



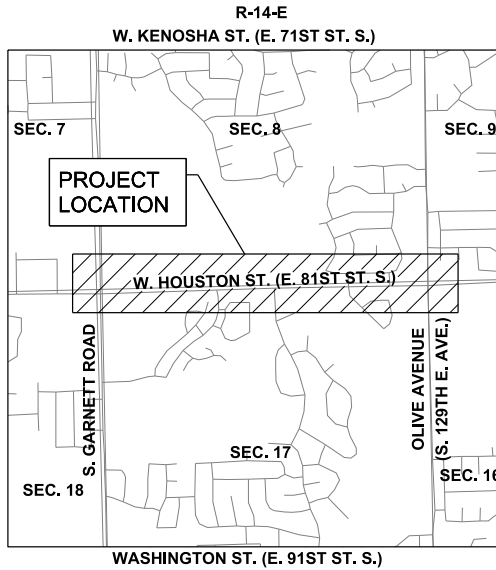
CITY OF BROKEN ARROW

Where opportunity lives

HOUSTON STREET WIDENING FROM GARNETT ROAD TO OLIVE AVENUE

PROJECT NUMBER ST2028

CONFORMED PLANS



POE & ASSOCIATES INC.
4606 S. GARNETT RD., STE. 600
TULSA, OK 74146 (918) 665-8800
FAX: (918) 665-6076
CERTIFICATE OF AUTHORIZATION NO. CA 541 P.E., L.S.

CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS, FEBRUARY 20, 2024. SHALL GOVERN ALL CONSTRUCTION AS SUPPLEMENTED BY OKLAHOMA STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION, APPROVED BY THE DEPARTMENT OF TRANSPORTATION 2009.

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BROKEN ARROW CITY COUNCIL

MAYOR	DEBRA WIMPEE
VICE MAYOR	CHRISTI GILLESPIE
MEMBER	LISA FORD
MEMBER	JUSTIN GREEN
MEMBER	JOHNNIE PARKS

APPROVED

DATE _____
MICHAEL SPURGEON
CITY MANAGER

RECOMMENDED FOR APPROVAL

DATE _____
CHARLIE BRIGHT
DIRECTOR OF ENGINEERING AND CONSTRUCTION DEPARTMENT

DATE _____
TIM WILSON
DIRECTOR OF STREETS & STORMWATER DEPARTMENT

DATE _____
TIMOTHY ROBINS, P.E.
DIRECTOR OF UTILITIES DEPARTMENT

ENGINEER OF RECORD

GREGORY J. COKER, P.E.

SURVEY CONTROL DATA

- HORIZONTAL CONTROL MONUMENTS**
OKLAHOMA STATE PLANE COORDINATE SYSTEM -
LAMBERT NORTH PROJECTION
- BASIS OF BEARING:**
LOCAL GRID BEARING
- VERTICAL CONTROLS (BM):**
NAVD 1988
- SECTION NUMERICAL DESCRIPTION (S-T-R):**
SECTION 8 & 17 T-18-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

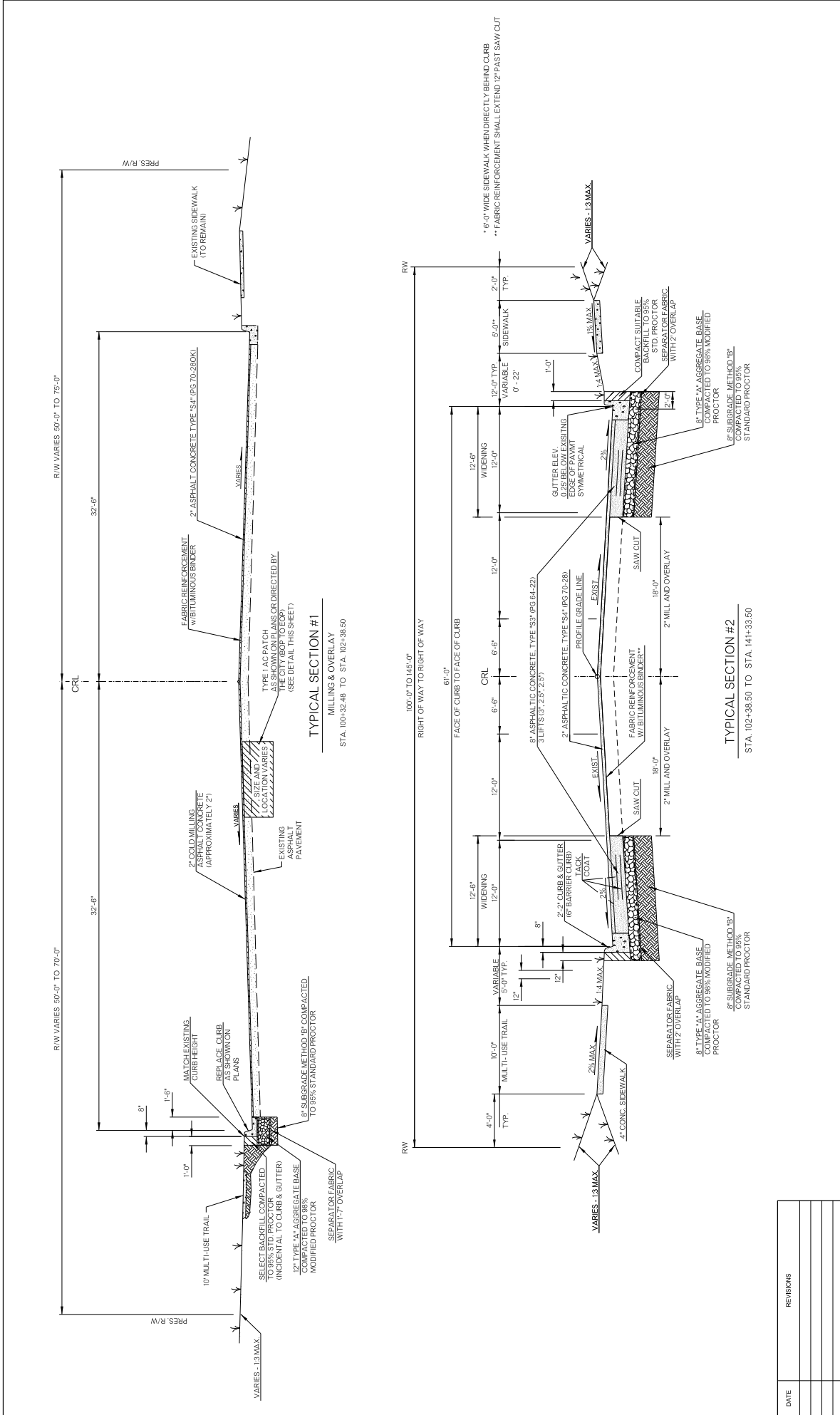
CITY OF BROKEN ARROW, OKLAHOMA E & C, DIRECTORY CHARLIE BRIGHT 455 N. POPLAR AVE BROKEN ARROW, OKLAHOMA 74012 (918) 259-7000 EXT. 7389 (918) 259-6453 (FAX)	CITY OF BROKEN ARROW, OKLAHOMA WATER & SEWER, TIMOTHY ROBINS, P.E. 455 N. POPLAR AVE BROKEN ARROW, OKLAHOMA 74012 (918) 259-7000 X7382 (918) 251-3383 (FAX)
CITY OF BROKEN ARROW, OKLAHOMA STREETS/STORMWATER, TIM WILSON 455 N. POPLAR AVE BROKEN ARROW, OKLAHOMA 74012 (918) 259-7000 X7380 (918) 251-3383 (FAX)	OKLAHOMA NATURAL GAS (GOVT RELOCATIONS) ATTN: TIM HELBIG 5848 EAST 15TH STREET TULSA, OKLAHOMA 74112 (918) 831-8215 (918) 949-5735 (CELL)
COX COMMUNICATIONS ATTN: CHRIS LONG 11811 E. 51ST STREET TULSA, OK 74146 (918) 286-4666 (918) 286-4016 (FAX)	OKLAHOMA NATURAL GAS (EXISTING CONST.) ATTN: DUANE COOPER P.O. BOX 871 TULSA, OKLAHOMA 74102 (918) 451-3814 (918) 451-0899 (FAX)
WINDSTREAM COMMUNICATION ATTN: JOSEPH MINOR 1814 W. TACOMA STREET BROKEN ARROW, OKLAHOMA 74012 (918) 586-4960	AEP / PSO ATTN: LONNY HICKS 5223 S GARNETT TULSA, OK 74149 (918) 599-2912 (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
-X-	FENCES
-DE-	OVERHEAD ELECTRIC LINES
-DT-	OVERHEAD TELEPHONE LINES
-SS-	SANITARY SEWERS
-G-	GAS LINES
-V-	WATER LINES
-UT-	UNDERGROUND TELEPHONE LINES
-CTV-	CABLE TELEVISION LINES
-UE-	UNDERGROUND ELECTRIC
-UCT-	UNDERGROUND CABLE TELEVISION LINES
-STM-	STORM SEWER

DESIGN DATA

SECONDARY ARTERIAL
AADT 2029 = 19,100
DESIGN SPEED = 45 MPH
K crest = 61
K sag = 79
Grade Min = 0.40%
Grade Max = 4.0%



DATE		REVISIONS	

CITY OF BROKEN ARROW
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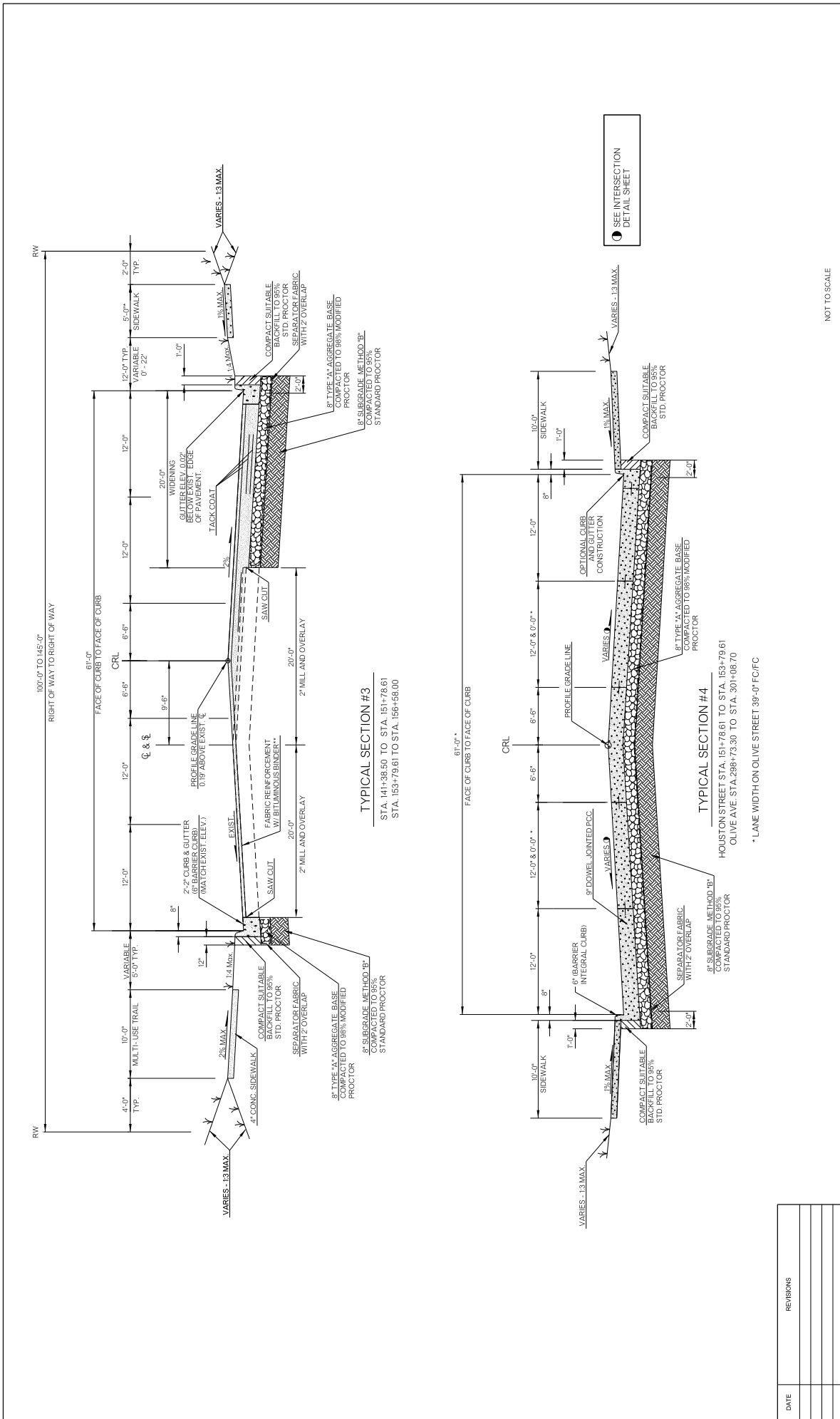
POE & ASSOCIATES INC.
Tulsa, Oklahoma

NOT TO SCALE

HOUSTON STREET WIDENING

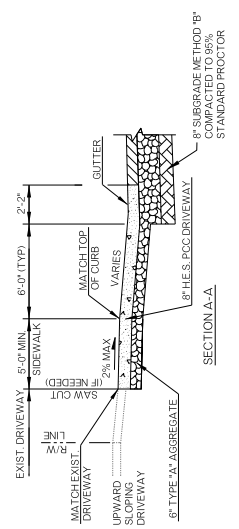
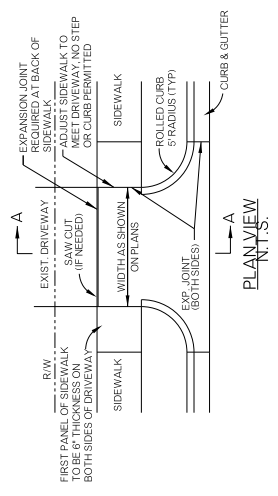
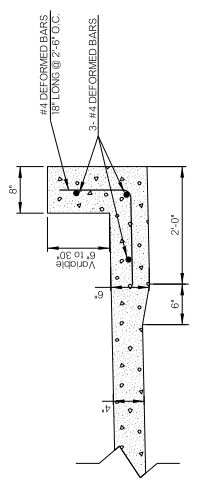
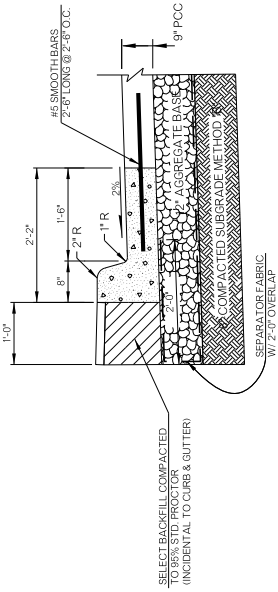
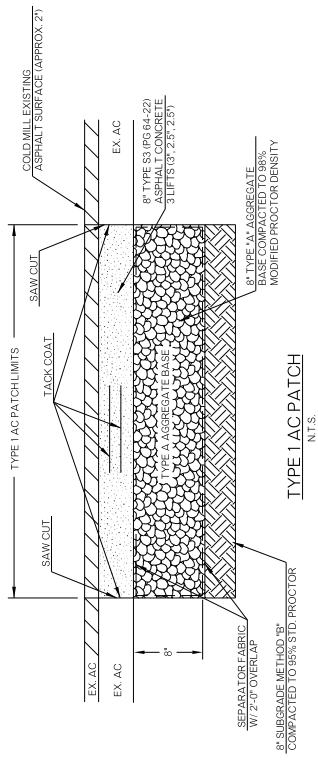
TYPICAL SECTIONS (1)

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=10'	GAC	2020	WSL	2020
VERT. 1"=10'	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME:	SHEET	OF	PROJECT NO.	
TYP (C)	108	2	ST 2028	



DATE		REVISIONS	

 CITY OF BROKEN ARROW <i>Where opportunity lives</i>	 POE & ASSOCIATES INC. Tulsa, Oklahoma	HOUSTON STREET WIDENING		TYPICAL SECTIONS (2)	
		NOT TO SCALE		NOT TO SCALE	
		PROFILE SCALE: HORIZ. _____ INTS VERT. _____ INTS		DESIGN DATE: _____ G/C DATE: _____ REVIEWED DATE: _____ SHEET _____ OF _____	



- DRIVEWAY NOTES**
- THERE WILL BE NO PAYMENT FOR CONCRETE CURB AND/OR INTEGRAL CURB FOR THE LENGTH OF THE CURB BLOCKOUT.
 - JOINT SEALERS SHALL MEET THE REQUIREMENTS OF SECTIONS 701.08b AND 701.08c, AND BE SELF-LEVELING.
 - DRIVEWAY/RADIUS ARE 5 FEET, UNLESS SHOWN ON THE PLANS.
 - SIDEWALKS SHALL MATCH THE ELEVATION OF THE DRIVEWAY WITHOUT ANY DROP OR STEP.
 - CONCRETE DRIVEWAYS WIDER THAN 12 FEET SHALL HAVE LONGITUDINAL CONTRACTION JOINTS NO MORE THAN 12 FEET APART.
 - CONCRETE DRIVEWAYS SHALL BE P.C. CONCRETE (W.E.S.) TO W. LINE, BACK OF SIDEWALK OR AS SHOWN ON PLANS.

COST FOR SIDEWALK WALL, THICKENED SIDEWALK/TRAIL AND REINFORCING STEEL SHALL BE INCIDENTAL TO THE PRICE BID FOR 4\"/>

DATE	REVISIONS

MISCELLANEOUS DETAILS (1)

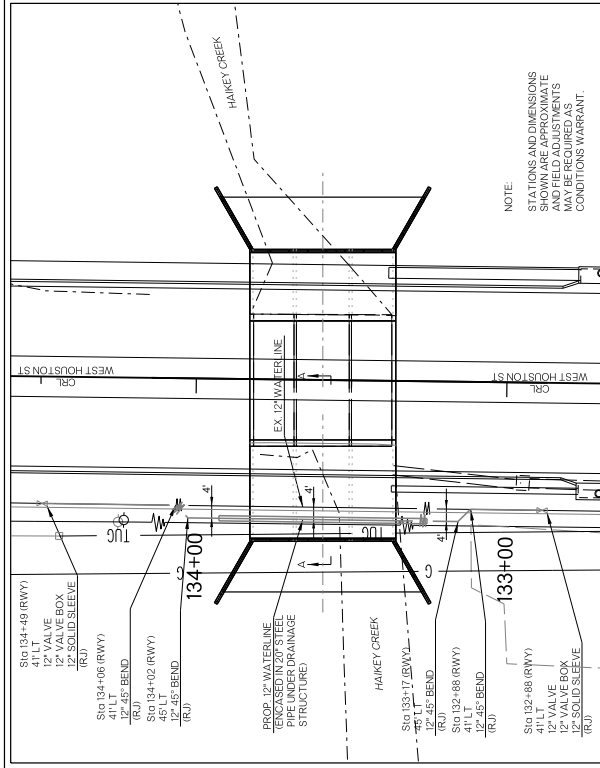
HOUSTON STREET WIDENING

NOT TO SCALE

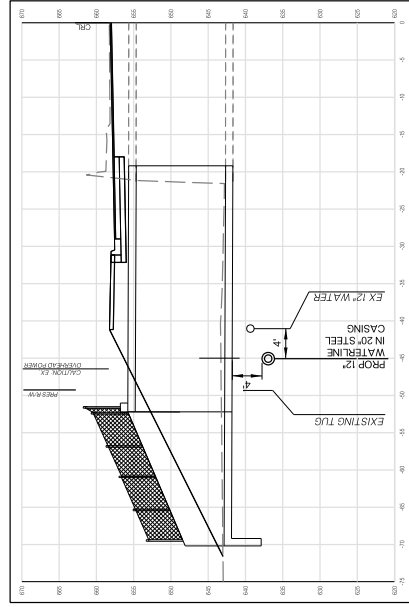
POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

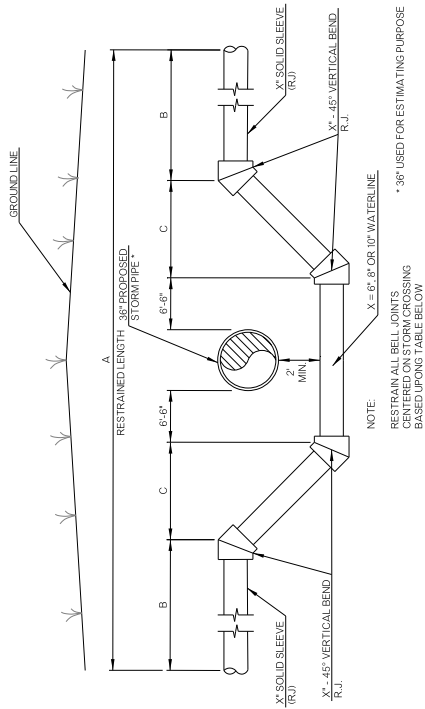
DESIGN DATE	DRAFTED DATE	DATE
CAC	WSL	2020
REVIEWED DATE	APPROVED DATE	
DRAWING NAME: TYPE (C)	SHEET OF	PROJECT NO. 87 2028



WATERLINE RELOCATION @ BRIDGE A - LITTLE HAIKEY CREEK ROB PLAN VIEW
N.T.S.



WATERLINE RELOCATION @ BRIDGE A - LITTLE HAIKEY CREEK ROB SECTION A - A
N.T.S.



PIPE SIZE	6"	8"	10"
A	66'	76'	86'
B	20'	25'	30'
C	5'	5'	5'

WATERLINE LOWERING DETAIL
N.T.S.

NOTE:
RESTRAIN ALL BELL JOINTS
CERTIFIED ON STORM CROSSING
BASED UPON TABLE BELOW
* 36" USED FOR ESTIMATING PURPOSE

DATE	REVISIONS



POE & ASSOCIATES INC.
Tulsa, Oklahoma

NOT TO SCALE

HOUSTON STREET
WIDENING

MISCELLANEOUS DETAILS (2)

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. N.T.S.	GAC	2020	WSL	2020
VERT. N.T.S.	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME:	TYP (C)	SHEET	OF	PROJECT NO.
		5	108	ST 2028

ITEM	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
1	201(A)	CLEARING AND GRUBBING		LSUM	1.00
2	202(A)	UNCLASSIFIED EXCAVATION	1,8,25,39	CY	9,700.00
3	202(D)	UNCLASSIFIED BORROW	8,25	CY	2,200.00
4	205(A)	TYPE A SALVAGED TORSOL		LSUM	1.00
5	221(C)	TEMPORARY SILT FENCE	9	LF	2,500.00
6	221(G)	TEMPORARY ROCK FILTER DAM (TYPE 1)	9	CY	250.00
7	221(K)	TEMPORARY FIBER LOG	9	LF	250.00
8	230(A)	SOLID SLAB SOILING	10,11,12	SY	28,000.00
9	303(A)	AGGREGATE BASE TYPE A	2	CY	4,400.00
10	310(B)	SUBGRADE METHOD B		SY	18,500.00
11	325	SEPARATOR FABRIC	3	SY	19,600.00
12	402(E)	TRAFFIC ROUND SURFACE COURSE TYPE E	16	TON	500.00
13	408(A)	FABRIC REINFORCEMENT (W/IRREGULAR BINDER)	6	SY	25,000.00
14	411(B)	SURFPAVE TYPE S3 (FG 84-220K)	13,14,15	TON	5,850.00
15	411(C)	SURFPAVE TYPE S4 (FG 10-26K) INSOLUBLE	13,14,15	TON	4,100.00
16	412	COLD MILLING PAVEMENT	4	SY	20,800.00
17	414(B)	DOVEL JOINED P.C. CONCRETE PAVEMENT (PLACEMENT)	19	SY	2,200.00
18	414(G)	P.C. CONCRETE CURB PAVEMENT		CY	525.00
19	501(A)	STRUCTURAL EXCAVATION UNCLASSIFIED	02,15	CY	22.00
20	509.01(A)	CLASS AA CONCRETE		CY	30.00
21	509(C)	CLASS A CONCRETE SMALL STRUCTURES	35	CY	10.00
22	509(D)	CLASS C CONCRETE		CY	3.00
23	511(A)	REINFORCING STEEL		LBS	6,440.00
24	601(A)	TYPE 1 PLAIN R/RAP		TON	550.00
25	606(A)	CONCRETE CURB (6" BARRIER INTEGRAL)		LF	500.00
26	606(B)	2-2" COMBINED CURB AND GUTTER (6" BARRIER)	18,19,20	LF	11,500.00
27	610(A)	4" CONCRETE SIDEWALK	19,20	SY	6,750.00
28	610(B)	8" CONCRETE DRIVEWAY (H.E.S.)	10,20	SY	1,750.00
29	610(I)	TACTILE WARNING DEVICE		SF	680.00
30	611(A)	4" DIA MANHOLE - COMPLETE IN PLACE	21	EA	2.00
31	611(A)	5" DIA MANHOLE - COMPLETE IN PLACE	21	EA	4.00
32	611(A)	6" DIA MANHOLE - COMPLETE IN PLACE	21	EA	8.00
33	611(B)	ADDITIONAL DEPTH IN 5" DIA. MANHOLE (STORM SEWER)		VF	4.00
34	611(B)	ADDITIONAL DEPTH IN 6" DIA. MANHOLE (STORM SEWER)		VF	10.00
35	611(G)	INLET RCI (4")	21	EA	9.00
36	611(G)	INLET RCI (6")	21	EA	5.00
37	611(G)	INLET RCI (8")	21	EA	2.00
38	611(G)	INLET RCI (8")	21	EA	10.00
39	611(G)	INLET (SMD-TYPE 1)		EA	3.00
40	611(H)	ADDITIONAL DEPTH IN RCI (4")		VF	8.00
41	611(H)	ADDITIONAL DEPTH IN RCI (4") W/ MANHOLE		VF	14.65
42	611(H)	ADDITIONAL DEPTH IN RCI (6")		VF	2.30
43	611(H)	ADDITIONAL DEPTH IN RCI (8")		VF	30.80
44	612(A)	MANHOLE ADJUSTED TO GRADE (R/B/LQ)	17,21	EA	7.00
45	612(B)	VALVE BOXES ADJUSTED TO GRADE	17,21	EA	10.00
46	612(F)	METER BOXES ADJUSTED TO GRADE	17,21	EA	827.00
47	613(E)	18" CORRUGATED POLYETHYLENE PIPE (DPP), COMPLETE IN PLACE		LF	1,650.00
48	613(E)	24" CORRUGATED POLYETHYLENE PIPE (DPP), COMPLETE IN PLACE		LF	483.00
49	613(E)	30" CORRUGATED POLYETHYLENE PIPE (DPP), COMPLETE IN PLACE		LF	865.00
50	613(E)	36" CORRUGATED POLYETHYLENE PIPE (DPP), COMPLETE IN PLACE		LF	885.00
51	613(E)	42" CORRUGATED POLYETHYLENE PIPE (DPP), COMPLETE IN PLACE		LF	352.00
52	613(E)	48" CORRUGATED POLYETHYLENE PIPE (DPP), COMPLETE IN PLACE		EA	1.00
53	613(L)	36" PREFAB. GULLY/BND SECTION, ROUND		EA	1.00
54	618(A)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	8,17,20,36	LS	1.00

DATE	REVISIONS



POE & ASSOCIATES INC.
Tulsa, Oklahoma

NOT TO SCALE

HOUSTON STREET WIDENING

PAY ITEMS

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ	GAC	2020	WSL	2020
VERT	NTS	2020	APPROVED	2020
DRAWING NAME:		SHEET	OF	PROJECT NO.
		6	108	ST 2028

ITEM	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
55	619(B)	REMOVAL OF ASPHALT PAVEMENT	8,17,30	SY	3,540.00
56	619(B)	REMOVAL OF DRAINAGE INLET	8,17,30	EA	10.00
57	619(B)	REMOVAL OF SIDEWALK	8,17,30	SY	2,860.00
58	619(B)	REMOVAL OF CONCRETE DRIVEWAY	8,17,30	SY	1,880.00
59	619(B)	REMOVAL OF CONCRETE CURB AND GUTTER	8,17,30	LF	8,000.00
60	619(B)	REMOVAL OF MANHOLES	8,17,30	EA	5.00
61	619(B)	REMOVAL OF HEADWALLS	8,17,30	EA	1.00
62	619(C)	SAVING PAVEMENT	33	LF	12,000.00
63	624(F)	FENCE-STYLE CULVERT (5' HIGH CLASS A)(BLACK VINYL COATED)		LF	255.00
64	641	MOBILIZATION	28,31	LSUM	1.00
65	642(B)	CONSTRUCTION STAKING LEVEL II	5,27	LSUM	1.00
66	650(A)	SHEET ALUMINUM SIGN		SF	150.00
67	651(C)	2" SQUARE TUBEPOST		LF	405.00
68	656(A)	TRAFFIC STRIPE (MULTI-POLYMER) (ARROWS)	22	LF	19,000.00
69	656(B)	TRAFFIC STRIPE (MULTI-POLYMER) (4" WIDE)	22	EA	45.00
70	657(A)	CONSTRUCTION TRAFFIC STRIPE (PAINT)(4" WIDE)	26	LF	16,000.00
71	657(B)	(P.L) CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TABS) TYPE 2-1	26	EA	10,000.00
72	680(J)	CONSTRUCTION TRAFFIC CONTROL	28,28	LSUM	1.00
73	682(A)	PORT CHANGEBLANK MESSAGE SIGN	26	SD	300.00
74	SPECIAL	TYPE 1 AC PATCH	1,7,32	SY	500.00
75	SPECIAL	PROJECT SIGN	26	EA	2.00
76	SPECIAL	CURB RAMP		EA	40.00
77	SPECIAL	QUICK SET FLOWABLE FILL	34	CY	31.00
78	SPECIAL	CRACK SEALING	32	LF	1,000.00

ITEM	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
79	202(A)	UNCLASSIFIED EXCAVATION	25	CY	1,470.00
80	601(A)	STRUCTURAL EXCAVATION (UNCLASSIFIED)	25	CY	265.00
81	609(A)	CLASS AA CONCRETE		CY	505.40
82	624(E)	FENCE-STYLE CULVERT (5' HIGH CLASS A)(BLACK COATED)		LF	171.00
83	511(A)	REINFORCING STEEL		LBS	104,920.00
84	619(B)	REMOVAL OF EXISTING BRIDGE STRUCTURE	6	LSUM	1.00

ITEM	SPEC. NO.	ITEM DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
85	BA 311	COMMON EXCAVATION (TRENCH)		CY	100
86	BA 312	COMMON BACKFILL AND COMPACTION		CY	60
87	BA 315	20" STEEL CASING (OPEN CUT)		LF	67
88	BA 401(A)	12", AWWA C900 DR-14 PVC, COMPLETE, IN PLACE, RJ	1,2,3,8,10	LF	164
89	BA 401(B)	10", AWWA C900 DR-14 PVC, COMPLETE, IN PLACE, RJ	1,2,3,8,10	LF	86
90	BA 401(C)	8", AWWA C900 DR-14 PVC, COMPLETE, IN PLACE, RJ	1,2,3,8,10	LF	76
91	BA 401(D)	6", AWWA C900 DR-14 PVC, COMPLETE, IN PLACE, RJ	1,2,3,8,10	LF	66
92	BA 410(A)	12" 45 DEGREE D.I. BEND (RJ)	2,8	EA	4
93	BA 410(A)	10" 45 DEGREE D.I. BEND (RJ)	2,8	EA	4
94	BA 410(A)	8" 45 DEGREE D.I. BEND (RJ)	2,8	EA	4
95	BA 410(A)	6" 45 DEGREE D.I. BEND (RJ)	2,8	EA	4
96	BA 410(D)	12" D.I. SLEEVE (RJ)	2,8	EA	2
97	BA 410(D)	10" D.I. SLEEVE (RJ)	2,8	EA	2
98	BA 410(D)	8" D.I. SLEEVE (RJ)	2,8	EA	2
99	BA 410(D)	6" D.I. SLEEVE (RJ)	2,8	EA	2
100	BA 411(A)	WATERLINE CONNECTION TO EX. SYSTEM, 12"	12	EA	2
101	BA 411(A)	WATERLINE CONNECTION TO EX. SYSTEM, 10"	12	EA	2
102	BA 411(A)	WATERLINE CONNECTION TO EX. SYSTEM, 8"	12	EA	2
103	BA 411(A)	WATERLINE CONNECTION TO EX. SYSTEM, 6"	12	EA	2
104	BA 420(A)	12" GATE VALVE (RJ)	8	EA	2
105	BA 430(B)	TYPE 2 VALVE BOX	21	EA	2

PAY ITEM NOTES (ROADWAY)

- THIS QUANTITY INCLUDES AN ADDITIONAL 10% ABOVE PLAN QUANTITY FOR UNDERCUTTING OF UNSUITABLE SUBGRADE MATERIAL OR ADDITIONAL PATCHING AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- INCLUDES COMPACTION OF AGGREGATE TO 98% AASHTO T180 MODIFIED PROCTOR.
- THE SEPARATOR FABRIC SHALL BE CUT AND OVERLAPPED A MINIMUM OF 2 FT AT ALL EDGES OF THE REPAIR.
- THIS ITEM INCLUDES ALL COSTS ASSOCIATED WITH COLD MILLING AND TO PROVIDE BUTT JOINTS AS REQUIRED. NO ADDITIONAL PAYMENT SHALL BE MADE FOR COLD MILLING BEYOND THE AVERAGE DEPTH SHOWN ON THE TECHNICAL SPECIFICATIONS.
- CONSTRUCTION STAKING SHALL INCLUDE SURVEYING AND THE FURNISHING, PLACING, AND MAINTAINING OF THE CONSTRUCTION LAYOUT STAKES NECESSARY FOR THE PROPER COMPLETION & INSPECTION OF THE ENTIRE PROJECT.
- FABRIC REINFORCEMENT SHALL BE USED ON OVERLAY AREAS. THE COST OF BITUMINOUS BINDER FOR FABRIC REINFORCEMENT SHALL BE INCLUDED IN THE UNIT COST OF THIS PAY ITEM. THE BITUMINOUS BINDER SHALL MEET ALL REQUIREMENTS OF THE PROJECT. THE FABRIC SHALL BE MANUFACTURED TO THE MANUFACTURER'S COMPLETION AND INSPECTION OF THE ENTIRE PROJECT. FABRIC SHALL EXTEND 1 FOOT BEYOND THE CONNECTING JOINT.
- THIS PAY ITEM INCLUDES THE FOLLOWING:
 - SAW CUTTING
 - REMOVAL OF THE EXISTING CONCRETE AND/OR ASPHALTIC CONCRETE ROADWAY (S)
 - CONSTRUCTION OF CURB
 - SUBGRADE METHOD B
 - SEPARATOR FABRIC
 - AGGREGATE BASE TYPE A, TACK COAT
 - TYPE S3 ASPHALT CONCRETE COMPLETE AND IN PLACE PER DETAIL

DOES NOT INCLUDE THE FOLLOWING:

- TYPE S4 ASPHALT CONCRETE SURFACE COURSE
- WASTE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR.
- EROSION PROTECTION SHALL BE PLACED AROUND DRAINAGE INLETS AS REQUIRED TO PREVENT ENTRANCE OF ROADWAY MATERIAL INTO DRAINAGE SYSTEMS. EROSION PROTECTION SHALL BE PLACED AS NECESSARY TO PREVENT EROSION WASH TO ROADWAY SURFACE. EROSION PROTECTION SHALL BE PLACED AS NECESSARY TO PREVENT EROSION WASH TO ROADWAY SURFACE FOR THE DURATION OF THE PROJECT. EROSION PROTECTION SHALL BE REMOVED AT THE END OF THE PROJECT AS DIRECTED BY THE CONTRACT ADMINISTRATOR. COST TO BE INCLUDED IN THE PRICE BID. THE PRICE INCLUDES THE COST OF EROSION PROTECTION MATERIAL, LABOR, AND EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORMWATER MANAGEMENT PLAN AND AS DIRECTED BY CONTRACT ADMINISTRATOR.
- THE PAY ITEM FOR SOLID SLAB SODDING INCLUDES QUANTITIES FOR PLACEMENT AND COMPACTION OF SODDING MATERIAL AND THE SODDING MATERIAL SHALL BE PLACED AS NECESSARY TO PREVENT EROSION WASH TO CURBS, SIDEWALKS, DRIVEWAYS, AND OTHER AREAS. THE QUANTITIES ARE BASED ON UTILIZING A 3 FOOT WIDE STRIP IN THESE AREAS. THE SOD SHALL BE LIKE KIND TO THE EXISTING SOD. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF DAMAGE TO EXISTING GRASS THAT EXCEEDS THESE LIMITS.
- PAY ITEM INCLUDES ALL MOVING WITHIN THE RIGHT-OF-WAY AS DIRECTED DURING CONSTRUCTION.
- COST OF WATERING AND FERTILIZING SHALL BE INCLUDED. FERTILIZERS SHALL BE 0.25 LB AND SHALL BE APPLIED AT THE RATE OF 15 LB PER 1000 SQ YDS. FERTILIZER SHALL BE APPLIED PER SECTION 200.04 AND ODOT STANDARD SPECIFICATIONS. WATERING SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED AND UNTIL THE WORK IS ACCEPTED AS COMPLETE.
- THE COST OF TACK COAT, EDGE JOINT SEAL MATERIAL AND SCREENINGS FOR BLOTTING, AND ALL LABOR ASSOCIATED WITH THESE ITEMS, SHALL BE INCLUDED IN ASPHALT CONCRETE.
- ESTIMATED AT 112 LB PER SQ YD PER 1 INCH THICK.
- ODOT PAY FACTOR FOR AVERAGE LOT DENSITY SHALL NOT BE USED FOR THIS PROJECT FAILURE TO REACH AVERAGE LOT DENSITY OF 92%-97% WILL RESULT IN REJECTION OF WORK.
- FOR USE ON TEMPORARY DRIVEWAYS. LOCATIONS TO BE DETERMINED IN THE FIELD AND WORK TO BE PERFORMED AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR. QUANTITY IS ESTIMATED AND MAY BE OMITTED IN ITS ENTIRETY.
- ALL SAW CUTTING FOR THE ADJUSTED, REPAIRED, OR REPLACED SHALL BE INCLUDED IN THE COST OF THE ITEM.
- THIS ITEM SHALL BE MEASURED AS THE ACTUAL AMOUNT OF CURB AND/OR GUTTER INSTALLED. CURB AND GUTTER SHALL BE MEASURED THROUGH INLETS.
- INCLUDES ALL COST OF SAWED JOINTS AND SEALING OF ALL JOINTS INCLUDING LONGITUDINAL JOINTS.

PAY ITEM NOTES - (ROADWAY - CONTD)

- CURB, GUTTER AND/OR SIDEWALK ASSOCIATED WITH THE DRIVEWAY AND THROUGH THE DRIVEWAY IS INCLUDED IN THE COST OF THE DRIVEWAY.
- THE TOTAL COST FOR RUBBERIZED ASPHALT AND/OR SILICONE AT MANHOLES, VALVE BOXES, INLETS, AND INLET APRONS, SHALL BE INCLUDED.
- ALL PLASTIC PAVENT MARKINGS SHALL BE:
 - MULTI-POLYMER PAINT. MULTI-POLYMER PAVEMENT MARKINGS SHALL ONLY BE APPLIED 30 DAYS AFTER PAVING WHEN PAVING SURFACE EXCEEDS 40 FT FOR ALL OF SIX HOURS PRIOR TO THE END OF THE PAVING OPERATION.
 - LINE AND POST CONSTRUCTION LANE MARKING/SEPARATION FOR STRIPING WIDER THAN 4' SHALL BE PAID FOR EQUIVALENT LENGTH OF 4' STRIPE.
 - REFLECTORIZED SHEETINGS ON SIGNS AND PARABOLIC CURVES SHALL BE OF A CURB PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM A496-01 TYPE II RETROREFLECTIVE SHEETING. REFLECTORIZED SHEETING ON DRAINS AND TUBE CHANNELIZERS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM A498-01 TYPE II RETROREFLECTIVE SHEETING.
 - IF WARNING LIGHTS ARE TO BE USED ON TRAFFIC CONTROL DEVICES, TYPE "A" LIGHTS SHALL ONLY BE USED ON DEVICES WARNING OF UNEXPECTED HAZARDS, AND SHALL NOT BE USED FOR DELINEATION OF THE TRAVELED WAY. ONLY TYPE "C" WARNING LIGHTS SHALL BE USED FOR DELINEATION OF THE TRAVELED WAY, AND TYPE "C" LIGHTS SHALL NOT BE USED FOR ANY OTHER PURPOSE.
 - THE CONTRACTOR SHALL BE PAID FOR UNCLASSIFIED EXCAVATION AND BORROW ON THE BASIS OF PLAN QUANTITY. ANY ADDITIONAL EXCAVATION OR BORROW REQUIRED OR COVERING OF PLAN QUANTITY WILL BE PAID FOR ON THE BASIS OF ACTUAL QUANTITIES. UNCLASSIFIED BORROW PROVIDED FOR PHASE 1 CONSTRUCTION.
 - PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL REQUIRED FOR COMPLETION OF THE PROJECT.
 - THE COST TO REPLACE REMOVED OR DAMAGED SECTION CORNERS AND ALL OTHER PERMANENT RIGHT OF WAY MARKERS SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM. NO ADDITIONAL PAYMENT WILL BE MADE.
 - MOBILIZATION FOR THE PROJECT IS TO BE INCLUDED IN THIS PAY ITEM. THE MAXIMUM ALLOWABLE AMOUNT WILL BE IN ACCORDANCE WITH THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION TABLE 6411.
 - UNCLASSIFIED EXCAVATION INCLUDES REMOVAL OF AGGREGATE BASE, MODIFIED SUBGRADE AND ANY OTHER MATERIAL UNDER EXISTING PAVEMENT TO BE REPLACED.
 - ITEMS TO BE REMOVED MAY OR MAY NOT BE PRESENT IN ANY SPECIFIED CONDITION. PAVEMENT REMOVAL CAN BE EITHER CONCRETE OR ASPHALT OR COMBINATION.
 - WATER WILL BE PROVIDED VIA THE WATERBURY CITY OF PUBLIC WORKS DEPARTMENT. AT NO COST TO THE CONTRACTOR, THE CONTRACTOR WILL BE RESPONSIBLE TO OBTAIN A CONSTRUCTION WATER FROM THE CITY, PAYING A \$1200 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'S NOTICE OF COMPLETION SHALL BE AT THE CONTRACTOR'S RISK. 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 TRANSPORT AND DISTRIBUTION OF WATER AS NEEDED. IF WATER IS OBTAINED FROM ANOTHER ENTITY THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS, FEES AND ALL OTHER INCIDENTALS FROM THE ENTITY.
 - ESTIMATED QUANTITY OF 500 C.Y. TO BE USED FOR PATCHING AT DRAINAGE PIPE CROSSINGS AND IF PAVEMENT REPAIR DETERMINED/REQUIRED DURING CONSTRUCTION WITH APPROVAL OF THE CITY.
 - THIS ITEM IS FOR THE USE FOR SAW CUTTING THE EDGE OF THE PAVEMENT FOR WIDENING TO ENSURE CLEAN AND STRAIGHT EDGE.
 - ESTIMATED QUANTITY TO BE USED AS BACKFILL AROUND ROADWAY INLETS.
 - ESTIMATED QUANTITY TO BE USED AT THE DISCRETION OF THE CITY.
 - PAY ITEM SHALL INCLUDE ALL ITEMS SHOWN ON THE REMOVAL SHEETS WHERE A SEPARATE PAY ITEM IS NOT PROVIDED. IN ADDITION, IT SHALL ALSO INCLUDE ITEMS NOT SHOWN WHICH NEEDS TO BE REMOVED FOR CONSTRUCTION OF THE PROJECT.

PAY ITEM NOTES (WATER)

- TESTING AND CHLORINATION OF WATER MAINS SHALL BE PERFORMED BY THE CONTRACTOR. TESTING, CHLORINATION, AND FLUSHING SHALL BE DONE IN ACCORDANCE WITH SECTION 160.04 OF THE GENERAL SPECIFICATIONS.
 - CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY PIPES WITH ADEQUATE BLOW OFFS OR PRESSURIZED PIPES FOR CONNECTIONS TO EXISTING MAINS. TESTING OPERATIONS SHALL BE DONE ONCE TESTING, CHLORINATION AND FLUSHING BY CONTRACTOR IS COMPLETED. REMOVE TEMPORARY BLOCKING AND TAKE INTO EXISTING SYSTEM, USING FITTINGS SWABBED INTERNALLY WITH 2% BLEACH SOLUTION.
 - CHLORINATION AND FLUSHING OF NEW WATER MAINS SHALL BE PERFORMED BY CONTRACTOR ON MAINS WHICH ARE PHYSICALLY DISCONNECTED FROM THE EXISTING WATER SYSTEM. TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAINS SHALL NOT BE PERFORMED AGAINST VALVES WHICH ARE PHYSICALLY CONNECTED TO EXISTING SYSTEM. COLLECTION OF SAMPLE AND TESTING WILL BE THE RESPONSIBILITY OF THE CITY.
- ALL COSTS FOR TEMPORARY PIPES, BLOCKING, RESTRAINING, CORPORATION STOPS, TUBING, THREAD CONNECTIONS, BLEACH AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.

PAY ITEM NOTES - (WATER - CONTD)

- BURIED BOLTS, HARNESS LUGS, AND COUPLINGS SHALL BE GIVEN TWO COATS OF KOPPER'S BITUMASTIC 300-M (DRY MIL THICKNESS OF 16 MILS) OR EQUAL. COST TO BE INCLUDED IN UNIT PRICE BID FOR PIPE AND FITTINGS.
- CONTRACTOR TO EXCAVATE ALL UTILITY CROSSINGS AHEAD OF PIPE LAYING SO THAT THE GRADES CAN BE ADJUSTED ON THE PROPOSED WATER MAIN TO AVOID UTILITY CONFLICTS. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER MAIN. COST FOR EXCAVATING UTILITY CROSSINGS SHALL BE INCLUDED IN UNIT PRICE BID FOR PIPE.
- NOT USED.
- ALL HYDRANTS, VALVES AND OTHER FITTINGS FROM ABANDONED WATER MAINS SHALL BE SALVAGED AND DELIVERED TO THE CITY OF BROKEN ARROW. PAYMENT TO BE MADE UNDER RIGHT OF WAY CLEARING AND RESTORATION. NO ADDITIONAL PAYMENT SHALL BE MADE.
- NOT USED.
- NOT USED.
- ALL COSTS FOR COMPONENTS NECESSARY TO RESTRAIN JOINTS FOR PIPE AND FITTINGS DESIGNATED RESTRAINED JOINT (RJ) SHALL BE INCLUDED IN UNIT PRICE BID FOR PIPE OR FITTINGS.
- PRO WINKY, CHLORINE (PVC) RESTRAINED JOINT SYSTEMS (RJAS), NEGALUGS, AT 8" AT 8" OR EQUAL, SHALL BE USED ON THIS PROJECT. LOCKING GASKETS NOT PERMITTED. SHOULD R, U, PIPE BE SPECIFIED ON BORE CASING IS REQUIRED.
- NO ADDITIONAL PAYMENT SHALL BE MADE.
- ALL CUT ENDS AND WHERE SALVAGED FITTINGS HAVE BEEN REMOVED FROM ABANDONED WATER LINES LEFT IN PLACE SHALL BE PLUGGED WITH 2" OF CONCRETE INSIDE THE PIPE. COST OF CONCRETE PLUGGING TO BE INCLUDED IN UNIT PRICE BID FOR PIPE. NO ADDITIONAL PAYMENT SHALL BE MADE.
- TRACER WIRE AND DETECTABLE MYLAR MARKING TAPE SHALL BE INSTALLED ABOVE ALL PVC PIPE, TERMINATING ONLY ONTO HYDRANTS JUST ABOVE GROUND LEVEL. COST OF TRACER WIRE AND DETECTABLE MYLAR TAPE SHALL BE INCLUDED IN UNIT PRICE BID FOR PVC PIPE.
- NOT USED.
- ALL LABOR MATERIALS AND EQUIPMENT TO CONNECT PROPOSED WATER MAINS TO EXISTING WATER MAINS ARE INCLUDED IN COST OF WATER LINE CONNECTION. CONTRACTOR TO EXCAVATE ALL EXISTING WATER MAINS AHEAD OF PIPE LAYING SO THAT THE GRADES CAN BE ADJUSTED ACCORDINGLY. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENT TO THE EXISTING WATER MAINS. COST FOR EXCAVATING UTILITY CROSSINGS SHALL BE INCLUDED IN UNIT PRICE BID FOR WATER LINE CONNECTION. NO ADDITIONAL PAYMENT SHALL BE MADE.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- TOP OF VALVE BOX SHALL BE FLUSH WITH FINISHED GRADE.
- NOT USED.
- NOT USED.
- NOT USED.

DATE	REVISIONS



POE & ASSOCIATES INC.
Tulsa, Oklahoma

NOT TO SCALE

**HOUSTON STREET
WIDENING**

PAY ITEM NOTES

PROFILE SCALE:	DESIGN	DATE	DATE	DATE
HORIZ.	GAC	2020	WSL	2020
VERT.	NTS	DATE	APPROVED	DATE
DRAWING NAME:	SHEET	7	PROJECT NO.	
PAY ITEM NOTES	OF	108		ST 2028

CITY OF BROKEN ARROW (10/11/22)

TRAFFIC SIGNAL GENERAL CONSTRUCTION NOTES

SYMBOLS AND LEGENDS ARE DIAGRAMMATIC ONLY AND LOCATIONS SHALL BE ADJUSTED FOR EXISTING FIELD CONDITIONS BUT NO WORK ALTERATIONS OR RELOCATIONS WILL BE MADE WITHOUT FIRST CONSULTING WITH THE DESIGN ENGINEER AT (918) 481-8484.

THIS PROJECT SHALL BE CONSTRUCTED WITHOUT CLOSING THE EXISTING ROAD TO LOCAL AND THROUGH TRAFFIC. SEE STANDARD SPECIFICATIONS FOR MAINTENANCE OF LOCAL AND THROUGH TRAFFIC.

ALL BROKEN CONCRETE, WASTE MATERIAL, AND DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN AN AREA APPROVED BY THE ENGINEER. NO PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.

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 "ONE" NOTIFICATION CENTER AT 811 OR (405) 522-6543 OR WWW.CALLOKE.COM OR THE LOCAL COUNTY CLERK'S OFFICE.

TRAFFIC SIGNAL PAY QUANTITY NOTES

(TR-24) ALL TRAFFIC SIGNAL EQUIPMENT REQUIRED SHALL BE THE PROPERTY OF THE CITY. THE CONTRACTOR SHALL FURNISH ALL TRAFFIC SIGNAL EQUIPMENT MATERIAL AT LOCATION ON THE JOB SITE AS DIRECTED BY THE ENGINEER. THE PRICE BID SHALL INCLUDE THE REMOVAL OF ALL FOOTINGS BELOW GROUND LEVEL OR AS DIRECTED BY THE ENGINEER. THE FOOTINGS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR. ALL ABANDONED PULL BOXES ARE TO BE REMOVED. CONDUITS ARE TO BE REMOVED FROM ALL ABANDONED CONDUITS.

(TP-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY.

(2) POLYMER CONCRETE PULL BOXES SHALL BE USED.

(3) THIS PROJECT INCLUDES THE INSTALLATION OF VIDEO VEHICLE DETECTION SYSTEMS. THEREFORE, THE CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING:

A VIDEO PROCESSOR VEHICLE DETECTION SYSTEM INCLUDING ALL NECESSARY CABLES, HARNESSES, AND COMPONENTS NECESSARY TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM AT ONE INTERSECTION.

THE VIDEO SYSTEM PROVIDED SHALL BE ANTENNA VANTAGE NEXT, OR APPROVED EQUAL.

VIDEO CABLE SHALL BE AS PER THE MANUFACTURER'S SPECIFICATIONS.

VIDEO COAXIAL CABLE SHALL BE LOW LOSS PRECISION CABLE SUITED FOR OUTDOOR APPLICATION. VIDEO CABLE SHALL BE BELDON 8281, WEST PENN P 806, OR APPROVED EQUAL.

(4) THE HAND HOLES AT THE BASE OF THE POLES SHALL BE PLACED AT 180 DEGREES CLOCKWISE FROM THE WAST ARM IN ORDER TO AVOID CONFLICTS WITH THE PEDESTRIAN PUSHBUTTONS AND SIGNS THAT WILL BE INSTALLED.

(5) RED, YELLOW AND GREEN LED TRAFFIC SIGNAL HEADS SHALL BE FURNISHED AND INSTALLED ON THIS PROJECT. THE LED TRAFFIC MODULES, LENSES, AND ALL ASSOCIATED MATERIAL AND EQUIPMENT SHALL CONFORM TO ILL. VEHICLE TRAFFIC SIGNAL HEAD (VCSH) STANDARDS IN EFFECT AT THE TIME THAT THE ORDER IS PLACED. LED HEADS SHALL BE CAPABLE OF OPERATING WITHOUT A REFLECTOR. THEY SHALL HAVE AN "NON-DISCRENT" LOOK.

(6) REFLECTIVE SHEETING SHALL BE EITHER 3M BRAND D03 (SERIES 4000) SHEETING OR AN ASTM CLASS 4 APPROVED EQUAL.

(7) PAY ITEMS FOR BRING POWER TO THE CONTROLLER CABINET FROM THE SERVICE POLE.

(8) PAY ITEMS FOR ELECTRICAL CONDUCTORS TO STREET LIGHT FIXTURES.

(9) CONTRACTOR SHALL PROVIDE POLARA 2 AMRE NAVIGATOR ACCESSIBLE PEDESTRIAN PUSH BUTTONS OR APPROVED EQUAL WITH INTELLIGENT CENTRAL CONTROL UNIT AND ALL NECESSARY CABLES. RTD-BE PEDESTRIAN PUSHBUTTON SIGNS SHALL BE USED.

(10) LED INTERNATIONAL HEADS DISPLAYING INCANDESCENT LOOKING FULLY ILLUMINATED SYMBOLS (WALKING PERSON AND UPRAISED HAND) SHALL BE REQUIRED ON THIS PROJECT. PEDESTRIAN HEADS SHALL ALSO BE COUNTERDOWN-TYPE.

(11) PAY ITEMS TO RUN FROM THE PEDESTRIAN PUSHBUTTON TO THE POLE BASE.

PAY QUANTITIES

ITEM	DESCRIPTION	UNIT	TOTAL
0200	TRAFFIC		
802(B) 0324	2" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	(TP-1) LF	45.00
802(C) 0435	3" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	(TP-1) LF	150.00
802(A) 1210	1/2" ALL BOX (SIZE 1)	EA	3.00
802(A) 1210	1/2" ALL BOX (SIZE 2)	EA	3.00
804(A) 2200	STRUCTURAL CONCRETE	(TP-1) CY	8.86
804(B) 2300	REINFORCING STEEL	(TP-1) LB	1358.46
805(A) 3256	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	(TP-24) LSJM	1.00
806(A) 4252	12" MH POLE 40 FT 1/8" W/ 1/4" (G.S.T.L.)	EA	1.00
806(A) 4254	POLE 4.0 FT. 1/8" ARM (G.S.T.L.)	EA	1.00
806(A) 4458	10' MTG. HT. 7/8" PED. POLE (G.S.T.L.)	EA	1.00
806(A) 7200	ROADWAY LUMINAIRE	(TP-1) EA	312.00
806(A) 9110	14" NC 10 ELECT. COND.	(TP-1) LF	960.00
826	0100 (PL) DETECTION SYSTEM (VIDEO)	(TP-23) LSJM	1.00
830	2100 PEDESTRIAN PUSHBUTTON	(TP-23) EA	8.00
831	3100 PEDESTRIAN PUSHBUTTON	(TP-23) EA	8.00
831	3120 1WAY ASSEC. ADJ. SIG. HD. S-19	(TP-23) EA	5.00
831	3144 1WAY ASSEC. ADJ. SIG. HD. S-19	(TP-23) EA	3.00
831	3156 1WAY ASSEC. ADJ. SIG. HD. S-19	(TP-23) EA	3.00
832	3100 BACRYLATE SIGNAL ELECTRICAL CABLE	(TP-23) EA	171.00
832	3105 BACRYLATE SIGNAL ELECTRICAL CABLE	(TP-23) EA	230.00
834(A) 6210	7/8" TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1) LF	540.00
834(A) 6235	21/8" TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1) LF	90.00
834(B) 6300	21/8" SHIELDED LOOP DETECTOR LEAD-IN CABLE	(TP-1) LF	90.00
840(B) 0300	E.P.S. OPTICAL DETECTOR	EA	4.00
840(C) 0400	E.P.S. OPTICAL DETECTOR CABLE	(TP-1) LF	420.00
840(D) 0510	E.P.S. 4 CHANNEL PHASE SELECTOR	(TP-1) EA	1.00
850(C) 1400	WAST ARM MOUNTED SIGNS (ALUM.)	(TP-23) LSJM	53.00
850	1100 (PL) TRAFFIC ITEMS	(TP-23) LSJM	128

(12) THE PREEMPTION CONTROL SYSTEM SHALL INTERFACE WITH THE TRAFFIC CONTROLLER TO GIVE EMERGENCY VEHICLES APPROACHING THE INTERSECTION A GREEN WITH ALL OTHER INDICATIONS BEING RED. THE SYSTEM SHALL BE CAPABLE OF TWO PRIORITY LEVELS AND LOG THE LAST 100 EVENTS WITH TIME AND DATE STAMP. THE SYSTEM SHALL BE CAPABLE OF SHUTTING UP TO 9999 VEHICLE CODES. ALL EQUIPMENT IN THE SYSTEM SHALL MEET NEW ENVIRONMENTAL STANDARDS.

THE MANUFACTURER OR MANUFACTURERS REPRESENTATIVES SHALL PROVIDE ASSISTANCE TO THE CONTRACTOR OR AGENCY INSTALLING THE EQUIPMENT AS TO THE BEST LOCATION FOR THE DETECTOR PLACEMENT AT EACH INTERSECTION INVOLVED WITH THE PROJECT. ALL EQUIPMENT MUST BE PLAINLY MARKED AS TO THE MANUFACTURER OF THE EQUIPMENT AND PROVIDE CLEAR IDENTIFICATION AS TO THE MANUFACTURERS MODEL AND PART NUMBER OF EACH UNIT. VEHIC IDENTIFICATION AND TEST PROCEDURES SHALL BE PROVIDED UPON REQUEST BY THE ENGINEER.

THE PREEMPTION CONTROL SYSTEM PROVIDED SHALL BE OPTION TO BE COMPATIBLE WITH THE CITY'S EXISTING SYSTEM.

(13) OLD SIGNAL POLE STANDARDS (WAST ARM FOUNDATION STANDARD (CORN 141)) SHALL BE USED FOR THE POLYMER CONCRETE PULL BOXES. THE EXISTING POLES BEING USED SHALL BE REMOVED AND THE WAST ARM HAND POLE IS TO BE 3" FROM THE BOTTOM OF THE HAND HOLE TO THE BOTTOM OF THE BASE PLATE.

(14) LED ROADWAY LUMINAIRES SHALL BE FURNISHED ON THE PROJECT. THE LUMINAIRE FURNISHED SHALL BE LED ROADWAY LUMINAIRE. THE LUMINAIRE SHALL BE MANUFACTURED BY LUMEC, OR APPROVED EQUAL. THE LUMINAIRE COLOR SHALL BE BLACK.

(15) VEHICLE SIGNAL HEADS SHALL HAVE YELLOW HOUSINGS, BLACK DOORS, AND BLACK VISORS.

(16) PEDESTRIAN SIGNAL HEADS SHALL HAVE YELLOW HOUSINGS.

(17) THE STREET NAME SIGNS FOR THIS PROJECT SHALL BE "CLEAN PROFILE" SINGLE SIDED INTERNALLY ILLUMINATED SIGNS BY SOUTHERN MANUFACTURING. THE SIGNS SHALL BE MOUNTED ON THE WAST ARM NOT SUSPENDED IN THE MAST. THE SIGNS SHALL BE BLACK. THE SIGNS SHALL BE MANUFACTURED BY SOUTHERN MANUFACTURING. THE BODY SHALL BE POWDER COATED BLACK. LEGEND DETAILS AND LAYOUT FURNISHED BY THE CITY SIGN SHOP ARE PROVIDED IN THE PLANS. LETTERING AND BORDER ART TO BE WHITE ON BLUE BACKGROUND. THE SIGNS FURNISHED SHALL HAVE A WEARABLE DIMENSION OF 72" X 24". A PHOTOCELL SHALL BE PROVIDED ON EACH SIGN (2-HOLE COVER PLATE).

(20) BACKPLATES SHALL MEET CDOT STANDARDS, EXCEPT THEY SHALL BE ALUMINUM RATHER THAN WALCUM FORMED PLASTIC WITH A DURABLE, FACTORY APPLIED, NONREFLECTIVE FINISH (POWDER COATED, BAKED ENAMEL, OR OTHER FINISH APPROVED BY THE CITY) WITH LOGGERS IN THE BACKPLATE.

(21) 2" WIDE YELLOW REFLECTIVE TAPE SHALL BE APPLIED ALONG THE PERIMETER OF THE BACKPLATE.

(22) THE SPACE BETWEEN THE POLE BASEPLATE AND THE FOUNDATION IS TO BE FILLED WITH GROUT.

(23) THE FINAL FINISH FOR THE FOLLOWING ITEMS SHALL BE BLACK POWDER COAT:

- TRAFFIC SIGNAL POLES AND WAST ARMS
- PEDESTRIAN POLES AND SIGN SUPPORT BRACKETS
- PEDESTRIAN POLES AND SIGN INSULATING PROGRAMME
- PEDESTRIAN PUSHBUTTON HOUSINGS
- VIDEO CAMERA SUPPORT BRACKETS MOUNTED ON SIGNAL POLE

(24) THIS ITEMS AN ESTIMATED QUANTITY TO BE USED AS DEEMED NECESSARY BY THE ENGINEER.

(25) THE PRICE BID FOR THIS ITEM IS TO INCLUDE THE CONTROLLER WIRING AND LABOR COSTS TO REMOIVE THE CONTROLLER CABINET AND TO PROVIDE CONNECTIVITY TO FIBER, OPTICOM, VIDEO DETECTION AND ALL OTHER EQUIPMENT. THE CONTRACTOR SHALL PROVIDE A FULLY FUNCTIONAL AND OPERATIONAL INTERSECTION IN ACCORDANCE WITH THE INTENT OF THE PLAN.

DATE	6/26/24
REVISIONS	
ADDENDUM 4: MODIFIED QUANTITY AND NOTE	Δ



TRAFFIC ENGINEERING CONSULTANTS INC.
 6831 S. 46TH E. AVE., STE 100
 TULSA, OK 74133
 PHONE: 918-481-9484
 FAX: 918-481-9484

W. HOUSTON ST. & S. OLIVE AVE

SIGNAL PAY QUANTITIES AND NOTES

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ.	JOS	07/03/24	SS	07/03/24
VERT:	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME:	SHEET	OF	PROJECT NO.	

ESTHER M. SHAM-SMITH, P.E. # 23711
 C.A. # 1160, RENEWAL 06-30-25
 DATE: 5-30-24
 TAFE Engineering Consultants, Inc.
 2770 W. 101st Street, Suite 208A,
 Oklahoma City, Oklahoma 73143
 Ph: 405-750-3721, Web: www.tafeinc.com

GENERAL CONSTRUCTION NOTES

- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2024 CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS SUPPLEMENTED BY THE 2019 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS GOVERNING SAFETY, HEALTH AND SANITATION. THE CONTRACTOR SHALL PROVIDE ALL SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT, AND TAKE ANY OTHER NEEDED ACTION ON HIS OWN RESPONSIBILITY OR AS THE CONTRACT ADMINISTRATOR MAY DETERMINE REASONABLY NECESSARY TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT.
- THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
- THE LOCATIONS OF THE UTILITIES ARE SHOWN ACCORDING TO ALL AVAILABLE INFORMATION. THE CONTRACTOR SHALL NOTIFY EACH UTILITY OWNER PRIOR TO COMMENCEMENT OF WORK TO VERIFY BOTH HORIZONTAL AND VERTICAL LOCATIONS.
- THE CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF OKLAHOMA ONE-CALL SYSTEM, INC. NOTICE OF ANY EXCAVATION NO SOONER THAN TEN DAYS NOR LATER THAN 48 HOURS, EXCLUDING SUNDAYS, SUNDAYS AND LEGAL HOLIDAYS. PRIOR TO THE COMMENCEMENT OF WORK, PHONE: 1-800-522-6543.
- THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PREVENT EXCESS MOISTURE FROM INCIDENT WEATHER OR OTHER SOURCES FROM ENTERING ANY STREET EXCAVATION. IF EXCESS MOISTURE DOES ENTER THE EXCAVATION THROUGH THE NEGLIGENCE OF THE CONTRACTOR AND THE ADJOINING PAVEMENT IS ADVERSELY AFFECTED BY THE EXCESS MOISTURE, THE CONTRACTOR SHALL REPLACE THE ADJOINING PAVEMENT AND SUBBASE AT HIS SOLE EXPENSE.
- THE CONTRACTOR SHALL PRESERVE THE INTEGRITY OF THE SANITARY SEWER STRUCTURES AND ALL OTHER UTILITY STRUCTURES WITHIN THE PROJECT EXTENTS.
- THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE CITY OF BROKEN ARROW TO ESTABLISH, INSTALL, MAINTAIN, AND OPERATE COMPLETE, ADEQUATE, AND SAFE TRAFFIC CONTROLS DURING THE ENTIRE CONSTRUCTION PERIOD. ALL FLAGGERS, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE APPROVED BY THE CITY'S CONTRACT ADMINISTRATOR.
- CONSTRUCTION SIGNAGE WILL BE INSTALLED IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT, ADDITION, AND APPLICABLE ODOT STANDARD DRAWINGS.
- LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH THE PROJECT AT ALL TIMES.
- ALL PUBLIC AND PRIVATE STREETS AND DRIVES SHALL BE ACCESSIBLE AT ALL TIMES.
- ALL BROKEN CONCRETE, WASTE MATERIAL, AND OTHER DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.
- ALL EXCAVATED MATERIAL NOT REQUIRED IN THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR WITHOUT COST TO THE CITY. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN AN EARTH CHANGE PERMIT IF ANY MATERIAL IS STORED ON THE PROJECT SITE AND/OR DISPOSED OF WITHIN THE CITY LIMITS.
- ALL TREES, BRUSH AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER IS TO BE CLEANED OUT TO THE RIGHT-OF-WAY LINE IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR. ALL COST TO BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK. TREES OUTSIDE THE FILL SLOPES AND THE TOP OF CUT SLOPES SHALL NOT BE DISTURBED EXCEPT WITH THE WRITTEN APPROVAL OF THE CONTRACT ADMINISTRATOR.

