

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HI-0002	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49637.1.1	1009027	PE	
49637.3.1	1009027	CONST	

# DAVIDSON & RANDOLPH COUNTY

LOCATION: I-85 FROM NC 109 IN THOMASVILLE TO  
SR 1009 (SOUTH MAIN STREET) IN ARCHDALE

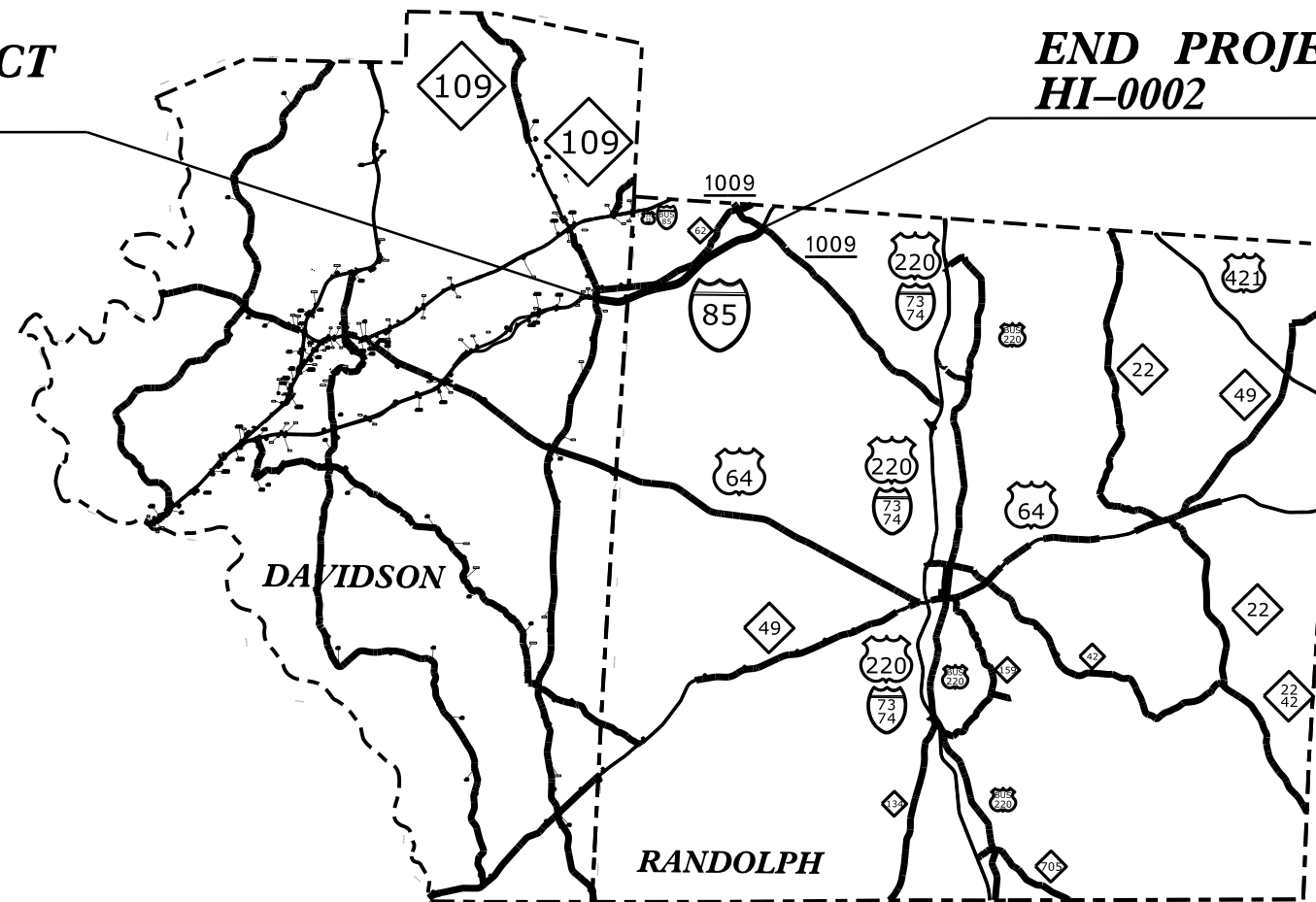
TYPE OF WORK: PAVEMENT REHABILITATION AND BRIDGE REHABILITATION

TIP PROJECT: HI-0002

CONTRACT: C204703

BEGIN PROJECT  
HI-0002

END PROJECT  
HI-0002



**DESIGN DATA**  
ADT 2019 = 66,500  
V = 70 MPH  
FUNCTIONAL CLASS=INTERSTATE

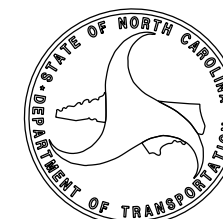
**PROJECT LENGTH**  
TOTAL LENGTH OF TIP PROJECT HI-0002 = 7.774 MI

