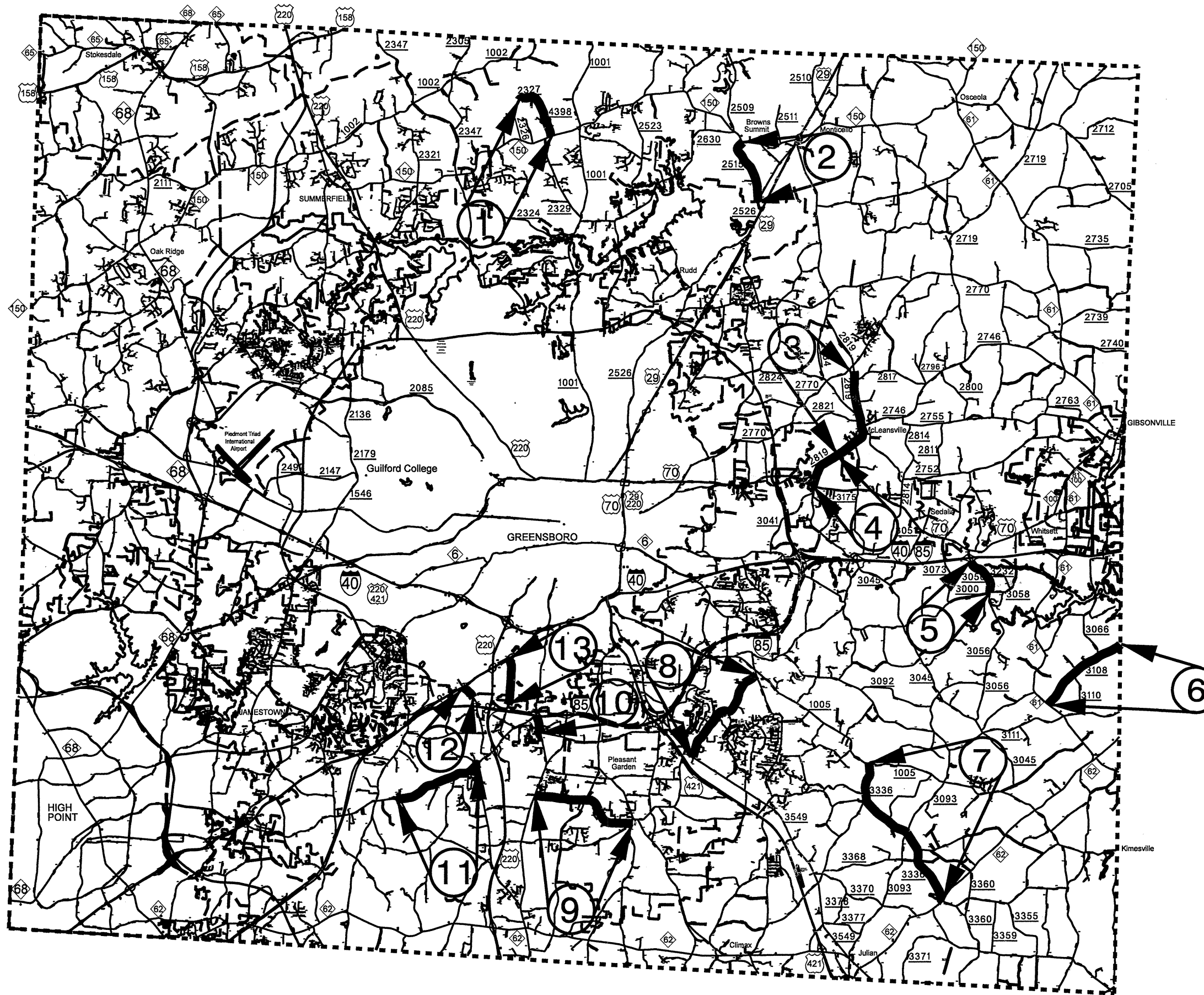


STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	1	12

C 201936

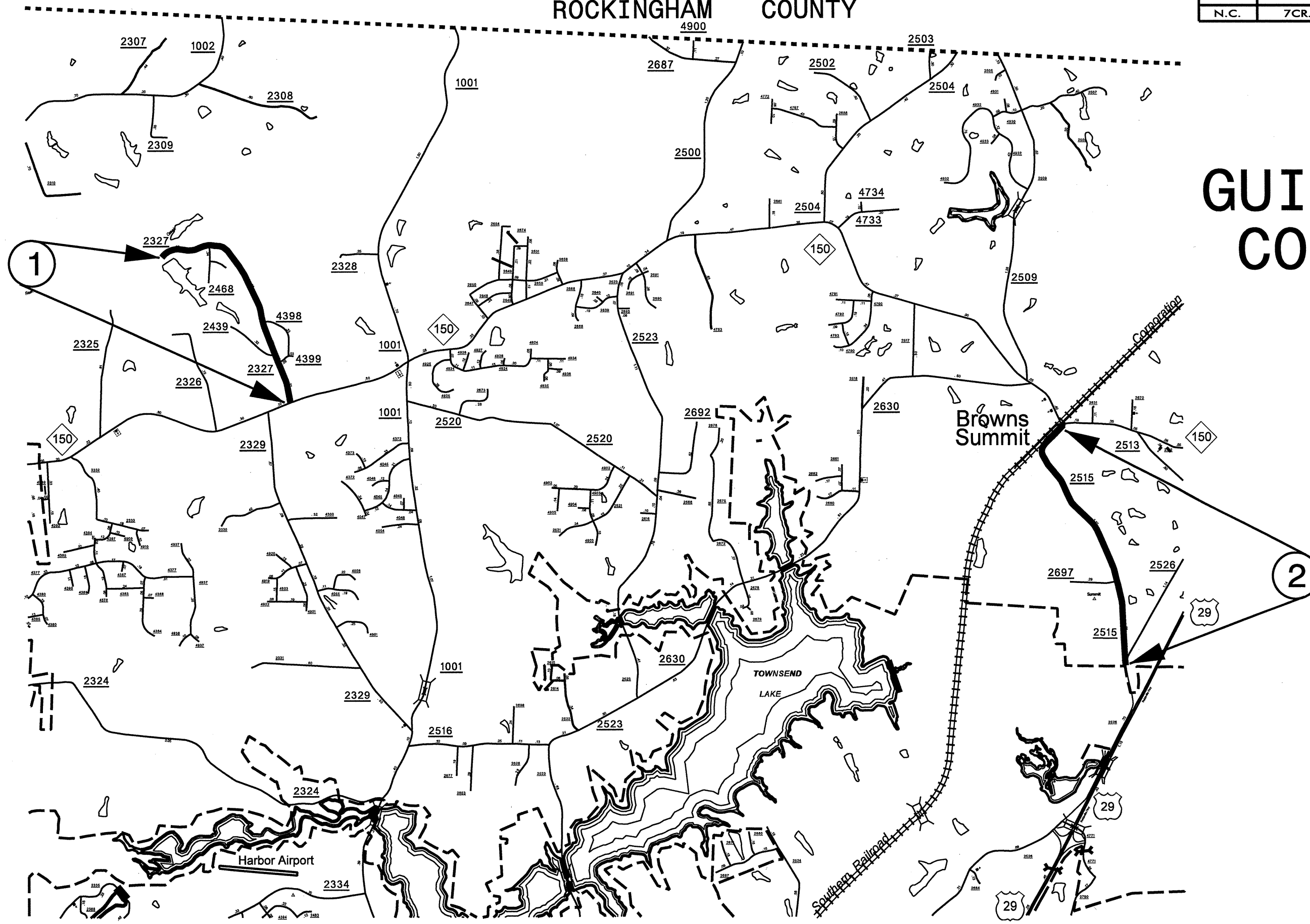


# GUILFORD COUNTY

# ROCKINGHAM COUNTY

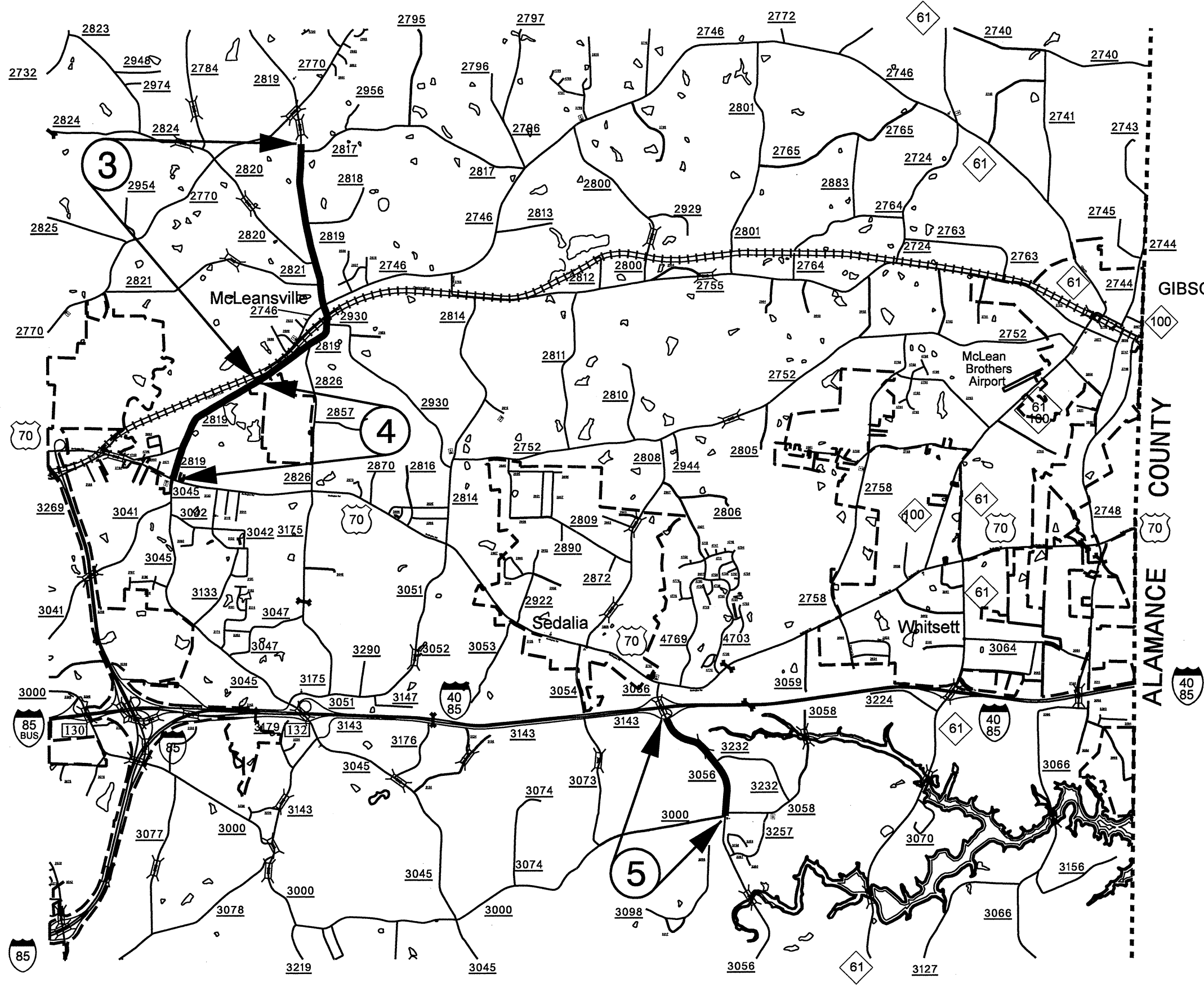
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	2	12

