

## Contract Change Order # 4

Project Name: <u>LLWWTP Headwords Improvements</u>	Project Number: <u>165420/165423</u>
Project Location: <u>Lynn Lane Waste Water Treatment Plant</u>	Date of Application: <u>Tuesday, March 12, 2019</u>
Contractor: <u>Crossland Heavy Contractors</u>	Submitted By: <u>Jason Smith</u>

### Summary of Change in Scope of Work

The following scope of work consisting of work location, work description, established quantities, and timeline for completion has been reviewed and agreed upon by the contractor, the origin funding department, and the Engineering and Construction Department.

**Change of Work Items Included in this Change Order:**

- Per request of Utilities and Engineering staff, the contractor is to install an upgraded 8" waterline from the plant to Natchez street along 9th street. This waterline installation includes a new backflow preventer assembly and all incidentals such to provide a complete in place 1) product. The contractor is to follow the provided engineered plans titled, "9th Street - LLWWTP to Jasper 8" Waterline Improvements Project"; note the waterline from Natchez to Jasper will be installed by COBA under a separate contract. The below costs proposal is an all inclusive lump sum price to provide a complete in place product for the above noted scope.

**Change in Contractual Project Time:**

- 1) This work will not effect the critical path or substantial completion of the original project and thus no additional time is required.

Plan Sheets or Additional Documents Attached: ☒ Yes ☐ No ☒ Other: Project Plans, CHC Cost Proposal, To Date Costs

### Work Order Quantities

Item#	(Spec)	Item Description	Units	Price	Quantity	Total Amount
CO3-1	NA	Proposal #2 - LLWWTP to Natchez	LS	\$ 406,100.00	1	\$ 406,100.00
Total Change Cost:						\$ 406,100.00

### Summary of Project Costs

Total Previous Change Orders:	\$ 332,717.03	Original Contract Amount:	\$ 9,772,200.00
Current Change Order:	\$ 406,100.00	Amended Contract Amount:	\$ 10,511,017.03
Total Cost of Change Orders:	\$ 738,817.03	Percent Change in Contract:	7.56%
Total Cost Applicable to CBA:	\$ 738,817.03	Percent Change Applicable to CBA:	7.56%

### Change Order Authorization

Change Order # <u>4</u>	in the sum of: \$ <u>406,100.00</u>	has been reviewed by all parties and is recommended for approval by:
Contractor Submitting Change Order:		
Name	Signature	Date
Construction Division Manager: <u>Timothy S Robins, PE</u>		
Name	Signature	Date
Director of Engineering & Construction: <u>Alex Mills, PE</u>		
Name	Signature	Date
Assistant City Manager - Operations: <u>Kenneth D Schwab, PE</u>		
Name	Signature	Date
City Manager: <u>Michael Spurgeon</u>		
Name	Signature	Date

**This Change is Executed Through:**

- ☐ This change to the contract documents is authorized by the City Manager's authority in accordance with the applicable state statutes and COBA Code of Ordinances.  
or  
☒ This change to the contract documents was approved at the City Council/BAMA meeting held on : Tuesday, March 19, 2019

## Summary of FAP Loan Expenditures

Total Loan amount: \$11,200,000.00

Construction Contract award: \$9,772,200.00

Change Order #1: \$109,954.37

Change Order #2: \$90,750.00

Change Order #3: \$132,012.66

Amended Construction Contract: \$10,104,917.03

Construction Assistance: \$375,928.00

Total Project Costs To-Date: \$10,480,845.03

Loan value remaining: \$719,154.97

Value remaining of Construction Contract Changes per CBA: 6.6% or \$644,502.97

### Waterline Proposed Costs:

Proposal #1 – Installation of Entire Project Plans – Jasper Waterline from LLWWTP to 131<sup>st</sup>

- Cost: \$556,200.00
  - Revised Project Cost - \$10,661,117.03
  - % change to CBA: 9.1%
  - Remaining Change Order Value: \$88,302.97
  - Loan Value Remaining: \$162,954.97

~~Proposal #2 – Installation of 8" waterline from LLWWTP to Natchez, Includes BFP~~

- ~~○ Cost: \$406,100.00
  - Revised Project Cost - \$10,511,017.03
  - % Change to CBA: 7.56%
  - Remaining Change Order Value: \$238,402.97
  - Loan Value Remaining: \$313,054.97~~

### Additional Known Costs:

- ONG Gas Line installation
  - Cost: \$48,370.00

# **CROSSLAND**

## **HEAVY CONTRACTORS**

14149 E. Admiral Pl.  
Tulsa, OK 74116  
918-438-2800  
Jason Smith

To: Crossland Construction Company, Inc.  
Attn: Tim Robins  
Project: **Lynn Lane Headworks Improvements  
Waterline Proposal  
February 21, 2019**

### **8" Waterline, Backflow Preventer, and Enclosure**

Crossland Heavy Contractors, Inc. is to provide labor, materials, & equipment to complete the following scope of work:

#### **Option 1: 8" Waterline from Lynn Lane WWTP to Jasper St.**

**Total: \$556,200.00**

#### **Option 2: 8" Waterline from Lynn Lane WWTP to Natchez St.**

**Total: \$406,100.00**

#### **CONTINGENCIES**

- Rock Excavation: \$195/CY
- If Waterline Bore encounters rock add \$9,030.00.
- If existing bore is not capped and full of silt, CHC will provide additional cost for cleanout.
- Sod – 6' on each side of center line of pipe – No more than 12' wide.

#### **NOTES:**

CHC shall complete the work in accordance with the following plans: 9<sup>th</sup> Street-LLWWTP to Jasper Number 165420.

#### **INCLUSIONS:**

- 8" waterline, backflow preventer and enclosure
- Backfill to be in accordance with specifications of the Lynn Lane Headworks Improvements project
- Construction Staking w/ GC supplied survey data.
- This Quotation is valid for 30 days.

#### **EXCLUSIONS:**

- Landscape/Irrigation Repairs regardless of whether CHC damages in order to complete scope
- Dirt Work other than dressing up disturbed areas
- Gas Line
- Material Testing other than Pressure testing of Utility Lines.

**EXCLUSIONS (CONTINUED)**

- Demolition of any kind
- Erosion Control
- Paving (other than areas required to complete scope)
- Traffic Control Devices and Striping
- Relocation of unmarked Utilities
- Rock Excavation (Price per cubic yard provided if required)
- Any and All Storm Sewer
- Any item not specifically stated in the description of work above.
- Sidewalk Replacement
- Fence Replacement (other than fence associated with item 32)

Please call with any questions or comments, 918-438-2800.

Regards,

A handwritten signature in black ink, appearing to read 'J. C. Smith', written in a cursive style.

Jason C. Smith  
Crossland Heavy Contractors, Inc.

Row Description	Pay Quantity	Unit of Measure	Unit Price	Total Price
1 RIGHT-OF-WAY CLARING AND RESTORING	1.00	LS	\$99,703.40	\$99,703.40
2 PAVEMENT CUT AND REPAIR (ASPHALT)	176.00	LF	\$47.00	\$8,272.00
3 PAVEMENT CUT AND REPAIR (CONCRETE)	27.00	LF	\$68.00	\$1,836.00
4 6" AWWA C-900, DR14 (**ADDED EX/BF)	8.00	LF	\$98.00	\$784.00
5 8" AWWA C-900, DR14 (**ADDED EX/BF)	4,296.00	LF	\$53.85	\$231,339.60
6 8" DUCTILE IRON PIPE INSTALLATION FJ, 2 ENDS-MJ	21.00	LF	\$200.00	\$4,200.00
7 8" 22.50 DEG. BEND, MJ	2.00	EA	\$350.00	\$700.00
8 8" 45.00 DEG. BEND, MJ	16.00	EA	\$350.00	\$5,600.00
9 8" 90.00 DEG. BEND, MJ	2.00	EA	\$375.00	\$750.00
10 8" 90.00 DEG. BEND, FJ	4.00	EA	\$500.00	\$2,000.00
11 8" X 8" X 4" TEE, MJ	1.00	EA	\$750.00	\$750.00
12 8" X 8" X 6" TEE, MJ	4.00	EA	\$785.00	\$3,140.00
13 8" X 8" X 8" TEE, FJ	2.00	EA	\$1,000.00	\$2,000.00
14 4" X 4" TAPPING SLEEVE	1.00	EA	\$1,600.00	\$1,600.00
15 12" X 8" TAPPING SLEEVE	1.00	EA	\$2,500.00	\$2,500.00
16 8" X 4" REDUCER	1.00	EA	\$325.00	\$325.00
17 8" REDUCED PRESSURE ZONE ASSEMBLY	1.00	EA	\$14,500.00	\$14,500.00
18 8" WATER METER AND STRAINER ASSEMBLY	1.00	EA	\$35,000.00	\$35,000.00
19 TIE INTO EXISTING WATER LINES	2.00	EA	\$1,800.00	\$3,600.00
20 SERVICE LINE 3/4 INCH W/ BALL VALVE CURB STOP	2.00	EA	\$1,500.00	\$3,000.00
21 SERVICE LINE 1 INCH W/ BALL VALVE CURB STOP	1.00	EA	\$1,800.00	\$1,800.00
22 4" GATE VALVE, MJ	2.00	EA	\$800.00	\$1,600.00
23 6" GATE VALVE, MJ	2.00	EA	\$915.00	\$1,830.00
24 8" GATE VALVE, MJ	4.00	EA	\$1,300.00	\$5,200.00
25 8" GATE VALVE, FJ	3.00	EA	\$1,650.00	\$4,950.00
26 AIR RELIEF VALVE	3.00	EA	\$2,800.00	\$8,400.00
27 3-WAY FIRE HYDRANT ASSEMBLY	8.00	EA	\$4,100.00	\$32,800.00
28 BLOW OFF VALVE	2.00	EA	\$2,500.00	\$5,000.00
29 64"W X 212"L X 60"H MANUF BFP ASSEMBLY ENCLOSURE	1.00	LS	\$26,000.00	\$26,000.00
30 AGGREGATE BASE TYPE A	4.00	CY	\$105.00	\$420.00
31 CLASS AA CONCRETE (CONCRETE PAD FOR VAULT)	4.00	CY	\$1,150.00	\$4,600.00
32 REM & RESET FENCE (Incl Security Fencing - Pay Note 6)	1.00	LS	\$23,000.00	\$23,000.00
33 MOBILIZATION	1.00	LS	\$16,000.00	\$16,000.00
34 CONSTRUCTION STAKING LEVEL II	1.00	LS	\$3,000.00	\$3,000.00
				<b>\$556,200.00</b>