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC 27610

2018 STANDARD SPECIFICATIONS

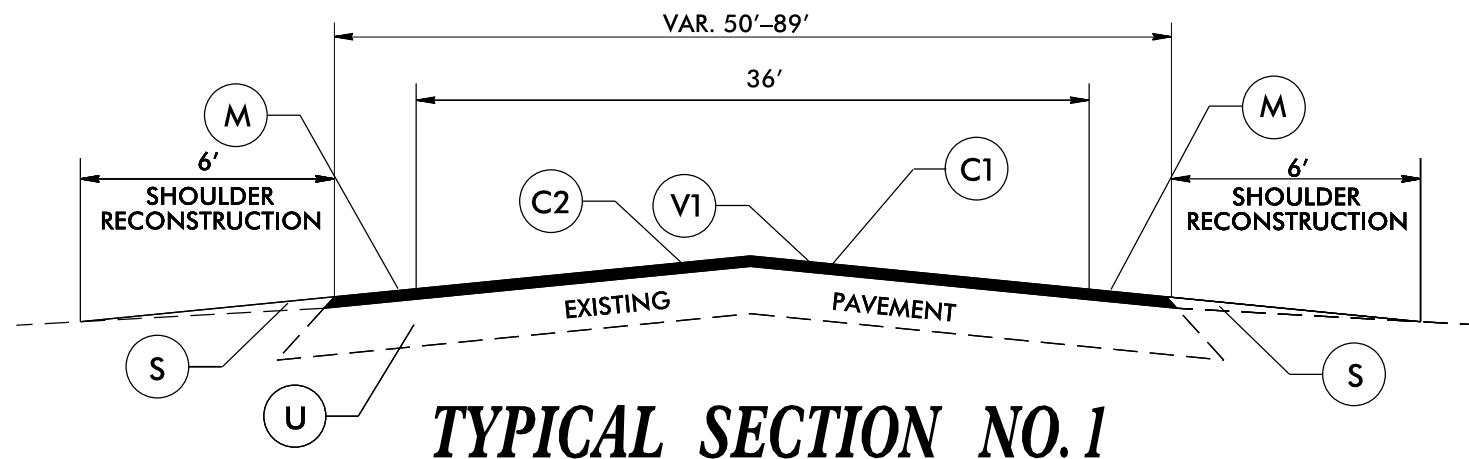
RIGHT OF WAY DATE:  
N/A

LETTING DATE:  
APRIL 19, 2022

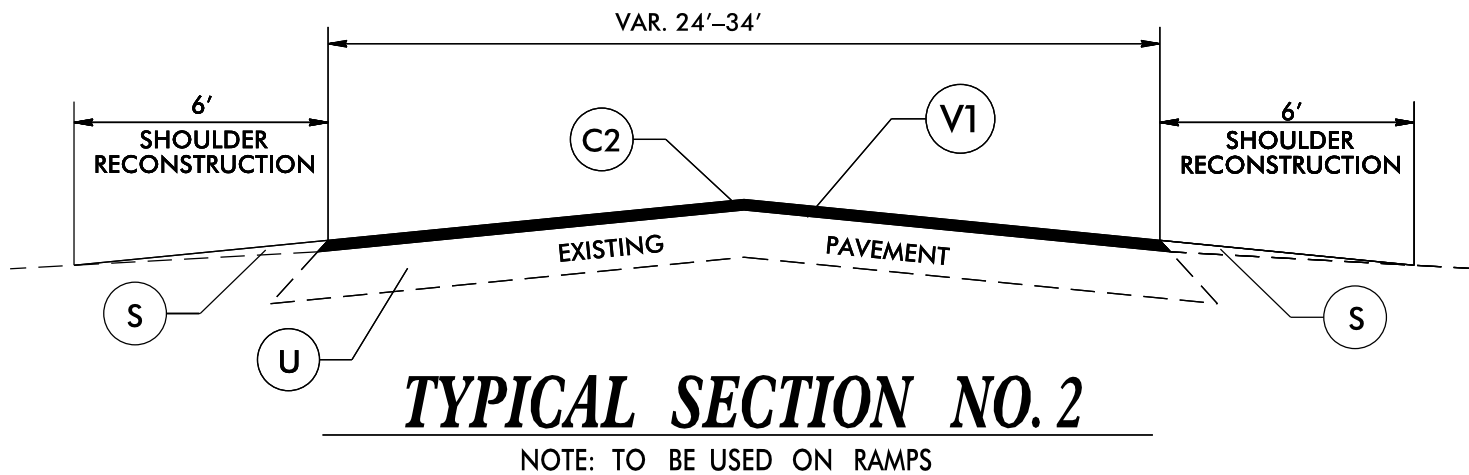


MICHAEL RICKETTS, PE  
PROJECT ENGINEER

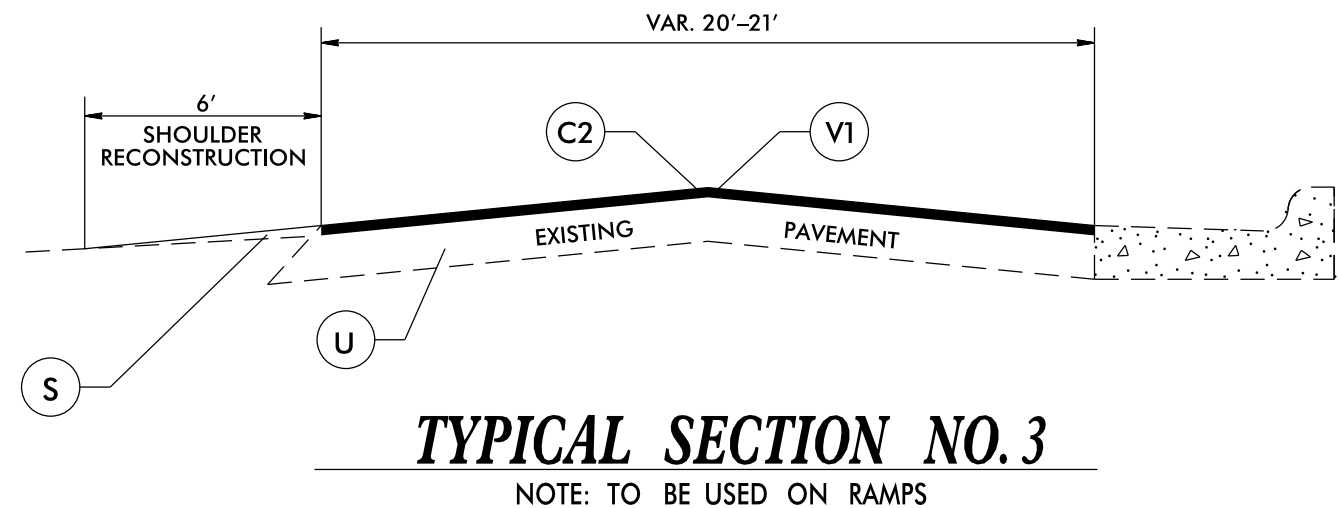
I7-MAR-2022 09:17 Z:\rcd\Division\Resurfacing\2021+2022 Resurfacing\HI-0002\_Randolph-Apr112022\_Submittal\HI-0002\_tsh.dgn mericketts AT DIV8-303605L



NOTE: ULTRATHIN BONDED WEARING COURSE TO BE PLACED BETWEEN MILLED RUMBLE STRIPS ONLY.



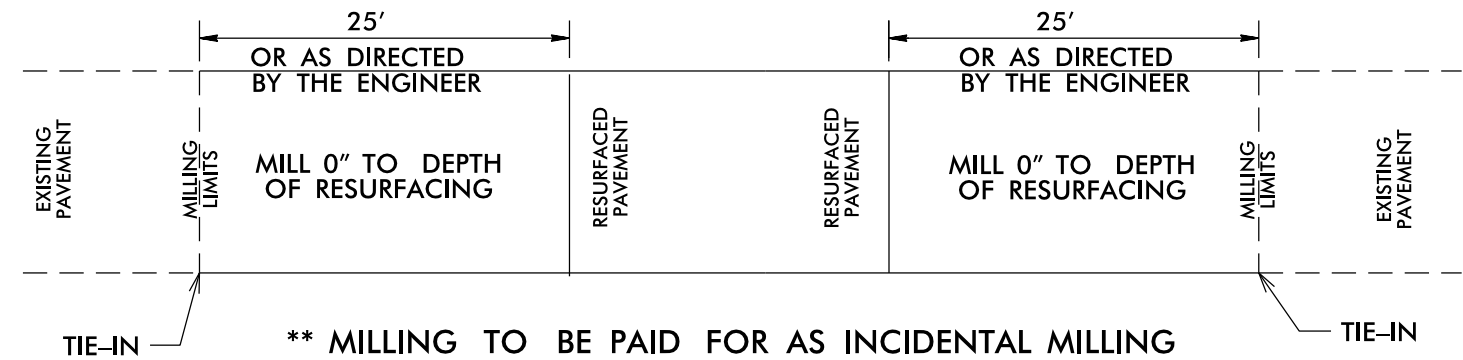
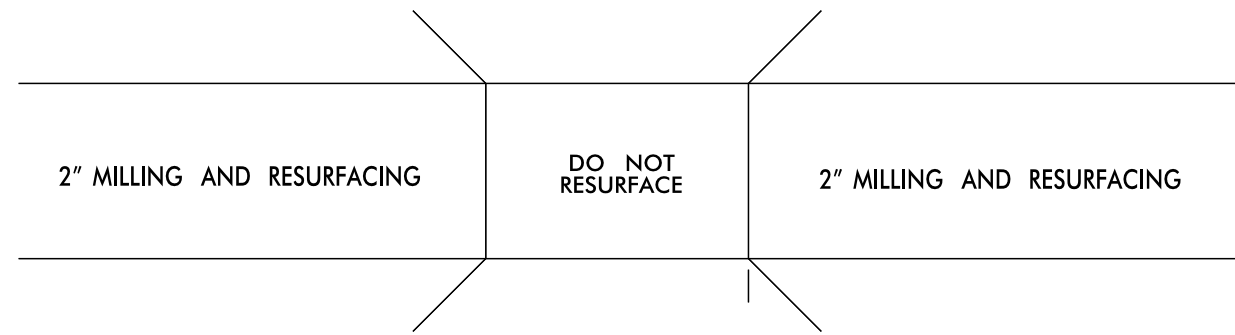
NOTE: TO BE USED ON RAMPS