GENERAL CONSTRUCTION NOTES (CONT'D)

- WHERE MATERIALS ARE TRANSPORTED IN THE PROSECUTION OF WORK, VEHICLES SHALL NOT BE LOADED BEYOND THE CAPACITY RECOMMENDED BY THE VEHICLE MANUFACTURER OR AS PRESCRIBED BY ANY FEDERAL, STATE OR LOCAL LAW OR REGULATION.
- ANY DAMAGE TO THE ROADWAY PAVEMENT, CURB, DRIVEWAYS OR SIDEWALK CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE CONTRACT ADMINISTRATOR'S SATISFACTION AND SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S SOLE EXPENSE. ALL DISTURBED ITEMS SHALL BE REPAIRED TO MATCH EXISTING MATERIALS AND PATTERNING.
- IF THE CONTRACTOR ENCOUNTERS VIBRATIONS WHEN PAVING STREETS, THE CONTRACTOR SHALL NOTIFY THE CITY FOR AN INSPECTION BEFORE PROCEEDING WITH WORK.
- THE PROJECT SHALL BE CONSTRUCTED WITH CONTINUOUS FLOW OF MATERIAL SUPPLIED TO THE PROJECT SUCH THAT THE LAYDOWN MACHINE WILL REMAIN IN MOTION. ANY DELAY IN FORWARD PROGRESSION OF THE LAYDOWN MACHINE MAY REQUIRE A TRANSVERSE JOINT AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- NO FLY ASH IS ALLOWED TO BE USED ON THIS PROJECT.
- PHYSICAL TESTING FOR QUALITY ASSURANCE SHALL BE FURNISHED BY THE CITY.
- CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY QUALITY CONTROL TESTING TO ENSURE THAT PROJECT REQUIREMENTS ARE MET.
- MASONRY STRUCTURES SHALL NOT BE CONSTRUCTED WITHIN THE STREET RIGHT-OF-WAY.
- ALL CONCRETE CURB AND GUTTERS SHALL BE MONOLITHIC POURS. DOWELED-ON CURBS WILL NOT BE ALLOWED.
- CURB RAMP CONSTRUCTION SHALL COMPLY WITH THE CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS.
- REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL BE OF A CUBIC PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE IX RETROREFLECTIVE SHEETINGS. REFLECTORIZED SHEETING ON DRUMS AND TUBE CHANNELIZERS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE III RETROREFLECTIVE SHEETING.
- THE SIGN PLACEMENT, SIZING AND LOCATIONS SHOWN ON THE PLAN SHEETS AND SUMMARY SHEETS ARE APPROXIMATE. EXACT SIZING AND LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR SO THAT THE SIGN IS INSTALLED IN ACCORDANCE WITH CITY AND ODOT STANDARDS. CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES IN ORDER TO PROVIDE OPTIMUM VISIBILITY TO THE ONCOMING/ APPROACHING MOTORIST. IF A PROPOSED LOCATION CONFLICTS WITH OTHER SIGNS, UTILITIES, OR OTHER ROADWAY FEATURES, THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED.
- POST LENGTHS SHOWN ON SIGN SUMMARY ARE APPROXIMATE. EXACT LENGTHS SHALL BE DETERMINED BY A FIELD SURVEY CONDUCTED BY THE CONTRACTOR.
- ALL ASPHALT STREETS THAT ARE TO BE RECONSTRUCTED SHALL BE LEFT WITH A DRIVABLE SURFACE AT ALL TIMES. THE CONTRACTOR WILL NOT BE ALLOWED TO MILL OFF ALL THE ASPHALT BEFORE EXCAVATION BEGINS.
- THE CONTRACTOR SHALL REPLACE ANY SECTION CORNERS OR OTHER PERMANENT RIGHT OF WAY MARKERS REMOVED OR DISTURBED AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT. REPLACEMENT OF SECTION CORNERS OR ANY OTHER MONUMENTS SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR AUTHORIZED TO PERFORM WORK IN THE STATE OF OKLAHOMA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL AND MAINTENANCE OF THE STORMWATER DRAINAGE. STORMWATER PONDING ON THE CONSTRUCTION SITE THAT IS THE RESULT OF CONSTRUCTION WILL NOT BE ALLOWED.
- STRAW OR HAY BALES AS STORMWATER BEST MANAGEMENT PRACTICES ARE NO LONGER ALLOWED ON CONSTRUCTION PROJECTS.
- THE CONTRACTOR MUST CALL 1-800-459-4251 IMMEDIATELY IF A NATURAL GAS PIPELINE IS CUT, DAMAGED, OR OTHERWISE DISTURBED.

GENERAL CONSTRUCTION NOTES (CONT'D)

- PRIOR TO FINAL ACCEPTANCE, ALL EXPOSED CURB SURFACES SHALL BE CLEANED OF ALL DISCOLORATION SUCH AS ASPHALT STAIN, TIRE MARKS, OR OTHER DISFIGUREMENT.
- ALL FEATURES OF THIS PROJECT INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS, AND CROSSWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT, ACCESSIBILITY GUIDELINES, AND THE PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY, PUBLISHED ON JULY 26, 2011 BY THE U.S. ACCESS BOARD, WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THIS ACT. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONTRACT ADMINISTRATOR OF ANY ASPECT OF THE WORK WHICH DOES NOT FULLY COMPLY WITH THE ADA WITHOUT PRIOR WRITTEN APPROVAL FROM THE CONTRACT ADMINISTRATOR. ANY WORK WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE ADA, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL REPAIR ANY IRRIGATION SYSTEMS DAMAGED OR REQUIRING RELOCATION DURING THE CONSTRUCTION OF THIS PROJECT TO THE SATISFACTION OF THE PROPERTY OWNER AND CITY'S CONTRACT ADMINISTRATOR. COST SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

DATE	REVISIONS

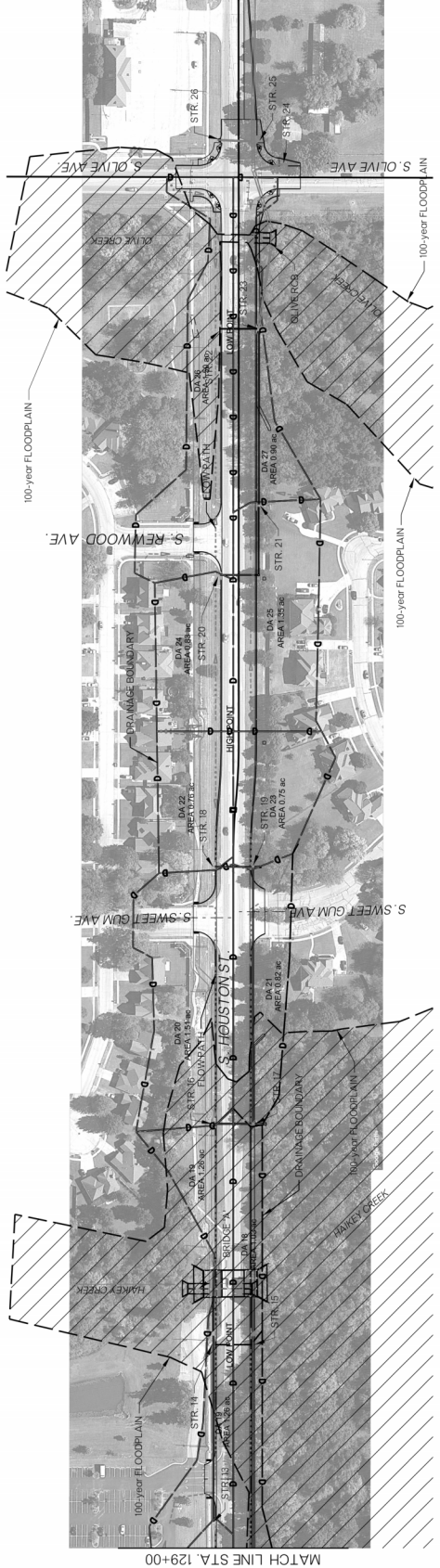
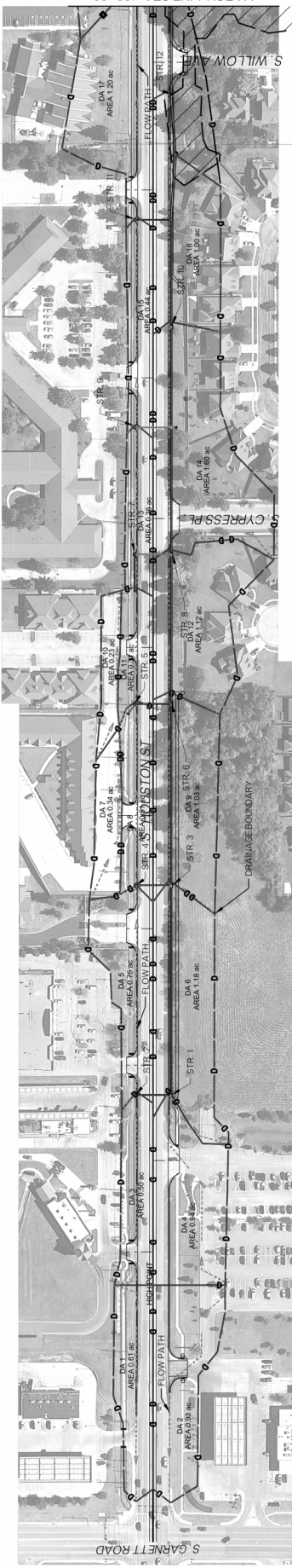


POE & ASSOCIATES INC.
Tulsa, Oklahoma

**HOUSTON STREET
WIDENING**

**GENERAL CONSTRUCTION
NOTES**

PROFILE SCALE:		DESIGN		DATE	
HORIZ.	1" = 40'	CAC	2020	BAN	2020
VERT.	1" = 4'	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME:		SHEET		PROJECT NO.	
GEN. CONST. NOTES		OF		ST. 2028	



DATE	REVISIONS



POE & ASSOCIATES INC.
Tulsa, Oklahoma

HOUSTON STREET WIDENING

DRAINAGE AREA MAP

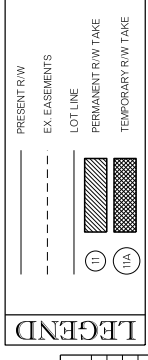
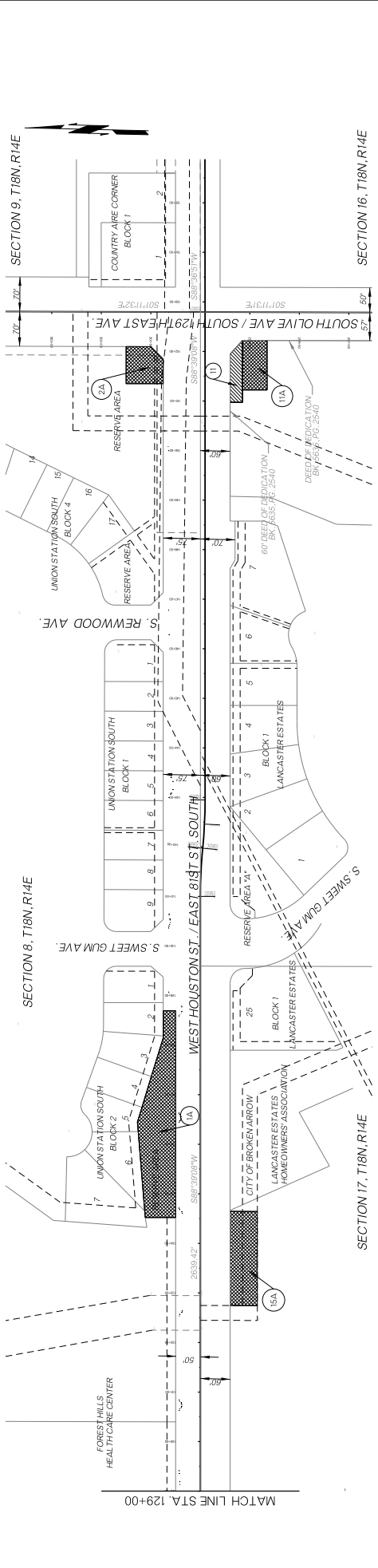
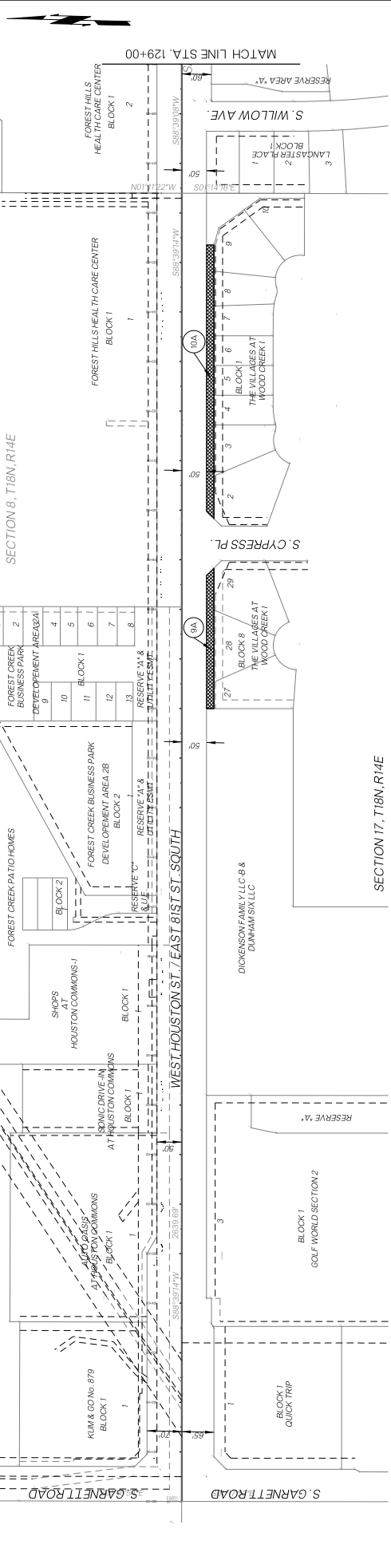
PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=100'	G/C	2020	WSL	2020
VERT.	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME:	SHEET	10	PROJECT NO.	ST 2028
	OF	108		

SUMMARY OF INLET DESIGN

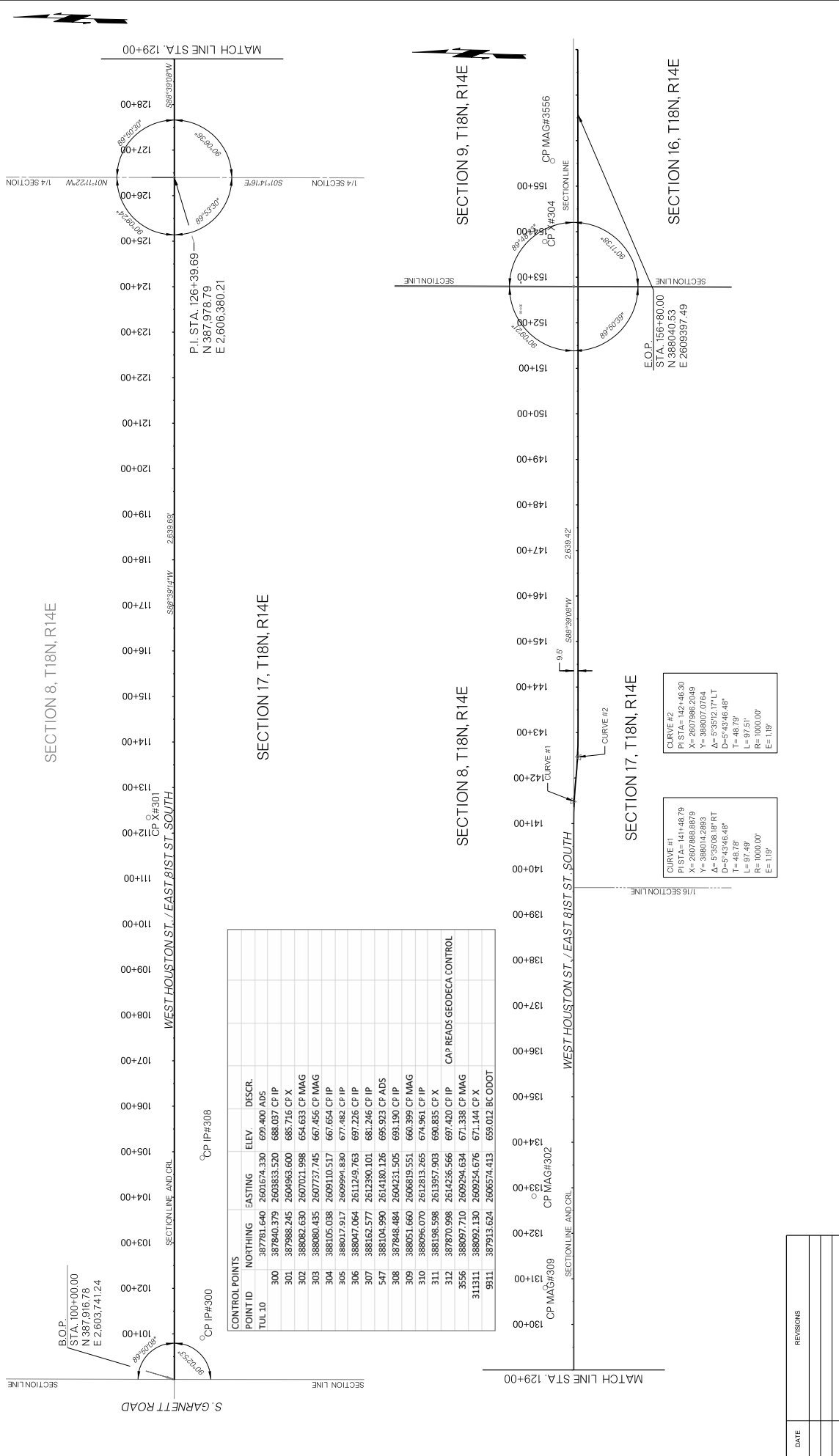
STR NO.	DESIGN	CURB OPENING LENGTH (4' OR 8')	STATION	L.T. OR RT.	TOP OF INLET		FLOWLINE	STRUCTURE HEIGHT	LONGITUDINAL SLOPE AT INLET		CROSS SLOPE AT INLET	CLOGGING FACTOR	Q ₁₀₀		Q _{0.99}	SUM Q AT INLET		SPREAD AT INLET	DEPTH AT INLET	Q _{IN} RECEIPT	Q _{BYPASS}	BYPASS TARGET STR NO.	INLET EFFICIENCY %
					FT	VF			%	%			CFS	CFS		CFS	CFS						
IN-1	RC11096 WMH	8	108+44.33	RT.	689.00	4.8	684.25	4.8	1.15	1.15	1.15	1	8.94	0	8.94	15.96	0.32	7.61	1.33	3	85.1		
IN-2	RC11048	4	108+44.33	LT.	689.00	3.8	685.20	3.8	1.15	1.15	1.15	2	4.73	0	4.73	12.57	0.25	4.20	0.53	4	88.8		
IN-3	RC11096 WMH	8	112+36.00	RT.	683.70	6.7	679.80	6.7	1.35	1.35	1.35	1	10.4	1.33	11.73	16.41	0.33	8.82	0.82	6	76.0		
IN-4	RC11048	4	112+36.00	LT.	683.70	3.9	679.80	3.9	1.34	1.34	1.34	2	6.51	0.93	7.44	14.08	0.28	5.57	1.87	5	74.9		
IN-5	RC11096 WMH	8	118+62.85	LT.	679.10	3.8	675.30	3.8	1.34	1.34	1.34	2	4.19	1.87	6.06	11.66	0.23	4.90	1.16	7	60.9		
IN-6	RC11096 WMH	8	118+62.85	RT.	679.10	7.1	672.00	7.1	1.34	1.34	1.34	2	7.88	2.82	10.7	14.81	0.3	8.42	2.28	8	78.7		
IN-7	RC11048 WMH	4	118+65.20	LT.	675.40	3.8	671.60	3.8	1.34	1.34	1.34	2	2.44	1.16	3.6	9.53	0.19	3.33	0.27	9	92.5		
IN-8	RC11096 WMH	8	118+65.20	RT.	675.40	7.2	668.20	7.2	1.34	1.34	1.34	2	7.85	2.28	9.83	14.56	0.22	7.96	1.87	10	81.0		
IN-9	RC11048	4	122+86.20	LT.	672.35	3.8	668.55	3.8	1.31	1.31	1.31	2	3.15	0.27	3.42	10.54	0.21	3.20	0.22	11	93.6		
IN-10	RC11096 WMH	8	122+86.20	RT.	669.85	6.9	663.00	6.9	1.31	1.31	1.31	2	10.82	1.87	12.69	16.34	0.34	9.41	3.28	12	74.2		
IN-11	RC11048	4	124+97.00	LT.	667.20	3.8	663.40	3.8	1.31	1.31	1.31	2	4.07	0.22	4.29	11.61	0.23	3.84	0.45	13	89.5		
IN-12	RC11096 WMH	8	127+32.00	RT.	661.70	7.1	657.50	7.1	1.31	1.31	1.31	2	6.58	3.28	9.86	13.89	0.28	8.00	1.86	15	81.1		
IN-13	RC11096 WMH	8	129+43.00	LT.	661.70	4.2	657.50	4.2	1.31	1.31	1.31	2	8.28	0.45	8.73	7.35	0.3	7.35	1.38	14	84.2		
IN-14	RC11096 WMH	8	132+72.62	LT.	657.70	4.4	653.30	4.4	SUMP	SUMP	SUMP	2	0.8	3.58	4.38	13.09	0.00	13.09	0.00	NA	100.0		
IN-15	RC11096 WMH	8	132+72.62	RT.	657.70	7.4	650.30	7.4	SUMP	SUMP	SUMP	2	0.8	8.93	3.38	12.31	13.09	0.00	12.31	0.00	NA	100.0	
IN-16	RC1096	8	136+36.50	LT.	661.25	4.3	656.95	4.3	0.93	0.93	0.93	2	10.78	0.91	11.69	17.82	0.36	9.49	2.20	14	71.9		
IN-17	RC11048 WMH	4	136+36.50	RT.	661.25	3.8	651.00	3.8	0.93	0.93	0.93	2	6.72	0.83	7.55	14.93	0.3	6.03	1.52	15	79.9		
IN-18	RC11048	4	140+32.50	LT.	667.90	3.8	664.10	3.8	1.56	1.56	1.56	2	5.25	0	5.25	12.35	0.25	4.34	0.91	16	82.7		
IN-19	RC11048 WMH	4	140+32.50	RT.	667.90	6.9	661.00	6.9	1.56	1.56	1.56	2	5.07	0	5.07	12.19	0.24	4.24	0.83	17	83.6		
IN-20	RC11048	4	145+69.00	LT.	667.25	3.8	663.75	3.8	0.83	0.83	0.83	2	3.56	0	3.56	14.21	0.28	4.94	0.62	22	88.8		
IN-21	RC1048 WMH	4	147+09.00	RT.	665.10	4.6	660.50	4.6	0.83	0.83	0.83	2	8.12	0	8.12	16.37	0.33	6.45	1.66	23	100.0		
IN-22	RC1096	8	150+16.07	LT.	662.41	3.8	658.61	3.8	SUMP	SUMP	SUMP	2	0.8	11.59	0.82	12.21	-	-	12.21	0.00	NA	100.0	
IN-23	RC11096 WMH	8	150+16.07	RT.	662.41	4.8	657.60	4.8	SUMP	SUMP	SUMP	2	0.8	6.93	1.88	8.61	-	-	8.61	0.00	NA	100.0	
IN-24	RC11048 WMH	4	153+65.58	RT.	667.26	3.2	664.05	3.2	1.28	1.28	1.28	2	4.01	0	4.01	11.58	0.23	3.85	0.36	26	91.0		
IN-25	RC11048 WMH	4	153+65.58	RT.	667.26	7.4	660.00	7.4	2.19	2.19	2.19	2	4.01	0	4.01	11.58	0.23	3.85	0.36	26	91.0		
IN-26	RC11048	4	150+09.00	L	667.20	3.8	663.40	3.8	2.19	2.19	2.19	2	4.01	0	4.01	11.58	0.23	3.85	0.36	26	91.0		
THIS INLET DESIGNED ON ST.2029																							

SUMMARY OF HYDROLOGIC DATA AND RUNOFF CALCULATIONS																			
D.A. NO.	AREA	RAINFALL INTENSITY	RUNOFF COEFFICIENT	DESIGN YEAR RUNOFF		COLLECTING STR NO.	OVERLAND FLOW					SHALLOW CHANNELIZED FLOW					TOTAL TIME OF CONCENTRATION		
				C _s / Q ₁₀₀	C		LF	FLOWPATH LENGTH (MAX = 150 LF)	AVG SLOPE	VELOCITY	T _i	LF	FLOWPATH LENGTH	AVG SLOPE	VELOCITY	T _i		T _c = T ₁ + T ₂	
DA-1	0.61	7.07 / 11.22	0.72	3.10 / 4.93	EXISTING	45	45	1.50	0.85	0.88	390	2.60	3.15	2.07	7.95				
DA-2	0.93	7.42 / 11.53	0.72	4.97 / 7.72	EXISTING	76	76	2.00	1.97	0.64	300	2.50	3.08	1.62	2.26				
DA-3	0.50	6.93 / 11	0.85	2.93 / 4.65		44	44	4.4	2.00	1.00	0.73	342	1.15	2.09	2.73	3.46			
DA-4	0.94	7.12 / 11.3	0.84	5.63 / 8.94	3	54	54	4.8	1.50	2.36	0.38	300	1.15	2.09	2.39	2.77			
DA-5	0.75	7.03 / 11.15	0.83	4.36 / 6.91	4	48	48	4.8	1.50	2.36	0.34	372	1.34	2.24	2.77	3.11			
DA-6	1.18	6.81 / 10.8	0.82	6.55 / 10.4	3	145	145	1.45	1.50	2.36	1.02	391	1.34	2.24	2.91	3.93			
DA-7	0.34	7.22 / 11.46	0.90	2.21 / 3.51	PARKING LOT	130	130	1.00	1.97	1.00	1.97	1.00	1.97	1.00	1.97	2.43			
DA-8	0.51	7.12 / 11.31	0.73	2.64 / 4.19	5	46	46	2.00	2.73	0.28	333	1.34	2.24	2.48	2.76				
DA-9	1.03	6.62 / 10.51	0.73	4.96 / 7.88	6	111	111	1.50	0.85	2.18	336	1.34	2.24	2.50	4.68				
DA-10	0.23	7.23 / 11.47	0.90	1.50 / 2.38	PARKING LOT TO 7	93	93	1.50	2.36	0.66	233	1.34	2.24	1.74	2.40				
DA-11	0.31	7.03 / 11.15	0.70	1.54 / 2.44	7	78	78	1.25	0.77	1.69	190	1.34	2.24	1.41	3.10				
DA-12	1.12	6.79 / 10.78	0.63	4.76 / 7.55	8	110	110	1.50	0.85	2.16	242	1.34	2.24	1.82	2.96				
DA-13	0.36	7.24 / 11.49	0.76	1.99 / 3.15	9	23	23	1.50	2.36	0.16	292	1.31	2.21	2.20	2.36				
DA-14	1.60	6.65 / 10.57	0.64	5.81 / 10.82	10	64	64	1.50	2.36	0.45	543	1.31	2.21	4.09	4.54				
DA-15	0.44	7.04 / 11.18	0.83	2.56 / 4.07	11	31	31	1.50	2.36	0.22	377	1.31	2.21	2.84	3.06				
DA-16	1.00	6.47 / 10.28	0.64	4.14 / 6.58	12	100	100	1.00	1.75	0.77	217	417	1.31	3.14	5.31				
DA-17	1.20	6.48 / 10.29	0.67	5.21 / 8.28	13	143	143	1.25	0.77	3.10	289	1.31	2.21	2.17	5.27				
DA-18	1.03	6.78 / 10.78	0.80	5.62 / 8.93	15	35	35	1.50	2.36	0.45	478	1.20	2.13	3.74	3.99				
DA-19	1.26	6.21 / 9.87	0.76	5.98 / 9.51	14	138	138	1.00	0.68	3.36	358	0.93	1.91	3.12	5.48				
DA-20	1.51	6.60 / 10.49	0.68	5.79 / 10.78	16	15	15	1.00	0.68	3.07	503	0.93	1.91	4.38	4.75				
DA-21	0.82	6.43 / 10.29	0.80	4.23 / 6.72	17	125	125	1.00	0.65	2.98	367	0.93	1.91	3.20	5.48				
DA-22	0.76	6.74 / 10.70	0.64	3.30 / 5.25	18	102	102	1.00	0.68	2.49	245	1.56	2.41	1.70	4.19				
DA-23	0.75	6.65 / 10.56	0.64	3.19 / 5.07	19	137	137	1.00	0.68	3.34	174	1.56	2.41	1.21	4.55				
DA-24	0.83	6.58 / 10.45	0.64	3.50 / 5.56	20	103	103	1.00	0.68	2.51	257	0.83	1.83	2.34	4.85				
DA-25	1.35	6.23 / 9.90	0.61	5.11 / 8.12	21	125	125	1.00	0.68	3.05	367	0.83	1.83	3.34	5.39				
DA-26	1.50	6.45 / 10.25	0.75	7.29 / 11.59	22	42	42	1.00	0.68	1.02	478	0.83	1.83	4.35	5.37				
DA-27	0.90	6.49 / 10.30	0.75	4.36 / 6.93	23	122	122	1.00	0.68	2.97	248	0.83	1.83	2.26	5.23				

SUMMARY SHEETS (1)										HOUSTON STREET WIDENING									
PROFILE SCALE:										DESIGN DATE: 2/20					DATE: 2/20				
HORIZ. NTS					VERT. NTS					GIC					REVISED				
DRAWING NAME: HOUSTON STREET WIDENING										SHEET 11					PROJECT NO. 108				
DATE: _____										REVISIONS					DATE: _____				
CITY OF BROKEN ARROW Where opportunity lives										POE & ASSOCIATES INC. Tulsa, Oklahoma									



DATE	REVISIONS	CITY OF BROKEN ARROW Where opportunity lives	POE & ASSOCIATES INC. Tulsa, Oklahoma	HOUSTON STREET WIDENING	RIGHT-OF-WAY
	DESIGN				
HORIZ. SCALE: 1" = 100'		PROJECT NO. 303909-ROW.dgn			
VERT. SCALE: N/A		DRAWING NAME: 13			
SHEET 13		SHEET OF 138			
DATE		PROJECT NO. ST 2028			
DATE		DATE			
DATE		DATE			



SECTION 8, T18N, R14E

SECTION 17, T18N, R14E

SECTION 8, T18N, R14E

SECTION 17, T18N, R14E

SECTION 16, T18N, R14E

SECTION 9, T18N, R14E

B.O.P.
STA. 100+00.00
N 387.91678
E 2.603.74124

P.I. STA. 126+39.69
N 387.97879
E 2.606.38021

E.O.P.
STA. 156+80.00
N 386040.53
E 2609397.49

POINT ID	NORTHING	EASTING	ELEV.	DISCR.
TUL 10	387781.640	2601674.330	679.400	ADS
300	387840.379	2603833.520	688.037	CP IP
301	387988.245	2604963.600	685.716	CP X
302	388082.630	2607021.998	654.633	CP MAG
303	388080.455	2607737.745	667.456	CP MAG
304	388105.058	2609110.517	667.654	CP IP
305	388017.917	2609994.830	677.482	CP IP
306	388047.064	2611249.763	697.226	CP IP
307	388162.577	2612390.101	681.246	CP IP
308	387848.484	2604231.505	695.923	CP ADS
309	388051.660	2606819.551	660.399	CP MAG
310	388096.070	2612813.265	674.961	CP X
311	388198.598	2613957.903	690.835	CP X
312	387870.998	2614236.566	697.420	CP IP
3556	388097.710	2609294.634	671.338	CP MAG
311311	388092.130	2609254.676	671.144	CP X
9111	387913.624	2606574.413	659.012	BC ODOT

CAP READS GEODECA CONTROL

CURVE #1
P.I. STA = 141+48.79
X = 2607888.8979
Y = 673094.9174
A = 87308.389 FT
D = 543346.48"
T = 48.78"
L = 97.51'
R = 1000.00'
E = 1.19'

CURVE #2
P.I. STA = 142+46.30
X = 2607986.2049
Y = 673094.9174
A = 53202.171 LT
D = 543346.48"
T = 48.79"
L = 97.51'
R = 1000.00'
E = 1.19'

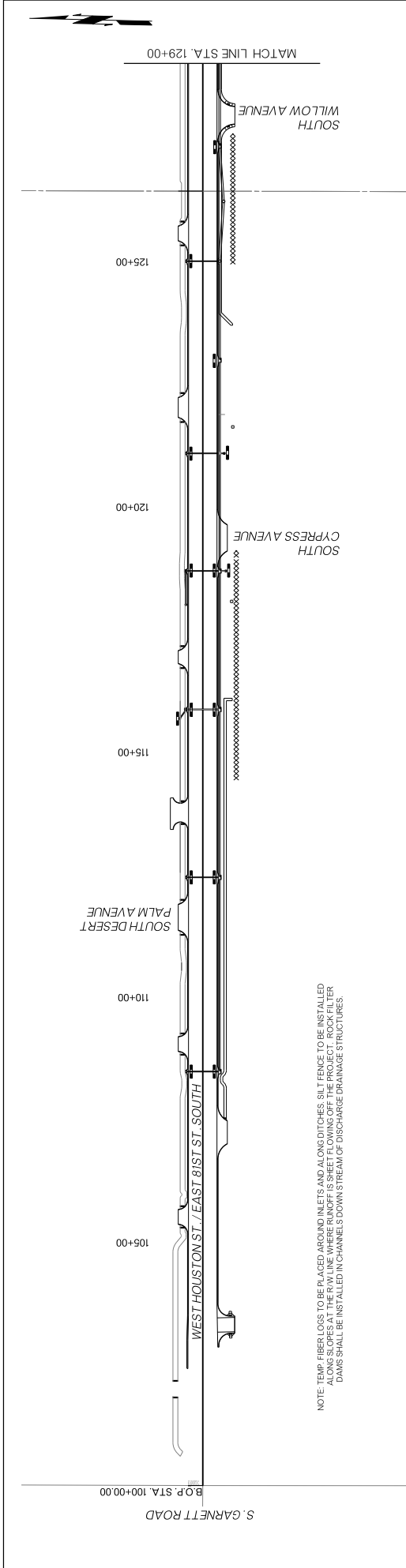
DATE	REVISIONS

CITY OF
BROKEN ARROW
Where opportunity lives

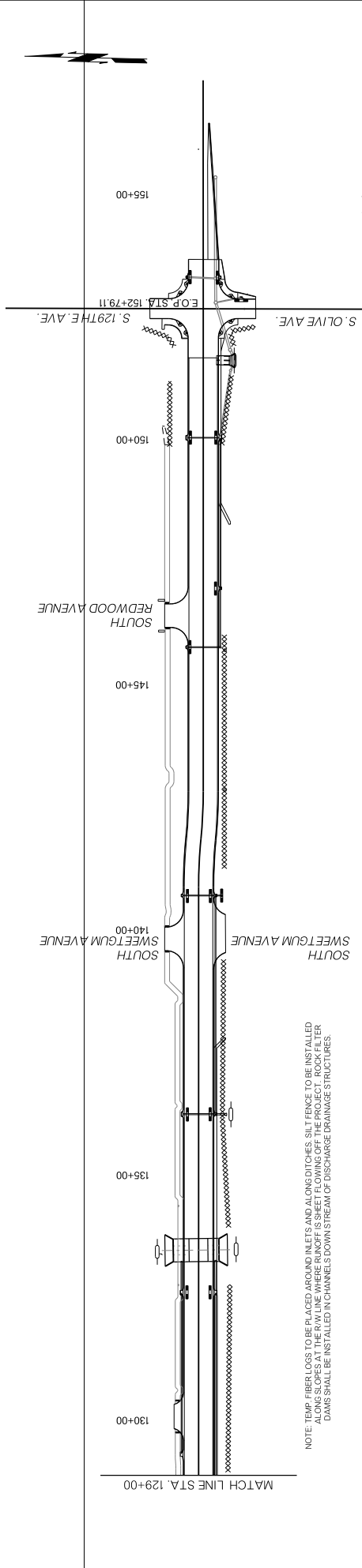
POE & ASSOCIATES INC.
Tulsa, Oklahoma

SURVEY DATA

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=50'	CAC	2020	WSL	2020
VERT. 1"=5'	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME:	SHEET	14	PROJECT NO.	ST. 2028
PLAN	OF	108		



NOTE: TEMP. FIBER LOGS TO BE PLACED AROUND INLETS AND ALONG DITCHES. SILT FENCE TO BE INSTALLED ALONG SLOPES AT THE R/W LINE WHERE RUNOFF IS SHEET FLOWING OFF THE PROJECT. ROCK FILTER DAMS SHALL BE INSTALLED IN CHANNELS DOWNSTREAM OF DISCHARGE DRAINAGE STRUCTURES.



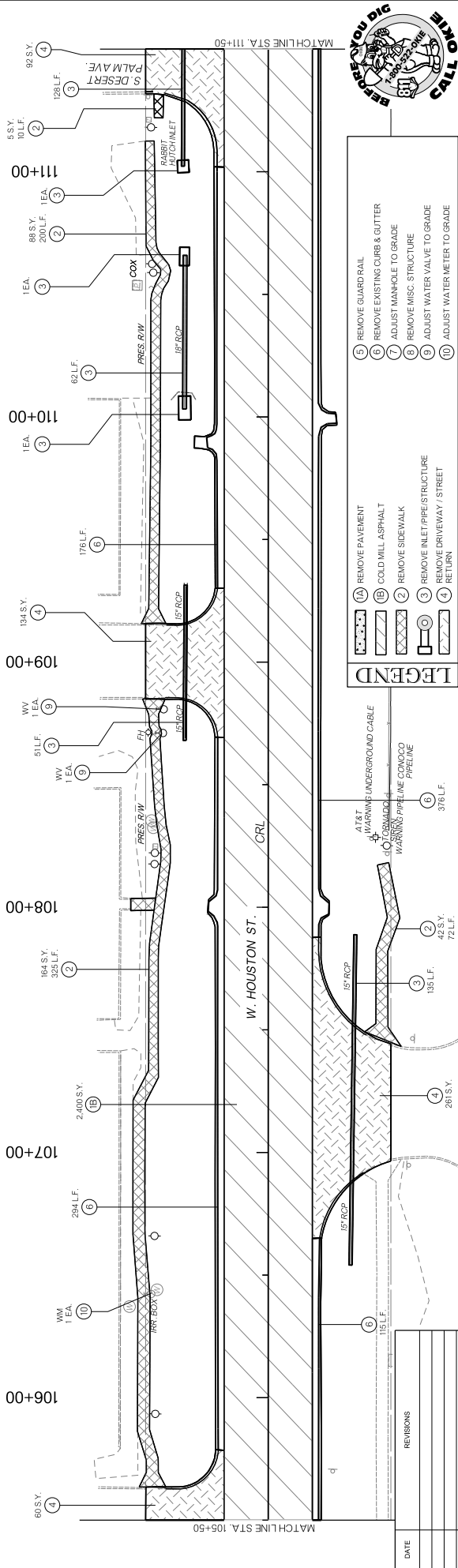
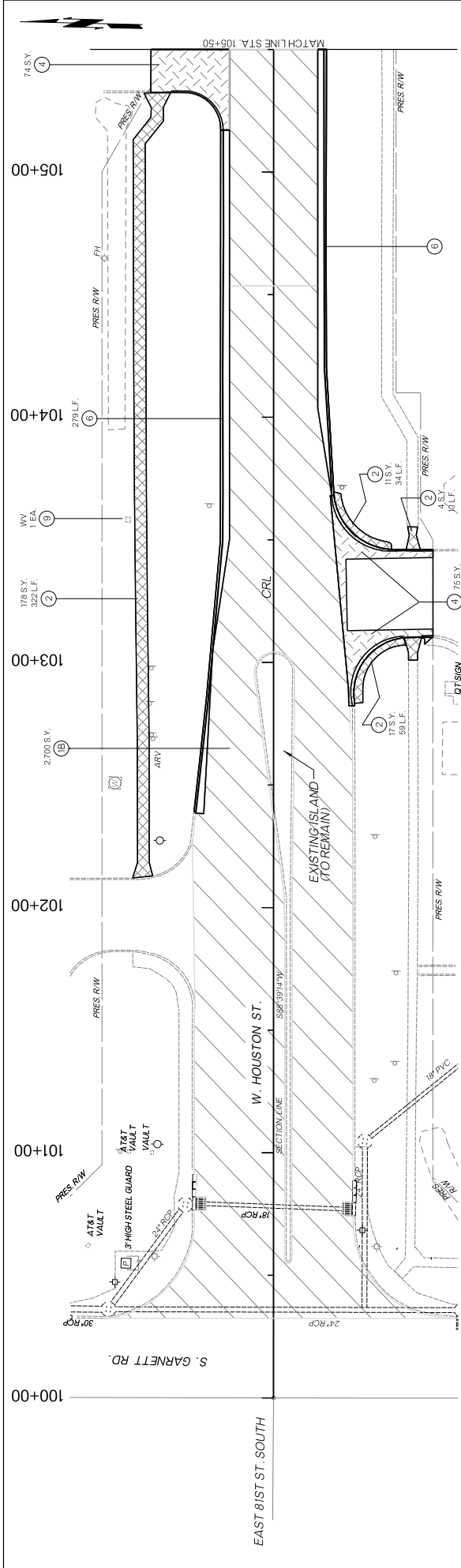
NOTE: TEMP. FIBER LOGS TO BE PLACED AROUND INLETS AND ALONG DITCHES. SILT FENCE TO BE INSTALLED ALONG SLOPES AT THE R/W LINE WHERE RUNOFF IS SHEET FLOWING OFF THE PROJECT. ROCK FILTER DAMS SHALL BE INSTALLED IN CHANNELS DOWNSTREAM OF DISCHARGE DRAINAGE STRUCTURES.



LEGEND
 SILT FENCE
 TEMP ROCK FILTER DAMS
 FIBER LOGS (AROUND INLETS)

DATE	REVISIONS

 CITY OF BROKEN ARROW <i>Where opportunity lives</i>	 POE & ASSOCIATES INC. Tulsa, Oklahoma	HOUSTON STREET WIDENING	EROSION CONTROL
PROFILE SCALE: HORIZ. 1" = 100' VERT. 1" = 10' DRAWING NAME: SHEET 15 OF 108 PROJECT NO. 303909-ERO.dgn		DESIGN DATE: 2020 G/C DATE: 2020 REVIEWED DATE: 2020 APPROVED DATE: 2020 DRAFTED WSL: 2020 DATE: 2020	



LEGEND

- (1A) REMOVE PAVEMENT
- (1B) COLD MILL ASPHALT
- (2) REMOVE SIDEWALK
- (3) REMOVE INLET/PIPE STRUCTURE
- (4) REMOVE DRIVEWAY / STREET RETURN
- (5) REMOVE GUARD RAIL
- (6) REMOVE EXISTING CURB & GUTTER
- (7) ADJUST MANHOLE TO GRADE
- (8) REMOVE MISC. STRUCTURE
- (9) ADJUST WATER VALVE TO GRADE
- (10) ADJUST WATER METER TO GRADE

AT&T LAYING UNDERGROUND CABLE
 4\"/>

REVISIONS

NO.	DATE	DESCRIPTION

PROFILE SCALE:
 HORZ. 1"=20'
 VERT. 1"=4'

DESIGN

DATE	DESIGN
2020	GAC
2020	REVISED
2020	DATE
2020	DATE

PROJECT NO. 303909-REM.DGN
SHEET 16 OF 108

CITY OF BROKEN ARROW
Where opportunity lives

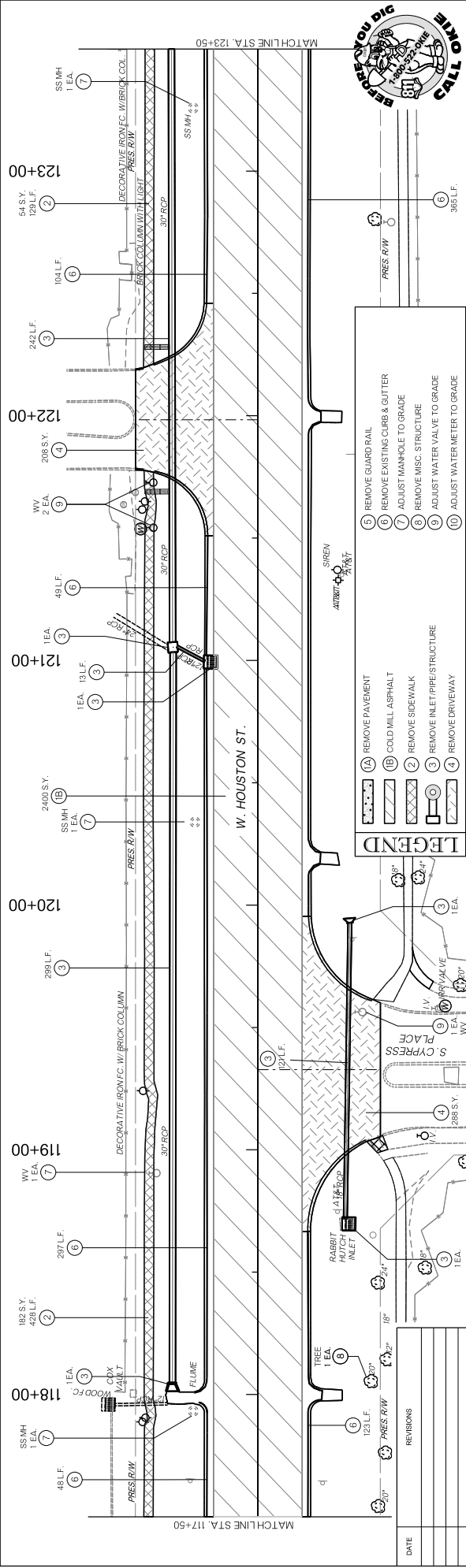
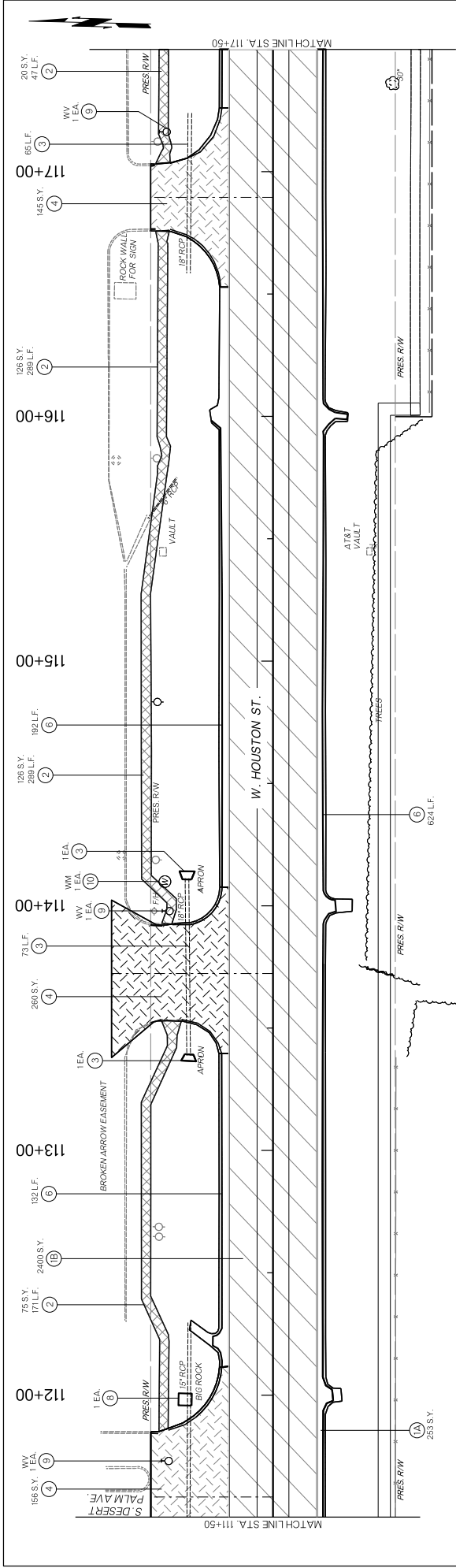
POE & ASSOCIATES INC.
 Tulsa, Oklahoma

HOUSTON STREET WIDENING

REMOVAL PLANS (1)

DATE _____
DRAFTED _____
APPROVED _____
DATE _____





- LEGEND**
- (1) REMOVE PAVEMENT
 - (2) REMOVE SIDEWALK
 - (3) REMOVE INLET PIPE/STRUCTURE
 - (4) REMOVE DRIVEWAY
 - (5) REMOVE GUARD RAIL
 - (6) REMOVE EXISTING CURB & GUTTER
 - (7) ADJUST MANHOLE TO GRADE
 - (8) REMOVE MISC. STRUCTURE
 - (9) ADJUST WATER VALVE TO GRADE
 - (10) ADJUST WATER METER TO GRADE

DATE	DESIGN	DRAFTED	DATE
11/17/2020	GAC	WSL	2020
11/17/2020	REVIEWED	APPROVED	2020

PROFILE SCALE: 1"=20'
 HORZ. 1"=20'
 VERT. 1"=10'

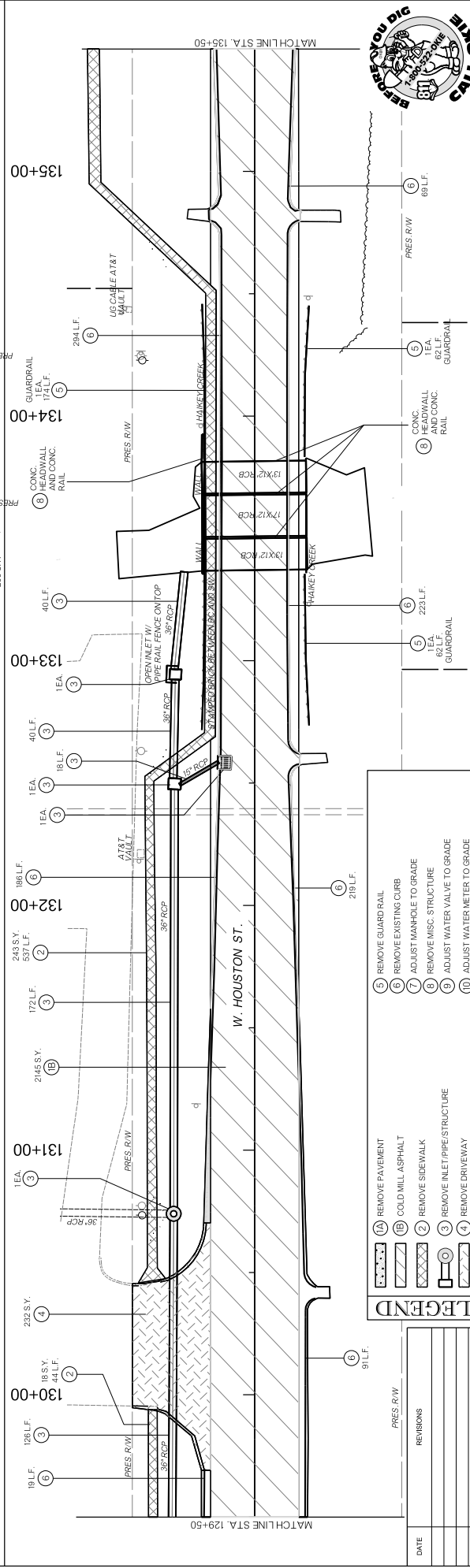
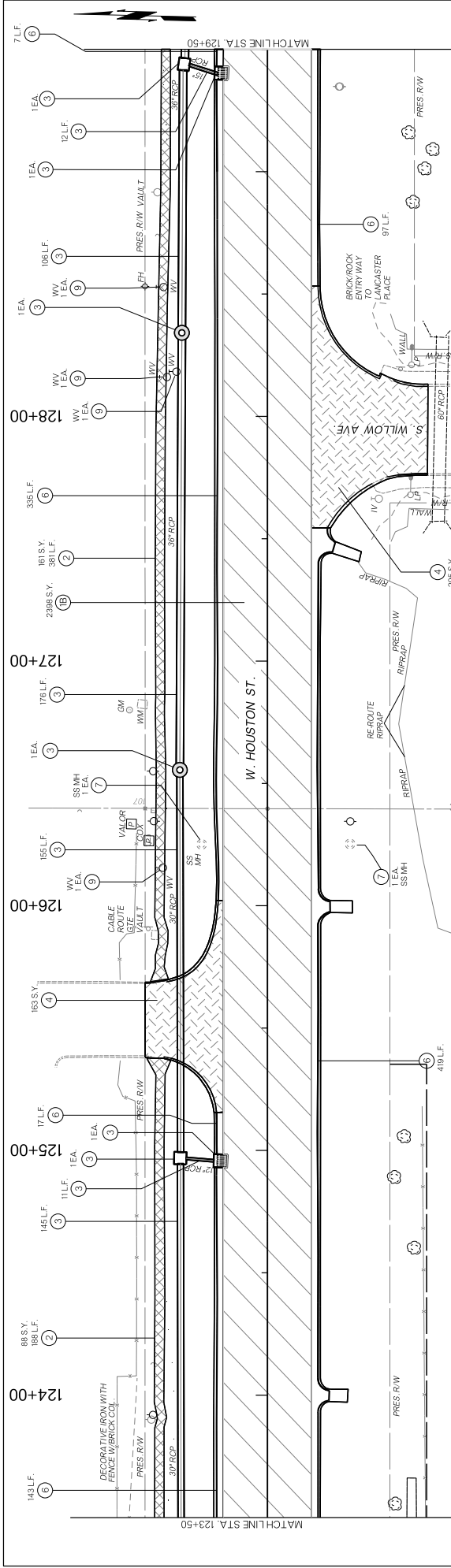
REMOVAL PLANS (2)

HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
 Tulsa, Oklahoma

CITY OF BROKEN ARROW
 Where opportunity lives

REVISIONS	DATE



- LEGEND**
- (1) REMOVE PAVEMENT
 - (2) REMOVE SIDEWALK
 - (3) REMOVE INLET/PIPE/STRUCTURE
 - (4) REMOVE DRIVEWAY
 - (5) REMOVE GUARDRAIL
 - (6) REMOVE EXISTING CURB
 - (7) ADJUST MANHOLE TO GRADE
 - (8) REMOVE MISC. STRUCTURE
 - (9) ADJUST WATER VALVE TO GRADE
 - (10) ADJUST WATER METER TO GRADE

CITY OF
BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

**HOUSTON STREET
WIDENING**

REMOVAL PLANS (3)

DATE	DESIGN	DATE	DATE	DATE	DATE
	DRAFTED	2020	2020	2020	2020
	GAC				
	REVIEWED				
	VERT. _NA_				
	DRAWING NAME:	SHEET	18	OF	108
	DRAWING NO.:	303909-REM.DGN			
	PROJECT NO.:	ST 2028			

HORIZONTAL SCALE IN FEET
0 20 40

VERTICAL SCALE IN FEET
0 5 10

REMOVE GUARDRAIL

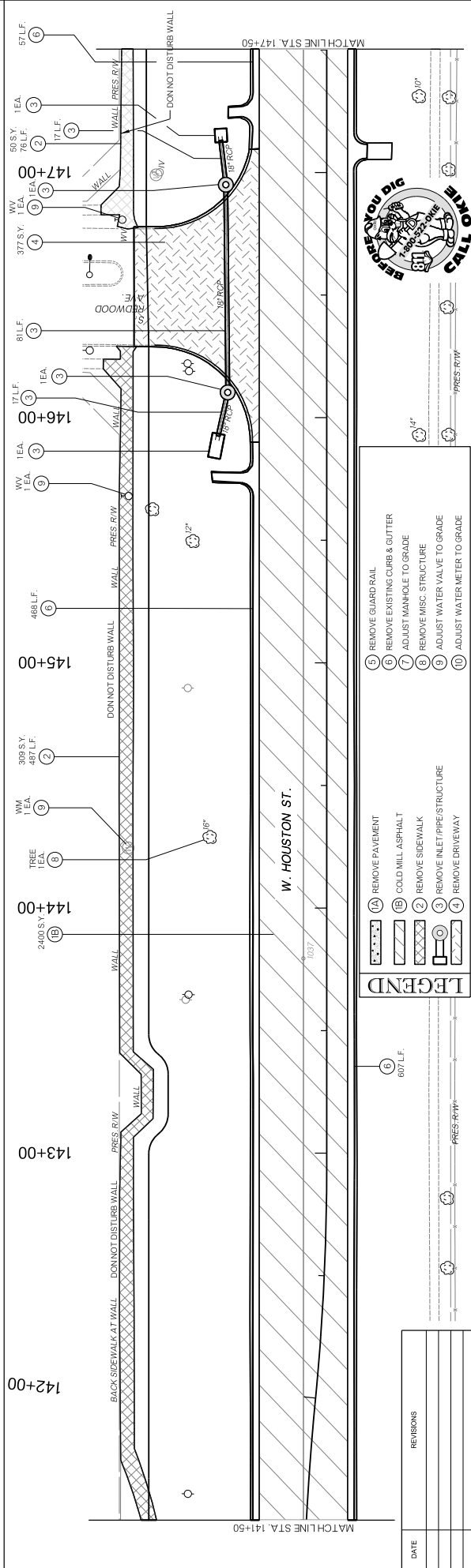
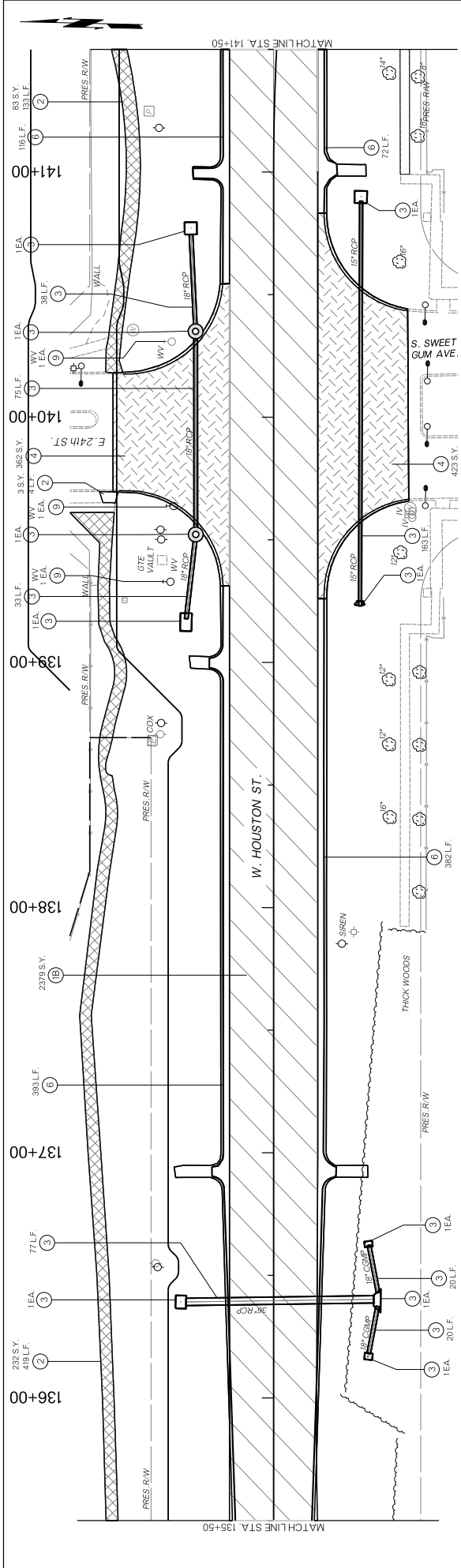
REMOVE EXISTING CURB

ADJUST MANHOLE TO GRADE

REMOVE MISC. STRUCTURE

ADJUST WATER VALVE TO GRADE

ADJUST WATER METER TO GRADE



- LEGEND**
- (1) REMOVE PAVEMENT
 - (2) GOLD MILL ASPHALT
 - (3) REMOVE SIDEWALK
 - (4) REMOVE INLET/PIPE STRUCTURE
 - (5) REMOVE DRIVEWAY
 - (6) REMOVE GUARD RAIL
 - (7) REMOVE EXISTING CURB & GUTTER
 - (8) ADJUST MANHOLE TO GRADE
 - (9) REMOVE MISC. STRUCTURE
 - (10) ADJUST WATER VALVE TO GRADE
 - (11) ADJUST WATER METER TO GRADE

DATE _____

REVISIONS _____

CITY OF BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

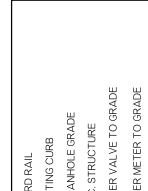
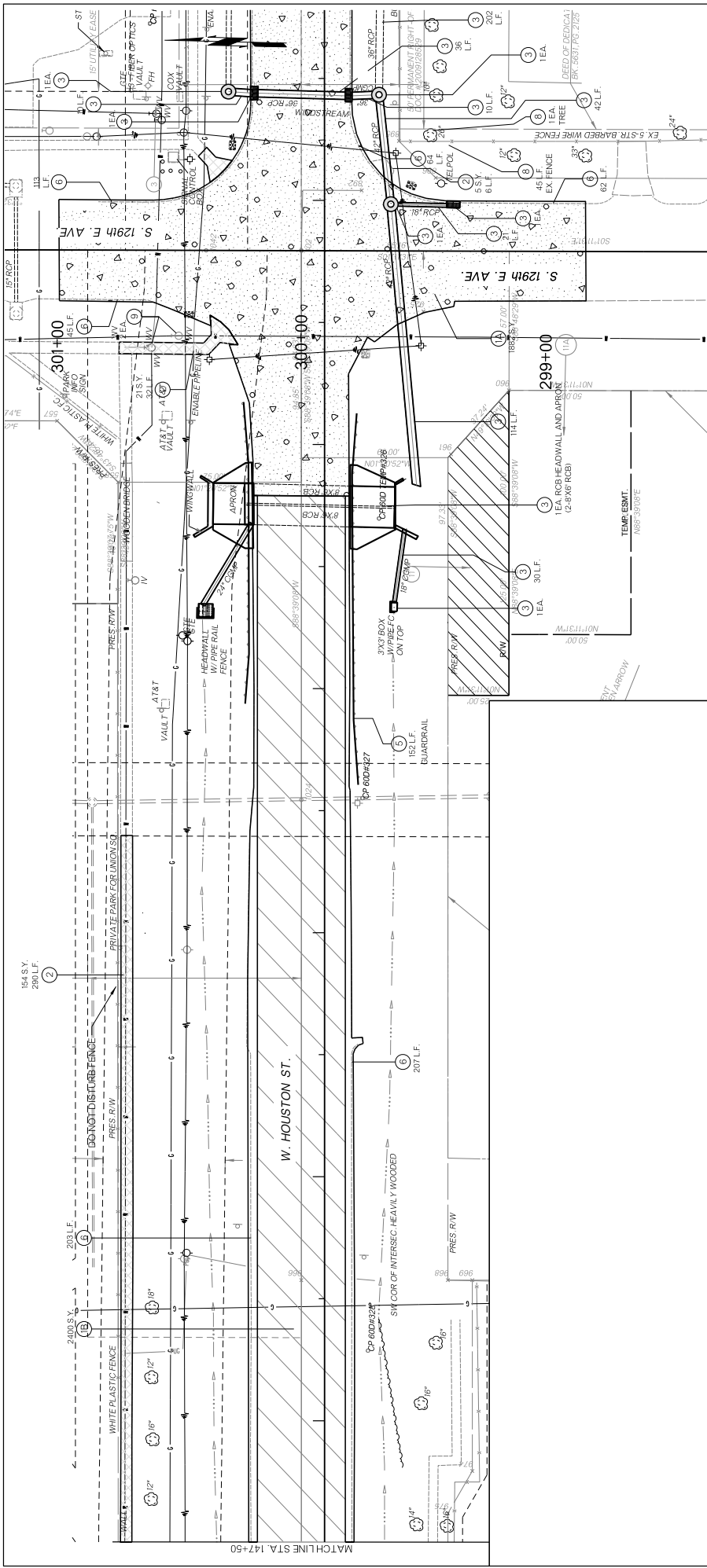
HOUSTON STREET WIDENING

REMOVAL PLANS (4)

HORIZONTAL SCALE IN FEET
1" = 20'

VERTICAL SCALE IN FEET
1" = 10'

DATE	DRAFTED	DATE	DESIGN	DATE	DATE
	WSL	2020	GAC	2020	2020
	REVISED	DATE	DATE	APPROVED	DATE
	VERT. _NA_				
	DRAWING NAME: SHEET	19	OF	PROJECT NO.	30309-REM.DGN
		108		ST. 2028	



