

BENCHMARK CONTROL DATA

HORIZONTAL DATUM: OKLAHOMA STATE PLANE COORDINATE SYSTEM, NAD83 [1993]
VERTICAL DATUM: NAVD 1988
SEE SURVEY DATA SHEET FOR INITIAL CONTROL INFORMATION

SYMBOL LEGEND

EM	Electric Meter	DT	Deciduous Tree
EB	Electric Box	CT	Coniferous Tree
ET	Electric Transformer	B	Bush
EH	Fire Hydrant	BM	Bench Mark
GM	Gas Meter	ERCB	Existing Reinforced Concrete Box
GV	Gas Valve	EROW	Existing Right Of Way
GP	Gate Post	SCPF	Survey Control Point Found
GUY	Guy Anchor	SCP	Survey Control Point Set
ICV	Irrigation Control Valve	TR	Temporary Right Of Way
JB	Junction Box	PR	Proposed Right Of Way
LP	Light Pole	ERCB	Existing Edges of RCB
MB	Mailbox	TSMH	Traffic Signal Man Hole
PP	Power Pole	OE	Overhead Electric
SN	Sign	UE	Underground Electric
SSCO	Sanitary Sewer Cleanout		
SSMH	Sanitary Sewer Manhole		
SDMH	Storm Drain Manhole		
SH	Sprinkler Head		
TS	Traffic Signal		
TSD	Traffic Signal Box		
TPED	Telephone Pedestal		
UG	Underground Gas		
UGM	Underground Gas Meter		
UTMH	Underground Telephone Manhole		
WM	Water Meter		
WV	Water Valve		

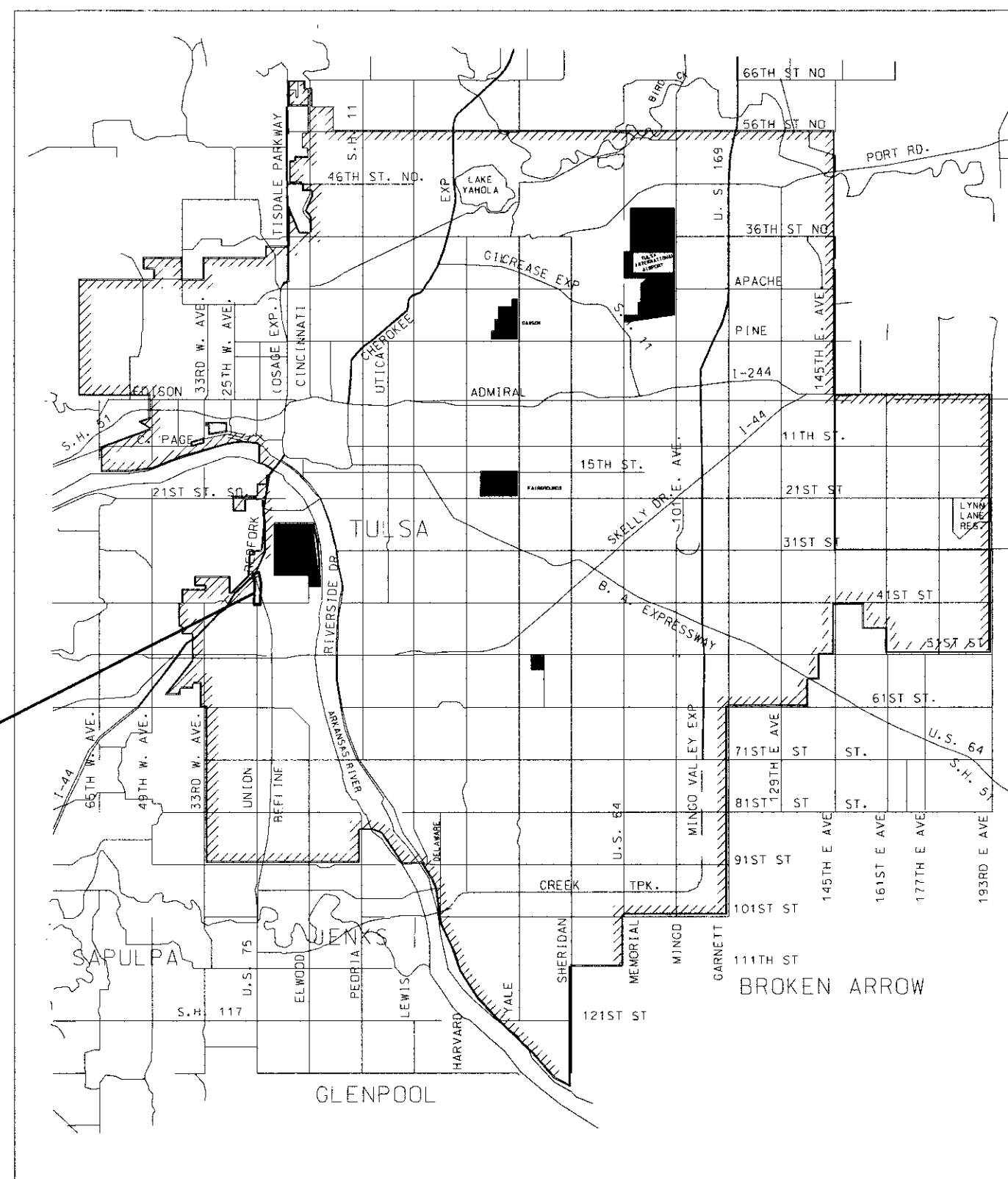
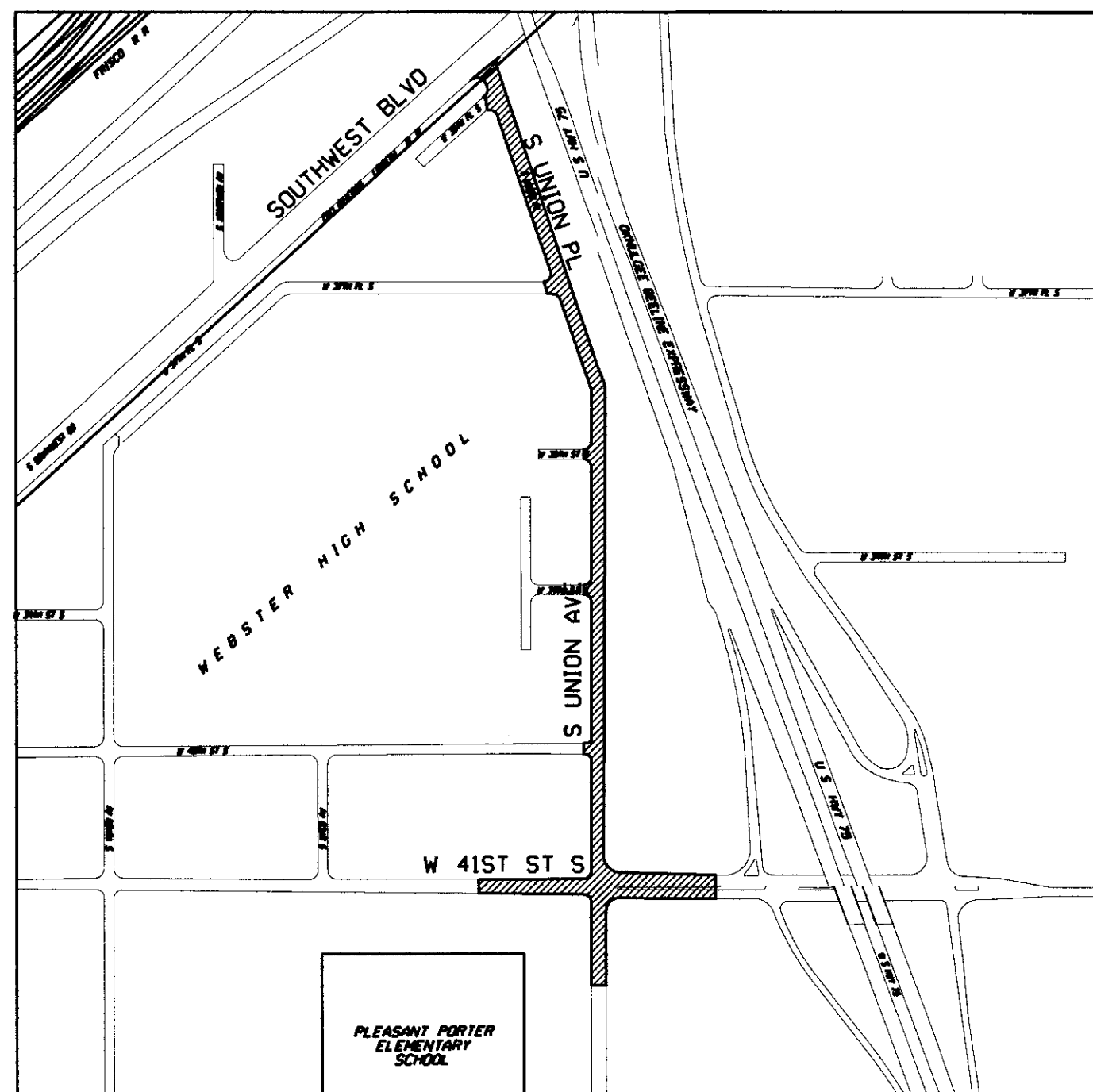
CONSTRUCTION PLANS FOR
ARTERIAL STREET REHABILITATION
FOR UNION AVENUE
SOUTHWEST BLVD. TO 41ST ST.
INCLUDING 41ST ST. INTERSECTION
PROJECT NO. 144017-G AND 144017-AS

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

DESIGN DATA

ADT 2024 = 4,992
ADT 2044 = 9,016
GROWTH RATE = 3%
V = 35MPH
20 YR RIGID ESALS = 3.4M

PROJECT LOCATION



VICINITY MAP

N.T.S.

THE ENTIRE PROJECT IS WITHIN THE CORPORATE
AND URBAN LIMITS OF THE CITY OF TULSA

REHABILITATION LENGTH = 2.00 LANE MILES

UTILITY COORDINATION

UTILITY COMPANY	CONTACT	PHONE #
CITY OF TULSA	TONY GLYNN	918-596-9245
TSU RAILROAD CONTACT	KEVIN TUCKER	918-638-4009
AEP/PSO	EMERGENCY	888-216-3523
ONG	EMERGENCY	800-664-5463
AT&T	EMERGENCY	800-288-2020
COX COMMUNICATION	CUSTOMER SERVICE	918-806-6000
VERIZON	CUSTOMER SERVICE	888-294-6804
WINDSTREAM	CUSTOMER SERVICE	800-347-1991

IN ACCORDANCE WITH ODOT SECTION 105.14, THE COT IS ANTICIPATING THAT THE SUCCESSFUL CONTRACTOR WILL UTILIZE THE APPROPRIATE MEANS AND METHODS TO ACCOMPLISH THE WORK DESCRIBED IN THE PLANS WITHOUT CAUSING COLLATERAL DAMAGE TO THE EXISTING INFRASTRUCTURE. ON ASPHALT OVERLAIN ON P.C. CONCRETE (APC) PAVEMENT, IT IS EXPECTED FOR THE ASPHALT MILLING OPERATION TO BE PERFORMED PRIOR TO TYPE 1 PCC PATCHING ON THE CONCRETE PAVEMENT. FURTHER, THE ANTICIPATED CONSTRUCTION PHASING WILL MINIMIZE THE TIME BETWEEN MILLED STREETS AND NEW ASPHALT PLACEMENT. LEAVING OPEN MILLED SECTIONS FOR EXTENDED PERIODS WILL BE AT THE CONTRACTOR'S RISK IF LOCAL OR CONSTRUCTION TRAFFIC CAUSES DAMAGE TO PREVIOUSLY UNDAUNGED AREAS. CURRENT COT CONSTRUCTION BUDGETS DO NOT ALLOW FOR GROWTH OF THE PROJECT.

CITY OF TULSA STANDARD SPECIFICATIONS AND STANDARD DETAILS (CURRENT) GOVERN. ALL OTHER CONSTRUCTION MATERIALS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, AS ADOPTED BY THE COT.

THIS PROJECT COMPLIES WITH ALL OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REQUIREMENTS.

UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE LOCATIONS ONLY. LOCATIONS SHOWN ARE THOSE SUPPLIED BY UTILITY COMPANY ATLAS SHEETS AND SOME HORIZONTAL LOCATIONS FLAGGED IN THE FIELD. NO VERTICAL LOCATIONS OR EXPOSED LOCATIONS WERE OBTAINED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES BEFORE STARTING ANY EXCAVATION.

INDEX TO DRAWINGS

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APPROVED BY:

PUBLIC WORKS DIRECTOR

ADVERTISEMENT DATE:

ENGINEER'S CERTIFICATION

MICHAEL D. SEARS, OKLA. REG. ENGR. 29303

DATE



THE FOLLOWING CITY STANDARDS WILL BE REQUIRED

STD. NO.	STANDARD NAME
STD 102	PROJECT SIGN
STD 126	STANDARD SILT FENCE AND CONSTRUCTION ENTRANCE
STD 304	BEDDING DETAIL - RIGID PIPE
STD 306	TRENCH DETAIL CONSTRUCTION ADJACENT TO ROADWAY
STD 307	BORE/OPEN CUT CONDUIT DETAIL
STD 312	FRAME AND LID FOR WATER VAULTS
STD 313	VALVE BOX
STD 352	FRAME AND LID FOR MANHOLES
STD 353	FRAME AND LID FOR 4' I.D. SANITARY MANHOLE
STD 354	FRAME AND LID FOR 5' I.D. AND LARGER SANITARY MANHOLE
STD 401	MANHOLE GRADE ADJUSTMENT
STD 405	RUBBER SEAL AT MANHOLE
STD 414	MANHOLE ADJUSTING RING
STD 601	PULL BOX INSTALLATION
STD 602	CONDUIT INSTALLATION
STD 603	SIGNAL POLE FOOTING DETAILS
STD 606	EMERGENCY PRE-EMPTION DETAIL
STD 607A	TRAFFIC SIGNAL SERVICE POLE AND SERVICE TO SIGNAL STANDARD
STD 607B	TRAFFIC SIGNAL PEDESTAL SERVICE
STD 608A	STREET NAME SIGNS
STD 608B	TRAFFIC SIGNS
STD 610A	332 CONTROLLER CABINET DETAIL
STD 610C	332 CABINET WIRING
STD 611A	POLE WIRING DETAIL
STD 612	CABINET GUARD DETAIL
STD 613	PEDESTAL AND MAST ARM POLE DETAILS
STD 614A	TRAFFIC SIGNALS AND ACCESSORIES
STD 614B	SIGNAL HEAD WIRING
STD 616	MAST ARM BRACKETS
STD 617A	SIGNAL POLES AND MAST ARMS
STD 617B	SINGLE MAST ARM DETAILS
STD 618	BONDING DIAGRAM

STD. NO.	STANDARD NAME
STD 713	PAVEMENT REMOVAL AND REPLACEMENT
STD 714	PAVEMENT CUTS
STD 725	STANDARD PAVEMENT PATCH AND REPAIR
STD 729	CONCRETE PAVEMENT STANDARD DETAILS FOR RESIDENTIAL AND COLLECTOR STREETS (2 OF 2)
STD 730	STANDARD ASPHALT PAVEMENT CUT AND REPAIR
STD 751	PIPE BEDDING DETAIL FOR STORM SEWER
STD 752	FRAME AND LID FOR STORMWATER MANHOLES
STD 753	FRAME AND LID FOR 4' AND 5' I.D. STORMWATER MANHOLE
STD 754	FRAME AND LID FOR 6' AND 8' I.D. STORMWATER MANHOLE AND JUNCTION BOXES
STD 755	CONFIGURATIONS OF CAST IRON CURB INLETS
STD 764	STANDARD REINFORCED CONCRETE STORMWATER INLETS
STD 765	STANDARD STORMWATER FRAMES
STD 766	STANDARD STORMWATER GRATES
STD 767	STANDARD CAST IRON CURB
STD 770	STANDARD DROP INLET 15", 18", AND 24"
STD 771	STANDARD DROP INLET 30", 36", AND 42" WITH NO ACCESS MANHOLE
STD 775	STANDARD PRECAST CONCRETE STORMWATER MANHOLE
STD 790	STANDARD SIDEWALK RAMP

THE FOLLOWING ODOT STANDARDS WILL BE REQUIRED

ROADWAY DESIGN

SSS-1-1	SOLID SLAB SODDING
TSC2-3-2	TEMPORARY SEDIMENT CONTROLS
TSC2-2-00E	(1999) TEMORARY SEDIMENT CONTROLS
PCES-4-1	PREFABRICATED CULVERT END SECTIONS
DC-3-2	PAVED DITCHES AND FLUMES
LECS-4-1	JOINTS AND SEALERS - LONGITUDINAL, EXPANSION & CONTRACTION
LTU-5-1	LOAD TRANSFER UNITS FOR CONCRETE PAVEMENT JOINTS
WCR-3-1	WHEELCHAIR RAMPS
TWD-1-0	TACTILE WARNING DEVICES
PUD-3-2	PIPE UNDERDRAIN INSTALLATION

TRAFFIC

PM1-1-02	PAVEMENT MARKING (CROSSWALKS AND LEFT TURN BAY)
PM5-1-00	PAVEMENT MARKING (WORDS AND NUMERALS)
PM6-1-00	PAVEMENT MARKING (ARROWS)
PM8-1-00	PAVEMENT MARKING (RAILROAD CROSSING)

TRAFFIC CONTROL

TCS2-1-00	TRAFFIC CONTROL TABLES AND CHARTS
TCS3-1-01	TEMPORARY TRAFFIC CONTROL ELEMENTS
TCS6-1-02	CHANNELIZING DEVICES
TCS7-1-02	ADVANCE WARNING SIGNS
TCS8-1-00	CONSTRUCTION SIGNS
TCS9-1-01	CONSTRUCTION SIGNS
TCS10-1-00	CONSTRUCTION SIGNS
TCS11-1-01	CONSTRUCTION SIGNS
TCS12-1-00	CONSTRUCTION SIGNS
TCS13-1-00	CONSTRUCTION SIGNS
TCS14-1-00	CONSTRUCTION SIGNS
TCS15-1-00	CONSTRUCTION SIGNS
TCS18-1-01	CONSTRUCTION SIGNS
TCS19-1-01	CONSTRUCTION SIGNS
TCS20-1-00	CONSTRUCTION SIGNS
TCS21-1-02	CONSTRUCTION ZONE PAVEMENT MARKINGS

INDEX OF STANDARDS						
PROJECT NO. 144017-G AND 144017-AS						
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)						
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT						
PLANS AND ESTIMATES PREPARED BY:						
		Dewberry®		Dewberry Engineers, Inc. 1358 South Boulder • Suite 500 Tulsa, Oklahoma 74119 • 3216 918.587.7263 • Fax 918.587.8871		
PLAN SCALE	DRAWN	DEI	03/17	APPROVED		
	DESIGNED	DEI	03/17			
	SURVEY	SWA	08/15			
PROFILE SCALE HORIZONTAL/VA	PROJ. MGR.	<i>MS</i>	5/26/16			
	LEAD ENGR.	<i>DD</i>	5/26/16			
	FIELD MGR.	<i>JSW</i>	6/6/16			
VERTICAL/VA	RECOMMENDED	<i>MS</i>	6/26/16	CITY ENGINEER		
	DESIGN MANAGER					
FILE:	DRAWING:		DATE: SEP 2018			
ATLAS PAGE NO.: 140, 141, 191				SHEET 2 OF 59 SHEETS		

SUMMARY OF ROADWAY PAY QUANTITIES

ITEM NUMBER	SPEC NUMBER	PAY ITEM DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
ROADWAY BASE BID					
1	201(A)	CLEARING AND GRUBBING	E-1, 2	ACRE	2
2	202(A)	UNCLASSIFIED EXCAVATION	E-3, 4, 5, R-1	CY	1,276
3	205(A)	TYPE A SALVAGED TOPSOIL		CY	500
4	220	SWPPP DOCUMENTATION AND MANAGEMENT	E-6, E-7, E-8	LSUM	1
5	230(A)	SOLID SLAB SODDING (LIKE KIND)	E-10, 11	SY	2,700
6	303(A)	TYPE A AGGREGATE BASE	S-1, 2	CY	1,168
7	310(B)	8" SUBGRADE METHOD B		SY	2,974
8	325	SEPARATOR FABRIC	S-3	SY	3,949
9	409(A)	FABRIC REINFORCEMENT	S-4	SY	10,578
10	411(C)	SUPERPAVE, TYPE S4 (PG 70-28 OK)	S-5, 6, 7, 8, 23	TON	1,209
11	411(E)	SUPERPAVE, TYPE S6 (PG 64-22 OK)	S-5, 6, 7, 8, 23	TON	296
12	412	COLD MILLING PAVEMENT	S-9, 22	SY	10,578
13	414(A)	8" P.C. CONCRETE PAVEMENT (PLACEMENT)	S-10,11	SY	574
14	414(G)	P.C. CONCRETE FOR PAVEMENT	S-10,11,12,13	CY	128
15	509(B)	CLASS A CONCRETE	S-12, 13, 24	CY	82
16	511(A)	REINFORCING STEEL, GRADE 60		LB	6,537
17	609(A)	INTEGRAL CONCRETE CURB (6" BARRIER)	S-15	LF	866
18	609(B)	6" COMBINED CURB AND GUTTER (6" BARRIER)	S-12, 13, 15, 16	LF	602
19	610(A)	4" CONCRETE SIDEWALK	S-12, 13, 16, 17	SY	2,276
20	610(E)	4" STAMPED CONCRETE SIDEWALK	S-12, 13, 17, 18	SY	26
21	610(B)	6" CONCRETE DRIVEWAY	S-12, 13, 16, 17, 23	SY	1,056
22	610(I)	TACTILE WARNING DEVICE		SF	266
23	611(A)	MANHOLE (5 DIA), COMPLETE IN PLACE	D-1, 2, 3, 4, 5	EA	1
24	611(G)	INLET, CICI DES 2 STD, COMPLETE IN PLACE	D-2, 3, 7, 8, 9, 10, 11	EA	7
25	611(G)	INLET, CICI DES 2 W/ SMALL JUNCTION BOX, COMPLETE IN PLACE	D-2, 3, 7, 8, 9, 10, 11	EA	2
26	611(G)	INLET, CICI DES 4 STD, COMPLETE IN PLACE	D-2, 3, 7, 8, 9, 10, 11	EA	5
27	611(G)	INLET, CICI DES 4 W/ SMALL JUNCTION BOX, COMPLETE IN PLACE	D-2, 3, 7, 8, 9, 10, 11	EA	2
28	611(H)	ADDITIONAL DEPTH OF INLET, CICI DES 2 STD	D-10	VF	1
29	611(H)	ADDITIONAL DEPTH OF INLET, CICI DES 2 W/ SMALL JUNCTION BOX	D-10	VF	1
30	611(H)	ADDITIONAL DEPTH OF INLET, CICI DES 4 W/ SMALL JUNCTION BOX	D-10	VF	3
31	612(A)	MANHOLES ADJUST TO GRADE	S-12, R-2, D-1, 2, 6	EA	10
32	613(L)	18" PREFAB CULVERT END SECTION, ROUND		EA	1
33	613(W)	JACKED CONDUIT (42" DIA. STEEL CASING) (0.5625 INCH WALL THICKNESS)		LF	16
34	619(A)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	R-1, 2, 3, 4, 5	LSUM	1
35	619(B)	REMOVAL OF EXISTING RCP STORM SEWER PIPE	R-1, 2, 5, 6	LF	78
36	619(B)	REMOVAL OF EXISTING ASPHALT PAVEMENT	R-1, 2, 5, 6	SY	201
37	619(B)	REMOVAL OF EXISTING APC PAVEMENT	R-1, 2, 5, 6	SY	147
38	619(B)	REMOVAL OF EXISTING CONCRETE PAVEMENT	R-1, 2, 5, 6	SY	189
39	619(B)	REMOVAL OF EXISTING CURB	R-1, 2, 5, 6, S-22	LF	2,225
40	619(B)	REMOVAL OF DRIVEWAY	R-1, 2, 5, 6, S-22	SY	995
41	619(B)	REMOVAL OF SIDEWALK	R-1, 2, 5, 6	SY	302
42	619(B)	REMOVAL OF TREE	R-1, 2, 5, 6	EA	5
43	619(B)	REMOVAL OF EXISTING STORM SEWER INLETS	R-1, 2, 5, 6	EA	11
44	624(E)	NEW 48" CHAIN LINK FENCE (BLACK VINYL)		LF	115
45	641	MOBILIZATION	G-2	LSUM	1
46	642(B)	CONTRACTOR CONSTRUCTION STAKING LEVEL II	G-3, 4	EA	1
47	COT 202	QUICK SETTING FLOWABLE FILL	G-1, D-8	CY	50
48	COT 334	CONSTRUCTION AS-BUILT		LSUM	1
49	COT 335	CONTRACTOR QUALITY CONTROL		LSUM	1
50	COT 608	GROUND SIGN		SF	249
51	COT 608	1-1/2" SIGN POST		LF	20
52	COT 608	1-3/4" SIGN POST		LF	389
53	COT 608	2" SIGN POST		LF	75
54	COT 625	REMOVAL OF TRAFFIC ITEMS	T-1	EA	49
55	855(A)	TRAFFIC STRIPE (PLASTIC)(4" WIDE)(WHITE)	T-3	LF	30,200
56	855(A)	TRAFFIC STRIPE (PLASTIC) (4" WIDE) (YELLOW)	T-3	LF	13,380
57	855(A)	TRAFFIC STRIPE (PLASTIC) (8" WIDE) (WHITE)	T-3	LF	1,450
58	855(A)	TRAFFIC STRIPE (PLASTIC) (8" WIDE) (YELLOW)	T-3	LF	410
59	855(A)	TRAFFIC STRIPE (PLASTIC) (24" WIDE) (WHITE)	T-3	LF	128
60	855(A)	TRAFFIC STRIPE (PLASTIC) (24" WIDE) (GREEN)	T-3	LF	504
61	855(B)	TRAFFIC STRIPE (PLASTIC)(SYMBOLS) (BIKE SYMBOLS)	T-3	EA	10
62	855(B)	TRAFFIC STRIPE (PLASTIC)(SYMBOLS) (BIKE SYMBOLS WITH GREEN)	T-3	EA	10
63	855(B)	TRAFFIC STRIPE (PLASTIC)(SYMBOLS)(RAILROAD)	T-3	EA	1
64	855(B)	TRAFFIC STRIPE (PLASTIC)(SYMBOLS)(ARROWS)	T-3	EA	20
65	857(C)	REMOVABLE PAVEMENT MARKING TAPE (4"WIDE)		LF	6,000
66	857(F)	PAVEMENT MARKING REMOVAL (HYDROBLASTING)		LF	800
67	880(B)	CONSTRUCTION SIGNS 0 SF TO 6.25	T-2, 4, 5	SD	4,000

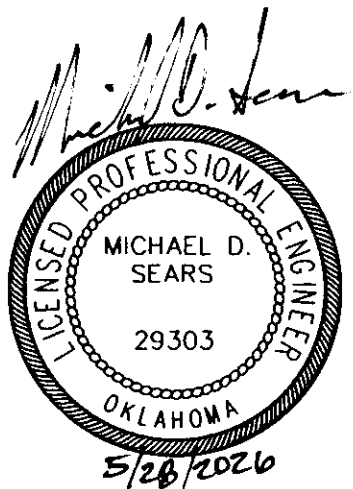
SUMMARY OF ROADWAY PAY QUANTITIES CONTINUED

ITEM NUMBER	SPEC NUMBER	PAY ITEM DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
ROADWAY BASE BID					
68	880(B)	CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF	T-2, 4, 5	SD	9,000
69	880(C)	BARRICADES (TYPE III)	T-2, 4, 5	SD	9,000
70	880(E)	WARNING LIGHTS(TYPE A)	T-5	SD	5,000
71	880(F)	DRUMS	T-2, 4, 5	SD	30,000
72	880(G)	TUBE CHANNELIZERS	T-2, 4	SD	26,000
73	880(I)	FLAGGER	T-6	FD	120
74	882(A)	CHANGEABLE MESSAGE SIGN	T-4	SD	270
75	SPECIAL	TYPE I PC PATCH	S-21,G-1	CY	490
76	SPECIAL	INTEGRAL CURB REPAIR	S-21, S-22, G-1	LF	390
77	SPECIAL	SIGNAGE FOR LOCAL BUSINESS ACCESS	T-4	SD	2,000
78	SPECIAL	CURB RAMP		EA	22
79	SPECIAL	URBAN RIGHT OF WAY RESTORATION	G-5,6,7,8,9,10	EA	1
80	SPECIAL	OWNER ALLOWANCE		EA	25,000
81	SPECIAL	PROJECT SIGN	T-7	EA	2
82	SPECIAL	INSURANCE FOR WORK WITHIN ROAILROAD RIGHT-OF-WAY		EA	10,000
83	SPECIAL	RAILROAD FLAGMAN		EA	5,000
84	SPECIAL	COORDINATION WITH RAILROAD		EA	10,000
85	COT 630	DOUBLE SIDED RRFB WITH APBS, INSTALLED	T-8	EA	2

SUMMARY OF STORMWATER PIPE OPTIONS

ITEM NUMBER	SPEC NUMBER	PAY ITEM DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
STORMWATER PIPE OPTION 1 (RCP)					
86	613(A)	15" REINFORCED CONCRETE PIPE (RCP), COMPLETE IN PLACE	D-8,12,13	LF	39
87	613(A)	18" REINFORCED CONCRETE PIPE (RCP), COMPLETE IN PLACE	D-8,12,13	LF	265
88	613(A)	24" REINFORCED CONCRETE PIPTe (RCP), COMPLETE IN PLACE	D-8,12,13	LF	492
STORMWATER PIPE OPTION 2 (CPP)					
89	COT 215	15" CORRUGATED POLYPROPYLENE PIPE (CPP), COMPLETE IN PLACE	D-13,14,15	LF	39
90	COT 215	18" CORRUGATED POLYPROPYLENE PIPE (CPP), COMPLETE IN PLACE	D-13,14,15	LF	265
91	COT 215	24" CORRUGATED POLYPROPYLENE PIPE (CPP), COMPLETE IN PLACE	D-13,14,15	LF	492

ITEMS LISTED OR SHOWN ON DRAWINGS AND/ OR DESCRIBED IN THE SPECIFICATIONS THAT ARE NOT INCLUDED AS A SEPARATE PAY ITEM QUANTITY SHALL BE CONSIDERED INCIDENTAL AND THE COST SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS. THE PRICE BID FOR ALL WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT, LABOR, INCIDENTALS, AND ALL OTHER REQUIRED ITEMS TO COMPLETE THE WORK AS SHOWN ON PLANS AND SPECIFICATIONS.



ROADWAY PAY ITEM SUMMARY					
PROJECT NO. 144017-G AND 144017-AS					
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)					
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT					
PLANS AND ESTIMATES PREPARED BY: Dewberry					
Dewberry Engineers Inc. 1308 South Boulder Suite 600 Tulsa, Oklahoma 74119 • 316 918.587.7283 • Fax 918.587.0071					
PLAN SCALE	DRAWN	DEI	03/17	APPROVED	
	DESIGNED	DEI	03/17		
	SURVEY	SWA	08/15		
PROFILE SCALE	PROJ. MGR.	<i>MS</i>	<i>5/26</i>		
HORIZONTAL-A	LEAD ENGR.	<i>MS</i>	<i>5/26</i>		
	FIELD MGR.	<i>MS</i>	<i>6/76</i>		
VERTICAL-A	RECOMMENDED				
	DESIGN MANAGER	<i>MS</i>	<i>6/26</i>		
FILE:	DRAWING:	DATE: SEP 2018			
ATLAS PAGE NO.: 140, 141, 191				SHEET 3 OF 59 SHEETS	

FILES
DATES

PAY ITEM NOTES - ROADWAY (11/14/2018)

EARTHWORK / EROSION CONTROL / SITE PREPARATION (E1 - E11)

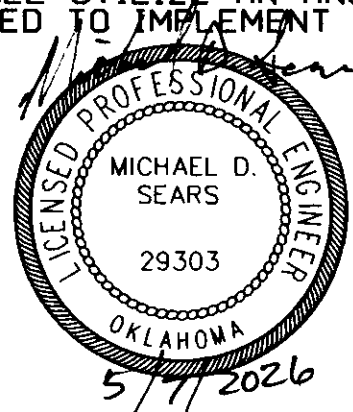
- E-1: ALL COSTS FOR REMOVING TREES, SHRUBS, STUMPS, POSTS, AND ALL OTHER DEBRIS AND/OR OBSTRUCTIONS NOT COVERED BY A SEPARATE PAY ITEM ARE INCLUDED IN THE PRICE BID.
- E-2: ALL EXISTING DRAINAGE STRUCTURES SHALL BE CLEANED AND CLEARED OF ALL SEDIMENTATION AND DEBRIS TO THE RIGHT OF WAY. COST OF CLEARING SHALL BE INCLUDED IN THE PRICE BID.
- E-3: THE CONTRACTOR SHALL BE PAID FOR UNCLASSIFIED EXCAVATION ON THE BASIS OF PLAN QUANTITY. ANY ADDITIONAL EXCAVATION REQUIRED OR OVERRUN OF PLAN QUANTITY WILL BE PAID FOR ON THE BASIS OF UNIT PRICE BID FOR THE ITEM. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SURVEY TO VERIFY ANY ADDITIONAL QUANTITIES.
- E-4: UNCLASSIFIED EXCAVATION INCLUDES REMOVAL OF AGGREGATE BASE AND MODIFIED SUBGRADE UNDER EXISTING PAVEMENT TO BE REPAIRED.
- E-5: NOT USED
- E-6: THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL AND MAINTENANCE OF THE STORM WATER DRAINAGE FROM THE CONSTRUCTION SITE. STORM WATER PONDING ON THE CONSTRUCTION SITE THAT IS THE RESULT OF CONSTRUCTION WILL NOT BE ALLOWED. ALL COST ASSOCIATED WITH STORM WATER MANAGEMENT, AS WELL AS REMOVAL OF ALL SILT AND DEBRIS FROM ALL DRAINAGE STRUCTURES, STORM SEWER PIPES AND APPURTENANCES WITHIN THE PROJECT LIMITS AT END OF PROJECT, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.
- E-7: EROSION PROTECTION SHALL BE PLACED AS FOLLOWS:
A) AROUND INLETS TO PREVENT INFLOW OF ERODED MATERIAL INTO STORM SEWER SYSTEM;
B) IN LOCATIONS THROUGHOUT PROJECT SITE, AS DETERMINED BY THE ENGINEER, TO PREVENT WASH OF ERODED MATERIAL ONTO ADJACENT PROPERTY;
C) FOR ENTIRE DURATION OF PROJECT, WITH MAINTENANCE AND REPLACEMENTS, AS DIRECTED BY THE ENGINEER;
D) WITH PERIODIC REMOVAL OF SEDIMENT IN ACCORDANCE WITH STORMWATER MANAGEMENT PLAN.
ALL COST FOR ITEMS A-D ABOVE SHALL BE INCLUDED IN UNIT PRICE BID FOR THIS ITEM.
- E-8: PRICE BID SHALL INCLUDE MAINTENANCE, SEDIMENT REMOVAL, DISPOSAL, AND REMOVAL OF FILTERS AT PROJECT COMPLETION.
- E-9: NOT USED
- E-10: ESTIMATED QUANTITY IS BASED ON SODDING OF ALL DISTURBED AREAS OUTSIDE THE FINAL PAVING LIMITS AND WITHIN THE FINAL GRADING LIMITS AS INDICATED BY THE TOP-OF-CUT/TOE-OF-SLOPE LINE ON THE PLANS (EXCLUDING SURFACES OF STRUCTURES, FIXTURES AND APPURTENANCES). SOD SHALL BE OF LIKE-KIND TO EXISTING SOD. PRICE BID INCLUDES PLACEMENT AND COMPACTION OF SUITABLE BACKFILL. ANY EXISTING GRASSED AREAS BEYOND THE ABOVE STATED LIMITS THAT ARE DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESODDED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S SOLE EXPENSE.
- E-11: COST OF WATERING AND FERTILIZING SHALL BE INCLUDED. FERTILIZERS SHALL BE 10-20-10 AND SHALL BE APPLIED AT THE RATE OF 1.5 LBS PER 10 SQ YDS. FERTILIZER SHALL BE APPLIED PER SECTION 230.04H OF ODOT STANDARD SPECIFICATIONS. WATERING SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE WORK IS ACCEPTED AS COMPLETE.
- SURFACING / STRUCTURES (S1 - S21)
- S-1: TYPE A AGGREGATE BASE WAS ESTIMATED TO BE USED AS THE BASE MATERIAL FOR 90% OF THE PATCHING. QUICK SET FLOWABLE FILL WAS ESTIMATED TO BE USED AS THE BASE MATERIAL FOR 10% OF THE PATCHING. ACTUAL QUANTITIES TO BE DETERMINED BY THE ENGINEER.
- S-2: INCLUDES COMPACTION OF AGGREGATE TO 98% AASHTO T180 MODIFIED PROCTOR.
- S-3: SEPARATOR FABRIC SHALL BE USED AT ALL PAVEMENT PATCHES AND RECONSTRUCTION SECTIONS. THE SEPARATOR FABRIC SHALL BE CUT AND OVERLAPPED A MINIMUM OF 2 FT AT ALL EDGES OF THE REPAIR.
- S-4: 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 ODOT STANDARD SPECIFICATIONS AND THE RECOMMENDATIONS OF THE FABRIC REINFORCEMENT MANUFACTURER.
- S-5: 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.
- S-6: ESTIMATED AT 112 LBS PER SQ YD PER 1 INCH THICK.
- S-7: 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.
- S-8: PG 70-28 OK OR PG 76-28 OK MAY BE DESIRABLE IN HIGH VOLUME AREAS WHERE SLOW, STANDING, OR TURNING TRAFFIC OCCURS, SUCH AS URBAN INTERSECTIONS OR OFF-RAMPS. OFF RAMPS SHOULD AT LEAST USE THE SAME BINDER AS THE MAINLINE.
A HIGHER GRADE OF ASPHALT BINDER THAN INDICATED ON THE PLANS MAY BE USED, BUT AT NO ADDITIONAL COST TO THE CITY.
- S-9: 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 TYPICAL SECTIONS.
- S-10: FOR P.C. CONCRETE TYPICAL SECTIONS, CONTRACTOR MAY SUBSTITUTE INTEGRAL CURB FOR CURB & GUTTER, AND VICE VERSA, ONLY WITH APPROVAL OF THE ENGINEER, WITH NO ADJUSTMENT MADE TO UNIT PRICE OR QUANTITY.
- S-11: CONCRETE PAVEMENT SHALL BE COMPLETE IN PLACE. NO PARTIAL OR FINAL PAYMENT SHALL BE MADE UNTIL PAVEMENT HAS BEEN SAWED AND SEALED. ANY SECTIONS OF PAVEMENT WITH UNAPPROVED DEVIATIONS FROM THE JOINT LAYOUT PROVIDED IN THE PLANS MAY BE REJECTED AT THE DISCRETION OF THE ENGINEER.
- S-12: THE USE OF FLY-ASH IN CONCRETE IS PROHIBITED.
- S-13: INCLUDES ALL COST OF SAWED JOINTS AND SEALING OF ALL JOINTS INCLUDING LONGITUDINAL JOINTS.
- S-14: NOT USED
- S-15: THIS ITEM SHALL BE MEASURED AS THE ACTUAL AMOUNT OF CURB AND/OR GUTTER INSTALLED. NO PAYMENT WILL BE MADE FOR CURB AND/OR GUTTER THROUGH DRIVEWAYS AND INLETS.
- S-16: CURB, GUTTER, AND/OR SIDEWALK ASSOCIATED WITH THE DRIVEWAY AND THROUGH THE DRIVEWAY IS INCLUDED IN THE COST OF THE DRIVEWAY.
- S-17: ONE SIDEWALK PANEL ON EACH SIDE OF DRIVEWAYS SHALL BE A MINIMUM OF 6" THICK OR MATCH EXISTING DRIVEWAY THICKNESS, WHICHEVER IS GREATER. NO ADDITIONAL PAYMENT SHALL BE MADE FOR THE COST OF THE THICKENED SIDEWALK THROUGH THIS AREA.
- S-18: STAMPED CONCRETE SIDEWALK SHALL BE INSTALLED WITH RUNNING BOND BRICK PATTERN. COLOR SHALL BE INTEGRAL AND MATCH HUE WITH FEDERAL STANDARD AMS-595 * 21005 (RED), OR APPROVED EQUAL. PAINTING OF STAMPED CONCRETE IS PROHIBITED AND WILL RESULT IN REJECTION OF WORK PRODUCT. CONTRACTOR SHALL PROVIDE A 1'X1'X4" TEST SQUARE FOR APPROVAL BY ENGINEER PRIOR TO INSTALLATION, WITH ALL COST INCLUDED IN UNIT PRICE BID FOR STAMPED CONCRETE SIDEWALK.
- S-19: STANDARD BEDDING MATERIAL TO BE TYPE A AGGREGATE BASE COMPACTED TO 95% STANDARD PROCTOR DENSITY (AASHTO T-199). TYPE A AGGREGATE BASE IN THE ROADWAY SHALL BE COMPACTED TO 98% MODIFIED PROCTOR (AASHTO T-180).
- S-20: NOT USED
- S-21: THIS PAY ITEM INCLUDES THE FOLLOWING:
A. SAW CUTTING
B. REMOVAL OF THE EXISTING CONCRETE AND/OR ASPHALTIC CONCRETE ROADWAY (CY)
C. TYPE S3 ASPHALTIC CONCRETE OR PC CONCRETE COMPLETE AND IN PLACE PER DETAIL
D. SEALING OF EDGES AND TACK COAT

DOES NOT INCLUDE THE FOLLOWING:
A. UNCLASSIFIED EXCAVATION
B. SUBGRADE METHOD B (SY)
C. SEPARATOR FABRIC (SY)
D. AGGREGATE BASE (TYPE A)
E. ASPHALT CONCRETE LEVELING OR SURFACE COURSE
- S-22 REMOVE AC PAVEMENT ON CONCRETE DRIVEWAY APRONS AND GUTTERS DURING EDGE MILLING AND COLD MILLING OPERATIONS.
- S-23: REPLACE AC IN DRIVEWAY GUTTER, AS NEEDED, FOR POSITIVE STORMWATER DRAINAGE AND SMOOTH DRIVEWAY TRANSITIONS.
- S-24: CLASS A CONCRETE PAY ITEM SHALL INCLUDE ALL INCIDENTALS NECESSARY TO CONSTRUCT RETAINING WALLS, STEPS, REPAIRS TO EXISTING 10 X 2 RCB, AND TIE-INS TO 10 X 2 RCB. THESE SHALL INCLUDE BUT NOT BE LIMITED TO DRILLING AND EPOXY, HANDRAILS, EXPANSION JOINTS, SALVAGED VENEER STONE, GEOTEXTILE DRAINAGE FABRIC, NO. 57 WASHED ROCK BACKFILL, PVC UNDERDRAIN, PVC WEEP HOLES, FORM LINER WALL FINISH, CONSTRUCTION JOINTS, AND CONTROL JOINTS.
- REMOVAL / ADJUSTMENT (R1 - R6)
- R-1: WASTE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE IN A MANNER APPROVED BY THE ENGINEER.
- R-2: ALL SAW CUTTING AND REMOVAL SHALL BE INCLUDED IN THE COST OF THE ITEM TO BE ADJUSTED, REMOVED, REPAIRED, OR REPLACED.
- R-3: PAY ITEM INCLUDES REMOVAL OF ALL STRUCTURES AND OBSTRUCTIONS WITHIN PROJECT LIMITS NOT SPECIFIED BY OTHER ITEMS OF WORK.
- R-4: INCLUDES SAWING NOT INCLUDED IN OTHER ITEMS OF WORK.

- R-5: ITEMS TO BE REMOVED MAY OR MAY NOT BE PRESENT IN ANY SPECIFIED CONDITION.
- R-6: SHALL INCLUDE ALL COSTS ASSOCIATED WITH PLUGGING/ PATCHING HOLES IN EXISTING STRUCTURES TO REMAIN.
- GENERAL (G1 - G10)
- G-1: LOCATIONS TO BE DETERMINED IN THE FIELD AND WORK TO BE PERFORMED AT THE DIRECTION OF THE FIELD ENGINEER. QUANTITY IS ESTIMATED AND MAY BE OMITTED IN ITS ENTIRETY.
- G-2: MAXIMUM OVERALL DOLLAR AMOUNT AND SCHEDULE OF PAYMENTS SHALL BE IN ACCORDANCE SECTION 641 OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION. EXCLUDES MOBILIZATION FOR WATERLINE WORK.
- G-3: CONSTRUCTION STAKING SHALL INCLUDE SURVEYING AND THE FURNISHING, PLACING, AND MAINTAINING OF THE CONSTRUCTION LAYOUT STAKES NECESSARY FOR THE PROPER COMPLETION AND INSPECTION OF THE ENTIRE PROJECT.
- G-4: 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.
- G-5: THE 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 ARBORIST. COST SHALL BE INCLUDED IN THE PRICE BID.
- G-6: ALL HOUSE NUMBERS SHALL BE REPLACED/ REESTABLISHED THROUGHOUT PROJECT LIMITS. COST TO BE INCLUDED IN URBAN RIGHT OF WAY RESTORATION. CONTRACTOR SHALL REESTABLISH DRAINS, ROOF DRAINS AND OTHER DRAINAGE THROUGH THE CURBS IN ACCORDANCE WITH CITY OF TULSA STANDARD 758. NO NEW CURB OUTLETS SHALL BE CONSTRUCTED WITHOUT APPROVAL OF THE ENGINEER.
- G-7: AN INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST SHALL OVERSEE ALL PLANTINGS AND/OR REMOVAL OF TREES. CONTACT CITY ARBORIST TO ACCEPT FINAL PLANTINGS. CONTACT NUMBER: 918-596-2548
- G-8: TREE GRATES ARE NOT ACCEPTABLE PER CITY ARBORIST. CONCRETE PAVERS ARE TO BE USED AS NECESSARY AROUND TREES.
- G-9: CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS TO RESET ALL PAVERS, LANDSCAPE STONE, PRIVATE SIDEWALKS AND FENCES THAT ARE DISTURBED DURING CONSTRUCTION OPERATIONS. ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR RESETTING OF SUCH ITEMS IS TO BE INCLUDED IN PRICE BID FOR URBAN RIGHT OF WAY RESTORATION.
- G-10: PAY ITEM INCLUDES ALL MOWING WITHIN THE RIGHT-OF-WAY AS DIRECTED DURING CONSTRUCTION.
- DRAINAGE (D1 - D15)
- D-1: THIS ITEM SHALL INCLUDE THE COST OF NEW MANHOLE FRAME AND COVER PER CITY OF TULSA STD NOS. 752, 753, 754, 761, 762, 769A, 769B AND 775. SANITARY SEWER MANHOLES SHALL MEET REQUIREMENTS OF COT SPECIFICATION 418.
- D-2: THE TOTAL COST FOR RUBBERIZED ASPHALT AND/OR SILICONE AT MANHOLES, VALVE BOXES, INLETS, AND INLET APRONS, SHALL BE INCLUDED.
- D-3: NO MASONRY STRUCTURES SHALL BE CONSTRUCTED WITHIN THE RIGHT OF WAY.
- D-4: ADDITIONAL DEPTH IN A MANHOLE SHALL BE MEASURED FROM 6 FT AS MEASURED FROM THE TOP OF RIM TO THE LOWEST FLOWLINE.
- D-5: ALL MANHOLES SHALL BE COMPLETE IN PLACE. THIS PAY ITEM INCLUDES FRAME, COVER, CONCRETE AND ALL OTHER INCIDENTALS REQUIRED FOR PLACEMENT.
- D-6: ALL SANITARY AND STORM SEWER MANHOLE CASTINGS AND LIDS THAT ARE LOCATED IN THE STREET AND ARE DISTURBED BY THE CONTRACTOR SHALL BE SALVAGED AND DELIVERED TO THE METAL RECYCLE BINS IN THE STOCKROOM AREA AT SEWER OPERATIONS AND MAINTENANCE, 9319 E. 42ND STREET NORTH, BETWEEN THE HOURS OF 7:30 AM AND 3:00 PM MONDAY THROUGH FRIDAY.
- D-7: INCLUDES THE COST REQUIRED TO MAKE CONNECTION AND REMOVAL OF EXISTING INLETS. THE COST OF PC CONCRETE CURB AND GUTTER THROUGH THE INLET, 59/2 EACH SIDE OF THE INLET, AND THE PC CONCRETE INLET APRON SHALL BE INCLUDED. GRATE AND FLOWLINE ELEVATIONS SHALL MATCH EXISTING CONDITIONS UNLESS OTHERWISE NOTED IN THE PLANS.
- D-8: QUICKSET FLOWABLE FILL SHALL BE USED TO BACKFILL AROUND STREET CURB INLETS AND REINFORCED CONCRETE PIPE, AS NEEDED, AT THE DIRECTION OF THE ENGINEER.
- D-9: ALL INLETS, COMPLETE IN PLACE, SHALL BE CAST IN PLACE CONCRETE OR PRECAST CONCRETE. THIS PAY ITEM INCLUDES ANY INLET FRAME(S), GRATE(S), HOOD(S) AND CONCRETE REQUIRED FOR COMPLETE INSTALLATION OF STRUCTURE PER THE CONSTRUCTION DOCUMENTS.
- D-10: ADDITIONAL DEPTH QUANTITIES SHALL BE MEASURED AND PAID FOR ALL INLETS EXCEEDING STANDARD DEPTH. STANDARD DEPTHS ARE AS FOLLOWS:
A) CAST IRON CURB INLET: 3.71 VF, MEASURED FROM CENTER ELEVATION OF LOWEST CAST IRON CURB TO FLOWLINE OF OUTLET PIPE.
B) RECESSED CURB INLET: 3.00 VF, MEASURED FROM TOP OF SLAB TO FLOWLINE OF OUTLET PIPE.
C) STANDARD DROP INLET: SEE STANDARD DETAILS 770, 771, 772 AND 773 - VARIES BASED ON PIPE SIZE, MEASURED FROM LOWEST ELEVATION OF INFLOW APRON TO FLOWLINE OF OUTLET PIPE.
- D-11: CAST IRON CURB INLET CONFIGURATION NAMING CONVENTION PROVIDED IN COT STANDARD NO. 755. SEPARATE DETAILS SHALL BE REFERENCED OR PROVIDED IN THE PLANS FOR NON-CITY-STANDARD INLETS.
STANDARD NAMING: CICI DES GT(I)W/AMH
G: NUMBER OF GRATES.
T: LETTER(S) CORRESPONDING TO ARRANGEMENT OF CAST IRON HOODS TO BE INSTALLED UPSTREAM OF GRATES.
W/AMH: IF SHOWN, INLET TO BE CONSTRUCTED WITH ATTACHED ACCESS MANHOLE.
- D-12: REINFORCED CONCRETE PIPE TO BE CLASS III. ALL REINFORCED CONCRETE PIPE AND MANHOLES TO BE SUPPLIED WITH AN IMNI-FLEX JOINT GASKET OR APPROVED EQUAL. MASTIC JOINT SEALANT SHALL NOT BE ALLOWED.
- D-13: THIS PAY ITEM SHALL BE COMPLETE IN PLACE AND SHALL INCLUDE ALL PIPE, STANDARD BEDDING MATERIAL AND TRENCH EXCAVATION, JOINT GASKETS AND ALL OTHER INCIDENTALS. NO ADDITIONAL COST WILL BE MADE. PRIOR TO ACCEPTANCE, INTERIOR OF PIPE SHALL BE INSPECTED FOR DEFECTS USING SELF-PROPELLED MOBILE CLOSED-CIRCUIT CAMERA SYSTEM.
- D-14: WHERE CORRUGATED POLYPROPYLENE PIPE CONNECTS TO REINFORCED CONCRETE STRUCTURES, CONTRACTOR SHALL ENSURE CONNECTIONS ARE WATER-TIGHT AND FULLY SEALED AGAINST SOIL INFILTRATION.
- D-15: WHERE QUICKSET FLOWABLE FILL IS USED TO BACKFILL AROUND CORRUGATED POLYPROPYLENE PIPE, THE CONTRACTOR SHALL UTILIZE AN ANCHORING SYSTEM APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL COSTS FOR LABOR, EQUIPMENT AND MATERIALS REQUIRED TO IMPLEMENT APPROVED ANCHORING SYSTEM INCLUDED IN PRICE BID FOR CORRUGATED POLYPROPYLENE PIPE.

TRAFFIC (T1 - T8)

- T-1: ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER COT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.
- T-2: 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 SHEETING. 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.
- T-3: ALL PLASTIC PAVEMENT MARKINGS SHALL BE EXTRUDED-APPLIED THERMOPLASTIC (USE ON ASPHALT AND CONCRETE PAVEMENT). THERMOPLASTIC PAVEMENT MARKINGS SHALL ONLY BE APPLIED WHEN THE SURFACE TEMPERATURE EXCEEDS 55°F FOR ALL OF THE SIX HOURS PRIOR TO INSTALLATION AND MAXIMUM WIND GUSTS ARE BELOW 15 MPH AT THE TIME OF APPLICATION. PRICE BID TO INCLUDE FLEX TABS OR LIKE KIND FOR POST CONSTRUCTION LANE MARKING/SEPARATION. MECHANICALLY APPLIED PREFORMED PLASTIC TAPE (COLD TAPE) WILL NOT BE ACCEPTED.
- T-4: PAYMENT SHALL BE MADE ON A SIGN-DAY BASIS ONLY FOR TRAFFIC CONTROL DEVICES THAT ARE PROPERLY INSTALLED AND IN GOOD WORKING ORDER. COSTS FOR DELIVERY, INSTALLATION, RELOCATION, MAINTENANCE, REMOVAL AND REPLACEMENT, AS NEEDED AT THE DISCRETION OF THE ENGINEER, INCLUDED IN UNIT PRICE BID.
- T-5: IF WARNING LIGHTS ARE TO BE USED ON TRAFFIC CONTROL DEVICES, TYPE "A" LIGHTS SHALL ONLY BE USED ON DEVICES WARNING OF UNEXPCTED 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.
- T-6: THE PAY ITEM FOR FLAGGER SHALL BE PAID FOR ON A FLAG DAY (IF D) BASIS. ONE F.D. IS ONE COMPLETE WORKDAY PERFORMED BY THE CONTRACTOR AS SET FORTH IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
- T-7: PRICE BID FOR THIS ITEM INCLUDES INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF PROJECT SIGN.
- T-8: PRICE BID TO INCLUDE ALL COMPONENTS OF DUAL-SIDED RECTANGULAR RAPID FLASHING BEACON. SEE SHEET 38 FOR DETAIL AND NOTES.



ROADWAY PAY ITEM NOTES									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:  Dewberry									
Dewberry Engineers Inc. 1708 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3210 918.587.7283 - Fax 918.587.0871									
REVISION		BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED	
					DESIGNED	DEI	03/17		
					SURVEY	SWA	08/15		
				PROFILE SCALE	PROJ. MGR.	<i>MB</i>	5/6/26		
				HORIZONTAL/NA	LEAD ENGR.	<i>SS</i>	5/16		
					FIELD MGR.	<i>MB</i>	6/16		
				VERTICAL/NA	RECOMMENDED	<i>MB</i>	HAS 6/26		
					DESIGN MANAGER			CITY ENGINEER	
FILE:		DRAWING:		DATE:		SEP 2018			
ATLAS PAGE NO.:		140, 141, 191		SHEET		4		OF 59 SHEETS	

05/26/26 G:\00Projects\02 Tulsa Office Projects\10-622P - W 41st Street and Union Ave Additional Work Task 16\CAD\QUANT.dgn

TRAFFIC SIGNAL GENERAL CONSTRUCTION NOTES

- (A) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EXISTING TRAFFIC SIGNAL IN A PROPER WORKING CONDITION DURING CONSTRUCTION AS DIRECTED BY THE TRAFFIC ENGINEER AND FOR FOLLOWING THE REQUIREMENTS OF COT 626 TRAFFIC SIGNAL CONSTRUCTION AND OPERATION. THE CONTRACTOR SHALL NOT PLACE NEW TRAFFIC SIGNALS INTO OPERATION UNTIL THEY HAVE BEEN PERMITTED, INSPECTED AND APPROVED BY CITY OF TULSA TRAFFIC SIGNAL INSPECTORS, AND THE CITY OF TULSA TRAFFIC OPERATIONS HAS CONTACTED THE UTILITY COMPANY TO SET UP BILLING. TRAFFIC SIGNALS SHALL ONLY BE PUT INTO OPERATION ON TUESDAYS, WEDNESDAYS, AND THURSDAYS. ALL TRAFFIC MATERIALS SHALL MEET THE REQUIREMENTS OF COT 627 PRE-QUALIFICATION FOR TRAFFIC OPERATIONS MATERIALS OR AS DIRECTED BY THE TRAFFIC ENGINEER. CONTRACTORS SHALL MEET THE REQUIREMENTS OF COT 628 SIGNAL AND LIGHTING PROJECT CONTRACTOR EXPERIENCE REQUIREMENTS.
- (B) THE CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS FOR ELECTRICAL INSPECTION ON ALL SIGNAL AND LIGHTING WORK PER COT SPECIFICATION 626 TRAFFIC SIGNAL CONSTRUCTION AND OPERATION. USE THE FOLLOWING ADDRESS (ES) FOR THE ELECTRICAL PERMIT: 4100 S. UNION AVENUE
- (C) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL EXISTING TRAFFIC SIGNS AND MARKINGS REMOVED OR DAMAGED AS PART OF THIS PROJECT. ALL SIGNS AND POSTS PROVIDED SHALL BE NEW AND UNDAMAGED AND SHALL MEET THE REQUIREMENTS OF COT SPECIFICATION 608 TRAFFIC SIGNS
- (D) ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER COT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.

TRAFFIC SIGNAL PAY QUANTITY NOTES

- (COT 602) ALL CONDUIT ENDS SHALL BE REAMED AND BUSHINGS SHALL BE INSTALLED PRIOR TO PULLING ANY WIRES.
- (COT 603) POLE FOUNDATIONS SHALL BE CONSTRUCTED ACCORDING TO THE APPLICABLE REQUIREMENTS OF ODOT STANDARD SPECIFICATIONS FOR DRILLED SHAFT FOUNDATIONS AS DIRECTED BY THE TRAFFIC ENGINEER.
- (COT 607) THE INSTALLED SERVICE SHALL BE FULLY OPERATIONAL, AND ANY COSTS CHARGED BY THE UTILITY COMPANY FOR THE SERVICE INSTALLATION SHALL BE PAID BY THE CONTRACTOR AND IS INCLUDED IN THIS PAY ITEM.
- (COT 610) THE TRAFFIC SIGNAL CONTROLLER PROVIDED SHALL BE AN ECONOLITE RACK MOUNT COBALT CONTROLLER IN A 332 SIGNAL CABINET OR 332S WHERE A BATTERY BACKUP IS INCLUDED. THE LATEST VERSION OF EOS SHALL BE INSTALLED ON THE CONTROLLER. TRAFFIC SIGNAL CABINETS SHALL BE A 332S EXT RACK PER THE 2025SPEC. THE SIDES OF THE CONTROLLER CABINET SHALL BE PARALLEL TO THE STREETS. THE FRONT DOOR OF THE CABINET SHALL FACE AWAY FROM THE INTERSECTION. THE DOOR HINGES SHALL BE LOCATED ON THE SIDES OF THE CABINET FURTHEST AWAY FROM THE INTERSECTION, SO THE DOORS SWING OPEN AWAY FROM THE INTERSECTION.

CONFLICT MONITOR SHALL BE AN EDI 2018ECLIP OR APPROVED EQUAL. AN ETHERNET PORT SHALL BE PROVIDED ON THE FRONT PANEL. THE ETHERNET PORT SHALL BE ELECTRICALLY ISOLATED FROM THE MMJ ELECTRONICS AND SHALL PROVIDE MINIMUM OF 1500 VRMS ISOLATION. THE CONNECTER SHALL BE AN RJ-45 EIGHT PIN CONNECTOR. AN HTML BASED CAPABILITY SHALL BE PROVIDED IN THE MONITOR TO CONFIGURE THE NETWORK PARAMETERS OF THE MMJ ETHERNET PORT USING A STANDARD HTML BROWSER. ALL DISPLAY INDICATORS SHALL BE MOUNTED ON THE FRONT PANEL OF THE SIGNAL MONITOR AND SHALL BE WATER CLEAR, T-1 PACKAGE, SUPER BRIGHT TYPE LEDS. ALL FAULT LEDS SHALL BE RED EXCEPT THE PWR INDICATOR WHICH SHALL BE GREEN. A SEPARATE RED, YELLOW AND GREEN INDICATOR SHALL BE PROVIDED FOR EACH CHANNEL.

INCLUDE 2-19" RACK SHELVES, THAT ARE CHATSWORTH PRODUCTS PART NUMBER 10758-701 OR APPROVED EQUAL, IN ADDITION TO WHAT IS OUTLINED IN COT 610 SPECIFICATION. RACKS SHALL BE DESIGNED TO HOLD SMALL PERIPHERAL EQUIPMENT IN A CENTRAL LOCATION. EACH SHELF TYPICALLY HOLDS TWO UNITS AND ALLOWS A CONVENIENT CABLE RUN DOWN THE INSIDE OF THE RACK CHANNEL. RACK SHALL HOLD EQUIPMENT UP TO 17.35"W X 9.82"D AND MADE OF STRONG, LIGHTWEIGHT ALUMINUM THAT CAN SUPPORT UP TO 50 LB.

THE CONTROLLER CABINET DOORS SHALL BE EQUIPPED WITH A CL-TC1 GEN 2 CYBERLOCK CYLINDER AND EITHER A15481RS CCL TRAFFIC CABINET LOCK RH, AND A15481LS CCL TRAFFIC CABINET LOCK LH. THE CONTRACTOR WILL BE REQUIRED TO PURCHASE A CYBERKEY BLUE 3 THAT SHALL BE PROGRAMMED BY TRAFFIC OPERATIONS AT 4015 N HARVARD AVE, TULSA, OK 74115.

THE BATTERY BACKUP SYSTEM SHALL BE ECONOLITE ZX2000-48 SUPER CAPACITOR BATTERY MODULES AND DBLMXJ48 SERIES DOUBLE CONVERSION UPS.

THE CONTRACTOR SHALL DELIVER THE SIGNAL CABINET FULLY WIRED AND READY FOR INSTALLATION TO THE COT TRAFFIC OPERATIONS DIVISION FOR INSPECTION AND APPROVAL PRIOR TO INSTALLATION. COT WILL NOTIFY THE CONTRACTOR OF ANY DEFICIENCIES OR APPROVE THE CABINET WITHIN TWO WEEKS PER COT SPECIFICATION 610 FOR TRAFFIC SIGNAL CONTROLLER CABINET ASSEMBLIES.

- (COT 613) THE AUDIBLE PUSH BUTTONS PROVIDED SHALL BE POLARA IN2 WITH EITHER A SHELF MOUNT CONTROL UNIT OR A CARD RACK300 SERIES CONTROL UNIT. PUSH BUTTONS SHALL BE INSTALLED ON POLES SUCH THAT THE PUSH BUTTONS ARE INSTALLED IN ACCORDANCE WITH ADA, PROWAG, AND MUTCD REQUIREMENTS, AND WITHIN 10 INCHES MAXIMUM FROM THE EDGE OF THE LEVEL, ALL-WEATHER SURFACE (SIDEWALK LANDING) AND WITHIN 10 FEET MAXIMUM FROM THE FACE OF THE CURB AT RAMP'S. PUSH BUTTONS SHALL BE MOUNTED 42 INCHES ABOVE THE LANDING, ON THE SIDE OF THE POLE CLOSEST TO THE CORRESPONDING CROSSWALK. IF A PUSH BUTTON EXTENDER ARM IS NEEDED, THE EXTENDER ARM SHALL NOT EXCEED 12 INCHES IN LENGTH. WHEN PUSH BUTTONS ARE LOCATED WITHIN 10 FEET OF EACH OTHER, AUDIBLE VOICE MESSAGES SHALL BE USED. THE PUSH BUTTONS SHALL BE FACTORY PROGRAMMED WITH THE FOLLOWING VERBAL MESSAGES:

THE EAST/WEST PUSH BUTTONS (4) SHALL BE FACTORY PROGRAMMED WITH THE FOLLOWING VERBAL MESSAGES:

DURING FLASHING DONT WALK AND STEADY DONT WALK:
"WAIT"
DURING WALK:
"(UNION AVENUE) - WALK SIGN IS ON TO CROSS (UNION AVENUE)"
DURING EXTENDED PUSH BUTTON PRESS (PRESS OF 2 SECONDS OR MORE):
"WAIT TO CROSS(UNION AVENUE) AT (41ST STREET)"

THE NORTH/SOUTH PUSH BUTTONS (4) SHALL BE FACTORY PROGRAMMED WITH THE FOLLOWING VERBAL MESSAGES:

DURING FLASHING DONT WALK AND STEADY DONT WALK:
"WAIT"
DURING WALK:
"(41ST STREET) - WALK SIGN IS ON TO CROSS (41ST STREET)"
DURING EXTENDED PUSH BUTTON PRESS (PRESS OF 2 SECONDS OR MORE):
"WAIT TO CROSS(41ST STREET) AT (UNION AVENUE)"

- (COT 614) HINGES SHALL BE LOCATED TO THE LEFT SIDE FOR 3-SECTION SIGNAL HEADS AND 4-SECTION SIGNAL HEADS, AND TOWARD THE OUTSIDE EDGES FOR A 5-SECTION SIGNAL HEAD.

THIS PAY ITEM SHALL INCLUDE (7) OF THE 3-SECTION BACKPLATES, (4) OF THE 4-SECTION BACKPLATES, AND (1) OF THE 5-SECTION "DOGHOUSE" STYLE BACKPLATES. ALL BACKPLATES PROVIDED ON THIS PROJECT SHALL BE ALUMINUM WITH A DURABLE, FACTORY-APPLIED, NON-REFLECTIVE BLACK FINISH (POWDER COATED, BAKED ENAMEL, OR OTHER STYLE AS APPROVED BY THE TRAFFIC ENGINEER) WITH LOUVERS IN THE BACKPLATE. A 2 INCH WIDE STRIP OF FLUORESCENT YELLOW RETRO-REFLECTIVE TAPE, TYPE IX, SHALL BE USED AT THE FRONT PERIMETER OF THE BACKPLATES.

THE PEDESTRIAN SIGNAL HEADS PROVIDED SHALL BE EAGLE 16" PEDESTRIAN SIGNAL HEAD OR APPROVED EQUAL. ALL PEDESTRIAN SIGNAL HEADS SHALL BE INSTALLED ON THE POLES SUCH THAT THE SIGNAL HEADS ARE VISIBLE FROM THE CROSSWALK.

- (COT 617) THE CONTRACTOR SHALL SUPPLY LED LUMINAIRE WITH THE FOLLOWING ATTRIBUTES: 15,700 LUMENS, 120 VOLT, MINIMUM 118 LUMENS PER WATT, GRAY (UNLESS BLACK POLES ARE SPECIFIED), TYPE 3 DISTRIBUTION, 4000 KELVIN, WITH SURGE PROTECTION, 7 PIN RECEPTACLE AND LONG LIFE PHOTOCCELL. AMERICAN ELECTRIC LIGHTING # ATBM F MVOLT R3 P7 PCLL OR APPROVED EQUAL.

- (COT 620) THE DETECTION SYSTEM SHALL BE ON THE TRAFFIC OPERATIONS APPROVED PRODUCTS LIST (APL). THE DETECTION SYSTEM SHALL BE VIDEO DETECTION, AND SHALL DETECT VEHICLES, BICYCLES, AND MOTORCYCLES ON A ROADWAY BY PROCESSING VIDEO DATA THAT PROVIDES VEHICLE PRESENCE, TRAFFIC FLOW DATA, AND EVENT ALARMS, FOR REAL-TIME TRAFFIC CONTROL AND MANAGEMENT SYSTEMS.

DETECTION SYSTEMS SHALL INCLUDE ALL MATERIALS INCLUDING VIDEO DETECTOR CAMERAS, VIDEO CARDS, COMMUNICATIONS CARDS, CABLING, AND OTHER MATERIALS AS NECESSARY TO MAKE DETECTION SYSTEM FULLY

DETECTION SYSTEM CAMERAS SHALL BE IP-ADDRESSABLE.

DETECTION SYSTEMS SHALL NOT USE COAXIAL. DETECTION SYSTEMS SHALL USE EITHER A 3-WIRE SYSTEM UTILIZING BROADBAND OVER POWER LINES (BPL), OR CAT 6 ETHERNET CABLE. THE 3-WIRE SYSTEM IS INTENDED TO BE USED TO REDUCE INTERFERENCE IN THE SYSTEM.

- (COT 622) ETHERNET CABLE USED FOR WIRELESS SIGNAL COMMUNICATIONS SHALL BE INDUSTRIAL GRADE SHIELDED CAT 6, RATED FOR OUTDOOR USE, UNLESS OTHERWISE SPECIFIED IN THE PROJECT PLANS. SHIELDING SHALL BE RISER RATED, POLYOLEFIN INSULATION SHIELD BONDED TO AN OIL RESISTANT AND SUN RESISTANT PVC JACKET. THIS PAY ITEM SHALL INCLUDE APPROXIMATELY 250 LINEAR FEET OF CAT 6 CABLE INSTALLED FROM THE CONTROLLER TO THE SIGNAL POLE FURTHEST FROM THE CONTROLLER. EXCESS CABLE SHOULD BE STORED IN THE HAND HOLE OF THE SIGNAL POLE AND IN PULL BOXES. USE CAUTION WHEN WORKING WITH CAT 6 CABLE NOT TO BEND OR CRIMP THE CABLE.

- (COT 625) THIS PAY ITEM INCLUDES THE REMOVAL AND DELIVERY OF THE FOLLOWING EQUIPMENT TO THE CITY OF TULSA TRAFFIC OPERATIONS SHOP AT 3801 N HARVARD AVE, WHICH IS TO REMAIN THE PROPERTY OF THE CITY OF TULSA:

TRAFFIC SIGNAL ITEMS INCLUDE; MULTI-SIDED GALVANIZED TRAFFIC SIGNAL POLES, SIGNAL HEADS, PEDESTRIAN HEADS AND PUSH BUTTONS, BACK PLATES, CONTROLLER CABINET ASSEMBLY, CABINET GUARD, UNDAMAGED PULL BOX LIDS, MAST ARM SIGNS, ASTRO-BRACKETS, SPAN WIRE EQUIPMENT AND ANY OTHER TRAFFIC SIGNAL EQUIPMENT REMOVED EXCEPT FOR THE PULL BOXES, CONDUIT AND WIRE WHICH SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE PRICE BID SHALL INCLUDE THE REMOVAL OF ALL FOOTINGS BELOW GROUND LEVEL OR AS DIRECTED BY THE ENGINEER. FOOTINGS, GREEN ARM POLES, AND ALL OTHER SIGNAL POLES OTHER THAN THE MULTI-SIDED POLES ARE TO BECOME THE PROPERTY OF THE CONTRACTOR.

- SPECIAL CONTRACTOR SHALL NOTIFY THE CITY OF TULSA AT LEAST TWO BUSINESS DAYS PRIOR TO REMOVAL OF SIGNAL EQUIPMENT TO COORDINATE REMOVAL OF ALL SIGNAL COMMUNICATIONS EQUIPMENT. THE CONTRACTOR SHALL REMOVE AND REINSTALL THE COMMUNICATIONS EQUIPMENT. CONTRACTOR SHALL PULL CAT 6 CABLE FROM THE CONTROLLER TO THE SIGNAL POLE. EXCESS CABLE SHOULD BE STORED IN THE HANDHOLE OF THE SIGNAL POLE AND IN PULL BOXES. USE CAUTION WHEN WORKING WITH CAT 6 CABLE NOT TO BEND OR CRIMP THE CABLE.

- (80) THIS ITEM IS AN ESTIMATED QUANTITY TO BE USED AS DEEMED NECESSARY BY THE ENGINEER.

