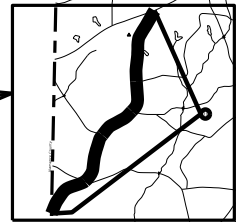
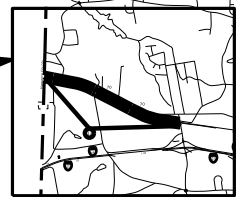


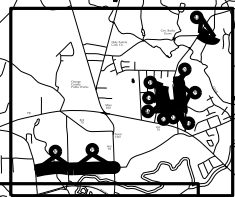
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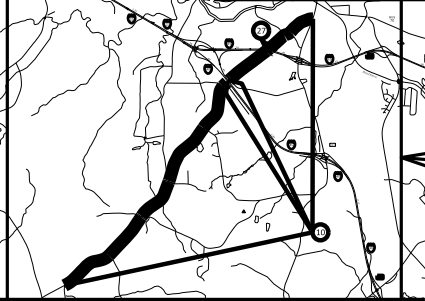
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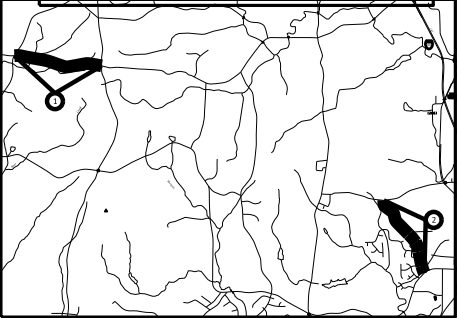