- LEGEND**
- 1 REMOVE PAVEMENT
 - 2 REMOVE SIDEWALK
 - 3 REMOVE INLET PIPE/STRUCTURE
 - 4 REMOVE DRIVEWAY
 - 5 REMOVE GUARD RAIL
 - 6 REMOVE EXISTING CURB
 - 7 ADJUST TO MANHOLE GRADE
 - 8 REMOVE MISC. STRUCTURE
 - 9 ADJUST WATER VALVE TO GRADE
 - 10 ADJUST WATER METER TO GRADE

PROFILE SCALE:

HORIZ.	1"=20'
VERT.	1"=10'

DESIGN	DATE	DRAFTED	DATE
GAC	2020	WSL	2020
REVIEWED	DATE	APPROVED	DATE
_____	_____	_____	_____

DRAWING NAME: SHEET 20 OF 108
 PROJECT NO. 303909-REM.DGN
 ST. 2028

HOUSTON STREET WIDENING

REMOVAL PLANS (5)

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

DATE	REVISIONS



CITY OF
BROKEN ARROW
 Where opportunity lives



POE & ASSOCIATES INC.
 Tulsa, Oklahoma

**HOUSTON STREET
 WIDENING**

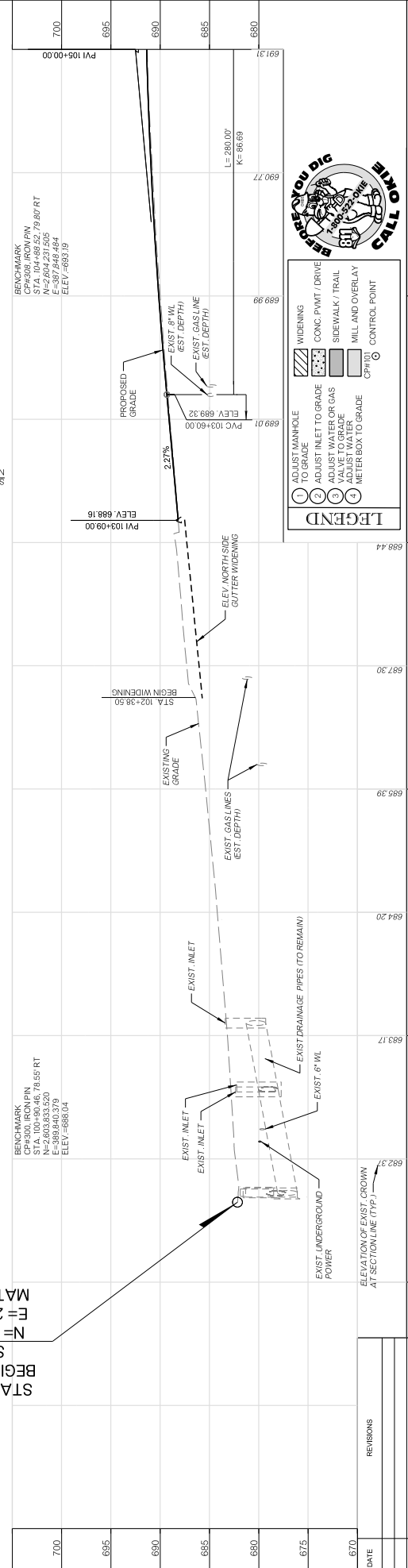
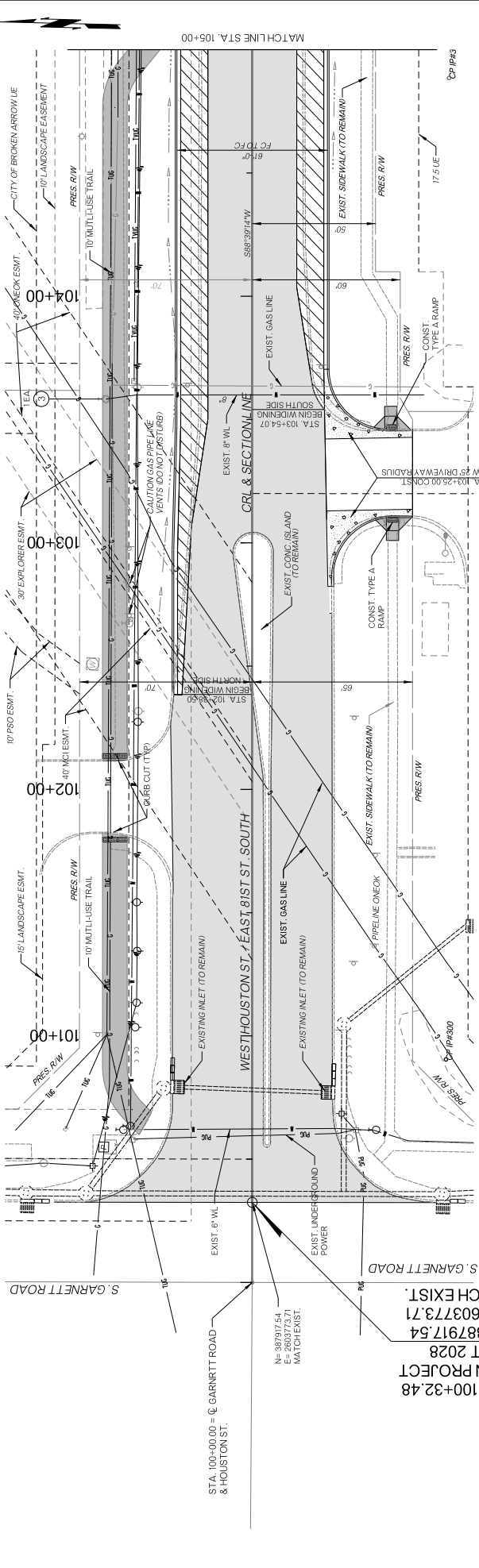
PLAN & PROFILE (1)

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=50'	GAC	2020	WSL	2020
VERT. 1"=5'	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME: SHEET 21	OF 308	PROJECT NO. 303909-PNP-001	ST. 2028	

LEGEND

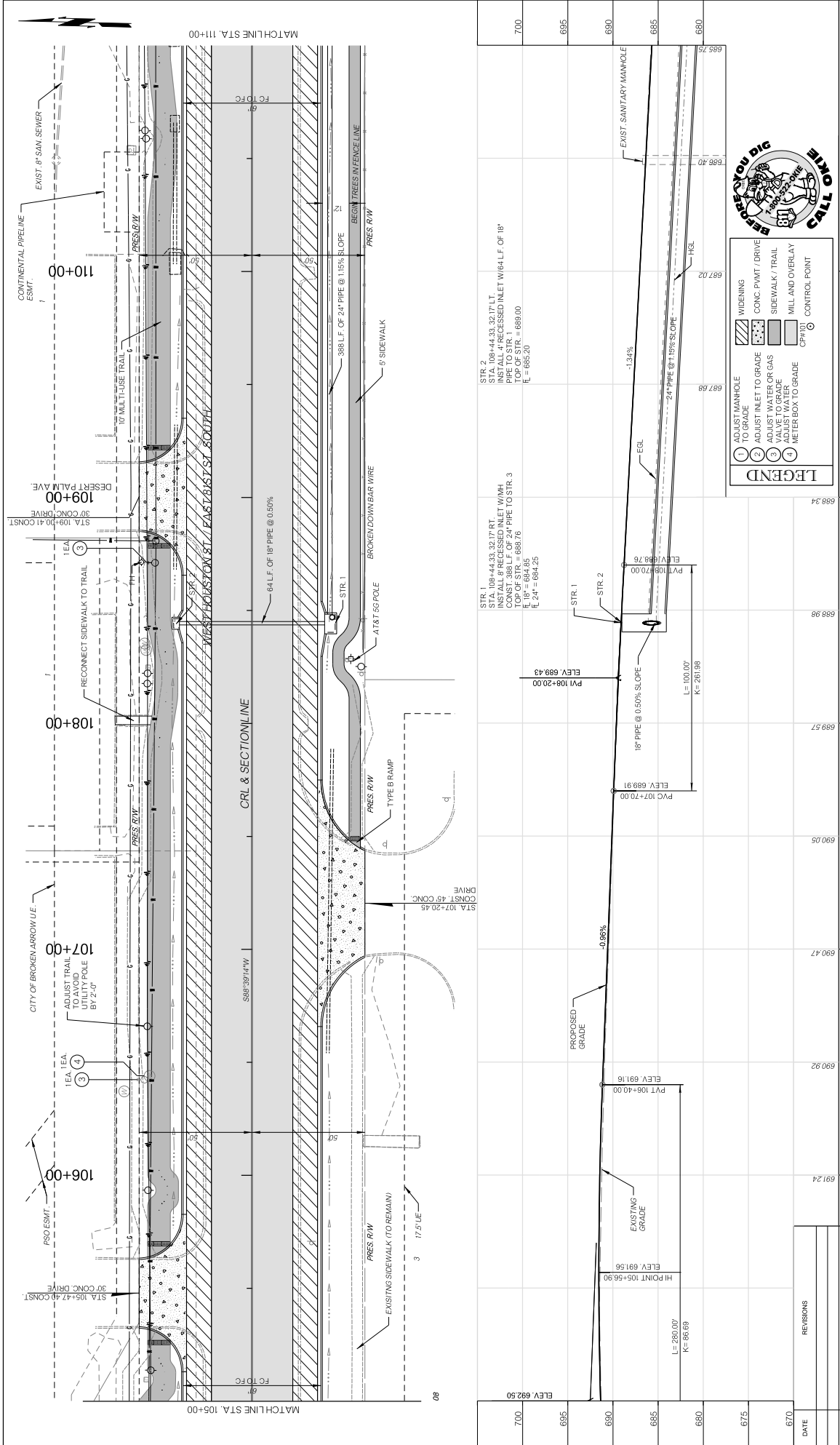
1 ADJUST MANHOLE TO GRADE	WIDENING
2 ADJUST INLET TO GRADE	CONC. PMVT DRIVE
3 ADJUST VALVE TO GRADE	SIDEWALK / TRAIL
4 METER BOX TO GRADE	MILL AND OVERLAY

1/12" (12" DEPTH) EXIST. GAS
 1/8" (8" DEPTH) EXIST. WATER
 1/16" (16" DEPTH) EXIST. 8" WL
 1/8" (8" DEPTH) EXIST. GAS LINE
 1/16" (16" DEPTH) EXIST. 6" WL
 1/8" (8" DEPTH) EXIST. GAS LINE
 1/16" (16" DEPTH) EXIST. 6" WL



REVISIONS

NO.	DATE	DESCRIPTION



HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

PLAN & PROFILE (2)

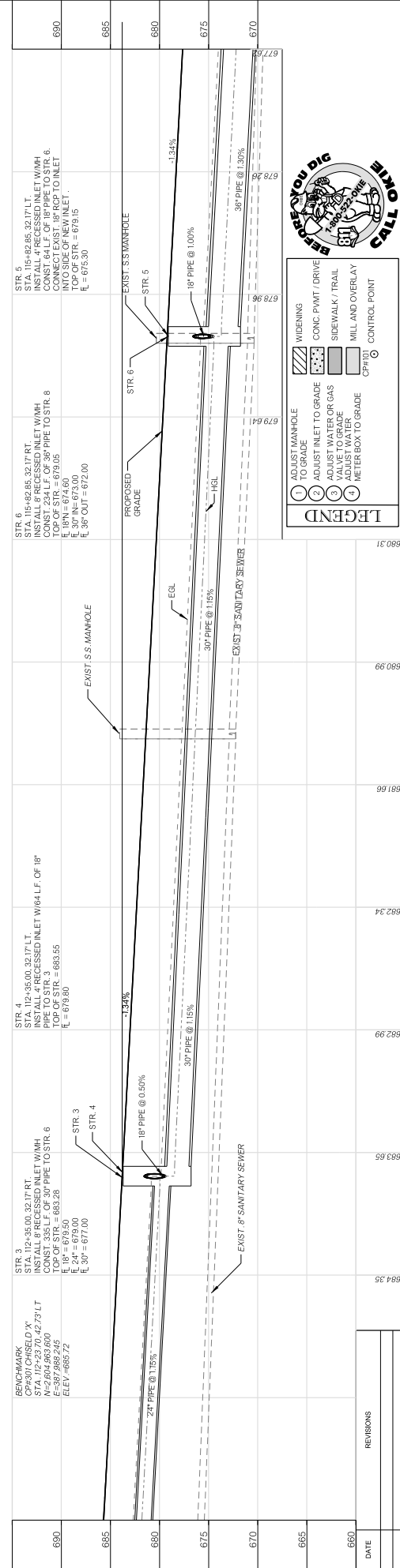
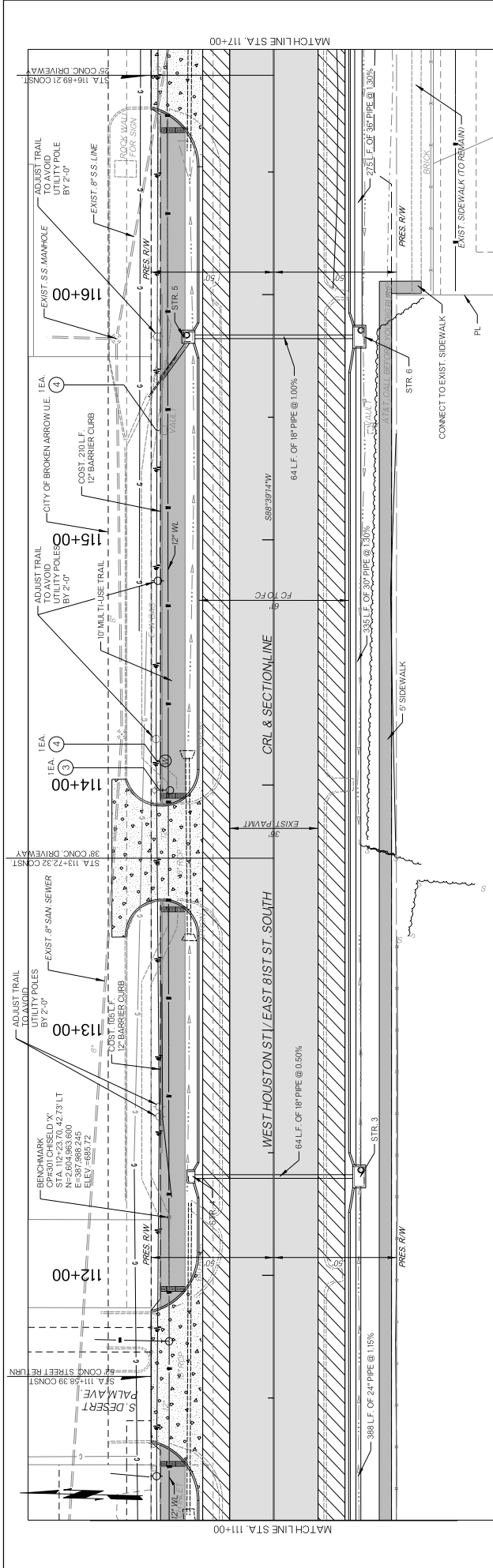
DATE: 10/22/2024
DRAWING NAME: SHEET 22 OF 108
PROJECT NO.: 303909-PNP-001

DESIGN: DATE: 10/22/2024
G/C: DATE: 10/22/2024
REVIEWED: DATE: 10/22/2024
APPROVED: DATE: 10/22/2024

PROFILE SCALE: 1"=20'
HORIZ. SCALE: 1"=40'
VERT. SCALE: 1"=5'

HORIZONTAL SCALE IN FEET: 0, 20, 40
VERTICAL SCALE IN FEET: 0, 5, 10

REVISIONS



LEGEND

- 1 ADJUST MANHOLE TO GRADE
- 2 ADJUST INLET TO GRADE
- 3 VALVE TO GRADE
- 4 ADJUST WATER METER BOX TO GRADE
- 5 WIDENING
- 6 CONC. PAVT / DRIVE
- 7 SIDEWALK / TRAIL
- 8 MILL AND OVERLAY
- 9 CONTROL POINT

REVISIONS

NO.	DATE	DESCRIPTION

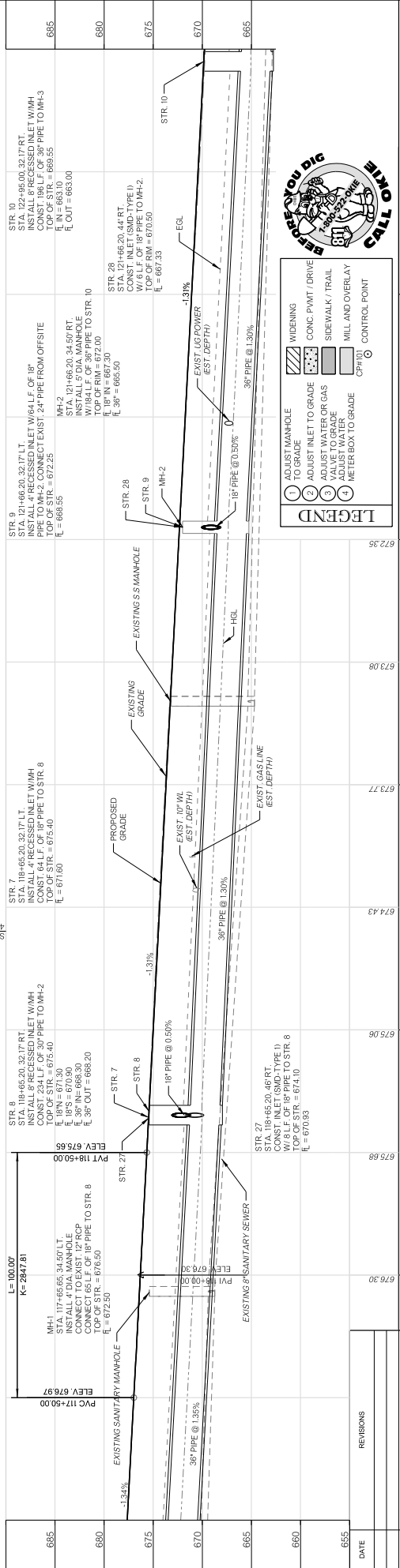
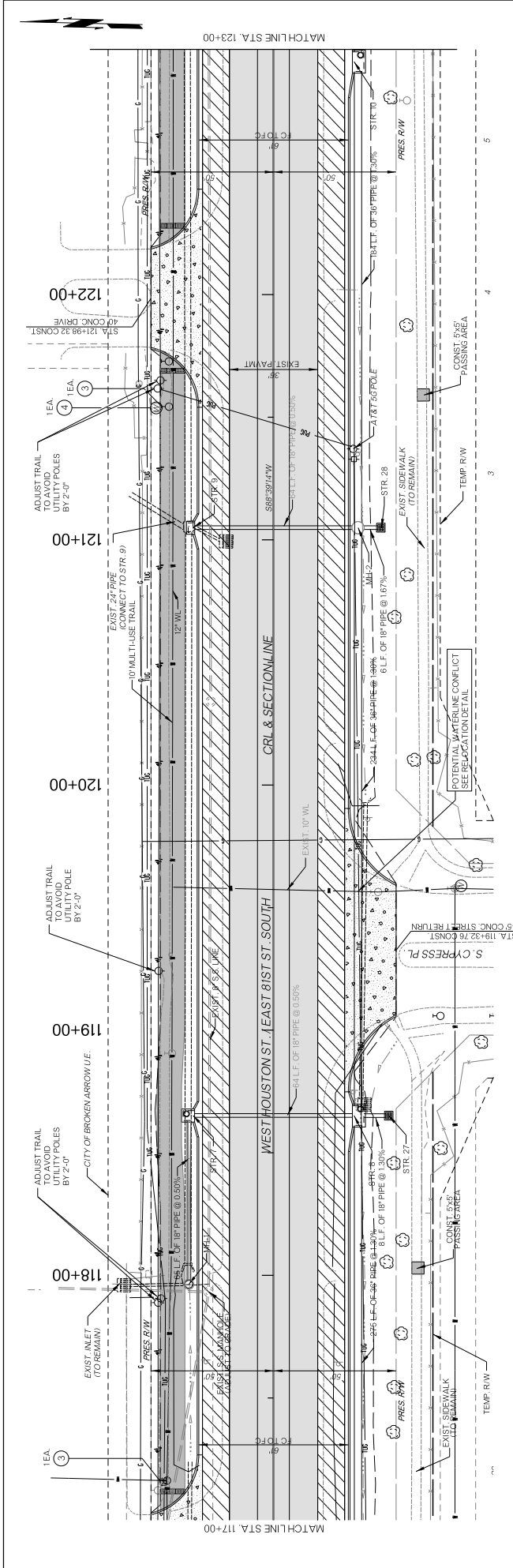
HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

PLAN & PROFILE (3)

DATE: 11/23/2024 11:58:39 AM
 DESIGNED BY: GJC
 CHECKED BY: TWS
 DATE: 11/23/2024
 DATE: 11/23/2024
 DATE: 11/23/2024
 PROJECT NO.: 3030909-PNP-001
 SHEET: 23 OF 108
 ST. 2008



DATE	REVISIONS	PROJECT NO.	SHEET NO.
		303909-PNP-091	24
		OF	108

DATE	DESIGN	DATE	DATE
2020	W/S	2020	2020
2020	C/C	2020	2020
2020	REVISED	2020	2020
2020	APPROVED	2020	2020

PROFILE SCALE:	HORIZ.	VERT.
1"=50'	1"=50'	1"=5'

PROJECT NAME:	SHEET	OF
HOUSTON STREET WIDENING	24	108

DATE	DATE	DATE
2020	2020	2020
2020	2020	2020
2020	2020	2020



- LEGEND**
- 1 ADJUST MANHOLE TO GRADE
 - 2 ADJUST INLET TO GRADE
 - 3 SIDEWALK / TRAIL VALVE TO GRADE
 - 4 METER BOX TO GRADE
 - 5 WIDENING
 - 6 CONC. PAVT / DRIVE
 - 7 MILL AND OVERLAY
 - 8 CONTROL POINT

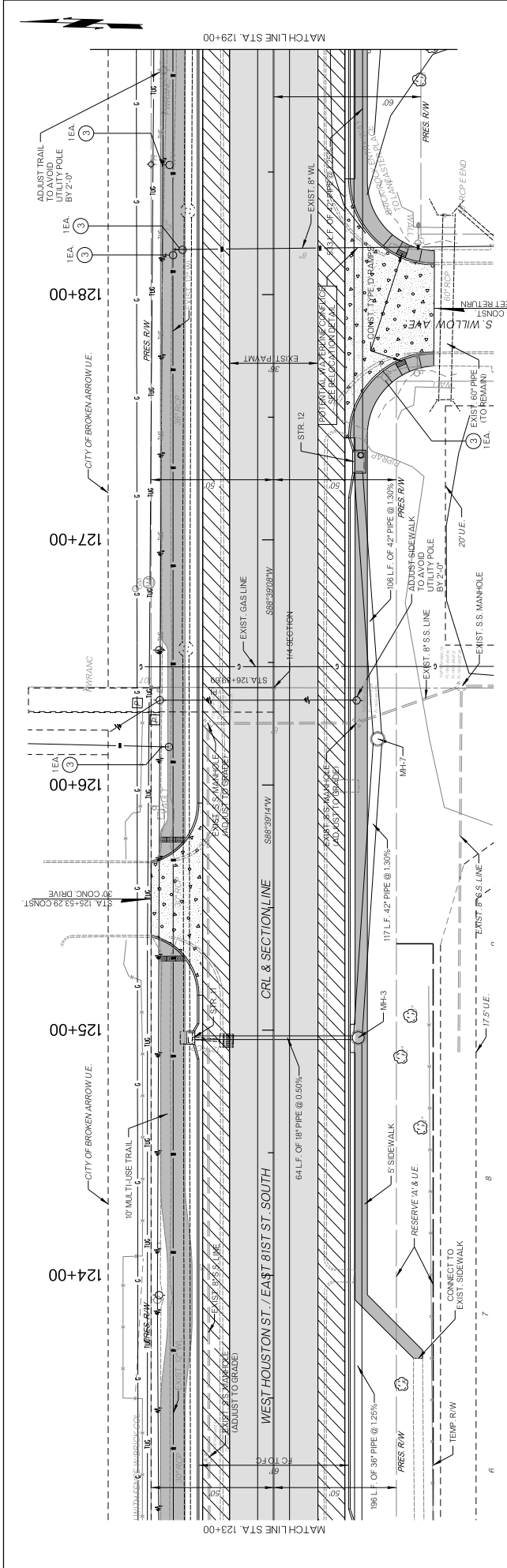
PLAN & PROFILE (4)

HOUSTON STREET WIDENING

HORIZONTAL SCALE IN FEET
0 20 40
VERTICAL SCALE IN FEET
0 5 10

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives



DATE	REVISIONS	STATION	ELEVATION	DESCRIPTION
675		127+00	669.28	38" CONC. STREET REINFORC.
670		127+00	669.94	EXIST. 60" PIPE
665		127+00	669.94	EXIST. 60" PIPE
660		127+00	669.94	EXIST. 60" PIPE
655		127+00	669.94	EXIST. 60" PIPE
650		127+00	669.94	EXIST. 60" PIPE
645		127+00	669.94	EXIST. 60" PIPE

LEGEND

- 1 ADJUST MANHOLE TO GRADE
- 2 ADJUST INLET TO GRADE
- 3 VALVE TO GRADE
- 4 METER BOX TO GRADE

WIDENING

- CONC. PAVT / DRIVE
- SIDEWALK / TRAIL
- MILL AND OVERLAY

CONTROL POINT

- CP (PVI)

PLAN & PROFILE (5)

HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

PROFILE SCALE: HORIZ. 1"=50' VERT. 1"=5'

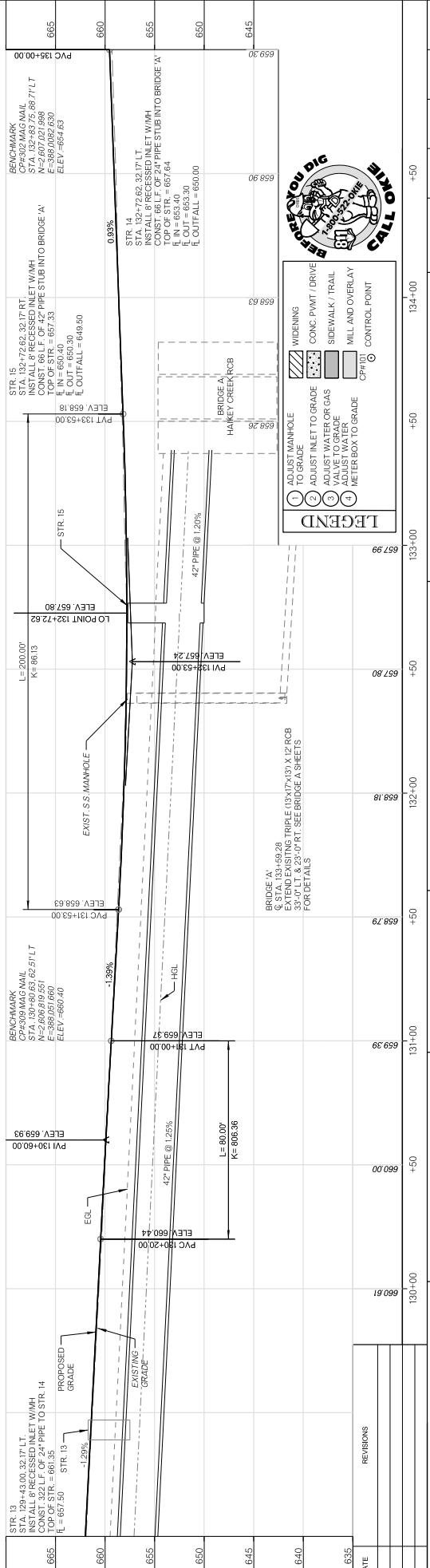
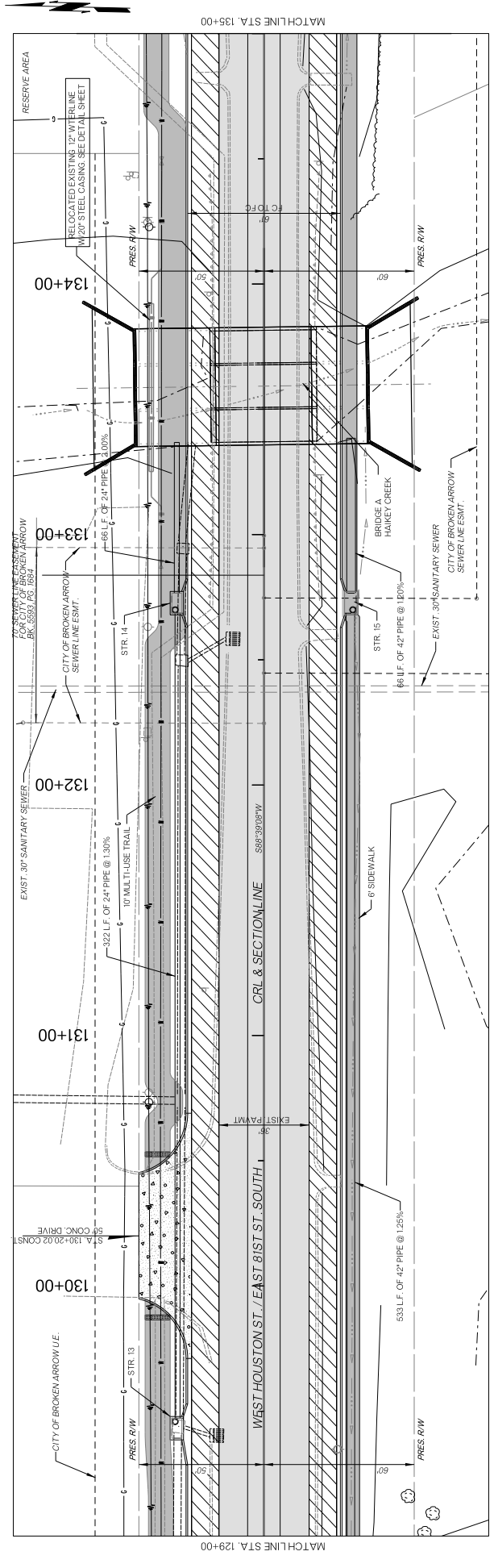
DRAWING NAME: SHEET 25 OF 108

PROJECT NO. 303909-PNP-051

DATE DRAFTED: WSL 2020

DATE REVIEWED: GAC 2020

DATE APPROVED: GAC 2020



LEGEND

- (1) ADJUST MANHOLE TO GRADE
- (2) ADJUST INLET TO GRADE
- (3) SIDEWALK / TRAIL VALVE TO GRADE
- (4) ADJUST WATER METER BOX TO GRADE
- ADJUST WATER METER BOX TO GRADE
- ADJUST WATER METER BOX TO GRADE
- ADJUST WATER METER BOX TO GRADE
- ADJUST WATER METER BOX TO GRADE

LEGEND

- WIDENING
- CONC. PAVT / DRIVE
- SIDEWALK / TRAIL
- MILL AND OVERLAY
- CONTROL POINT

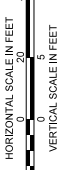
REVISIONS		DATE		DATE		DATE	
NO.	DESCRIPTION	DATE	BY	DATE	BY	DATE	BY

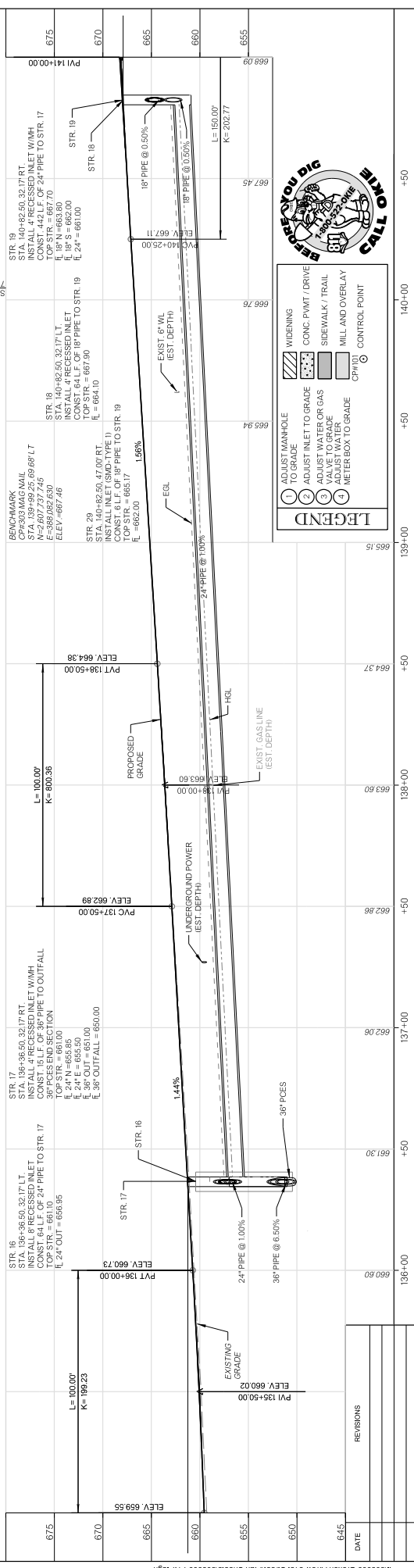
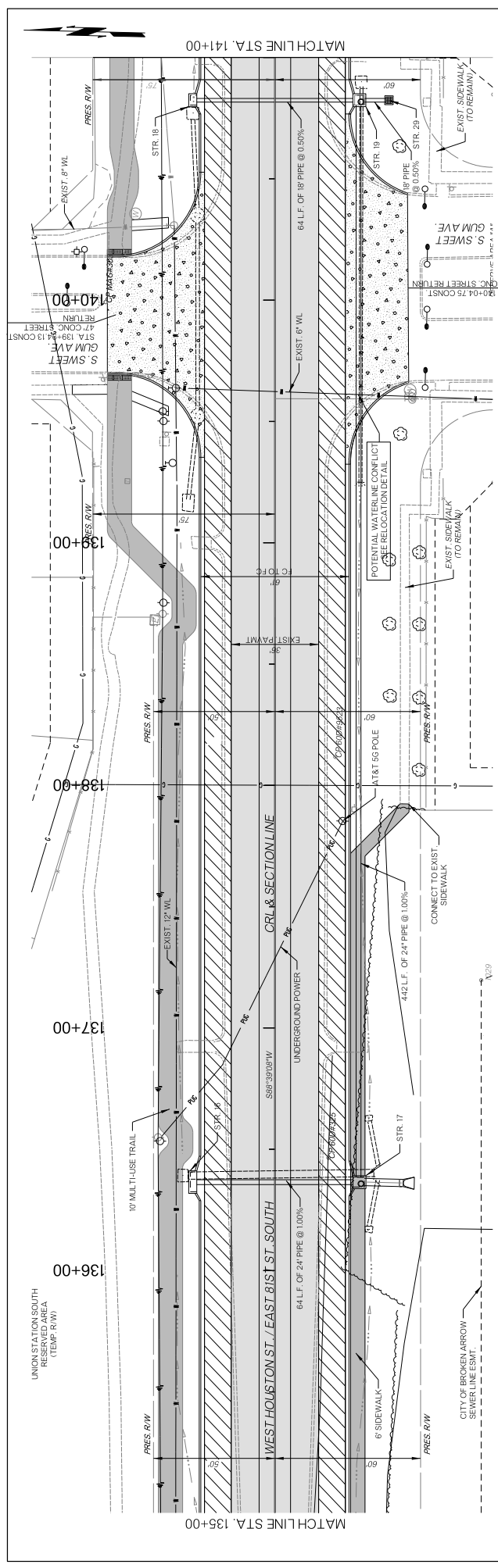
PROFILE SCALE:		DESIGN		DATE		DATE	
HORIZ.	VERT.	SCALE	SCALE	DATE	DATE	DATE	DATE
1"=50'	1"=5'	1"=50'	1"=50'	2020	2020	2020	2020

DRAWING NAME:		SHEET		PROJECT NO.	
NO.	OF	NO.	OF	NO.	OF
108	108	26	26	303809-PNP-JDF	ST. 2028

HOUSTON STREET WIDENING

HOUSTON STREET WIDENING



PLAN & PROFILE (7)

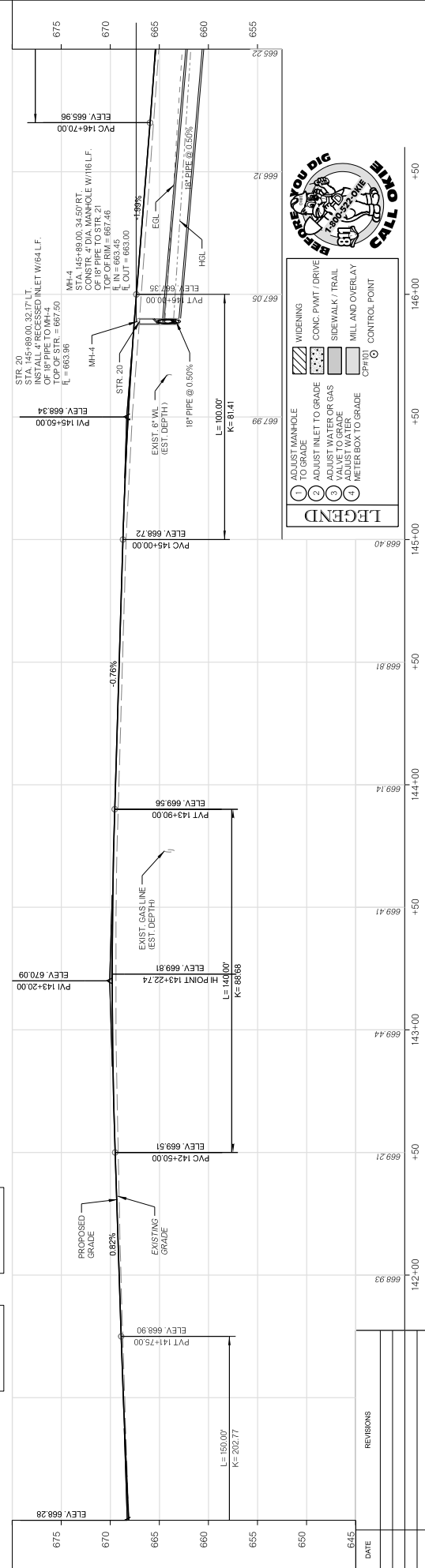
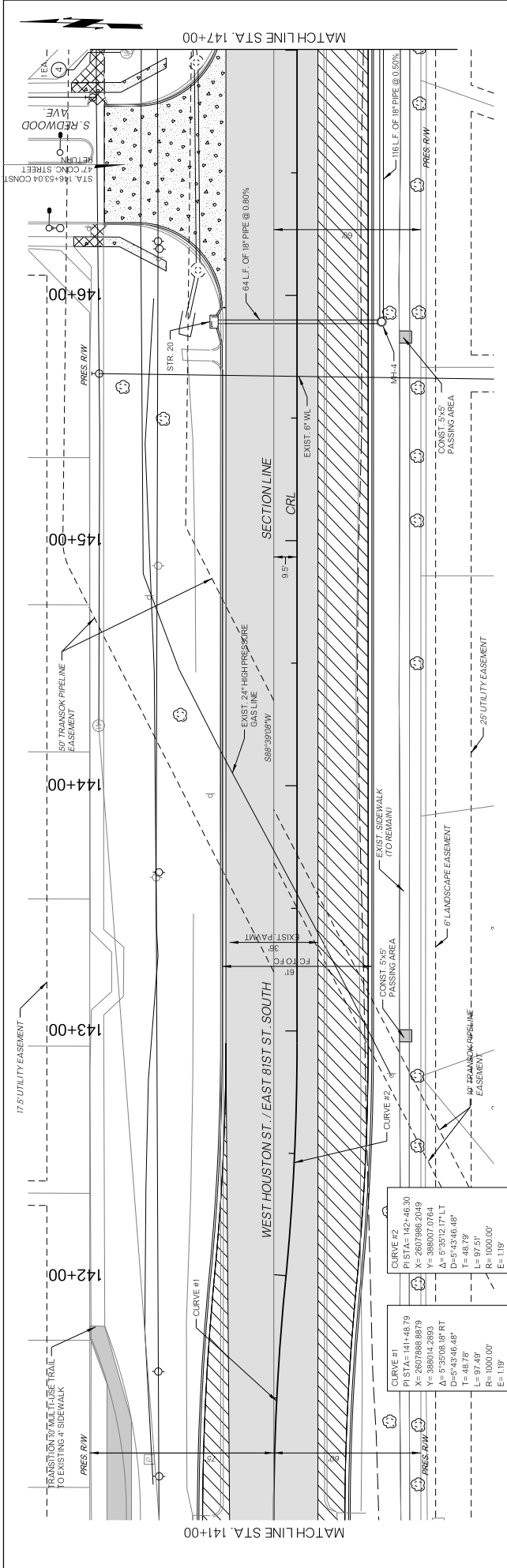
HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

DATE	REVISIONS	DESIGN	DATE	DATE	DATE
675		WSL	2020	2020	2020
670		REVISED	2020	2020	2020
665		DATE	27		
660		SHEET	108		
655		OF	108		

DRAWING NAME: SHEET 108
PROJECT NO. 3030909-PNP-091



- LEGEND**
- 1 ADJUST MANHOLE TO GRADE
 - 2 ADJUST INLET TO GRADE
 - 3 SIDEWALK / TRAIL VALVE TO GRADE
 - 4 ADJUST WATER METER BOX TO GRADE
 - 5 WIDENING
 - 6 CONC. PAVT / DRIVE
 - 7 SIDEWALK / TRAIL MILL AND OVERLAY
 - 8 CONTROL POINT

REVISIONS		DATE		DATE		DATE		DATE	
NO.	DESCRIPTION	BY	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED	DATE

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=50'	GAC	2020	WSL	2020
VERT. 1"=5'	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME: HOUSTON STREET WIDENING	SHEET	28	OF	108
DRAWING NO. 303909-PNP-051	PROJECT NO.	ST. 2028		

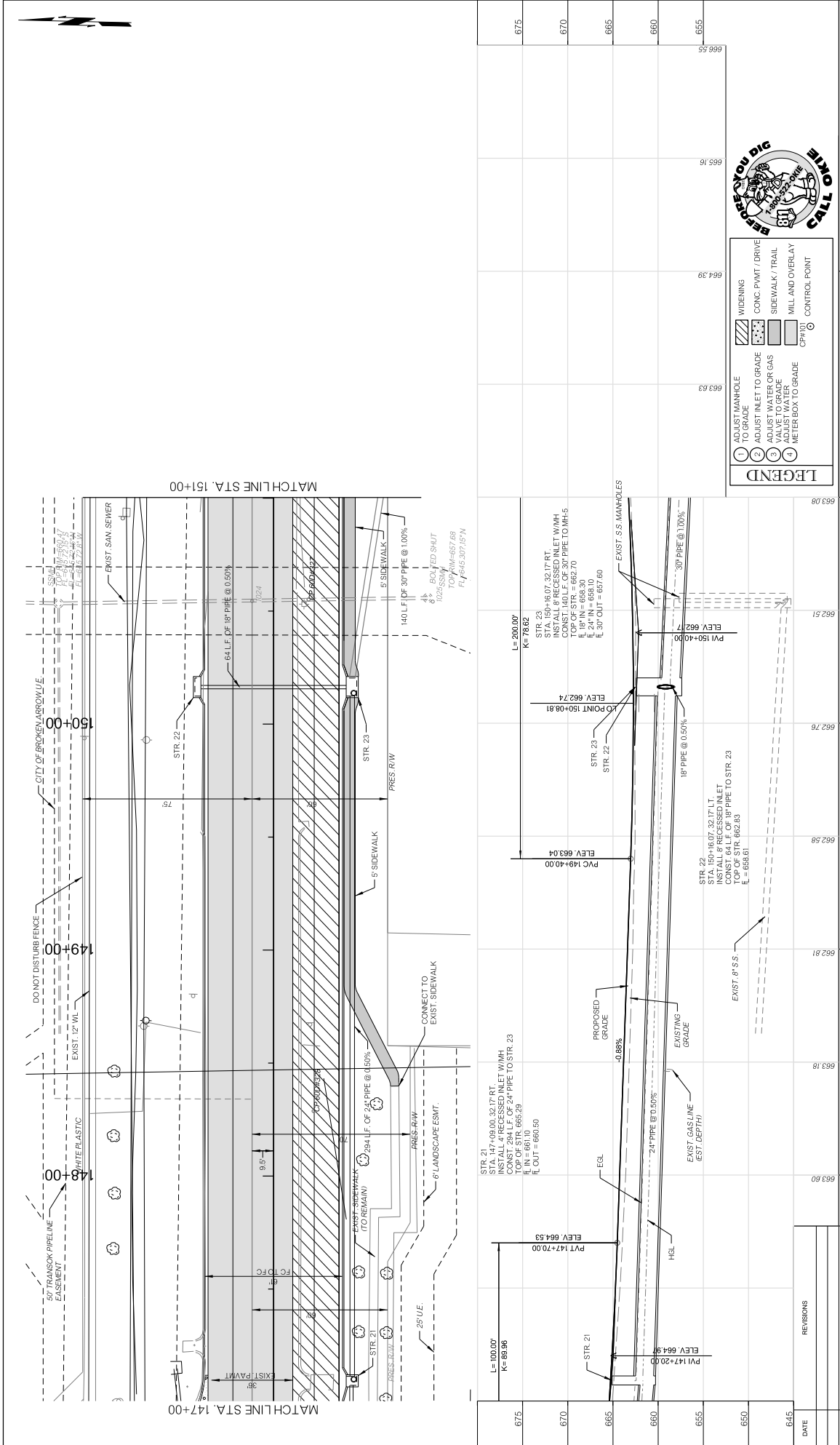
CITY OF BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

HOUSTON STREET WIDENING

PLAN & PROFILE (8)

7/12/2024
R:\303909-Broken Arrow 81st St StreetPlan Sheets\303909-PNP.dgn



DATE	645	650	655	660	665	670	675
REVISIONS							

CITY OF BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

**HOUSTON STREET
WIDENING**

PROFILE SCALE: 1"=20'

HORIZONTAL SCALE IN FEET: 1"=20'

VERTICAL SCALE IN FEET: 1"=10'

PROFILE SCALE: 1"=20'		DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=20'		GAC	2020	WSL	2020
VERT. 1"=5'		REVIEWED	DATE	APPROVED	DATE
DRAWING NAME: SHEET		OF	29	PROJECT NO.	30309-PNP-001
DRAWING NO. 30309-PNP-001		ST. 2028			

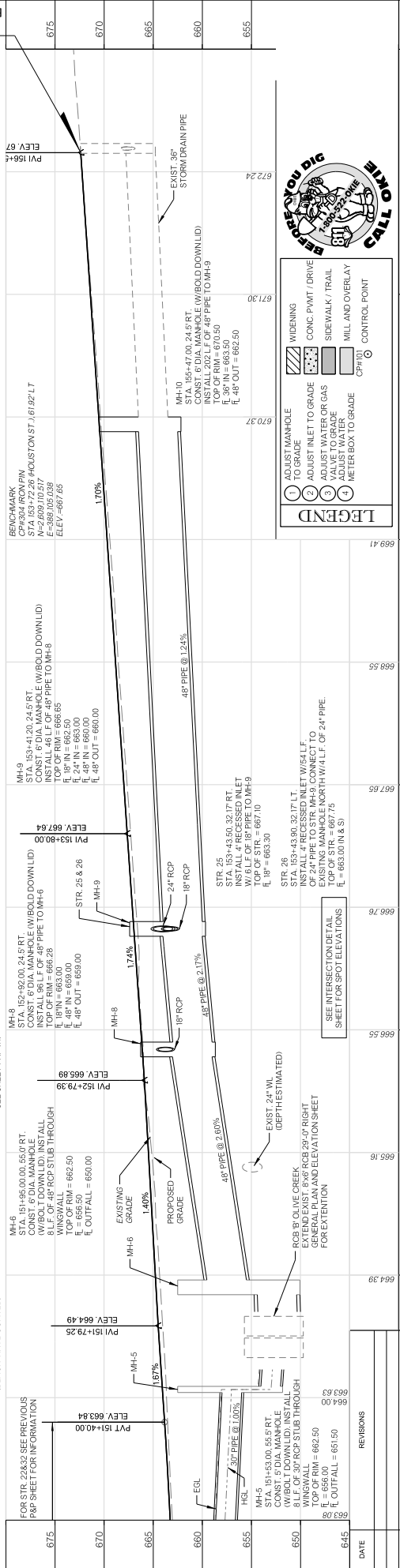
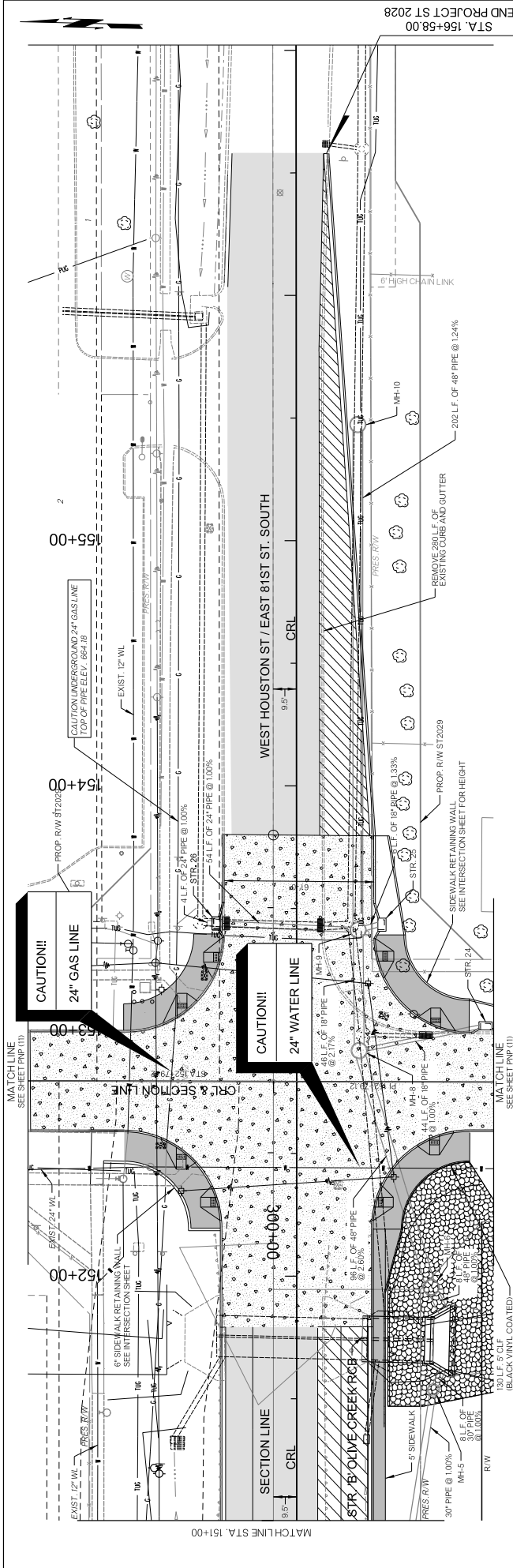
LEGEND

- 1 ADJUST MANHOLE TO GRADE
- 2 ADJUST INLET TO GRADE
- 3 ADJUST VALVE TO GRADE
- 4 METER BOX TO GRADE

LEGEND

- WIDENING
- CONC. PAVT / DRIVE
- SIDEWALK / TRAIL
- MILL AND OVERLAY
- CONTROL POINT

BEFORE YOU DIG CALL 811



DATE	REVISIONS	152+00	+50	153+00	+50	154+00	+50	155+00	+50	156+00	+50	157+00
645												
650												
655												
660												
665												
670												
675												

LEGEND

- ADJUST MANHOLE TO GRADE
- ADJUST INLET TO GRADE
- ADJUST VALVE TO GRADE
- METER BOX TO GRADE
- CONC. PAVT / DRIVE
- SIDEWALK / TRAIL
- MILL AND OVERLAY
- CONTROL POINT

PLAN & PROFILE (10)

HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

PROFILE SCALE: HORIZ. 1"=50' VERT. 1"=5'

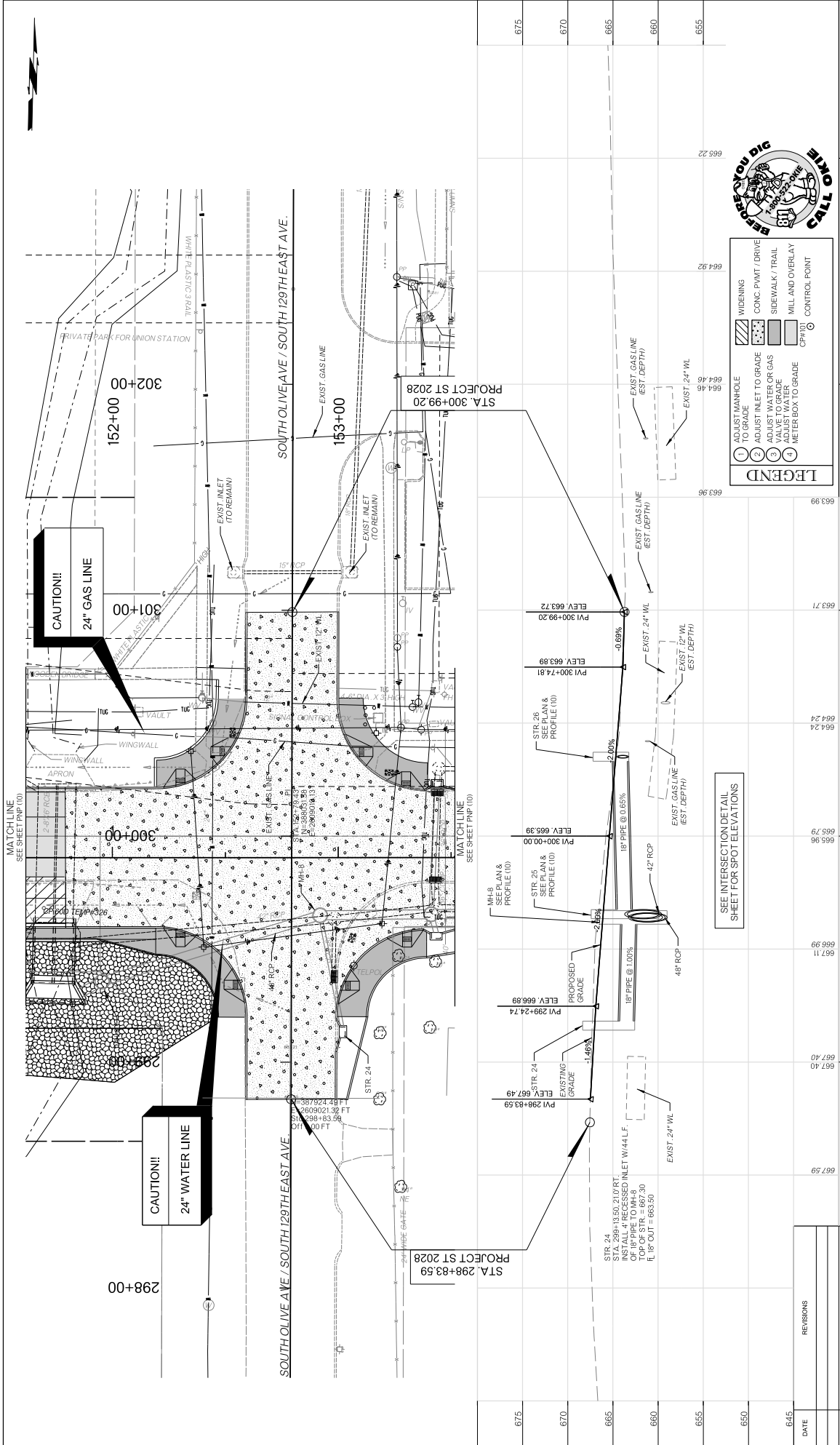
DRAWING NAME: SHEET 30 OF 308

PROJECT NO. 30309-PNP-051

DATE DRAFTED: 2020 WSL: 2020

DATE REVIEWED: 2020 GAC: 2020

DATE APPROVED: 2020 DATE: 2020



DATE	REVISIONS	DESIGN	DATE	DRAFTED	DATE
675		GAC	2020	WSL	2020
670		REVIEWED	2020	DATE	APPROVED
665		DATE	2020	DATE	DATE
660		DRAWING NAME:	31	SHEET	PROJECT NO.
655		30309-PNP-001	OF	108	ST 2028

CITY OF BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

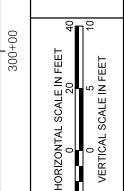
HOUSTON STREET WIDENING

PLAN & PROFILE (11)

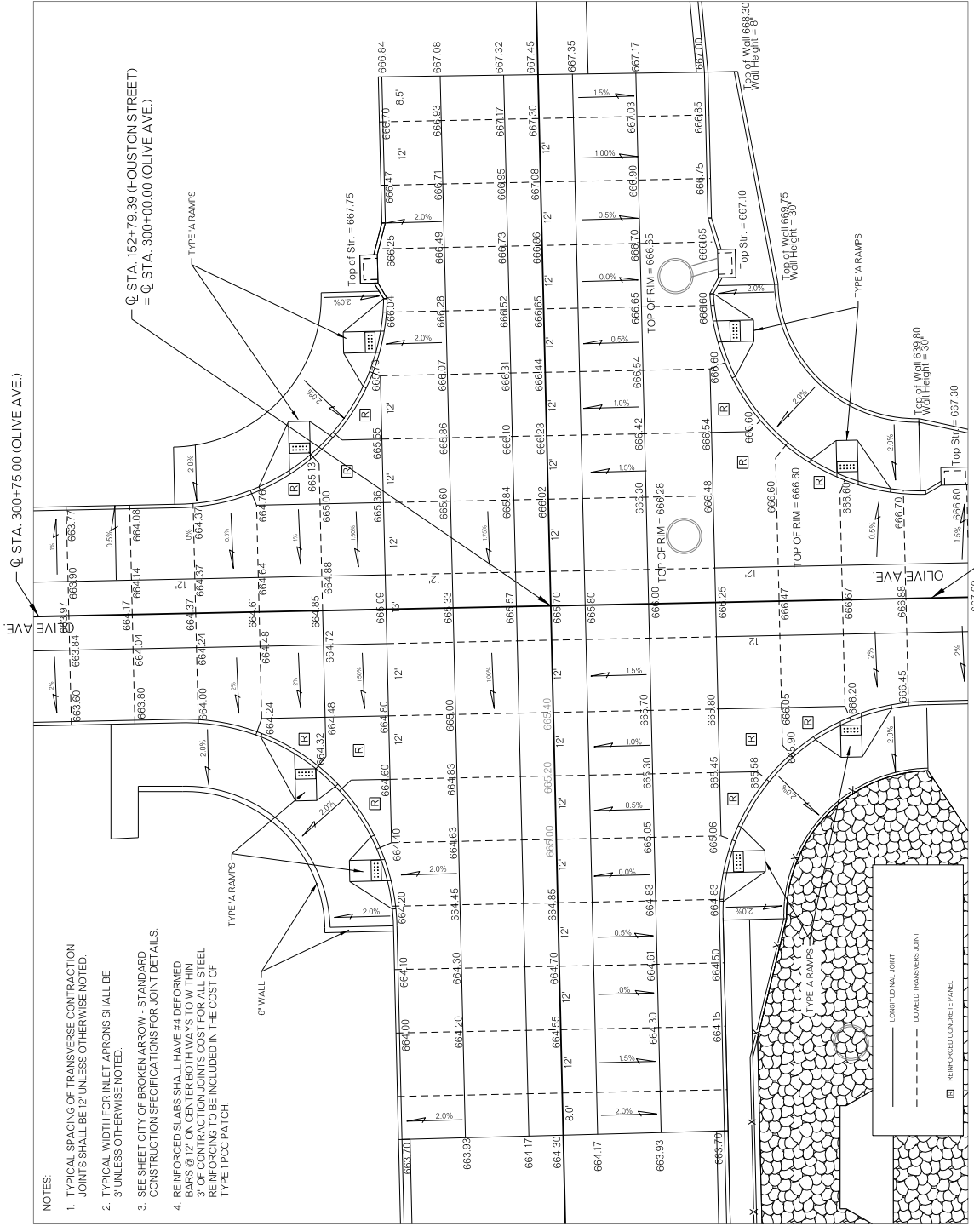
LEGEND

- ADJUST MANHOLE TO GRADE
- ADJUST INLET TO GRADE
- ADJUST VALVE TO GRADE
- METER BOX TO GRADE
- WIDENING
- CONC. PAVT DRIVE
- SIDEWALK / TRAIL
- MILL AND OVERLAY
- CONTROL POINT

SEE INTERSECTION DETAIL SHEET FOR SPOT ELEVATIONS



BEFORE YOU DIG
CALL 811



- NOTES:
1. TYPICAL SPACING OF TRANSVERSE CONTRACTION JOINTS SHALL BE 12' UNLESS OTHERWISE NOTED.
 2. TYPICAL WIDTH FOR INLET APRONS SHALL BE 3' UNLESS OTHERWISE NOTED.
 3. SEE SHEET CITY OF BROKEN ARROW - STANDARD CONSTRUCTION SPECIFICATIONS FOR JOINT DETAILS.
 4. REINFORCED SLABS SHALL HAVE #4 DEFORMED BARS @ 12" ON CENTER BOTH WAYS TO WITHIN 3" OF CONTRACTION JOINTS. COST FOR ALL STEEL REINFORCING TO BE INCLUDED IN THE COST OF TYPE 1 PCC PATCH.

