

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED
STATE HIGHWAY
TRAFFIC SIGNAL & ROADWAY MODIFICATIONS
FEDERAL AID PROJECT NO. STP-11N(046)TR
GRADY COUNTY
CONTROL SECTION NO. 81-26-06
STATE JOB NUMBER 16735(04)

REVISIONS	DATE
● REVISED DESIGN DATA	10-22-97

INDEX OF SHEETS

1. TITLE SHEET
2. PAY QUANTITIES AND GENERAL NOTES
3. LEFT TURN BAY - US 81 & SH 19
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6. SIGNAL MODIFICATION - US 81 & SH 19
7. SIGNAL DETAIL SHEET
8. SIGNAL WIRING DIAGRAM
9. STRIPING PLANS - US 81

THE FOLLOWING STANDARDS WILL
BE REQUIRED ON THIS PROJECT:

GMS-1-00M	TSSP-1-01M	SP1-2-5M
FGS-1-00M	TCS1-1-01M	PCES-2-5M
PM-1-00M	TCS1-2-00M	FHTMP-3-5M
PM-2-00M	TCS1-3-00M	ASCD-3-5M
PM-4-00M	TCS1-4-01M	CSCD-3-7M
PM-9-00M	TCS1-5-00M	LECS-2-6M
CCD-1-00M	TCS1-6-00M	LTU-2-4M
PBD-1-00M	TCS1-7-00M	SSA-1A-00M
HLD-1-00M	TCS1-8-00M	SSP-1-00M
SCD-1-00M	TCS1-12-01M	RSD-1-00M
USM-1-00M	TCS1-13-01M	RSD-3-00M
PMAP-1-01M	TCS1-14-01M	MOD-1-00M
SA-1-01M	TCS2-31-00M	SBS-1A-00M
ID-1-01M	TCS2-32-00M	SBS-2A-00M
ID-2-01M	TCS2-33-00M	
TSSS-1-01M	TCS2-34-00M	
PWD-1-01M	TCS2-37-00M	
CFD-1-01M	TCS2-38-00M	

DESIGN DATA	
1996 ADT	= 13,300
2016 ADT	= 24,000
T ₃	= 7%
FLEX ESAL's	= 10.0 m

SCALES	
SIGNAL PLAN	= 1:250
LAYOUT MAP	= 1:200

CONVENTIONAL SYMBOLS

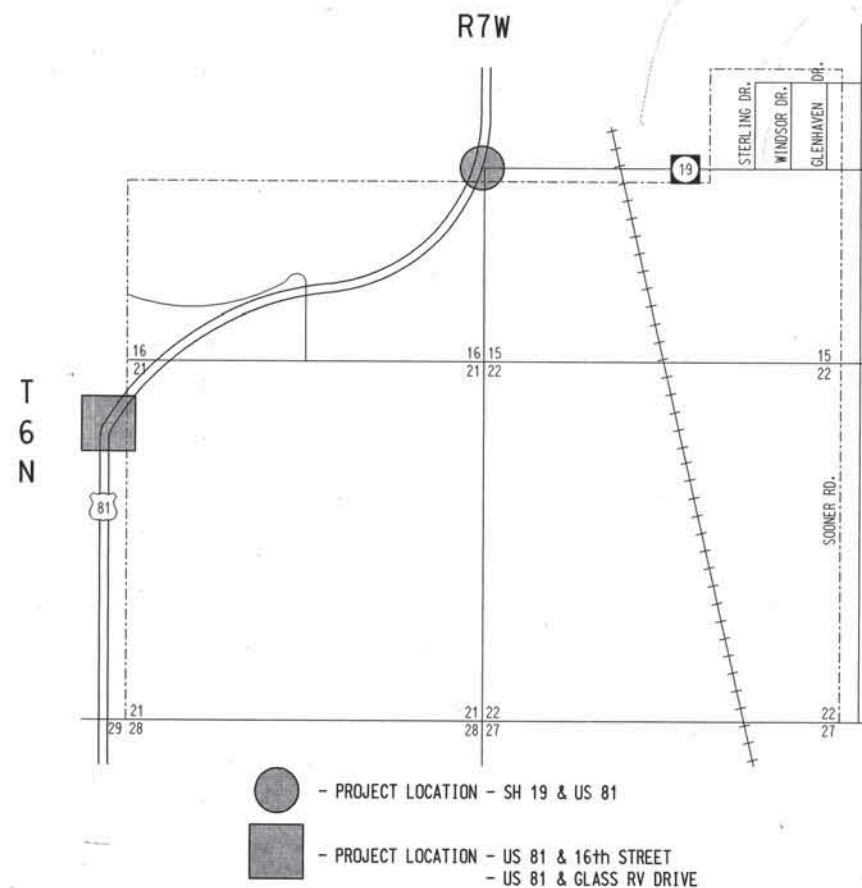
	PROPOSED ROADS
	RAILROADS
	RANGE & TOWNSHIP
	SECTION LINES
	QUARTER SECTION LINES
	FENCE
	GROUND LINE
	EXISTING ROADS
	BASE LINE
	GRADE LINES
	TELEPHONE & TELEGRAPH
	POWER LINES
	OIL WELLS
	BUILDINGS
	DRAINAGE STRUCTURES - IN PLACE
	DRAINAGE STRUCTURES - NEW
	RIGHT-OF-WAY LINES - EXISTING
	RIGHT-OF-WAY LINES - NEW
	RIGHT-OF-WAY MARKERS - IN PLACE
	RIGHT-OF-WAY MARKERS - REMOVE & RESET
	RIGHT-OF-WAY MARKERS - NEW
	CONTROLLED ACCESS
	RIGHT -OF-WAY FENCE

CONVENTIONAL SIGNS

	INTERSTATE HIGHWAY
	U.S. HIGHWAY
	STATE HIGHWAY

EXISTING

	DETECTOR LOOP
	CONTROLLER
	PULL BOX
	CONDUIT
	MAST ARM & POLE W/SIGNAL INDICATION
	WALK & DON'T WALK INDICATION
	SIGNAL INDICATION
	SIGNAL INDICATION W/BACK-PLATE
	PEDESTAL POLE W/SIGNAL & WALK & DON'T INDICATIONS
	COMBINATION-TRAFFIC SIGNAL & STREET LIGHT ON ONE POLE



NINNEKAH, OKLAHOMA

POPULATION 1,016

THE PROJECT IS ENTIRELY WITHIN THE
CORPORATION LIMITS OF THE TOWN OF
NINNEKAH.

PROJECT LENGTH.....
EQUATIONS.....NONE
EXCEPTIONS.....NONE



R. Wayne Russell
R. WAYNE RUSSELL P.E. NO. 16030

8-22-97
DATE

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED _____	DATE APPROVED _____
BY _____	BY _____
CHIEF ENGINEER	DIVISION ADMINISTRATOR
S.W.O.	F.A. PROJECT NO. STP-11N(046)TR SHEET NO. 1

TRAFFIC ENGINEERING DIV. - RANDY LEE P.E.

1996 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION -
METRIC, GOVERN.

