

05/08/99

WBS ELEMENT: ICR.10081.28, ETC.

CONTRACT NO.: DA00200

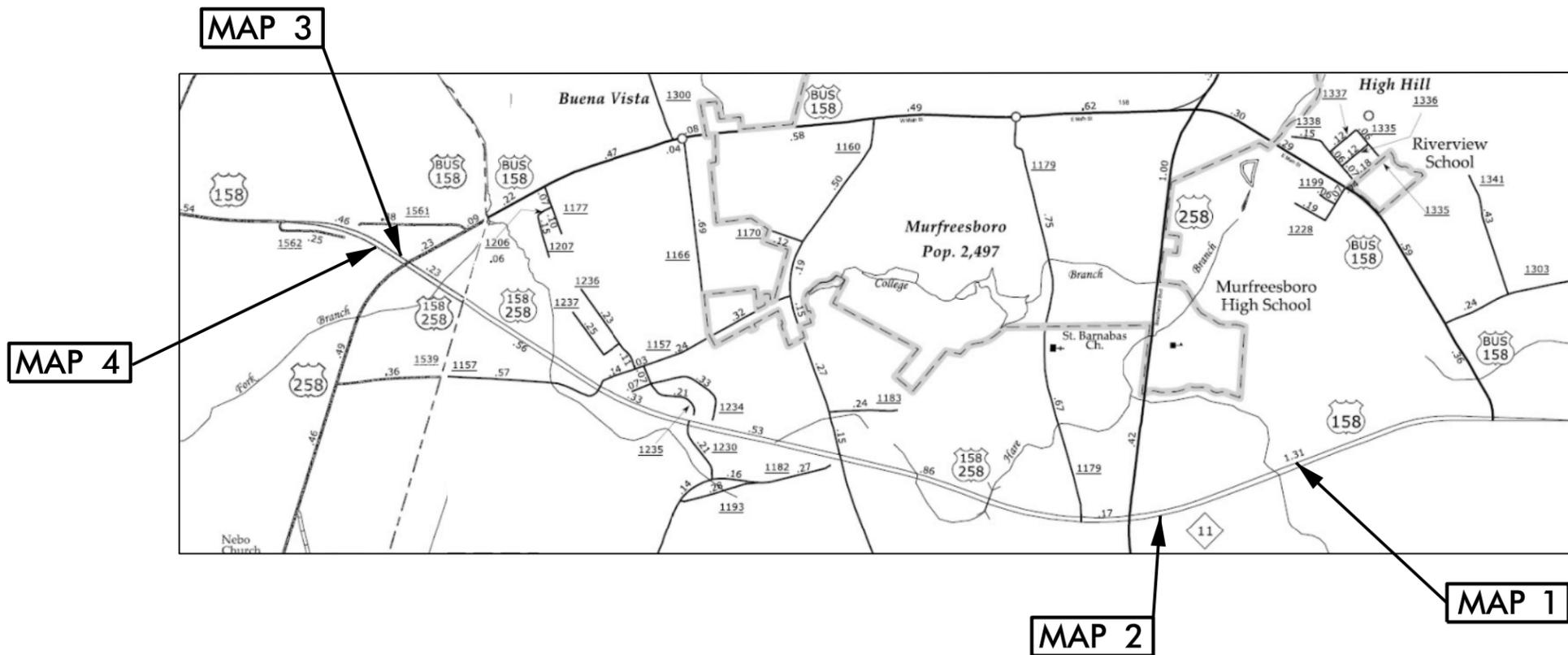
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HERTFORD & NORTHAMPTON COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	ICR.10081.28, ETC.	1	8
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
ICR.10461.25		MAPS 1 & 2	
ICR.10661.27		MAPS 3 & 4	

LOCATION: MAP 1 US 158 BYPASS WBL FROM APPROX 2000' WEST OF US 158 BUS TO NORTHAMPTON COUNTY LINE
 MAP 2 US 158 BYPASS EBL FROM APPROX 2000' WEST OF US 158 BUS TO NORTHAMPTON COUNTY LINE
 MAP 3 US 158 BYPASS WBL FROM NORTHAMPTON COUNTY LINE TO BYPASS END
 MAP 4 US 158 BYPASS EBL FROM NORTHAMPTON COUNTY LINE TO BYPASS END