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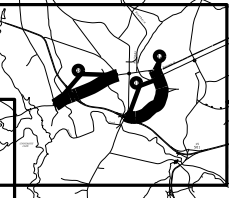
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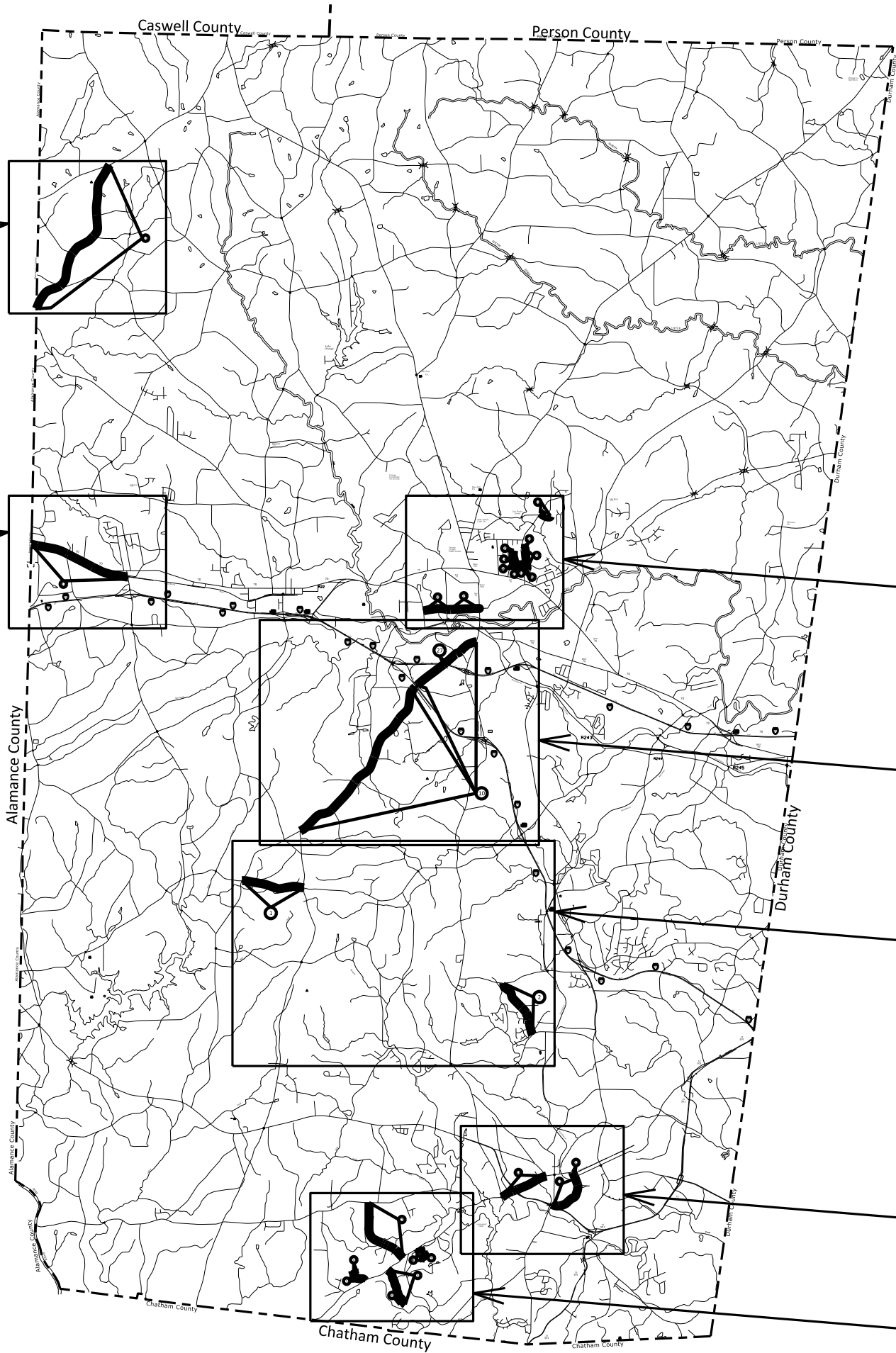
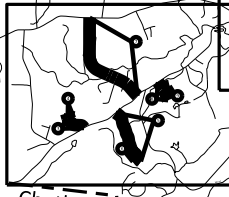
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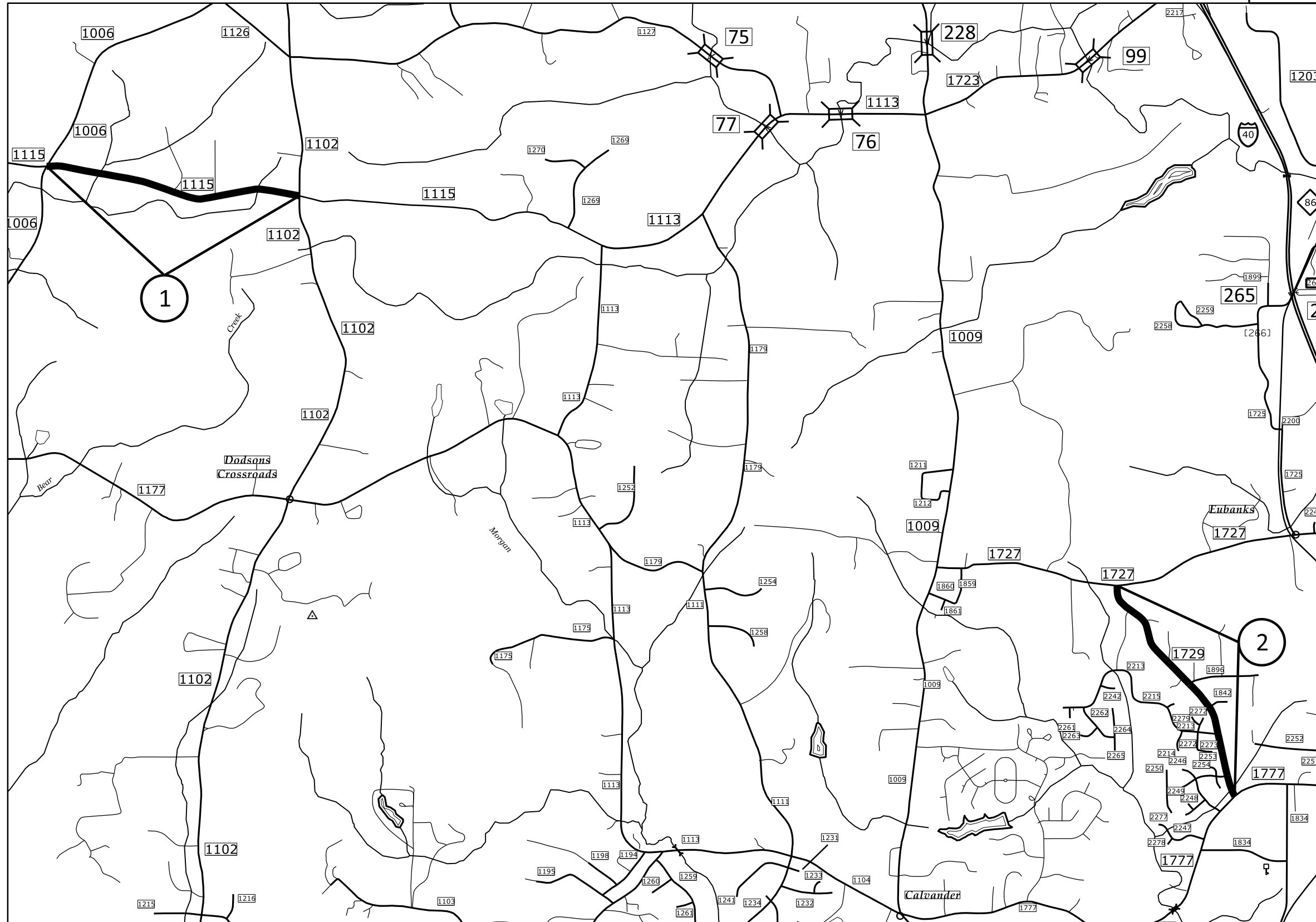


