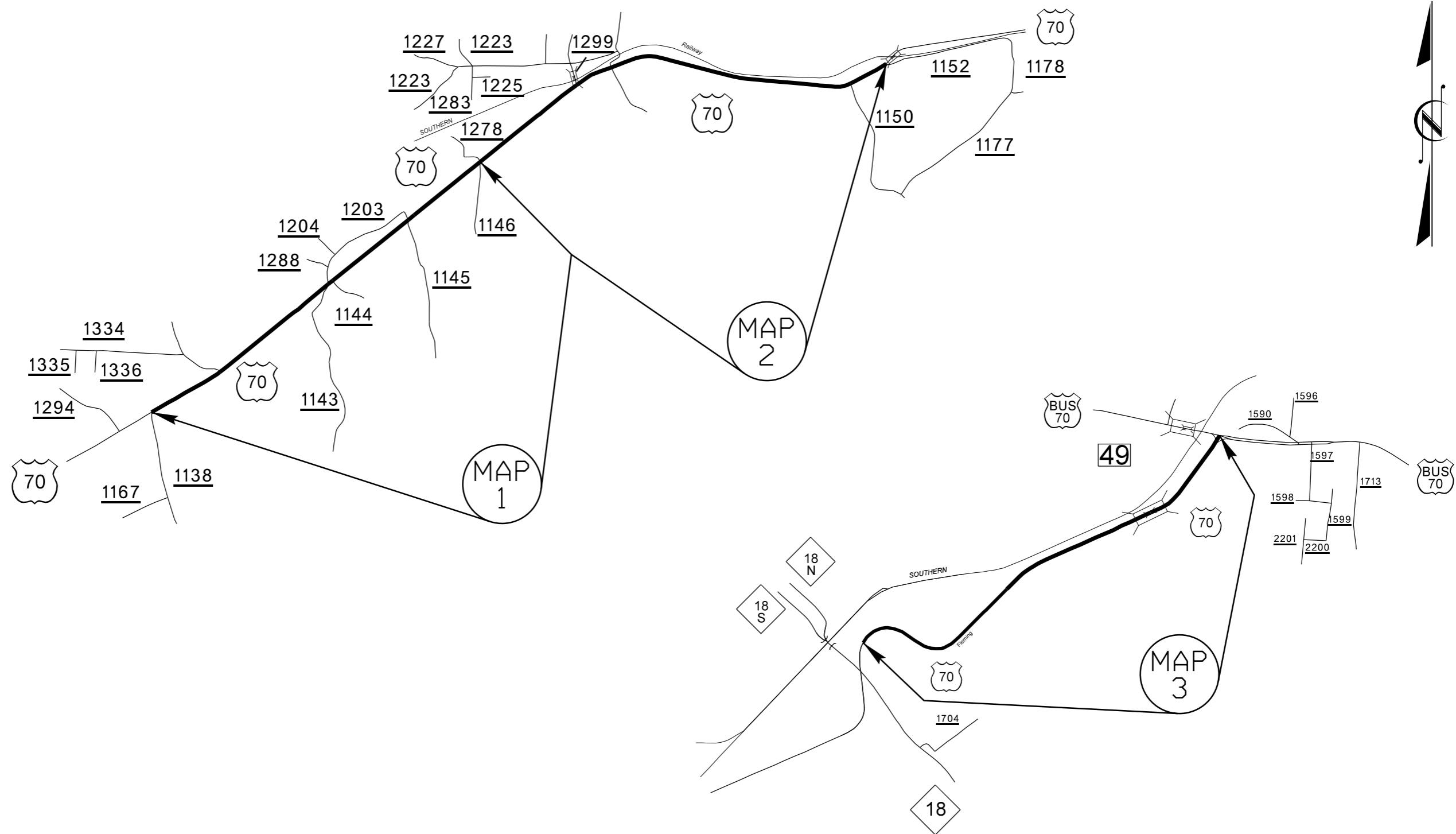
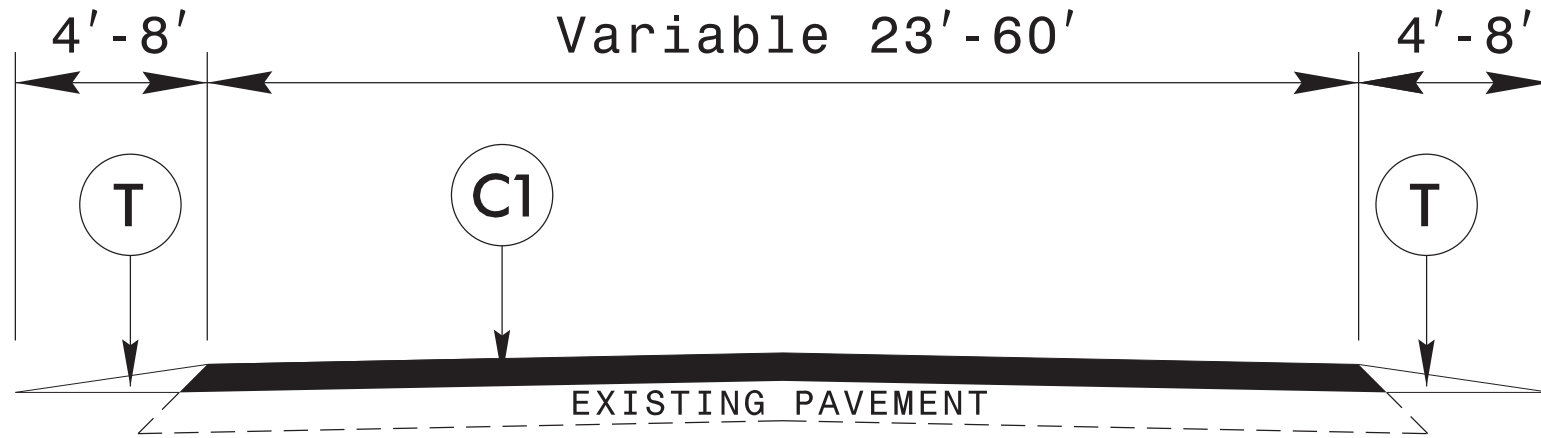


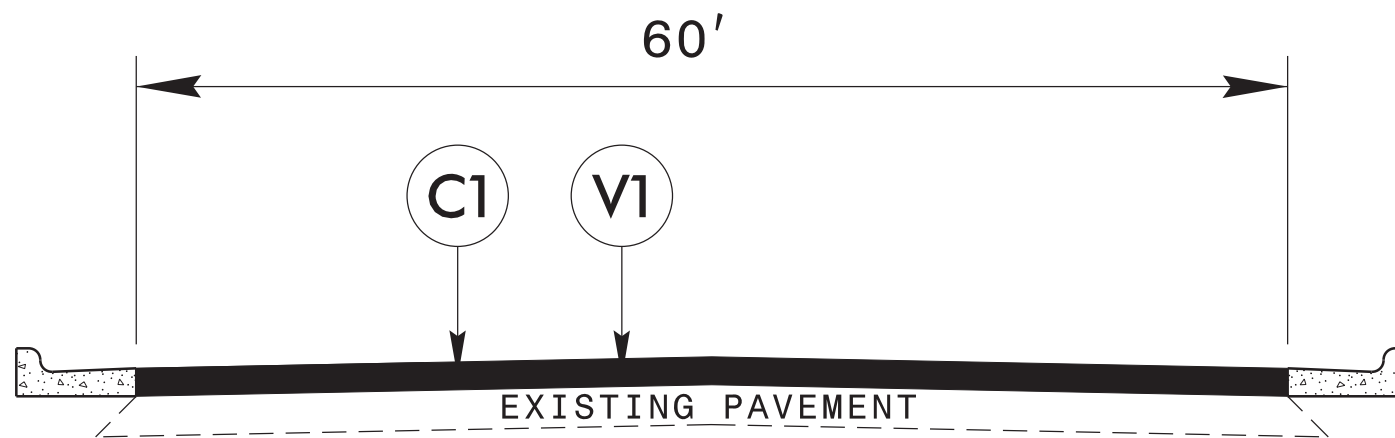
<i>PROJECT NO.</i>	<i>SHEET NO.</i>	<i>TOTAL SHEETS</i>
2022CPT.13.02.10121	<b>1</b>	<b>14</b>