TYPE OF WORK: MILLING AND RESURFACING



NTS

PROJECT LENGTH
LENGTH OF ROADWAY PROJECT MAP 1 = 3.46 MI.
LENGTH OF ROADWAY PROJECT MAP 2 = 3.46 MI.
LENGTH OF ROADWAY PROJECT MAP 3 = 0.46 MI.
LENGTH OF ROADWAY PROJECT MAP 4 = 0.46 MI.
TOTAL = 7.84 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
 113 Airport Dr., Edenton NC, 27932

2012 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 27, 2014

W.B. HOBBS, P.E.
DIVISION PROJECT MANAGER

C.E. SLACHTA
DIVISION PROPOSALS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



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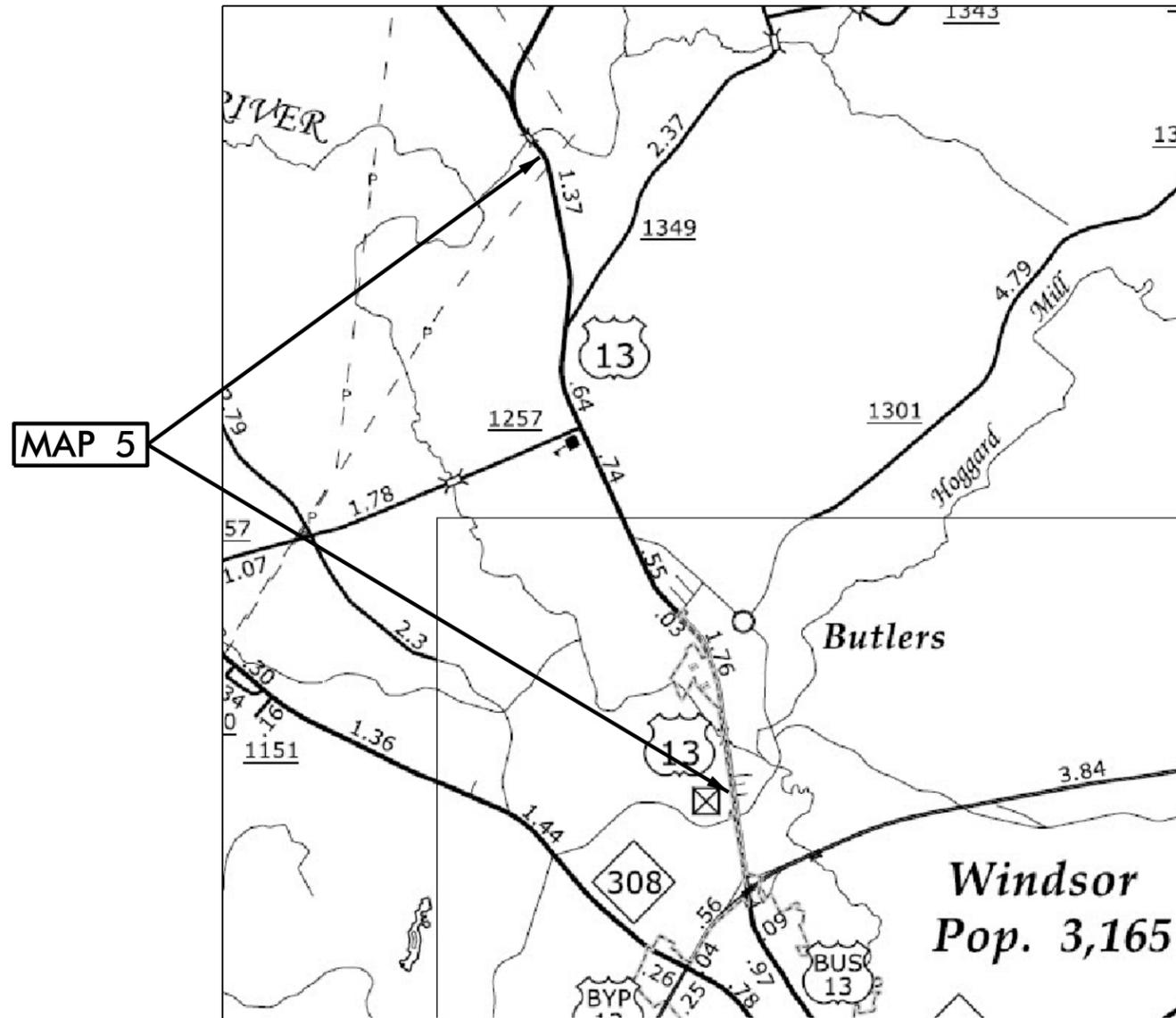
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BERTIE COUNTY