Row #	Description	Pay Quantity	Unit of Measure	Unit Price	Total Price
1	RIGHT-OF-WAY CLARING AND RESTORING	1.00	LS	\$80,499.85	\$80,499.85
2	PAVEMENT CUT AND REPAIR (ASPHALT)	176.00	LF	\$47.00	\$8,272.00
3	PAVEMENT CUT AND REPAIR (CONCRETE)	0.00	LF	\$0.00	\$0.00
4	6" AWWA C-900, DR14 (**ADDED EX/BF)	8.00	LF	\$98.00	\$784.00
5	8" AWWA C-900, DR14 (**ADDED EX/BF)	2,779.00	LF	\$53.85	\$149,649.15
6	8" DUCTILE IRON PIPE INSTALLATION FJ, 2 ENDS-MJ	21.00	LF	\$200.00	\$4,200.00
7	8" 22.50 DEG. BEND, MJ	2.00	EA	\$0.00	\$0.00
8	8" 45.00 DEG. BEND, MJ	9.00	EA	\$350.00	\$3,150.00
9	8" 90.00 DEG. BEND, MJ	4.00	EA	\$375.00	\$1,500.00
10	8" 90.00 DEG. BEND, FJ	4.00	EA	\$500.00	\$2,000.00
11	8" X 8" X 4" TEE, MJ	1.00	EA	\$750.00	\$750.00
12	8" X 8" X 6" TEE, MJ	2.00	EA	\$785.00	\$1,570.00
13	8" X 8" X 8" TEE, FJ	2.00	EA	\$1,000.00	\$2,000.00
14	4" X 4" TAPPING SLEEVE	1.00	EA	\$1,600.00	\$1,600.00
15	12" X 8" TAPPING SLEEVE	0.00	EA	\$0.00	\$0.00
16	8" X 4" REDUCER	1.00	EA	\$325.00	\$325.00
17	8" REDUCED PRESSURE ZONE ASSEMBLY	1.00	EA	\$14,500.00	\$14,500.00
18	8" WATER METER AND STRAINER ASSEMBLY	1.00	EA	\$35,000.00	\$35,000.00
19	TIE INTO EXISTING WATER LINES	2.00	EA	\$1,800.00	\$3,600.00
20	SERVICE LINE 3/4 INCH W/ BALL VALVE CURB STOP	2.00	EA	\$1,500.00	\$3,000.00
21	SERVICE LINE 1 INCH W/ BALL VALVE CURB STOP	1.00	EA	\$1,800.00	\$1,800.00
22	4" GATE VALVE, MJ	2.00	EA	\$800.00	\$1,600.00
23	6" GATE VALVE, MJ	2.00	EA	\$915.00	\$1,830.00
24	8" GATE VALVE, MJ	3.00	EA	\$1,300.00	\$3,900.00
25	8" GATE VALVE, FJ	3.00	EA	\$1,650.00	\$4,950.00
26	AIR RELIEF VALVE	2.00	EA	\$2,800.00	\$5,600.00
27	3-WAY FIRE HYDRANT ASSEMBLY	5.00	EA	\$4,100.00	\$20,500.00
28	BLOW OFF VALVE	1.00	EA	\$2,500.00	\$2,500.00
29	64"W X 212"L X 60"H MANUF BFP ASSEMBLY ENCLOSURE	1.00	LS	\$26,000.00	\$26,000.00
30	AGGREGATE BASE TYPE A	4.00	CY	\$105.00	\$420.00
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33	MOBILIZATION	1.00	LS	\$16,000.00	\$16,000.00
34	CONSTRUCTION STAKING LEVEL II	1.00	LS	\$2,000.00	\$2,000.00
					<b>\$406,100.00</b>



# SURVEY CONTROL DATA

1. HORIZONTAL CONTROL MONUMENTS  
OKLAHOMA STATE PLANE COORDINATE SYSTEM -  
LAMBERT NORTH PROJECTION
2. BASIS OF BEARING:  
LOCAL GRID BEARING
3. VERTICAL CONTROLS (BM):  
NAVD 1988
4. SECTION NUMERICAL DESCRIPTION (S-T-R):  
SECTION 11 T-17-N, R-14-E

# BEFORE YOU DIG! CALL OKIE 1-800-522-6543



UTILITIES LOCATION SHOWN ON PLAN AND PROFILE WERE OBTAINED FROM INFORMATION PROVIDED BY UTILITY SYSTEM OWNER IN CONJUNCTION WITH EXISTING PHYSICAL FEATURES VISIBLE AT THE TIME OF THE TOPOGRAPHIC SURVEY. LOCATIONS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

# UTILITY CONTACTS

CITY OF BROKEN ARROW, OKLAHOMA  
ENGINEERING MANAGER, ROGER HUGHES P.E.  
485 N. POPLAR AVE  
BROKEN ARROW, OKLAHOMA 74012  
(918) 259-7000 EXT. 5260  
(918) 259-8453 (FAX)

CITY OF BROKEN ARROW, OKLAHOMA  
WATER & SEWER, CHARLES VOKES  
485 N. POPLAR AVE  
BROKEN ARROW, OKLAHOMA 74012  
(918) 259-7000 X7382  
(918) 251-3383 (FAX)

CITY OF BROKEN ARROW, OKLAHOMA  
STREETS/STORMWATER, ROCKY HENKEL  
2302 S. 1ST PLACE  
BROKEN ARROW, OKLAHOMA 74012  
(918) 259-7000 X7380  
(918) 251-3383 (FAX)

OKLAHOMA NATURAL GAS (GOV'T RELOCATIONS)  
ATTN: TIM HELBIG  
5848 EAST 15TH STREET  
TULSA, OKLAHOMA 74112  
(918) 831-8387  
(918) 729-4681 (CELL)

COX COMMUNICATIONS  
ATTN: JUSTIN RICH  
11811 E. 51ST STREET  
TULSA, OK 74146  
(918) 286-4542  
(918) 286-4018 (FAX)

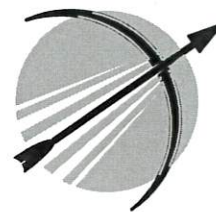
OKLAHOMA NATURAL GAS (EXISTING CONST.)  
ATTN: DUANE COOPER  
P.O. BOX 871  
TULSA, OKLAHOMA 74102  
(918) 645-1953  
(918) 451-0899 (FAX)

WINDSTREAM COMMUNICATION  
ATTN: CHRIS TACKETT  
1814 W. TACOMA STREET  
BROKEN ARROW, OKLAHOMA 74012  
(918) 588-4961  
(918) 451-1865 (FAX)

AEP / PSO  
ATTN: LONNY HICKS  
5223 S GARNETT  
TULSA, OK 74149  
(918) 250-6211  
(918) 247-8466 (FAX)

# CONVENTIONAL SYMBOLS

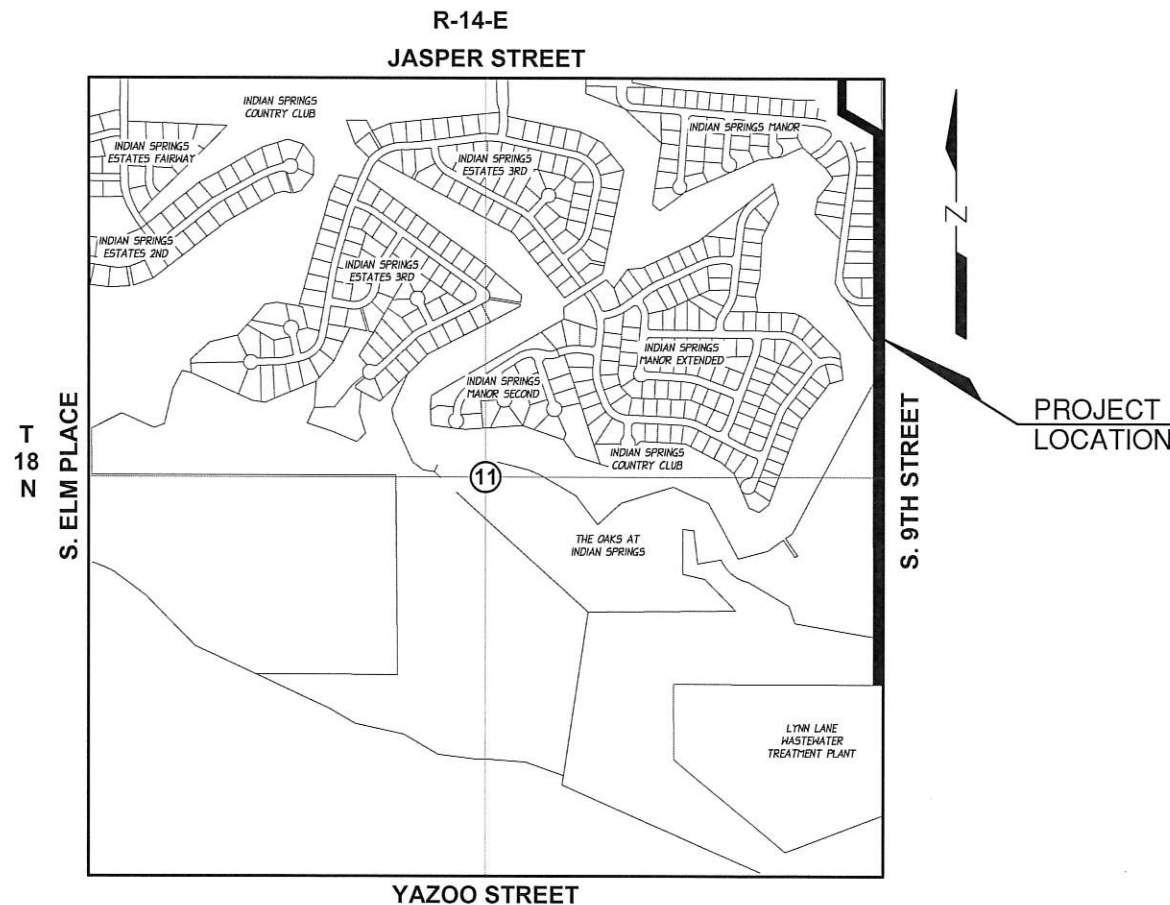
- SECTION LINES
- PROPOSED ROAD
- R/W RIGHT-OF-WAY LINES - NEW
- PRES. R/W RIGHT-OF-WAY LINES - EXISTING
- FENCES
- OVERHEAD ELECTRIC LINES
- OVERHEAD TELEPHONE LINES
- SANITARY SEWERS
- GAS LINES
- WATER LINES
- UNDERGROUND TELEPHONE LINES
- CABLE TELEVISION LINES
- UNDERGROUND ELECTRIC
- UNDERGROUND CABLE TELEVISION LINES
- STORM SEWER