**BURKE COUNTY**

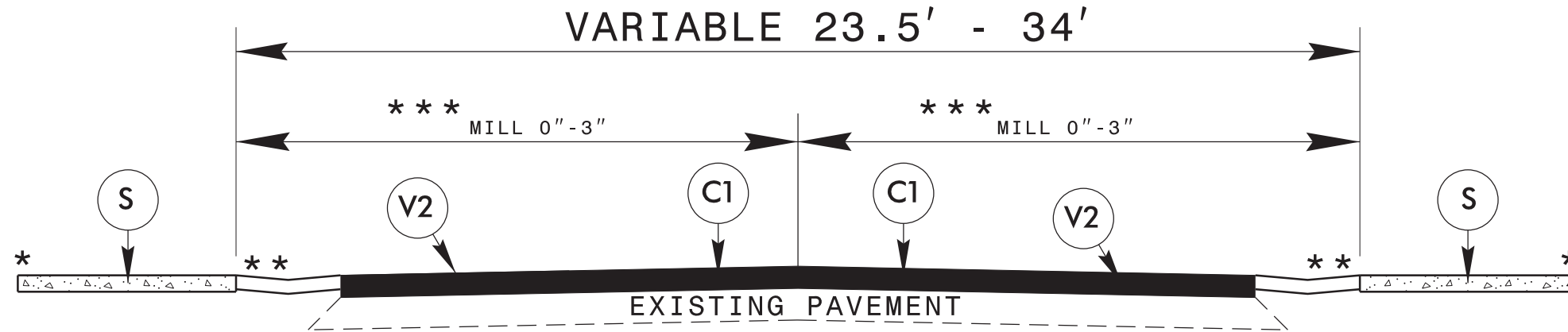


**TYPICAL SECTION #1**



**TYPICAL SECTION #2**

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
S	SIDEWALK
T	SHOULDER RECONSTRUCTION
V1	MILLING ASPHALT PAVEMENT 1-1/2" DEPTH
V2	MILLING ASPHALT PAVEMENT, 0 TO 3" DEPTH
V3	INCIDENTAL MILLING

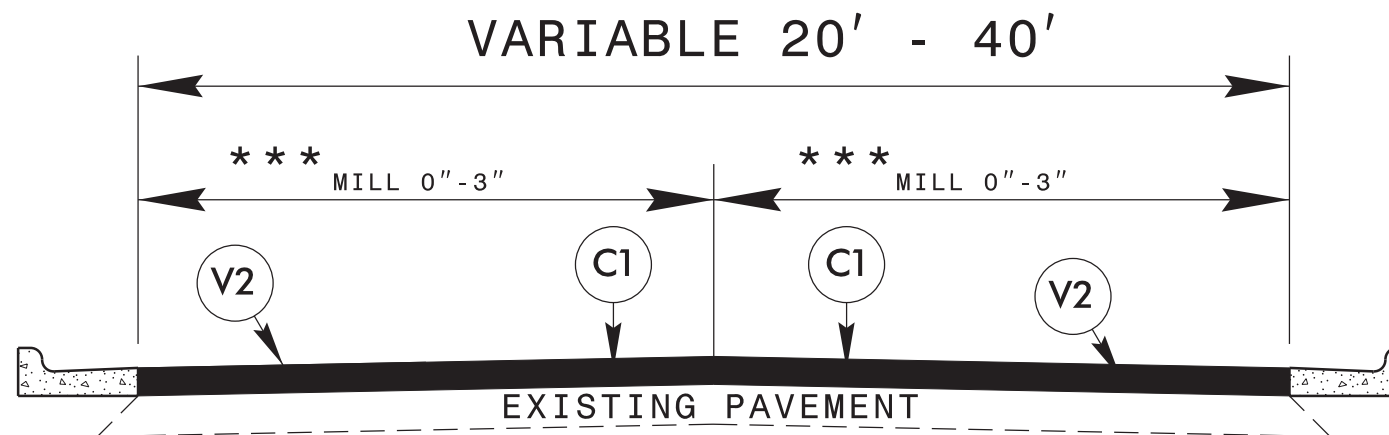


### TYPICAL SECTION #3

\* VARIOUS LOCATIONS WILL REQUIRE SHOULDER RECONSTRUCTION WHERE ASPHALT DITCH IS NOT PRESENT.

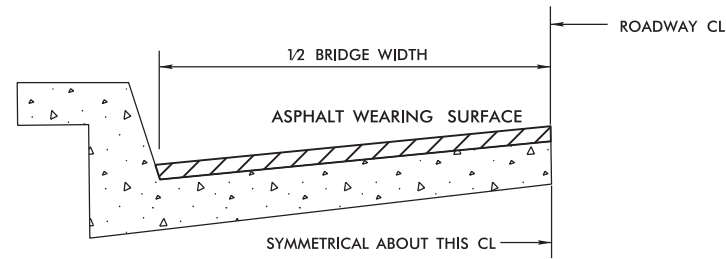
\*\* REMOVE AND REPLACE ASPHALT DITCH AS DIRECTED BY THE ENGINEER TO MAINTAIN EXISTING DRAINAGE.

\*\*\* MILLING AT CENTERLINE WILL BE 3" DEPTH OR AS DIRECTED BY THE ENGINEER. EDGE OF PAVEMENT MILLING SHOULD BE DONE TO MAINTAIN TIE-IN TO EXISTING DRIVEWAYS OR AS DIRECTED BY THE ENGINEER.



### TYPICAL SECTION #4

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
S	SIDEWALK
V2	MILLING ASPHALT PAVEMENT, 0 TO 3" DEPTH



**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", S9.5B 1", S9.5C,D 1.5" - 2". ULTRA-THIN HOT MIX ASPHALT - TYPE A 3/4", ULTRA-THIN HOT MIX ASPHALT - TYPE B 5/8", ULTRA-THIN HOT MIX ASPHALT - TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1", S9.5B 1.5", S9.5C,D 2". ULTRA-THIN HOT MIX ASPHALT - TYPE A 3/4", ULTRA-THIN HOT MIX ASPHALT - TYPE B 5/8", ULTRA-THIN HOT MIX ASPHALT - TYPE C 1/2".

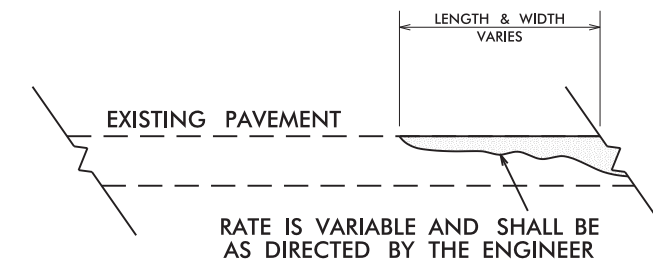
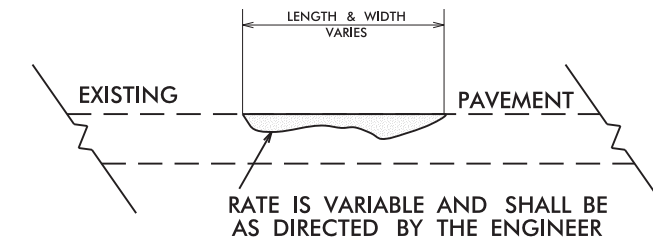
**NOTES**

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.