LOCATION: MAP 1 US 13 FROM APPROX. 400' SOUTH OF BRIDGE #53 TO SR 1388

TYPE OF WORK: MILLING AND RESURFACING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	ICR.10081.28, ETC.	2	8
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
ICR.10081.28		MAP 5	



NTS

PROJECT LENGTH
LENGTH OF ROADWAY PROJECT MAP 5 = 4.25 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
113 Airport Dr., Edenton NC, 27932

2012 STANDARD SPECIFICATIONS

LETTING DATE:
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W.B. HOBBS, P.E.
DIVISION PROJECT MANAGER

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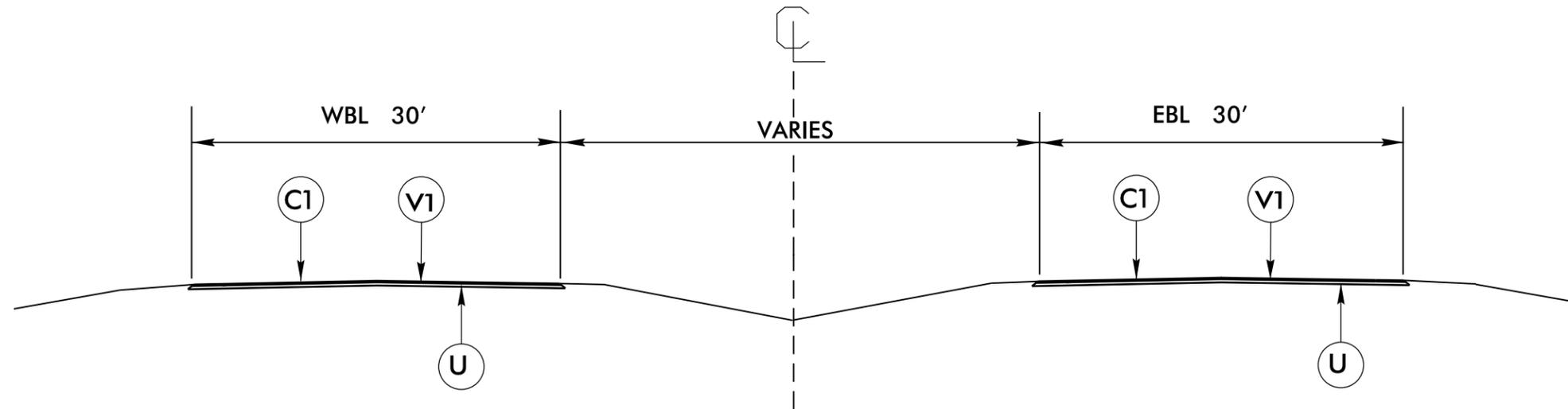
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
U	EXISTING PAVEMENT.
V1	MILLING BITUMINOUS PAVEMENT. 1.5" IN DEPTH.

PROJECT REFERENCE NO.	SHEET NO.
1CR.10081.28, ETC.	3 of 8

NOTES:

- *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 SUMMARY OF QUANTITIES
- *SHOULDER RECONSTRUCTION TO BE PERFORMED BY OTHERS
- *INDUCTIVE LOOPS SHALL BE INSTALLED PRIOR TO THE FINAL LIFT OF SURFACE BEING PLACED