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

TRAFFIC PAY QUANTITIES

W. 41st St & S. Union Ave.

ITEM	SPEC	DESCRIPTION	UNIT	TOTAL
92	COT 601	PULL BOX SIZE II	EA	3
93	COT 601	PULL BOX SIZE III	EA	1
94	COT 602	2" PVC SCH. 40 PLASTIC CONDUIT (TRENCHED)	(COT 602) LF	75
95	COT 602	3" PVC SCH. 40 PLASTIC CONDUIT (TRENCHED)	(COT 602) LF	80
96	COT 602	2-3" HDPE SCH. 40 CONTINUOUS CONDUIT (DIRECTIONAL BORE) (OUTSIDE IDL)	(COT 602) LF	330
97	COT 603	24" SIGNAL FOOTING S-18/24	(COT 603) EA	1
98	COT 603	30" SIGNAL FOOTING S-30/36	(COT 603) EA	2
99	COT 603	36" SIGNAL FOOTING S-42/50	(COT 603) EA	1
100	COT 603	24" PEDESTAL FOOTING F-1	(COT 603) EA	4
101	COT 607	SERVICE TO SIGNAL STANDARD	(COT 607) EA	1
102	COT 608	OVERHEAD SIGN	SF	86
103	COT 610	TRAFFIC SIGNAL CONTROLLER CABINET ASSEMBLY	(COT 610) EA	1
104	COT 611	2#14 SHIELDED ELECTRICAL CONDUCTOR	(TP-1) LF	195
105	COT 611	4#14 TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1) LF	235
106	COT 611	7#14 TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1) LF	460
107	COT 611	20#14 TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1) LF	530
108	COT 611	GREEN #12 THIN ELECTRICAL CONDUCTOR	(TP-1) LF	640
109	COT 611	2#12 UF ELECTRICAL CONDUCTOR WITH GROUND	(TP-1) LF	775
110	COT 611	GREEN #6 THIN ELECTRICAL CONDUCTOR	(TP-1) LF	455
111	COT 611	CAT 6 ETHERNET CABLE	(TP-1)(SPECIAL) LF	250
112	COT 612	CABINET BASE, APRON AND GUARD	EA	1
113	COT 613	AUDIBLE PEDESTRIAN PUSH BUTTON STATION AND SIGN	(COT 613) EA	8
114	COT 613	AUDIBLE PEDESTRIAN PUSH BUTTON CONTROL CARD/UNIT	(COT 613) EA	1
115	COT 613	AUDIBLE PEDESTRIAN PUSH BUTTON CONFIG/PROGRAMMING DEVICE	(COT 613) EA	1
116	COT 614	LED 3 SECTION TRAFFIC SIGNAL HEAD (#36)	(COT 614) EA	7
117	COT 614	LED 4 SECTION TRAFFIC SIGNAL HEAD (#S-13L)(FLTYA)	(COT 614) EA	4
118	COT 614	LED 5 SECTION TRAFFIC SIGNAL HEAD (#34R)	(COT 614) EA	1
119	COT 614	LED ICC PEDESTRIAN HEAD (#33)	(COT 614) EA	8
120	COT 614	BACKPLATES	(COT 614) EA	12
121	COT 615	BASE COVERS	EA	4
122	COT 617	24' MODULAR TRAF. SIGNAL MAST ARM AND POLE WLUM. EXT	(COT 617) EA	1
123	COT 617	30' MODULAR TRAF. SIGNAL MAST ARM AND POLE WLUM. EXT	(COT 617) EA	1
124	COT 617	42' MODULAR TRAF. SIGNAL MAST ARM AND POLE WLUM. EXT	(COT 617) EA	1
125	COT 617	36' MODULAR TRAF. SIGNAL MAST ARM AND POLE W/O LUM EXT	EA	1
126	COT 617	10' PEDESTAL POLE	EA	4
127	COT 619	TEMP SIGNAL SPAN	EA	1
128	COT 619	TEMP SIGNAL POLE	EA	1
129	COT 619	TEMP SIGNAL CABINET	EA	1
130	COT 619	TEMP SIGNAL SERVICE	EA	1
131	COT 620	VIDEO DETECTION SYSTEM	(COT 620) EA	1
132	COT 622	WIRELESS TRAFFIC SIGNAL COMMUNICATIONS SYSTEM	(COT 622) EA	1
133	COT 623	BATTERY BACKUP SYSTEM	EA	1
134	COT 625	REMOVAL OF TRAFFIC ITEMS	(COT 625) EA	1
135	COT 626	TRAFFIC SIGNAL MAINTENANCE	(80) HR	1
136	COT 626	SIGNAL MODIFICATIONS FOR LANE CLOSURES (PER SIGNALIZED INTERSECTION)	(80) EA	1

PROJECT NO. 144017-AS&G

TRAFFIC PAY ITEM SUMMARY

W. 41st ST. & S. UNION AVE.

CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES
PREPARED BY:



TRAFFIC ENGINEERING CONSULTANTS
6901 S. 68TH E. AVE., STE 100
TULSA, OK 74133
PHONE: 918-481-8484 FAX: 918-481-3163

APPROVED:

J Slayter
JACKSON SLAYTER, P.E. # 36851
C.A. # 1160, RENEWAL 06-30-27

5/26/26
DATE

Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100 - Norman OK 73069,
Ph: 405-720-7721, Web: www.tecusa.com



REVISION	BY	DATE	PLAN SCALE:	DRAWN	CAL	05/26/26	APPROVED:
			1" = NA	DESIGNED	JOS	05/26/26	
				SURVEY			
			PROFILE SCALE:	PROJ. MGR.			
			HORIZONTAL:	LEAD ENGR.		05/26/26	
			1" = NA	FIELD MGR.		6/26	
			VERTICAL	RECOMMENDED:		6/26	
			1" = NA	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO:				

CITY ENGINEER

DATE: MAY 2026

SHEET 5 OF 77 SHEETS

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, AS ADOPTED BY THE CITY OF TULSA, AND THE CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT'S STANDARD SPECIFICATIONS AND STANDARD DETAILS AND STANDARD DRAWINGS AND CITY OF TULSA SPECIAL PROVISIONS.
2. 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 AS HIS OWN RESPONSIBILITY OR AS THE ENGINEER MAY DETERMINE REASONABLY NECESSARY TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT.
3. PAY ITEMS SHALL BE AS SPECIFIED ON THE CITY OF TULSA OR ON THE ODOT STANDARD DRAWINGS EXCEPT AS MODIFIED BY THE CONTRACT.
4. 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.
5. 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 FOLLOWING IS A LIST OF UTILITY OWNERS; AT&T, PUBLIC SERVICE COMPANY OF OKLAHOMA (AEP), OKLAHOMA NATURAL GAS (ONG), COX COMMUNICATIONS, MCI/VERIZON, EASYTEL COMMUNICATIONS, WELLSCO VALLOR TELECOM, CITY OF TULSA-WATER AND SEWER, CITY OF TULSA-TRAFFIC OPERATIONS. SEE TITLE SHEET FOR CONTACT INFORMATION.
6. 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 SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO THE COMMENCEMENT OF WORK. PHONE 1-800-522-6543.
7. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PREVENT EXCESS MOISTURE FROM INCLEMENT 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 EFFECTED BY THE EXCESS MOISTURE, THE CONTRACTOR SHALL REPLACE THE ADJOINING PAVEMENT AND SUBBASE AT HIS SOLE EXPENSE.
8. THE CONTRACTOR SHALL PRESERVE THE INTEGRITY OF THE SANITARY SEWER STRUCTURES AND ALL OTHER UTILITY STRUCTURES WITHIN THE PROJECT EXTENTS.
9. THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE CITY OF TULSA TO ESTABLISH, INSTALL, MAINTAIN, AND OPERATE COMPLETE, ADEQUATE, AND SAFE TRAFFIC CONTROLS DURING THE ENTIRE CONSTRUCTION PERIOD. ALL FLAGMEN, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE APPROVED BY THE FIELD ENGINEERING REPRESENTATIVE.
10. CONSTRUCTION SIGNAGE WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT ADDITION, AND APPLICABLE ODOT STANDARD DRAWINGS. THE CONTRACTOR SHALL PROVIDE A PROPOSED TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER PRIOR TO BEGINNING WORK.
11. THE CONTRACTOR SHALL NOTIFY THE CITY OF TULSA FIELD ENGINEERING, 918-596-9404, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK OR PRIOR TO REMOVING TRAFFIC SIGNS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL EXISTING TRAFFIC SIGNS AND MARKINGS REMOVED OR DAMAGED AS LISTED IN THE SIGNAGE SCHEDULE FOR THE PROJECT. ALL SIGNS AND POLES PROVIDED SHALL BE NEW AND UNDAMAGED AND SHALL MEET THE REQUIREMENTS OF COT SPECIFICATION 608 TRAFFIC SIGNS. ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER COT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.
13. THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARATION AND DISTRIBUTION OF A WRITTEN NOTICE TO RESIDENTS 48 HOURS PRIOR TO BEGINNING PAVEMENT REMOVAL AND MILLING AND OVERLAY OPERATIONS.
14. LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH THE PROJECT AT ALL TIMES.
15. ALL PUBLIC AND PRIVATE STREETS AND DRIVES SHALL BE ACCESSIBLE AT ALL TIMES.
16. 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 ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.
17. ALL EXCAVATED MATERIAL NOT REQUIRED IN THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER ACCEPTABLE TO THE ENGINEER 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.
18. 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 ENGINEER. 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 ENGINEER.
19. 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.
20. ANY DAMAGE TO THE ROADWAY PAVEMENT, CURB, DRIVEWAYS OR SIDEWALK CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE ENGINEER'S SATISFACTION AND SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S SOLE EXPENSE. ALL DISTURBED ITEMS SHALL BE REPAIRED TO MATCH EXISTING MATERIALS AND PATTERNING.
21. IF THE CONTRACTOR ENCOUNTERS VOIDS WHEN PATCHING STREETS, THE CONTRACTOR SHALL CALL FIELD ENGINEERING AT 918-596-7814 FOR AN INSPECTION BEFORE PROCEEDING WITH WORK.

22. 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 ENGINEER.
23. NO FLY ASH IS ALLOWED TO BE USED ON THIS PROJECT.
24. PHYSICAL TESTING FOR QUALITY ASSURANCE SHALL BE FURNISHED BY THE CITY.
25. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY QUALITY CONTROL TESTING TO ENSURE THAT PROJECT REQUIREMENTS ARE MET.
26. MASONRY STRUCTURES SHALL NOT BE CONSTRUCTED WITHIN THE STREET RIGHT-OF-WAY.
27. ALL CONCRETE CURB AND GUTTERS SHALL BE MONOLITHIC POURS. DOWELED-ON CURBS WILL NOT BE ALLOWED.
28. NO LIFTING HOLES WILL BE ALLOWED ON ANY REINFORCED CONCRETE PIPES OR REINFORCED CONCRETE BOXES.
29. CURB RAMP CONSTRUCTION SHALL COMPLY WITH THE CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS.
30. 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 SHEETING. 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.
31. ALL SANITARY AND STORM SEWER MANHOLE CASTINGS AND LIDS THAT ARE LOCATED IN THE STREET AND ARE DISTURBED BY THE CONTRACTOR SHALL BE REPLACED WITH NEW LIDS AND CASTINGS AND THE OLD ONES SHALL BE SALVAGED AND DELIVERED TO THE METAL RECYCLE BINS IN THE STOCKROOM AREA AT SEWER OPERATIONS AND MAINTENANCE, 9319 E. 42ND STREET NORTH, BETWEEN THE HOURS OF 7:30 AM AND 3:00 PM MONDAY THROUGH FRIDAY.
32. THE SIGN PLACEMENT STATIONING AND LOCATIONS SHOWN ON THE PLAN SHEETS AND SUMMARY SHEETS ARE APPROXIMATE. EXACT STATIONING AND LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR SO THAT THE SIGN IS INSTALLED IN ACCORDANCE WITH CITY OF TULSA 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 ENGINEER SHALL BE NOTIFIED.
33. POST LENGTHS SHOWN ON SIGN SUMMARY ARE APPROXIMATE. EXACT LENGTHS SHALL BE DETERMINED BY A FIELD SURVEY CONDUCTED BY THE CONTRACTOR.
34. 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.
35. 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.
36. 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.
37. STRAW OR HAY BALES AS STORMWATER BEST MANAGEMENT PRACTICES ARE NO LONGER ALLOWED ON CONSTRUCTION PROJECTS.
38. THE CONTRACTOR MUST CALL 1-800-458-4251 IMMEDIATELY IF A NATURAL GAS PIPELINE IS CUT, DAMAGED, OR OTHERWISE DISTURBED.
39. PRIOR TO FINAL ACCEPTANCE, ALL EXPOSED CURB SURFACES SHALL BE CLEANED OF ALL DICOLORATION SUCH AS ASPHALT STAIN, TIRE MARKS, OR OTHER DISFIGUREMENT.
40. 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 ENGINEER UPON DISCOVERY OF SUCH FEATURES. THE CONTACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK, WHICH IS NOT IN FULL COMPLIANCE WITH THE ADA WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. 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.
41. ALL TRENCH WIDTHS & BEDDING MATERIAL SHALL BE AS SHOWN ON COT STANDARD PIPE BEDDING DETAIL, STANDARD NO. 751. SPECIFIED TRENCH WIDTHS SHALL BE MAINTAINED FULL DEPTH FROM THE FLOWLINE TO THE GRADING TEMPLATE. THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED.
42. THE CONTRACTOR SHALL NOTIFY THE METROPOLITAN TULSA TRANSIT AUTHORITY (MTTA), ERIC SMITH 918-830-0024, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK, LANE CLOSURES OR PRIOR TO DETOURING TRAFFIC.
43. CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN.

GENERAL CONSTRUCTION NOTES

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

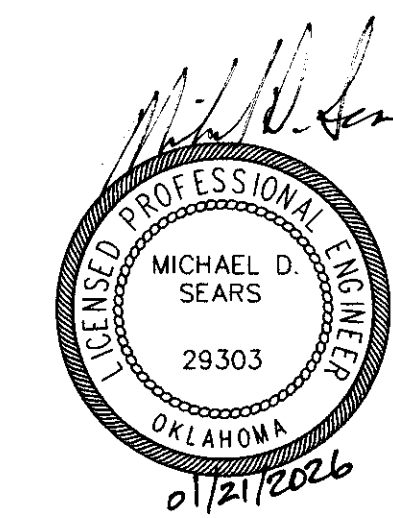
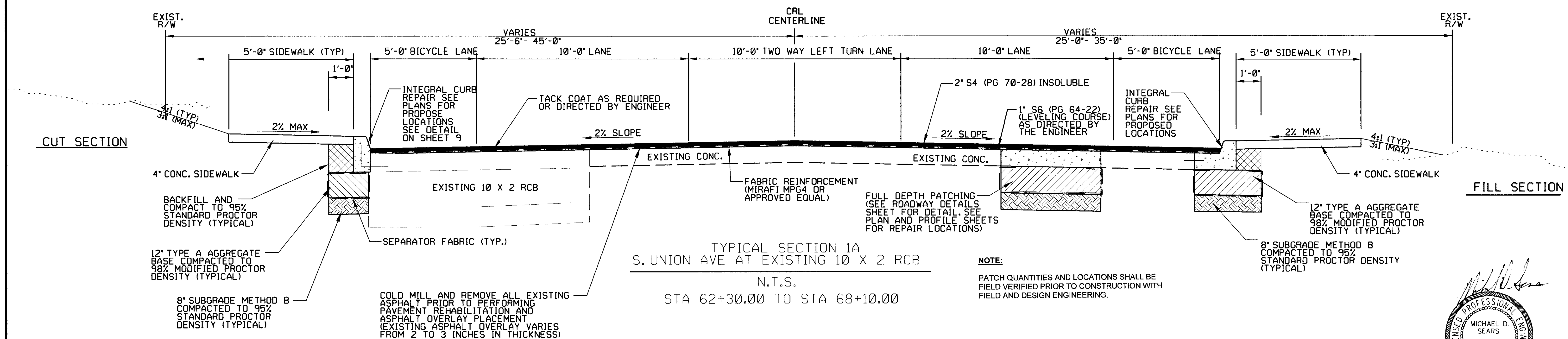
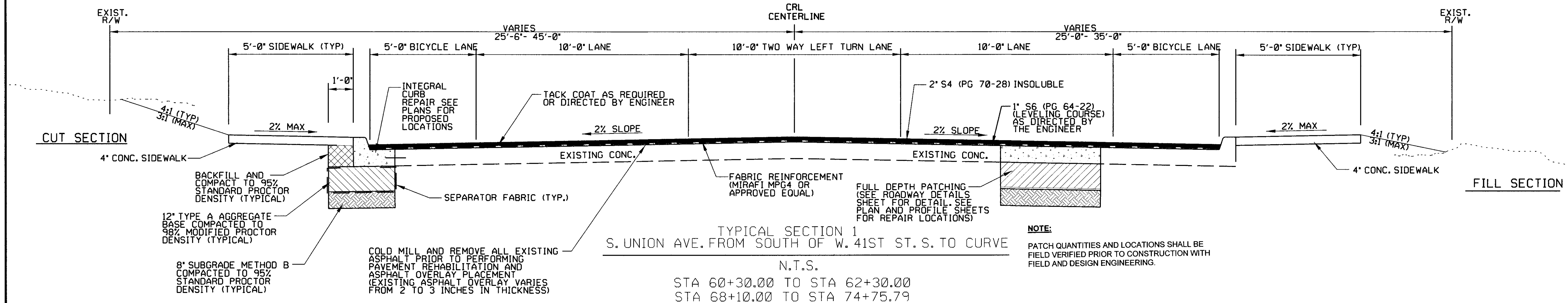
PLANS AND ESTIMATES PREPARED BY:

 **Dewberry**

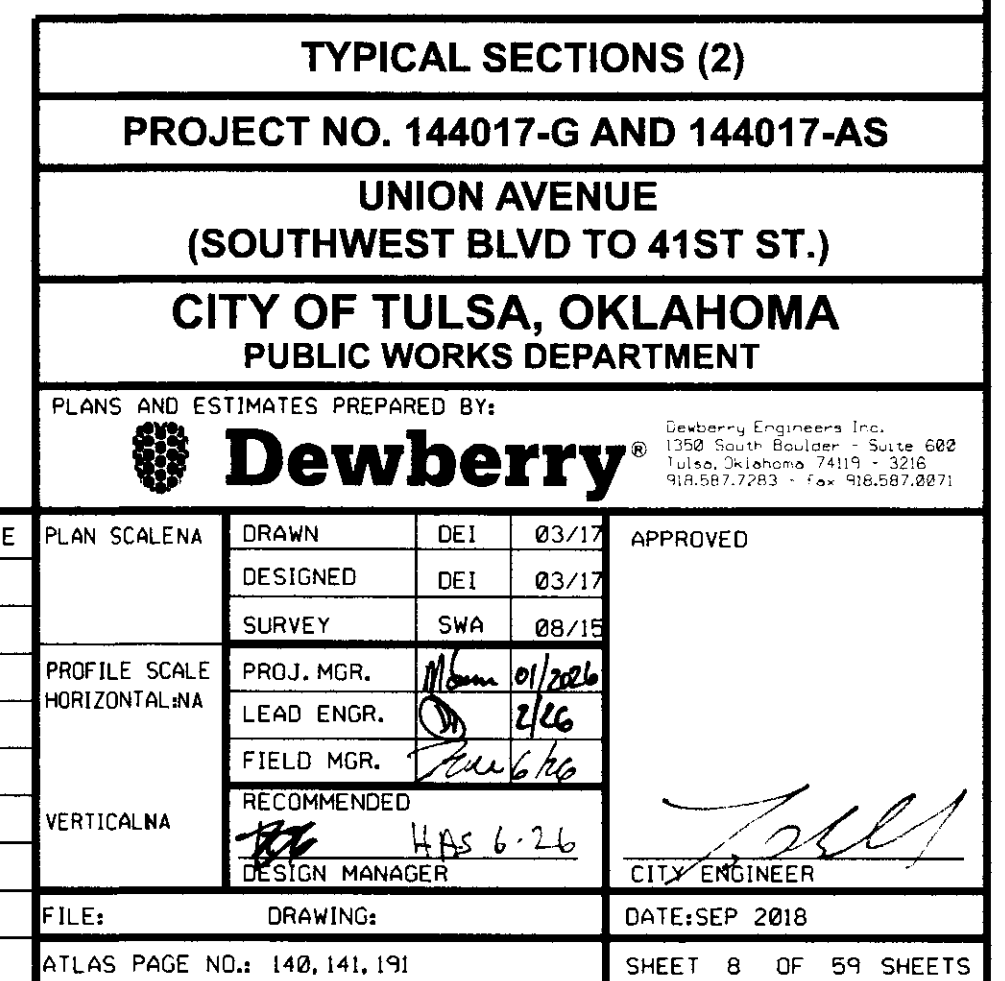
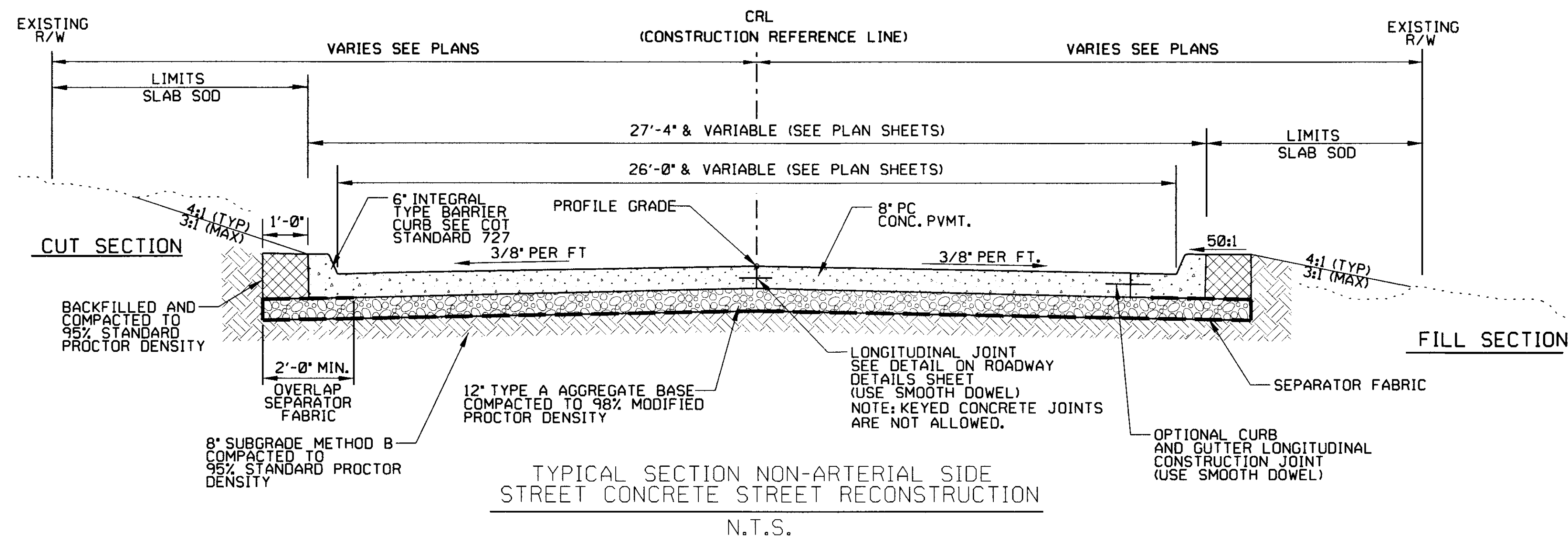
Dewberry Engineers Inc.
1750 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 305
918.587.2833 • Fax 918.587.0071

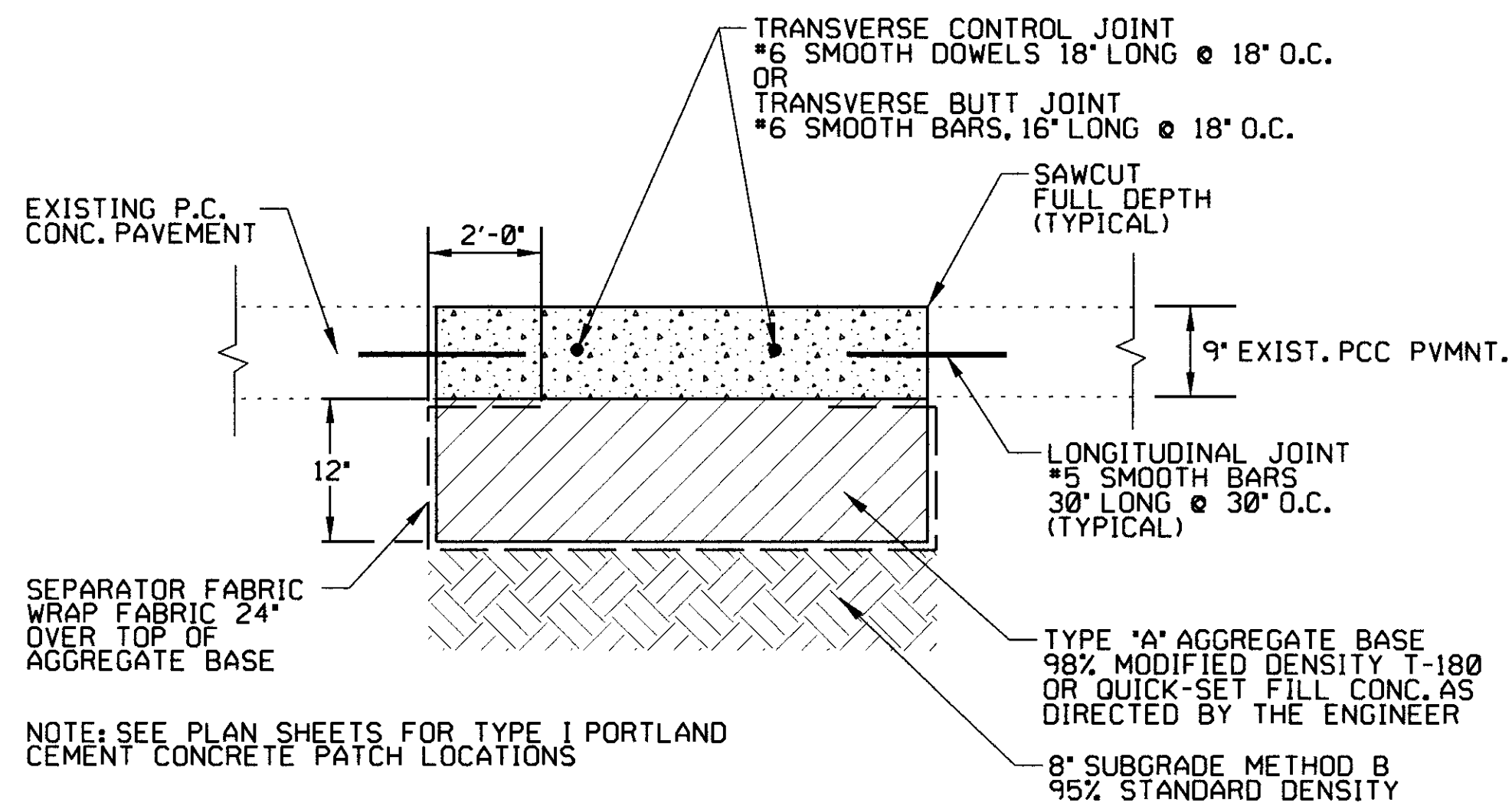
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	SURVEY	SWA	08/16	
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PROFILE SCALE HORIZONTAL	LEAD ENGR.	<i>[Signature]</i>	1/26	
	FIELD MGR.	<i>[Signature]</i>	6/66	
VERTICAL	RECOMMENDED			
	DESIGN MANAGER	<i>[Signature]</i>	6/26	
FILE#	DRAWING#			DATE: SEP 2018
ATLAS PAGE NO.: 140, 141, 191				SHEET 6 OF 59 SHEETS

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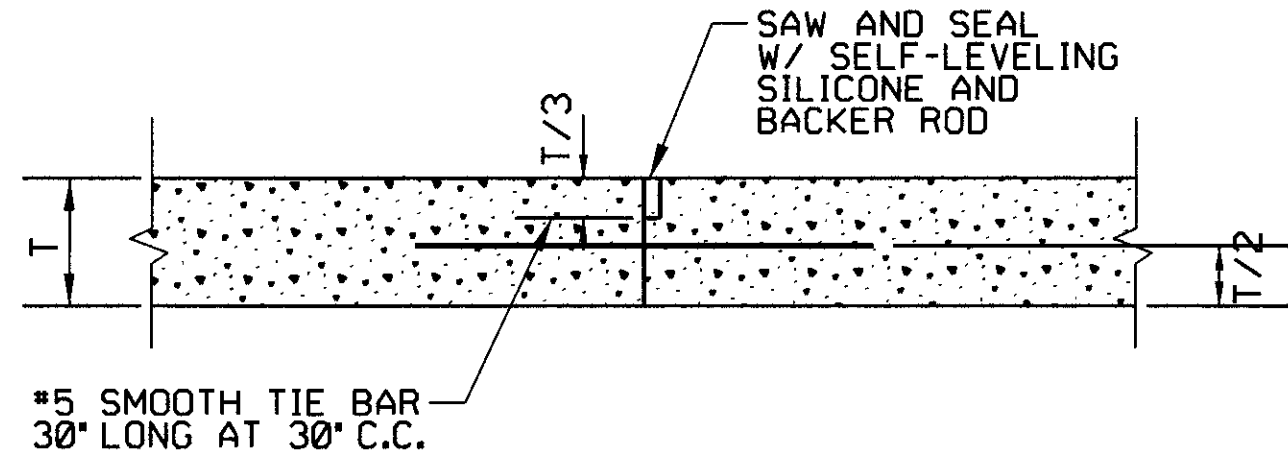


TYPICAL SECTIONS (1)										
PROJECT NO. 144017-G AND 144017-AS										
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)										
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT										
PLANS AND ESTIMATES PREPARED BY:				Dewberry Engineers Inc. 1300 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3316 405.567.7293 - Fax 405.567.0071						
 Dewberry ®				APPROVED						
PLAN SCALE		DRAWN	DEI							03/17
		DESIGNED	DEI							03/17
		SURVEY	SWA							08/15
PROFILE SCALE		PROJ. MGR.	<i>M. Hume</i>							01/2026
HORIZONTAL		LEAD ENGR.	<i>J. [Signature]</i>							01/26
		FIELD MGR.	<i>Jason</i>							6/16
VERTICAL		RECOMMENDED			<i>[Signature]</i>					
		<i>JHB</i> DESIGN MANAGER	HAS 6-26							
FILE:		DRAWING:			DATE: SEP 2018					
ATLAS PAGE NO.: 140, 141, 191					SHEET 7 OF 59 SHEETS					

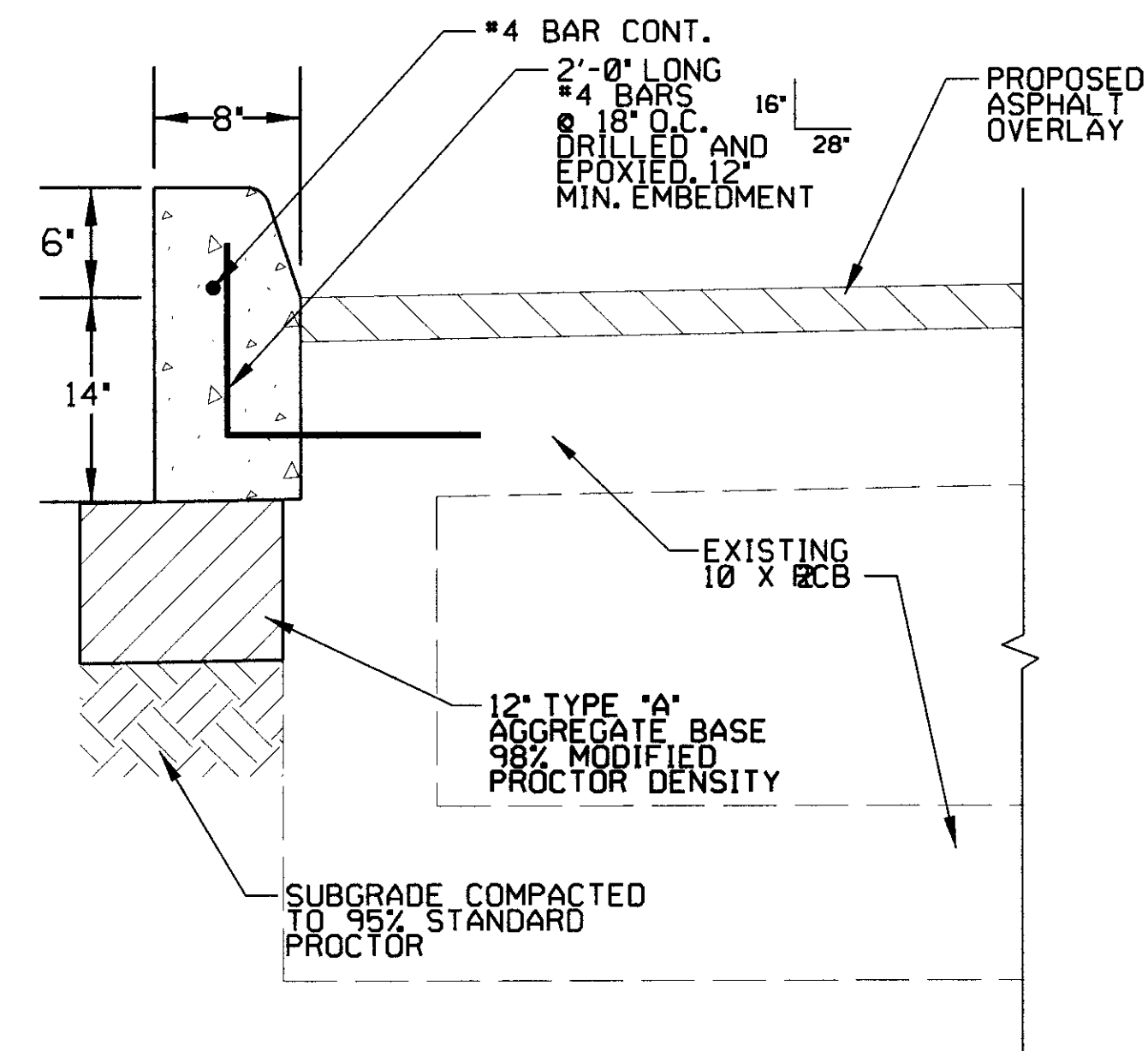




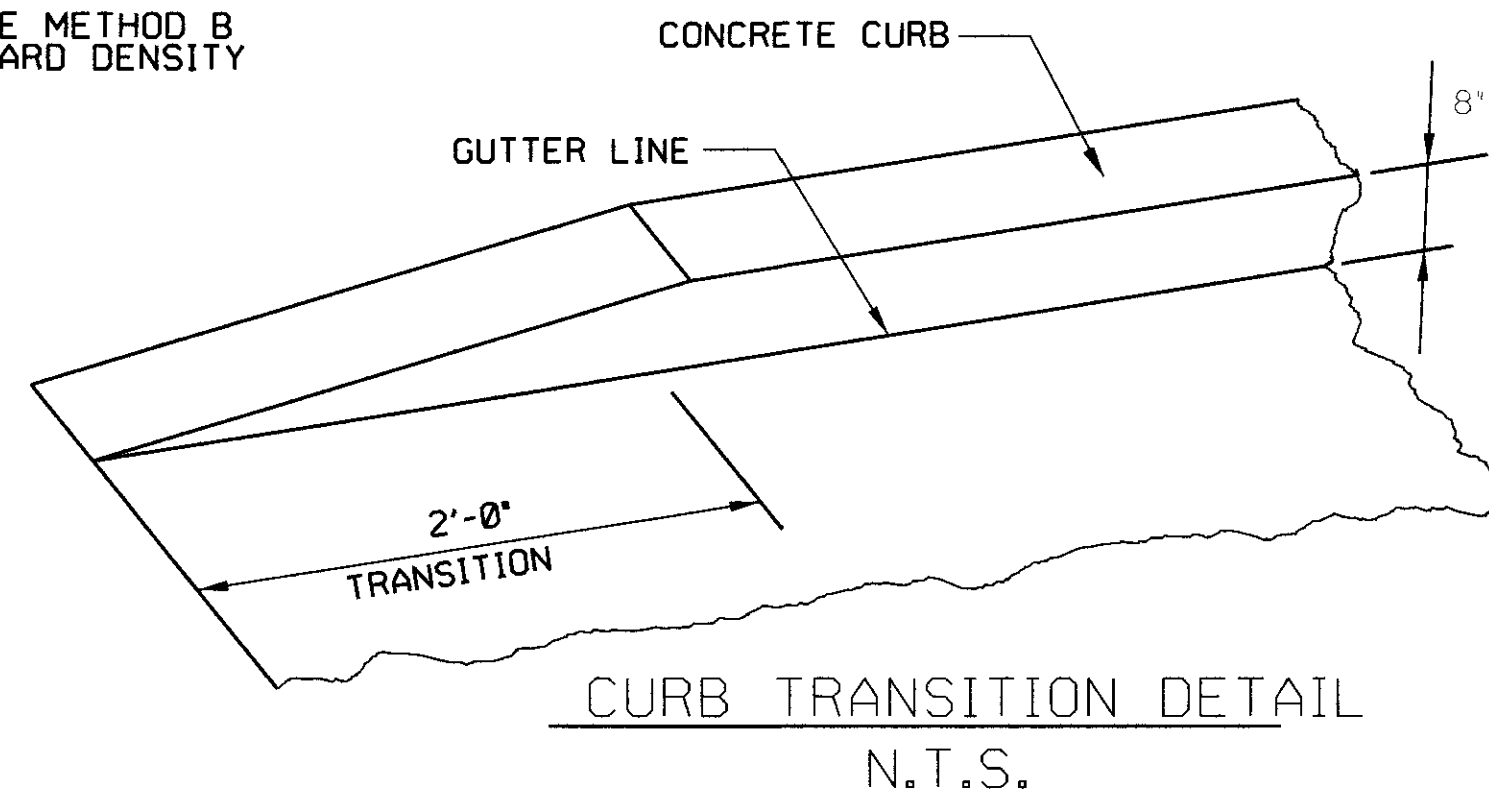
TYPE I PCC PATCH
N.T.S.



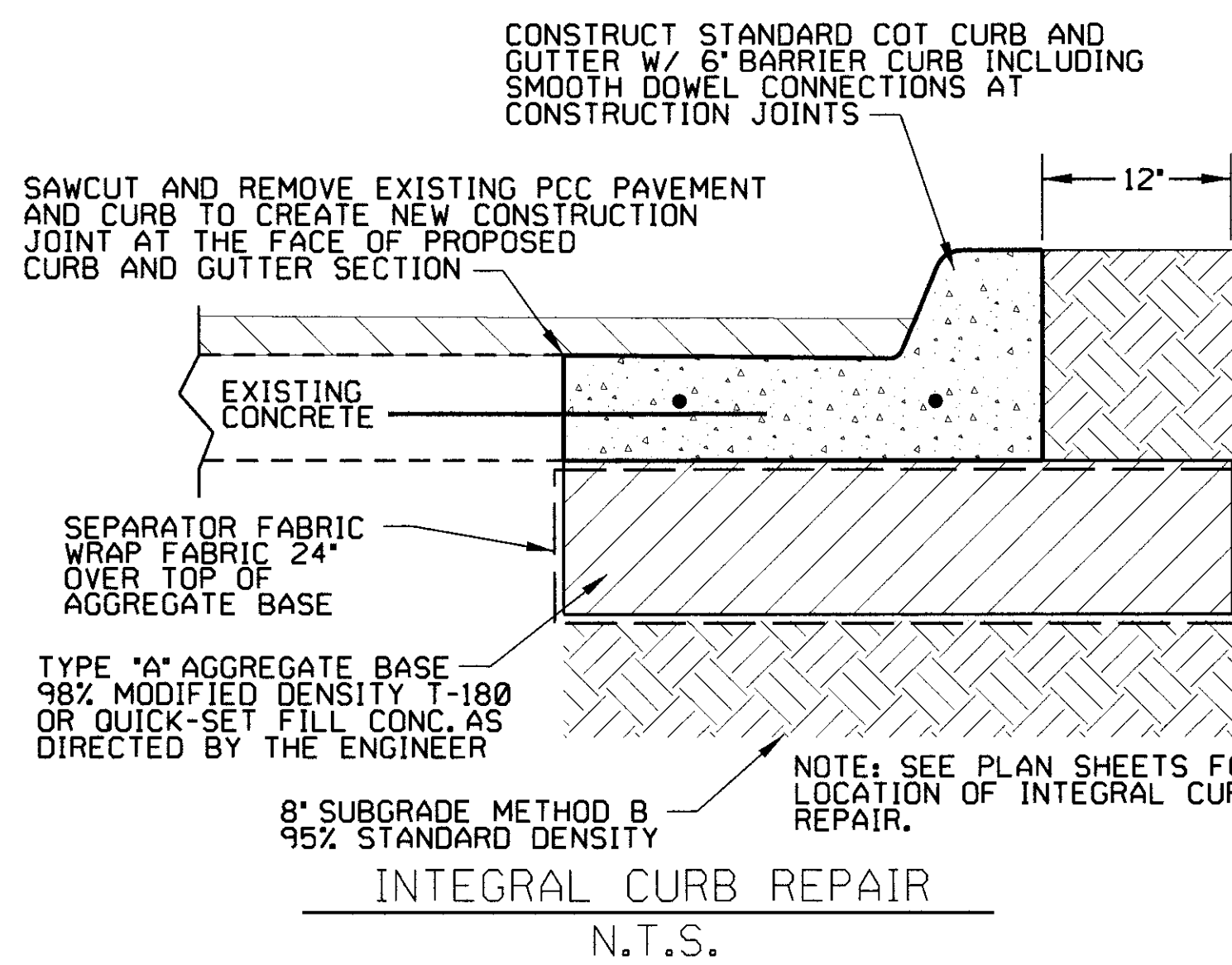
TIED BUTT JOINT
OR
LONGITUDINAL CONSTRUCTION JOINT
OR
TRANSVERSE CONSTRUCTION JOINT
N.T.S.



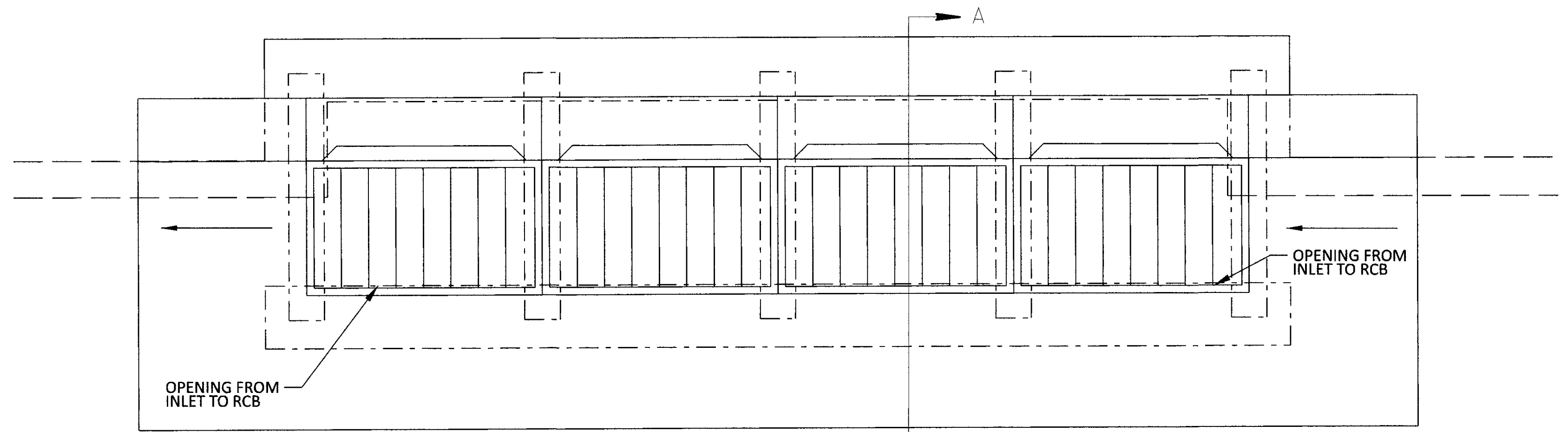
STANDING CURB
N.T.S.



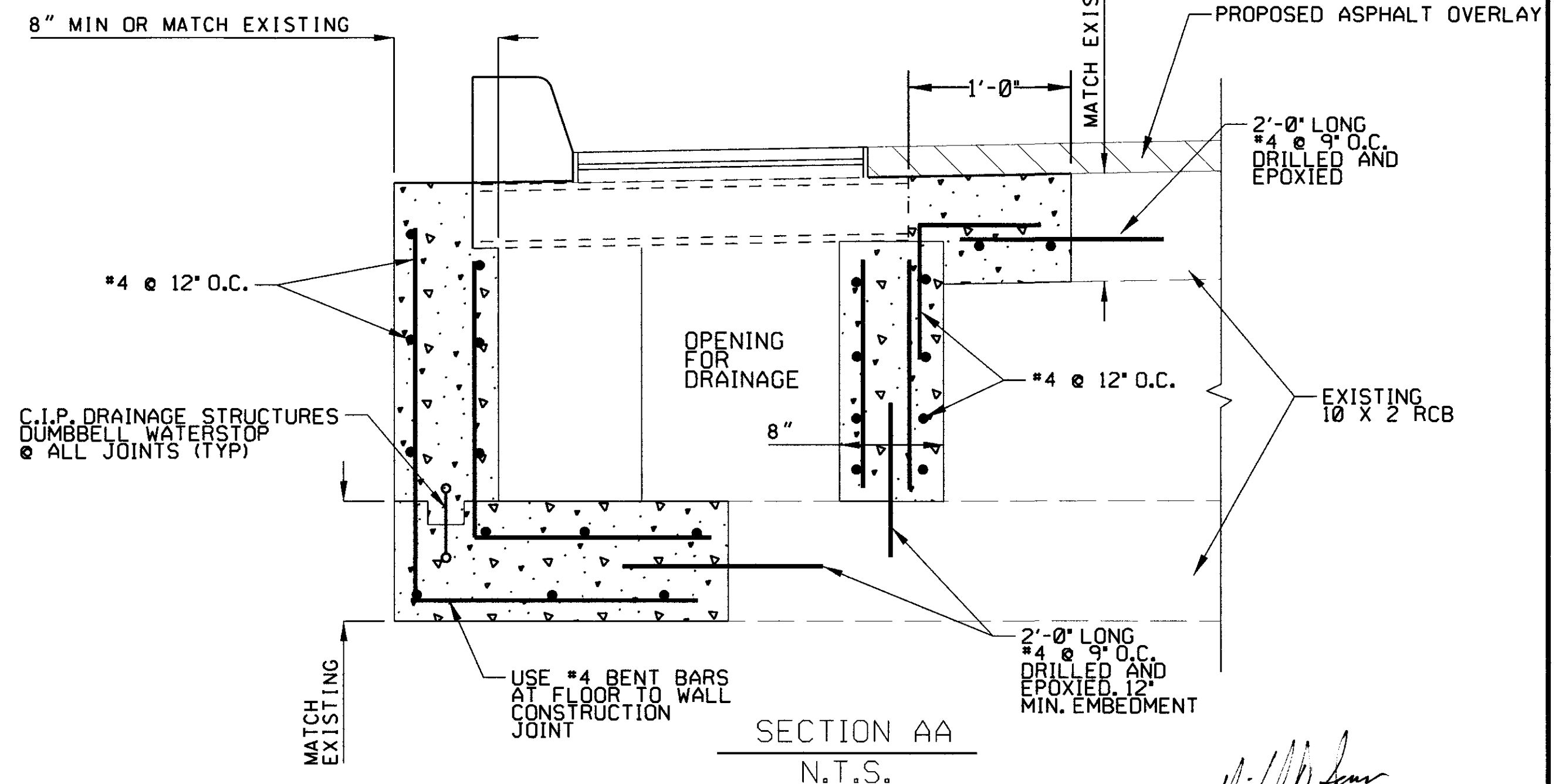
COMBINED CURB & GUTTER
(6" BARRIER)
N.T.S.



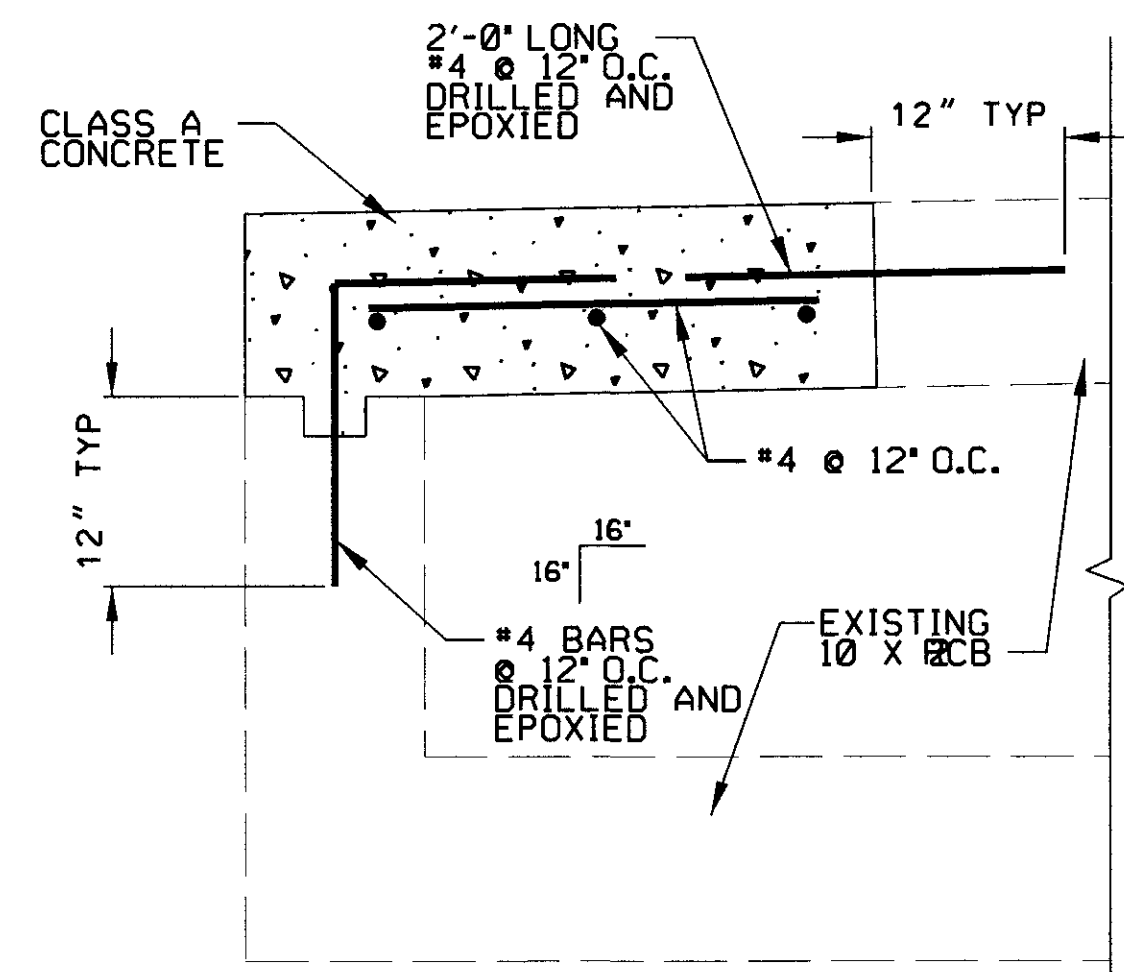
INTEGRAL CURB REPAIR
N.T.S.



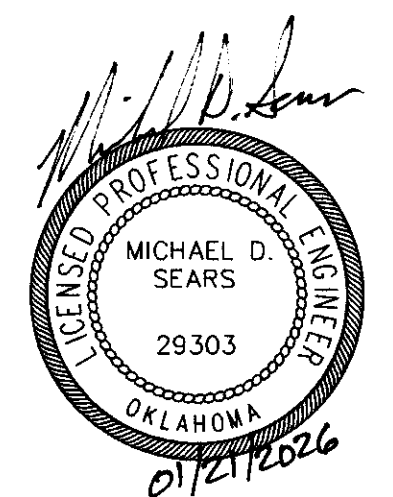
PLAN AT CI-9
N.T.S.



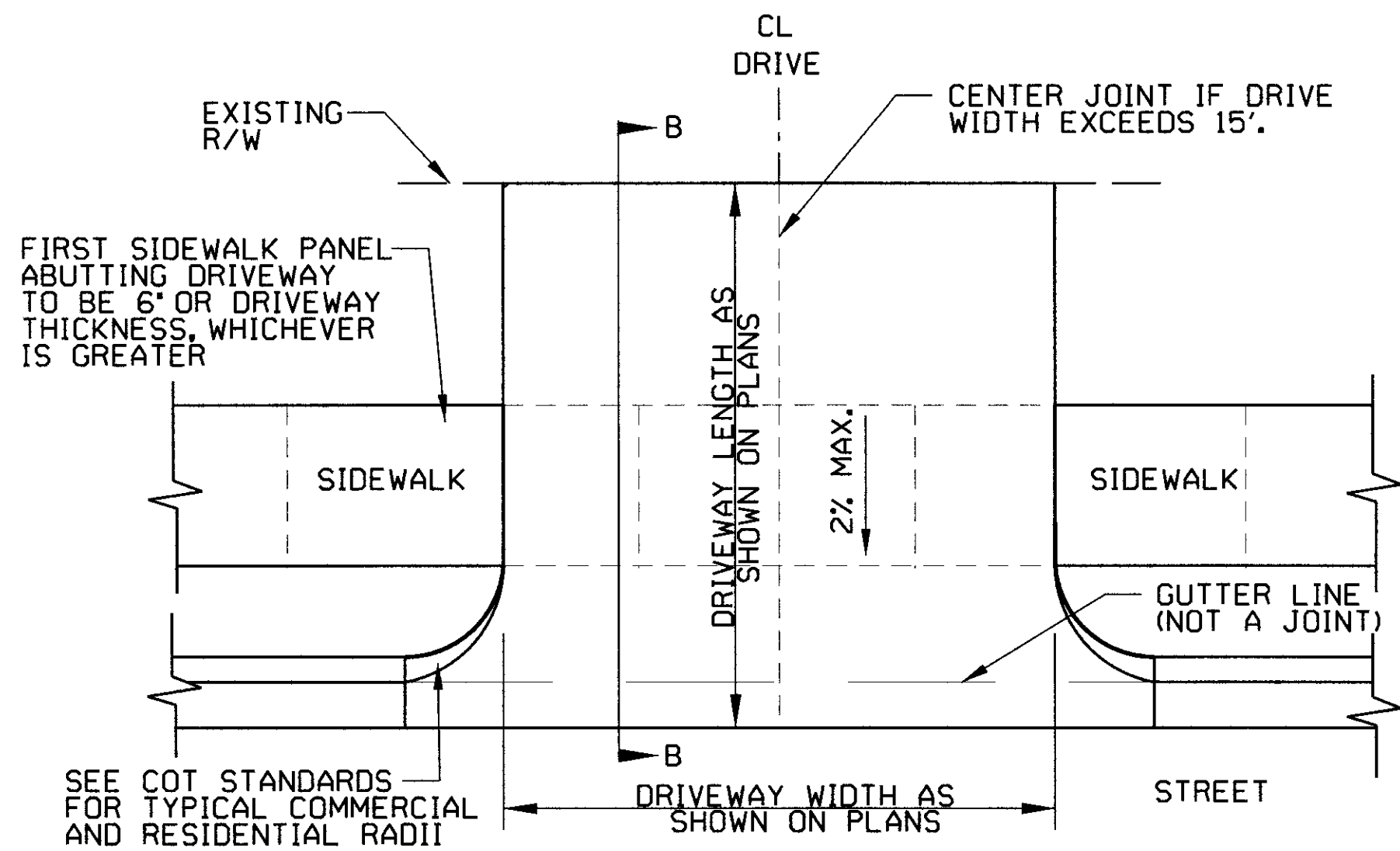
SECTION AA
N.T.S.



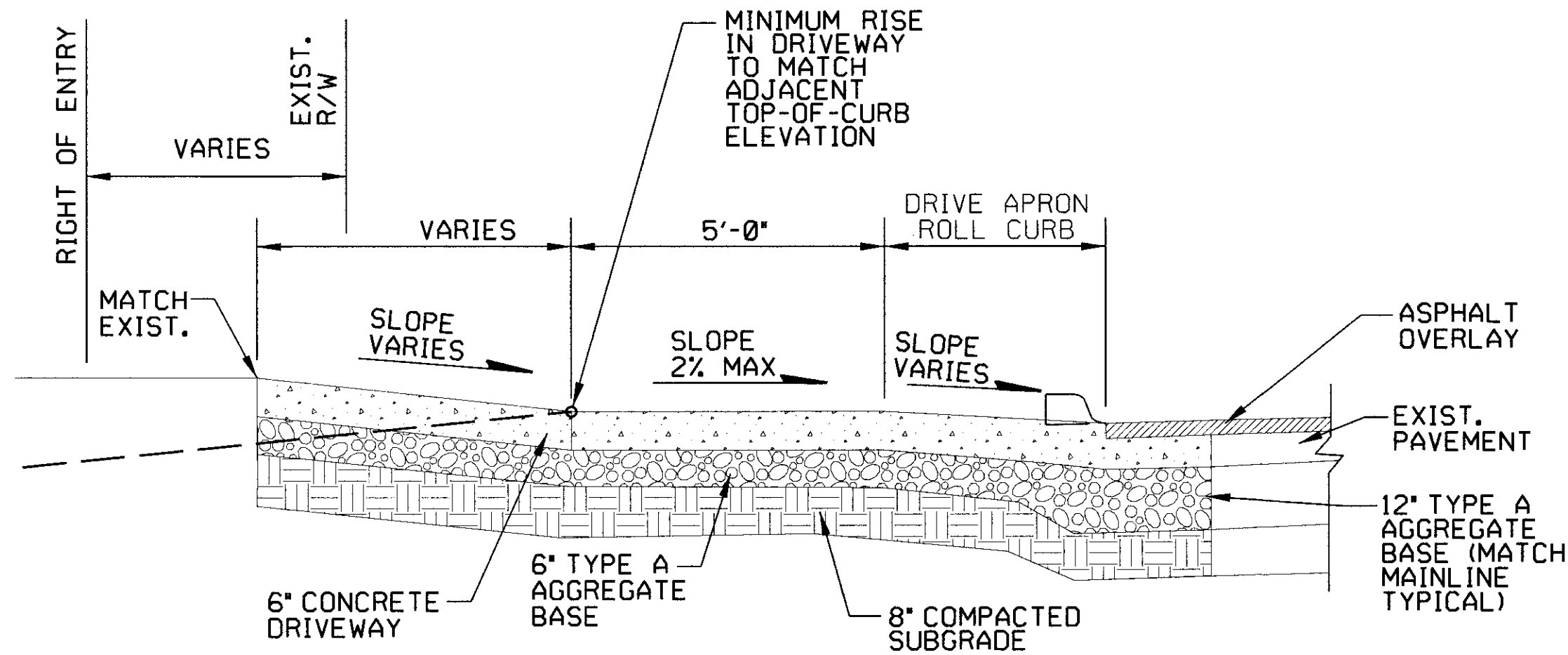
REPAIR DETAIL FOR EXISTING
RCB STRUCTURE AT INLET REMOVAL
N.T.S.



ROADWAY DETAILS			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY:			
 Dewberry			
PLAN SCALE: NA	DRAWN: DEI	03/17	APPROVED:
DESIGNED: DEI	03/17		
SURVEY: SWA	08/15		
PROFILE SCALE: NA	PROJ. MGR. <i>[Signature]</i>	01/2026	
HORIZONTAL: NA	LEAD ENGR. <i>[Signature]</i>	1/26	
VERTICAL: NA	FIELD MGR. <i>[Signature]</i>	6/6	
RECOMMENDED	DESIGN MANAGER		
FILE: <i>[Signature]</i>	DRAWING: <i>[Signature]</i>		
ATLAS PAGE NO.: 140, 141, 191			
			CITY ENGINEER
			DATE: SEP 2018
			SHEET 9 OF 59 SHEETS



RADIUS DRIVEWAY REPAIR PLAN
N.T.S.



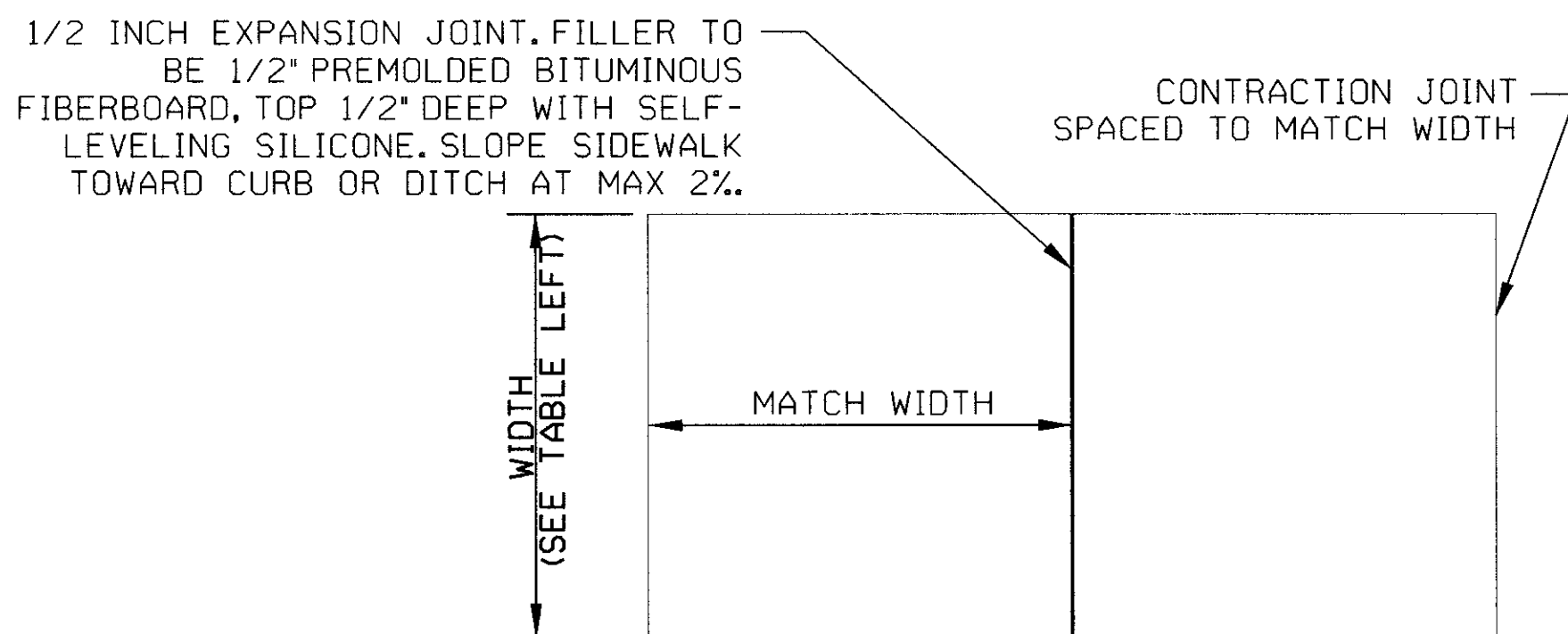
SECTION B-B SECTION DETAIL AT DRIVEWAY
N.T.S.

JOINT SPACING FOR STRAIGHT RUNS			
WALK WIDTH	CONTRACTION JOINT SPACING		EXPANSION JOINT SPACING
	TRANSVERSE	LONGITUDINAL	
4'-0"	4'-0"	NOT REQUIRED	24'-0"
5'-0"	5'-0"	NOT REQUIRED	25'-0"
6'-0"	6'-0"	NOT REQUIRED	24'-0"

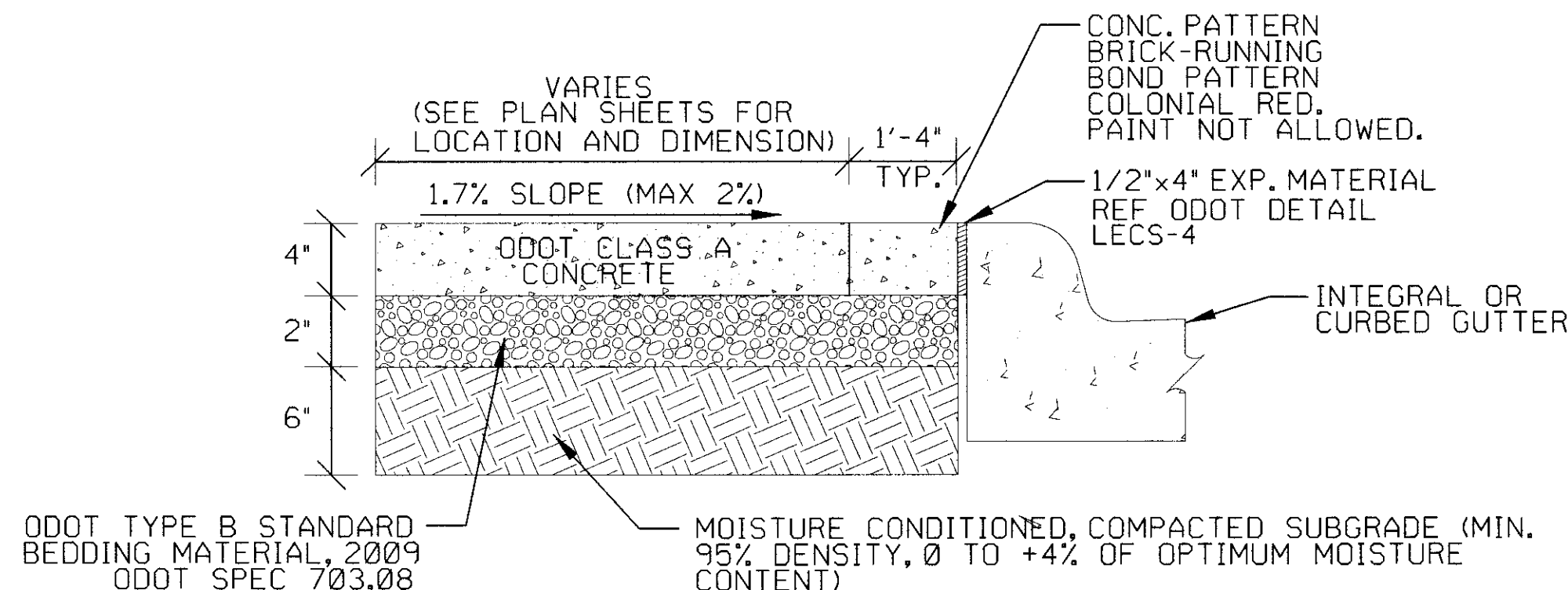
NOTES:

1. PROVIDE 1/2" EXPANSION JOINTS WHERE SIDEWALKS ABUT PLAIN CONCRETE PAVEMENT AND LARGE CONCRETE SURFACED AREAS.
2. TRANSVERSE EXPANSION JOINTS SHALL BE CONTINUOUS THROUGH BOTH WALK AND CURB WHERE WALK ABUTS CONCRETE CURB AND GUTTER.
3. ISOLATION JOINTS SHALL BE REQUIRED BETWEEN CURBS THAT ABUT THE SIDEWALK LONGITUDINALLY.

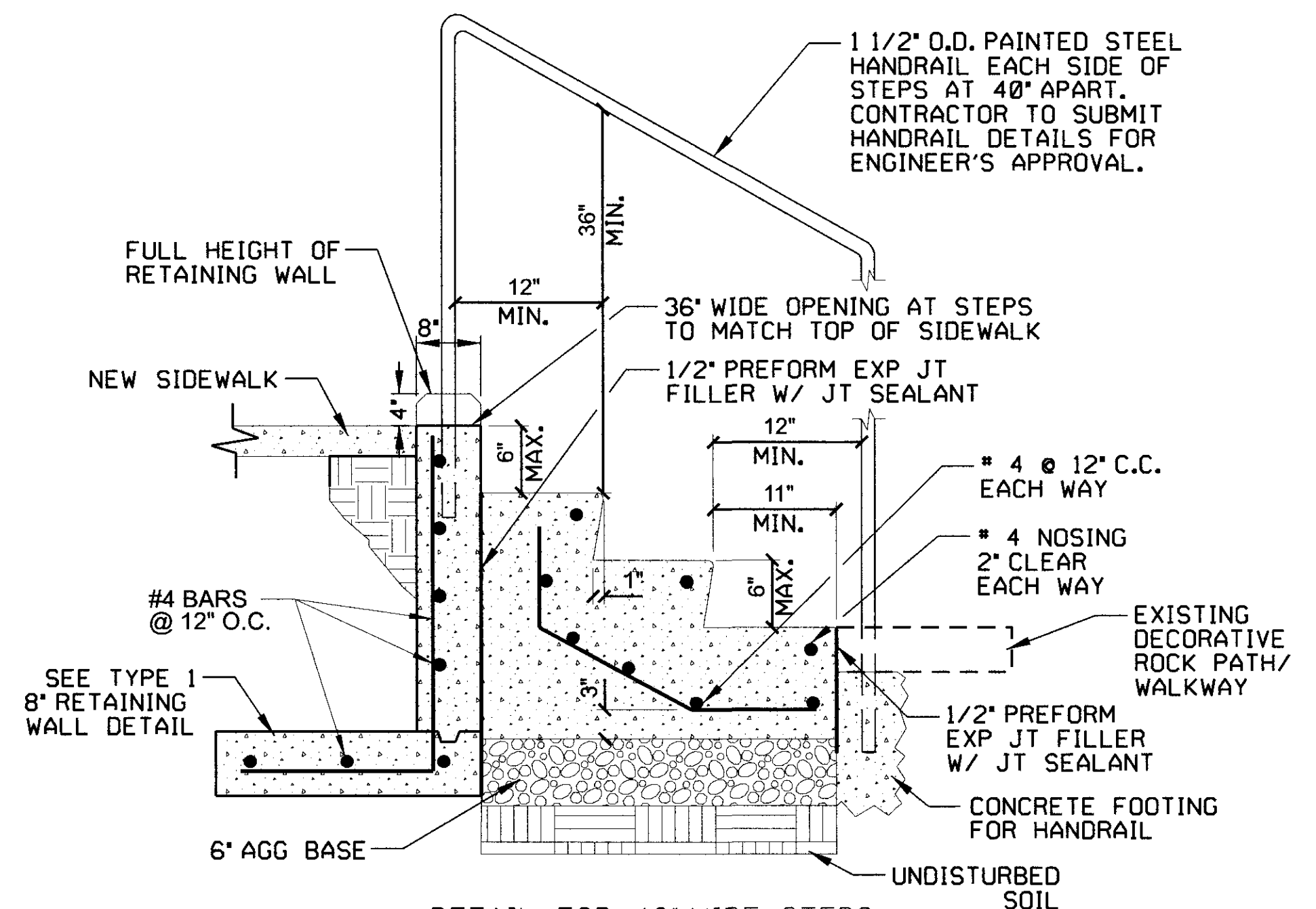
4" CONCRETE SIDEWALK
N.T.S.



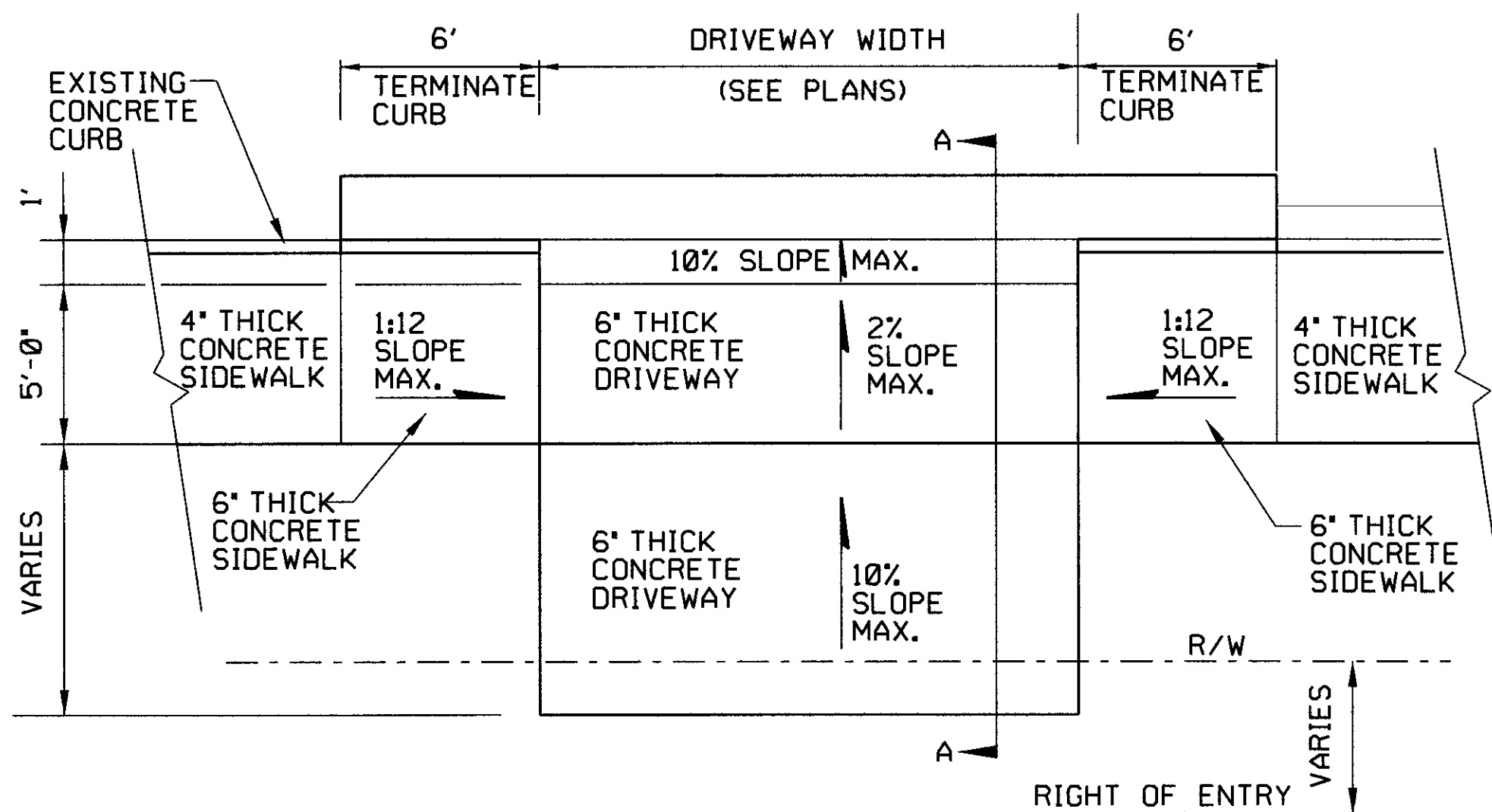
SIDEWALK PLAN VIEW
N.T.S.