**BROKEN ARROW**  
*Municipal Authority*

# 9TH STREET-LLWWTP TO JASPER 8" WATER LINE IMPROVEMENTS

PROJECT NUMBER 165420



PROJECT LOCATION SECTION 11 T-17-N, R14-E, TULSA COUNTY

ENGINEERING & CONSTRUCTION DEPARTMENT  
485 NORTH POPLAR AVENUE  
BROKEN ARROW, OK. 74013

CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS, AUGUST 19, 1999,  
SHALL GOVERN ALL CONSTRUCTION AS SUPPLEMENTED BY OKLAHOMA STANDARD  
SPECIFICATION FOR HIGHWAY CONSTRUCTION, APPROVED BY THE DEPARTMENT OF  
TRANSPORTATION 2009.

# INDEX OF SHEETS

DESCRIPTION	SHEET
TITLE SHEET	1
STORM WATER POLLUTION PREVENTION PLAN	2
QUANTITIES AND NOTES	3
DETAILS	4
PLAN AND PROFILE	5-10

# BROKEN ARROW MUNICIPAL AUTHORITY

CHAIRMAN	CRAIG THURMOND
VICE CHAIRMAN	SCOTT EUDEY
MEMBER	DEBRA WIMPEE
MEMBER	MIKE LESTER
MEMBER	JOHNNIE PARKS

# APPROVED

*Kenneth D. Schwab* DATE *2-11-19*  
KENNETH D. SCHWAB P.E., CFM  
ASSISTANT CITY MANAGER-OPERATIONS

# RECOMMENDED FOR APPROVAL

*Alex Mills* DATE *2/8/19*  
ALEX MILLS P.E., CFM  
DIRECTOR OF ENGINEERING & CONSTRUCTION

*Charles Vokes* DATE *2/10/19*  
CHARLES VOKES  
DIRECTOR OF UTILITIES

*Stacy L. White*  
STACY L. WHITE, P.E.  
ENGINEER OF RECORD



PROJECT NUMBER 165420 9TH STREET-LLWWTP TO JASPER 8" WATER LINE IMPROVEMENTS

# STORMWATER POLLUTION PREVENTION PLAN

## SITE DESCRIPTION

## EROSION AND SEDIMENT CONTROLS

### LOCATION MAP

LOCATION REFERENCE MAP IS PROVIDED ON THE COVER SHEET OF THESE DRAWINGS.

### PROJECT DESCRIPTION:

EROSION CONTROL, INSTALLATION OF 8"Ø WATER LINE

### LOCAL PROJECT CONTACT:

THOMAS TOLBERT  
(918)259-7000, EXT. 5404

### SEQUENCE OF CONSTRUCTION ACTIVITIES

1. CLEARING AND GRUBBING
2. EROSION CONTROL
3. SITE GRADING
4. CONSTRUCT DRAINAGE STRUCTURES
5. CONSTRUCTION OF 8" WATER LINE
6. FINAL GRADING
7. INSTALL SOLID SLAB SODDING
8. REMOVAL OF TEMPORARY MEASURES AND SITE CLEANUP

### NOTE:

THIS SHOULD INCLUDE MAJOR ACTIVITIES REQUIRED TO CONSTRUCT THE PROJECT & EROSION CONTROL ITEMS.

TOTAL DISTURBED AREA (INCLUDING OFF-SITE BORROW AND FILL AREAS) 0.50 ACRES

PRE-CONSTRUCTION RUNOFF COEFFICIENT: 0.40

POST-CONSTRUCTION RUNOFF COEFFICIENT: 0.40

SOIL DESCRIPTION: SANDY LOAM

RECEIVING WATERS: ARKANSAS RIVER

DISCHARGE FROM INDUSTRIAL ACTIVITY: N/A

DISCHARGE TO FEDERALLY PROTECTED LAND: N/A

DISCHARGE TO A 303D/THREATENED/IMPAIRED SYSTEM: N/A

HISTORICAL PROPERTIES: N/A

ENDANGERED SPECIES: N/A

### NOTE:

THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE CHARACTERISTICS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

### SOIL STABILIZATION PRACTICES:

TEMPORARY SEEDING ☒

PERMANENT SODDING, SPRIGGING OR SEEDING ☒

VEGETATIVE MULCHING ☐

SOIL RETENTION BLANKET ☐

PRESERVATION OF EXISTING VEGETATION ☐

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONST. ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.

### STRUCTURAL PRACTICES:

TEMPORARY BRUSH SEDIMENT BARRIERS ☐

TEMPORARY SILT FENCE ☒

TEMPORARY SILT DIKES ☐

TEMPORARY TRIANGULAR SILT DIKE ☐

DIVERSION, INTERCEPTOR OR PERIMETER DIKES ☐

DIVERSION, INTERCEPTOR OR PERIMETER SWALES ☐

SANDBAG BERMS ☐

ROCK FILTER DAMS ☐

TEMPORARY SLOPE DRAIN ☐

PAVED DITCH W/ DITCH LINER PROTECTION ☐

TEMPORARY DIVERSION CHANNELS ☐

RIP RAP ☐

TEMPORARY STREAM CROSSINGS ☐

TEMPORARY SEDIMENT BASINS ☐

TEMPORARY SEDIMENT TRAPS ☐

TEMPORARY SEDIMENT FILTERS ☐

TEMPORARY SEDIMENT REMOVAL ☒

INLET SEDIMENT FILTER ☒

STABILIZED CONSTRUCTION ENTRANCE/EXIT ☒

OTHER ☐

### OFFSITE VEHICLE TRACKING:

EFFECTIVE CONSTRUCTION ENTRANCE/EXIT ☐

HAUL ROADS DAMPENED FOR DUST CONTROL ☐

LOADED TRUCKS LEAVING SITE TO BE COVERED ☒

EXCESS DIRT ON ROAD REMOVED DAILY ☒

### NOTE:

CONTRACTOR RESPONSIBLE FOR MAINTAINING EROSION/SEDIMENTATION CONTROLS (BMPS) FOR THE DURATION OF THE PROJECT.

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

### MAINTENANCE AND INSPECTION:

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

### WASTE MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

### HAZARDOUS MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS. CONCRETE WASH WATER/WASTE IS CONSIDERED A HAZARDOUS MATERIAL AND MUST BE CONTAINED.

### PROJECT COMPLETION:

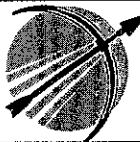
ALL TEMPORARY SEDIMENT CONTROLS ARE TO BE REMOVED AFTER THE COMPLETION OF THE PROJECT. IF RE-VEGETATION OF THE DISTURBED SOILS IS INCLUDED IN THE CONTRACT, THE PROJECT IS NOT COMPLETE UNTIL VEGETATION HAS BEEN ACHIEVED ADEQUATE COVER.

### NOTES:

### GENERAL NOTES:

THE ENCLOSED STORMWATER POLLUTION PREVENTION PLAN (SWP3) COMPLIES WITH OPDES REGULATIONS UNDER THE CITY OF BROKEN ARROW OKR04 STORMWATER PERMIT FOR SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4) OPTIONAL PERMIT FOR MUNICIPAL CONSTRUCTION ACTIVITIES ON LAND OWNED BY THE CITY THAT IS DIRECTLY CONTROLLED BY THE CITY.