TYPICAL SECTION NO. 1

USE WITH MAPS 1 - 4

NTS

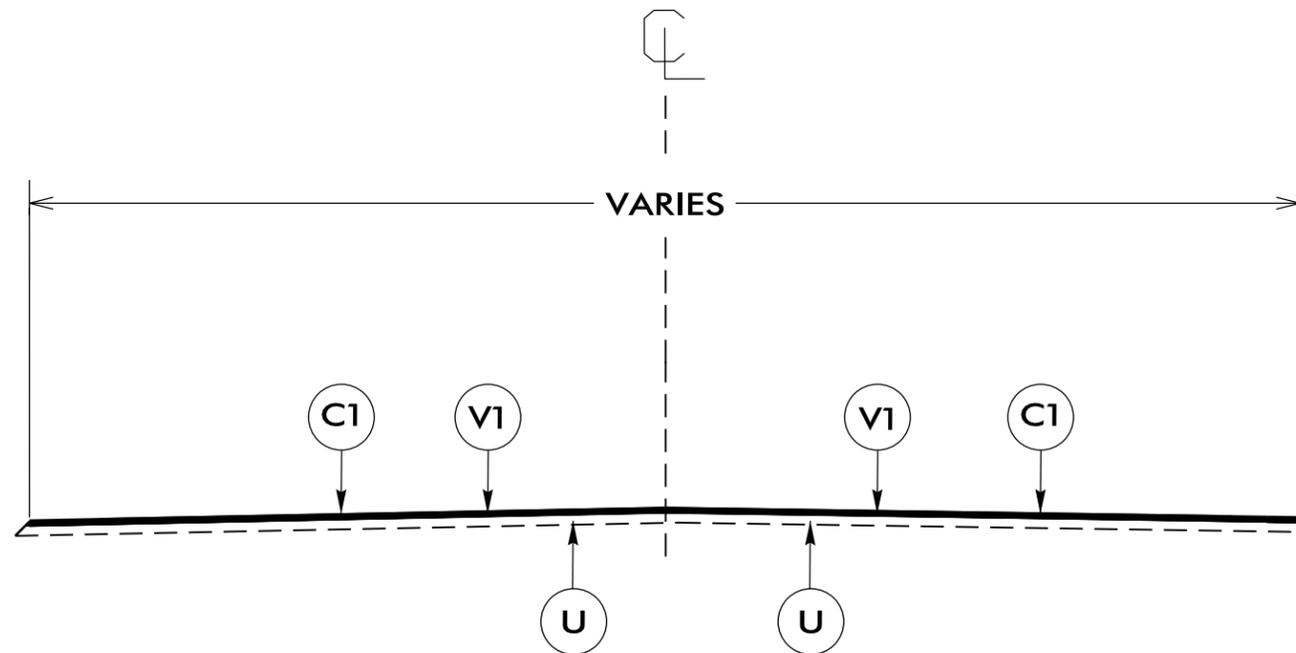
P A V E M E N T S C H E D U L E

C1	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
V1	MILLING BITUMINOUS PAVEMENT. 2.0" IN DEPTH.
U	EXISTING PAVEMENT.

PROJECT REFERENCE NO.	SHEET NO.
1CR.10081.28, ETC.	4 of 8

NOTES:

- *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 SUMMARY OF QUANTITIES
- *SHOULDER RECONSTRUCTION TO BE PERFORMED BY OTHERS