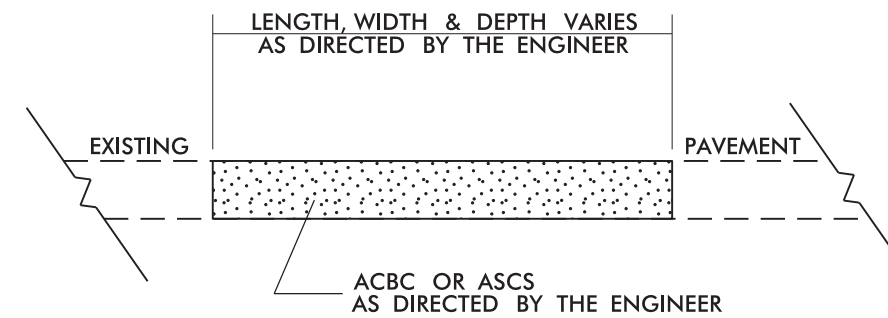
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.

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.

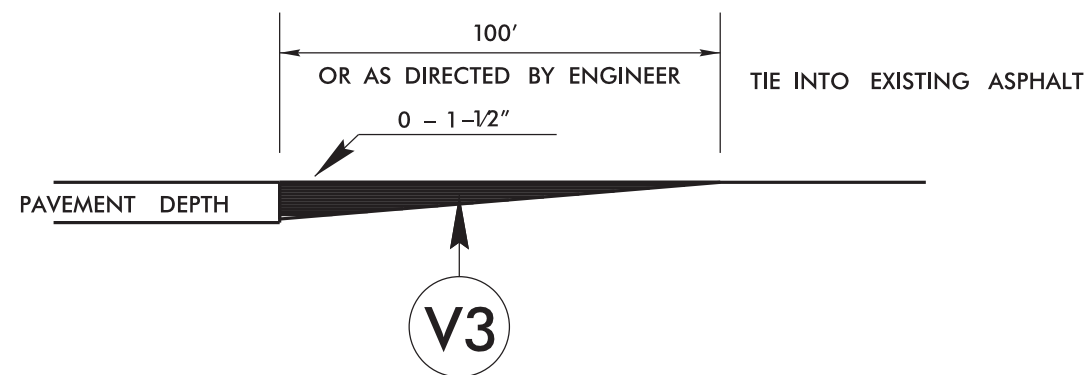


**DETAIL SHOWING METHOD OF WEDGING**



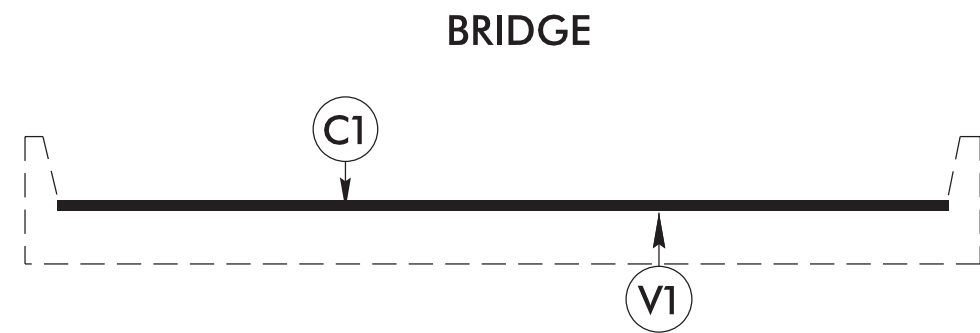
**PATCHING EXISTING PAVEMENT**

6/2/09  
 03-SEP-2021 10:52  
 S:\DDC\Resurfacing\2022 Resurfacing\District 1\Burke CR\Burke Primary Maps And Typicals\2022\_Burke-ddc\_Typ.dgn



**DETAIL TO TIE INTO EXIST PAVEMENT**

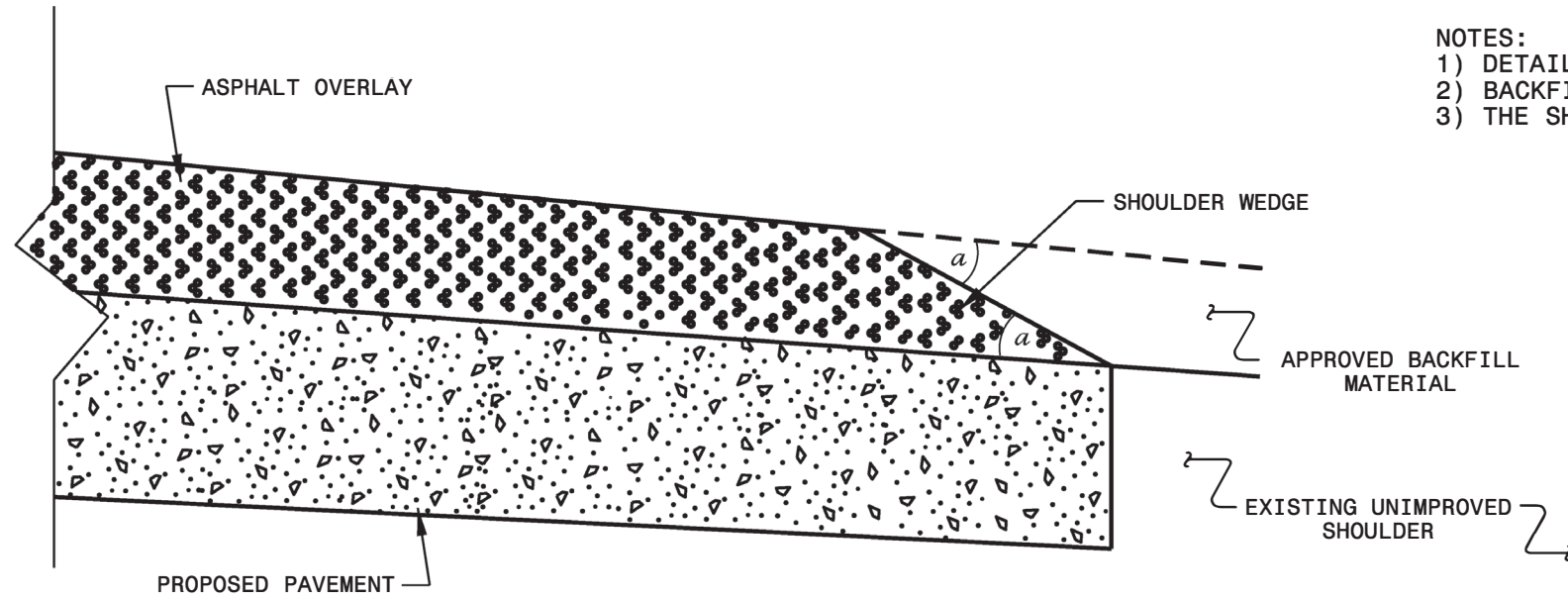
THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT HE WILL BE REQUIRED TO MILL THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING, END AND Y LINES OF EACH MAP TO BE RESURFACED WITH ASPHALT CONC SURFACE COURSE, TYPE S9.5C. THIS WILL BE PAID FOR AS INCIDENTAL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