# GUILFORD COUNTY



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	3	12

# GUILFORD COUNTY

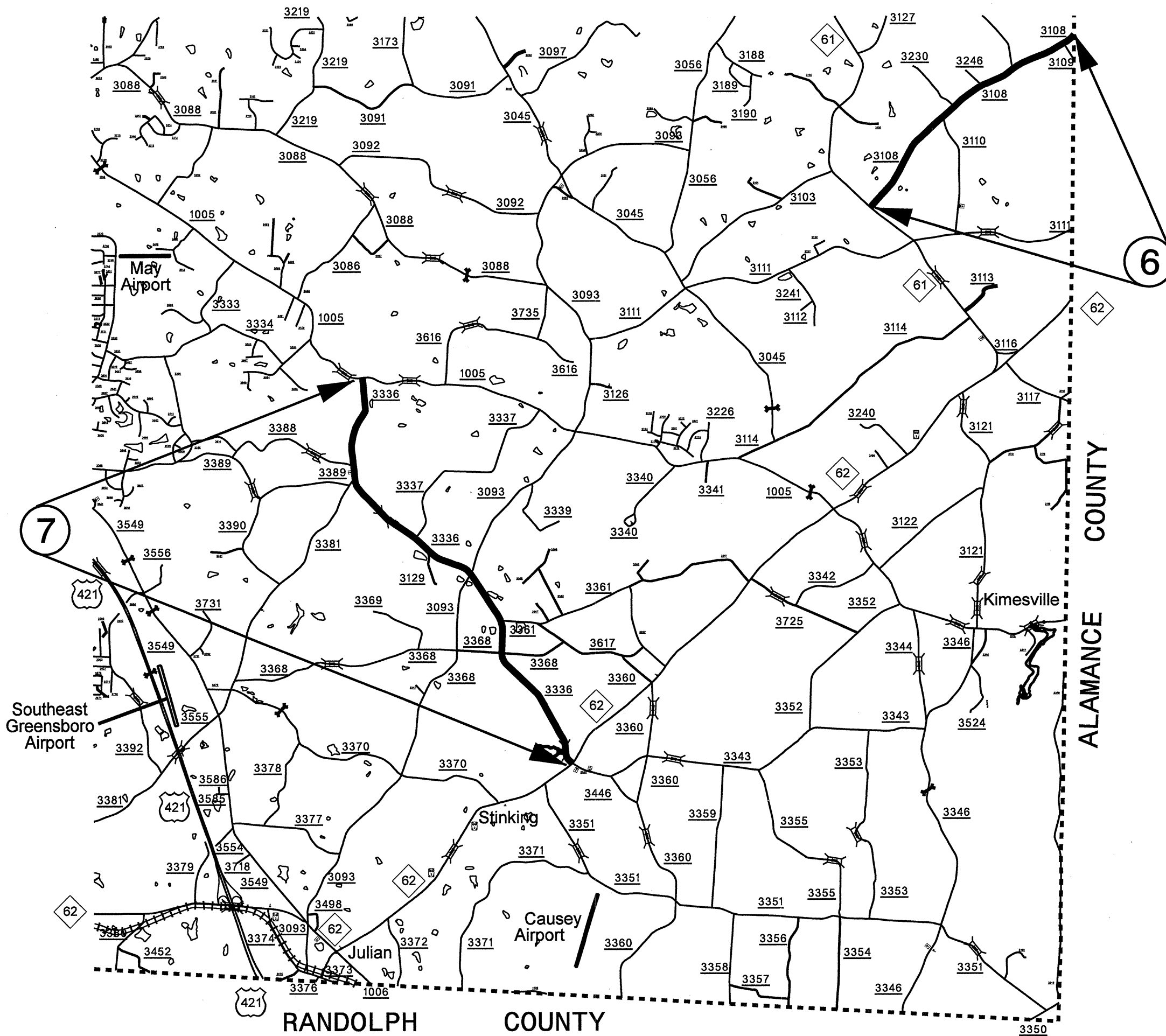


ALAMANCE COUNTY



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	4	12

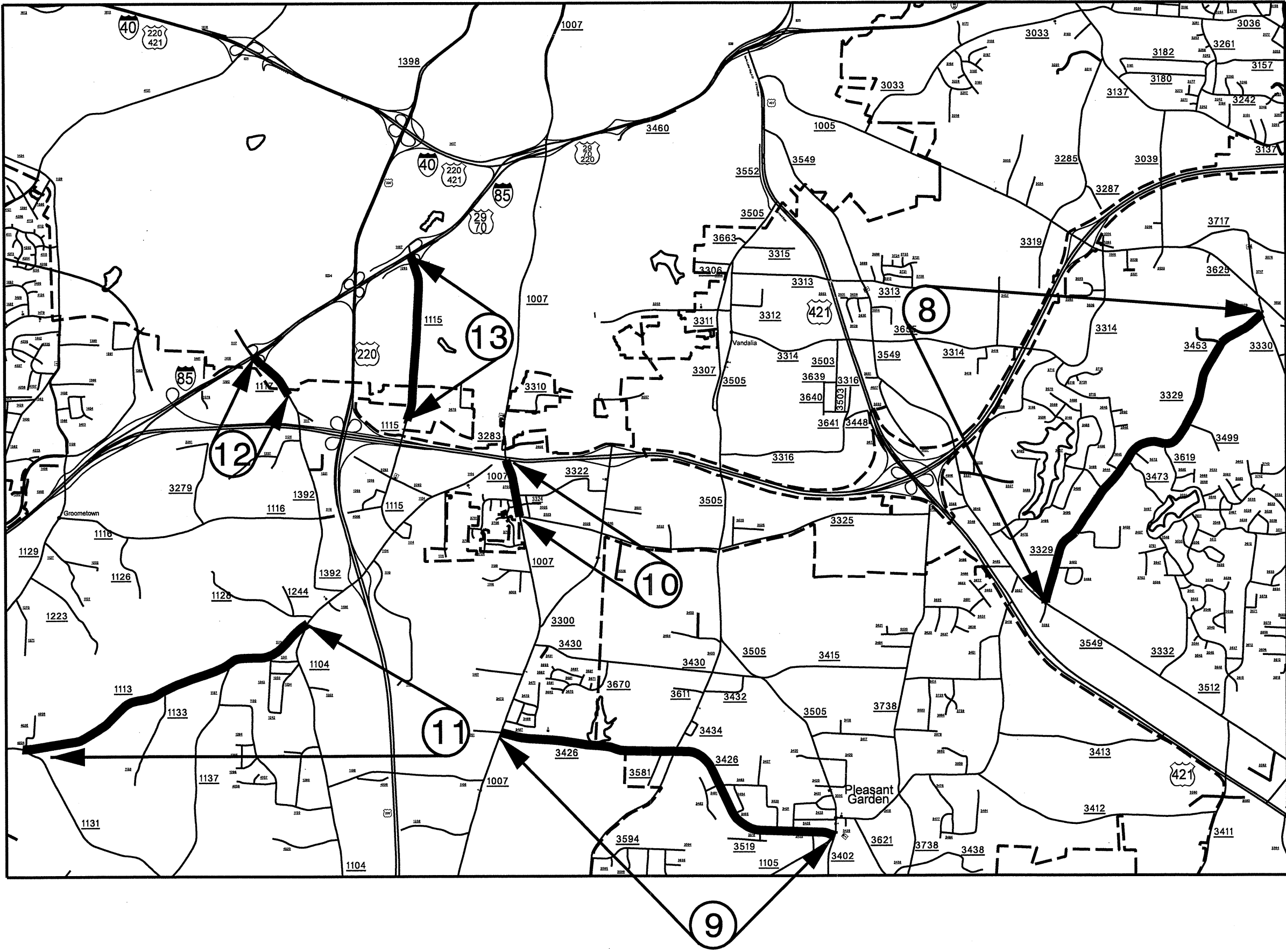
# GUILFORD COUNTY



ALAMANCE COUNTY

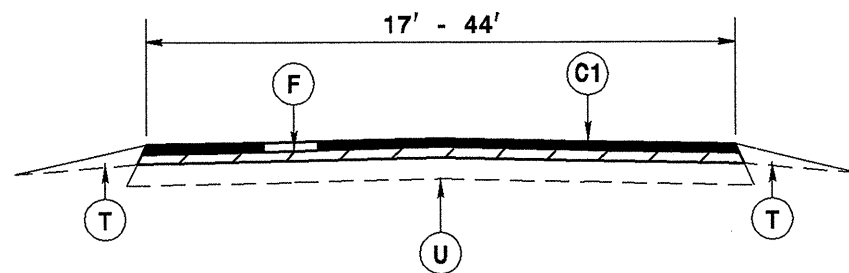
RANDOLPH COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	5	12

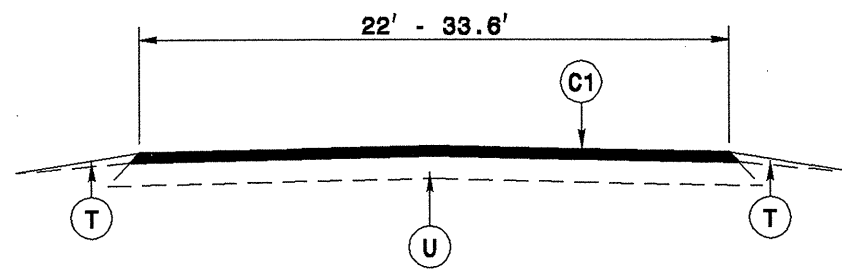


# GUILFORD COUNTY

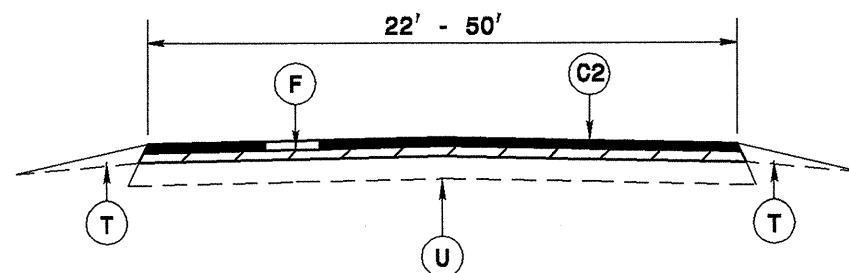
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	6	12



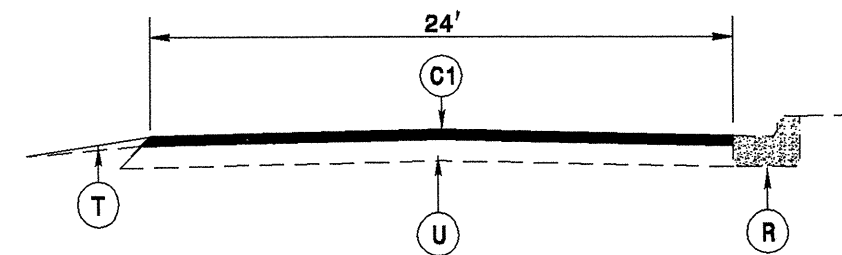
USED ON MAPS 1,2,6,7,8  
**TYPICAL SECTION NO. 1**



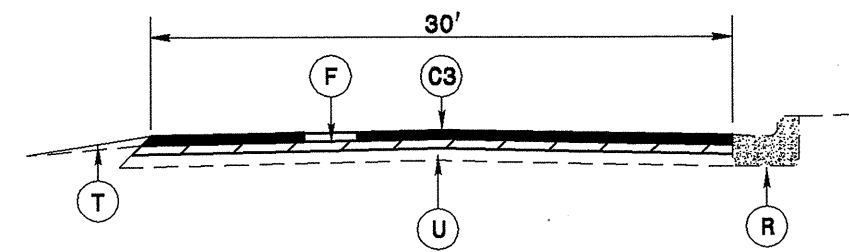
USED ON MAP 9  
**TYPICAL SECTION NO. 5**