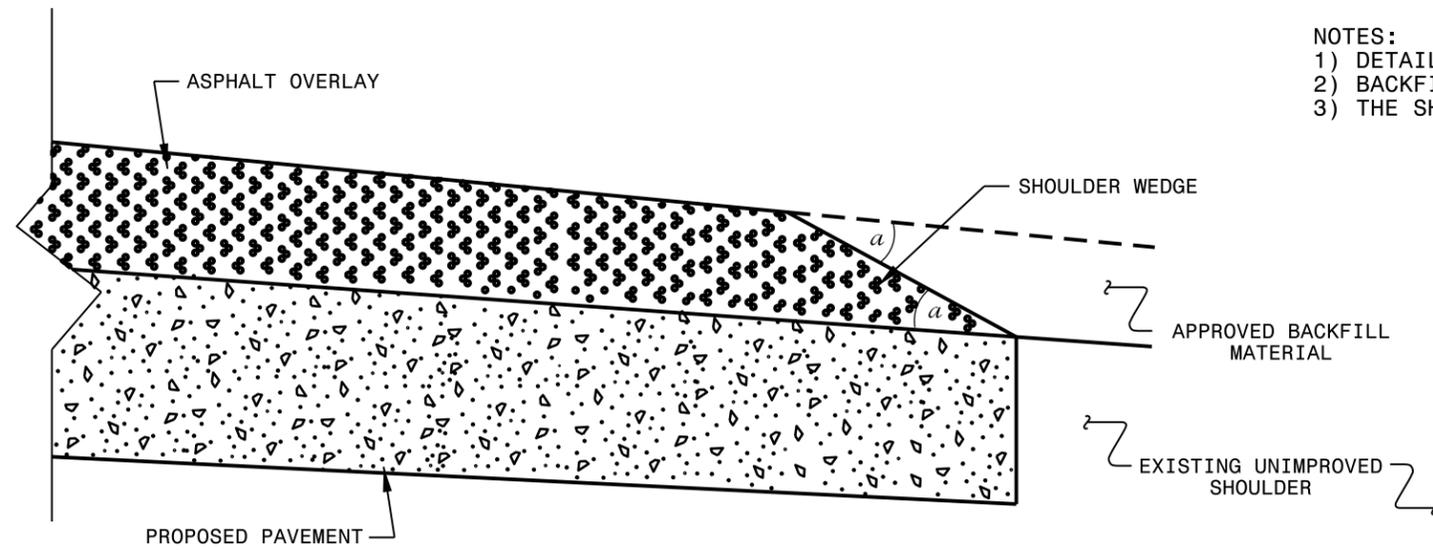
TYPICAL SECTION NO.2

USE WITH MAP 5

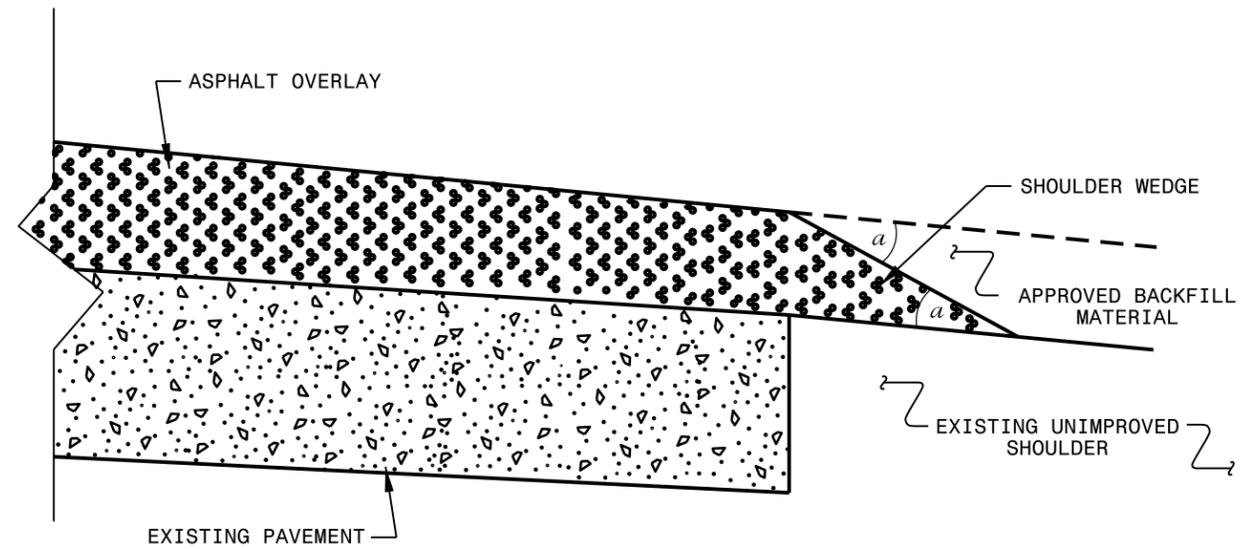
NTS

05-AUG-2014 08:26 C:\Users\jgibson\Documents\Projects\10081\10081.dwg