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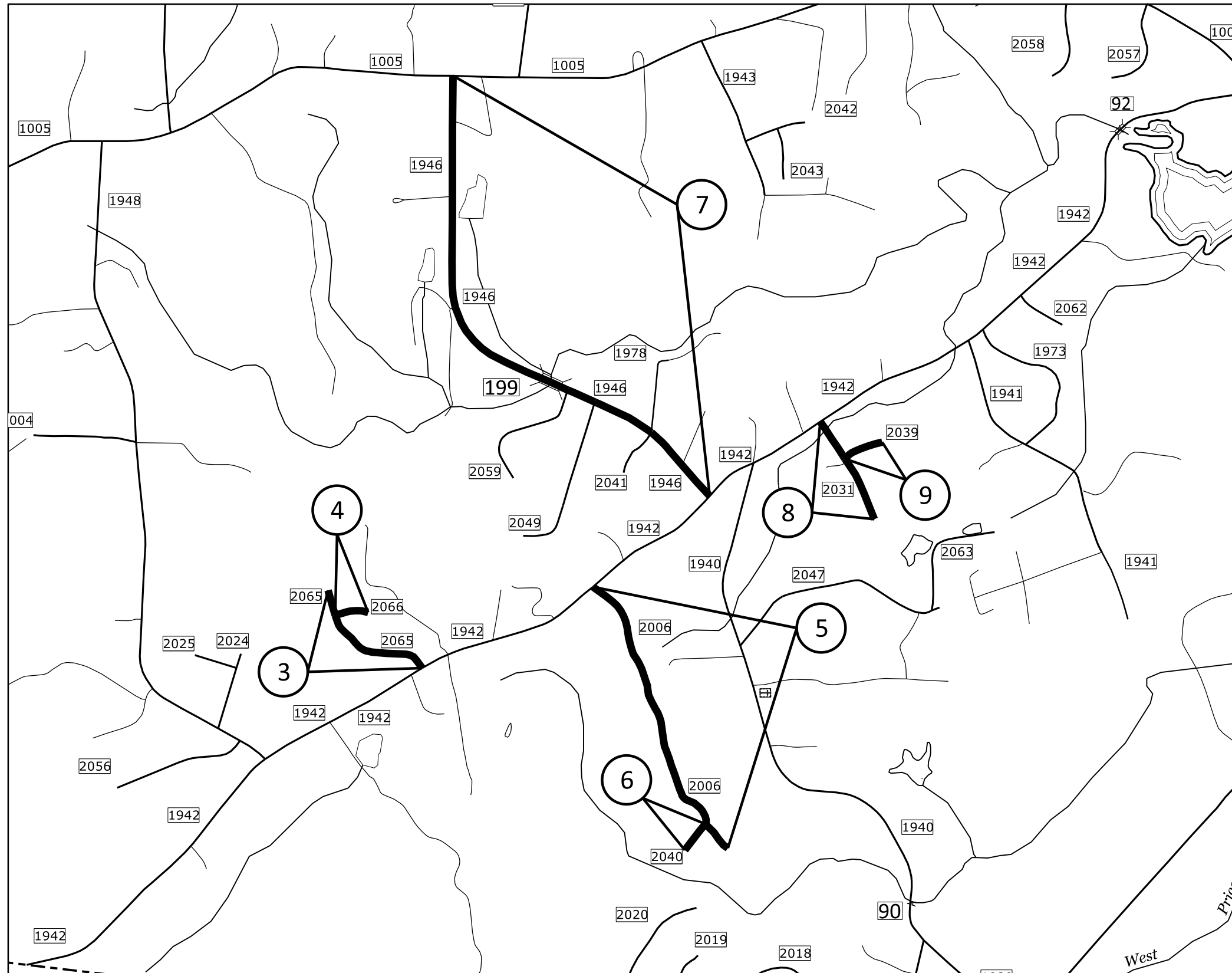
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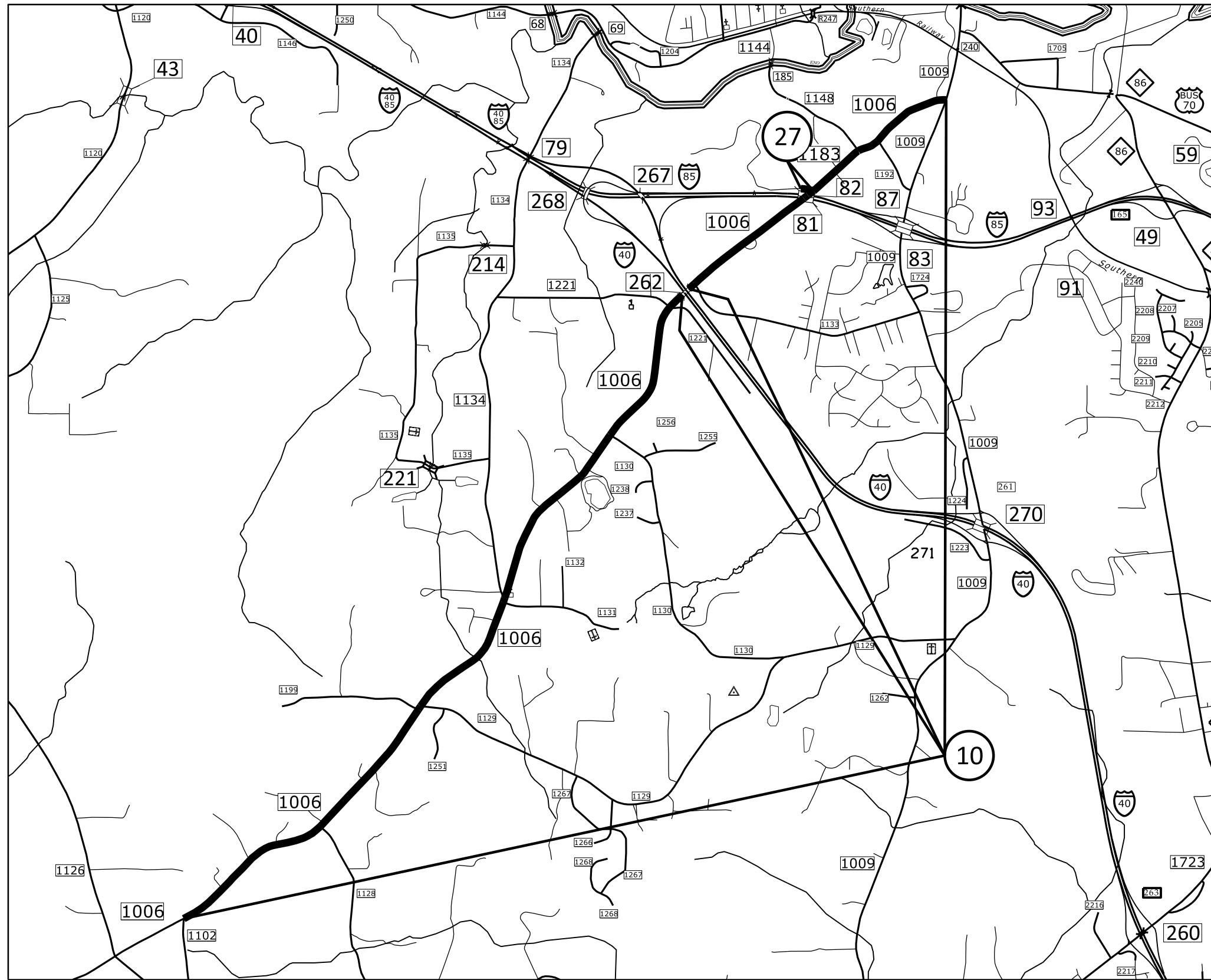