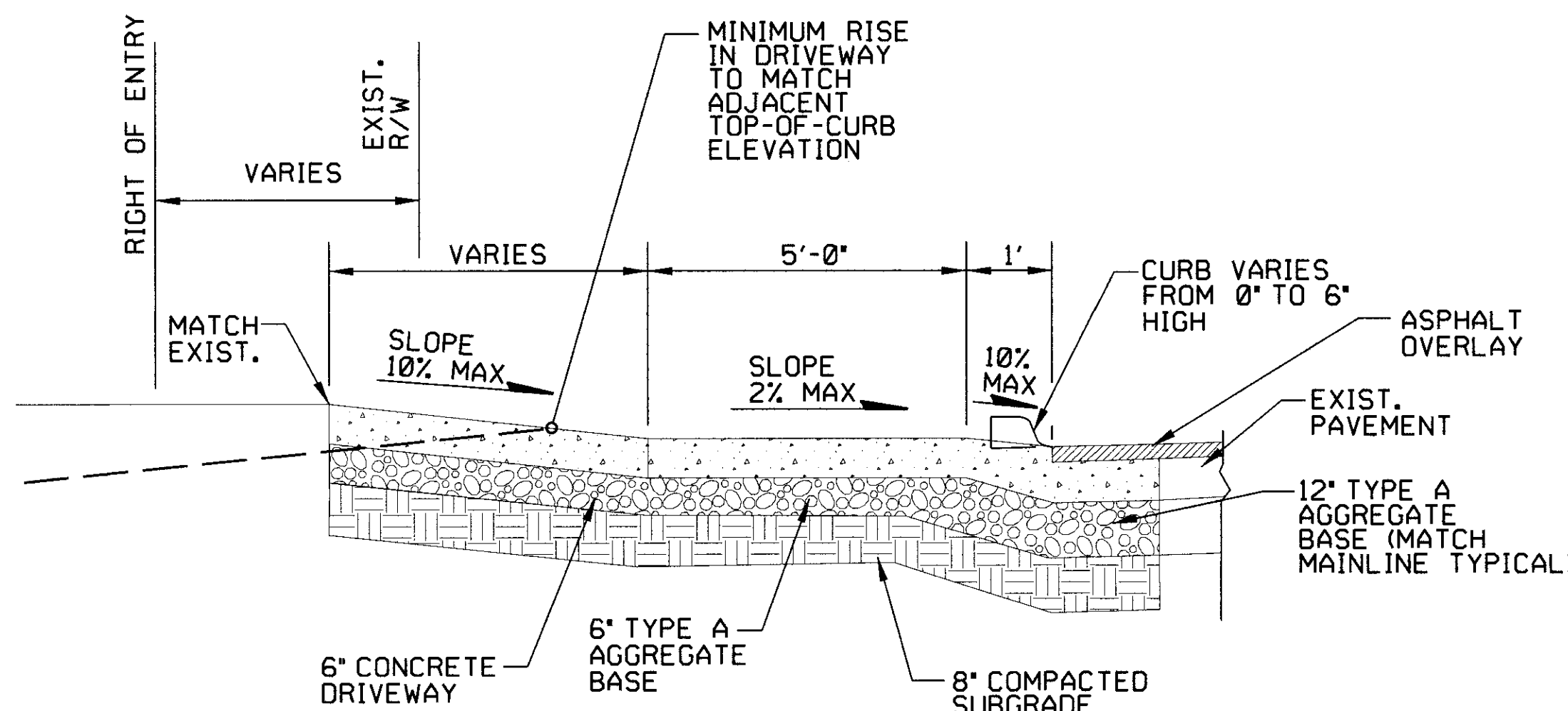
SIDEWALK TYPICAL SECTION
N.T.S.



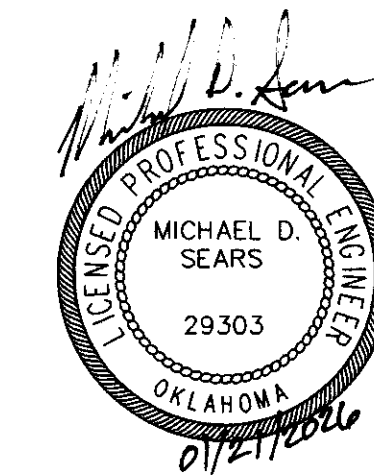
DETAIL FOR 48" WIDE STEPS
STA. 67+81.86 (RT)
N.T.S.



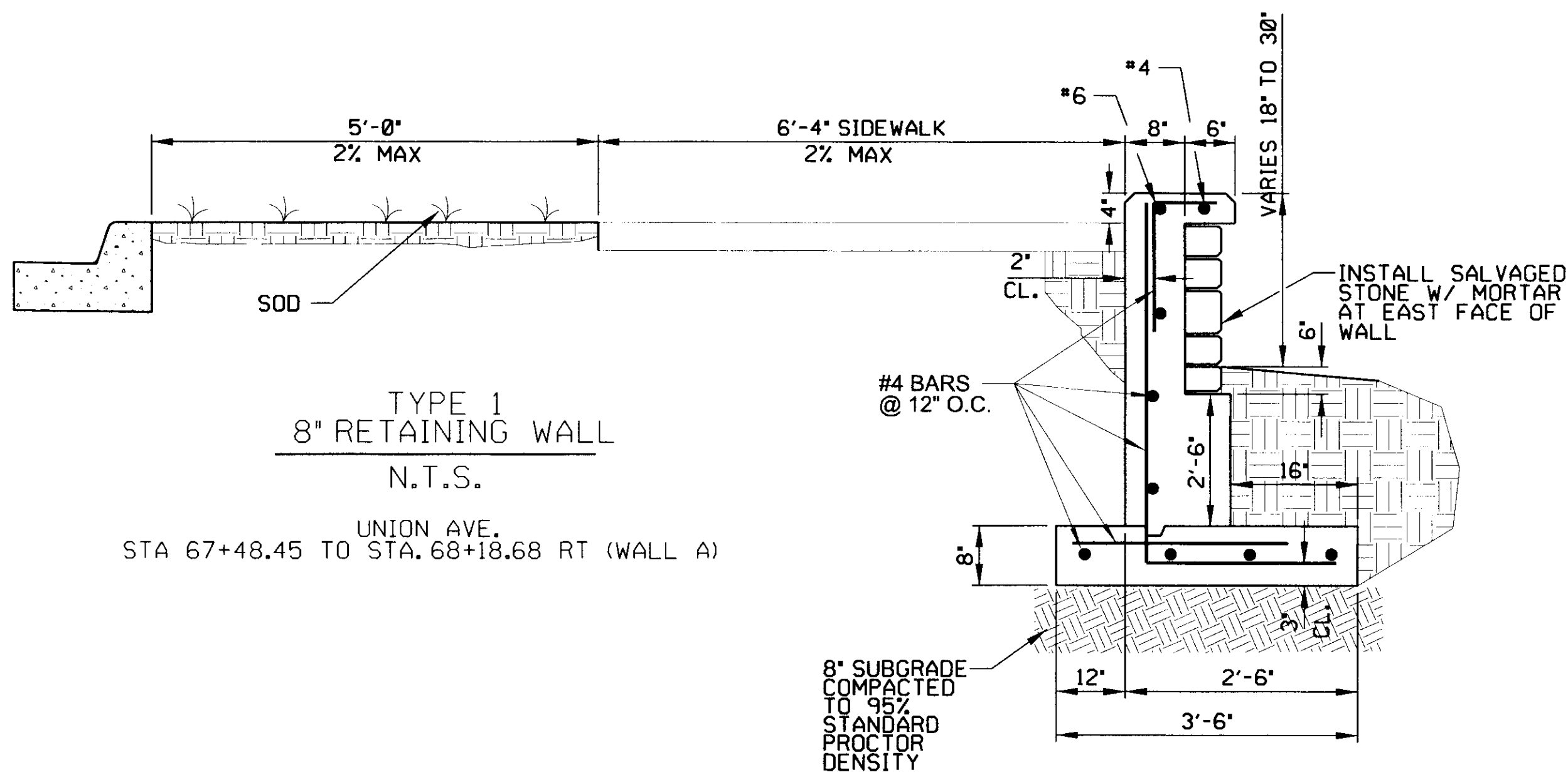
RAMP DRIVEWAY REPAIR PLAN
N.T.S.



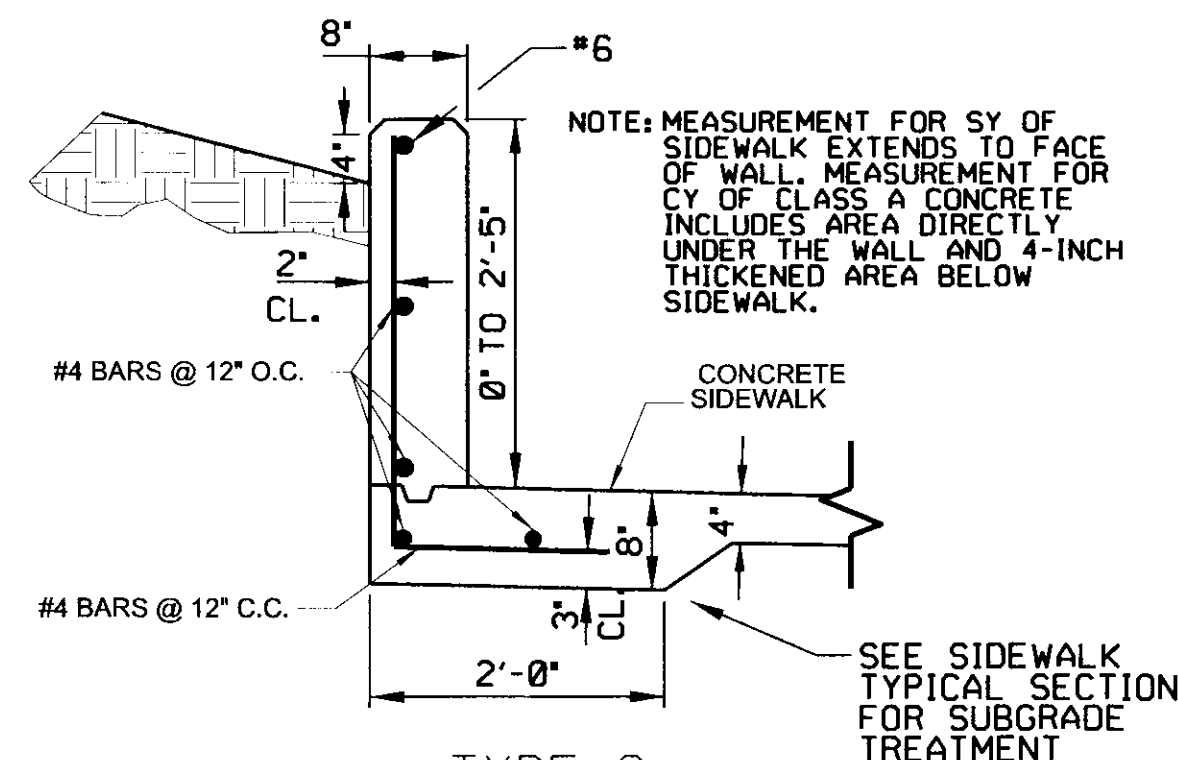
SECTION A - A DRIVE APRON
N.T.S.



DRIVEWAY AND SIDEWALK DETAILS				
PROJECT NO. 144017-G AND 144017-AS				
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)				
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT				
PLANS AND ESTIMATES PREPARED BY:				
		Dewberry ® Dewberry Engineering Inc. 1290 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587.7283 • Fax 918.587.8871		
PLAN SCALE	DRAWN	DEI	03/17	APPROVED
	DESIGNED	DEI	03/17	
	SURVEY	SWA	08/15	
PROFILE SCALE HORIZONTAL	PROJ. MGR.	<i>John 01/2026</i>		
	LEAD ENGR.	<i>D 1/26</i>		
VERTICAL	FIELD MGR.	<i>Tom 6/26</i>		
	RECOMMENDED <i>THS</i>	<i>HAS 6-23</i>		
DESIGN MANAGER		CITY ENGINEER		
FILE:	DRAWING:		DATE: SEP 2018	
ATLAS PAGE NO.: 140, 141, 191			SHEET 10 OF 59 SHEETS	

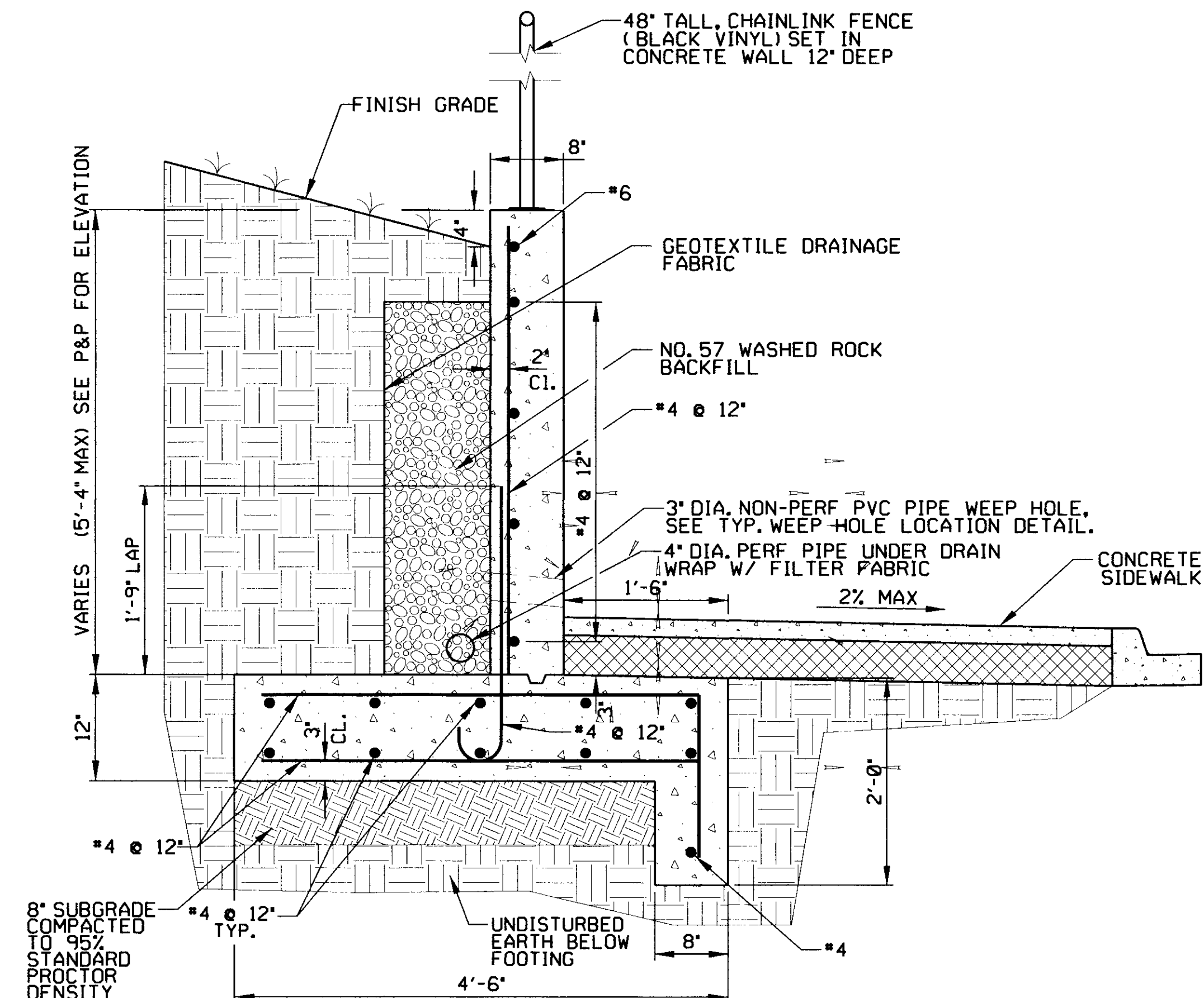


UNION AVE.
STA 67+48.45 TO STA. 68+18.68 RT (WALL A)



TYPE 2
8" RETAINING WALL
N.T.S.

UNION AVE. / UNION PL.
STA 71+04.00 TO STA. 72+16.62 LT (WALL C)
STA 72+32.31 TO STA. 72+94.13 LT (WALL D)
STA 75+82.02 TO STA. 76+69.79 LT (WALL E)
STA 76+93.11 TO STA. 77+62.82 LT (WALL F)
STA 77+67.16 TO STA. 78+91.59 LT (WALL G)
STA 79+37.41 TO STA. 79+70.33 LT (WALL H)
STA 80+03.21 TO STA. 80+29.19 LT (WALL I)
STA 80+40.26 TO STA. 80+80.52 LT (WALL J)
STA 81+46.69 TO STA. 82+22.55 LT (WALL K)
STA 82+36.68 TO STA. 83+97.83.71 LT (WALL L)



TYPE 3
8" RETAINING WALL
N.T.S.

UNION AVE
STA 70+92.08 TO STA. 71+04.85 LT (WALL B)

SPECIFICATIONS:

DESIGN - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
7TH EDITION, 2004.
CONSTRUCTION - OKLAHOMA DEPARTMENT OF
TRANSPORTATION 2009 EDITION STANDARD
SPECIFICATIONS
FOR HIGHWAY CONSTRUCTION.

GEOTECHNICAL REPORT:

SUBSURFACE INVESTIGATION BY
KLEINFELDER REPORT NO. 20161079
DATED 06-01-2015.

DESIGN LOADS:

BACKFILL = 2:1 MAX SLOPE
INTERNAL FRICTION ANGLE = 30 DEGREES
COEFFICIENT OF FRICTION BETWEEN FOOTING AND BEARING SURFACE = 0.46
NON-COHESIVE ACTIVE SOIL PRESSURE = 40 PCF PER FOOT

CONCRETE:

CONCRETE SHALL BE CLASS A (F'C = 3,000 PSI)
EXPOSED EDGES TO HAVE 3/4" CHAMFER UNLESS OTHERWISE NOTED

REINFORCING STEEL:

DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60.
ALL REINFORCING BAR DIMENSIONS ON THE DETAILED DRAWINGS ARE TO
THE CENTERS OF BARS EXCEPT WHERE OTHERWISE NOTED. REINFORCING
BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF
THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED
CONCRETE STRUCTURES" ACI-315. ALL REINFORCEMENT SHALL HAVE
A 2" COVER UNLESS OTHERWISE NOTED.

MINIMUM REINFORCING BAR SPLICE LENGTHS: (UNLESS OTHERWISE NOTED)
BAR SIZE: NO. 4 NO. 5 NO. 6 NO. 7 NO. 8
SPLICE LENGTH: 1'-9" 2'-2" 2'-9" 3'-9" 4'-11"

FOUNDATIONS:

THE FOOTING IS DESIGNED TO EXERT A MAXIMUM FOUNDATION PRESSURE
OF 2,000 POUNDS PER SQUARE FOOT. BOTTOM OF FOOTINGS SHALL BE
LOCATED IN VIRGIN SOIL OR COMPACTED FILL THAT HAS BEEN APPROVED
BY THE GEOTECHNICAL ENGINEER OR THE PROJECT INSPECTOR TO BE
ADEQUATE TO SUPPORT THE DESIGN BEARING PRESSURE PRIOR TO
PLACEMENT OF FOOTING CONCRETE. IF REQUIRED, SUBGRADE SHALL BE
PREPARED BY REMOVING UNSUITABLE MATERIAL AND BACKFILLING WITH
SELECT MATERIAL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. CARE
IS REQUIRED DURING EXCAVATION FOR THE CONCRETE SHEAR KEY TO
ALLOW CONSTRUCTION OF THE KEY IN AN UNFORMED EXCAVATION AGAINST
VIRGIN SOIL OR COMPACTED FILL.

BACKFILL:

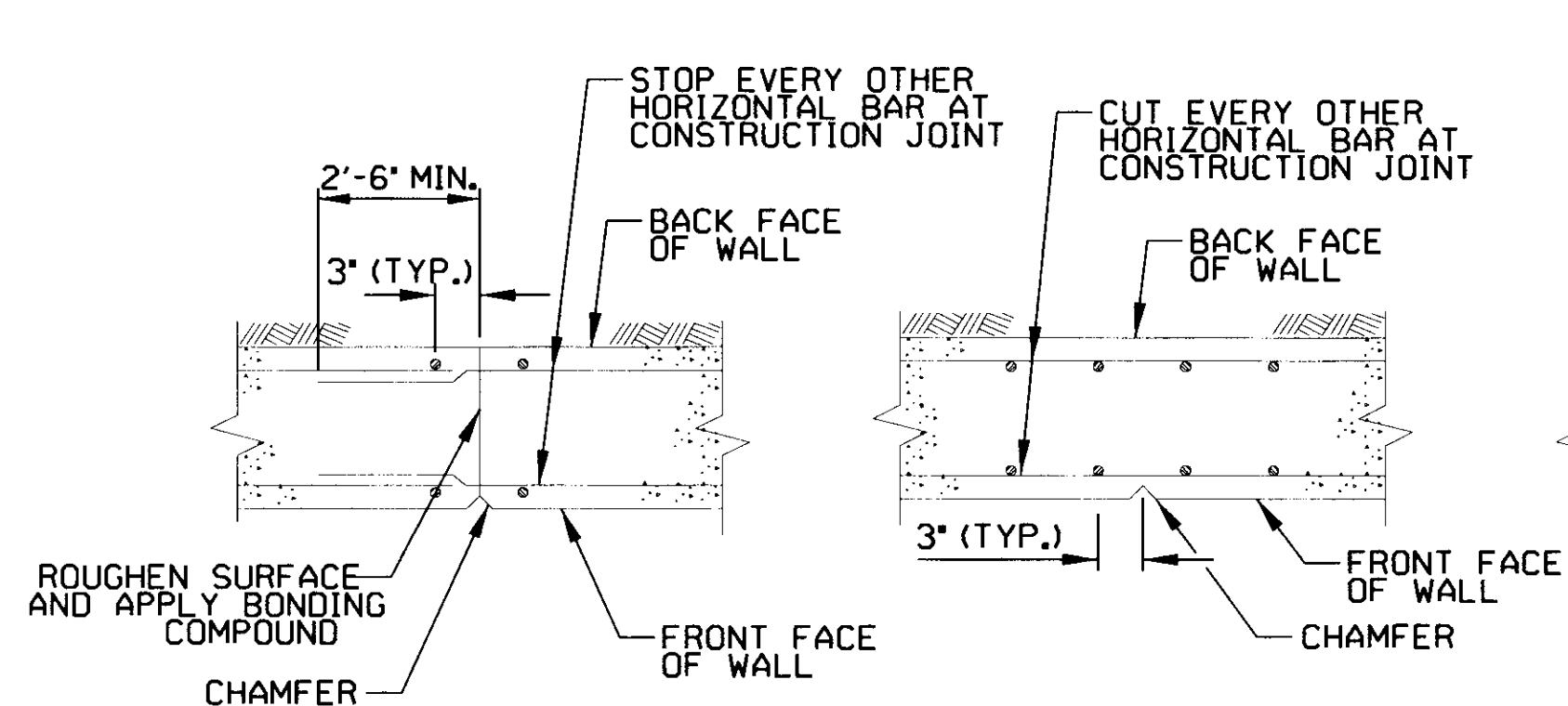
CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO BRACE WALLS
WHEN BACKFILLING. CARE SHALL BE TAKEN DURING PLACEMENT OF BACKFILL
ADJACENT TO THE WALL SO AS NOT TO OVERLOAD THE WALL DUE TO HEAVY
EQUIPMENT. ONLY LIGHTWEIGHT COMPACTION EQUIPMENT (NOT EXCEEDING
2,000 POUNDS) SHALL BE PERMITTED WITHIN THE CRITICAL ZONE DEFINED
AS BEGINNING AT THE BASE OF THE WALL AND WIDENING UPWARD FROM THE
BASE AT A 1:1 SLOPE. ALL PRECAUTIONS SHALL BE TAKEN TO PROVIDE
ADEQUATE DRAINAGE PRIOR TO AND AFTER CONSTRUCTION. BACKFILL
MATERIALS APPROVED BY THE GEOTECHNICAL ENGINEER SHALL BE PLACED
IN 8 INCH LOOSE LIFTS (6 INCH WHEN USING LIGHTWEIGHT COMPACTION
EQUIPMENT) COMPACTED TO AT LEAST 95% OF THE MAXIMUM STANDARD
PROCTOR DRY DENSITY PER ASTM D698.

CONSTRUCTION NOTES:

THE STRUCTURE IS TO BE LOCATED IN THE FIELD AS SHOWN ON THE ROADWAY
PLAN AND PROFILE SHEETS AND RETAINING WALL ELEVATIONS. ALL DIMENSIONS
AND ELEVATIONS OF EXISTING STRUCTURES, PROPERTY LINES, EASEMENTS, UTILITIES,
EXISTING AND PROPOSED CONTOURS, AND OTHER EXISTING OR PROPOSED FEATURES
SHOWN ON THE DRAWINGS, HAVE BEEN OBTAINED FROM TOPOGRAPHICAL SURVEYS AND
SITE INVESTIGATIONS. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS AND
ELEVATIONS PRIOR TO START OF CONSTRUCTION OF THE STRUCTURE AND SHALL
REPORT ANY SIGNIFICANT DISCREPANCIES TO THE ENGINEER.

FINISH

WALL FINISH TO HAVE EQUIVALENT
FORM LINER DESIGN EQUAL TO
GREENSTREAK ARCHITECTURAL FORM
LINER STONE DESIGN NO. 330 ASHLAR
STONE OR APPROVED EQUAL.

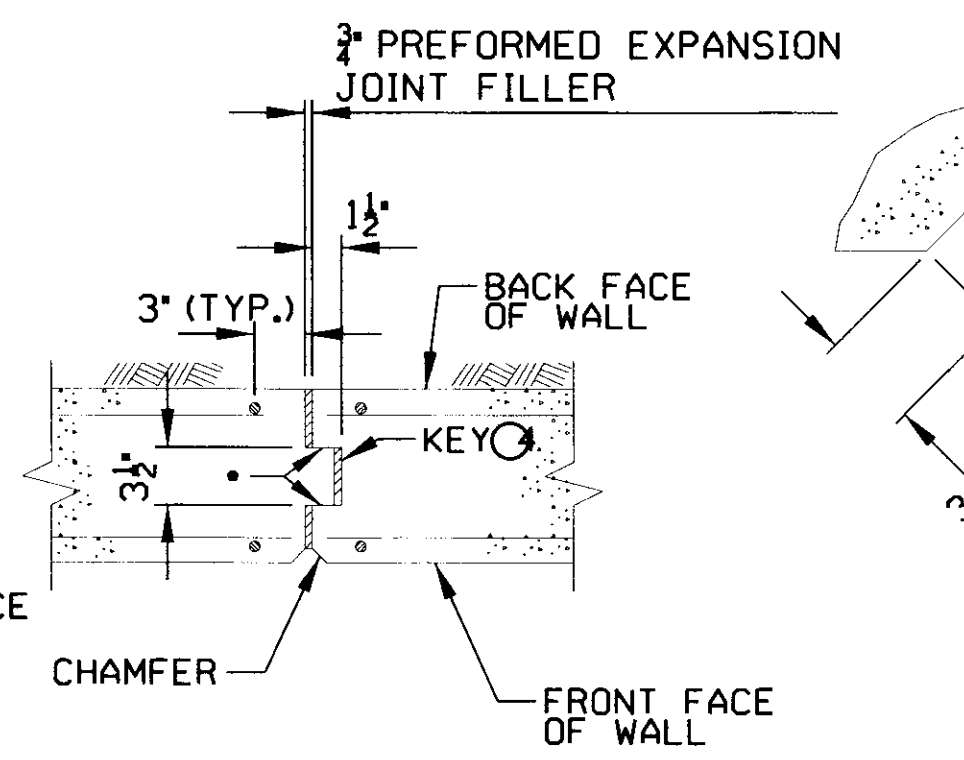


NOTE: CONSTRUCTION JOINT CAN
REPLACE CONTROL JOINT

CONSTRUCTION JOINT
(C.J.)

NOTE: PROVIDE CONTROL JOINTS
AS SHOWN ON WALL ELEVATION
(25'-0" INTERVALS MAX.)

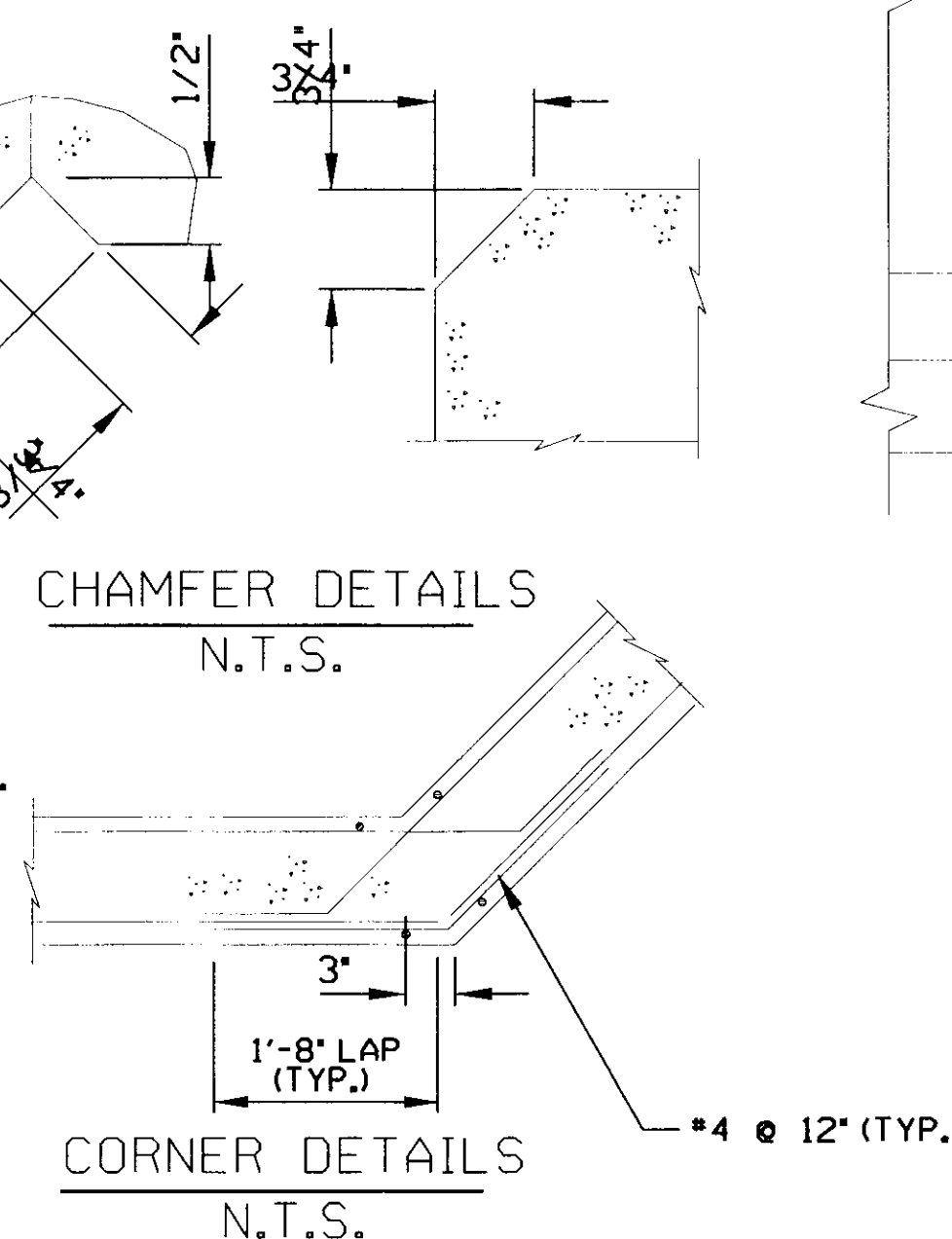
CONTROL JOINT
(C.J.)



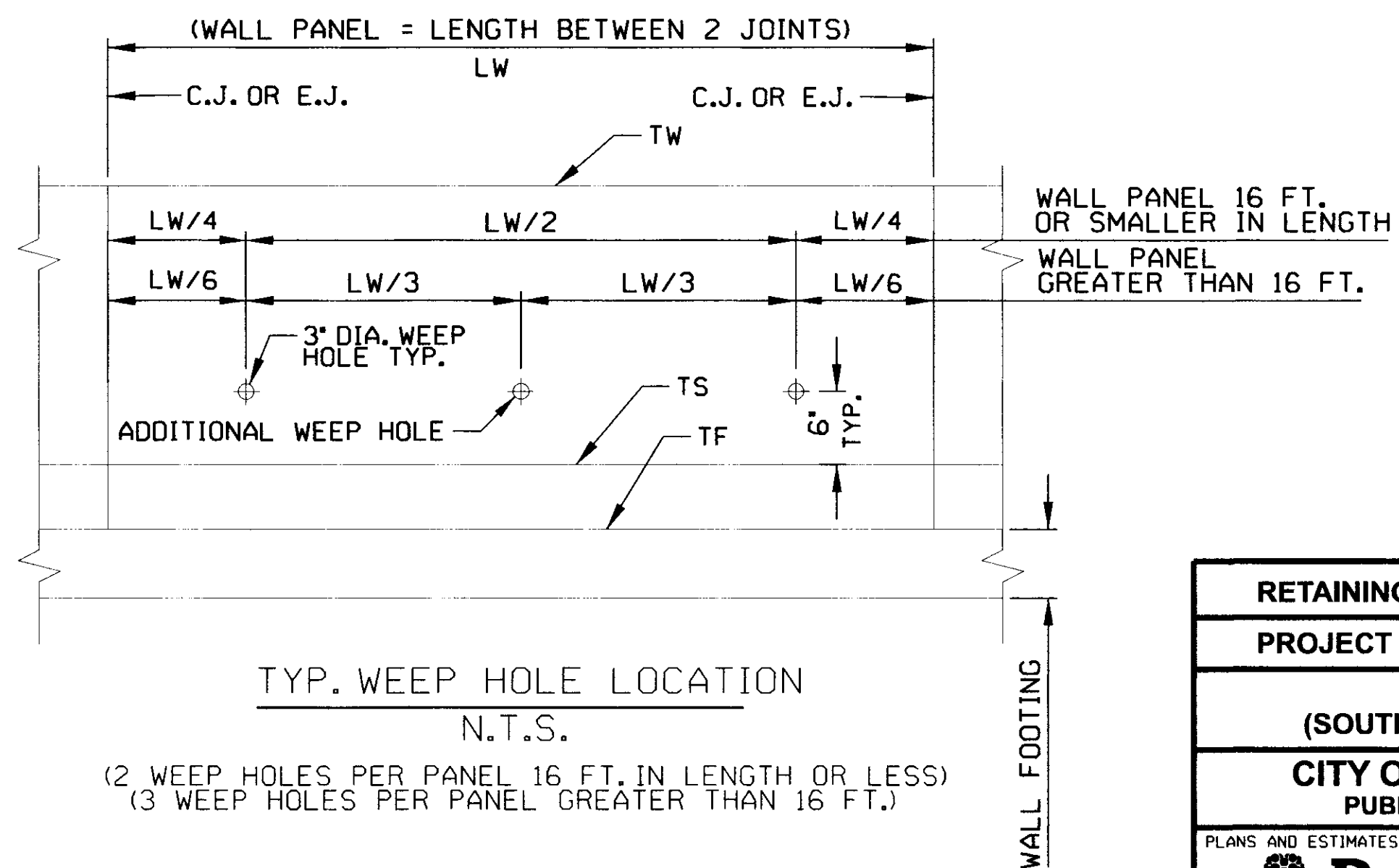
*SINGLE LAYER OF TARPAPER FULL HEIGHT OF KEY.
FASTEN TO CONCRETE WITH ASPHALTIC CEMENT.

NOTE: PROVIDE EXPANSION JOINTS
AS SHOWN ON WALL ELEVATION
(100'-0" INTERVALS MAX.)

EXPANSION JOINT
(E.J.)

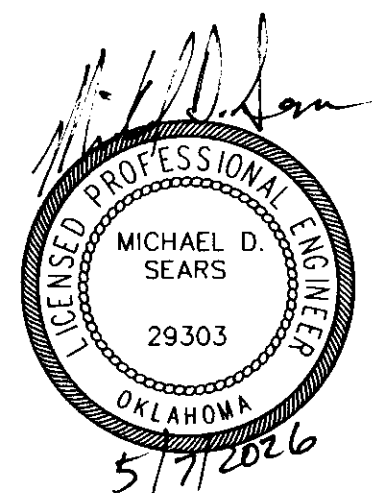


CORNER DETAILS
N.T.S.



TYP. WEEP HOLE LOCATION
N.T.S.

(2 WEEP HOLES PER PANEL 16 FT. IN LENGTH OR LESS)
(3 WEEP HOLES PER PANEL GREATER THAN 16 FT.)



RETAINING WALL DETAILS AND NOTES

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

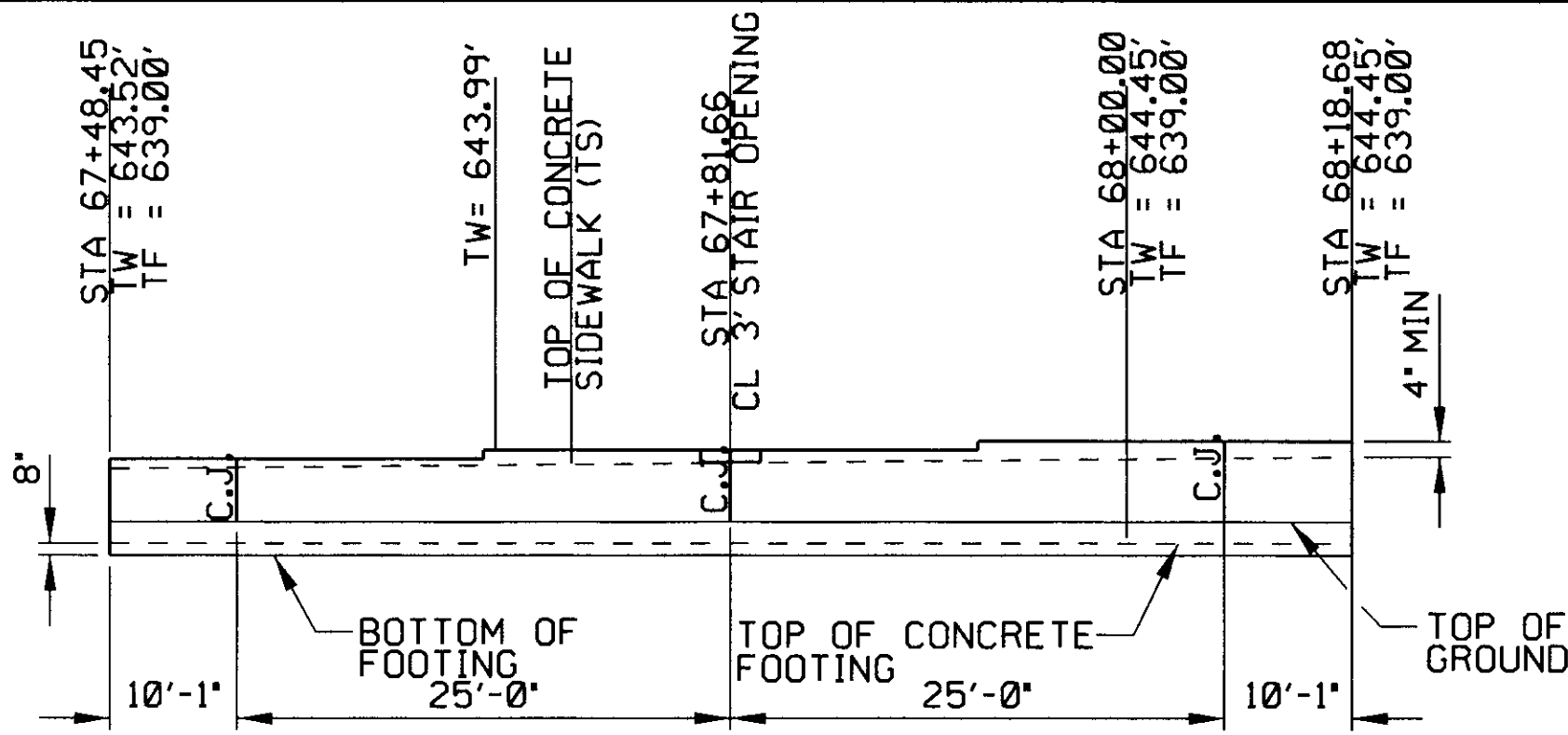
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

Dewberry

Dewberry Engineers Inc.
1350 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3216
918.587.7283 - Fax: 918.587.8871

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED
				DESIGNED	DEI	03/17	
				SURVEY	SWA	08/15	
			PROFILE SCALE	PROJ. MGR.	M. J. 5/20/21		
			HORIZONTAL	LEAD ENGR.	P. J. 5/20		
				FIELD MGR.	P. J. 6/16		
			VERTICAL	RECOMMENDED			
				DESIGN MANAGER	H. S. 6-24		
			FILE	DRAWING			CITY ENGINEER
							DATE: SEP 2018
			ATLAS PAGE NO.	140, 141, 141			SHEET 11 OF 59 SHEETS

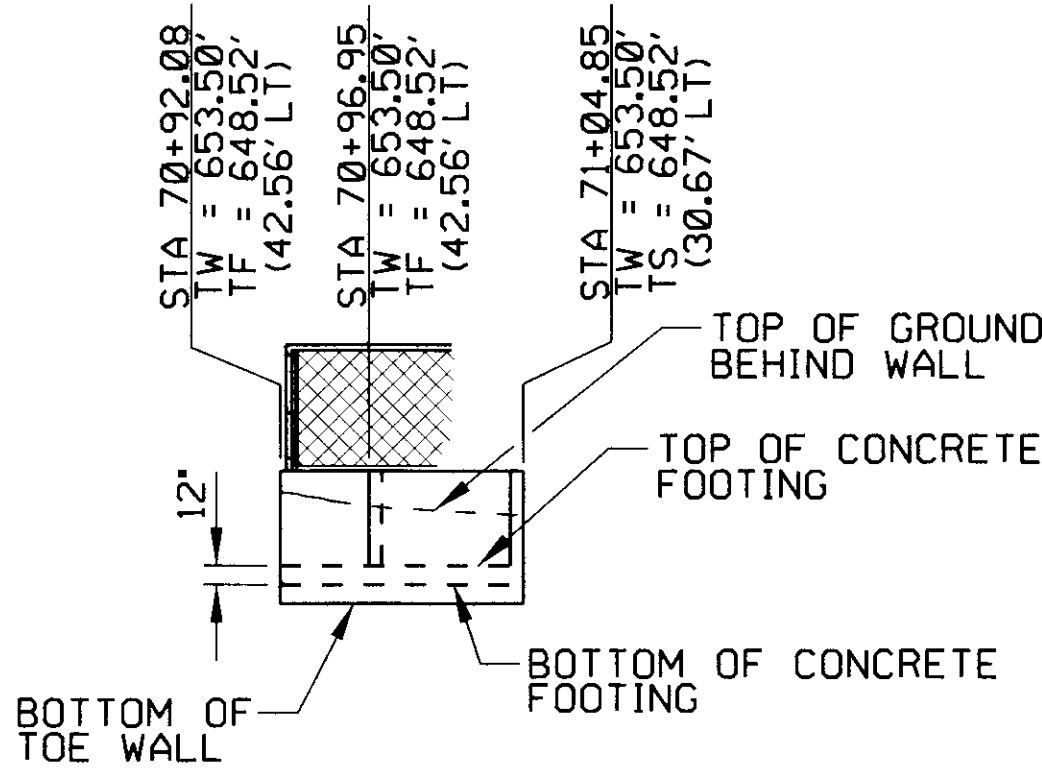


TYPE 1 - 8" RETAINING WALL
N.T.S.

UNION AVE.
STA 67+48.45 TO STA.68+18.68 RT (WALL A)

SUMMARY OF PAY QUANTITIES - WALL A			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	18.2*	CY	CLASS A CONCRETE
511(A)	862*	LB	REINF. STEEL , GRADE 60

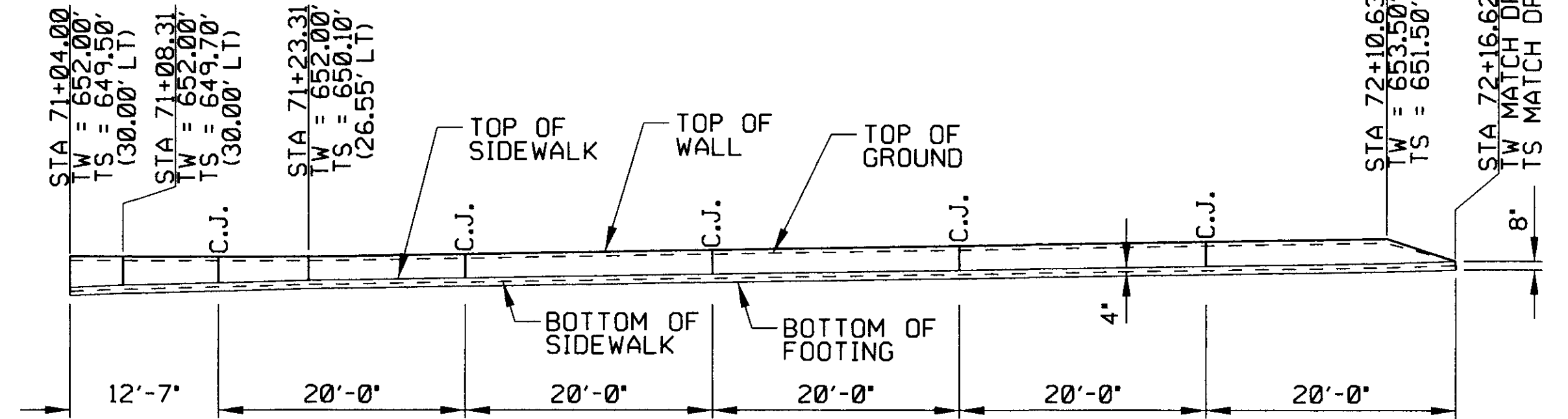
*INCLUDES 1.5 CY OF CONCRETE
AND 27 LB OF STEEL FOR STEPS
LOCATED AT STA.67+81.66.



TYPE 3 - 8" RETAINING WALL
N.T.S.

UNION AVE.
STA 70+92.08 TO STA.71+04.85 LT (WALL B)

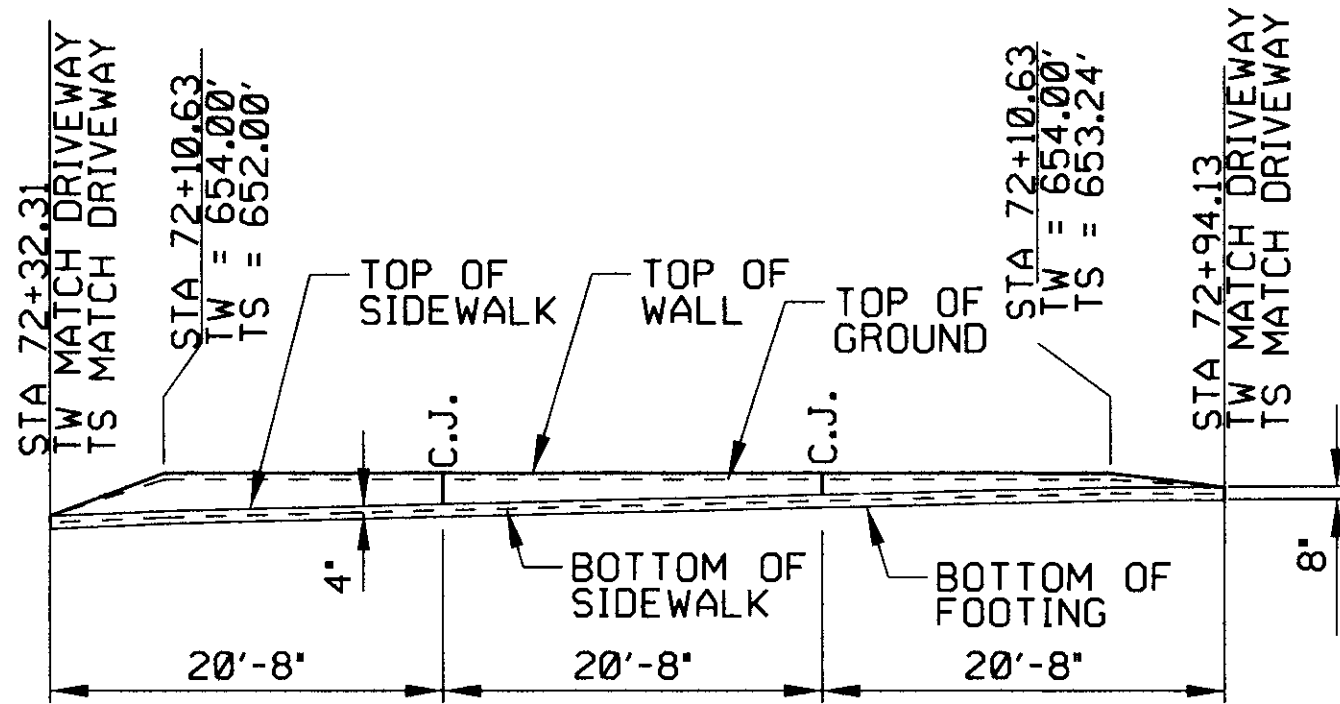
SUMMARY OF PAY QUANTITIES - WALL B			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	6.8	CY	CLASS A CONCRETE
511(A)	474	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION AVE.
STA 71+04.00 TO STA.72+16.62 LT (WALL C)

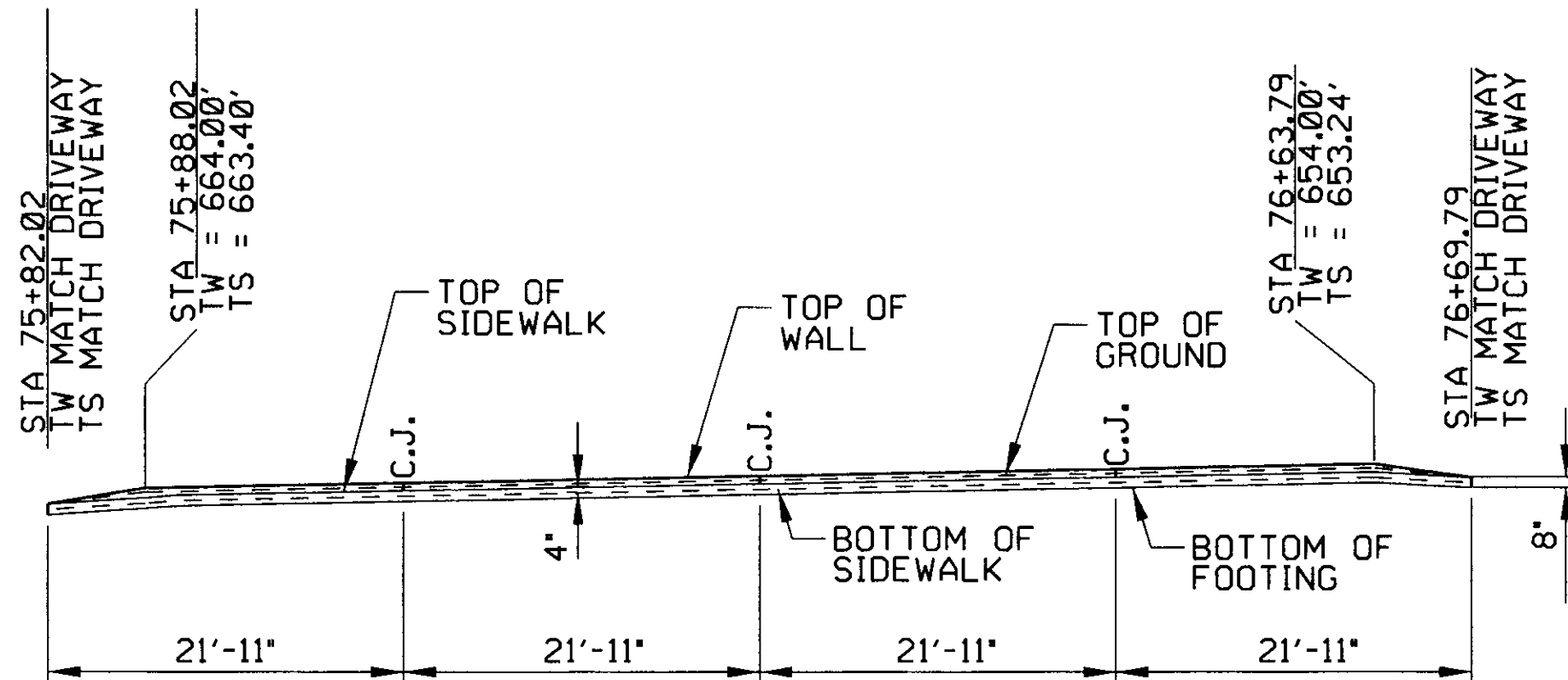
SUMMARY OF PAY QUANTITIES - WALL C			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	6.9	CY	CLASS A CONCRETE
511(A)	762	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION AVE. / UNION PL.
STA 72+32.31 TO STA.72+94.13 LT (WALL D)

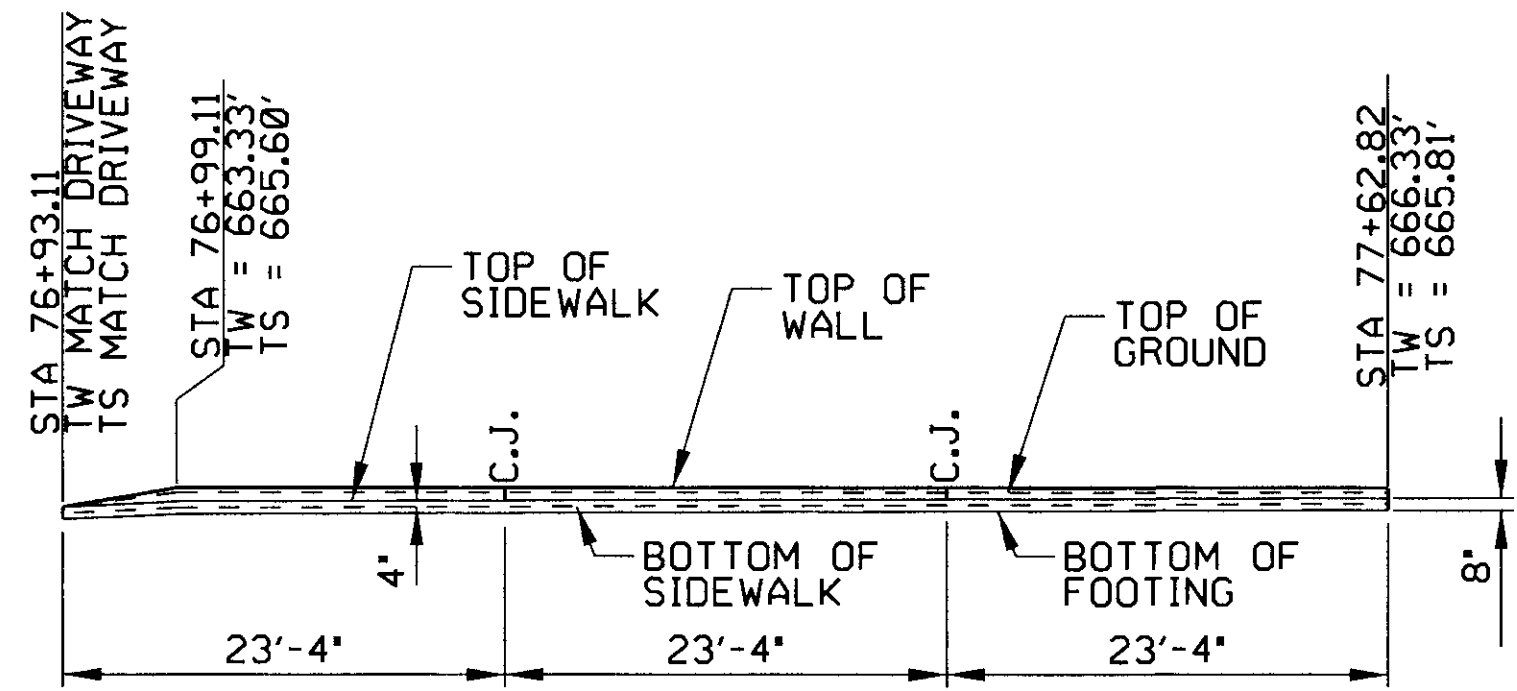
SUMMARY OF PAY QUANTITIES - WALL D			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	5.1	CY	CLASS A CONCRETE
511(A)	419	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION AVE. / UNION PL.
STA 75+82.02 TO STA.76+69.79 LT (WALL E)

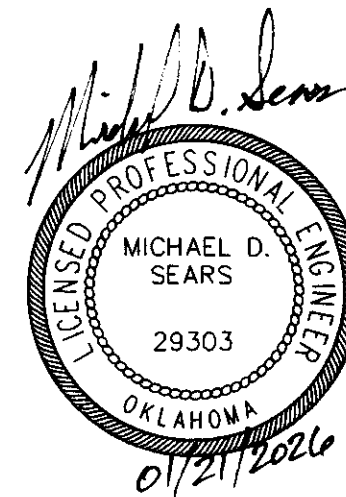
SUMMARY OF PAY QUANTITIES - WALL E			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	4.5	CY	CLASS A CONCRETE
511(A)	532	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 76+93.11 TO STA.77+62.82 LT (WALL F)

SUMMARY OF PAY QUANTITIES - WALL F			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	3.6	CY	CLASS A CONCRETE
511(A)	412	LB	REINF. STEEL , GRADE 60

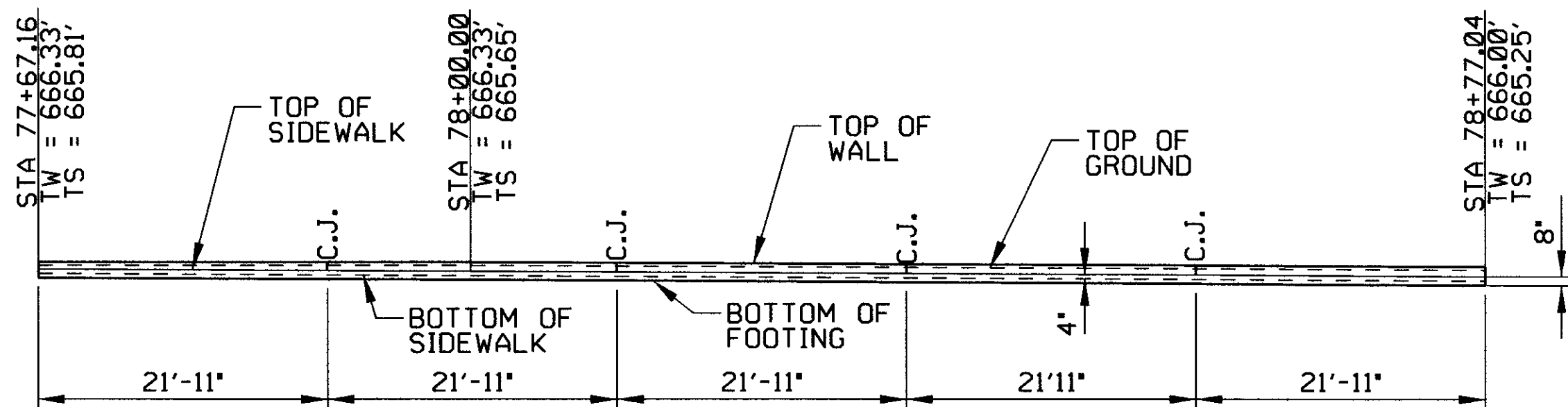


LEGEND FOR ELEVATIONS

TW - TOP OF WALL
TS - FINISHED GRADE OF
SIDEWALK AT BASE
OF RETAINING WALL
TF - TOP OF FOOTING

RETAINING WALL ELEVATIONS (1)			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY:			
Dewberry			Dewberry Engineers Inc. 1308 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3018 918.587.7263 • Fax 918.587.0071
REVISION	BY	DATE	APPROVED
			CITY ENGINEER
FILE:		DRAWING:	DATE: SEP 2018
ATLAS PAGE NO.:		140, 141, 191	SHEET 12 OF 59 SHEETS

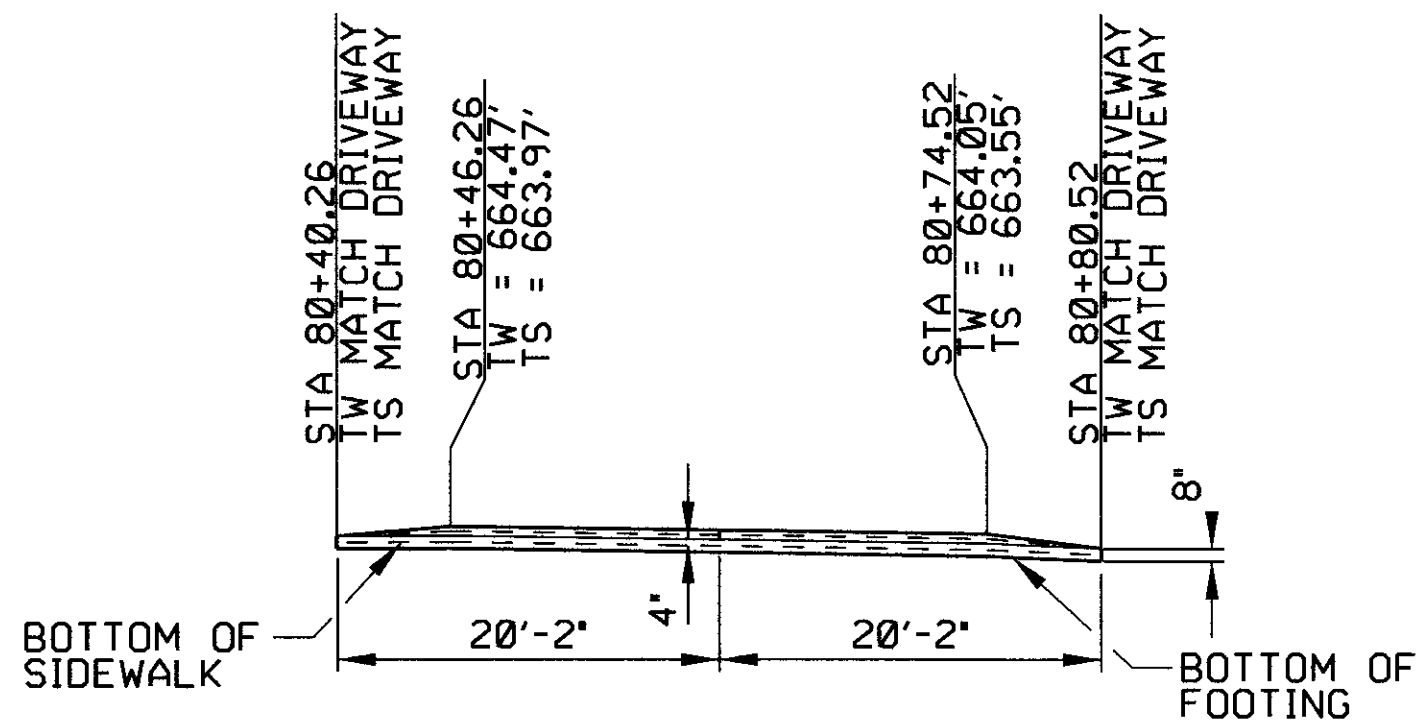
\$DATES \$FILES



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 77+67.16 TO STA.78+77.04 LT (WALL G)

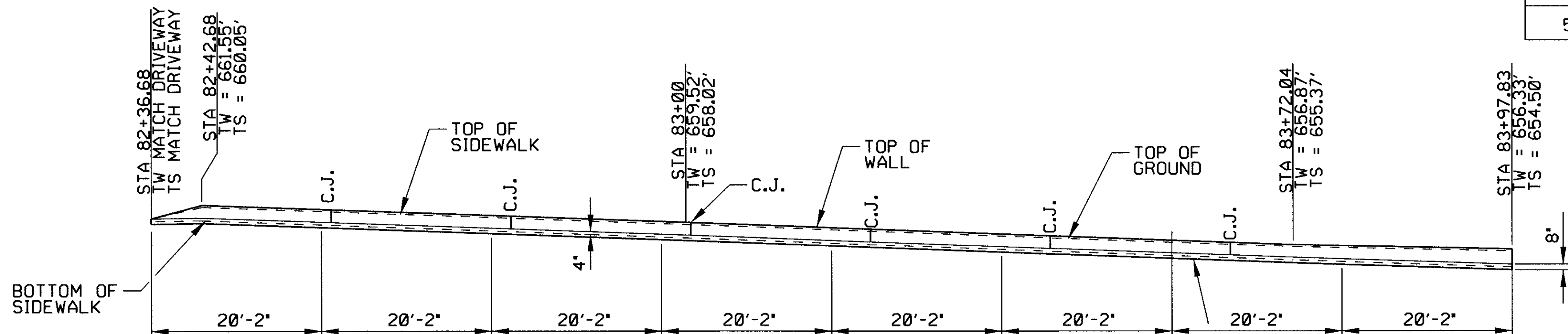
SUMMARY OF PAY QUANTITIES - WALL G			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	5.8	CY	CLASS A CONCRETE
511(A)	649	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 80+40.26 TO STA.80+80.52 LT (WALL J)

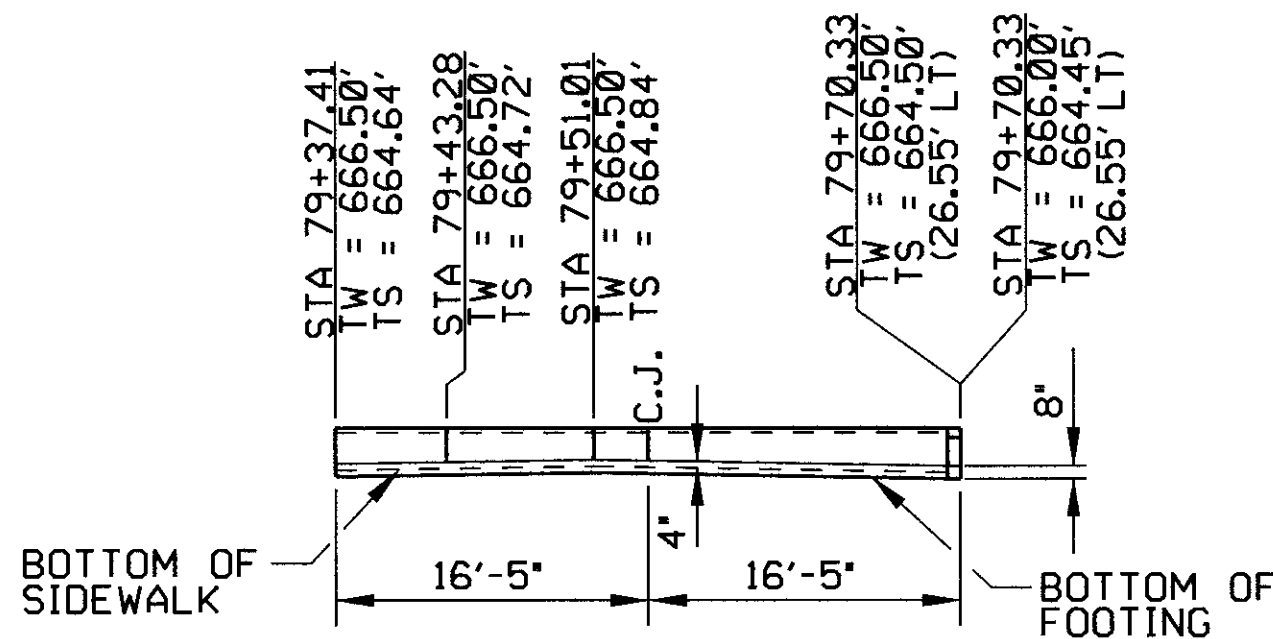
SUMMARY OF PAY QUANTITIES - WALL J			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	1.9	CY	CLASS A CONCRETE
511(A)	233	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 82+36.68 STA. 83+97.83 LT (WALL L)

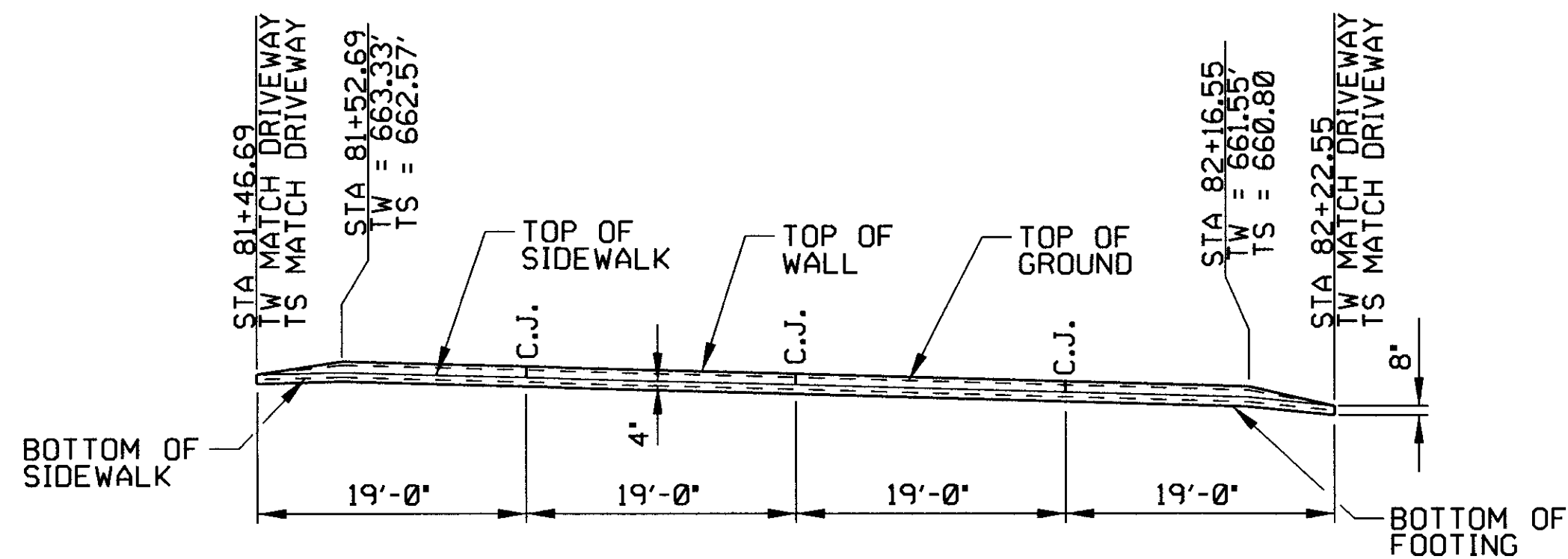
SUMMARY OF PAY QUANTITIES - WALL L			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	12.2	CY	CLASS A CONCRETE
511(A)	1,115	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 79+37.41 TO STA.79+70.33 LT (WALL H)

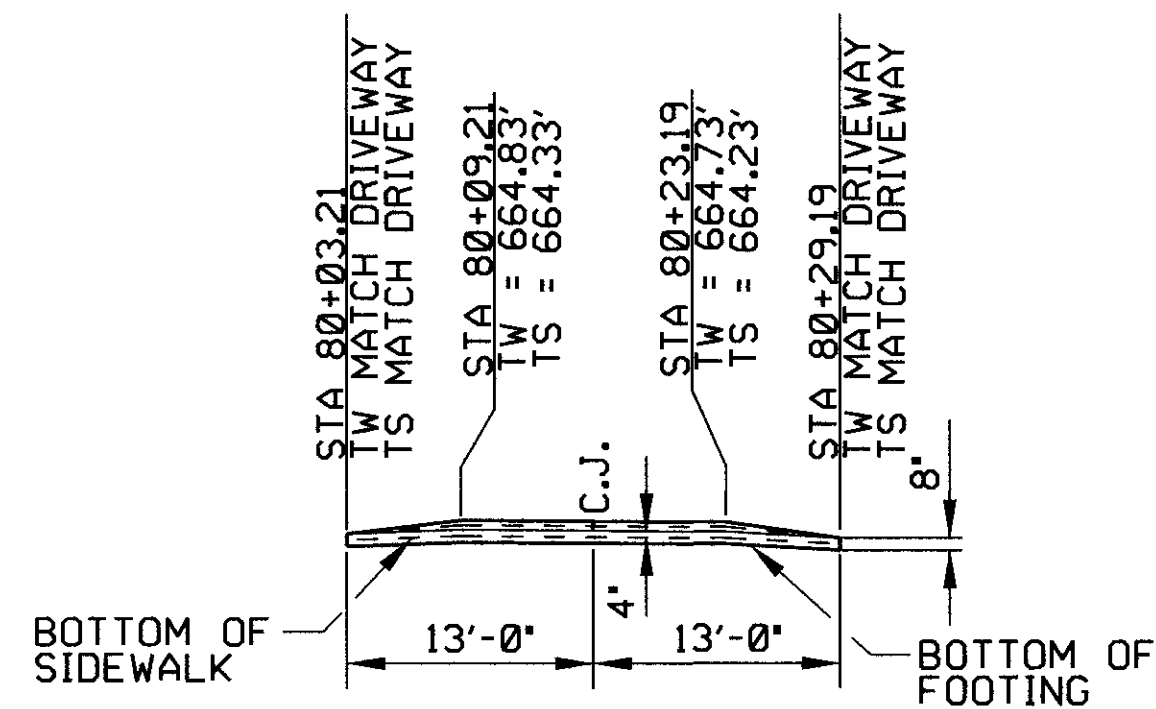
SUMMARY OF PAY QUANTITIES - WALL H			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	3.1	CY	CLASS A CONCRETE
511(A)	249	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 81+46.69 STA. 82+22.55 LT (WALL K)

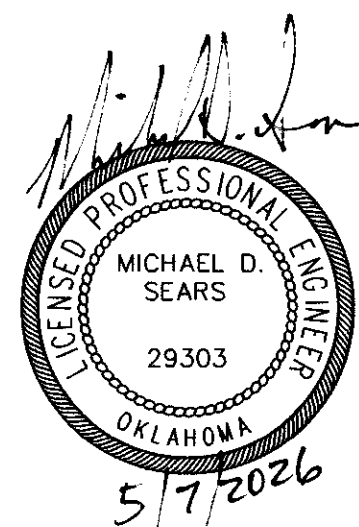
SUMMARY OF PAY QUANTITIES - WALL K			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	4.1	CY	CLASS A CONCRETE
511(A)	459	LB	REINF. STEEL , GRADE 60



TYPE 2 - 8" RETAINING WALL
N.T.S.