DATE	REVISIONS



BROKEN ARROW  
Municipal Authority



9TH STREET-LLWWTP  
TO JASPER 8" WATER LINE  
IMPROVEMENTS

STORMWATER POLLUTION  
PREVENTION PLAN

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. N/A	DDS	01/19	DDS	01/19
VERT. N/A	REVIEWED	DATE	APPROVED	DATE
	JNW	01/19	AM	01/19
DRAWING NAME: SWP3	SHEET OF	2 10	PROJECT NO. 165420	



CITY OF BROKEN ARROW WATER PAY QUANTITIES					
ITEM NO.	ITEM	DESCRIPTION	PAY NOTES	UNIT	QUANTITY
1	BA310	RIGHT-OF-WAY CLEARING AND RESTORING	1,3,5	LS	1
2	BA316	PAVEMENT CUT AND REPAIR (ASPHALT)		LF	176
3	BA316	PAVEMENT CUT AND REPAIR (CONCRETE)		LF	27
4	BA401	8" AWWA C-900, DR14	1	LF	8
5	BA401	8" AWWA C-900, DR14	1	LF	4,264
6	BA402	8" DUCTILE IRON PIPE INSTALLATION FJ, 2 ENDS-MJ		LF	21
7	BA410(A1)	8" 22.50' BEND, MJ	1,2	EA	2
8	BA410(A2)	8" 45° BEND, MJ	1,2	EA	16
9	BA410(A3)	8" 90° BEND, MJ	1,2	EA	2
10	BA410(A4)	8" 90° BEND, FJ	1,2	EA	4
11	BA410(B1)	8"x8"x4" TEE, MJ	1,2	EA	1
12	BA410(B2)	8"x8"x6" TEE, MJ	1,2	EA	2
13	BA410(B3)	8"x8"x8 TEE, FJ	1,2	EA	2
14	BA410(D1)	4"x4" TAPPING SLEEVE	1,2	EA	1
15	BA410(D2)	12"x8" TAPPING SLEEVE	1,2	EA	1
16	BA410(G1)	8"x4" REDUCER	1,2	EA	1
17	BA410(G2)	8" REDUCED PRESSURE ZONE ASSEMBLY	7	EA	1
18	BA410(G3)	8" WATER METER AND STRAINER ASSEMBLY	8	EA	1
19	BA411(A1)	TIE INTO EXISTING WATER LINES	1	EA	2
20	BA412(A)	SERVICE LINE 3/4 INCH W/BALL VALVE CURB STOP	10	EA	2
21	BA412(B)	SERVICE LINE 1 INCH W/BALL VALVE CURB STOP	10	EA	1
22	BA420(A1)	4" GATE VALVE, MJ	1,2	EA	1
23	BA420(A2)	6" GATE VALVE, MJ	1,2	EA	2
24	BA420(A3)	8" GATE VALVE, MJ	1,2	EA	5
25	BA420(A3)	8" GATE VALVE, FJ	1,2	EA	3
26	BA422(A1)	AIR RELIEF VALVE	1,2	EA	3
27	BA423(A1)	3-WAY FIRE HYDRANT ASSEMBLY	1,2	EA	8
28	BA435	BLOW OFF VALVE	1,2	EA	2
29	SPECIAL	64"Wx212"Lx60"H MANUFACTURED BACKFLOW			
30	SPECIAL	PREVENTION ASSEMBLY ENCLOSURE	11	LS	1
31	SPECIAL	ELECTRIC SERVICE	12	LS	1

PAY QUANTITIES					
ITEM NO.	ITEM	DESCRIPTION	PAY NOTES	UNIT	QUANTITY
32	303(A)	AGGREGATE BASE TYPE A		CY	5
33	509(A)	CLASS AA CONCRETE (CONCRETE PAD FOR VAULT)	9	CY	5
34	625(B)	REMOVE AND RESET FENCE	5,6	LS	1
35	641	MOBILIZATION		LS	1
36	642(B)	CONSTRUCTION STAKING LEVEL II	4	LS	1

PAY NOTES:

1. UNIT PRICE BID SHALL INCLUDE TRENCHING EXCAVATION, BEDDING, BACKFILLING, DEWATERING, BERMUDA SODDING AND ALL INCIDENTALS.
2. UNIT PRICE BID SHALL INCLUDE POLY-WRAPPING DUCTILE IRON PIPE AND FITTINGS.
3. WATER WILL BE PROVIDED VIA THE NEAREST CITY OF BROKEN ARROW HYDRANT AT NO COST TO THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE TO OBTAIN A CONSTRUCTION METER FROM THE CITY, PAYING \$1,200.00 (TWELVE HUNDRED) ESCROW DEPOSIT FOR USE OF THE METER. THE ESCROW MONEY WILL BE RETURNED TO THE CONTRACTOR WHEN THE CONSTRUCTION METER IS RETURNED. FAILURE TO RETURN THE METER WITHIN 2 WORKING DAYS AFTER THE CONTRACT ADMINISTRATOR DETERMINES THE METER IS NO LONGER REQUIRED ON THE PROJECT, COULD RESULT IN WATER CHARGES AND LOSS OF SOME OR ALL OF THE ESCROW DEPOSIT AND CONTRACTOR EARNINGS WITHHELD. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES TO METER OR HYDRANT HE MAY CAUSE. CONTRACTOR IS RESPONSIBLE FOR TRANSPORT AND DISTRIBUTION OF WATER AS NEEDED. IF WATER IS OBTAINED FROM ANOTHER ENTITY THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS, FEE AND ALL OTHER INCIDENTALS FROM THE ENTITY.
4. INCLUDES THE COST OF RESETTNG CONTROL THAT IS LOST OR DAMAGED PRIOR OR DURING CONSTRUCTION. NO SURVEY TO PROVIDE ORIGINAL AND FINAL CROSS SECTIONS FOR EARTHWORK WILL BE PROVIDED.
5. DISTURBED AREAS WILL BE GRADED AND VEGETATED TO PRE-PROJECT CONDITIONS OR BETTER. ANY FENCING, OR OTHER YARD AMENITIES AFFECTED BY PROJECT CONSTRUCTION WILL BE REPAIRED OR REPLACED TO PRE-PROJECT CONDITIONS.
6. CONTRACTOR SHALL BE RESPONSIBLE TO ERECT ADEQUATE SECURITY FENCING AND SAFETY MEASURES TO SECURE THE PROJECT SITE ON PRIVATE PROPERTIES DURING CONSTRUCTION. NO ADDITIONAL PAYMENT COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

PAY NOTES CONTINUED:

7. 8" REDUCED PRESSURE ZONE ASSEMBLY SHALL BE WATTS 967-DNRS 8, OR APPROVED EQUAL. COST WILL INCLUDE ONE REPAIR KIT, 957-RT 8.
8. 8" WATER METER SHALL BE A NEPTUNE HP FIRE SERVICE TURBINE METER (304 SS UL/FM STRAINER BODY WITH EPOXY COATED STEEL STRAINER COVER), OR APPROVED EQUAL.
9. UNIT PRICE INCLUDE BUT NOT LIMITED TO EXCAVATION, LABOR, FORMING, REBAR, CONCRETE, EQUIPMENT AND ALL OTHER APPURTENANCES NEEDED TO CONSTRUCT CONCRETE PAD.
10. UNIT PRICE TO INCLUDE (2) TWO 3/4" FORD B44-444W BALL VALVE CURB STOP, (1) ONE 1" FORD BW-333W BALL VALVE CURB STOP OR APPROVED EQUAL. COST TO INCLUDE ALL COPPER 8 FOOT LENGTH ONE 1" AND TWO 3/4" PIPING TO BE STUBBED UP END WITH BALL VALVE CURB STOPS, WITH APPROXIMATELY 8 FOOT OF COPPER TUBING PER LINE AND ALL OTHER APPURTENANCES NEEDED TO CONSTRUCT. FUTURE CONNECTIONS TO METERS TO BE DONE BY CITY COORDINATE APPROPRIATELY.
10. UNIT PRICE TO INCLUDE (2) TWO 3/4" FORD B44-444W BALL VALVE CURB STOP, (1) ONE 1" FORD
11. UNIT PRICE BID TO INCLUDE A SAFE-T-COVER BACKFLOW PREVENTION ASSEMBLY ENCLOSURE MODEL NUMBER 800DS-ALC19-2 WITH BUILDING ID DIMENSION OF 64"W X 212"L X 60"H WALLS TO BE 1 1/2" MIN. THICKNESS POLYISOCYANURATE FOAM LAMINATED TO ENCLOSURE AND 3" TO ROOF OR APPROVE EQUAL. NOT LIMITED TO ALL APPURTENANCES NEEDED TO CONSTRUCT ENCLOSURE. ENCLOSURE TO BE INSTALLED BY MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS. ENCLOSURE TO INCLUDED 2 SERIES HCH2000-240 SLAB MOUNT HEATING SYSTEM TO BE INSTALLED AND PLACED BY MANUFACTURES RECOMMENDATIONS.
12. UNIT PRICE BID TO INCLUDE (1) 240VT SERVICE FROM THE SINGLE PHASE CABINET EXISTING INSIDE THE MAIN OPERATIONS BUILDING TO THE NEW BACK FLOW PREVENTION ASSEMBLY. ELECTRIC TO FOLLOW MOST ADVANTAGEOUS & COST EFFECTIVE ROUTE. PROVIDE DISCONNECT INSIDE THE NEW BACKFLOW ASSEMBLY FOR CONNECTION TO HEATER UNITS. DISCONNECT SHALL BE WATER TIGHT ASSEMBLY. ALL COSTS FOR CONNECTION OF ELECTRIC HEATERS SHALL BE INCIDENTAL.

GENERAL NOTES:

1. VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL DISTURBED AREAS AS SOON AS THE WORK IS COMPLETED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL.
3. ACCESS MUST BE MAINTAINED TO ALL COMMERCIAL AND RESIDENTIAL PROPERTIES DURING THE PROJECT.
4. FOR RECONSTRUCTION AND RESURFACING PROJECTS, THE CONTRACTOR SHALL SCHEDULE OPERATIONS TO MINIMIZE POTENTIAL DROP-OFF HAZARDS AND SHALL SUBMIT A SEQUENCE OF CONSTRUCTION OPERATIONS TO THE CONTRACT ADMINISTRATOR FOR APPROVAL, BEFORE OPERATIONS BEGIN.
5. THE CONTRACTOR SHALL CONSTRUCT PROJECT IN ACCORDANCE WITH ALL APPLICABLE OSHA REQUIREMENTS.
6. ANY ITEM REQUIRED TO COMPLETE THE CONSTRUCTION OF THIS PROJECT THAT IS SPECIFICALLY NOT ADDRESSED WILL BE CONSIDERED INCIDENTAL AND INCLUDED IN OTHER ITEMS BID.
7. ALL PAVING, DRAINAGE AND EROSION CONTROL SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF BROKEN ARROW ENGINEERING DESIGN CRITERIA MANUAL AND CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS.
8. EROSION CONTROL SHALL START WITH INITIAL CONSTRUCTION AND BE PRACTICED THROUGHOUT THE PROJECT.
9. SAFETY FENCE, FENCE REPAIR, TESTING, DEWATERING, BONDING, AND ANY OTHER SERVICES OR ITEMS NECESSARY FOR THE COMPLETION OF THE PROJECT NOT SPECIFICALLY LISTED IN THE PROPOSAL ARE INCIDENTAL AND THE COST IS TO BE INCLUDED UNDER OTHER ITEMS OF WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC. PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES: THE "OKIE" NOTIFICATION CENTER 811 OR 1-800-522-6543. DEPTH OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
11. ALL FIELD MEASUREMENTS PREVAIL ON INSTALLATION AND REMOVAL.
12. ALL EXISTING MANHOLES, VALVES, FIRE HYDRANTS AND METERS, WHICH ARE NOT BEING RELOCATED OR REPLACED SHALL BE RESET TO THE NEW CONDITIONS. ALL ITEMS THAT ARE TO BE REMOVED AND RESET SHALL BE HANDLED WITH CARE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OCCURRING DURING THESE OPERATIONS.
13. EXCESS ASPHALT AT JOINTS AND CRACKS IN THE EXISTING PAVEMENT SHALL BE REMOVED FLUSH TO TOP OF PAVING IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR.