Map 1 SR 1115 - Arthur Minnis Rd

Map 2 SR 1729 - Rogers Rd  
Contractor is to make Asphalt flush with curb at ALL Catch Basin Grates along Bike Lane

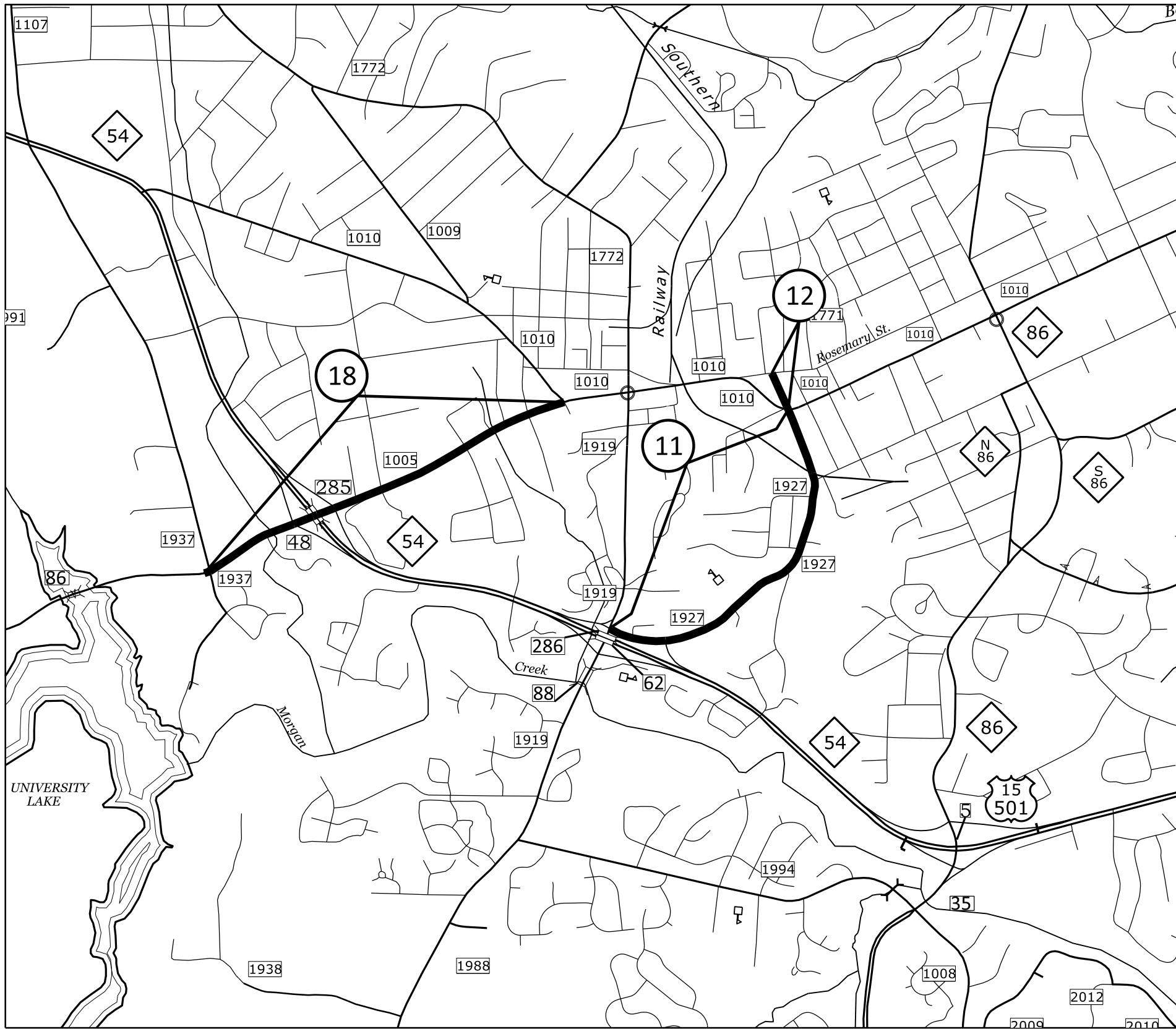


- Map 3 SR 2065 - Mel Oaks Dr
- Map 4 SR 2066 - Mel Oaks Trl
- Map 5 SR 2006 - Carolina Forest Rd
- Map 6 SR 2040 - Carolina Forest Ct
  
- Map 7 SR 1946 - Bowden Rd  
Resurface Bridge # 199
  
- Map 8 SR 2031 - Springhill Forest Rd
- Map 9 SR 2039 - Springhill Forest Pl



Map 10 SR 1006 - Orange Grove Rd  
Mill to Bridge Joints of Bridge # 262  
No Milling, No Pavement on Bridge # 262  
Stop Paving at Joint past SR 1102 Dodson Crossroads

Map 27 SR 1183 - Virginia Cates Rd  
Tie into new Surface at SR 1006 - Orange Grove Rd

