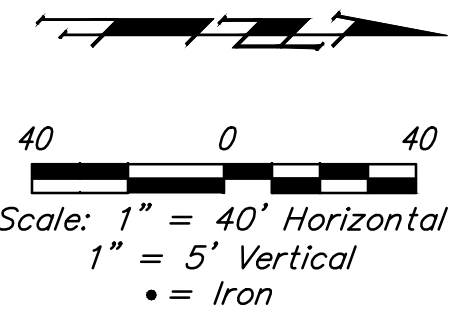
C:\Projects\Shadow Rock Addition\_1310P993\WTR Plans.dwg 13-12-0991

**BENCHMARKS:**

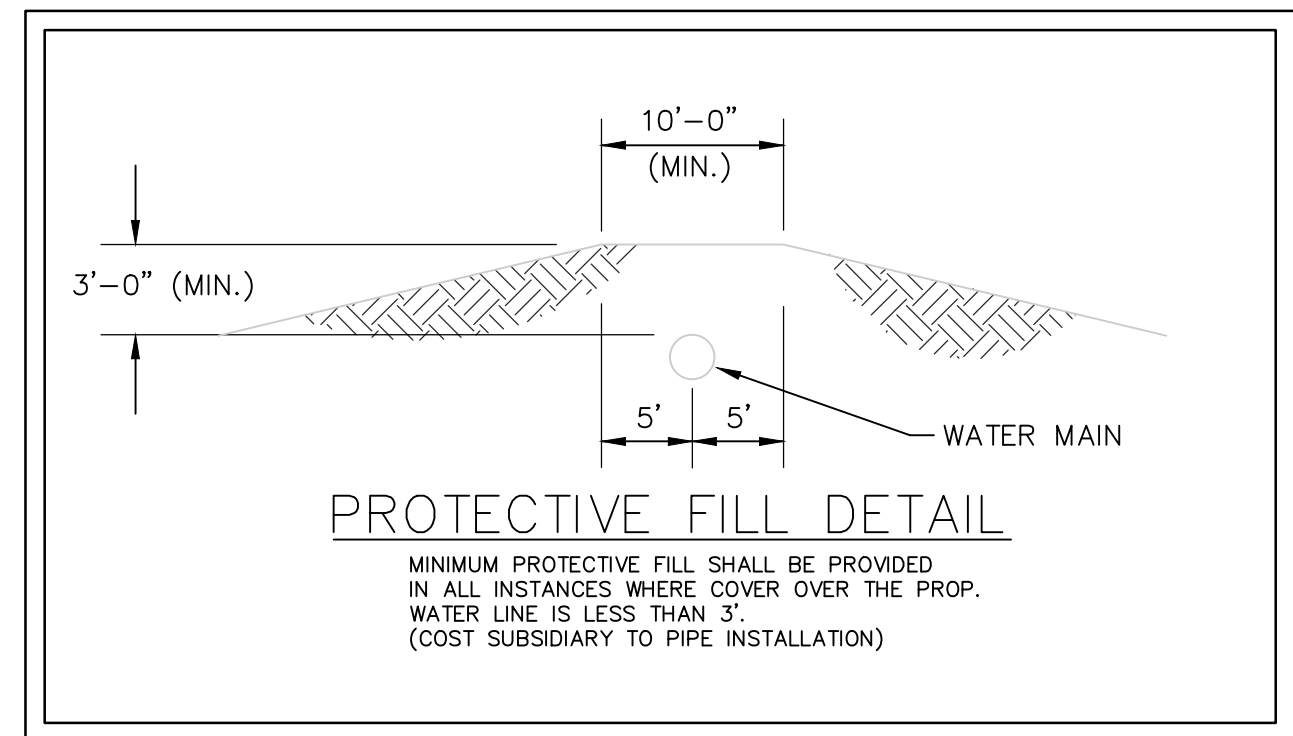
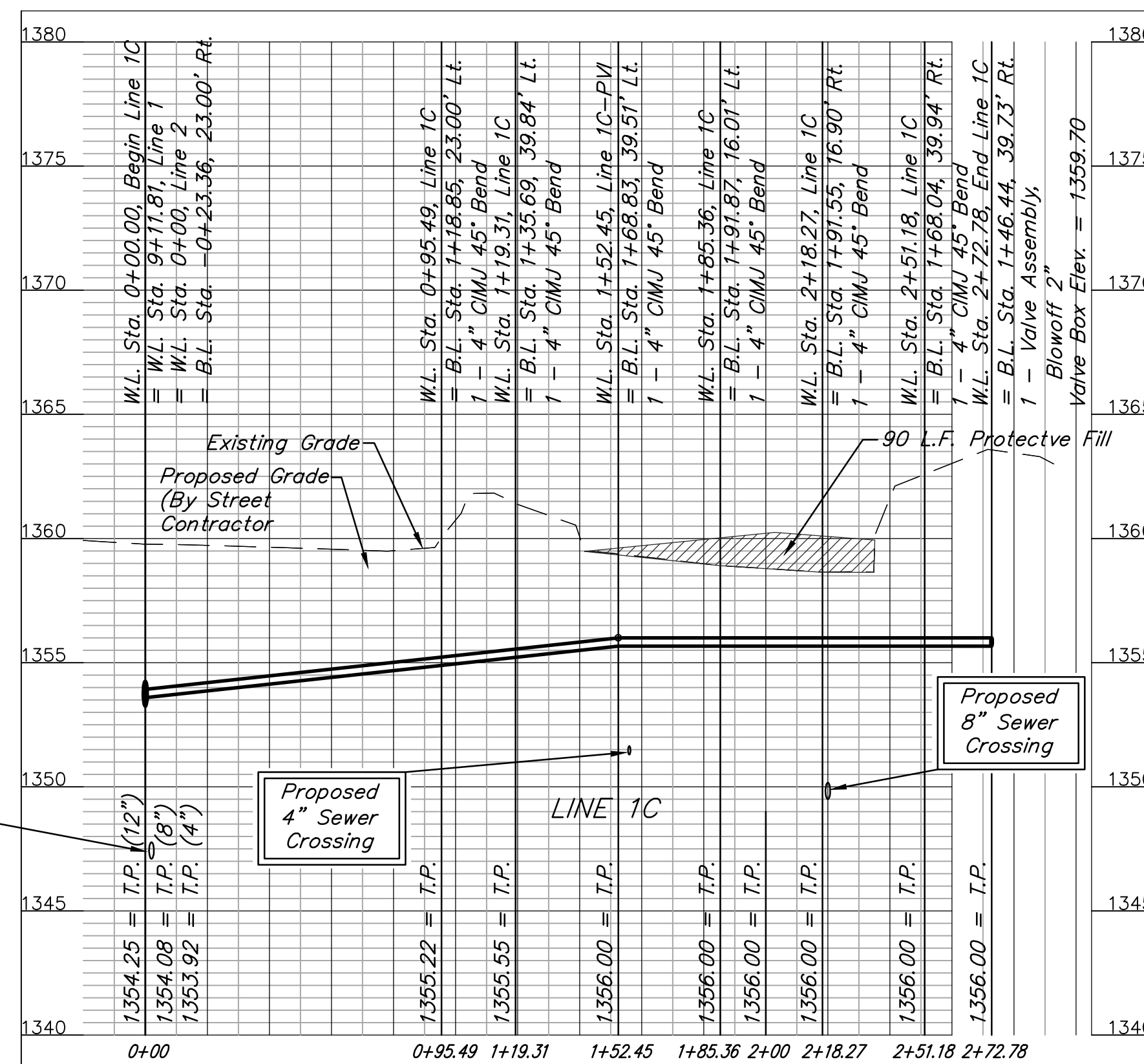
BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE-CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)



LINE	STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED	VALVE STEM EXT. REQUIRED (ft)
1	4+69.00	1356.70	1352.30	5.0'	-
2	0+68.54	1359.10	1354.75	5.0'	-
2	5+19.53	1363.70	1359.35	5.0'	-
2	10+39.95	1363.30	1358.95	5.0'	-
3	0+09.14	1364.30	1356.95	8.0'	1.0'
3	5+01.95	1368.30	1364.45	4.5'	-



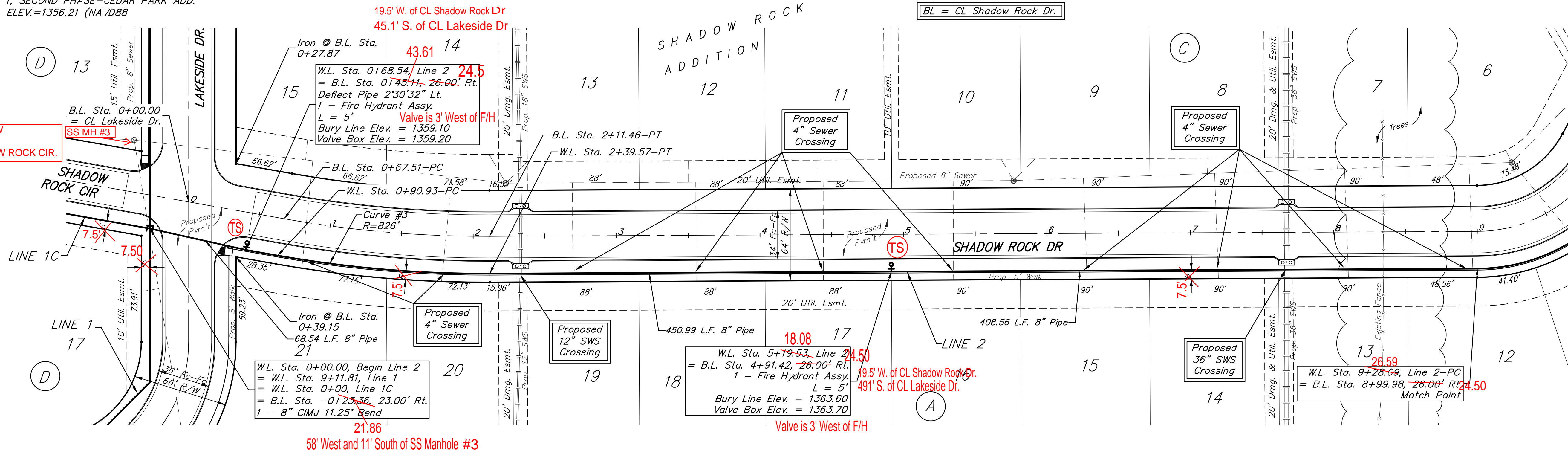
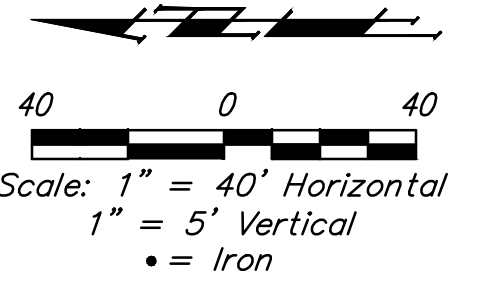
	SHADOW ROCK ADDITION	
	LINE 1C	
WATER DISTRIBUTION SYSTEM		
<small>Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-2771 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE</small>		
PROJECT NUMBER	DESIGN	DRAWN
	NBW	TMS
REVISIONS:	APPROVED	DATE
		01/14
	SCALE	
	Noted	
	SHEET	
<h1>6 OF 14</h1>		
<small>C:\A\projects\Shadow Rock Addition_1310P993\WTR Plans.dwg 13-12-E991</small>		