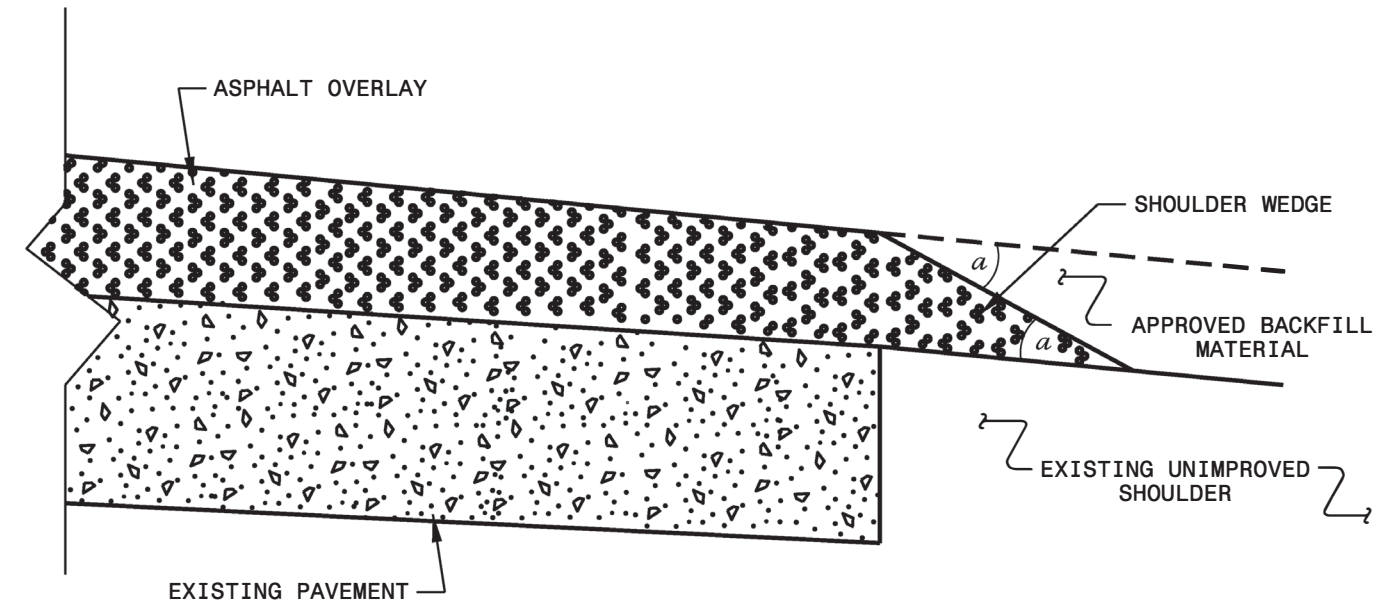
**BRIDGE DETAIL**

BRIDGE NUMBER 49 MAP 4.  
MILL 1-1/2" OFF EXISTING PAVEMENT  
SEE MAP FOR BRIDGE LOCATION.

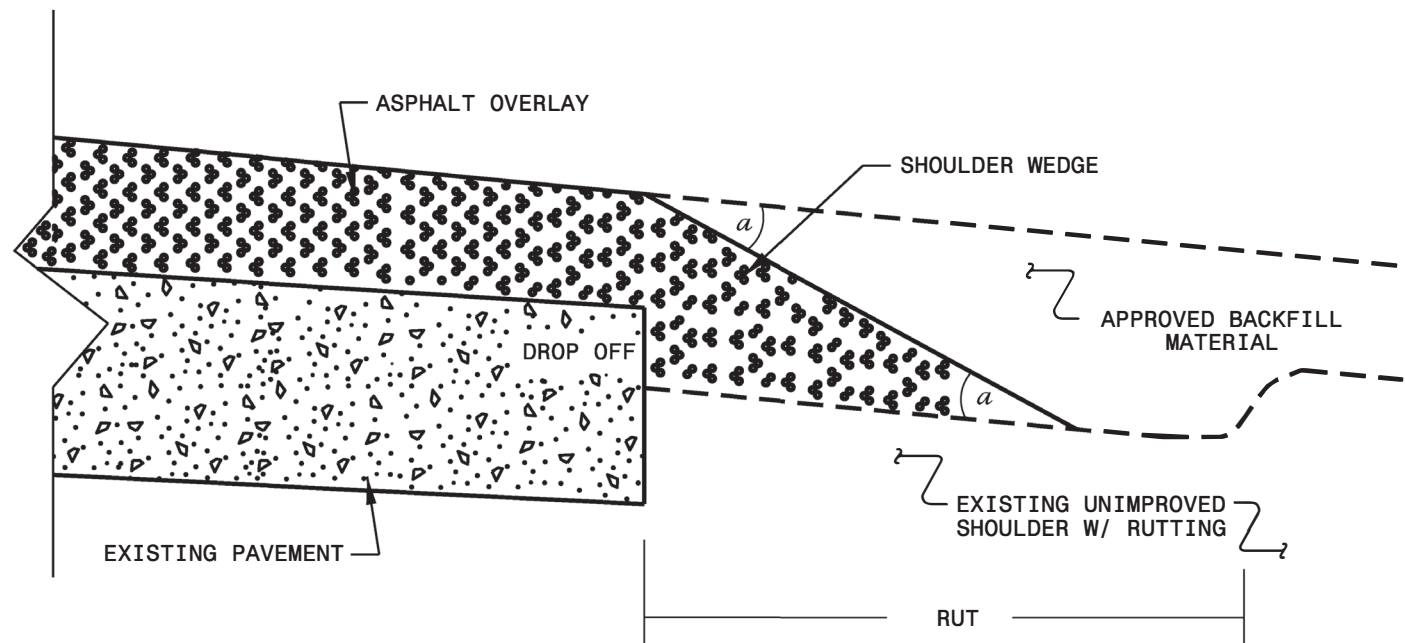
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



**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.: s:\usr\det-a11s\stand\shoulderwed\_detail.dwg

DATE PLOTTED: 10/16/12 10:10 AM  
 PLOTTER: HP DesignJet 5000  
 USER: T.SPELL



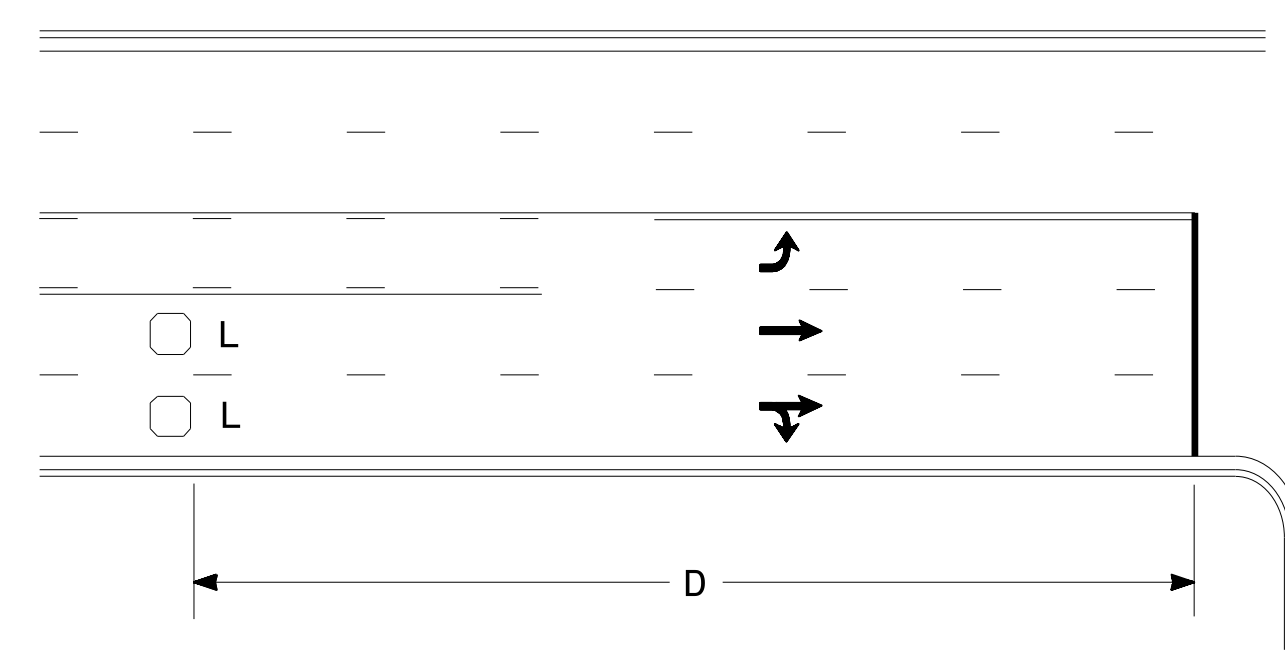
PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.13.02.10121	8	14