SIGNAL PAY QUANTITES						
ITEM	DESCRIPTION	UNIT	US 81	US 81	US 81	TOTAL
			& SH 19	& 16TH	& RV DRIVE	
802(B)M 8332	25MM PVC SCH.40 PLASTIC CONDUIT BORED	M	7			7
802(B)M 8342	50mm PVC SCH. 40 PLASTIC CONDUIT TRENCHED	M	5			5
804(A)M 2915	STRUCTURAL CONCRETE	M3	2.4			2.4
804(B)M 2916	REINFORCING STEEL	KG	215			215
806(A)M 8804	9.7M MTG.HT.POLE 13.7M TS & 3.0M LMA ARM (G.STL.)	EA	1			1
809(A)M 8204	ROADWAY LUMINAIRE (250 WATT HPS)	EA	1			1
811 M 8044	1/C NO. 10 ELECTRICAL CONDUCTOR	M	121			121
828(A)M 8135	SOL.STE.DIGITAL IND. VEH.LP.DET.	EA	1			1
828(B)M 8138	LOOP DETECTOR WIRE	M	108			108
831 M 8239	1WAY 3SEC. ADJ. SIG. HD. (MST.ARM.MTD)S-6	EA	2			2
831 M 8257	1WAY 3SEC. ADJ. SIG. HD. (MST.ARM.MTD)S-9	EA	1			1
833 M 3038	127MM BACKPLATE (300MM HDS)(B-2)	EA	3			3
834(A)M 8207	5/C TRAF.SIG. ELECT. CABLE	M	49			49
834(A)M 8209	9/C TRAF.SIG. ELECT. CABLE	M	61			61
834(B)M 8220	2/C SHIELDED LOOP DETECTOR LEAD-IN CABLE	M	7			7
850(A)M 8215	SHEET ALUMINUM SIGNS	M2			6.4	6.4
850(C)M 8118	MAST ARM MOUNTED SIGNS (ALUM.)	M2	0.47			0.47
851 M 8642	(PL) 57.2MM SQUARE TUBE POST (TS-20)	M			33.2	33.2
855(A)M 8812	TRAFFIC STRIPE (PLASTIC) (100MM WIDE) (TS-13)	M	211	145	300	656
855(B)M 8818	TRAFFIC STRIPE (PLASTIC)(ARROWS)	EA	2	2	4	8
855(B)M 8821	TRAFFIC STRIPE (PLASTIC)(WORDS)	EA	1	1	2	4
859(A)M 8006	PAVEMENT MARKING REMOVAL (TRAFFIC STRIPE) (TS-18)	M	165			165
880(J) M8905	CONSTRUCTION TRAFFIC CONTROL (TR-23)	L.SUM				1
890(A/B)M8752(PL)REMOVE & RESET JCT. BOX (1)		EA	1			1
890(A/B)M8752(PL)REMOVE & RESET EXISTING SIGNS (2)		EA	3	3	2	8

ROADWAY PAY QUANTITES						
ITEM	DESCRIPTION	UNIT	US 81	US 81	US 81	TOTAL
			& SH 19	& 16TH	& RV DRIVE	
202(C) M0183	UNCLASSIFIED EXCAVATION (3)	M3	115	90	188	393
202(C) M0184	UNCLASSIFIED BORROW (F-3)(3)	M3	195	156	325	676
202(H) M0112	LINEAR GRADING (3)	KM			0.16	0.16
230(A) M2806	SOLID SLAB SODDING (3)(4)	M2	232	182	1296	1710
310(B) M0149	SUBGRADE METHOD B (3)	M2	415	382	1085	1882
408 M5774	PRIME COAT (F-55)(3)	L	311.25	286.5	813.75	1411.5
411(A) M4300	(SP)ASPHALT CONCRETE TYPE A (PG) (F-66)(3)	T	97.20	89.47	254.13	440.80
414(B) M0290	200 MM H.E.S. CONC. PAV'T. (3)	M2	415	382	1085	1882
613(D) M4527	525MM X 375MM CORR.GALV.ST. PIPE ARCH (3)	M			35	35
613(D) M5202	450MM X 340MM CORR.GALV.ST. PIPE ARCH (3)	M		5		5
613(M) M4500	450MM X 340MM PREFAB. CULV.END SEC.ARCH (3)	EA		1		1
613(M) M4636	525MM X 375MM PREFAB. CULV.END SEC.ARCH (3)	EA			2	2
613(S) M1180	TRENCH EXCAVATION (3)	M3			31	31
613(T) M1181	STANDARD BEDDING MATERIAL (3)	M3			28	28
619(B) M4727	REMOVAL OF CONCRETE PAVEMENT (F-37)(F-43)(3)	M2	51	15		66
619(B) M4728	REMOVAL OF ASPHALT PAVEMENT (F-37)(F-43)(3)	M2	139	112	277	528
619(C) M0924	SAWING PAVEMENT (3)	M	112	98	235	445
641 M2917	MOBILIZATION	L.SUM				1
642 M0098	STAKING	L.SUM				1

GENERAL NOTES

(C-155) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MIGHT INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF THIS DIGGING, TRENCHING, BORING, ETC...PRIOR TO DIGGING NEAR UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES: "OKIE" NOTIFICATION CENTER (405) 840-5032 OR 1-800-522-6543. THE LOCAL COUNTY CLERK'S OFFICE. DEPTH OF EXISTING UTILITIES SHALL ALSO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

TRAFFIC SIGNAL PAY ITEM NOTES

(TR-23) CONSTRUCTION SIGNING WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, AND APPLICABLE O.D.O.T. STANDARD DRAWINGS. THE CONTRACTOR SHALL PROVIDE A PROPOSED TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER PRIOR TO BEGINNING WORK. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL REQUIRED FOR COMPLETION OF THE PROJECT.

(TS-13) QUANTITY SHOWN INCLUDES 286 m TRAFFIC STRIPE (PLASTIC) (WHITE) AND 370 m TRAFFIC STRIPE (PLASTIC) (YELLOW). TRAFFIC STRIPE (PLASTIC) WILL BE MEASURED BY THE METER OF 100 mm WIDE TRAFFIC STRIPE OR THE EQUIVALENT AMOUNT OF 100 mm WIDE STRIPE WHEN A NARROWER OR WIDER STRIPE IS SPECIFIED IN THE PLANS OR STANDARD DRAWINGS.

(TS-18) THE AMOUNT SHOWN IS AN APPROXIMATION AND THE ACTUAL AMOUNT OF REMOVAL, IF NECESSARY, SHALL BE DETERMINED BY THE ENGINEER. PRICE BID FOR PAVEMENT MARKING REMOVAL (TRAFFIC STRIPE) SHALL INCLUDE COST OF REMOVAL OF ARROWS AND WORDS IF NECESSARY. THE PAVEMENT MARKING TO BE REMOVED SHALL BE CONSIDERED THERMOPLASTIC AND BID ACCORDINGLY.

DURING REMOVAL OF EXISTING STRIPING AND REPLACEMENT WITH NEW STRIPING, PERMANENT STRIPING SHALL BE REPLACED WITHIN 48 HOURS AFTER OLD STRIPING IS REMOVED.

(TS-20) INCLUDED IN THIS PAY ITEM IS THE POST, ANCHOR TUBE AND ALL ASSOCIATED HARDWARE TO PROPERLY INSTALL THE HIGHWAY SIGN IN ACCORDANCE WITH O.D.O.T. PLANS AND STANDARD DRAWINGS SSA-1A (LATEST REVISION) AND SSP-1 (LATEST REVISION).

(1) QUANTITY SHOWN IS FOR THE REMOVING AND ADJUSTING THE GRADE OF A SIZE 1 PULL BOX IN THE MEDIAN OF US 81 & SH 19 AS SHOWN IN THE PLANS.

(2) QUANTITY SHOWN IS FOR THE REMOVING AND RESETTING OF EXISTING POST MOUNTED SIGNS AS SHOWN IN THE PLANS.

ROADWAY PAY ITEM NOTES

(F-3) INCLUDES 20% COMPACTION.

(F-37) MATERIALS REMOVED SHALL NOT BE MEASURED FOR PAYMENT UNDER SEC. 202.06 UNCLASSIFIED EXCAVATION.

(F-43) TO BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF BY HIM IN A MANNER APPROVED BY THE ENGINEER.

(F-55) EST. AT 0.75 LITER OF RESIDUAL ASPHALT PER m2 OF BASE COURSE.

(F-66) EST. AT 2390 kg/m3.

(3) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITIES. SEE OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 109.01(b) "PLAN QUANTITIES".