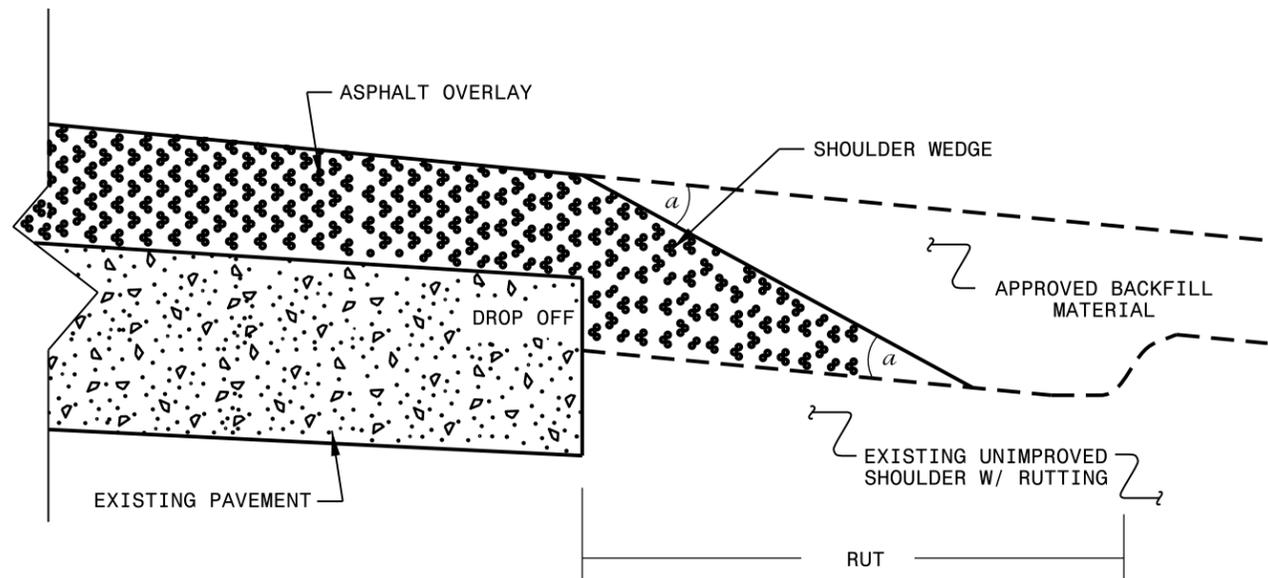
- NOTES:
 1) DETAIL DOES NOT APPLY TO OGAFc AND ULTRA-THIN BONDED WEARING COURSE.
 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