NOTE: TO BE USED ON RAMPS

### PAVEMENT SCHEDULE

C1	PROP. APPROX. 5/8" ULTRATHIN BONDED WEARING COURSE (UBWC), AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
M	MILLED RUMBLE STRIPS
S	AGGREGATE SHOULDER BORROW (ASB)
U	EXISTING PAVEMENT
V1	2.0" MILLING

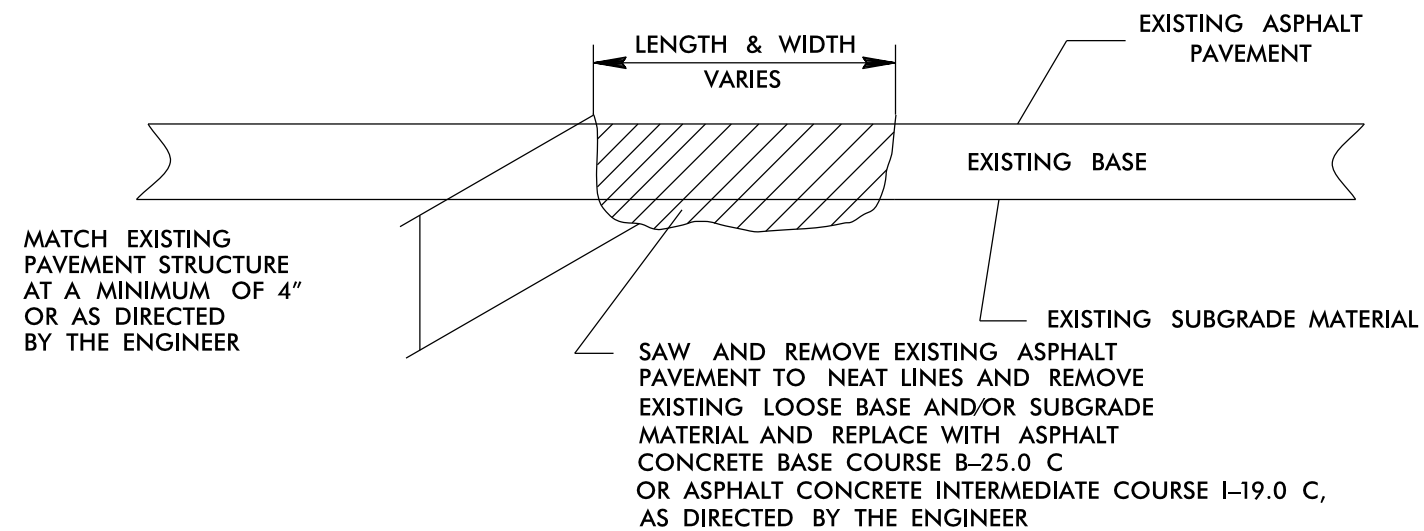


\*\* MILLING TO BE PAID FOR AS INCIDENTAL MILLING

**BRIDGE DRAWING FOR  
MAP #1 I-85 NB BRIDGES #20, #466, #479  
MAP #2 I-85 SB BRIDGES #26, #467, #480**

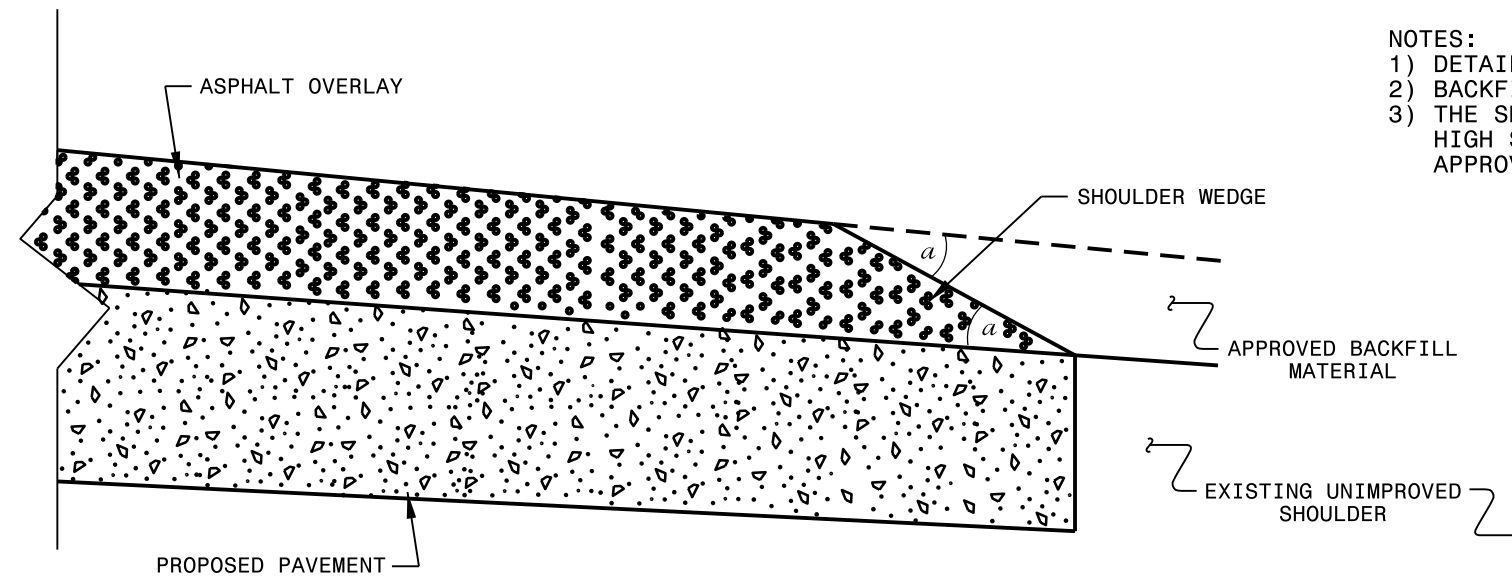
**PAVEMENT TIE-IN DETAIL**

**DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING**



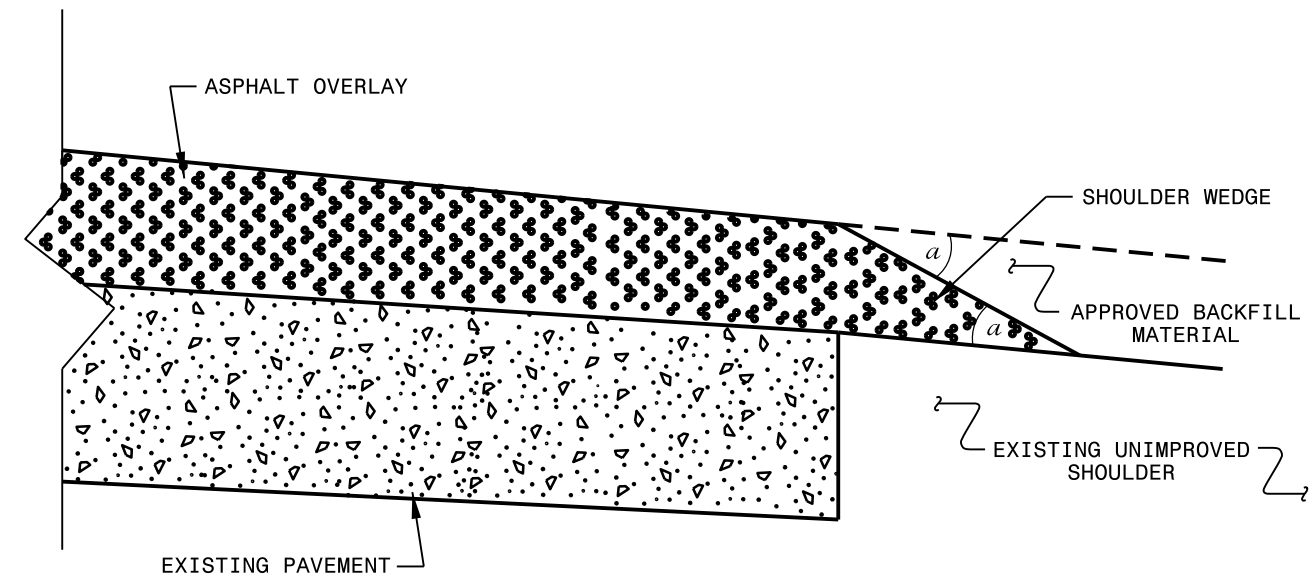
**NOTES:**

- 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, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