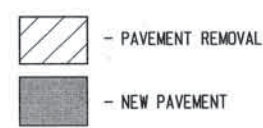
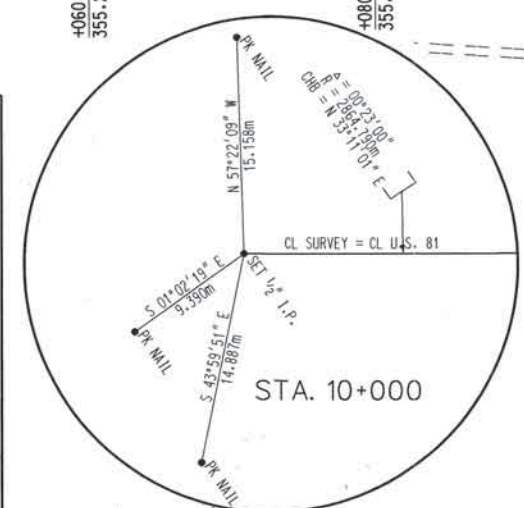
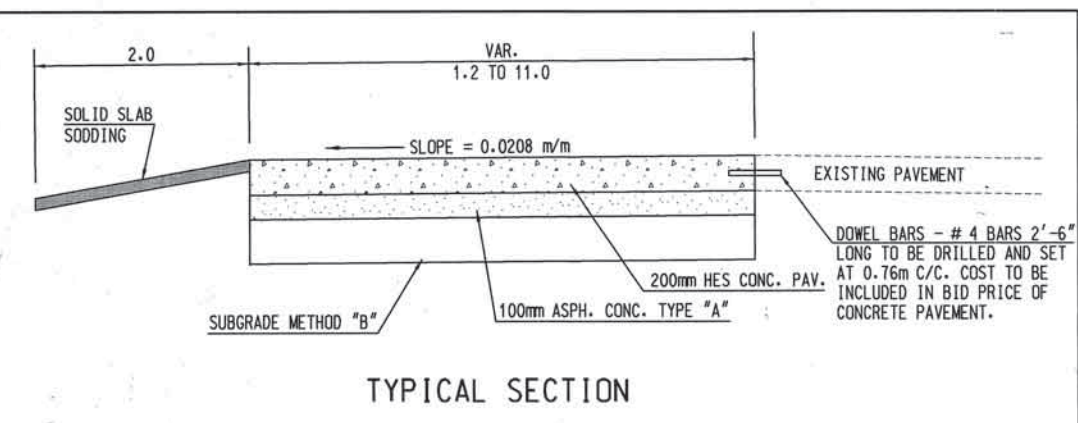
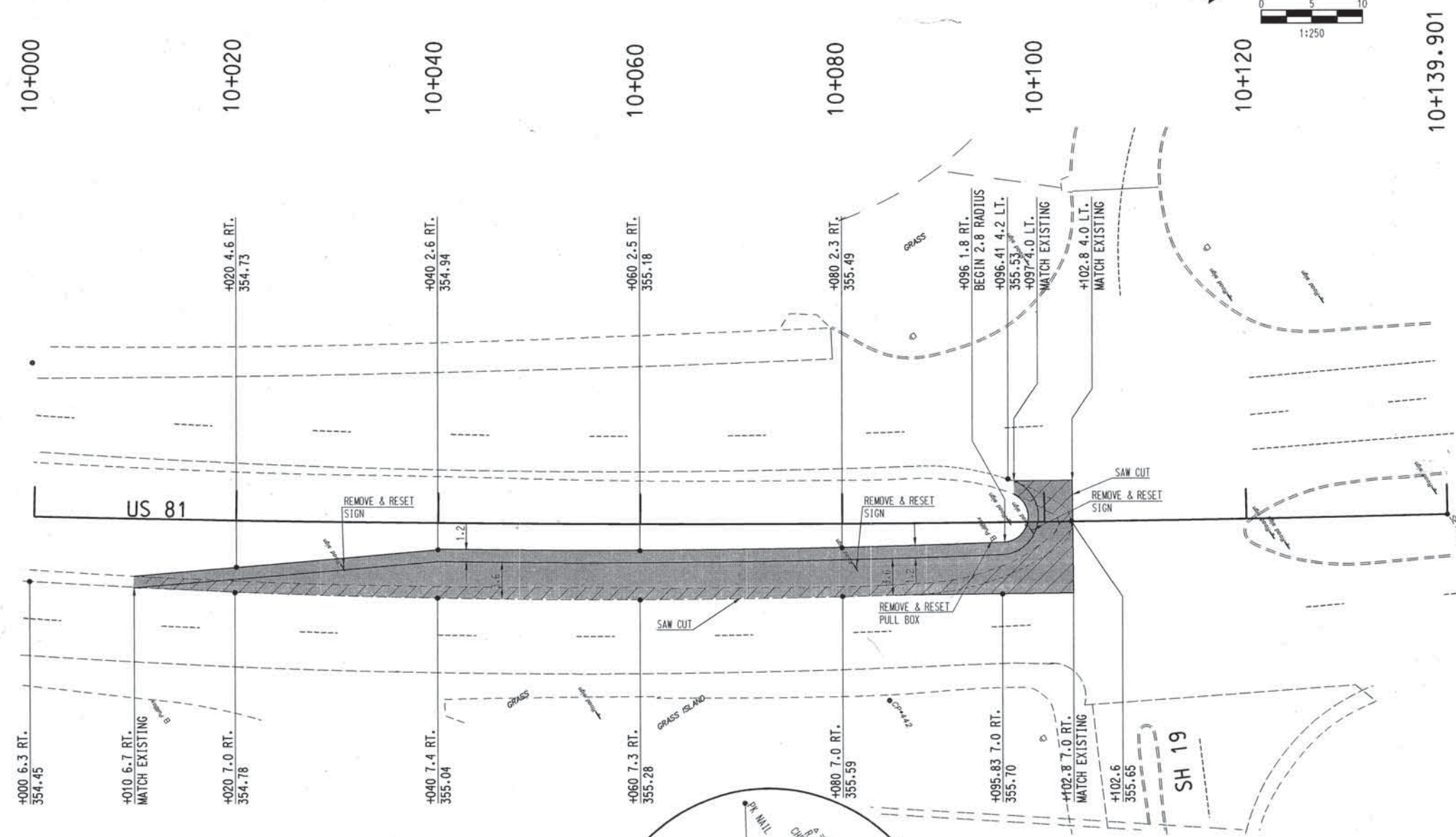
(4) PRICE BID FOR THIS PAYITEM SHALL ALSO INCLUDE WATERING AND FERTILIZING. THE WATER IS ESTIMATED AT 180 L/m2 OF SODDING AND SPRIGGING. THE FERTILIZER IS ESTIMATED AT 110 kg OF 10-20-10 FERTILIZER PER HECTARE OF SODDING AND SPRIGGING.