**BENCHMARKS:**

BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE- CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

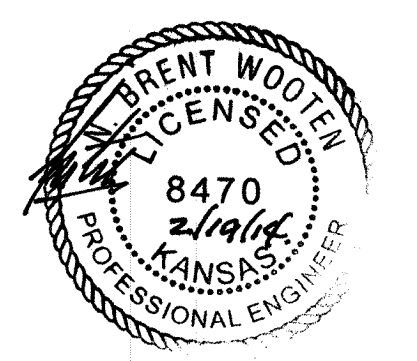
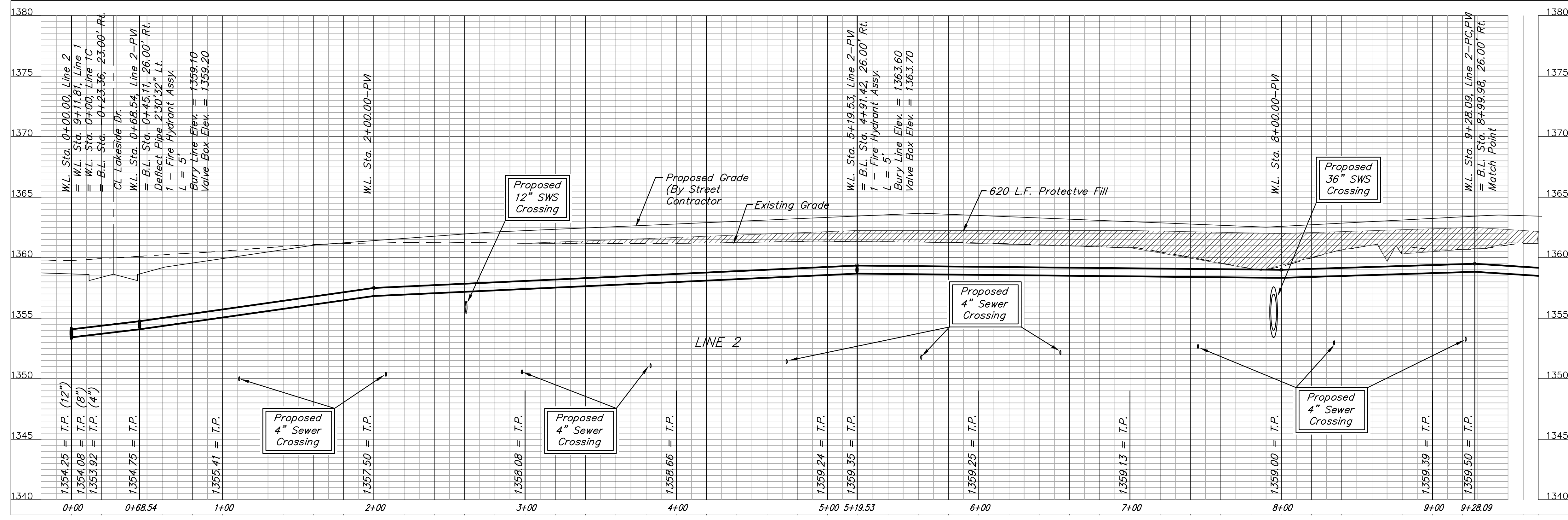
BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)



Curve #3				
Curve Data Based on Waterline				
Rad. = 826'	Delta = 101°18'37"	Tangent = 74.52'		
Arc = 148.64'	L.C. = 148.44'	Def./Ft. = 2.08092		
Station	Arc	Chord Lengths	Defl.	Total Defl.
0+90.93	-	-	0°00'00"	0°00'00"
1+00.00	9.07'	9.14'	0°18'52"	0°18'52"
1+25.00	25.00'	25.18'	0°52'02"	1°10'54"
1+50.00	25.00'	25.18'	0°52'01"	2°02'55"
1+75.00	25.00'	25.18'	0°52'02"	2°54'57"
2+00.00	25.00'	25.18'	0°52'01"	3°46'58"
2+25.00	25.00'	25.18'	0°52'01"	4°38'59"
2+39.57	14.57'	14.68'	0°30'19"	5°09'18"

Trees shall be removed as necessary for water line construction. To be paid for as lump sum bid item "Site Clearing & Restoration". All other trees shall remain and be protected from damage during construction. Overhanging limbs shall be trimmed by the Contractor only as necessary for construction and with approval of the Engineer. Cost of tree trimming to be included in bid item "Site Clearing & Restoration."

Note: Line moved 1.5' further from R/W to clear Sidewalks



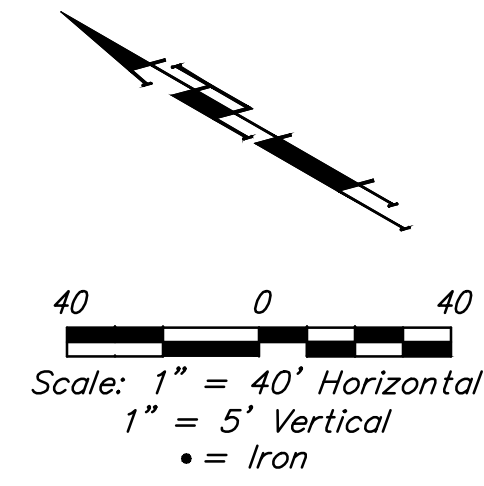
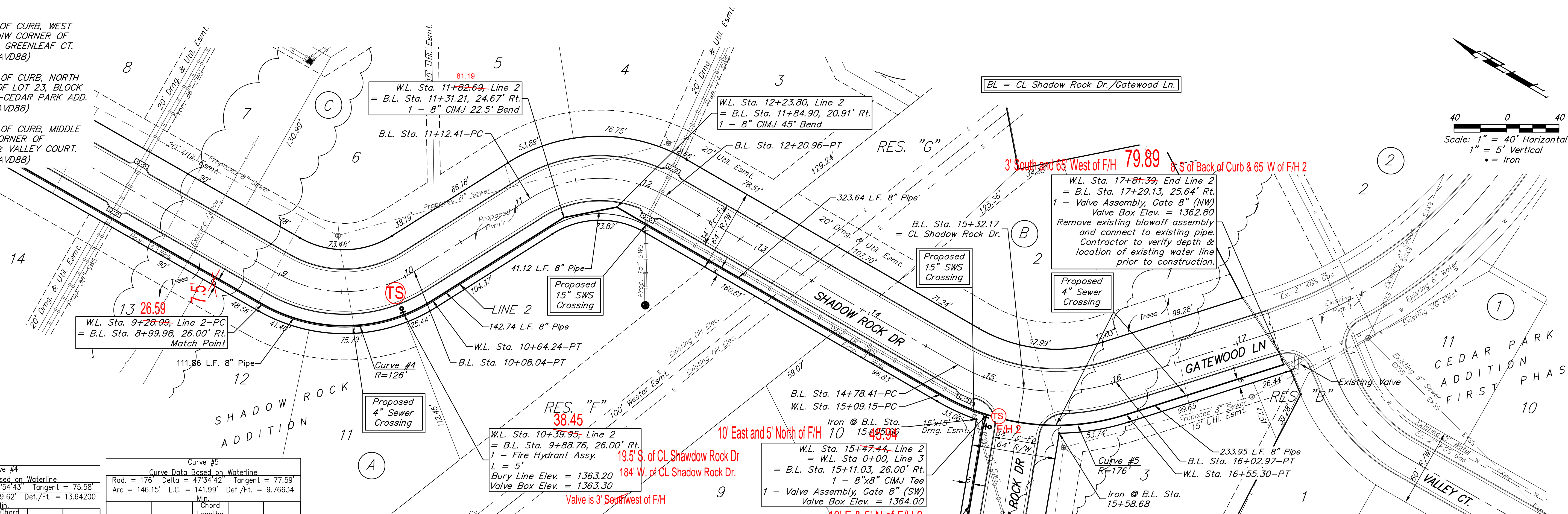
	SHADOW ROCK ADDITION	
	LINE 2	
WATER DISTRIBUTION SYSTEM		
<small>Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P 316-262-2771 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE</small>		
PROJECT NUMBER	DESIGN	DRAWN
	NBW	TMS
REVISIONS:	APPROVED	DATE
	Noted	01/14
	SCALE	
	Noted	
	SHEET	
7 OF 14		

**BENCHMARKS:**

BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE- CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)