**THERMOPLASTIC AND PAINT QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4695000000-E	4725000000-E				4810000000-E		4835000000-E		4845000000-N			4890000000-E		4890000000-E	4895000000-N
										WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) LT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) STR & RT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) STR ARROW	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW	PAINT PAVEMENT MARKING LINES (24") WHITE	PAINT PAVEMENT MARKING SYMBOL (LT ARROW)	PAINT PAVEMENT MARKING SYMBOL (STR ARROW)	PAINT PAVEMENT MARKING SYMBOL (STR & RT ARROW)	POLYUREA PAVEMENT MARKING LINES (4", 20 MILS) YELLOW (STANDARD GLASS BEADS)	POLYUREA PAVEMENT MARKING LINES (4", 20 MILS) WHITE (STANDARD GLASS BEADS)	THERMOPLASTIC PAVEMENT MARKING LINES (24", 90 MILS)	NON-CAST IRON SNOWPLOWABLE PAVEMENT MARKERS		
								MI	FT	SF	LS	LF	EA	EA	EA	LF	LF	LF	EA	EA	EA	LF	LF	LF	EA		
2022CPT.13.02.10121	Burke	1	US 70 W	FROM SR 1138 TO SR 1146 (MP 3.57 - 5.32)	1	2	2WU	1.77	23	198												18,400	18,780			129	
2022CPT.13.02.10121	Burke	2	US 70 W	FROM SR 1146 TO SR 1152 (MP 5.32 - 7.22)	1,3,4	2	2WU	1.95	29	218		403	5	1		14,852	14,852					20,736	20,795	165		220	
2022CPT.13.02.10121	Burke	3	US 70 E (FLEMING DR.)	FROM NC 18 + 0.09 MI TO US 70 BUS (MP 12.45 - 14.20)	2	5	MD	1	60	196		56	1	1	4,886	21,820	20	56	1	1		21,820	4,886			476	
<b>TOTAL FOR PROJ NO. 2022CPT.13.02.10121</b>								<b>4.72</b>		<b>612</b>	<b>1</b>	<b>403</b>	<b>61</b>	<b>2</b>	<b>1</b>	<b>19,738</b>	<b>36,672</b>	<b>20</b>	<b>56</b>	<b>1</b>	<b>1</b>	<b>60,956</b>	<b>44,461</b>	<b>165</b>		<b>825</b>	
<b>GRAND TOTAL</b>								<b>4.72</b>		<b>612</b>	<b>1</b>	<b>403</b>	<b>61</b>	<b>2</b>	<b>1</b>	<b>19,738</b>	<b>36,672</b>	<b>20</b>	<b>56</b>	<b>1</b>	<b>1</b>	<b>60,956</b>	<b>44,461</b>	<b>165</b>		<b>825</b>	