SIGN SUMMARY							
SHEET NO	ITEM NO	APPROXIMATE STATION LOCATION	SIGN TYPE	POST TYPE	POST LENGTH M	SIGN AREA M2	REMARKS
9	1	99+620, 2.8 RT.	R5-1A	57.2 MM SQ. POST	3.0	0.56	
9	2	99+697, 0.8 LT.	R5-1	57.2 MM SQ. POST	3.4	0.58	
9	3	99+703, 19 LT.	R1-1,R6-1(R),R6-1(L)	57.2 MM SQ. POST	3.6	1.14	
9	4	99+702, 0.8 LT.	R1-2,R6-1(R)	57.2 MM SQ. POST	3.6	0.64	
9	5	99+708, 18 RT.	R6-1(L)	57.2 MM SQ. POST	3.0	0.28	
9	6	99+740, 19 LT.	R6-1(L)	57.2 MM SQ. POST	3.0	0.28	
9	7	99+740, 0.8 RT.	R1-2,R6-1(R)	57.2 MM SQ. POST	3.6	0.64	
9	8	99+740, 18 RT.	R1-1,R6-1(R),R6-1(L)	57.2 MM SQ. POST	3.6	1.14	
9	9	99+745, 0.8 RT.	R5-1	57.2 MM SQ. POST	3.4	0.58	
9	10	99+821.5, 2.8 LT.	R5-1A	57.2 MM SQ. POST	3.0	0.56	
TOTALS				57.2 MM SQ. POST	33.2	6.40	

Design	RWR	3/97
Drawn	CCC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

PAY QUANTITIES
&
GENERAL NOTES

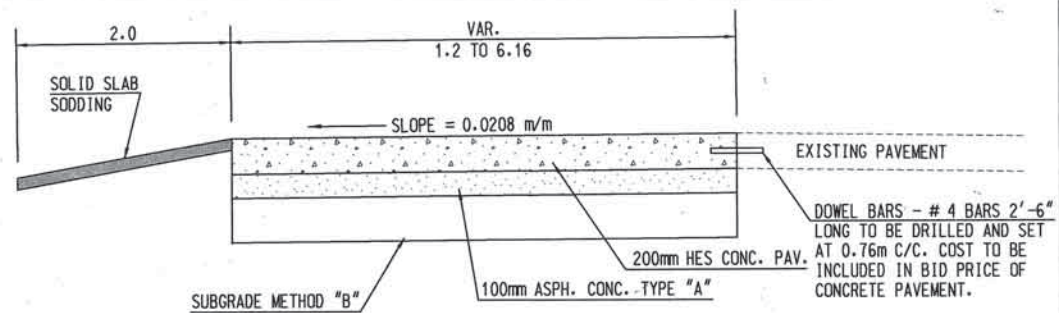
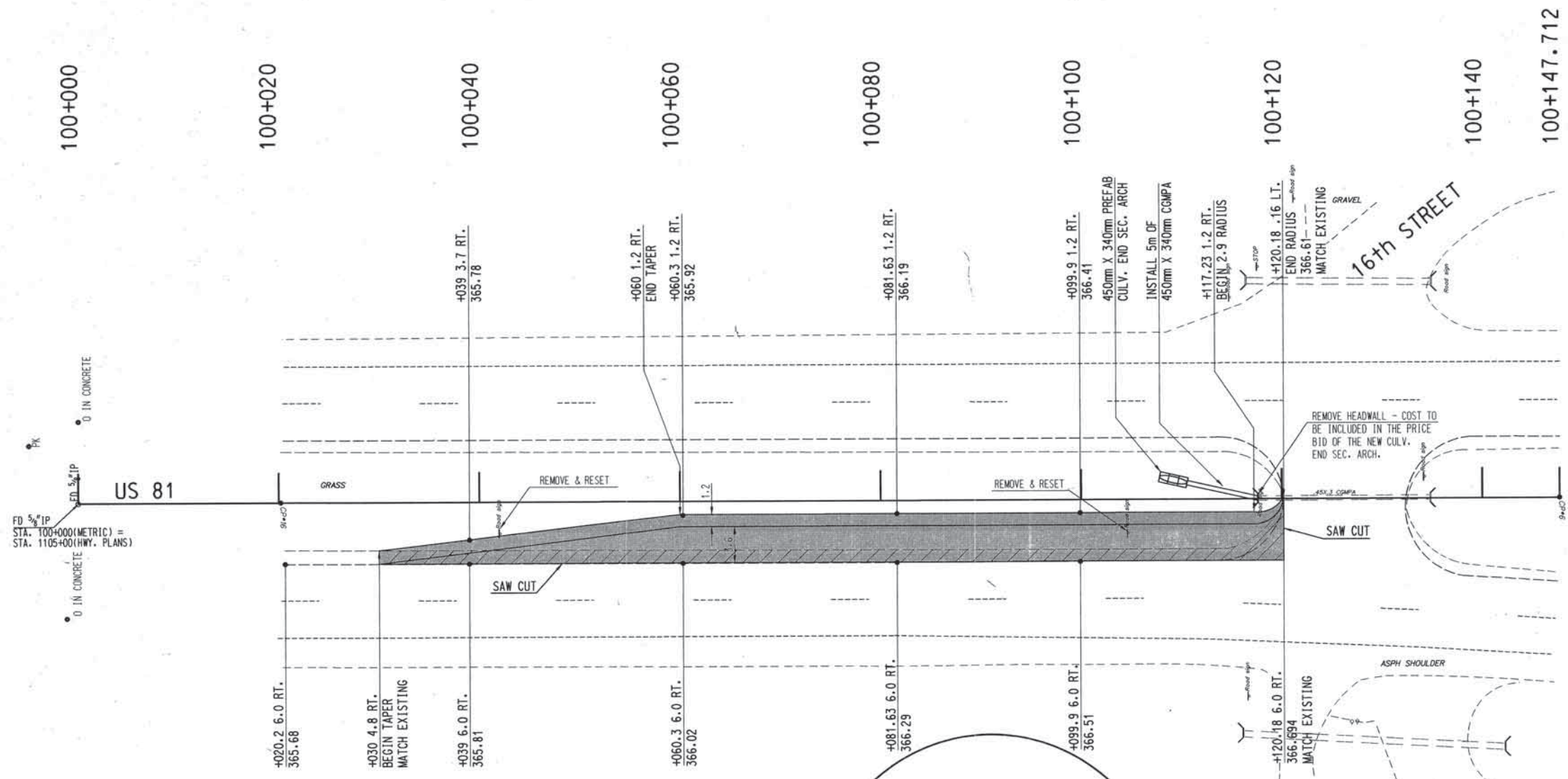
STATE JOB NO. 16735(04) SHEET NO. 2



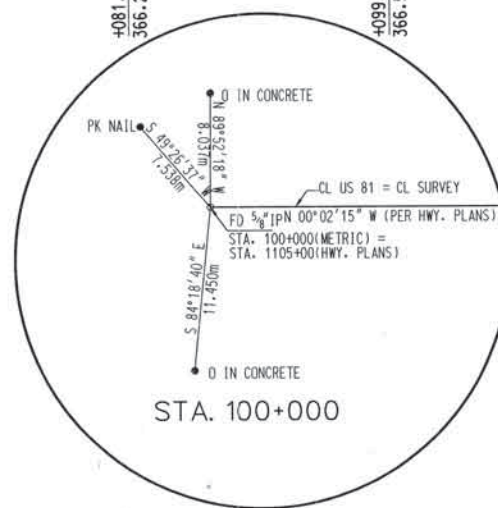
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Drawn	CCC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

LEFT TURN BAY
US 81 & SH 19

STATE JOB NO. 16735(04) SHEET NO. 3



TYPICAL SECTION



- PAVEMENT REMOVAL
- NEW PAVEMENT

Design	RWR	3/97
Drawn	CCC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

LEFT TURN BAY
US 81 & 16th STREET

STATE JOB NO. 16735(04) SHEET NO. 4

All Dimensions will be
in Meters unless otherwise
Stated on Plans.