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

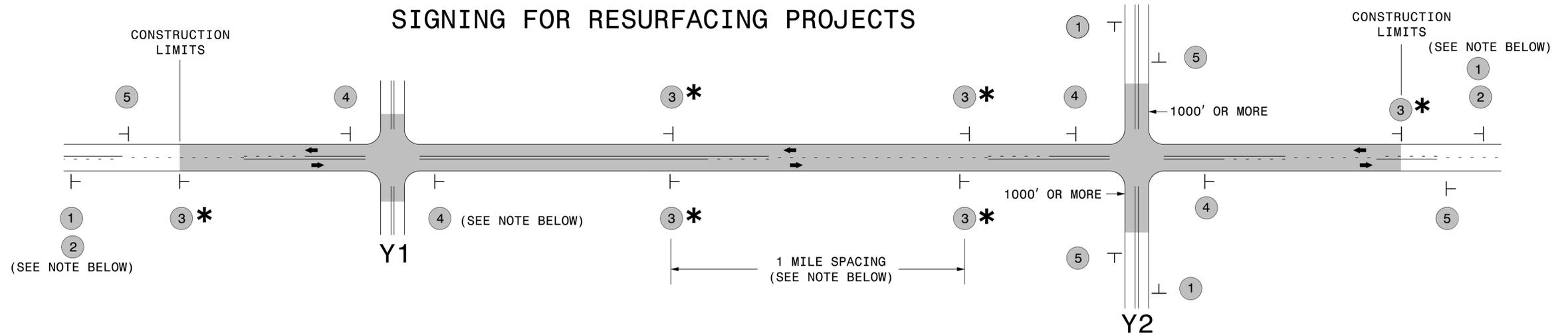
SYSTEMS DESIGN
 USER NAME

PROJECT NO.	SHEET NO.	TOTAL NO.
1CR.10081.28, ETC.	6	8

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	MOBILIZATION LS	1½" MILLING SY	2" MILLING SY	SURFACE COURSE, S9.5C TONS	ASPHALT BINDER FOR PLANT MIX TONS	GENERIC SIGNING ITEM WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF	TEMP TRAFFIC CONTROL LS	4" WHITE PAINT LF	4" YELLOW PAINT LF	24" WHITE PAINT LF	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF
1CR.10461.25	Hertford	1	US 158 BYP	WBL FROM APPROX 2000' WEST OF US 158 BUS TO NORTHAMPTON CO LINE	1	2	MD	NO	NO	3.46	30	0.286	72,200		6,419	380	200	0.286	26,500	18,750	350	1,750	150
1CR.10461.25	Hertford	2	US 158 BYP	EBL FROM APPROX 2000' WEST OF US 158 BUS TO NORTHAMPTON CO LINE	1	2	MD	NO	NO	3.46	30	0.286	74,800		6,341	376	200	0.286	26,500	18,750	350	1,750	150
1CR.10661.27	Northampton	3	US 158 BYP	WBL FROM NORTHAMPTON CO. LINE TO END BYPASS	1	2	MD	NO	NO	0.46	30	0.038	9,950		923	55	80	0.038	3,000	2,500	120	750	75
1CR.10661.27	Northampton	4	US 158 BYP	EBL FROM NORTHAMPTON CO. LINE TO END BYPASS	1	2	MD	NO	NO	0.46	30	0.038	9,950		809	48	80	0.038	3,000	2,500	50	600	75
1CR.10081.28	Bertie	5	US 13	FROM APPROX 400' SOUTH OF BRIDGE 53 TO SR 1388	2	2	2WU	NO	NO	4.25	22.5	0.352		63,500	7,385	436	240	0.352	45,730	30,600	20		
GRAND TOTAL										12.09		1	166,900	63,500	21,877	1,295	800	1	177,830	890	4,850	450	

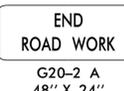
SIGNING FOR RESURFACING PROJECTS



LEGEND	
	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

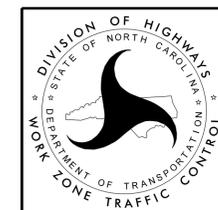
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION		
1 2	 	<p style="text-align: center;">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 style="text-align: center;">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; align-items: center;"> <div style="text-align: center;">  <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;">  <small>W20-7 A 48" X 48"</small> </div> </div> <p style="text-align: center;">PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
3 *		<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</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> <p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>
4		<p>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.</p>
5		<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>

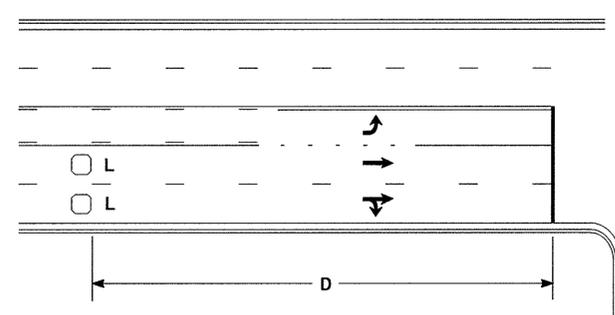
* SIGNING FOR ASPHALT SURFACE TREATMENTS (ONLY)

SUBSTITUTE LOW/SOFT SHOULDER SIGNS BY ALTERNATING THE FOLLOWING TWO SIGNS:
STARTING WITH "UNMARKED PAVEMENT AHEAD" (SP 06026) FOLLOWED BY "LOOSE GRAVEL" (W8-7).