WATER LINE NOTES:

ALL WATER DISTRIBUTION SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF BROKEN ARROW ENGINEERING DESIGN CRITERIA MANUAL CODE AND CONSTRUCTED IN ACCORDANCE WITH STANDARD CONSTRUCTION SPECIFICATIONS.

ALL WATER DISTRIBUTION SYSTEM SHALL BE INSPECTED BY THE ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS, IN ACCORDANCE WITH THE CITY OF BROKEN ARROW ADMINISTRATIVE REGULATION 11-15.

DIG TROUGH LOCATOR TAPE WILL BE BURIED 2 FEET ABOVE THE LINE.

WHEN PVC IS USED, A NO. 12 COATED COPPER WIRE SHALL BE TAPED TO THE TOP SURFACE OF THE PIPE AND CONNECTED TO EACH FIRE HYDRANT BY ATTACHING TO A BOLT, JUST ABOVE GROUND LEVEL.

ALL IRON PIPE AND FITTINGS SHALL BE POLYWRAPPED.

STREET CROSSINGS FOR MAIN LINES TWELVE (12) INCHES AND LARGER, SHALL BE PLACED IN CONDUIT.

STREET CROSSINGS ACROSS EXISTING ARTERIALS SHALL BE BORED. CONDUIT SHALL BE INSTALLED, IN THE BORING, FOR ALL MAIN LINES FOUR (4) INCHES AND LARGER. ARTERIALS WILL BE OPEN CUT ONLY WITH THE PRIOR WRITTEN APPROVAL OF THE STREET AND STORMWATER DIRECTOR.

ALL DISTRIBUTION LINES IN CONDUIT AND AT DRAINAGE FEATURE CROSSINGS SHALL BE CONSTRUCTED WITH RESTRAINED JOINTS.

ALL MAIN LINES SHALL HAVE A MINIMUM OR THREE (3) FEET AND A MAXIMUM OF EIGHT (8) FEET OF COVER.

BEDDING, BACKFILL AND COMPACTION OVER WATER LINES SHALL BE IN ACCORDANCE WITH STANDARD DRAWING W01. BACKFILL AND COMPACTION REQUIREMENT FOR STREETS SHALL EXTEND TWO (2) FEET BACK OF CURB.

ALL WATER DISTRIBUTION SYSTEM LINES, EXCEPT DEAD END FOR FIRE HYDRANTS ONLY, SHALL BE LOOPED TO PROVIDE CIRCULATION.

DISTRIBUTION LINES SMALLER THAN FOUR (4) INCHES SHALL NOT BE INSTALLED.

SERVICE LINES SHALL BE TAPPED TO MAIN LINES USING SOLID BRASS SADDLES.

SERVICE LINES SHALL BE SEAMLESS COPPER WATER TUBE MEETING THE REQUIREMENTS OF ASTM-B88.

ALL SERVICE LINE FITTINGS SHALL BE BRASS WITH FLARED, COMPRESSION, SOLDERED OR THREADED CONNECTIONS. WHEN CONDUIT IS PROVIDED FOR SERVICE LINES IT SHALL BE SCHEDULE 40 PVC OR STRONGER.

FIRE HYDRANTS

A. FIRE HYDRANTS SHALL BE MUELLER CENTURIAN OR AN APPROVED EQUAL.

B. EACH HYDRANT SHALL BE SET WITH THE STREAMER NOZZLE FACING THE STREET AND WITH A MINIMUM CLEARANCE OF EIGHTEEN INCHES ABOVE THE FINISHED GRADE.

C. ALL EXPOSED PORTIONS OF FIRE HYDRANTS SHALL BE PAINTED WITH A BRIGHT RED ENAMEL AS MANUFACTURED BY GLIDDEN OR DUPONT.

WHEN WORKING IN OR ADJACENT TO EXISTING SUBDIVISIONS ONLY ONE (1) DAYS WORTH OF TRENCH MAY BE OPEN AT A GIVEN TIME, THIS REQUIREMENT MAY BE MODIFIED, IN WRITING BY THE CONTRACT ADMINISTRATOR, FOR A SPECIFIC PROJECT.

ROAD CLOSURES MUST BE COORDINATED A MINIMUM OF TWENTY FOUR (24) HOURS IN ADVANCE. ROADS WILL NOT BE CLOSED FOR OVER EIGHT (8) HOURS WITHOUT WRITTEN PERMISSION FROM THE STREET AND STORMWATER DIRECTOR.

IN ACCORDANCE WITH OAC 252:626-19-2(C) PROVIDE THE WATER LINE WITH A MINIMUM OF 30 INCHES OF COVER WITH SUFFICIENT INSULATION TO PREVENT FREEZING.

IN ACCORDANCE WITH OAC 252:626-19-2(E),TEST THE INSTALLED PIPE FOR LEAKAGE IN ACCORDANCE WITH AWWA STANDARD SPECIFICATIONS. LEAKAGE MUST NOT EXCEED 10 GAL/INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT 150 PSI TESTING PRESSURE.

IN ACCORDANCE WITH OAC 252:626-19-2(F), DISINFECT ALL WATERLINES ACCORDING TO AWWA STANDARD SPECIFICATIONS. OBTAIN SAFE BACTERIOLOGICAL SAMPLES ON TWO CONSECUTIVE DAYS BEFORE PLACING THE WATERLINE INTO SERVICE.

IN ACCORDANCE WITH OAC 252:626-19-2(H) MAINTAIN THE FOLLOWING MINIMUM SEPARATION DISTANCES BETWEEN WATER LINES AND OTHER UTILITIES.

TEN FEET HORIZONTALLY AND TWO FEET VERTICALLY FROM SEWER LINES. WHEN IT IS IMPOSSIBLE TO OBTAIN SUCH HORIZONTAL SEPARATION BETWEEN THE WATER AND SEWER LINES, CONSTRUCT THE SEWER LINE OF WATER PIPE AND PRESSURE TEST IT TO ASSURE TIGHTNESS.

FIVE FEET HORIZONTALLY FROM EXISTING OR PROPOSED STORM SEWERS, RAW WATER LINES, PETROLEUM PRODUCT LINES, NATURAL GAS LINES AND OTHER BURIED UTILITY LINES.

LOCATE CAST IRON WATER LINES AT LEAST 10 FEET FROM ANY GASOLINE STORAGE TANKS AND PVC WATER LINES AT LEAST 50 FEET HORIZONTALLY FROM ANY GASOLINE STORAGE TANKS AND LINES.

FIFTEEN FEET FROM ALL PARTS OF SEPTIC TANKS, ADSORPTION FIELDS OR OTHER SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

DATE

REVISIONS



BROKEN ARROW

Municipal Authority



9TH STREET-LLWWTP

TO JASPER 8" WATER LINE

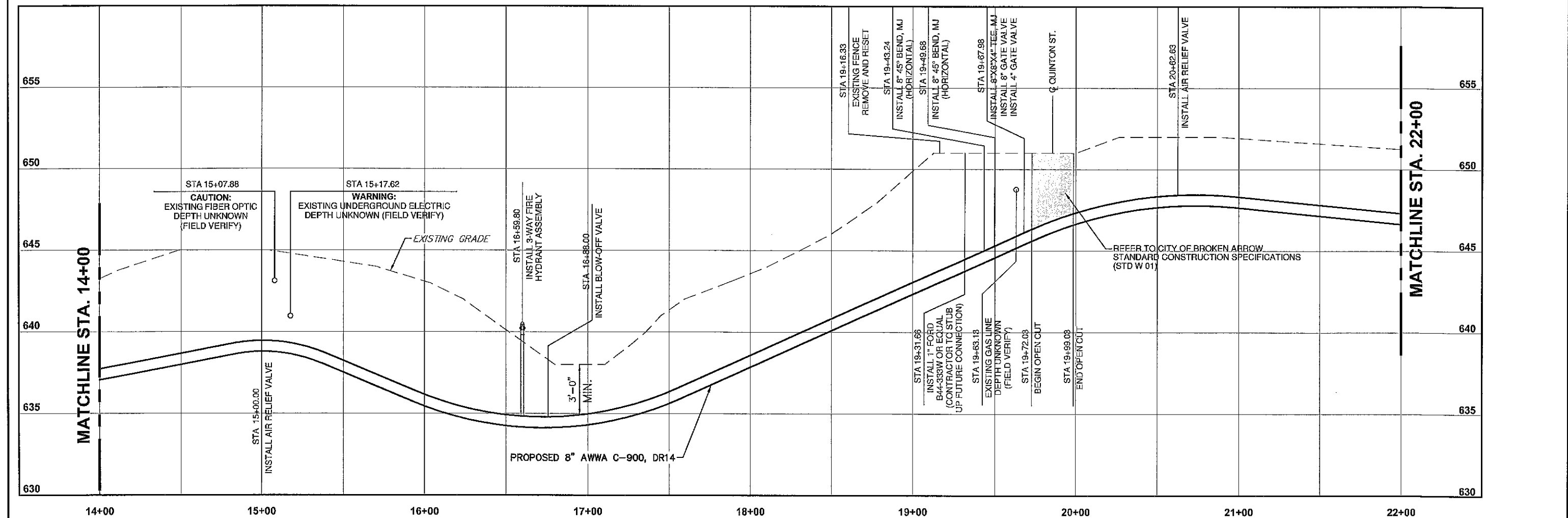
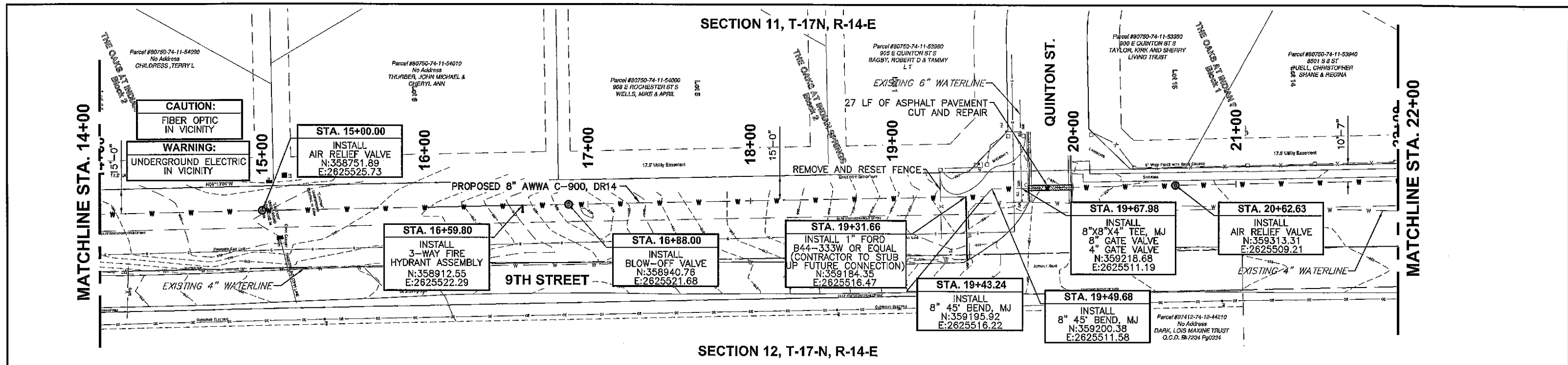
IMPROVEMENTS