SCALE = 1:500
Horiz.: 1 cm = 5 m
Vert.: 1 cm = 1 m

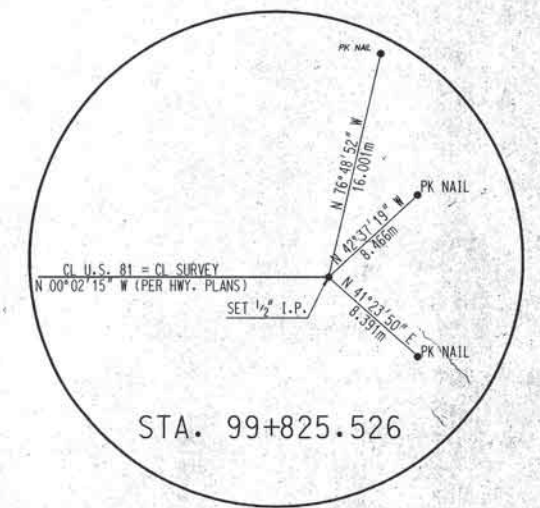
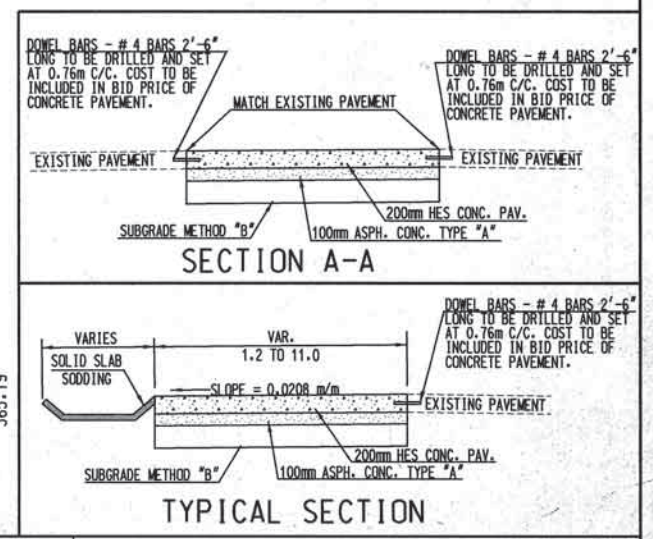
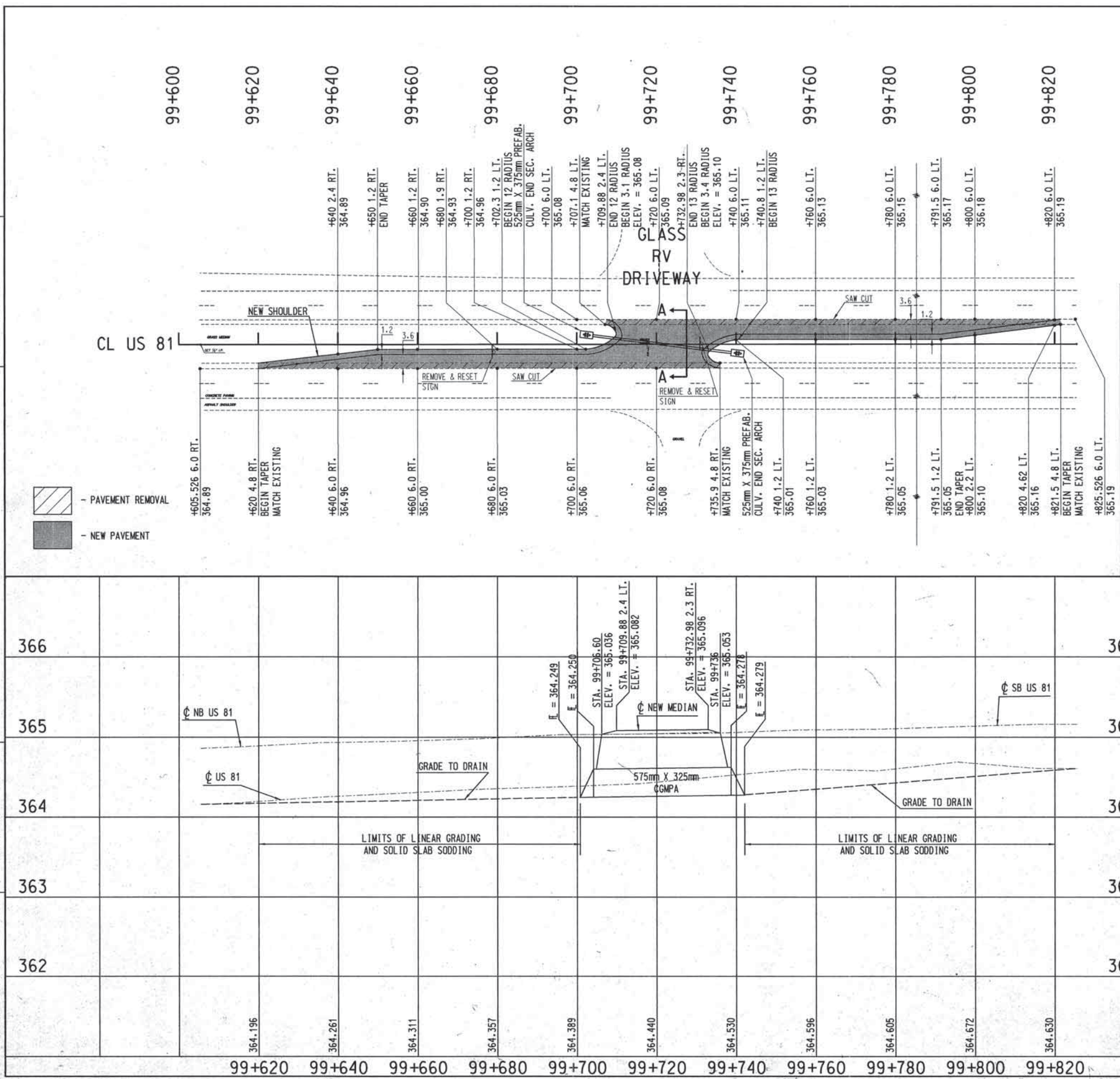


TABLE # 1 SIGNAL HEADS				
SIGNAL HEAD NUMBER	NUMBER AND TYPE	MOUNTING	VISOR	BACKPLATE
1	1 - ONEWAY (S-9)	MAST ARM	V-1	B-2
2,3	2 - ONEWAY (S-6)	MAST ARM	V-1	B-2
4,5,7,8,9,10	EXISTING	EXISTING	EX.	EX.
6	EXISTING	EXISTING	EX.	EX.

TABLE # 2 MAST ARMS & POLES			
LOCATION	TYPE	MAST ARMS	FOUNDATION
B	9.7 MH COMBO	13.7M TS & 3.0M LMA.	S-45
C	EXIST.	EXISTING	EX.
D	EXIST.	EXISTING	EX.
E	EXIST.	EXISTING	EX.

