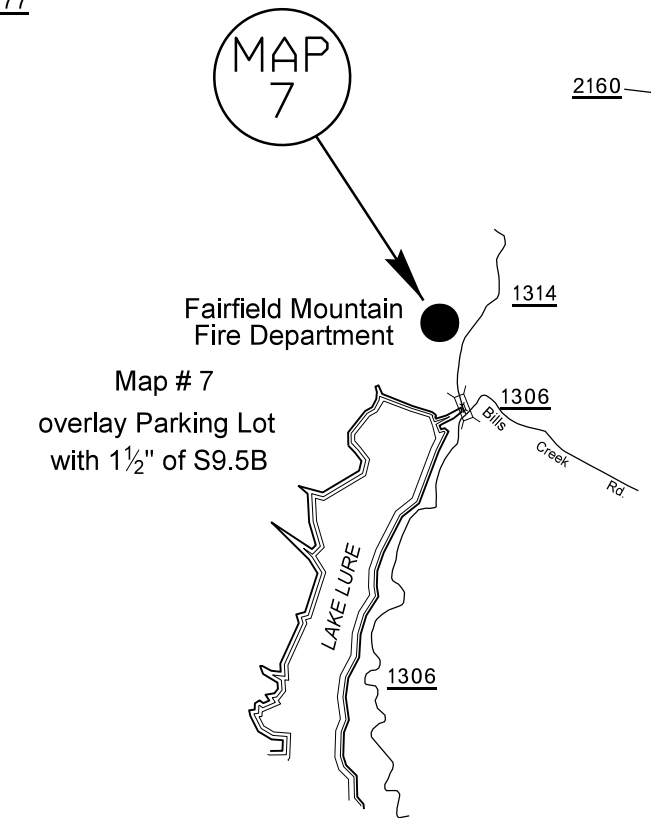
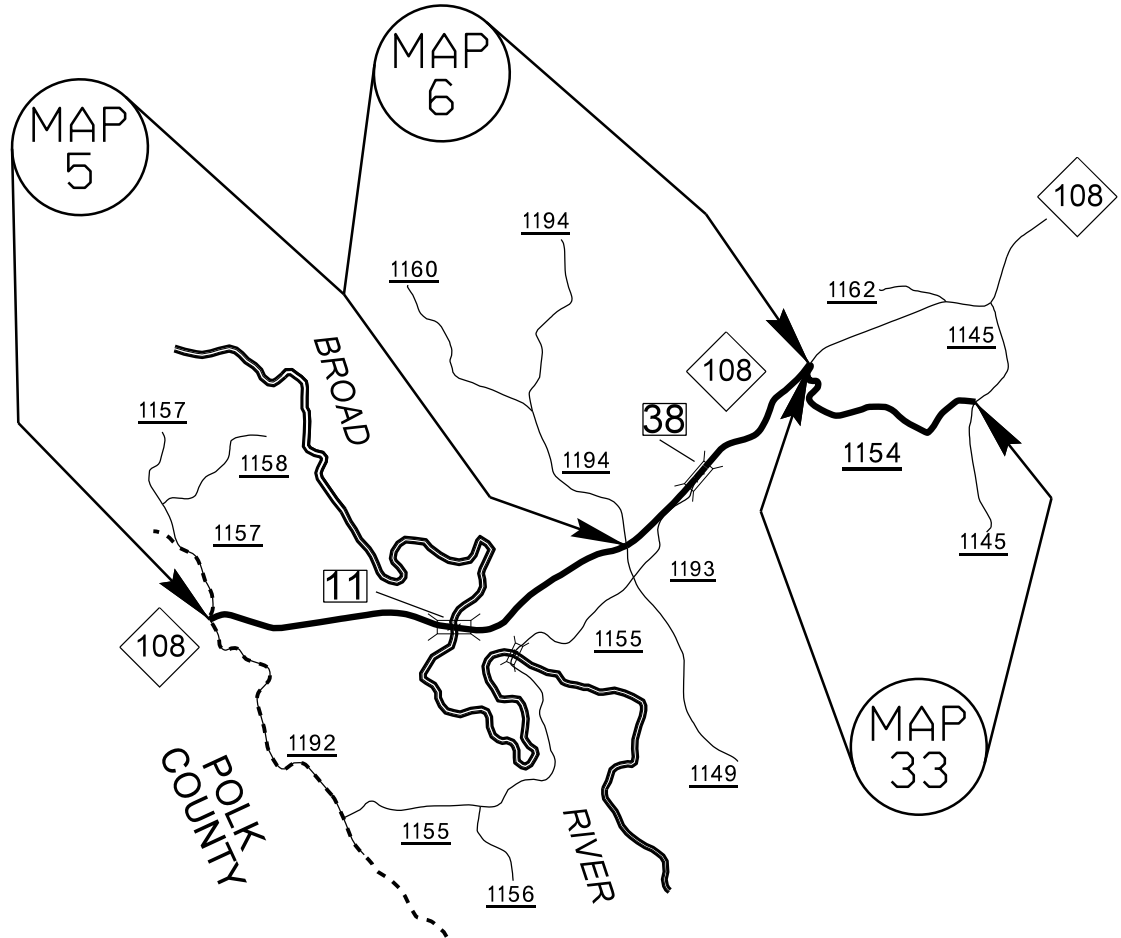
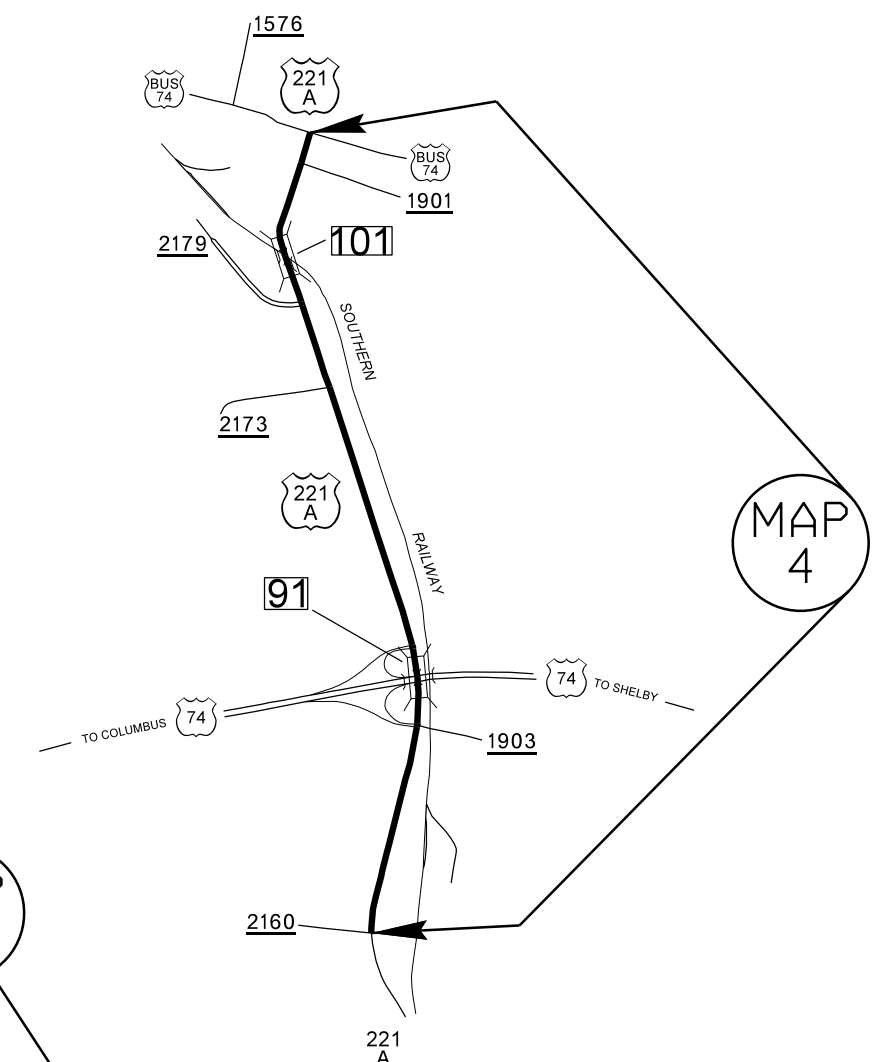
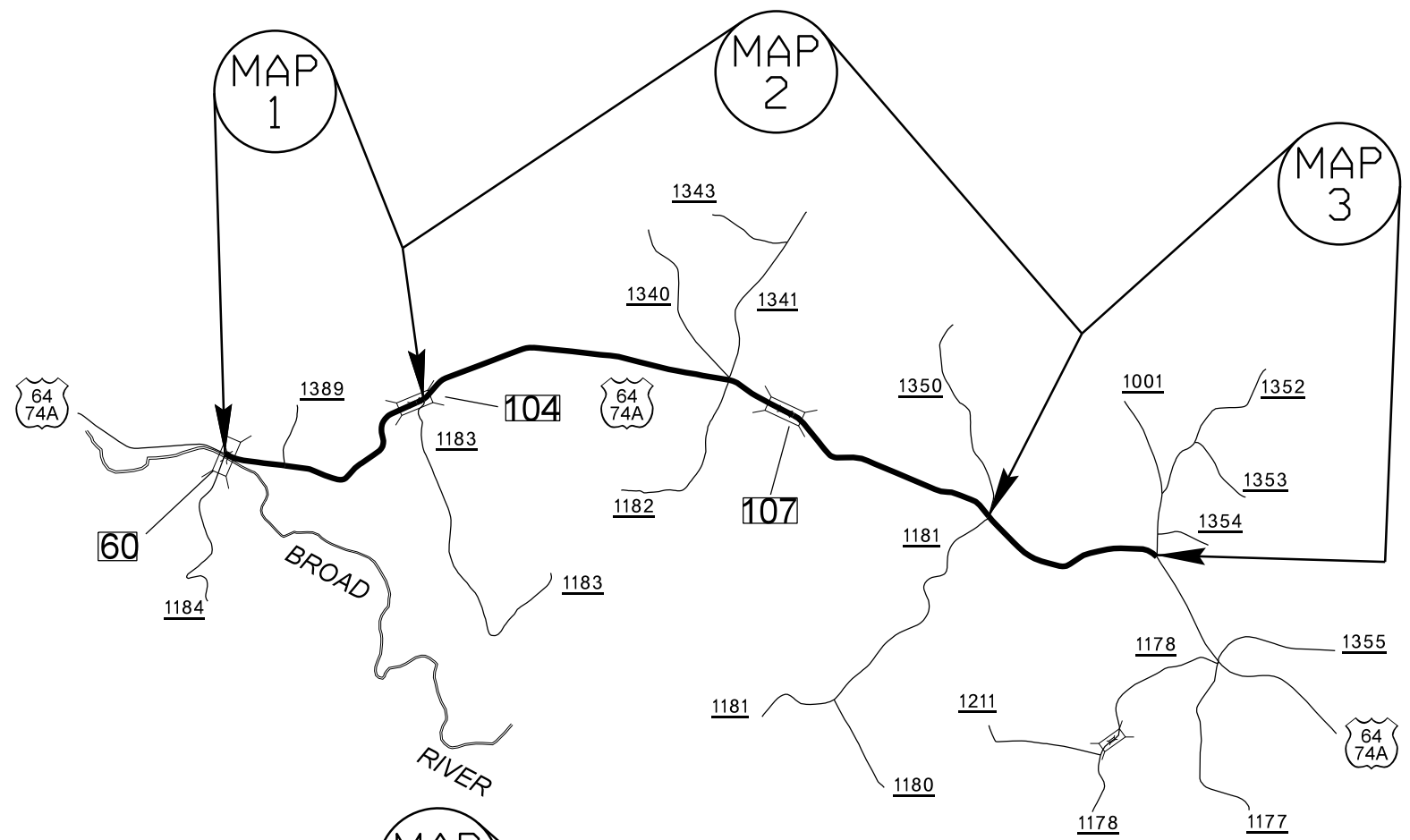
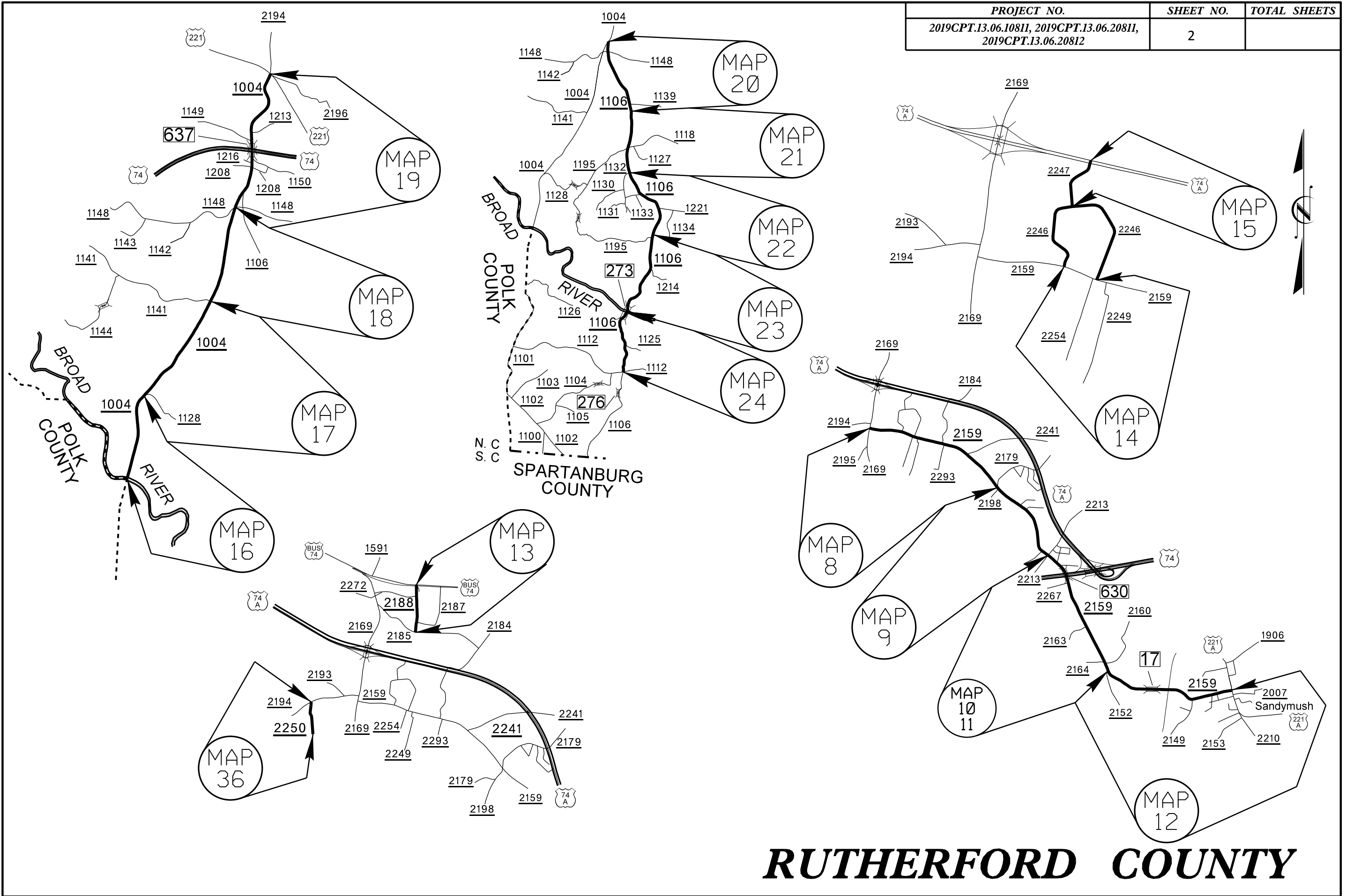


PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812	1	



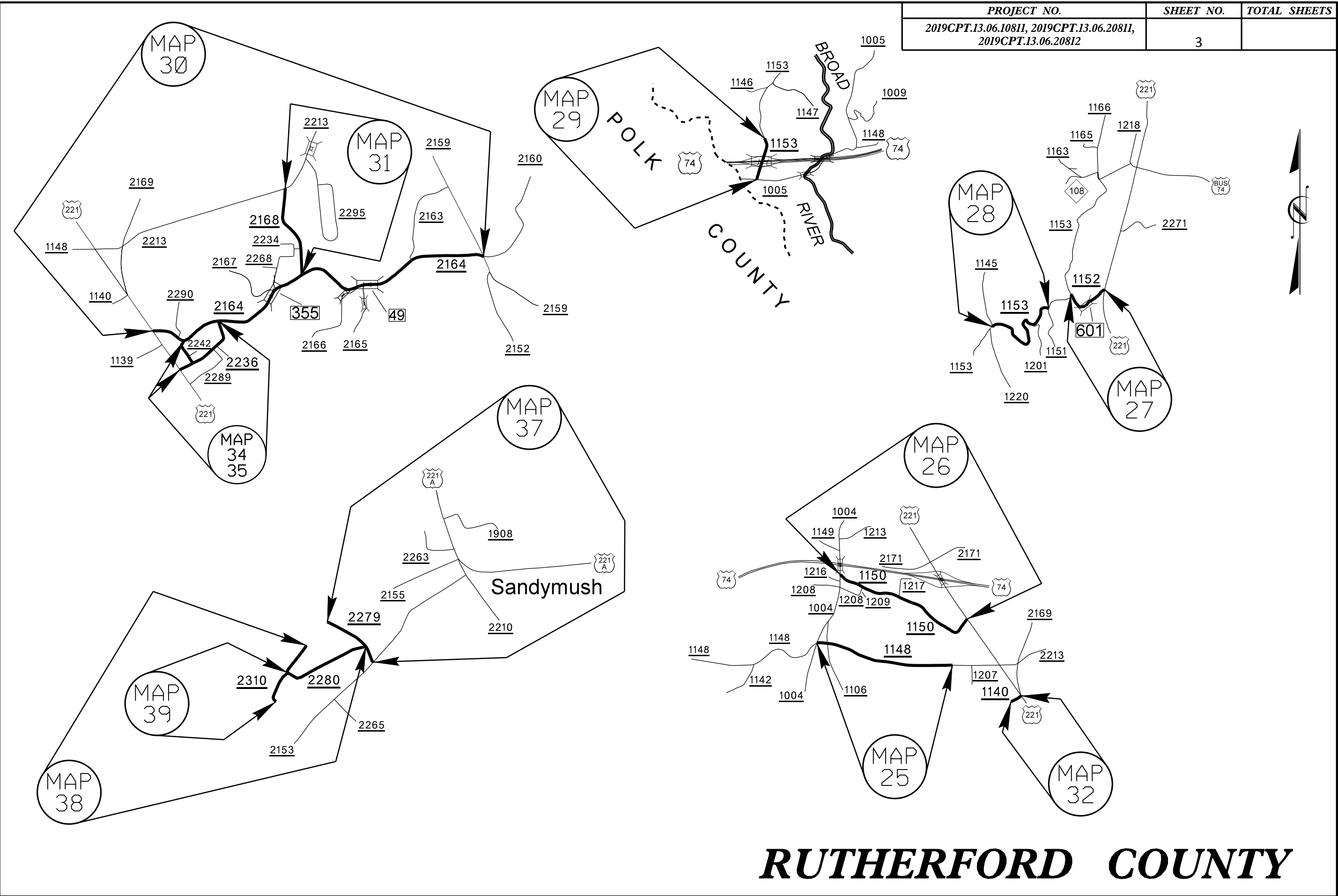
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812	2	



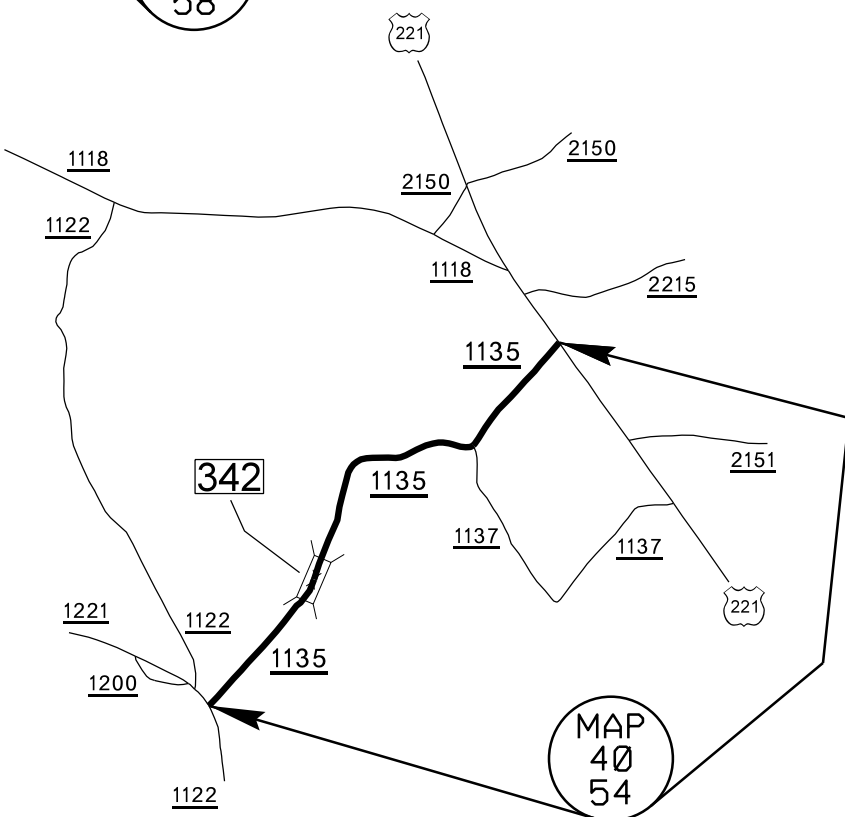
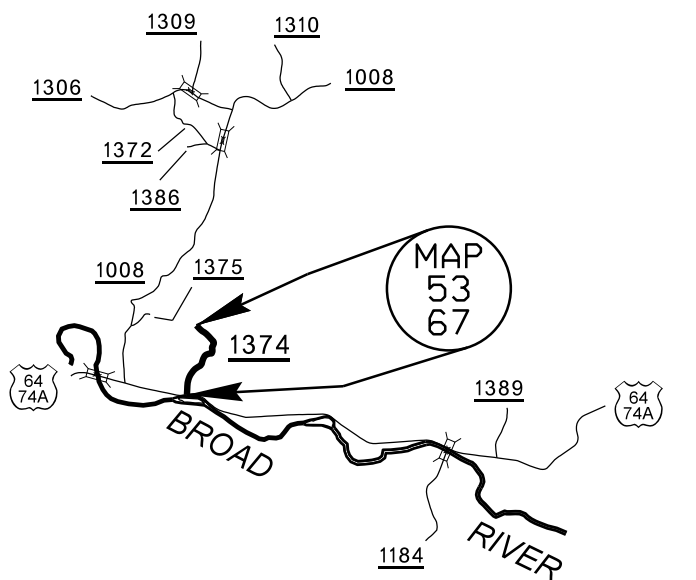
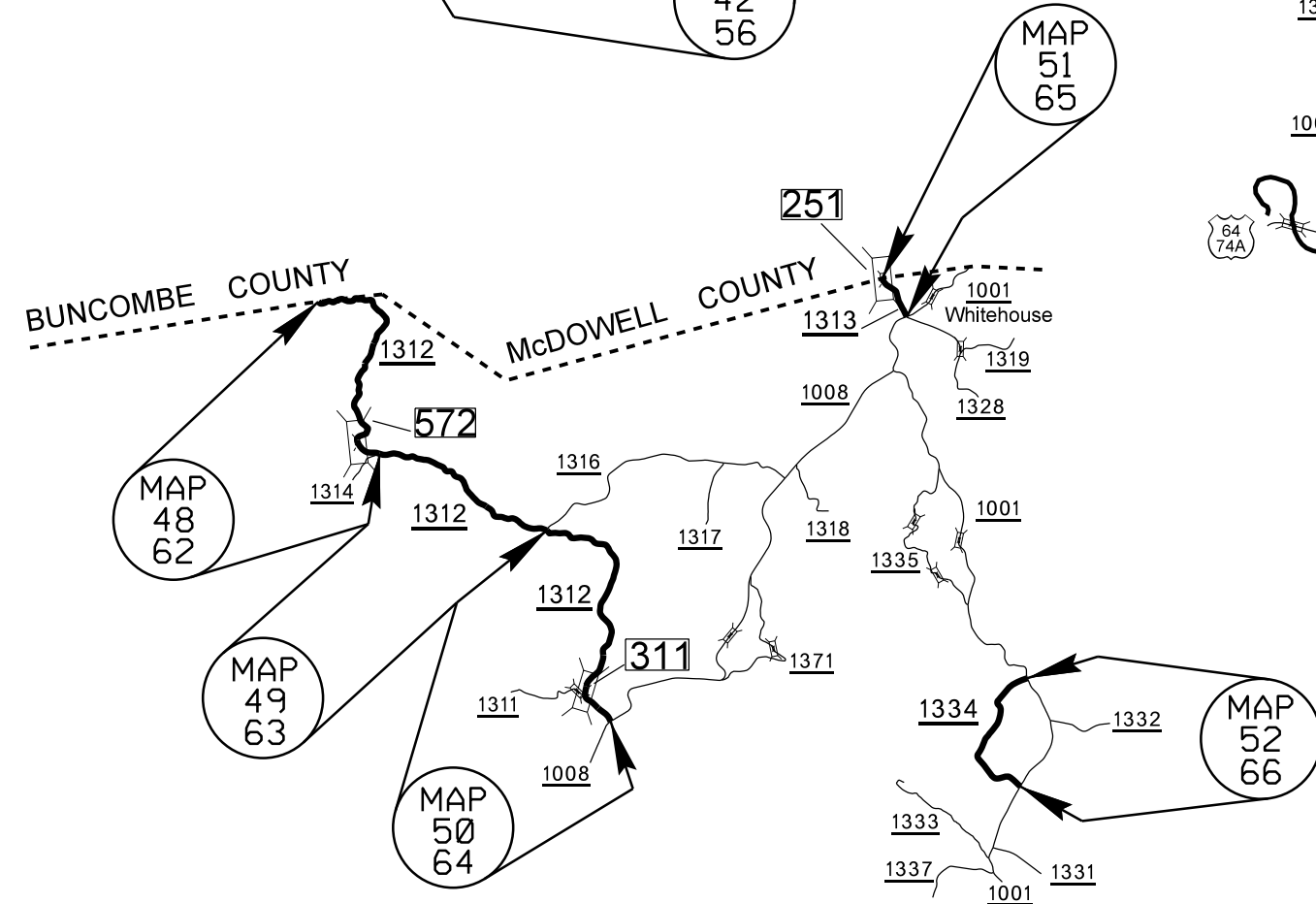
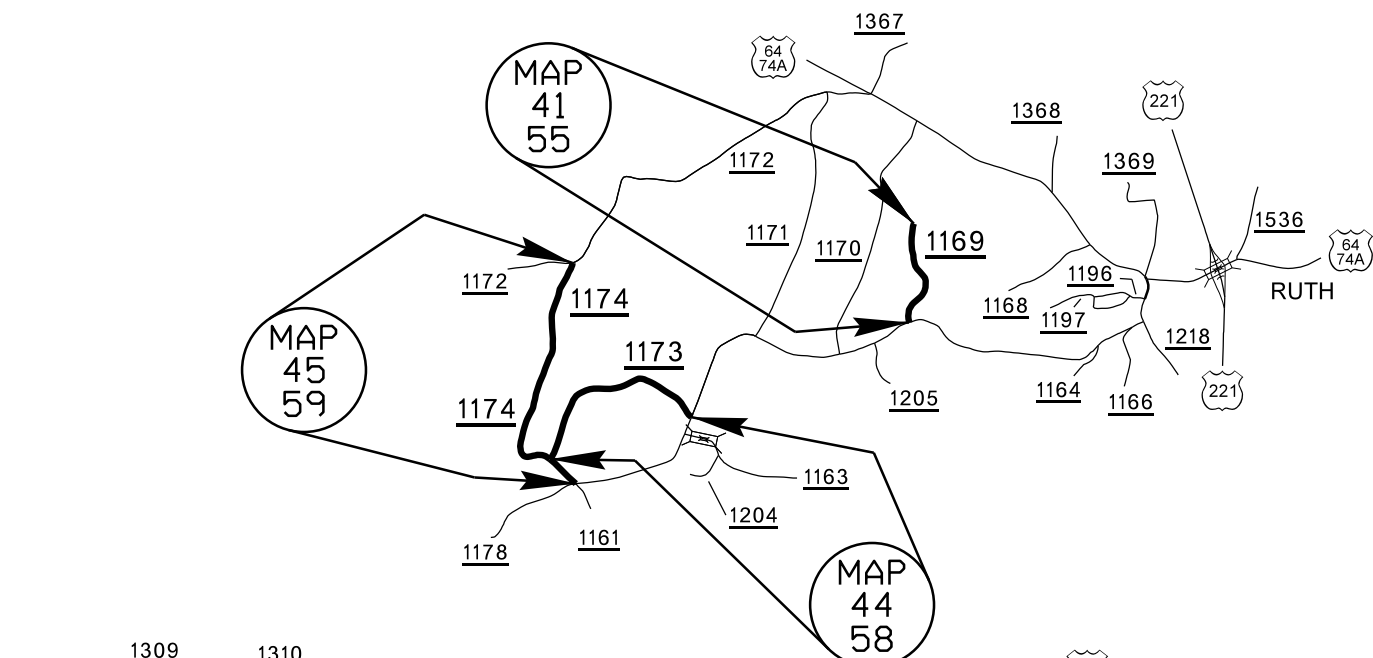
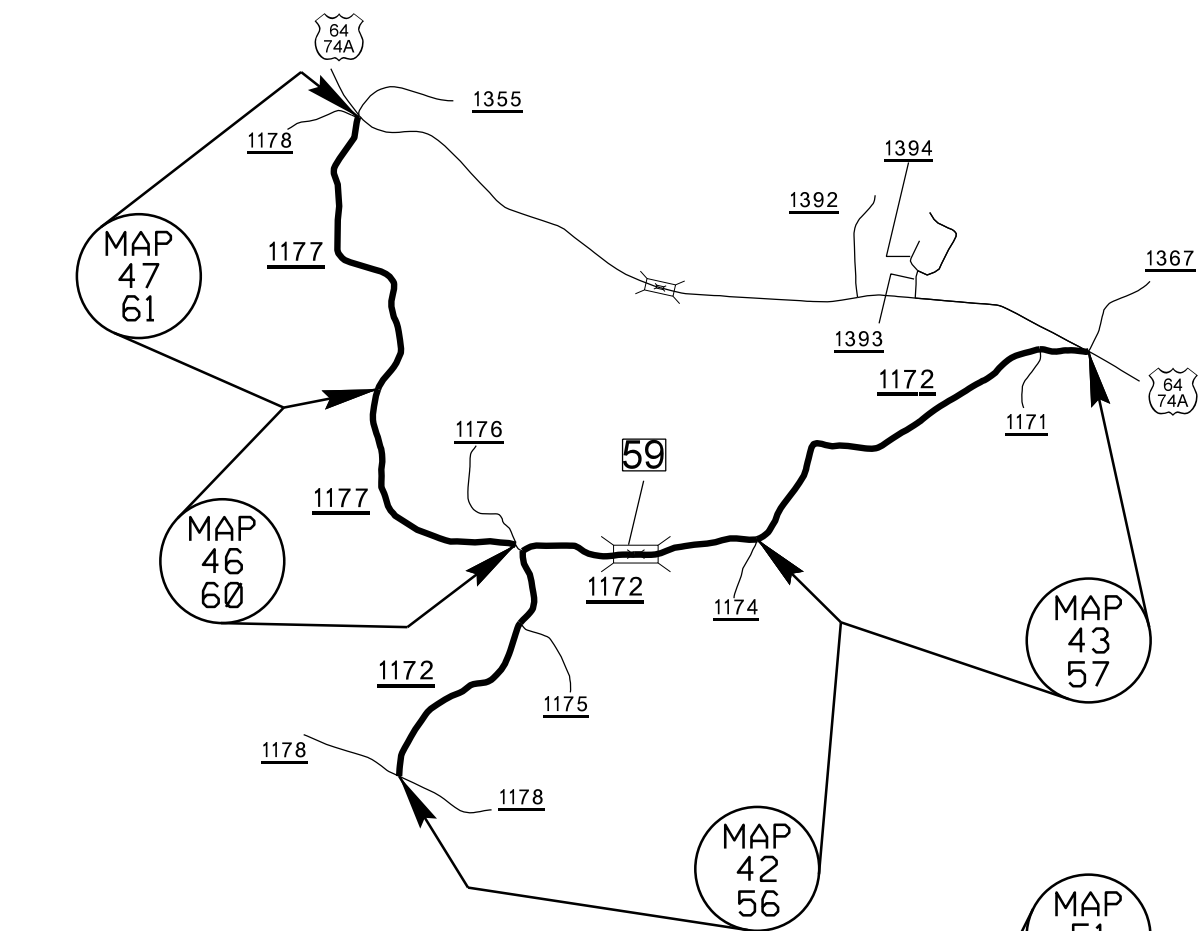
RUTHERFORD COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.108II, 2019CPT.13.06.208II, 2019CPT.13.06.208I2	3	