UNION PL.
STA 80+03.21 TO STA.80+29.19 LT (WALL I)

SUMMARY OF PAY QUANTITIES - WALL I			
SPEC NO.	QUANTITY	UNITS	DESCRIPTION
510(A)	1.2	CY	CLASS A CONCRETE
511(A)	135	LB	REINF. STEEL , GRADE 60



LEGEND FOR ELEVATIONS

TW - TOP OF WALL
TS - FINISHED GRADE OF
SIDEWALK AT BASE
OF RETAINING WALL
TF - TOP OF FOOTING

REVISION		BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED
					DESIGNED	DEI	03/17	
					SURVEY	SWA	08/15	
				PROFILE SCALE	PROJ. MGR.	Mason	5/20/26	
				HORIZONTAL	LEAD ENGR.	Tom	5/26	
					FIELD MGR.	Tom	6/6/26	CITY ENGINEER
					RECOMMENDED			
					DESIGN MANAGER	HAS	6.2.26	
				FILE#	DRAWING#			DATE: SEP 2018
				ATLAS PAGE NO.:	140, 141, 191			SHEET 13 OF 59 SHEETS

RETAINING WALL ELEVATIONS (2)
PROJECT NO. 144017-G AND 144017-AS
UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
Dewberry
Dewberry Engineers Inc.
1750 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3018
918.587.1253 - Fax 918.587.0871

SUMMARY OF REMOVALS

STREET LOCATION	STATION TO STATION	REMOVAL OF EXISTING ASPHALT PAVEMENT 619(B)	REMOVAL OF EXISTING APC PAVEMENT 619(B)	REMOVAL OF CONCRETE PAVEMENT 619(B)	REMOVAL OF CONCRETE CURB 619(B)	REMOVAL OF ASPHALT DRIVEWAY 619(B)	REMOVAL OF CONCRETE DRIVEWAY 619(B)	REMOVAL OF SIDEWALK 619(B)	REMOVAL OF TREES 619(B)	REMOVAL OF EXISTING RCP STORM SEWER PIPE 619(B)	REMOVAL OF EXISTING STORM SEWER INLET 619(B)	REMOVAL OF EXISTING MANHOLE 619(B)	REMOVAL OF EXISTING STAIR	REMOVAL OF EXISTING RETAINING WALL
		SY	SY	SY	LF	SY	SY	SY	EA	LF	EA	EA	EA	LF
S UNION AVE	STA 60+30 TO 63+80	-	-	-	49	-	119	85	-	39	5	-	-	-
S UNION AVE	STA 63+80 TO 68+40	-	-	-	204	21	11	1	3	39	2	-	1	73
S UNION AVE	STA 68+40 TO 73+00	-	-	-	22	30	306	-	-	-	-	-	-	21
S UNION AVE/S UNION PL	STA 73+00 TO 77+60	-	-	-	373	-	203	-	-	-	-	-	-	-
S UNION PL	STA 77+60 TO 82+20	-	-	8	634	-	68	53	-	-	-	-	-	18
S UNION PL	STA 82+20 TO 84+81.46	-	-	-	309	-	18	-	-	-	-	-	-	-
W 41ST STREET	STA 12+00 TO 14+60	-	-	-	352	-	71	128	-	-	2	-	-	-
W 41ST STREET	STA 14+60 TO 16+55	-	-	-	-	-	148	8	2	-	-	-	-	-
W 40TH STREET		-	8	40	14	-	-	-	-	-	2	-	-	-
W 39TH STREET S (LT)		93	-	-	69	-	-	-	-	-	-	-	-	-
W 39TH STREET S (RT)		88	-	-	46	-	-	-	-	-	-	-	-	-
W 38TH STREET S		-	117	-	65	-	-	-	-	-	-	-	-	-
W 37TH PL S		-	-	141	80	-	-	27	-	-	-	-	-	-
W 36TH PL S		20	22	-	38	-	-	-	-	-	-	-	-	-
TOTALS		201	147	189	2,255	51	944	302	5	78	11	0	1	112

SUMMARY OF PAVEMENT REPAIR

STREET LOCATION	STATION TO STATION	UNCLASSIFIED EXCAVATION 202(A)	TYPE A AGGREGATE BASE 303	8" SUBGRADE METHOD B 310(B)	SEPARATOR FABRIC 325	TYPE I PC PATCH SPECIAL	TYPE I PC PATCH SPECIAL
		CY	CY	SY	SY	SY	CY
S UNION AVE	STA 60+30 TO 63+80	24	24	73	91	73	18
S UNION AVE	STA 63+80 TO 68+40	64	64	191	239	191	48
S UNION AVE	STA 68+40 TO 73+00	14	14	41	51	41	10
S UNION AVE/S UNION PL	STA 73+00 TO 77+60	171	171	513	641	513	128
S UNION PL	STA 77+60 TO 82+20	263	263	788	985	788	197
S UNION PL	STA 82+20 TO 84+81.46	49	49	147	184	147	37
W 41ST STREET	STA 12+00 TO 14+60	68	68	205	256	205	51
W 41ST STREET	STA 14+60 TO 16+55	-	-	-	-	-	-
TOTALS		653	653	1958	2448	* 1958	490

* TOTAL SY SHOWN FOR INFORMATION ONLY
PAY ITEM QUANTITY IS MEASURED IN CY

SUMMARY OF EARTHWORK

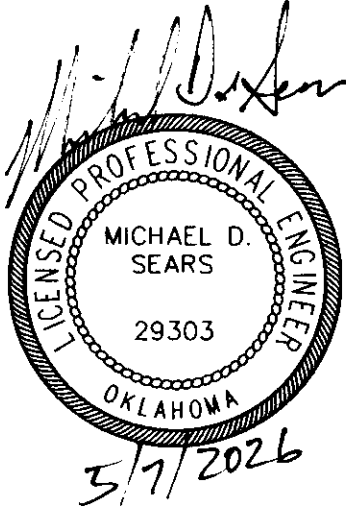
PHASE/OPERATION	UNCLASSIFIED EXCAVATION (PAVEMENT RECONSTRUCTION, CURB AND GUTTER CONSTRUCTION, PCC PAVEMENT REPAIR, DRIVEWAYS)	UNCLASSIFIED EXCAVATION (AREAS BEHIND CURB)	EMBANKMENT +15% (AREAS BEHIND CURB)	EXCESS EXCAVATION
	CY	CY	CY	CY
ARTERIAL REHAB TOTALS	1,206	70	266	1,010

SUMMARY OF DRIVEWAY QUANTITIES

NUMBER	STATION	RIGHT/LEFT	TYPE	LENGTH	WIDTH	RADI	6" TYPE A AGGREGATE BASE 303(A)	6" CONCRETE DRIVEWAY 610(B)	EXISTING SLOPE	PROPOSED SLOPE
				FT	FT	FT	CY	SY	%	%
UNION AVE										
1	60+62.21	RT	CONC	15	19.5	-	5.42	32.49	7.86	10.30
2	61+06.79	RT	CONC	17.4	7.8	5	2.89	17.37	10.09	9.00
3	61+30.27	RT	CONC	17.3	26.3	5	8.81	52.87	10.09	8.67
4	61+61.92	RT	CONC	17.3	10.9	5	4.14	24.84	7.08	6.17
5	62+00.84	RT	CONC	12.7	31.7	5	8.05	48.33	10.72	8.30
6	67+40.10	RT	CONC	24.6	14.7	5	6.90	41.41	4.63	11.10
7	67+76.44	LT	CONC	14.9	11.8	-	3.26	19.53	7.40	5.90
8	68+31.45	RT	CONC	15.4	10.1	5	3.38	20.27	2.10	6.15
9	68+60.12	LT	CONC	15.8	17	-	4.93	29.60	1.89	4.42
10	68+70.17	RT	CONC	19.8	10.1	5	4.10	24.62	1.06	7.96
11	68+86.85	LT	CONC	15.5	16	-	4.57	27.44	10.80	4.84
12	69+24.90	RT	CONC	15.7	17	5	5.19	31.14	8.86	8.00
13	69+32.70	LT	CONC	14.2	10.5	-	2.61	15.68	5.34	8.00
14	69+70.17	RT	CONC	25.2	11.8	5	7.32	43.92	13.13	8.00
15	69+88.30	LT	CONC	28.3	11.7	-	6.63	39.76	10.28	10.00
16	70+24.85	RT	CONC	25.7	18.8	5	11.05	66.32	10.37	8.00
17	71+34.93	RT	CONC	16.9	11.9	5	4.03	24.19	1.15	6.50
18	72+24.41	LT	CONC	12.9	15.7	-	3.79	22.76	14.17	9.00
19	72+99.06	LT	CONC	18.1	9.9	-	3.30	19.82	13.14	13.94
20	73+19.10	RT	CONC	30.6	16.7	5	7.66	45.96	-17.84	-18.71
21	73+52.12	LT	CONC	13	13.2	-	3.14	18.85	10.92	9.00
22	74+27.93	RT	CONC	25.5	12.3	-	5.85	35.09	-26.00	-26.93
23	74+74.46	RT	CONC	20.2	19.5	-	7.30	43.79	-15.70	-21.47
24	75+28.39	LT	CONC	16	10.9	-	3.23	19.37	14.56	6.00
25	75+76.90	LT	CONC	10	10.4	-	1.84	11.02	11.58	2.50
26	76+80.64	LT	CONC	11.4	24	-	4.75	28.49	20.81	10.49
27	79+96.68	LT	CONC	11.8	13.1	-	2.72	16.29	20.65	19.08
28	80+33.33	LT	CONC	11.7	11.1	-	2.26	13.55	19.01	12.11
29	80+87.23	LT	CONC	11.9	13.4	-	2.64	15.84	13.55	13.04
30	81+37.56	LT	CONC	11.8	17.8	-	3.59	21.53	15.34	15.34
31	82+30.48	LT	CONC	11.9	14.1	-	2.88	17.29	9.42	10.00
W 41ST STREET										
32	15+06.98	RT	CONC	16.5	35.5	5	13.77	82.62	2.23	7.60
33	16+03.68	RT	CONC	23.6	30.7	5	13.98	83.87	7.70	8.51
TOTALS							175.99	1055.93		

SUMMARY OF PAVEMENT AND SURFACES

STREET LOCATION	STATION TO STATION	TYPE A AGGREGATE BASE 303	8" SUBGRADE METHOD B 310(B)	SEPARATOR FABRIC 325	TACK COAT 407(B)	FABRIC REINFORCEMENT 409(A)	BITUMINOUS BINDER 409(B)	SUPERPAVE, TYPE S4 (PG 70-28 OK) 411(C)	SUPERPAVE, TYPE S6 (PG 64-22 OK) 411(C)	COLD MILLING PAVEMENT 412	8" PCC PAVEMENT (PLACEMENT) 414(B)	PC CONCRETE FOR PAVEMENT 414(G)	INTEGRAL CONCRETE CURB (6" BARRIER) 609(A)	COMBINED CURB AND GUTTER (6" BARRIER) 609(A)	4" CONCRETE SIDEWALK 610(A)	4" DECORATIVE SIDEWALK 610(E)	TACTILE WARNING DEVICE 610(I)	MANHOLES ADJUST TO GRADE 612(A)	VALVE BOXES ADJUST TO GRADE 612(E)	METER BOXES ADJUST TO GRADE 612(F)	INTEGRAL CURB REPAIR SPECIAL	CURB RAMP (TYPE A) SPECIAL	CURB RAMP (TYPE A-B) SPECIAL	CURB RAMP (TYPE B) SPECIAL	CURB RAMP (TYPE D) SPECIAL
		CY	SY	SY	GAL	SY	GAL	TON	TON	SY	SY	CY	LF	LF	SY	SY	SF	EA	EA	EA	LF	EA	EA	EA	EA
S UNION AVE	STA 60+30 TO 63+80	7	20	29	112	1,498	375	168	42	1,498	0	0	11	0	265	6	40	1	2	1	53	2	0	0	2
S UNION AVE	STA 63+80 TO 68+40	24	73	103	152	2,021	505	226	57	2,021	0	0	30	0	294	4	0	3	0	1	198	0	0	0	0
S UNION AVE	STA 68+40 TO 73+00	1	2	7	153	2,038	510	228	57	2,038	0	0	22	0	359	0	38	0	0	2	0	0	0	0	0
S UNION AVE/S UNION PL	STA 73+00 TO 77+60	28	83	130	138	1,835	459	206	51	1,835	0	0	120	194	435	0	0	2	0	2	3	0	0	0	0
S UNION PL	STA 77+60 TO 82+20	37	112	185	123	1,640	410	184	46	1,640	0	0	228	245	493	0	20	1	2	2	0	0	0	0	2
S UNION PL	STA 82+20 TO 84+81.46	23	68	106	70	936	234	105	26	936	0	0	95	163	230	0	20	0	0	2	11	0	0	2	0
W 41ST STREET	STA 12+00 TO 14+60	3	10	27	46	609	152	68	17	609	0	0	90	0	131	16	20	0	0	1	0	2	0	0	0
W 41ST STREET	STA 14+60 TO 16+55	15	44	59	0	0	0	0	0	0	0	0	0	0	69	0	20	0	0	2	125	0	0	0	2
W 40TH STREET		17	50	70	0	0	0	0	0	0	48	11	20	0	0	0	0	1	0	0	0	0	0	0	0
W 39TH STREET S (LT)		45	136	193	0	0	0	0	0	0	129	29	61	0	0	0	20	1	0	0	0	0	0	2	0
W 39TH STREET S (RT)		32	96	137	0	0	0	0	0	0	89	20	56	0	0	0	18	0	0	0	0	0	0	2	0
W 38TH STREET S		46	139	199	0	0	0	0	0	0	131	29	75	0	0	0	20	1	0	0	0	0	0	2	0
W 37TH PL S		41	123	171	0	0	0	0	0	0	120	27	31	0	0	0	50	0	0	0	0	0	1	1	2
W 36TH PL S		20	60	85	0	200	0	24	0	0	57	13	27	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS		339	1,016	1,501	793	10,778	2,644	1,209	296	10,578	574	128	866	602	2,276	26	266	10	4	13	390	4	1	9	8



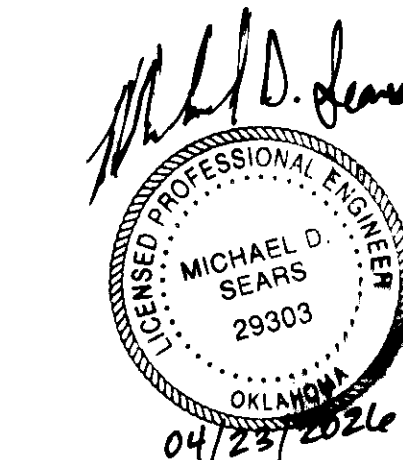
SUMMARY SHEET			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Dewberry Engineers Inc. 1350 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3016 918.587.7283 - Fax 918.587.0871			
PLAN SCALE	DRAWN	DEI	03/17
	DESIGNED	DEI	03/17
	SURVEY	SWA	08/15
PROFILE SCALE	PROJ. MGR.	Alan Seals	
HORIZONTAL	LEAD ENGR.	5/16	
	FIELD MGR.	Alan Seals	
VERTICAL	RECOMMENDED		
	DESIGN MANAGER	Alan Seals	6-24
FILE:	DRAWING:		
ATLAS PAGE NO:	140, 141, 191		
DATE: SEP 2018		SHEET 14 OF 59 SHEETS	

REVISION	BY	DATE

STATES FILES

9/26/2018 Q:\50074766\CAD\Civil\SHEETS\16_Summary of SIGNS.dgn

DETAIL 1
PEDESTRIAN CROSSWALK
N.T.S.



DEWBERRY PROJECT NO. 50074766

PROJECT NO. 144017-G AND 144017-AS

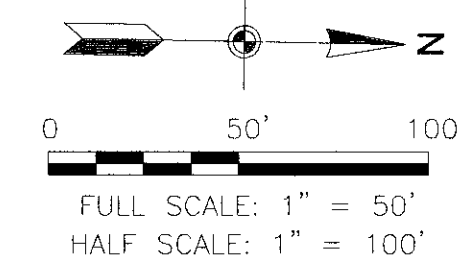
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DIVISION

PLANS AND ESTIMATES PREPARED BY:



Dewberry Engineers Inc.
1350 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3218
918.587.7283 • fax 918.587.0071

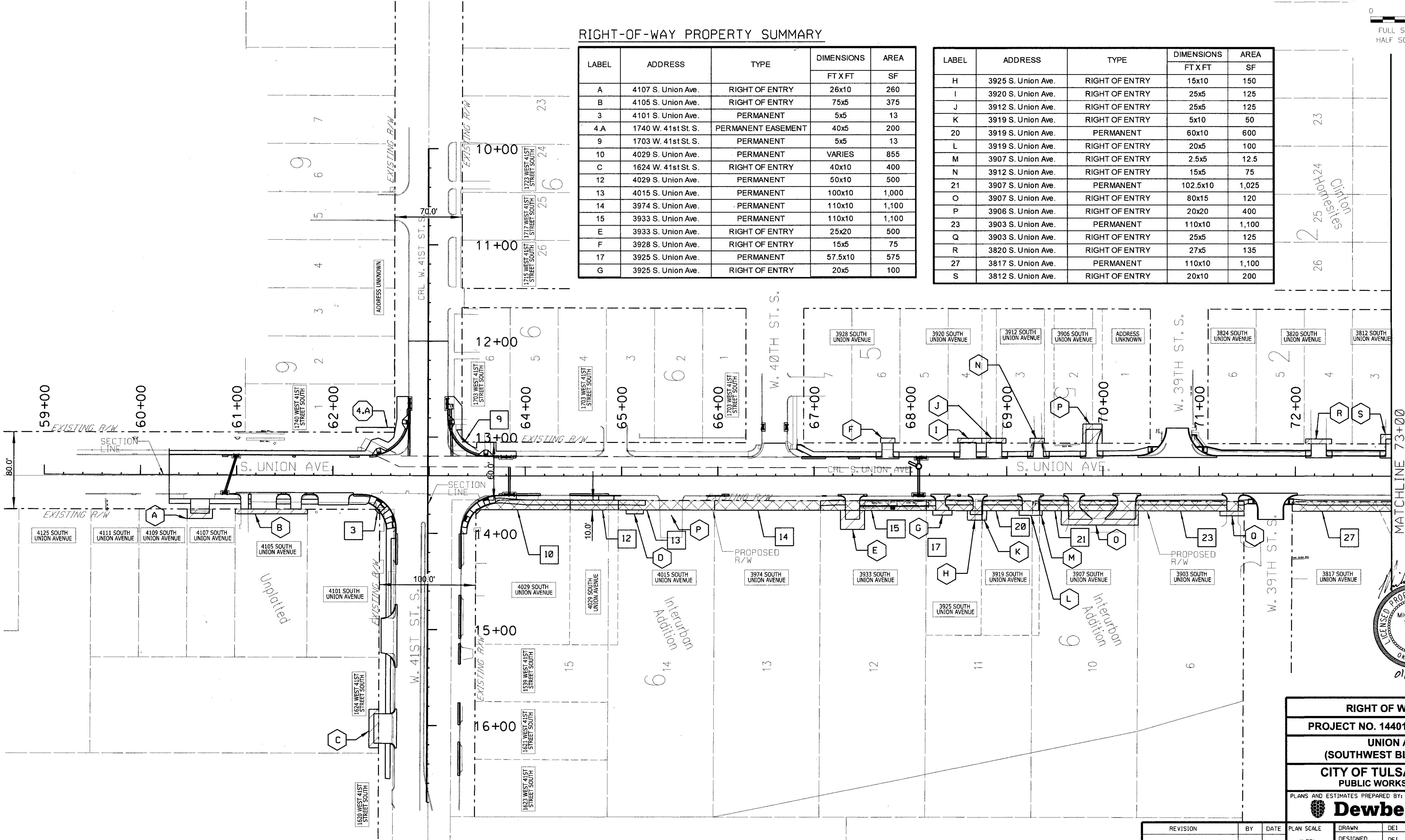
	REVISION	BY	DATE	PLAN SCALE	NA	DRAWN	DEI	03/17	APPROVED CITY ENGINEER
						DESIGNED	DEI	03/17	
						SURVEY	SWA	06/15	
				PROFILE SCALE		PROJ. MGR.	<i>[Signature]</i>	<i>9/9</i>	
				HORIZONTAL:	NA	LEAD ENGR.	<i>[Signature]</i>	<i>7/8</i>	
						FIELD MGR.	<i>[Signature]</i>		
				VERTICAL:	NA	RECOMMENDED	<i>[Signature]</i>	<i>HA6 4.20</i>	
						DESIGN MANAGER			
				FILE:		DRAWING:			DATE: SEP 2018
				ATLAS PAGE NO.:	140, 141, 181				SHEET 16 OF 53 SHEETS



RIGHT-OF-WAY PROPERTY SUMMARY

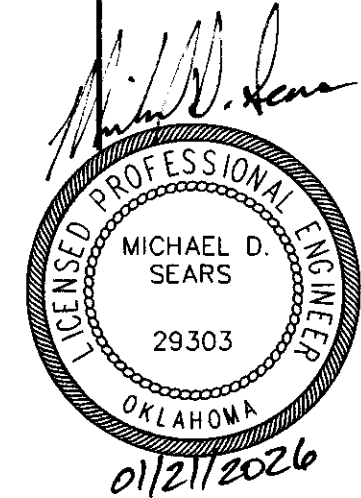
LABEL	ADDRESS	TYPE	DIMENSIONS		AREA
			FT X FT	SF	
A	4107 S. Union Ave.	RIGHT OF ENTRY	26x10	260	
B	4105 S. Union Ave.	RIGHT OF ENTRY	75x5	375	
3	4101 S. Union Ave.	PERMANENT	5x5	13	
4 A	1740 W. 41st St. S.	PERMANENT EASEMENT	40x5	200	
9	1703 W. 41st St. S.	PERMANENT	5x5	13	
10	4029 S. Union Ave.	PERMANENT	VARIES	855	
C	1624 W. 41st St. S.	RIGHT OF ENTRY	40x10	400	
12	4029 S. Union Ave.	PERMANENT	50x10	500	
13	4015 S. Union Ave.	PERMANENT	100x10	1,000	
14	3974 S. Union Ave.	PERMANENT	110x10	1,100	
15	3933 S. Union Ave.	PERMANENT	110x10	1,100	
E	3933 S. Union Ave.	RIGHT OF ENTRY	25x20	500	
F	3928 S. Union Ave.	RIGHT OF ENTRY	15x5	75	
17	3925 S. Union Ave.	PERMANENT	57.5x10	575	
G	3925 S. Union Ave.	RIGHT OF ENTRY	20x5	100	

LABEL	ADDRESS	TYPE	DIMENSIONS		AREA
			FT X FT	SF	
H	3925 S. Union Ave.	RIGHT OF ENTRY	15x10	150	
I	3920 S. Union Ave.	RIGHT OF ENTRY	25x5	125	
J	3912 S. Union Ave.	RIGHT OF ENTRY	25x5	125	
K	3919 S. Union Ave.	RIGHT OF ENTRY	5x10	50	
20	3919 S. Union Ave.	PERMANENT	60x10	600	
L	3919 S. Union Ave.	RIGHT OF ENTRY	20x5	100	
M	3907 S. Union Ave.	RIGHT OF ENTRY	2.5x5	12.5	
N	3912 S. Union Ave.	RIGHT OF ENTRY	15x5	75	
21	3907 S. Union Ave.	PERMANENT	102.5x10	1,025	
O	3907 S. Union Ave.	RIGHT OF ENTRY	80x15	120	
P	3906 S. Union Ave.	RIGHT OF ENTRY	20x20	400	
23	3903 S. Union Ave.	PERMANENT	110x10	1,100	
Q	3903 S. Union Ave.	RIGHT OF ENTRY	25x5	125	
R	3820 S. Union Ave.	RIGHT OF ENTRY	27x5	135	
27	3817 S. Union Ave.	PERMANENT	110x10	1,100	
S	3812 S. Union Ave.	RIGHT OF ENTRY	20x10	200	

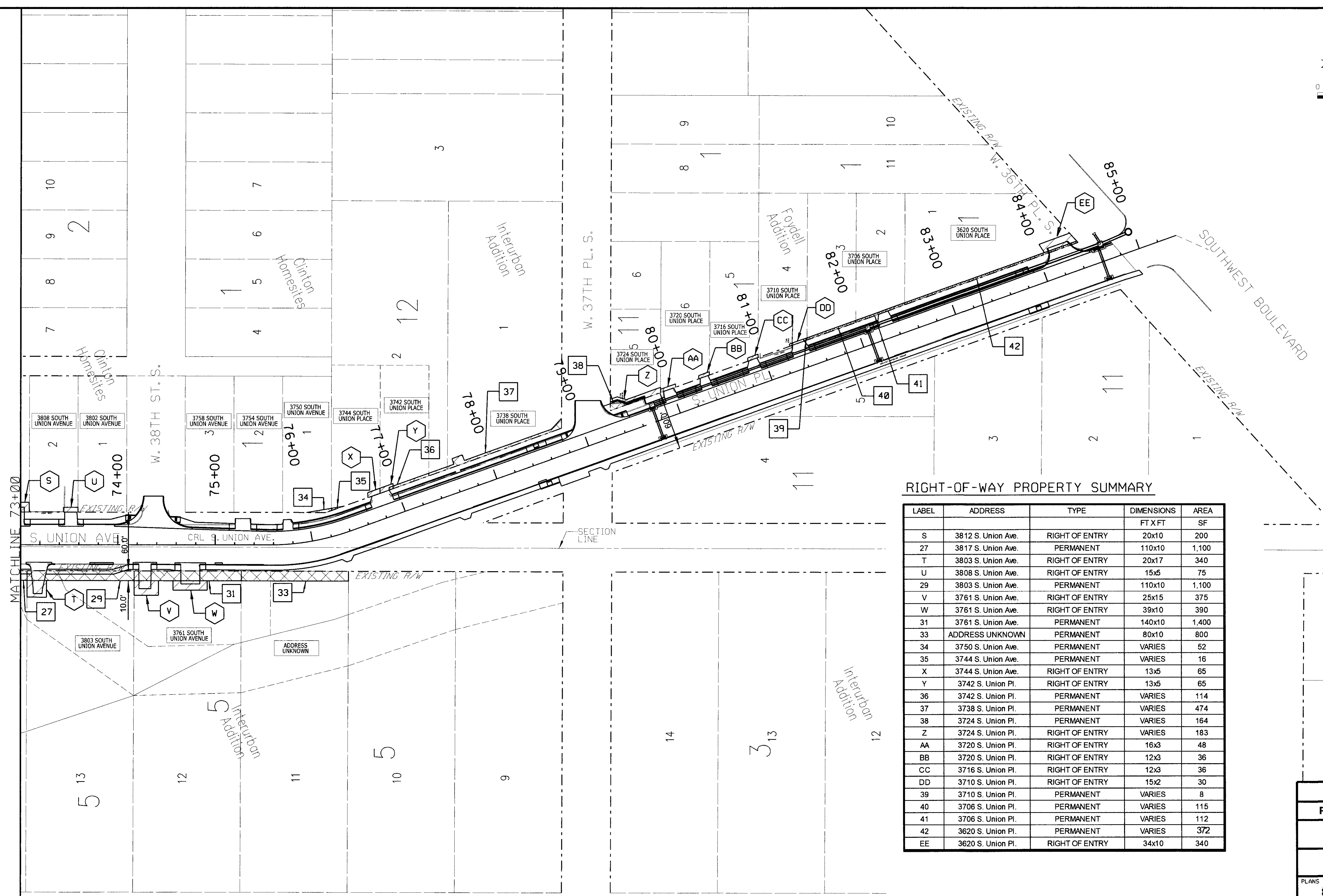
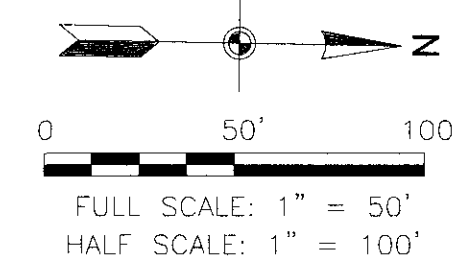


LEGEND

- X PROPOSED RIGHT-OF-WAY
- PERMANENT EASEMENT
- XX RIGHT OF ENTRY (R-O-E) (DRIVEWAY AND RETAINING WALLS)



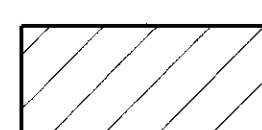
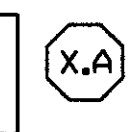
RIGHT OF WAY SHEET 1			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Dewberry			
APPROVED MICHAEL D. SEARS 29303 OKLAHOMA 01/21/2026			
REVISION	BY	DATE	APPROVED
PLAN SCALE	DRAWN	DEI	03/17
1"=50'	DESIGNED	DEI	03/17
	SURVEY	SWA	08/15
PROFILE SCALE	PROJ. MGR.	Alban	01/2026
HORIZONTAL:	LEAD ENGR.	2/26	
NA	FIELD MGR.	6/6	
RECOMMENDED	DESIGN MANAGER	HAS 6-26	
FILE:	DRAWING:		
ATLAS PAGE NO.:	140, 141, 191		
SHEET	16	OF	59 SHEETS

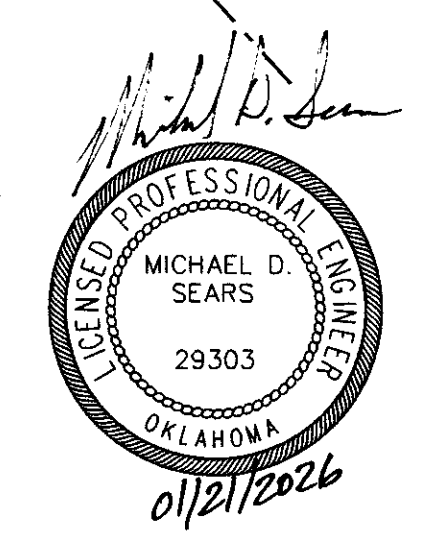


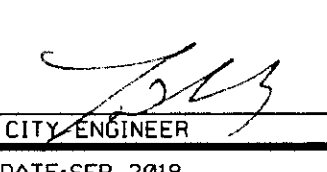
RIGHT-OF-WAY PROPERTY SUMMARY

LABEL	ADDRESS	TYPE	DIMENSIONS	AREA
			FT X FT	SF
S	3812 S. Union Ave.	RIGHT OF ENTRY	20x10	200
27	3817 S. Union Ave.	PERMANENT	110x10	1,100
T	3803 S. Union Ave.	RIGHT OF ENTRY	20x17	340
U	3808 S. Union Ave.	RIGHT OF ENTRY	15x5	75
29	3803 S. Union Ave.	PERMANENT	110x10	1,100
V	3761 S. Union Ave.	RIGHT OF ENTRY	25x15	375
W	3761 S. Union Ave.	RIGHT OF ENTRY	39x10	390
31	3761 S. Union Ave.	PERMANENT	140x10	1,400
33	ADDRESS UNKNOWN	PERMANENT	80x10	800
34	3750 S. Union Ave.	PERMANENT	VARIES	52
35	3744 S. Union Ave.	PERMANENT	VARIES	16
X	3744 S. Union Ave.	RIGHT OF ENTRY	13x5	65
Y	3742 S. Union Pl.	RIGHT OF ENTRY	13x5	65
36	3742 S. Union Pl.	PERMANENT	VARIES	114
37	3738 S. Union Pl.	PERMANENT	VARIES	474
38	3724 S. Union Pl.	PERMANENT	VARIES	164
Z	3724 S. Union Pl.	RIGHT OF ENTRY	VARIES	183
AA	3720 S. Union Pl.	RIGHT OF ENTRY	16x3	48
BB	3720 S. Union Pl.	RIGHT OF ENTRY	12x3	36
CC	3716 S. Union Pl.	RIGHT OF ENTRY	12x3	36
DD	3710 S. Union Pl.	RIGHT OF ENTRY	15x2	30
39	3710 S. Union Pl.	PERMANENT	VARIES	8
40	3706 S. Union Pl.	PERMANENT	VARIES	115
41	3706 S. Union Pl.	PERMANENT	VARIES	112
42	3620 S. Union Pl.	PERMANENT	VARIES	372
EE	3620 S. Union Pl.	RIGHT OF ENTRY	34x10	340

LEGEND

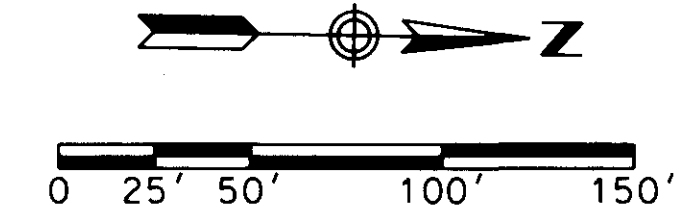
-  X PROPOSED RIGHT-OF-WAY
-  XX RIGHT OF ENTRY (R-O-E) (DRIVEWAY AND RETAINING WALLS)
- 
-  XA PERMANENT EASEMENT



RIGHT OF WAY SHEET 2	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY:  Dewberry Dewberry Engineers Inc. 1350 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3218 918.567.7283 - Fax 918.567.8871	
PLAN SCALE 1"=50'	APPROVED  CITY ENGINEER
DRAWN DEI 03/17	DATE: SEP 2018
DESIGNED DEI 03/17	
SURVEY SWA 08/15	
PROJ. MGR. 11/20/2016	
LEAD ENGR. 4/6/16	
FIELD MGR. 6/6/16	
RECOMMENDED DATE: 6-26-16	
DESIGN MANAGER	
FILE: DRAWING: 140, 141, 191	
ATLAS PAGE NO: 140, 141, 191	SHEET 17 OF 59 SHEETS

\$FILES \$DATES

W. 41ST ST. S.
STA 10+00.00
N= 408,031.58
E= 2,555,512.22



10+00

11+00

12+00

13+00

14+00

15+00

16+00

S. UNION AVE.
STA 62+99.17 =
STA 13+40.21
W. 41ST ST. S.
N= 408,036.74
E= 2,555,852.39

S. UNION AVE.
STA 59+00.00
N= 407,637.60
E= 2,555,857.61

CONTROL
POINT 1

Benchmark 1
N = 407,336.34
E = 2,555,892.67
ELEV = 641.39
Chiseled Square Top
of Conc.

FND 4" STEEL DISK
N = 408036.74
E = 2555852.39
ELEV = 640.39

CONTROL
POINT 2

Benchmark 2
N = 408,132.23
E = 2,555,808.05
EL=644.67
RR Spike in Tree

CONTROL
POINT 4

Benchmark 3
N = 408,676.47
E = 2,555,863.87
EL=647.84
RR Spike in Tree

MATCHLINE 70+00

W. 41ST ST. S.
STA 16+80.00
N= 408,040.55
E= 2,556,192.16

INITIAL ADS CONTROL
1/2" IRON PIN W/
2" ALUMINUM CAP
IN CONCRETE POST
STA. NAME: GPS 5
N=406159.78
E=2557422.56
ELEV=732.35 (1988 NAVD)

INITIAL ADS CONTROL
1/2" IRON PIN W/
2" ALUMINUM CAP
IN CONCRETE POST
STA. NAME: GPS 6
N=410237.15
E=2555770.13
ELEV=671.97

SURVEYORS CERTIFICATE

I, Dean Robinson of Tulsa County, State of Oklahoma,
and a Professional Surveyor, do hereby certify that
the above shown survey is true and correct to the
best of my knowledge.

Witness my Hand and Seal this 02 day of Oct, 2018

BY:

DEAN ROBINSON, P.L.S. #1146
EMAIL: drobinson@sw-assoc.com



CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	407,332.42	2,555,886.97	641.49	PK NAIL W/ I.D. PLATE
2	408,062.82	2,555,824.48	641.00	3/8" IRON PIN
3	408,058.56	2,555,642.10	644.42	60d NAIL
4	408,363.25	2,555,805.52	643.39	PK NAIL W/ I.D. PLATE

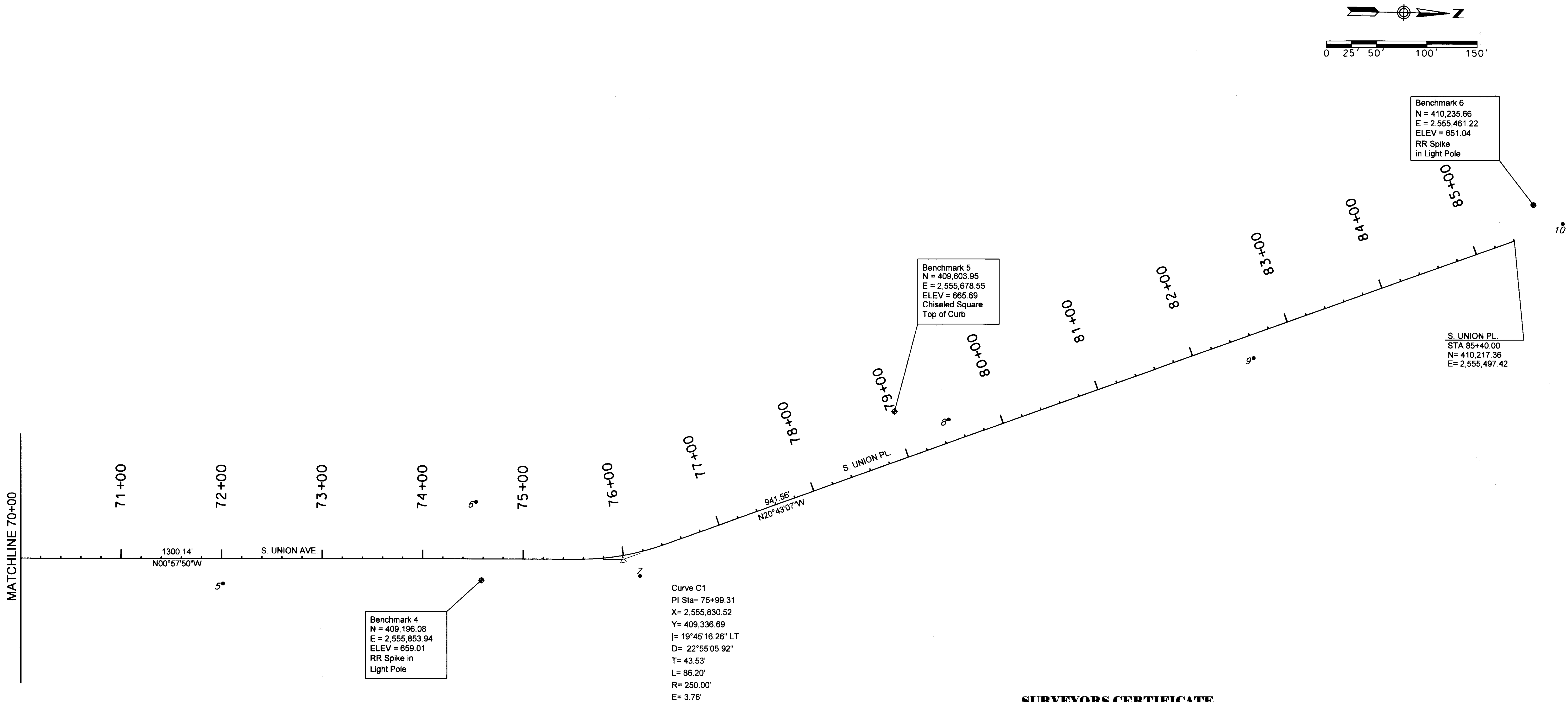
REVISION		BY	DATE

PLAN SCALE 1"=100'	DRAWN DESIGNED SURVEY	SWA SWA SWA	08/15 08/15 08/15
PROFILE SCALE HORIZONTAL: NA	PROJ. MGR. LEAD ENGR. FIELD MGR.	SWA SWA SWA	08/15 08/15 08/15
VERTICAL: NA	RECOMMENDED DESIGN MANAGER	SWA SWA	08/15 08/15
FILE:	DRAWING:		
ATLAS PAGE NO.: 140, 141, 191			

APPROVED	

DEWBERRY PROJECT NO. 50074766
SURVEY DATA SHEET 1
PROJECT NO. 144017-G AND 144017-AS
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DIVISION
PLANS AND ESTIMATES PREPARED BY: Dewberry Dewberry Engineers Inc. 1360 South Boulder - Suite 600 Tulsa, Oklahoma 74119-3218 918.567.7263 - fax 918.567.0071
DATE: SEP 2018
SHEET 18 OF 59 SHEETS

9/27/2018 Q:\50074766\CAD\Civil\SHEETS\20_Survey Data 2.dgn



INITIAL ADS CONTROL
1/2" IRON PIN W/
2" ALUMINUM CAP
IN CONCRETE POST
STA. NAME: GPS 5
N=406159.78
E=2557422.56
ELEV=732.35 (1988 NAVD)

INITIAL ADS CONTROL
1/2" IRON PIN W/
2" ALUMINUM CAP
IN CONCRETE POST
STA. NAME: GPS 6
N=410237.15
E=2555770.13
ELEV=671.97

Benchmark 4
N = 409,196.08
E = 2,555,853.94
ELEV = 669.01
RR Spike in
Light Pole

Curve C1
PI Sta= 75+99.31
X= 2,555,830.52
Y= 409,336.69
I= 19°45'16.26" LT
D= 22°55'05.92"
T= 43.53'
L= 86.20'
R= 250.00'
E= 3.76'

Benchmark 5
N = 409,603.95
E = 2,555,678.55
ELEV = 665.69
Chiseled Square
Top of Curb

Benchmark 6
N = 410,235.66
E = 2,555,461.22
ELEV = 651.04
RR Spike
in Light Pole

S. UNION PL.
STA 85+40.00
N= 410,217.36
E= 2,555,497.42

SURVEYORS CERTIFICATE

I, Dean Robinson of Tulsa County, State of Oklahoma,
and a Professional Surveyor, do hereby certify that
the above shown survey is true and correct to the
best of my knowledge.

Witness my Hand and Seal this 02 day of Oct., 2018

BY:
DEAN ROBINSON, P.L.S. #1146
EMAIL: drobinson@sw-assoc.com



CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
5	408,939.30	2,555,862.02	651.63	3/8" IRON PIN
6	409,189.48	2,555,775.00	658.85	60d NAIL
7	409,353.94	2,555,846.85	664.07	3/8" IRON PIN
8	409,658.21	2,555,685.58	664.26	3/8" IRON PIN
9	409,960.08	2,555,618.72	659.29	3/8" IRON PIN
10	410,265.13	2,555,479.16	648.60	PK NAIL W/ I.D. PLATE

REVISION				BY	DATE	PLAN SCALE				DRAWN	SWA	08/15	APPROVED	
						1"=100'				DESIGNED	SWA	08/15		
										SURVEY	SWA	08/15		
										PROJ. MGR.	DR	9/1		
										LEAD ENGR.	DR	9/1		
										FIELD MGR.	DR	9/1		
										RECOMMENDED				
										DESIGN MANAGER				
										FILE	DRAWING			DATE: SEP 2018
										ATLAS PAGE NO.: 140, 141, 191				SHEET 19 OF 59 SHEETS

DEWBERRY PROJECT NO. 50074766

SURVEY DATA SHEET 2

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DIVISION

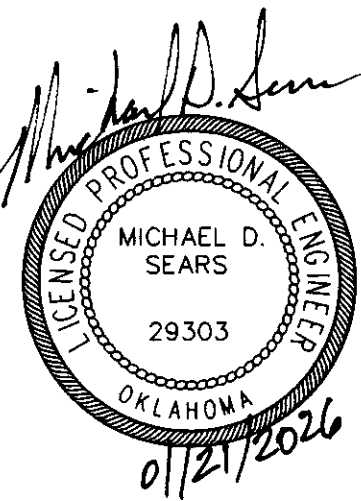
PLANS AND ESTIMATES PREPARED BY:

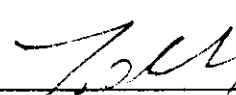
Dewberry
Dewberry Engineers Inc.
1300 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3216
918.587.7283 Fax 918.587.0071

SUMMARY OF DRAINAGE STRUCTURES

STRUCTURE NUMBER	CRL	STATION AND OFFSET	STRUCTURE DESCRIPTION	TOP OF GRATE/RIM ELEVATION	STRUCTURE FLOWLINE	INNER STRUCTURE HEIGHT	INLETS							MANHOLES		REINFORCED CONCRETE PIPE			END SECTION	CASING			
							CICI DES 2 (STD)	CICI DES 2 W/ SMALL JUNCTION BOX	CICI DES 4 (STD)	CICI DES 4 W/ SMALL JUNCTION BOX	ADDITIONAL DEPTH OF INLET CICI DES 2 (STD)	ADDITIONAL DEPTH OF INLET CICI DES 2 W/ SMALL JUNCTION BOX	ADDITIONAL DEPTH OF INLET CICI DES 4 W/ SMALL JUNCTION BOX	5 FT DIAMETER MANHOLE	MANHOLE FRAME AND COVER	15" REINFORCED CONCRETE PIPE	18" REINFORCED CONCRETE PIPE	24" REINFORCED CONCRETE PIPE	18" PREFABRICATED CONCRETE END SECTION	42" DIAMETER STEEL CASING	TRENCH EXCAVATION	STANDARD BEDDING MATERIAL	
						VF	EA	EA	EA	EA	VF	VF	VF	EA	EA	LF	LF	LF	EA	LF	CY	CY	
CI-1	UNION AVE	60+99.73 (20.45' LT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), CONNECT TO EXIST 15" RCP	640.00	636.23	3.77	1	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	-
CI-2	UNION AVE	60+88.07 (19.40' RT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), 39 LF 15" RCP TO CI-1	640.14	637.60	2.54	1	-	-	-	-	-	-	-	-	39	-	-	-	-	16.3	13.1	
CI-4	W 41ST ST	12+65.32 (20.08' RT)	CONSTRUCT CITY OF TULSA CICI DES 4 (STD), 50 LF 18" RCP TO TO EXISTING 10' X 2' RCB	640.58	637.88	2.70	-	-	1	-	-	-	-	-	-	-	50	-	-	-	27.0	22.1	
CI-8	W 41ST ST	12+65.25 (21.11' LT)	CONSTRUCT CITY OF TULSA CICI DES 4 W/ SMALL JUNCT BOX, 50 LF 18" RCP TO TO EXISTING 10' X 2' RCB	640.58	637.88	2.70	-	-	-	1	-	-	-	-	1	-	50	-	-	-	27.0	22.1	
CI-9	UNION AVE	63+80.15 (20.00' LT)	CONSTRUCT CITY OF TULSA CICI DES 4 (STD), CONNECT TO EXISTING 10' X 2' RCB	640.62	637.33	3.29	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
CI-10	UNION AVE	63+83.63 (19.88' RT)	CONSTRUCT CITY OF TULSA CICI DES 4 (STD), 28 LF 18" RCP TO EXISTING 10' X 2' RCB	640.78	638.00	2.78	-	-	1	-	-	-	-	-	-	-	28	-	-	-	15.1	12.4	
CI-13	UNION AVE	66+46.30 (51.00' LT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), CONNECT TO EXIST 15" RCP	640.34	637.78	2.56	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CI-14	UNION AVE	66+72.03 (50.91' LT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), CONNECT TO EXIST 15" RCP	640.34	638.39	1.95	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
EX-MH1	UNION AVE	67+98.46 (14.45' LT)	ADJUST EXISTING MH LID AND RING AT EXISTING 10' X 2' RCB	643.33	638.43	4.90	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
CI-15	UNION AVE	68+11.38 (19.45' LT)	CONSTRUCT CITY OF TULSA CICI DES 4 (STD), 6 LF 18" RCP TO TO MH-3	643.27	639.92	3.35	-	-	1	-	-	-	-	-	-	-	6	-	-	-	4.6	4.0	
MH-3	UNION AVE	68+08.78 (10.00' LT)	CONSTRUCT 5' DIA MANHOLE, 10 LF 24" RCP TO EXISTING 10' X 2' RCB	643.30	638.78	4.52	-	-	-	-	-	-	-	1	1	-	-	10	-	-	5.8	4.8	
C1-16	UNION AVE	68+08.84 (20.45' RT)	CONSTRUCT CITY OF TULSA CICI DES 4 (STD), 27 LF 18" RCP TO TO MH-3	643.27	639.92	3.35	-	-	1	-	-	-	-	-	-	-	27	-	-	-	-	-	
CI-20	UNION PL	79+75.00 (18.80' RT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), 31 LF 18" RCP TO CI-21	663.74	661.07	2.67	1	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	
CI-21	UNION PL	79+75.00 (14.96' LT)	CONSTRUCT CITY OF TULSA CICI DES 2 W/ SMALL JUNCT BOX, 232 LF 24" RCP TO CI-23	663.81	660.00	3.81	-	1	-	-	-	0.1	-	-	1	-	-	232	-	-	174.0	131.8	
C1-22	UNION PL	82+10.00 (18.97' RT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), 32 LF 18" RCP TO CI-23	660.32	657.65	2.67	1	-	-	-	-	-	-	-	-	-	32	-	-	-	-	-	
CI-23	UNION PL	82+10.00 (14.96' LT)	CONSTRUCT CITY OF TULSA CICI DES 2 W/ SMALL JUNCT BOX, 250 LF 24" RCP TO CI-25	660.60	656.50	4.10	-	1	-	-	-	0.39	-	-	1	-	-	250	-	-	187.5	142.1	
CI-24	UNION PL	84+60.70 (19.11' RT)	CONSTRUCT CITY OF TULSA CICI DES 2 (STD), 31 LF 18" RCP TO CI-25	651.80	649.13	2.67	1	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	
CI-25	UNION PL	84+60.76 (14.99' LT)	CONSTRUCT CITY OF TULSA CICI DES 4 W/ SMALL JUNCT BOX, 26 LF 24" RCP TO EX-MH2	652.00	646.00	6.00	-	-	-	1	-	-	2.29	-	1	-	-	-	-	16	14.4	6.3	
O-2	UNION PL	84+61.85 (28.47' LT)	CONSTRUCT 18" PREFABRICATED CONCRETE END SECTION, 10 LF 18" RCP TO CI-25	-	649.35	-	-	-	-	-	-	-	-	-	-	-	10	-	1	-	5.4	4.4	
EX-MH2	UNION PL	84+95.16 (20' LT)	TIE 24" RCP FROM CI-25 INTO EXISTING 6' DIAMETER MANHOLE	651.15	645.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTALS							7	2	5	2	0.06	0.49	2.29	1	6	39	265	492	1	-	* 477.2	* 363.2	

* FOR CONTRACTORS INFORMATION



SUMMARY OF DRAINAGE STRUCTURES									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:				Dewberry Engineers Inc. (1350 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3206 918.587.7283 - Fax 918.587.8071)					
 Dewberry									
PLAN SCALE	DRAWN	DEI	03/17	APPROVED					
	DESIGNED	DEI	03/17						
	SURVEY	SWA	08/15						
PROFILE SCALE HORIZONTAL/NA	PROJ. MGR.	M	01/09/26						
	LEAD ENGR.	S	4/26						
	FIELD MGR.	JS	6/16						
VERTICAL/NA	RECOMMENDED			CITY ENGINEER					
	DESIGN MANAGER	JS	6-26						
FILE:	DRAWING:			DATE: SEP 2018					
ATLAS PAGE NO.: 140, 141, 191				SHEET 20 OF 59 SHEETS					

\$DATES \$FILES

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: S. UNION AVE FROM W. 41ST STREET TO SOUTHWEST BLVD
AND INTERSECTION AT S. UNION AVE AND W. 41ST STREET

PROJECT DESCRIPTION: ARTERIAL STREET REHABILITATION

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1) AS DEMOLITION AND GRADING OPERATIONS PROCEED, INSTALL TEMPORARY
CONTROL DEVICES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE
ENGINEER. THESE DEVICES WALL BE MAINTAINED AS REQUIRED BY THE
CITY OF TULSA STANDARD SPECIFICATION AND THE WEEKLY INSPECTION
REPORTS PER PHASE.
2) PLACE PERMANENT SOLID SLAB SODDING PER PHASE.

SOIL TYPE: LEAN CLAY, LEAN CLAY WITH SAND, SANDY SILT

TOTAL AREA OF THE
CONSTRUCTION SITE: 4.3 AC

ESTIMATED AREA TO BE DISTURBED: EX PVMNT=2.5 AC, NEW PVMNT=0.5 AC, NON PVMNT=1.3 AC

OFFSITE AREA TO BE DISTURBED:
(FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA
PRE-CONSTRUCTION: 2.5 AC

TOTAL IMPERVIOUS AREA
POST-CONSTRUCTION: 3.0 AC

POST-CONSTRUCTION RUNOFF
COEFFICIENT OF THE SITE: 0.90

LATITUDE & LONGITUDE
OF CENTER OF PROJECT: 36°06'25"N 96°00'42"S

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: RED FORK CREEK, CHERRY CREEK

SENSITIVE WATERS OR WATERSHEDS: YES NO X

303(d) IMPAIRED WATERS: YES X NO

IF YES, LIST IMPAIRMENT: MACROINVEREBRATE BIO

LOCATED IN A TMDL: YES NO X

LAKE THUNDERBIRD TMDL: YES NO X

MS4 ENTITY YES X NO

IF YES, LOCATION: CITY OF TULSA

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

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
X PERMANENT SODDING, SPRIGGING OR SEEDING
VEGETATIVE MULCHING
SOIL RETENTION BLANKET
X PRESERVATION OF EXISTING VEGETATION
HYDROMULCH / HYDROSEED

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

STRUCTURAL PRACTICES:

- X STABILIZED CONSTRUCTION EXIT
X TEMPORARY SILT FENCE
X TEMPORARY SILT DIKES
X TEMPORARY FIBER LOG
DIVERSION, INTERCEPTOR OR PERIMETER DIKES
DIVERSION, INTERCEPTOR OR PERIMETER SWALES
ROCK FILTER DAMS
TEMPORARY SLOPE DRAIN
PAVED DITCH W/ DITCH LINER PROTECTION
TEMPORARY DIVERSION CHANNELS
TEMPORARY SEDIMENT BASINS
TEMPORARY SEDIMENT TRAPS
X TEMPORARY SEDIMENT FILTERS
X TEMPORARY SEDIMENT REMOVAL
RIP RAP
X INLET PROTECTION
TEMPORARY BRUSH SEDIMENT BARRIERS
SANDBAG BERMS
TEMPORARY STREAM CROSSINGS
FLEXAMAT / ARTICULATED CONCRETE BLOCK
COMPOST FILTER SOCKS
EROSION CONTROL MATS AND BLANKETS

OFFSITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
X LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
X EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:

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

WASTE MATERIALS:

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

HAZARDOUS MATERIALS:

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

GENERAL NOTES:

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE
OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS
INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE
ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT
CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL
QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING
THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH
THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL
SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO
IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF
FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND
THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE
PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE
INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST
PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

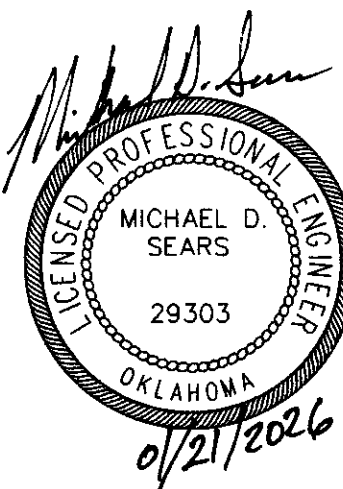
THE FOLLOWING SECTIONS OF THE 2019 ODOT STANDARD SPECIFICATIONS SHOULD
BE NOTED:

- 103.05 BONDING REQUIREMENTS
104.10 FINAL CLEANING UP
104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
104.13 ENVIRONMENTAL PROTECTION
106.08 STORAGE AND HANDLING OF MATERIAL
107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
107.20 STORM WATER MANAGEMENT
220 MANAGEMENT OF EROSION, SEDIMENTATION,
AND STORM WATER POLLUTION PREVENTION
221 TEMPORARY SEDIMENT CONTROL

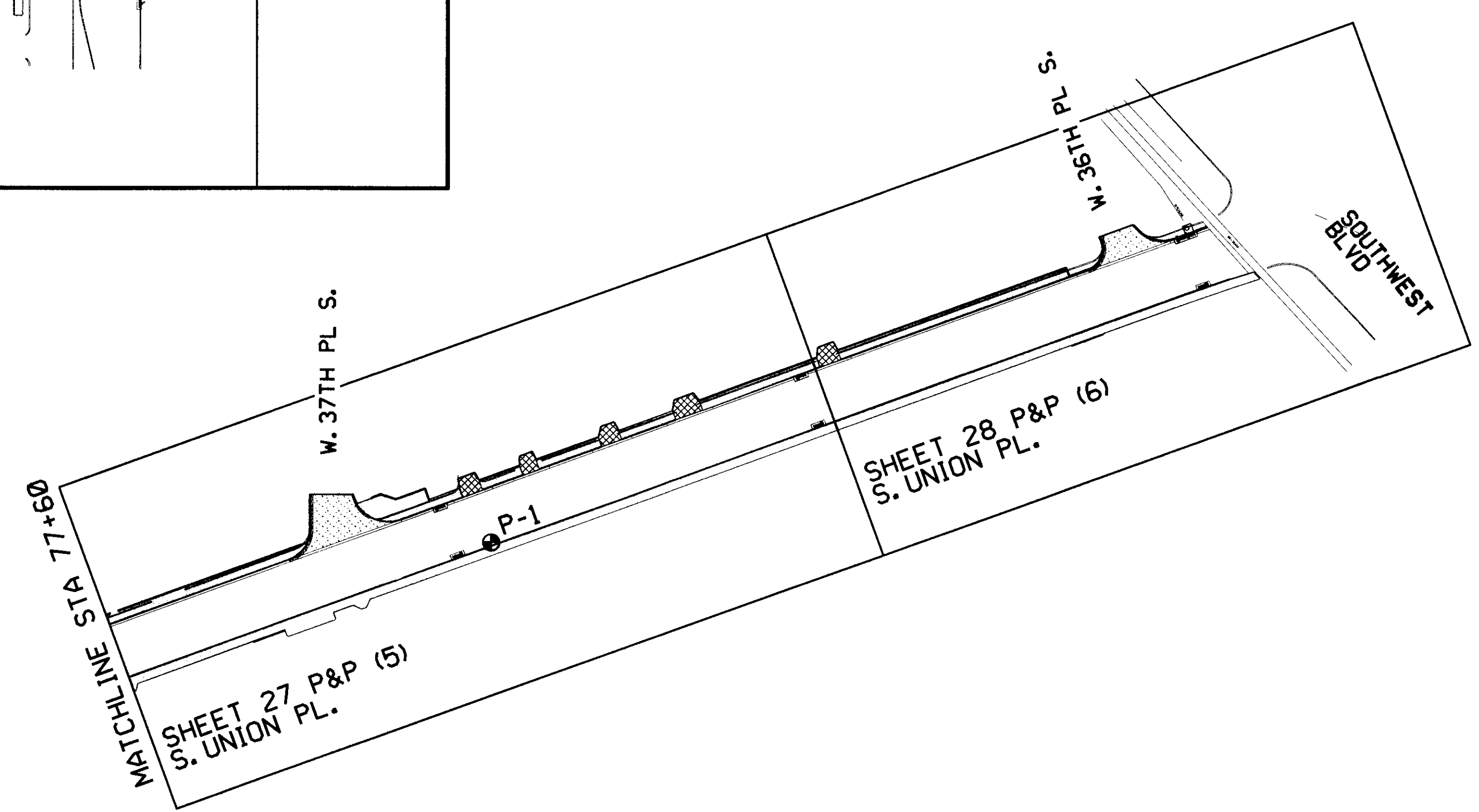
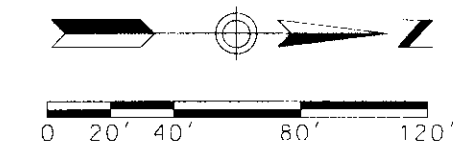
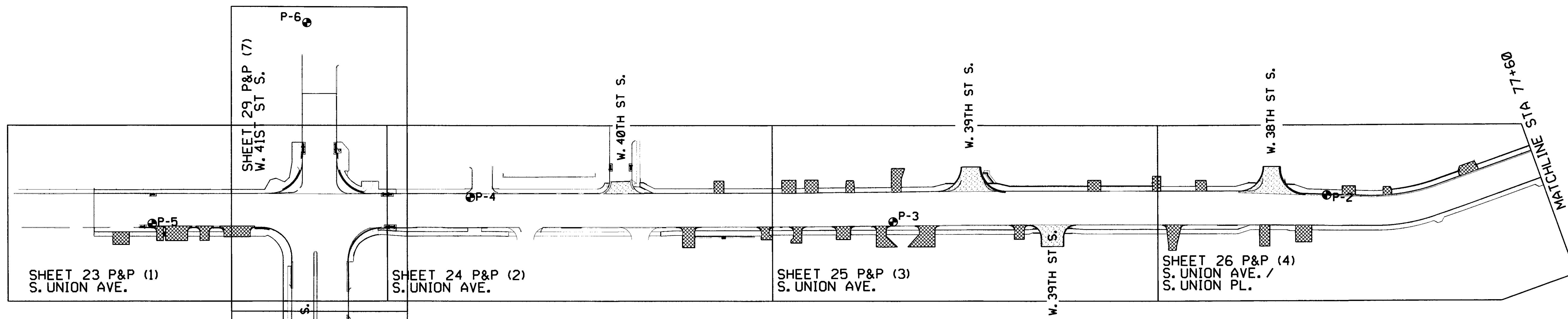
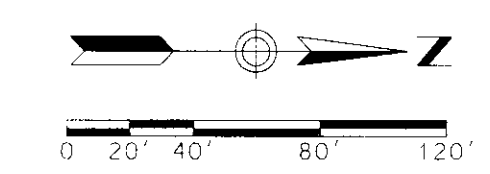
IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER
DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN
THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY
DIVISION, NOVEMBER 1, 2023.

ADDITIONAL PERMITS REQUIRED FROM OKLAHOMA WATER
RESOURCES BOARD AND/OR MUNICIPALITY FOR USE OF
SURFACE, GROUND OR CITY WATER SOURCES FOR ACTIVITIES
SUCH AS WATERING.



STORMWATER MANAGEMENT PLAN			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Dewberry Engineers Inc. 1200 South Boulder Suite 600 Tulsa, Oklahoma 74119 - 3216 1-855-717-2831 Fax 918-597-8871			
PLAN SCALE	DRAWN	DEI	03/17
DESIGNED	DEI	03/17	
SURVEY	SWA	08/15	
PROFILE SCALE	PROJ. MGR.	Memo	01/2026
HORIZONTAL:	LEAD ENGR.	DEI	06/16
1"=20'	FIELD MGR.	DEI	06/16
VERTICAL:	RECOMMENDED		
1"=5'	DESIGN MANAGER	HAS	6-26
FILE:	DRAWING:		
ATLAS PAGE NO.:	140, 141, 191	DATE:	SEP 2018
SHEET 21 OF 59 SHEETS			



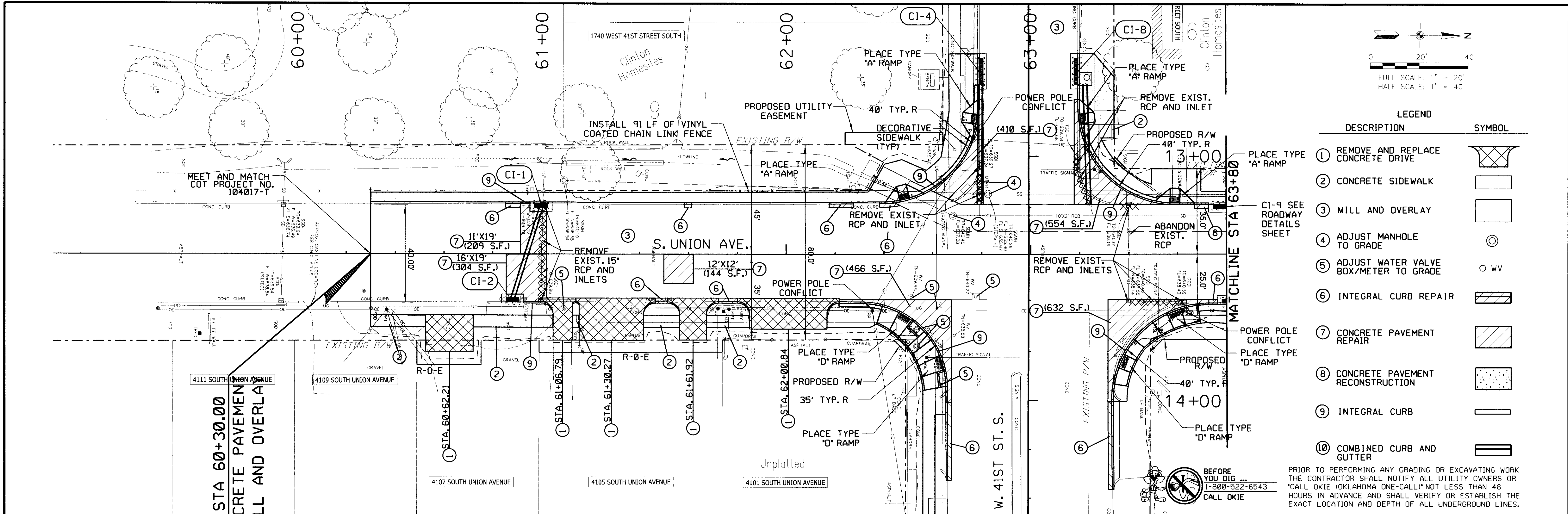
LEGEND

- CONCRETE PAVEMENT RECONSTRUCTION
- APC PAVEMENT MILL & OVERLAY
- BORING LOCATIONS
- SIDEWALK
- DRIVEWAY



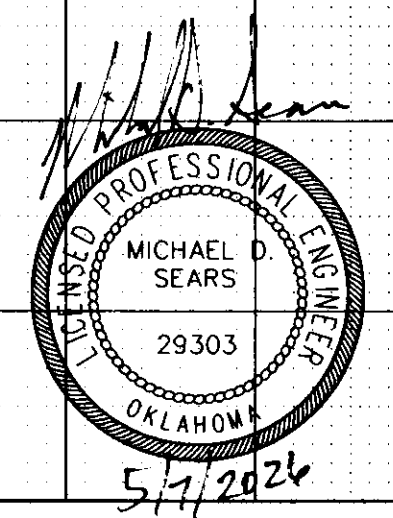
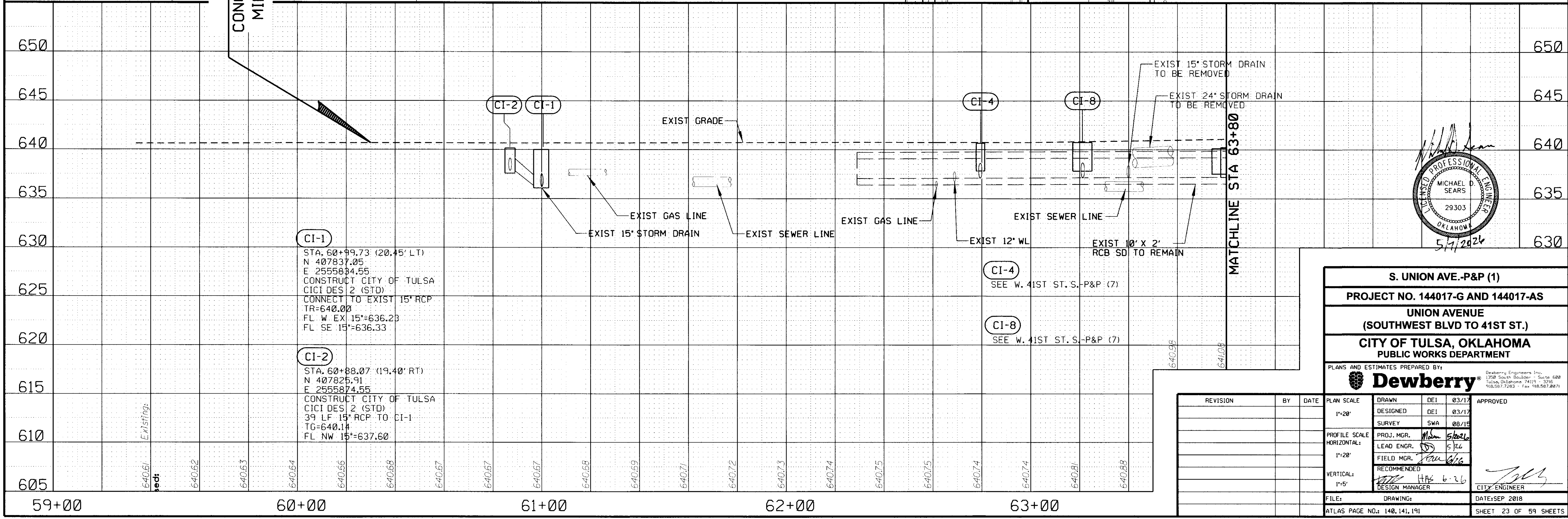
SHEET LOCATION MAP									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:									
 Dewberry									
1320 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587.7283 - fax 918.587.0871									
REVISION		BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED	
				1"=20'	DESIGNED	DEI	03/17		
					SURVEY	SWA	08/15		
				PROFILE SCALE	PROJ. MGR.	M/ben	01/2020		
				HORIZONTAL:	LEAD ENGR.	D	2/6		
				1"=20'	FIELD MGR.	SWA	6/16		
				VERTICAL:	RECOMMENDED				
				1"=5'	DESIGN MANAGER	HAS	6-21		
FILE:		DRAWING:		DATE: SEP 2018		CITY ENGINEER			
ATLAS PAGE NO.: 140, 141, 191						SHEET 22 OF 59 SHEETS			

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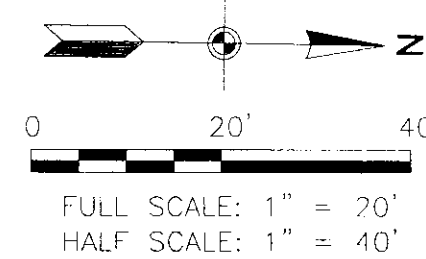
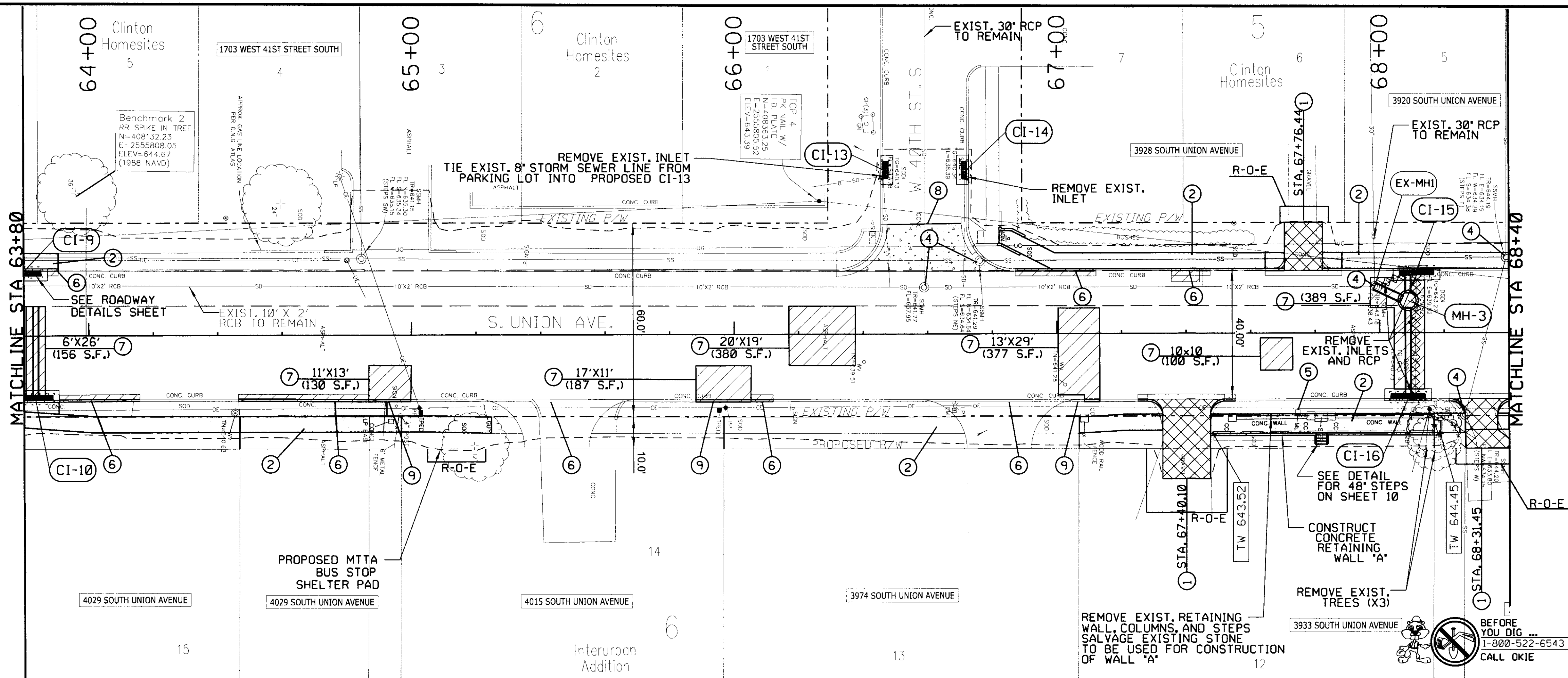


LEGEND	
DESCRIPTION	SYMBOL
1 REMOVE AND REPLACE CONCRETE DRIVE	
2 CONCRETE SIDEWALK	
3 MILL AND OVERLAY	
4 ADJUST MANHOLE TO GRADE	
5 ADJUST WATER VALVE BOX/METER TO GRADE	
6 INTEGRAL CURB REPAIR	
7 CONCRETE PAVEMENT REPAIR	
8 CONCRETE PAVEMENT RECONSTRUCTION	
9 INTEGRAL CURB	
10 COMBINED CURB AND GUTTER	

PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE (OKLAHOMA ONE-CALL)" NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.