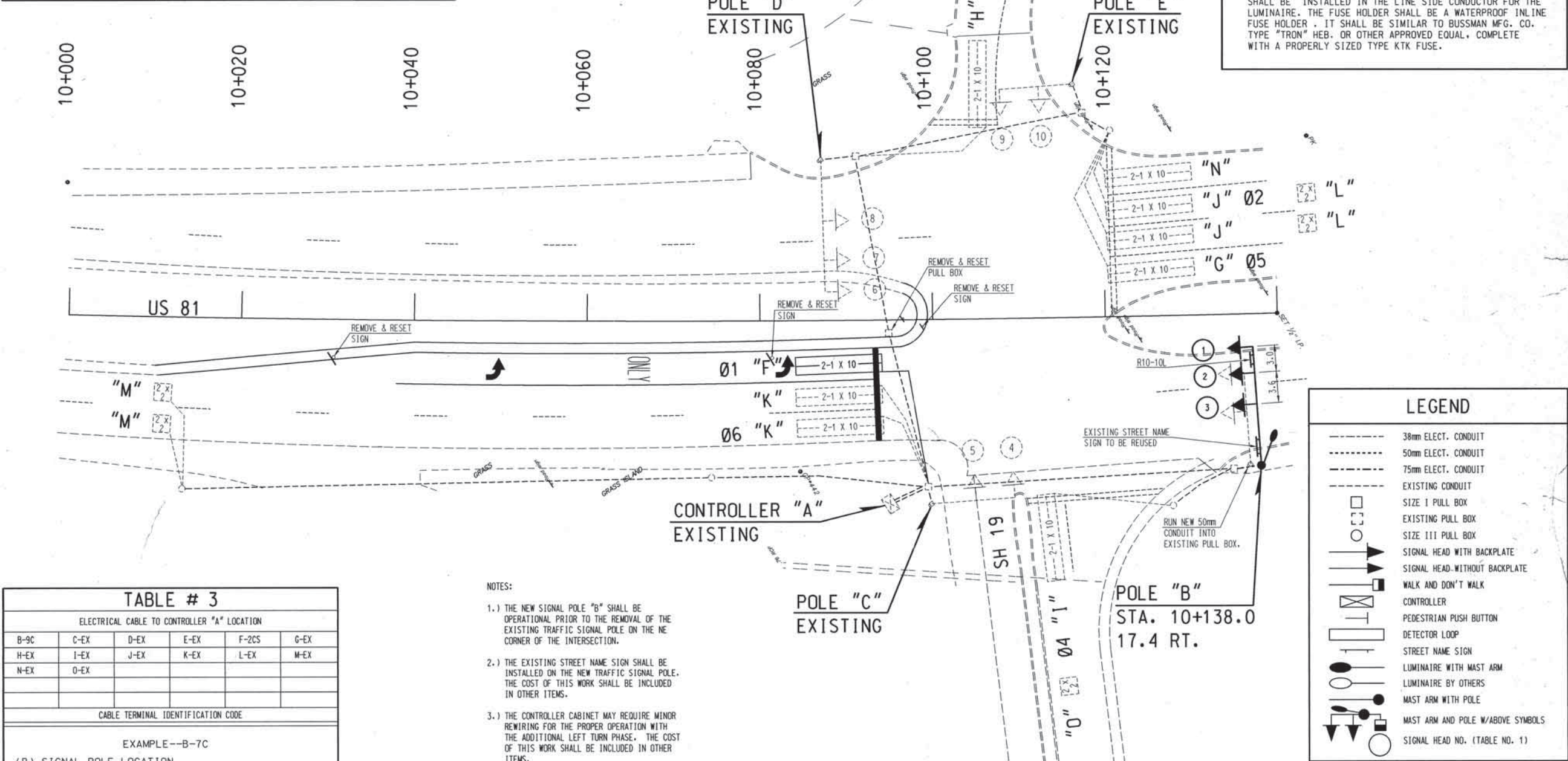


TABLE # 3					
ELECTRICAL CABLE TO CONTROLLER "A" LOCATION					
B-9C	C-EX	D-EX	E-EX	F-2CS	G-EX
H-EX	I-EX	J-EX	K-EX	L-EX	M-EX
N-EX	O-EX				
CABLE TERMINAL IDENTIFICATION CODE					
EXAMPLE--B-7C					
(B) SIGNAL POLE LOCATION					
(7C) SEVEN CONDUCTOR CABLE					
EXAMPLE--G-2CS					
(G) SPLICE LOCATION					
(2CS) TWO CONDUCTOR SHIELDED LEAD-IN CABLE					
(EX.) EXISTING WIRE					

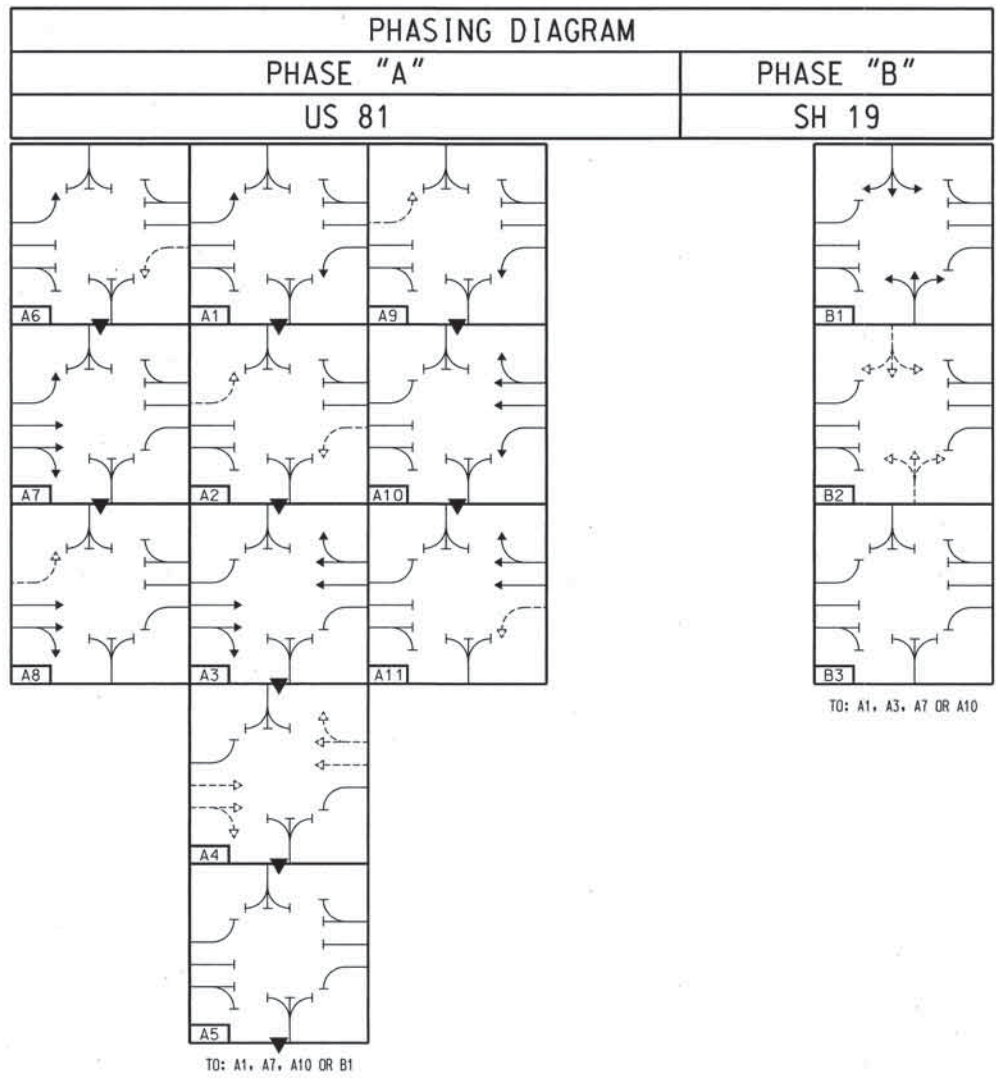
NOTES:

- 1.) THE NEW SIGNAL POLE "B" SHALL BE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL POLE ON THE NE CORNER OF THE INTERSECTION.
- 2.) THE EXISTING STREET NAME SIGN SHALL BE INSTALLED ON THE NEW TRAFFIC SIGNAL POLE. THE COST OF THIS WORK SHALL BE INCLUDED IN OTHER ITEMS.
- 3.) THE CONTROLLER CABINET MAY REQUIRE MINOR REWIRING FOR THE PROPER OPERATION WITH THE ADDITIONAL LEFT TURN PHASE. THE COST OF THIS WORK SHALL BE INCLUDED IN OTHER ITEMS.