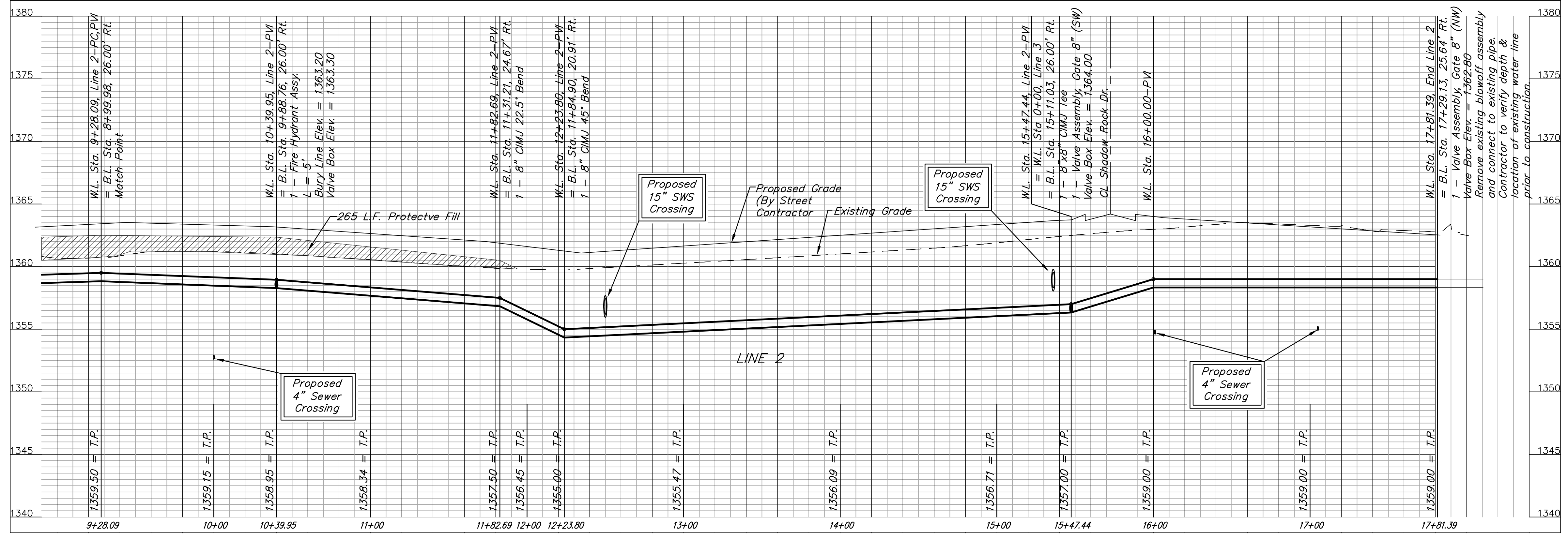
Curve #4				
Curve Data Based on Waterline				
Rad. = 126'	Delta = 61°54'43"	Tangent = 75.58'		
Arc = 136.15'	L.C. = 129.62'	Def./Ft. = 13.64200		
Chord Lengths				
Station	Arc	6' Right	Defl.	Total Defl.
9+28.09	-	-	0'00"00"	0'00"00"
9+50.00	21.91'	22.92'	4'58"54"	4'58"54"
9+75.00	25.00'	26.15'	5'41"03"	10'39'57"
10+00.00	25.00'	26.15'	5'41"03"	16'21'00"
10+25.00	25.00'	26.15'	5'41"03"	22'02'03"
10+50.00	25.00'	26.15'	5'41"03"	27'43'06"
10+64.24	14.24'	14.91'	3'14"15"	30'57'21"

Curve #5				
Curve Data Based on Waterline				
Rad. = 176'	Delta = 47°34'42"	Tangent = 77.59'		
Arc = 146.15'	L.C. = 141.99'	Def./Ft. = 9.76634		
Chord Lengths				
Station	Arc	6' Right	Defl.	Total Defl.
15+09.15	-	-	0'00"00"	0'00"00"
15+25.00	15.85'	16.38'	2'34"48"	2'34"48"
15+50.00	25.00'	25.83'	4'04"09"	6'38'57"
15+75.00	25.00'	25.83'	4'04"10"	10'43'07"
16+00.00	25.00'	25.83'	4'04"09"	14'47'16"
16+25.00	25.00'	25.83'	4'04"10"	18'51'26"
16+50.00	25.00'	25.83'	4'04"09"	22'55'35"
16+55.30	5.30'	5.48'	0'51"46"	23'47'21"

For radii under 200', contractor shall use short pipe lengths.

Note: Line moved 1.5' further from R/W to clear sidewalks up to Station 9+00 (Curve No 4) then transitions to plan distance of 6.0'.

Trees shall be removed as necessary for water line construction. To be paid for as lump sum bid item "Site Clearing & Restoration". All other trees shall remain and be protected from damage during construction. Overhanging limbs shall be trimmed by the Contractor only as necessary for construction and with approval of the Engineer. Cost of tree trimming to be included in bid item "Site Clearing & Restoration".



DEPTH UNKNOWN  
Contractor to Verify Depth & Location of Existing Water Line Prior to Construction.

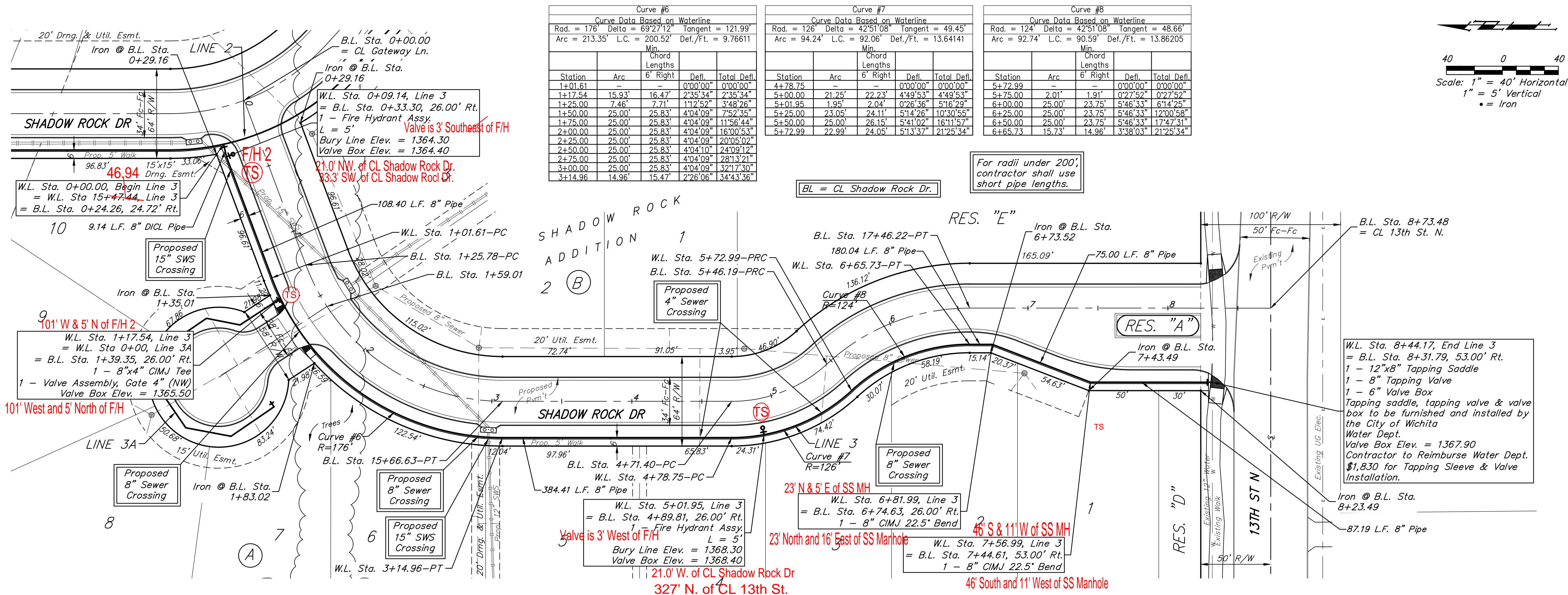


	SHADOW ROCK ADDITION	
	LINE 2 WATER DISTRIBUTION SYSTEM	
<small>Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-2771 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE</small>		
PROJECT NUMBER	DESIGN	DRAWN
REVISIONS:	NBW	TMS
	APPROVED	DATE
		01/14
	SCALE	
	Noted	
	SHEET	
		8 OF 14

**BENCHMARKS:**  
 BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE-CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)



Curve #6  
 Curve Data Based on Waterline  
 Rad. = 176' Delta = 69°27'12" Tangent = 121.99'  
 Arc = 213.35' L.C. = 200.52' Def./Ft. = 9.76611

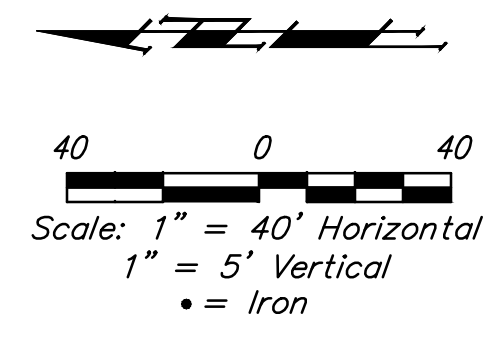
Station	Arc	6' Right	Defl.	Total Defl.
1+01.61	-	-	0'00"00"	0'00"00"
1+17.54	15.93'	16.47'	2'35"34"	2'35"34"
1+25.00	7.46'	7.71'	1'12"52"	3'48"26"
1+50.00	25.00'	25.83'	4'04"09"	7'52"35"
1+75.00	25.00'	25.83'	4'04"09"	11'56"44"
2+00.00	25.00'	25.83'	4'04"09"	16'00"53"
2+25.00	25.00'	25.83'	4'04"09"	20'05"02"
2+50.00	25.00'	25.83'	4'04"09"	24'09"12"
2+75.00	25.00'	25.83'	4'04"09"	28'13"21"
3+00.00	25.00'	25.83'	4'04"09"	32'17"30"
3+14.96	14.96'	15.47'	2'26"06"	34'43"36"