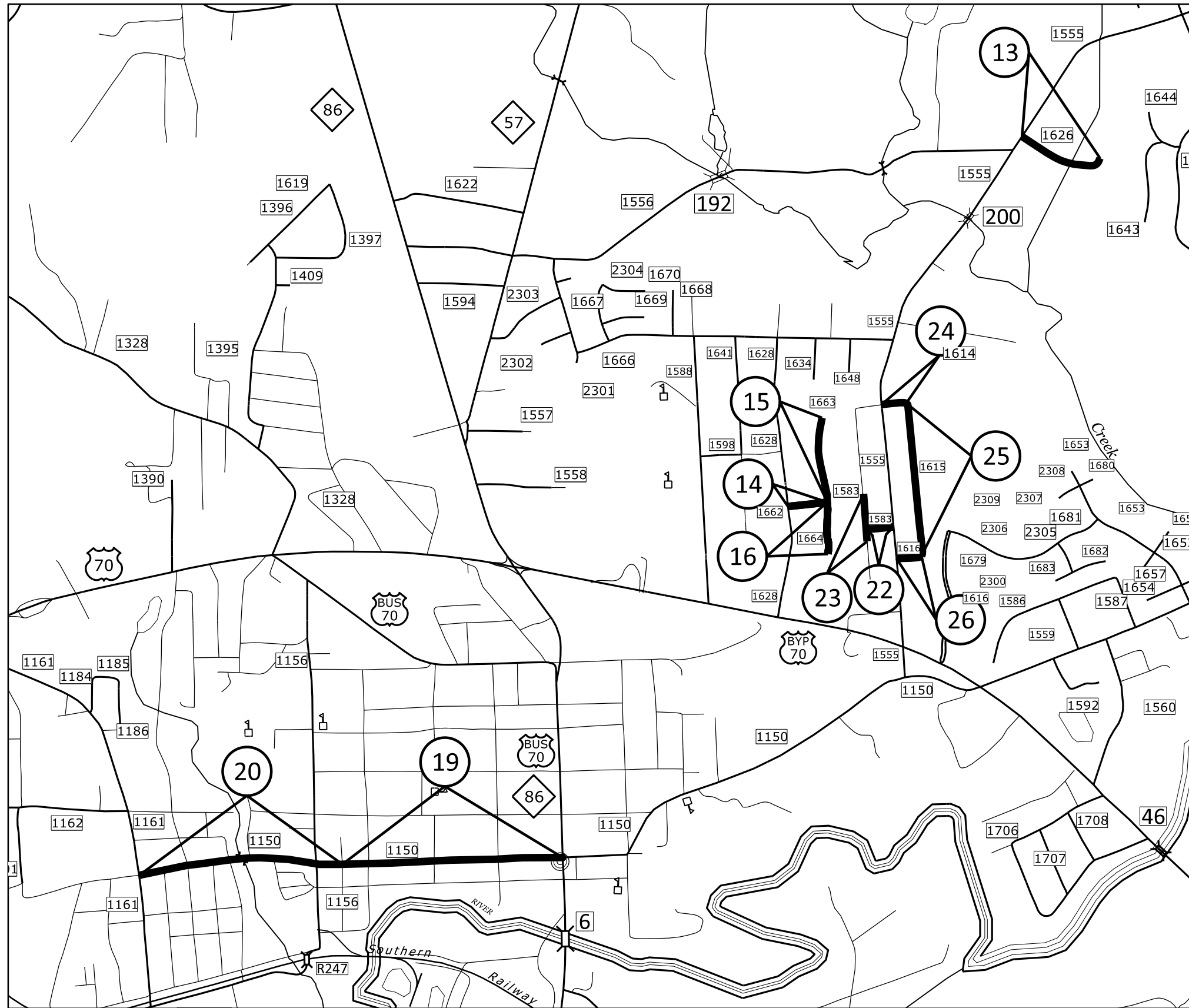


Map 11 SR 1927 - S Merritt Mill Rd  
Mill and Fill 1 1/2" S9.5B

Map 12 SR 1771 - N Merritt Mill Rd  
Mill and Fill 1 1/2" S9.5B  
(INCLUDE INTERSECTION AT ROSEMARY ST)  
New Pavement is to be flush with Concrete of Curb and Gutter at edge of Pavement.

Map 18 SR 1005 - Jones Ferry Rd  
Contractors attention is drawn to existing gutter, Existing surface overlays into existing gutter at various locations and is at varying depths. FINE Mill to remove ALL asphalt from gutter then Mill 1 1/2" depth the Entire Map from edge of pavement to edge of pavement. Pave back with 1 1/2" S9.5C  
New Pavement is to be flush with Concrete of Curb and Gutter at edge of Pavement. NO ASPHALT IN GUTTER.

**NOTE:**  
**MAP 18 SR 1005 JONES FERRY RD**  
**CONTRACTOR IS TO CONTACT RESIDENT ENGINEER**  
**BEFORE RESURFACING THIS MAP FOR REMOVAL OF**  
**BIKE LANE DELINEATORS**