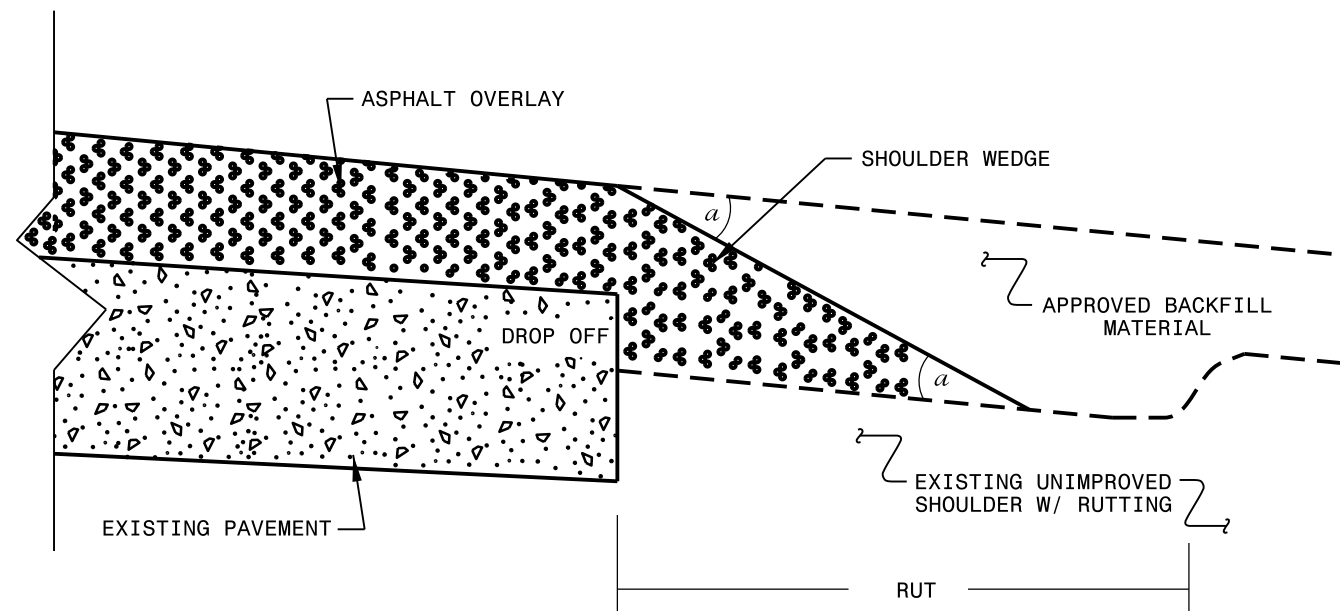
**SHOULDER WEDGE DETAIL**

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



**SHOULDER WEDGE DETAIL**

(Resurfacing Projects w/ NO Widening)



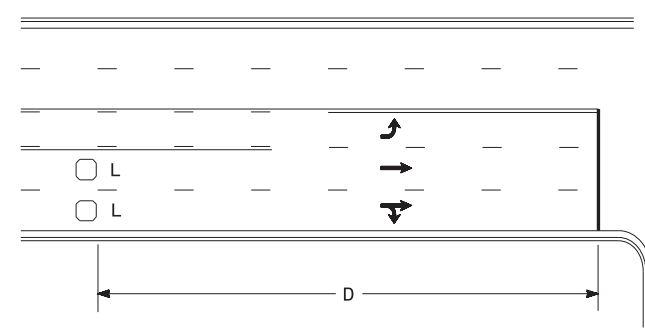
**SHOULDER WEDGE DETAIL**

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>		
Office 919-707-6950 FAX 919-250-4119		
<b>SHOULDER WEDGE DETAILS</b>		
ORIGINAL BY: T.SPELL	DATE: 7-19-11	
MODIFIED BY:	DATE: 2/2/16	
CHECKED BY:	DATE:	
FILE SPEC.: szusr/details/stand/shoulderwedgedetail.dgn		

### High Speed Detection (≥40 mph)

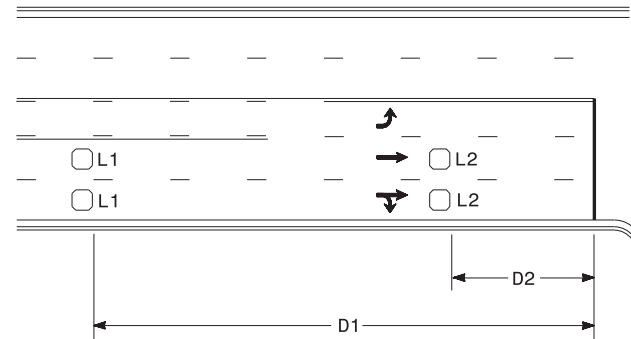


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft  
Wired separately

Volume Density Operation

OR

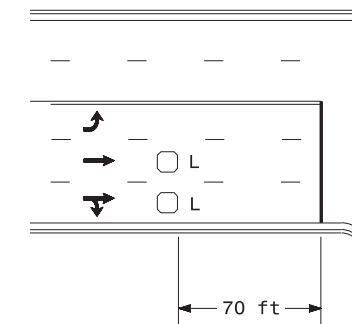


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

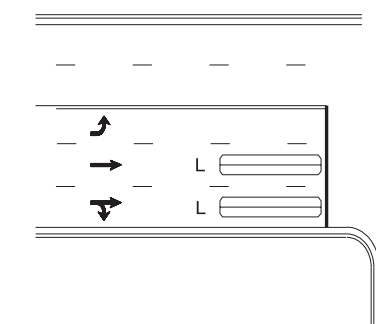
"Stretch" Operation

### Low Speed Detection (≤35 mph)



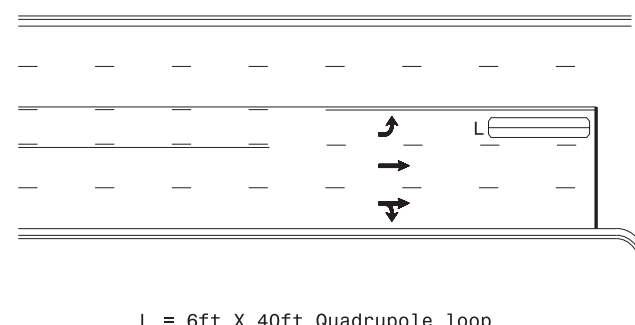
L = 6ft X 6ft  
Wired in series

OR



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

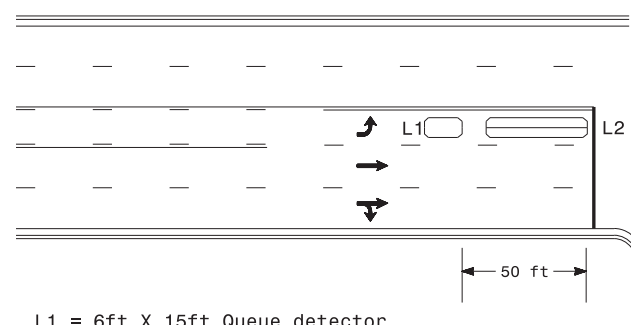
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