Curve #7  
 Curve Data Based on Waterline  
 Rad. = 126' Delta = 42°51'08" Tangent = 49.45'  
 Arc = 94.24' L.C. = 92.06' Def./Ft. = 13.64141

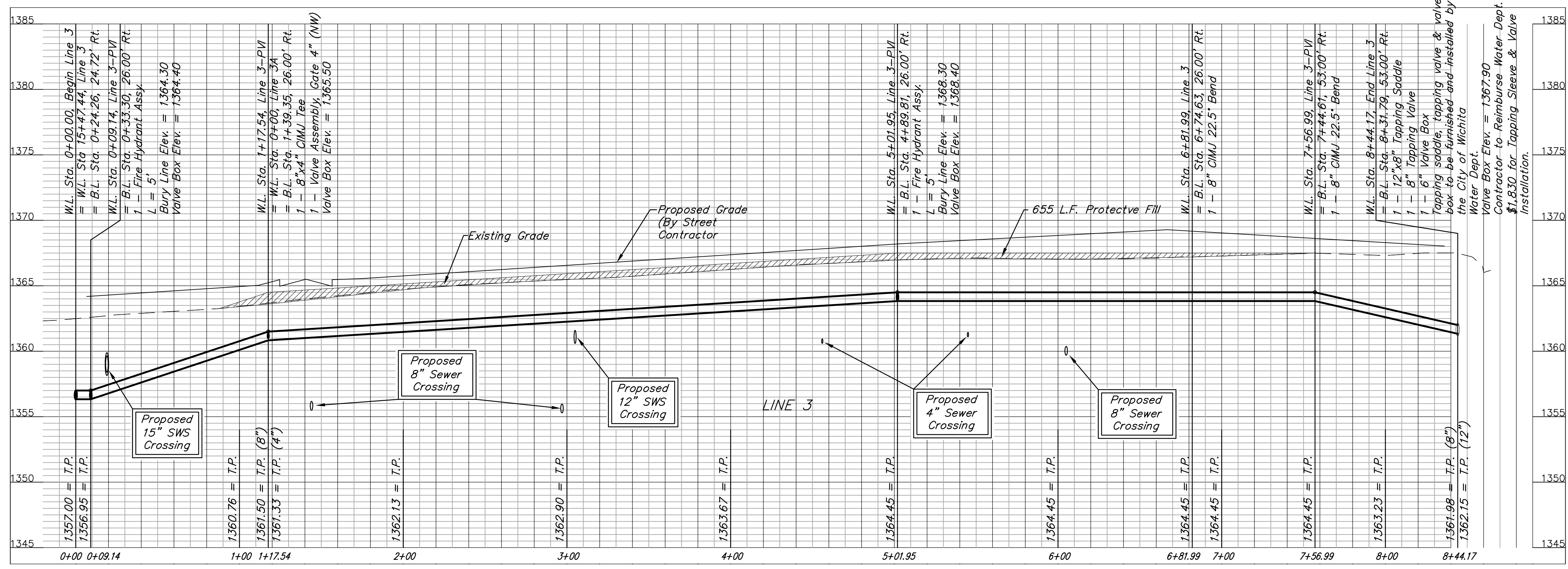
Station	Arc	6' Right	Defl.	Total Defl.
4+78.75	-	-	0'00"00"	0'00"00"
5+00.00	21.25'	22.23'	4'49"53"	4'49"53"
5+01.95	1.95'	2.04'	0'26"56"	5'16"29"
5+25.00	23.05'	24.11'	5'14"26"	10'30"55"
5+50.00	25.00'	26.15'	5'41"02"	16'11"57"
5+72.99	22.99'	24.05'	5'13"37"	21'25"34"

Curve #8  
 Curve Data Based on Waterline  
 Rad. = 124' Delta = 42°51'08" Tangent = 48.66'  
 Arc = 92.74' L.C. = 90.59' Def./Ft. = 13.86205

Station	Arc	6' Right	Defl.	Total Defl.
5+72.99	-	-	0'00"00"	0'00"00"
5+75.00	2.01'	1.91'	0'27"52"	0'27"52"
6+00.00	25.00'	23.75'	5'46"33"	6'14"25"
6+25.00	25.00'	23.75'	5'46"33"	12'00"58"
6+50.00	25.00'	23.75'	5'46"33"	17'47"31"
6+65.73	15.73'	14.96'	3'38"03"	21'25"34"

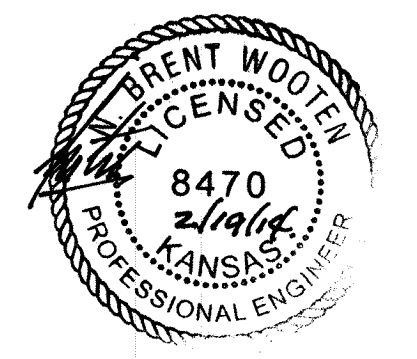


Note: Line laid 6.0' from R/W per plan.



Trees shall be removed as necessary for water line construction. To be paid for as lump sum bid item "Site Clearing & Restoration". All other trees shall remain and be protected from damage during construction. Overhanging limbs shall be trimmed by the Contractor only as necessary for construction and with approval of the Engineer. Cost of tree trimming to be included in bid item "Site Clearing & Restoration."

DEPTH UNKNOWN  
 Contractor to Verify  
 Depth & Location of  
 Existing Water Line  
 Prior to Construction.

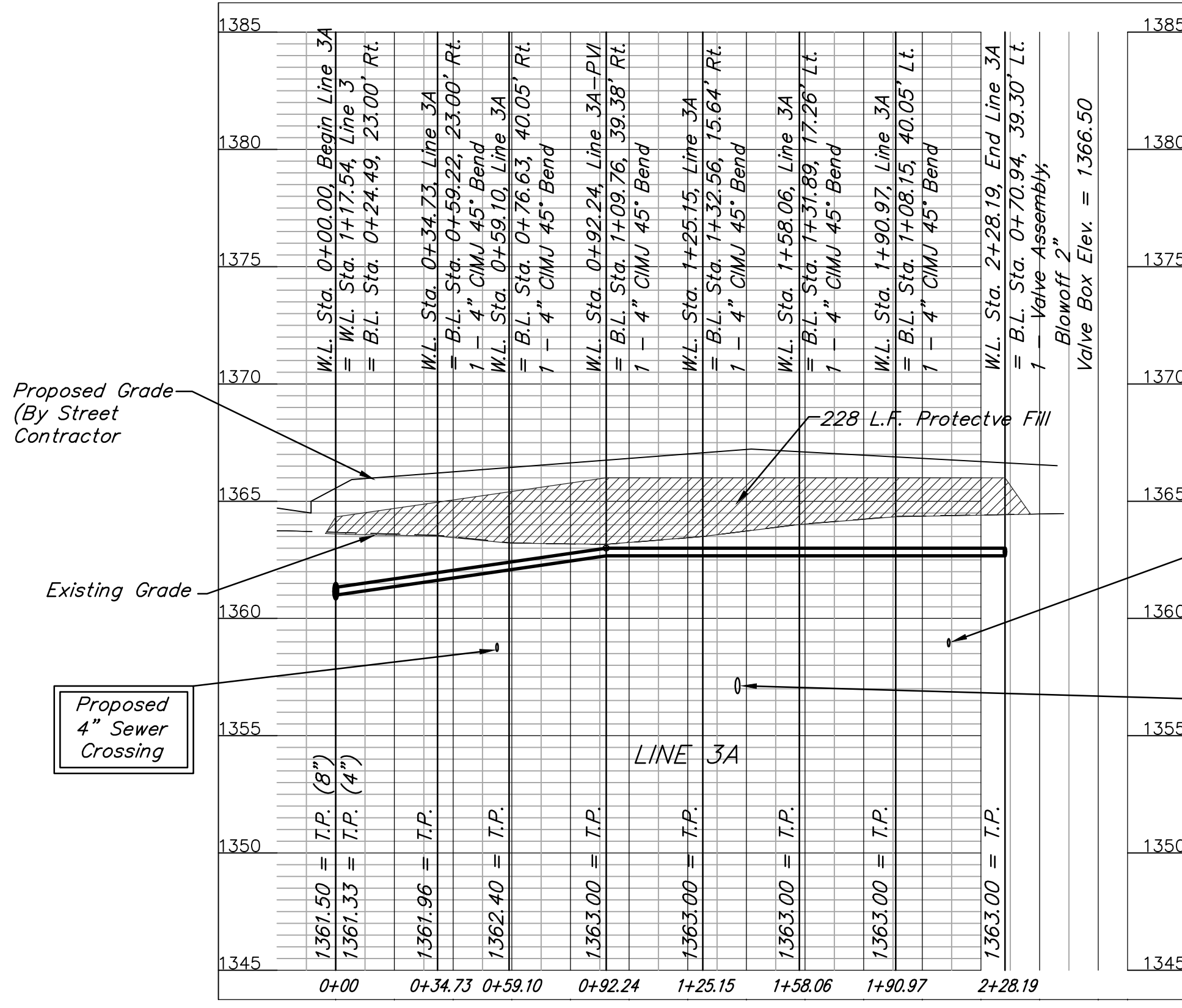
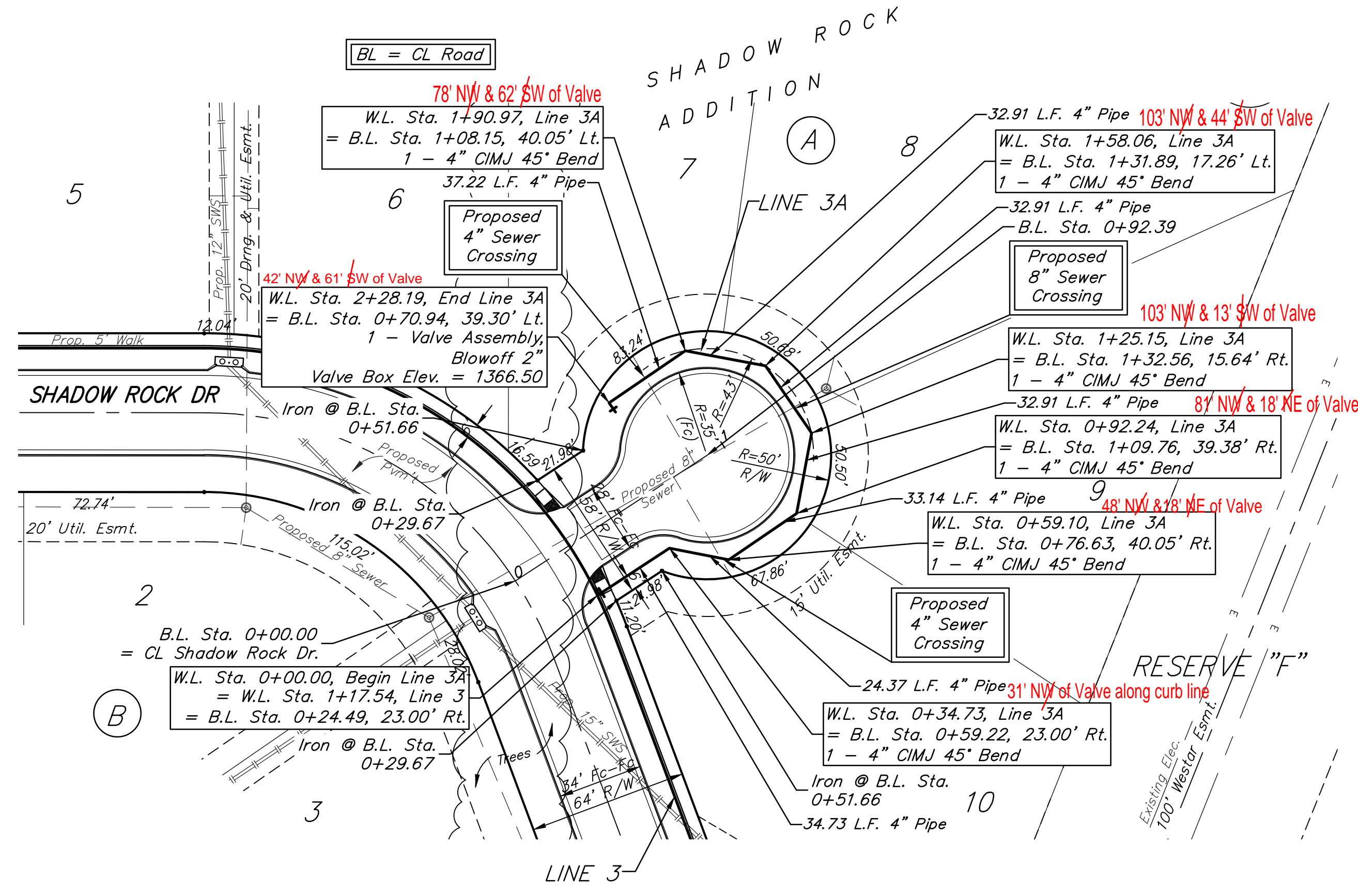
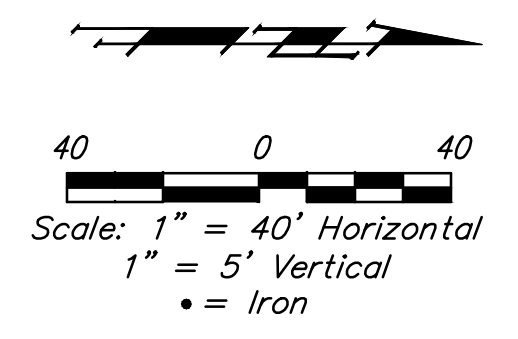