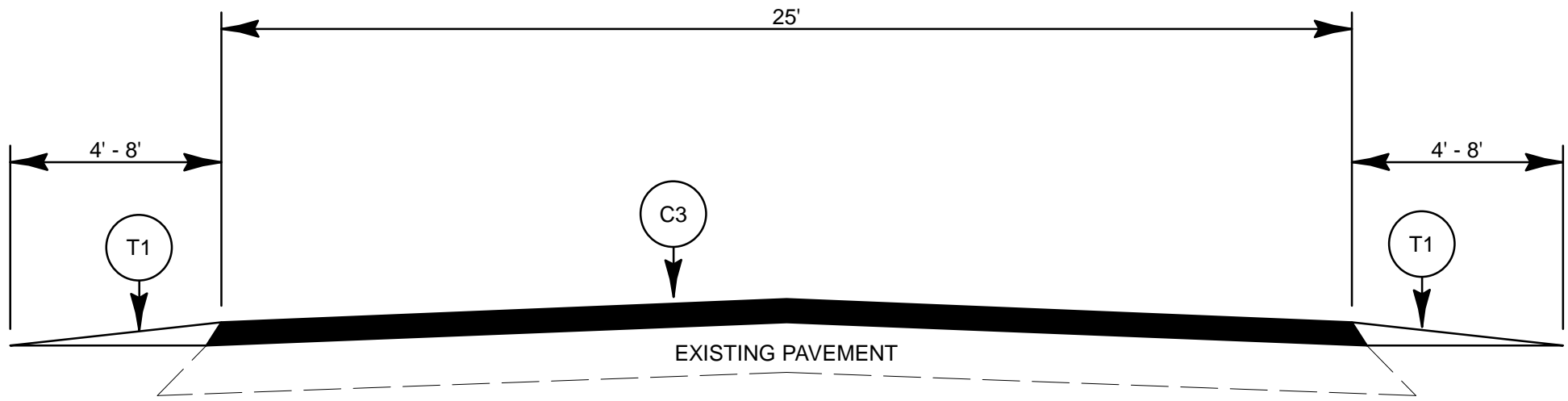


RUTHERFORD COUNTY

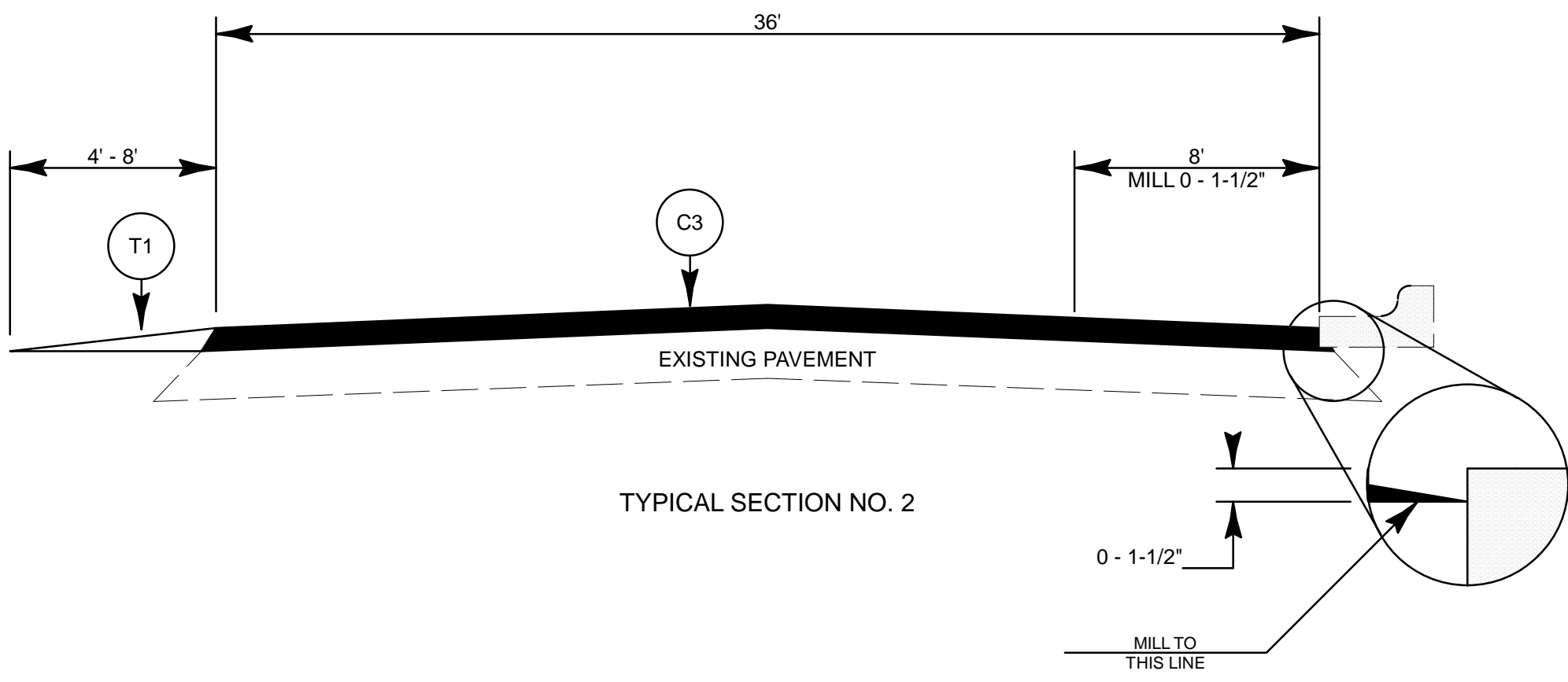
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.1081I, 2019CPT.13.06.2081I, 2019CPT.13.06.20812	4	



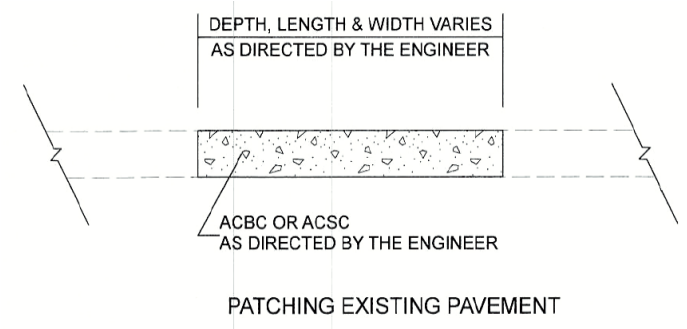
RUTHERFORD COUNTY



TYPICAL SECTION NO. 1

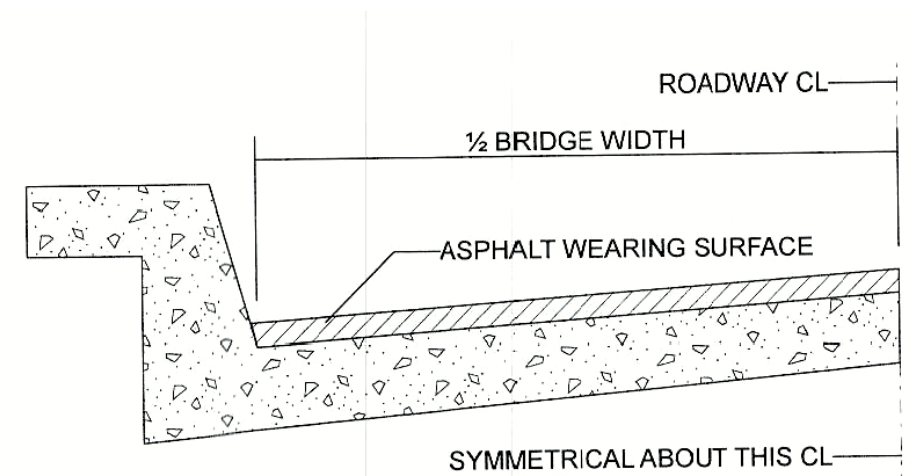
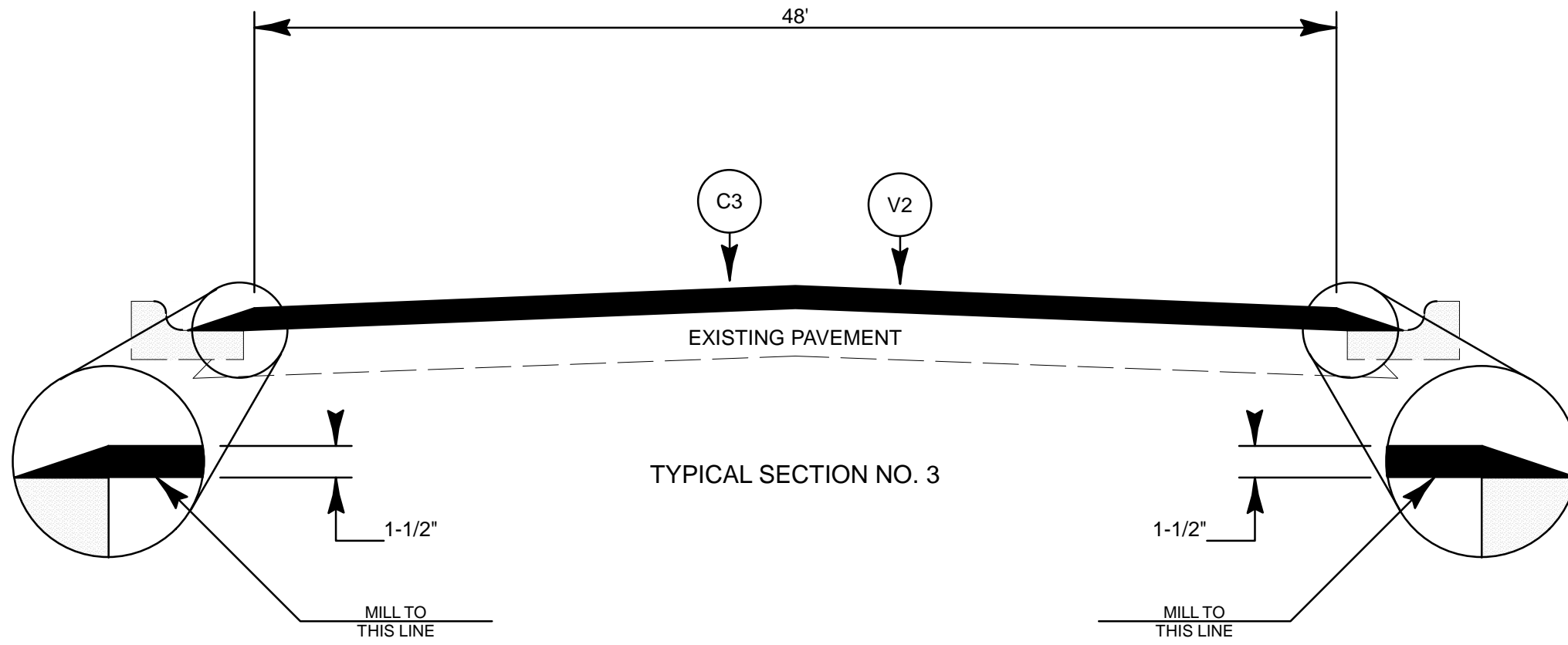