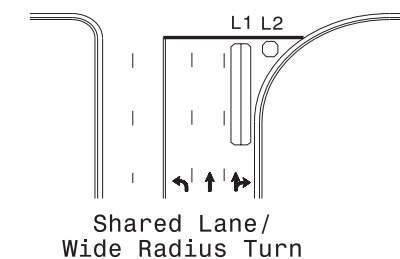
OR



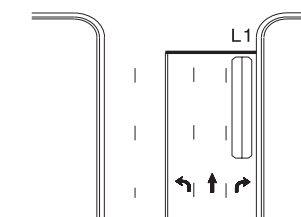
L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

Queue Loop Detection

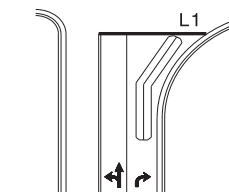
### Right Turn Lane Detection



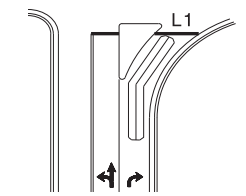
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

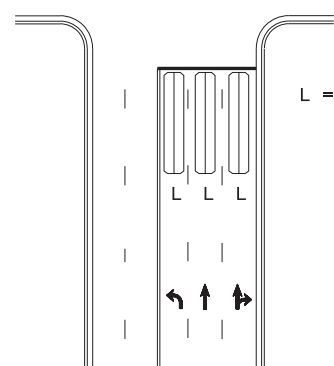


Wide Radius Turn



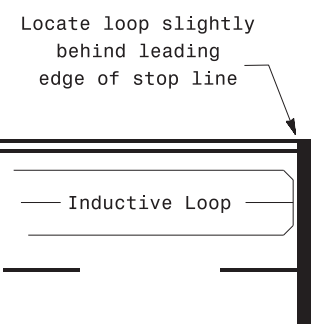
Channelized Turn

### Side Street Detection



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

### Presence Loop Placement at Stop Lines



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

Prepared in the Offices of:

TRANSPORTATION MOBILITY AND SAFETY DIVISION  
STATE OF NORTH CAROLINA  
SIGNAL DESIGN SECTION

SEAL  
NORTH CAROLINA  
PROFESSIONAL ENGINEER  
029904  
JASON P. GALLOWAY

Typical Signal Loop Locations	
PLAN DATE: September 2020	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
SCALE: N/A	REVISIONS: INIT. DATE

9/8/2020  
DATE

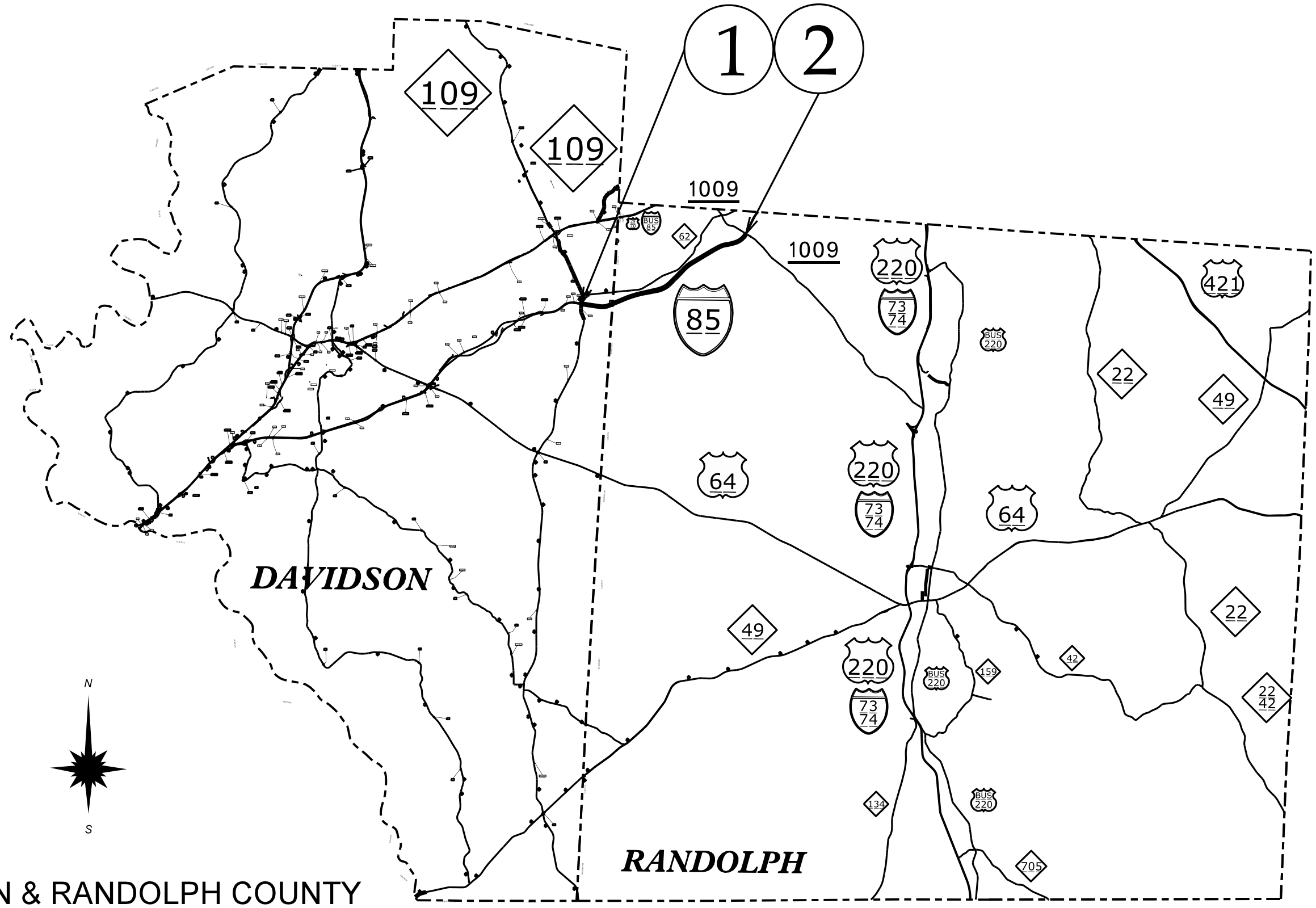
SIG. INVENTORY NO.