DATE	REVISIONS

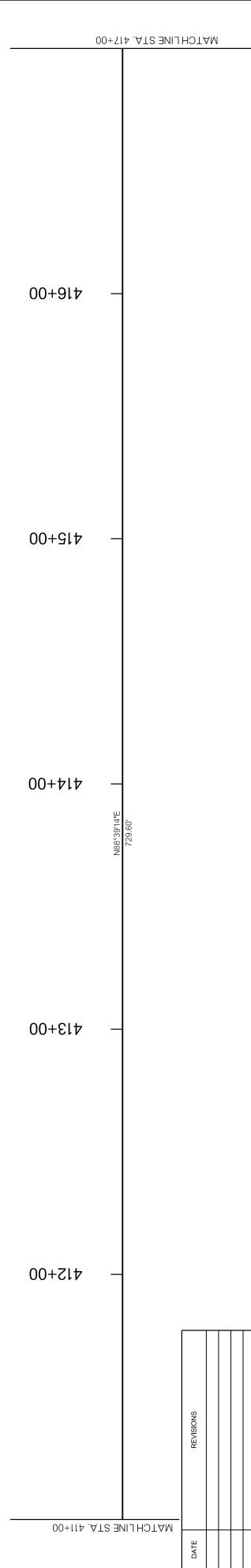
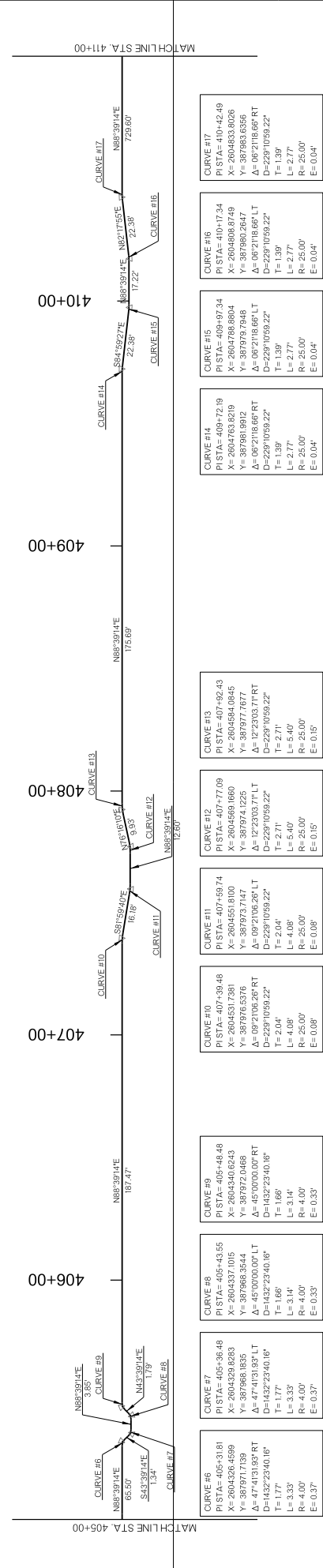
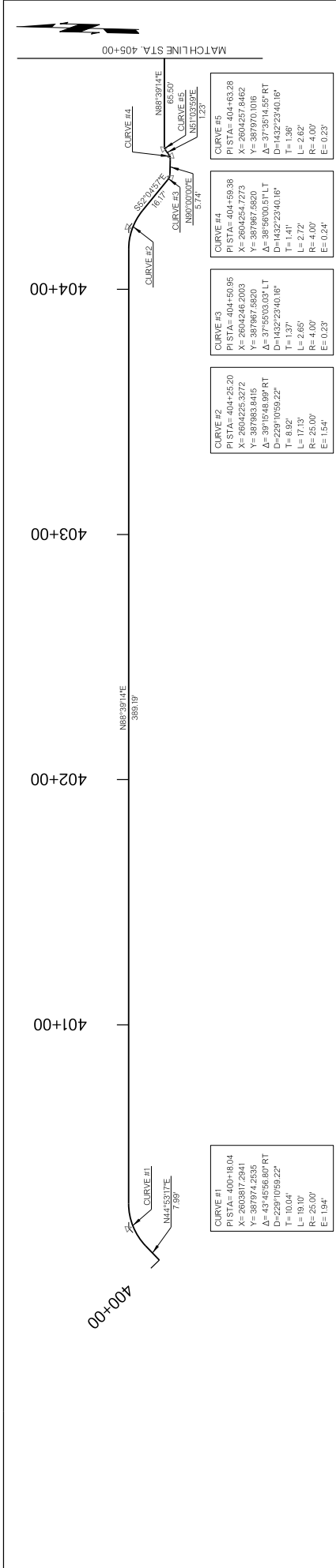
CITY OF BROKEN ARROW
Where opportunity lives

HOUSTON STREET WIDENING

INTERSECTION DETAIL

POE & ASSOCIATES INC.
Tulsa, Oklahoma

DESIGN	DATE	DRAFTED	DATE
CJC	2020	WSL	2020
REVIEWED	DATE	APPROVED	DATE
WSL	2020	CJC	2020
DRAWING NAME:	SHEET	PROJECT NO.	ST. 2028
OF	32		



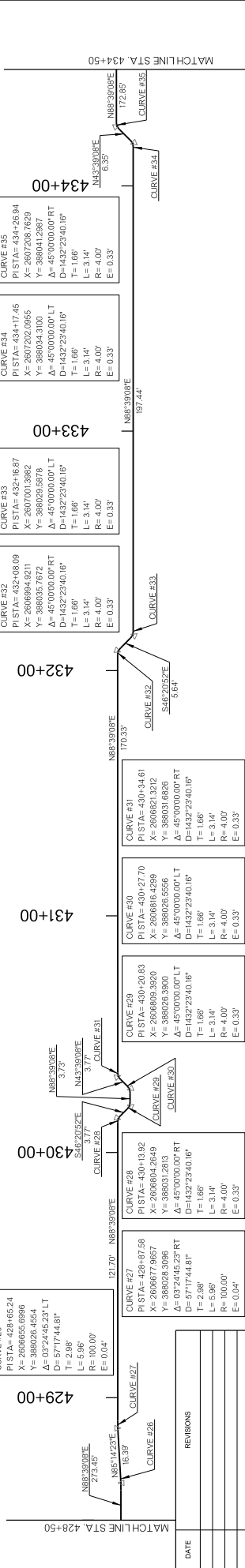
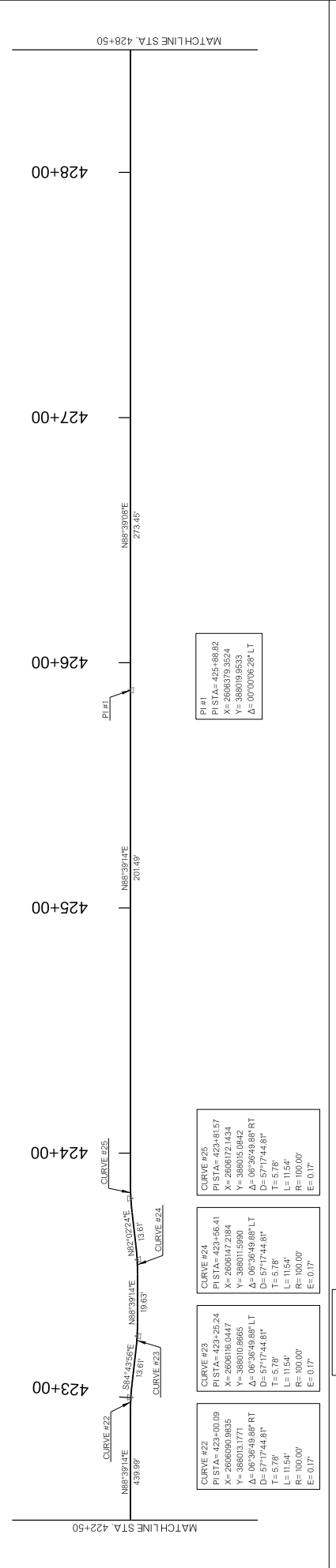
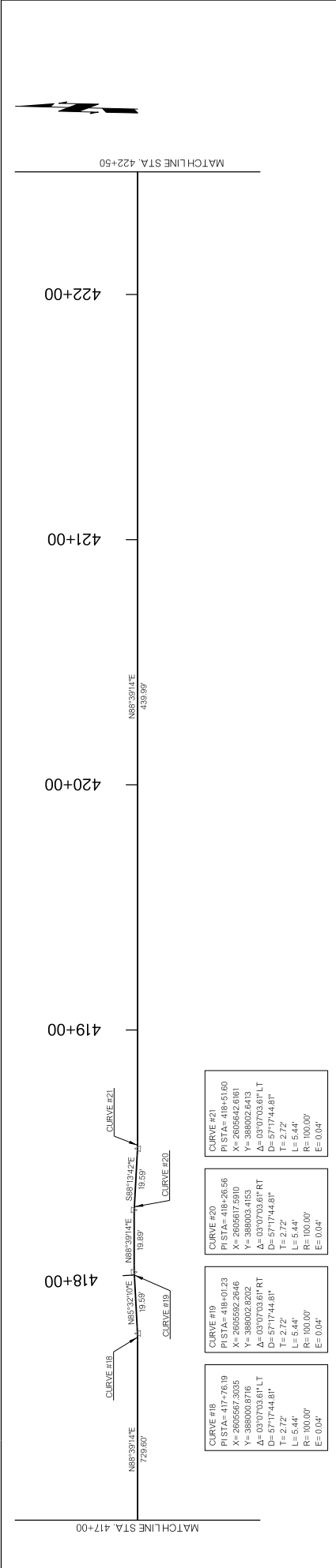
DATE	REVISIONS	DESIGN	DATE	DRAFTED	DATE
		QC	2020	WSL	2020
		REVIEWED	DATE	APPROVED	DATE
		VERT	DATE	PROJECT NO.	2020
		DRAWING NAME:	SHEET	OF	PROJECT NO.
			33	108	ST 2028

TRAIL GEOMETRY (1)

HOUSTON STREET WIDENING

POE & ASSOCIATES INC.
Tulsa, Oklahoma





CITY OF BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

HOUSTON STREET WIDENING

TRAIL GEOMETRY (2)

REVISIONS	
DATE	

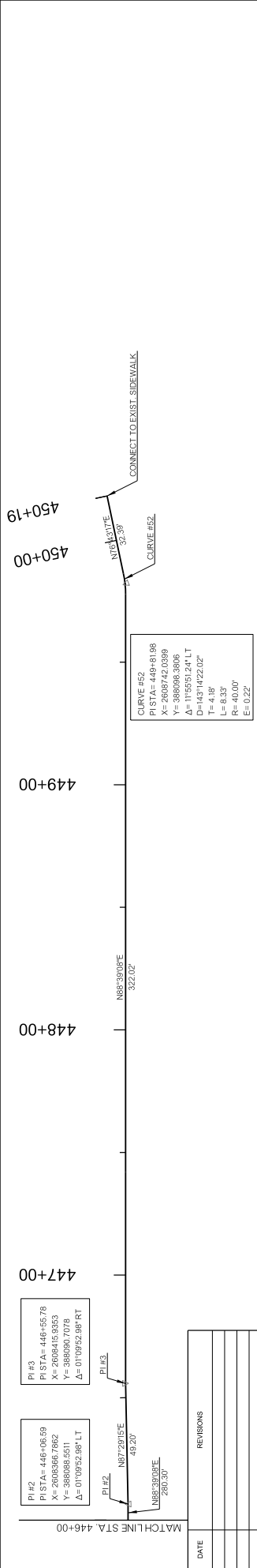
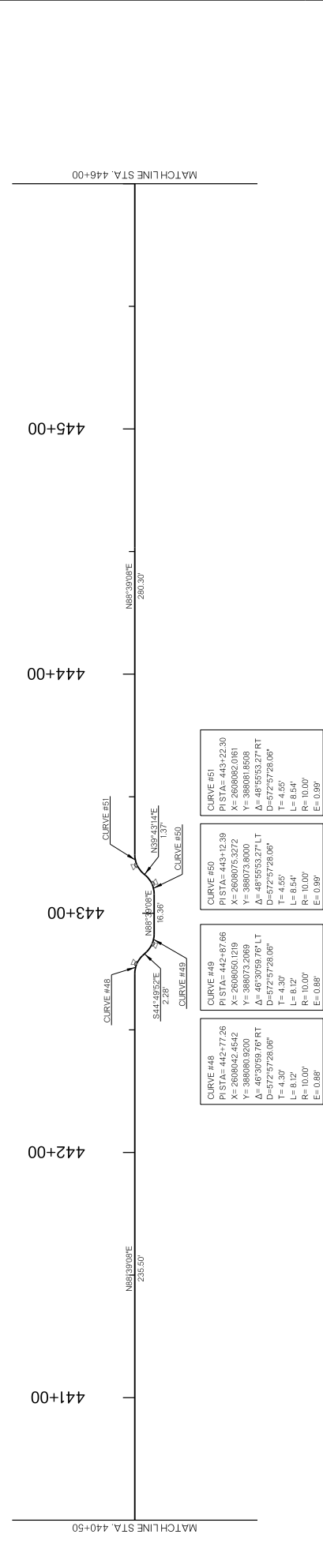
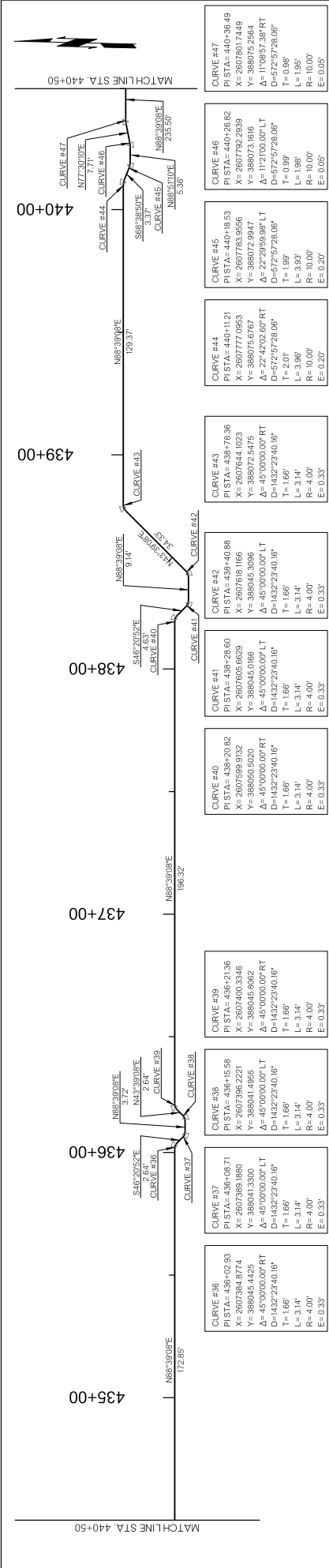
PROFILE SCALE:	
HORIZ.	1"=20'
VERT.	1"=4'

DESIGN	
G/C	2020
REVISED	DATE
DATE	APPROVED
DATE	DATE

DRAWING NAME: SHEET 34 OF 108
PROJECT NO. ST 2028

HORIZONTAL SCALE IN FEET: 1"=20'

VERTICAL SCALE IN FEET: 1"=4'



CITY OF BROKEN ARROW Where opportunity lives		POE & ASSOCIATES INC. Tulsa, Oklahoma		HOUSTON STREET WIDENING		TRAIL GEOMETRY (3)	
DATE: _____ REVISIONS: _____ _____ _____		HORIZONTAL SCALE IN FEET: 1" = 20' VERTICAL SCALE IN FEET: 1" = 10'		PROFILE SCALE: 1" = 20' HORIZ. NA VERT. NA		DESIGN: GAC 2020 DATE: 2020 REVIEWED: 2020 DATE: 2020 SHEET: 35 OF 108 PROJECT NO.: ST 2028 DRAWING NAME: 3389-TrailGeom.dgn	

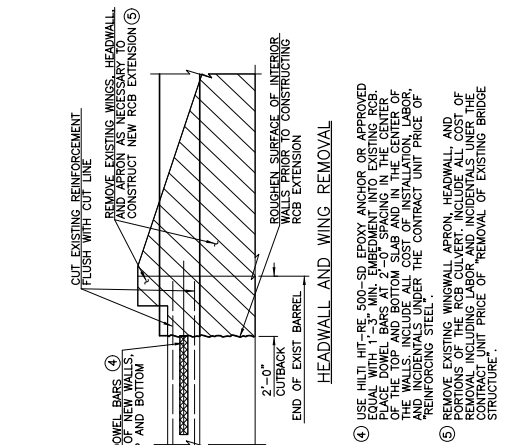
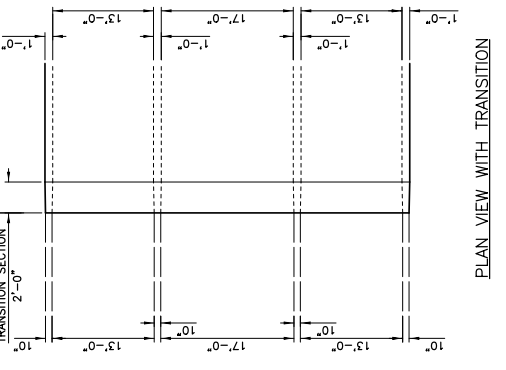
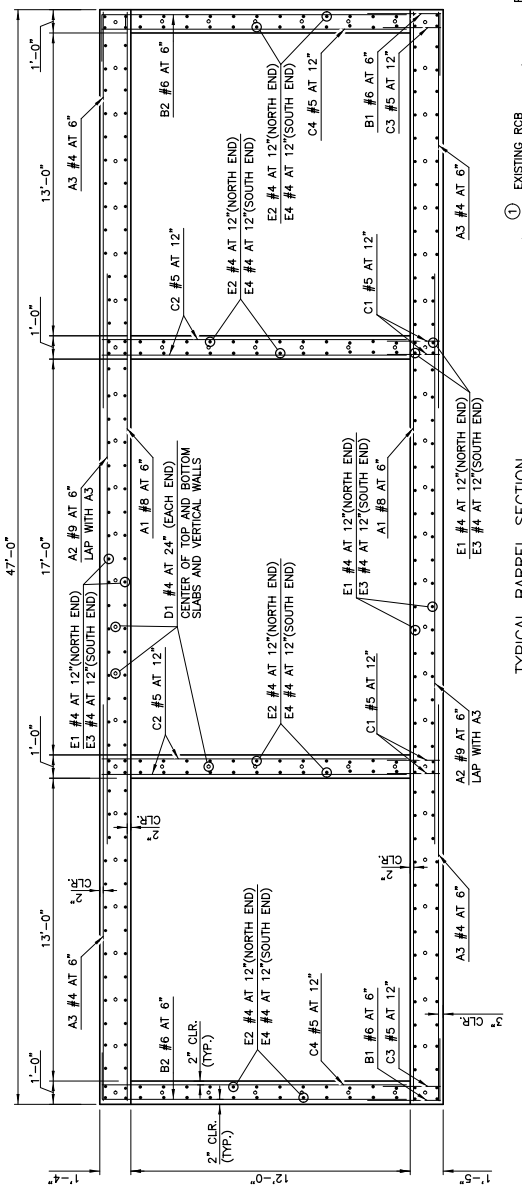
NORTH EXTENSION BARREL BAR LIST

MARK	SIZE	NO.	FORM	LENGTH
A1	#8	134	STR	46'-8"
A2	#9	134	STR	25'-0"
A3	#4	268	STR	17'-0"
B1	#6	134	BNT	6'-2"
B2	#6	134	BNT	16'-1"
C1	#5	136	STR	2'-6"
C2	#5	136	STR	13'-2"
C3	#5	68	STR	2'-10"
C4	#5	68	STR	13'-2"
D1	#4	74	STR	2'-6"
E1	#4	204	STR	2'-6"
E2	#4	96	STR	32'-6"
P1	#4	16	STR	4'-0"

SOUTH EXTENSION BARREL BAR LIST

MARK	SIZE	NO.	FORM	LENGTH
A1	#8	94	STR	46'-8"
A2	#9	94	STR	25'-0"
A3	#4	68	STR	17'-0"
B1	#6	94	BNT	16'-1"
C1	#5	96	STR	2'-6"
C2	#5	96	STR	13'-2"
C3	#5	48	STR	2'-10"
C4	#5	48	STR	13'-2"
D1	#4	74	STR	2'-6"
E3	#4	204	STR	22'-8"
E4	#4	96	STR	22'-8"
P2	#4	16	STR	5'-6"

- THE DIMENSIONS PROVIDED ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY THE DIMENSIONS ON THE FIELD.
- APPLIES TO ONLY NORTH BARREL EXTENSION.
- APPLIES TO ONLY SOUTH BARREL EXTENSION.



- USE HITL HIT-RE 500-SD EPOXY ANCHORS OR APPROVED EQUAL WITH 1"-5/8" MIN. EMBEDMENT INTO EXISTING RCB. PLACE DOWEL BARS AT 2'-0" SPACING IN THE CENTER LINE OF TOP AND BOTTOM WALLS. REMOVE EXISTING WALLS AND REINFORCING UNDER THE CONTRACT UNIT PRICE OF "REINFORCING STEEL".
- REMOVE EXISTING WINGWALL AFRON, HEADWALL AND HEADWALL AND WING REMOVAL. REMOVE EXISTING LABOR AND INCIDENTALS UNDER THE CONTRACT UNIT PRICE OF "REMOVAL OF EXISTING BRIDGE STRUCTURE".

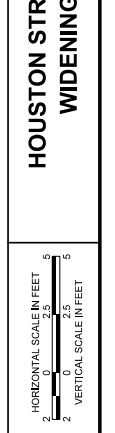
DATE	REVISIONS

PROFILE SCALE	DESIGN	DATE	DRAWN	DATE
HORIZ. 3/8"=1'				
VERT. 3/16"=1'				

PROJECT NO.	SHEET	OF

RCB DETAILS
TYPICAL BARREL SECTIONS
BRIDGE "A"

HOUSTON STREET
WIDENING

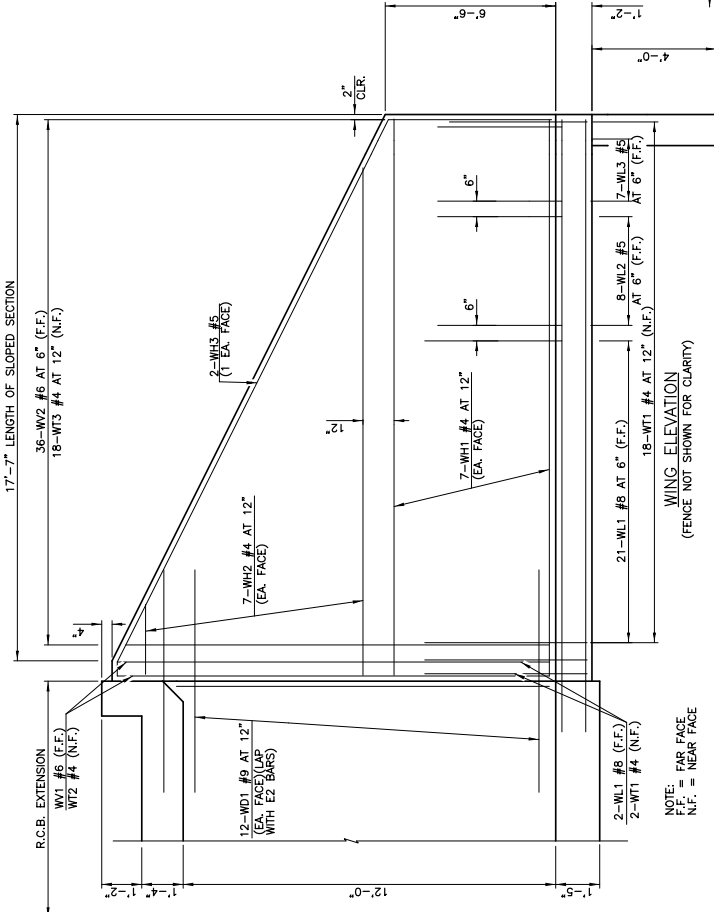


215 S. SHIRLEY BLVD. SUITE 200
HOUSTON, TEXAS 77058
CR&Y
REINFORCING SPECIALISTS



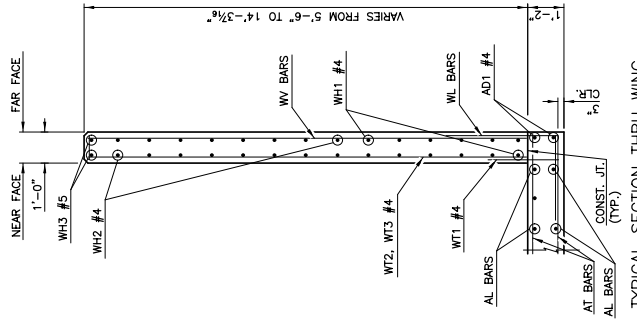
City of
BROKEN ARROW
Where opportunity lives



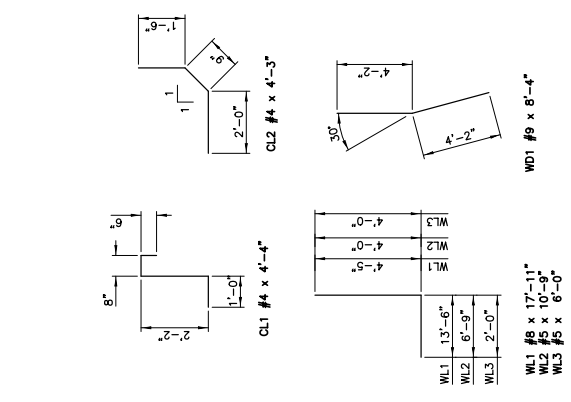


WING ELEVATION
(FENCE NOT SHOWN FOR CLARITY)

NOTE:
F.F. = FAR FACE
N.F. = NEAR FACE



TYPICAL SECTION THRU WING



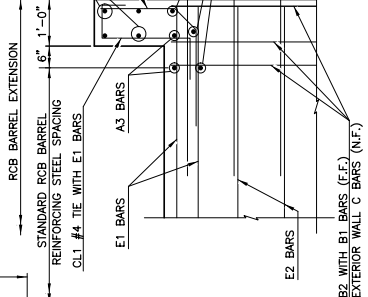
HEADWALL BAR LIST
(ONE SHOWN - TWO REQUIRED)

MARK	SIZE	NO.	FORM	LENGTH
CH	#4	4	STR	46'-8"
CL1	#4	48	BNT	4'-4"
CL2	#4	48	BNT	4'-3"

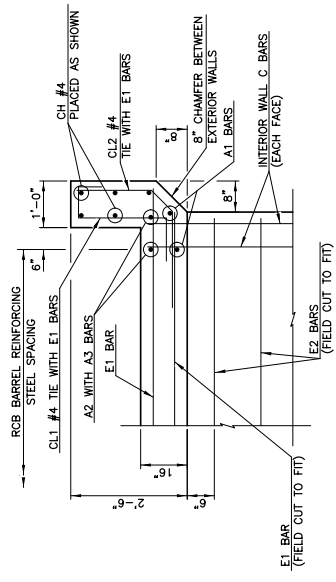
WING BAR LIST (ONE SHOWN - FOUR REQUIRED)

MARK	SIZE	NO.	FORM	LENGTH	VARIANCE
WH1	#4	24	BNT	8'-4"	
WH2	#4	14	STR	17'-11"	
WH3	#5	2	STR	9'-4" AVG.	2'-5" TO 16'-3"
WL1	#8	23	BNT	19'-2"	
WL2	#5	6	BNT	17'-11"	
WL3	#5	7	BNT	10'-9"	
WT1	#4	20	STR	2'-10"	
WT2	#4	2	STR	13'-11"	
WT3	#4	2	STR	9'-11 1/2" AVG.	6'-2" TO 13'-9"
WD1	#9	2	STR	13'-11"	
WD2	#9	36	STR	9'-11 1/2" AVG.	6'-2" TO 13'-9"

① ROTATE BARS IF NECESSARY AT ENDS.



HEADWALL DETAIL AT EXTERIOR WALL



HEADWALL DETAIL AT INTERIOR WALL

REVISIONS

DATE	DESCRIPTION

City of
BROKEN ARROW
Where opportunity lives

515 S.W. 10th Ave., Suite 100
Broken Arrow, Oklahoma 74012
REINFORCING DEPARTMENT

CP&Y

HORIZONTAL SCALE IN FEET
0 2.5 5
VERTICAL SCALE IN FEET
0 1 2 3 4 5

HOUSTON STREET
WIDENING

TYPICAL RCB DETAILS
WINGWALL SECTIONS
BRIDGE "A"

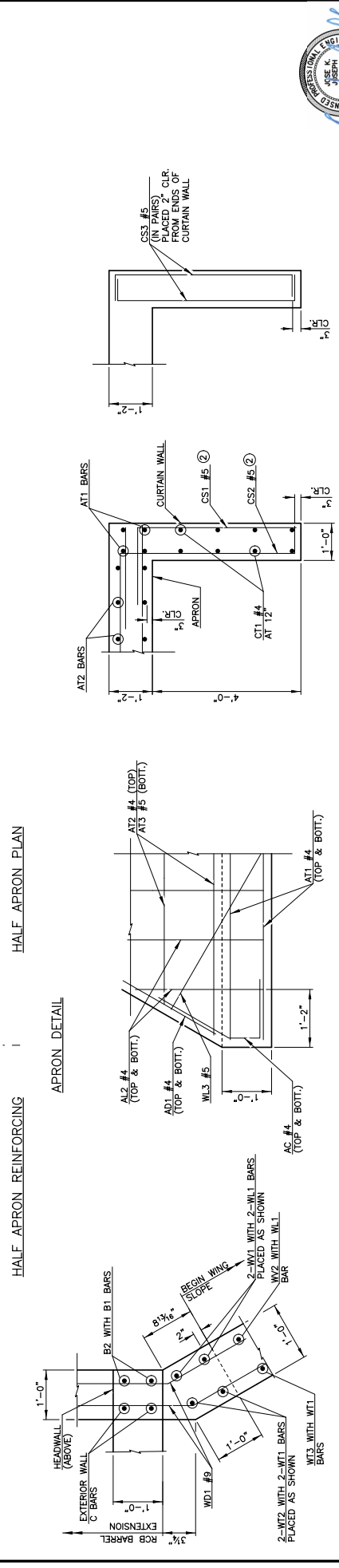
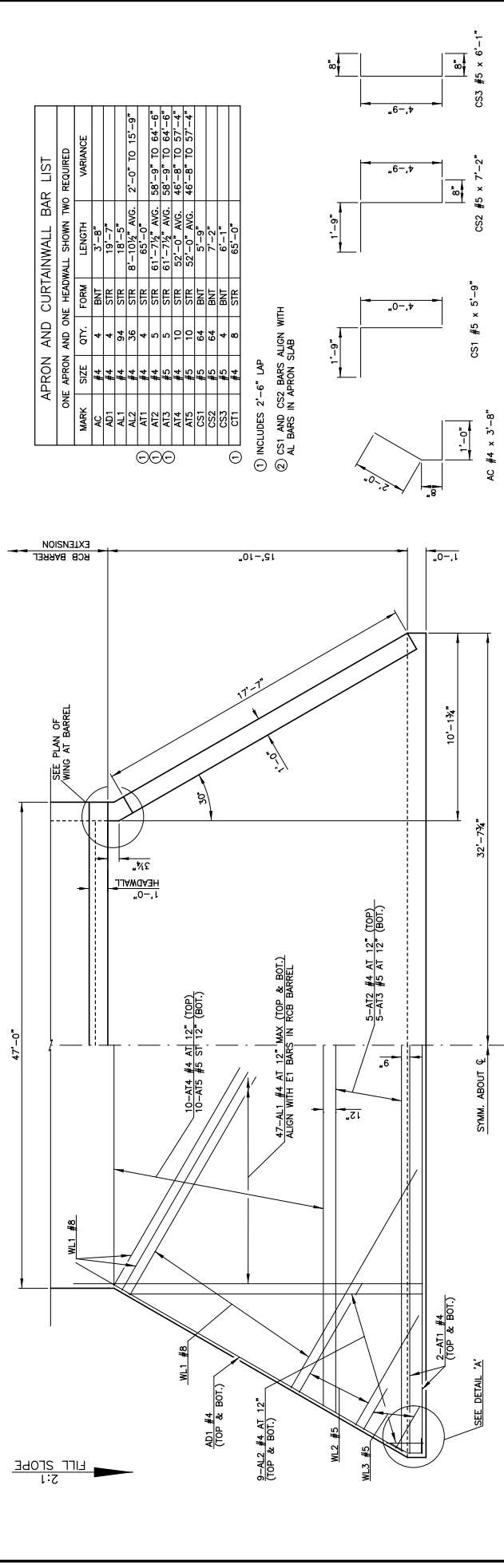
PROFILE SCALE	DESIGN	DATE	DATE
HORIZ. 3/8"=1"	REVIEWED	DATE	DATE
VERT. 3/16"=1"	DESIGNED	DATE	DATE
DRAWING NAME:	SHEET	38	OF
PLAN			

PROJ. CT. NO.: ST. 2020

DATE

11/18/2021 11:33:57 AM

cpw\l\ANSIB\picg



APRON AND CURTAINWALL BAR LIST

ONE APRON AND ONE HEADWALL SHOWN TWO REQUIRED

MARK	SIZE	QTY.	FORM	LENGTH	VARIANCE
AC	#4	4	BNT	3'-8"	
AD1	#4	4	STR	19'-2"	
AD2	#4	4	STR	19'-2"	
AD3	#4	4	STR	19'-2"	
AD4	#4	4	STR	19'-2"	
AD5	#4	4	STR	19'-2"	
AD6	#4	4	STR	19'-2"	
AD7	#4	4	STR	19'-2"	
AD8	#4	4	STR	19'-2"	
AD9	#4	4	STR	19'-2"	
AD10	#4	4	STR	19'-2"	
AD11	#4	4	STR	19'-2"	
AD12	#4	4	STR	19'-2"	
AD13	#4	4	STR	19'-2"	
AD14	#4	4	STR	19'-2"	
AD15	#4	4	STR	19'-2"	
AD16	#4	4	STR	19'-2"	
AD17	#4	4	STR	19'-2"	
AD18	#4	4	STR	19'-2"	
AD19	#4	4	STR	19'-2"	
AD20	#4	4	STR	19'-2"	
AD21	#4	4	STR	19'-2"	
AD22	#4	4	STR	19'-2"	
AD23	#4	4	STR	19'-2"	
AD24	#4	4	STR	19'-2"	
AD25	#4	4	STR	19'-2"	
AD26	#4	4	STR	19'-2"	
AD27	#4	4	STR	19'-2"	
AD28	#4	4	STR	19'-2"	
AD29	#4	4	STR	19'-2"	
AD30	#4	4	STR	19'-2"	
AD31	#4	4	STR	19'-2"	
AD32	#4	4	STR	19'-2"	
AD33	#4	4	STR	19'-2"	
AD34	#4	4	STR	19'-2"	
AD35	#4	4	STR	19'-2"	
AD36	#4	4	STR	19'-2"	
AD37	#4	4	STR	19'-2"	
AD38	#4	4	STR	19'-2"	
AD39	#4	4	STR	19'-2"	
AD40	#4	4	STR	19'-2"	
AD41	#4	4	STR	19'-2"	
AD42	#4	4	STR	19'-2"	
AD43	#4	4	STR	19'-2"	
AD44	#4	4	STR	19'-2"	
AD45	#4	4	STR	19'-2"	
AD46	#4	4	STR	19'-2"	
AD47	#4	4	STR	19'-2"	
AD48	#4	4	STR	19'-2"	
AD49	#4	4	STR	19'-2"	
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AD51	#4	4	STR	19'-2"	
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AD56	#4	4	STR	19'-2"	
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AD58	#4	4	STR	19'-2"	
AD59	#4	4	STR	19'-2"	
AD60	#4	4	STR	19'-2"	
AD61	#4	4	STR	19'-2"	
AD62	#4	4	STR	19'-2"	
AD63	#4	4	STR	19'-2"	
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AD65	#4	4	STR	19'-2"	
AD66	#4	4	STR	19'-2"	
AD67	#4	4	STR	19'-2"	
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AD69	#4	4	STR	19'-2"	
AD70	#4	4	STR	19'-2"	
AD71	#4	4	STR	19'-2"	
AD72	#4	4	STR	19'-2"	
AD73	#4	4	STR	19'-2"	
AD74	#4	4	STR	19'-2"	
AD75	#4	4	STR	19'-2"	
AD76	#4	4	STR	19'-2"	
AD77	#4	4	STR	19'-2"	
AD78	#4	4	STR	19'-2"	
AD79	#4	4	STR	19'-2"	
AD80	#4	4	STR	19'-2"	
AD81	#4	4	STR	19'-2"	
AD82	#4	4	STR	19'-2"	
AD83	#4	4	STR	19'-2"	
AD84	#4	4	STR	19'-2"	
AD85	#4	4	STR	19'-2"	
AD86	#4	4	STR	19'-2"	
AD87	#4	4	STR	19'-2"	
AD88	#4	4	STR	19'-2"	
AD89	#4	4	STR	19'-2"	
AD90	#4	4	STR	19'-2"	
AD91	#4	4	STR	19'-2"	
AD92	#4	4	STR	19'-2"	
AD93	#4	4	STR	19'-2"	
AD94	#4	4	STR	19'-2"	
AD95	#4	4	STR	19'-2"	
AD96	#4	4	STR	19'-2"	
AD97	#4	4	STR	19'-2"	
AD98	#4	4	STR	19'-2"	
AD99	#4	4	STR	19'-2"	
AD100	#4	4	STR	19'-2"	

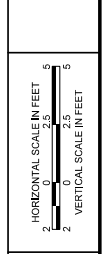
- ① INCLUDES 2'-6" LAP
- ② CS1 AND CS2 BARS ALIGN WITH ALL BARS IN APRON SLAB



PROFILE SCALE:	DESIGN	DATE	DRAWN	DATE
HORIZ. 3/8"=1'	REVIEWED	DATE	DATE	DATE
VERT. 3/16"=1'	DATE	DATE	DATE	DATE
DRAWING NAME:	SHEET	OF	PROJ. NO.	ST. 2020
APRON AND CURTAINWALL BAR LIST	36	108		

RCB DETAILS
APRON DETAILS
BRIDGE "A"

HOUSTON STREET
WIDENING

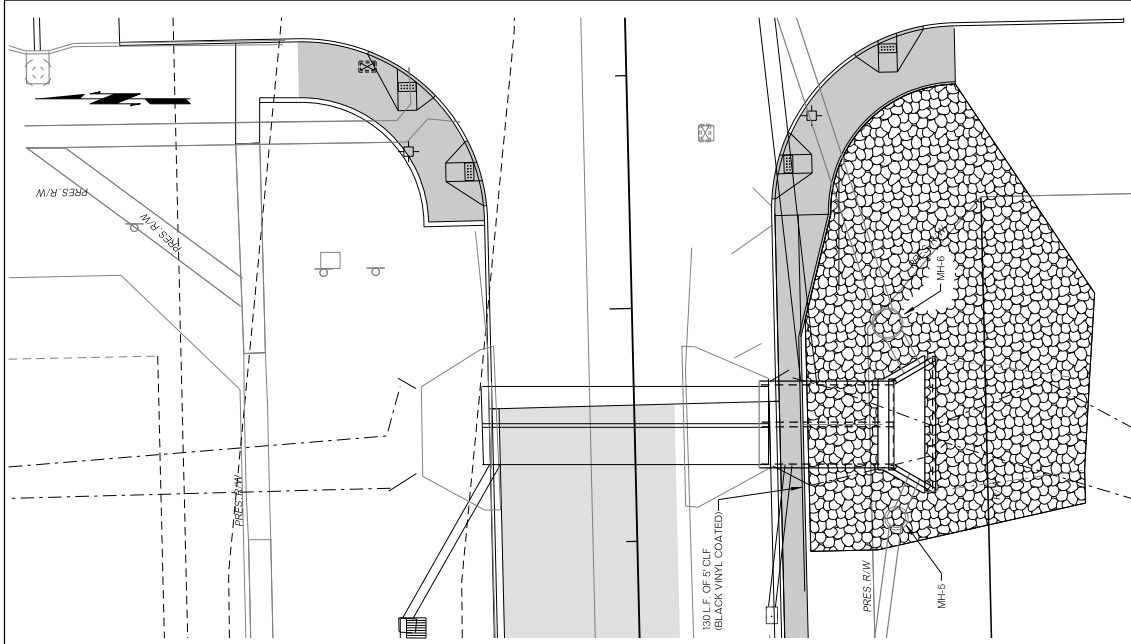


215 S. GULF SHORE BLVD. SUITE 200
HOUSTON, TEXAS 77058
TEL: 281.486.8800
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City of
BROKEN ARROW
Where opportunity lives

DATE	REVISIONS



PLAN

**GENERAL PLAN & ELEVATION
2-8'X6' RCB EXTENSION
OLIVE CREEK**

DESIGN	DATE	DRAFTED	DATE
GAC	2020	RJM	2020
REVIEWED	DATE	APPROVED	DATE
VERT.			
DRAWING NAME: 303909-RCB.dgn		PROJECT NO. ST. 2028	
SHEET 40		OF 108	

PAY ITEM NOTES

- USE HIT-RE-502 EPOXY ANCHOR OR APPROVED EQUAL WITH 1-3" EMBEDMENT INTO EXISTING RCB PLACE DOVETAIL BARS AT 2'-0" ON CENTER AND THE CENTER OF THE WALL AND BOTTOM SLAB AND THE CENTER OF THE WALL.
- REMOVE EXISTING WINDOW, ASPEN, HEADWALL AND PORTALS OF THE CURTAIN WALL. INCLUDE COST OF THE REMOVAL INCLUDING LABOR AND INCIDENTALS UNDER THE CONTRACT UNIT PRICE FOR 'REMOVAL OF HEADWALL'.
- INCLUDES ALL COST OF GRADING THE SIDE SLOPES AT THE END OF THE WINGS UNDER CONTRACT UNIT PRICE FOR 'REMOVAL OF EXISTING SIDE SLOPES'. FULL MATERIALS AND LABOR TO BE USED. INCLUDES EXCAVATION FROM WIDENING OPERATIONS.
- SEE FENCE AND SIGNING PLATE DETAIL ON BRIDGE A-SHEETS. PRICE TO BE INCLUDED IN 5 CHAIN LINK FENCE.

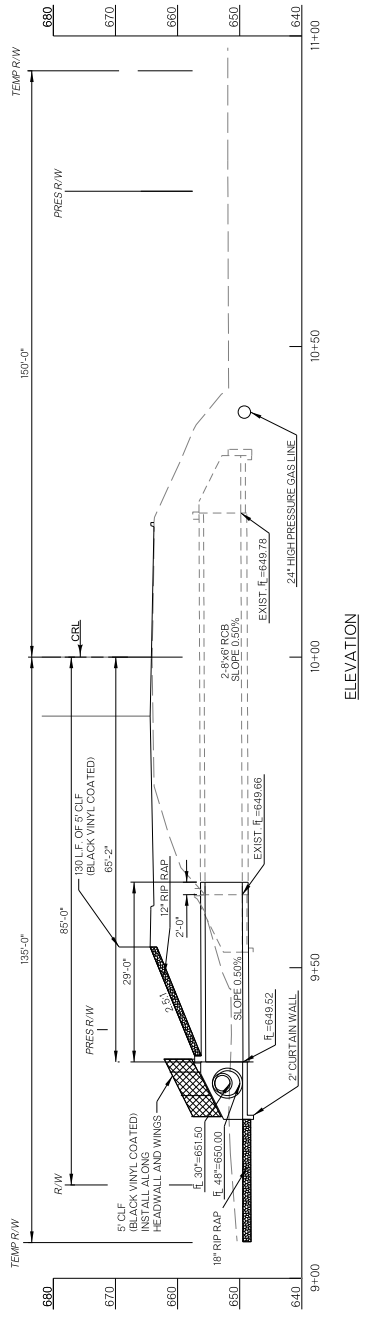
STANDARDS
BC-602 DESIGN 18 FOR BARREL EXTENSION AND HEADWALL

- = 0.94 SQUARE MILES
- = 0.00 SQUARE MILES
- = 0.94 SQUARE MILES
- Q10 = 1044 CFS
- CHW10 = 657.73 FT
- V10 = 1044 FFS
- Q50 = 1497 CFS
- V50 = 14.61 FFS
- CHW50 = 663.19 FT
- Q100 = 1690 CFS
- V100 = 14.53 FFS
- CHW100 = 663.44 FT
- Q500 = 2199 CFS
- V500 = 14.09 FFS
- CHW500 = 663.95 FT

SUMMARY OF PAY QUANTITIES

PAY ITEM	UNITS	QUANTITY
UNCLASSIFIED EXCAVATION	C.Y.	250.00
SUBSTRUCTURE EXCAVATION UNCLASSIFIED	C.Y.	22.00
CLASS AA CONCRETE*	C.Y.	62.10
REINFORCING STEEL	LBS.	6,440.00
TYPE LA PLAIN RIP RAP	TON	525.00
REMOVAL OF HEADWALL	EA	1
FENCE - STYLE CLF (5' HIGH CLASS A/BLACK VINYL COATED)	L.F.	255.00

* CLASS AA CONCRETE SHALL BE USED FOR BOTH BARREL EXTENSION AND HEADWALL CONSTRUCTION

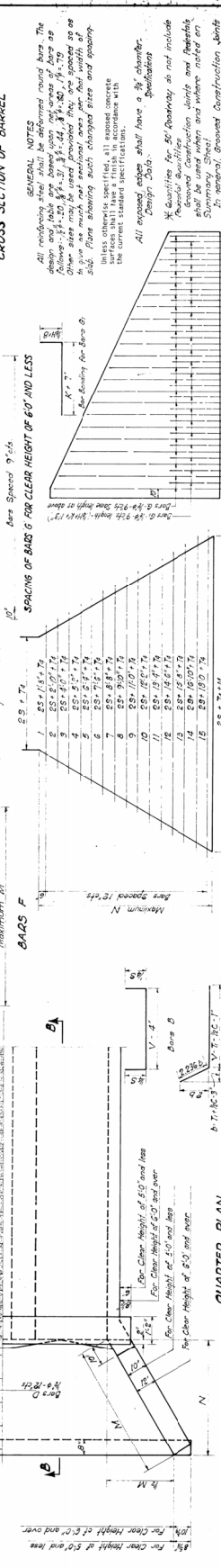
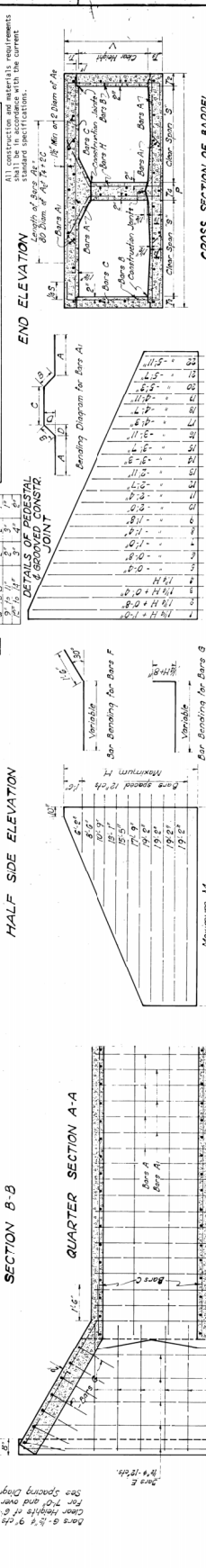
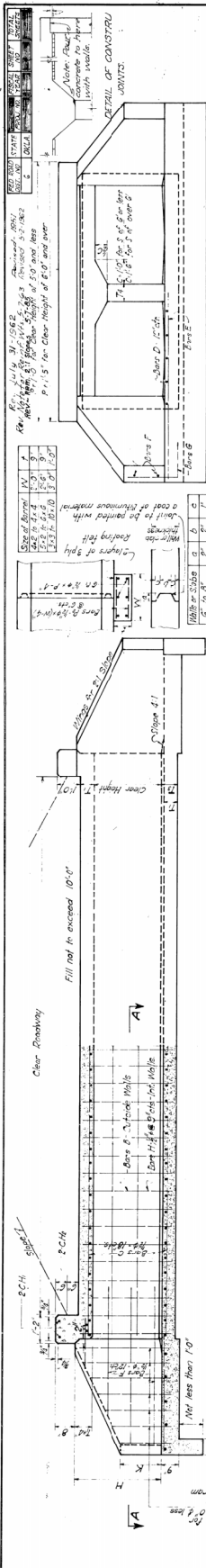


DATE	REVISIONS

CITY OF BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

**HOUSTON STREET
WIDENING**



DESIGN NO	DIMENSIONS			BARRELS OF CULVERT			REINFORCING STEEL			QUANTITIES			DIMENSIONS			TWO WINGS AND ONE APRON			TWO CURBS			SPACING OF BARS 6-6 FOR CLEAR HEIGHT OF 7-0 OR OVER			TOTAL QUANTITIES ON SHEETS			
	Clear Height	Top Width	Bottom Width	Bar A	Bar B	Bar C	Bar D	Bar E	Bar F	Bar G	Bar H	Bar I	Bar J	Bar K	Bar L	Bar M	Bar N	Bar O	Bar P	Bar Q	Bar R	Bar S	Bar T	Bar U	Bar V	Bar W	Bar X	Bar Y
1	6'-0"	10'-0"	6'-0"	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

GENERAL NOTES

All reinforcing steel shall be as per the design and shall be lap welded unless otherwise specified. The lap length shall be as follows: 40 diam for bars in tension and 30 diam for bars in compression. The lap shall be staggered and shall be staggered from the ends of the bars. The lap shall be staggered from the ends of the bars.

END ELEVATION

CROSS SECTION OF BARREL

HALF SIDE ELEVATION

QUARTER SECTION A-A

QUARTER PLAN

DETAILS OF CONSTRUCTION

DETAILS OF JOINT

DETAILS OF REINFORCING STEEL

SPACING OF BARS 6-6 FOR CLEAR HEIGHT OF 6-0 AND LESS

SPACING OF BARS 6-6 FOR CLEAR HEIGHT OF 7-0 OR OVER

QUANTITIES ON SHEETS

OKLAHOMA DEPARTMENT OF TRANSPORTATION

STANDARD CONCRETE BOX CULVERTS

SPANS 4 TO 10 FEET

FOR FILLS 3 TO 10 FEET

BC-6A2

HOUSTON STREET WIDENING

2-8'X6' RCB EXTENSION STANDARD BC-6A2 OLIVE CREEK

NOT TO SCALE

POE & ASSOCIATES INC.
Tulsa, Oklahoma

BROKEN ARROW
Where opportunity lives

CITY OF BROKEN ARROW

DATE: 2020
DESIGN: WJZ
CHECKED: WJZ
DATE: 2020
APPROVED: WJZ
DATE: 2020
PROJECT NO.: 41
SHEET: 41
OF: 108
ST 2028

LEGEND

- 1/2" ELECT. CONDUIT
- 3" ELECT. CONDUIT
- 4" ELECT. CONDUIT
- EXISTING CONDUIT
- SIZE 1 PULL BOX
- EXISTING PULL BOX
- SIZE 111 PULL BOX
- SERVICE POLE
- CONTROLLER
- PEDESTRIAN PUSH BUTTON
- WALK AND DON'T WALK SIGNAL HEAD WITH BACKPLATE
- DOMINANCE WITH MAST ARM
- VIDEO DETECTION
- STREET NAME SIGN
- MAST ARM WITH POLE
- MAST ARM & POLE WITH ABOVE SYMBOLS
- DETECTOR LOOP / VIDEO DETECTION AREA

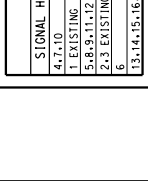
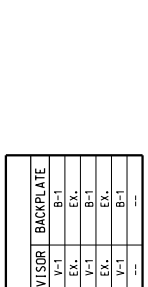
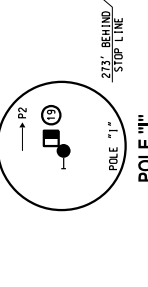
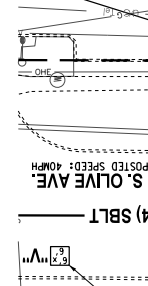


TABLE #1 SIGNAL HEADS

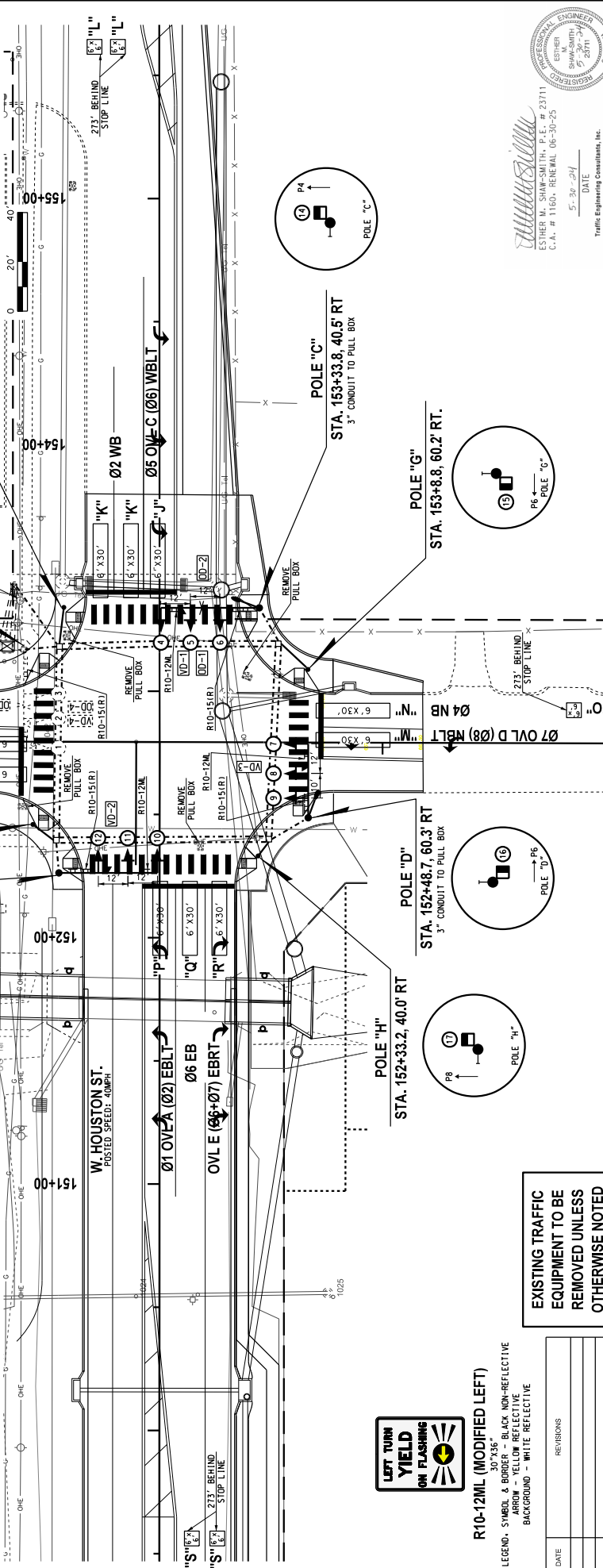
SIGNAL HEAD NUMBER	NUMBER AND TYPE	MOUNTING VISOR	BACKPLATE
4.7.10	3 - ONEWAY (S-13.1L)	MAST ARM	B-1
1	1 - ONEWAY (S-13.1L)	EX.	EX.
5.8.9.11.12	5 - ONEWAY (S-6)	MAST ARM	B-1
2.3	2 - ONEWAY (S-6)	EX.	EX.
6	1 - ONEWAY (S-19.1R)	MAST ARM	B-1
13.14.15.16.17.18.19.20	8 - ONEWAY (S-20)	CLAMP	---

TABLE #2 MAST ARMS & POLES

LOCATION	MOUNTING HT.	MAST ARMS LENGTHS	FOUNDATION
B EX.	21' EX.	40' T.S. & 10' LUM	EX.
C	32'	40' T.S. & 10' LUM	S-40
D	32'	30' T.S. & 10' LUM	S-30
E	21'	40' T.S.	S-40
F-1	10'	4 - PED POLES	F-2

TABLE #3 ELECTRICAL CABLE

ELECTRICAL CABLE TO CONTROLLER "A" LOCATION	E-21C/5C	E-21C/5C	F-5C/5C	H-5C/5C	I-5C/5C
B-21C/5C	C-21C/5C	D-21C/5C	E-21C/5C	F-5C/5C	H-5C/5C



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 8831 S. 46TH E. AVE., STE 100
 TULSA, OK 74133
 PHONE: 918-481-8484
 FAX: 918-481-8484

CITY OF BROKEN ARROW
 Where opportunity lives

EXISTING TRAFFIC EQUIPMENT TO BE REMOVED UNLESS OTHERWISE NOTED

LEFT TURN YIELD ON FLASHING

LEGEND:
 SYMBOL & BORDER - BLACK NON-REFLECTIVE
 ARROW - YELLOW REFLECTIVE
 BACKGROUND - WHITE REFLECTIVE

REVISIONS

DATE	DESCRIPTION

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 FAX: 918-481-8484

ESHER M. SHAW-SMITH, P.E. # 23771
 C.A. # 1160, RENEWAL 06-30-25

PROFESSIONAL ENGINEER
 STATE OF OKLAHOMA
 No. 23771

DATE 5-30-24

PROFILE SCALE:
 HORZ. 1" = 100'
 VERT. 1" = 10'

DESIGN DATE 07/03/24
APPROVED DATE 07/03/24

PROJECT NO. 2401
SHEET 01 OF 02

W. HOUSTON ST. & S. OLIVE AVE

SIGNAL PLAN

DATE 5-30-24

PHASING DIAGRAM

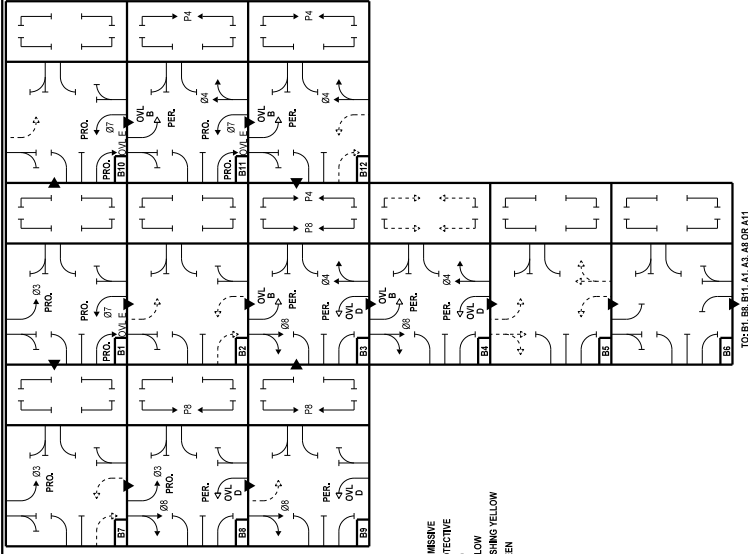
PHASE "A"

W. HOUSTON ST.

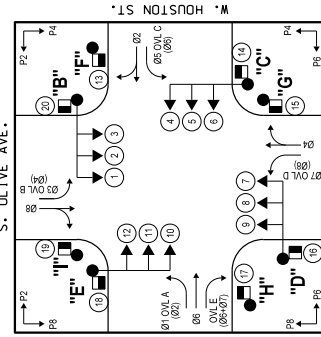


PHASE "B"

S. OLIVE AVE.



INTERSECTION PHASING & SIGNAL HEAD NO.'S



DATE	REVISIONS



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W. HOUSTON ST. & S. OLIVE AVE

SIGNAL DETAIL

- * - TYPE VIII VIB REFLECTIVE SHEETING SHALL BE USED
- ** - TYPE III VIB REFLECTIVE SHEETING SHALL BE USED



OVERALL SIZE 75 INCH LONG
 VIEWABLE SIZE 24 INCH TALL

SUMMARY OF MAST ARM MOUNTED SIGNS

MESSAGE	POLE LOCATION	NO. OF SIGNS	LENGTH (IN.)	HEIGHT (FT.)	TOTAL SIGN AREA (SQ.FT.)	TOTAL SIGN AREA (SQ.FT.)
S. OLIVE AVE. S. 129TH E. AVE.	C-E	2	72	24	12.00	24.00
W. HOUSTON ST. E. 81ST ST. S.	B-D	2	72	24	12.00	24.00
R10-12M	B,C,D-E	4	30	36	7.50	30.00
R10-15(R)	B,C,D-E	4	30	30	6.25	25.00
					TOTAL	103.00

STREET NAME SIGNS WHITE ON BLUE



OVERALL SIZE 75 INCH LONG
 VIEWABLE SIZE 24 INCH TALL

SEQUENCE CHART

PHASE

BLOCK NO.	PHASE										DIRECTION	
	01	02	03	04	05	06	07	08	09	10		
A1	R	R	R	R	R	R	R	R	R	R	R	DW
A2	R	R	R	R	R	R	R	R	R	R	R	DW
A3	R	R	R	R	R	R	R	R	R	R	R	DW
A4	R	R	R	R	R	R	R	R	R	R	R	DW
A5	R	R	R	R	R	R	R	R	R	R	R	DW
A6	R	R	R	R	R	R	R	R	R	R	R	DW
A7	R	R	R	R	R	R	R	R	R	R	R	DW
A8	R	R	R	R	R	R	R	R	R	R	R	DW
A9	R	R	R	R	R	R	R	R	R	R	R	DW
A10	R	R	R	R	R	R	R	R	R	R	R	DW
A11	R	R	R	R	R	R	R	R	R	R	R	DW
B1	R	R	R	R	R	R	R	R	R	R	R	DW
B2	R	R	R	R	R	R	R	R	R	R	R	DW
B3	R	R	R	R	R	R	R	R	R	R	R	DW
B4	R	R	R	R	R	R	R	R	R	R	R	DW
B5	R	R	R	R	R	R	R	R	R	R	R	DW
B6	R	R	R	R	R	R	R	R	R	R	R	DW
B7	R	R	R	R	R	R	R	R	R	R	R	DW
B8	R	R	R	R	R	R	R	R	R	R	R	DW
B9	R	R	R	R	R	R	R	R	R	R	R	DW
B10	R	R	R	R	R	R	R	R	R	R	R	DW
B11	R	R	R	R	R	R	R	R	R	R	R	DW
B12	R	R	R	R	R	R	R	R	R	R	R	DW
-	R	R	R	R	R	R	R	R	R	R	R	DW



DATE: 5-30-24
 ESHER M. SHAM-SMITH, P.E. # 23771
 C.A. # 1160 - RENEWAL 06-30-25

TRAFFIC ENGINEERING CONSULTANTS INC.
 2770 W. 10TH ST., SUITE 100
 TULSA, OK 74104
 PH: 918-487-9484
 WWW.TECCONSULTANTS.COM

PROFILE SCALE:	DESIGN:	DATE:	DRAFTED:	DATE:
1"=40'	JOS	07/03/24	CAL	07/03/24
VERT:	REVIEWED:	DATE:	APPROVED:	DATE:
DRAWING NAME:	SHEET:	OF:	PROJECT NO.:	

DATE: 5-30-24
 ESHER M. SHAM-SMITH, P.E. # 23771
 C.A. # 1160 - RENEWAL 06-30-25

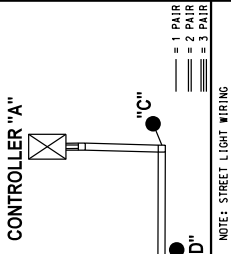
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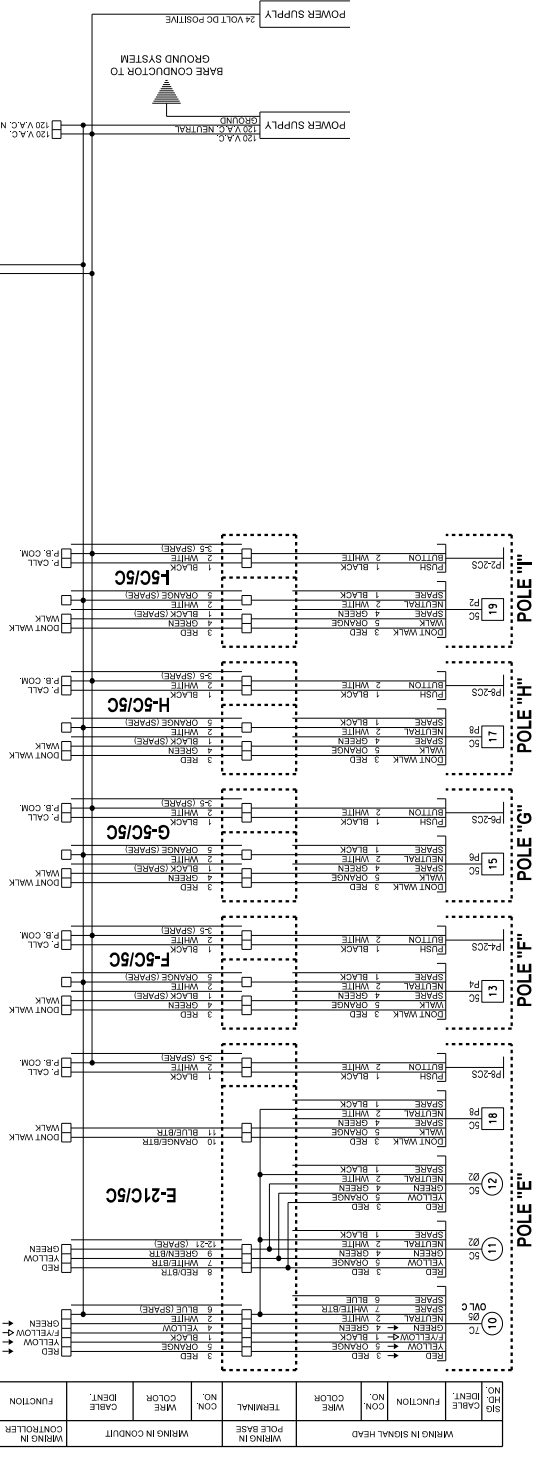
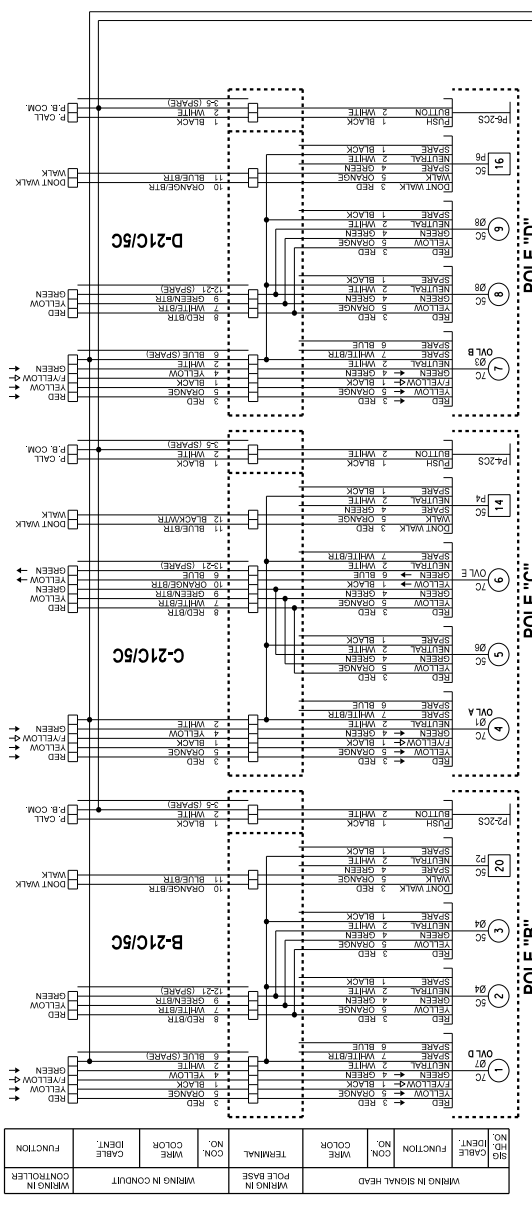
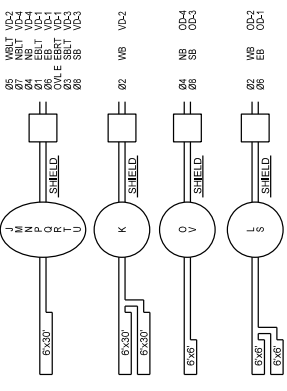
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THE PAIR TERMINALS TWO LUMINAIRES (1/2 WATT) (OPERATOR) ONE BLACK AND ONE CONDUCTOR SHALL BE SPICED ONLY AT THE TERMINAL BLOCK AT EACH POLE BASE. A FUSE HOLDER SHALL BE PROVIDED IN THE HANDLE OF EACH COMBINATION OF LUMINAIRE. THE FUSE HOLDER SHALL BE A WATERPROOF IN LINE LUMINAIRE. THE FUSE HOLDER SHALL BE APPROVED BY THE TYPE "IRON" HEB, OR OTHER APPROVED EQUAL, COMPLETE WITH A PROPERLY SIZED TYPE KIT FUSE.