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

High Speed Detection [≥40 mph (64 km/hr)]

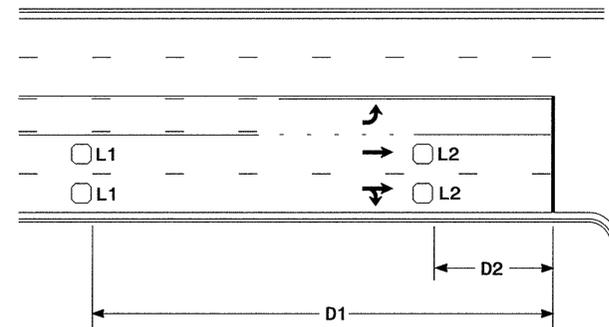


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

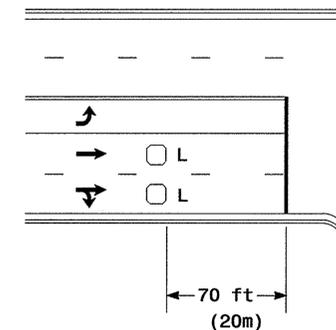


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

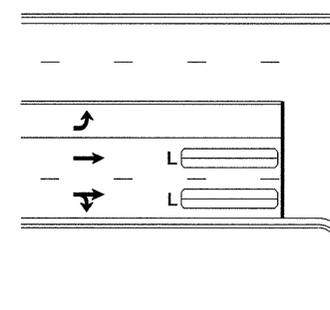
"Stretch" Operation

Low Speed Detection [≤35 mph (56 km/hr)]



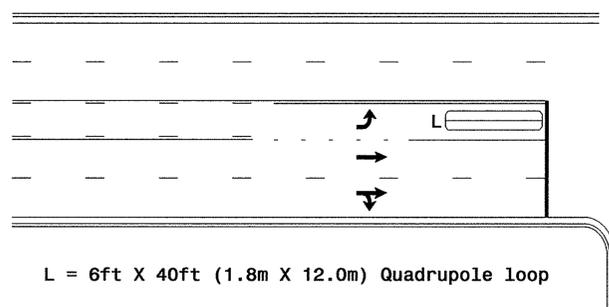
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

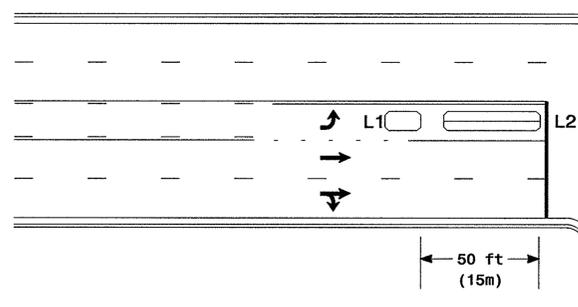
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

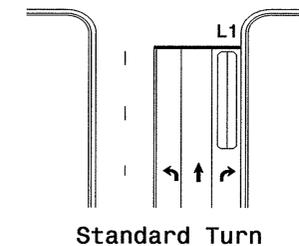
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

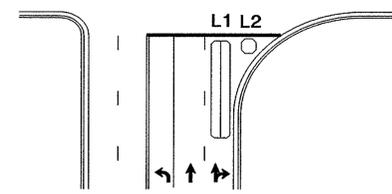
Queue Loop Detection

Right Turn Lane Detection

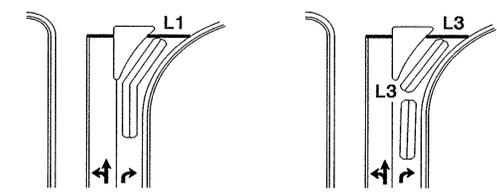


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

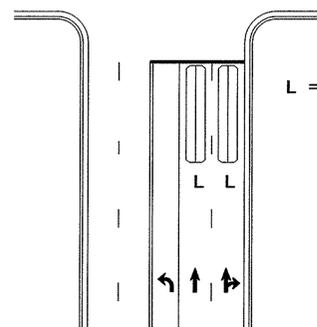


Wide Radius Turn



Channelized Turn

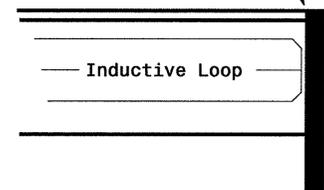
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
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 when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

	Typical Loop Locations		
	PLAN DATE: June 2006 PREPARED BY: P. L. Alexander	REVIEWED BY: REVIEWED BY:	
SCALE N/A	INIT. DATE [Signature] [Date]	SIGNATURE [Signature]	DATE [Date]