PROJECT NO.	SHEET NO.	TOTAL NO.
49637.3.1 (HI-0002)	3A-2	

## THERMOPLASTIC AND PAINT QUANTITIES

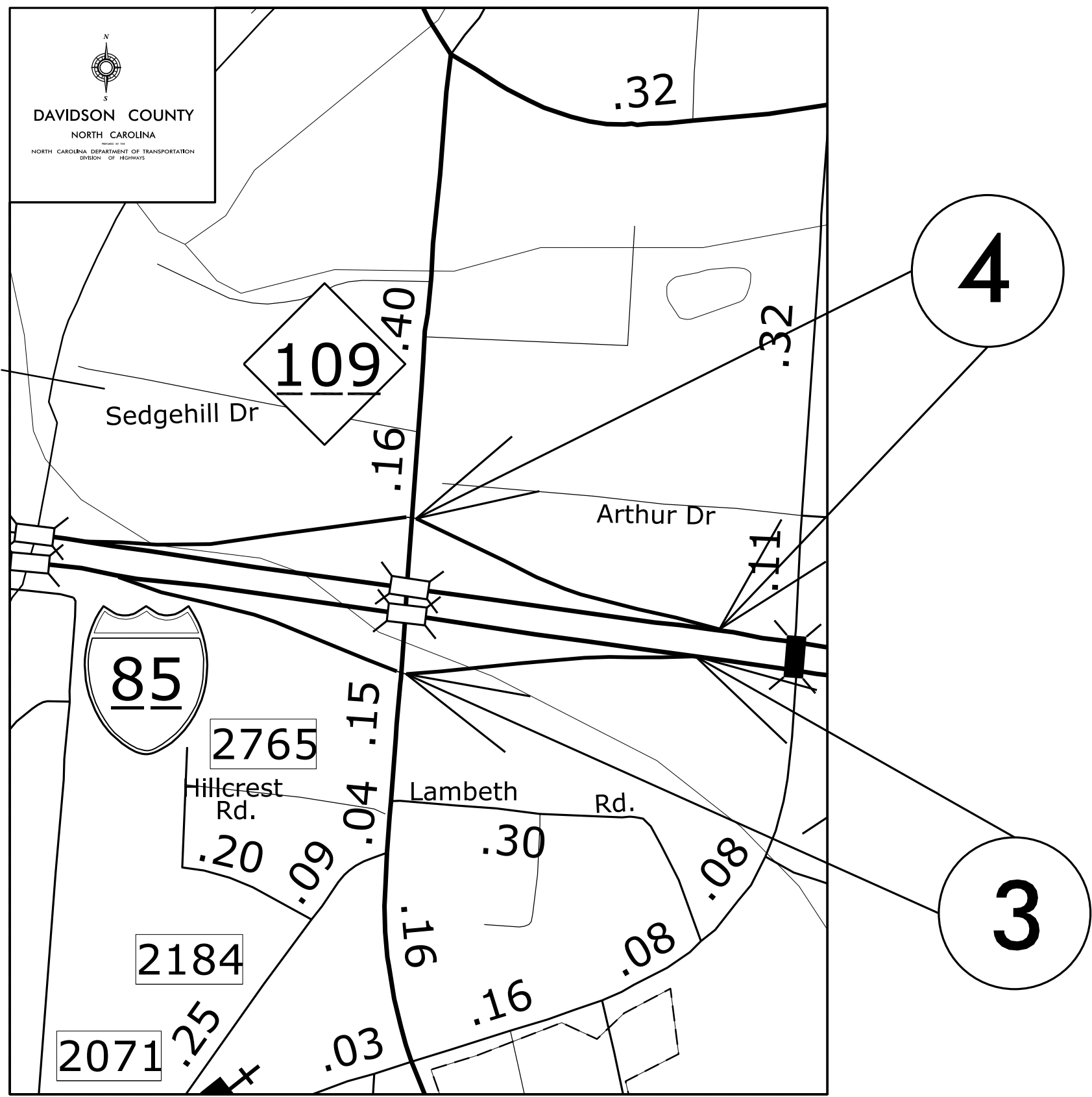
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4400000000-E	4423000000-N	4424000000-N	4434000000-N	4510000000-N	4600000000-N				4688000000-E		4700000000-E					
										WORK ZONE SIGNS (STATIONARY)	WORK ZONE DIGITAL SPEED LIMIT SIGNS	WORK ZONE PRESENCE LIGHTING	SEQUENTIAL FLASHING WARNING LIGHTS	LAW ENFORCEMENT	GENERIC TRAFFIC CONTROL ITEM - DOUBLE LANE CLOSURE	GENERIC TRAFFIC CONTROL ITEM - CONNECTED LANE CLOSURE DEVICE	GENERIC TRAFFIC CONTROL ITEM - SINGLE LANE CLOSURE	GENERIC TRAFFIC CONTROL ITEM - RAMP/LOOP CLOSURE	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	12" X 90 M WHITE THERMO					
									MI	FT	SF	EA	EA	EA	HR	EA	EA	EA	EA	LF	LF	LF				
49637.3.1 (HI-0002)	Randolph	1	I-85 NB	(FROM: NC 109 TO SR 1009 (SOUTH MAIN ST))		1	3	MD	7.55	50	112	5	14	12	1,246	81	2	21		54,895	39,248	7,033				
<b>TOTAL FOR MAP NO. 1</b>									<b>7.55</b>		<b>112</b>	<b>5</b>	<b>14</b>	<b>12</b>	<b>1,246</b>	<b>81</b>	<b>2</b>	<b>21</b>		<b>54,895</b>	<b>39,248</b>	<b>7,033</b>				
49637.3.1 (HI-0002)	Randolph	2	I-85 SB	(FROM: SR 1009 (S. MAIN ST.) TO NC-109)		1	3	MD	7.51	50	112	5	14	12	1,246	81	2	21		53,934	39,157	3,820				
<b>TOTAL FOR MAP NO. 2</b>									<b>7.51</b>		<b>112</b>	<b>5</b>	<b>14</b>	<b>12</b>	<b>1,246</b>	<b>81</b>	<b>2</b>	<b>21</b>		<b>53,934</b>	<b>39,157</b>	<b>3,820</b>				
49637.3.1 (HI-0002)	Randolph	3	I-85 EXIT 103 NB ON RAMP	FROM NC 109 TO I-85		2	1		0.16	24	32								1	845	845					
<b>TOTAL FOR MAP NO. 3</b>									<b>0.16</b>		<b>32</b>									<b>1</b>	<b>845</b>	<b>845</b>				
49637.3.1 (HI-0002)	Randolph	4	I-85 EXIT 103 SB OFF RAMP	FROM I-85 TO NC 109		2	1		0.18	32	8								1	950	950					
<b>TOTAL FOR MAP NO. 4</b>									<b>0.18</b>		<b>8</b>									<b>1</b>	<b>950</b>	<b>950</b>				
49637.3.1 (HI-0002)	Randolph	5	I-85 EXIT 106 NB OFF RAMP	FROM I-85 TO SR 1547		2	1		0.19	25	8								1	1003	1003					
<b>TOTAL FOR MAP NO. 5</b>									<b>0.19</b>		<b>8</b>									<b>1</b>	<b>1,003</b>	<b>1,003</b>				
49637.3.1 (HI-0002)	Randolph	6	I-85 EXIT 106 NB ON RAMP	FROM SR 1547 TO I-85		2	1		0.19	25	32								1	1003	1003					
<b>TOTAL FOR MAP NO. 6</b>									<b>0.19</b>		<b>32</b>									<b>1</b>	<b>1,003</b>	<b>1,003</b>				
49637.3.1 (HI-0002)	Randolph	7	I-85 EXIT 106 SB OFF RAMP	FROM I-85 TO SR 1547		2	1		0.17	24	8								1	898	898					
<b>TOTAL FOR MAP NO. 7</b>									<b>0.17</b>		<b>8</b>									<b>1</b>	<b>898</b>	<b>898</b>				
49637.3.1 (HI-0002)	Randolph	8	I-85 EXIT 106 SB ON RAMP	FROM SR 1547 TO I-85		2	1		0.18	24	32								1	950	950					
<b>TOTAL FOR MAP NO. 8</b>									<b>0.18</b>		<b>32</b>										<b>1</b>	<b>950</b>	<b>950</b>			
49637.3.1 (HI-0002)	Randolph	9	I-85 EXIT 108 NB OFF RAMP	FROM I-85 TO SR 3252		2	1		0.24	24	8								1	1267	1267					
<b>TOTAL FOR MAP NO. 9</b>									<b>0.24</b>		<b>8</b>									<b>1</b>	<b>1,267</b>	<b>1,267</b>				
49637.3.1 (HI-0002)	Randolph	10	I-85 EXIT 108 NB ON RAMP	FROM SR 3252 TO I-85		3	1		0.13	21	32								1	686	686					
<b>TOTAL FOR MAP NO. 10</b>									<b>0.13</b>		<b>32</b>									<b>1</b>	<b>686</b>	<b>686</b>				
49637.3.1 (HI-0002)	Randolph	11	I-85 EXIT 108 SB OFF RAMP	FROM I-85 TO SR 3252		2	1		0.22	25	8								1	1162	1162					
<b>TOTAL FOR MAP NO. 11</b>									<b>0.22</b>		<b>8</b>									<b>1</b>	<b>1,162</b>	<b>1,162</b>				
49637.3.1 (HI-0002)	Randolph	12	I-85 EXIT 108 SB ON RAMP	FRPM SR 3252 TO I-85		3	1		0.11	20	32								1	581	581					
<b>TOTAL FOR MAP NO. 12</b>									<b>0.11</b>		<b>32</b>									<b>1</b>	<b>581</b>	<b>581</b>				
49637.3.1 (HI-0002)	Randolph	13	I-85 EXIT 111 NB OFF RAMP	FROM I-85 TO SR 1009		2	1		0.14	24	8								1	739	739					
<b>TOTAL FOR MAP NO. 13</b>									<b>0.14</b>		<b>8</b>									<b>1</b>	<b>739</b>	<b>739</b>				
49637.3.1 (HI-0002)	Randolph	14	I-85 EXIT 111 SB ON RAMP	FROM SR 1009 TO I-85		2	1		0.19	24	32								1	1003	1003					
<b>TOTAL FOR MAP NO. 14</b>									<b>0.19</b>		<b>32</b>									<b>1</b>	<b>1,003</b>	<b>1,003</b>				
<b>TOTAL FOR PROJ NO. 49637.3.1 (HI-0002)</b>									<b>17.16</b>		<b>464</b>	<b>10</b>	<b>28</b>	<b>24</b>	<b>2,492</b>	<b>162</b>	<b>4</b>	<b>42</b>	<b>12</b>	<b>119,916</b>	<b>89,492</b>	<b>10,853</b>				
<b>GRAND TOTAL</b>									<b>17.16</b>		<b>464</b>	<b>10</b>	<b>28</b>	<b>24</b>	<b>2,492</b>	<b>162</b>	<b>4</b>	<b>42</b>	<b>12</b>	<b>119,916</b>	<b>89,492</b>	<b>10,853</b>				