PRE-EMPTOR DETAILS



NO.	CON.	WIRE	FUNCTION
1	WHT	02	WIRING IN SIGNAL HEAD
2	WHT	04	WIRING IN SIGNAL HEAD
3	WHT	06	WIRING IN SIGNAL HEAD
4	WHT	08	WIRING IN SIGNAL HEAD
5	WHT	10	WIRING IN SIGNAL HEAD
6	WHT	12	WIRING IN SIGNAL HEAD
7	WHT	14	WIRING IN SIGNAL HEAD
8	WHT	16	WIRING IN SIGNAL HEAD
9	WHT	18	WIRING IN SIGNAL HEAD
10	WHT	20	WIRING IN SIGNAL HEAD
11	WHT	22	WIRING IN SIGNAL HEAD
12	WHT	24	WIRING IN SIGNAL HEAD
13	WHT	26	WIRING IN SIGNAL HEAD
14	WHT	28	WIRING IN SIGNAL HEAD
15	WHT	30	WIRING IN SIGNAL HEAD
16	WHT	32	WIRING IN SIGNAL HEAD
17	WHT	34	WIRING IN SIGNAL HEAD
18	WHT	36	WIRING IN SIGNAL HEAD
19	WHT	38	WIRING IN SIGNAL HEAD
20	WHT	40	WIRING IN SIGNAL HEAD
21	WHT	42	WIRING IN SIGNAL HEAD
22	WHT	44	WIRING IN SIGNAL HEAD
23	WHT	46	WIRING IN SIGNAL HEAD
24	WHT	48	WIRING IN SIGNAL HEAD
25	WHT	50	WIRING IN SIGNAL HEAD
26	WHT	52	WIRING IN SIGNAL HEAD
27	WHT	54	WIRING IN SIGNAL HEAD
28	WHT	56	WIRING IN SIGNAL HEAD
29	WHT	58	WIRING IN SIGNAL HEAD
30	WHT	60	WIRING IN SIGNAL HEAD
31	WHT	62	WIRING IN SIGNAL HEAD
32	WHT	64	WIRING IN SIGNAL HEAD
33	WHT	66	WIRING IN SIGNAL HEAD
34	WHT	68	WIRING IN SIGNAL HEAD
35	WHT	70	WIRING IN SIGNAL HEAD
36	WHT	72	WIRING IN SIGNAL HEAD
37	WHT	74	WIRING IN SIGNAL HEAD
38	WHT	76	WIRING IN SIGNAL HEAD
39	WHT	78	WIRING IN SIGNAL HEAD
40	WHT	80	WIRING IN SIGNAL HEAD
41	WHT	82	WIRING IN SIGNAL HEAD
42	WHT	84	WIRING IN SIGNAL HEAD
43	WHT	86	WIRING IN SIGNAL HEAD
44	WHT	88	WIRING IN SIGNAL HEAD
45	WHT	90	WIRING IN SIGNAL HEAD
46	WHT	92	WIRING IN SIGNAL HEAD
47	WHT	94	WIRING IN SIGNAL HEAD
48	WHT	96	WIRING IN SIGNAL HEAD
49	WHT	98	WIRING IN SIGNAL HEAD
50	WHT	100	WIRING IN SIGNAL HEAD
51	WHT	102	WIRING IN SIGNAL HEAD
52	WHT	104	WIRING IN SIGNAL HEAD
53	WHT	106	WIRING IN SIGNAL HEAD
54	WHT	108	WIRING IN SIGNAL HEAD
55	WHT	110	WIRING IN SIGNAL HEAD
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57	WHT	114	WIRING IN SIGNAL HEAD
58	WHT	116	WIRING IN SIGNAL HEAD
59	WHT	118	WIRING IN SIGNAL HEAD
60	WHT	120	WIRING IN SIGNAL HEAD
61	WHT	122	WIRING IN SIGNAL HEAD
62	WHT	124	WIRING IN SIGNAL HEAD
63	WHT	126	WIRING IN SIGNAL HEAD
64	WHT	128	WIRING IN SIGNAL HEAD
65	WHT	130	WIRING IN SIGNAL HEAD
66	WHT	132	WIRING IN SIGNAL HEAD
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100	WHT	200	WIRING IN SIGNAL HEAD

DATE: 5-30-24

ESHER M. SHAM-SMITH, P.E. # 23711
C.A. # 1160, RENEWAL 06-30-25

TRAFFIC ENGINEERING CONSULTANTS, INC.
833 S. 46TH E. AVE., STE 100
TULSA, OK 74133
PHONE: 918-487-9484
CAX 1160 EXP. 06-30-25

DATE: 5-30-24

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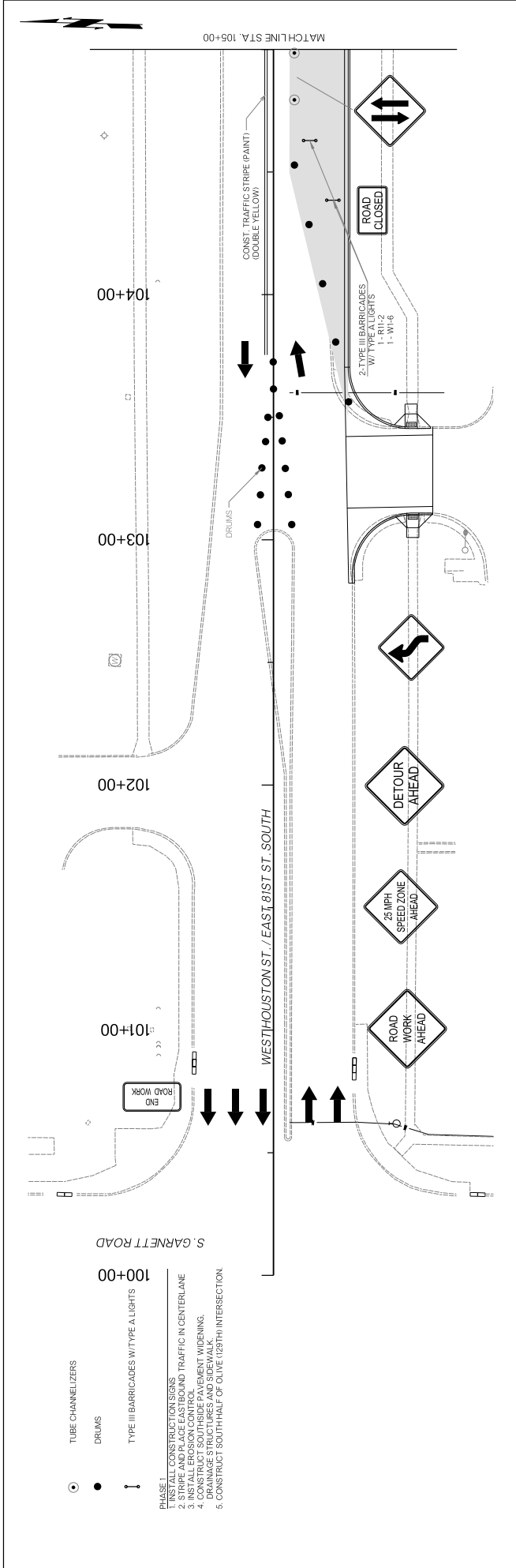
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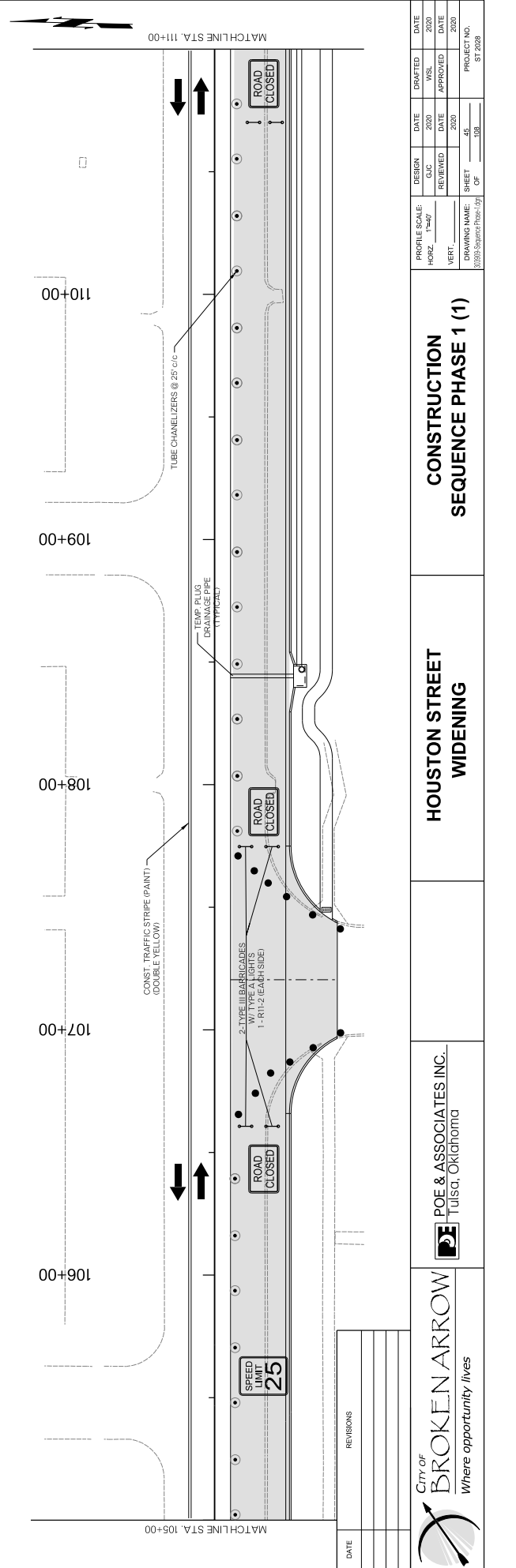


BROKEN ARROW
Where opportunity lives




- PHASE 1**
1. INSTALL CONSTRUCTION SIGNS
 2. STRIPE AND PLACE EASTBOUND TRAFFIC IN CENTERLANE
 3. STRIPE AND PLACE WESTBOUND TRAFFIC IN CENTERLANE
 4. CONSTRUCT SOUTHSIDE PAVEMENT WIDENING, DRAINAGE STRUCTURES AND SIDEWALK.
 5. CONSTRUCT SOUTHWEST HALF OF OLIVE (28TH) INTERSECTION.

- TUBE CHANNELIZERS
- DRUMS
- ! TYPE III BARRICADES W/TYPE A LIGHTS



DATE	REVISIONS



CITY OF BROKEN ARROW
Where opportunity lives



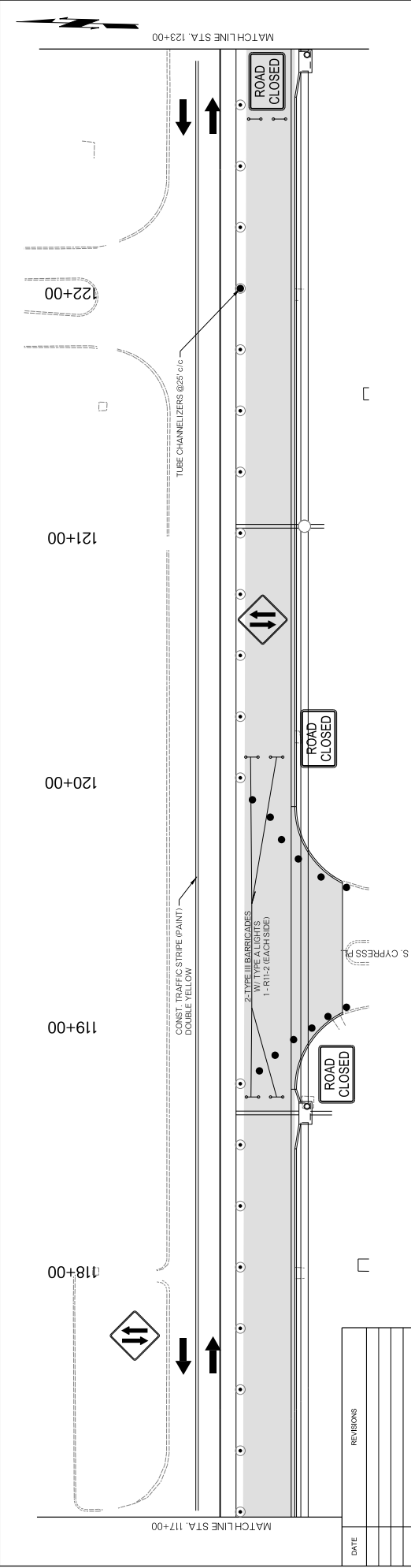
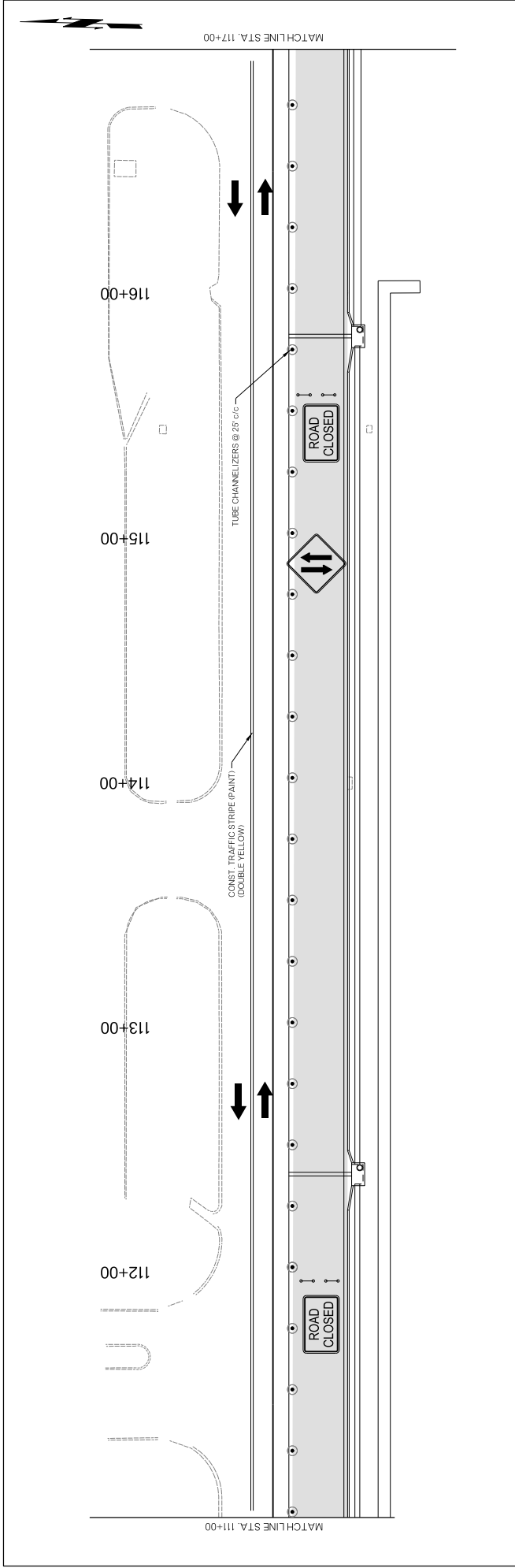
POE & ASSOCIATES INC.
Tulsa, Oklahoma

HOUSTON STREET WIDENING

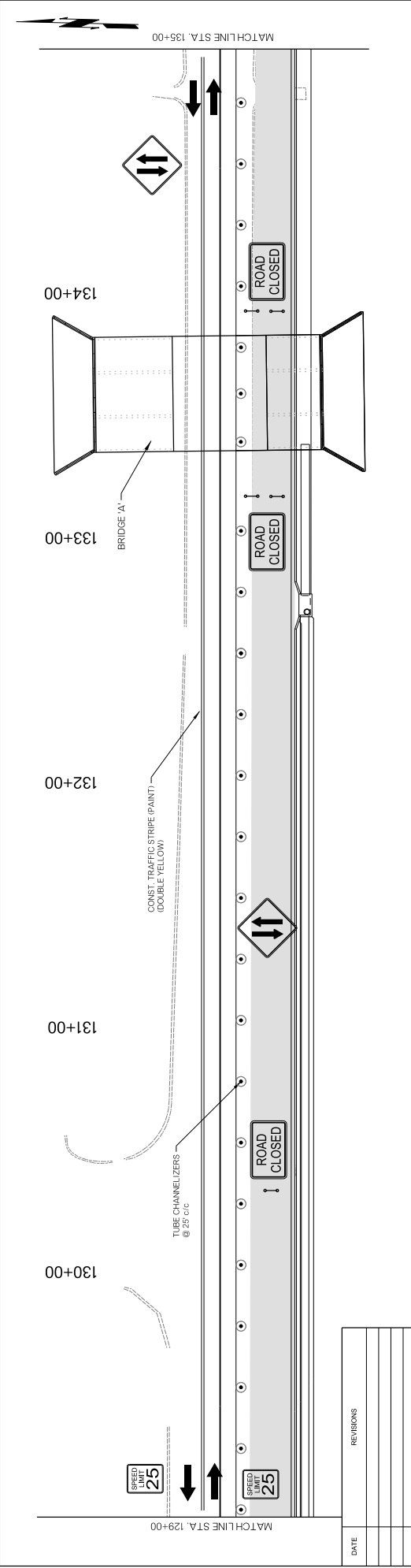
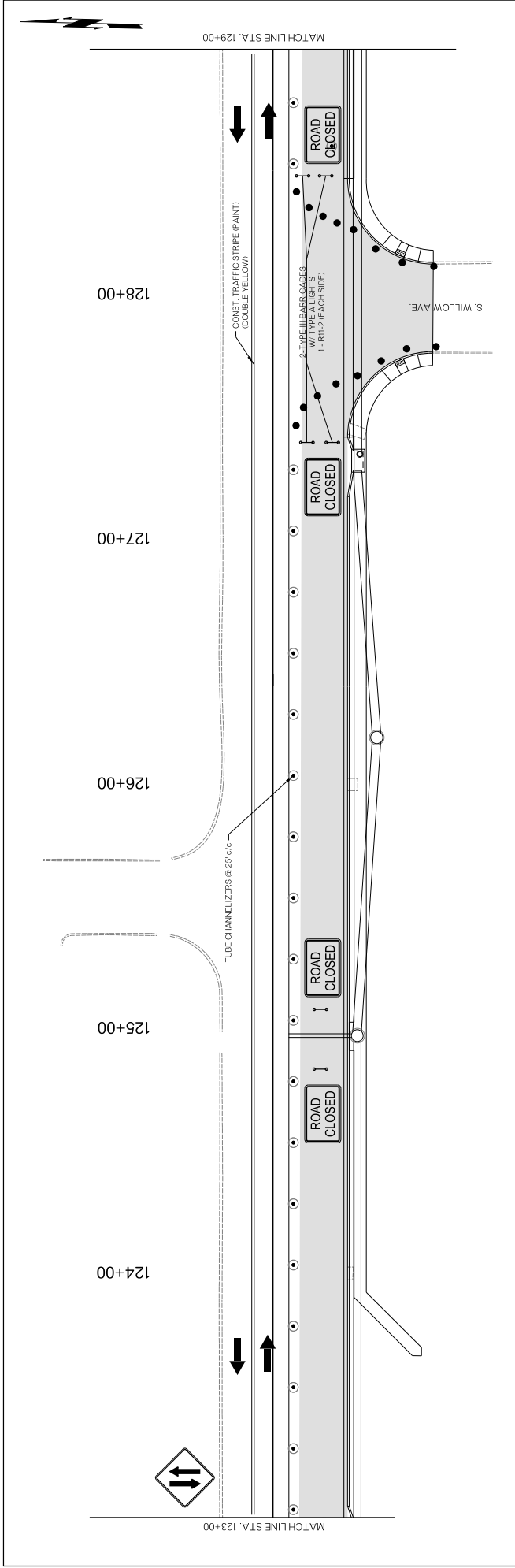
CONSTRUCTION SEQUENCE PHASE 1 (1)

DESIGN	DATE	DRAFTED	DATE
GJC	2020	WSL	2020
REVIEWED	DATE	APPROVED	DATE
	2020		2020

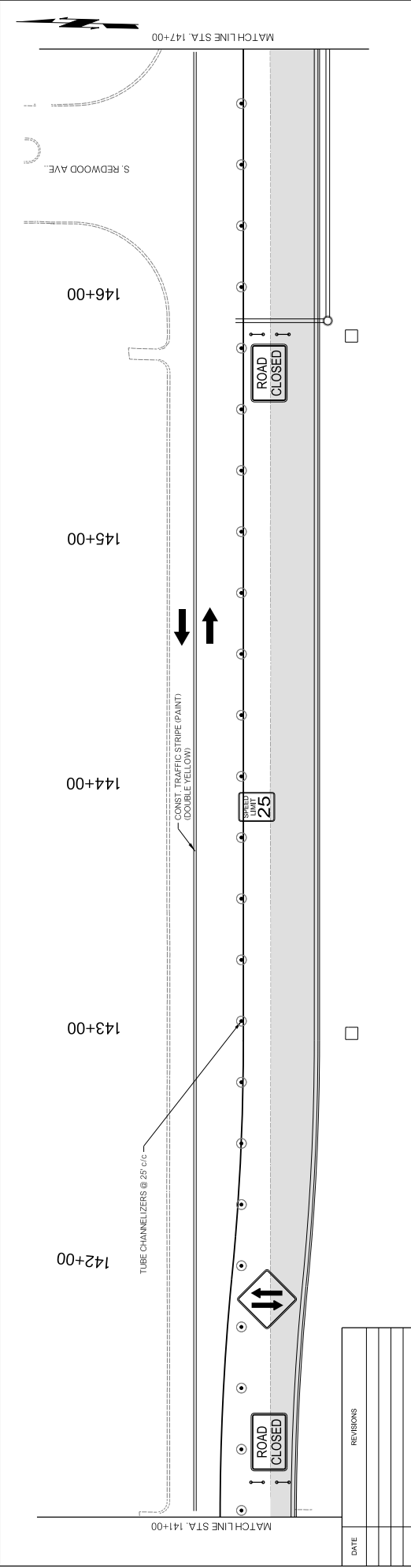
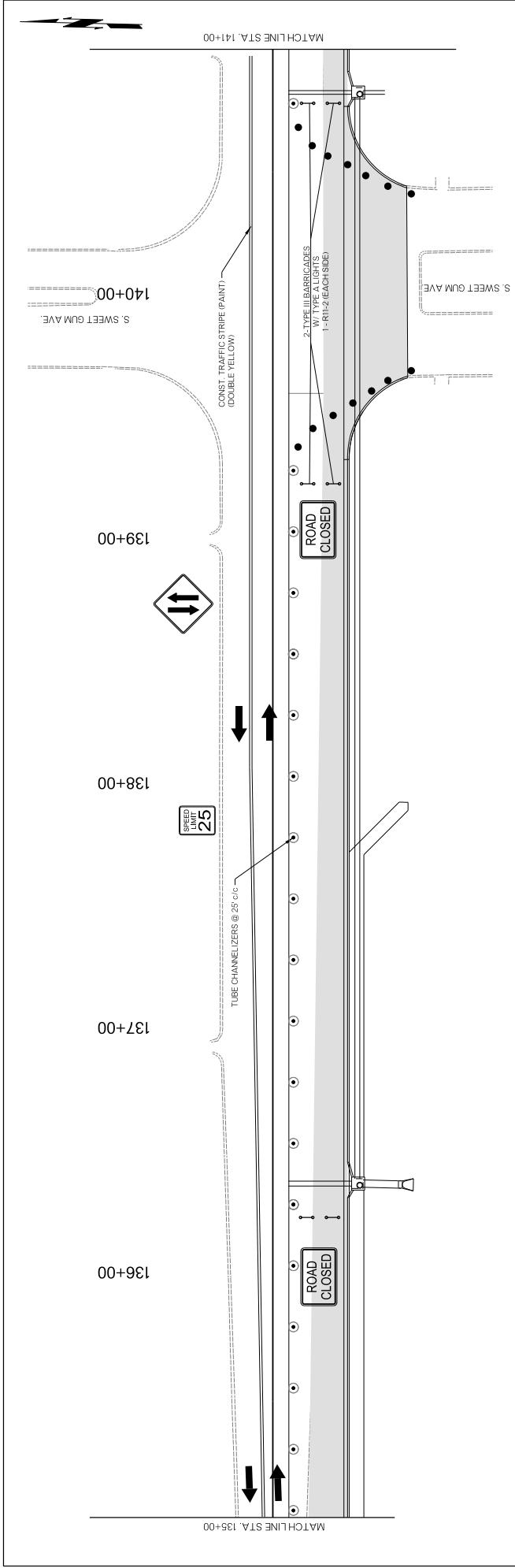
DRAWING NAME: SHEET 45 OF 108 PROJECT NO. ST 2028



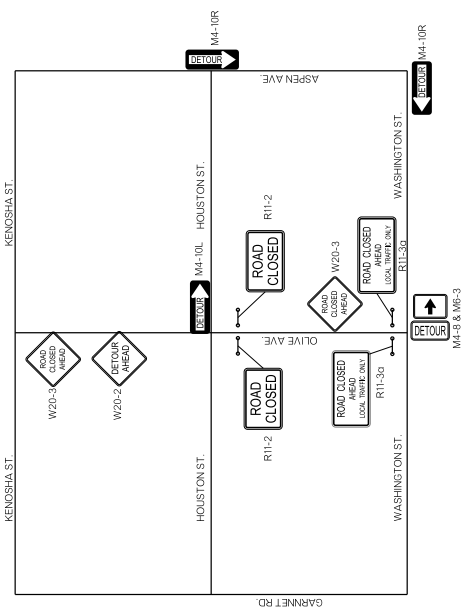
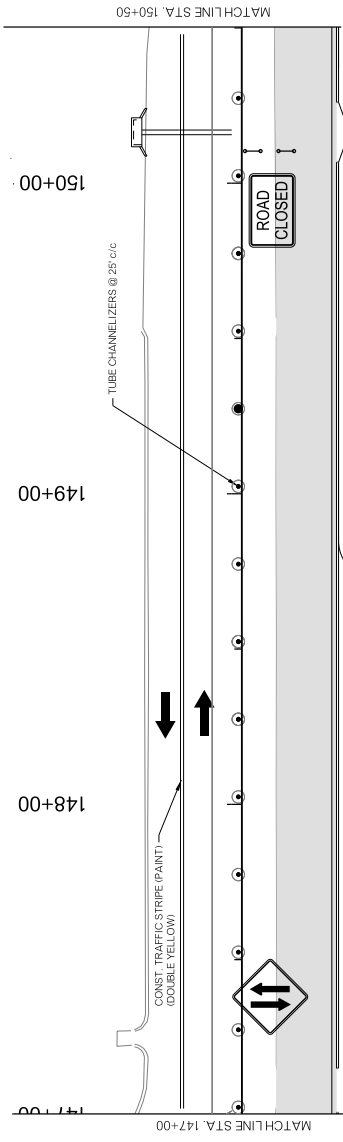
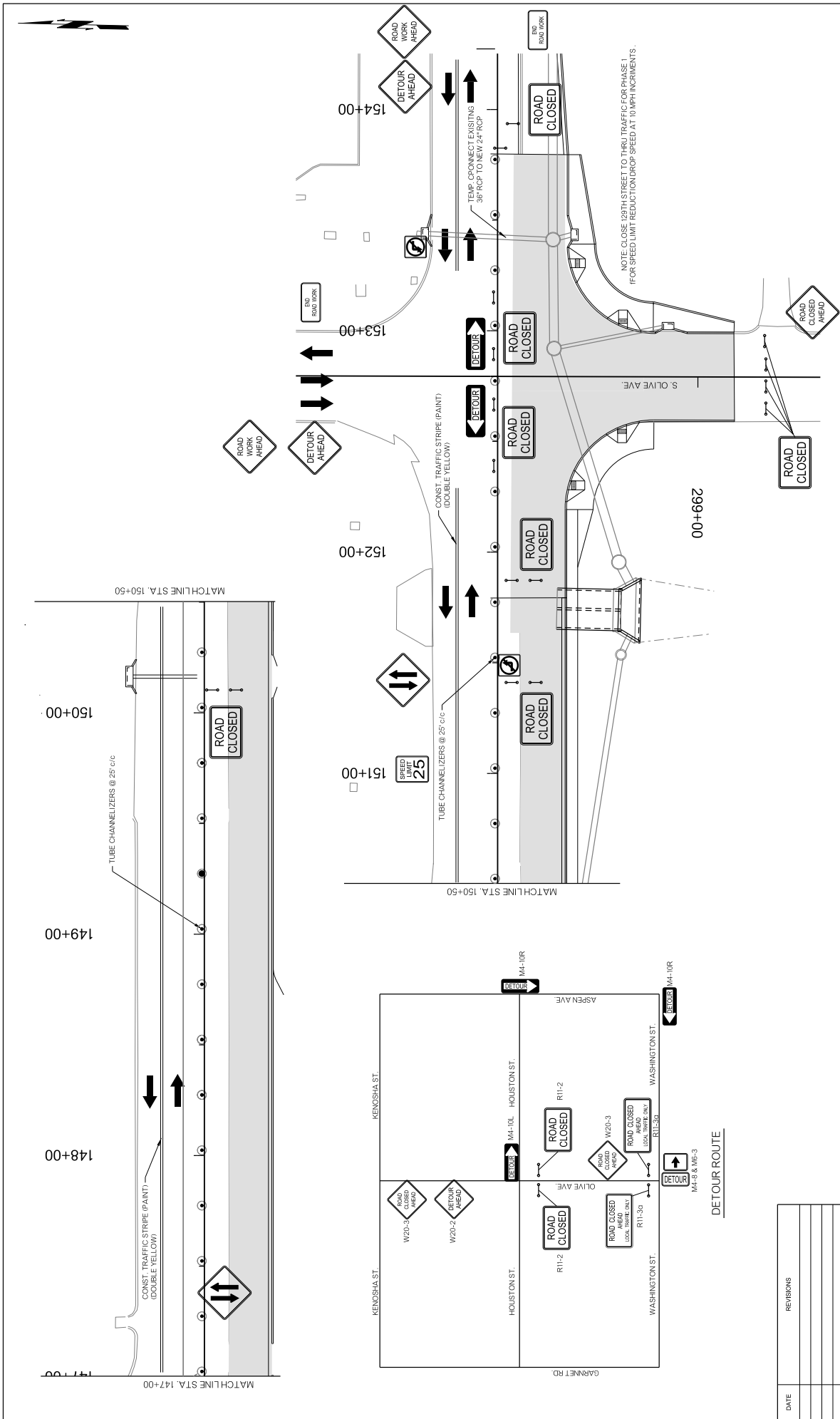
 CITY OF BROKEN ARROW <i>Where opportunity lives</i>		 POE & ASSOCIATES INC. Tulsa, Oklahoma		HOUSTON STREET WIDENING		CONSTRUCTION SEQUENCE PHASE 1 (2)		PROFILE SCALE: HORIZ. 1"=40' VERT. _____ DRAWING NAME: SHEET 46 OF 108 PROJECT NO. ST 2008	
REVISIONS DATE _____		DESIGN DATE 2020 G/C DATE 2020 REVIEWED DATE 2020 DATE 2020		DRAFTED WSL 2020 APPROVED DATE 2020		DATE 2020 DATE 2020		DATE 2020 DATE 2020	



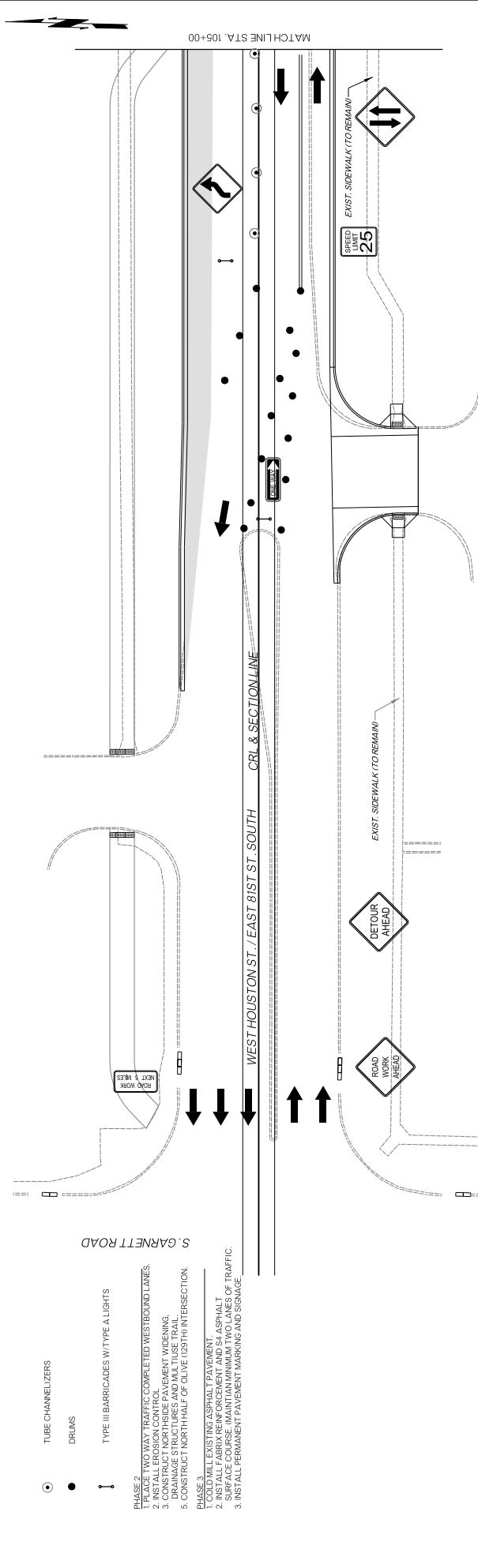
				HOUSTON STREET WIDENING		CONSTRUCTION SEQUENCE PHASE 1 (3)		DESIGN: _____ DATE: _____ G/C: _____ DATE: _____ REVIEWED: _____ DATE: _____ VERT: _____ DATE: _____ DRAWING NAME: SHEET _____ OF _____ PROJECT NO. _____ ST. 2008																																									
PROFILE SCALE: _____ HORIZ: 1"=40' VERT: _____		REVISIONS <table border="1"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>																																															



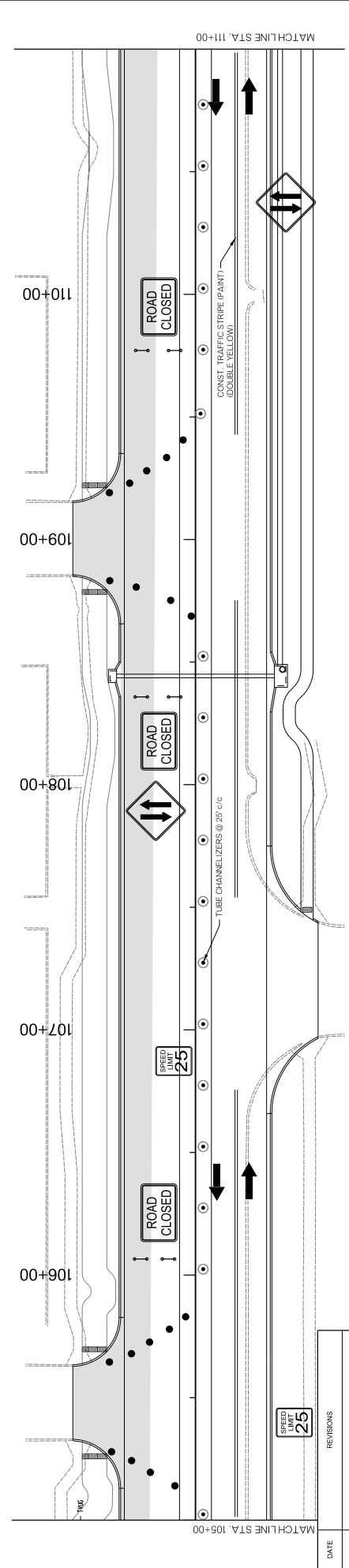
 CITY OF BROKEN ARROW <i>Where opportunity lives</i>		 POE & ASSOCIATES INC. Tulsa, Oklahoma		HOUSTON STREET WIDENING		CONSTRUCTION SEQUENCE PHASE 1 (4)		PROFILE SCALE: HORIZ. 1"=40' VERT. 1"=4' DRAWING NAME: SHEET 4B OF 108 PROJECT NO. ST 2008	
DATE	REVISIONS	DESIGN	DATE	DRAFTED	DATE	DATE	DATE	DATE	DATE
		GJC	2020	WSL	2020	WSL	2020	WSL	2020
		REVIEWED	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED	DATE
			2020		2020		2020		2020



				HOUSTON STREET WIDENING		CONSTRUCTION SEQUENCE PHASE 1 (5)	
DATE	REVISIONS	DESIGN	DATE	DRAFTED	DATE	DATE	DATE
		HORIZ. 1"=40'	2020	WSL	2020	2020	2020
		VERT. 1"=40'	2020	GJC	2020	2020	2020
			2020	REVIEWED	DATE	DATE	DATE
			2020	49	2020	2020	2020
			108	OF	49	108	PROJECT NO.
							ST. 2028



- TUBE CHANNELIZERS
 - DRUMS
 - ! TYPE III BARRICADES W/TYPE A LIGHTS
- PHASE 2
1. PLACE TWO WAY TRAFFIC COMPLETED WEST BOUND LANES.
 2. INSTALL EROSION CONTROL.
 3. CONSTRUCT NORTH SIDE PAVEMENT WIDENING.
 4. CONSTRUCT WEST SIDE PAVEMENT WIDENING.
 5. CONSTRUCT NORTH HALF OF OLIVE (125 TH) INTERSECTION.
- PHASE 3
1. COLD MILL EXISTING ASPHALT PAVEMENT.
 2. INSTALL FABRIX REINFORCEMENT AND S4 ASPHALT SURFACE COURSE (MAINTAIN MINIMUM TWO LANES OF TRAFFIC).
 3. INSTALL PERMANENT PAVEMENT MARKING AND SIGNAGE.



DATE	REVISIONS



CITY OF BROKEN ARROW
Where opportunity lives

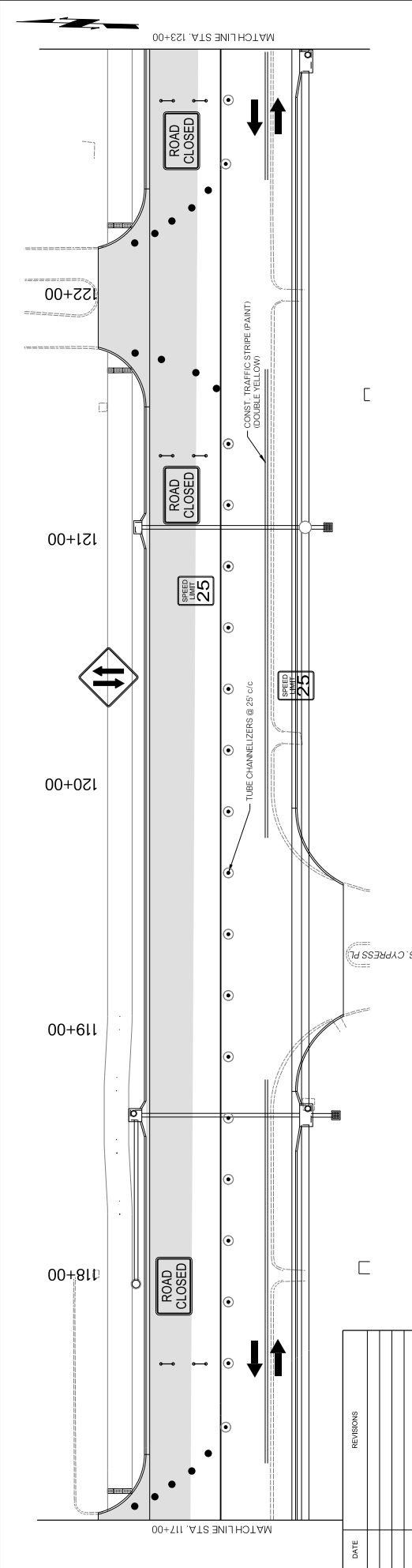
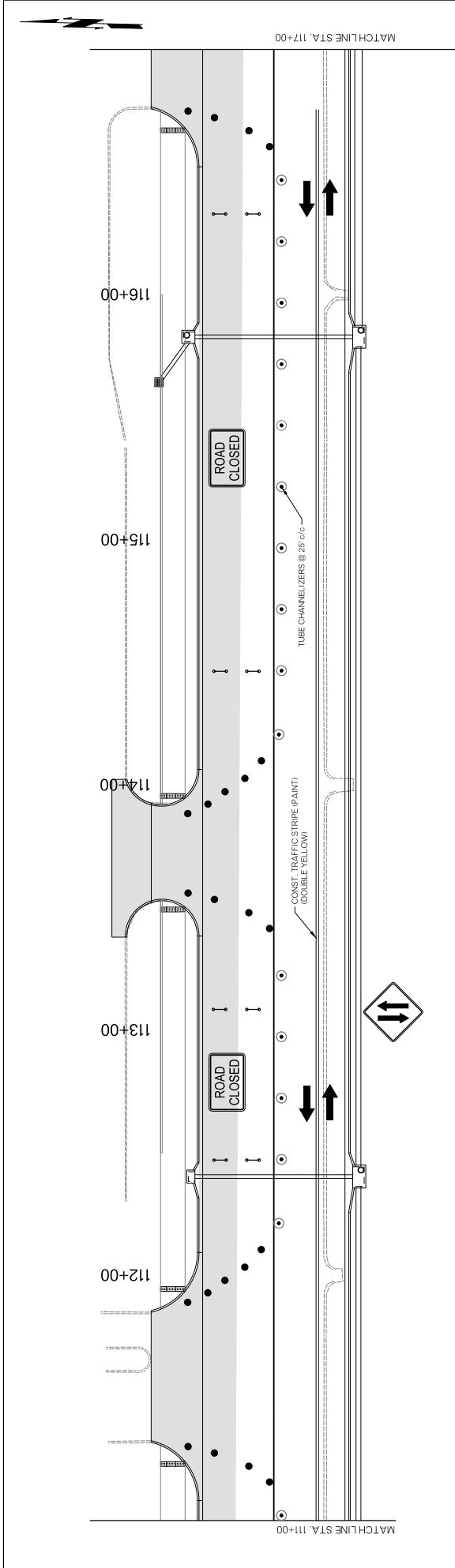


POE & ASSOCIATES INC.
Tulsa, Oklahoma

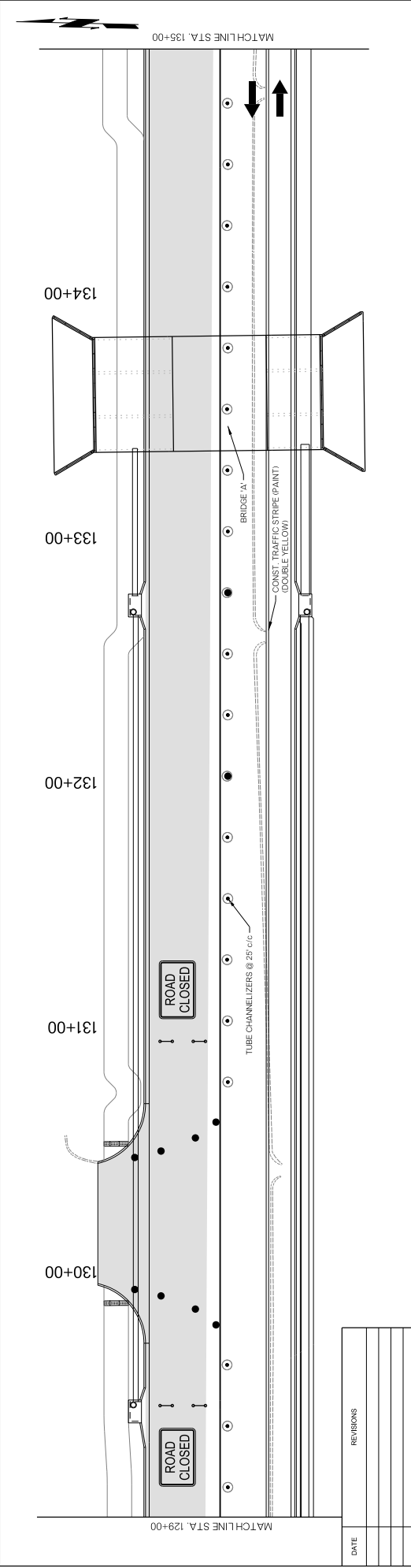
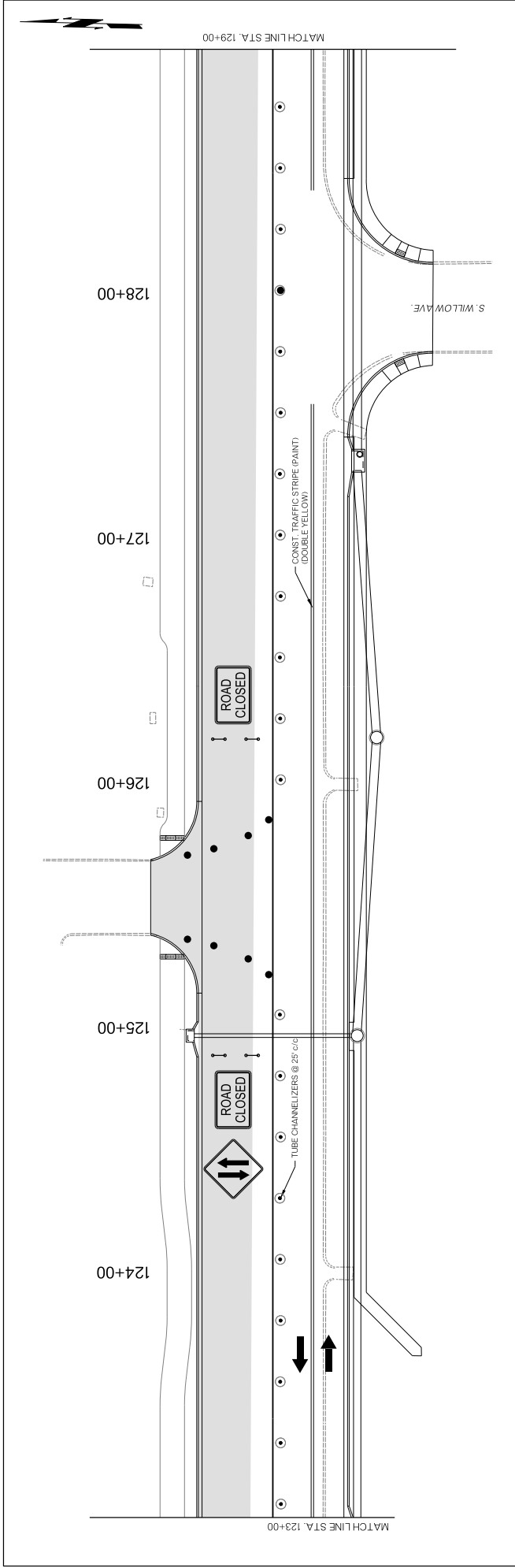
**HOUSTON STREET
WIDENING**

**CONSTRUCTION
SEQUENCE PHASE 2 (1)**

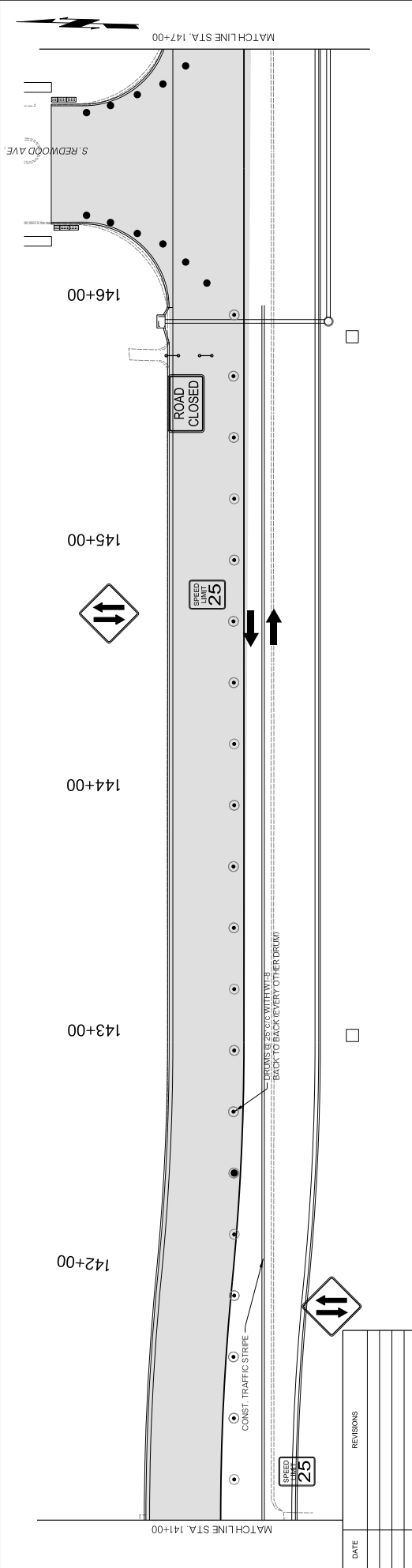
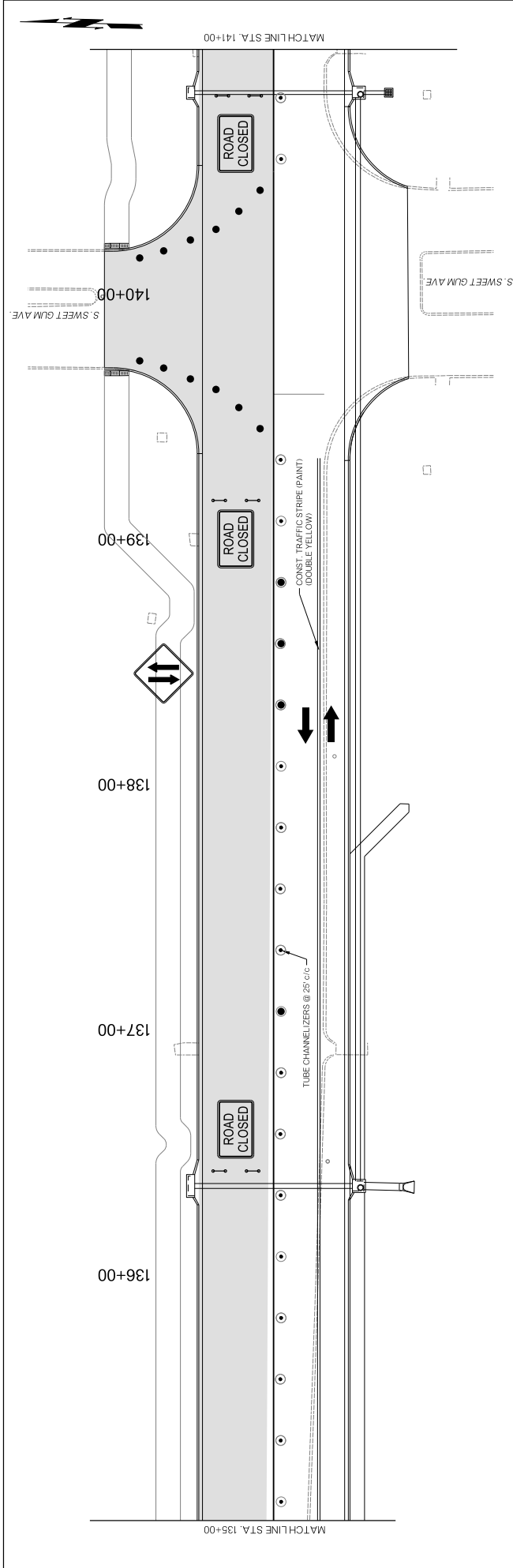
DESIGN	DATE	DRAFTED	DATE
GJC	2020	WSL	2020
REVIEWED	DATE	APPROVED	DATE
	2020		2020
VERT.	DATE	DATE	DATE
	50		
DRAWING NAME: SHEET 50 OF 108		PROJECT NO. ST 2028	



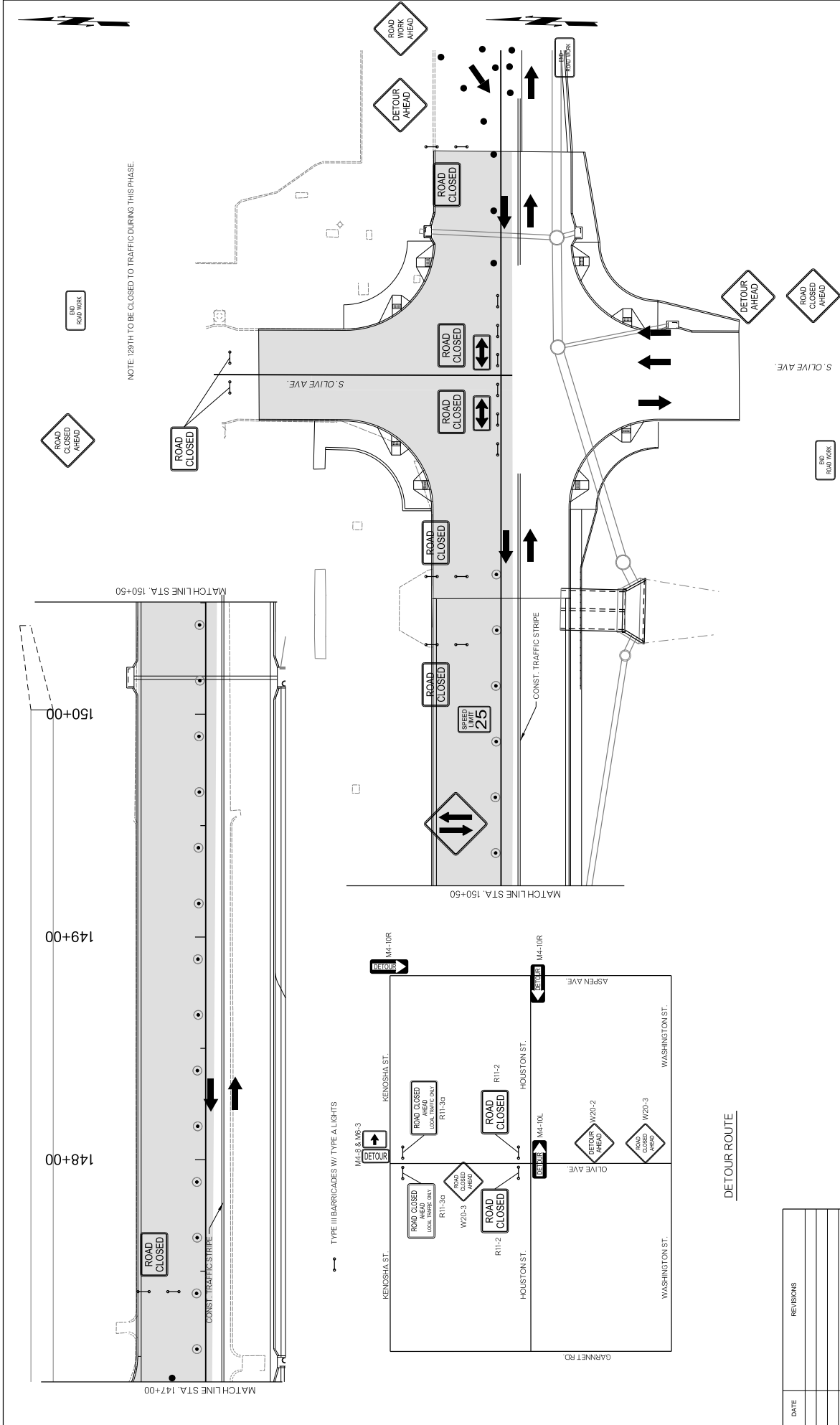
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PROFILE SCALE: 1"=40' HORIZ. DATE: 03/2020 VERT. DATE: 03/2020 DRAWING NAME: 0303-StreetPlan-Phase-2.dgn									
REVISIONS DATE: _____ _____ _____ _____									



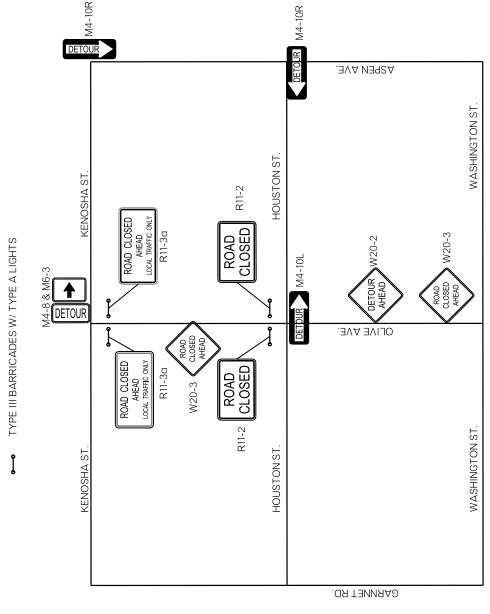
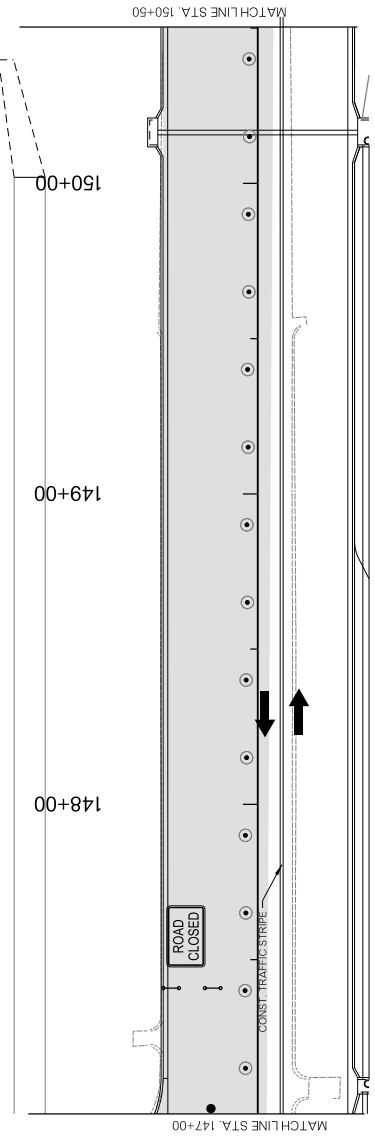
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REVISIONS _____ _____ _____ _____ _____									



				HOUSTON STREET WIDENING		CONSTRUCTION SEQUENCE PHASE 2 (4)		DESIGN: DATE: 2020 G/C: 2020 REVIEWED: DATE: 2020 APPROVED: DATE: 2020 VERT: DATE: 2020 DRAWING NAME: SHEET 53 OF 108 PROJECT NO. ST 2028	
REVISIONS DATE: _____ _____ _____ _____									



NOTE: 128TH TO BE CLOSED TO TRAFFIC DURING THIS PHASE.



DETOUR ROUTE

DATE	REVISIONS

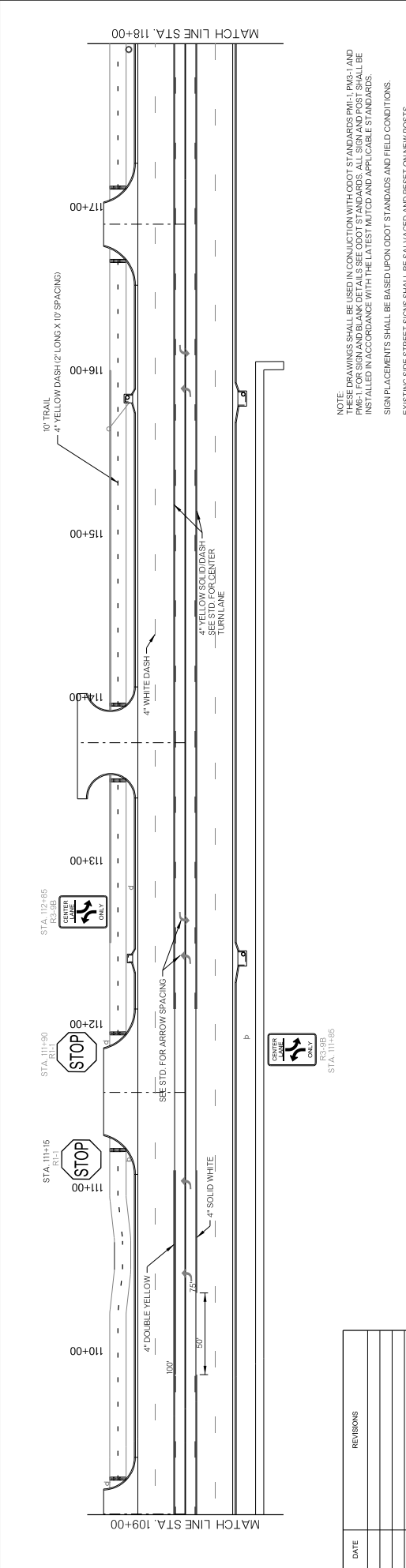
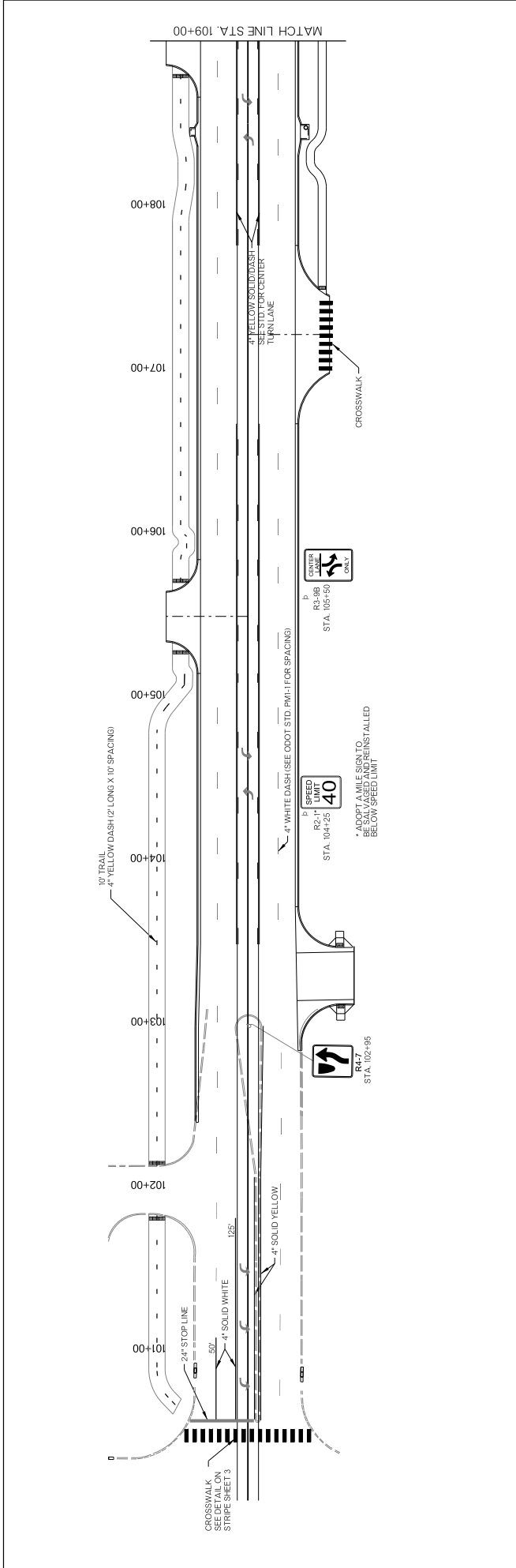
CITY OF
BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
 Tulsa, Oklahoma

**HOUSTON STREET
 WIDENING**

**CONSTRUCTION
 SEQUENCE PHASE 2 (5)**

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=40'	G/C	2020	WSL	2020
VERT. 1"=40'	REVIEWED	DATE	APPROVED	DATE
DRAWING NAME: 0303-SpanishPhase-2.dwg	SHEET	54	OF	108
PROJECT NO.	ST 2028			



DATE	REVISIONS

NOTE:
 THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ODOT STANDARDS PM-11, PM-1 AND PM-1. FOR SIGN AND BLANK DETAILS SEE ODOT STANDARDS. ALL SIGN AND POST SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST MUTCD AND APPLICABLE STANDARDS.
 SIGN PLACEMENTS SHALL BE BASED UPON ODOT STANDARDS AND FIELD CONDITIONS.
 EXISTING SIDE STREET SIGNS SHALL BE SALVAGED AND RESET ON NEW POSTS.

HOUSTON STREET WIDENING

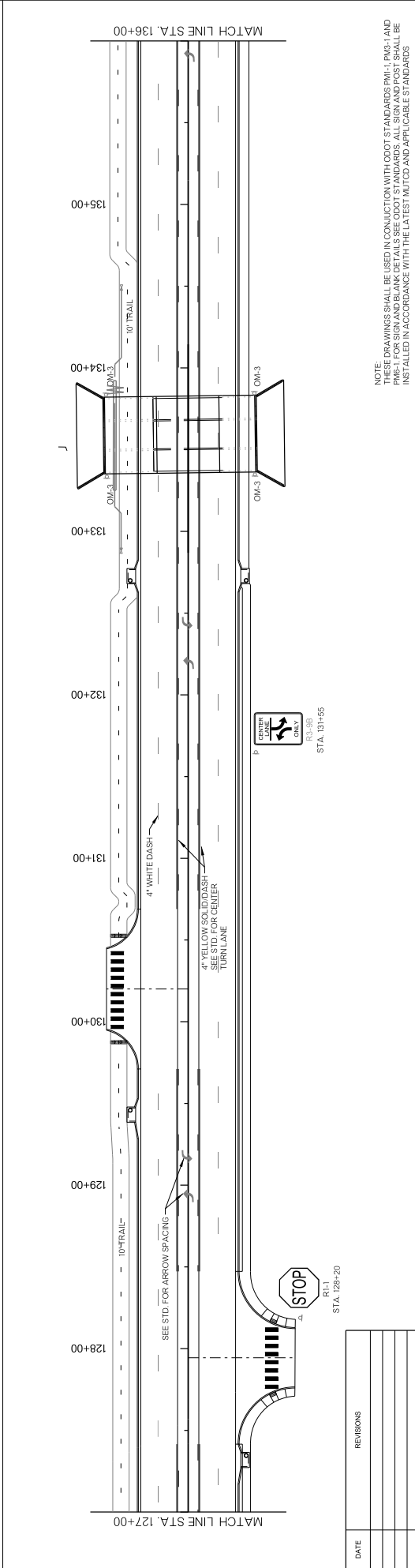
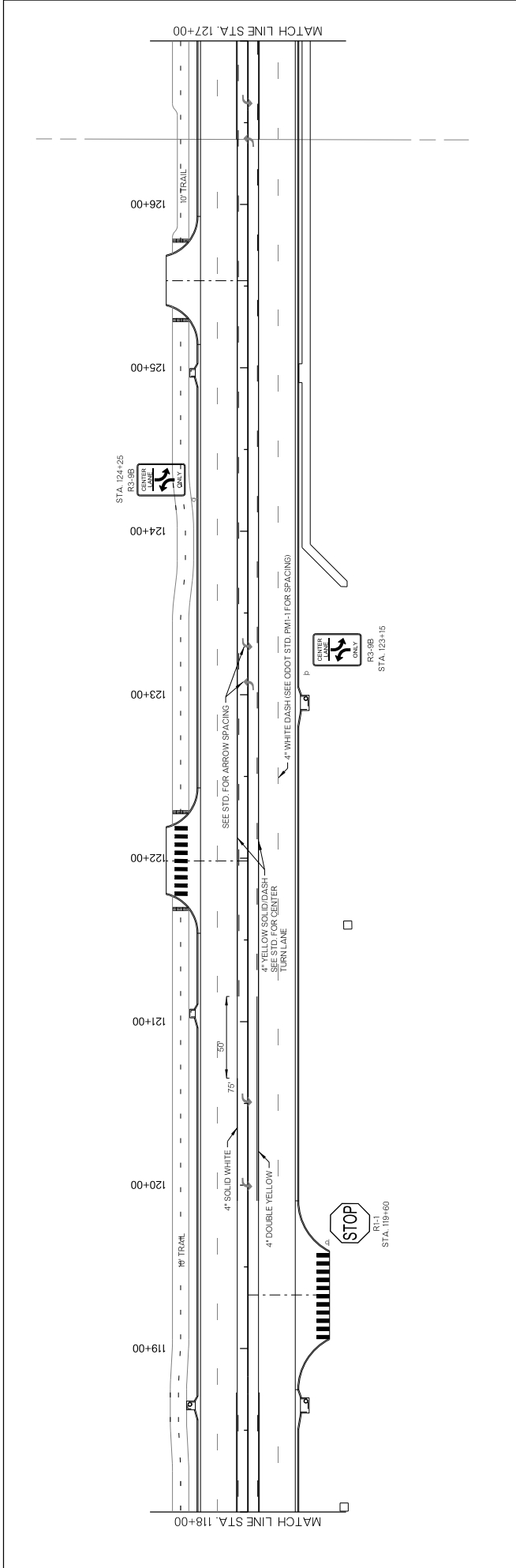
SIGNING AND STRIPING (1)

CITY OF **BROKEN ARROW**
Where opportunity lives

POE & ASSOCIATES INC.
Tulsa, Oklahoma

DESIGN	DATE	DRAFTED	DATE
GUC	2020	WSL	2020
REVIEWED	DATE	APPROVED	DATE
VERT			
DRAWING NAME:	SHEET	OF	PROJECT NO.