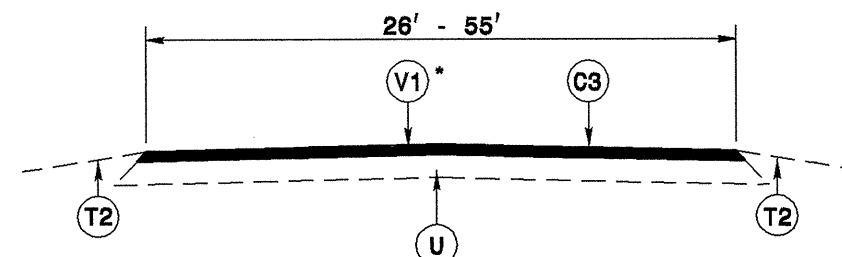
USED ON MAPS 3,4,11,13  
**TYPICAL SECTION NO. 2**  
 \*NOTE: MAP 13 WILL NOT HAVE SHOULDER RECONSTRUCTION  
 IT WILL BE EXISTING SHOULDER (T2)



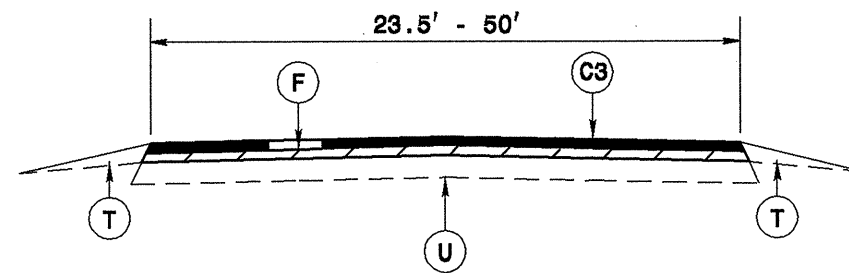
USED ON MAP 9  
**TYPICAL SECTION NO. 6**



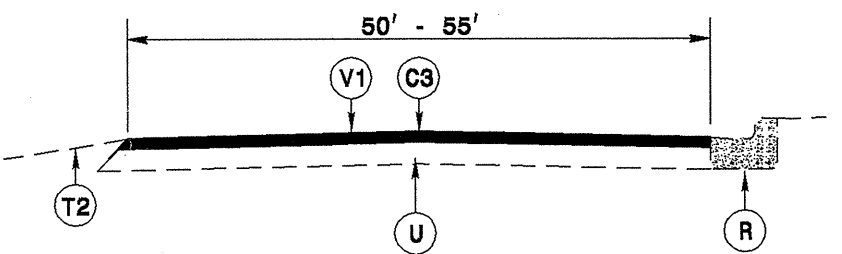
USED ON MAPS 5  
**TYPICAL SECTION NO. 3**



USED ON MAP 12  
 \* NOTE: FROM PAVEMENT JOINT TO ENTRANCE TO EMERALD POINT WET N WILD WATERPARK, (APPROX. 155 FT) DO NOT MILL ROADWAY. THIS SECTION TO BE OVERLAID ONLY.  
**TYPICAL SECTION NO. 7**



USED ON MAP 5, 10  
**TYPICAL SECTION NO. 4**

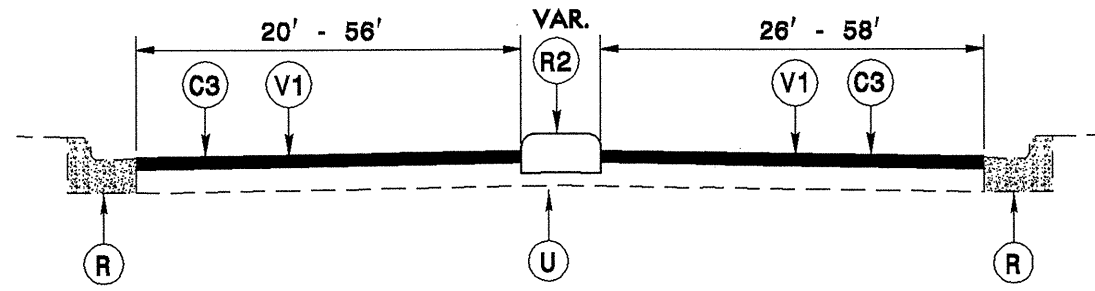


USED ON MAP 12  
**TYPICAL SECTION NO. 8**

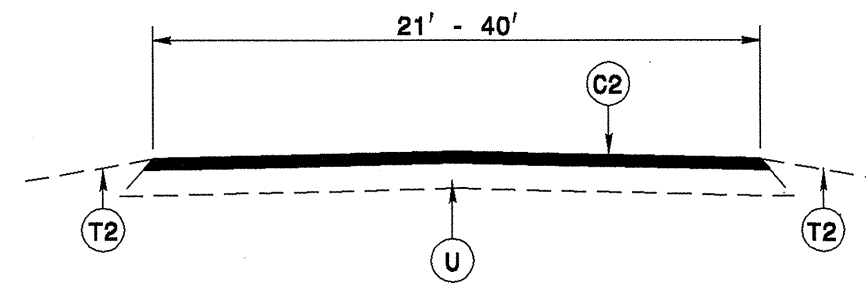
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F	AST MAT COAT, 78M
R	EXISTING 2'-6" CURB AND GUTTER
R2	EXISTING MONOLITHIC CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
T2	EXISTING SHOULDER
U	EXISTING PAVEMENT.
V1	1 1/2" MILLING FOR ENTIRE ROADWAY

\*\*\*\*\*SYSTEM\*\*\*\*\*  
 \*\*\*\*\*USER\*\*\*\*\*

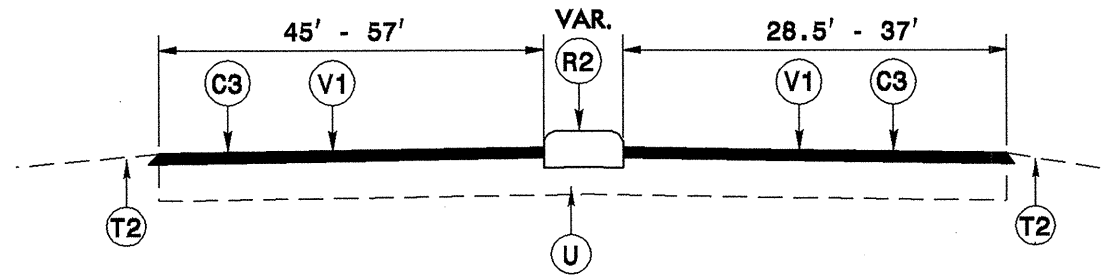
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	7	12



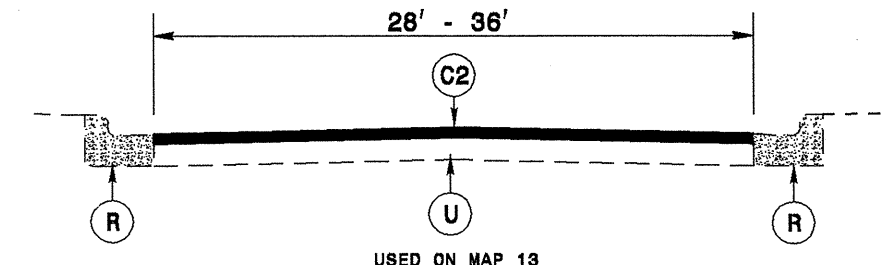
USED ON MAP 12  
TYPICAL SECTION NO. 9



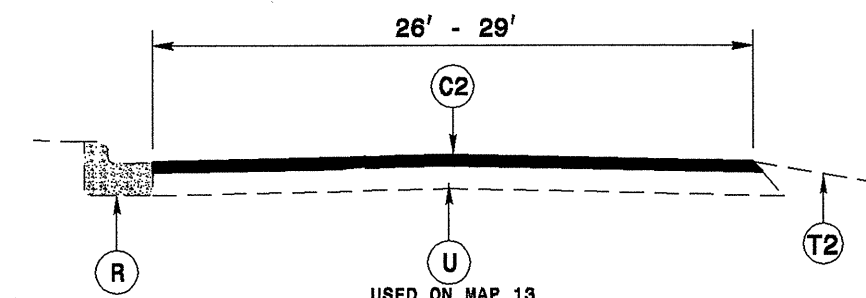
USED ON MAPS 13  
TYPICAL SECTION NO. 14



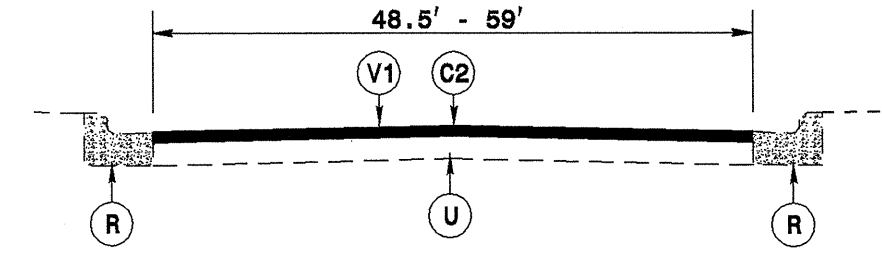
USED ON MAP 12  
TYPICAL SECTION NO. 10



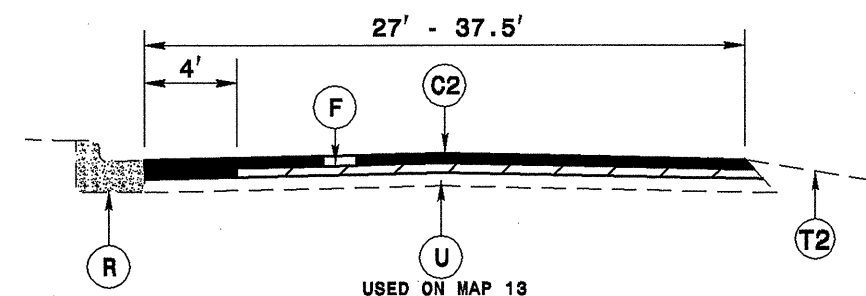
USED ON MAP 13  
TYPICAL SECTION NO. 15



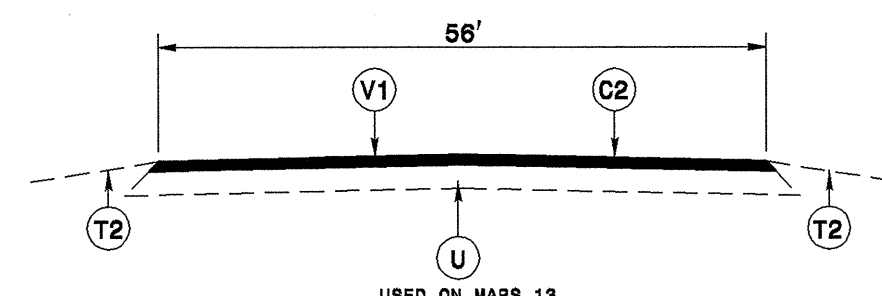
USED ON MAP 13  
TYPICAL SECTION NO. 11



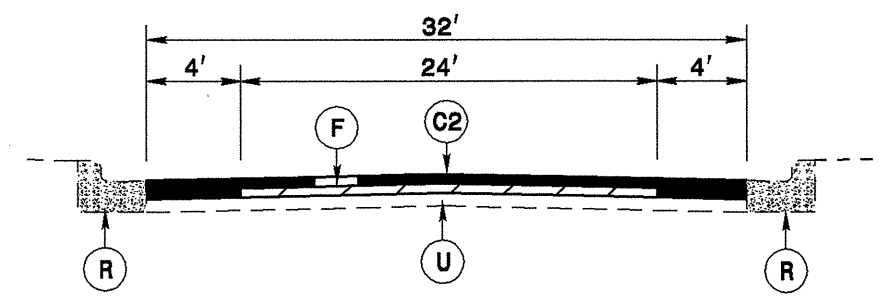
USED ON MAP 13  
TYPICAL SECTION NO. 16



USED ON MAP 13  
TYPICAL SECTION NO. 12



USED ON MAPS 13  
TYPICAL SECTION NO. 17



USED ON MAP 13  
TYPICAL SECTION NO. 13

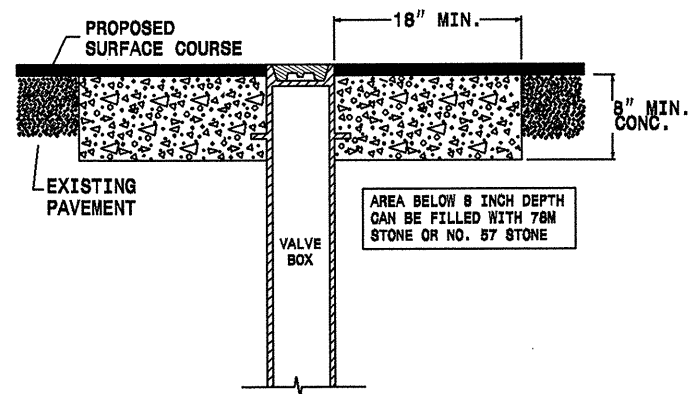
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F	AST MAT COAT, 78M
R	EXISTING 2'-6" CURB AND GUTTER
R2	EXISTING MONOLITHIC CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
T2	EXISTING SHOULDER
U	EXISTING PAVEMENT.
V1	1 1/2" MILLING FOR ENTIRE ROADWAY