TYPICAL SECTION NO. 2



PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD
C2	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD
C3	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
C4	PROP. APPROX. 1-1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YARD
F1	ASPHALT SURFACE TREATMENT, DOUBLE SEAL
F2	ASPHALT SURFACE TREATMENT, FOG SEAL
T1	SHOULDER RECONSTRUCTION
V1	MILLING ASPHALT PAVEMENT, 0 TO 1-1/2" DEPTH
V2	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH
V3	INCIDENTAL MILLING
V4	MILLING ASPHALT PAVEMENT, 1-1/4" DEPTH

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812,	6	



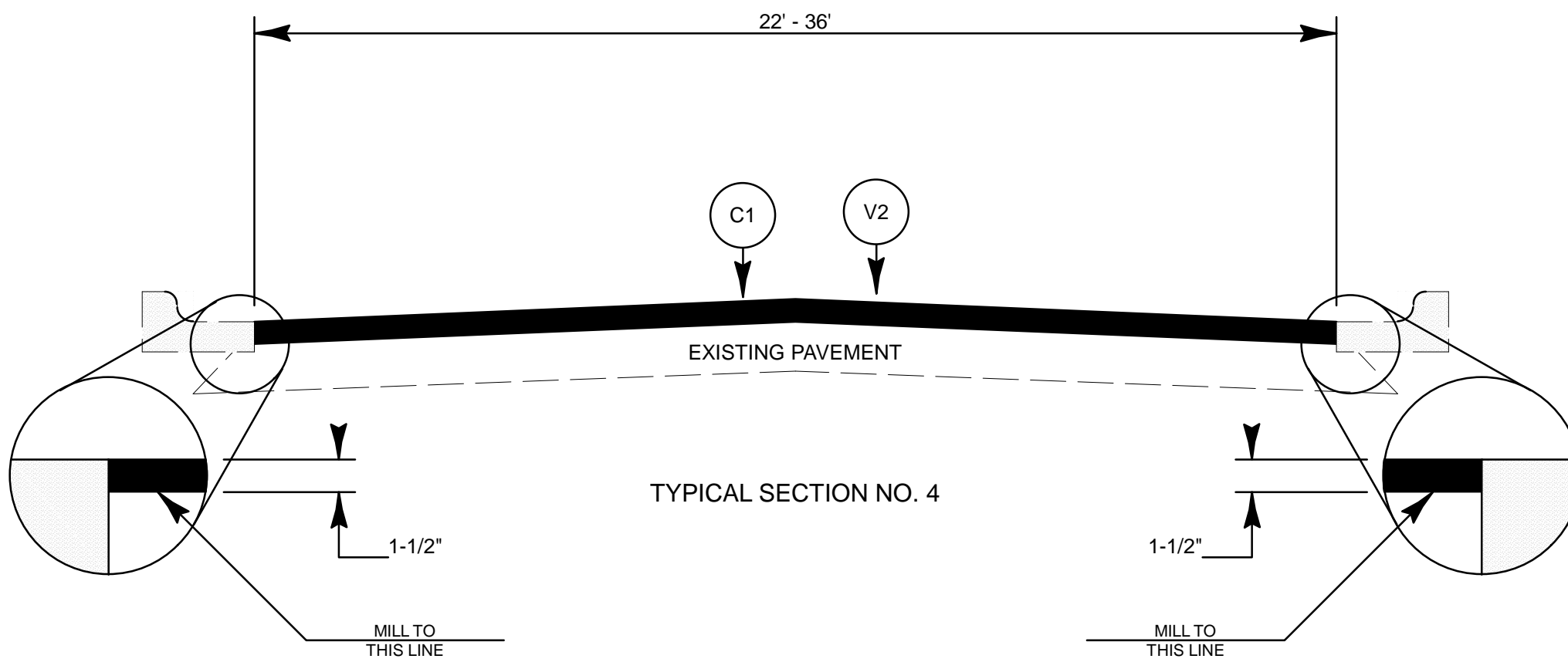
BRIDGE HALF TYPICAL SECTION

FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

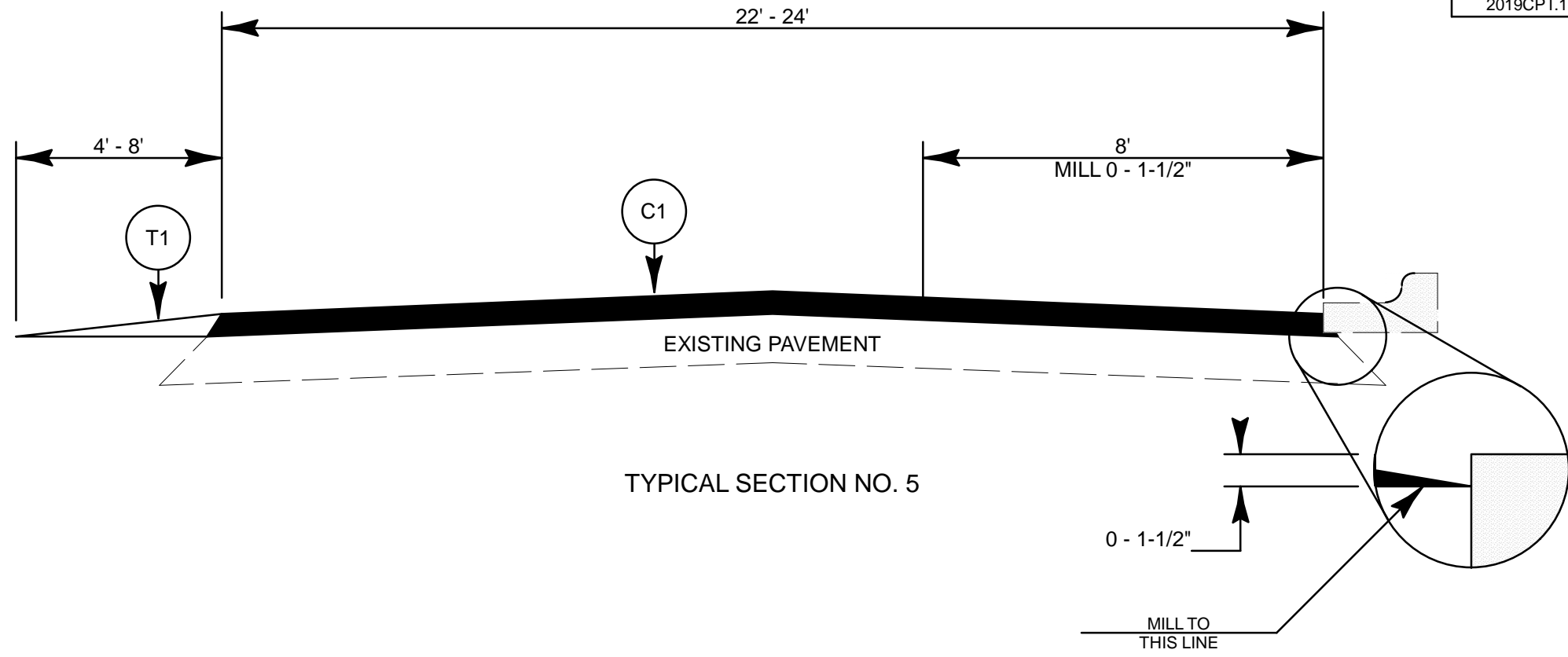
THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1/2", SF9.5A 1.0", S9.5X 1.5", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 3/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1.0", SF9.5A 1.5", S9.5X 2.0", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 3/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2".

NOTES

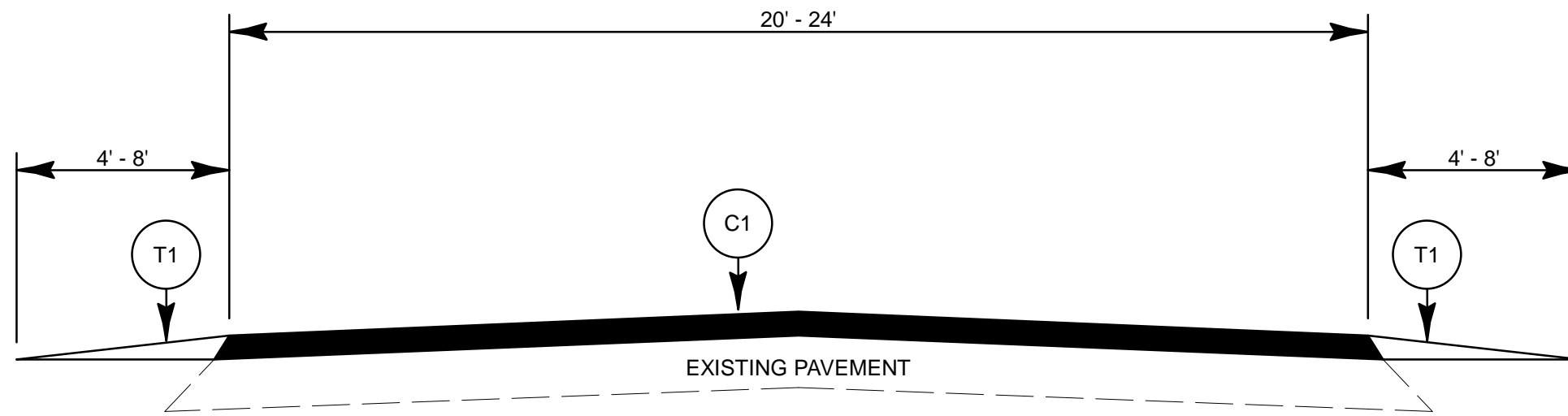
- ALL UNPAVED ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.
- ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
- EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
- SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED.
- BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.



PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812,	7	

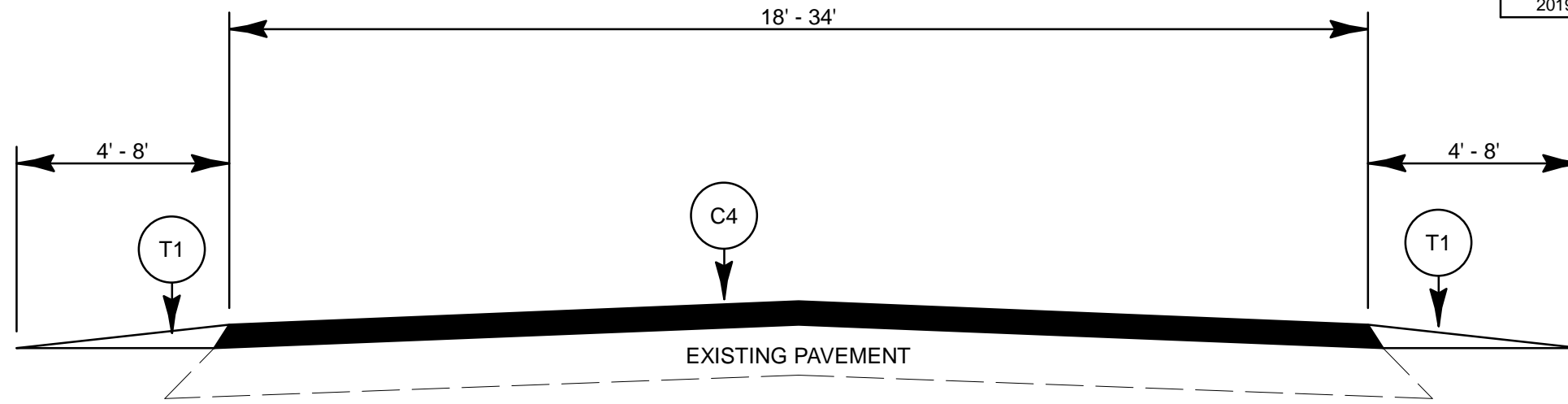


TYPICAL SECTION NO. 5

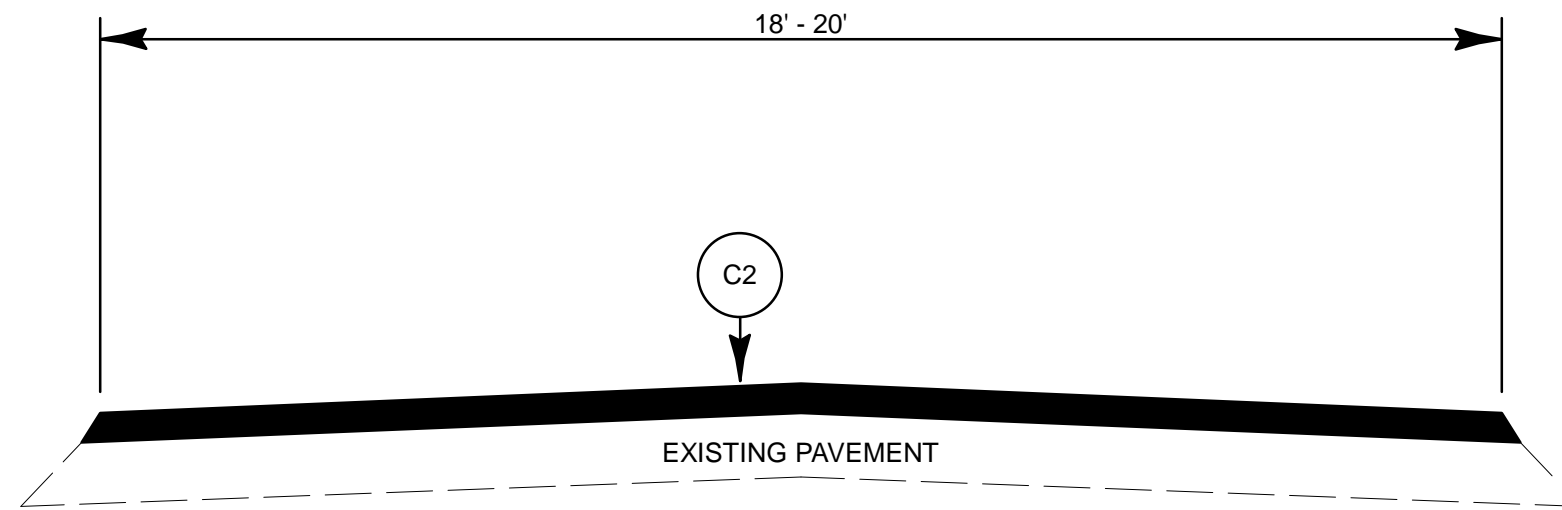


TYPICAL SECTION NO. 6

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812,		
	8	

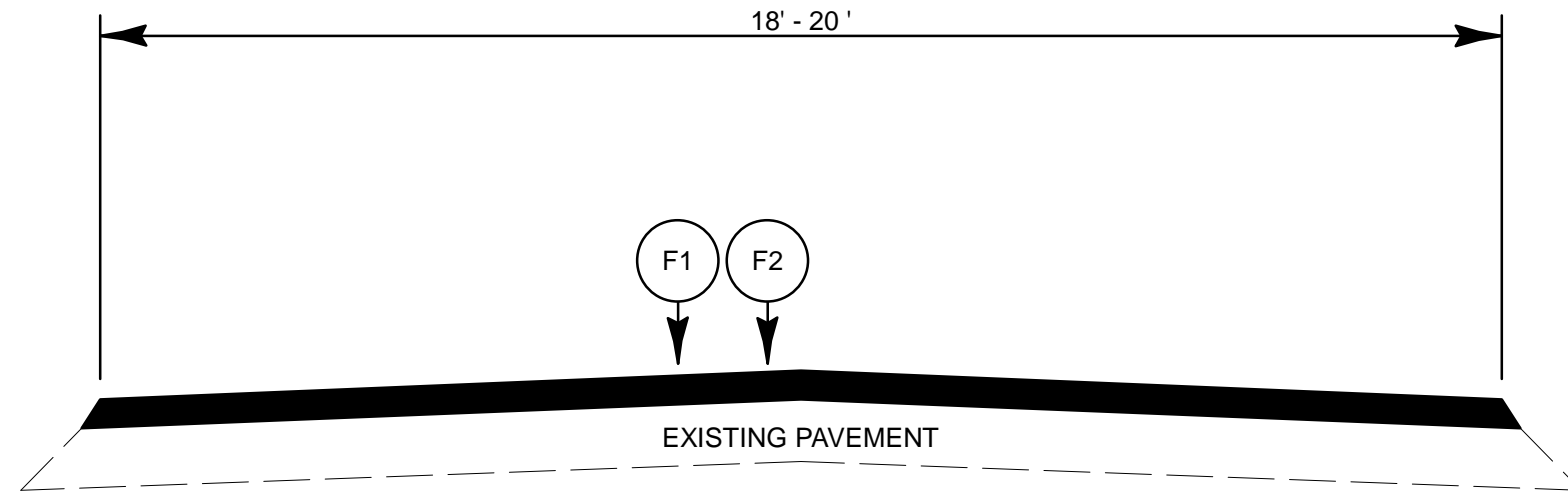


TYPICAL SECTION NO. 7



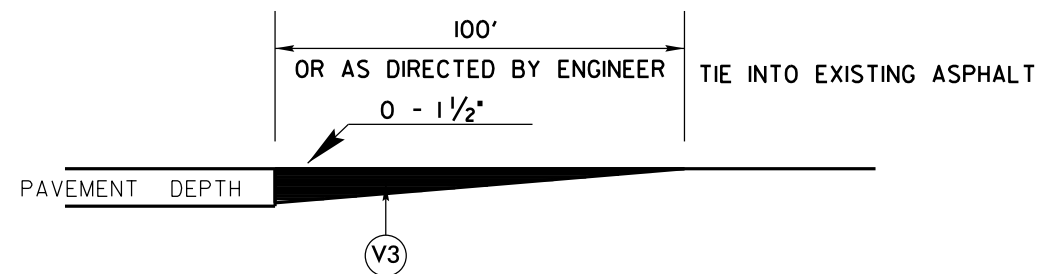
TYPICAL SECTION NO. 8

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812,		
	9	



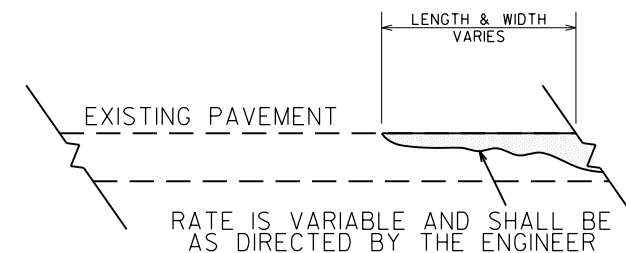
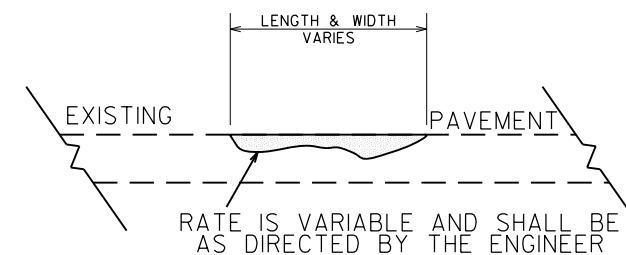
TYPICAL SECTION NO. 9

<i>PROJECT NO.</i>	<i>SHEET NO.</i>	<i>TOTAL SHEETS</i>
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812	10	



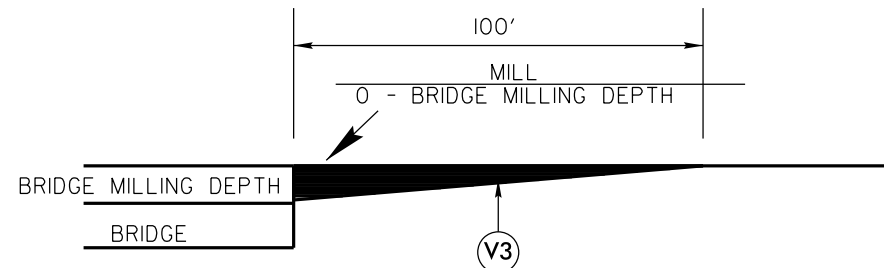
DETAIL TO TIE INTO EXIST PAVEMENT

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT HE WILL BE REQUIRED TO MILL THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING, END AND Y LINES OF EACH MAP TO BE RESURFACED WITH ASPHALT CONC SURFACE COURSE, TYPE S9.5C. THIS WILL BE PAID FOR AS INCIDENTAL MILLING.



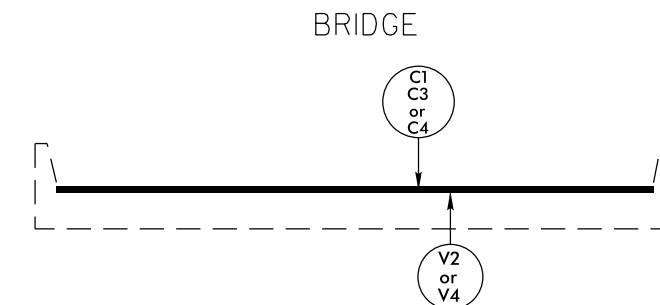
DETAIL SHOWING METHOD OF WEDGING

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812	11	



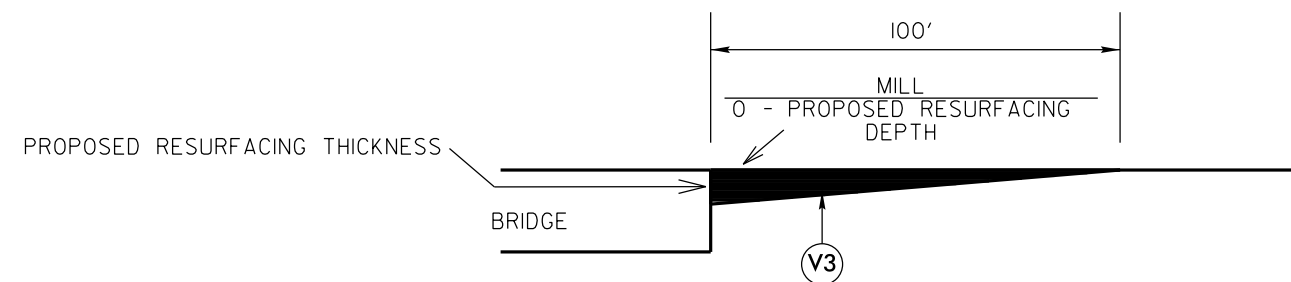
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL BE MILLED THEN RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBERS: 104 MAP 1, 107 MAP 2,
17 MAP 11, 601 MAP 27, AND 49 & 355 MAP 30**



BRIDGE DETAIL

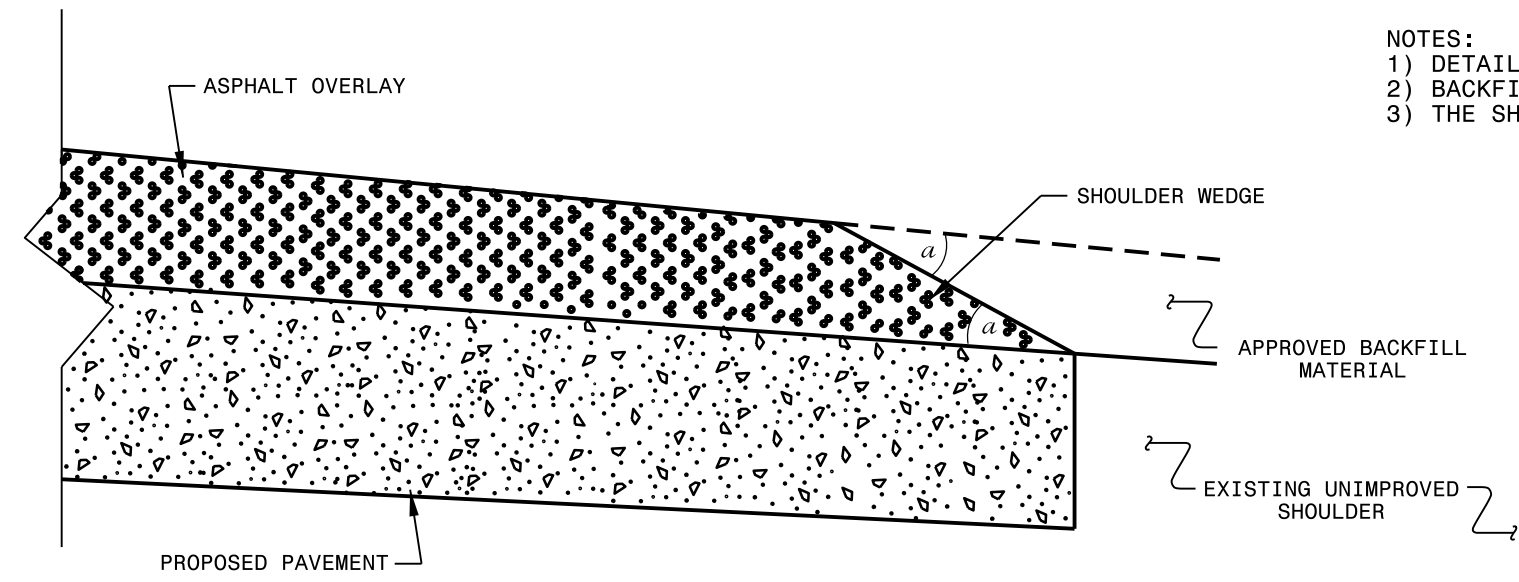
**BRIDGE NUMBER 104 MAP 1, 107 MAP 2,
91 & 101 MAP 4, 17 MAP 11, 601 MAP 27, AND
49 & 355 MAP 30.
MILL 1-1/4" TO 1-1/2" OFF EXISTING PAVEMENT
SEE MAPS FOR BRIDGE LOCATIONS AND
TYPICALS FOR MILLING DEPTH.**