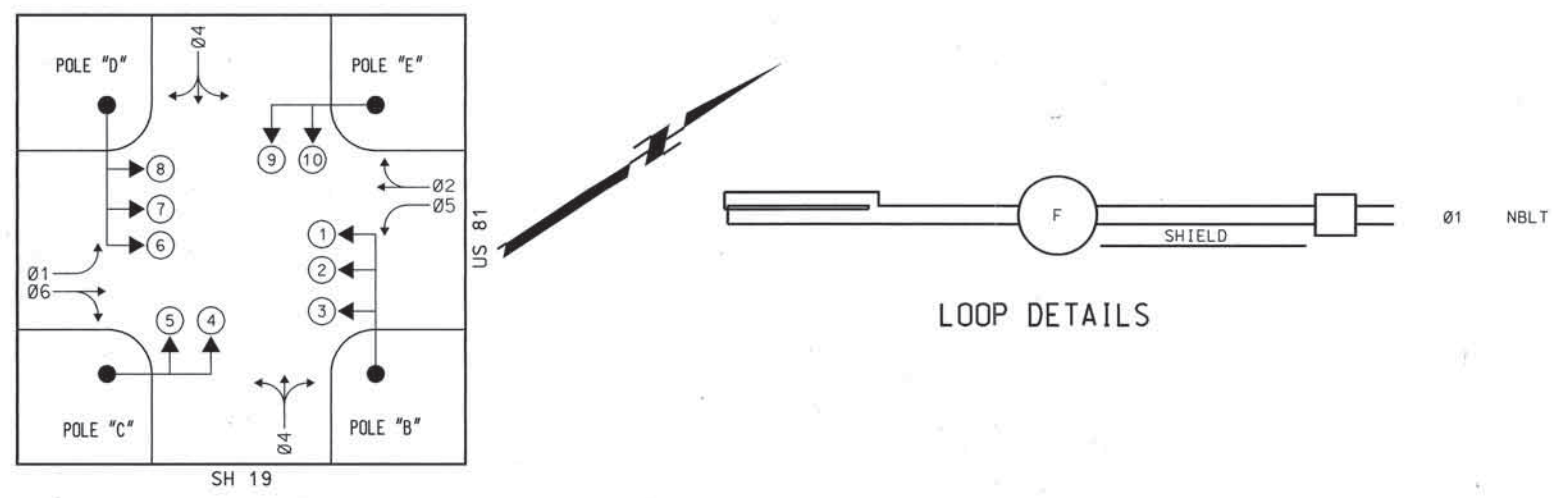
Design	RWR	3/97
Drawn	CCC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

SIGNAL MODIFICATION
US 81 & SH 19

STATE JOB NO. 16735(04) SHEET NO. 6



SEQUENCE CHART							
DIRECTION	BLOCK NO.	PHASE					
		1	6	4	5	2	4
		SIGNAL HEAD NO.					
		1	2+3	4+5	6	7+8	9+10
Ø5, Ø1 ROW	A1	←G-	R	R	←G-	R	R
Ø5, Ø1 CL	A2	←Y-	R	R	←Y-	R	R
Ø6, Ø2 ROW	A3	R	G	R	R	G	R
Ø6, Ø2 CL	A4	R	Y	R	R	Y	R
ALL RED	A5	R	R	R	R	R	R
Ø1 ROW & Ø5 CL	A6	←G-	R	R	←Y-	R	R
Ø1, Ø6 ROW	A7	←G-	G	R	R	R	R
Ø6 ROW & Ø1 CL	A8	←Y-	G	R	R	R	R
Ø5 ROW & Ø1 CL	A9	←Y-	R	R	←G-	R	R
Ø2, Ø5 ROW	A10	R	R	R	←G-	G	R
Ø2 ROW & Ø5 CL	A11	R	R	R	←Y-	G	R
Ø4 ROW	B1	R	R	G	R	R	G
Ø4 CL	B3	R	R	Y	R	R	Y
ALL RED	B4	R	R	R	R	R	R
FLASHING OPERATION	—	FR	FR	FR	FR	FR	FR