<b>Baughman</b>		SHADOW ROCK ADDITION	
LINE 3		WATER DISTRIBUTION SYSTEM	
Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-2771 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE			
PROJECT NUMBER	DESIGN	DRAWN	
	NBW	TMS	
REVISIONS:	APPROVED	DATE	
	Noted	01/14	
	SCALE		
	1" = 40'		
	1" = 5'		
	SHEET	9 OF 14	

**BENCHMARKS:**  
 BM #1: "□" TOP OF CURB, WEST END OF RETURN, NW CORNER OF LAKESIDE DRIVE & GREENLEAF CT. ELEV.=1354.93 (NAVD88)

BM #2: "□" TOP OF CURB, NORTH OF THE NE COR. OF LOT 23, BLOCK 1, SECOND PHASE—CEDAR PARK ADD. ELEV.=1356.21 (NAVD88)

BM #3: "□" TOP OF CURB, MIDDLE OF RETURN, SW CORNER OF GATEWOOD LANE & VALLEY COURT. ELEV.=1362.66 (NAVD88)



<b>B</b> Baughman	SHADOW ROCK ADDITION <b>LINE 3A</b> WATER DISTRIBUTION SYSTEM	
	Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P 316-262-2721 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE	
PROJECT NUMBER	DESIGN NBW	DRAWN TMS
REVISIONS:	APPROVED	DATE 01/14
SCALE Noted		SHEET
<b>10</b>		<b>OF 14</b>
C:\projects\Shadow Rock Addition_1310P993\WTR Plans.dwg 13-12-E991		

Maintain ditch check sediment barriers per detail, sheet 13.

Maintain 515 L.F. erosion control berm per detail, this sheet.

Maintain 50'x12' gravel construction entrance per detail, sheet 13.

Maintain 450 L.F. erosion control berm per detail, this sheet.

Maintain 1,062 L.F. silt fence per detail, sheet 13.

Maintain 765 L.F. silt fence per detail, sheet 13.

Maintain 342 L.F. silt fence per detail, sheet 13.

Maintain 50'x12' gravel construction entrance per detail, sheet 13.

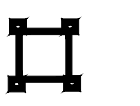



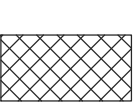
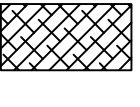
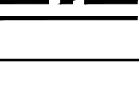

Maintain 652 L.F. silt fence per detail, sheet 13.

EROSION CONTROL MEASURE	INSTALL	MAINTAIN	REMOVE
BACK OF CURB PROTECTION (LF)	0	0	0
CONSTRUCTION ENTRANCE (EA)	0	2	0
CURB INLET BARRIER (EA)	0	0	0
DITCH CHECK (EA)	0	2	0
DROP INLET PROTECTION (EA)	0	0	0
EROSION CONTROL (LS)	0	0	0
EROSION CONTROL BERM (LF)	0	965	0
SILT FENCE (LF)	0	2,821	0
EROSION CONTROL MAT (SY)	0	0	0

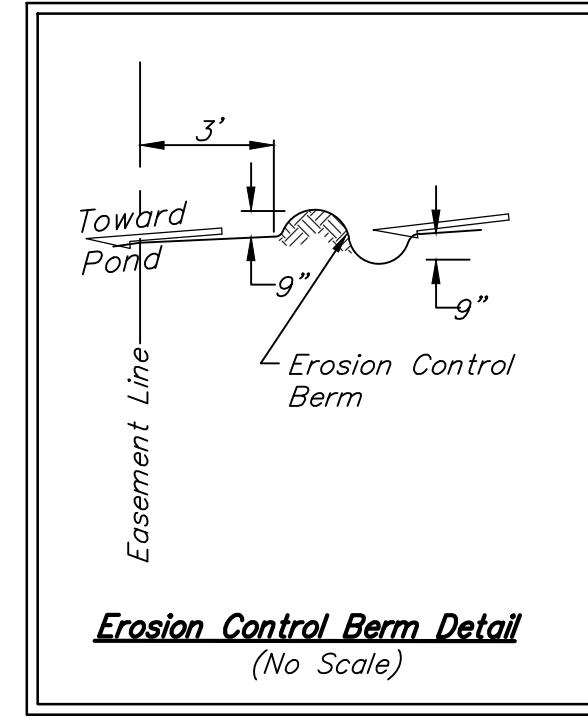
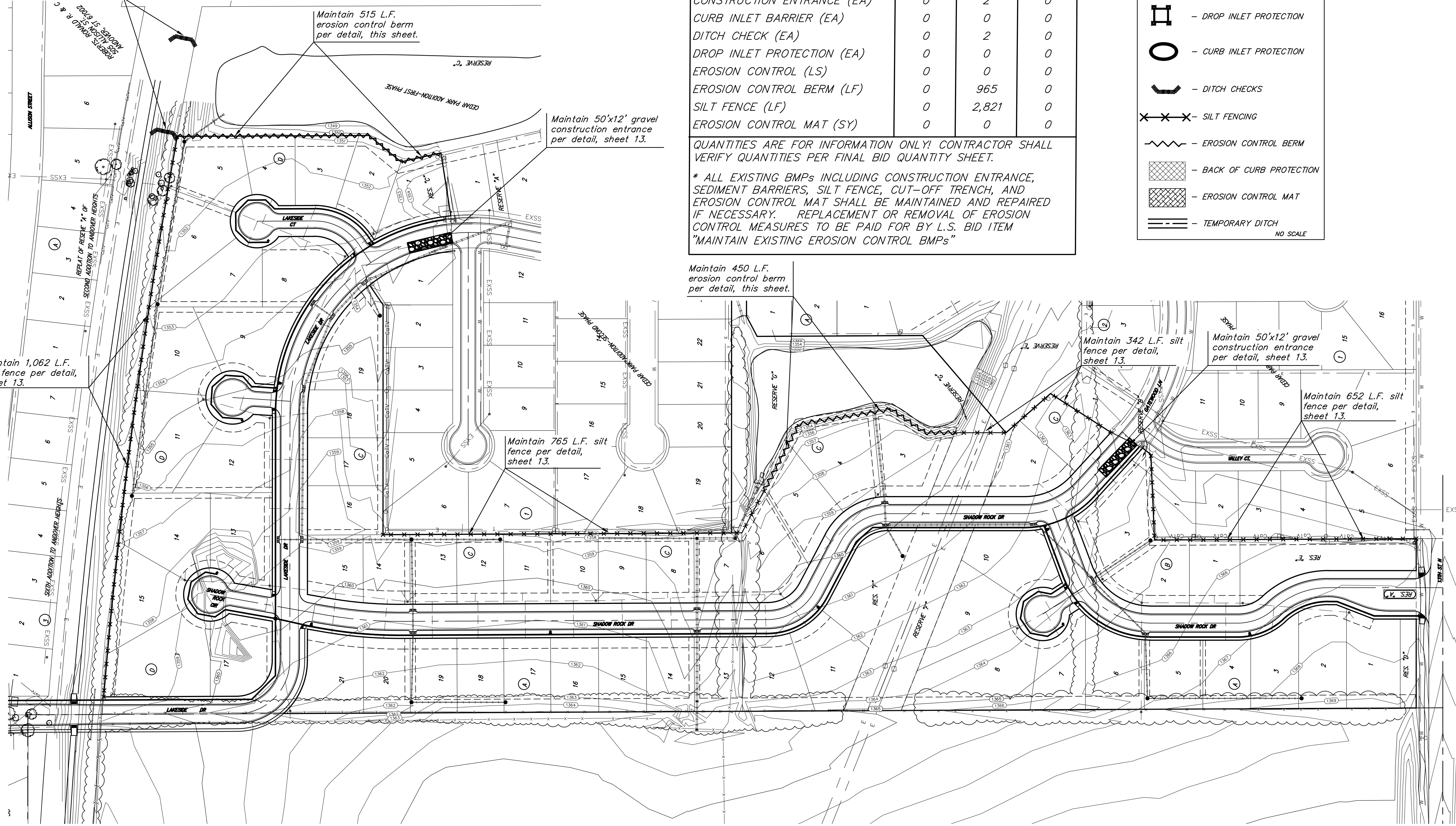
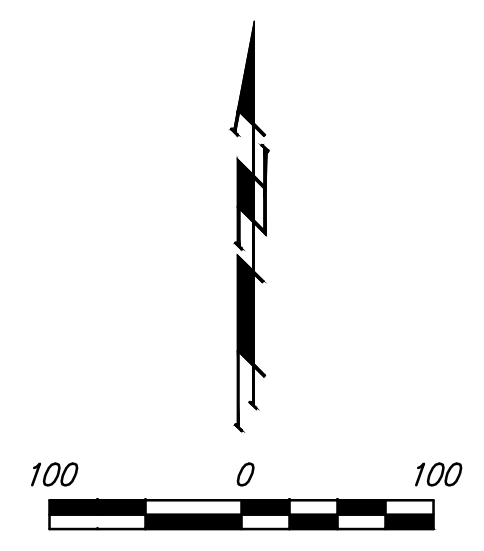
QUANTITIES ARE FOR INFORMATION ONLY! CONTRACTOR SHALL VERIFY QUANTITIES PER FINAL BID QUANTITY SHEET.