PROFILE SCALE:
 HORZ. 1"=80'
 VERT. 1"=8'



DATE	REVISIONS

NOTE: THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ODOT STANDARDS PM1-1, PM3-1 AND PM4-1 FOR SIGN AND BLANK DETAILS. SEE ODOT STANDARDS FOR SIGN AND BLANK DETAILS. SIGN AND BLANKS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST TxDOT AND APT/CABLE STANDARDS.

PROFILE SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ.	1"=60'	2020	WSL	2020
VERT.	1"=8'	2020	APPROVED	DATE

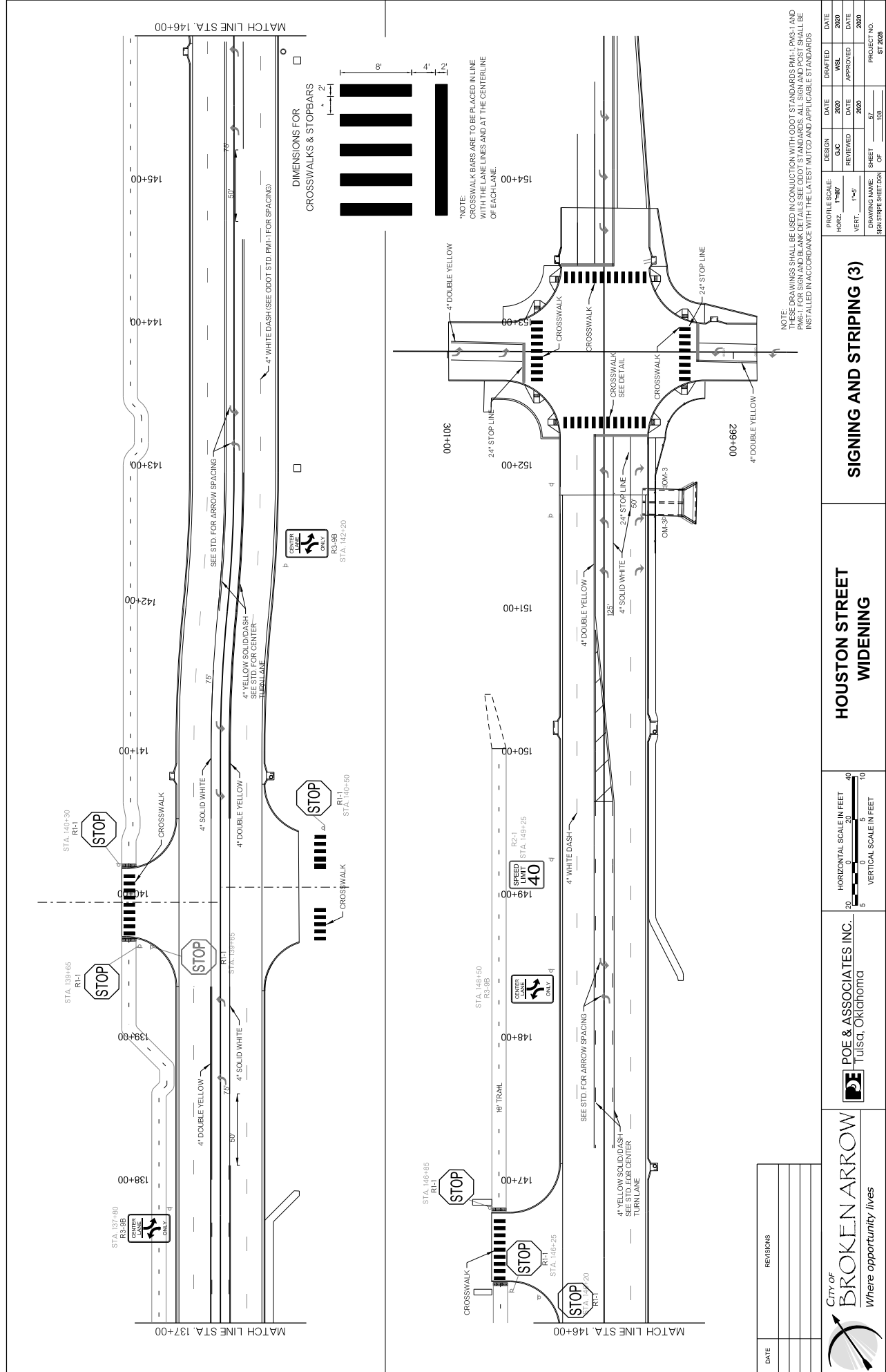
SIGNING AND STRIPING (2)

**HOUSTON STREET
WIDENING**

POE & ASSOCIATES INC.
Tulsa, Oklahoma

CITY OF BROKEN ARROW
Where opportunity lives

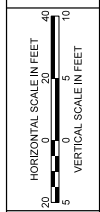
DRAWING NAME:	SHEET	OF	PROJECT NO.
	56	108	



DATE	REVISIONS

CITY OF
BROKEN ARROW
Where opportunity lives

POE & ASSOCIATES INC.
 Tulsa, Oklahoma



HOUSTON STREET WIDENING

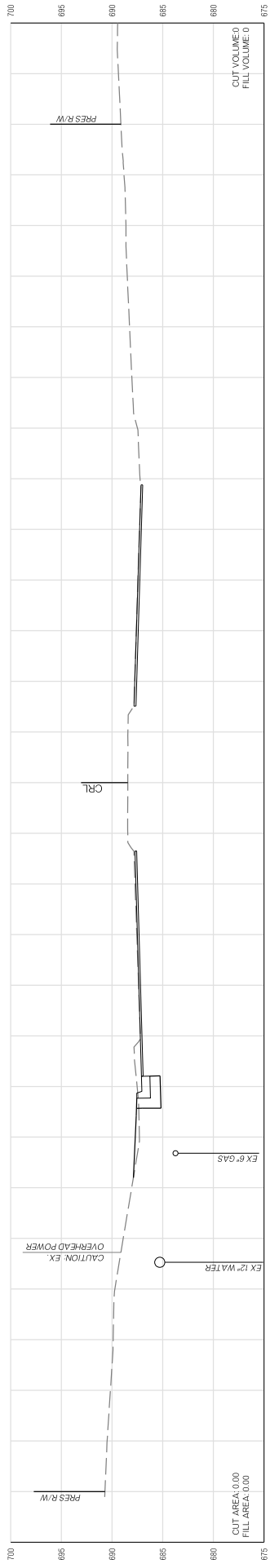
SIGNING AND STRIPING (3)

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VERT.	1"=5'	REVIEWED	DATE	APPROVED	DATE	DATE	DATE
DRAWING NAME: SIGN STRIPE SHEETS		SHEET 57		PROJECT NO.		ST 2008	
DRAWING NO.		OF 108		SHEET		OF 108	

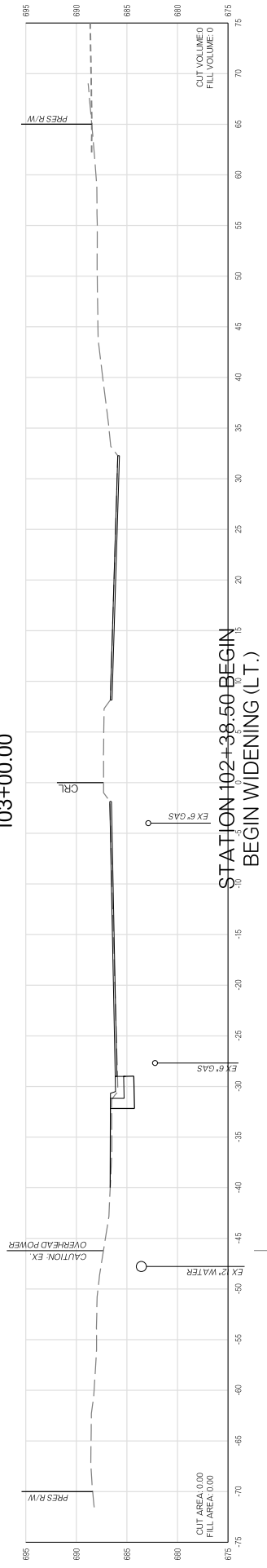
NOTE: THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ODOT STANDARDS PM-1.1, PM-1.2, AND PM-1.3. ALL SIGNING AND STRIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST MUTCD AND APPLICABLE STANDARDS.



*NOTE:
CROSSWALK BARS ARE TO BE PLACED IN LINE WITH THE LANE LINES AND AT THE CENTERLINE OF EACH LANE.

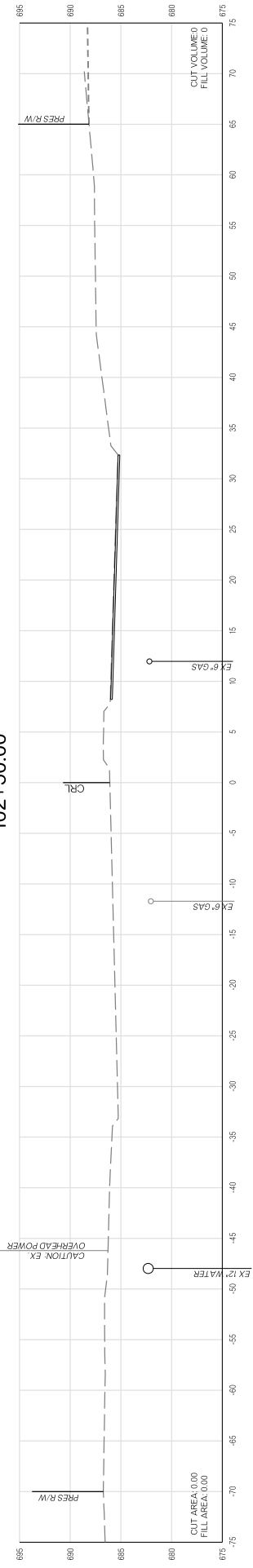


103+00.00



102+38.50 BEGIN
BEGIN WIDENING (L.T.)

102+50.00

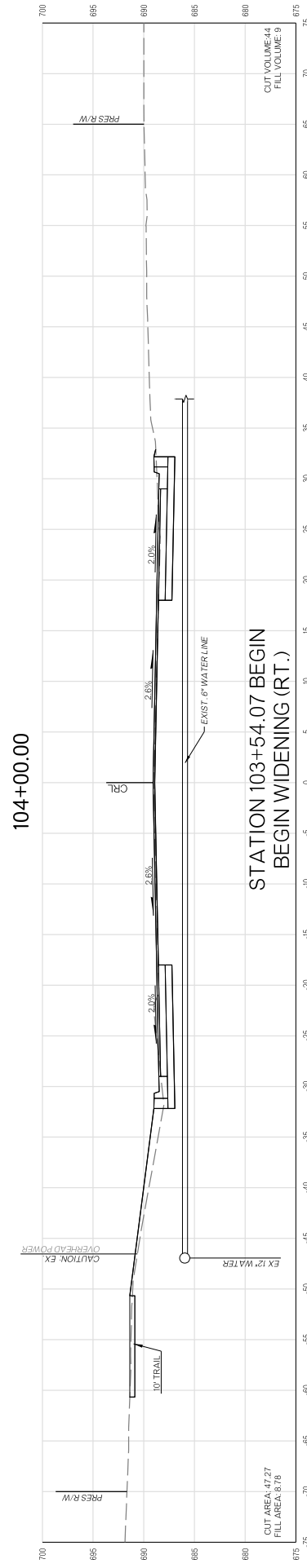
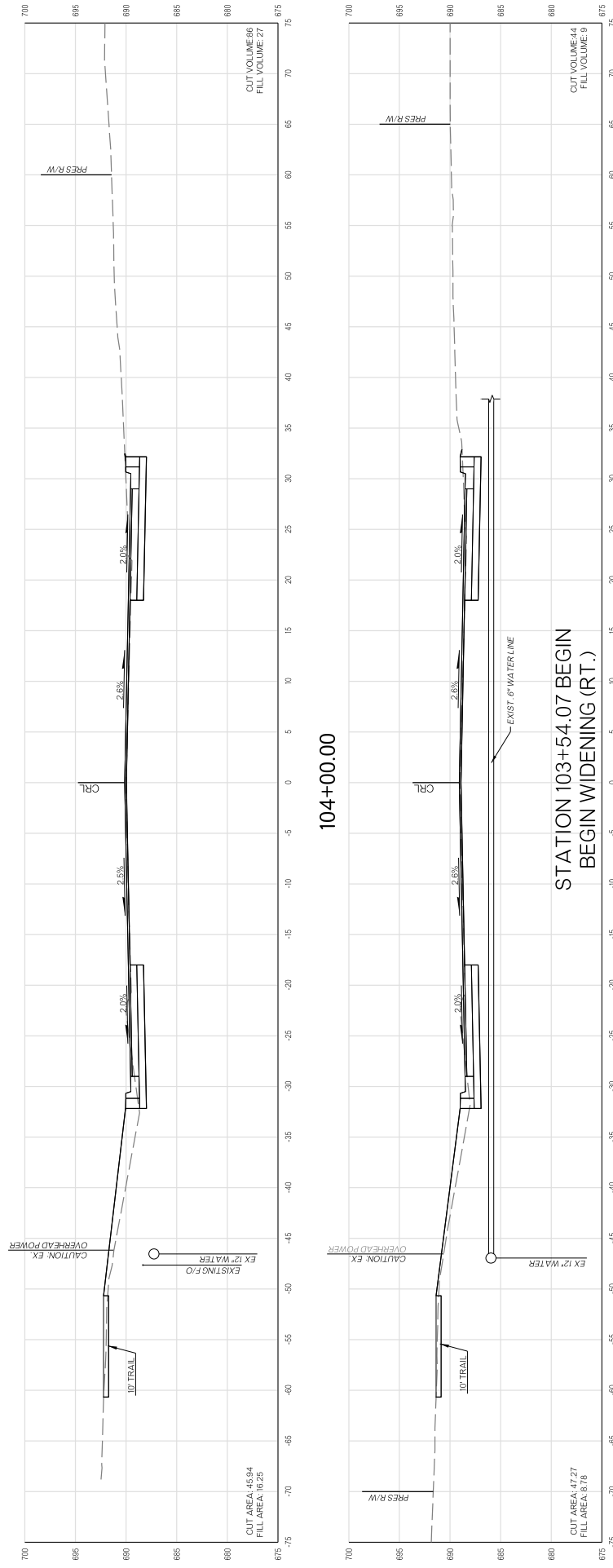


102+26.51

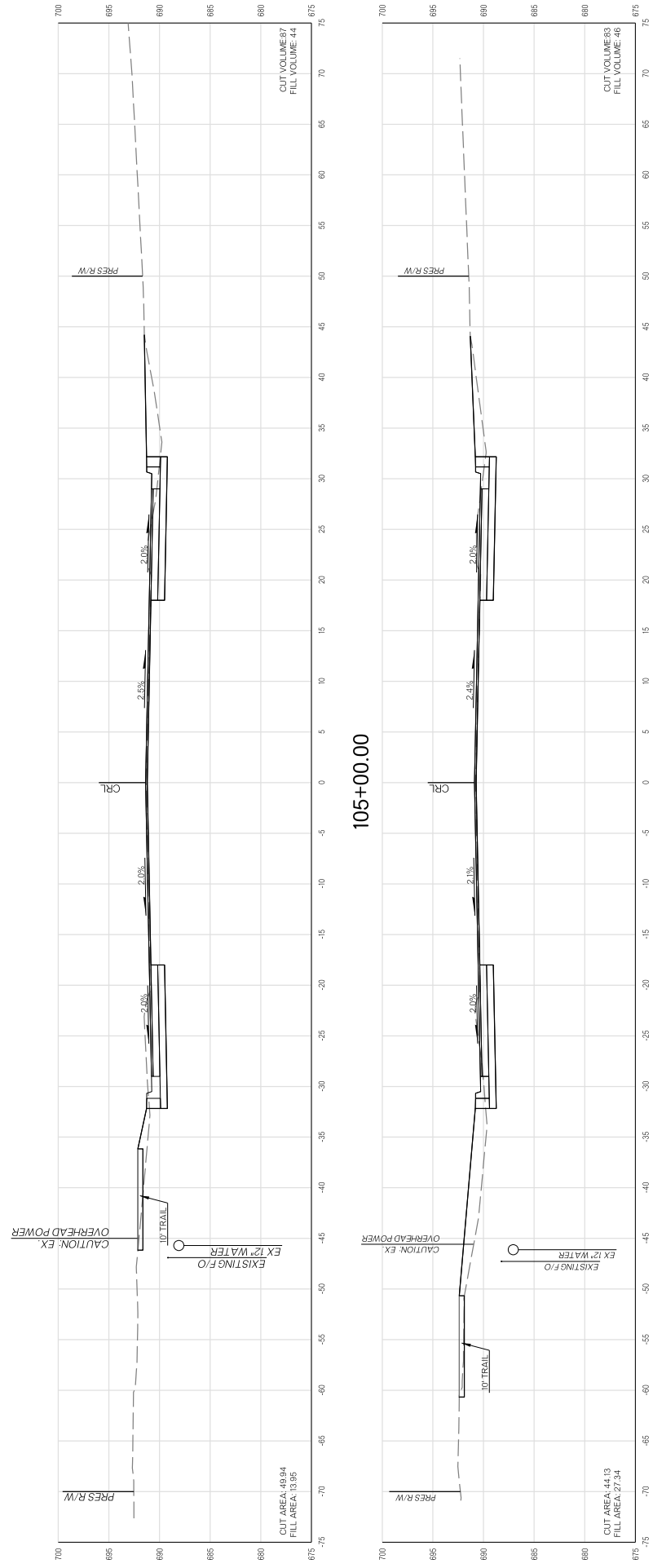
STATION 100+32.48 BEGIN PROJECT
BEGIN MILL & OVERLAY

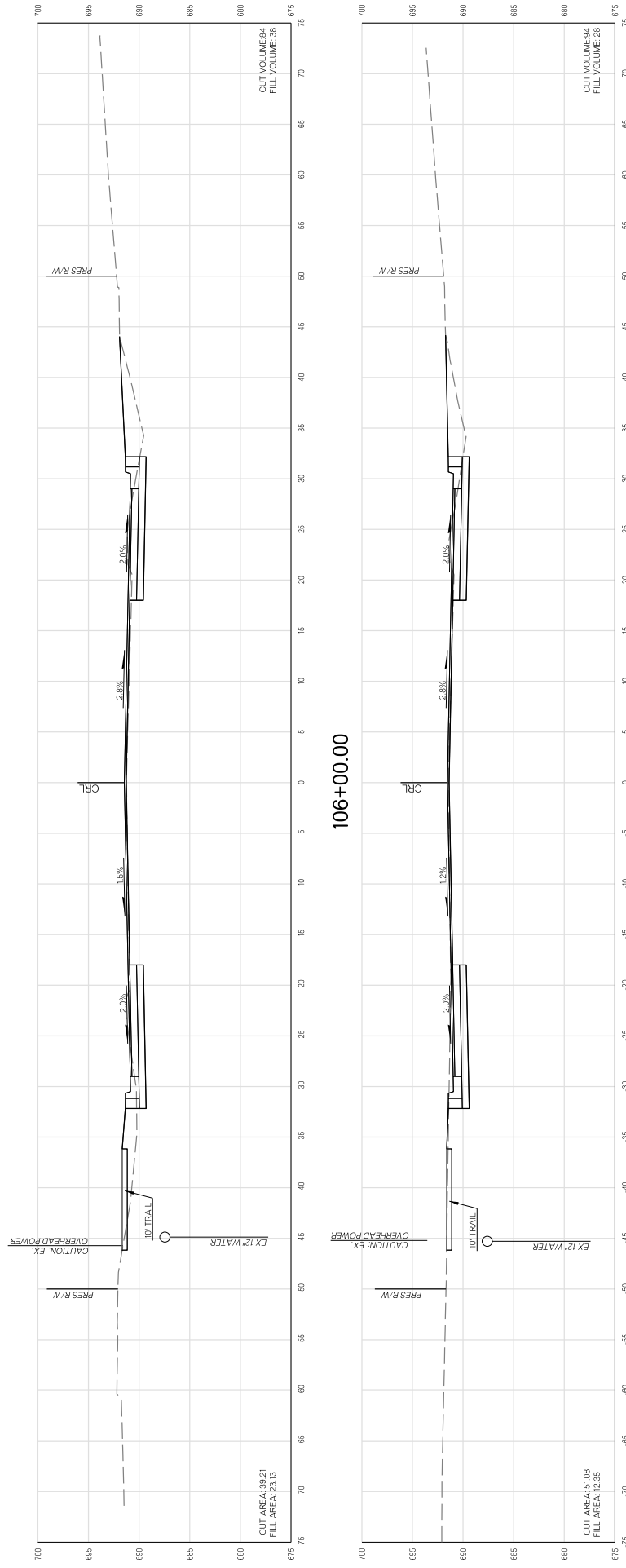
CROSS SECTIONS

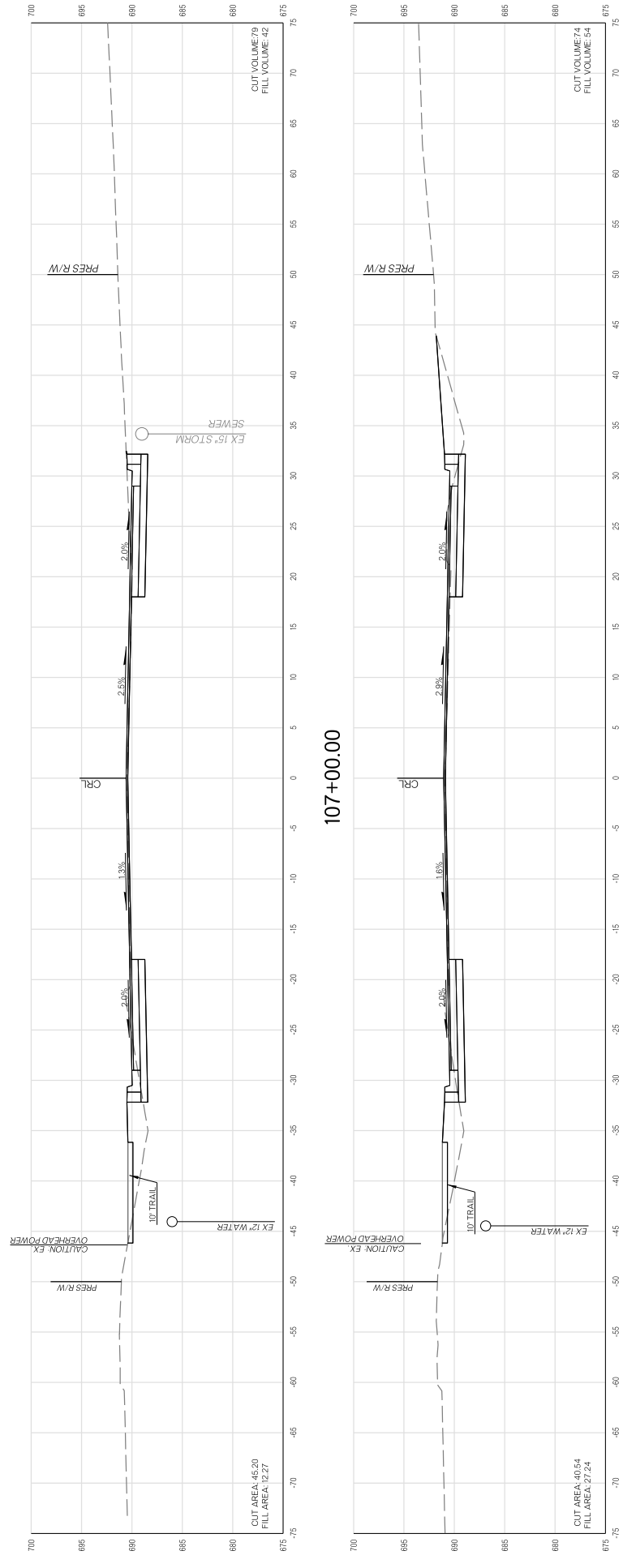
PROJECT NO. ST 2028 SHEET NO. X1

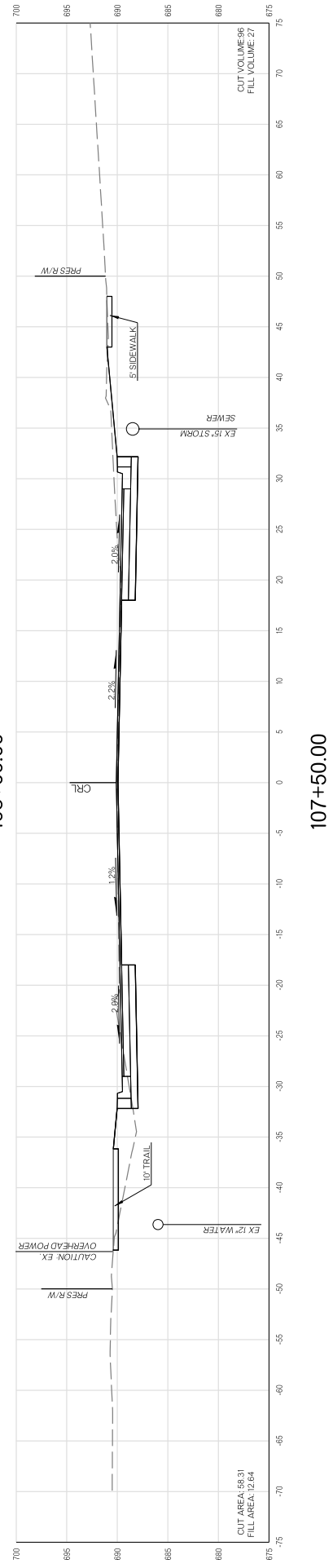
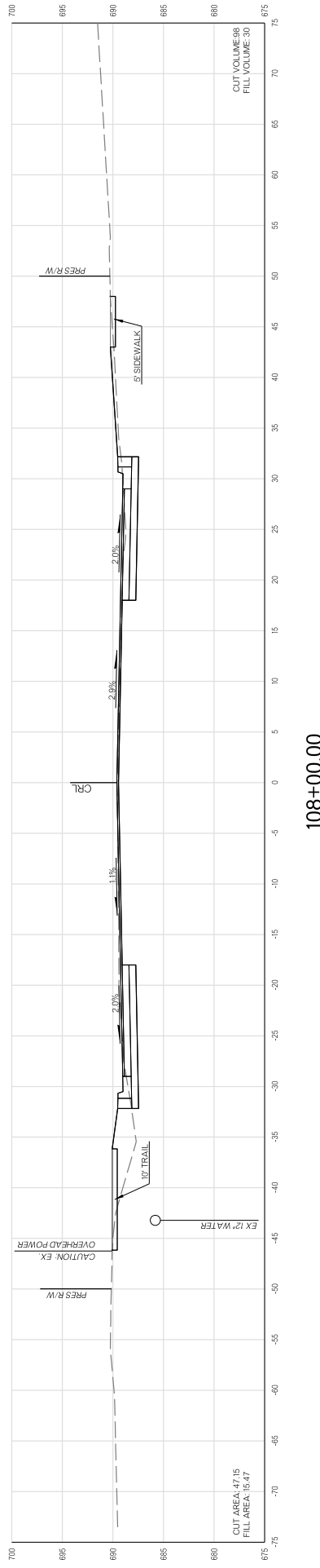
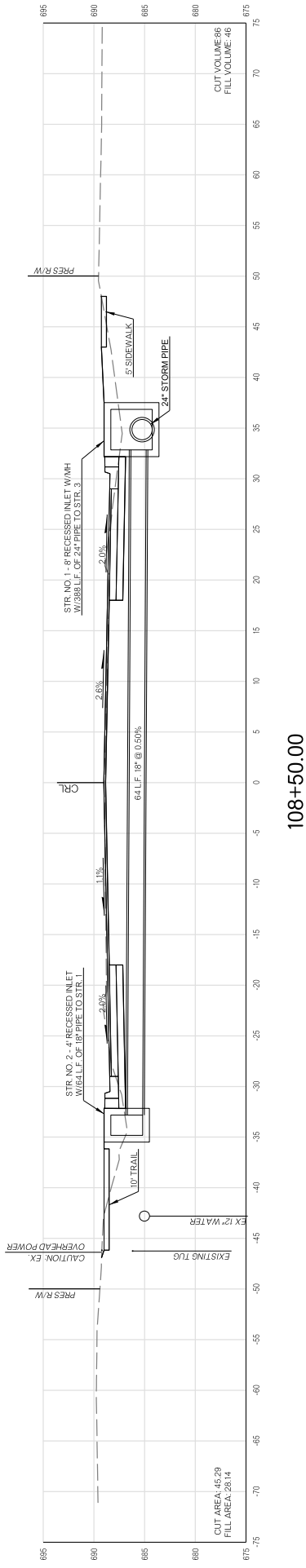


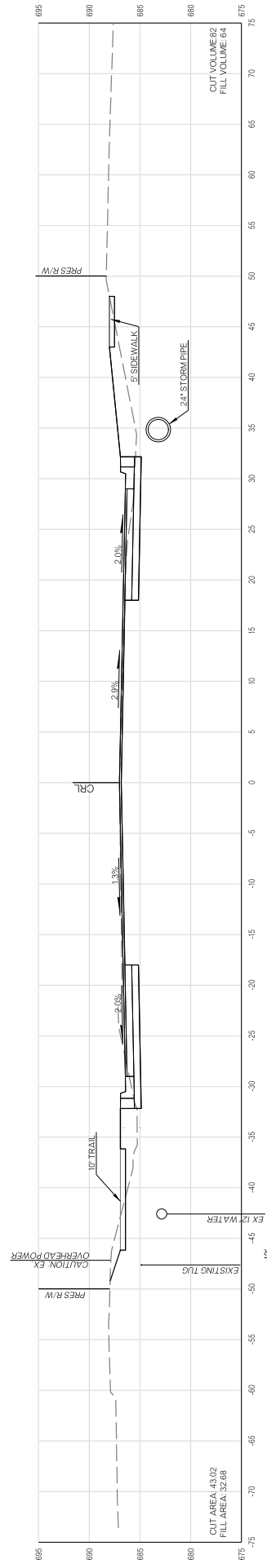
STATION 103+54.07 BEGIN
BEGIN WIDENING (RT.)



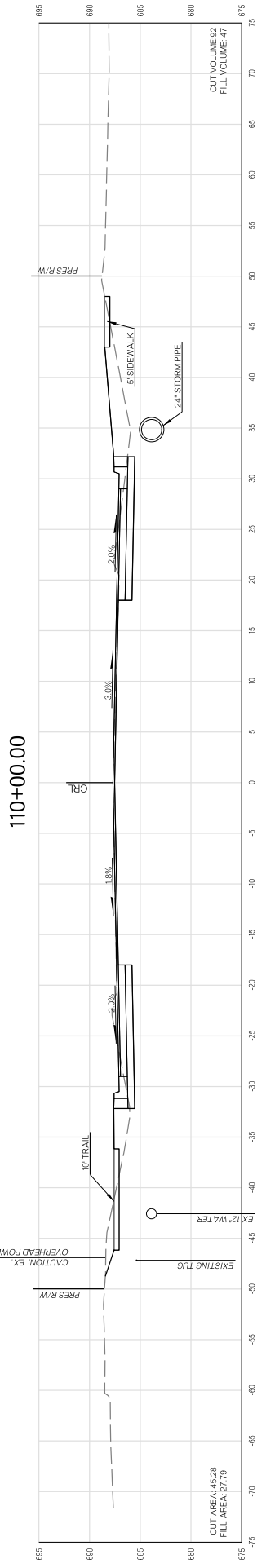




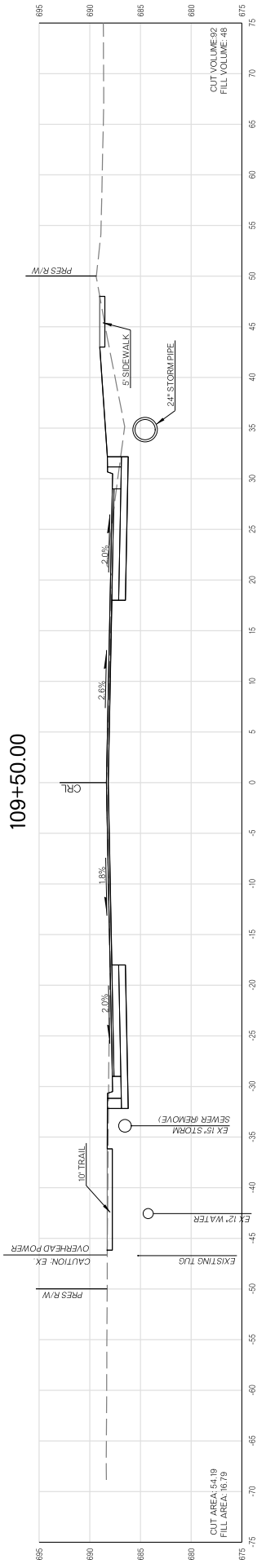




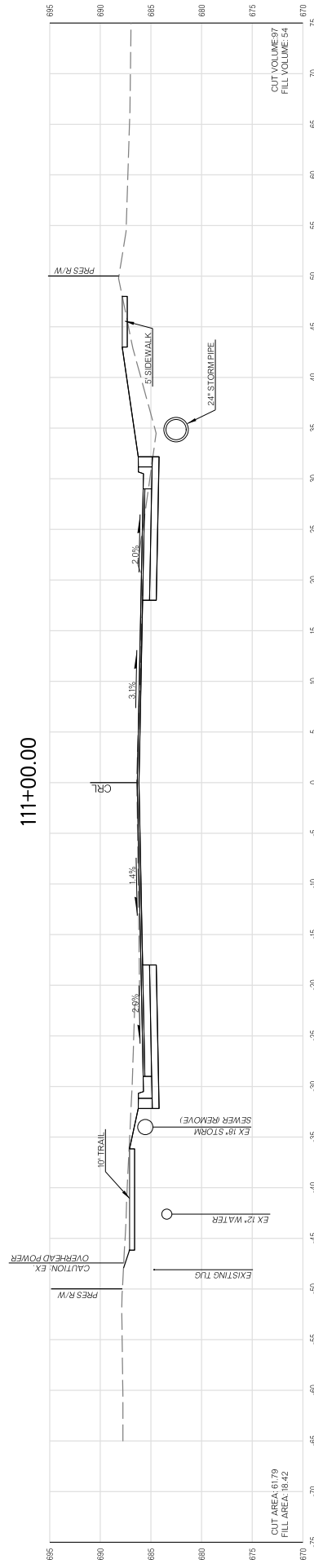
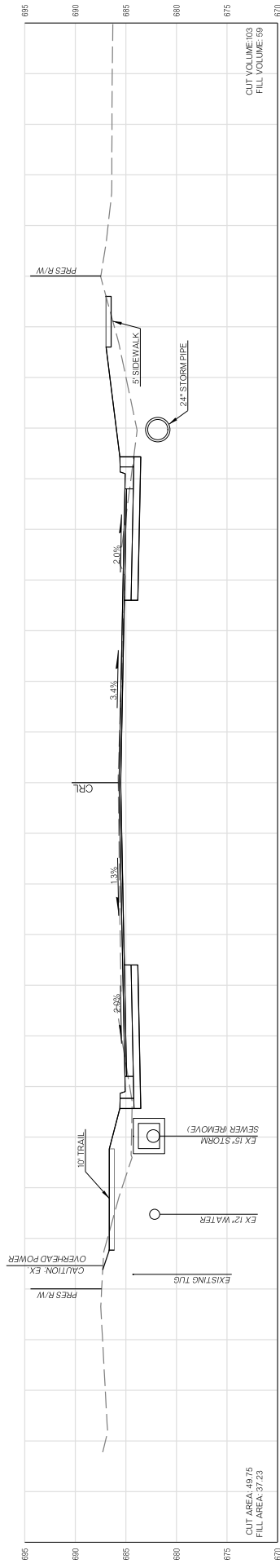
110+00.00



109+50.00

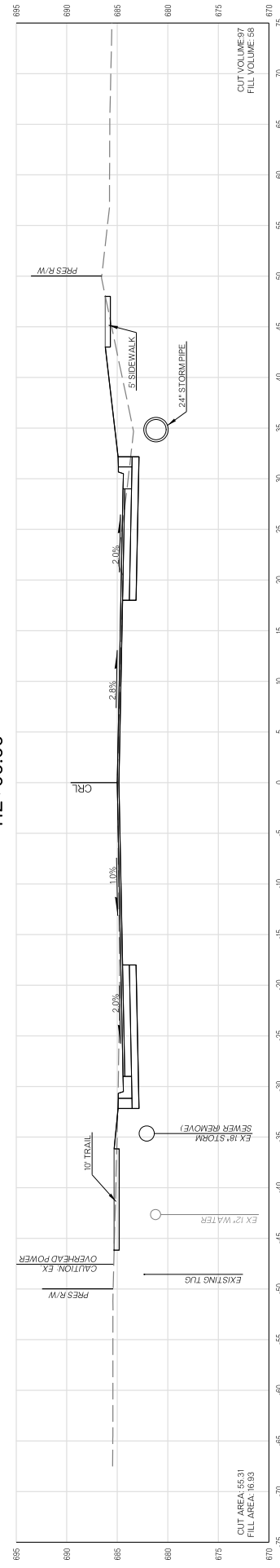
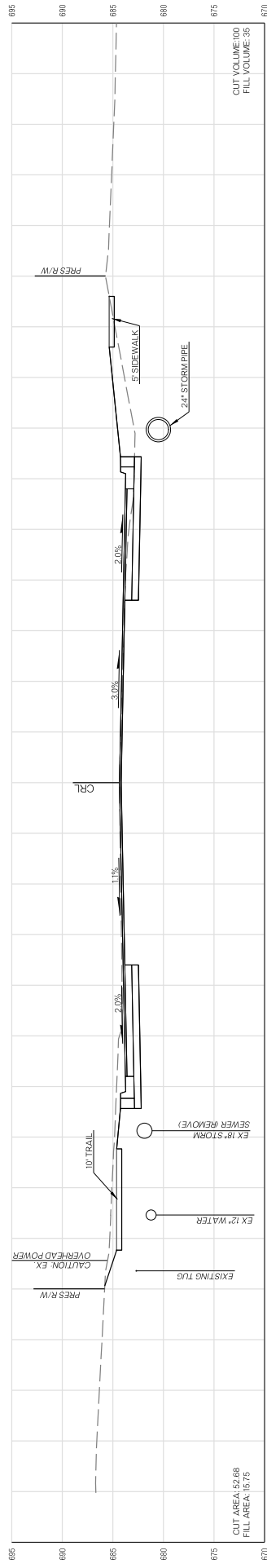


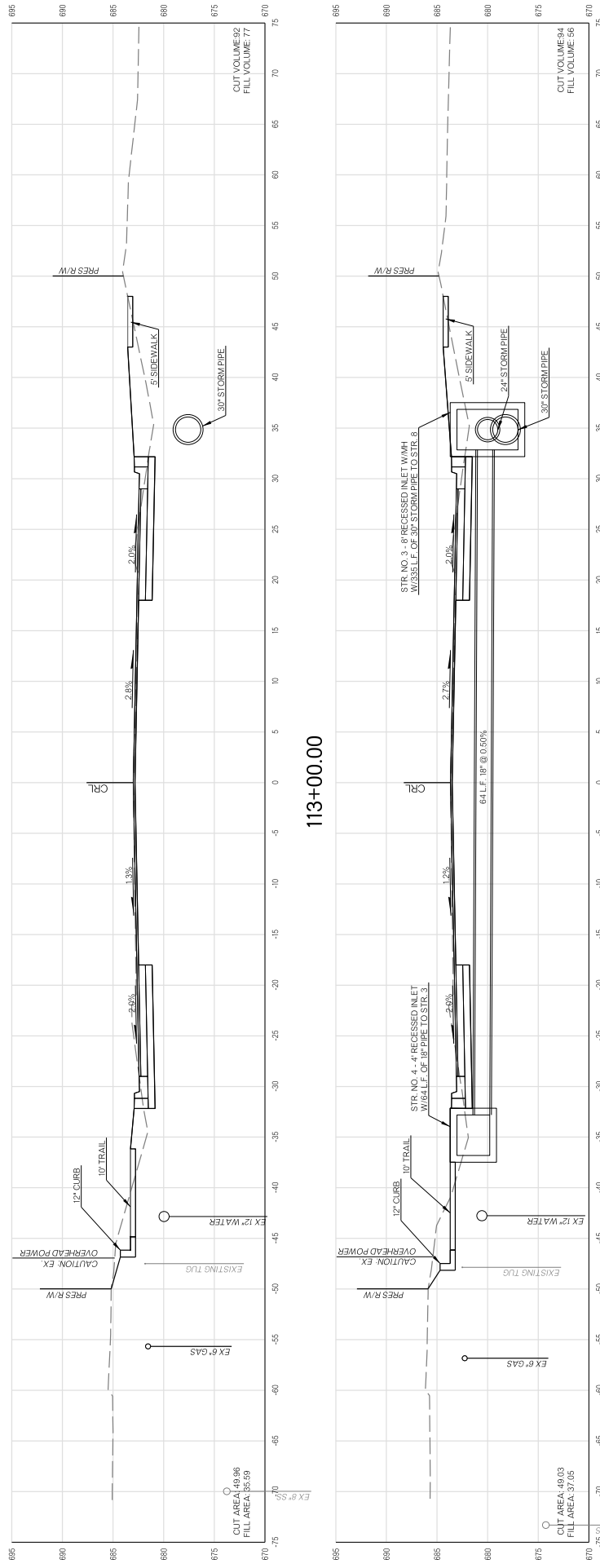
109+00.00



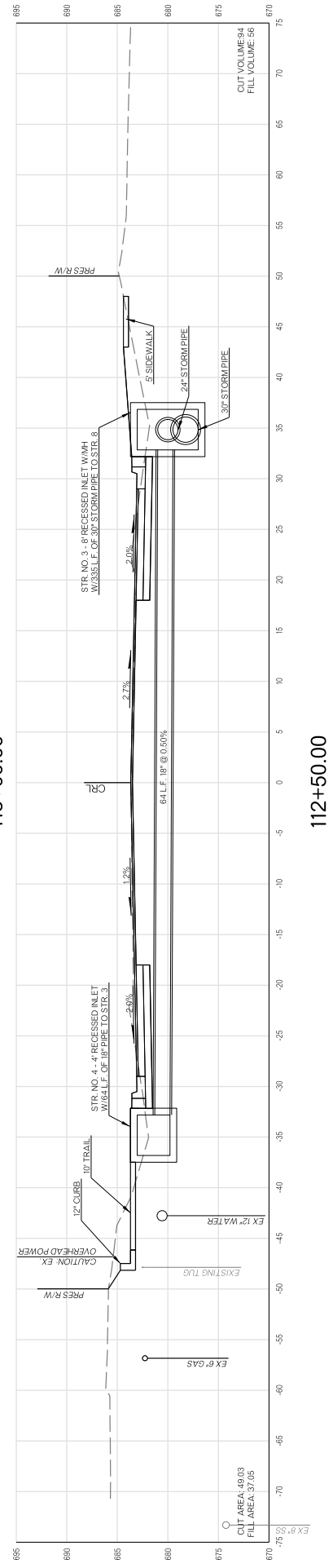
CROSS SECTIONS

PROJECT NO. ST 2028 SHEET NO. X9





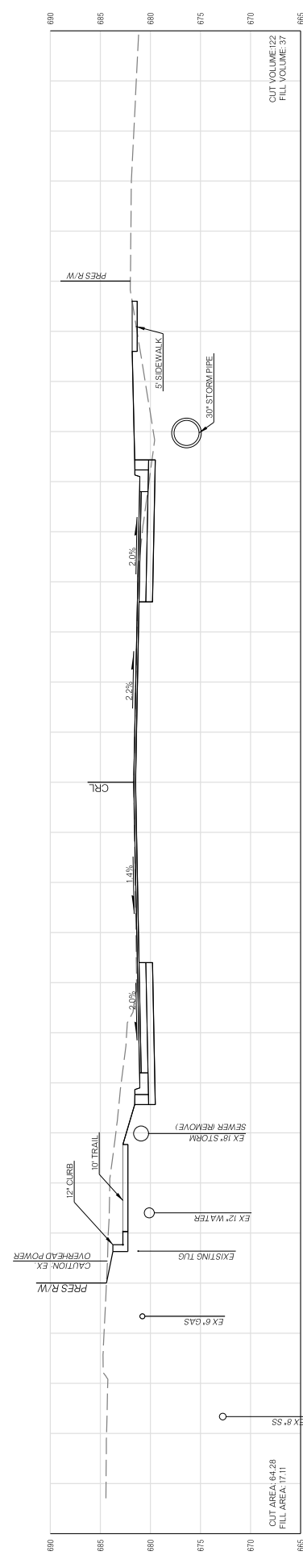
113+00.00



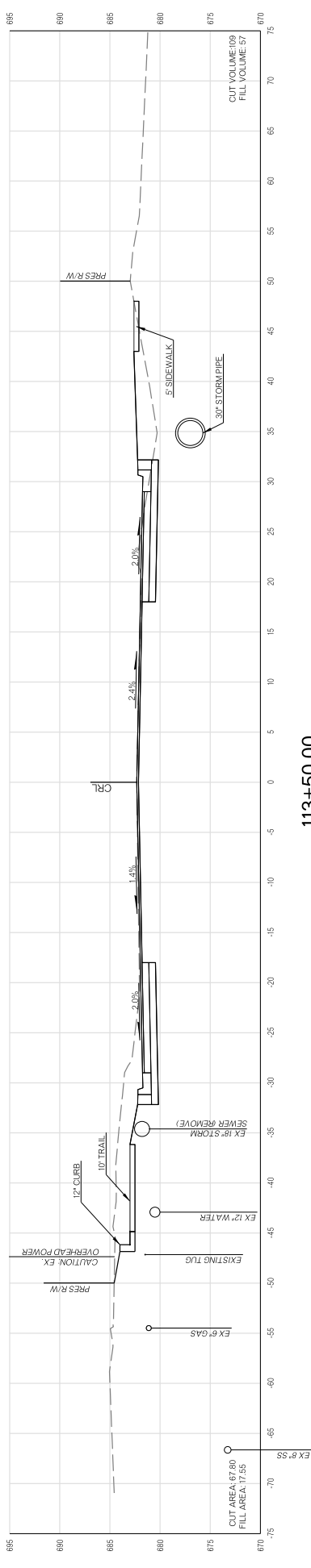
112+50.00

CROSS SECTIONS

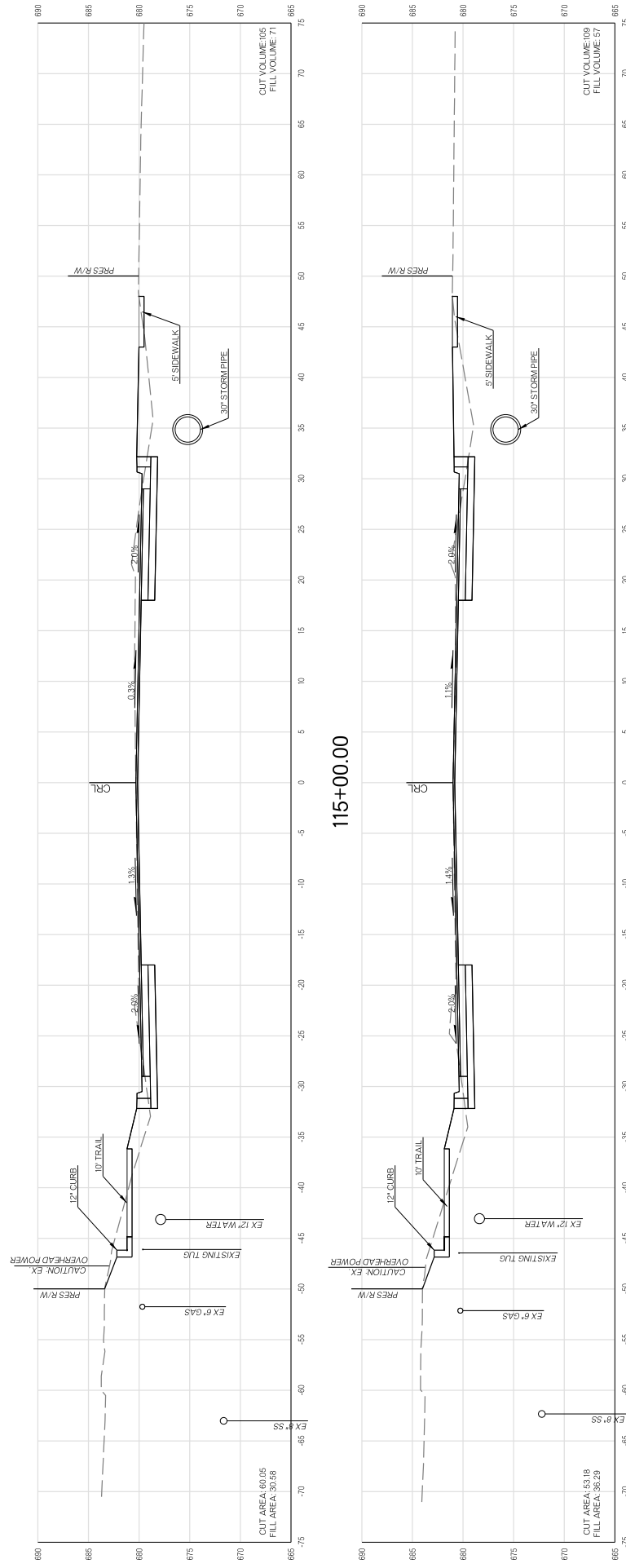
CROSS SECTIONS



114+00.00

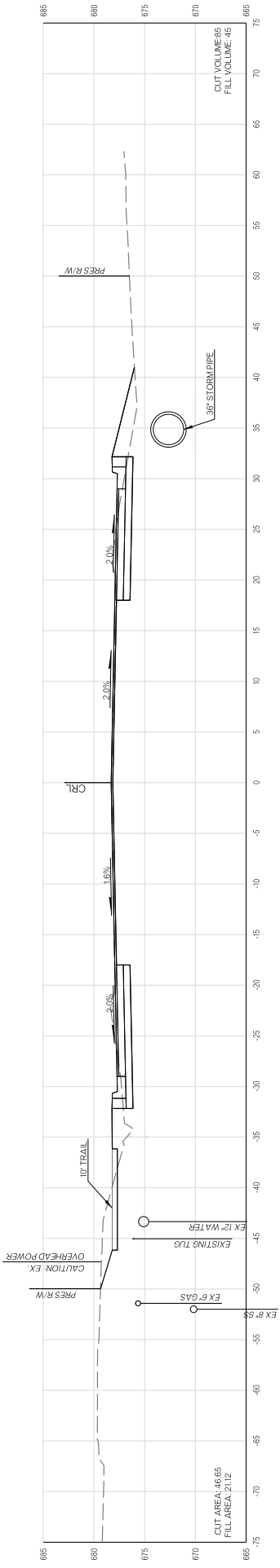


113+50.00

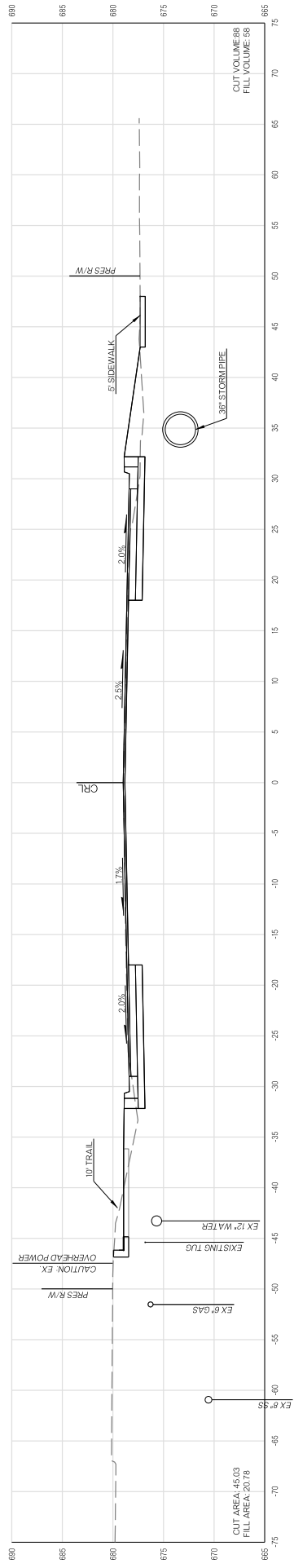


115+00.00

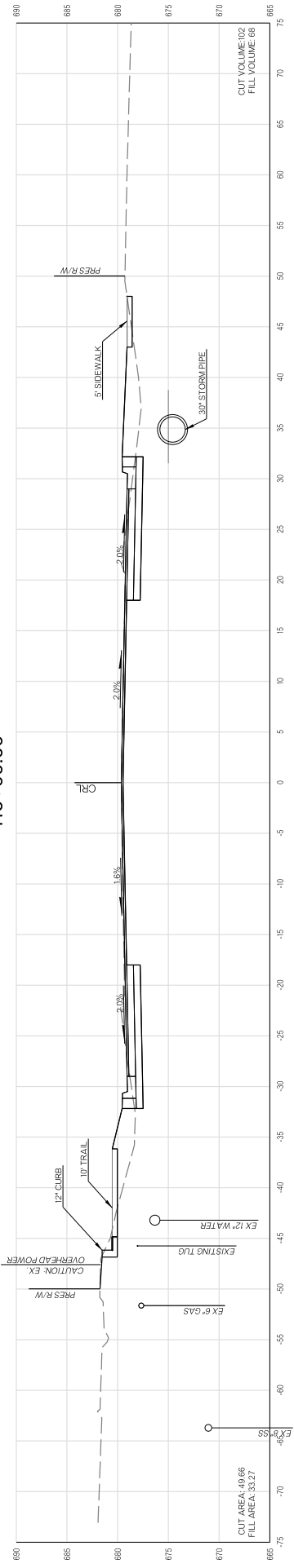
114+50.00



116+50.00



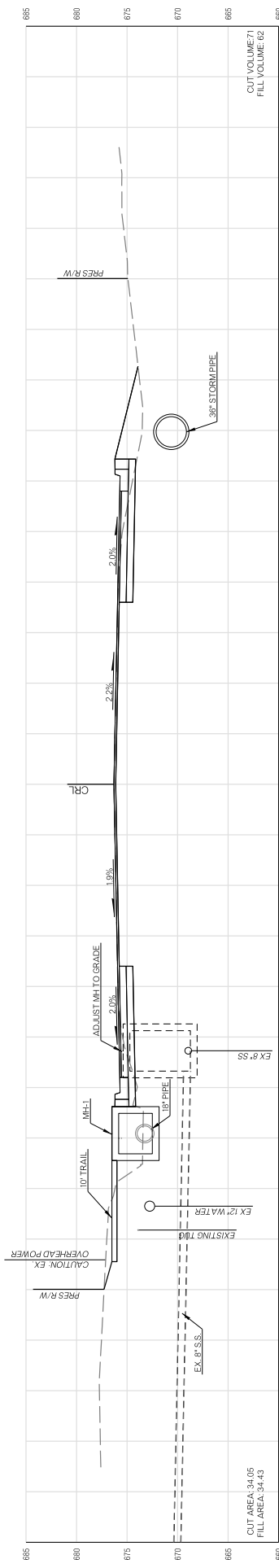
116+00.00



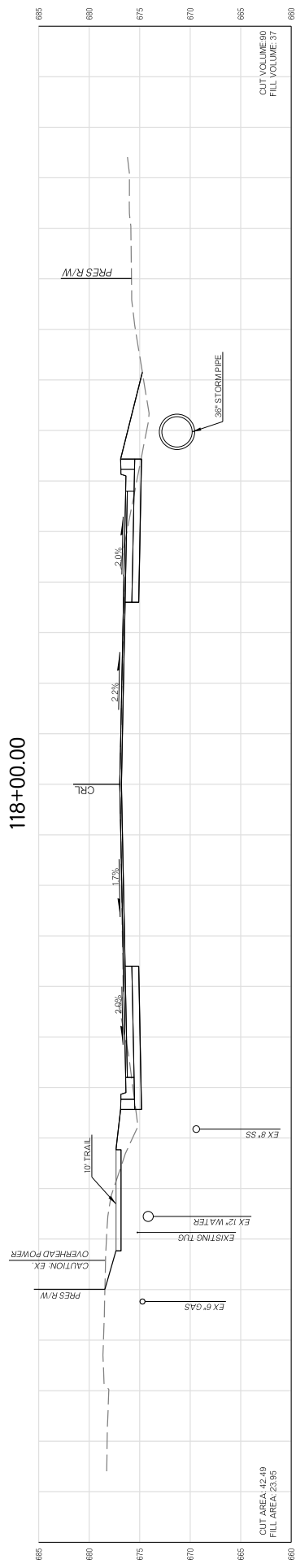
115+50.00

CROSS SECTIONS

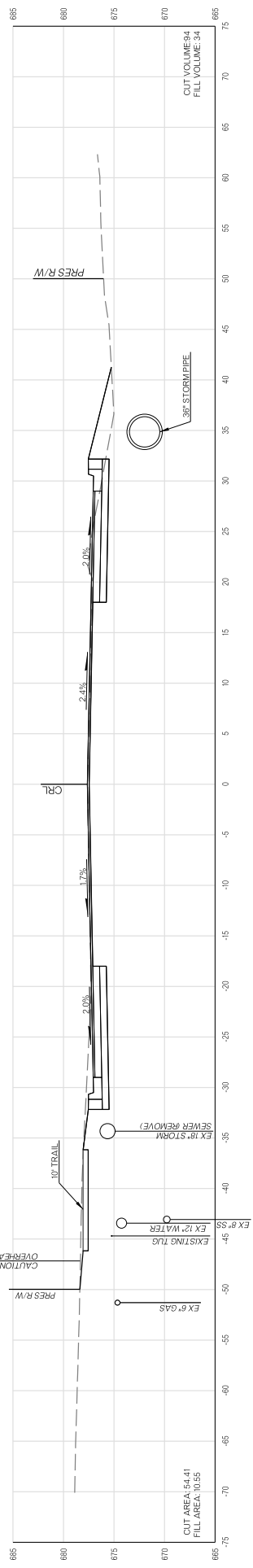
CROSS SECTIONS



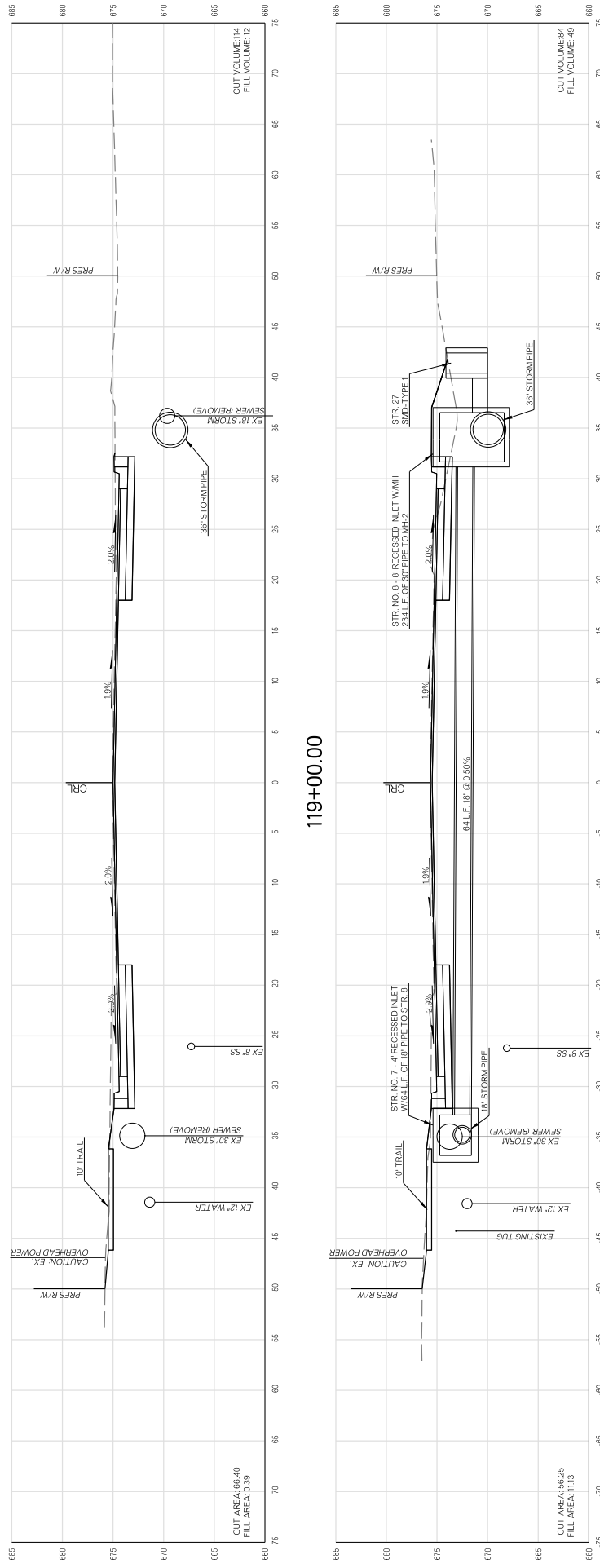
118+00.00



117+50.00



117+00.00

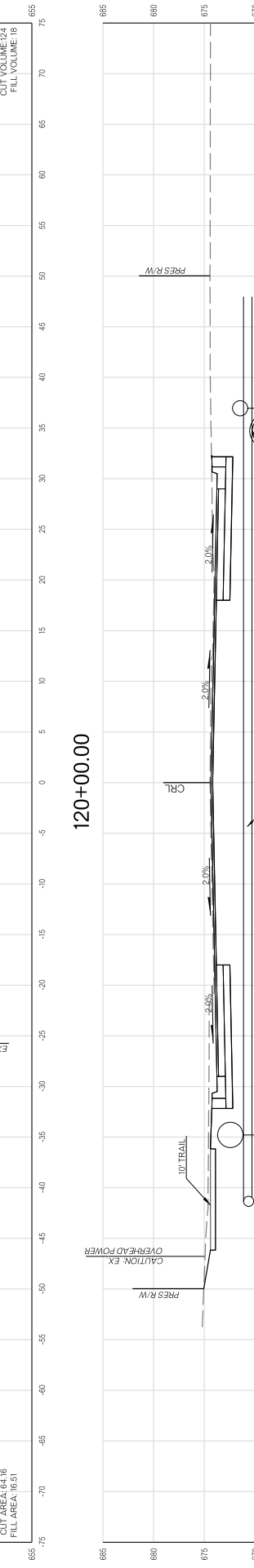
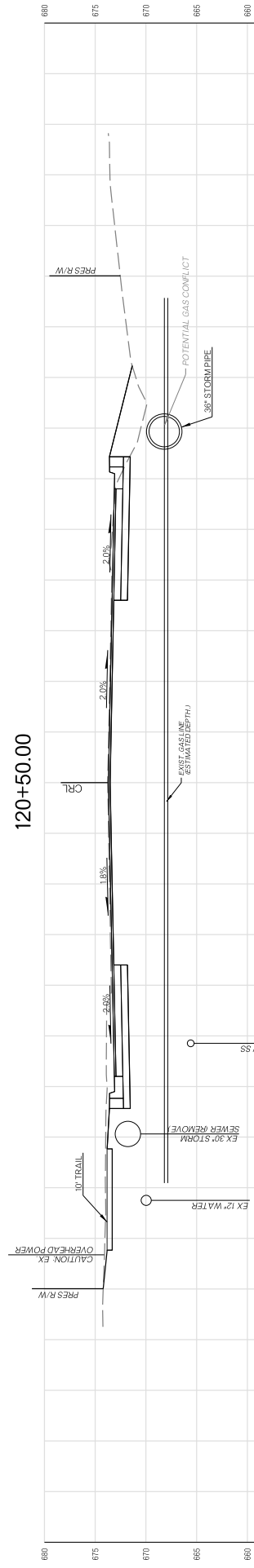
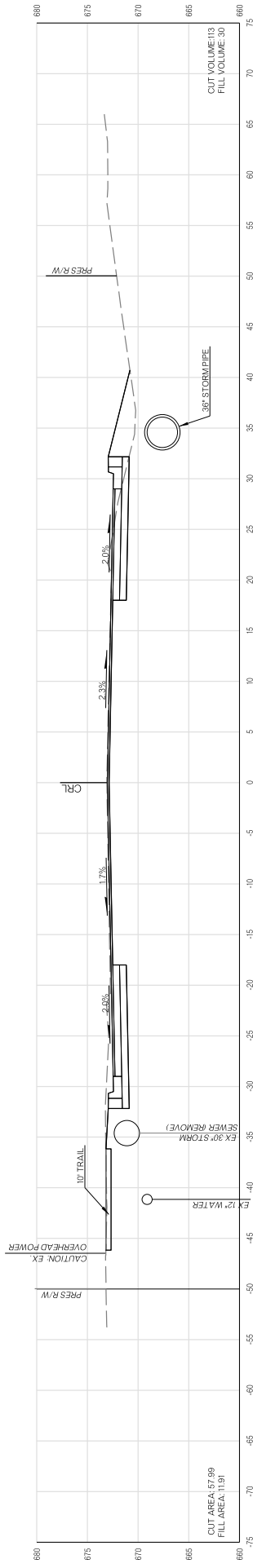