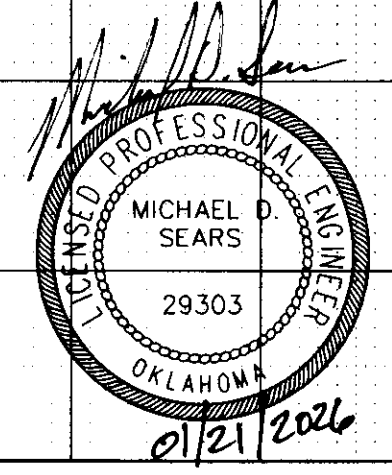
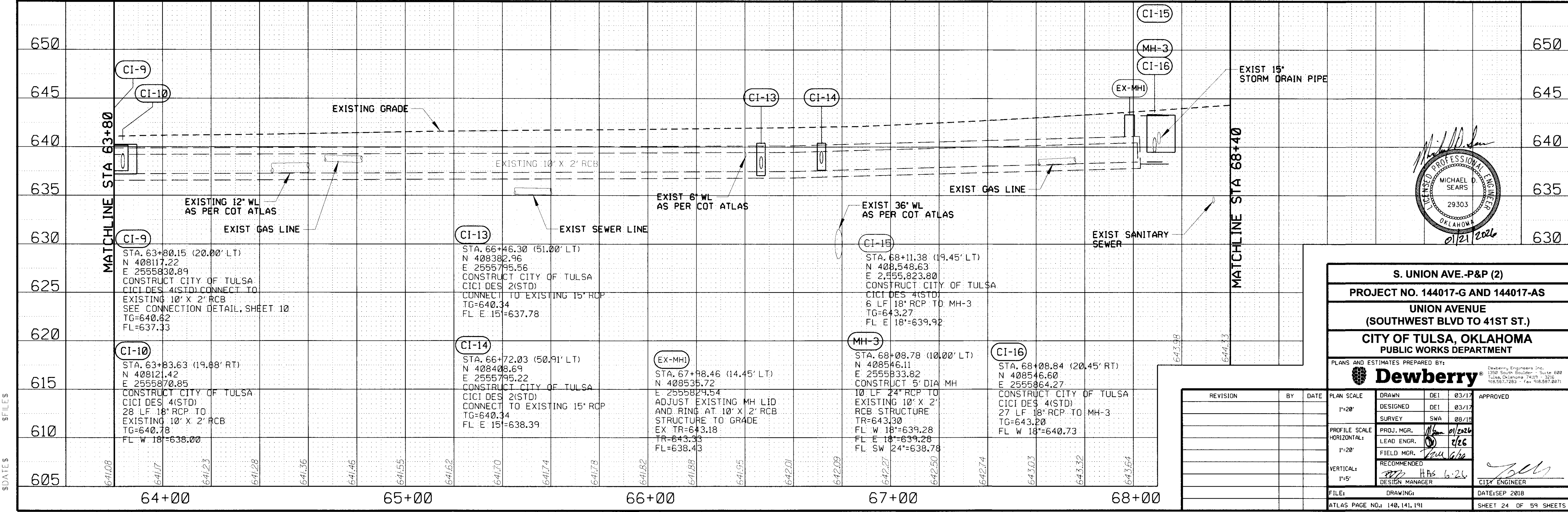


S. UNION AVE.-P&P (1)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Dewberry	
DRAWN: DEI 03/17 DESIGNED: DEI 03/17 SURVEY: SWA 08/15 PROJ. MGR. MAM 5/26/24 LEAD ENGR. JSS 5/26 FIELD MGR. JAW 6/16 RECOMMENDED DESIGN MANAGER FILE: DRAWING: DATE: SEP 2018 ATLAS PAGE NO.: 140, 141, 191 SHEET 23 OF 59 SHEETS	

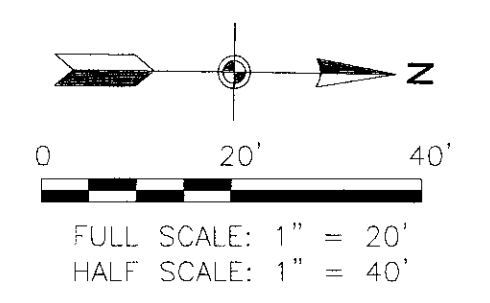
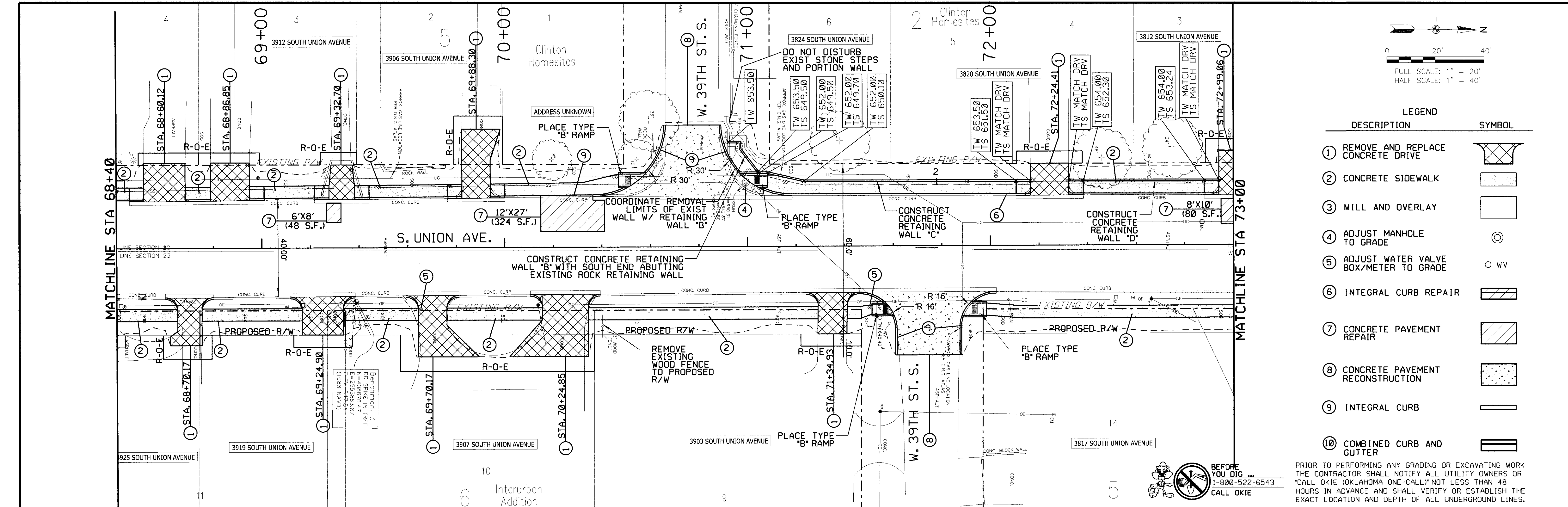


LEGEND	
DESCRIPTION	SYMBOL
1 REMOVE AND REPLACE CONCRETE DRIVE	
2 CONCRETE SIDEWALK	
3 MILL AND OVERLAY	
4 ADJUST MANHOLE TO GRADE	
5 ADJUST WATER VALVE BOX/METER TO GRADE	
6 INTEGRAL CURB REPAIR	
7 CONCRETE PAVEMENT REPAIR	
8 CONCRETE PAVEMENT RECONSTRUCTION	
9 INTEGRAL CURB	
10 COMBINED CURB AND GUTTER	

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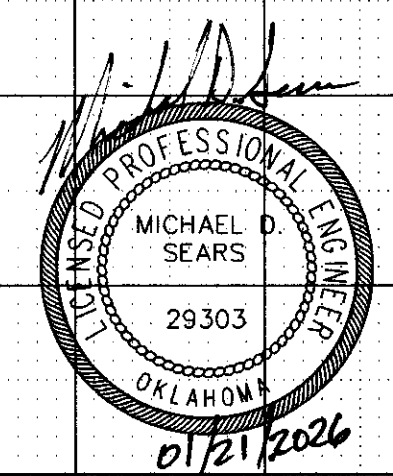
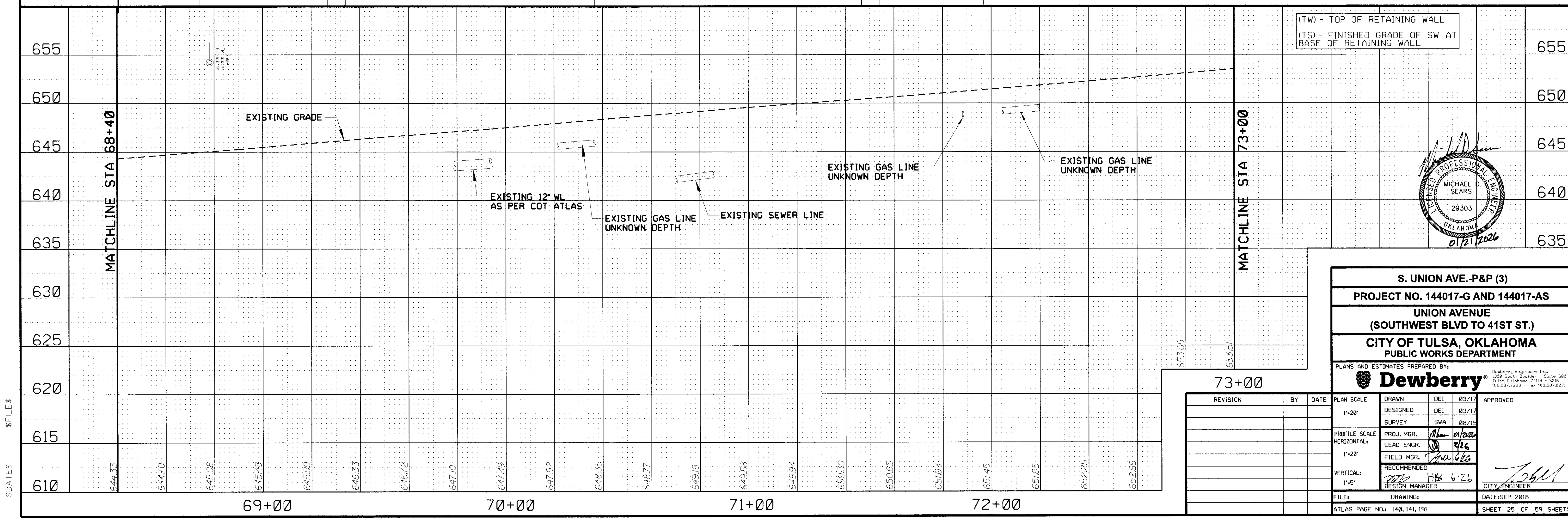


S. UNION AVE.-P&P (2)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Dewberry	
APPROVED	
FILE:	DRAWING:
ATLAS PAGE NO.:	140, 141, 191
DATE:	SEP 2018
SHEET:	24 OF 59 SHEETS



LEGEND	
DESCRIPTION	SYMBOL
1 REMOVE AND REPLACE CONCRETE DRIVE	
2 CONCRETE SIDEWALK	
3 MILL AND OVERLAY	
4 ADJUST MANHOLE TO GRADE	
5 ADJUST WATER VALVE BOX/METER TO GRADE	
6 INTEGRAL CURB REPAIR	
7 CONCRETE PAVEMENT REPAIR	
8 CONCRETE PAVEMENT RECONSTRUCTION	
9 INTEGRAL CURB	
10 COMBINED CURB AND GUTTER	

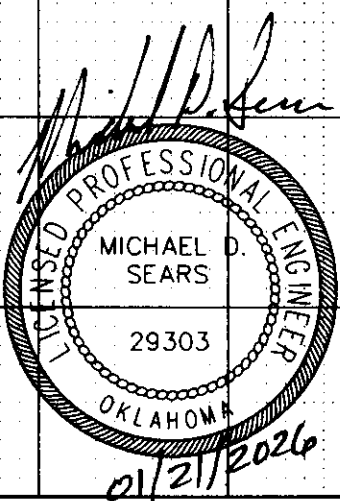
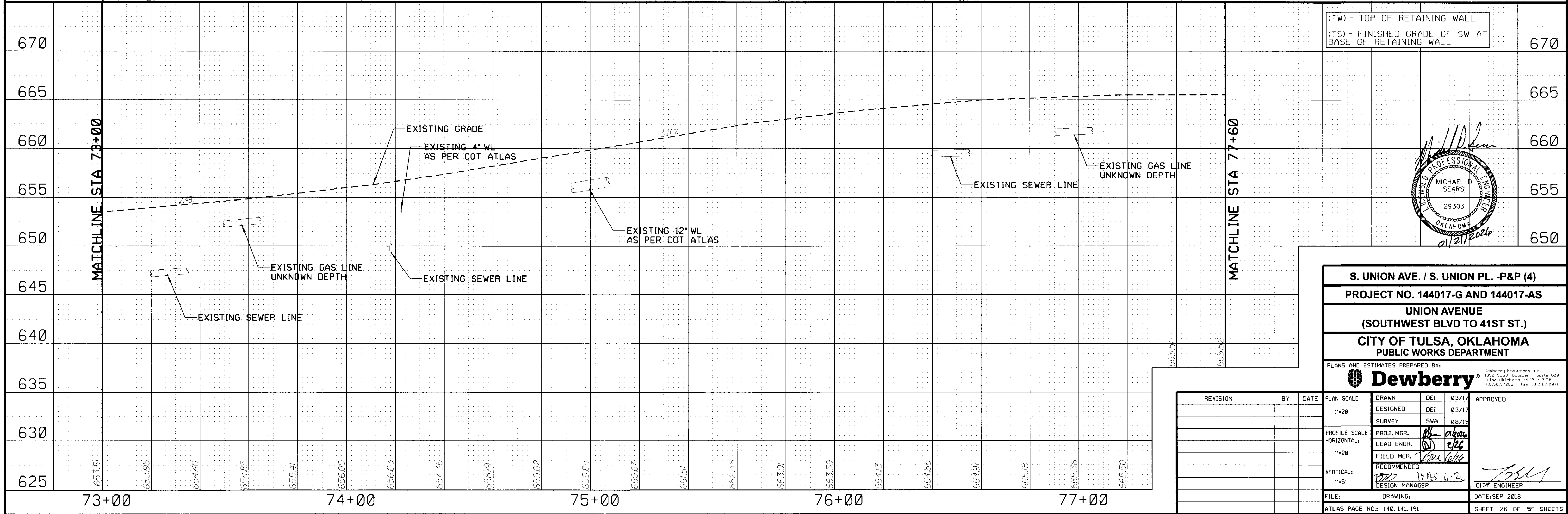
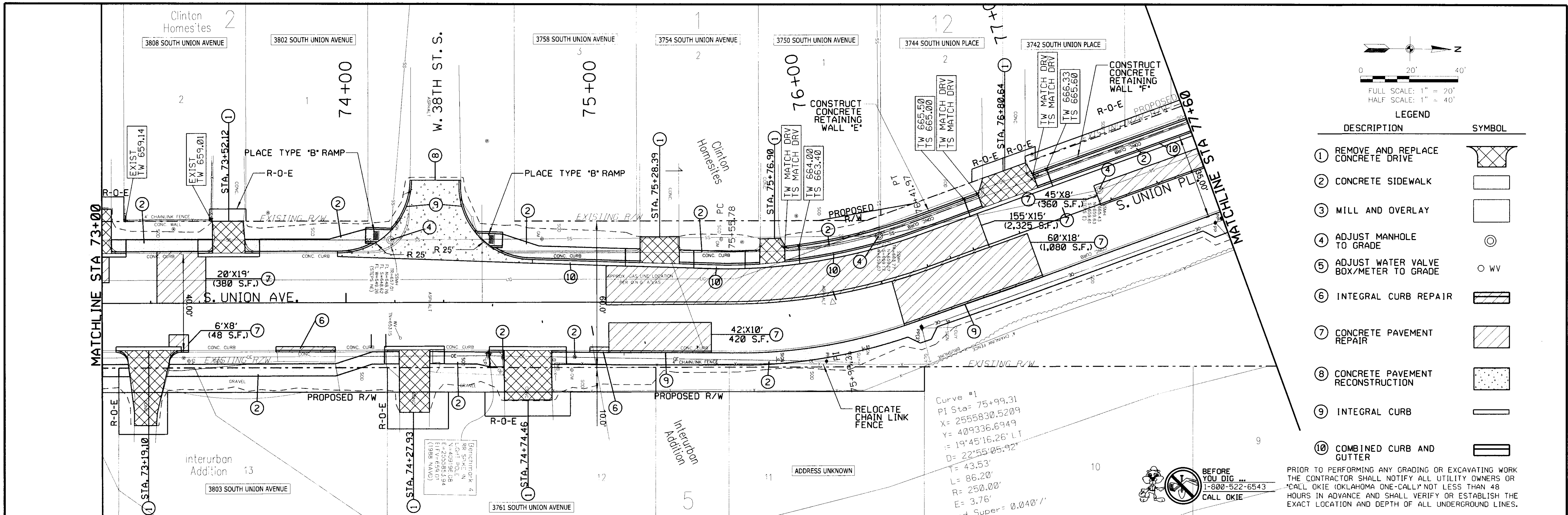
PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE (OKLAHOMA ONE-CALL)" NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.



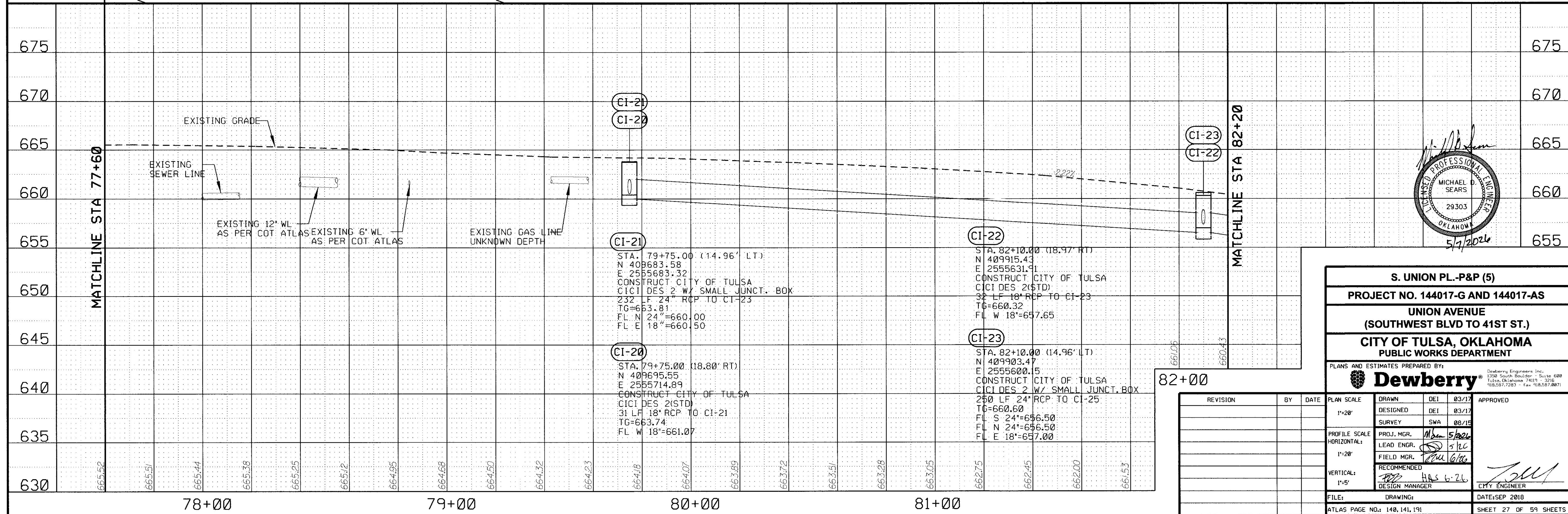
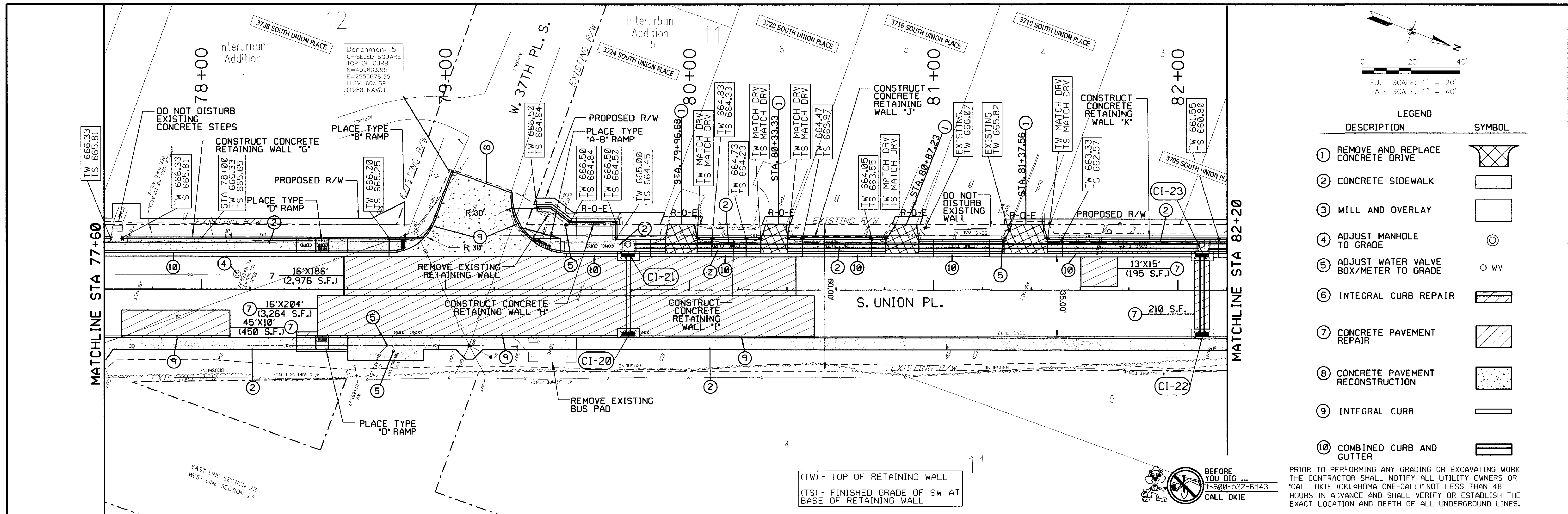
S. UNION AVE.-P&P (3)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Dewberry	
DRAWN: DEI 03/17 DESIGNED: DEI 03/17 SURVEY: SWA 08/15 PROJ. MGR.: M... 01/2026 LEAD ENGR.: J... 8/26 FIELD MGR.: J... 6/26 RECOMMENDED: J... 6/26 DESIGN MANAGER: J... 6/26	
FILE:	DRAWING: DATE: SEP 2018
ATLAS PAGE NO.: 140, 141, 191	SHEET 25 OF 59 SHEETS

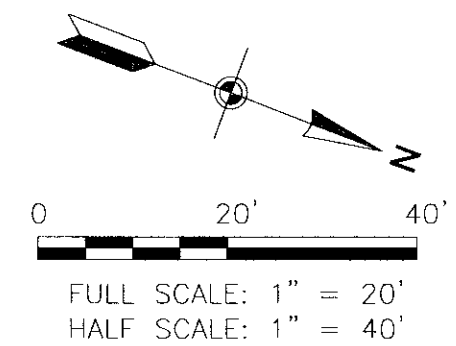
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REVISION	BY	DATE

\$DATE\$ \$FILES\$



S. UNION AVE. / S. UNION PL. -P&P (4)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY:	
Dewberry	
1950 South Boulder, Suite 600 Tulsa, Oklahoma 74119 - 3015 918.587.7283 - Fax 918.587.0871	
REVISION	BY DATE
PLAN SCALE	DRAWN DEI 03/17
DESIGNED DEI 03/17	
SURVEY SWA 08/15	
PROFILE SCALE	PROJ. MGR. <i>[Signature]</i> 01/20/26
HORIZONTAL	LEAD ENGR. <i>[Signature]</i> 01/20/26
1"=20'	FIELD MGR. <i>[Signature]</i> 01/20/26
VERTICAL:	RECOMMENDED
1"=5'	DESIGN MANAGER
FILE:	DRAWING:
ATLAS PAGE NO.: 140, 141, 191	DATE: SEP 2018
	CITY ENGINEER
	SHEET 26 OF 59 SHEETS

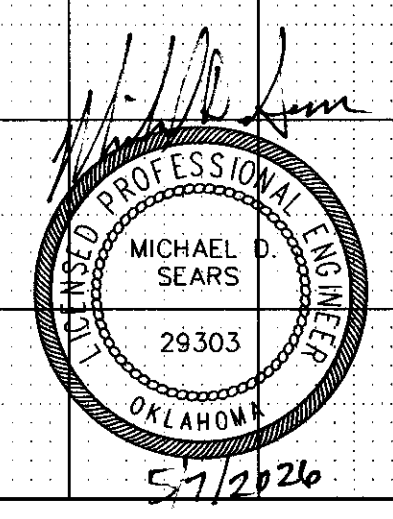
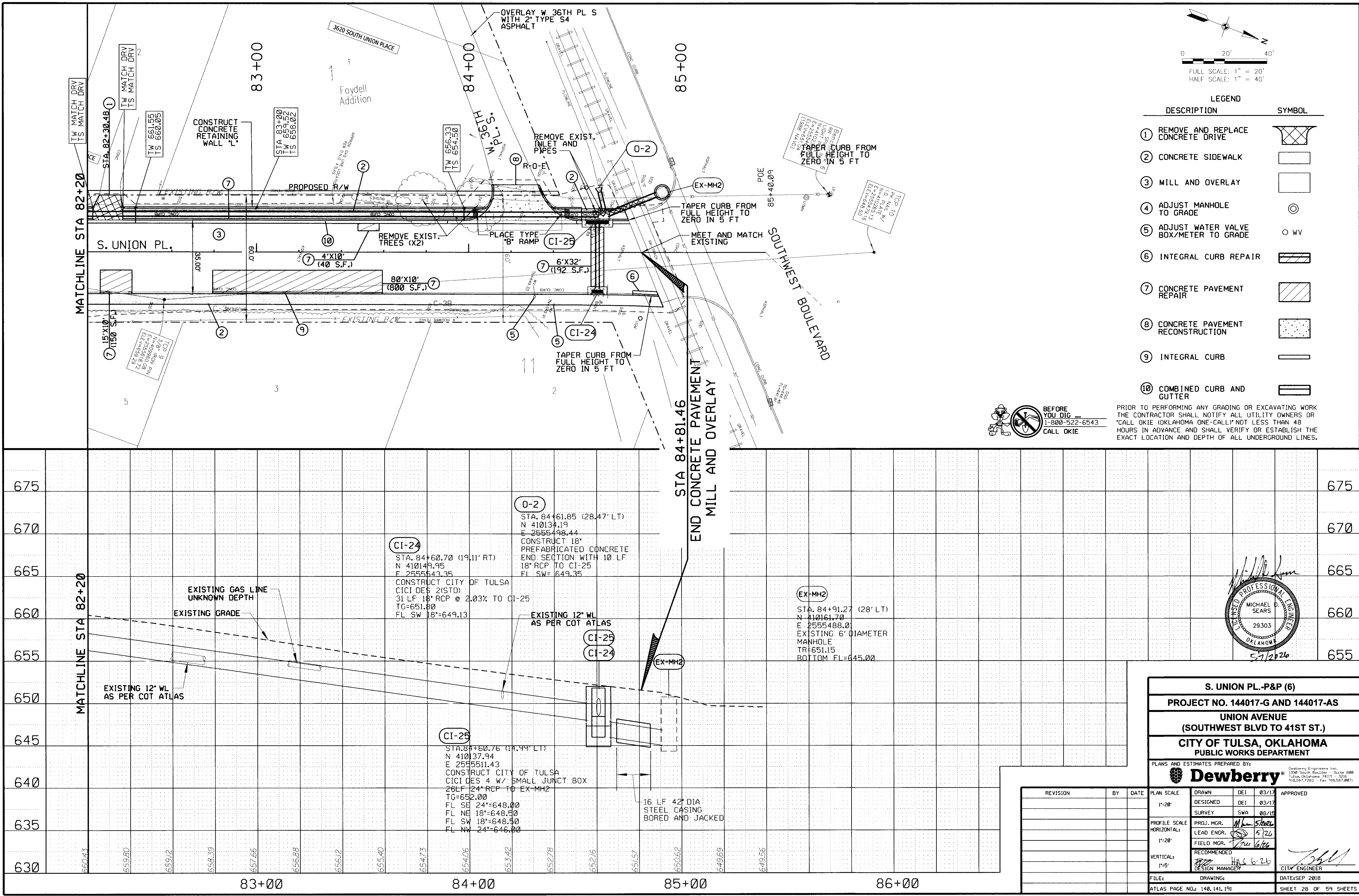




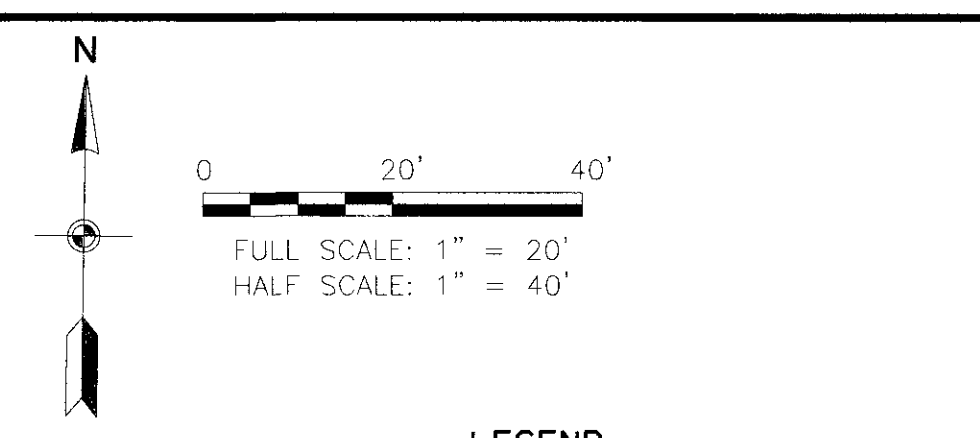
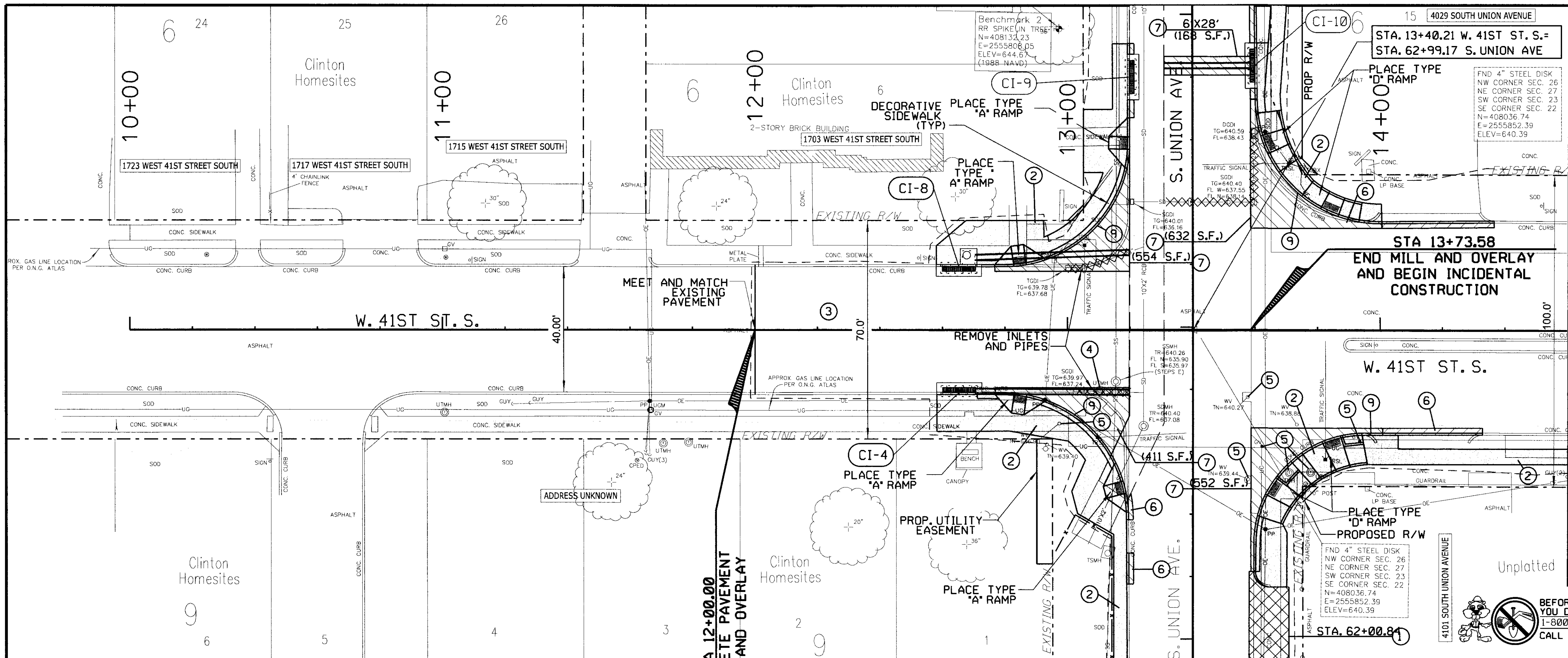
LEGEND	
DESCRIPTION	SYMBOL
① REMOVE AND REPLACE CONCRETE DRIVE	
② CONCRETE SIDEWALK	
③ MILL AND OVERLAY	
④ ADJUST MANHOLE TO GRADE	
⑤ ADJUST WATER VALVE BOX/METER TO GRADE	
⑥ INTEGRAL CURB REPAIR	
⑦ CONCRETE PAVEMENT REPAIR	
⑧ CONCRETE PAVEMENT RECONSTRUCTION	
⑨ INTEGRAL CURB	
⑩ COMBINED CURB AND GUTTER	



PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE (OKLAHOMA ONE-CALL)" NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.

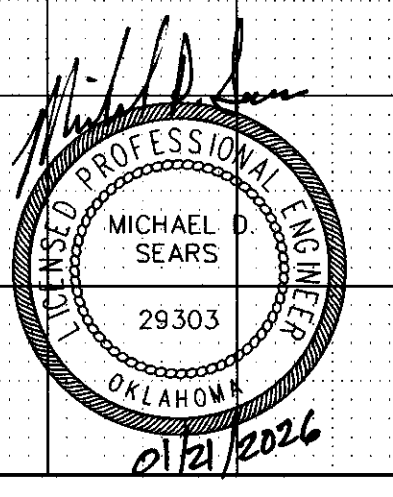
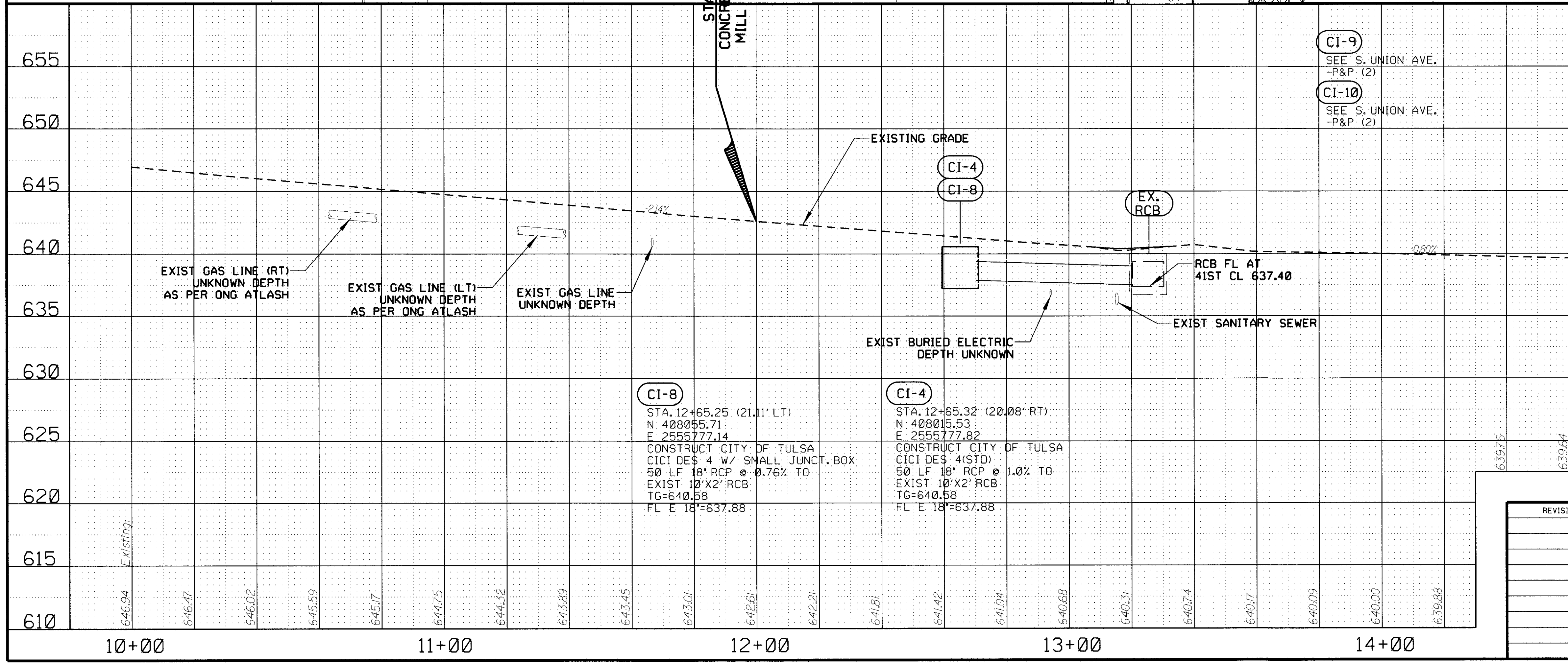


S. UNION PL.-P&P (6)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Dewberry	
Dewberry Engineers Inc. 1298 South Boulder Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587.7293 Fax 918.587.8871	
REVISION	BY DATE
PLAN SCALE	DRAWN DEI 03/17
DESIGNED DEI 03/17	APPROVED
SURVEY SWA 08/15	
PROFILE SCALE	PROJ. MGR. <i>Man</i> 5/20/20
HORIZONTAL	LEAD ENGR. <i>Man</i> 5/20/20
1"=20'	FIELD MGR. <i>Man</i> 6/6/20
RECOMMENDED	DESIGN MANAGER
FILE:	DRAWING: DATE: SEP 2018
ATLAS PAGE NO.: 140, 141, 191	SHEET 28 OF 59 SHEETS



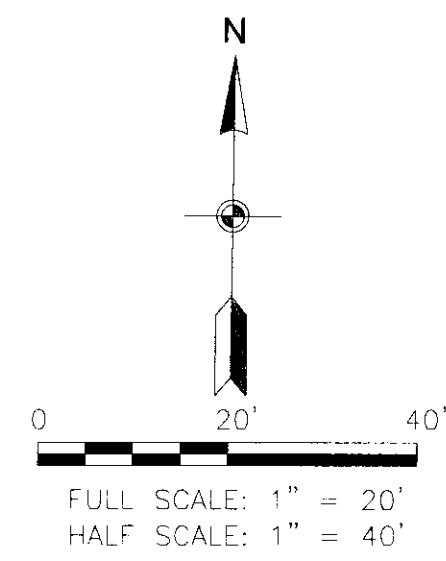
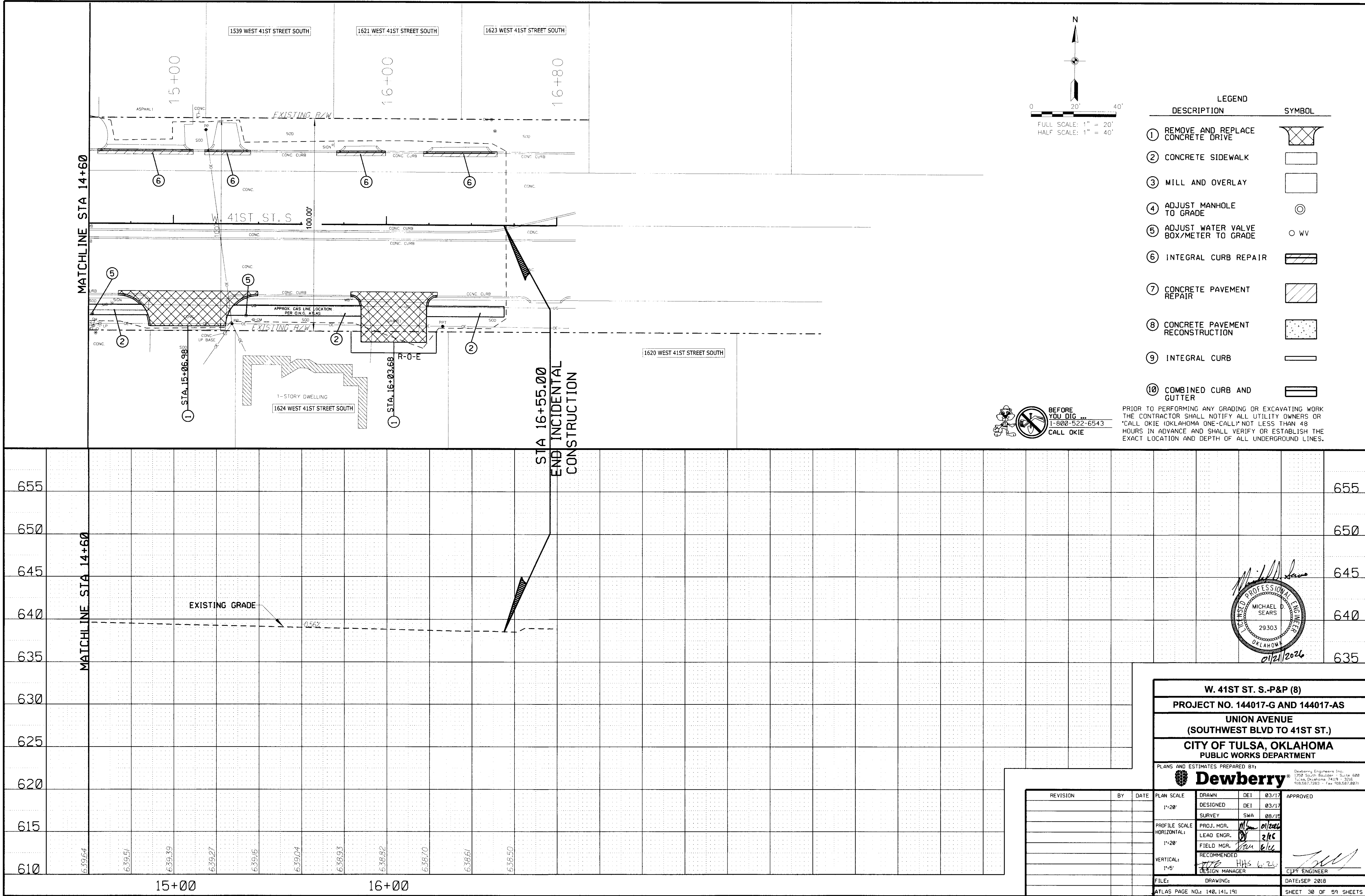
LEGEND	
DESCRIPTION	SYMBOL
1 REMOVE AND REPLACE CONCRETE DRIVE	
2 CONCRETE SIDEWALK	
3 MILL AND OVERLAY	
4 ADJUST MANHOLE TO GRADE	
5 ADJUST WATER VALVE BOX/METER TO GRADE	
6 INTEGRAL CURB REPAIR	
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8 CONCRETE PAVEMENT RECONSTRUCTION	
9 INTEGRAL CURB	
10 COMBINED CURB AND GUTTER	

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W. 41ST ST. S.-P&P (7)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY:	
Dewberry	
DESIGNED: DEI 03/17	
SURVEY: SWA 08/15	
PROFILE SCALE: HORIZONTAL: 1"=20'	
VERTICAL: 1"=5'	
FILE: DRAWING: DATE: SEP 2018	
ATLAS PAGE NO.: 140, 141, 191	
APPROVED: CITY ENGINEER	
SHEET 29 OF 59 SHEETS	

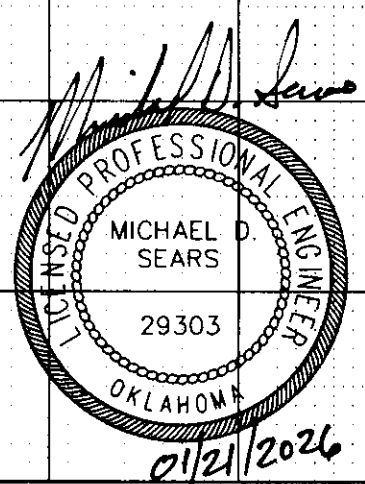
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LEGEND	
DESCRIPTION	SYMBOL
① REMOVE AND REPLACE CONCRETE DRIVE	
② CONCRETE SIDEWALK	
③ MILL AND OVERLAY	
④ ADJUST MANHOLE TO GRADE	
⑤ ADJUST WATER VALVE BOX/METER TO GRADE	
⑥ INTEGRAL CURB REPAIR	
⑦ CONCRETE PAVEMENT REPAIR	
⑧ CONCRETE PAVEMENT RECONSTRUCTION	
⑨ INTEGRAL CURB	
⑩ COMBINED CURB AND GUTTER	



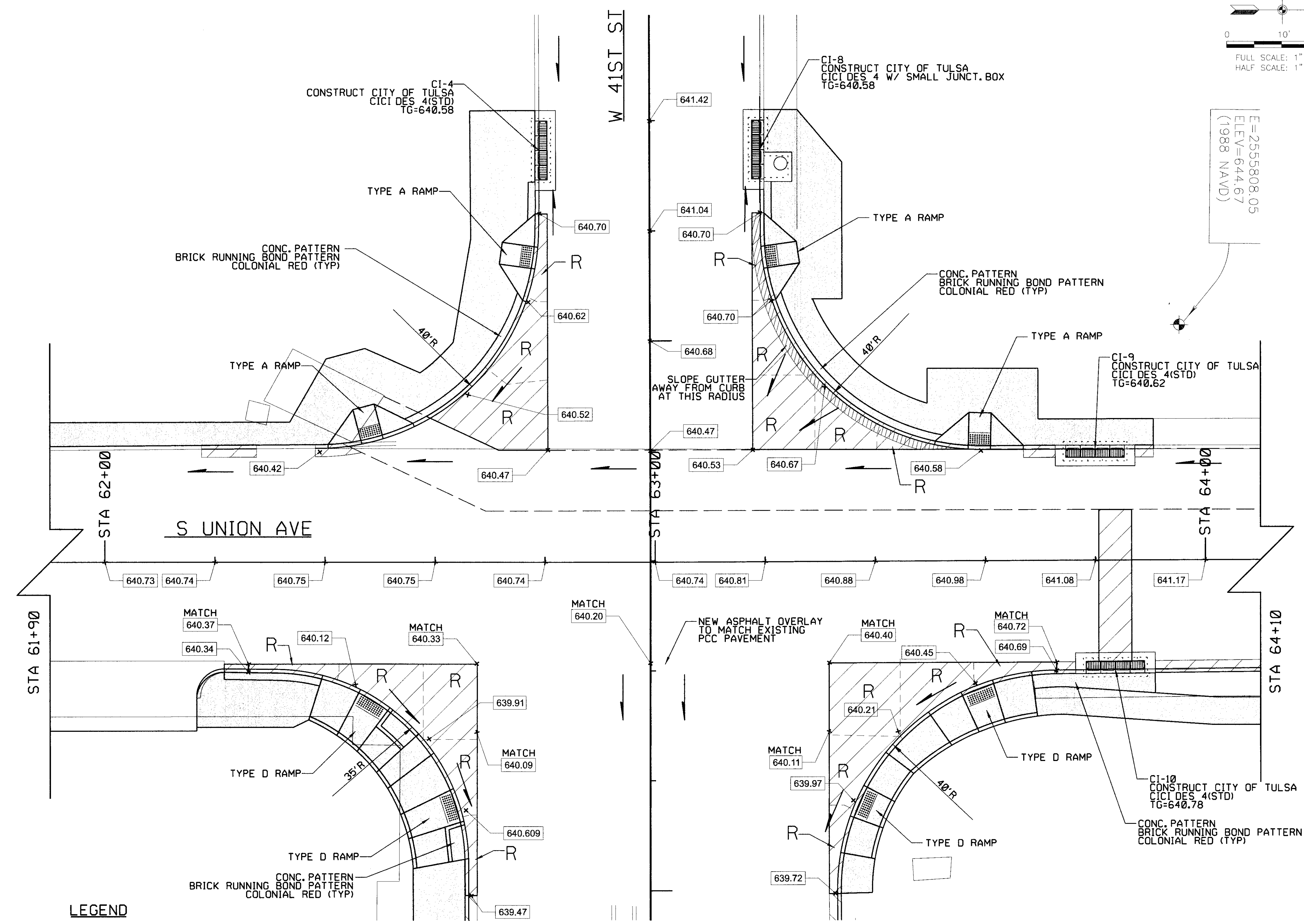
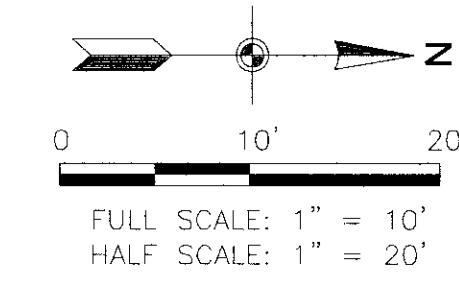
PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE (OKLAHOMA ONE-CALL)" NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.



W. 41ST ST. S-P&P (8)							
PROJECT NO. 144017-G AND 144017-AS							
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)							
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT							
PLANS AND ESTIMATES PREPARED BY: Dewberry							
Dewberry Engineers Inc. 1350 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 5016 918.587.7283 - Fax 918.587.0071							
REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED
			1"=20'	DESIGNED	DEI	03/17	
				SURVEY	SWA	08/15	
			PROFILE SCALE	PROJ. MGR.	M/S	01/2026	
			HORIZONTAL:	LEAD ENGR.	D	2/15	
			1"=20'	FIELD MGR.	Kan	6/16	RECOMMENDED HHS 6.26 DESIGN MANAGER CITY ENGINEER
			VERTICAL:				
			1"=5'				
			FILE:	DRAWING:			DATE: SEP 2018
			ATLAS PAGE NO.: 140, 141, 191				SHEET 30 OF 59 SHEETS

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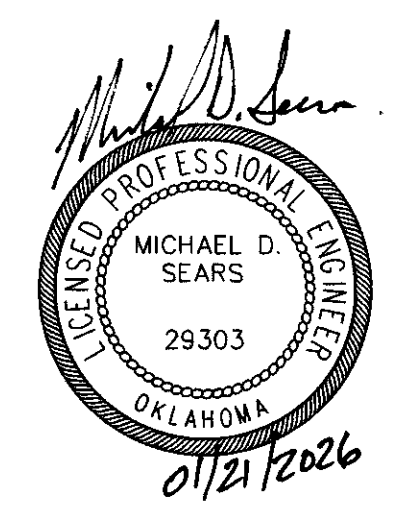
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LEGEND	
DESCRIPTION	SYMBOL
① REMOVE AND REPLACE CONCRETE DRIVE	
② CONCRETE SIDEWALK	
③ MILL AND OVERLAY	
④ ADJUST MANHOLE TO GRADE	
⑤ ADJUST WATER VALVE BOX/METER TO GRADE	
⑥ INTEGRAL CURB REPAIR	
⑦ CONCRETE PAVEMENT REPAIR	
⑧ CONCRETE PAVEMENT RECONSTRUCTION	
⑨ INTEGRAL CURB	
⑩ COMBINED CURB AND GUTTER	

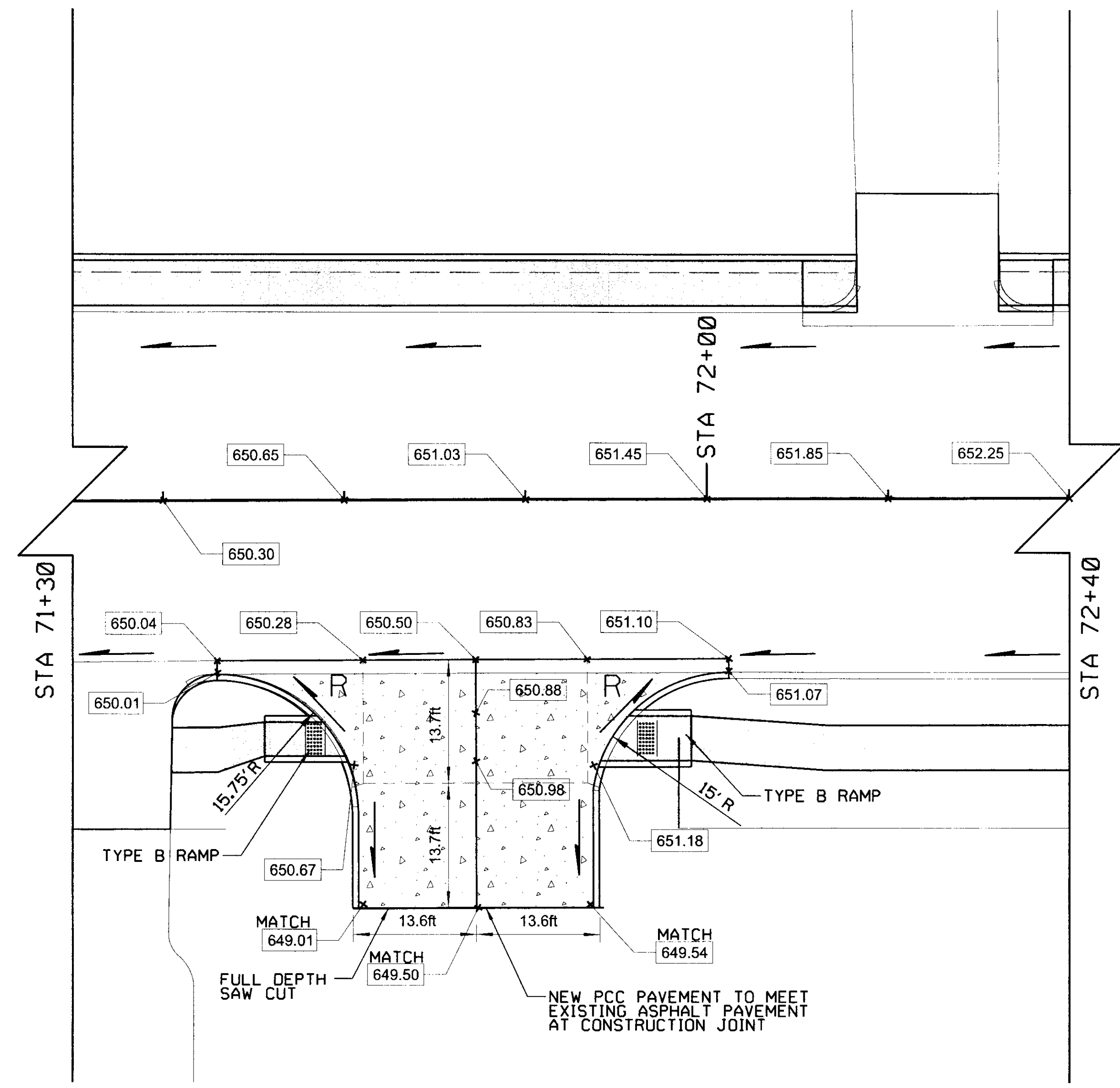
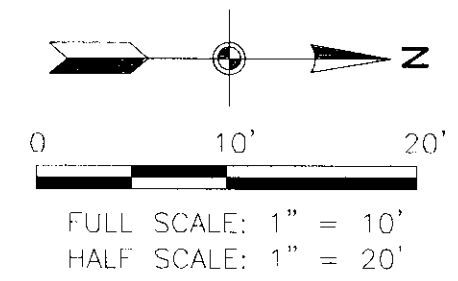
LEGEND	
	DOWELED EXPANSION JOINT (TYPE AA COT STD 729)
	DOWELED CONTRACTION JOINT (REF ODOT DETAIL LTU-4-0)
	TIED BUTT JOINT OR LONGITUDINAL JOINT (REF ODOT DETAIL LTU-4-0)
	REINFORCED CONCRETE PANEL (SEE NOTE 4 THIS SHEET)
	FALL AWAY CURB AND GUTTER (SEE ROADWAY DETAILS)

- NOTES:
1. ALL ELEVATIONS SHOWN ARE TO TOP OF PAVEMENT OR GUTTER
 2. THE JOINT LAYOUT IS PROVIDED FOR THE CONTRACTOR'S USE. THE CONTRACTOR WILL BE ALLOWED TO MAKE MODIFICATIONS TO FIT FIELD AND OPERATIONAL CONDITIONS AS APPROVED BY THE ENGINEER. HOWEVER, THE MAXIMUM SPACING SHALL BE 15 FT. BETWEEN JOINTS.
 3. SEE COT STANDARD DETAILS 727 AND 729 FOR JOINT TYPE AND LAYOUT. FOR DOWELED CONTRACTION JOINTS REF ODOT DETAIL LTU-4-0.
 4. REINFORCED CONCRETE PANEL SHALL BE * 4 BARS @ 18" C/C EACH DIRECTION. * 4 BARS SHALL EXTEND 18" INTO ADJACENT PANELS. COST SHALL BE CONSIDERED INCIDENTAL TO CONCRETE PLACEMENT. NO ADDITIONAL PAYMENT SHALL BE MADE.

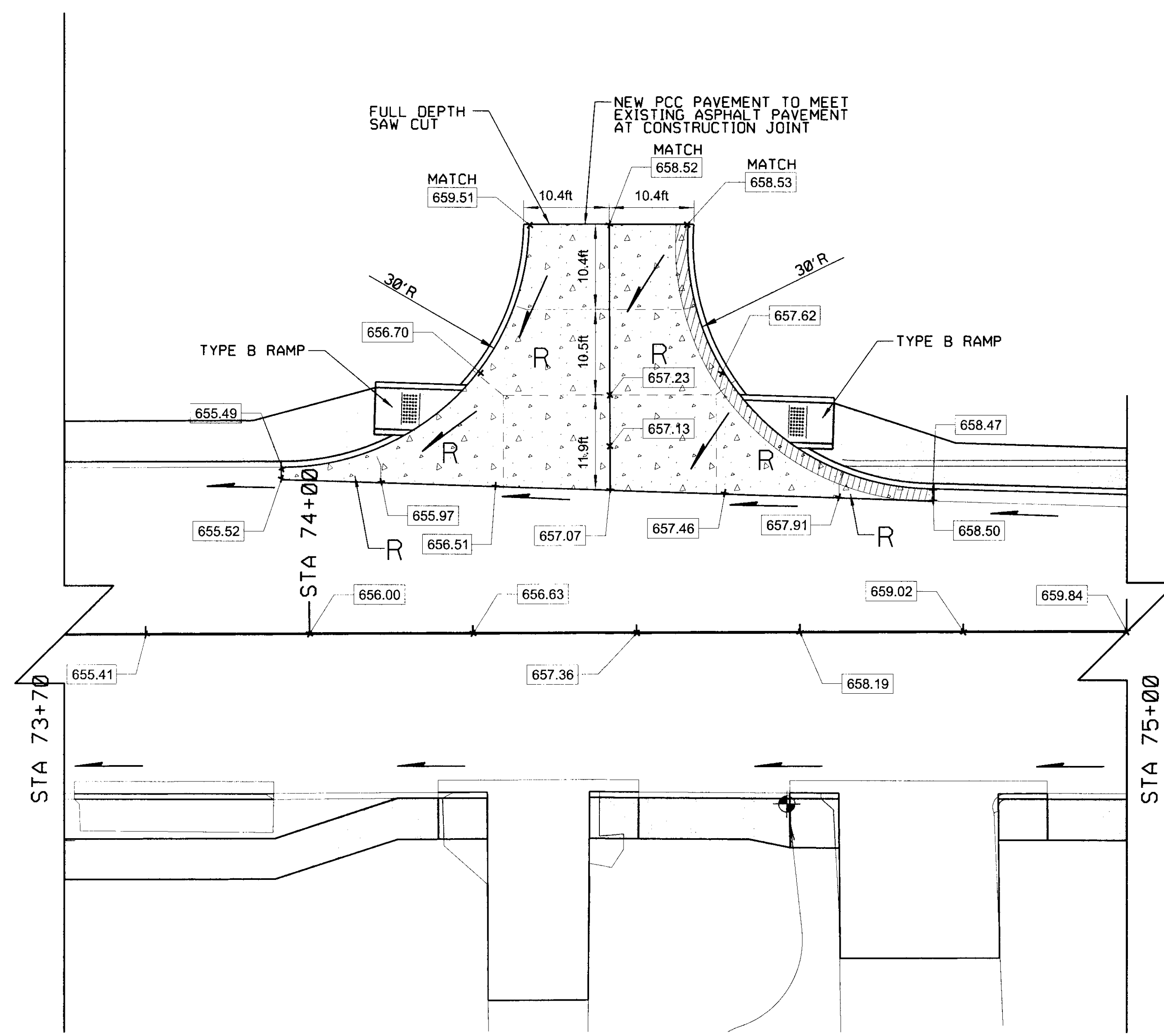


INTERSECTION DETAIL (1)	
PROJECT NO. 144017-G AND 144017-AS	
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)	
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: Dewberry Engineers Inc. 1300 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3210 918.587.7283 - Fax: 918.587.8071	
REVISION	BY DATE
PLAN SCALE	DRAWN DEI 03/17
DESIGNED DEI 03/17	APPROVED
SURVEY SWA 08/15	
PROJ. MGR. M. B. 01/26/26	
LEAD ENGR. D. 01/26	
FIELD MGR. Paul 6/26	
RECOMMENDED	
DESIGN MANAGER	CITY ENGINEER
FILE:	DRAWING:
DATE: SEP 2018	
ATLAS PAGE NO.: 140, 141, 191	SHEET 31 OF 59 SHEETS

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W 39TH ST
AND S UNION AVE



W 38TH ST
AND S UNION AVE

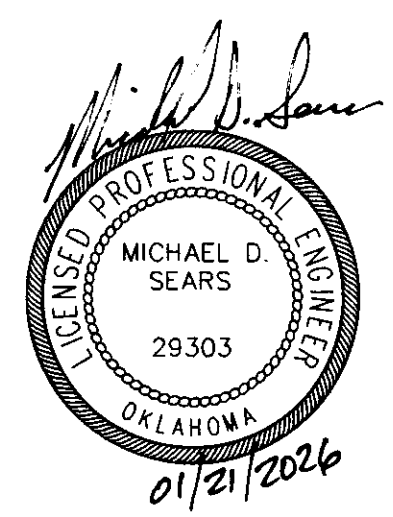
DESCRIPTION	SYMBOL
① REMOVE AND REPLACE CONCRETE DRIVE	
② CONCRETE SIDEWALK	
③ MILL AND OVERLAY	
④ ADJUST MANHOLE TO GRADE	
⑤ ADJUST WATER VALVE BOX/METER TO GRADE	
⑥ INTEGRAL CURB REPAIR	
⑦ CONCRETE PAVEMENT REPAIR	
⑧ CONCRETE PAVEMENT RECONSTRUCTION	
⑨ INTEGRAL CURB	
⑩ COMBINED CURB AND GUTTER	

LEGEND

	E	DOWELED EXPANSION JOINT (TYPE AA COT STD 729)
		SAWCUT CONTRACTION JOINT
		TIED BUTT JOINT OR LONGITUDINAL JOINT (SEE DETAIL ON SHEET 9)
	R	REINFORCED CONCRETE PANEL (SEE NOTE 4 THIS SHEET)
		FALL AWAY CURB AND GUTTER (SEE ROADWAY DETAILS)

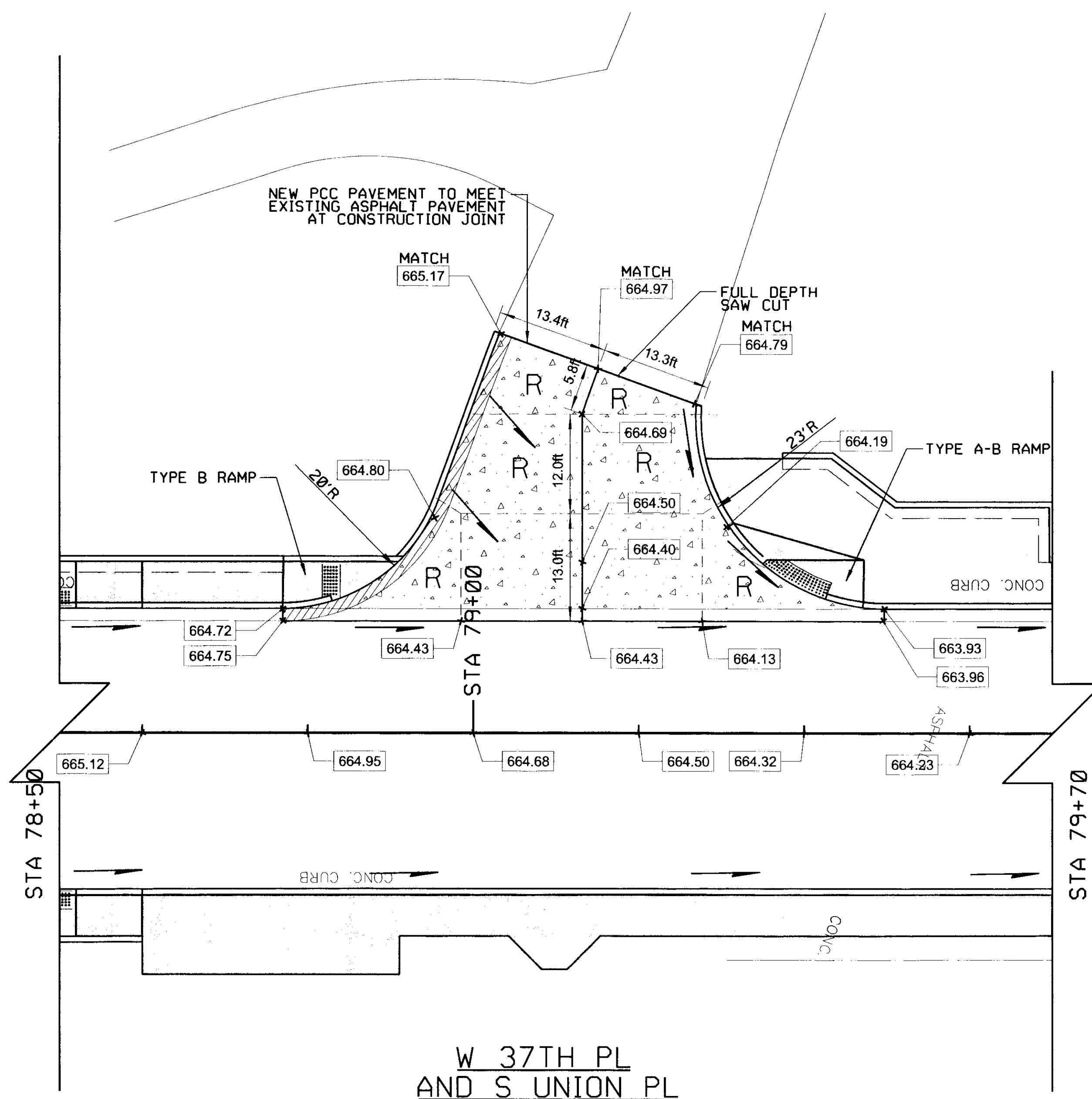
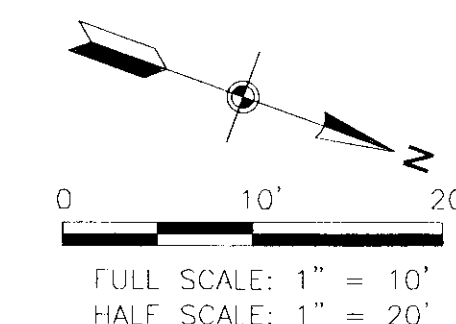
NOTES:

- ALL ELEVATIONS SHOWN ARE TO TOP OF PAVEMENT OR GUTTER.
- THE JOINT LAYOUT IS PROVIDED FOR THE CONTRACTOR'S USE. THE CONTRACTOR WILL BE ALLOWED TO MAKE MODIFICATIONS TO FIT FIELD AND OPERATIONAL CONDITIONS AS APPROVED BY THE ENGINEER. HOWEVER, THE MAXIMUM SPACING SHALL BE 15 FT. BETWEEN JOINTS.
- SEE COT STANDARD DETAIL 729 AND DETAIL ON SHEET 9 FOR JOINT TYPE AND LAYOUT.
- REINFORCED CONCRETE PANEL SHALL BE * 4 BARS @ 18" C/C EACH DIRECTION. *4 BARS SHALL EXTEND 18" INTO ADJACENT PANELS. COST SHALL BE CONSIDERED INCIDENTAL TO CONCRETE PLACEMENT. NO ADDITIONAL PAYMENT SHALL BE MADE.