\* ALL EXISTING BMPs INCLUDING CONSTRUCTION ENTRANCE, SEDIMENT BARRIERS, SILT FENCE, CUT-OFF TRENCH, AND EROSION CONTROL MAT SHALL BE MAINTAINED AND REPAIRED IF NECESSARY. REPLACEMENT OR REMOVAL OF EROSION CONTROL MEASURES TO BE PAID FOR BY L.S. BID ITEM "MAINTAIN EXISTING EROSION CONTROL BMPs"

**EROSION CONTROL PLAN LEGEND**  
(Installation Details Found in the SWP2 Plan)

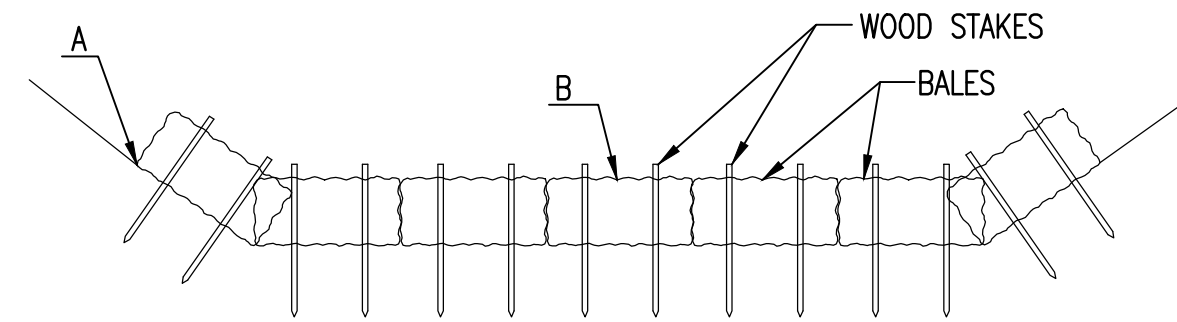
-  - DROP INLET PROTECTION
-  - CURB INLET PROTECTION
-  - DITCH CHECKS
-  - SILT FENCING
-  - EROSION CONTROL BERM
-  - BACK OF CURB PROTECTION
-  - EROSION CONTROL MAT
-  - TEMPORARY DITCH

NO SCALE



	SHADOW ROCK ADDITION	
	EROSION CONTROL PLAN WATER DISTRIBUTION SYSTEM	
Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE		
PROJECT NUMBER	DESIGN	DRAWN
	NBW	TMS
REVISIONS:	APPROVED	DATE
		01/14
	SCALE	
	Noted	
	SHEET	
	<b>11 OF 14</b>	
WTR Plans.dwg		13-12-E991

NOTE: POINT A MUST BE HIGHER THAN POINT B SO THAT WATER FLOWS OVER THE BALES AND NOT AROUND THEM.



### STRAW BALE DITCH CHECKS

#### MATERIAL SPECIFICATION:

BALE DITCH CHECKS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE. THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. OPTIONAL: THE DOWNSTREAM SCOUR APRON SHOULD BE CONSTRUCTED OF A DOUBLE-NETTED STRAW EROSION-CONTROL BLANKET AT LEAST 6' WIDE. OPTIONAL: THE METAL LANDSCAPE STAPLES USED TO ANCHOR THE EROSION-CONTROL BLANKET SHOULD BE AT LEAST 8" LONG.

#### PLACEMENT:

BALE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH. THE DITCH CHECK SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK.

STRAW BALE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD.

BALES SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6% OR LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.

THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH GRADE (%)	CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

#### PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK. PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH-IT WILL BE USED LATER.

OPTIONAL: ON THE DOWNSTREAM SIDE OF THE TRENCH, ROLL OUT A LENGTH OF EROSION-CONTROL BLANKET (SCOUR APRON) EQUAL TO THE LENGTH OF THE TRENCH. PLACE THE UPSTREAM EDGE OF THE EROSION-CONTROL BLANKET ALONG THE BOTTOM UPSTREAM EDGE OF THE TRENCH. THE EROSION CONTROL BLANKET SHOULD BE ANCHORED IN THE TRENCH WITH ONE ROW OF 8" LANDSCAPE STAPLES PLACED ON 18" CENTERS. THE REMAINDER OF THE EROSION-CONTROL BLANKET (THE PORTION THAT IS NOT LYING IN THE TRENCH) WILL SERVE AS THE DOWNSTREAM SCOUR APRON. THIS SECTION OF THE BLANKET SHOULD BE ANCHORED TO THE GROUND WITH 8" LANDSCAPE STAPLES PLACED AROUND THE PERIMETER OF THE BLANKET ON 18" CENTERS. THE REMAINDER OF THE BLANKET SHOULD BE ANCHORED USING TWO EVENLY SPACED ROWS OF 8" LANDSCAPE STAPLES ON 18" CENTERS PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.

PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.

ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSTREAM SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP AND EXTEND UPSTREAM NO MORE THAN 24".

#### LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

DO NOT PLACE A BALE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW.

DO NOT PLACE BALE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW.

FOLLOW PRESCRIBED DITCH-CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS.

DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE.

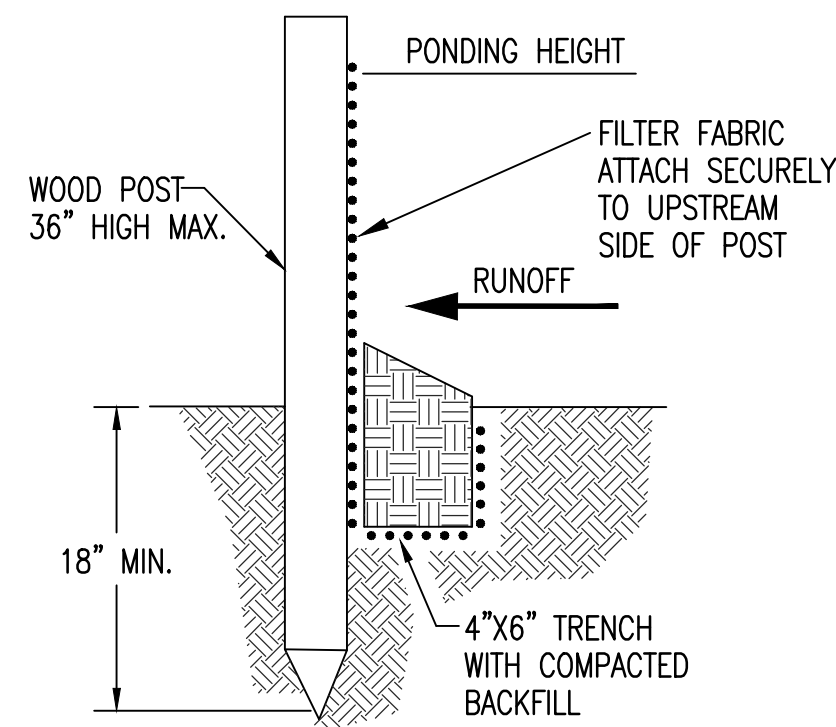
DO NOT PLACE BALE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.

BALE DITCH CHECKS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE CHECK.