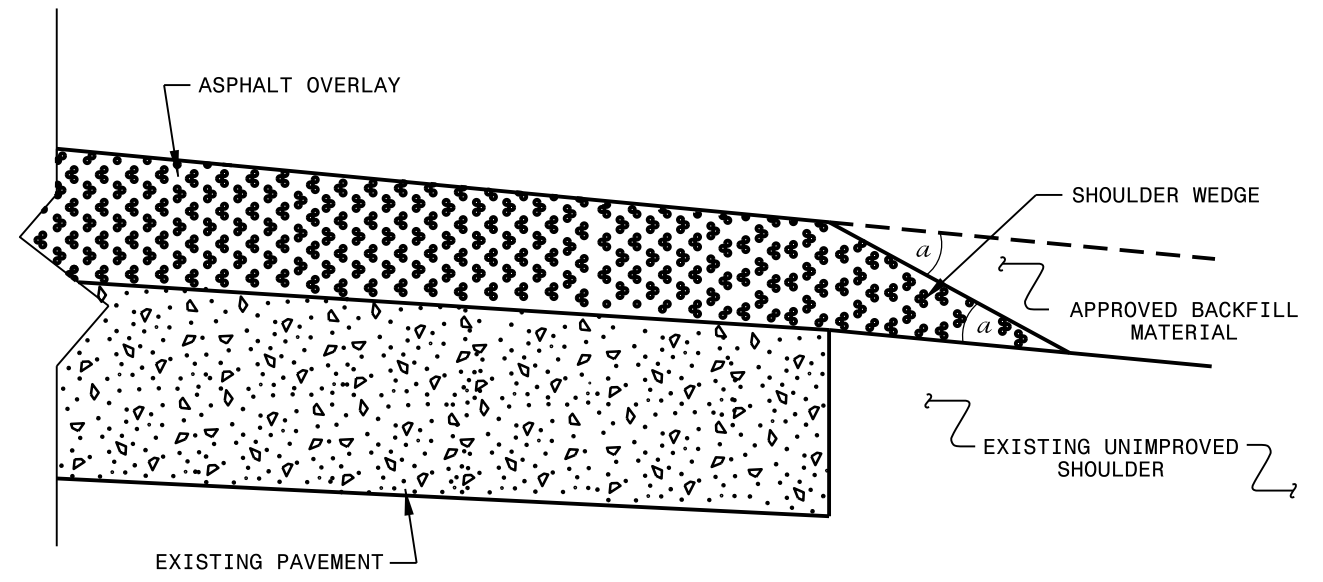
MILLING DETAIL AT BRIDGE APPROACHES

**WHERE BRIDGES WILL NOT BE RESURFACED.
THIS WILL BE PAID FOR AS INCIDENTAL MILLING.
USE AT BRIDGE NUMBERS: 11 MAP 5, 38 MAP 6,
630 MAP 9, 637 MAP 19, AND 273 MAP 24**

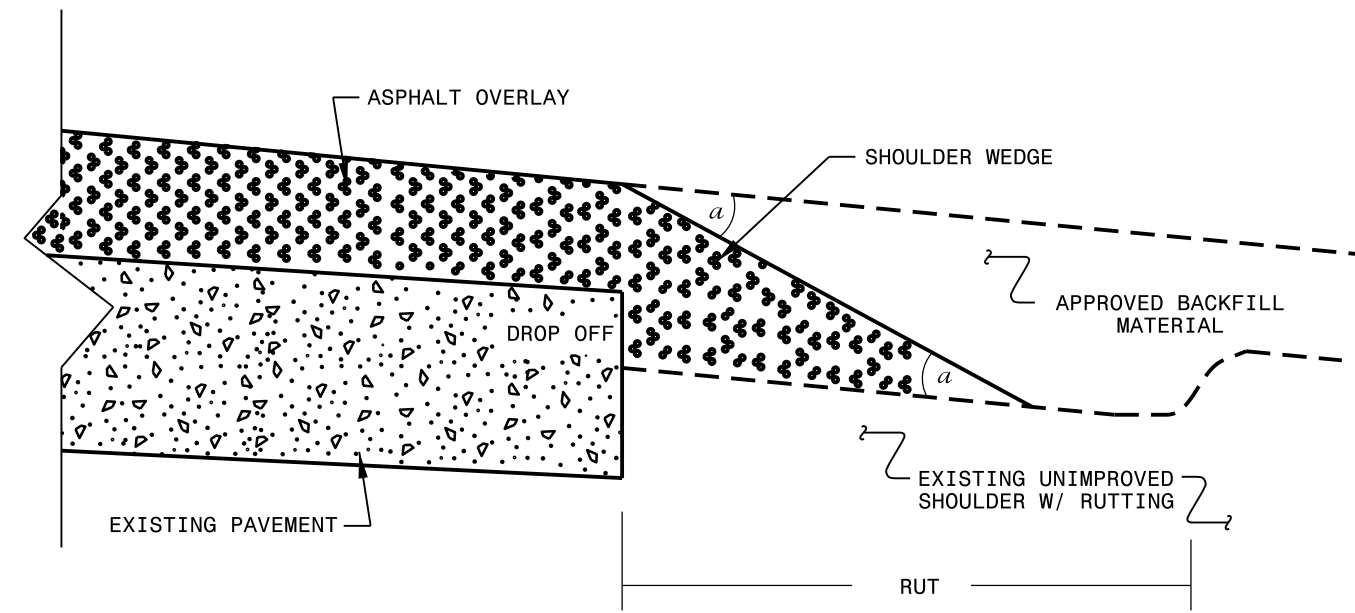
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFc AND ULTRA-THIN BONDED WEARING COURSE.
 - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ Widening or
 with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL
 (Resurfacing Adjacent to
 Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
SHOULDER WEDGE DETAILS			
ORIGINAL BY: T.SPELL	DATE: 7-19-11		
MODIFIED BY:	DATE: 10/16/12		
CHECKED BY:	DATE:		
FILE SPEC.: susr/details/stand/shoulderwedgedetail.dgn			

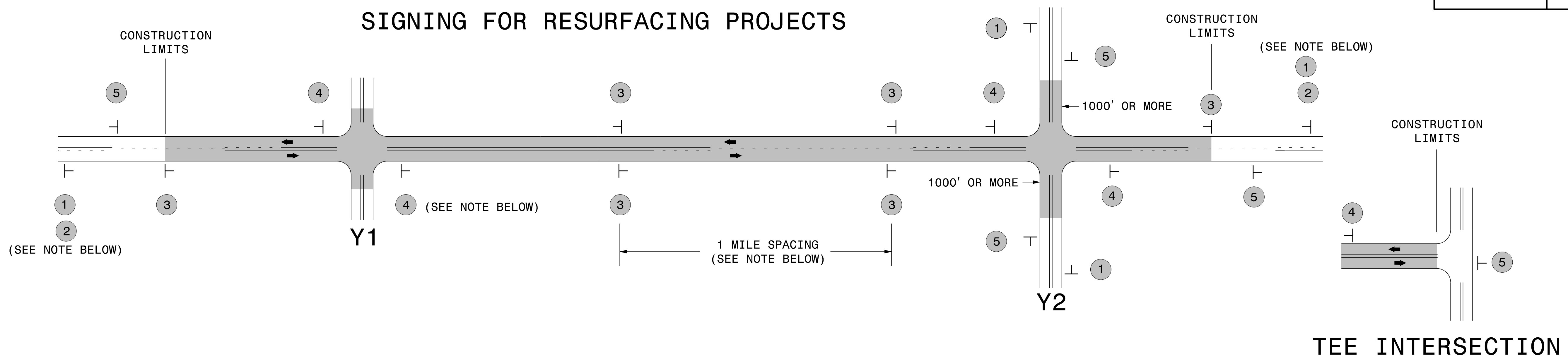
SYSTEMS DESIGN
 USER NAME

PROJECT NO.	SHEET NO.	TOTAL NO.
2019CPT.13.06.10811, 2019CPT.13.06.20811, 2019CPT.13.06.20812	16	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E WORK ZONE ADVANCE/ GENERAL WARNING SIGNING	4457000000-N TEMPORARY TRAFFIC CONTROL	4695000000-E					4721000000-E					4810000000-E					4845000000-N			4847010000-E		4850000000-E	4905000000-N
												THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) YELLOW	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING LINES (16", 120 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS) ONLY	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS) SCHOOL	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS) RXR	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) LT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) RT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) STR & RT ARROW	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW	PAINT PAVEMENT MARKING SYMBOL LT ARROW	PAINT PAVEMENT MARKING SYMBOL RT ARROW	PAINT PAVEMENT MARKING SYMBOL STR & RT ARROW	POLYUREA PAVEMENT MARKING LINES WHITE (4", 20 MILS) (HIGHLY REFLECTIVE MEDIA)	POLYUREA PAVEMENT MARKING LINES YELLOW (4", 20 MILS) (HIGHLY REFLECTIVE MEDIA)	REMOVAL OF PAVEMENT MARKING LINES (4")	SNOWPLOWABLE PAVEMENT MARKERS		
MI	FT	SF	LS	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA		
2019CPT.13.06.20811	Rutherford	25	SR 1148	FROM END 20' PVT TO SR 1004 (MP 0.48 - MP 1.660)	8	2	2WU	1.18	20	133											24,922	24,922											
2019CPT.13.06.20811	Rutherford	26	SR 1150	FROM US 221 TO SR 1004 (MP 0.00 - MP 1.350)	8	2	2WU	1.35	18	152				15							28,512	28,512											
2019CPT.13.06.20811	Rutherford	27	SR 1152	FROM SR 1153 TO US 221 (MP 0.00 - MP 0.530)	8	2	2WU	0.53	19	60											11,194	11,194											
2019CPT.13.06.20811	Rutherford	28	SR 1153	FROM SR 1151 TO SR 1145 (MP 1.850 - MP 3.060)	8	2	2WU	1.21	19	136											25,555	25,555											
2019CPT.13.06.20811	Rutherford	29	SR 1153	FROM PVMT CHG TO SR 1005 (MP 6.660 - MP 7.110)	8	2	2WU	0.45	34	51							6				15,804	15,804											
2019CPT.13.06.20811	Rutherford	30	SR 2164	FROM SR 2159 TO US 221 (MP 0.00 - MP 2.260)	8	2	2WU	2.26	19	254				15							47,731	47,731											
2019CPT.13.06.20811	Rutherford	31	SR 2168	FROM SR 2164 TO SR 2213 (MP 0.00 - MP 0.560)	8	2	2WU	0.56	19	63											11,827	11,827											
2019CPT.13.06.20811	Rutherford	32	SR 1140	FROM US 221 TO DEAD END (MP 0.00 - MP 0.110)	9	2	2WU	0.11	19	13				15																			
2019CPT.13.06.20811	Rutherford	33	SR 1154	FROM NC 108 TO SR 1145 (MP 0.00 - MP 1.142)	9	2	2WU	1.142	18	128																							
2019CPT.13.06.20811	Rutherford	34	SR 2236	FROM DEAD END TO SR 2164 (MP 0.00 - MP 0.440)	9	2	2WU	0.44	19	50											9,293	9,293											
2019CPT.13.06.20811	Rutherford	35	SR 2242	FROM SR 2164 TO SR 2236 (MP 0.00 - MP 0.160)	9	2	2WU	0.16	19	18											3,379	3,379											
2019CPT.13.06.20811	Rutherford	36	SR 2250	FROM SR 2194 TO DEAD END (MP 0.00 - MP 0.330)	9	2	2WU	0.33	20	37											6,970	6,970											
2019CPT.13.06.20811	Rutherford	37	SR 2279	FROM SR 2153 TO DEAD END (MP 0.00 - MP 0.230)	9	2	2WU	0.23	19	26																							
2019CPT.13.06.20811	Rutherford	38	SR 2280	FROM SR 2279 TO END MAINT (MP 0.00 - MP 0.450)	9	2	2WU	0.45	18	51																							
2019CPT.13.06.20811	Rutherford	39	SR 2310	FROM SR 2280 TO END MAINT (MP 0.00 - MP 0.130)	9	2	2WU	0.13	21	15																							
2019CPT.13.06.20811	Rutherford	40	SR 1135	FROM SR 1122 TO US 221 (MP 0.00 - MP 1.510)	10	2	2WU	1.51	20																								
2019CPT.13.06.20811	Rutherford	41	SR 1169	FROM SR 1176 TO DEAD END (MP 0.00 - MP 0.520)	10	2	2WU	0.52	18																								
2019CPT.13.06.20811	Rutherford	42	SR 1172	FROM SR 1178 TO SR 1174 (MP 0.00 - 2.250)	10	2	2WU	2.25	20																								
2019CPT.13.06.20811	Rutherford	43	SR 1172	FROM SR 1174 TO US 64 (MP 2.250 - 4.040)	10	2	2WU	1.79	20																								
2019CPT.13.06.20811	Rutherford	44	SR 1173	FROM SR 1174 TO SR 1178 (MP 0.00 - MP 0.960)	10	2	2WU	0.96	20																								
2019CPT.13.06.20811	Rutherford	45	SR 1174	FROM SR 1172 TO SR 1178 (MP 0.00 - MP 1.270)	10	2	2WU	1.27	20																								
2019CPT.13.06.20811	Rutherford	46	SR 1177	FROM SR 1172 TO JERDAN LN (MP 0.00 - MP 1.210)	10	2	2WU	1.21	19																								
2019CPT.13.06.20811	Rutherford	47	SR 1177	FROM JERDAN LN TO SR 1178 (MP 1.210 - MP 2.530)	10	2	2WU	1.32	19																								
2019CPT.13.06.20811	Rutherford	48	SR 1312	FROM BUNCOMBE CO TO SR 1314 (MP 0.00 - MP 2.103)	10	2	2WU	2.103	19																								
2019CPT.13.06.20811	Rutherford	49	SR 1312	FROM SR 1314 TO SR 1316 (MP 2.103 - MP 3.742)	10	2	2WU	1.639	19																								
2019CPT.13.06.20811	Rutherford	50	SR 1312	FROM SR 1316 TO SR 1008 (MP 3.742 - MP 5.977)	10	2	2WU	2.235	19																								
2019CPT.13.06.20811	Rutherford	51	SR 1313	FROM MCDOWELL CO TO SR 1001 (MP 0.00 - MP 0.393)	10	2	2WU	0.393	19																								
2019CPT.13.06.20811	Rutherford	52	SR 1334	FROM SR 1001 TO SR 1001 (MP 0.00 - MP 1.310)	10	2	2WU	1.31	18																								
2019CPT.13.06.20811	Rutherford	53	SR 1374	FROM US 64 TO END PVMT (MP 0.00 - MP 0.350)	10	2	2WU	0.35	18																								
TOTAL FOR PROJ NO. 2019CPT.13.06.20811										49,242	3,419	1		48	132	316	6	6	8	6	4	628,496	628,496					3,760	547				

SIGNING FOR RESURFACING PROJECTS



LEGEND	
—	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

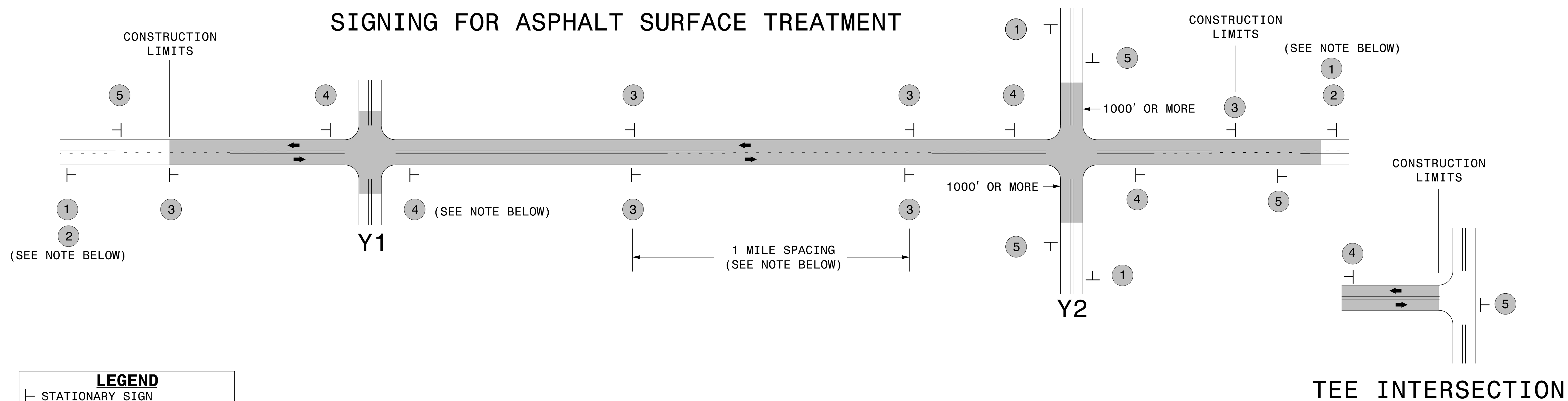
-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING	
	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>W20-1 48" X 48"</p> </div> <div style="text-align: center;"> <p>W20-7 A 48" X 48"</p> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	2	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3	 SP 13107 48" X 48"	<ul style="list-style-type: none"> - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER. 	
	4	 SP 13106 48" X 48"	<ul style="list-style-type: none"> - THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. - DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. - INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. - FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. - A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE. 	
5	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.		