119+00.00

118+50.00

CUT AREA 66.40
 FULL AREA 0.39

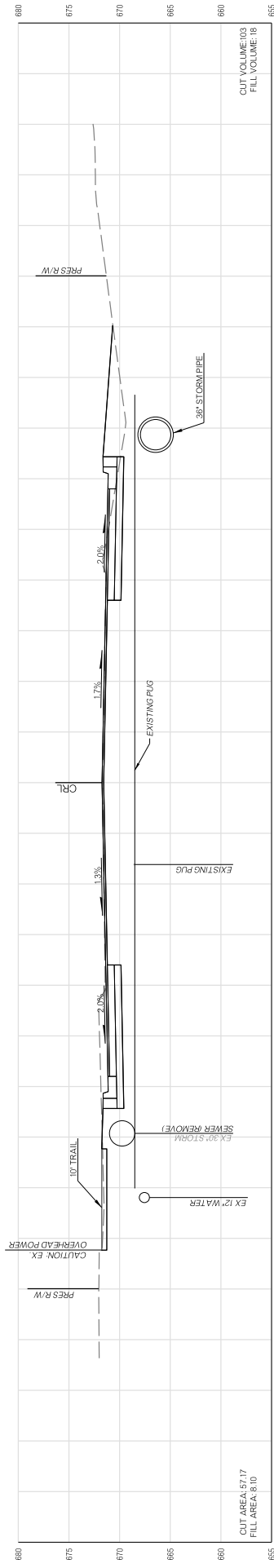
CUT AREA 55.25
 FULL AREA 113



120+50.00

120+00.00

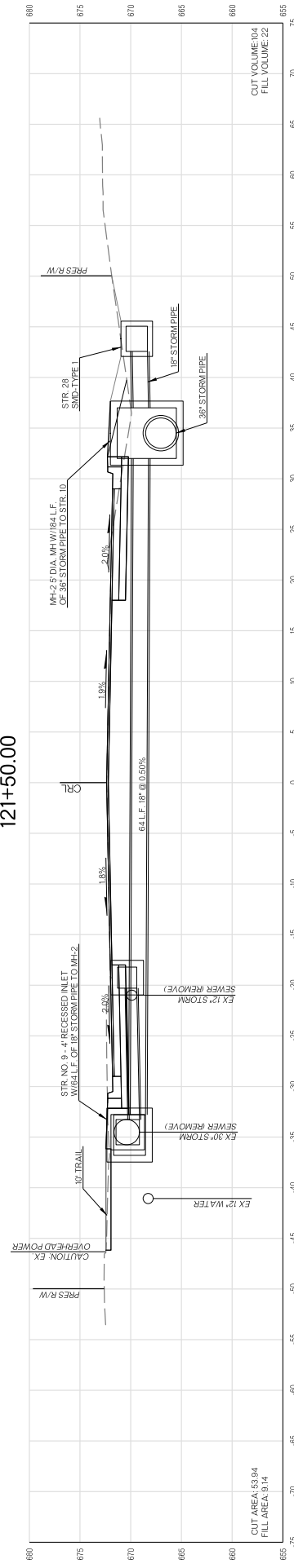
119+50.00



121+50.00

CUT AREA: 57.17
FILL AREA: 8.10

CUT VOLUME: 103
FILL VOLUME: 18

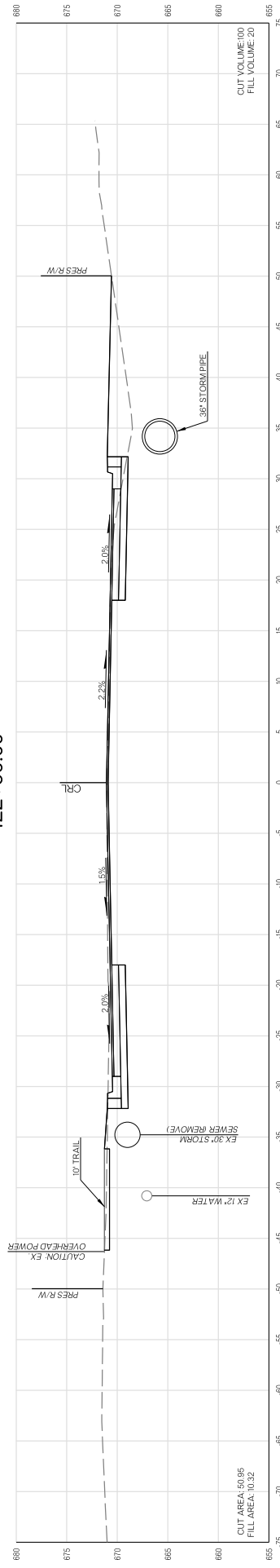
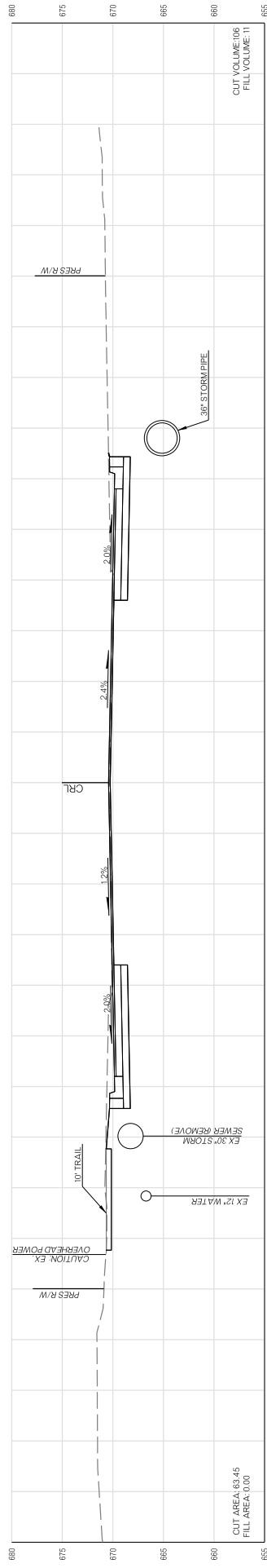


121+00.00

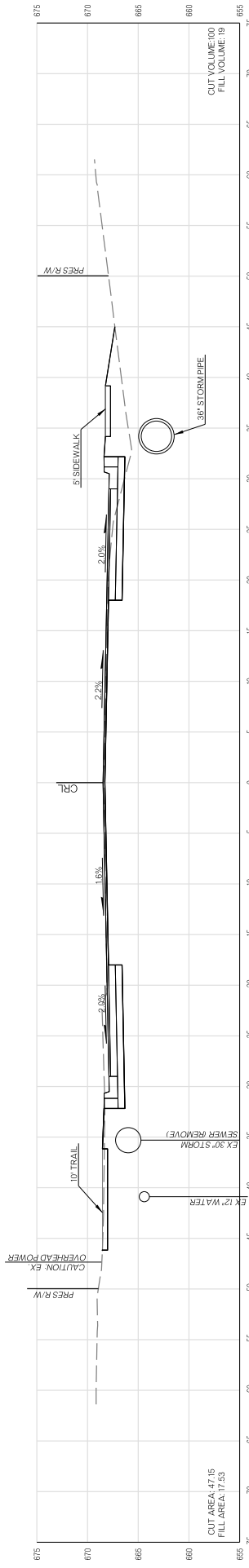
CUT AREA: 53.94
FILL AREA: 3.14

CUT VOLUME: 104
FILL VOLUME: 22

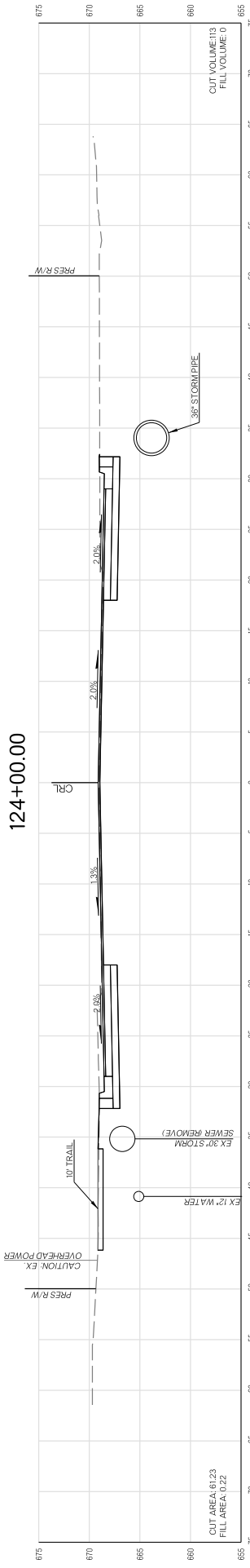
CROSS SECTIONS



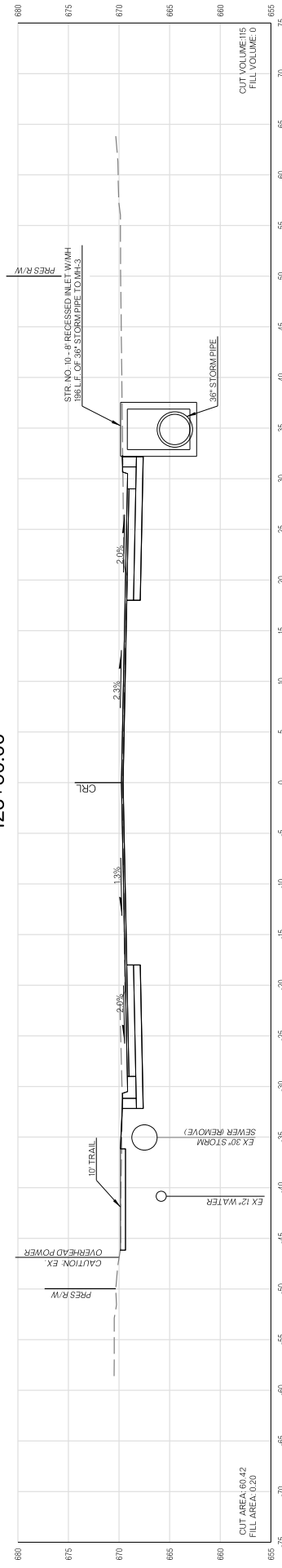
CROSS SECTIONS



124+00.00

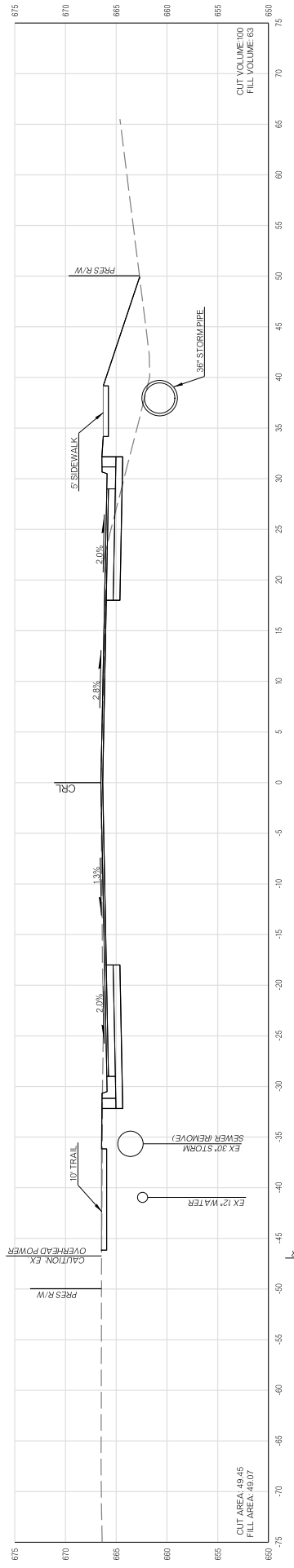


123+50.00

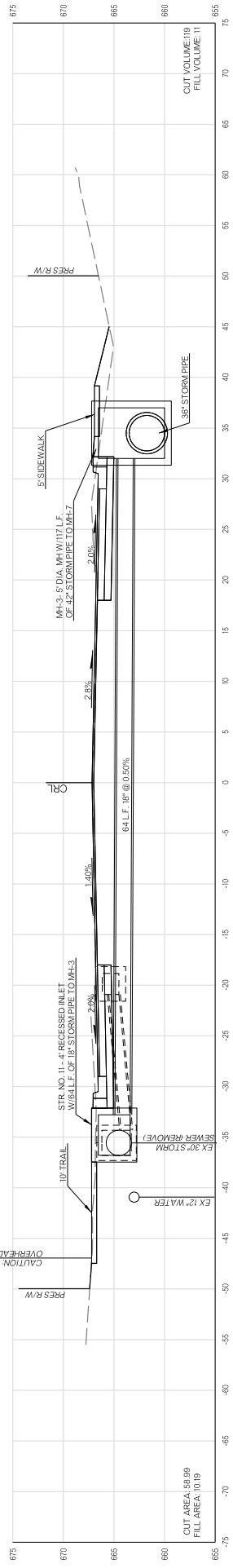


123+00.00

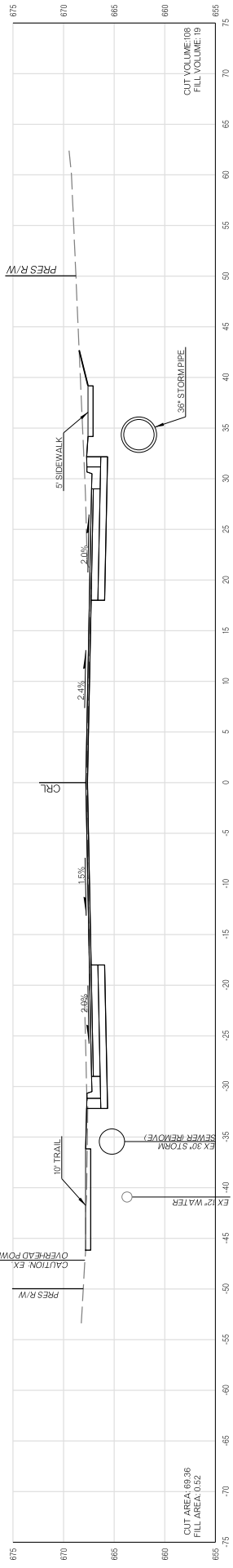
CROSS SECTIONS



125+50.00



125+00.00



124+50.00

CUT AREA: 49.45
FULL AREA: 49.07

CUT VOLUME: 100
FULL VOLUME: 63

EX 12" WATER

EX 30" STORM SEWER REMOVE

10' TRAIL

CAUTION EX OVERHEAD POWER

PRES R/W

5' SIDEWALK

2.0%

36" STORM PIPE

CUT AREA: 58.99
FULL AREA: 10.19

CUT VOLUME: 19
FULL VOLUME: 11

EX 12" WATER

EX 30" STORM SEWER REMOVE

10' TRAIL

CAUTION EX OVERHEAD POWER

PRES R/W

5' SIDEWALK

2.0%

36" STORM PIPE

MM-3, 5' DIA. MH WITH L.F. OF 42" STORM PIPE TO MH-3

84' L.F. 18" @ 0.50%

CUT AREA: 59.96
FULL AREA: 0.92

CUT VOLUME: 108
FULL VOLUME: 19

EX 12" WATER

EX 30" STORM SEWER REMOVE

10' TRAIL

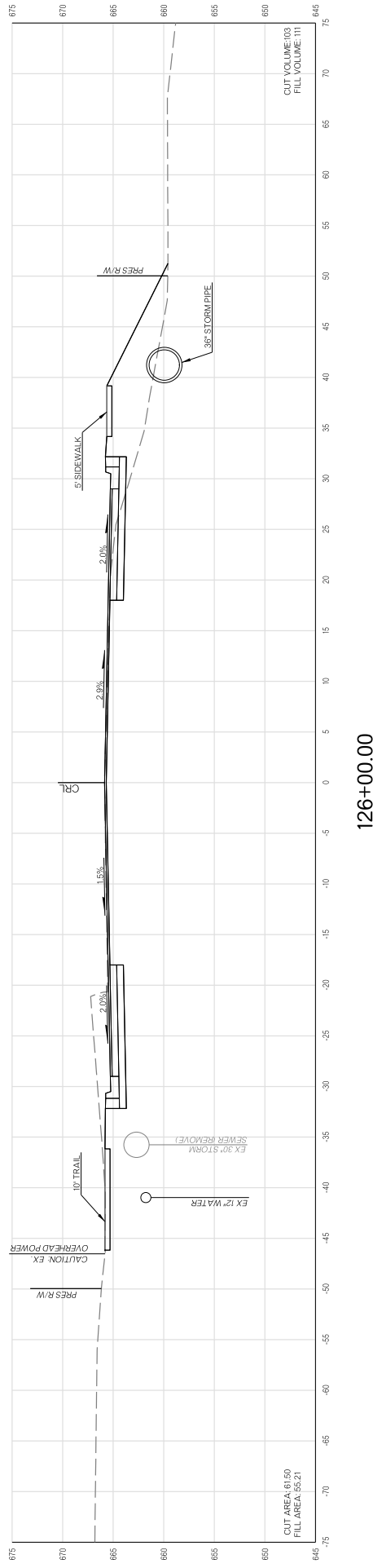
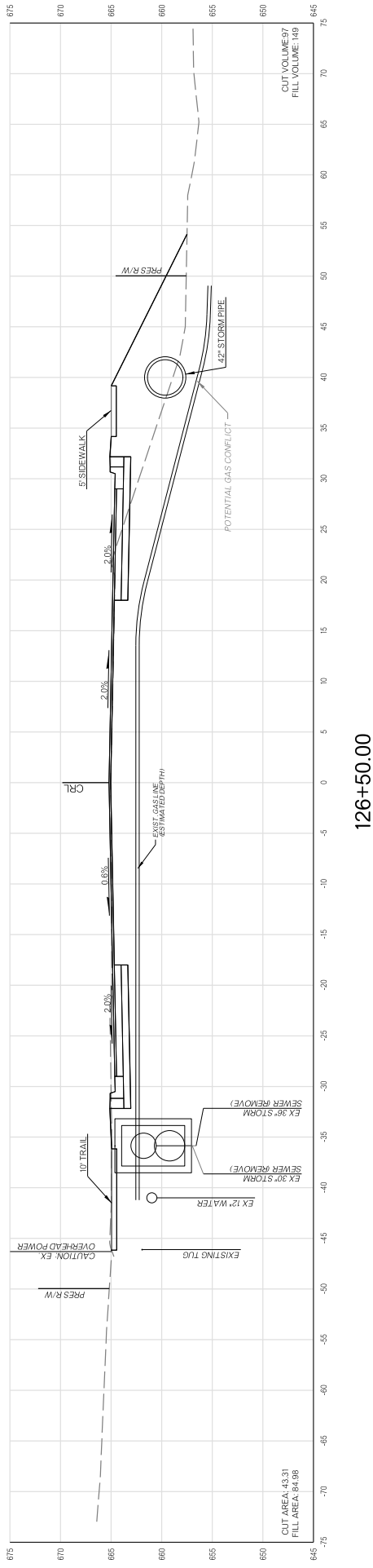
CAUTION EX OVERHEAD POWER

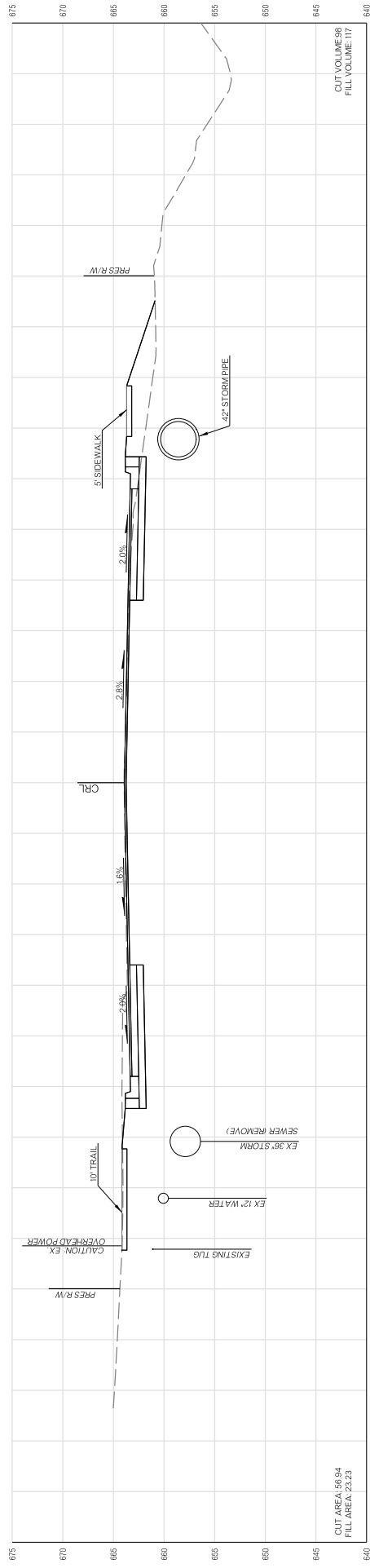
PRES R/W

5' SIDEWALK

2.0%

36" STORM PIPE

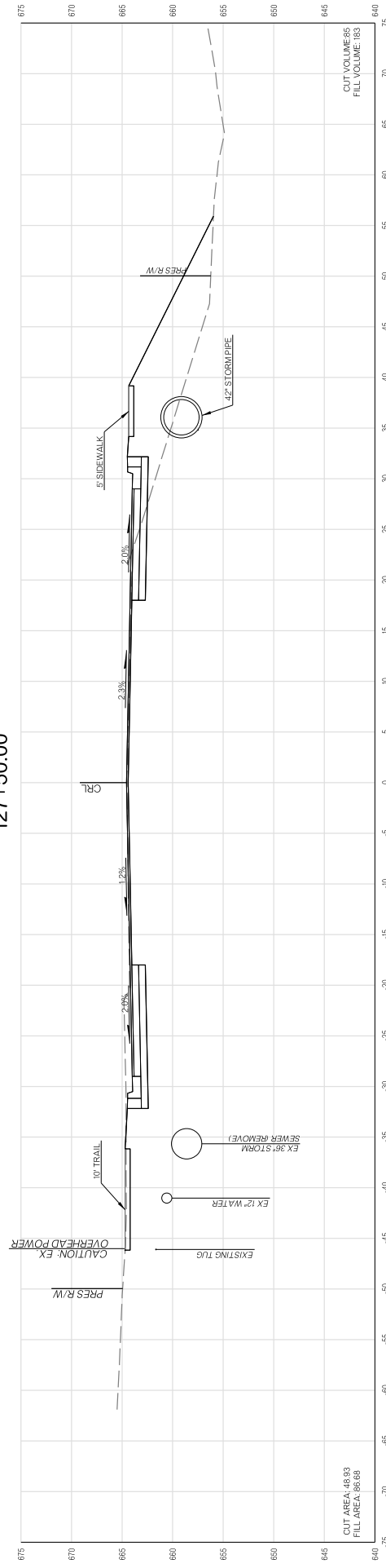




CUT AREA: 56.94
FILL AREA: 23.23

CUT VOLUME: 98
FILL VOLUME: 117

127+50.00



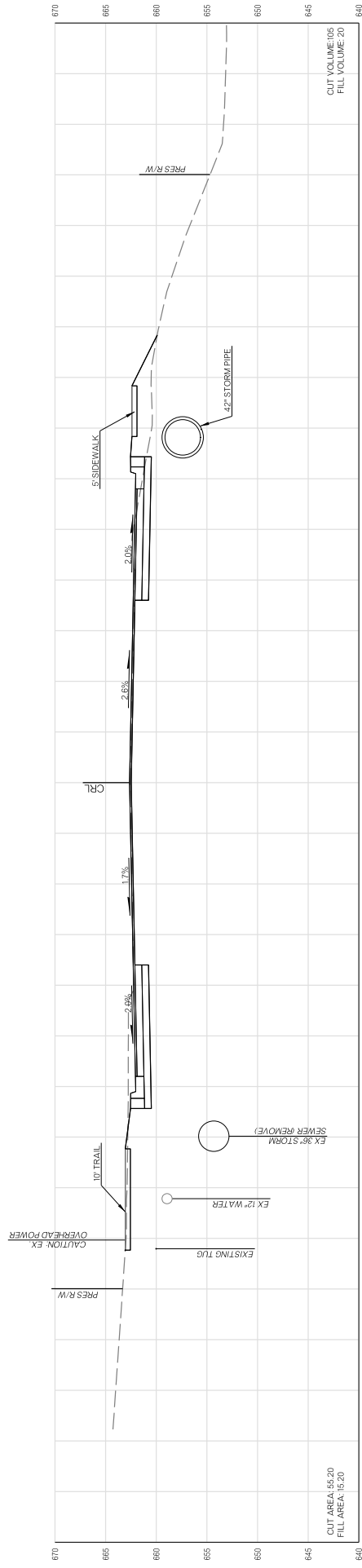
CUT AREA: 56.93
FILL AREA: 26.68

CUT VOLUME: 95
FILL VOLUME: 183

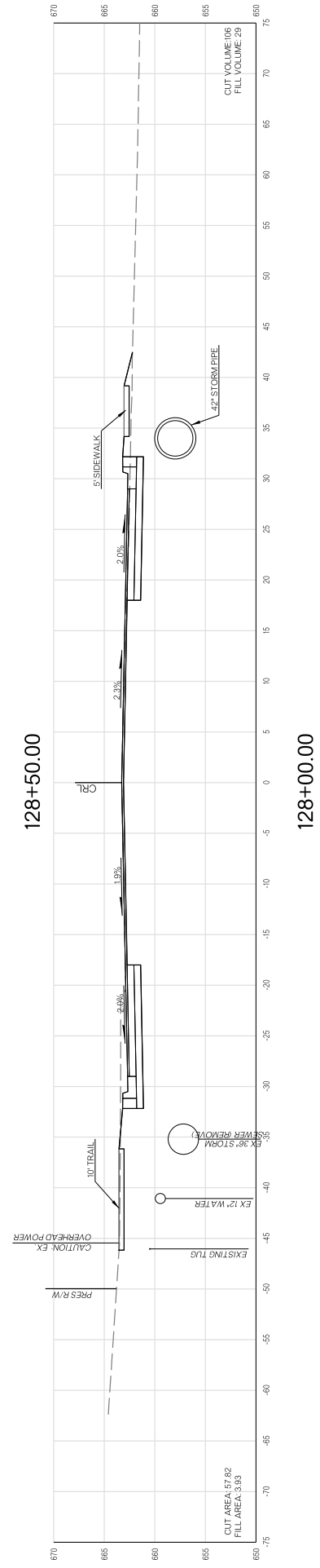
127+00.00

CROSS SECTIONS

CROSS SECTIONS

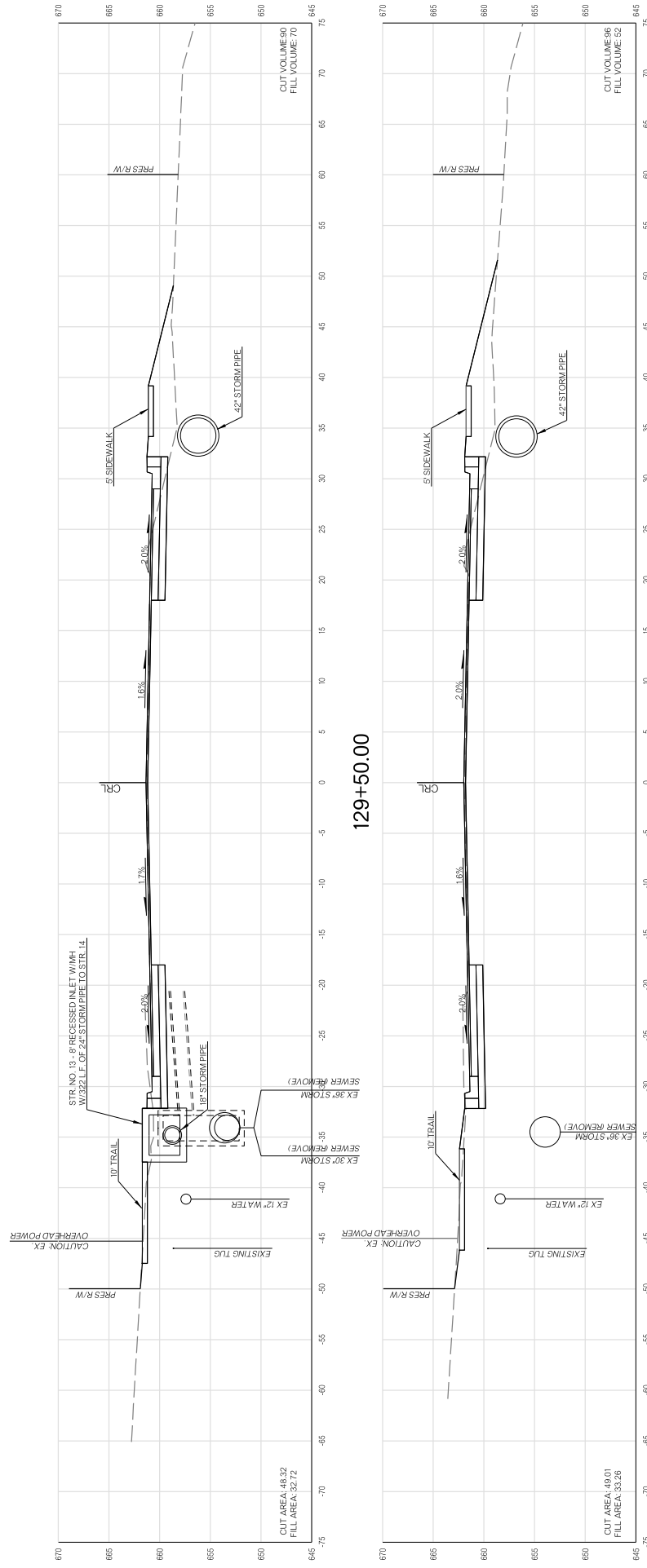


128+50.00



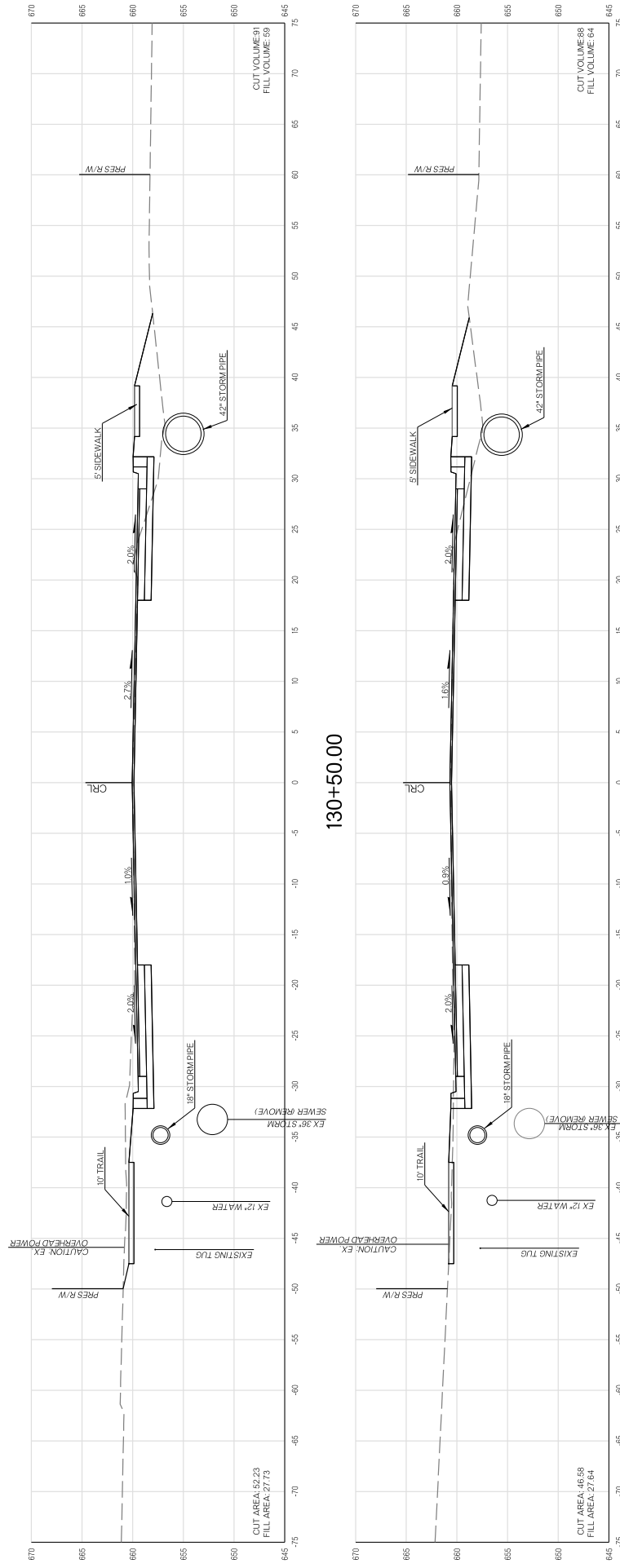
128+00.00

CROSS SECTIONS

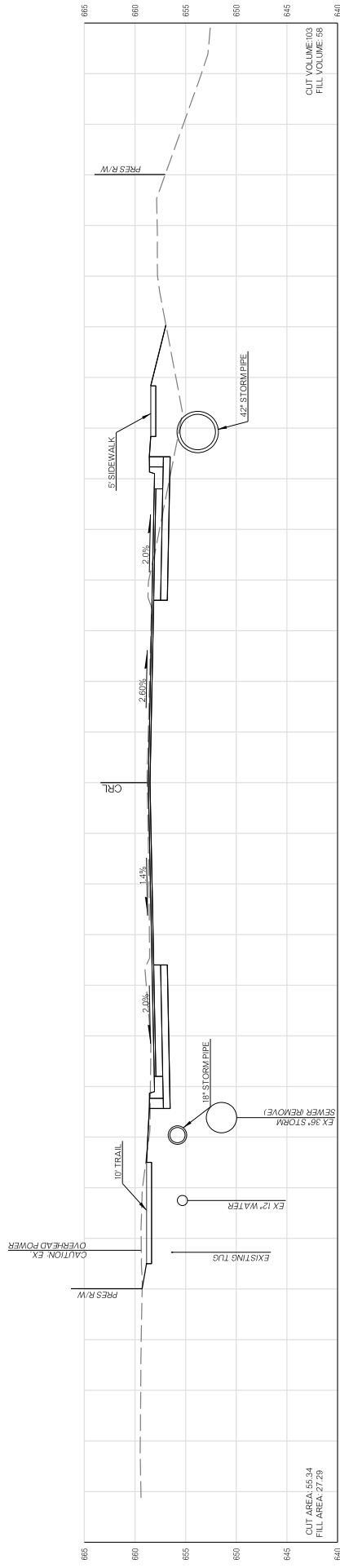


129+00.00

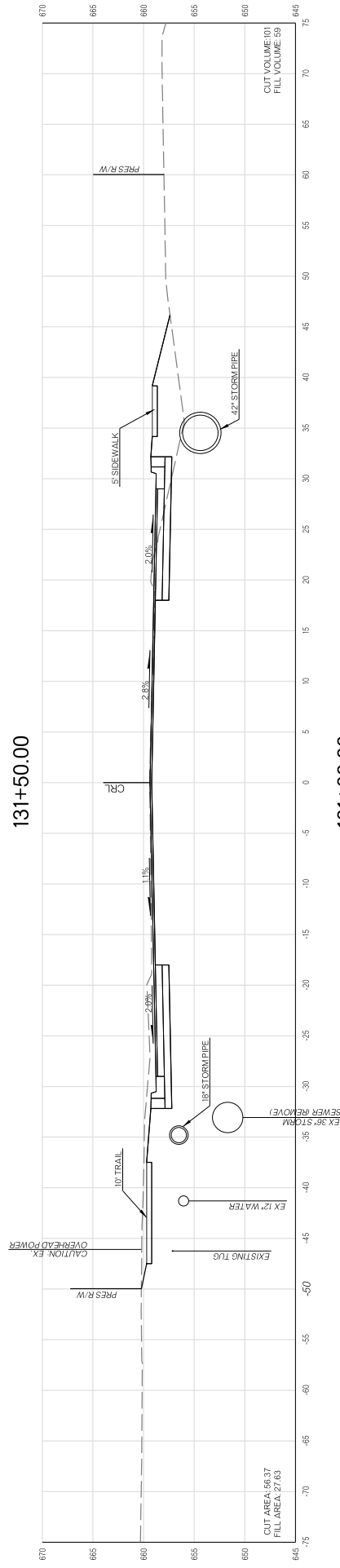
129+50.00



CROSS SECTIONS

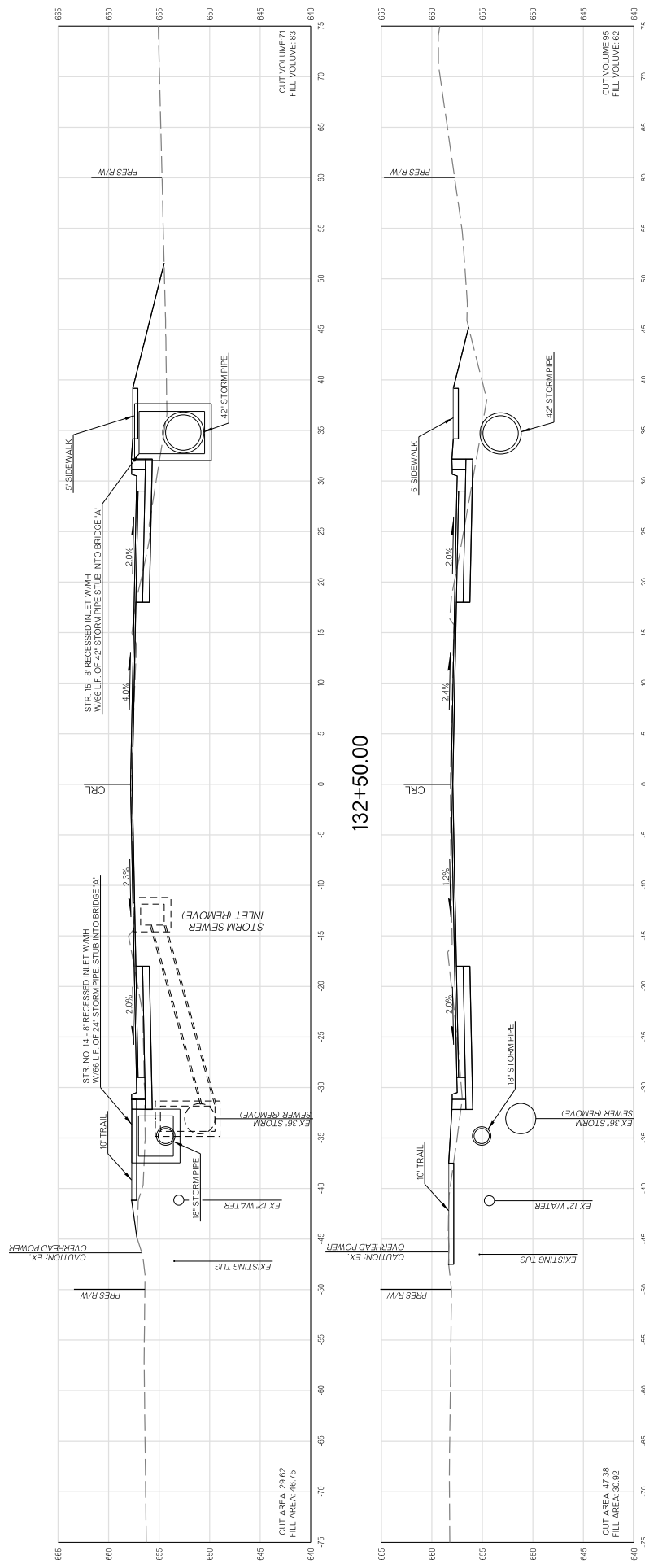


131+50.00



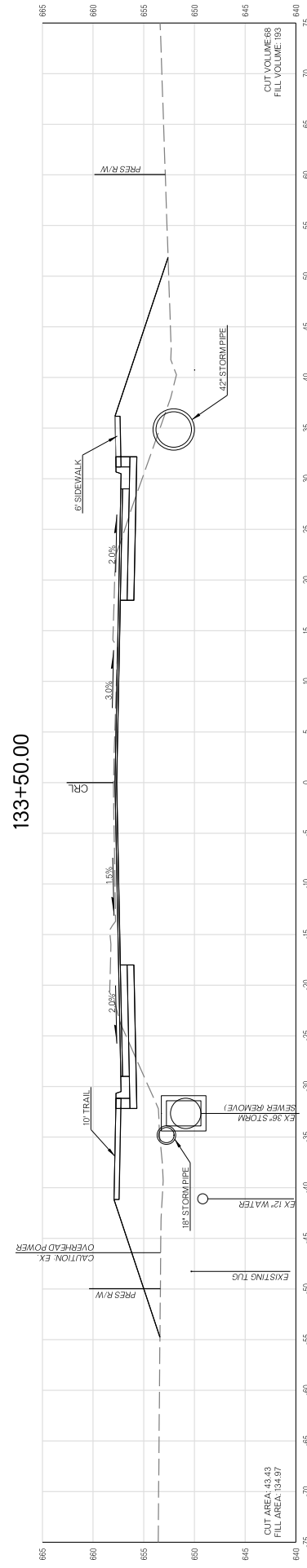
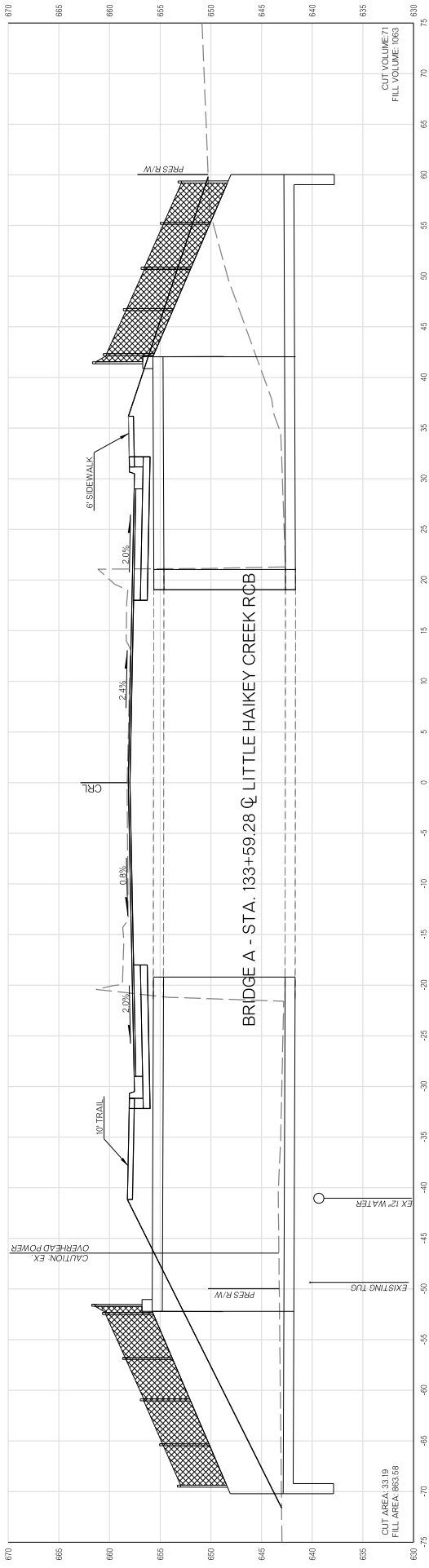
131+00.00

CROSS SECTIONS

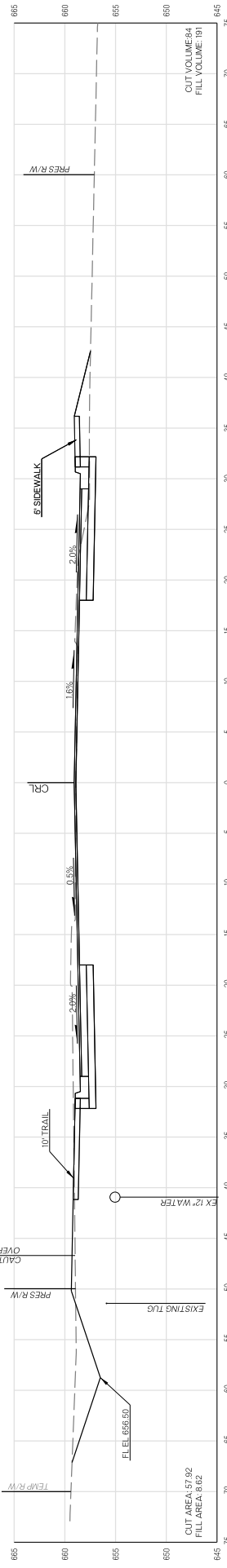


132+00.00

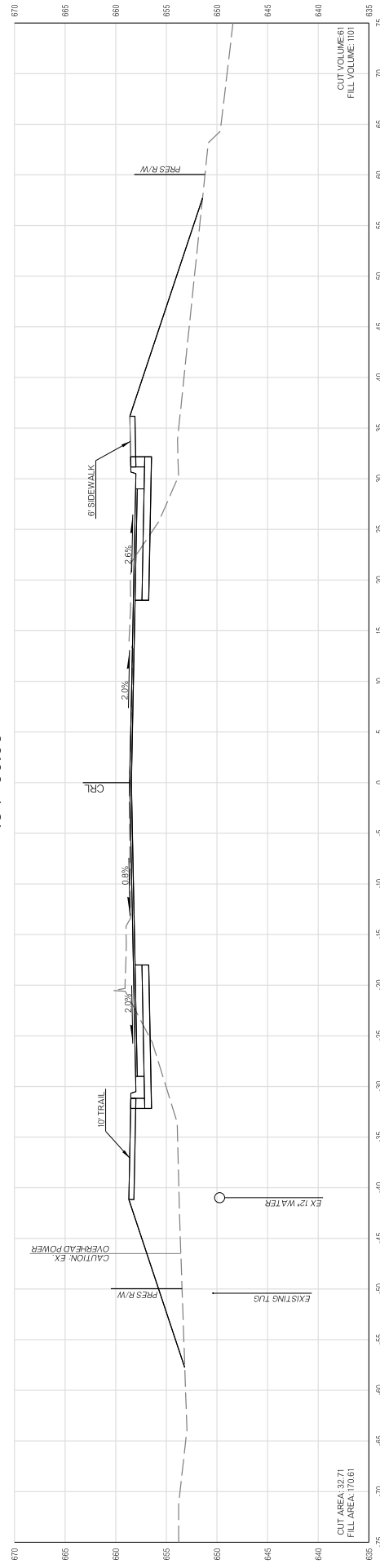
132+50.00



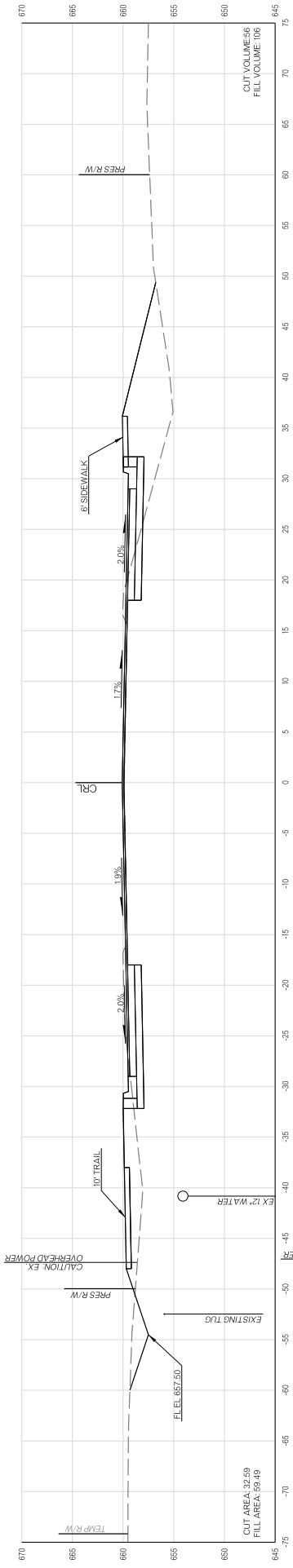
133+00.00



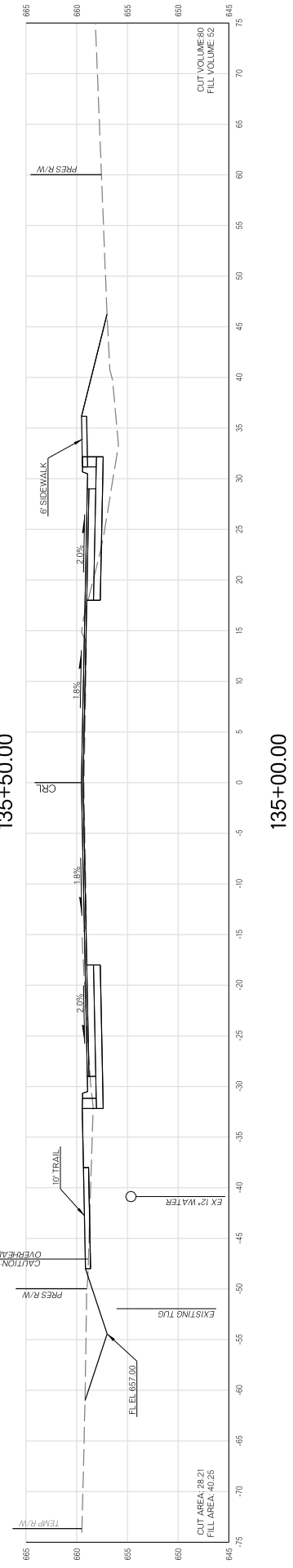
134+50.00



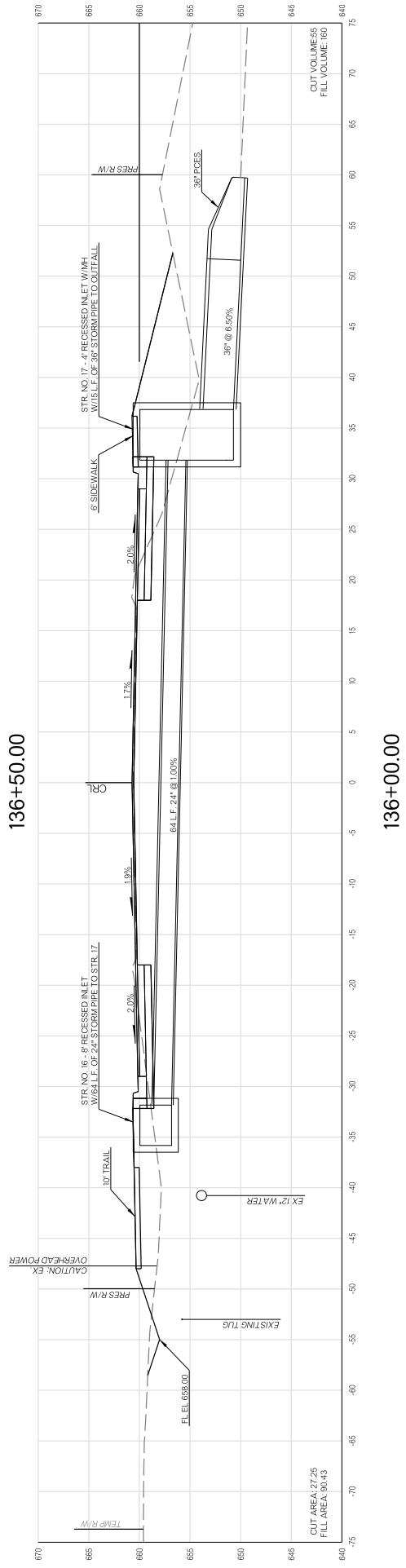
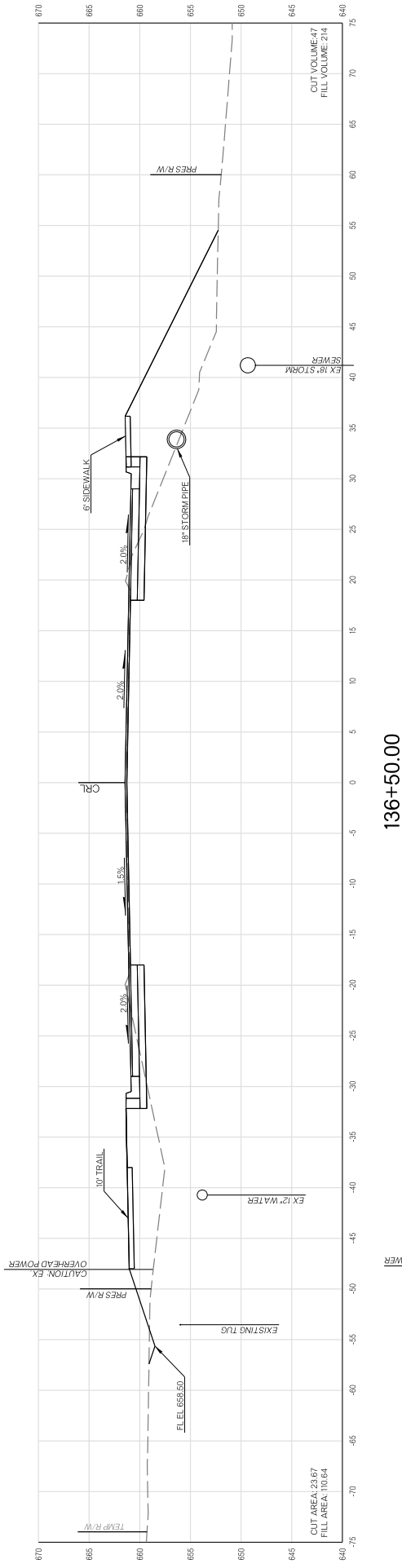
134+00.00



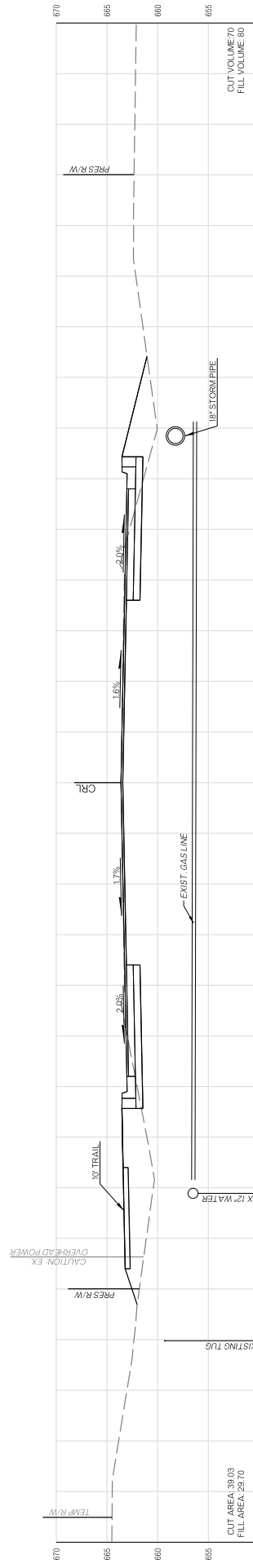
135+50.00



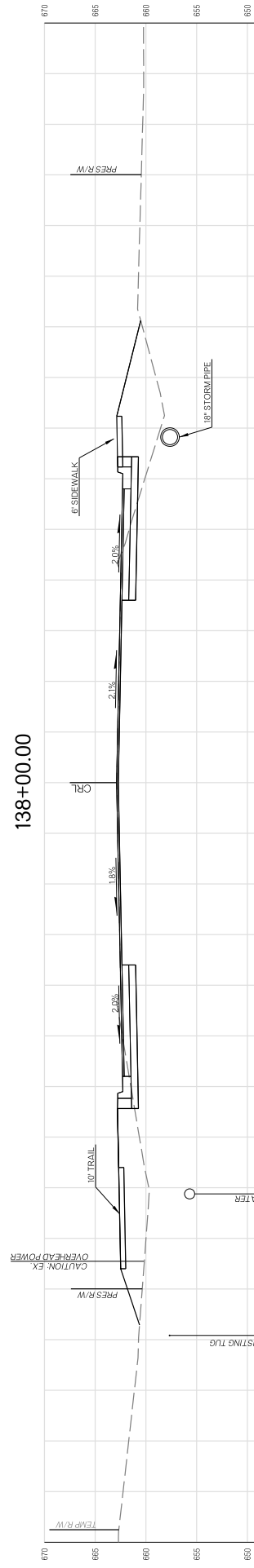
135+00.00



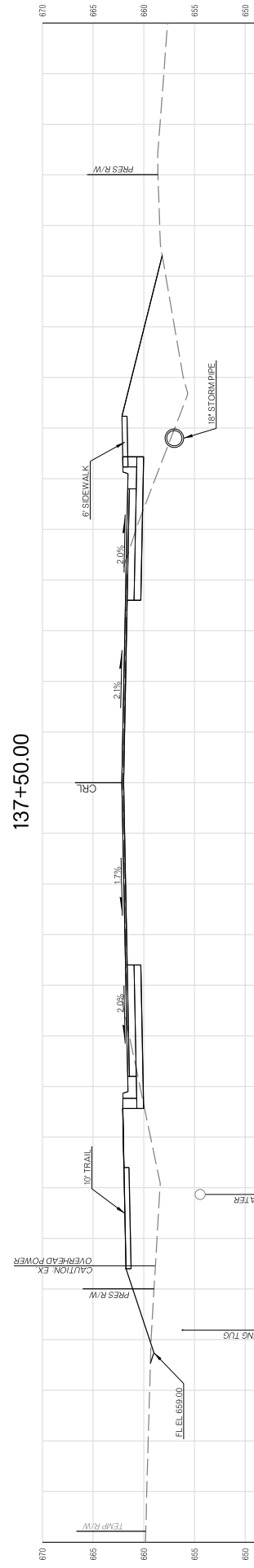
CROSS SECTIONS



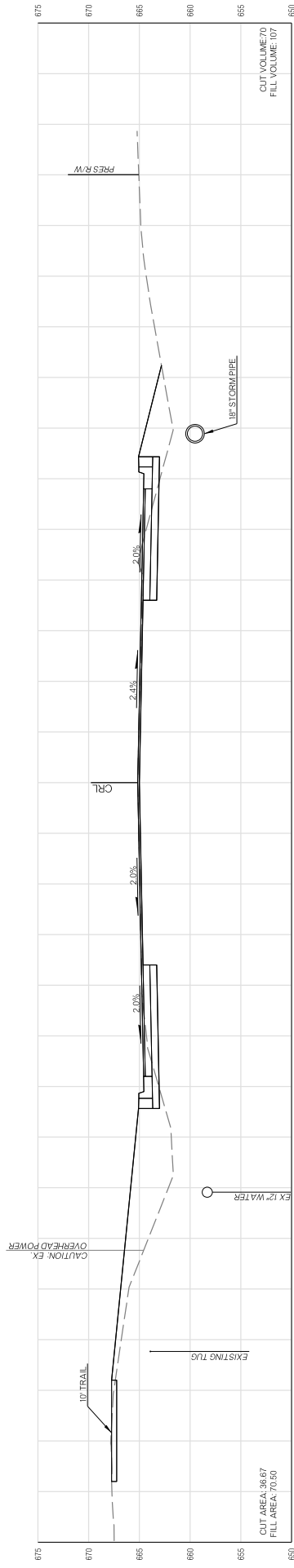
137+00.00



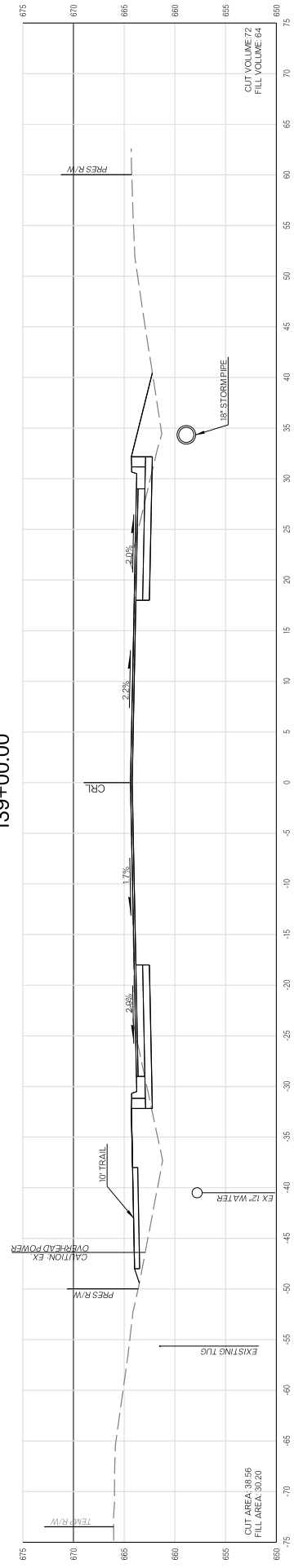
138+00.00



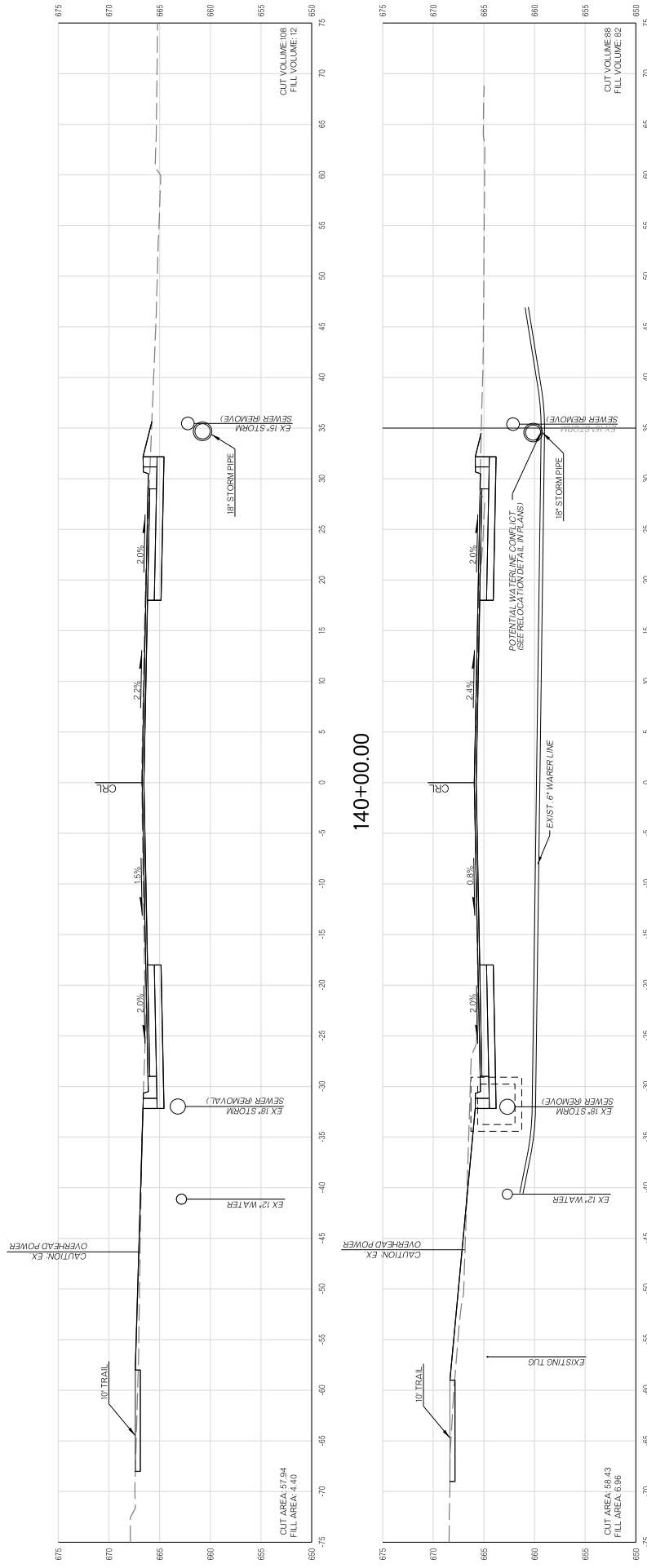
137+50.00



139+00.00



138+50.00

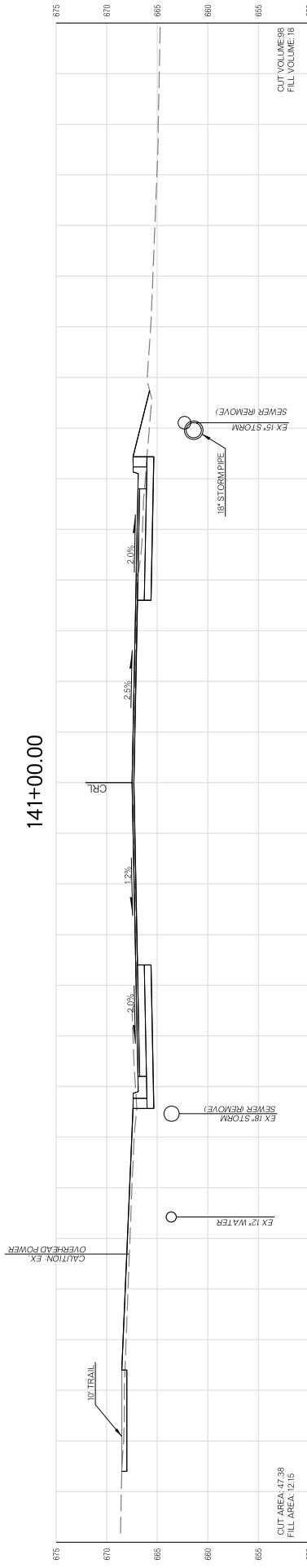
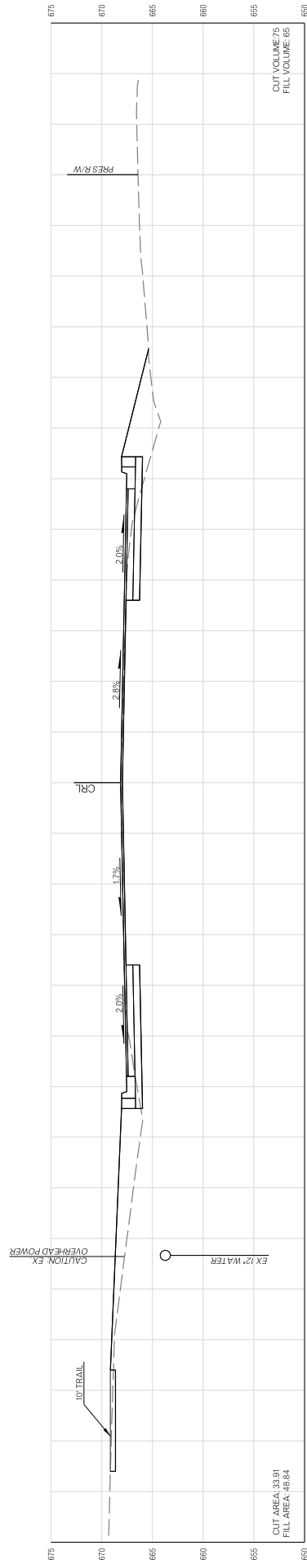