#### INSPECTION AND MAINTENANCE:

BALE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- DOES WATER FLOW AROUND THE DITCH CHECK?
- DOES WATER FLOW UNDER THE DITCH CHECK?
- DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
- ARE ANY BALES AND/OR SCOUR APRONS (OPTIONAL) DISLODGED?
- ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



### SILT FENCE BARRIERS

#### MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

#### PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT.

WHEN PRACTICABLE, SILT FENCE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW.

SILT FENCE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

#### PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 6" DEEP BY 4" WIDE. MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE.

ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSLOPE SIDE OF THE TRENCH. PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE EDGE. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT-FENCE FABRIC SHOULD REMAIN EXPOSED.

LAY THE EXPOSED SILT FENCE UPSLOPE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSLOPE OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 18". PLACE POSTS NO MORE THAN 4' APART.

ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

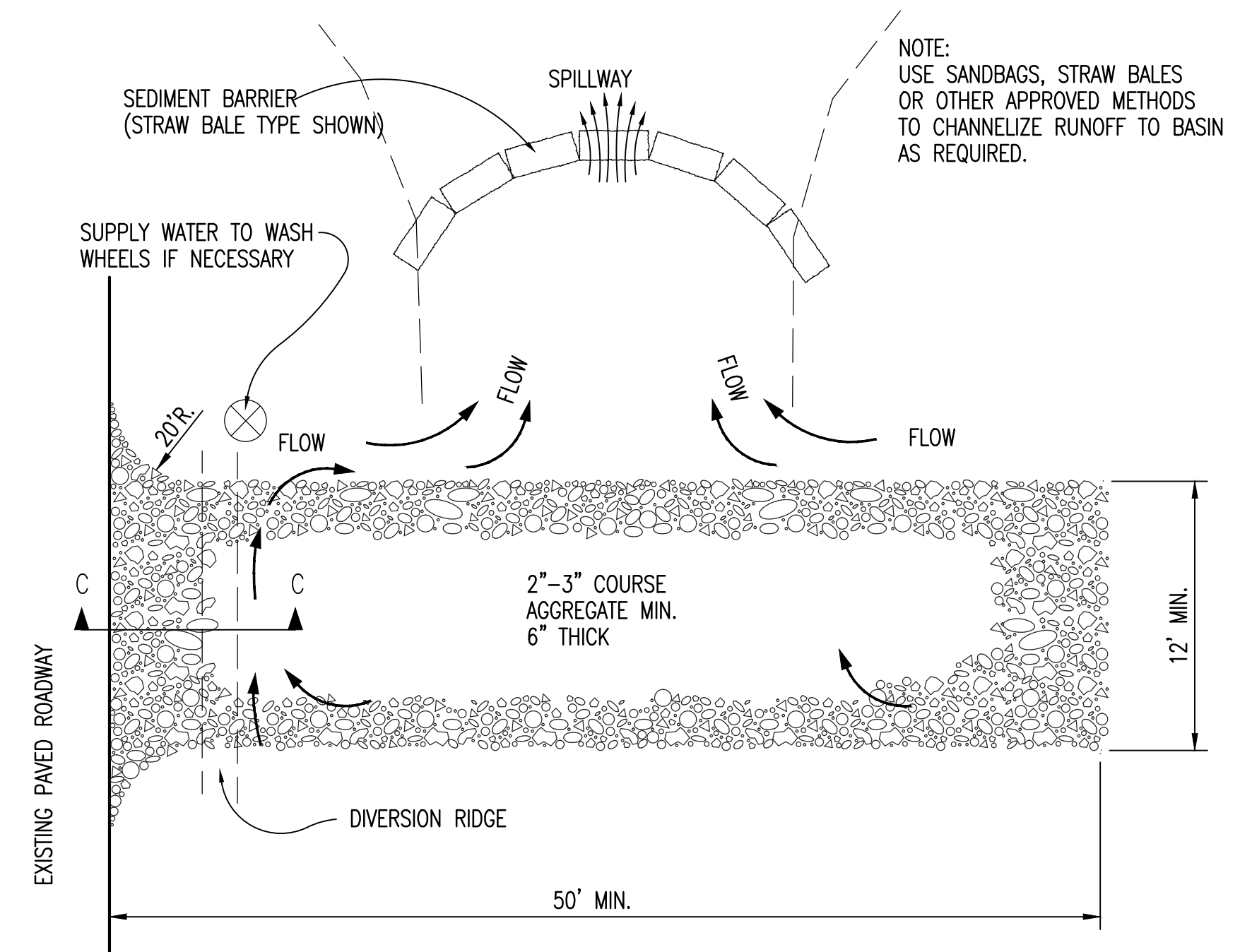
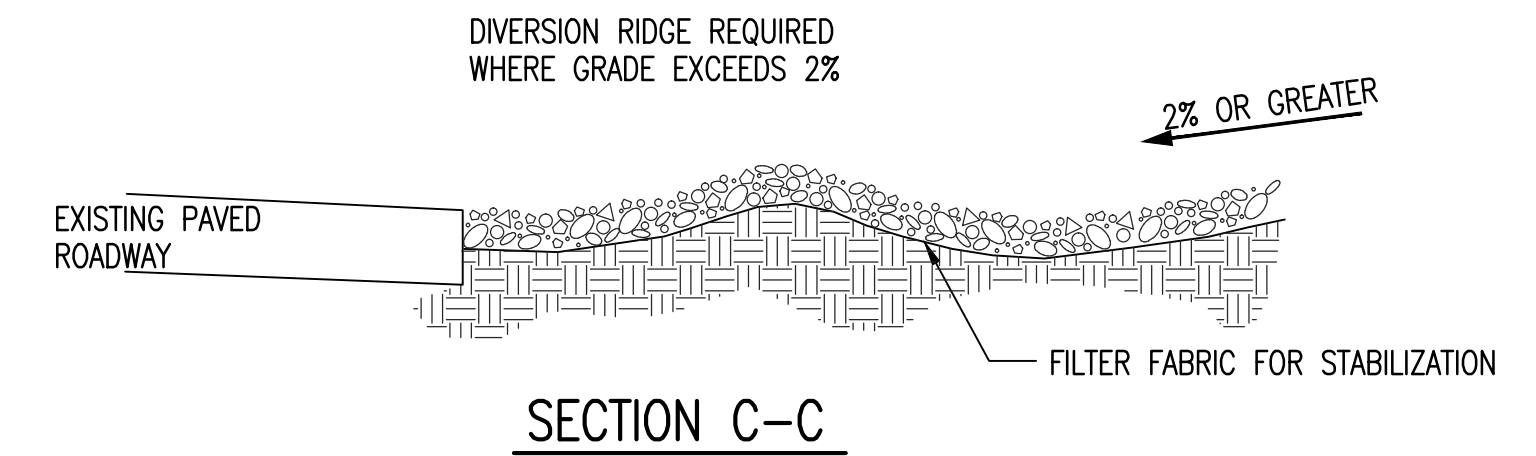
#### LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICABLE, DO NOT PLACE SILT FENCE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. WHEN THE FLOW CONCENTRATES, IT OVERTOPS THE BARRIER AND THE SILT FENCE SLOPE BARRIER QUICKLY DETERIORATES. DO NOT PLACE SILT-FENCE POSTS ON THE UPSLOPE SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT PLACE SILT FENCE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT SUFFICIENTLY ANCHORED, IT WILL WASH OUT. SILT FENCE SLOPE BARRIERS MUST BE DUG INTO THE GROUND-SILT FENCE AT GROUND LEVEL DOES NOT WORK BECAUSE WATER WILL FLOW UNDERNEATH.

#### INSPECTION AND MAINTENANCE:

SILT FENCE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

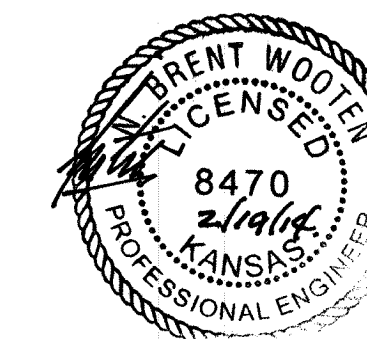
- ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
- DOES WATER FLOW UNDER THE SLOPE BARRIER?
- DO THE SILT FENCES SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?



### STABILIZED CONSTRUCTION ENTRANCE

#### GENERAL NOTES

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.



	SHADOW ROCK ADDITION	
	EROSION CONTROL DETAILS	
WATER DISTRIBUTION SYSTEM		
<small>Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P 316-262-7271 F 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE</small>		
PROJECT NUMBER	DESIGN	DRAWN
	NBW	TMS
REVISIONS:	APPROVED	DATE
	Noted	01/14
	SCALE	
	Noted	
	SHEET	
		<b>12 OF 14</b>
<small>C:\A\projects\Shadow Rock Addition_1310P993\WTR Details.dwg 13-12-E991</small>		

WATER DISTRIBUTION SYSTEM

Point #	Northing	Easting	Raw Description
6000	11862.31	23441.25	0+00
6001	11995.89	23395.58	1+42.05
6002	12175.07	23135.00	4+69.00
6003	12176.51	23125.07	4+79.04
6004	12179.77	22692.43	9+11.81
6005	12179.82	22585.35	10+18.90
6006	12224.31	22540.66	10+81.96
6007	12730.67	22538.15	15+88.32
6008	12181.58	23461.88	2+10.62
6009	12198.42	23478.64	2+34.37
6010	12231.56	23478.24	2+67.52
6011	12254.55	23454.68	3+00.43
6012	12254.15	23421.78	3+33.34
6013	12230.60	23398.79	0+73.01
6014	12193.38	23399.24	4+03.47
6015	12224.80	23128.30	0+48.39
6016	12240.81	23147.00	0+73.01