INTERSECTION DETAIL (3)			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Dewberry			
PLAN SCALE	DRAWN	DEI	03/17
DESIGNED	DEI	03/17	
SURVEY	SWA	08/15	
PROFILE SCALE	PROJ. MGR.	01/20/17	
HORIZONTAL:	LEAD ENGR.	01/20/17	
1"=20'	FIELD MGR.	01/20/17	
VERTICAL:	RECOMMENDED	01/20/17	
1"=5'	DESIGN MANAGER	01/20/17	
FILE:	DRAWING:	DATE: SEP 2018	
ATLAS PAGE NO.:	140, 141, 191	SHEET 33 OF 59 SHEETS	

FILES
DATES



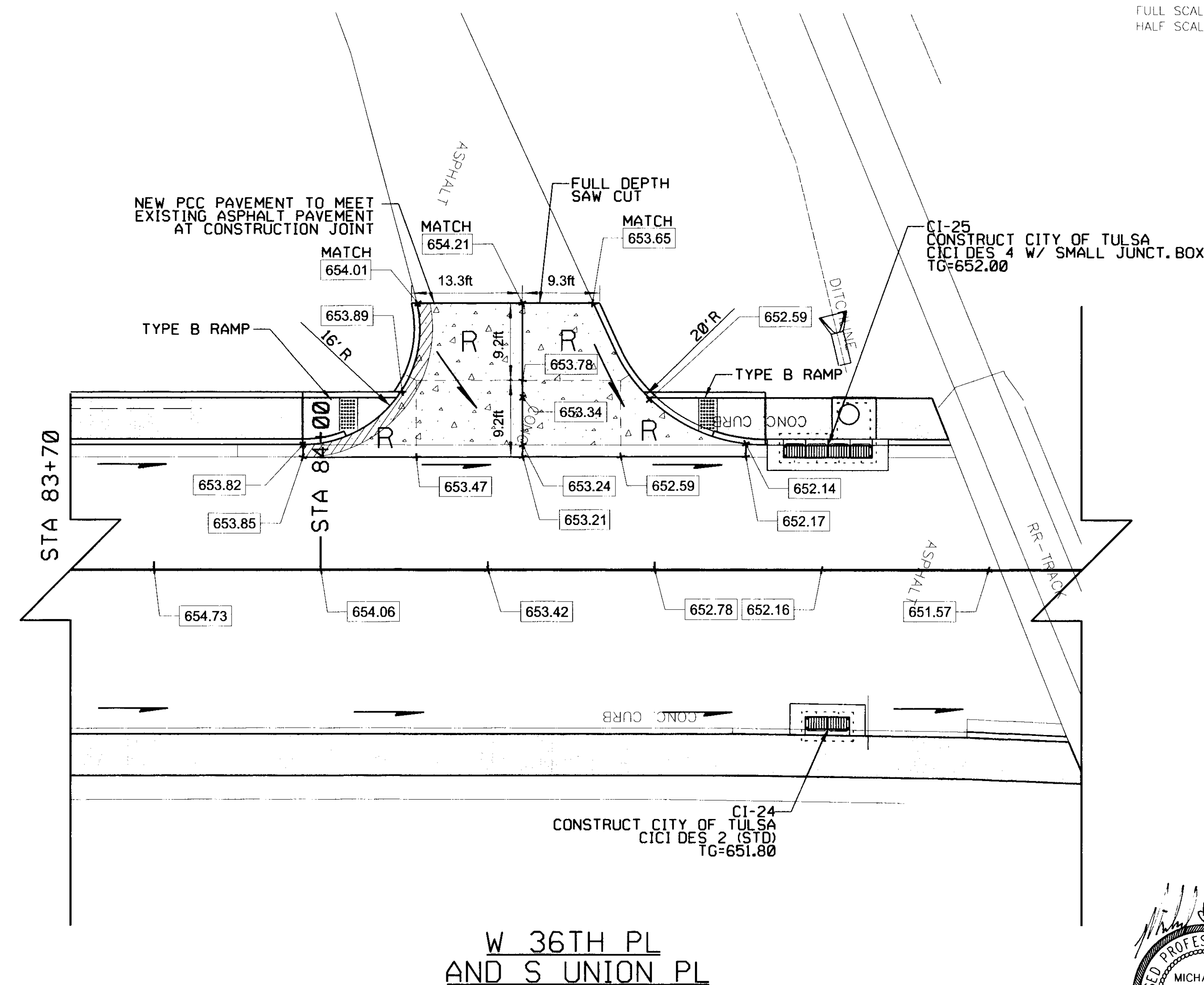
W 37TH PL
AND S UNION PL

LEGEND

	DOWELED EXPANSION JOINT (TYPE AA COT STD 729)
	SAWCUT CONTRACTION JOINT
	TIED BUTT JOINT OR LONGITUDINAL JOINT (SEE DETAIL ON SHEET 9)
	REINFORCED CONCRETE PANEL (SEE NOTE 4 THIS SHEET)
	FALL AWAY CURB AND GUTTER (SEE ROADWAY DETAILS)

NOTES:

- ALL ELEVATIONS SHOWN ARE TO TOP OF PAVEMENT OR GUTTER.
- THE JOINT LAYOUT IS PROVIDED FOR THE CONTRACTOR'S USE. THE CONTRACTOR WILL BE ALLOWED TO MAKE MODIFICATIONS TO FIT FIELD AND OPERATIONAL CONDITIONS AS APPROVED BY THE ENGINEER. HOWEVER, THE MAXIMUM SPACING SHALL BE 15 FT. BETWEEN JOINTS.
- SEE COT STANDARD DETAIL 729 AND DETAIL ON SHEET 9 FOR JOINT TYPE AND LAYOUT.
- REINFORCED CONCRETE PANEL SHALL BE 4 BARS @ 18" C/C EACH DIRECTION. #4 BARS SHALL EXTEND 18" INTO ADJACENT PANELS. COST SHALL BE CONSIDERED INCIDENTAL TO CONCRETE PLACEMENT. NO ADDITIONAL PAYMENT SHALL BE MADE.

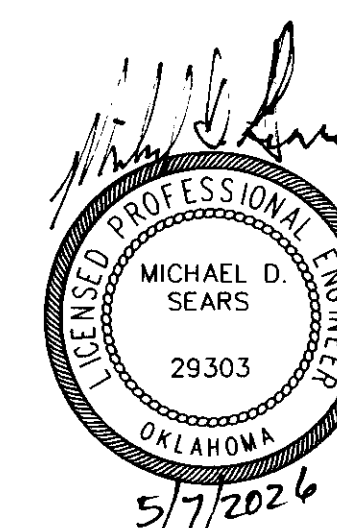


W 36TH PL
AND S UNION PL

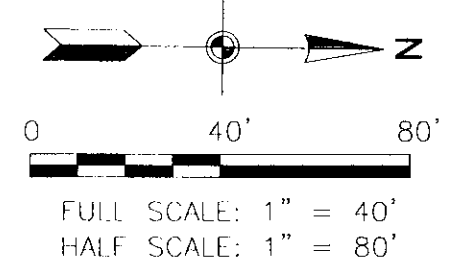
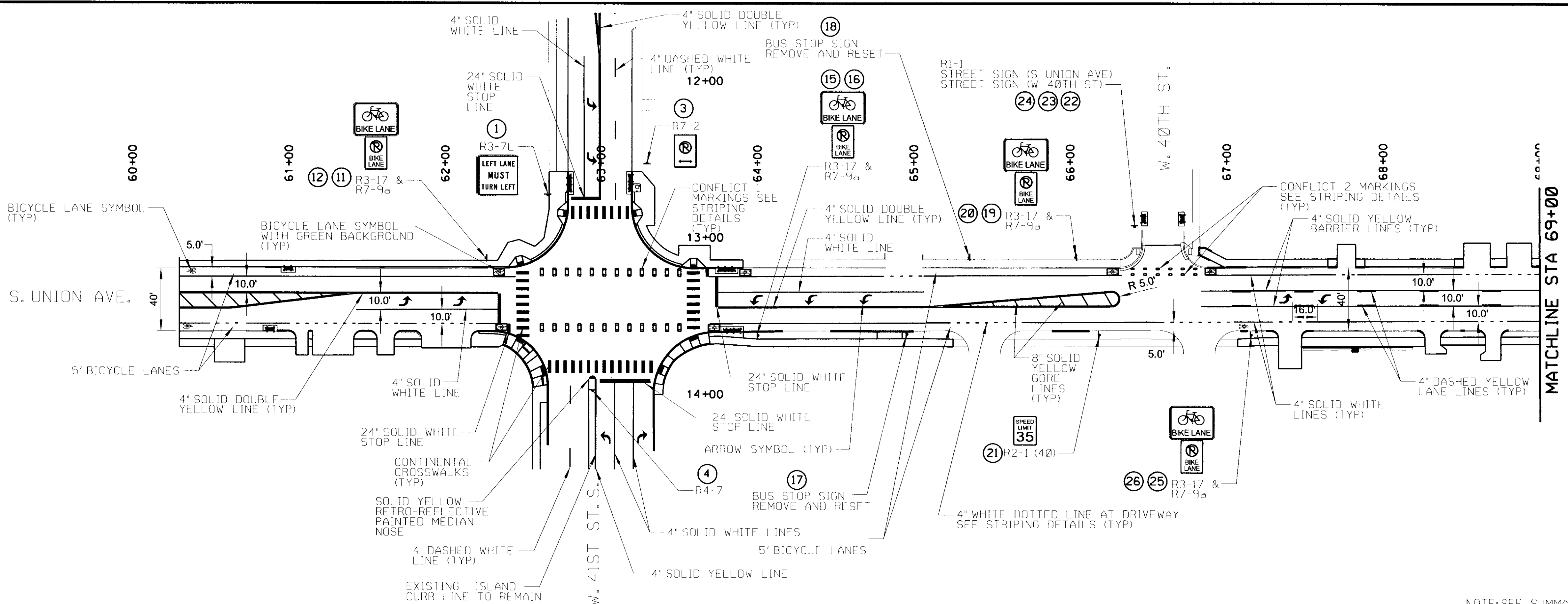
LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
① REMOVE AND REPLACE CONCRETE DRIVE		⑦ CONCRETE PAVEMENT REPAIR	
② CONCRETE SIDEWALK		⑧ CONCRETE PAVEMENT RECONSTRUCTION	
③ MILL AND OVERLAY		⑨ INTEGRAL CURB	
④ ADJUST MANHOLE TO GRADE		⑩ COMBINED CURB AND GUTTER	
⑤ ADJUST WATER VALVE BOX/METER TO GRADE			
⑥ INTEGRAL CURB REPAIR			

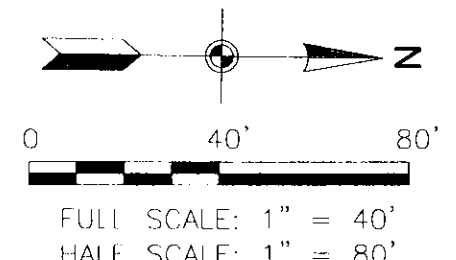
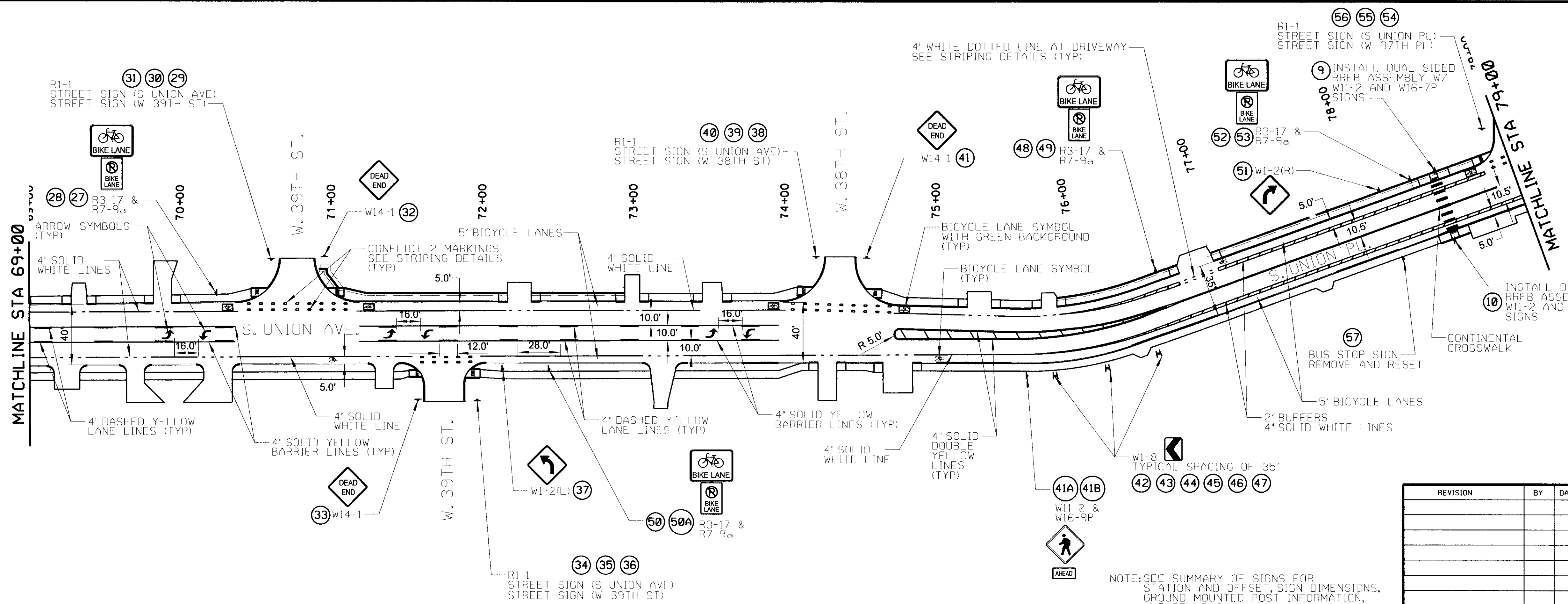
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				SURVEY	SWA	08/15	
			PROFILE SCALE	PROJ. MGR.	AS 5/20/20		
			HORIZONTAL:	LEAD ENGR.	AS 5/20/20		
			1"=20'	FIELD MGR.	AS 6/16/20		
			VERTICAL:	RECOMMENDED			
			1"=5'	DESIGN MANAGER	HAS 6/26/20		
			FILE:	DRAWING:			
			ATLAS PAGE NO.:	140, 141, 191			

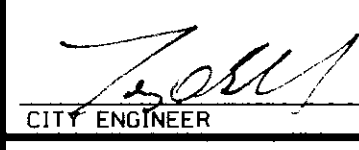
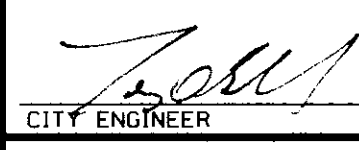


INTERSECTION DETAIL (4)			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: Dewberry			
DESIGNED BY: DEI 03/17			
SURVEY BY: SWA 08/15			
PROJ. MGR. AS 5/20/20			
LEAD ENGR. AS 5/20/20			
FIELD MGR. AS 6/16/20			
RECOMMENDED			
DESIGN MANAGER HAS 6/26/20			
FILE: DRAWING:			
ATLAS PAGE NO.:			
140, 141, 191			
SHEET 34 OF 59 SHEETS			



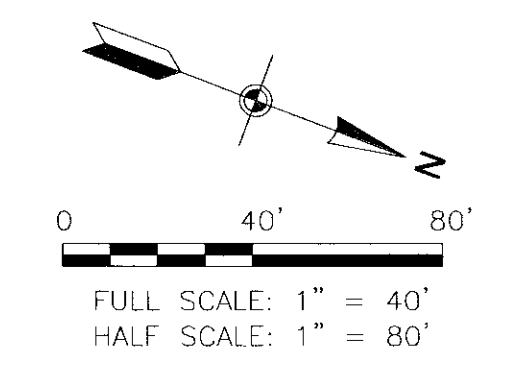
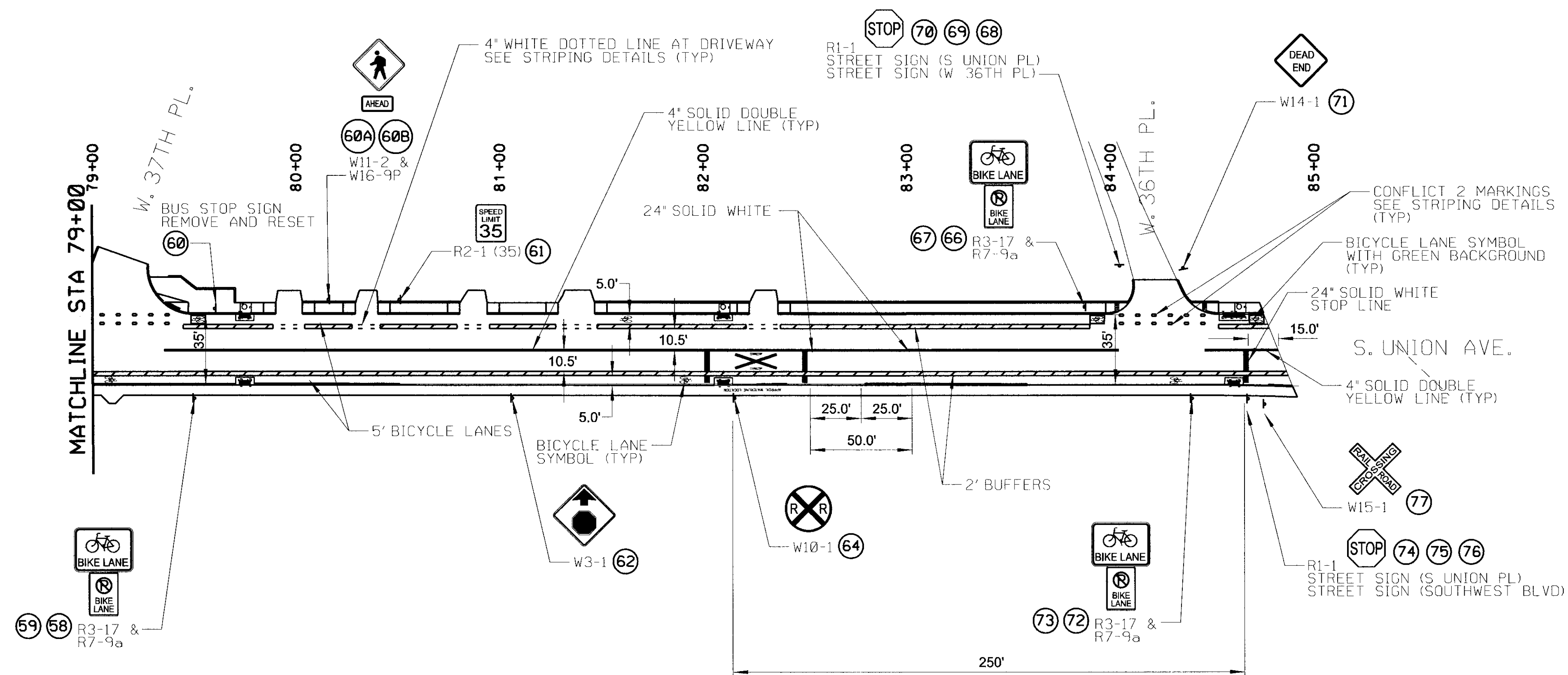
NOTE: SEE SUMMARY OF SIGNS FOR STATION AND OFFSET, SIGN DIMENSIONS, GROUND MOUNTED POST INFORMATION, AND REMARKS.



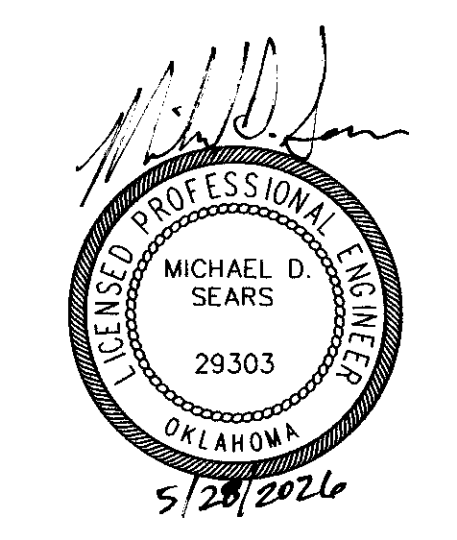
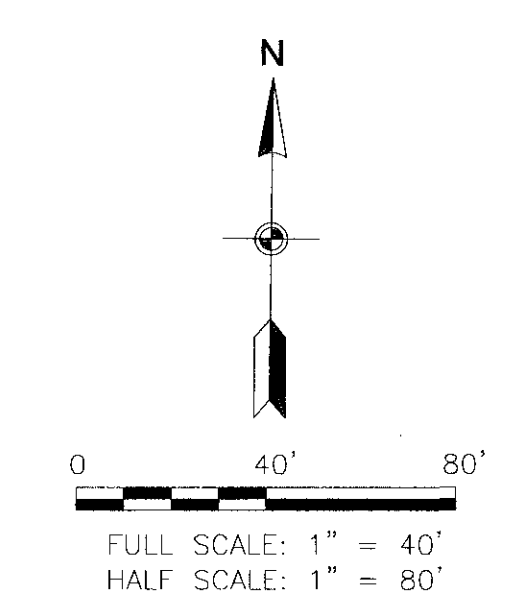
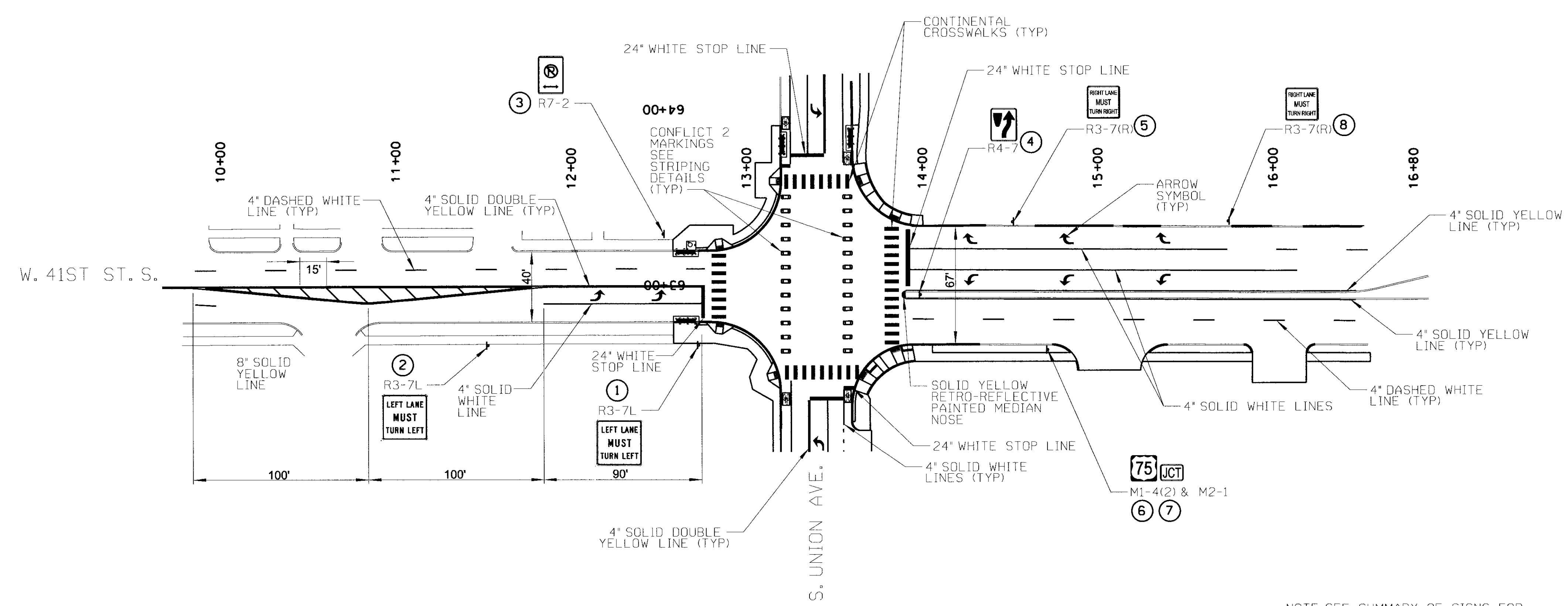
SIGNING AND STRIPING (1)									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY: Dewberry									
Dewberry Engineers Inc. 1750 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3215 918.587.7283 - Fax 918.587.8871									
REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED		
			1"=40'	DESIGNED	DEI	03/17			
				SURVEY	SWA	08/15	 CITY ENGINEER		
			PROFILE SCALE	PROJ. MGR.	W. H. H. 5/20/26				
			HORIZONTAL:	LEAD ENGR.	J. S. 5/27/26				
			VERTICAL:	FIELD MGR.	J. S. 6/16				
				RECOMMENDED	W. H. H. 6/26		 DESIGN MANAGER		
				FILE:	DRAWING:				
				ATLAS PAGE NO.:	140, 141, 191		DATE: SEP 2018		
							SHEET 35 OF 59 SHEETS		

NOTE: SEE SUMMARY OF SIGNS FOR STATION AND OFFSET, SIGN DIMENSIONS, GROUND MOUNTED POST INFORMATION, AND REMARKS.

SOATES \$FILES



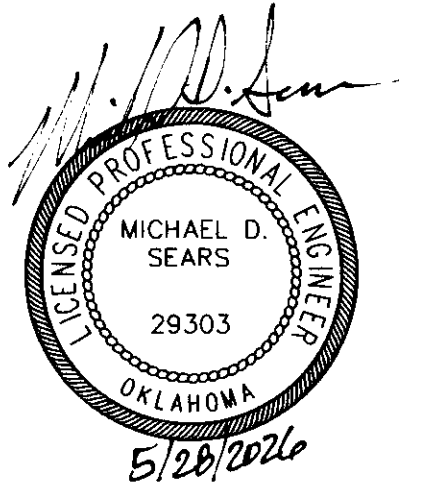
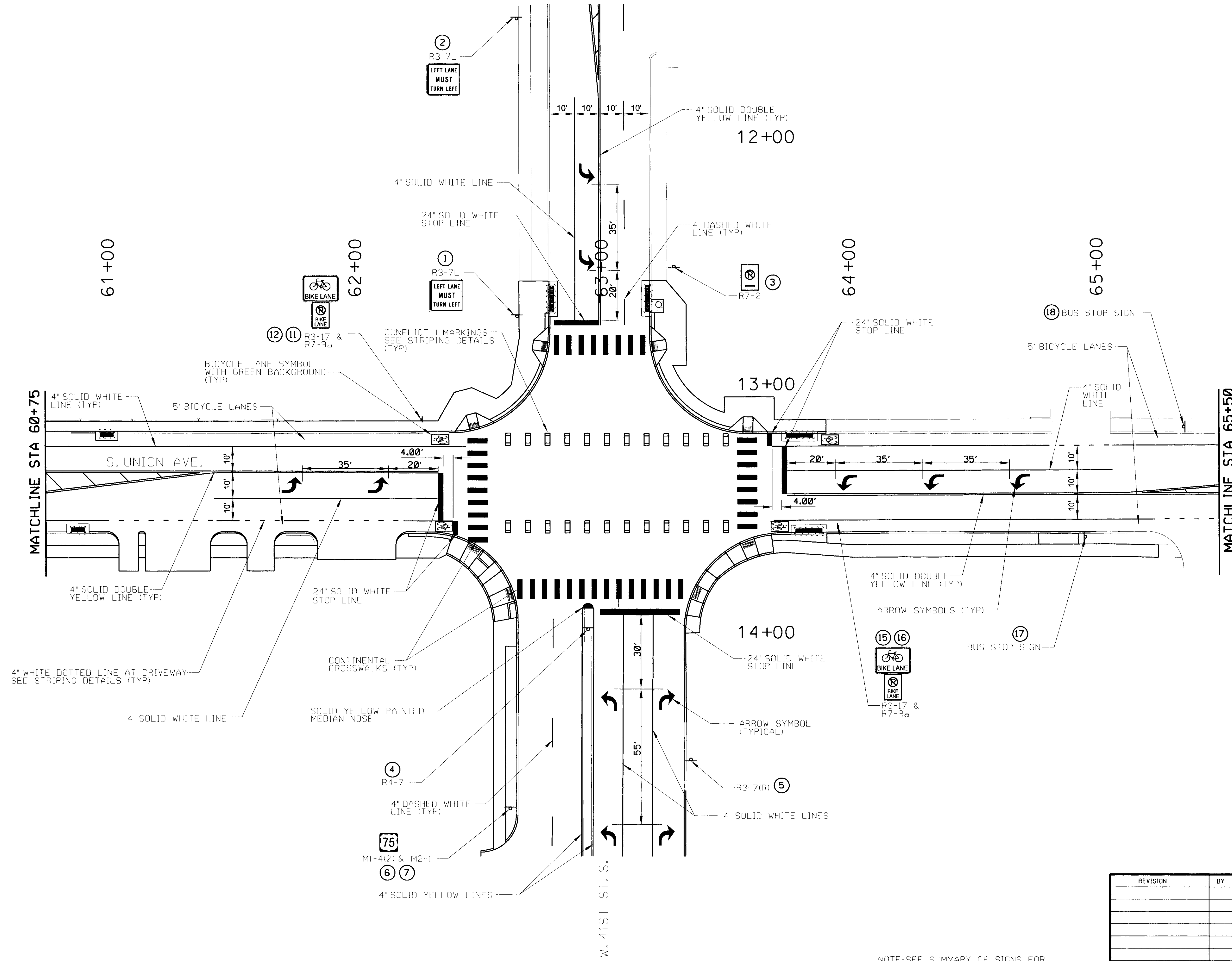
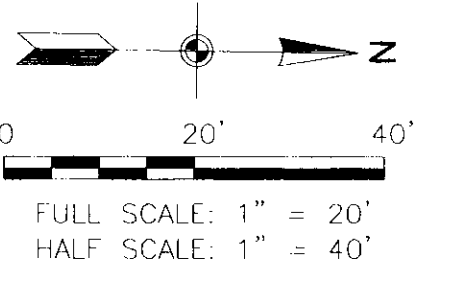
NOTE: SEE SUMMARY OF SIGNS FOR STATION AND OFFSET, SIGN DIMENSIONS, GROUND MOUNTED POST INFORMATION, AND REMARKS.



SIGNING AND STRIPING (2)						
PROJECT NO. 144017-G AND 144017-AS						
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)						
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT						
PLANS AND ESTIMATES PREPARED BY:						
 Dewberry®				Dewberry Engineers Inc. 1308 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3226 918.587.7283 Fax 918.587.8071		
TE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED	
	1"=40'	DESIGNED	DEI	03/17		
		SURVEY	SWA	08/15		
	PROFILE SCALE HORIZONTAL:	PROJ. MGR.	HL	5/22/22		
		LEAD ENGR.	HL	5/22/22		
		FIELD MGR.	HL	6/26		
	NA	RECOMMENDED	HL	6-26		
	VERTICAL:	HL	HNS b-26			
NA	DESIGN MANAGER					
FILE:	DRAWING:	CITY ENGINEER				
DATE: SEP 2018						
ATLAS PAGE NO.: 140, 141, 191					SHEET 36 OF 59 SHEETS	

NOTE: SEE SUMMARY OF SIGNS FOR STATION AND OFFSET, SIGN DIMENSIONS, GROUND MOUNTED POST INFORMATION, AND REMARKS.

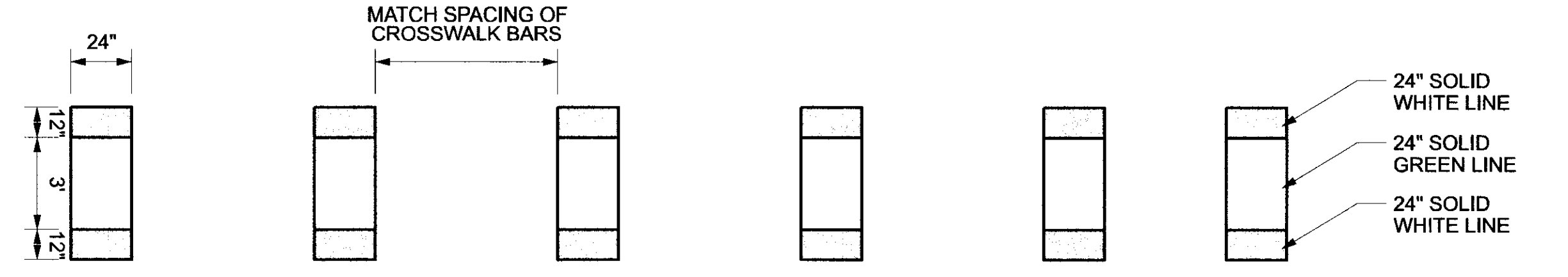
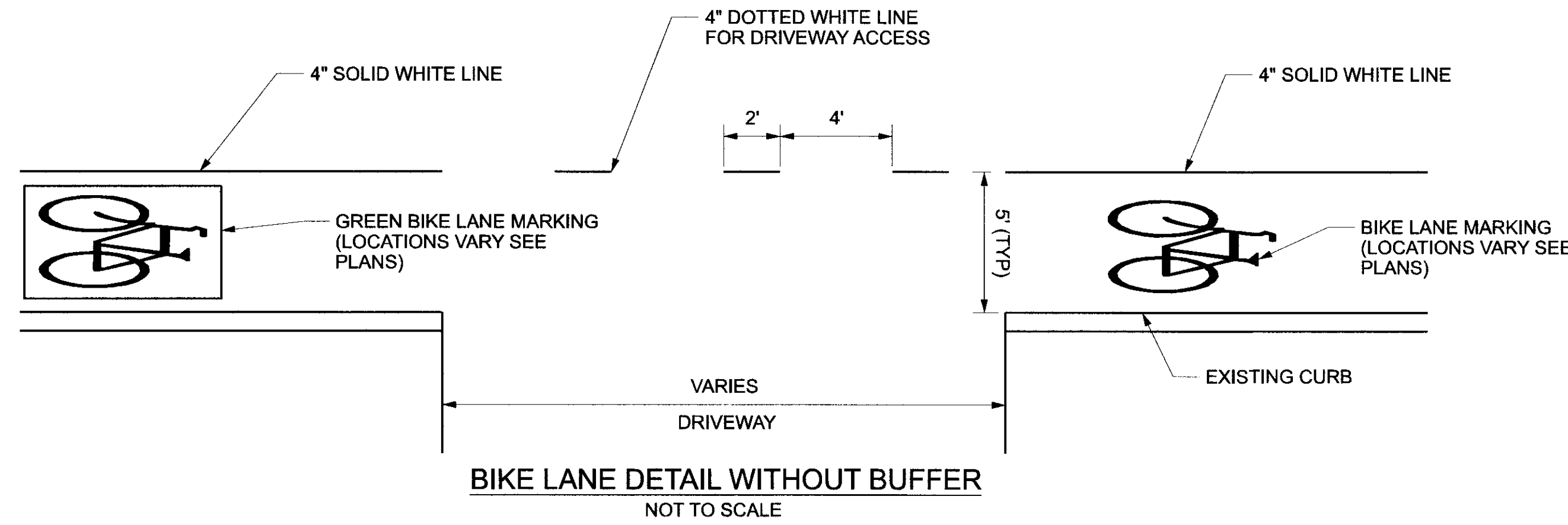
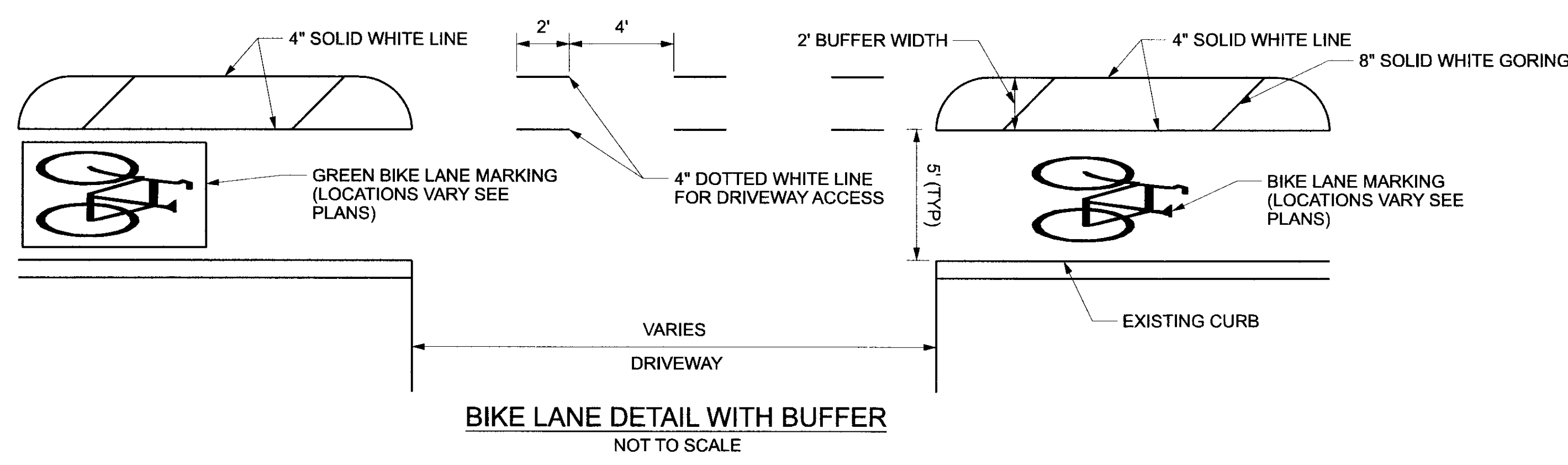
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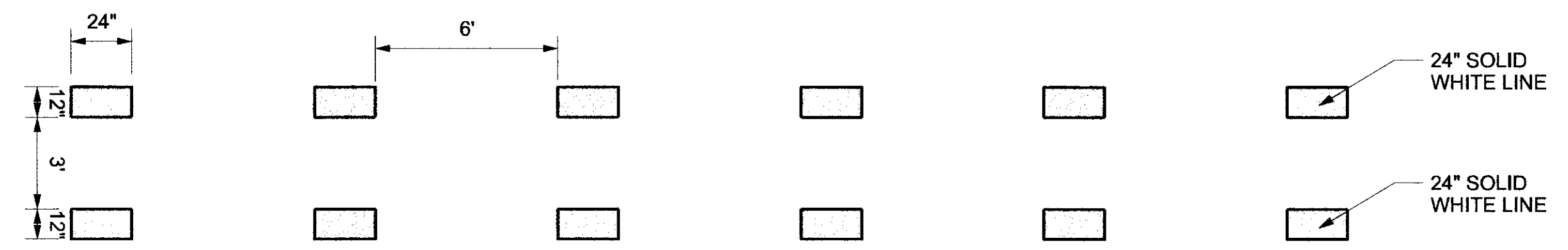
SIGNING AND STRIPING DETAILS (1)									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:									
 Dewberry				Dewberry Engineers Inc. 1300 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587.7283 - fax 918.587.8871					
PLAN SCALE		DRAWN		DEI		03/17		APPROVED	
1"=20'		DESIGNED		DEI		03/17			
		SURVEY		SWA		08/16			
PROFILE SCALE		PROJ. MGR.		Mhu		5/20/26			
HORIZONTAL:		LEAD ENGR.		RSA		05/16			
1"=20'		FIELD MGR.		Lma		6/16			
VERTICAL:		RECOMMENDED							
1"=5'		DESIGN MANAGER		HAS		6-26		TOSCI	
FILE:		DRAWING:				DATE:SEP 2018		CITY ENGINEER	
ATLAS PAGE NO.:						140, 141, 191			
						SHEET 37 OF 59 SHEETS			

NOTE: SEE SUMMARY OF SIGNS FOR STATION AND OFFSET, SIGN DIMENSIONS, GROUND MOUNTED POST INFORMATION, AND REMARKS.

\$ DATES \$ FILES \$



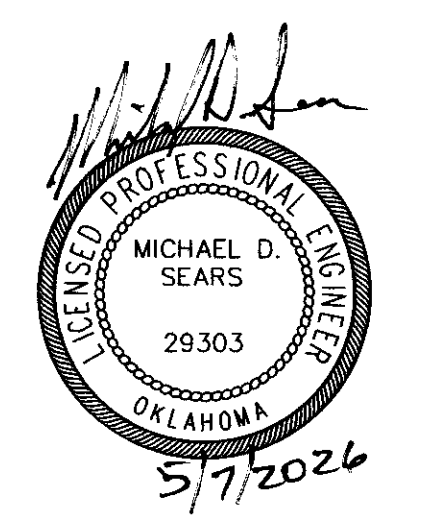
CONFLICT MARKING 1 (THRU SIGNALIZED INTERSECTION)
NOT TO SCALE



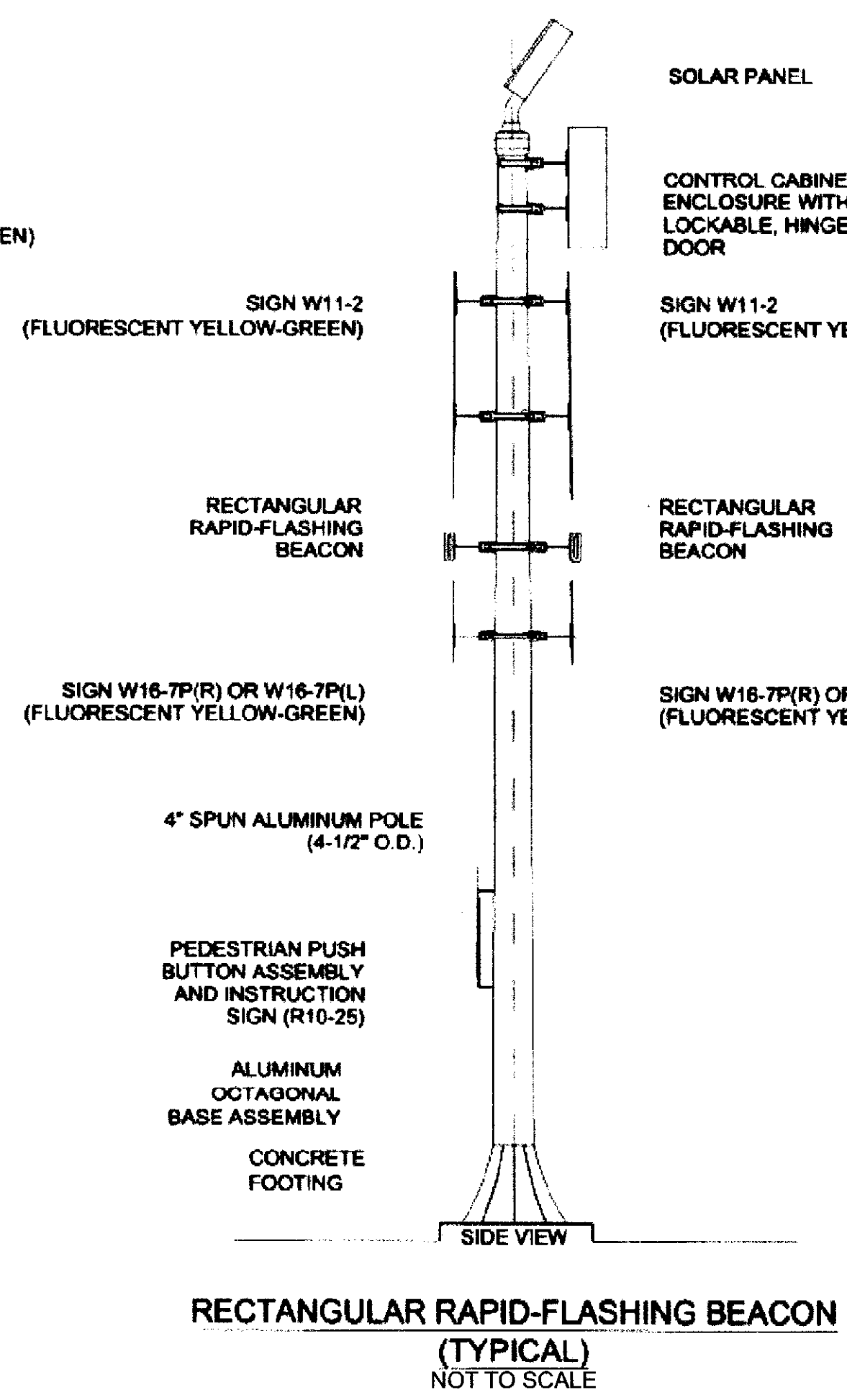
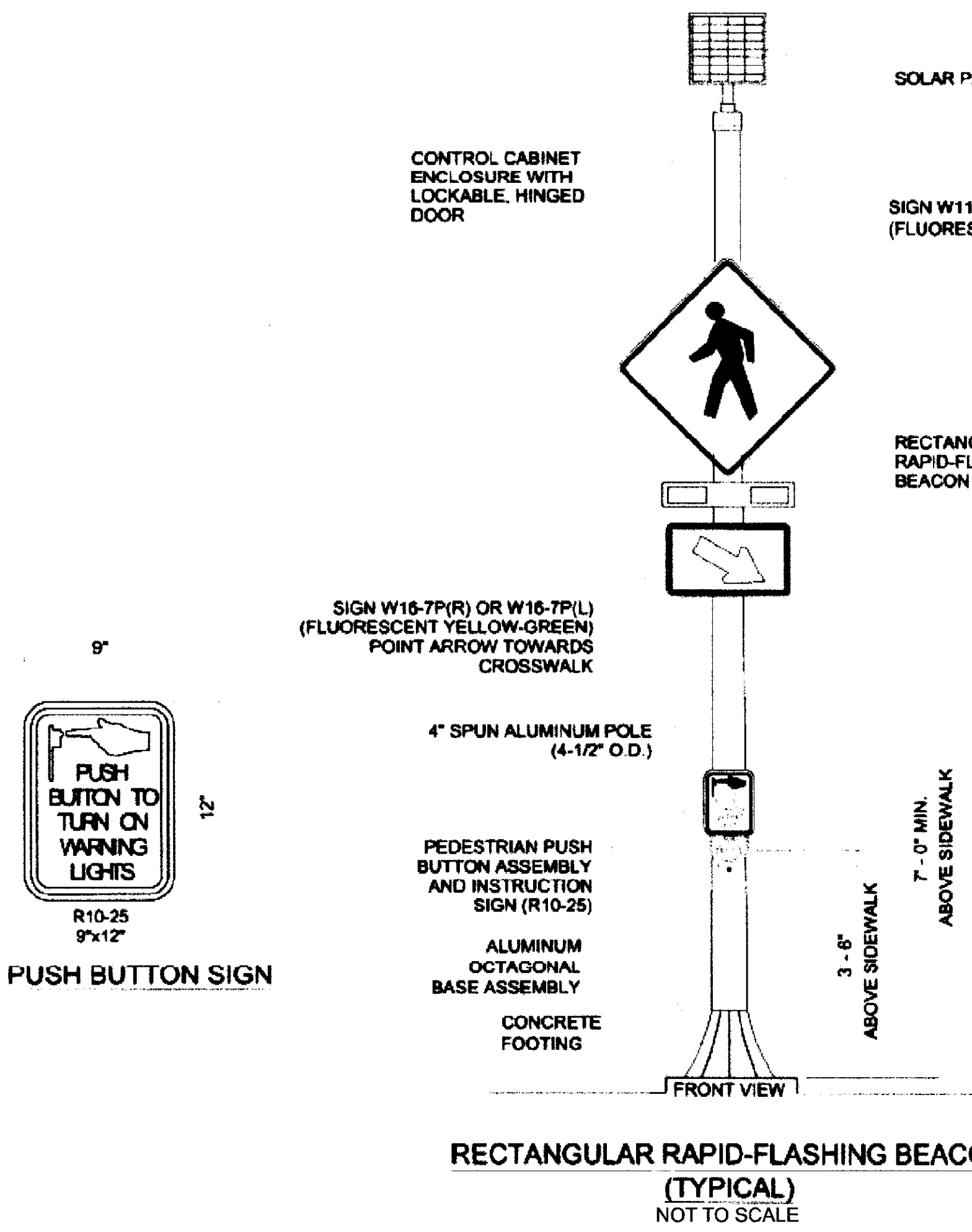
CONFLICT MARKING 2 (THRU NON-SIGNALIZED INTERSECTION)
NOT TO SCALE

NOTES:

1. EACH RRFB FULL ASSEMBLY SHALL BE A COMPLETE ASSEMBLY, CONSISTING OF SUPPORTING STRUCTURE (POLE, ALL MOUNTING BRACKETS FOR ALL COMPONENTS OF THE ASSEMBLY, AND FOUNDATION), INDICATIONS, SIGNAGE, POWER ELEMENTS, ETC.
2. ALL DOWNWARD POINTING ARROWS SHALL BE ORIENTED TOWARDS THE CROSSWALK.
3. RRFB SHALL CONSIST OF TWO (2) RAPIDLY AND ALTERNATELY FLASHING RECTANGULAR YELLOW INDICATIONS HAVING LED ARRAY BASED PULSING LIGHT SOURCES. WHEN ACTIVATED, THE TWO YELLOW INDICATIONS SHALL FLASH IN A RAPIDLY ALTERNATING WIG-WAG FLASHING SEQUENCE.
4. EACH RRFB SHALL BE EQUIPPED WITH AUDIBLE PUSH BUTTON SYSTEMS.
5. RRFB INDICATION SHALL BE A MINIMUM OF 5'-IN WIDE BY 2'-IN HIGH.
6. THE TWO RRFB INDICATIONS SHALL BE ALIGNED HORIZONTALLY, WITH THE LONGER DIMENSION HORIZONTAL AND A MINIMUM SPACE OF 7'-IN BETWEEN THE TWO INDICATIONS WHEN MEASURED INSIDE EDGE TO INSIDE EDGE.
7. THE OUTSIDE EDGES OF THE RRFB INDICATIONS SHALL NOT PROJECT BEYOND EDGES OF THE W11-2 FLUORESCENT YELLOW-GREEN SIGN.
8. EACH OF THE TWO YELLOW INDICATIONS OF AN RRFB SHALL HAVE 70 PERIODS OF FLASHING PER MINUTE AND SHALL HAVE ALTERNATING BUT APPROXIMATELY EQUAL PERIODS OF RAPID PULSING LIGHT EMISSIONS AND DARK OPERATION. DURING EACH OF ITS 70 FLASHING PERIODS PER MINUTE, ONE OF THE YELLOW INDICATIONS SHALL EMIT TWO RAPID PULSES OF LIGHT AND THE OTHER YELLOW INDICATION SHALL EMIT THREE RAPID PULSES OF LIGHT.
9. THE FLASH RATE OF EACH INDIVIDUAL YELLOW INDICATION, AS APPLIED OVER THE FULL ON-OFF SEQUENCE OF A FLASHING PERIOD OF THE INDICATION, SHALL NOT BE BETWEEN 5 AND 30 FLASHES PER SECOND.
10. THE LIGHT INTENSITY OF THE YELLOW INDICATIONS SHALL MEET THE MINIMUM SPECIFICATION OF THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) STANDARD J595 (DIRECTIONAL FLASHING OPTICAL WARNING DEVICES FOR AUTHORIZED EMERGENCY, MAINTENANCE, AND SERVICE VEHICLES, LATEST EDITION).
11. THE RRFB SHALL BE NORMALLY DARK, SHALL INITIATE OPERATION ONLY UPON PEDESTRIAN ACTUATION, AND SHALL CEASE OPERATION AFTER A PROGRAMMABLE PREDETERMINED TIME. THE SYSTEM SHALL BE INSTALLED WITH AN INITIAL CROSSING DURATION OF 20 SECONDS. THE TIME MAY BE ADJUSTED AFTER OBSERVING CROSSING BEHAVIOR AT THE LOCATION.
12. ALL RRFBs ASSOCIATED WITH THE CROSSWALK SHALL, WHEN ACTIVATED, COMMENCE FLASHING OPERATION SIMULTANEOUSLY AND SHALL CEASE OPERATION SIMULTANEOUSLY.
13. THE PEDESTRIAN INSTRUCTION SIGN R10-25 SHALL BE MOUNTED INTEGRAL WITH EACH PUSH BUTTON ASSEMBLY.
14. EACH RRFB FULL ASSEMBLY SHALL BE SOLAR POWERED. SYSTEM SHALL INCLUDE ALL NECESSARY CONTROLLERS, POLE MOUNTED CABINETS WITH LOCKABLE, HINGED DOORS, BATTERIES, SOLAR PANELS, AND ANY OTHER HARDWARE NECESSARY FOR OPERATION. RRFB SHALL BE CARMANAH SC315-G SOLAR RRFB OR APPROVED EQUAL.
15. ALL RRFBs AT THE CROSSWALK LOCATION SHALL BE CONNECTED VIA WIRELESS COMMUNICATION SYSTEM. ASSOCIATED COSTS TO BE INCLUDED IN PRICE BID FOR RRFB ASSEMBLY.



SIGNING AND STRIPING DETAILS (2)									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:									
				Dewberry Engineers, Inc. 1752 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3215 918.587.7283 - Fax 918.587.0071					
REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED		
			1"=20'	DESIGNED	DEI	03/17			
				SURVEY	SWA	08/15			
			PROFILE SCALE	PROJ. MGR.	1/2/20	5/20/20			
			HORIZONTAL:	LEAD ENGR.	1/2/20	05/16			
			1"=20'	FIELD MGR.	1/2/20	6/16			
			VERTICAL:	RECOMMENDED					
			1"=5'	DESIGN MANAGER	HAS	6-26			
			FILE:	DRAWING:			CITY ENGINEER		
			ATLAS PAGE NO.:	140, 141, 191			DATE/SEP 2018		
							SHEET 38 OF 59 SHEETS		



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VIDEO DETECTION NOTE:
VIDEO DETECTION WILL BE PROVIDED FOR THIS INTERSECTION. THE DETECTOR LOOPS SHOWN ON THE PAVEMENT ARE SHOWN TO DEPICT THE VIDEO DETECTION AREAS ALONG WITH THE PHASES THAT EACH DETECTOR SHALL CALL.

PUSH BUTTON NOTE:
THE POLE ENLARGEMENT DETAIL IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE PLACEMENT OF THE PEDESTRIAN PUSH BUTTONS AND SIGNAL HEADS SHALL BE INSTALLED ON THE POLES SUCH THAT THE SIGNAL HEADS ARE VISIBLE FROM THE CROSSWALK AND THE PUSH BUTTONS TO BE INSTALLED 10 INCHES MAXIMUM FROM THE EDGE OF THE LEVEL, ALL-WEATHER SURFACE (SIDEWALK) AND 10 FEET MAXIMUM FROM THE FACE OF THE CURB AT THE RAMP. THE PUSH BUTTONS ARE TO BE MOUNTED ON THE SIDE OF THE POLE CLOSEST TO THE CORRESPONDING CROSSWALK.

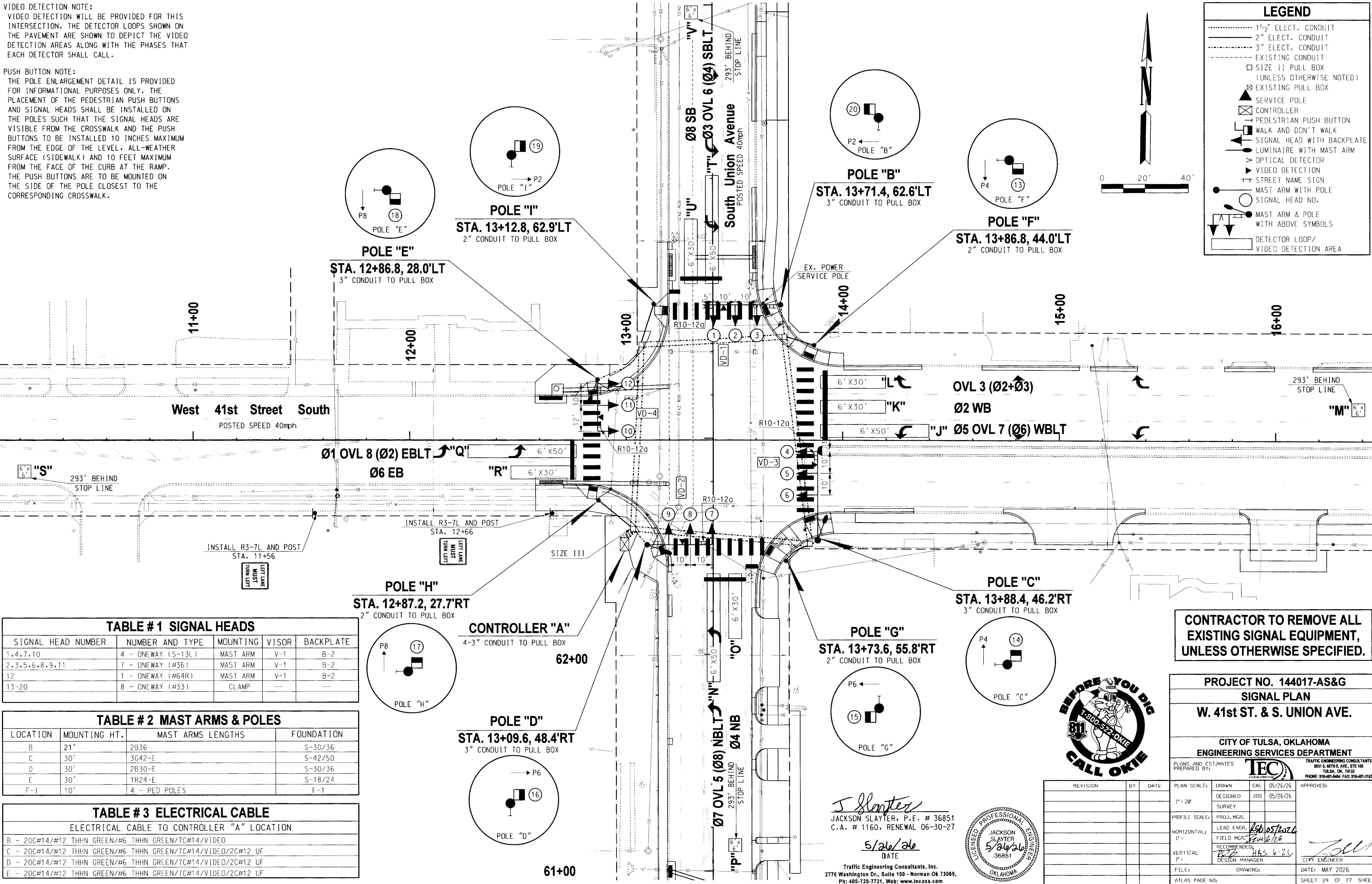
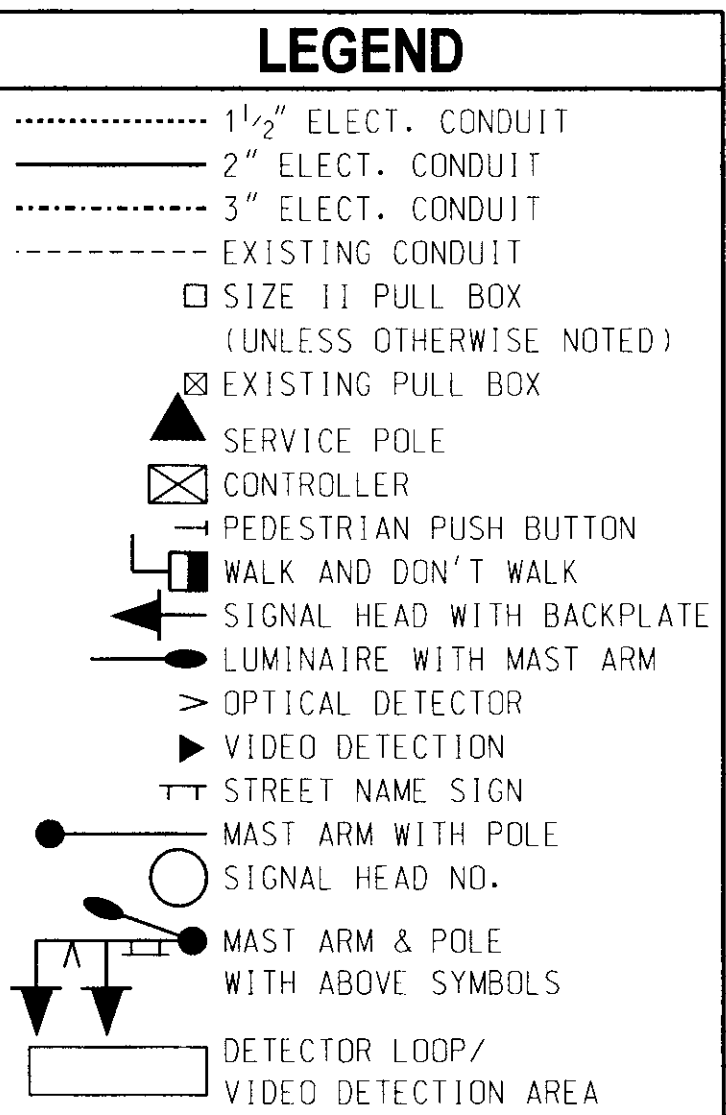


TABLE # 1 SIGNAL HEADS

SIGNAL HEAD NUMBER	NUMBER AND TYPE	MOUNTING	VISOR	BACKPLATE
1,4,7,10	4 - ONEWAY (S-13L)	MAST ARM	V-1	B-2
2,3,5,6,8,9,11	7 - ONEWAY (#36)	MAST ARM	V-1	B-2
12	1 - ONEWAY (#64R)	MAST ARM	V-1	B-2
13-20	8 - ONEWAY (#33)	CLAMP	--	--

TABLE # 2 MAST ARMS & POLES

LOCATION	MOUNTING HT.	MAST ARMS LENGTHS	FOUNDATION
B	21'	2B36	S-30/36
C	30'	3G42-E	S-42/50
D	30'	2B30-E	S-30/36
E	30'	1R24-E	S-18/24
F-I	10'	4 - PED POLES	F-1

TABLE # 3 ELECTRICAL CABLE

ELECTRICAL CABLE TO CONTROLLER "A" LOCATION

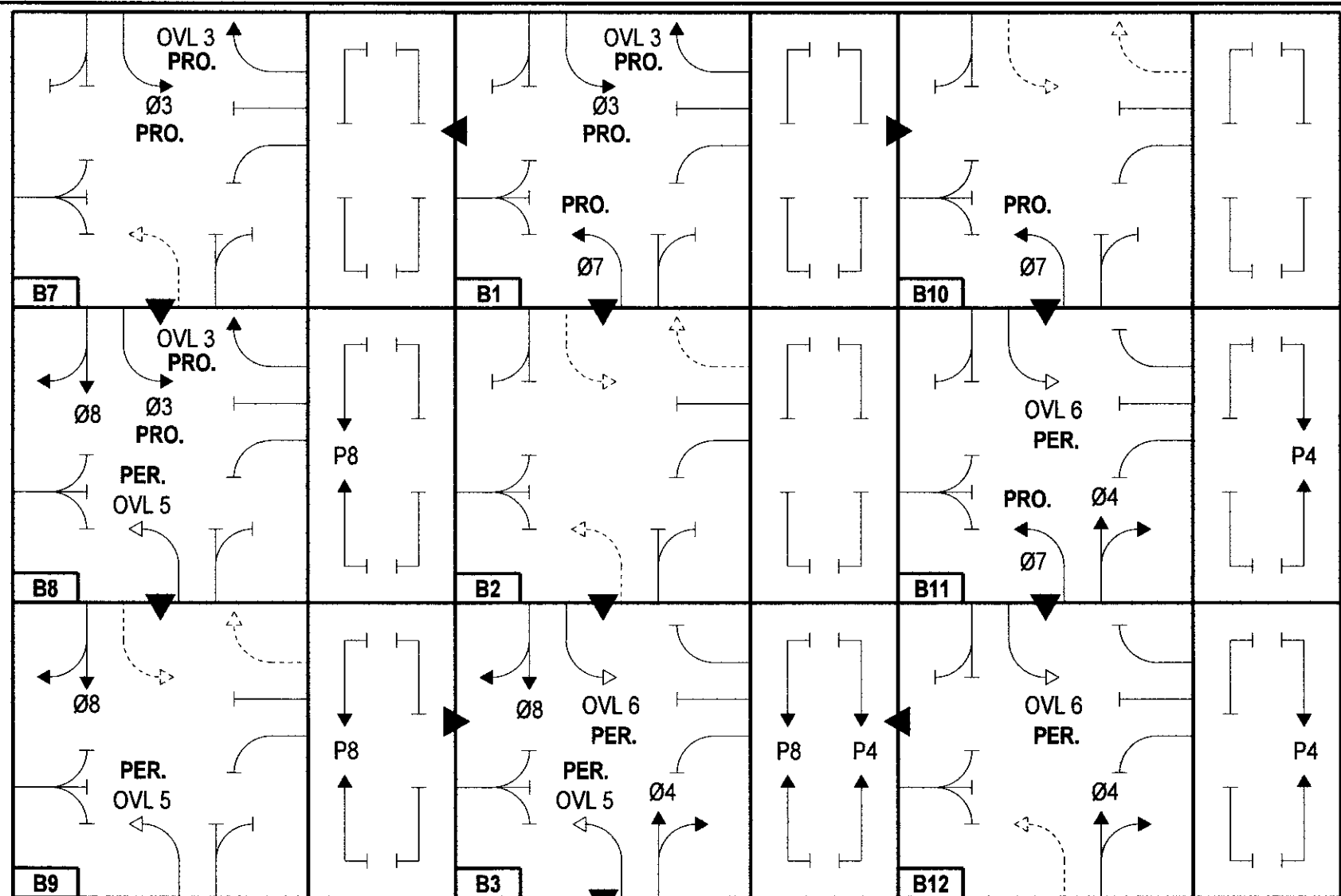
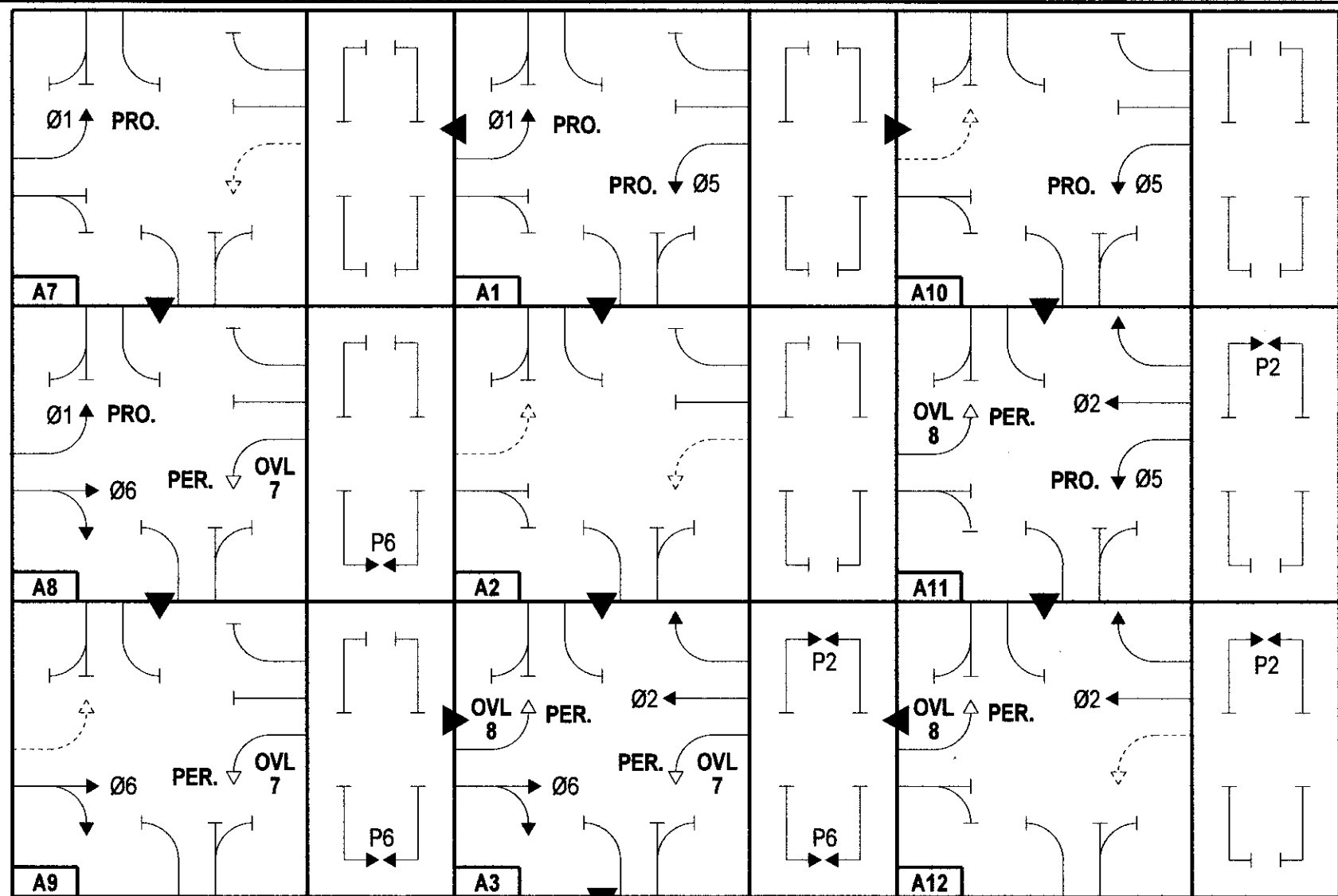
B - 20C#14/#12 THHN GREEN/#6 THHN GREEN/7C#14/VIDEO
C - 20C#14/#12 THHN GREEN/#6 THHN GREEN/7C#14/VIDEO/2C#12 UF
D - 20C#14/#12 THHN GREEN/#6 THHN GREEN/7C#14/VIDEO/2C#12 UF
E - 20C#14/#12 THHN GREEN/#6 THHN GREEN/7C#14/VIDEO/2C#12 UF

05/26/26 C:\0\Projects\02 Tulsa Office Projects\T0-622P - W 41st Street and Union Ave Additional Work Task 6\CA0\DETAIL.dgn

PHASING DIAGRAM

PHASE "A" PHASE "B"