QUANTITIES AND NOTES

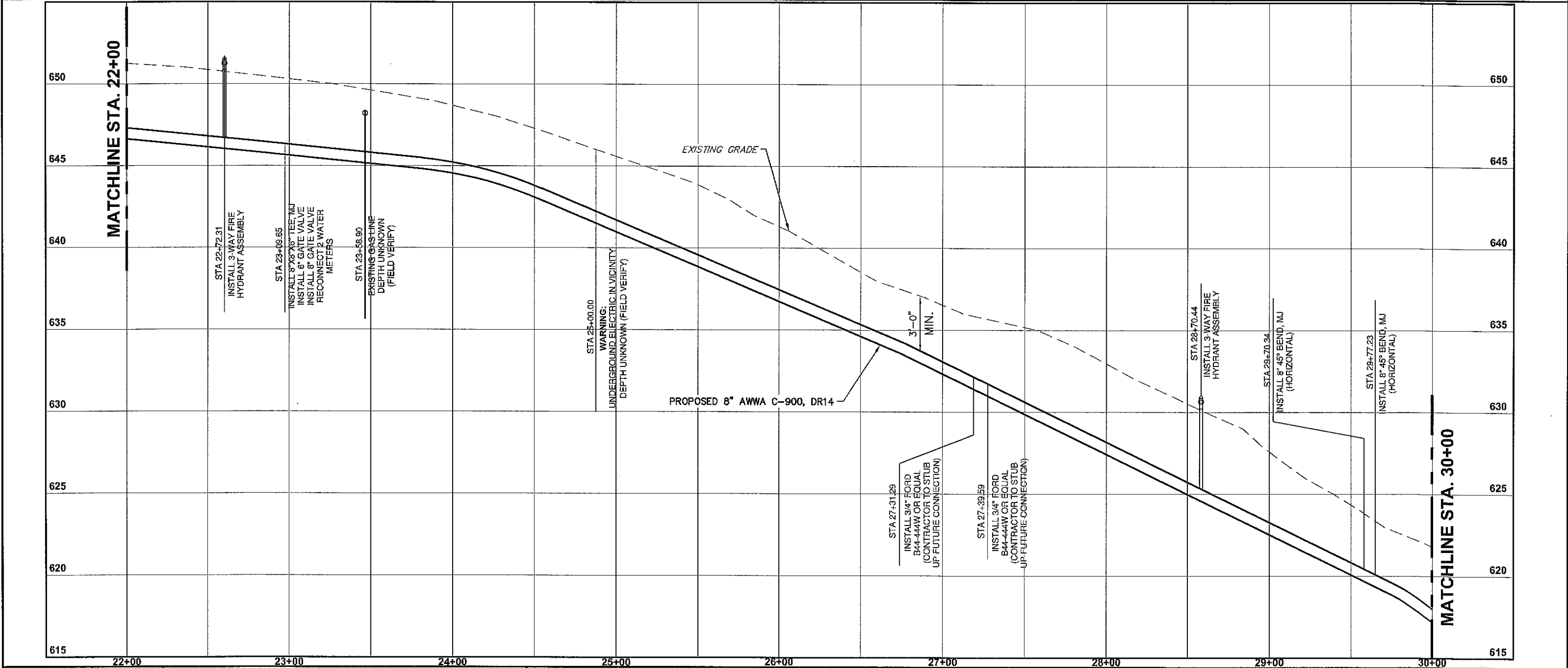
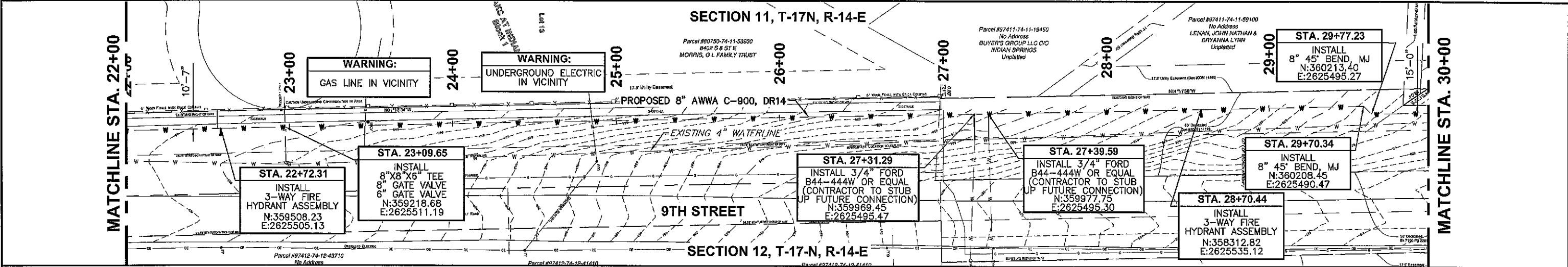
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QUANT & NOTES	OF	19		







DATE	REVISIONS			<b>9TH STREET-LLWWTP TO JASPER 8" WATER LINE IMPROVEMENTS</b>	<b>PLAN AND PROFILE</b>	SCALE: HORZ. _____ VERT. _____	DESIGN	DATE	DRAFTED	DATE
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DATE	REVISIONS	BROKEN ARROW Municipal Authority		9TH STREET-LLWWTP TO JASPER 8" WATER LINE IMPROVEMENTS		PLAN AND PROFILE		SCALE: DESIGN DATE DRAFTED DATE HORZ. DDS 01/19 DDS 01/19 VERT. JNW 01/19 AM 01/19 DRAWING NAME: SHEET 7 OF 10 PROJECT NO. 165420			