4/20/2016 C:\Users\rmgarrrett\Desktop\Resurfacing_AdvWarn_2Ln.dgn User:rmgarrrett

**RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS**

SIGNING FOR ASPHALT SURFACE TREATMENT



MAINLINE (-L-) SIGNING

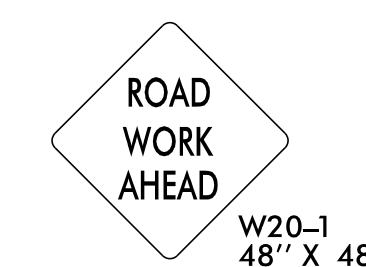
-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.
	2	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)
	3	 W8-7 48" X 48"	- ALTERNATE THE FOLLOWING TWO SIGNS: - STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT". - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.
		 SP 48" X 48"	
	4	 SP 13106 48" X 48"	- THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. - DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. - INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. - FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. - A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE.
5	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.	

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

- 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
- 2) SUBDIVISION ROADS
- 3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

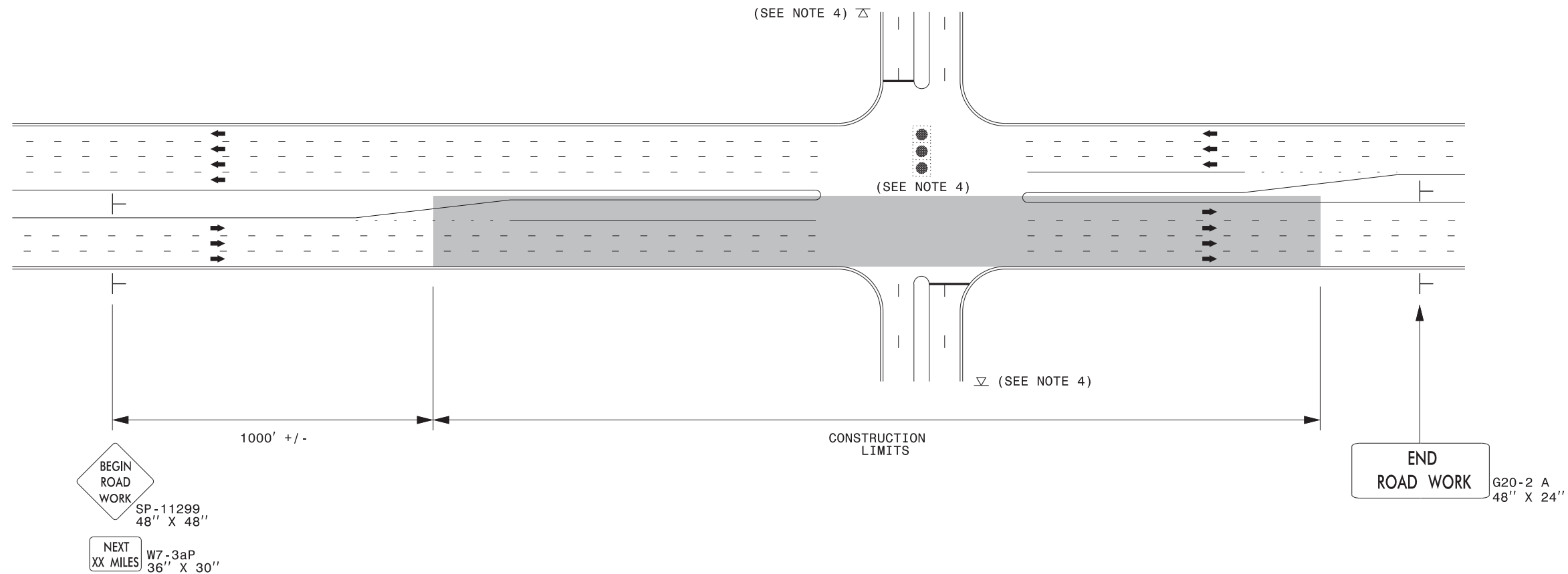


PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.



ADVANCE WARNING SIGNS FOR ASPHALT SURFACE TREATMENTS 2 LANE ROADWAYS

URBAN / SUBURBAN WORKZONES



NOTES:

- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

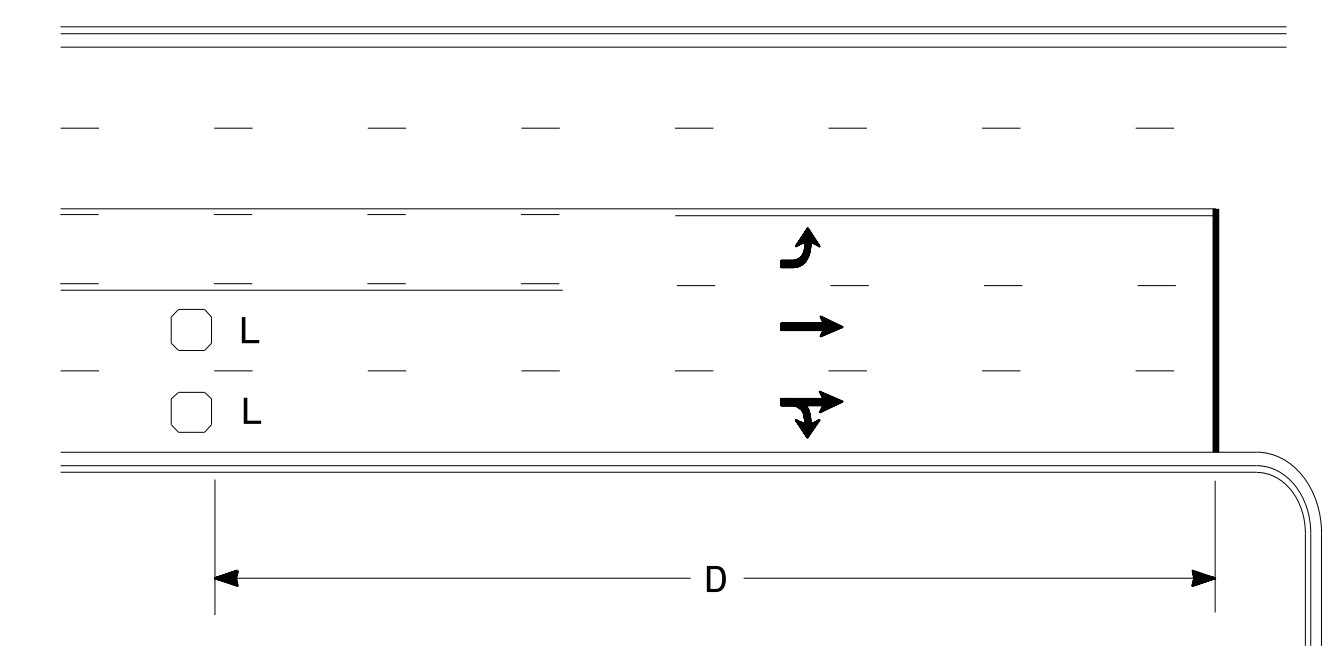
LEGEND

- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES**

High Speed Detection (≥40 mph)

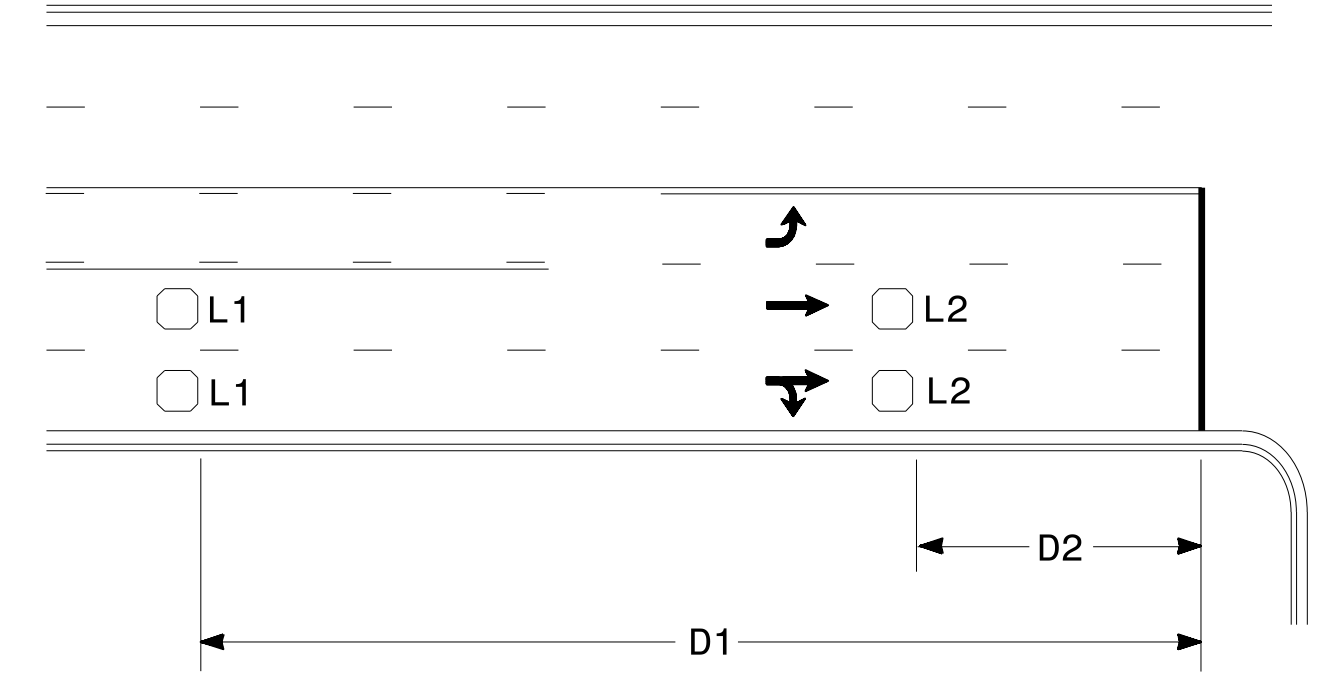


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

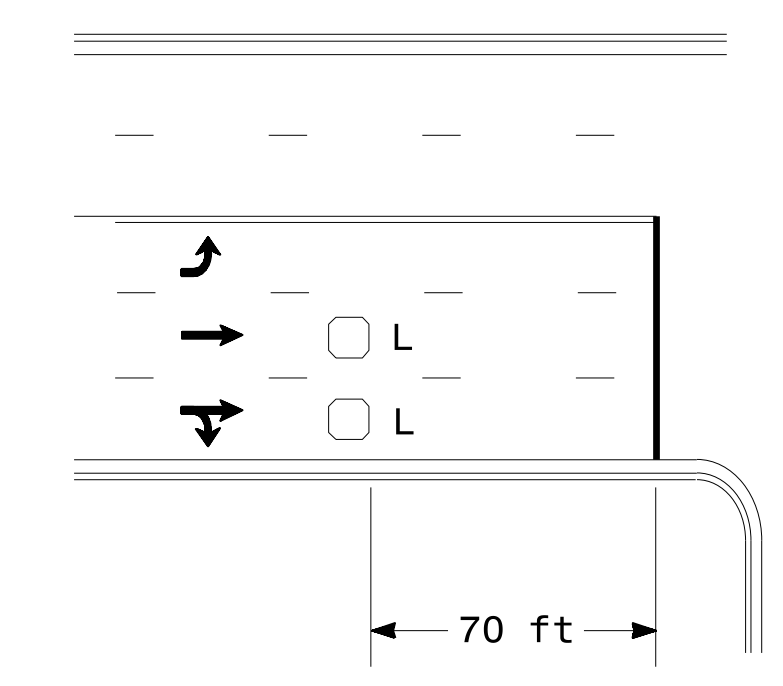


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series
L2 = 6ft X 6ft
Wired in series