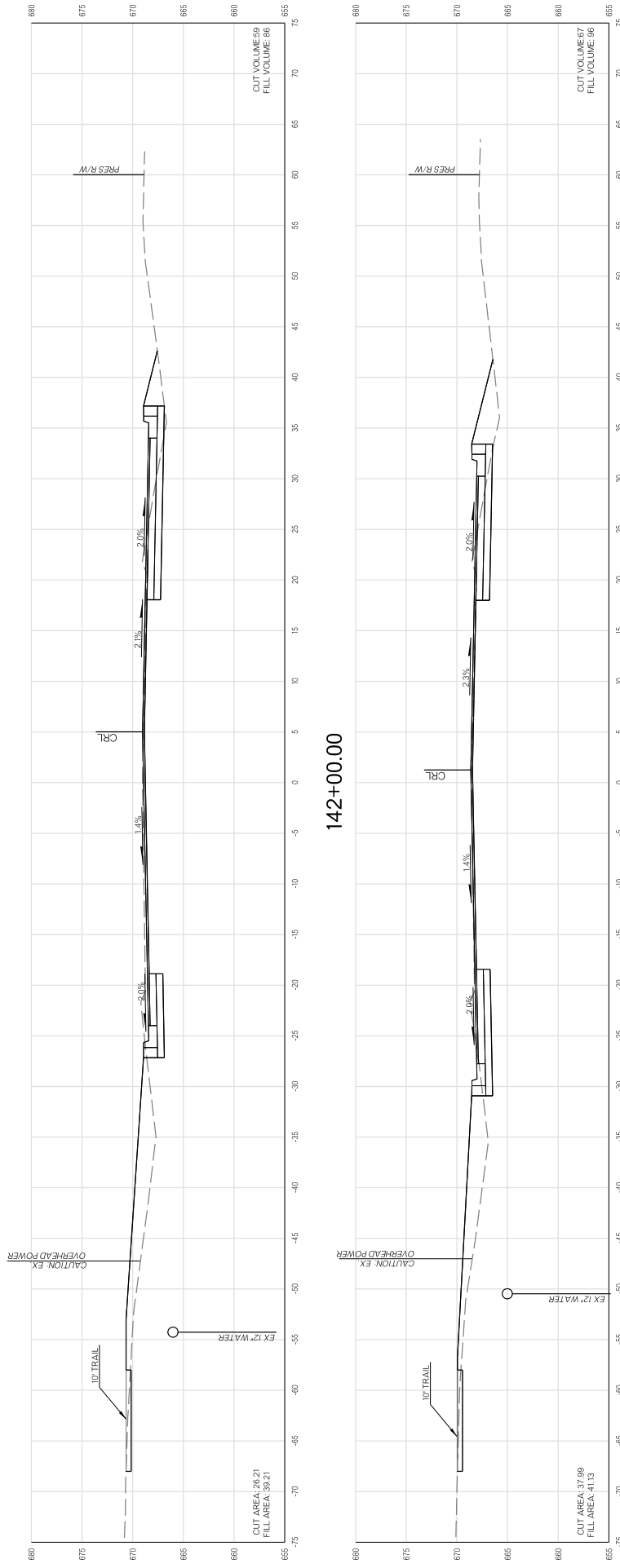
140+00.00

139+50.00

CROSS SECTIONS

PROJECT NO. ST 2028 SHEET NO. X35





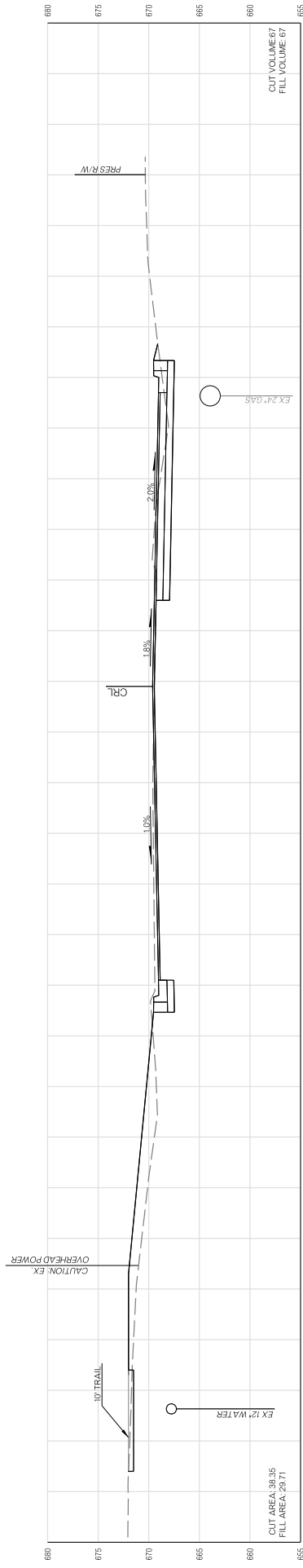
142+00.00

141+50.00

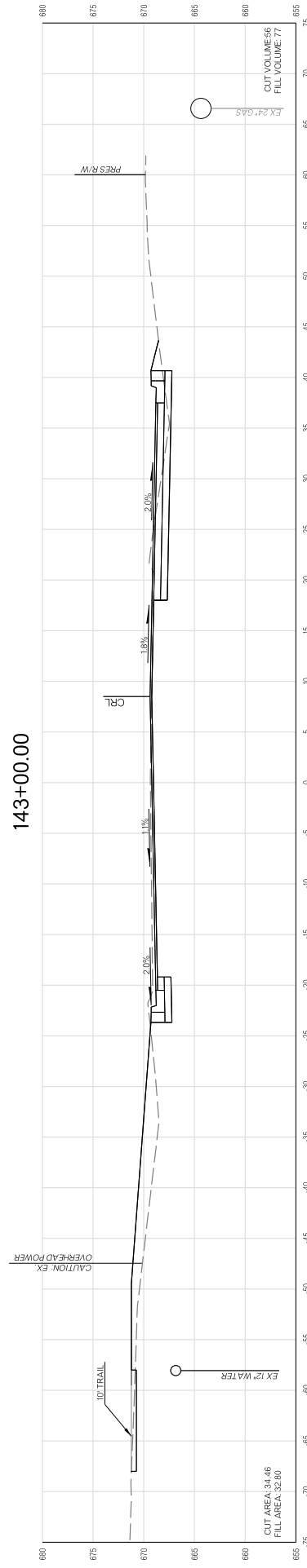
CUT AREA: 26.21
 FILL AREA: 39.21

CUT AREA: 37.99
 FILL AREA: 41.13

CROSS SECTIONS



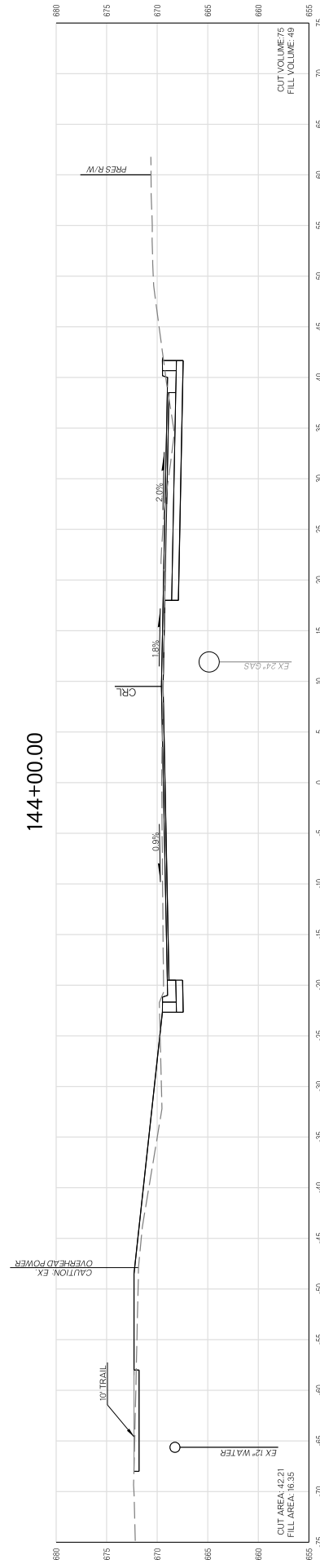
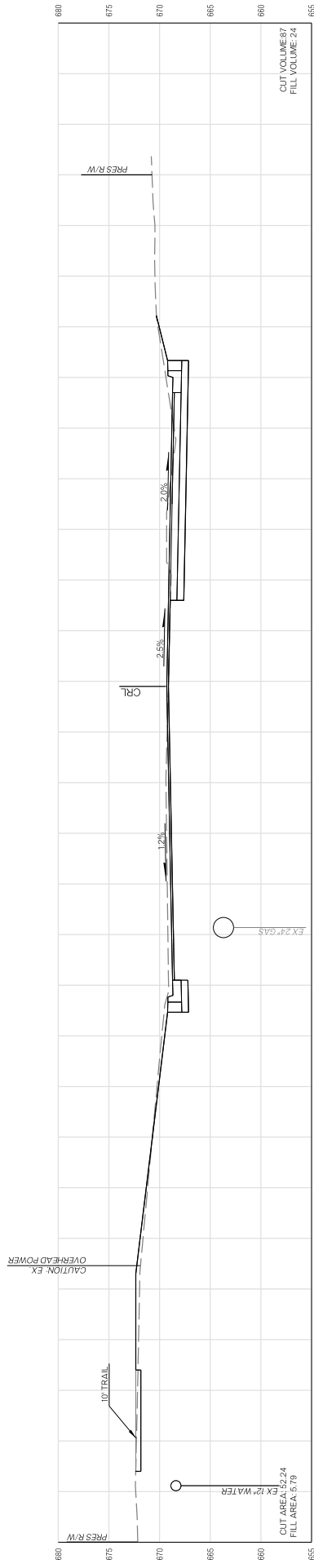
143+00.00



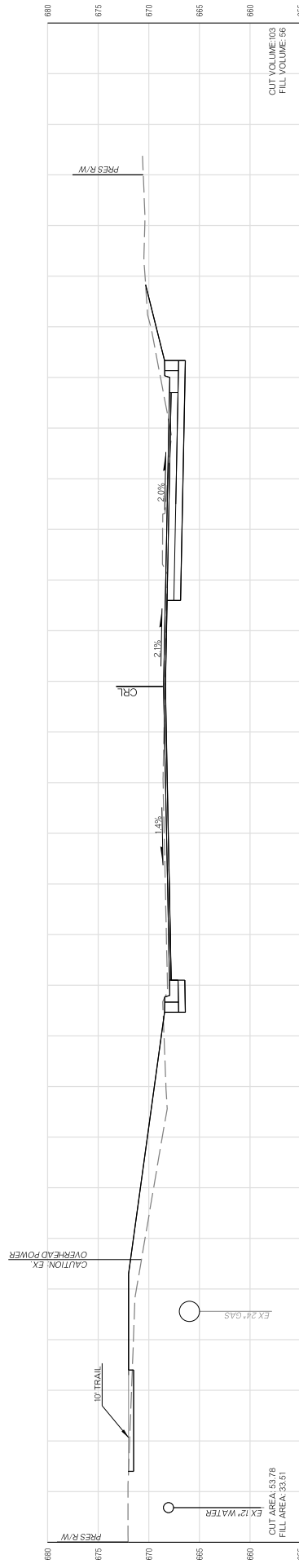
142+50.00

CROSS SECTIONS

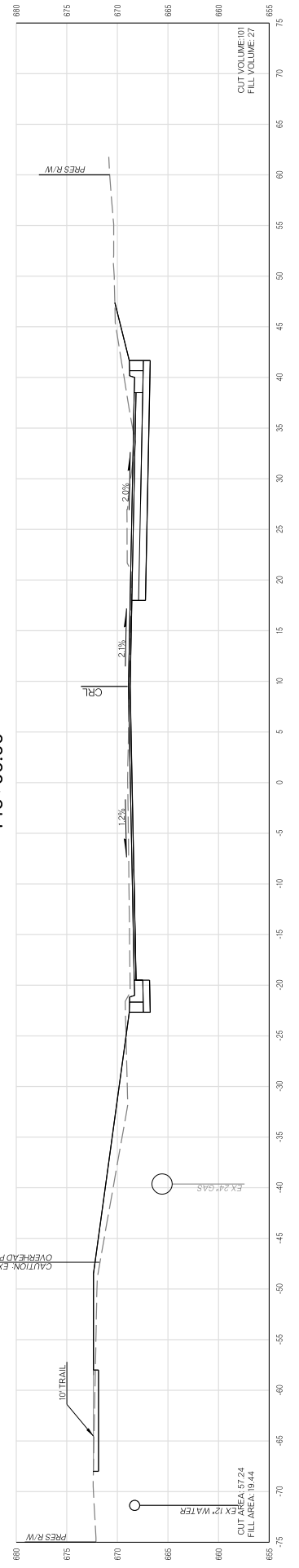
PROJECT NO. ST 2028 SHEET NO. X38



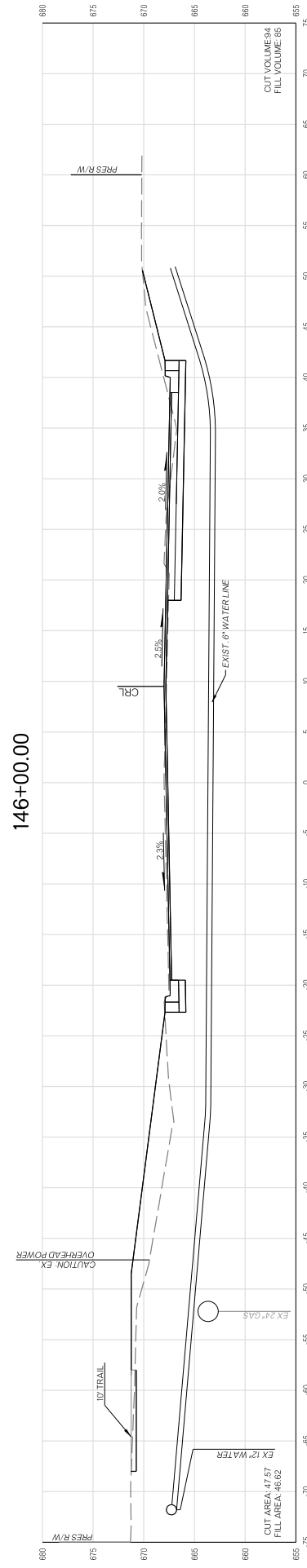
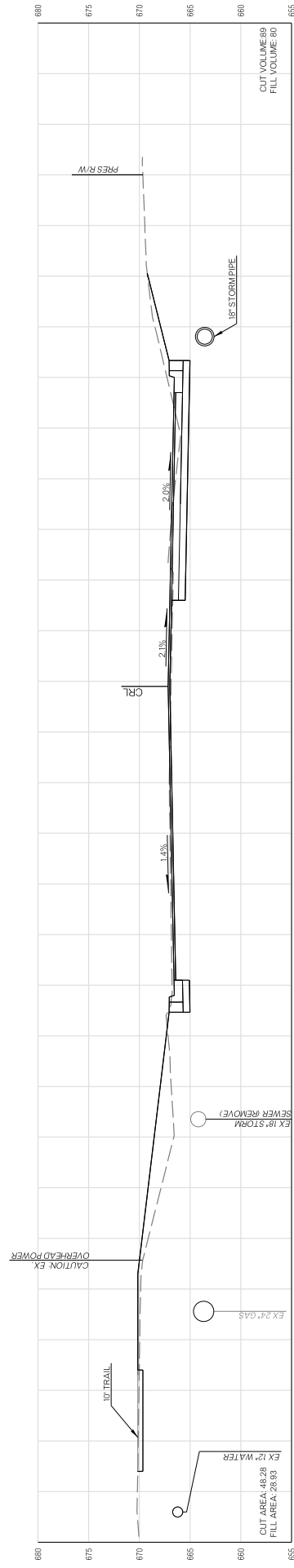
CROSS SECTIONS

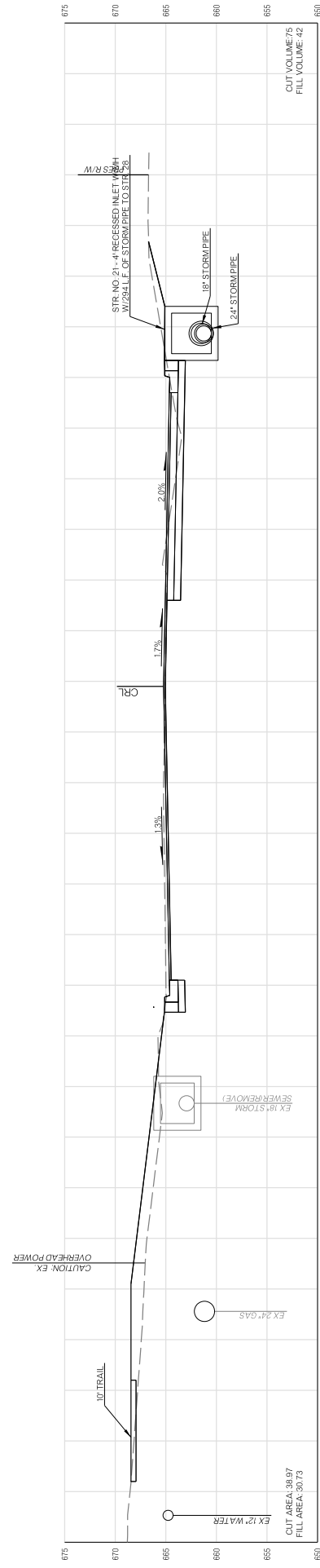


145+00.00

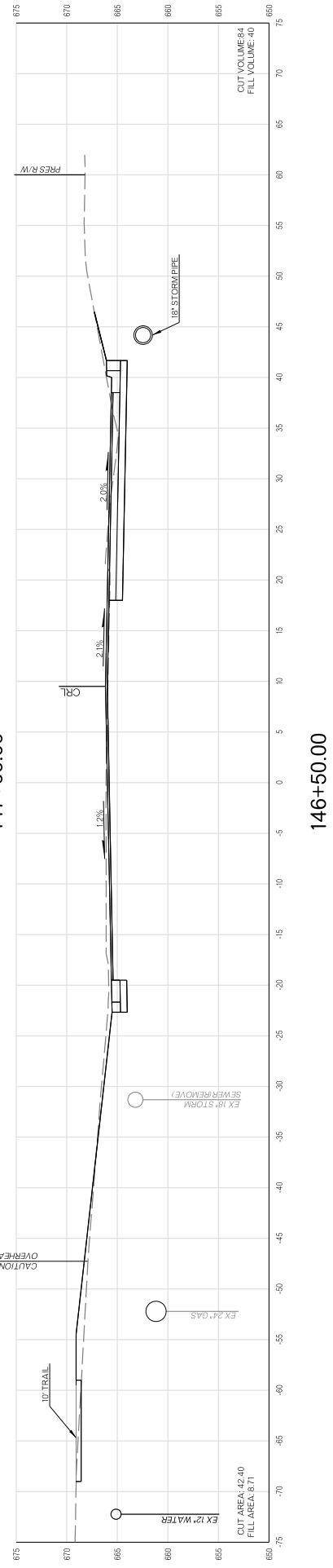


144+50.00

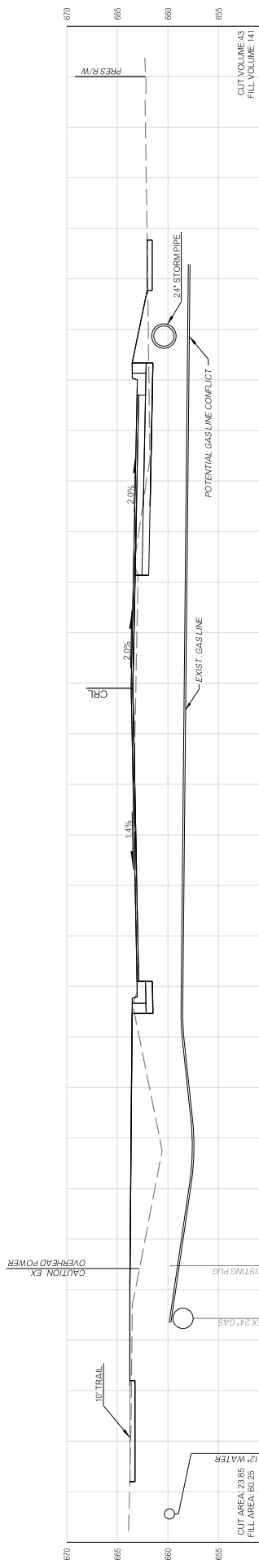




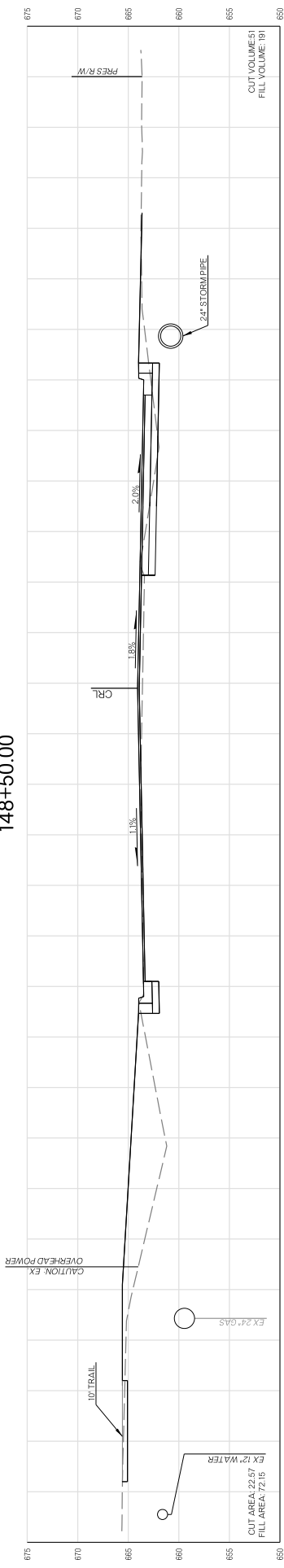
147+00.00



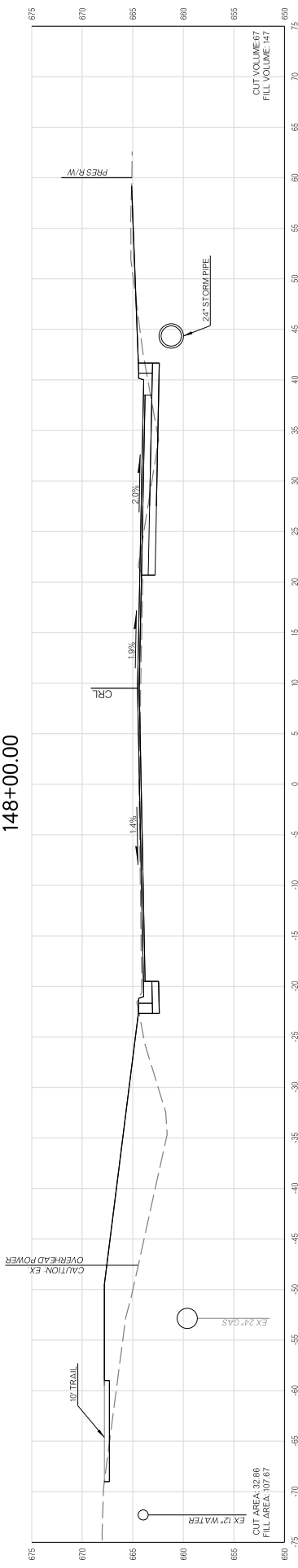
146+50.00



148+50.00



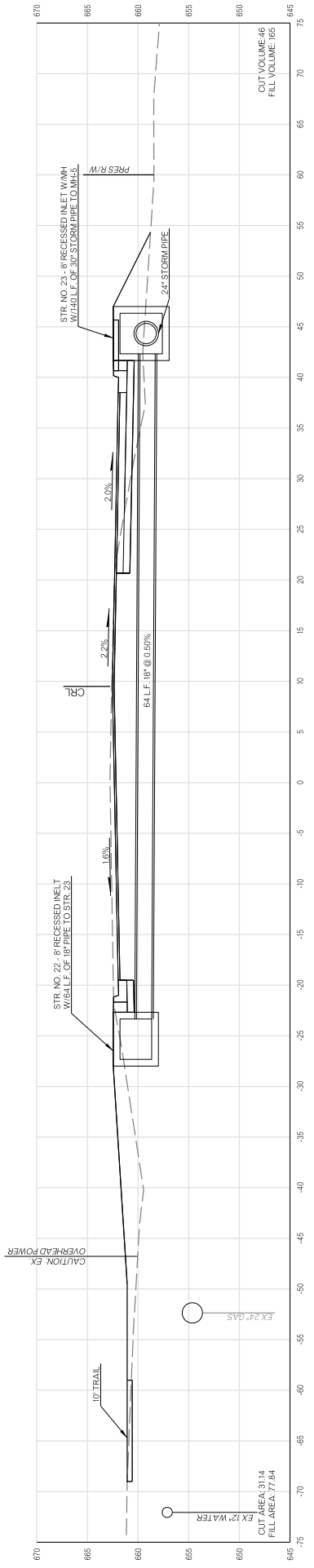
148+00.00



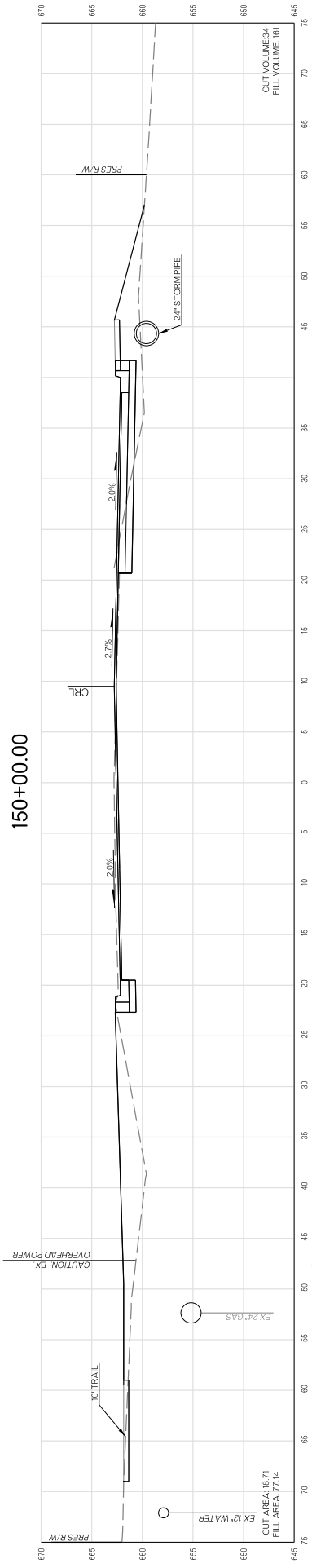
147+50.00

CROSS SECTIONS

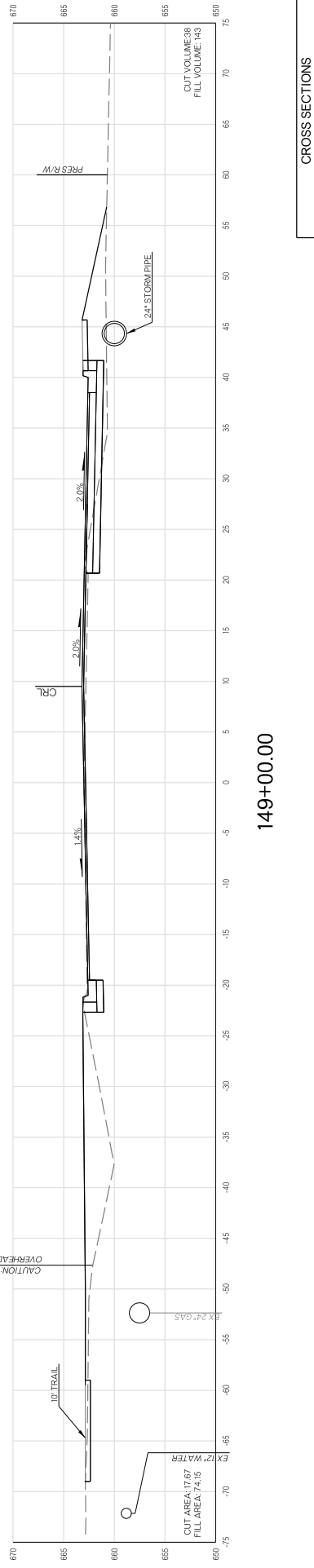
PROJECT NO. ST 2028 SHEET NO. X42



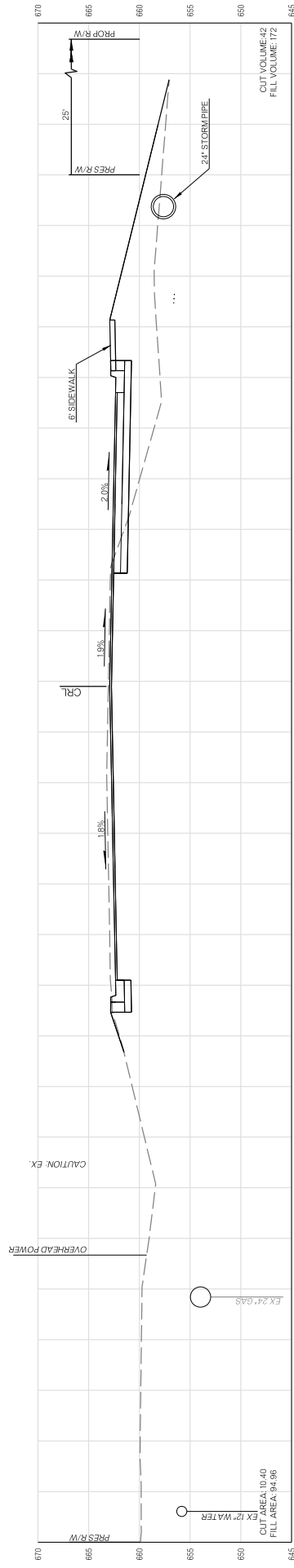
150+00.00



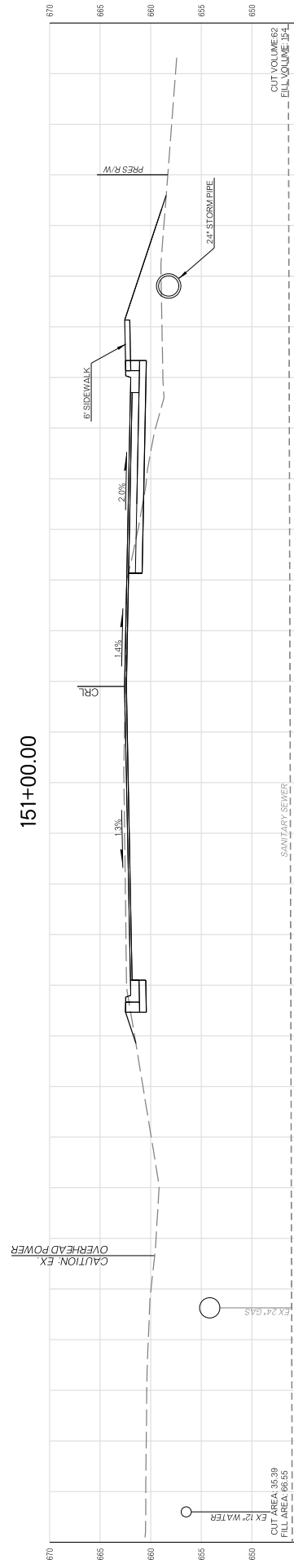
149+50.00



149+00.00

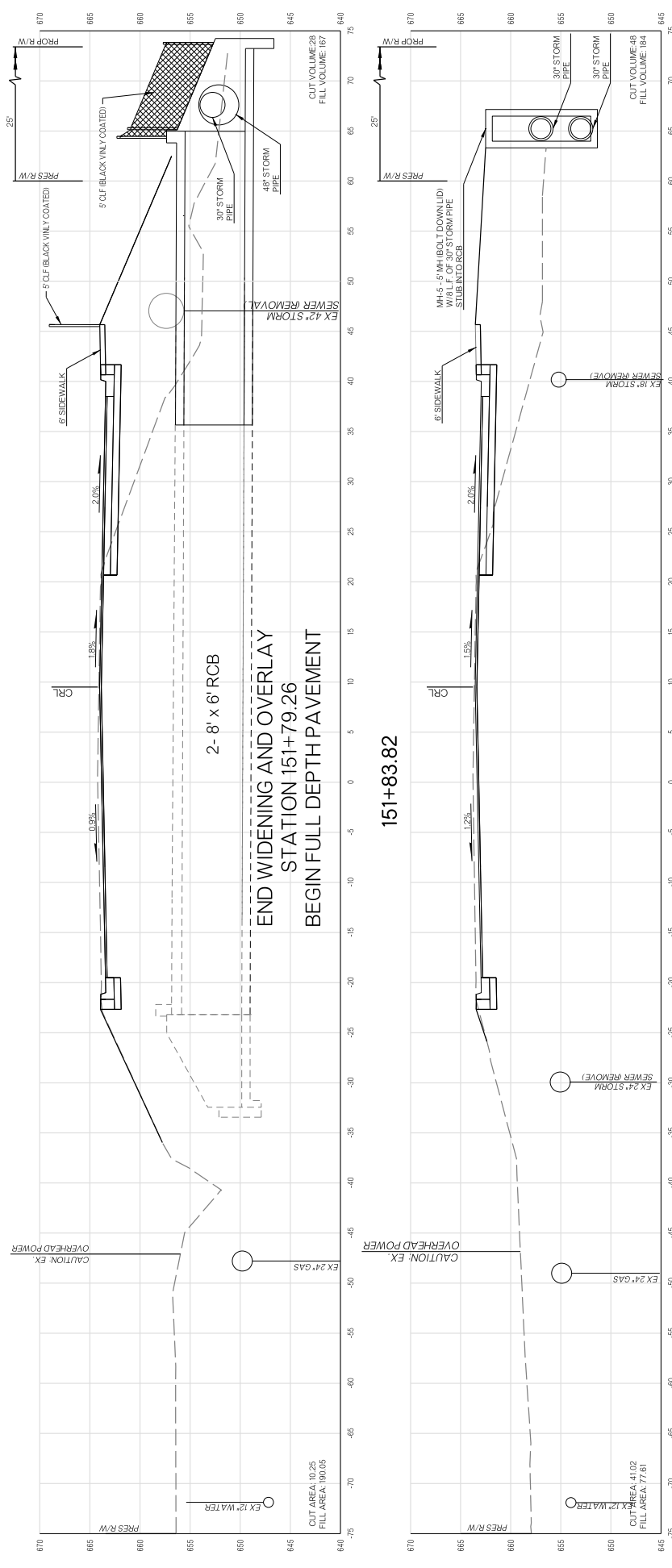


151+00.00



150+50.00

SAWTOOTH SEWER



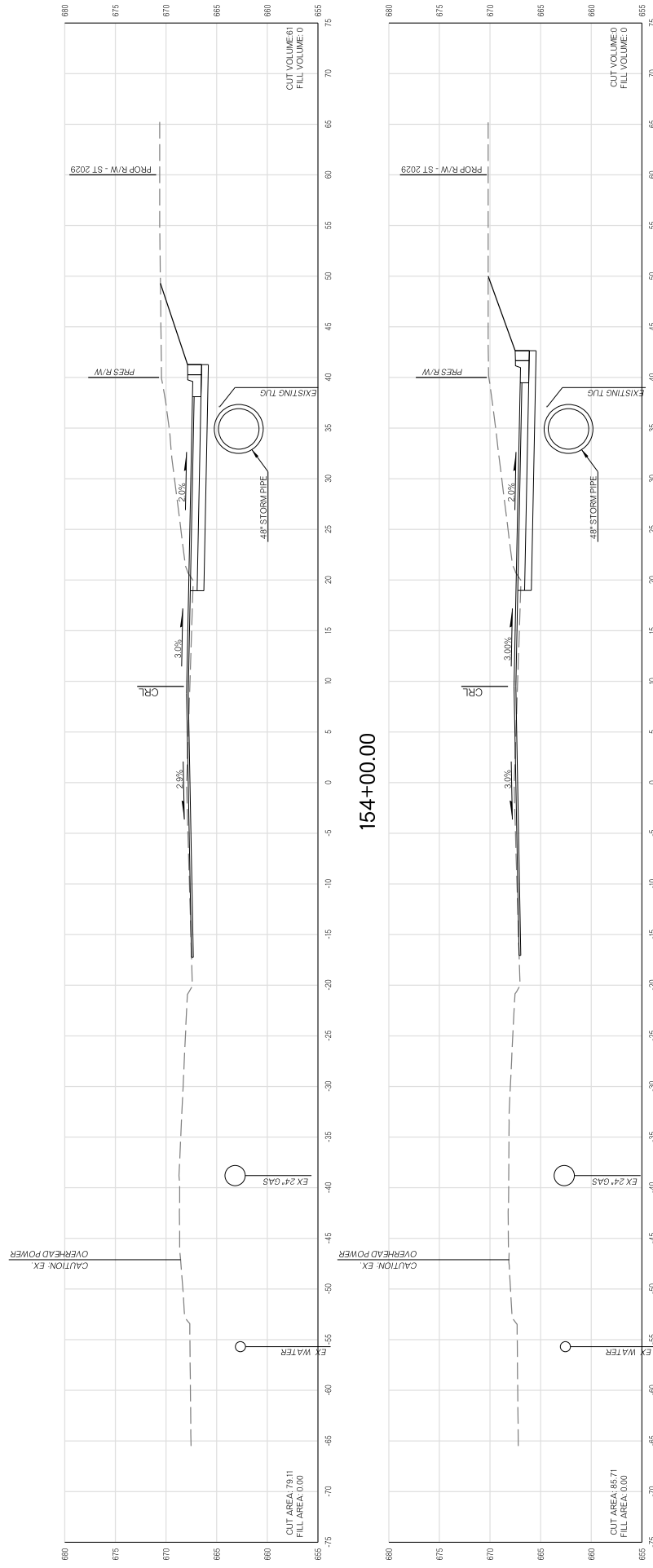
2-8' x 6' RCB
 END WIDENING AND OVERLAY
 STATION 151+79.26
 BEGIN FULL DEPTH PAVEMENT

151+83.82

151+50.00

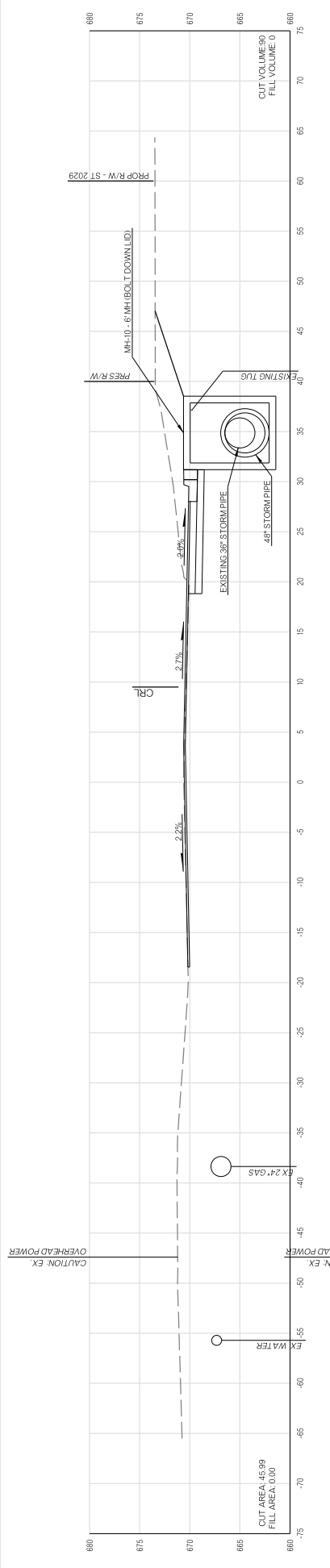
CROSS SECTION

PROJECT NO. ST 2028 SHEET NO. X46

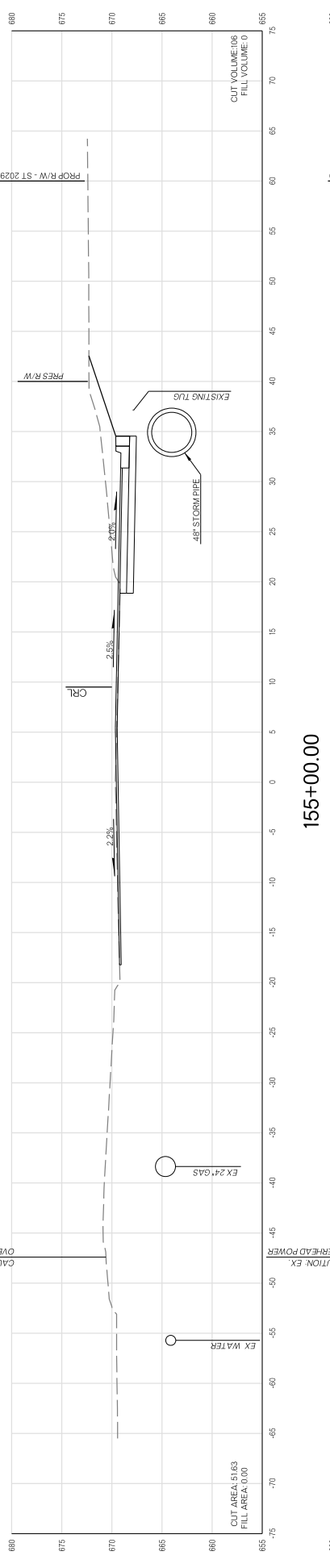


154+00.00

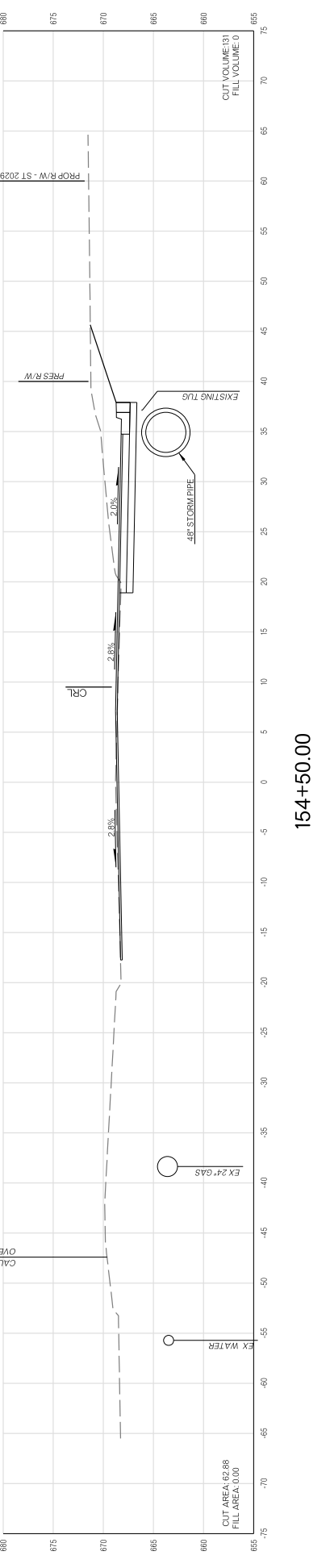
153+79.93



155+50.00

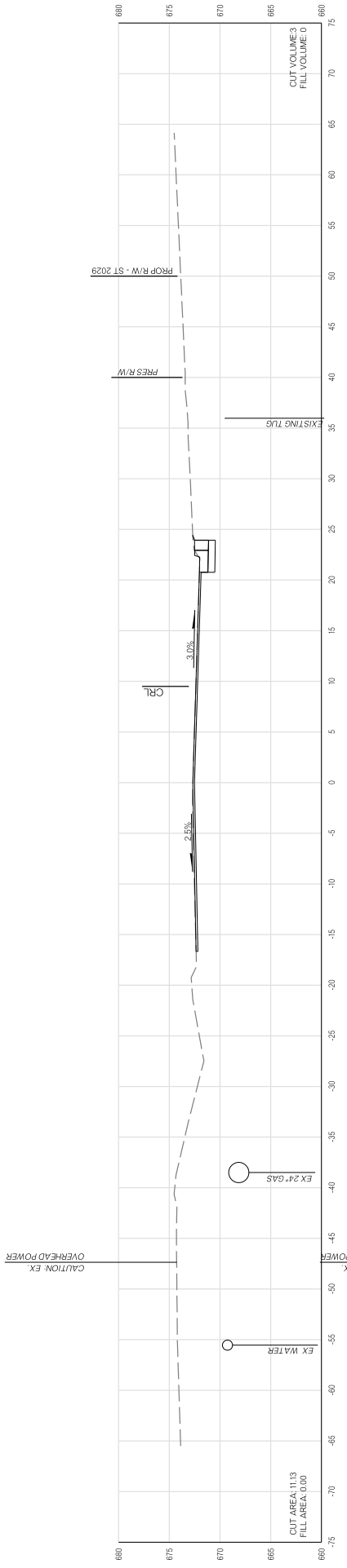


155+00.00

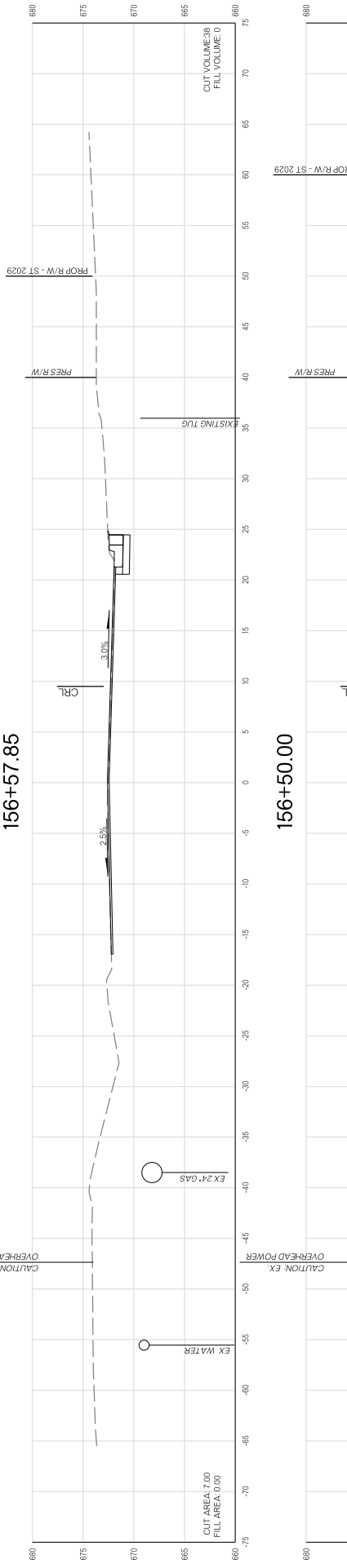


154+50.00

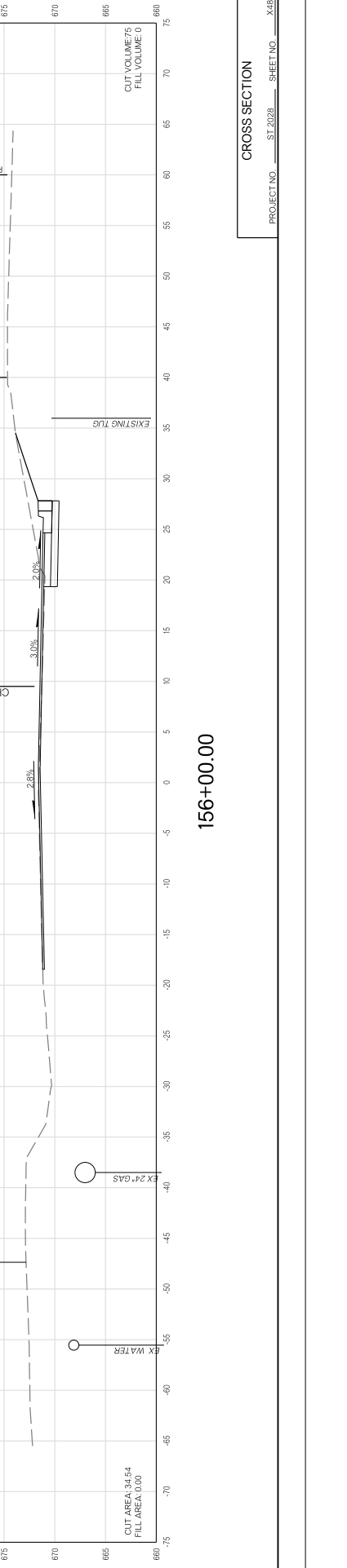
CROSS SECTION



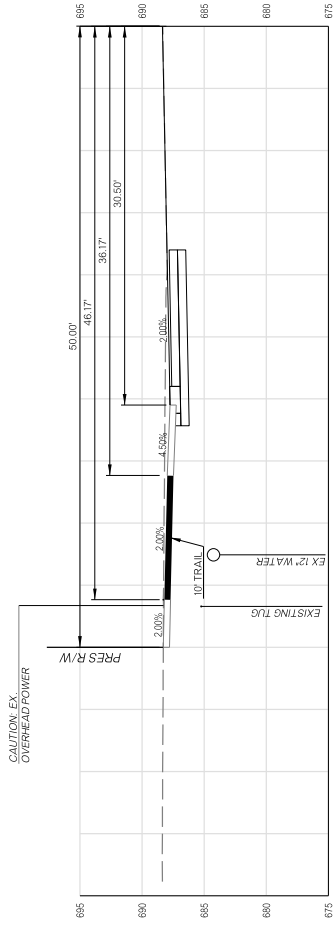
156+57.85



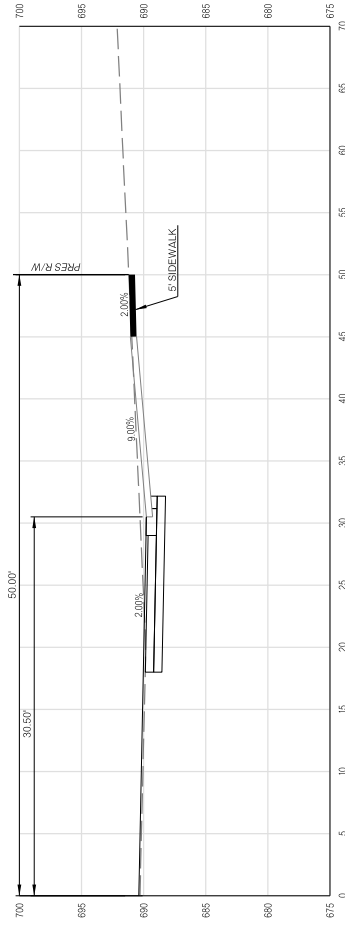
156+50.00



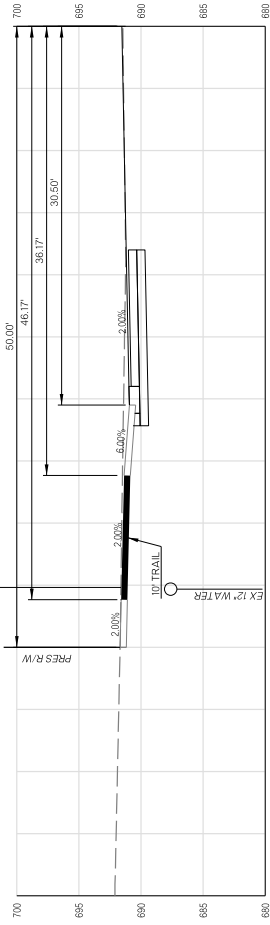
156+00.00



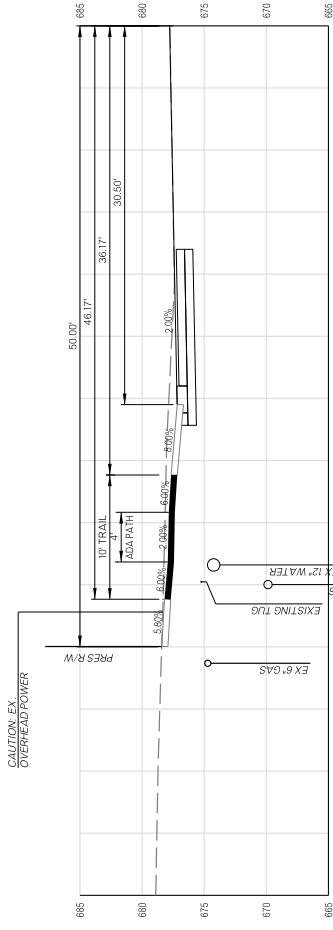
109+00.41



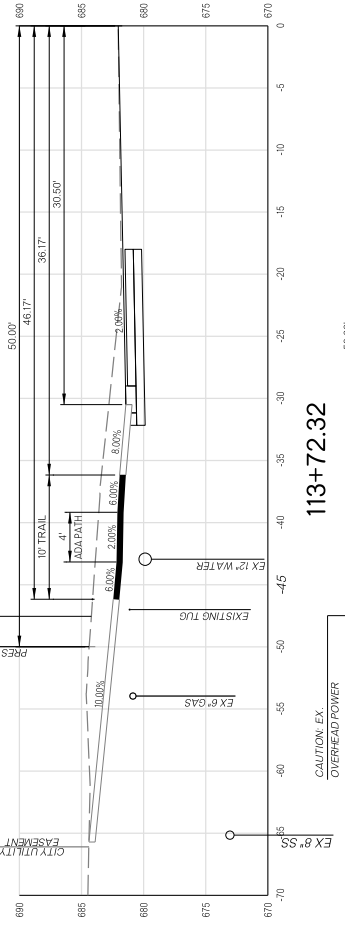
107+20.45



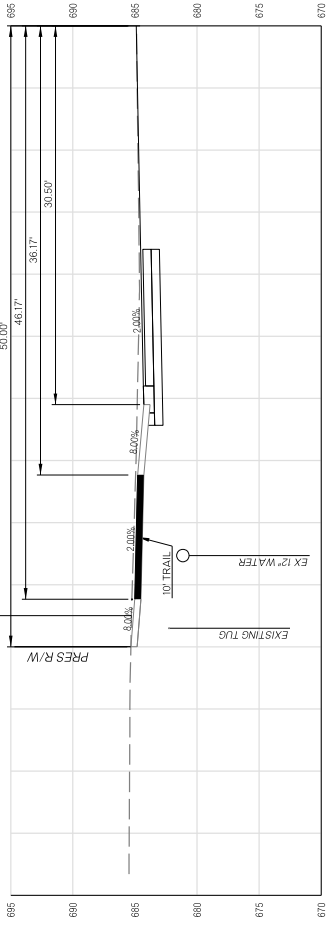
105+47.40



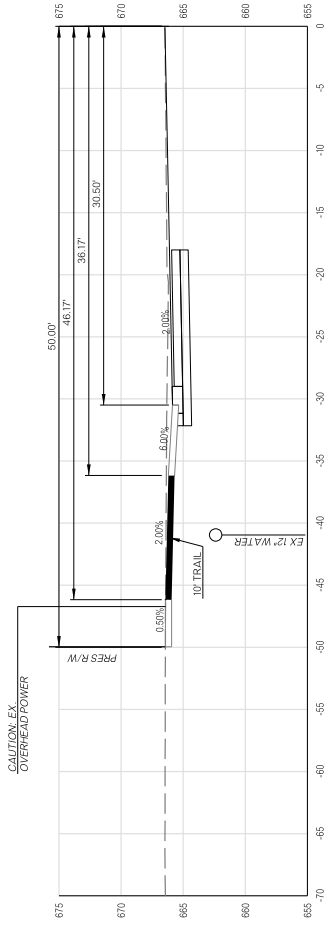
116+89.21



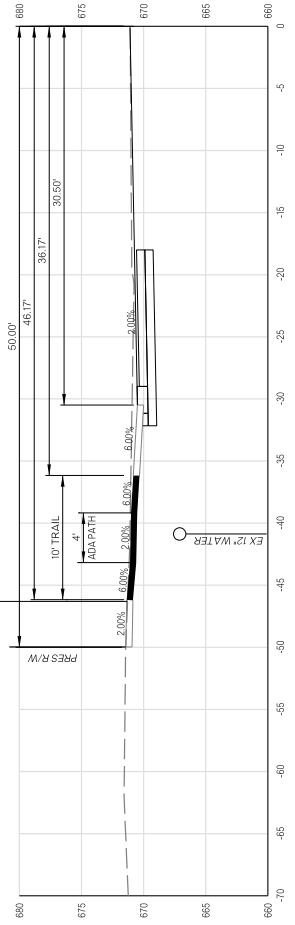
113+72.32



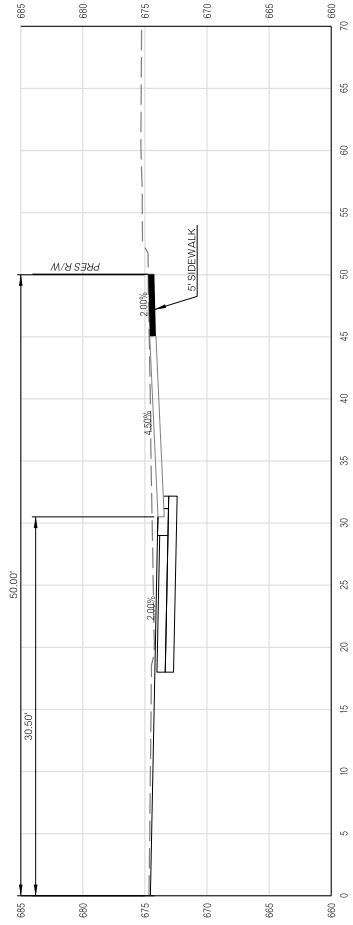
111+58.39 (S. DESSERT PALM AVE.)



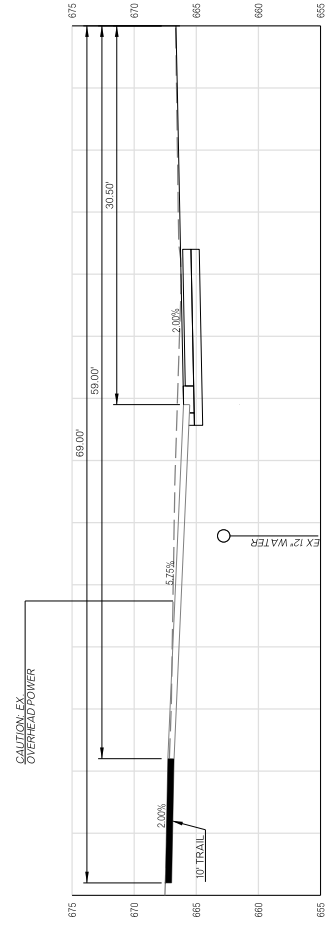
125+53.29



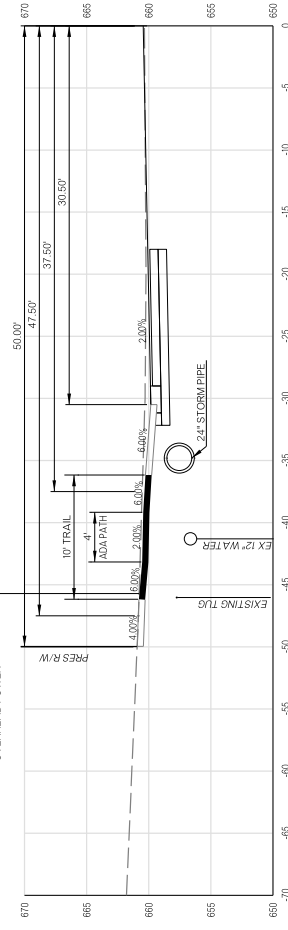
121+98.32



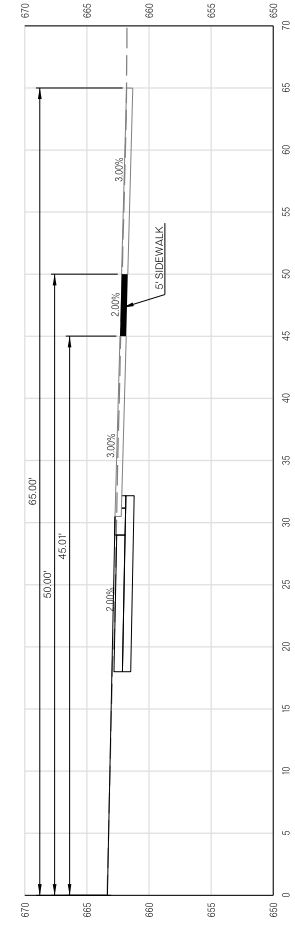
119+32.76 (S. CYPRESS PL.)



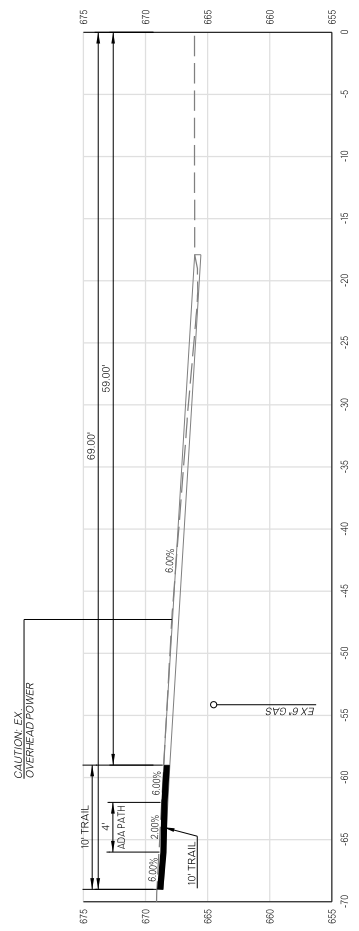
139+94.13 (S. SWEET GUM AVE.)



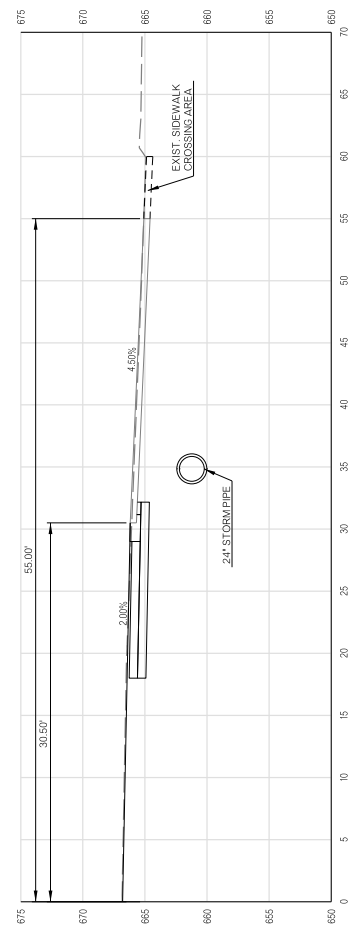
130+20.02



127+94.38 (S. WILLOW AVE.)



146+53.63 (S. REDWOOD AVE.)



140+04.75 (S. SWEET GUM AVE.)