### High Speed Detection (≥40 mph)

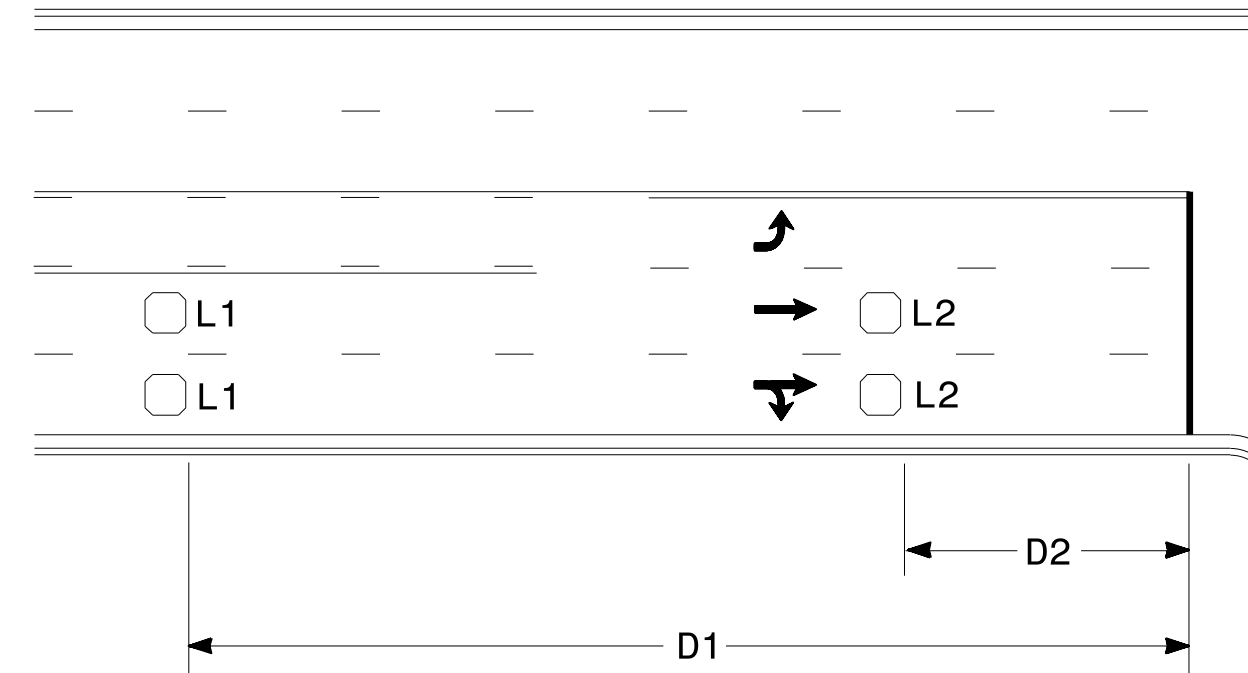


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

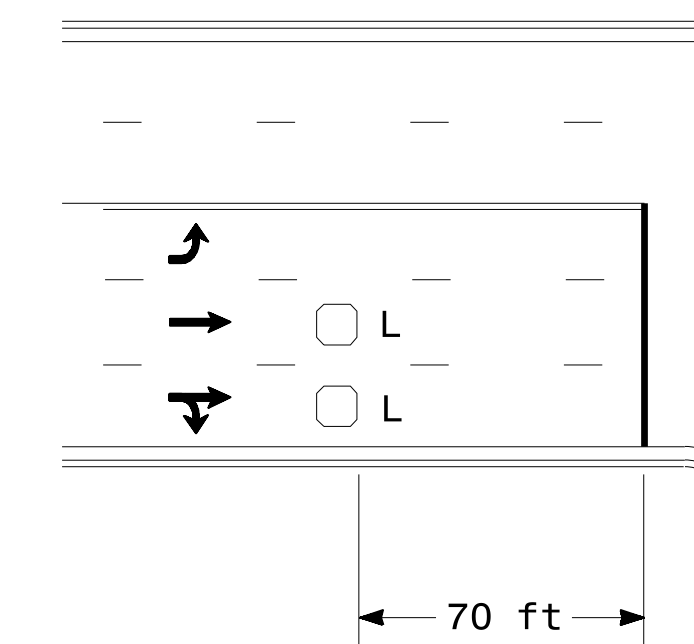


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

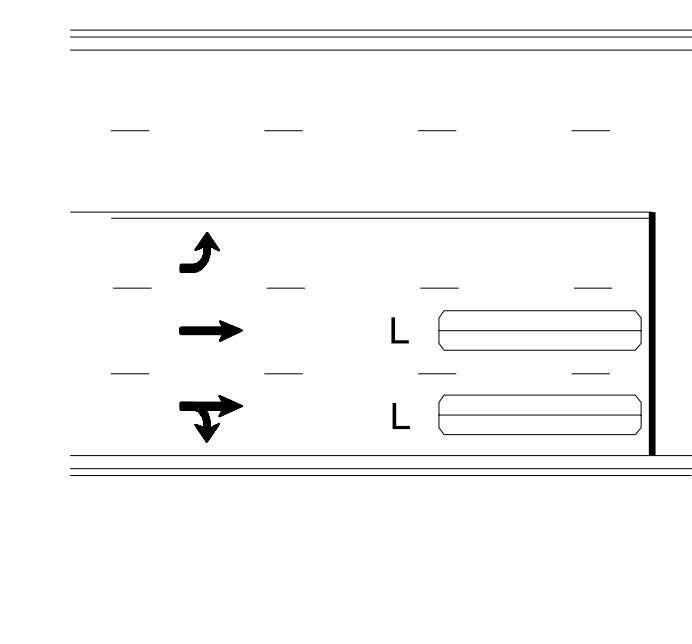
"Stretch" Operation

### Low Speed Detection (≤35 mph)



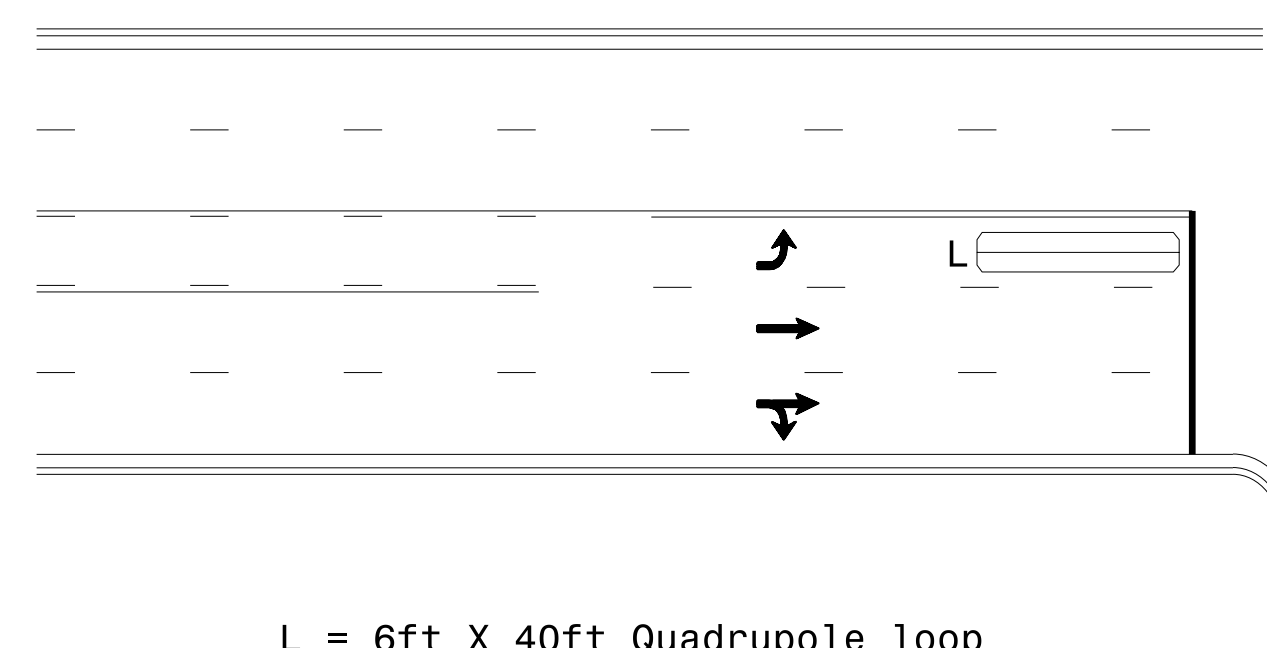
L = 6ft X 6ft  
Wired in series

OR



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

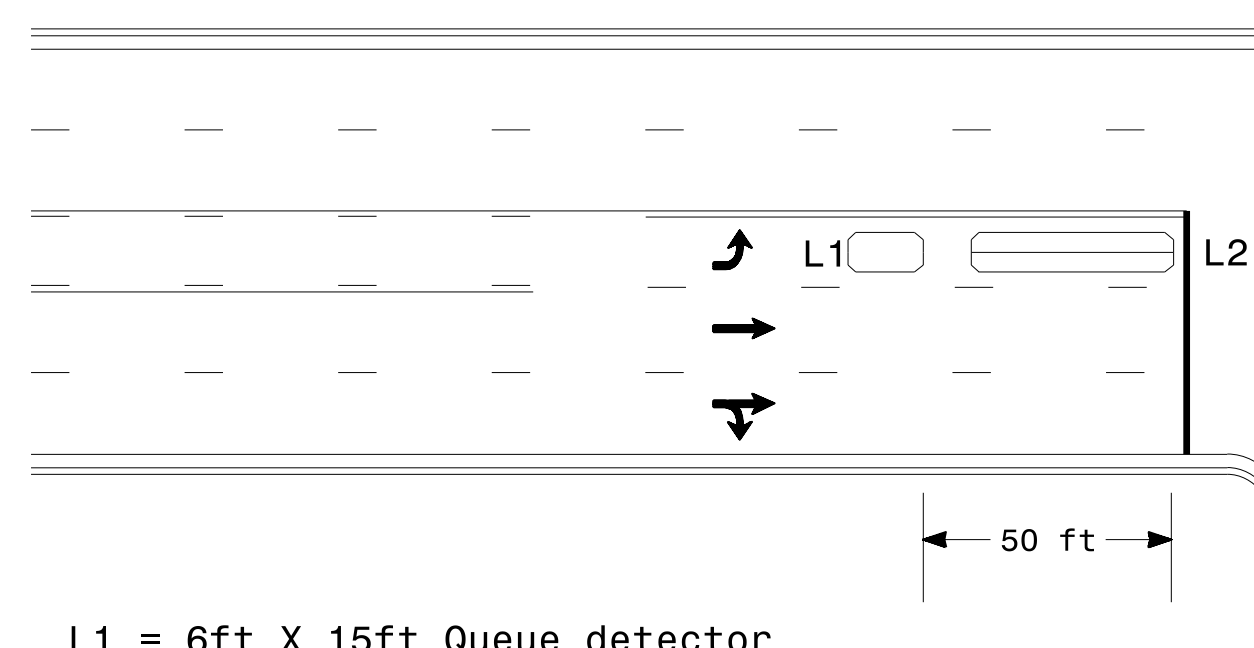
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