Point #	Northing	Easting	Raw Description
6017	12273.88	23149.23	1+06.15
6018	12298.66	23127.58	1+39.06
6019	12300.87	23094.74	1+71.97
6020	12279.22	23069.96	2+04.88
6021	12242.09	23067.45	2+42.10
6022	12273.81	22709.06	0+95.49
6023	12293.32	22695.41	1+19.31
6024	12325.89	22701.50	1+52.45
6025	12344.49	22728.66	2+10.62
6026	12338.44	22761.01	2+18.27
6027	12311.29	22779.60	2+51.18
6028	12290.05	22775.63	2+72.78
6029	12112.87	22677.56	0+68.54
6030	11662.96	22662.44	5+19.53
6031	11088.33	22836.47	11+82.69
6032	11057.34	22863.50	12+23.80
6033	10734.01	22867.64	15+47.44

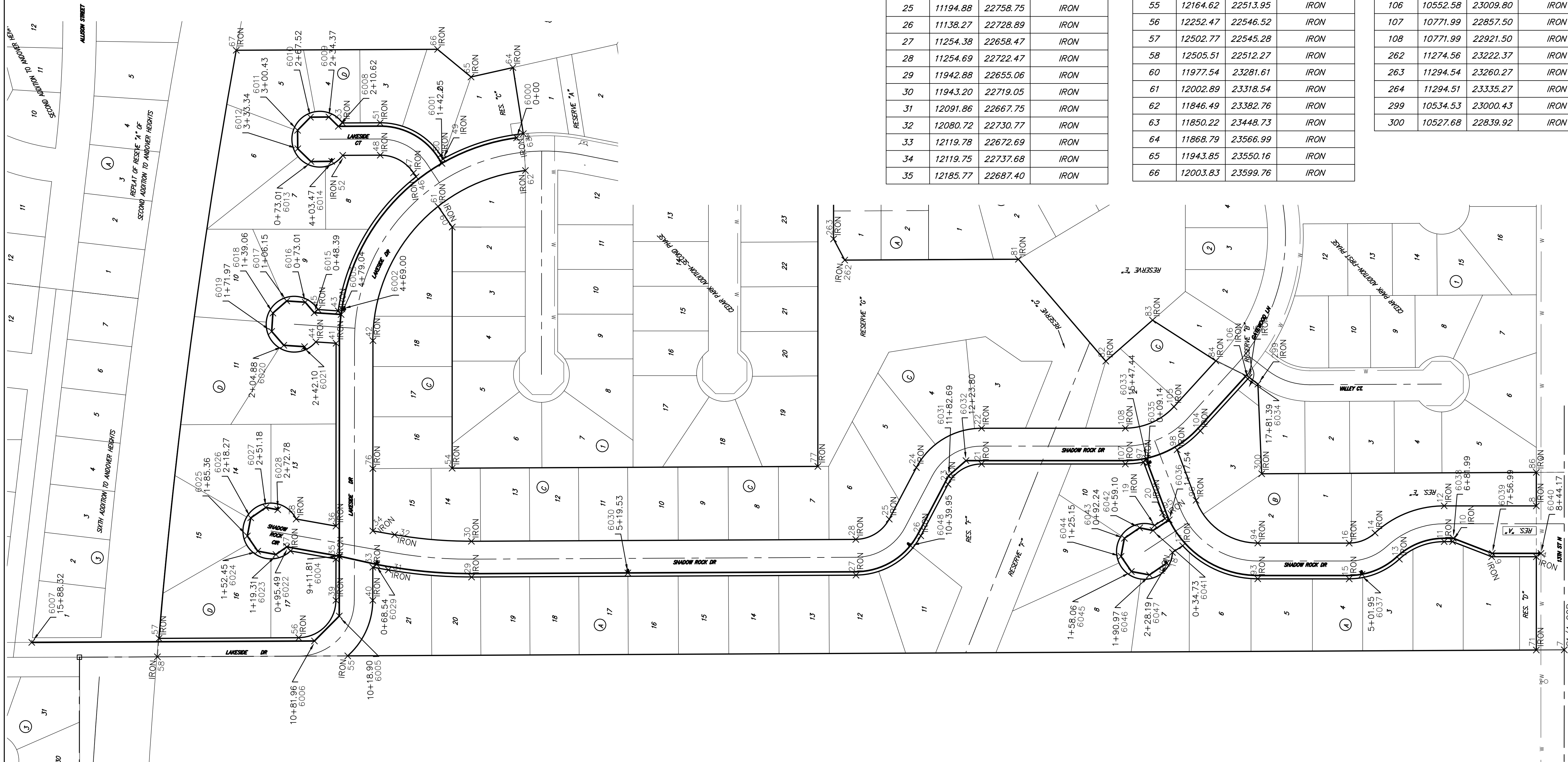
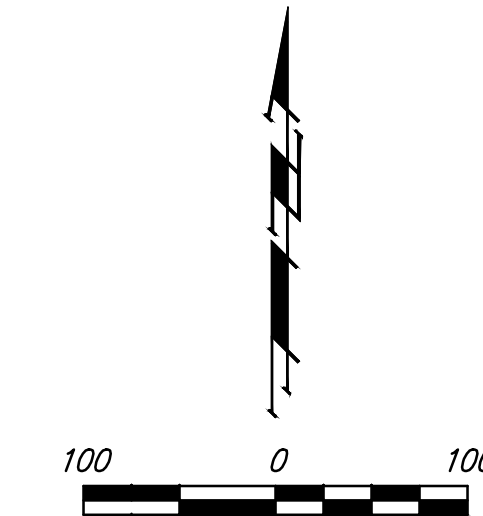
Point #	Northing	Easting	Raw Description
6034	10557.01	23013.85	17+81.39
6035	10732.04	22858.72	0+09.14
6036	10693.34	22757.48	1+17.54
6037	10347.95	22659.95	5+01.95
6038	10184.73	22724.51	6+81.99
6039	10114.76	22697.50	7+56.99
6040	10027.57	22697.48	8+44.17
6041	10722.39	22738.45	0+34.73
6042	10746.30	22743.17	0+59.10
6043	10773.65	22724.45	0+92.24
6044	10779.71	22692.10	1+25.15
6045	10761.12	22664.94	1+58.06
6046	10728.77	22658.89	1+90.97
6047	10698.06	22679.91	2+28.19
6048	11156.90	22711.43	10+39.95

IRONS

Point #	Northing	Easting	Raw Description
4	10035.88	22691.48	IRON
7	9985.88	22524.75	S1/4 COR
8	10035.88	22782.48	IRON
9	10115.88	22691.50	IRON
10	10185.85	22718.51	IRON
11	10200.98	22718.52	IRON
12	10200.97	22782.52	IRON
13	10281.24	22687.04	IRON
14	10324.76	22733.97	IRON
15	10371.03	22651.83	IRON
16	10371.01	22715.83	IRON
17	10669.18	22711.14	IRON
18	10687.57	22699.09	IRON
19	10719.36	22747.61	IRON
20	10700.97	22759.65	IRON
21	11029.44	22857.50	IRON
22	11029.44	22921.50	IRON
23	11089.59	22821.21	IRON
24	11146.20	22851.07	IRON
25	11194.88	22758.75	IRON
26	11138.27	22728.89	IRON
27	11254.38	22658.47	IRON
28	11254.69	22722.47	IRON
29	11942.88	22655.06	IRON
30	11943.20	22719.05	IRON
31	12091.86	22667.75	IRON
32	12080.72	22730.77	IRON
33	12119.78	22672.69	IRON
34	12119.75	22737.68	IRON
35	12185.77	22687.40	IRON

Point #	Northing	Easting	Raw Description
36	12185.74	22746.30	IRON
37	12267.21	22701.80	IRON
38	12257.11	22758.91	IRON
39	12185.81	22613.49	IRON
40	12119.81	22613.46	IRON
41	12185.59	23073.56	IRON
42	12119.59	23078.23	IRON
43	12181.69	23131.43	IRON
44	12221.79	23075.99	IRON
45	12217.92	23133.86	IRON
46	12042.31	23371.50	IRON
47	12046.95	23378.49	IRON
48	12106.47	23410.25	IRON
49	11993.98	23403.56	IRON
50	11998.62	23410.55	IRON
51	12106.76	23468.25	IRON
52	12173.63	23409.91	IRON
53	12173.92	23467.91	IRON
54	11977.74	22849.87	IRON
55	12164.62	22513.95	IRON
56	12252.47	22546.52	IRON
57	12502.77	22545.28	IRON
58	12505.51	22512.27	IRON
60	11977.54	23281.61	IRON
61	12002.89	23318.54	IRON
62	11846.49	23382.76	IRON
63	11850.22	23448.73	IRON
64	11868.79	23566.99	IRON
65	11943.85	23550.16	IRON
66	12003.83	23599.76	IRON

Point #	Northing	Easting	Raw Description
67	12364.39	23597.97	IRON
71	10035.88	22524.50	IRON
76	12119.69	22849.17	IRON
77	11322.73	22853.12	IRON
78	11322.51	23335.13	IRON
81	10963.56	23223.91	IRON
82	10806.96	23041.50	IRON
83	10723.26	23114.92	IRON
84	10609.79	23042.06	IRON
85	10550.13	23012.51	IRON
86	10035.88	22842.48	IRON
93	10534.82	22651.86	IRON
94	10534.81	22715.86	IRON
95	10705.22	22770.02	IRON
96	10645.29	22792.47	IRON
97	10739.11	22860.49	IRON
98	10679.18	22882.94	IRON
104	10637.64	22916.72	IRON
105	10684.88	22959.89	IRON
106	10552.58	23009.80	IRON
107	10771.99	22857.50	IRON
108	10771.99	22921.50	IRON
262	11274.56	23222.37	IRON
263	11294.54	23260.27	IRON
264	11294.51	23335.27	IRON
299	10534.53	23000.43	IRON
300	10527.68	22839.92	IRON



	SHADOW ROCK ADDITION	
	COORDINATE SHEET	
WATER DISTRIBUTION SYSTEM		
Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P 316.262.2771 F 316.262.0149		
ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE		
PROJECT NUMBER	DESIGN	DRAWN
	NEW	TMS
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	Noted	
	SHEET	
13 OF 14		
WTR Plans.dwg		13-12-E991