SYSTEMS ENGINEERING  
 CONSULTING  
 CORPORATION  
 10000  
 WILSON  
 AVENUE  
 SUITE 100  
 FARMERS  
 BRANCH  
 N.C. 27834

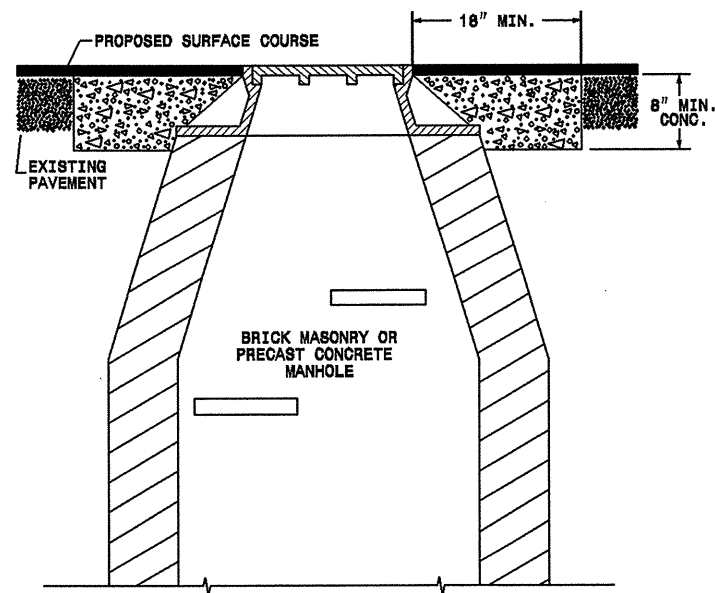


STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.20411.18	8	12

**STANDARD CONCRETE ENCASEMENT FOR MANHOLE & VALVE CASTINGS IN PAVEMENT**  
**DETAIL DRAWING NO. 858.01**

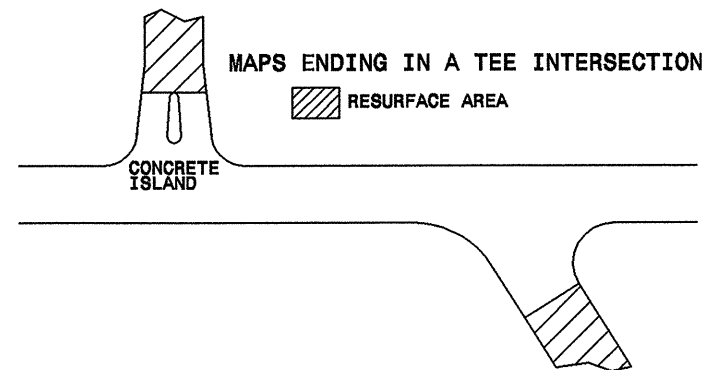


USE RAPID SET GROUT, MORTAR, OR CONCRETE CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.

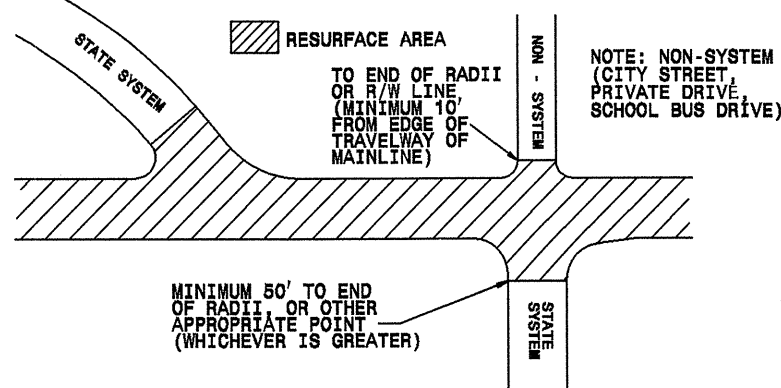


- NOTES:
- MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
  - ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
  - EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
  - RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED

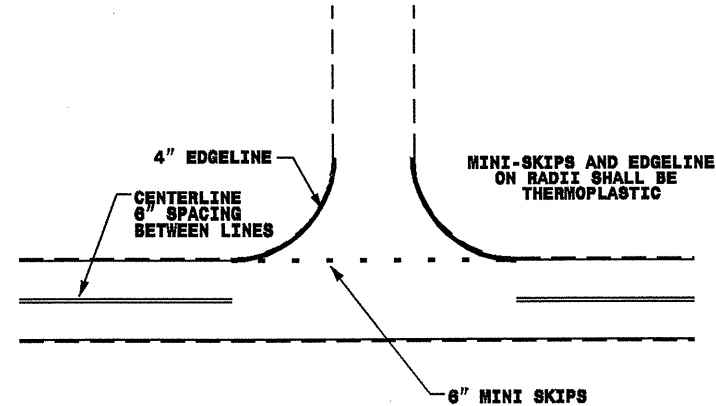
**PAVING DETAIL 1**  
**MAIN LINE IS NOT BEING RESURFACED**



**PAVING DETAIL 2**  
**MAIN LINE IS BEING RESURFACED**

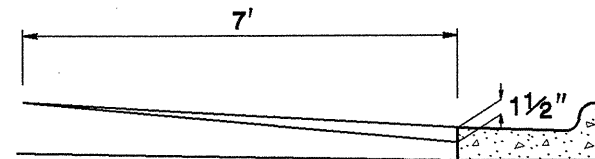


**STRIPING DETAIL**  
**TO BE USED AT ALL NON-SIGNALIZED INTERSECTIONS (NOT TO SCALE)**



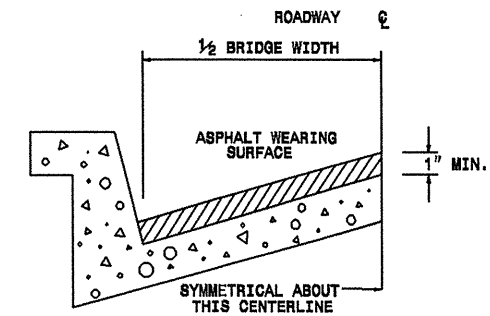
NOTE: MINI SKIPS SHALL BE PLACED ON A 10' CYCLE, CONTAINING AN 8' AND 2' SKIP, THE WIDTH OF THE SKIP SHALL BE 6".

**MILLING DETAIL 1**



MILL EXISTING ASPHALT PAVEMENT 0-1 1/2" AT LOCATIONS AS DIRECTED BY THE ENGINEER

NOTE:  
 TO BE USED IN CONJUNCTION WITH  
 TS. NO. 3 ON MAP 5  
 TS. NO. 4 ON MAP 10 (TO BE USED ON WOLFETRAIL ROAD.  
 NOTE: THIS IS FOR THE TIE IN AT THE INTERSECTION )  
 TS. NO. 11,12,13 AND 15 ON MAP 13



**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. A THICKNESS OF NOT LESS THAN 1" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1 1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

**NOTES**

ALL UNPAVED S.R. ROUTES TO BE SURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.  
 ALL PAVED S.R. ROUTES TO BE RESURFACED TO END OF RADII, OR AS DIRECTED BY THE ENGINEER. EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE SUMMARY OF QUANTITIES. BRIDGES TO BE RESURFACED AT LOCATIONS AND DEPTH AS DIRECTED BY THE ENGINEER.

**PAVEMENT SCHEDULE**

C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F	AST MAT COAT, 78M
R	EXISTING 2'-6" CURB AND GUTTER
R2	EXISTING MONOLITHIC CONCRETE ISLAND
T	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
T2	EXISTING SHOULDER
U	EXISTING PAVEMENT.
V1	1 1/2" MILLING FOR ENTIRE ROADWAY

\*\*\*\*\*SYTIME\*\*\*\*\*  
 \*\*\*\*\*USERNAME\*\*\*\*\*



PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.20411.18	9	12

## SUMMARY OF QUANTITIES

PROJECT NUMBER	COUNTY	MAP NUMBER	ROUTE	DESCRIPTION	TYPICAL NUMBER	LENGTH	WIDTH	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	1½" MILLING	0" TO 1.5" MILLING	INCIDENTAL MILLING	SURFACE COURSE, \$9.5B	SURFACE COURSE, SF9.5A	PG 64-22 PLANT MIX	AST MAT COAT 78M	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOX	SEED & MULCHING	RESIDENTIAL SEEDING	TRENCHING (UNPAVED) ( 1 ) ( 2" )	PULL BOX (STANDARD)	2" RISER W/ WEATHERHEAD	INDUCTIVE LOOP SAW CUT	LEAD-IN CABLE (14-2)		
						MI	FT	TONS	SMI	SY	SY	SY	TONS	TONS	TONS	SY	EA	EA	AC	AC	LF	EA	EA	LF	LF		
7CR.20411.18	Guilford	1	SR 2327 (CEDAR HOLLOW RD)	FROM NC 150 TO EOM	1	1.610	20		1.52					1,346	87	18,891				0.55							
		2	SR 2515 (BROWN SUMMIT RD)	FROM SR 2526 (SUMMIT AVE) TO NC 150	1	0.060	28 - 35	45	1.69						87	6	1,109				0.61						
					1	0.030	44								68	4	774										
					1	0.090	21 - 44								118	8	1,716										
					1	1.510	21 - 21.5								1,334	87	18,869										
					<b>TOTAL FOR MAP NO. 2</b>		<b>1.690</b>		<b>45</b>	<b>1.69</b>					<b>1,607</b>	<b>105</b>	<b>22,468</b>					<b>0.61</b>					
				3	SR 2819 (MCLEANSVILLE RD)	FROM PAVEMENT CHANGE NORTH OF SILVERBROOK DR (NON-SYSTEM) TO JOINT NORTH OF SR 2817 (BUTLER RD). NOTE: DO NOT PAVE RAILROAD CROSSING.	2	0.600	22	120	2.08					683	44	7,744			0.10	0.52					
							2	0.060	22 - 24						87	6	810										
					<b>TOTAL FOR MAP NO. 3</b>		<b>2.100</b>		<b>120</b>	<b>2.08</b>					<b>2,427</b>	<b>158</b>	<b>27,140</b>			<b>0.10</b>	<b>0.52</b>						
				4	SR 2819 (MCLEANSVILLE RD)	FROM US 70 TO PAVEMENT CHANGE SOUTH OF SILVERBROOK DR (NON-SYSTEM)	2	0.040	22 - 36.5	23	1.00					57	4	688				0.37					
							2	0.970	22						1,109	72	12,520										
					<b>TOTAL FOR MAP NO. 4</b>		<b>1.010</b>		<b>23</b>	<b>1.00</b>					<b>1,166</b>	<b>76</b>	<b>13,208</b>					<b>0.37</b>					
				5	SR 3056 (ROCK CREEK DAIRY RD)	FROM END OF CONCRETE ISLAND SOUTH OF I-85 TO SR 3000 (MCCONNELL RD)	3	0.040	30	20	0.70		181		69		4	704				0.26					
							4	0.380	23.5 - 24						458		27	5,306									
							4	0.060	24 - 36						89		5	1,056									
							4	0.040	36						101		6	845									
							4	0.080	24 - 36						119		7	1,408									
							4	0.040	24						48		3	563									
							4	0.070	24				267														
							4	0.150	24						178		11	2,112									
							4	0.090	31 - 41						160		10	1,901									
					<b>TOTAL FOR MAP NO. 5</b>		<b>0.950</b>		<b>20</b>	<b>0.70</b>		<b>181</b>	<b>267</b>	<b>1,222</b>			<b>73</b>	<b>13,895</b>				<b>0.26</b>					
				6	SR 3108 (SHOE ROAD)	FROM NC 61 TO ALAMANCE CO.	1	2.530	20.5	83	2.46					2,208	143	30,428			0.50	0.40					
							1	0.030	23 - 39	203	4.17					38	2	546			1.38	0.64					
							1	0.100	21 - 23							89	6	1,291									
							1	0.003	17							2	0										
							1	2.800	18							2,205	143	29,568									
							1	0.006	18							4	0										
					1	1.350	21							1,209	79	16,632											
					1	0.024	21 - 29.5							29	2	415											
			<b>TOTAL FOR MAP NO. 7</b>		<b>4.313</b>		<b>203</b>	<b>4.17</b>					<b>3,576</b>	<b>232</b>	<b>48,452</b>			<b>1.38</b>	<b>0.64</b>								

PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.20411.18	10	12

## SUMMARY OF QUANTITIES

PROJECT NUMBER	COUNTY	MAP NUMBER	ROUTE	DESCRIPTION	TYPICAL NUMBER	LENGTH	WIDTH	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	1½" MILLING	0" TO 1.5" MILLING	INCIDENTAL MILLING	SURFACE COURSE, S9.5B	SURFACE COURSE, SF9.5A	PG 64-22 PLANT MIX	AST MAT COAT 78M	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOX	SEED & MULCHING	RESIDENTIAL SEEDING	TRENCHING (UNPAVED) ( 1 ) ( 2" )	PULL BOX (STANDARD)	2" RISER W/ WEATHERHEAD	INDUCTIVE LOOP SAW CUT	LEAD-IN CABLE (14-2)		
						MI	FT	TONS	SMI	SY	SY	SY	TONS	TONS	TONS	SY	EA	EA	AC	AC	LF	EA	EA	LF	LF		
7CR.20411.18	Guilford	8	SR 3329 (WILLIAMS DAIRY RD)	FROM SR 3330 (SOUTHEAST SCHOOL RD) TO SR 3549 (LIBERTY RD)	1	2.860	20.5	138	2.84					2,497	162	34,396			0.50	0.53							
		9	SR 3426 (SHERATON PARK RD)	FROM SR 1007 (RANDLEMAN RD) TO SR 3402 (HUNT RD)	5	0.140	22 - 22.5	110	1.46						127	8					0.53						
						6	0.080	24							88	6											
						5	0.650	22							625	41											
						5	0.030	22 - 33.6							34	2											
						5	0.003	30							4	0											
							0.903		110	1.46					878	57						0.53					
				10	SR 1007 (RANDLEMAN RD)	FROM SR 3325 (RITTER'S LAKE RD) TO JOINT AT I - 85	4	0.050	36	28	0.34		100		99		6	1,056	2	3		0.12			400		
							4	0.040	44						87		5	1,033									
							4	0.080	48 - 50						204		12	2,300									
							4	0.020	35 - 50						95		6	499									
							4	0.060	24 - 35						88		5	1,038									
							4	0.110	24						131		8	1,549							400		
							0.360		28	0.34		100		704		42	7,475	2	3		0.12				400		
				11	SR 1113 (KIVETT DR)	SR 1131 (BURNETTE'S CHAPEL RD) TO SR 1104 (OLD RANDLEMAN RD)	2	1.970	23.5	108	2.27					2,333	152	27,160			0.41	0.41					
							2	0.330	23.5 - 24						402	26	4,608										
							2	0.020	24 - 50						36	2	434										
							2.320		108	2.27					2,771	180	32,202				0.41	0.41					
				12	SR 1117 (HOLDEN RD)	FROM I-85B BRIDGE TO JOINT SOUTH OF GLENDALE DR (NON-SYSTEM)	7	0.030	26	10					39		2			1			625	8	4	2,075	1,585
							7	0.040	26 - 55			950			80		5										
							8	0.010	50 - 55			308			26		2										
							9	0.020	47			552			46		3										
							9	0.020	47 - 63			645			54		3										
							9	0.020	63 - 64.5			748			63		4										
							9	0.020	68			798			87		5										
							9	0.020	62 - 63			733			62		4										
							9	0.020	55 - 62			686			58		3										
							9	0.010	55			323			27		2										
					9	0.020	55 - 61			681			57		3												
					9	0.010	60 - 61			355			30		2												
					9	0.010	68 - 82			440			67		4												
					9	0.020	77 - 86.5			959			81		5												
					9	0.020	74.5 - 86.5			945			79		5												
					9	0.020	75 - 86			945			134		8												
					10	0.020	74 - 77.5			889			75		4												
					10	0.030	74 - 82			1,373			116		7												
					0.360		10			12,330			1,181		71			1			625	8	4	2,075	1,585		

PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.20411.18	11	12

## SUMMARY OF QUANTITIES

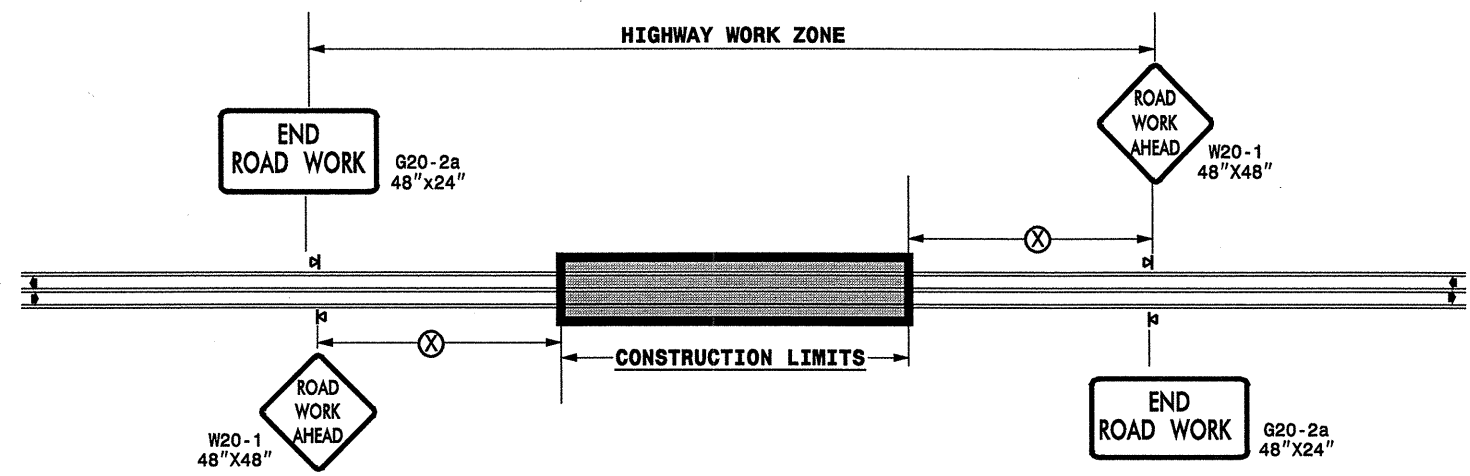
PROJECT NUMBER	COUNTY	MAP NUMBER	ROUTE	DESCRIPTION	TYPICAL NUMBER	LENGTH	WIDTH	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	1½" MILLING	0" TO 1.5" MILLING	INCIDENTAL MILLING	SURFACE COURSE, S9.5B	SURFACE COURSE, SF9.5A	PG 64-22 PLANT MIX	AST MAT COAT 78M	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOX	SEED & MULCHING	RESIDENTIAL SEEDING	TRENCHING (UNPAVED) ( 1 ) ( 2" )	PULL BOX (STANDARD)	2" RISER W/ WEATHERHEAD	INDUCTIVE LOOP SAW CUT	LEAD-IN CABLE (14-2)						
						MI	FT	TONS	SMI	SY	SY	SY	TONS	TONS	TONS	SY	EA	EA	AC	AC	LF	EA	EA	LF	LF						
7CR.20411.18	Guilford	13	SR 1115 (REHOBETH CHURCH RD)	FROM SOUTH END OF I-85B BRIDGE TO JOINT AT HIGHSTONE RD (NON-SYSTEM). NOTE: DO NOT PAVE INTERSECTION WITH W. VANDALIA ST., STOP AT RADII.	11	0.110	29	23			471	311		154	10			9	11			100	1	1	2,550	200					
					2	0.100	22										107	7	1,291												
					2	0.020	22 - 29										25	2	299												
					12	0.030	27 - 34							124			44	3	466												
					13	0.080	32							692			154	10	1126												
					12	0.010	37.5							31			18	1	197												
					14	0.030	21 - 40										44	3													
					14	0.020	21 - 28										24	2													
					11	0.180	26								719			228	15												
					15	0.250	28 - 30								2069			352	23												
					15	0.040	30 - 36								350			64	4												
					15	0.040	36								334			70	5												
					16	0.160	48.5							4,553				377	24												
					16	0.060	48.5 - 59							1,892				157	10												
					16	0.030	49 - 59							950				109	7												
					17	0.030	56							986				81	5												
					<b>TOTAL FOR MAP NO. 13</b>						<b>1.190</b>		<b>23</b>		<b>8,381</b>	<b>4,790</b>	<b>311</b>		<b>2,008</b>	<b>131</b>	<b>3,379</b>	<b>9</b>	<b>11</b>			<b>100</b>	<b>1</b>	<b>1</b>	<b>2,550</b>	<b>200</b>	
<b>GRAND TOTAL</b>						<b>22.196</b>		<b>911</b>	<b>20.53</b>	<b>20,711</b>	<b>5,071</b>	<b>578</b>	<b>3,107</b>	<b>20,484</b>	<b>1,517</b>	<b>251,934</b>	<b>11</b>	<b>15</b>	<b>2.89</b>	<b>4.94</b>	<b>725</b>	<b>9</b>	<b>5</b>	<b>5,025</b>	<b>1,785</b>						

PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.20411.18	12	12

## THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NUMBER	COUNTY	MAP NUMBER	ROUTE	DESCRIPTION	4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	6" X 120 M WHITE THERMO	8" X 90 M YELLOW THERMO	8" X 90 M WHITE THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	24" X 120 M YELLOW THERMO	THERMO RXR 120 M	THERMO MSG STOP 120 M	THERMO MSG AHEAD 120 M	THERMO MSG SCHOOL 120 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO MERGE LEFT ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT				
					LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF			
7CR.20411.18	Guilford	1	SR 2327 (CEDAR HOLLOW RD)	FROM NC 150 TO EOM	1,050				102																31,880	22,720			
		2	SR 2515 (BROWN SUMMIT RD)	FROM SR 2526 (SUMMIT AVE) TO NC 150	600				46				50	25		2				2	2						35,244	39,160	
		3	SR 2819 (MCLEANSVILLE RD)	FROM PAVEMENT CHANGE NORTH OF SILVERBROOK DR (NON-SYSTEM) TO JOINT NORTH OF SR 2817 (BUTLER RD). NOTE: DO NOT PAVE RAILROAD CROSSING.	1,275					176			100	133		4												41,806	43,580
		4	SR 2819 (MCLEANSVILLE RD)	FROM US 70 TO PAVEMENT CHANGE SOUTH OF SILVERBROOK DR (NON-SYSTEM)	150					38																		21,176	16,086
		5	SR 3056 (ROCK CREEK DAIRY RD)	FROM END OF CONCRETE ISLAND SOUTH OF I-85 TO SR 3000 (MCCONNELL RD)	375		150			76	246										2							19,290	22,116
		6	SR 3108 (SHOE ROAD)	FROM NC 61 TO ALAMANCE CO.	625					102								4	5									52,134	48,160
		7	SR 3336 (COBLE CHURCH RD)	FROM NC 62 TO SR 1005 (ALAMANCE CHURCH RD)	1,350					146	58																	85,640	76,236
		8	SR 3329 (WILLIAMS DAIRY RD)	FROM SR 3330 (SOUTHEAST SCHOOL RD) TO SR 3549 (LIBERTY RD)	1,250					130				50						6								57,800	57,792
		9	SR 3426 (SHERATON PARK RD)	FROM SR 1007 (RANDLEMAN RD) TO SR 3402 (HUNT RD)	875					88			100	74		4												29,390	29,082
		10	SR 1007 (RANDLEMAN RD)	FROM SR 3325 (RITTER'S LAKE RD) TO JOINT AT I-85	3,728		440	4,027		75					122						8	5	2	4					
		11	SR 1113 (KIVETT DR)	SR 1131 (BURNETTE'S CHAPEL RD) TO SR 1104 (OLD RANDLEMAN RD)	750					54																		49,560	42,930
		12	SR 1117 (HOLDEN RD)	FROM I-85B BRIDGE TO JOINT SOUTH OF GLENDALE DR (NON-SYSTEM)	900	2,485	1,035	900				50		263							13	4		1	2				
		13	SR 1115 (REHOBETH CHURCH RD)	FROM SOUTH END OF I-85B BRIDGE TO JOINT AT HIGHSTONE RD (NON-SYSTEM). NOTE: DO NOT PAVE INTERSECTION WITH W. VANDALIA ST., STOP AT RADII.	3,703		1,630	3,130							205						4	2	2	6					
<b>GRAND TOTAL</b>					<b>16,631</b>	<b>2,485</b>	<b>3,255</b>	<b>8,057</b>	<b>958</b>	<b>379</b>	<b>50</b>	<b>250</b>	<b>750</b>	<b>122</b>	<b>10</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>29</b>	<b>13</b>	<b>4</b>	<b>11</b>	<b>2</b>	<b>423,920</b>	<b>397,862</b>				
					<b>19,116</b>		<b>11,312</b>			<b>429</b>			<b>872</b>			<b>25</b>			<b>59</b>						<b>821,782</b>				

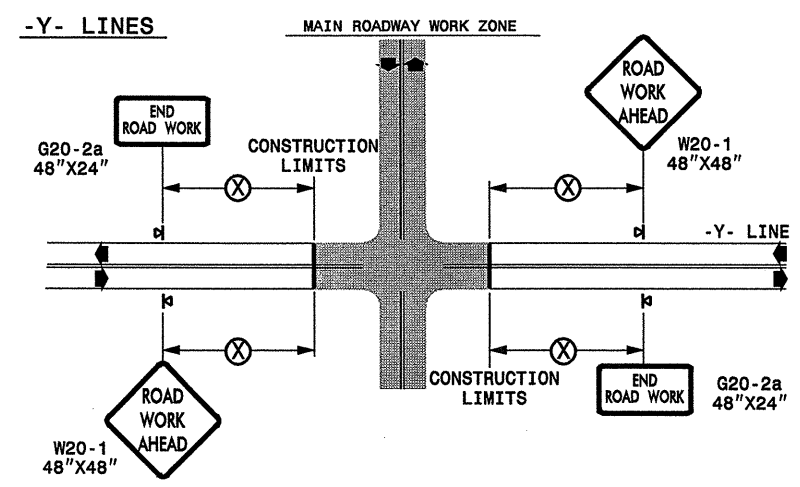
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

**ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)**



**GENERAL NOTES**

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

**LEGEND**

- ◀ PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

DETAIL DRAWING  
FOR TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS

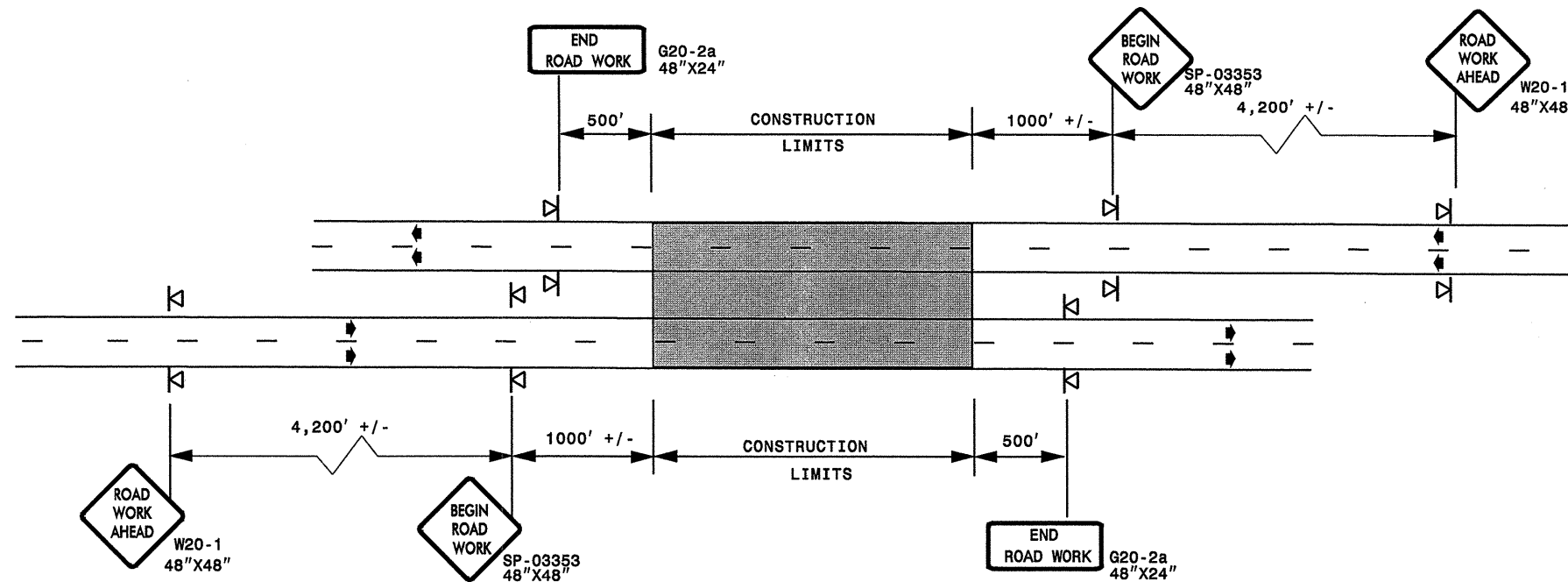
SHEET 1 OF 1

APPROVED: _____	DATE: _____	<b>DETAIL DRAWING  FOR TWO-WAY UNDIVIDED  ADVANCED WORK ZONE WARNING SIGNS</b>	<b>REVISIONS</b>	
	SCALE: NONE		7-98	10/01
	DATE:	10-98	03/04	
	DWG. BY:	01/01	11/04	
	DESIGN BY:			
REVIEWED BY:				

10-OCT-2007 14:57  
\\DOT\DFSROOT\GROUPS-WZTCC\design\group4\resur\facng\div07\c201936\_7cr204118\_2wayundivurbf\wys\july2006.dgn  
psey@more AT WZTCC237502

ADVANCE WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

DETAIL A

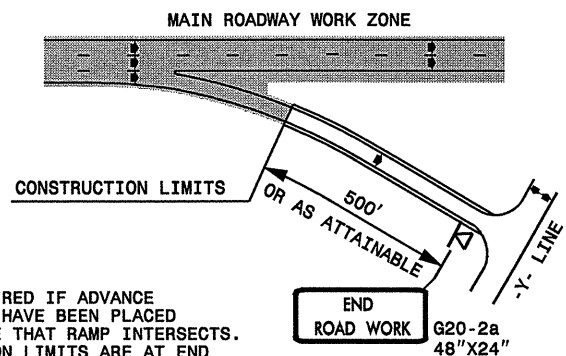


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B

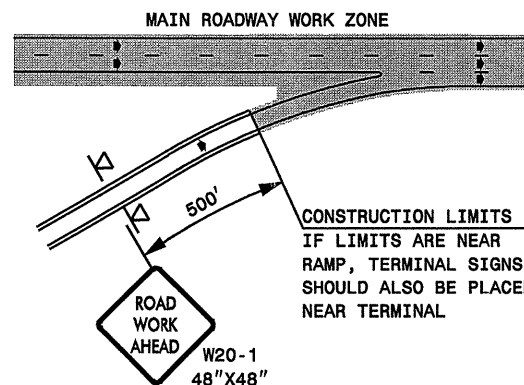
EXIT RAMP



NOTE:  
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C

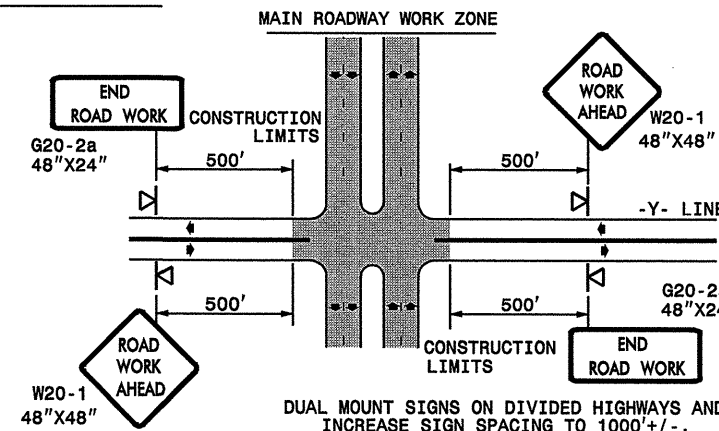
ENTRANCE RAMP



CONSTRUCTION LIMITS IF LIMITS ARE NEAR RAMP, TERMINAL SIGNS SHOULD ALSO BE PLACED NEAR TERMINAL.

DETAIL D

-Y- LINES



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000' +/-.