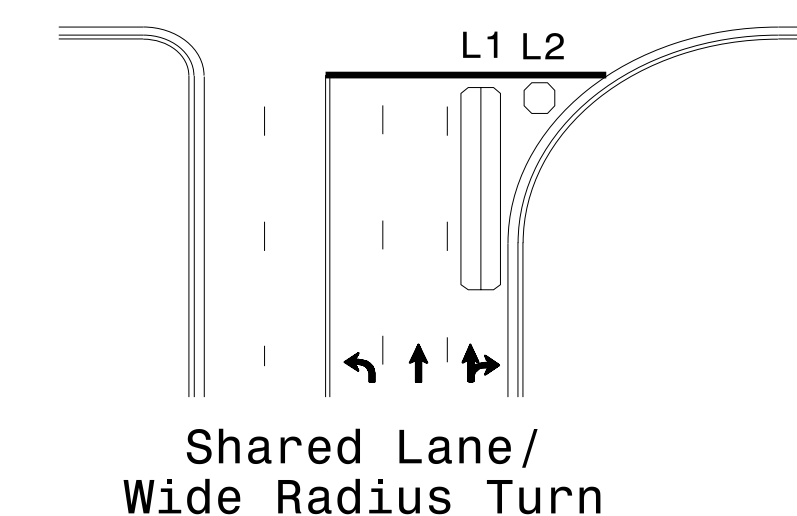
OR



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

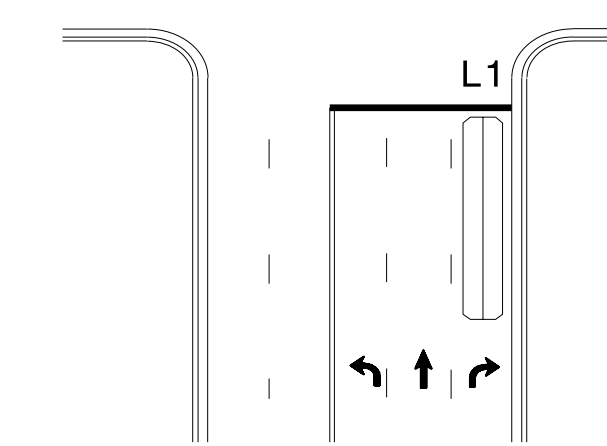
Queue Loop Detection

### Right Turn Lane Detection

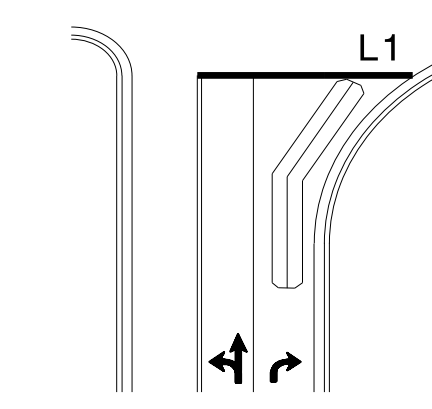


Shared Lane/  
Wide Radius Turn

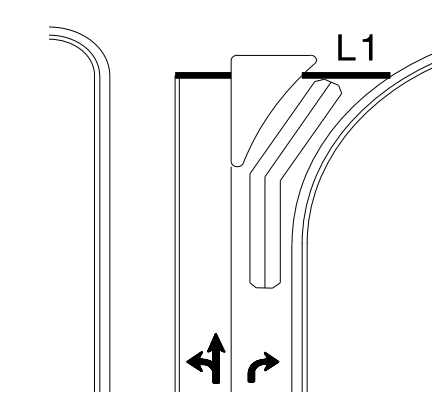
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

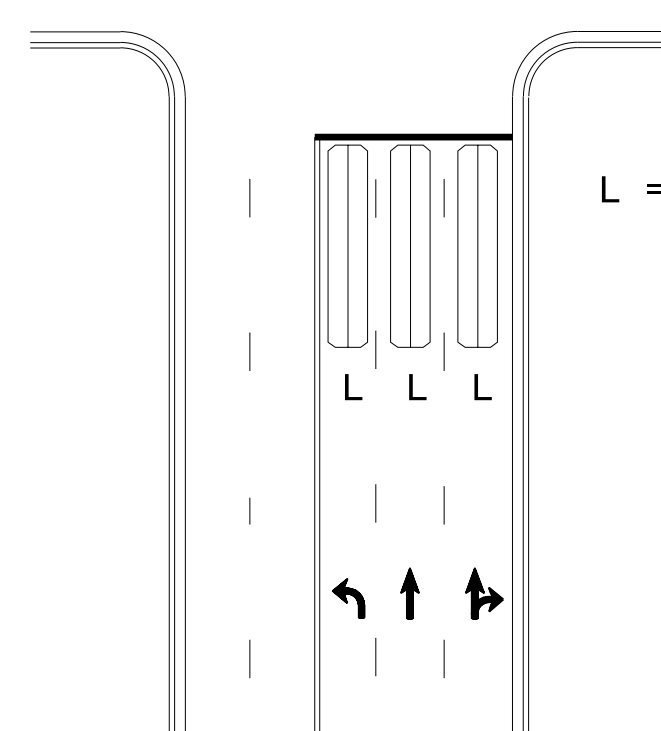


Wide Radius Turn



Channelized Turn

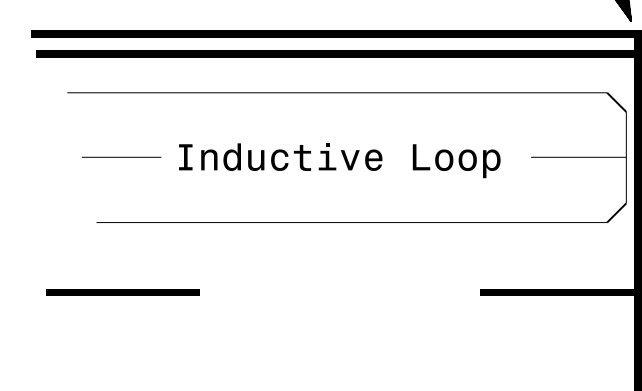
### Side Street Detection



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

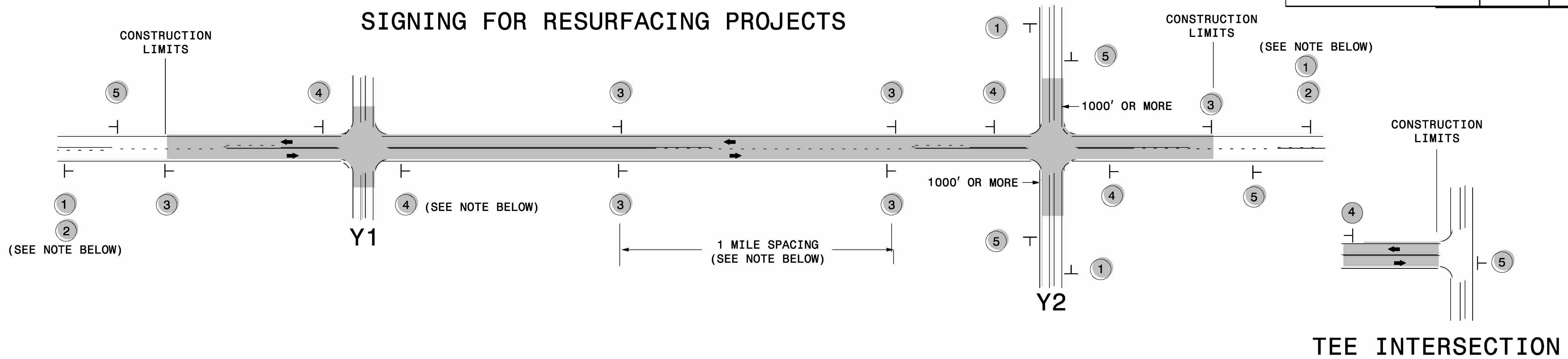
PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SCALE: N/A