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4725000000-E					4810000000-E		4815000000-E		4820000000-E	4835000000-E	4845000000-N					4855000000-E	4891000000-E	4895000000-N			
										THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO MERGE ARROW 90M	THERMO RAMP ARROW 90M	THERMO STR ARROW 90 M	THERMO STR & LT ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT	6" YELLOW PAINT	6" WHITE PAINT	8" WHITE PAINT	24" WHITE PAINT	PAINT LT ARROW	PAINT RT ARROW	PAINT MERGE ARROW	PAINT RAMP ARROW	PAINT STR ARROW	PAINT STR & LT ARROW	6" LINE REMOVAL	GENERIC PAVEMENT MARKING ITEM - 24" X 90 M WHITE THERMO	GENERIC PAVEMENT MARKING ITEM - NON-CAST IRON SNOWPLOWABLE (C & R)	
									MI	FT	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA			
49637.3.1 (HI-0002)	Randolph	1	I-85 NB	(FROM: NC 109 TO SR 1009 (SOUTH MAIN ST))		1	3	MD	7.55	50																					
<b>TOTAL FOR MAP NO. 1</b>									<b>7.55</b>																						
49637.3.1 (HI-0002)	Randolph	2	I-85 SB	(FROM: SR 1009 (S. MAIN ST.) TO NC-109)		1	3	MD	7.51	50																					
<b>TOTAL FOR MAP NO. 2</b>									<b>7.51</b>																						
49637.3.1 (HI-0002)	Randolph	3	I-85 EXIT 103 NB ON RAMP	FROM NC 109 TO I-85		2	1		0.16	24																					
<b>TOTAL FOR MAP NO. 3</b>									<b>0.16</b>																						
49637.3.1 (HI-0002)	Randolph	4	I-85 EXIT 103 SB OFF RAMP	FROM I-85 TO NC 109		2	1		0.18	32																					
<b>TOTAL FOR MAP NO. 4</b>									<b>0.18</b>																						
49637.3.1 (HI-0002)	Randolph	5	I-85 EXIT 106 NB OFF RAMP	FROM I-85 TO SR 1547		2	1		0.19	25																					
<b>TOTAL FOR MAP NO. 5</b>									<b>0.19</b>																						
49637.3.1 (HI-0002)	Randolph	6	I-85 EXIT 106 NB ON RAMP	FROM SR 1547 TO I-85		2	1		0.19	25																					
<b>TOTAL FOR MAP NO. 6</b>									<b>0.19</b>																						
49637.3.1 (HI-0002)	Randolph	7	I-85 EXIT 106 SB OFF RAMP	FROM I-85 TO SR 1547		2	1		0.17	24																					
<b>TOTAL FOR MAP NO. 7</b>									<b>0.17</b>																						
49637.3.1 (HI-0002)	Randolph	8	I-85 EXIT 106 SB ON RAMP	FROM SR 1547 TO I-85		2	1		0.18	24																					
<b>TOTAL FOR MAP NO. 8</b>									<b>0.18</b>																						
49637.3.1 (HI-0002)	Randolph	9	I-85 EXIT 108 NB OFF RAMP	FROM I-85 TO SR 3252		2	1		0.24	24																					
<b>TOTAL FOR MAP NO. 9</b>									<b>0.24</b>																						
49637.3.1 (HI-0002)	Randolph	10	I-85 EXIT 108 NB ON RAMP	FROM SR 3252 TO I-85		3	1		0.13	21																					
<b>TOTAL FOR MAP NO. 10</b>									<b>0.13</b>																						
49637.3.1 (HI-0002)	Randolph	11	I-85 EXIT 108 SB OFF RAMP	FROM I-85 TO SR 3252		2	1		0.22	25																					
<b>TOTAL FOR MAP NO. 11</b>									<b>0.22</b>																						
49637.3.1 (HI-0002)	Randolph	12	I-85 EXIT 108 SB ON RAMP	FRPM SR 3252 TO I-85		3	1		0.11	20																					
<b>TOTAL FOR MAP NO. 12</b>									<b>0.11</b>																						
49637.3.1 (HI-0002)	Randolph	13	I-85 EXIT 111 NB OFF RAMP	FROM I-85 TO SR 1009		2	1		0.14	24																					
<b>TOTAL FOR MAP NO. 13</b>									<b>0.14</b>																						
49637.3.1 (HI-0002)	Randolph	14	I-85 EXIT 111 SB ON RAMP	FROM SR 1009 TO I-85		2	1		0.19	24																					
<b>TOTAL FOR MAP NO. 14</b>									<b>0.19</b>																						
<b>TOTAL FOR PROJ NO. 49637.3.1 (HI-0002)</b>									<b>17.16</b>		<b>6</b>	<b>4</b>	<b>18</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>119,916</b>	<b>89,492</b>	<b>2,558</b>	<b>4,050</b>	<b>10,853</b>	<b>157</b>	<b>6</b>	<b>4</b>	<b>18</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>3,293</b>	<b>157</b>	<b>2,324</b>
<b>GRAND TOTAL</b>									<b>17.16</b>		<b>6</b>	<b>4</b>	<b>18</b>	<b>5</b>	<																