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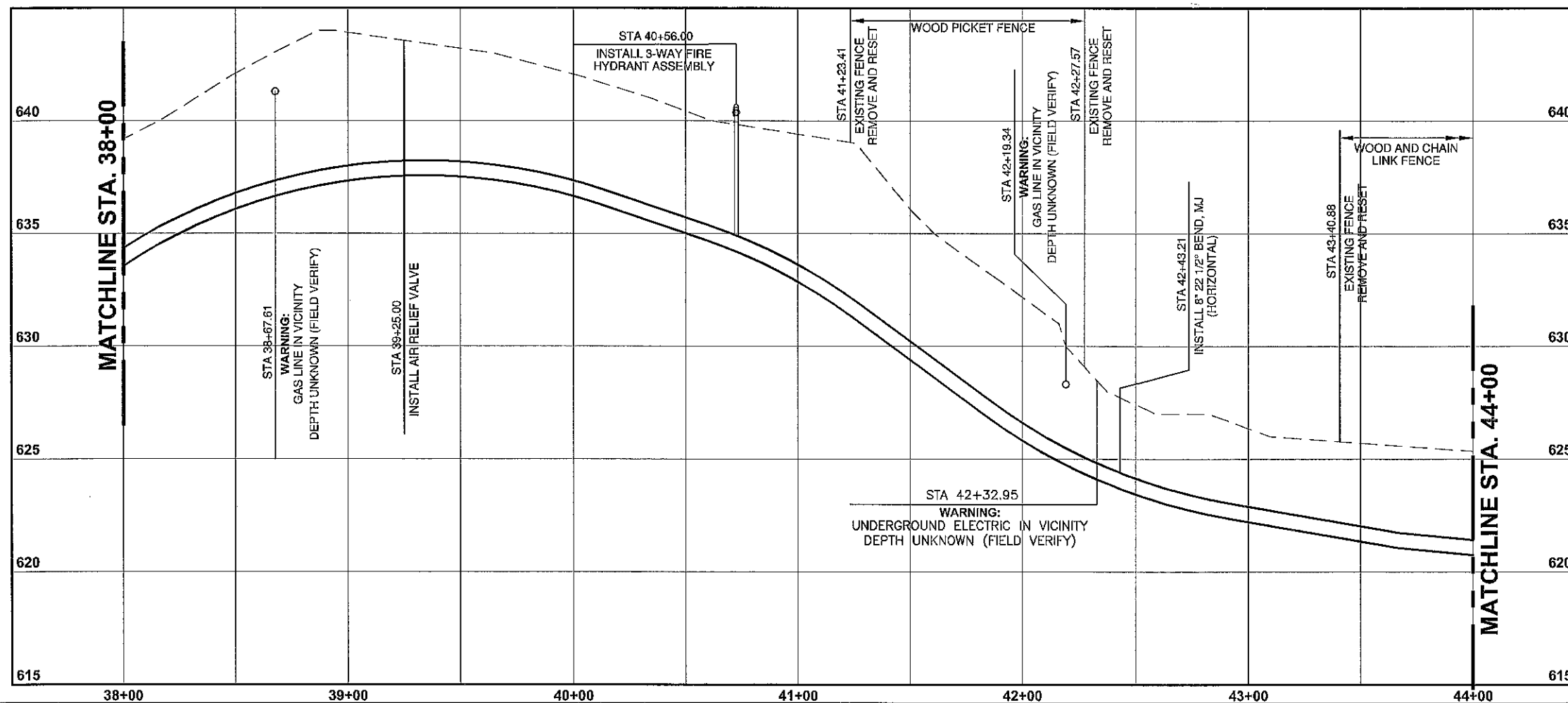
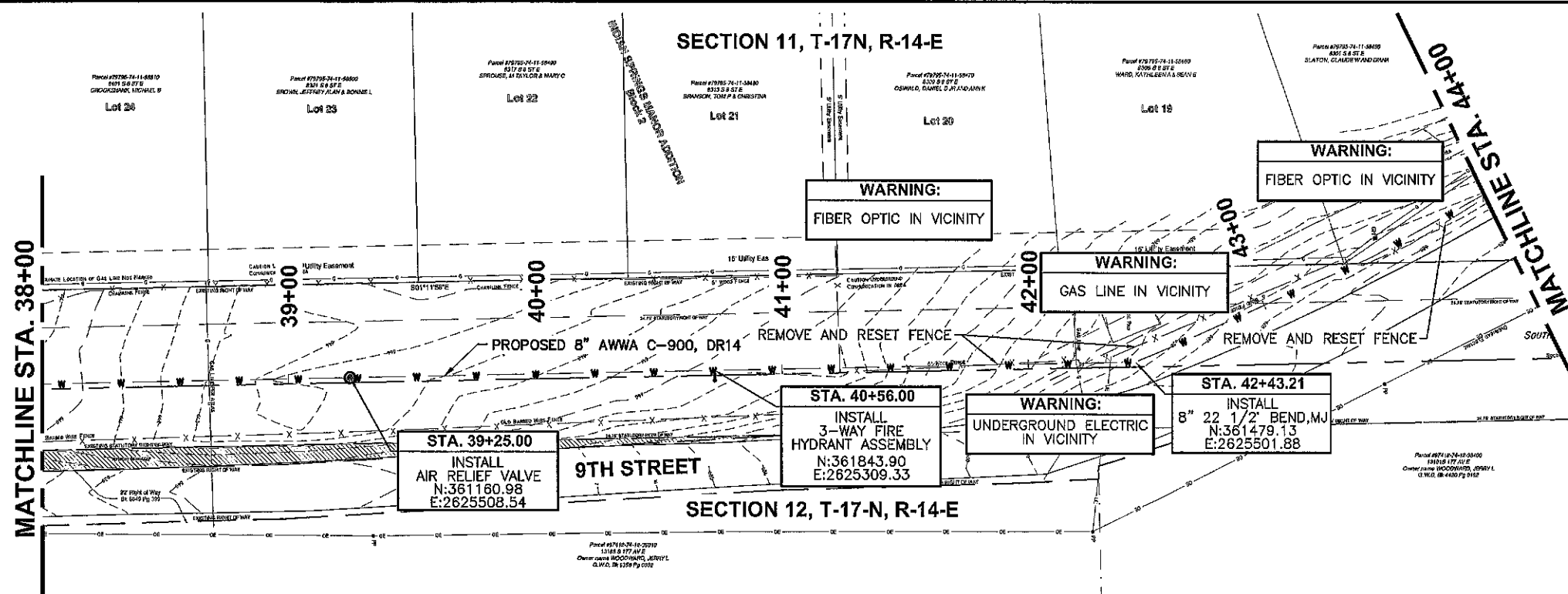
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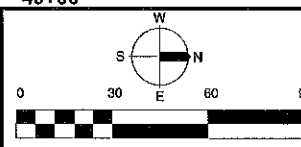
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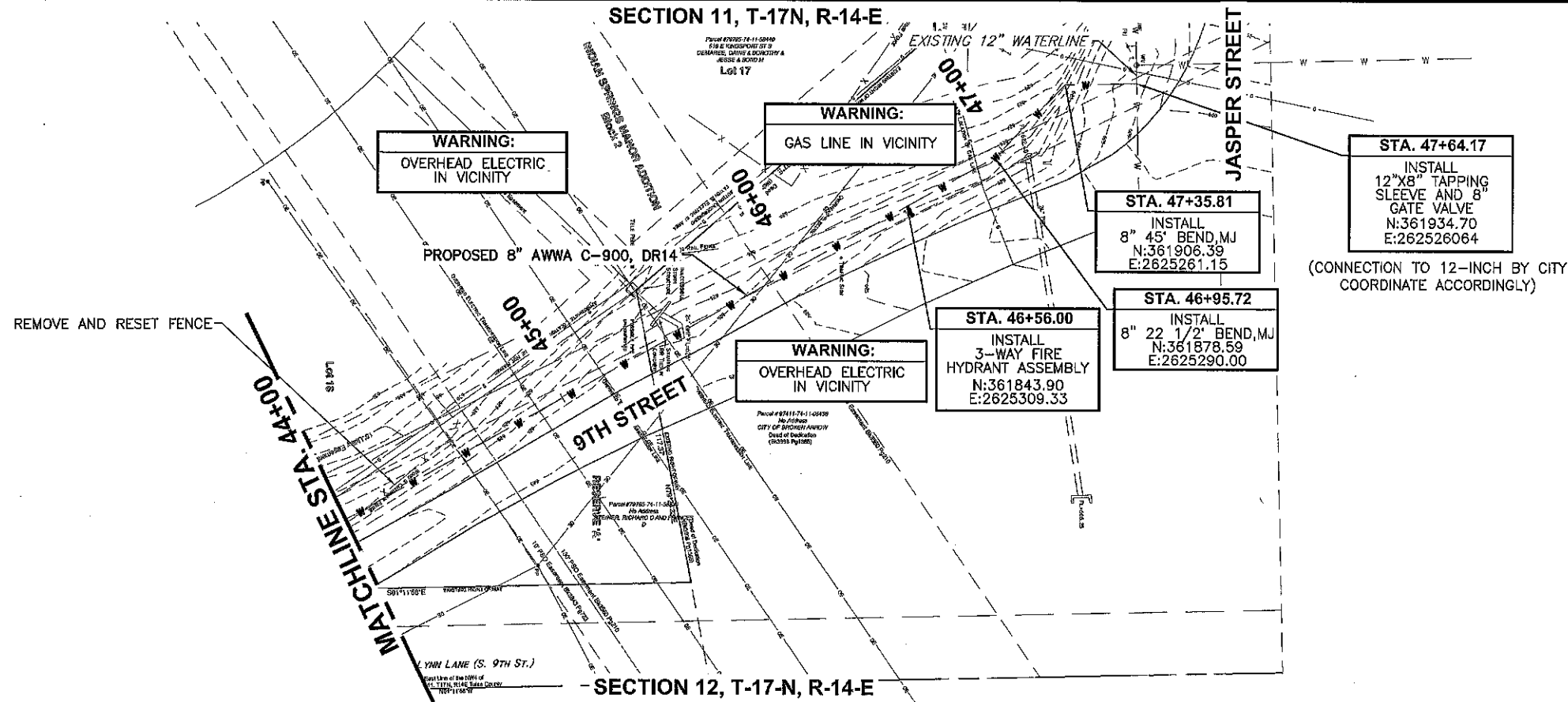


## 9TH STREET-LLWWTP TO JASPER 8" WATER LINE IMPROVEMENTS

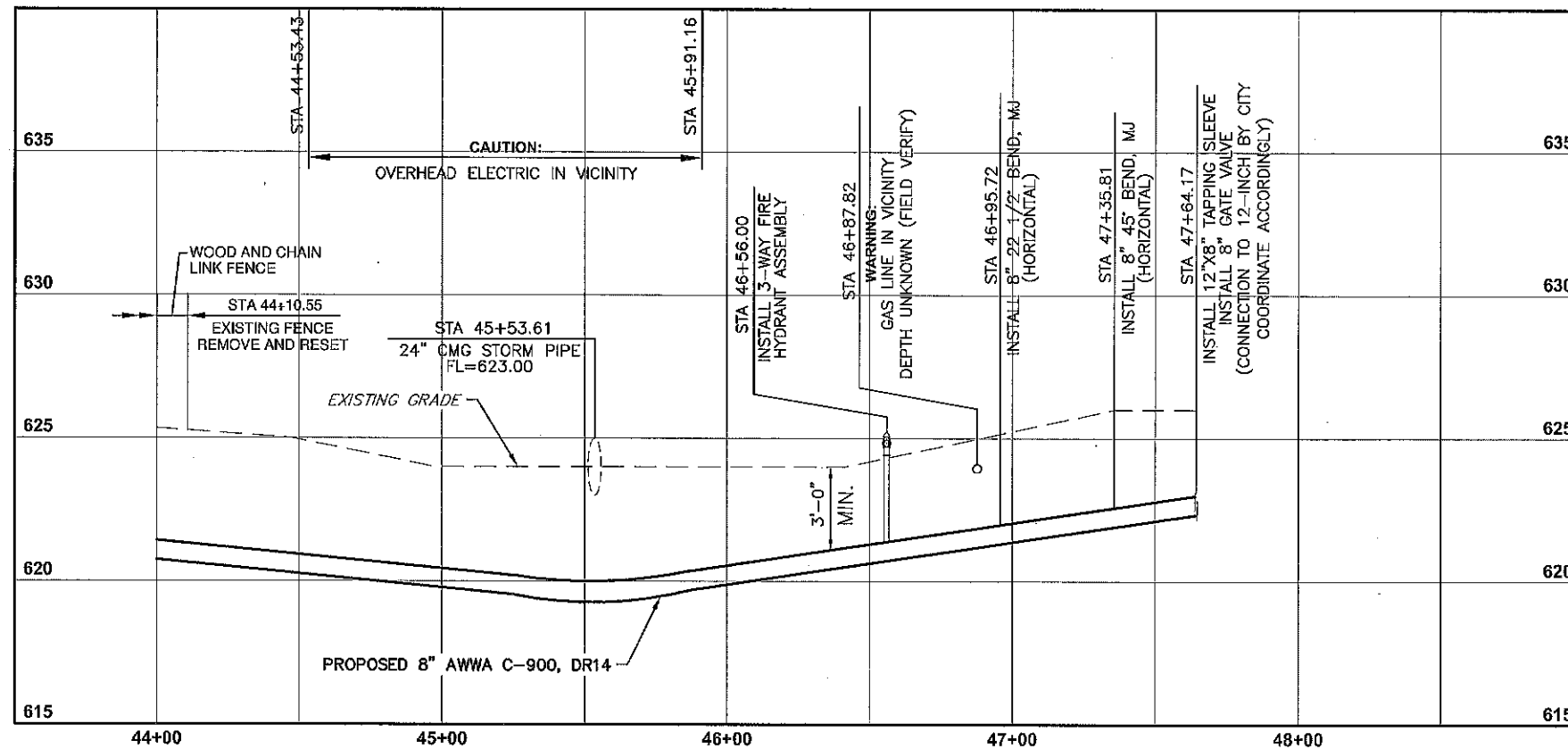
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PLAN	OF	10		