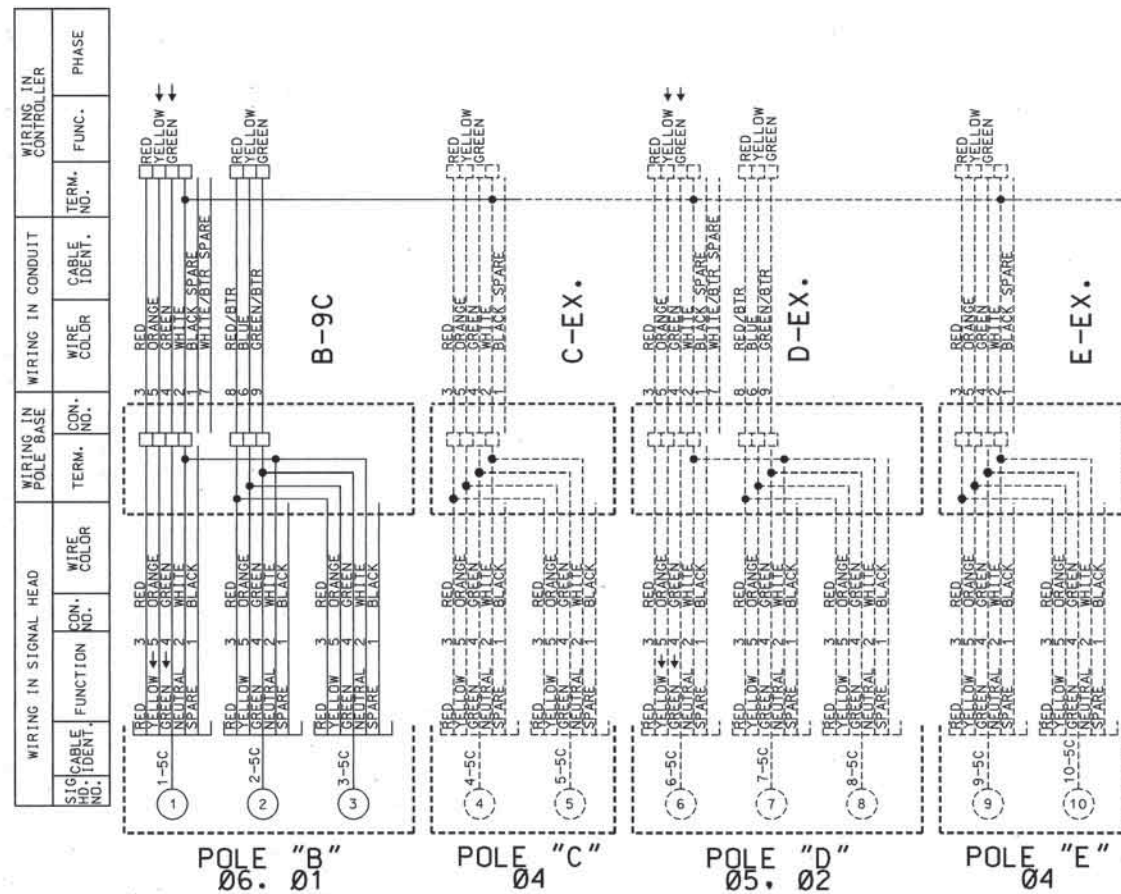


Design	RWR	3/97
Drawn	KLC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

SIGNAL DETAIL PLAN

US 81 & SH 19

STATE JOB NO. 16735(04) SHEET NO. 7

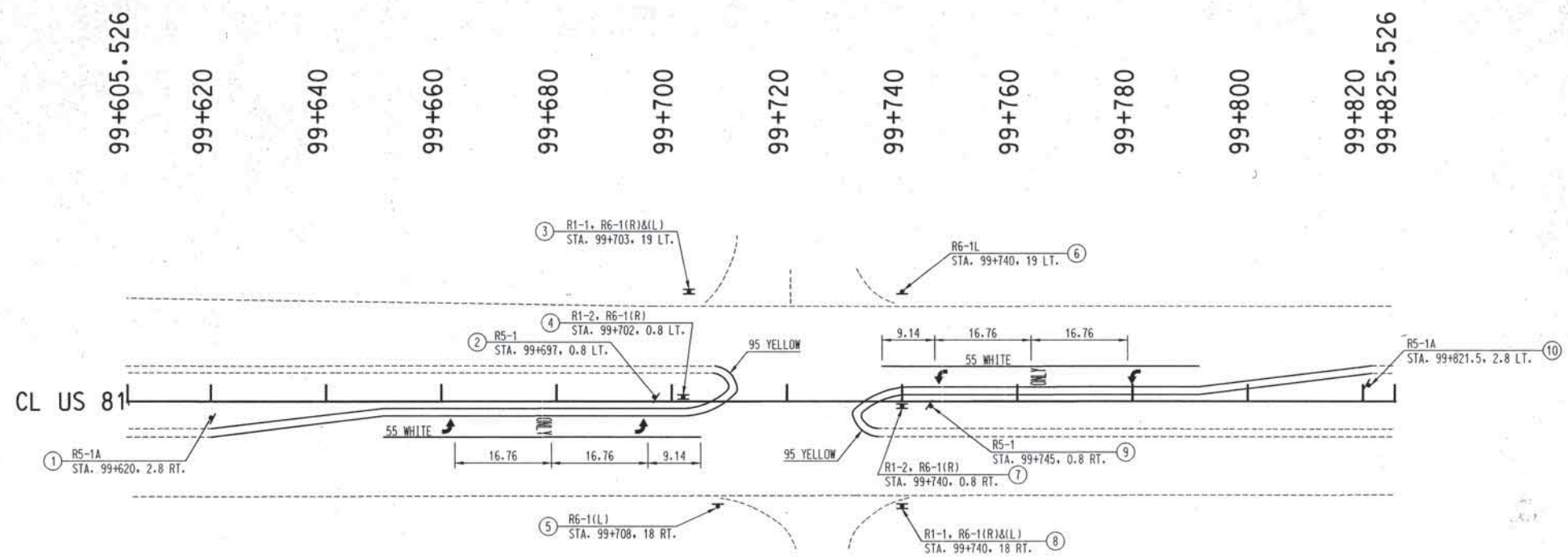


NOTE:
IF JUMPERS OR OTHER CONNECTIONS ARE MADE IN THE FIELD DURING
INSTALLATION, AND ARE ACCEPTED BY THE ENGINEER THIS SHOULD
BE SHOWN ON THE WIRING DIAGRAM FOR FUTURE REFERENCE.

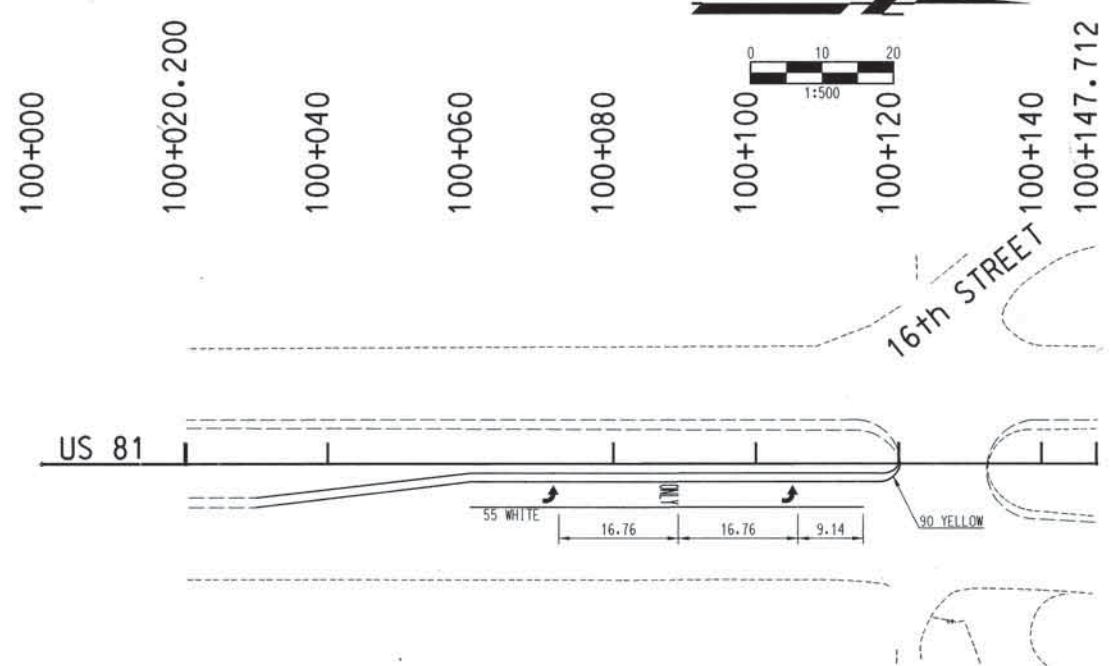
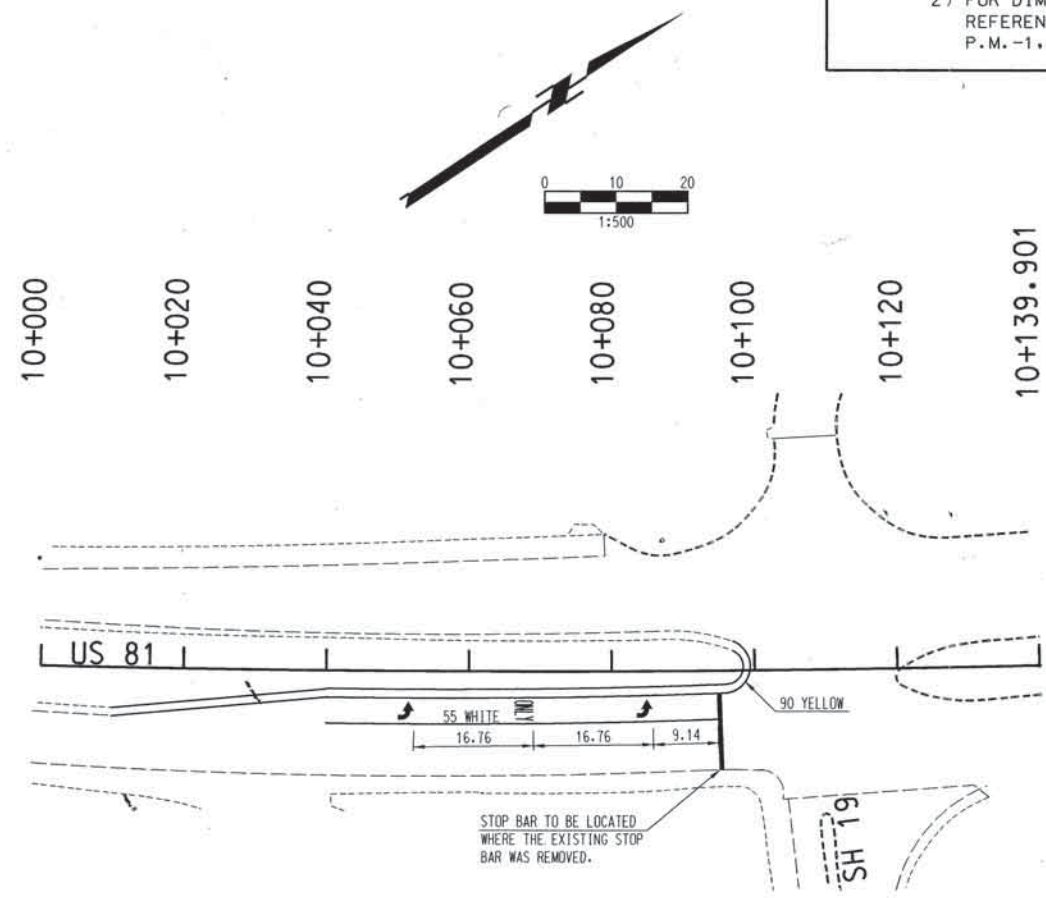
Design	CCC	3/97
Drawn	CCC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

WIRING DIAGRAM US-81 & SH 19

STATE JOB NO. 16735(04) SHEET NO. 8



NOTES: 1) ALL DIMENSIONS ARE IN METERS UNLESS MARKED OTHERWISE.
2) FOR DIMENSIONS NOT SHOWN ON THE PLANS FOR PAVEMENT MARKING, REFERENCE SHALL BE MADE TO STANDARD O.D.O.T. DRAWINGS P.M.-1, P.M.-2, P.M.-4, AND P.M.-9 ALL LATEST REVISIONS.



Design	RWR	3/97
Drawn	CCC	3/97
Checked	TEB	3/97
Approved		
Squad	Consultants	

STRIPING PLANS US 81

STATE JOB NO. 16735(04) SHEET NO. 9