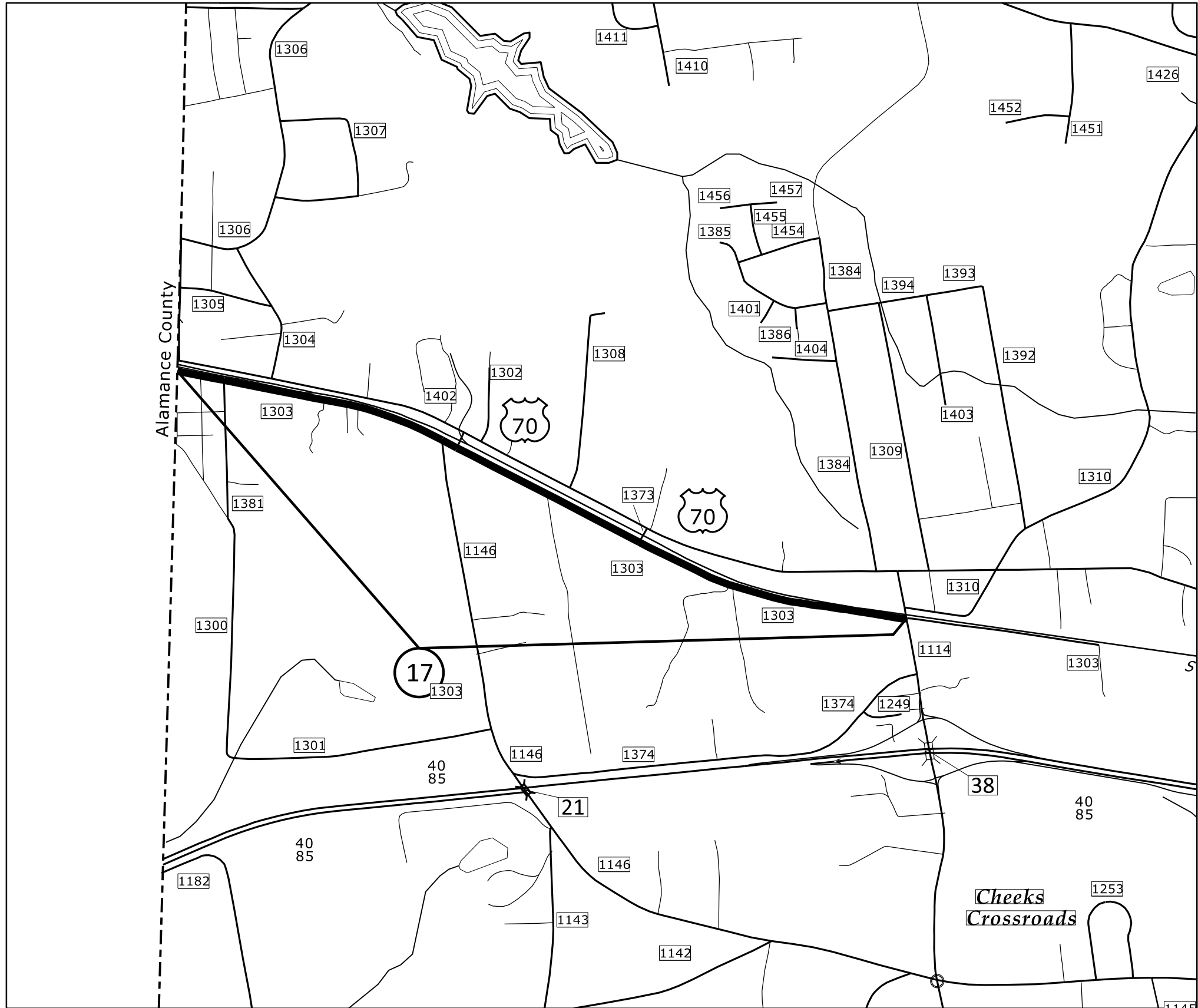
Map 13 SR 1626 - Farmview Rd

Map 14 SR 1662 - Nancy Dr  
Mill 1 1/4" Pave Back 1 1/4" S9.5B