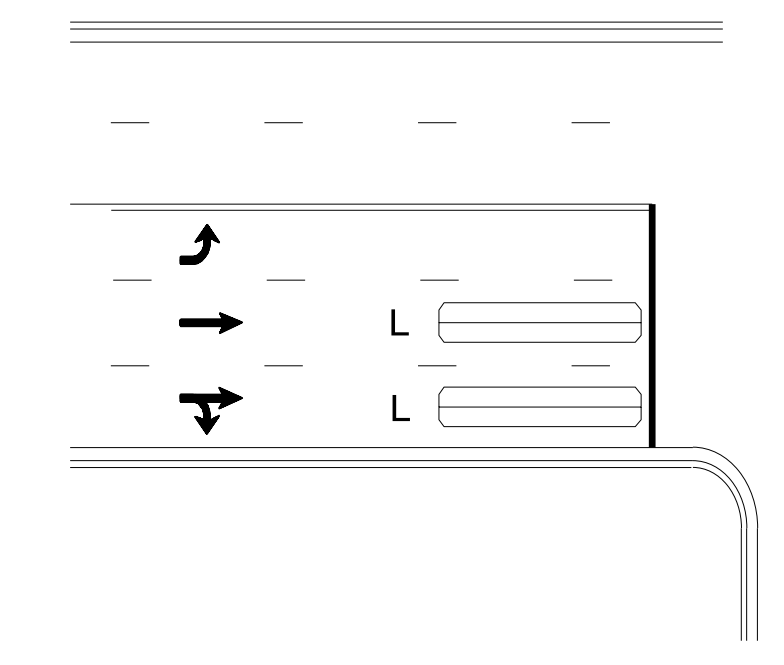
"Stretch" Operation

Low Speed Detection (≤35 mph)



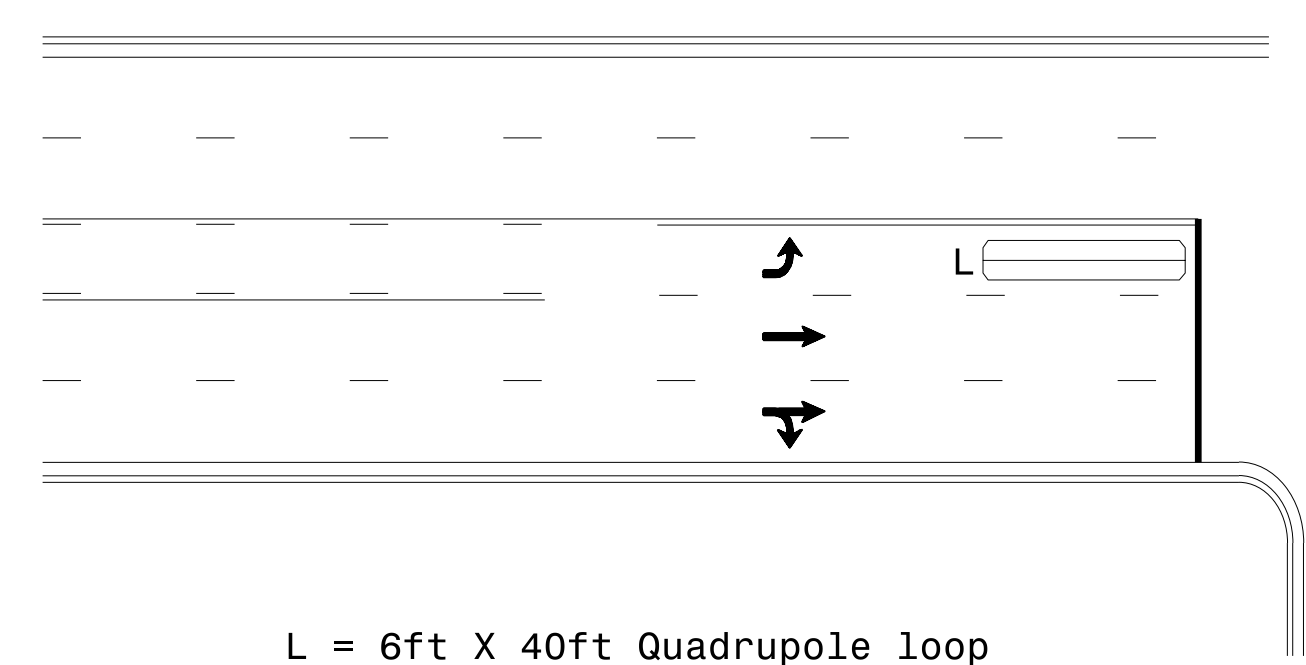
L = 6ft X 6ft
Wired in series

OR



L = 6ft X 40ft
Quadrupole loop, wired separately

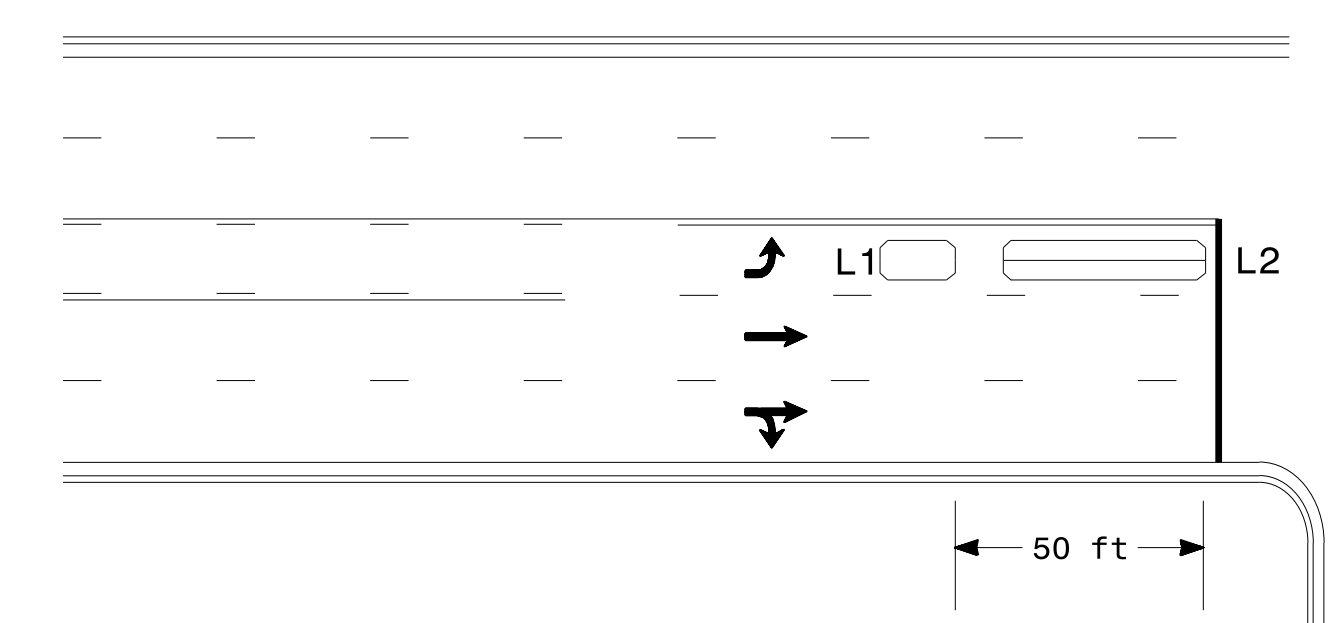
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

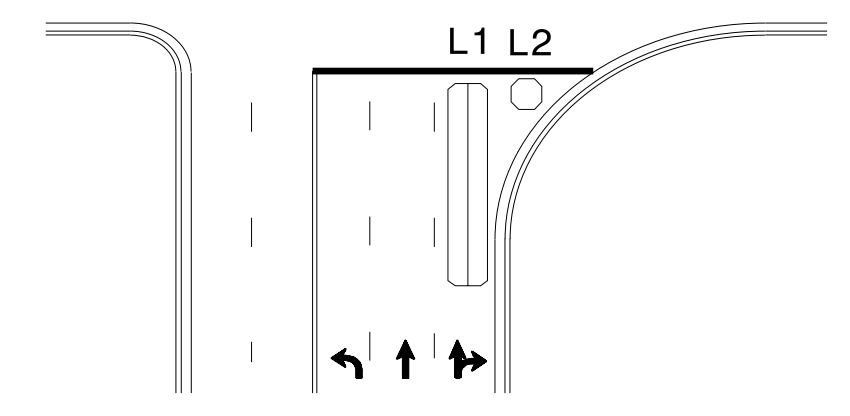
OR



L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

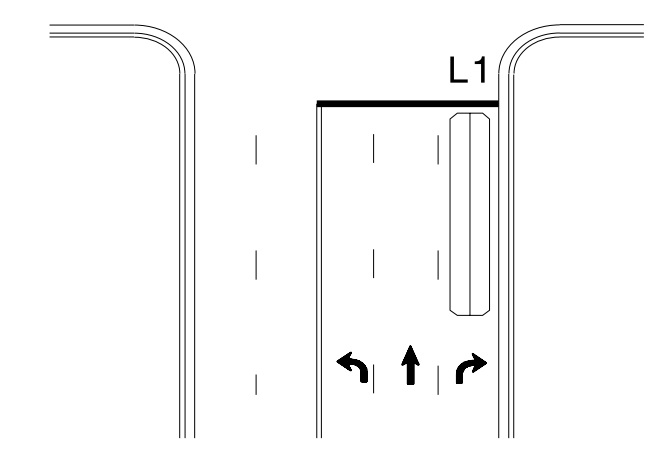
Queue Loop Detection

Right Turn Lane Detection

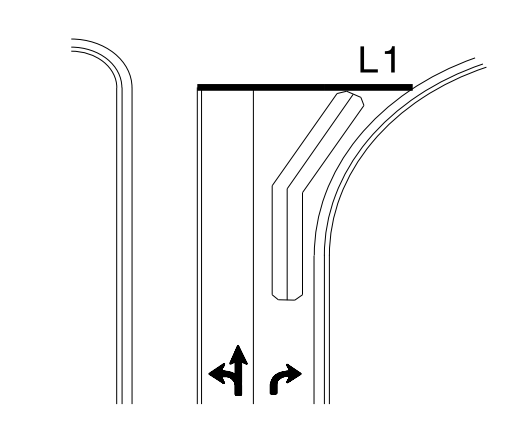


Shared Lane/
Wide Radius Turn

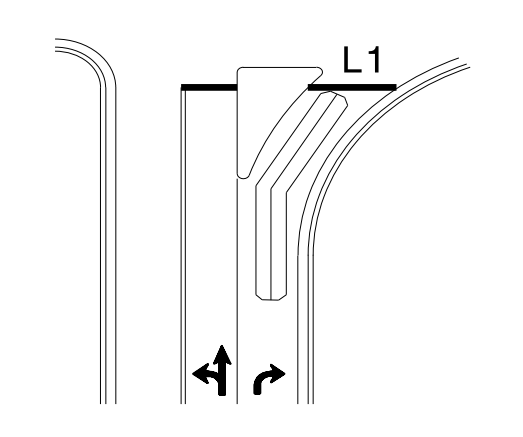
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

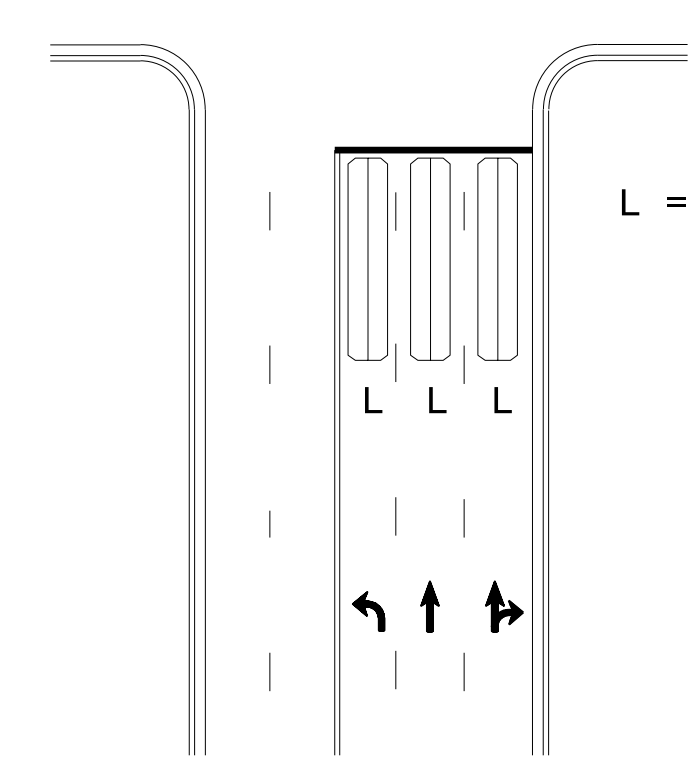


Wide Radius Turn



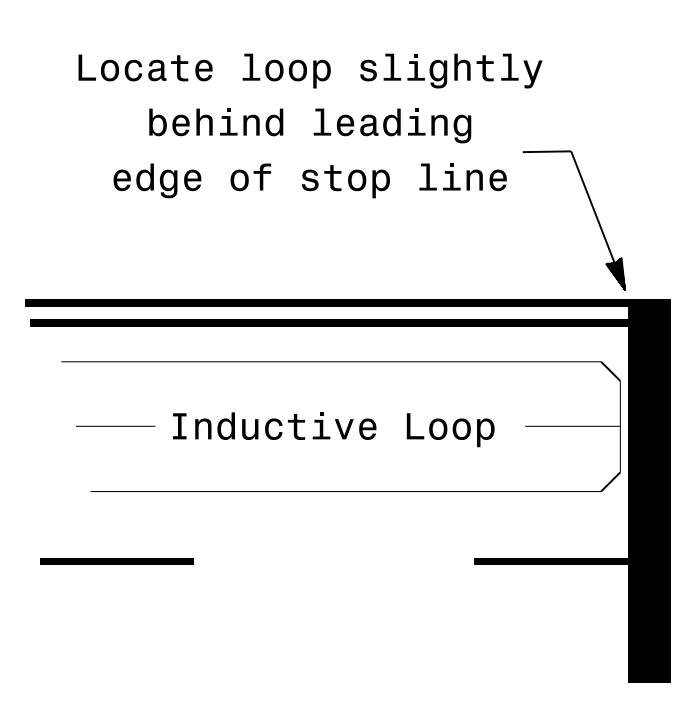
Channelized Turn

Side Street Detection



L = 6ft X 40ft
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines



Locate loop slightly
behind leading
edge of stop line

- Note:
Loop may be located in advance
of stop line under any of the
following conditions:
- 1) stop line is greater than 15' from edge of intersecting roadway
 - 2) loop detects a permissive or protected/permissive left turn
 - 3) for an exclusive right turn lane

Recommended Number of Turns

Single 6' X 6' loop
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns
6' X 15' Loops:
Lead-in < 150', use 2 turns
Lead-in > 150', use 3 turns

750 N. Greenfield Pkwy, Garner, NC 27529

Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

1/30/2015