DAVIDSON & RANDOLPH COUNTY

# Maps 3,4

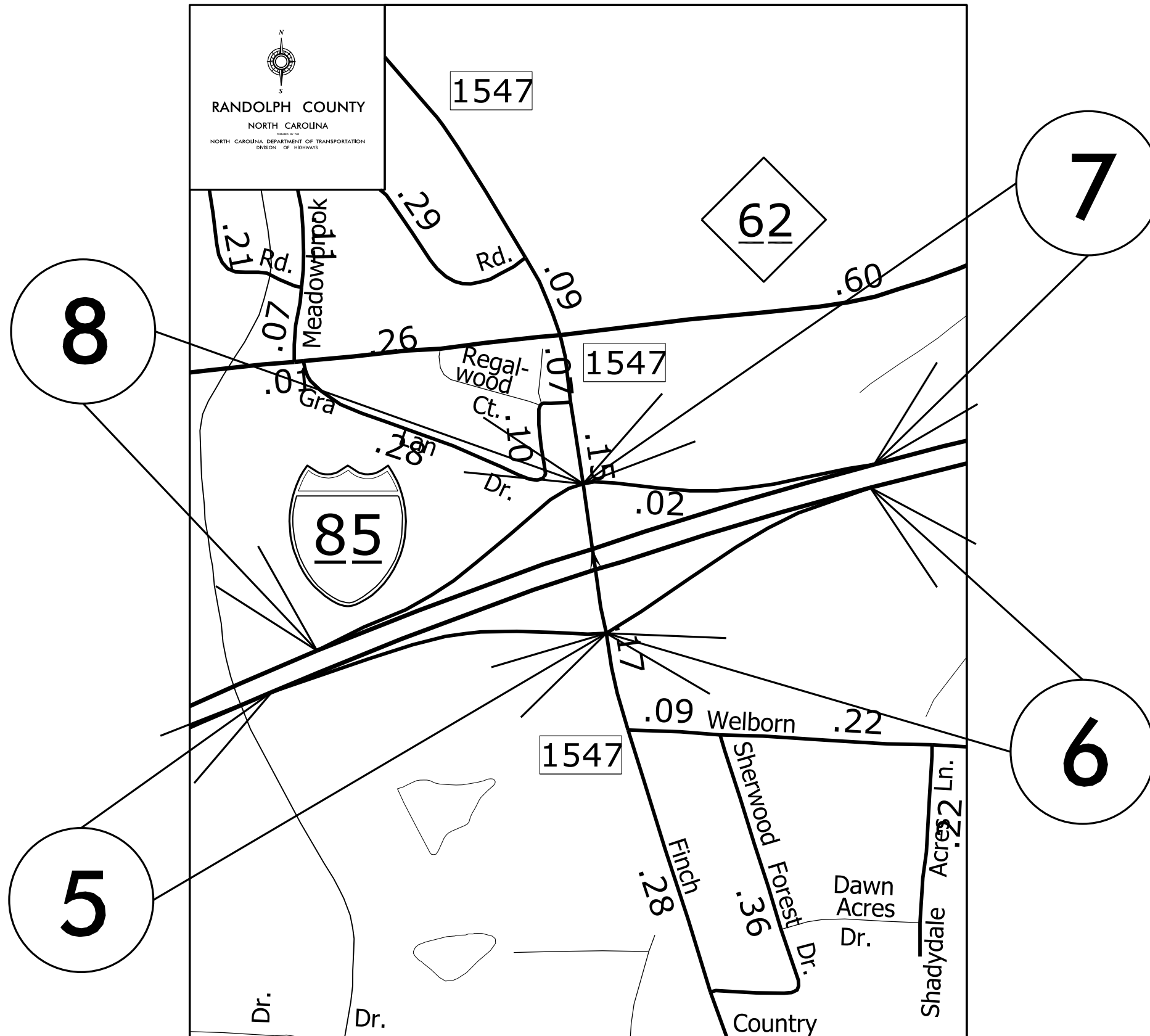


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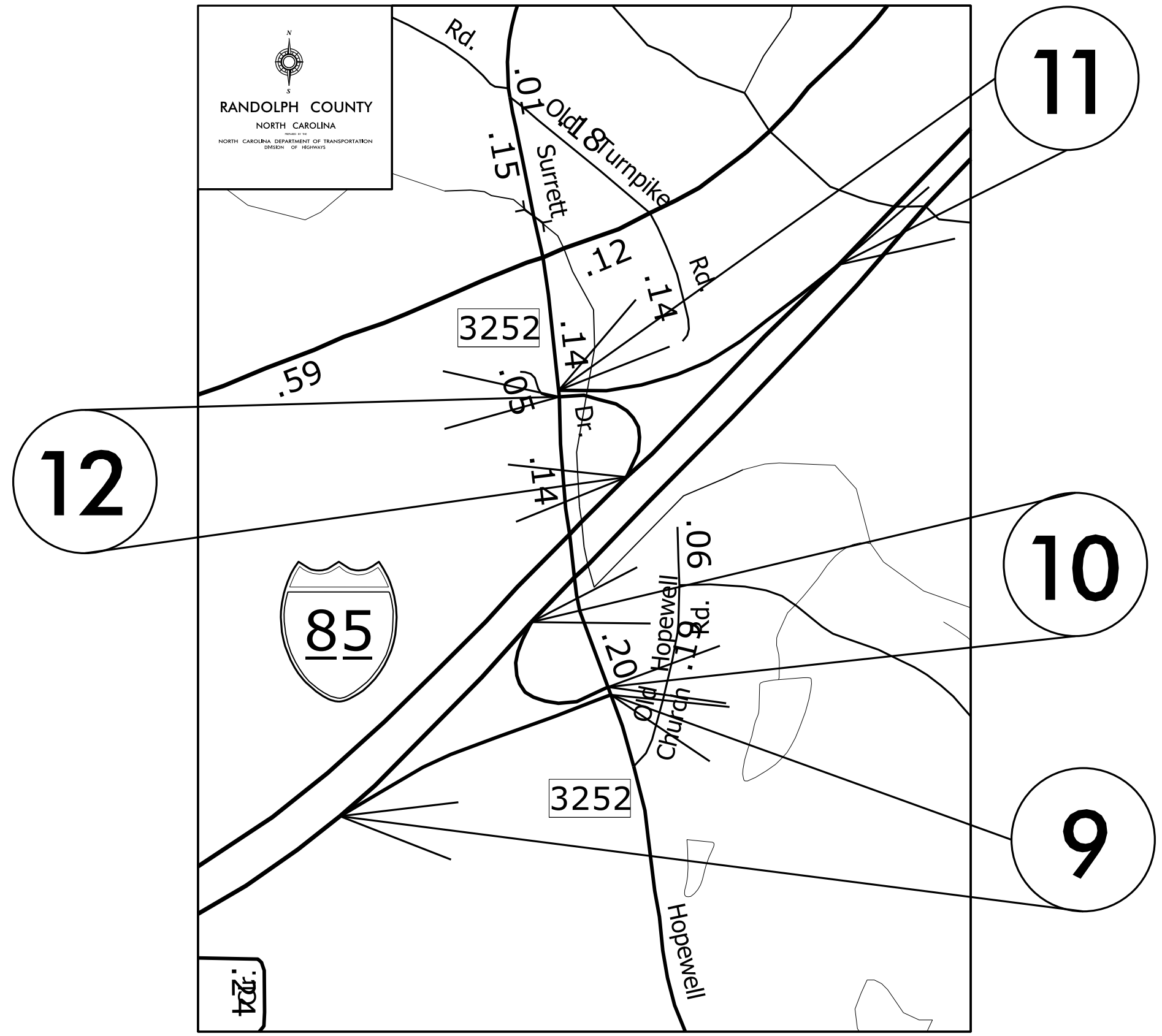
07-APR-2022 11:05 AM C:\Users\jgibson\OneDrive\Documents\07-APR-2022\040397\040397.dgn



# Maps 5,6,7,8



# Maps 9,10,11,12



# Maps 13,14