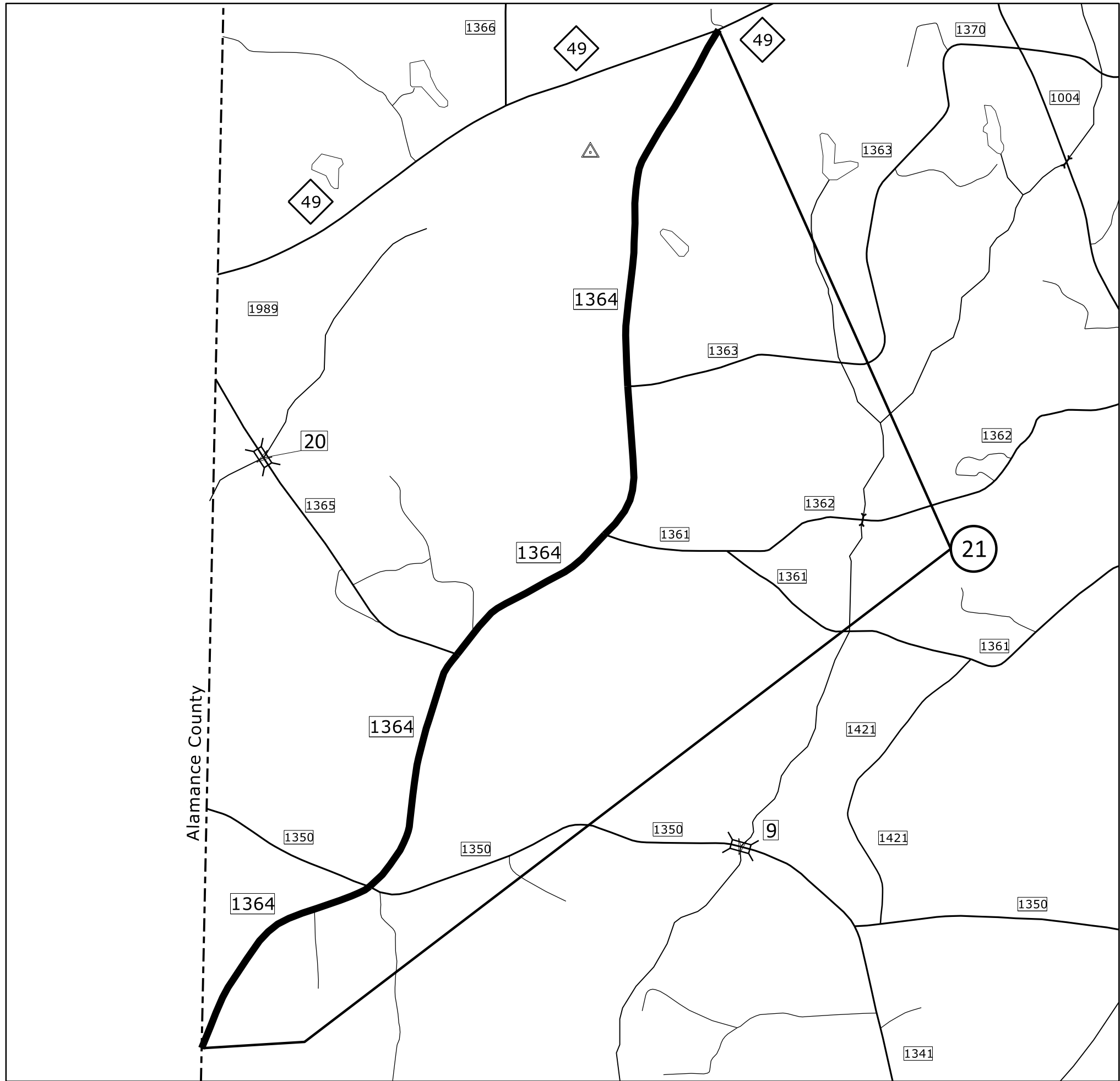
Map 15 SR 1663 - N English Hill Ln  
Map 16 SR 1664 - S English Hill Ln