W. 41st ST. S. UNION AVE.

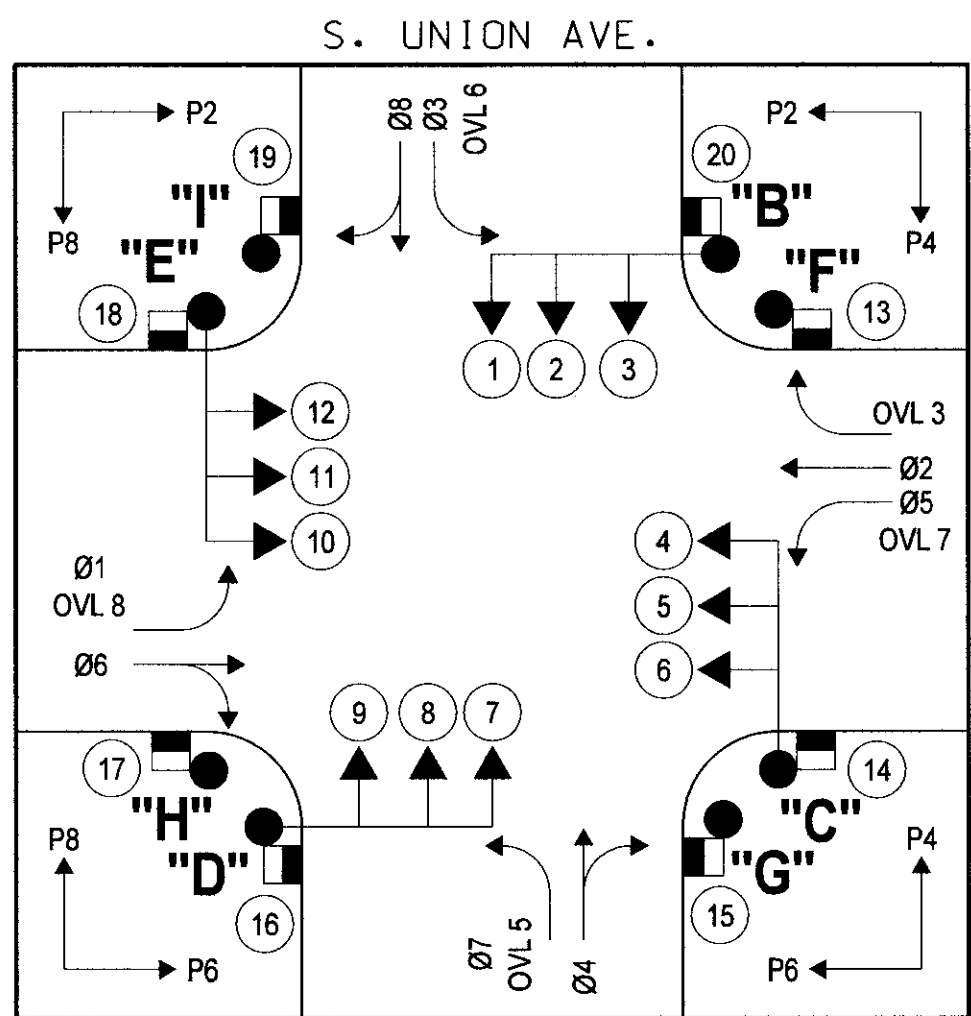


PER. = PERMISSIVE
PRO. = PROTECTIVE
— = RED
- - - = YELLOW
- - - = FLASHING YELLOW
— = GREEN

TO: A1, A8, A11, B1, B3, B8 OR B11

TO: B1, B8, B11, A1 OR A3

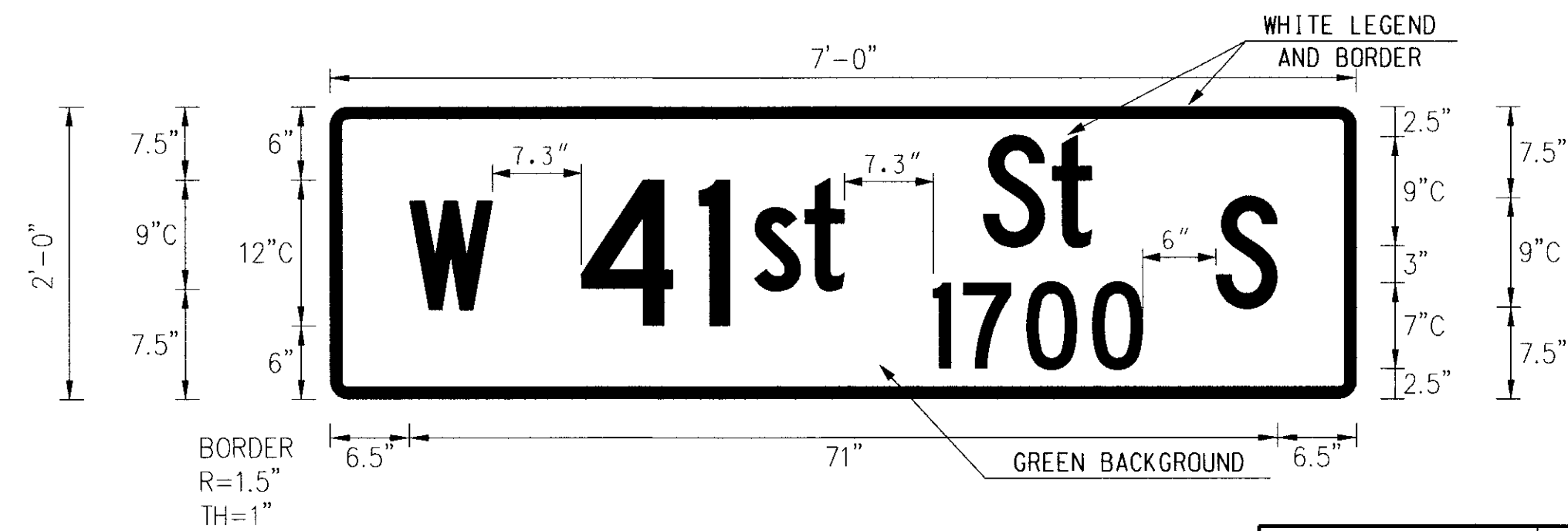
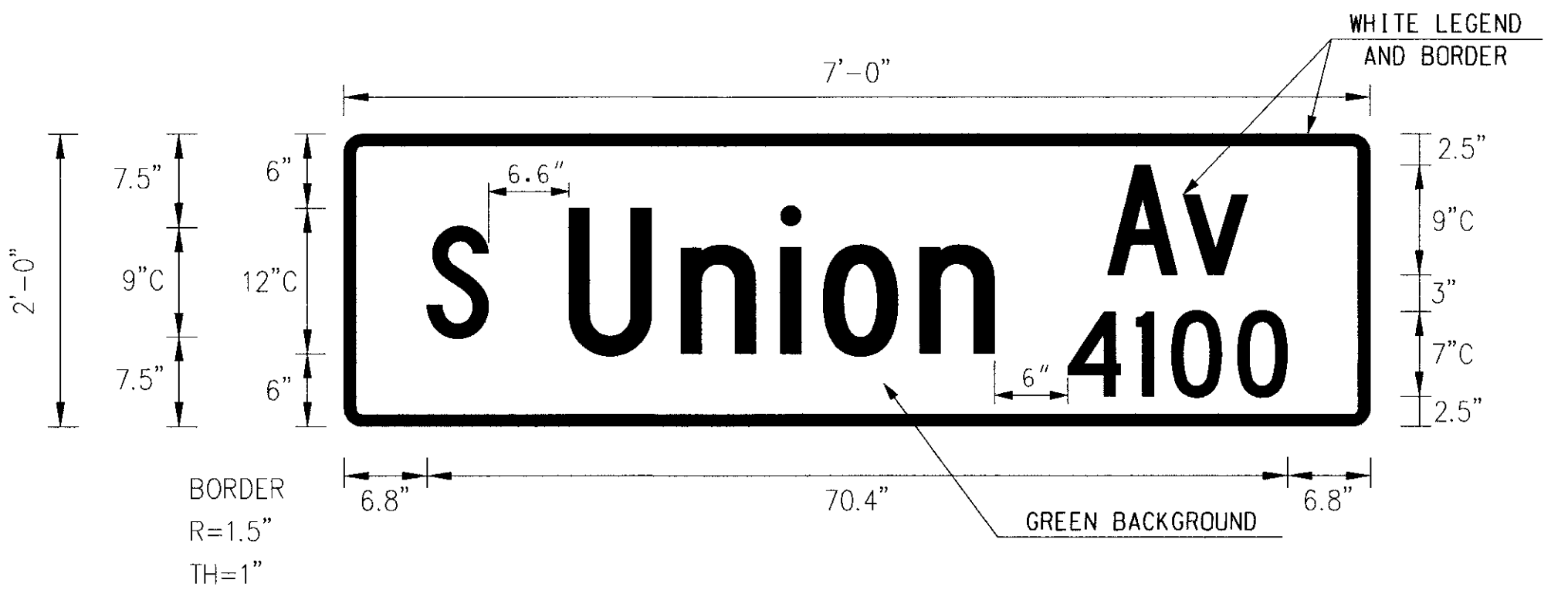
INTERSECTION
PHASING & SIGNAL HEAD NO.'S



SUMMARY OF MAST ARM MOUNTED SIGNS						
MESSAGE	POLE LOCATION	NO. OF SIGN	LENGTH	HEIGHT	SO. FT. SIGN AREA	TOTAL AREA SQ. FT.
S Union Av	C+E	2	84"	24"	14.00	28.00
W 41st St S	B+D	2	84"	24"	14.00	28.00
R10-12a	B+C,D+E	4	30"	36"	7.50	30.00
TOTAL						86.00

PRIMARY DIRECTION = 9" SERIES 'C' STANDARD HIGHWAY (WHITE)
NUMBER / NAME = 12" SERIES 'C' STANDARD HIGHWAY (WHITE)
NUMBER SUFFIX = 9" SERIES 'C' STANDARD HIGHWAY (WHITE)
SECONDARY DIRECTION = 12" SERIES 'C' STANDARD HIGHWAY (WHITE)
STREET TYPE = 9" SERIES 'C' STANDARD HIGHWAY (WHITE)
BLOCK NUMBER = 7" SERIES 'C' STANDARD HIGHWAY (WHITE)

SEQUENCE CHART																
DIRECTION	BLOCK NO.	PHASE														
		Ø7 OVL 5	Ø4	Ø1 OVL 8	Ø6	Ø3 OVL 6	Ø8	Ø5 OVL 7	Ø2	Ø2 OVL 3	P4	P6	P8	P2	SIGNAL HEAD NO.	
		1	2,3	4	5,6	7	8,9	10	11	12	13,14	15,16	17,18	19,20		
Ø1, Ø5 ROW	A1	◀R	R	◀G	R	◀R	R	◀G	R	R	DW	DW	DW	DW		
Ø1, Ø5 CL	A2	◀R	R	◀Y	R	◀R	R	◀Y	R	R	DW	DW	DW	DW		
Ø2, Ø6, OVL 7, OVL 8, P2, P6 ROW	A3	◀R	R	◀F	G	◀R	R	◀F	G	G	DW	W	DW	W		
Ø2, Ø6, OVL 7, OVL 8 ROW & P2, P6 CL	A4	◀R	R	◀F	G	◀R	R	◀F	G	G	DW	FDW	DW	FDW		
Ø2, Ø6, OVL 7, OVL 8 CL	A5	◀R	R	◀Y	Y	◀R	R	◀Y	Y	Y	DW	DW	DW	DW		
ALL RED	A6	◀R	R	◀R	R	◀R	R	◀R	R	R	DW	DW	DW	DW		
Ø1 ROW & Ø5 CL	A7	◀R	R	◀G	R	◀R	R	◀Y	R	R	DW	DW	DW	DW		
Ø1, Ø6, OVL 7, P6 ROW	A8	◀R	R	◀G	G	◀R	R	◀F	R	R	DW	W	DW	DW		
Ø6, OVL 7, P6 ROW & Ø1 CL	A9	◀R	R	◀Y	G	◀R	R	◀F	R	R	DW	W	DW	DW		
Ø5 ROW & Ø1 CL	A10	◀R	R	◀Y	R	◀R	R	◀G	R	R	DW	DW	DW	DW		
Ø2, Ø5, OVL 8, P2 ROW	A11	◀R	R	◀F	R	◀R	R	◀G	G	G	DW	DW	DW	W		
Ø2, OVL 8, P2 ROW & Ø5 CL	A12	◀R	R	◀F	R	◀R	R	◀Y	G	G	DW	DW	DW	W		
Ø3, Ø7, OVL 3 ROW	B1	◀G	R	◀R	R	◀G	R	◀R	R	R	◀G	DW	DW	DW	DW	
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Ø4, Ø8, OVL 5, OVL 6 CL	B5	◀Y	Y	◀R	R	◀Y	Y	◀R	R	R	DW	DW	DW	DW	DW	
ALL RED	B6	◀R	R	◀R	R	◀R	R	◀R	R	R	DW	DW	DW	DW	DW	
Ø3, OVL 3 ROW & Ø7 CL	B7	◀Y	R	◀R	R	◀G	R	◀R	R	R	◀G	DW	DW	DW	DW	
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Ø8, OVL 5, P8 ROW & Ø3, OVL 3 CL	B9	◀F	R	◀R	R	◀Y	G	◀R	R	R	◀Y	DW	DW	W	DW	
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Ø4, OVL 6, P4 ROW & Ø7 CL	B12	◀Y	G	◀R	R	◀F	R	◀R	R	R	W	DW	DW	DW	DW	
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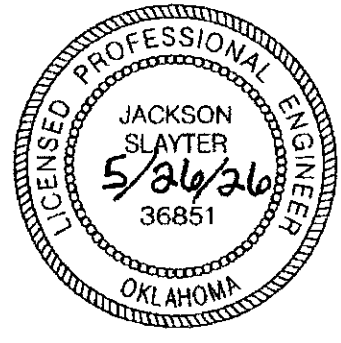


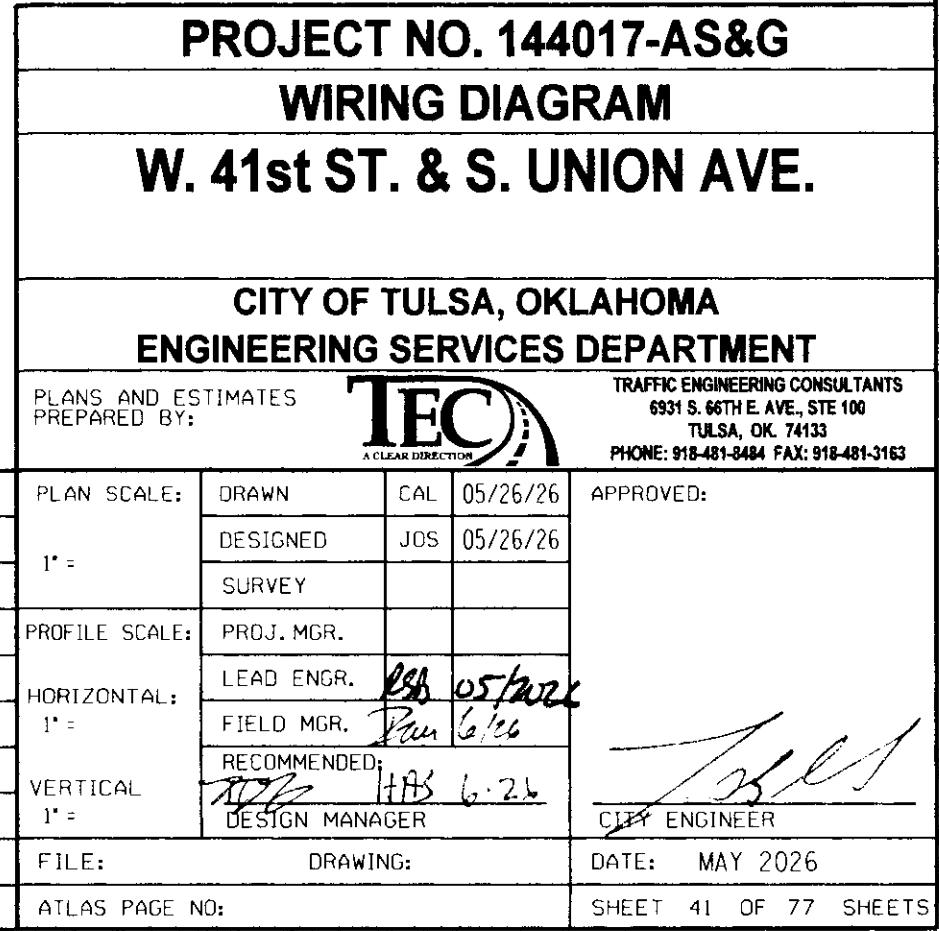
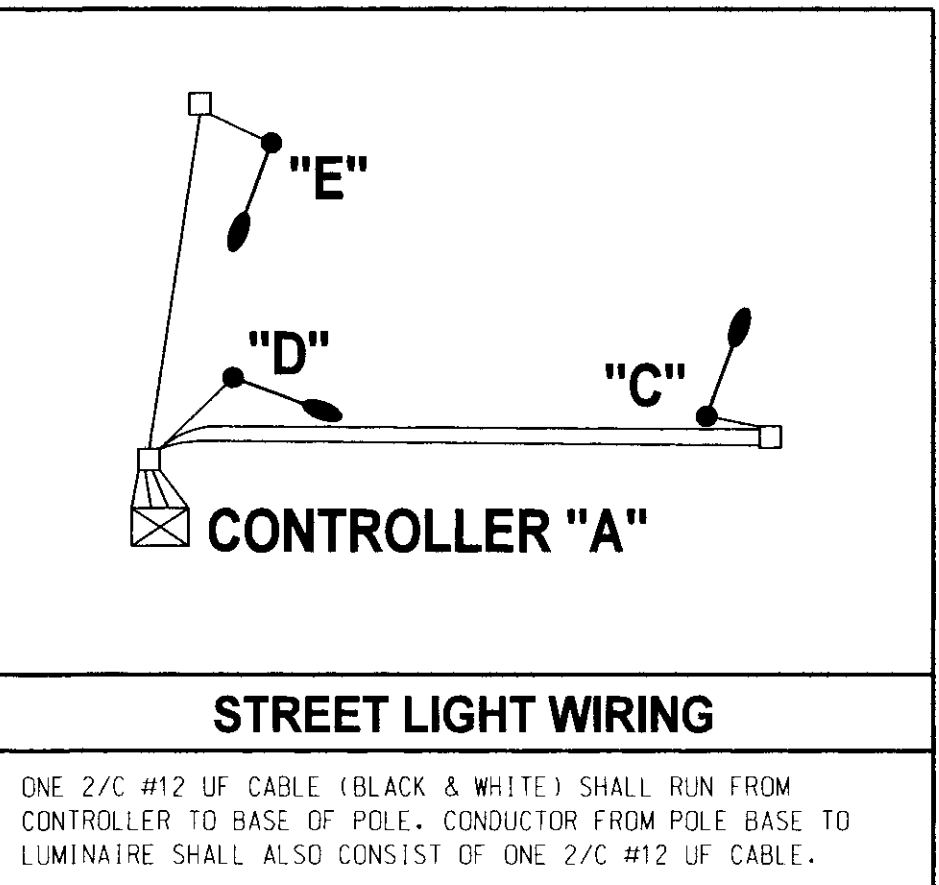
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SIGNAL DETAIL									
W. 41st ST. & S. UNION AVE.									
CITY OF TULSA, OKLAHOMA									
ENGINEERING SERVICES DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:			TEC		TRAFFIC ENGINEERING CONSULTANTS 801 S. BETH E. AVE., STE 100 TULSA, OK. 74103 PHONE: 918-481-8484 FAX: 918-481-3163				
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FILE:			DRAWING:				DATE: MAY 2026		
ATLAS PAGE NO:							SHEET 48 OF 77 SHEETS		

J. Slayter
JACKSON SLAYTER, P.E. # 36851
C.A. # 1160, RENEWAL 06-30-27

5/26/26
DATE

Traffic Engineering Consultants, Inc.
2770 Washington Dr., Suite 100 - Norman OK 73069,
Ph: 405-720-7721, Web: www.tecusa.com



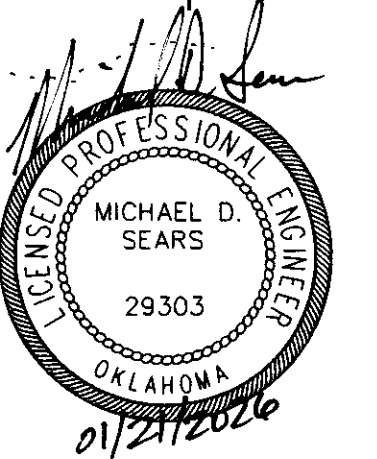
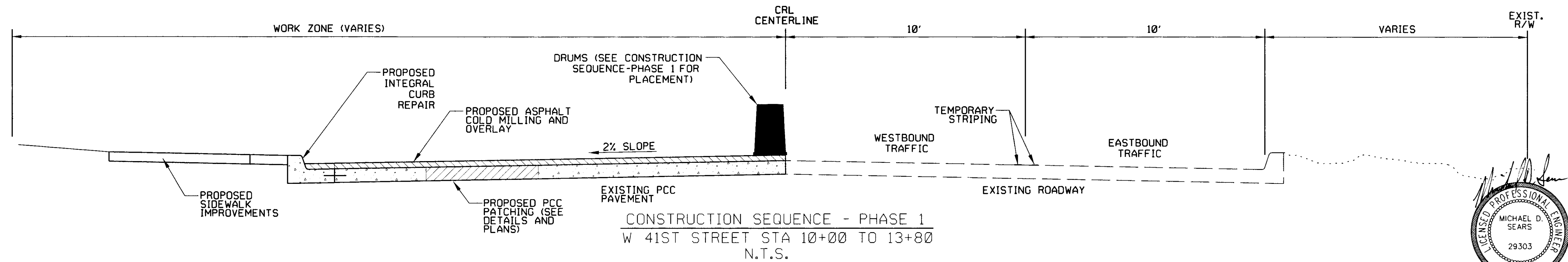
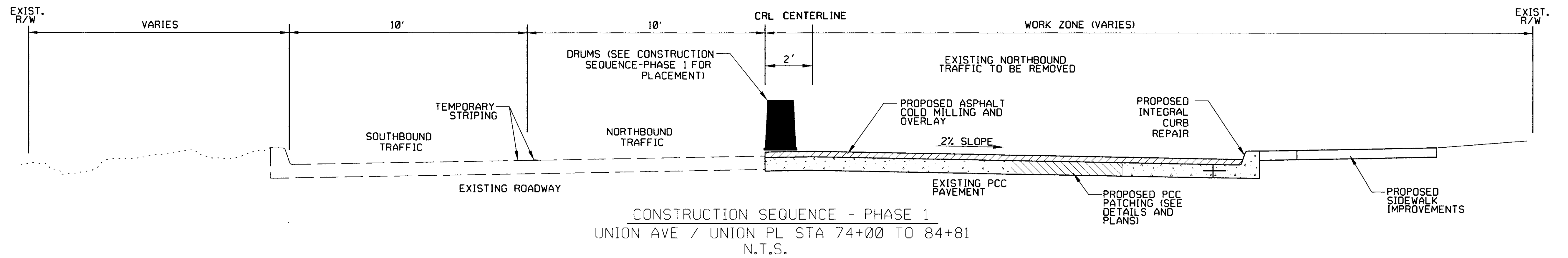
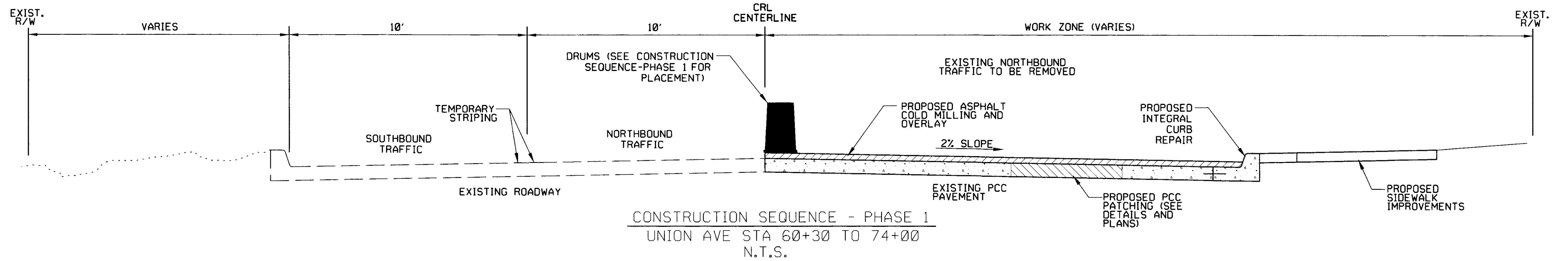


J. Slayter
JACKSON SLAYTER, P.E. # 36851
C.A. # 1160, RENEWAL 06-30-27

5/26/26
DATE

Traffic Engineering Consultants, Inc.
7770 Washington Dr., Suite 100 - Norman OK 73069
Ph: 405-720-7721, Web: www.lecusa.com





GENERAL CONSTRUCTION PHASING NOTES

TYPICAL SEQUENCE OF CONSTRUCTION DURING PHASE 1

1. INSTALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. INSTALL EROSION CONTROL MEASURES AND REMOVE EXISTING SIGNS AS NECESSARY.
3. CONSTRUCT NEW STORM SEWER SYSTEM, TEMPORARILY PLUG STORM SEWER SYSTEM AT THE END OF PHASE.
4. COLD MILL EXISTING ASPHALT OVERLAY AND MAKE PCC PAVEMENT AND INTEGRAL CURB REPAIRS.
5. CONSTRUCT COMBINED CURB AND GUTTER, DRIVEWAYS, RETAINING WALLS, SIDEWALK, RECONSTRUCT PAVEMENT AT SIDE STREETS, AND PLACE ASPHALT OVERLAY.
6. PERFORM FINAL GRADING, SOD INSTALLATION, CLEAN UP, PERMANENT SIGN INSTALLATION, ETC. OPEN COMPLETED PHASE TO LOCAL TRAFFIC & PARKING WITH APPLICATION OF TEMPORARY TRAFFIC CONTROL DEVICES.

1. THE CONTRACTOR SHALL INCORPORATE THE PROPOSED SEQUENCE OF CONSTRUCTION ITEMS FROM THESE NOTES INTO A CONSTRUCTION SCHEDULE AND PHASING PLAN ADDRESSING THE CONTRACTOR'S APPROACH TO THE PROJECT. CONTRACTOR IS TO FOLLOW PHASING THAT IS OUTLINED IN PLANS, EACH PHASE IS TO BE COMPLETED BEFORE THE NEXT PHASE BEGINS.
2. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.
3. DURING PAVEMENT CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE HOME OWNERS AFFECTED BY EACH PHASE OF WORK FOR THE PURPOSE OF PROVIDING TEMPORARY ROUTES OF ACCESS.
4. CONTRACTOR SHALL PROVIDE A CONTINUOUS WORK EFFORT TOWARDS TOTAL COMPLETION OF EACH WORK ACTIVITY OR PHASE BEFORE BEGINNING THE NEXT SUCCESSIVE PHASE OR SECTION OF WORK.
5. ALL REFERENCES IN THESE NOTES REGARDING THE INSTALLATION OF TRAFFIC CONTROL DEVICES SHALL INFER THAT SUCH INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6. ROADSIDE HAZARDS SHALL BE COMPLETELY BARRICADED AROUND THE PERIMETER FOR THE SAFETY OF PEDESTRIANS AS WELL AS VEHICLES.
7. NO BARRICADES SHALL BE PLACED WITHIN THE ROADWAY UNTIL ALL ADVANCE SIGNAGE IS IN PLACE.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL CONSTRUCTION SIGNAGE AND BARRICADING INCLUDING BUT NOT LIMITED TO WASHING, REPLACING AND REPOSITIONING THE DEVICES. THE CONTRACTOR SHALL ALSO PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES DEEMED NECESSARY BY THE CITY OF TULSA, DUE TO CHANGING TRAFFIC CONDITIONS.
9. THE CONTRACTOR SHALL WORK WITH THE CITY OF TULSA TO ESTABLISH AND MAINTAIN SAFE AND EFFECTIVE TRAFFIC CONTROL THROUGHOUT THE DURATION OF THE PROJECT.

CONSTRUCTION SEQUENCE DETAILS (1)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

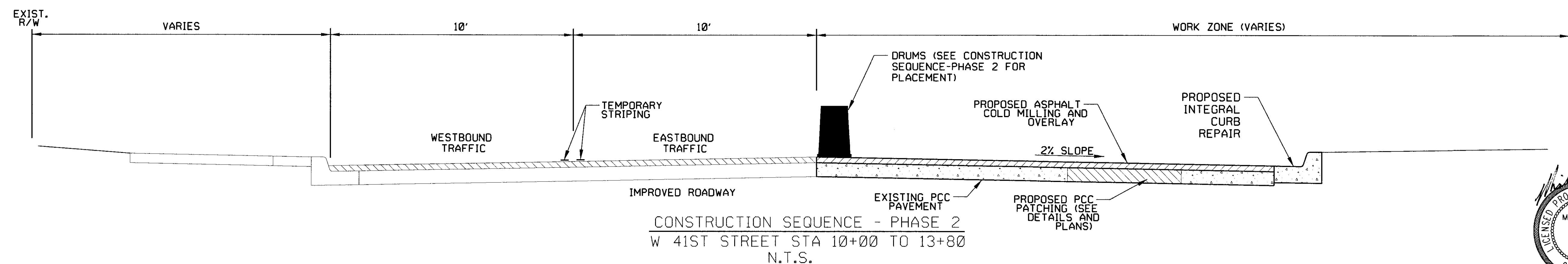
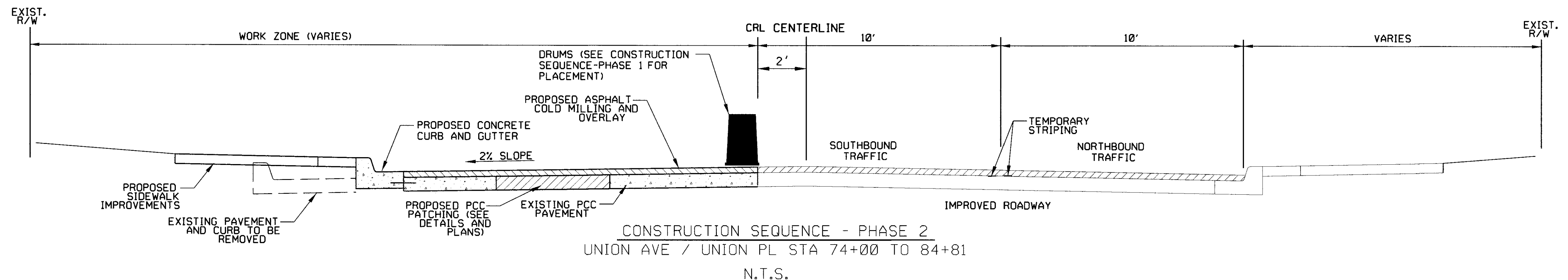
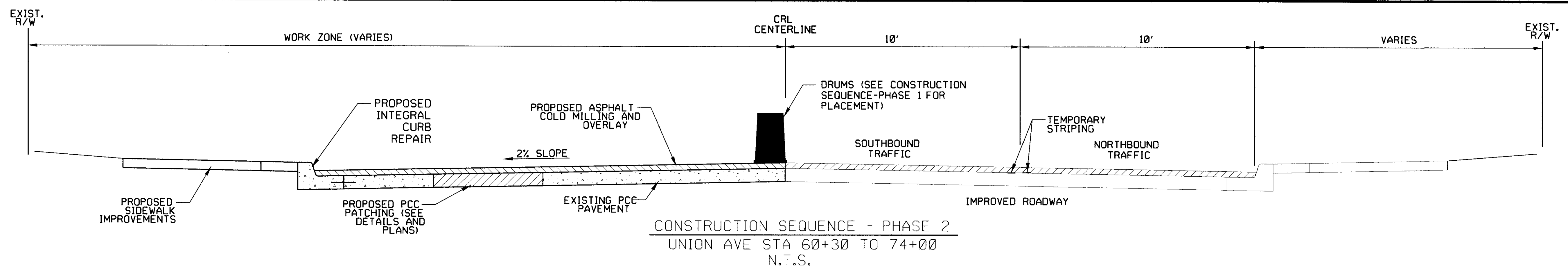
PLANS AND ESTIMATES PREPARED BY:
Dewberry
Dewberry Engineers Inc.
1300 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3216
405.587.7293 - Fax: 405.587.8871

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	03/17	APPROVED
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			FILE:	DRAWING:			
			ATLAS PAGE NO.:	140, 141, 191			

CITY ENGINEER

DATE: SEP 2018

SHEET 42 OF 59 SHEETS



TYPICAL SEQUENCE OF CONSTRUCTION DURING PHASE 2

1. INSTALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. INSTALL EROSION CONTROL MEASURES AND REMOVE EXISTING SIGNS AS NECESSARY.
3. INSTALL TEMPORARY STRIPING AND SWITCH TRAFFIC TO PAVEMENT CONSTRUCTED DURING PHASE 1.
4. CONSTRUCT NEW STORM SEWER SYSTEM. TEMPORARILY PLUG STORM SEWER SYSTEM.
5. COLD MILL EXISTING ASPHALT OVERLAY AND MAKE PCC PAVEMENT AND INTEGRAL CURB REPAIRS.
6. CONSTRUCT COMBINED CURB AND GUTTER, DRIVEWAYS, SIDEWALKS, RETAINING WALLS, RECONSTRUCT PAVEMENT AT SIDESTREETS, AND PLACE ASPHALT OVERLAY.
7. PERFORM FINAL GRADING, SOD INSTALLATION, CLEAN UP, PERMANENT SIGN INSTALLATION, PERMANENT STRIPING, PAVEMENT MARKINGS, ETC. OPEN COMPLETED PHASE TO LOCAL TRAFFIC.

2. INSTALL EROSION CONTROL MEASURES AND REMOVE EXISTING SIGNS AS NECESSARY.

3. INSTALL TEMPORARY STRIPING AND SWITCH TRAFFIC TO PAVEMENT CONSTRUCTED DURING PHASE 1.

4. CONSTRUCT NEW STORM SEWER SYSTEM. TEMPORARILY PLUG STORM SEWER SYSTEM.

5. COLD MILL EXISTING ASPHALT OVERLAY AND MAKE PCC PAVEMENT AND INTEGRAL CURB REPAIRS.

6. CONSTRUCT COMBINED CURB AND GUTTER, DRIVEWAYS, SIDEWALKS, RETAINING WALLS, RECONSTRUCT PAVEMENT AT SIDESTREETS, AND PLACE ASPHALT OVERLAY.

7. PERFORM FINAL GRADING, SOD INSTALLATION, CLEAN UP, PERMANENT SIGN INSTALLATION, PERMANENT STRIPING, PAVEMENT MARKINGS, ETC. OPEN COMPLETED PHASE TO LOCAL TRAFFIC.

GENERAL CONSTRUCTION PHASING NOTES

1. THE CONTRACTOR SHALL INCORPORATE THE PROPOSED SEQUENCE OF CONSTRUCTION ITEMS FROM THESE NOTES INTO A CONSTRUCTION SCHEDULE AND PHASING PLAN ADDRESSING THE CONTRACTOR'S APPROACH TO THE PROJECT. CONTRACTOR IS TO FOLLOW PHASING THAT IS OUTLINED IN PLANS. EACH PHASE IS TO BE COMPLETED BEFORE THE NEXT PHASE BEGINS.
2. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.
3. DURING PAVEMENT CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE HOME OWNERS AFFECTED BY EACH PHASE OF WORK FOR THE PURPOSE OF PROVIDING TEMPORARY ROUTES OF ACCESS.
4. CONTRACTOR SHALL PROVIDE A CONTINUOUS WORK EFFORT TOWARDS TOTAL COMPLETION OF EACH WORK ACTIVITY OR PHASE BEFORE BEGINNING THE NEXT SUCCESSIVE PHASE OR SECTION OF WORK.
5. ALL REFERENCES IN THESE NOTES REGARDING THE INSTALLATION OF TRAFFIC CONTROL DEVICES SHALL INFER THAT SUCH INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

2. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.

3. DURING PAYEMENT CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE HOME OWNERS AFFECTED BY EACH PHASE OF WORK FOR THE PURPOSE OF PROVIDING TEMPORARY ROUTES OF ACCESS.

4. CONTRACTOR SHALL PROVIDE A CONTINUOUS WORK EFFORT TOWARDS TOTAL COMPLETION OF EACH WORK ACTIVITY OR PHASE BEFORE BEGINNING THE NEXT SUCCESSIVE PHASE OR SECTION OF WORK.

5. ALL REFERENCES IN THESE NOTES REGARDING THE INSTALLATION OF TRAFFIC CONTROL DEVICES SHALL INFER THAT SUCH INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

6. ROADSIDE HAZARDS SHALL BE COMPLETELY BARRICADED AROUND THE PERIMETER FOR THE SAFETY OF PEDESTRIANS AS WELL AS VEHICLES.

7. NO BARRICADES SHALL BE PLACED WITHIN THE ROADWAY UNTIL ALL ADVANCE SIGNAGE IS IN PLACE.

8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL CONSTRUCTION SIGNAGE AND BARRICADING INCLUDING BUT NOT LIMITED TO WASHING REPLACING AND REPOSITIONING THE DEVICES. THE CONTRACTOR SHALL ALSO PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES DEEMED NECESSARY BY THE CITY OF TULSA, DUE TO CHANGING TRAFFIC CONDITIONS.

9. THE CONTRACTOR SHALL WORK WITH THE CITY OF TULSA TO ESTABLISH AND MAINTAIN SAFE AND EFFECTIVE TRAFFIC CONTROL THROUGHOUT THE DURATION OF THE PROJECT.

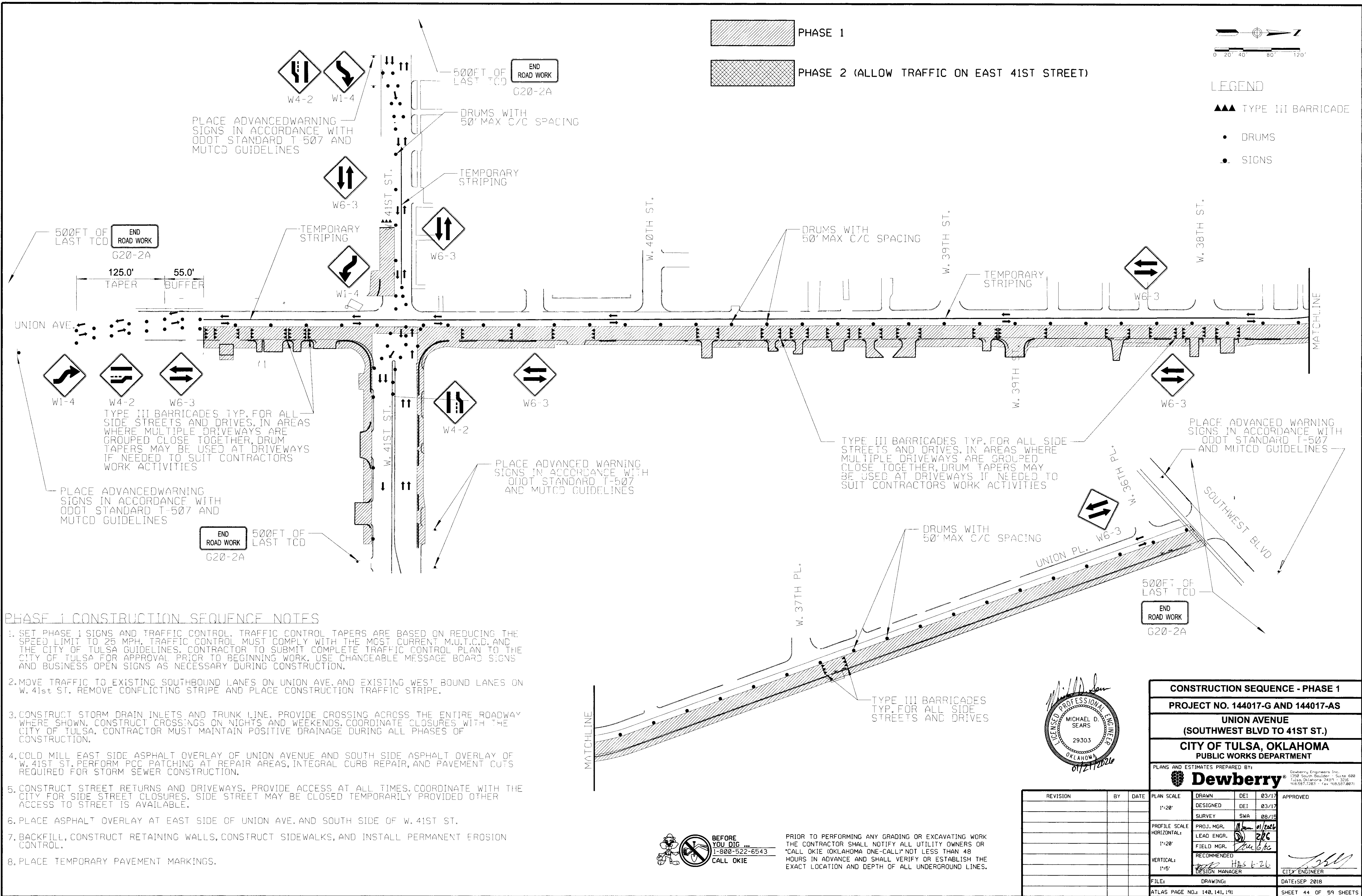


CONSTRUCTION SEQUENCE DETAILS (2)			
PROJECT NO. 144017-G AND 144017-AS			
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY:			
		Dewberry ®	
		Dewberry Engineers Inc. 1700 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587.7253 - fax 918.587.0871	
PLAN SCALE	DRAWN	DEI	03/17
NA	DESIGNED	DEI	03/17
	SURVEY	SWA	08/15
PROFILE SCALE	PROJ. MGR.	<i>Alman</i>	<i>01/20/16</i>
HORIZONTAL:	LEAD ENGR.	<i>JD</i>	<i>2/2/16</i>
NA	FIELD MGR.	<i>Thorn</i>	<i>6/1/16</i>
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ATLAS PAGE NO.: 140.141.191		DATE: SEP 2018	
		SHEET 43 OF 59 SHEETS	

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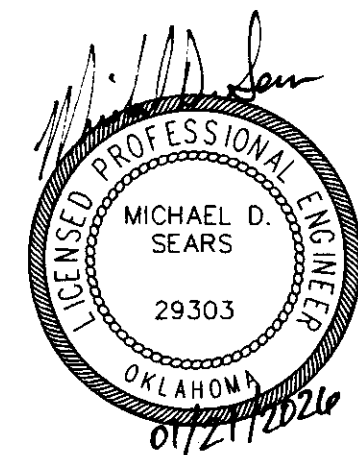


PHASE 1 CONSTRUCTION SEQUENCE NOTES

1. SET PHASE 1 SIGNS AND TRAFFIC CONTROL. TRAFFIC CONTROL TAPERS ARE BASED ON REDUCING THE SPEED LIMIT TO 25 MPH. TRAFFIC CONTROL MUST COMPLY WITH THE MOST CURRENT M.U.T.C.D. AND THE CITY OF TULSA GUIDELINES. CONTRACTOR TO SUBMIT COMPLETE TRAFFIC CONTROL PLAN TO THE CITY OF TULSA FOR APPROVAL PRIOR TO BEGINNING WORK. USE CHANCEABLE MESSAGE BOARD SIGNS AND BUSINESS OPEN SIGNS AS NECESSARY DURING CONSTRUCTION.
2. MOVE TRAFFIC TO EXISTING SOUTHBOUND LANES ON UNION AVE. AND EXISTING WEST BOUND LANES ON W. 41ST ST. REMOVE CONFLICTING STRIPE AND PLACE CONSTRUCTION TRAFFIC STRIPE.
3. CONSTRUCT STORM DRAIN INLETS AND TRUNK LINE. PROVIDE CROSSING ACROSS THE ENTIRE ROADWAY WHERE SHOWN. CONSTRUCT CROSSINGS ON NIGHTS AND WEEKENDS. COORDINATE CLOSURES WITH THE CITY OF TULSA. CONTRACTOR MUST MAINTAIN POSITIVE DRAINAGE DURING ALL PHASES OF CONSTRUCTION.
4. COLD MILL EAST SIDE ASPHALT OVERLAY OF UNION AVENUE AND SOUTH SIDE ASPHALT OVERLAY OF W. 41ST ST. PERFORM PCC PATCHING AT REPAIR AREAS, INTEGRAL CURB REPAIR, AND PAVEMENT CUTS REQUIRED FOR STORM SEWER CONSTRUCTION.
5. CONSTRUCT STREET RETURNS AND DRIVEWAYS. PROVIDE ACCESS AT ALL TIMES. COORDINATE WITH THE CITY FOR SIDE STREET CLOSURES. SIDE STREET MAY BE CLOSED TEMPORARILY PROVIDED OTHER ACCESS TO STREET IS AVAILABLE.
6. PLACE ASPHALT OVERLAY AT EAST SIDE OF UNION AVE. AND SOUTH SIDE OF W. 41ST ST.
7. BACKFILL, CONSTRUCT RETAINING WALLS, CONSTRUCT SIDEWALKS, AND INSTALL PERMANENT EROSION CONTROL.
8. PLACE TEMPORARY PAVEMENT MARKINGS.



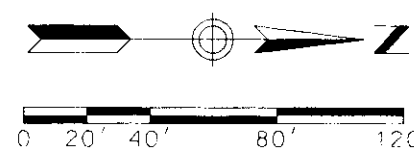
PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE" (OKLAHOMA ONE-CALL) NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.



CONSTRUCTION SEQUENCE - PHASE 1									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:				Dewberry Engineers Inc. 1700 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 405.587.7283 - Fax 405.587.0071					
DRAWN				DEI	03/17	APPROVED			
DESIGNED				DEI	03/17				
SURVEY				SWA	08/15				
PROJ. MGR.				DEI	01/2026	CITY ENGINEER			
LEAD ENGR.				DEI	01/2026				
FIELD MGR.				DEI	01/2026				
RECOMMENDED				DEI	01/2026	DATE: SEP 2018			
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FILE				DEI	01/2026				
DRAWING				DEI	01/2026	SHEET 44 OF 59 SHEETS			
ATLAS PAGE NO.				DEI	01/2026				

PLACE ADVANCED WARNING SIGNS IN ACCORDANCE WITH ODOT STANDARD T-507 AND MUTCD GUIDELINES

500FT OF LAST TCD
END ROAD WORK
G20-2A



LEGEND

▲▲ TYPE III BARRICADE

• DRUMS

• SIGNS

TYPE III BARRICADES TYP. FOR ALL SIDE STREETS AND DRIVES. IN AREAS WHERE MULTIPLE DRIVEWAYS ARE GROUPED CLOSE TOGETHER, DRUM TAPERS MAY BE USED AT DRIVEWAYS IF NEEDED TO SUIT CONTRACTORS WORK ACTIVITIES

TYPE III BARRICADES TYP. FOR ALL SIDE STREETS AND DRIVES. IN AREAS WHERE MULTIPLE DRIVEWAYS ARE GROUPED CLOSE TOGETHER, DRUM TAPERS MAY BE USED AT DRIVEWAYS IF NEEDED TO SUIT CONTRACTORS WORK ACTIVITIES

DRUMS WITH 50' MAX C/C SPACING

TEMPORARY STRIPING

PLACE ADVANCED WARNING SIGNS IN ACCORDANCE WITH ODOT STANDARD T-507 AND MUTCD GUIDELINES

500FT OF LAST TCD

END ROAD WORK
G20-2A

125.0'

55.0'

TAPER BUFFER

UNION AVE.

DRUMS WITH 50' MAX C/C SPACING

PLACE ADVANCED WARNING SIGNS IN ACCORDANCE WITH ODOT STANDARD T-507 AND MUTCD GUIDELINES

END ROAD WORK
G20-2A

500FT OF LAST TCD

PHASE 2 CONSTRUCTION SEQUENCE NOTES

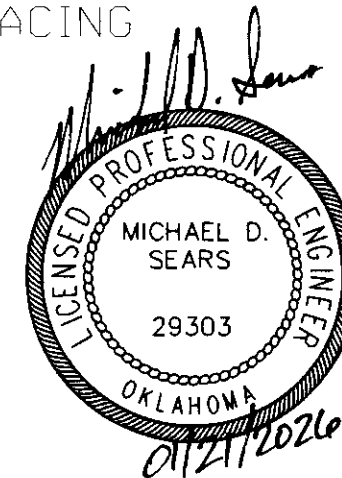
1. SET PHASE 2 SIGNS AND TRAFFIC CONTROL. TRAFFIC CONTROL TAPERS ARE BASED ON REDUCING THE SPEED LIMIT TO 25 MPH. TRAFFIC CONTROL MUST COMPLY WITH THE MOST CURRENT M.U.T.C.D. AND THE CITY OF TULSA GUIDELINES. USE CHANGEABLE MESSAGE BOARD SIGNS AND BUSINESS OPEN SIGNS AS NECESSARY DURING CONSTRUCTION.
2. MOVE TRAFFIC TO NEW NORTHBOUND LANES ON UNION AVE. AND NEW EASTBOUND LANES ON W. 41ST ST.
3. CONSTRUCT REMAINDER OF STORM DRAIN INLETS AND CONNECT REMAINING PORTIONS TO TRUNK LINE.
4. COLD MILL WEST SIDE ASPHALT OVERLAY OF UNION AVE. AND NORTH SIDE ASPHALT OVERLAY OF W. 41ST ST. PERFORM PCC PATCHING AT REPAIR AREAS, INTEGRAL CURB REPAIR, AND PAVEMENT REPLACEMENT AT CUTS REQUIRED FOR STORM SEWER CONSTRUCTION.
5. CONSTRUCT STREET RETURNS AND DRIVEWAYS. PROVIDE ACCESS AT ALL TIMES. COORDINATE WITH THE CITY FOR SIDE STREET CLOSURES. SIDE STREETS MAY BE CLOSED TEMPORARILY PROVIDED OTHER ACCESS TO STREET IS AVAILABLE.
6. PLACE ASPHALT OVERLAY AT WEST SIDE OF UNION AVE. AND NORTH SIDE OF W. 41ST ST.
7. BACKFILL, CONSTRUCT RETAINING WALLS, CONSTRUCTION SIDEWALKS, AND INSTALL PERMANENT EROSION CONTROL.
8. PLACE FINAL PAVEMENT MARKINGS AND PERMANENT SIGNS.

PHASE 1

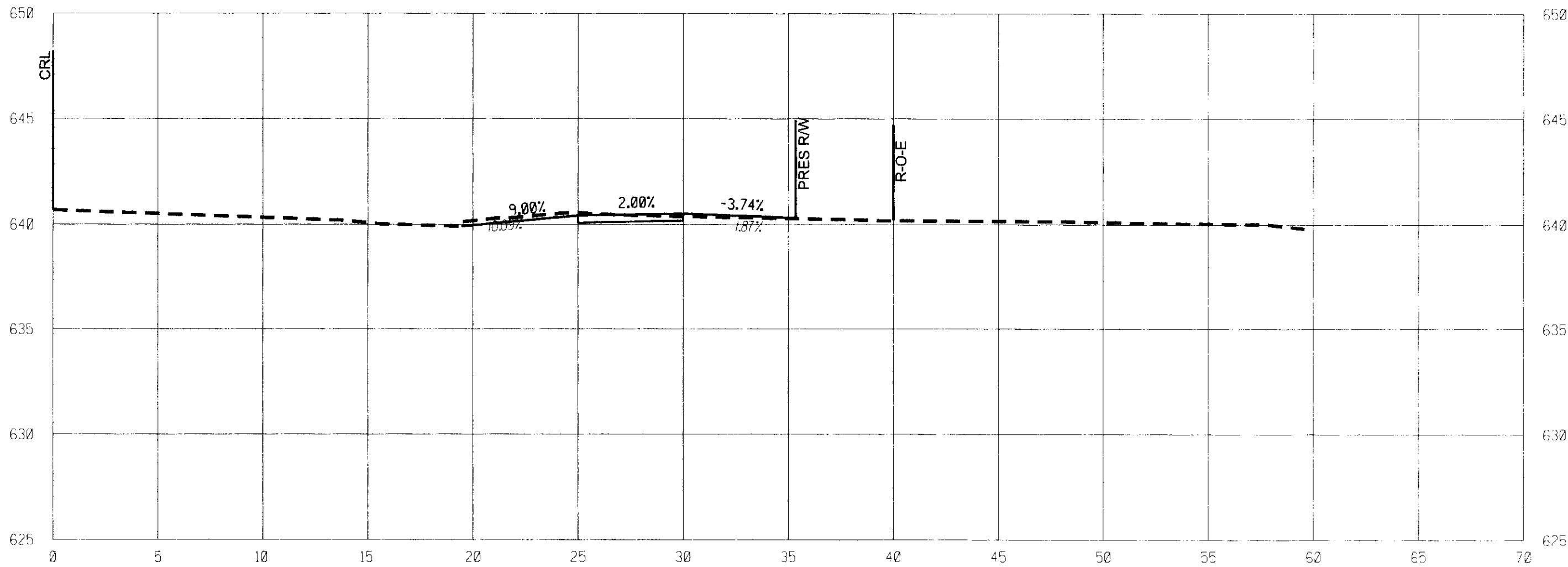
PHASE 2



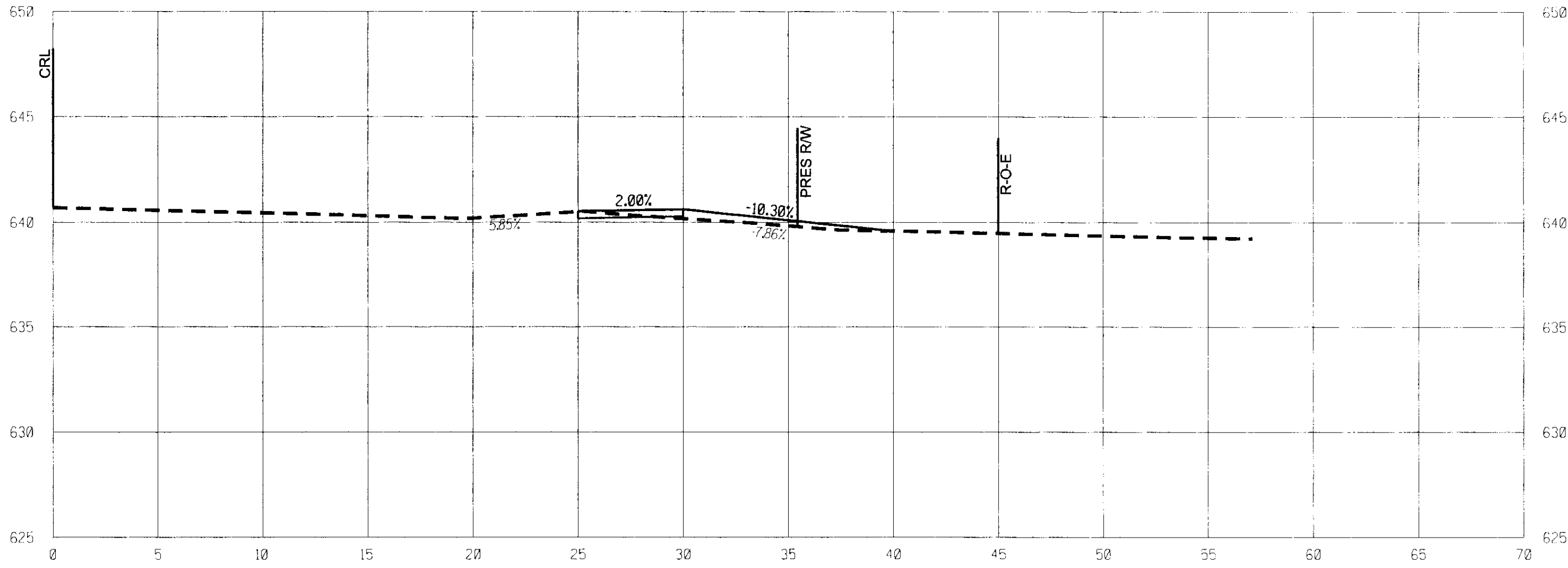
PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE (OKLAHOMA ONE-CALL)" NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.



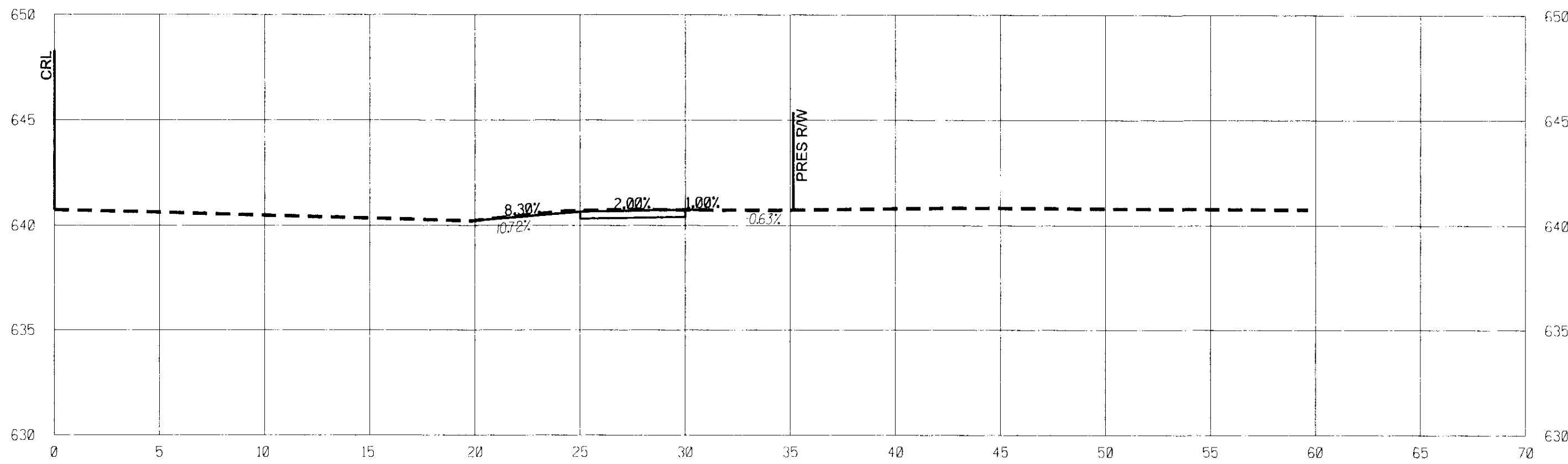
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PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY: Dewberry Dewberry Engineers Inc. 1740 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3316 918.587.7283 - Fax 918.587.8071									
REVISION		BY		DATE		PLAN SCALE	DRAWN	DEI	03/17
						1"=20'	DESIGNED	DEI	03/17
							SURVEY	SWA	08/15
						PROFILE SCALE	PROJ. MGR.	M/6m	01/2026
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						FILE:	DRAWING:		DATE: SEP 2018
						ATLAS PAGE NO.:	140, 141, 191		SHEET 45 OF 59 SHEETS



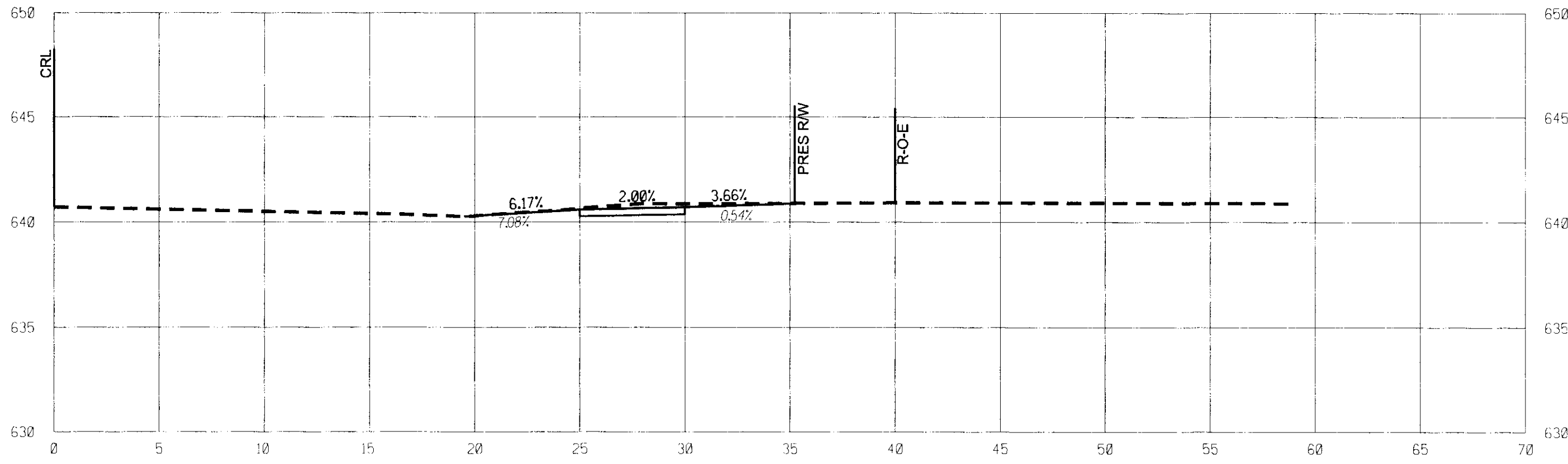
61+06.79 (RT.)



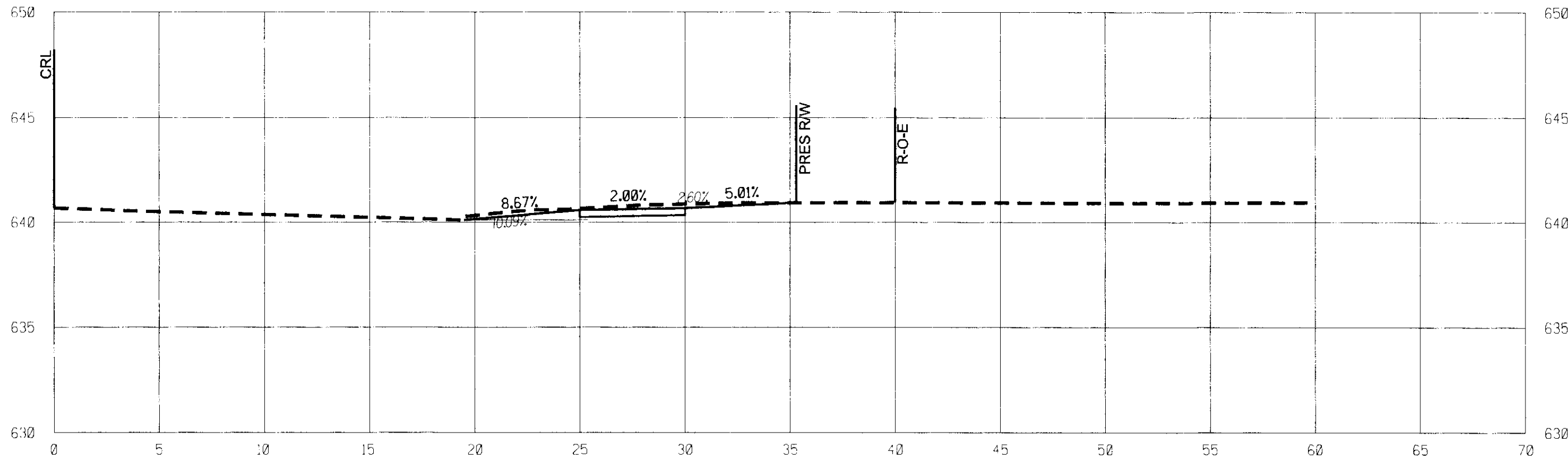
60+62.21 (RT.)



62+00.84 (RT.)



61+61.92 (RT.)



61+30.27 (RT.)

DRIVEWAY AND STREET PROFILES (UNION)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

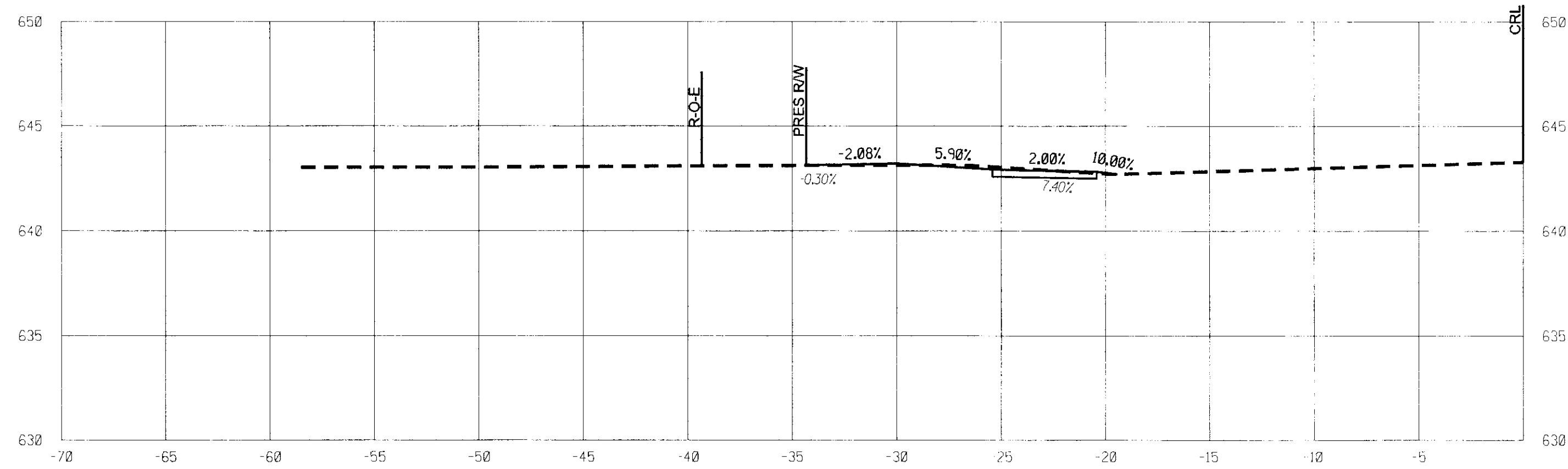
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

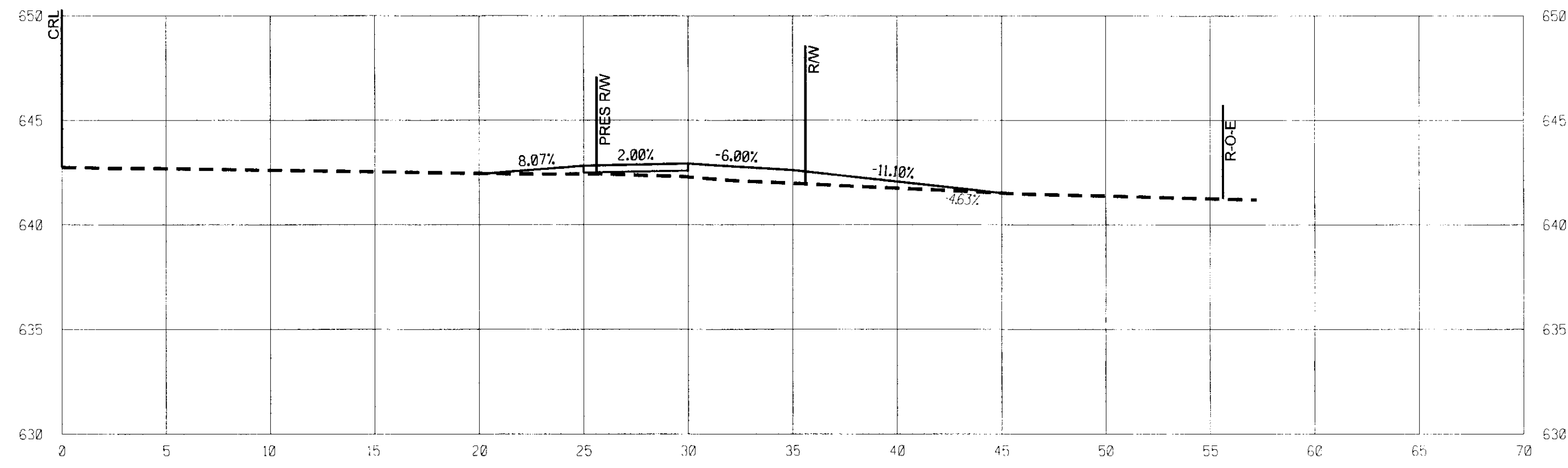
 **Dewberry**

Dewberry Engineers Inc.
1700 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3216
918.587.7283 - Fax: 918.587.0071

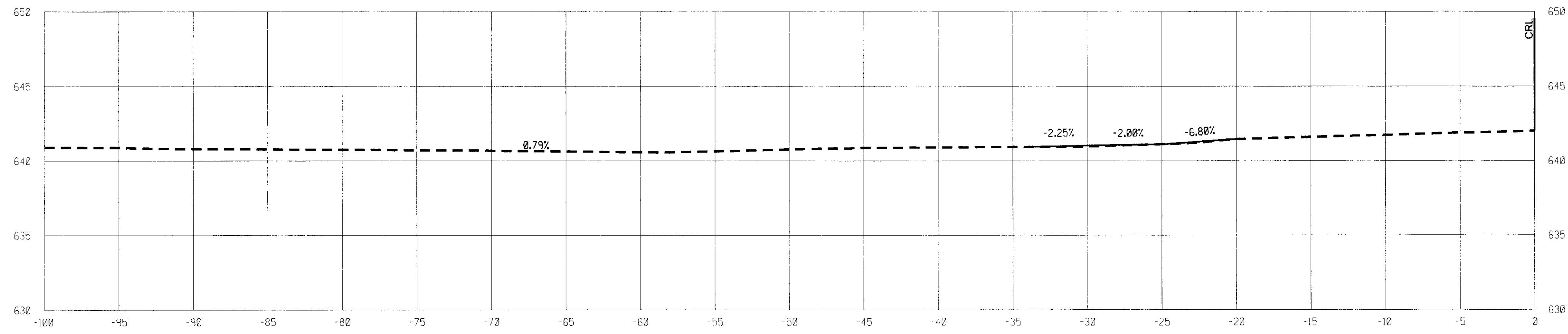
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			PROFILE SCALE	PROJ. MGR.				
			HORIZONTAL:	LEAD ENGR.				
			1"=5'	FIELD MGR.				
			VERTICAL:	RECOMMENDED			CITY ENGINEER	
			1"=5'	DESIGN MANAGER				
			FILE:	DRAWING:				
			ATLAS PAGE NO.: 140, 141, 191					SHEET 091 OF 59 SHEETS



67+76.44 (LT.)



67+40.10 (RT.)



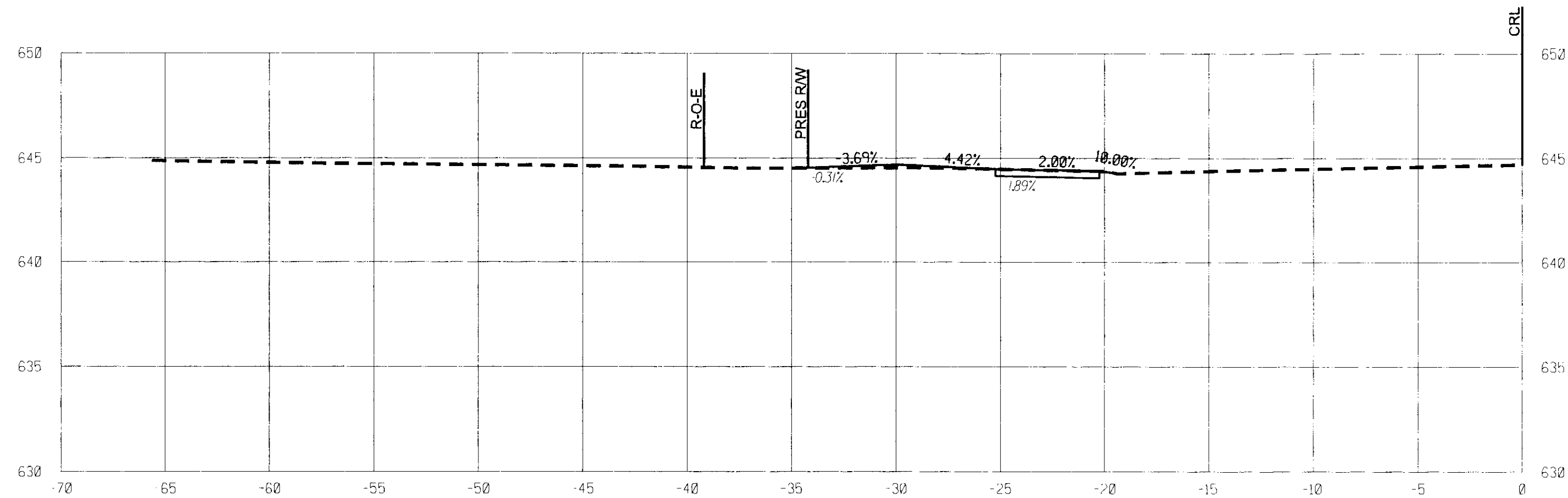
66+59.10 (LT.)
(W. 40TH ST.)