GENERAL NOTES


- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

- ◁ PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

DETAIL DRAWING  
FOR FREEWAYS  
WORK ZONE WARNING SIGNS  
(SHORT-DURATION LANE CLOSURES)

SHEET 1 OF 1

APPROVED: _____	DATE: _____	DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS	
SEAL			
SCALE: NONE		REVISIONS	
DATE: _____		7-98	10/01
DWG. BY: _____		10-98	03/04
DESIGN BY: _____		01/01	11/04
REVIEWED BY: _____	CADD FILE		

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pseymore AT WZTC231502

# SP 03353

<b>SIGN NUMBER:</b> SP-03353 <b>TYPE:</b> A <b>QUANTITY:</b> 1 <b>SIGN WIDTH:</b> 4'-0" <b>HEIGHT:</b> 4'-0" <b>TOTAL AREA:</b> 16.0 Sq.Ft. <b>BORDER TYPE:</b> FLUSH <b>RECESS:</b> 0.59" <b>WIDTH:</b> 0.75" <b>RADII:</b> 1.38" <b>NO. Z BARS:</b> N/A <b>LENGTH:</b> N/A	<b>BACKG COLOR:</b> Fluorescent Orange <b>COPY COLOR:</b> Black <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th>SYMBOL</th><th>X</th><th>Y</th><th>WID</th><th>HT</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table> <b>MAT'L:</b>	SYMBOL	X	Y	WID	HT																<b>DESIGN BY:</b> CL DOWNEY <b>PROJECT ID:</b> ALL PROJECTS <b>CHECKED BY:</b> CHECKED <b>DIV:</b> DIV <b>STD #:</b> W20-1 <b>DATE:</b> Aug 20,2003	<p><b>BEGIN ROAD WORK</b></p> <p><b>BORDER</b> R=1.38" TH=0.75" IN=0.59"</p> <p>22.4" 21.6" 22.4" 18.7" 7" C 4" 7" C 18.7"</p>
SYMBOL	X	Y	WID	HT																			

LETTER POSITIONS

Letter spacings are to start of next letter

Letter spacings are to start of next letter								Series/Size	Text Length
	B	E	G	I	H				C7
22.4	5.3	4.8	5.4	2.5	3.8	22.4			21.6
	R	O	A	D					C7
23.4	5	5.2	5.6	3.8	23.4				19.8
	W	O	R	K					C7
22.8	6.4	5.6	5.2	4	22.8				21.2

Spacing Factor is 1 unless specified otherwise

FILENAME: SP03353.DWG

NORTH CAROLINA D.O.T. SIGN DETAIL

## GENERAL NOTES FOR SIGN SP-03353 "BEGIN ROAD WORK"

- SIGN SP-03353 "BEGIN ROAD WORK" ONLY APPLIES TO FULL CONTROL AND PARTIAL CONTROL OF ACCESS ROADWAYS
- WHEN USED, INSTALL SIGN SP-03353 "BEGIN ROAD WORK" ACCORDING TO DETAIL FOR FREEWAY WORK ZONE SIGNS

<b>PROJ. REFERENCE NO.</b> 7CR.20411.18	<b>SHEET NO.</b> TCP-3
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**STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.**

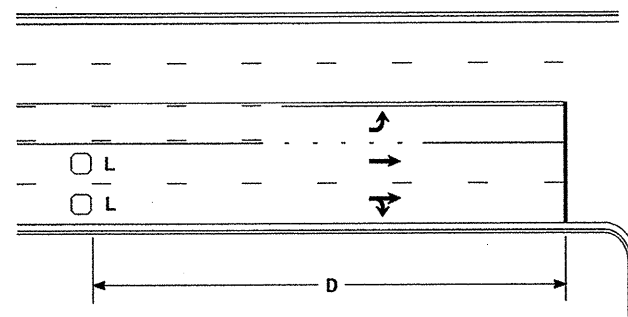
**DETAIL DRAWING FOR  
WORK ZONE SIGNS  
BEGIN ROAD WORK**

SHEET 1 OF 1

<b>APPROVED:</b> _____ <b>DATE:</b> _____ <div style="text-align: center; margin-top: 20px;">SEAL </div>	<b>DETAIL DRAWING FOR ADVANCED WORK ZONE WARNING SIGN DESIGNS</b>								
<b>SCALE:</b> NONE <b>DATE:</b> 0803 <b>DWG. BY:</b> <b>DESIGN BY:</b> <b>REVIEWED BY:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th colspan="2" style="text-align: center;">REVISIONS</th></tr></thead><tbody><tr><td style="width: 70%;">0404</td><td style="width: 30%;"> </td></tr><tr><td>1104</td><td> </td></tr><tr><td> </td><td> </td></tr></tbody></table> <div style="text-align: center; margin-top: 10px;"> <small>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</small></div>	REVISIONS		0404		1104			
REVISIONS									
0404									
1104									



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

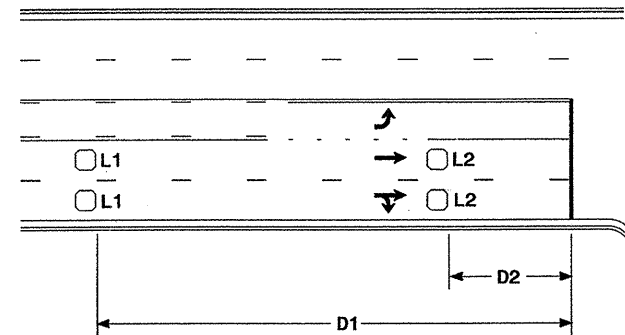


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

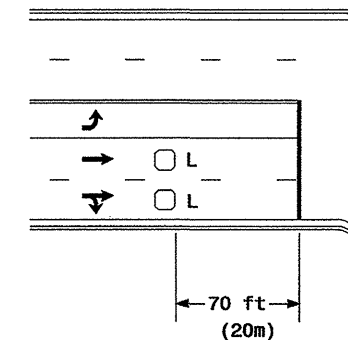


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

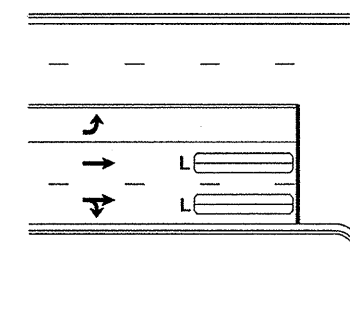
"Stretch" Operation

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



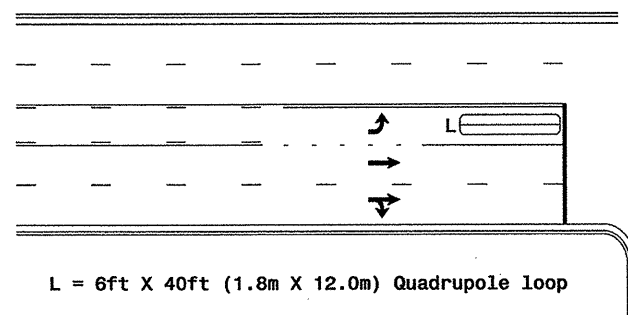
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

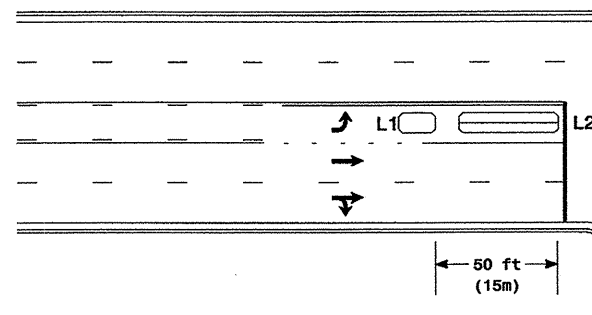
### Left Turn Lane Detection



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

Presence Loop Detection

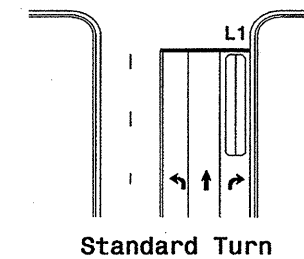
OR



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

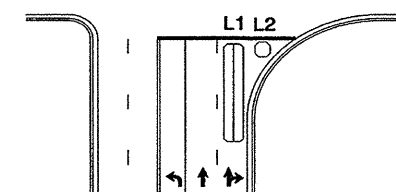
Queue Loop Detection

### Right Turn Lane Detection

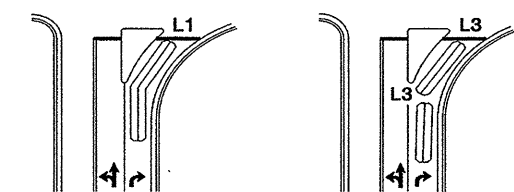


Standard Turn

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

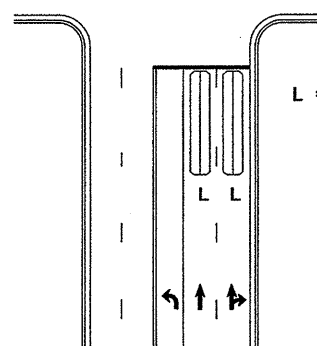


Wide Radius Turn



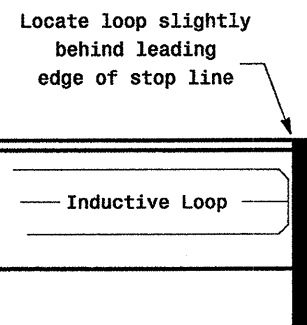
Channelized Turn

### 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



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

Prepared in the Offices of:

122 N. McDowell St., Raleigh, NC 27603

### Typical Loop Locations

PLAN DATE: June 2006 REVIEWED BY:

PREPARED BY: P. L. Alexander REVIEWED BY:

REVISIONS: Revised pavement markings

SCALE: N/A

SEAL

SIGNATURE: P. L. Alexander DATE: 6/6/06

SIG. INVENTORY NO.

STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

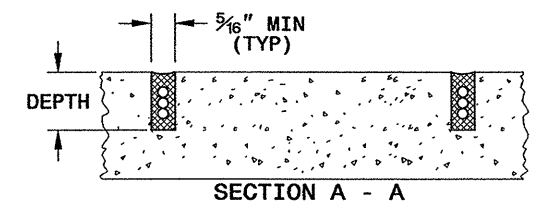
5-07

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

SHEET 1 OF 3  
**1725D01**

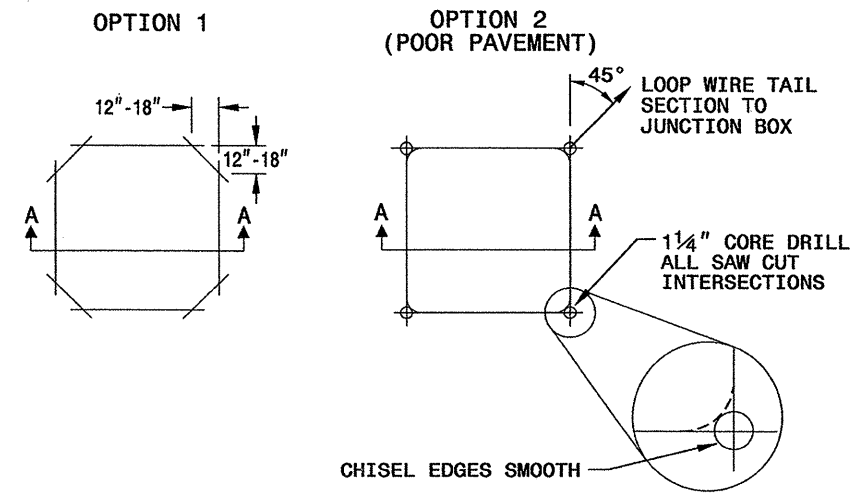
**SAW SLOT DEPTH CHART**

DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0

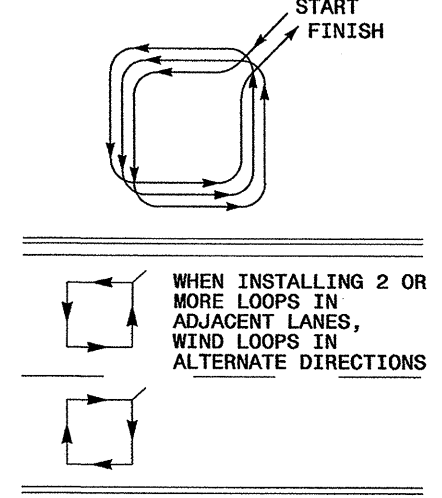


**CONVENTIONAL 4-SIDED LOOP**

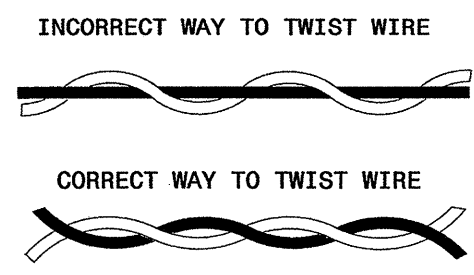
**SAW CUT OPTIONS**



**LOOP WINDING METHOD**



**LOOP WIRE TWISTING METHOD**

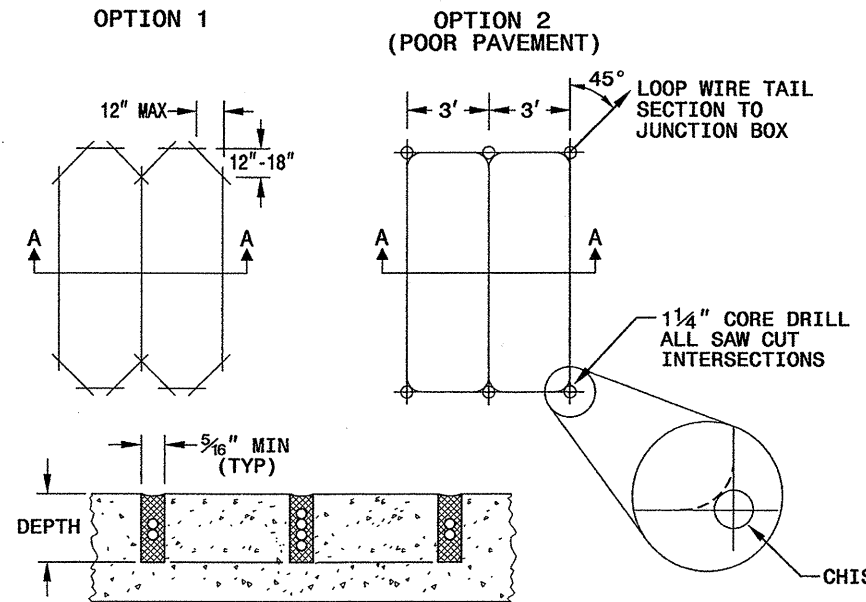


**NOTES**

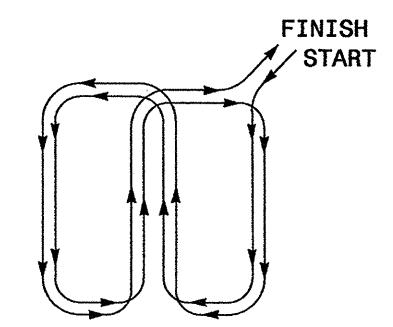
- OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
- MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
- WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
- LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

**QUADRUPOLE LOOP**

**SAW CUT OPTIONS**



**LOOP WINDING METHOD**



SECTION A - A  
 DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

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 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

5-07

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

SHEET 1 OF 3  
**1725D01**

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

Milton L. Dean 9/5/07  
SIGNATURE DATE

05-SEP-2007 14:00  
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 05-SEP-2007 14:00  
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STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

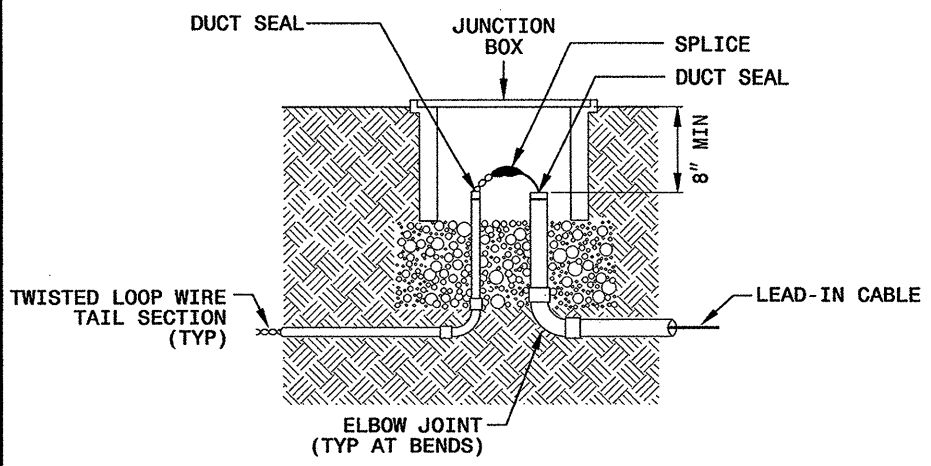
5-07

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
LOOP WIRE DETAILS

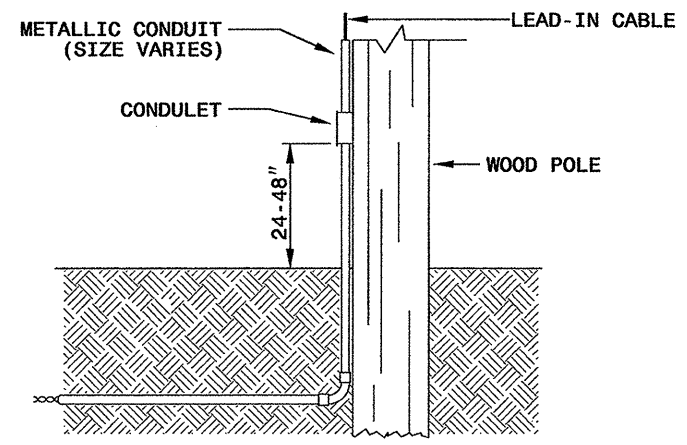
SHEET 2 OF 3  
**1725D01**

**LOOP WIRE SPLICE POINT DETAILS**

**LOOP WIRE AT JUNCTION BOX**



**LOOP WIRE AT POLE**

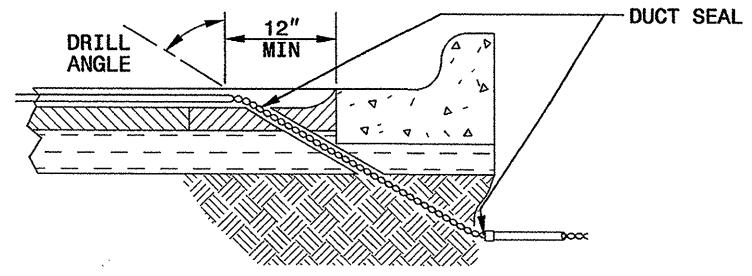


**NOTE**

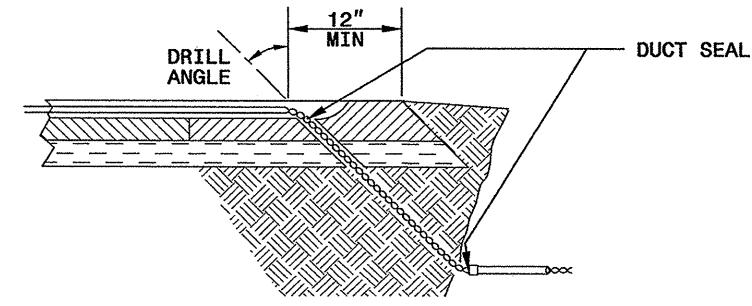
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

**LOOP WIRE PAVEMENT EDGE DETAILS**

**LOOP WIRE AT CURB & GUTTER SECTION**



**LOOP WIRE AT PAVEMENT SECTION**



**NOTES**

1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

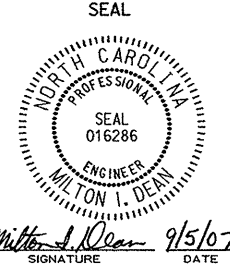
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5-07

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
LOOP WIRE DETAILS

SHEET 2 OF 3  
**1725D01**

See Plate for Title



05-SEP-2007 14:00 c:\documents and settings\ingezml\1111e.dwg sheet 2 of 3 standard metal pole sheets 17250102.mxd 2/307-dp zml/1111e

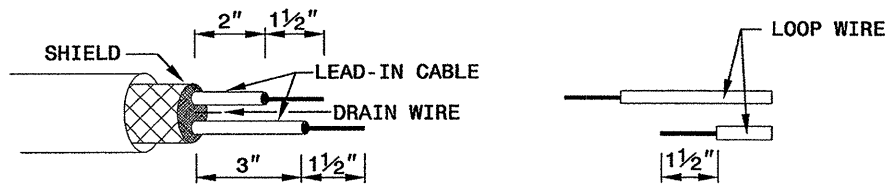
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5-07

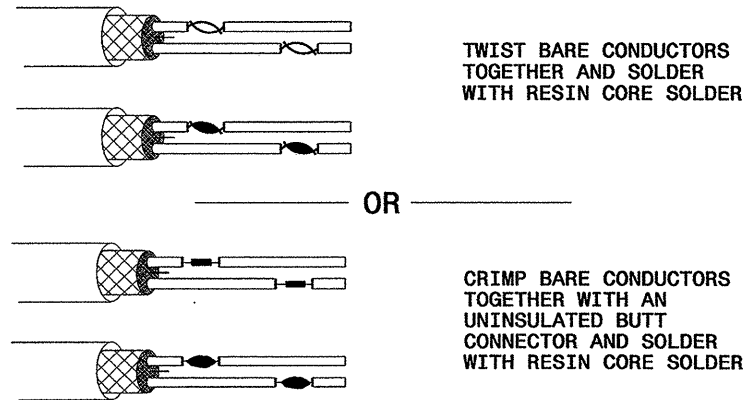
ENGLISH DETAIL DRAWING FOR INDUCTION DETECTION LOOPS SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
**1725D01**

**STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE**

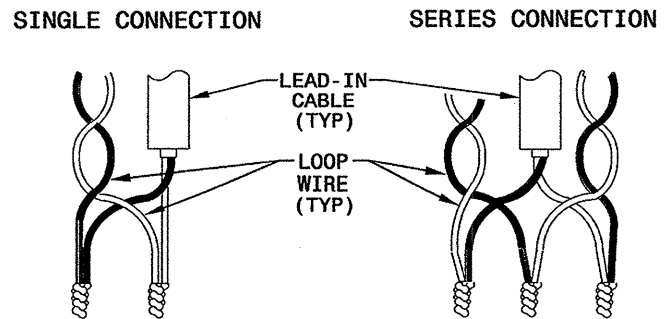


**STEP 2. CONNECT AND SOLDER**

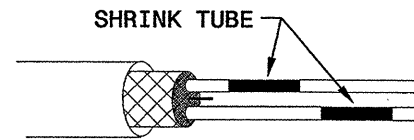


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

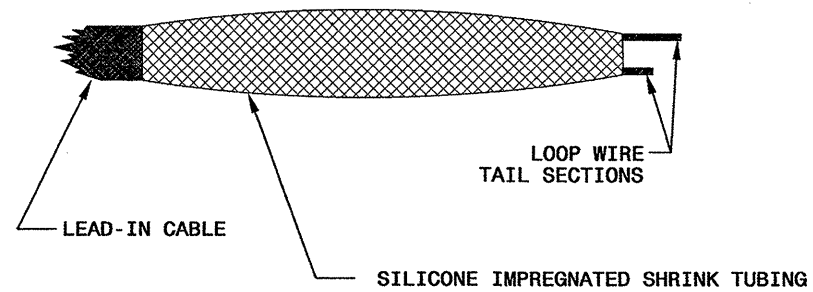
**LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS**



**STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY**



**STEP 4. ENVIRONMENTALLY PROTECT SPLICE**



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ENGLISH DETAIL DRAWING FOR INDUCTION DETECTION LOOPS SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
**1725D01**

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