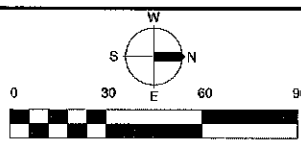
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SECTION 12, T-17-N, R-14-E



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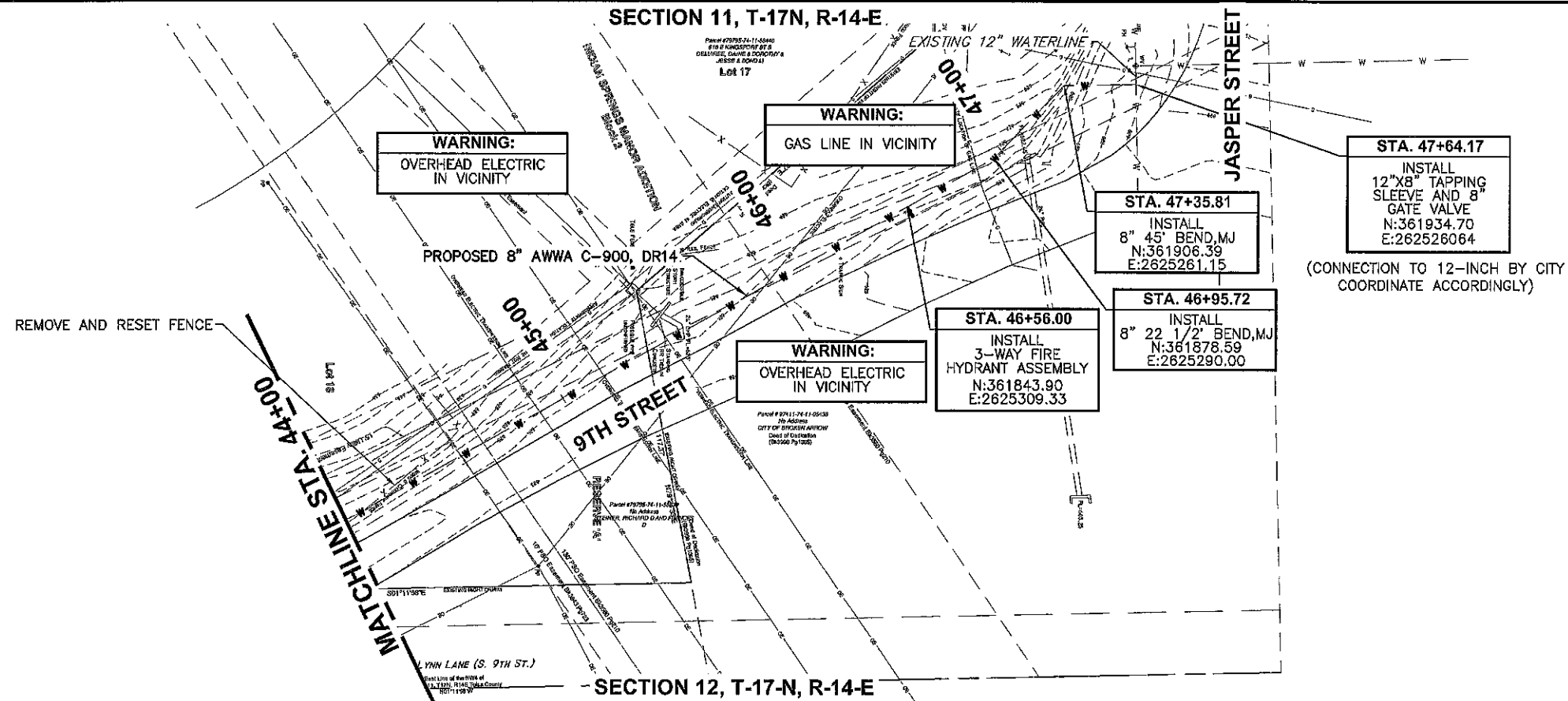


**9TH STREET-LLWWTP  
TO JASPER 8" WATER LINE  
IMPROVEMENTS**

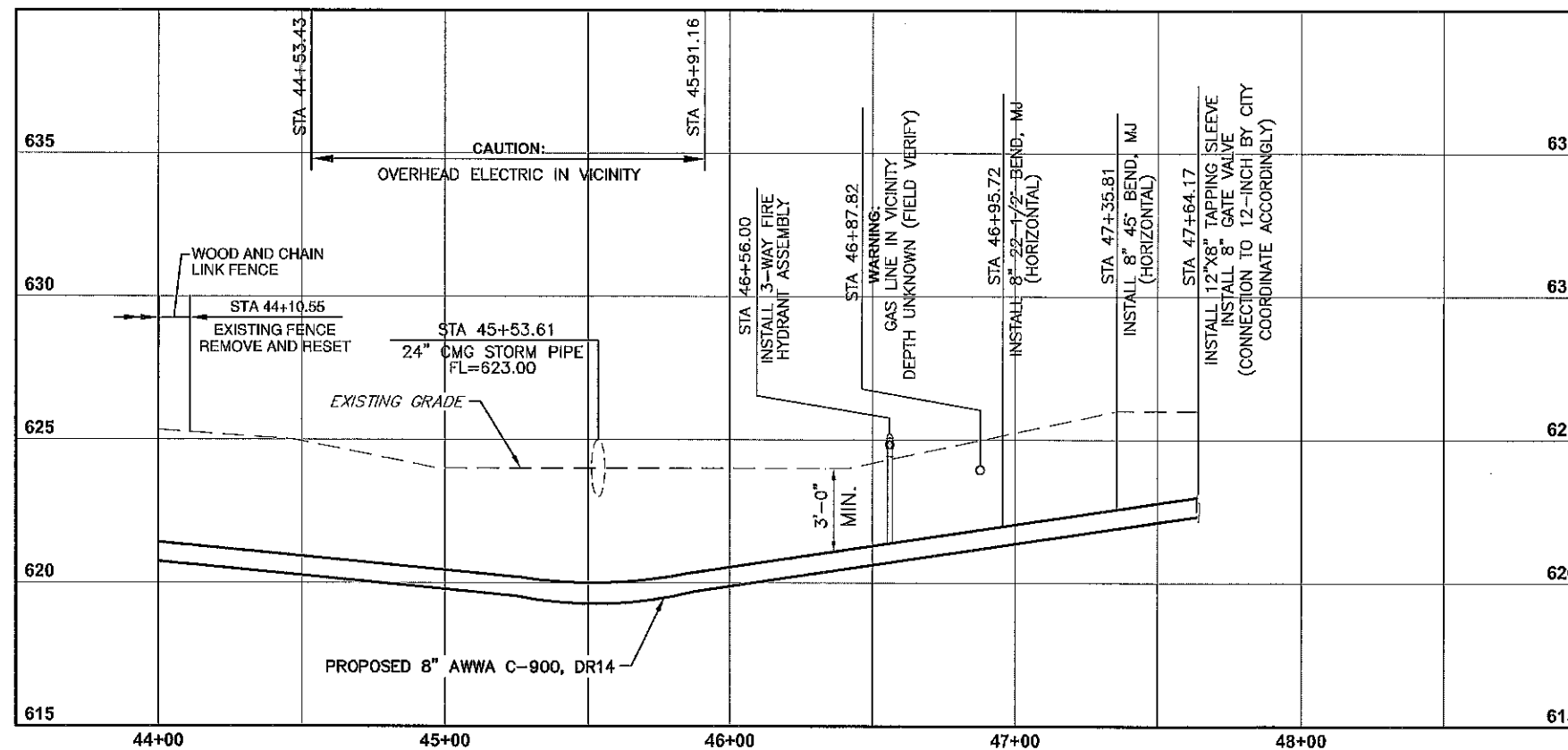
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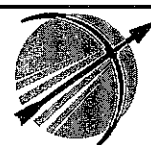
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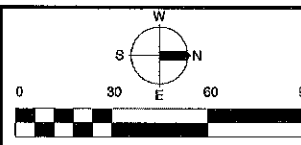
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DATE	REVISIONS



**BROKEN ARROW**  
Municipal Authority



**9TH STREET-LLWWTP  
TO JASPER 8" WATER LINE  
IMPROVEMENTS**

**PLAN AND PROFILE**

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