DRIVEWAY AND STREET PROFILES (UNION)
PROJECT NO. 144017-G AND 144017-AS
UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

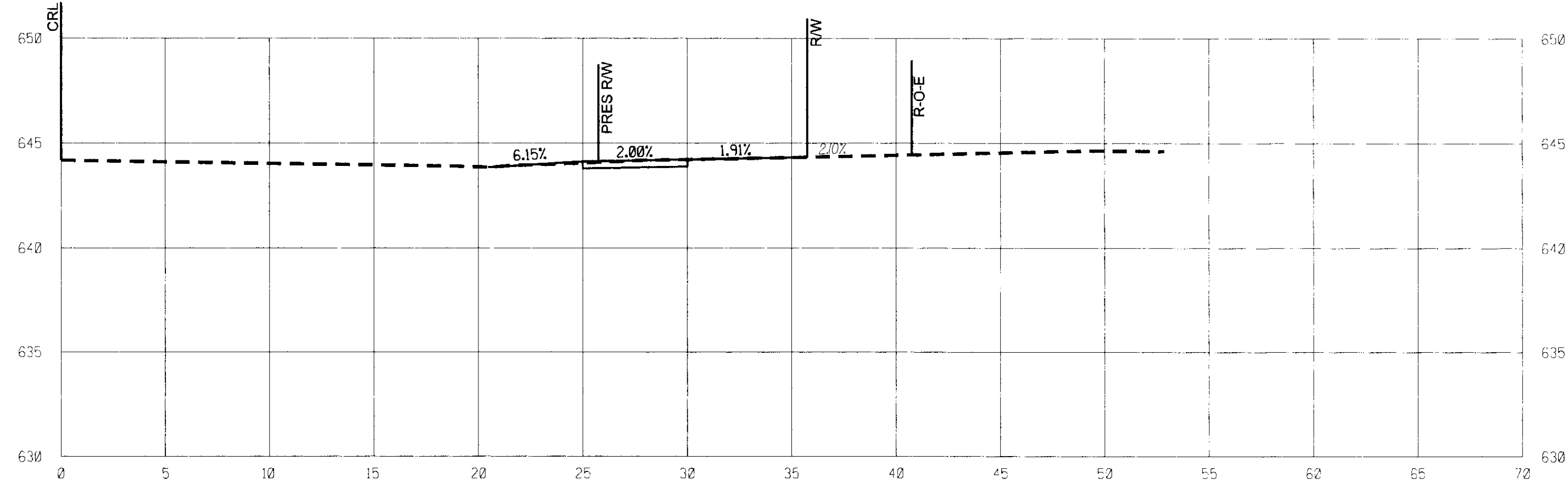
PLANS AND ESTIMATES PREPARED BY:
 **Dewberry**
Dewberry, Engineers Inc.
1700 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3216
918.587.7283 - Fax: 918.587.8871

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	11/16	APPROVED
			N/A	DESIGNED	DEI	11/16	
				SURVEY	SWA	08/15	
			PROFILE SCALE	PROJ. MGR.			
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			VERTICAL:	RECOMMENDED			
			1"=5'	DESIGN MANAGER			CITY ENGINEER
			FILE:	DRAWING:			DATE: SEP 2018
			ATLAS PAGE NO.:	140, 141, 151			SHEET DP2 OF 59 SHEETS

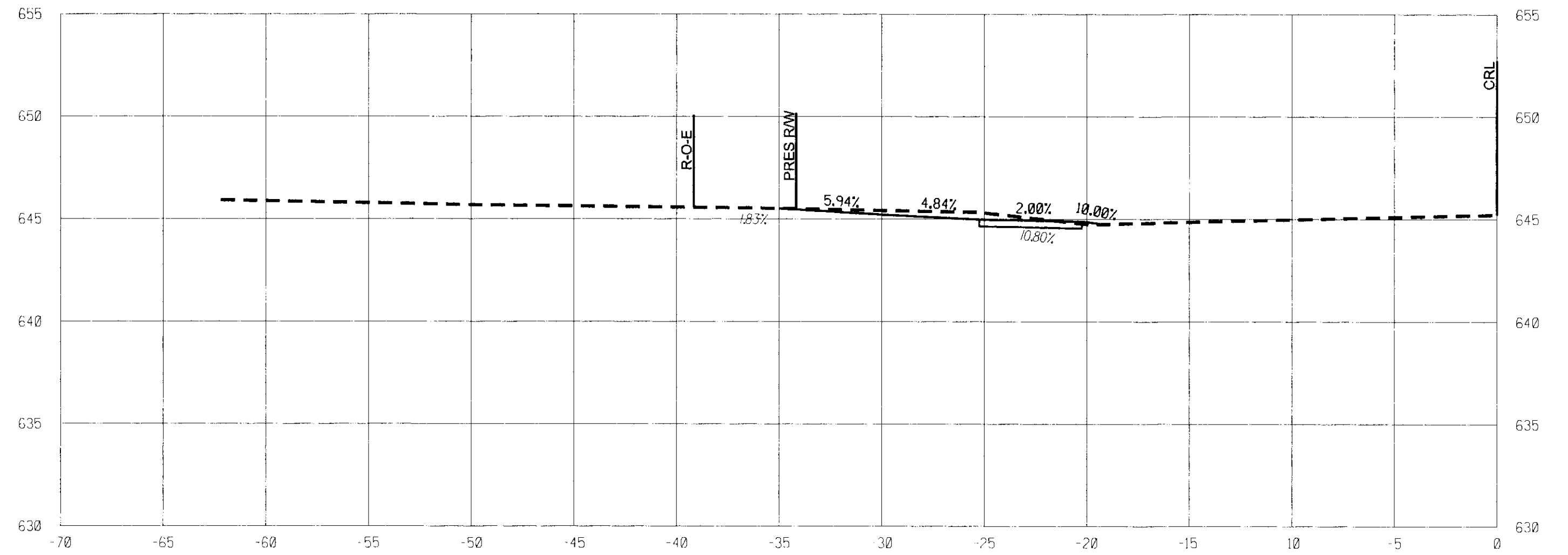
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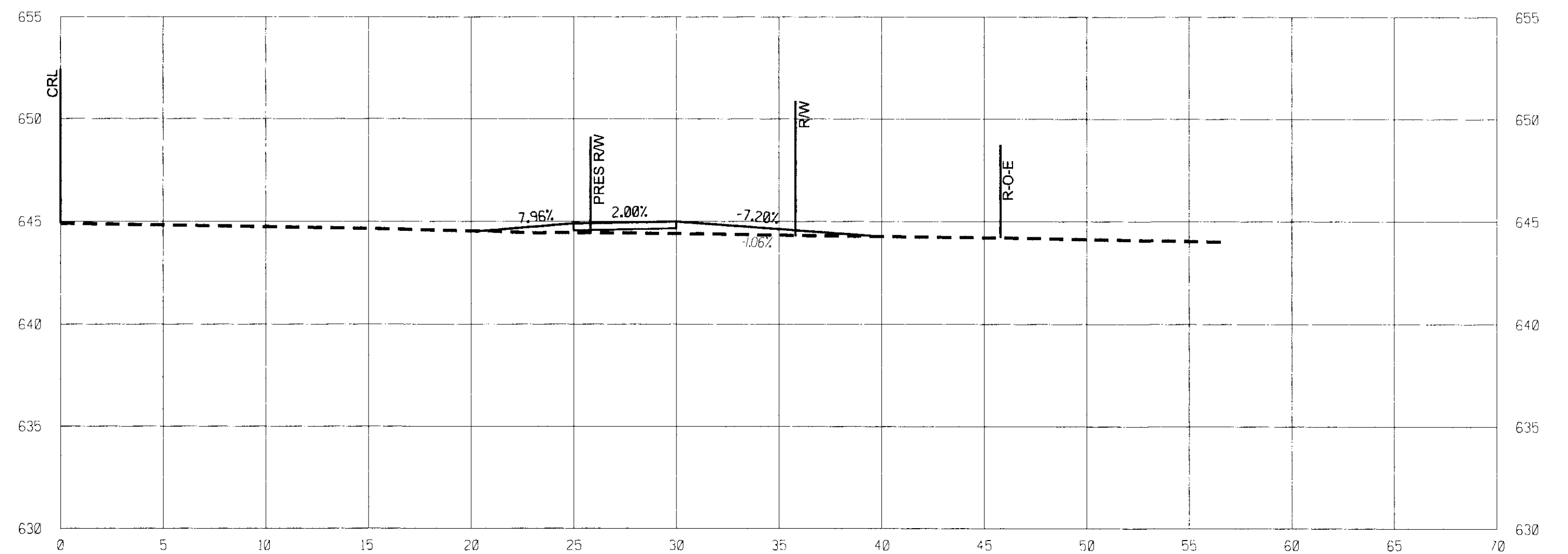
68+60.12 (LT.)



68+31.45 (RT.)

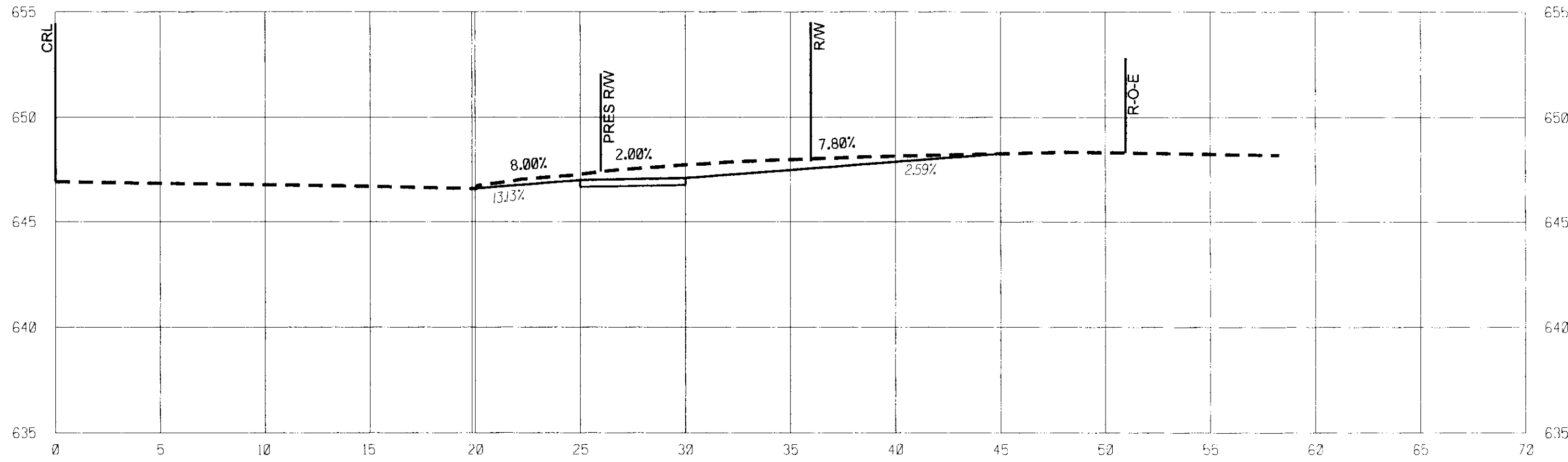


68+86.85 (LT.)

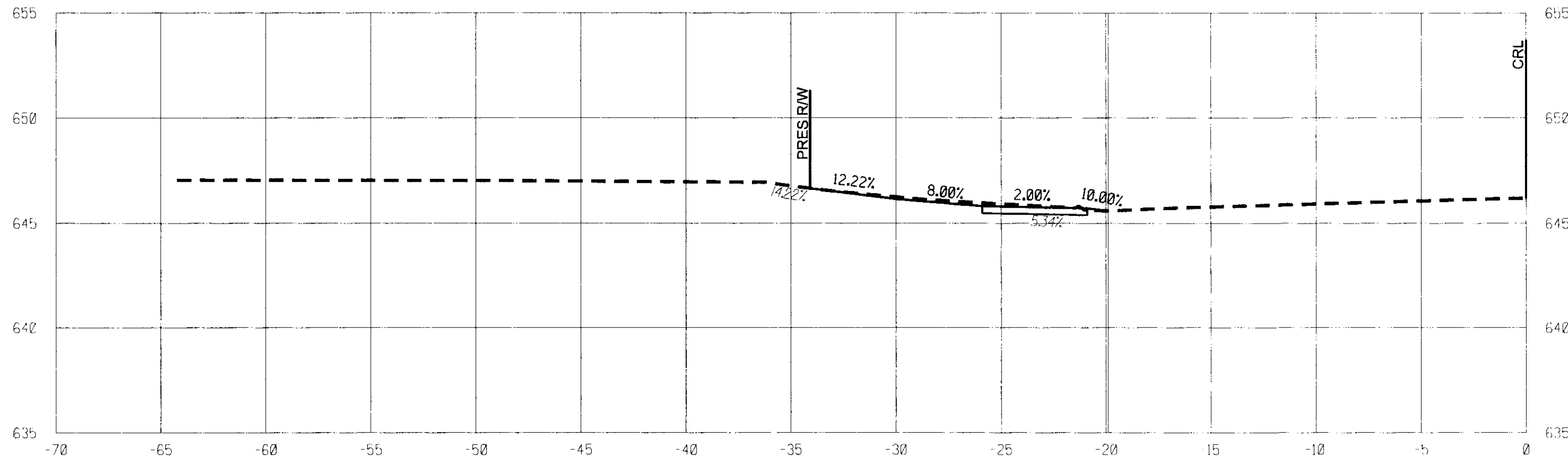


68+70.17 (RT.)

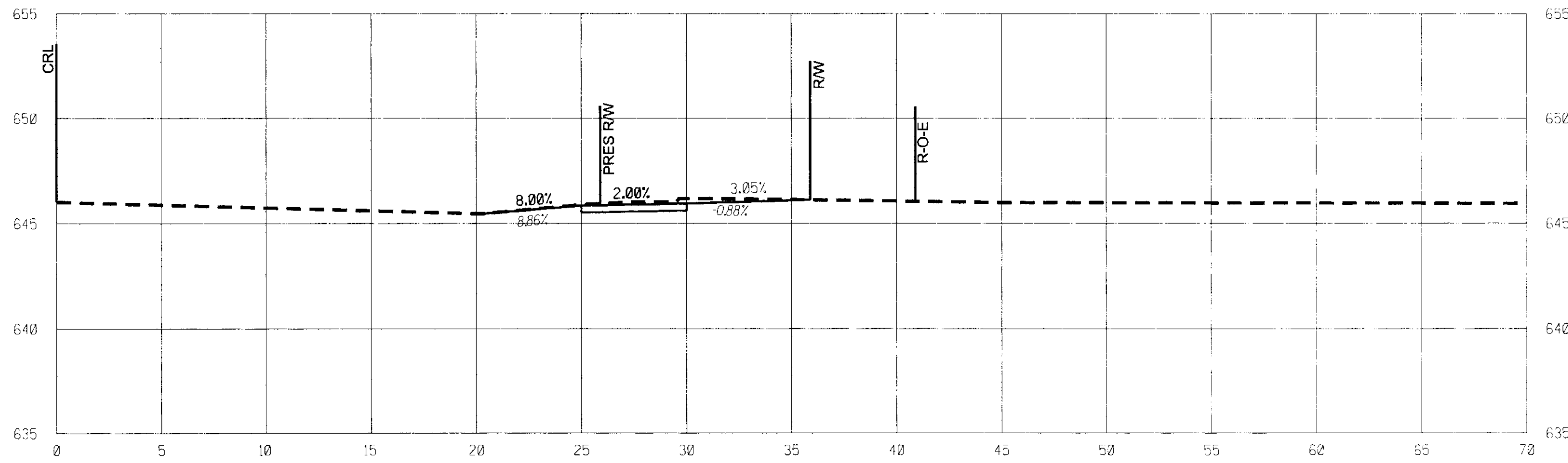
DRIVEWAY AND STREET PROFILES (UNION)									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:						Dewberry Engineers Inc. 1350 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587.7283 - Fax 918.597.8871			
 Dewberry [®]									
PLAN SCALE N/A	DRAWN	DEI	11/16	APPROVED					
	DESIGNED	DEI	11/16						
	SURVEY	SWA	08/15						
PROFILE SCALE HORIZONTAL: 1"=5'	PROJ. MGR.			CITY ENGINEER					
	LEAD ENGR.								
	FIELD MGR.								
VERTICAL: 1"=5'	RECOMMENDED			DATE: SEP 2018					
	DESIGN MANAGER								
FILE:	DRAWING:					SHEET DP3 OF 59 SHEETS			
ATLAS PAGE NO.:				140, 141, 191					



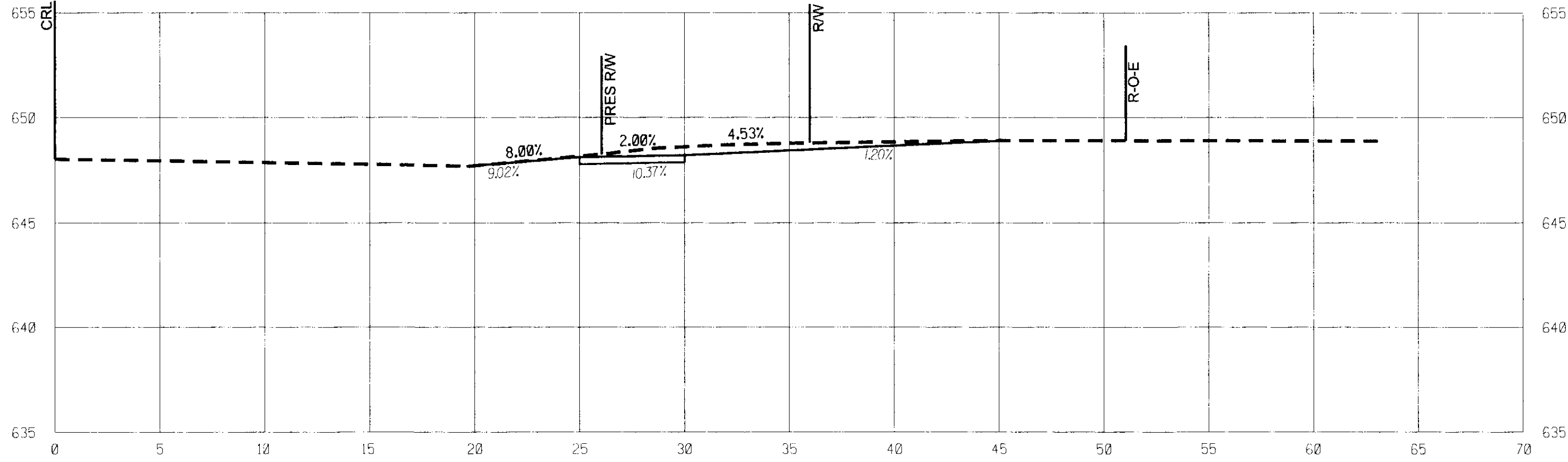
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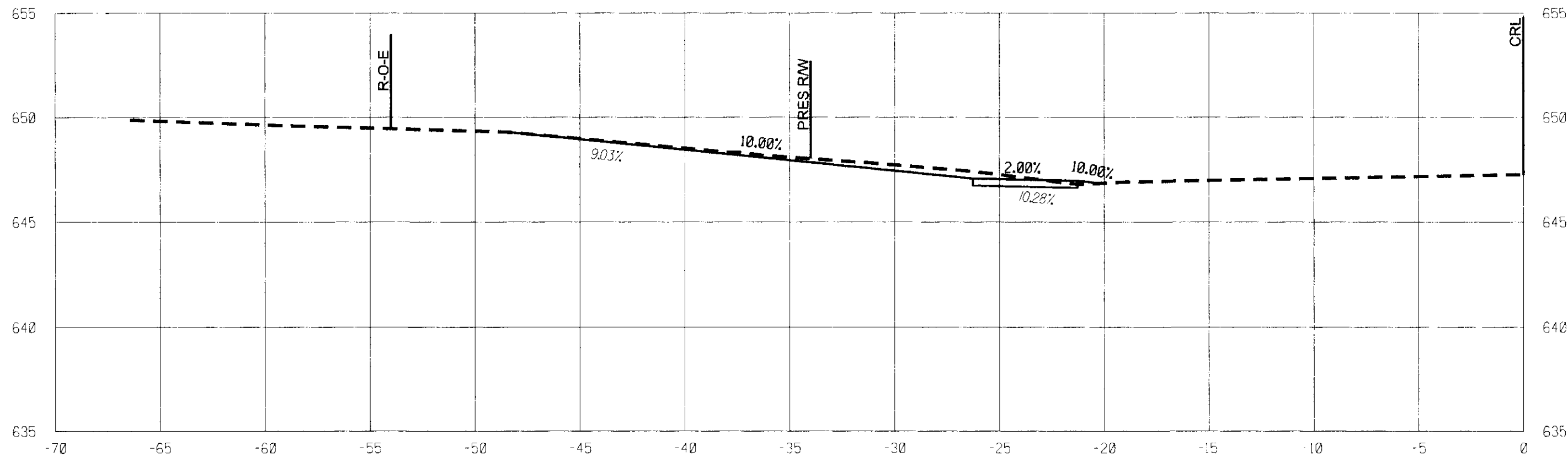
69+32.70 (LT.)



69+24.90 (RT.)



70+24.85 (RT.)



69+88.30 (LT.)

DRIVEWAY AND STREET PROFILES (UNION)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

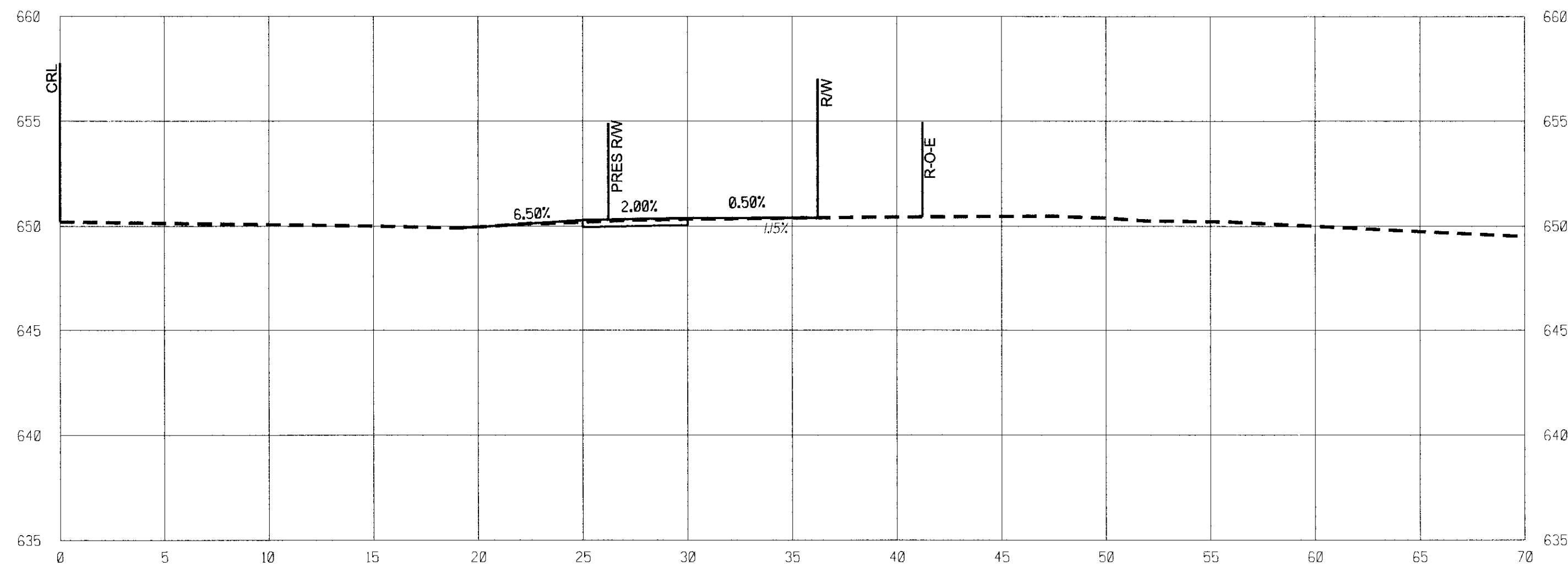
PLANS AND ESTIMATES PREPARED BY:

Dewberry

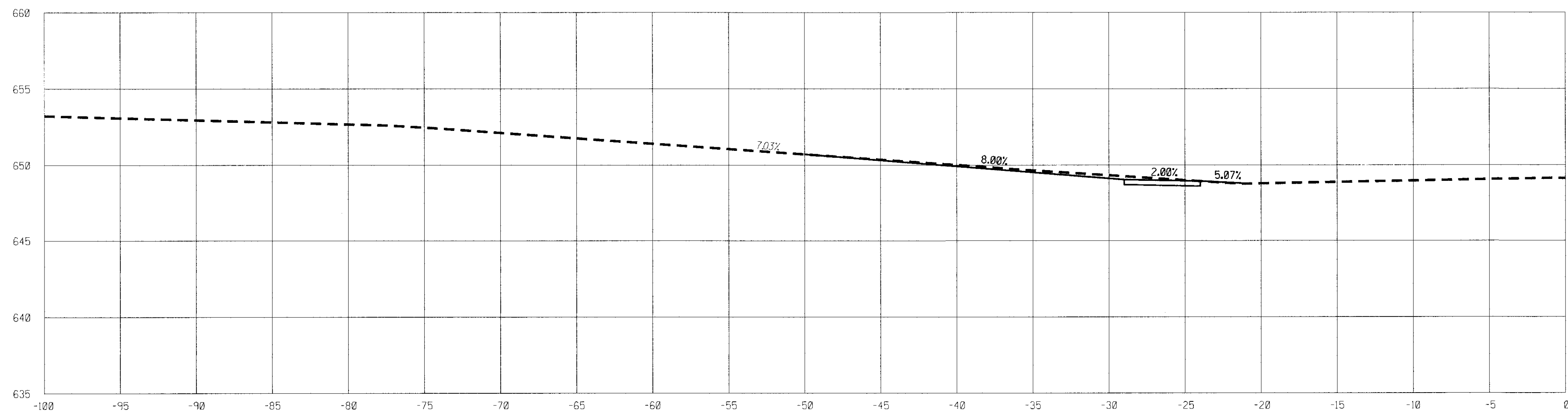
Dewberry Engineers Inc.
1700 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3215
918.587.7283 - Fax 918.587.0071

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	11/16	APPROVED
			N/A	DESIGNED	DEI	11/16	
				SURVEY	SWA	08/15	
			PROFILE SCALE	PROJ. MGR.			
			HORIZONTAL:	LEAD ENGR.			
			1"=5'	FIELD MGR.			
			VERTICAL:	RECOMMENDED			CITY ENGINEER
			1"=5'	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.: 140, 141, 191				SHEET DP4 OF 59 SHEETS

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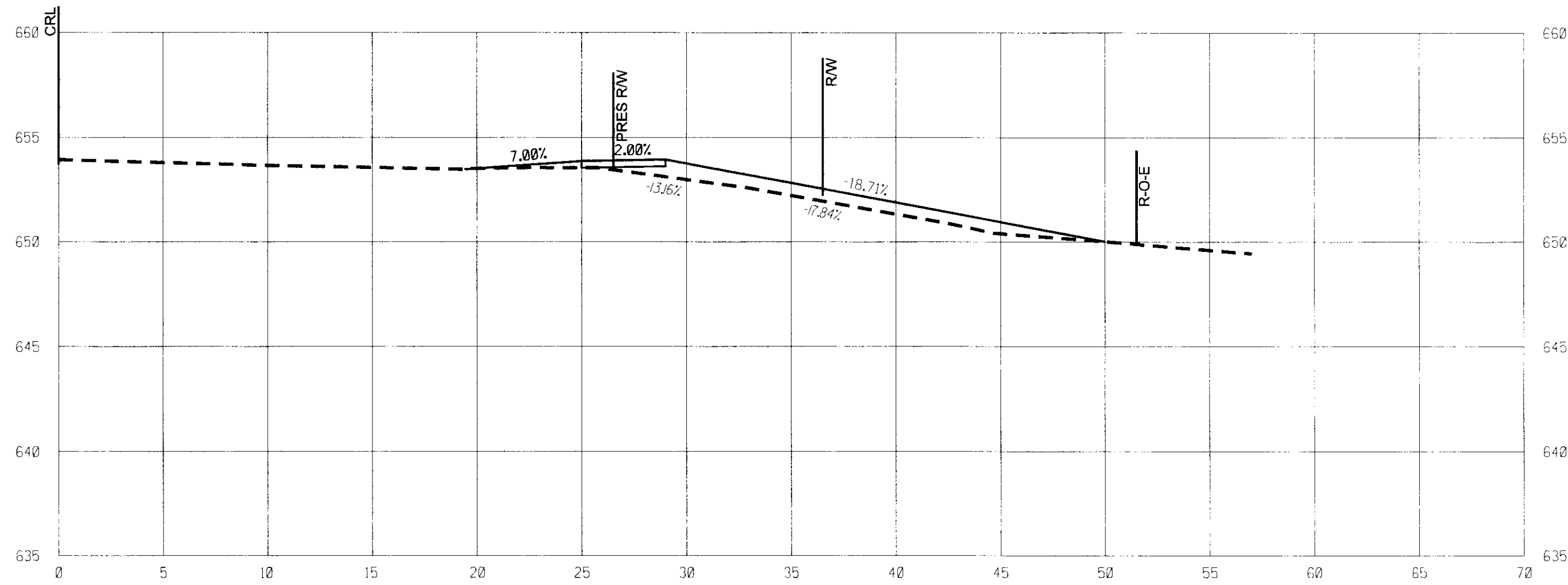


71+34.93 (RT.)

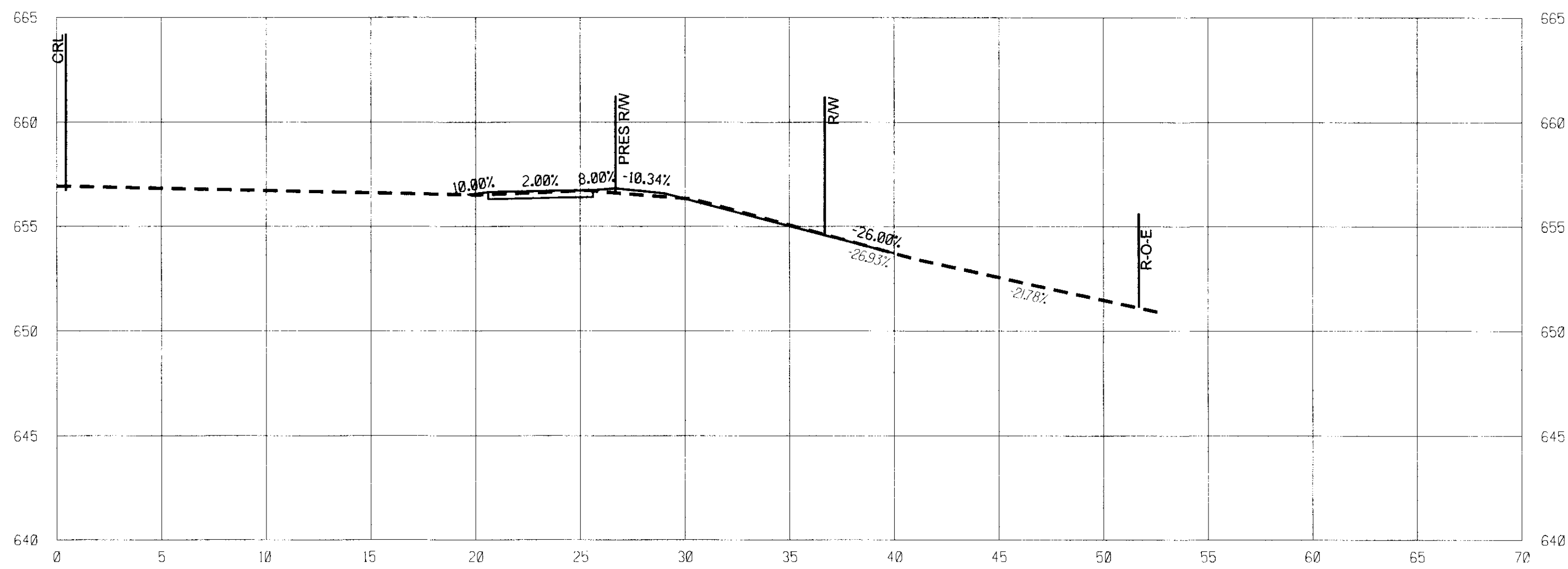


70+77.44 (LT.)
(W. 39TH ST.)

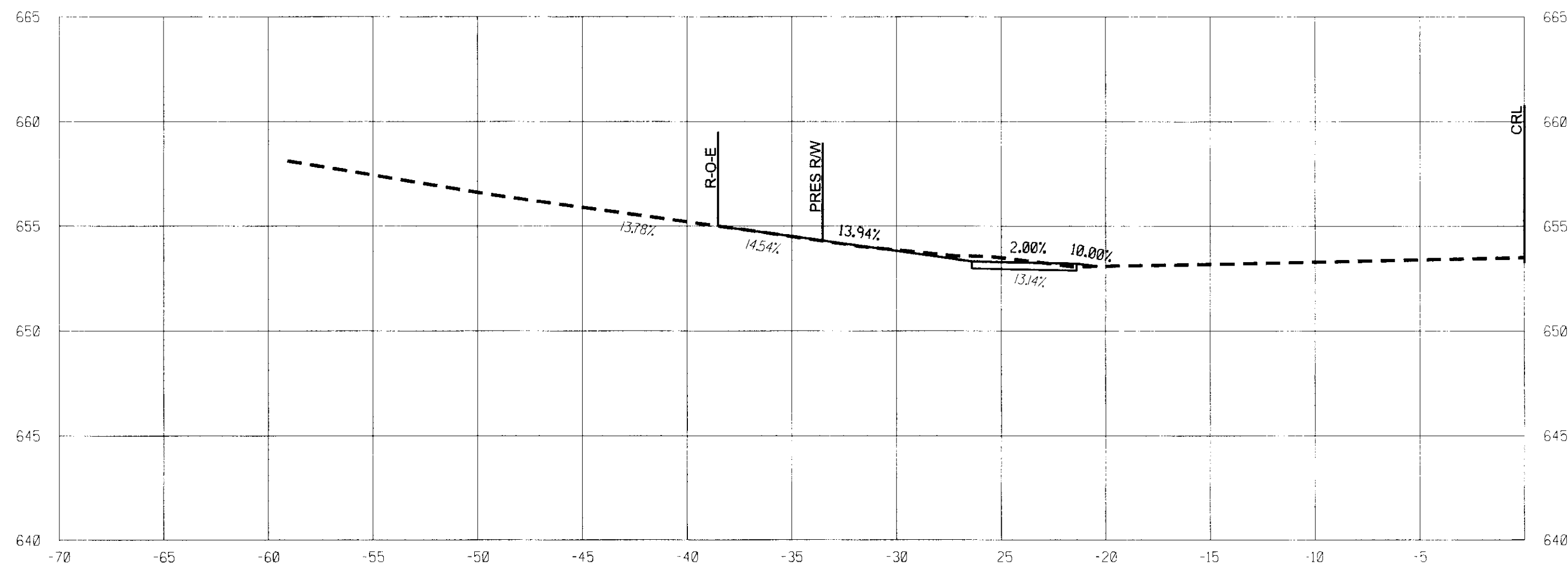
DRIVEWAY AND STREET PROFILES (UNION)						
PROJECT NO. 144017-G AND 144017-AS						
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)						
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT						
PLANS AND ESTIMATES PREPARED BY:				Dewberry Engineers Inc. 1708 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3716 918.567.7283 • Fax 918.567.8071		
 Dewberry						
PLAN SCALE	DRAWN	DEI	11/16	APPROVED		
N/A	DESIGNED	DEI	11/16			
	SURVEY	SWA	08/15			
PROFILE SCALE HORIZONTAL:	PROJ. MGR.					
	LEAD ENGR.					
1"=5'	FIELD MGR.					
VERTICAL:	RECOMMENDED			CITY ENGINEER _____		
	DESIGN MANAGER _____					
1"=5'						
FILE:	DRAWING:			DATE: SEP 2018		
ATLAS PAGE NO.s 140, 141, 191				SHEET DP5 OF 59 SHEETS		



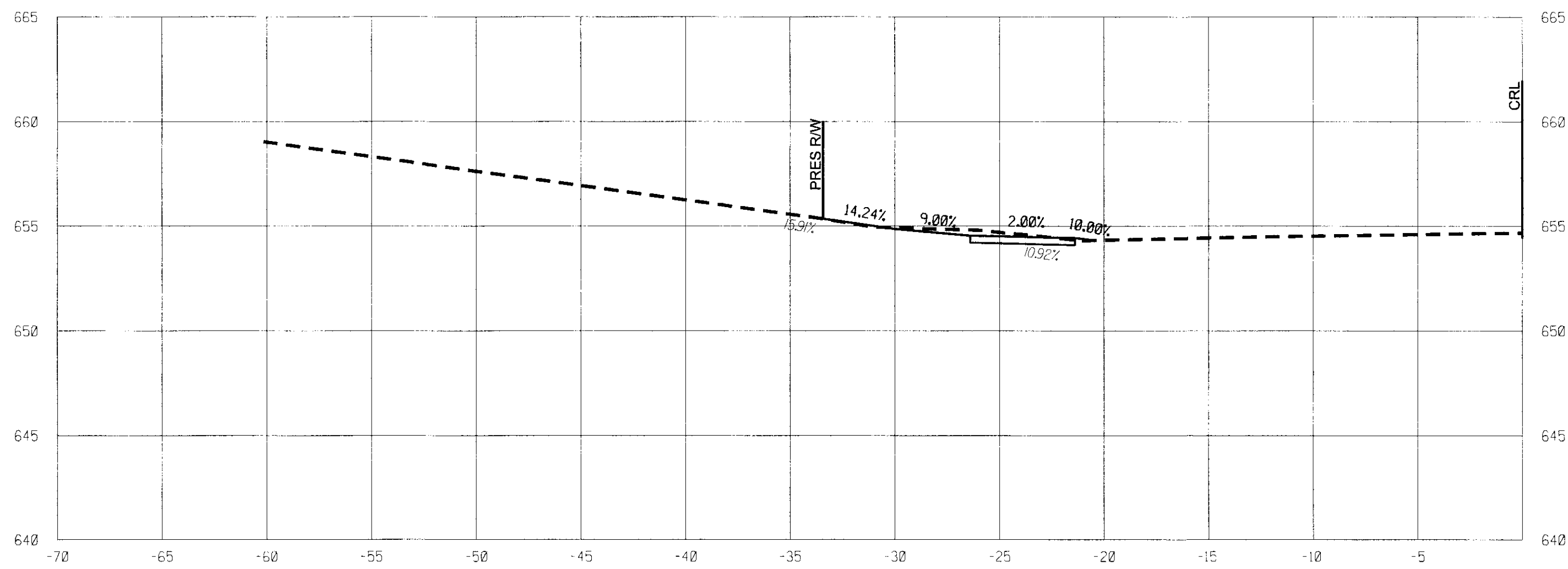
73+19.10 (RT.)



74+27.93 (RT.)



72+99.06 (LT.)



73+52.12 (LT.)

DRIVEWAY AND STREET PROFILES (UNION)

PROJECT NO. 144017-G AND 144017-AS

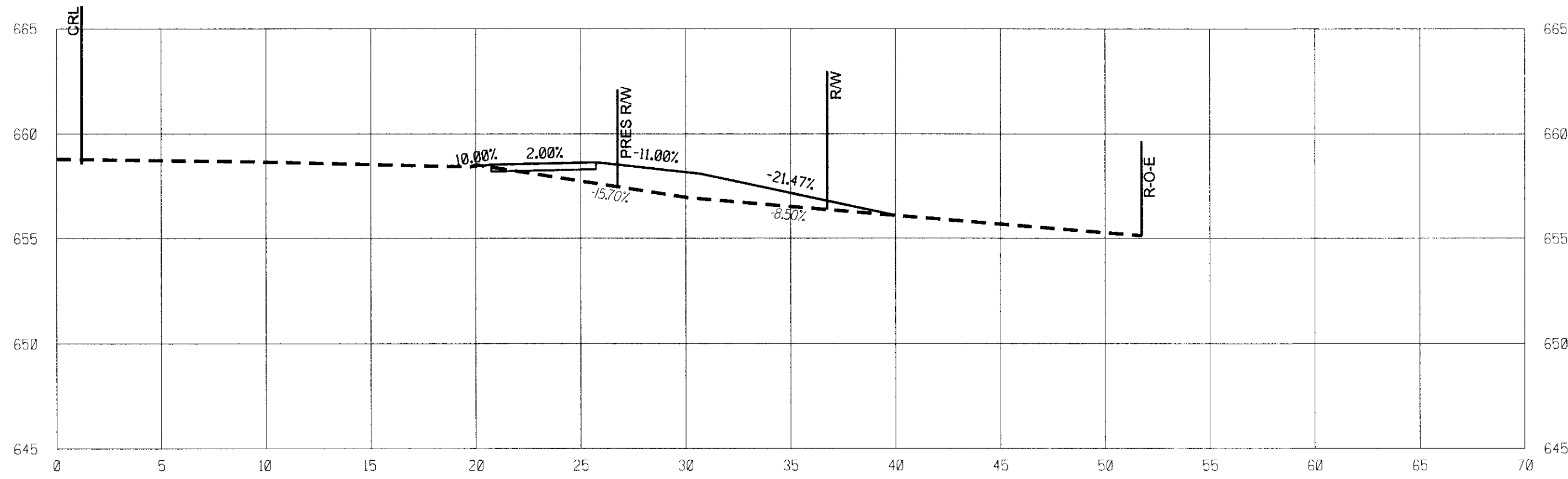
UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

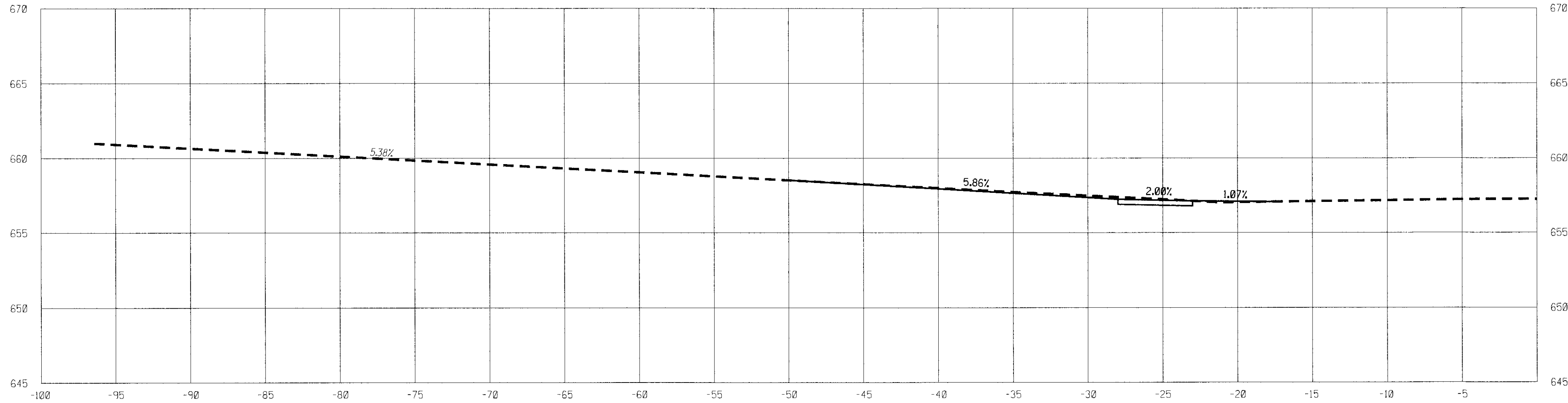
PLANS AND ESTIMATES PREPARED BY:
 Dewberry
Dewberry Engineers Inc.
6300 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3210
918.587.7293 - Fax: 918.587.8071

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	11/16	APPROVED	
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				SURVEY	SWA	08/15		
			PROFILE SCALE	PROJ. MGR.				
			HORIZONTAL:	LEAD ENGR.				
			1"=5'	FIELD MGR.				
			VERTICAL:	RECOMMENDED			CITY ENGINEER	
			1"=5'	DESIGN MANAGER				
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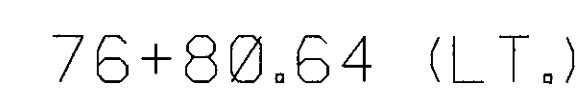
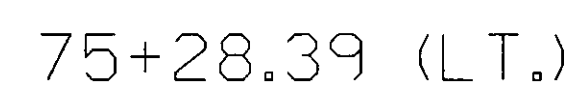
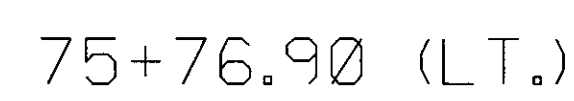


74+74.46 (RT.)



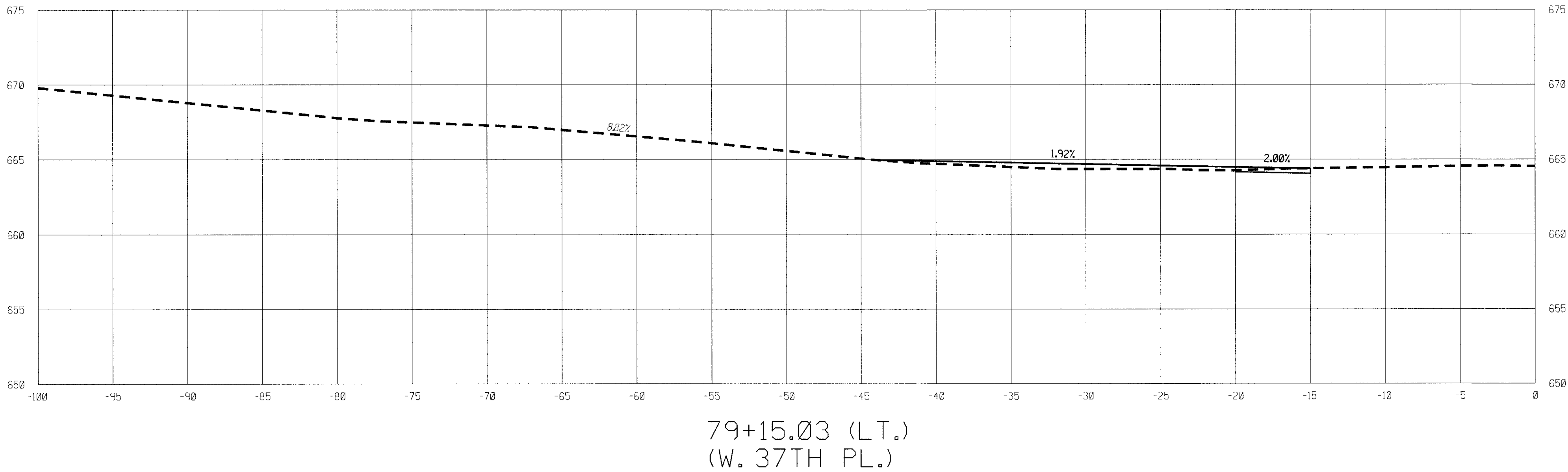
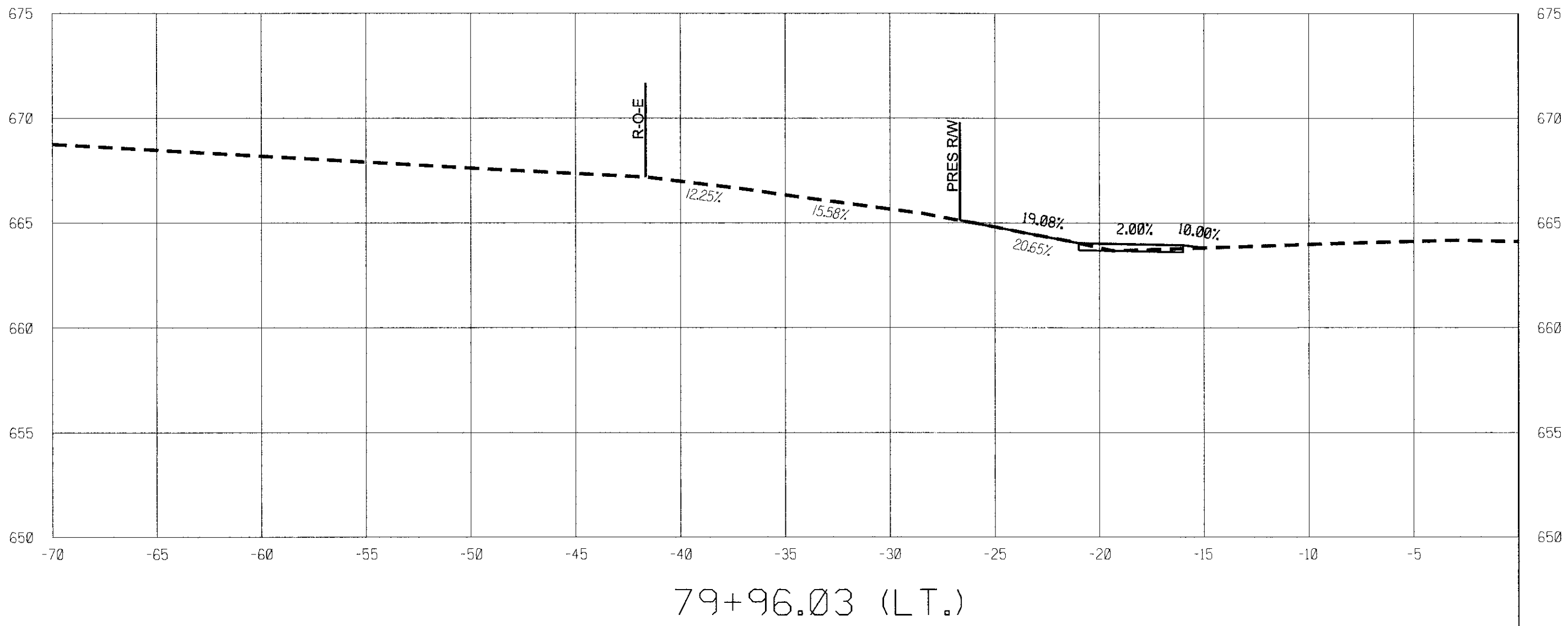
74+36.81 (LT.)
(W. 38TH ST.)

DRIVEWAY AND STREET PROFILES (UNION)									
PROJECT NO. 144017-G AND 144017-AS									
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)									
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY:									
				Dewberry®		Dewberry Engineers Inc. 1750 South Boulder - Suite 600 Tulsa, Oklahoma 74115 • 315 918.587.7263 • Fax 918.587.8071			
PLAN SCALE	DRAWN		DEI		11/16		APPROVED		
	DESIGNED		DEI		11/16				
	SURVEY		SWA		08/15				
N/A									
PROFILE SCALE HORIZONTAL:	PROJ. MGR.						RECOMMENDED		
	LEAD ENGR.								
	FIELD MGR.								
VERTICAL:	1"=5'						CITY ENGINEER		
	1"=5'		DESIGN MANAGER						
FILE:		DRAWING:				DATE: SEP 2018			
ATLAS PAGE NO.: 140, 141, 191						SHEET DP8 OF 59 SHEETS			



DRIVEWAY AND STREET PROFILES (UNION)				
PROJECT NO. 144017-G AND 144017-AS				
UNION AVENUE (SOUTHWEST BLVD TO 41ST ST.)				
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT				
PLANS AND ESTIMATES PREPARED BY:			Dewberry Engineers Inc. 1200 South Boulder - Suite 600 Tulsa, Oklahoma 74119 - 3216 918.587-7232 - fax 918.587-9871	
 Dewberry®				
PLAN SCALE	DRAWN	DEI	11/16	APPROVED
N/A	DESIGNED	DEI	11/16	
	SURVEY	SWA	08/15	
PROFILE SCALE	PROJ. MGR.			
HORIZONTAL:	LEAD ENGR.			
1"=5'	FIELD MGR.			
VERTICAL:	RECOMMENDED			
1"=5'	DESIGN MANAGER			CITY ENGINEER
FILE:	DRAWING:	DATE: SEP 2018		
ATLAS PAGE NO. 140, 141, 191				
SHEET 009 OF 59 SHEETS				

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			ATLAS PAGE NO.: 140, 141, 191				
			SHEET DP9 OF 59 SHEETS				



DRIVEWAY AND STREET PROFILES (UNION)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

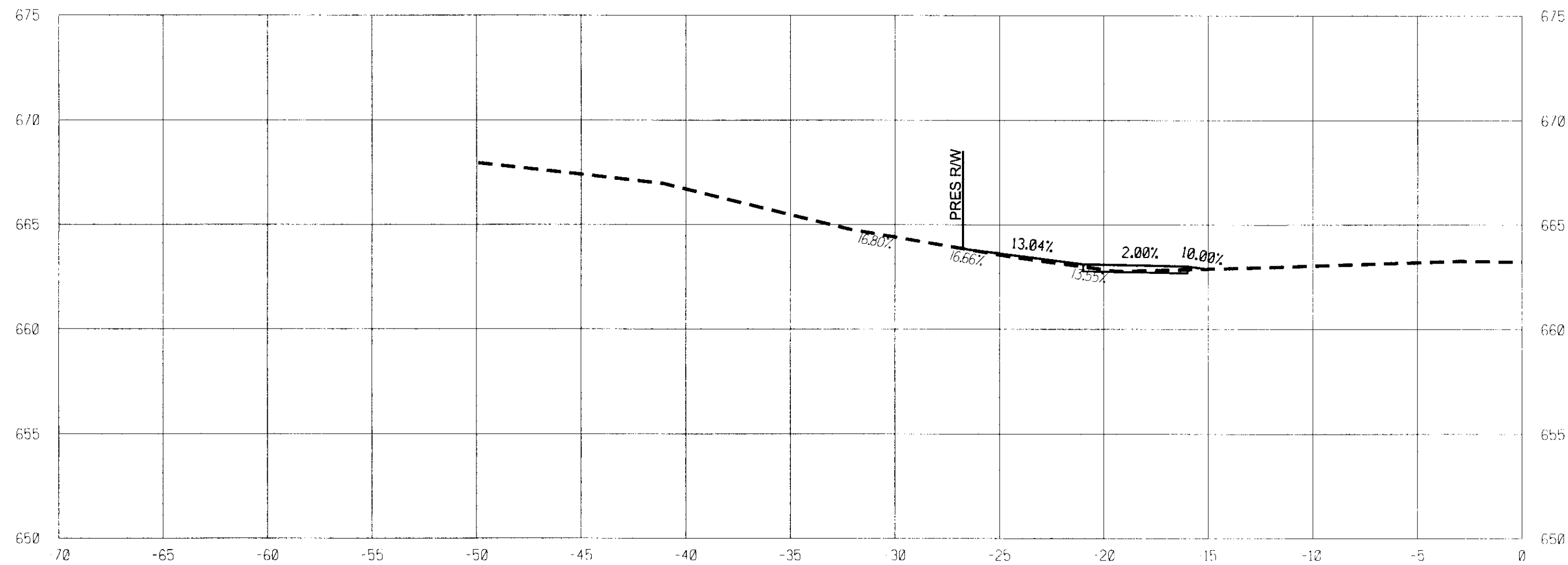
 **Dewberry**

Dewberry Engineers Inc.
1300 South Boulder Suite 600
Tulsa, Oklahoma 74119 - 3216
918.587.1253 • Fax 918.587.0271

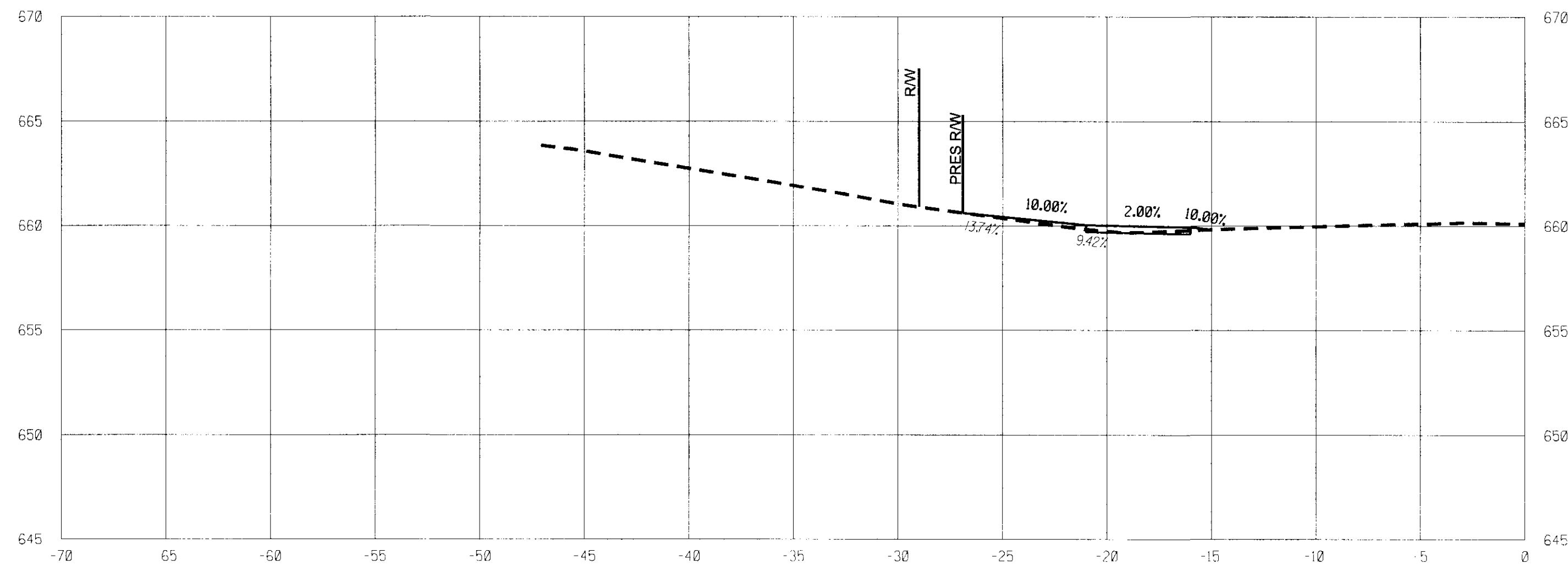
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			1"=5'	FIELD MGR.			
			VERTICAL:	RECOMMENDED			CITY ENGINEER
			1"=5'	DESIGN MANAGER			
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			ATLAS PAGE NO.: 140, 141, 191				SHEET DP10 OF 59 SHEETS

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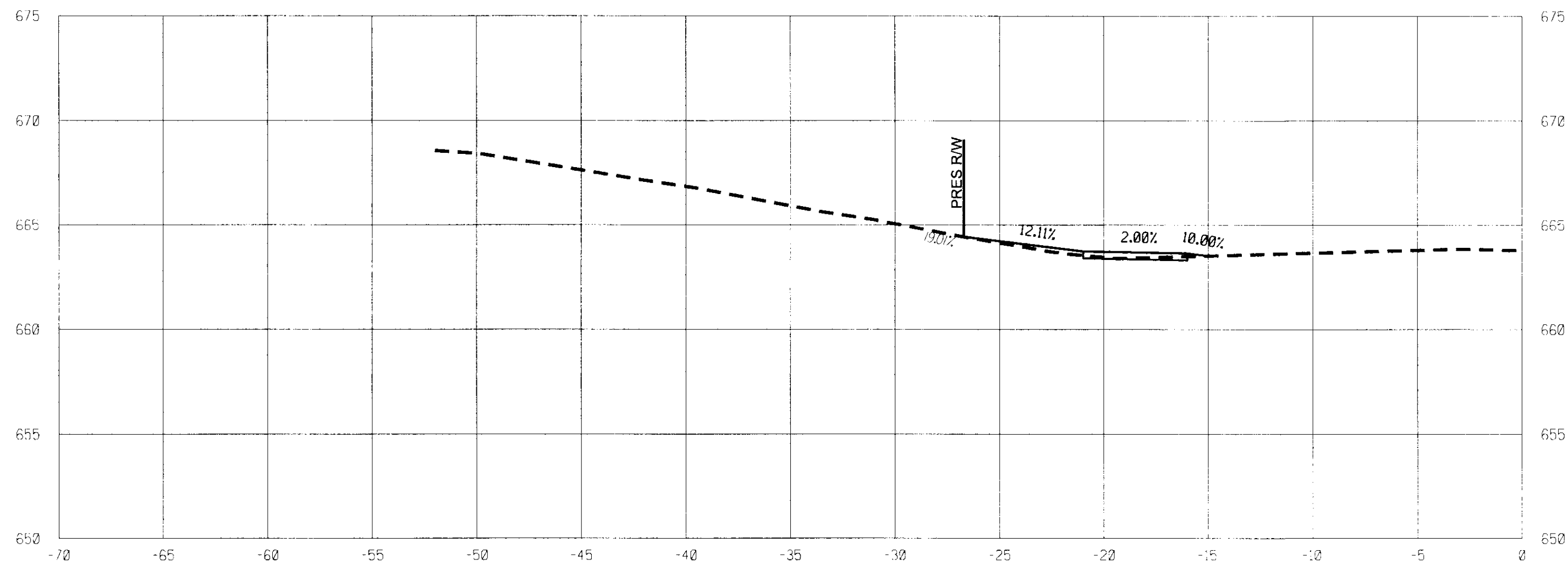
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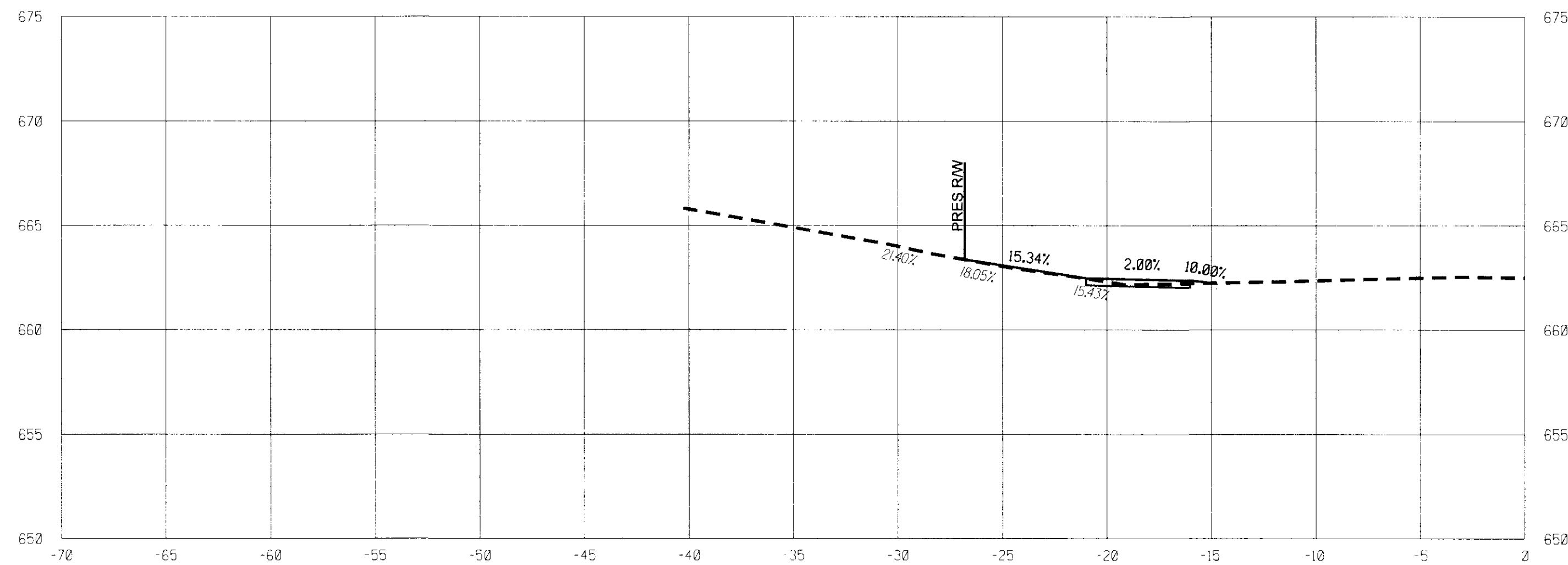
80+87.23 (LT.)



82+30.48 (LT.)



80+33.33 (LT.)



81+37.56 (LT.)

DRIVEWAY AND STREET PROFILES (UNION)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

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Dewberry Engineers Inc.
1750 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3015
918.567.7283 - Fax 918.567.8071

REVISION	BY	DATE

PLAN SCALE	DRAWN	DEI	11/16
N/A	DESIGNED	DEI	11/16
	SURVEY	SWA	08/15

PROFILE SCALE	PROJ. MGR.		
HORIZONTAL:			
1"=5'	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED		
	DESIGN MANAGER		

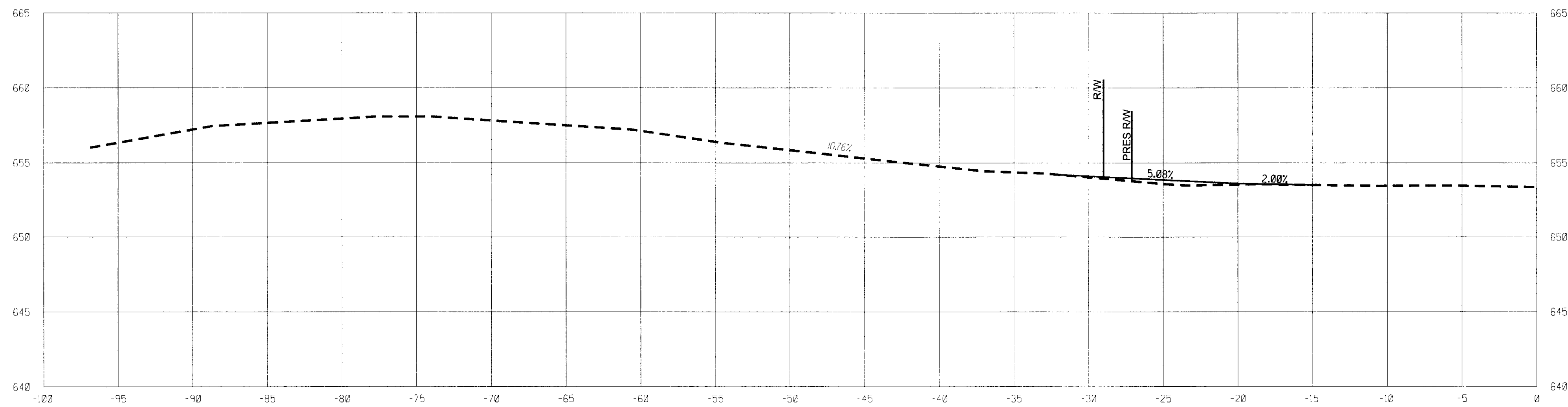
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ATLAS PAGE NO.: 140, 141, 191	SHEET DPI:	OF 59 SHEETS

APPROVED

CITY ENGINEER

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84+21.64 (LT.)
(W. 36TH PL.)

DRIVEWAY AND STREET PROFILES (UNION)

PROJECT NO. 144017-G AND 144017-AS

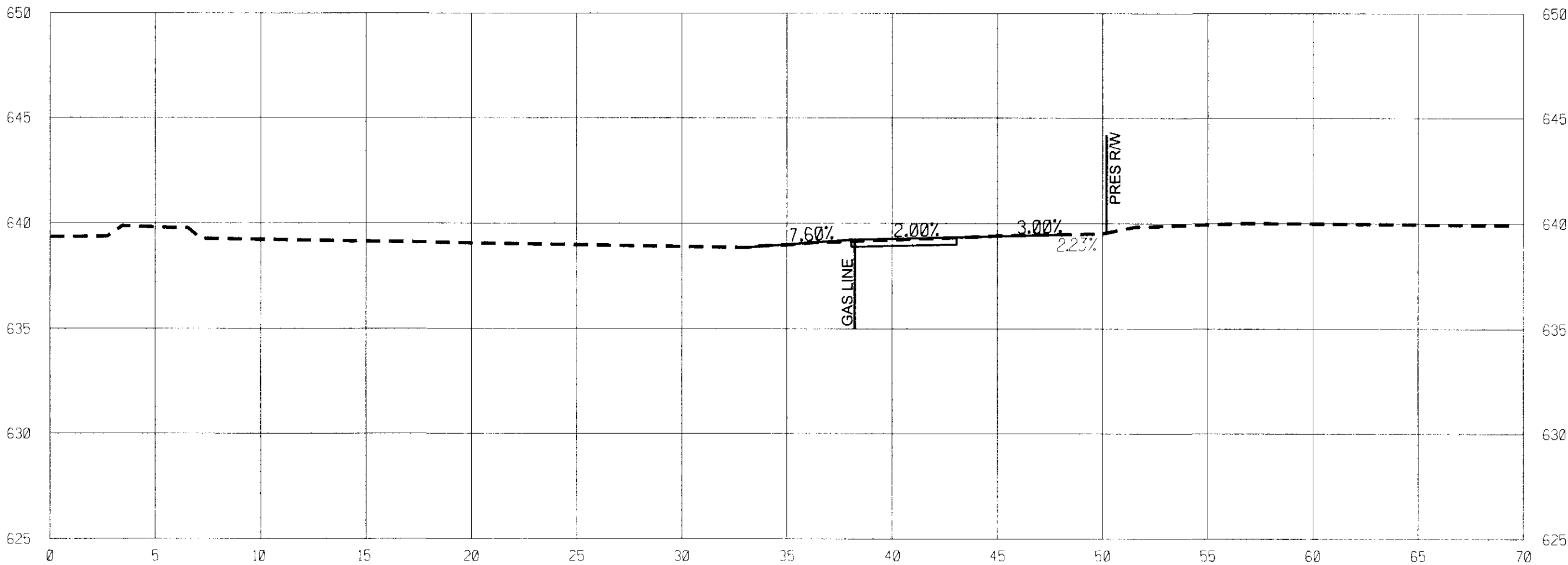
UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
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Dewberry Engineers Inc.
1350 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3275
918.587.7283 - Fax 918.587.8071

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	11/16	APPROVED
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				SURVEY	SWA	08/15	
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			VERTICAL:	RECOMMENDED			CITY ENGINEER
			1"=5'	DESIGN MANAGER			
			FILE:	DRAWING:			
			ATLAS PAGE NO.: 140, 141, 191				SHEET DP12 OF 59 SHEETS

\$ DATES \$ FILES \$



15+06.98 (RT.)

DRIVEWAY AND STREET PROFILES (41ST ST.)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

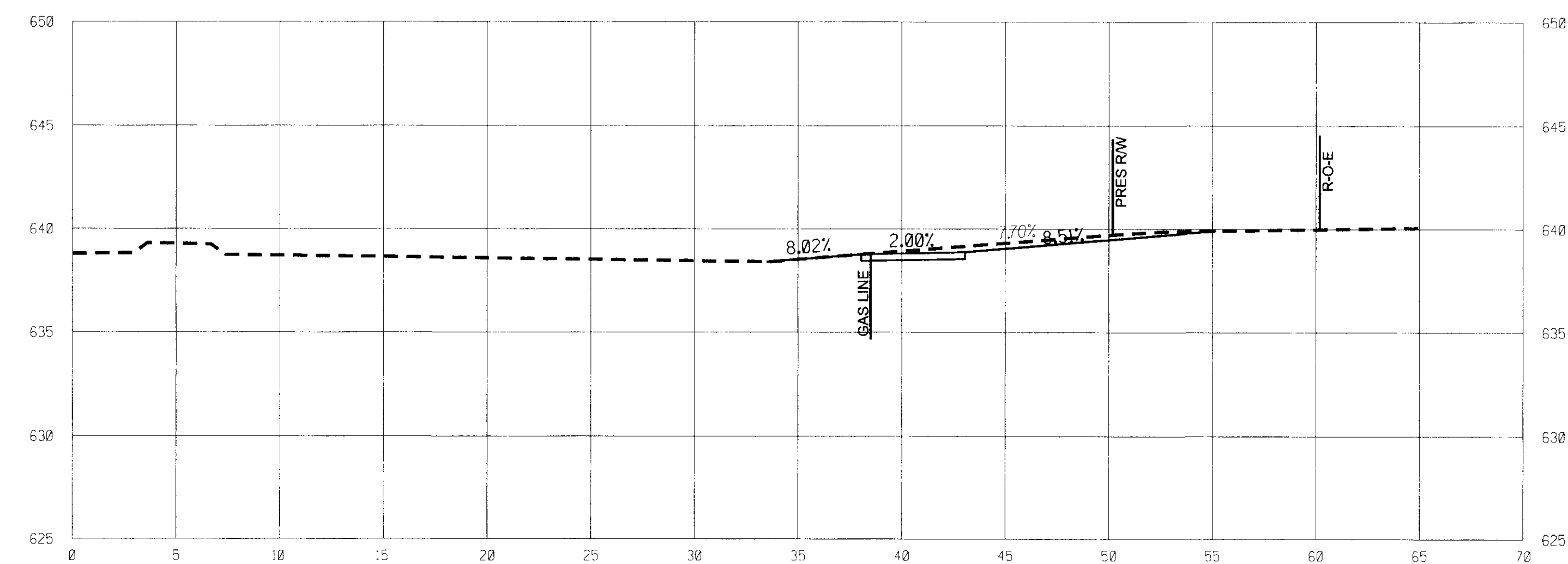
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

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Dewberry Engineers Inc.
1350 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3218
918.587.1283 - Fax 918.587.8871

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	11/16	APPROVED
			N/A	DESIGNED	DEI	11/16	
				SURVEY	SWA	08/15	
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			HORIZONTAL:	LEAD ENGR.			
			1"=5'	FIELD MGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DESIGN MANAGER			CITY ENGINEER
			FILE:	DRAWING:			DATE: SEP 2018
			ATLAS PAGE NO.:	140, 141, 191			SHEET DP13 OF 59 SHEETS

SDATES SFILES



16+03.68 (RT.)

DRIVEWAY AND STREET PROFILES (41ST ST.)

PROJECT NO. 144017-G AND 144017-AS

UNION AVENUE
(SOUTHWEST BLVD TO 41ST ST.)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
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Dewberry Engineers Inc.
1350 South Boulder - Suite 600
Tulsa, Oklahoma 74119 - 3216
918.587.7293 - Fax 918.587.8871

REVISION	BY	DATE	PLAN SCALE	DRAWN	DEI	11/16	APPROVED	
			N/A	DESIGNED	DEI	11/16		
				SURVEY	SWA	08/15		
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			HORIZONTAL:	LEAD ENGR.				
			1"=5'	FIELD MGR.				
			VERTICAL:	RECOMMENDED			CITY ENGINEER	
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			ATLAS PAGE NO.: 140, 141, 191					SHEET DP14 OF 59 SHEETS