SEAL

1/30/2015

# SIGNING FOR RESURFACING PROJECTS



LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

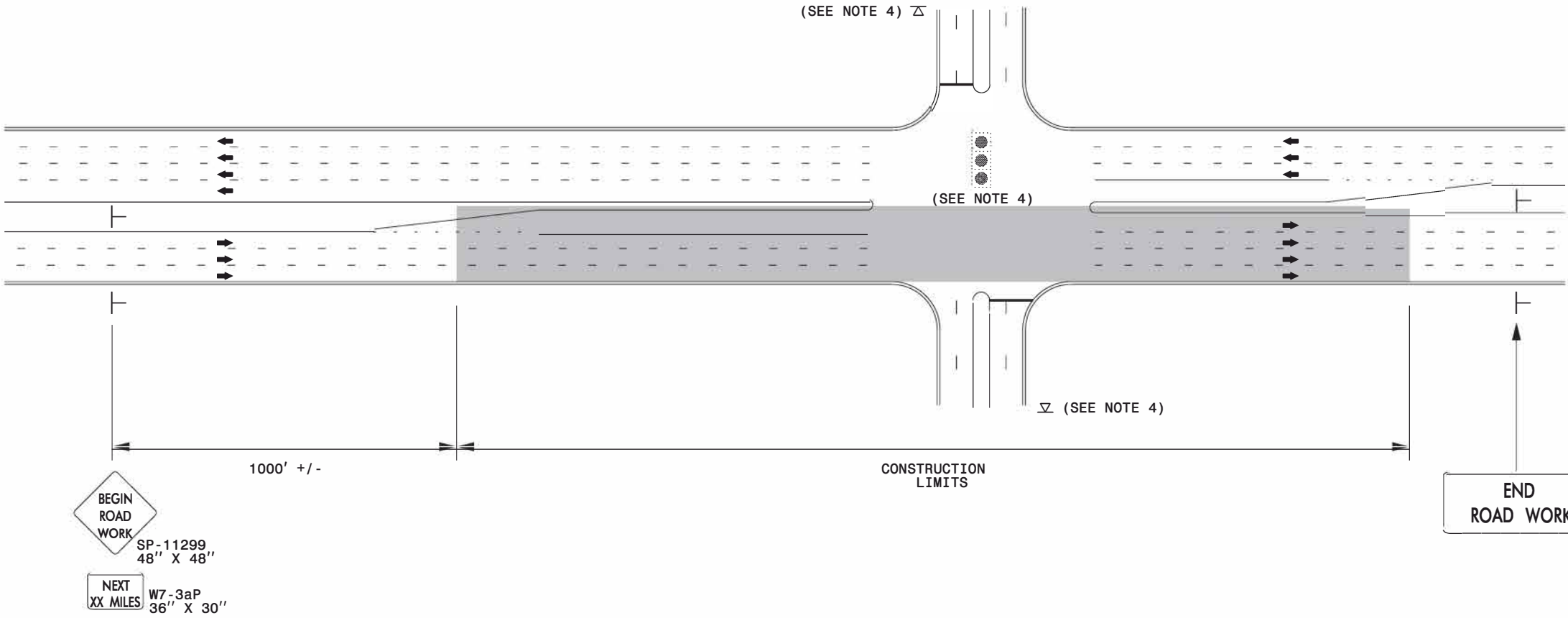
## MAINLINE (-L-) SIGNING

## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	<p>W20-1 48" X 48"</p>	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p>	<p><b>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</b></p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) DEAD END ROADS</li> </ol> <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	<p>W7-3aP 24" X 18"</p>	<p>#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)</p>	
	3	<p>SP 13107 48" X 48"</p>	<ul style="list-style-type: none"> <li>- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER.</li> <li>- AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.</li> </ul>	
	4	<p>SP 13106 48" X 48"</p>	<ul style="list-style-type: none"> <li>- THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS.</li> <li>- INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE.</li> <li>- 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.</li> <li>- A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</li> <li>- FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE.</li> </ul>	
	5	<p>G20-2 A 48" X 24"</p>	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.</p>	

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

URBAN / SUBURBAN WORKZONES



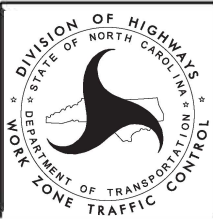
NOTES:

- 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

SIGN NUMBER: 11299

BACKG COLOR: Fluorescent Orange

DESIGN BY: WJ

CHECKED BY:

DATE: Jun 22, 2011

TYPE: B

COPY COLOR: Black

PROJECT ID: ALL

DIV: ALL

QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 5'-6"

HEIGHT: 5'-6"

# SP 11299

PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.13.02.10121	12	14

TOTAL AREA: 30.5 Sq.Ft.

BORDER TYPE: INSET

RECESS: 0.59"

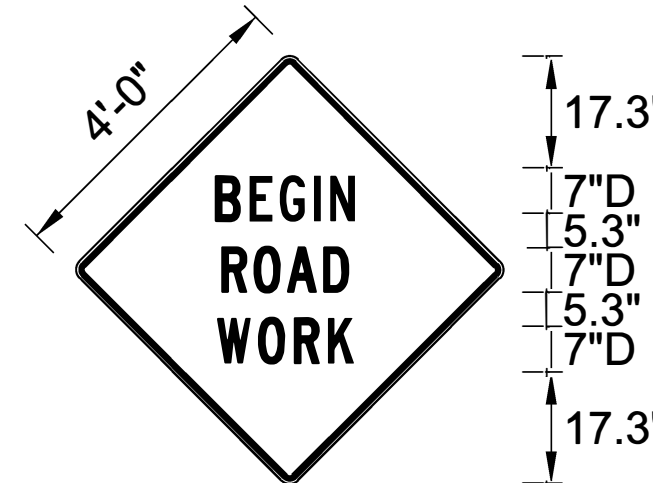
WIDTH: 0.75"

RADII: 1.38"

NO. Z BARS: N/A

LENGTH: N/A

MAT'L: 0.125" (3.2 mm) ALUMINUM



BORDER  
R=1.38"  
TH=0.75"  
IN=0.59"

Spacing Factor is 1 unless specified otherwise

### USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

### LETTER POSITIONS

Letter spacings are to start of next letter																				Series/Size	
																				Text Length	
		B	E	G	I	N															D 2000
20.5	6	5.4	6.3	2.8	4.8	20.5															25.2
		R	O	A	D																D 2000
21.4	5.8	5.9	7	4.8	21.4																23.5
		W	O	R	K																D 2000
20.9	7.1	6.5	5.9	4.9	20.9																24.5

SIGN NUMBER: SP13106  
 TYPE: STATIONARY  
 QUANTITY: SEE PLANS

BACKG COLOR: Fluorescent Orange  
 COPY COLOR: Black

DESIGN BY: B. RASHID  
 PROJECT ID:

CHECKED BY: AIA  
 DIV:

DATE: Apr 26, 2013

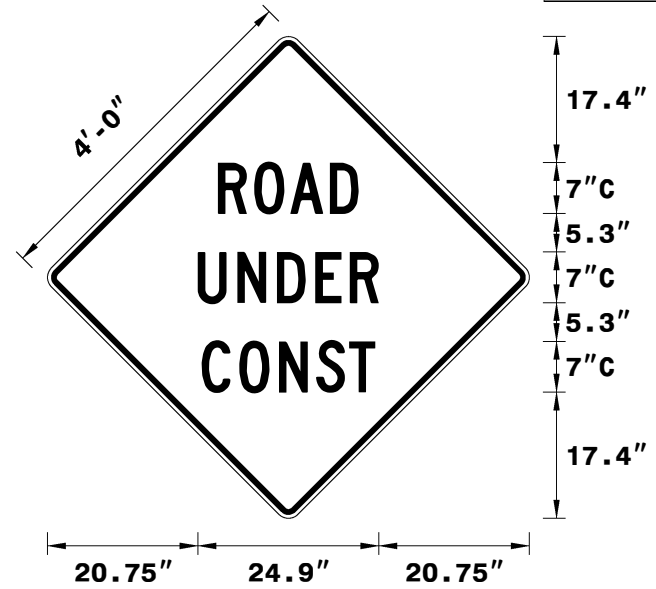
SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

BORDER TYPE: INSET  
 RECESS: 0.75"  
 WIDTH: 1.25"  
 RADII: 3"

NO. Z BARS:  
 LENGTH:

PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.13.02.10121	13	14



Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter

Letter spacings are to start of next letter																		Series/Size
																		Text Length
		R	O	A	D													C 2000
23.5	5	5	5.5	3.9	23.5													19.3
		U	N	D	E	R												C 2000
20.7	5.5	5.5	5.3	4.8	3.9	20.7												24.9
		C	O	N	S	T												C 2000
21.2	5.2	5.5	5.1	4.6	3.6	21.2												23.9