Map 19 SR 1150 - W King St  
Mill 1 1/4" Pave Back 1 1/4" S9.5B

Map 20 SR 1150 - W King St  
Map 22 SR 1583 - Apple Ln  
Map 23 SR 1583 - Buttonwood Dr  
Map 24 SR 1614 - Woodlawn Dr/Greentree Dr  
Map 25 SR 1615 - Greentree Dr  
Map 26 SR 1616 - Greentree Dr

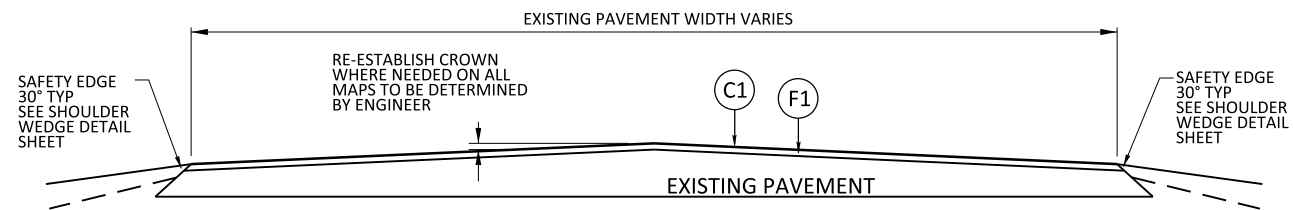


Map 17 SR 1303 - E Washington St



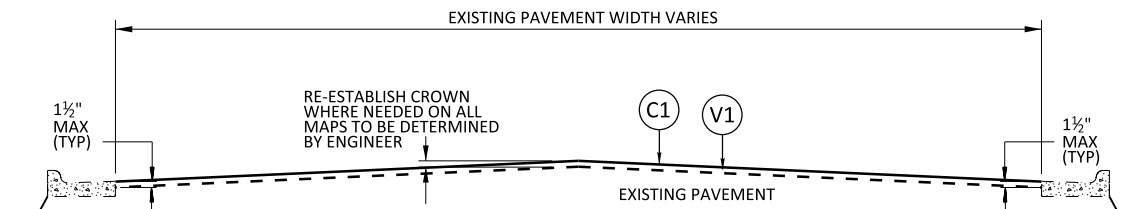
Map 21 SR 1364 - Lynch Store Rd





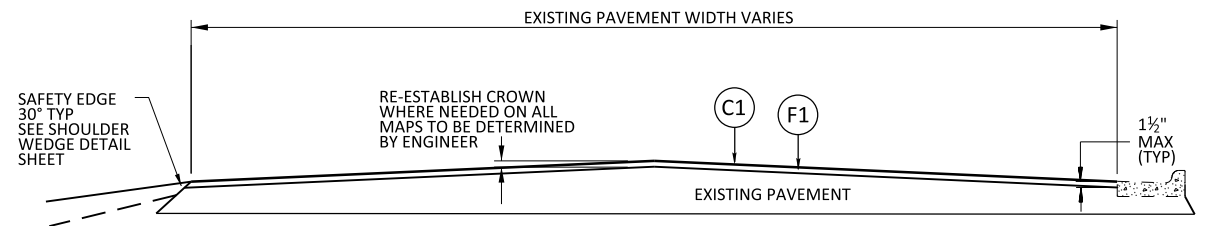
**TYPICAL SECTION NO.1**

Map 1	SR 1115 - Arthur Minnis Rd	Map 8	SR 2031 - Springhill Forest Rd
Map 2	SR 1729 - Rogers Rd	Map 9	SR 2039 - Springhill Forest Pl
Map 5	SR 2006 - Carolina Forest Rd	Map 20	SR 1150 - W King St
Map 6	SR 2040 - Carolina Forest Ct	Map 21	SR 1364 - Lynch Store Rd
		Map 27	SR 1183 - Virginia Cates Rd



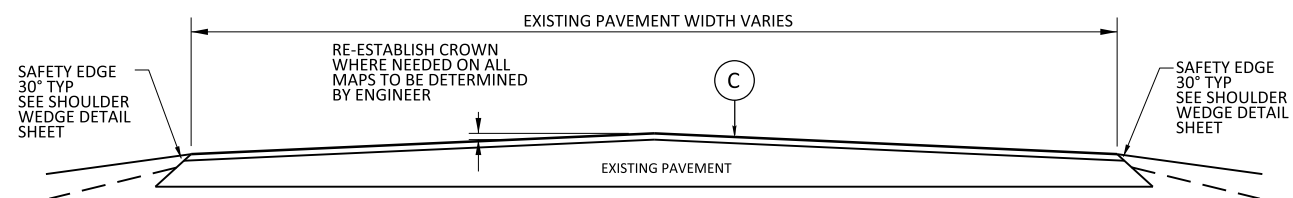
**TYPICAL SECTION NO.6**

Map 11	SR 1927 - S Merritt Mill Rd
Map 12	SR 1771 - N Merritt Mill Rd



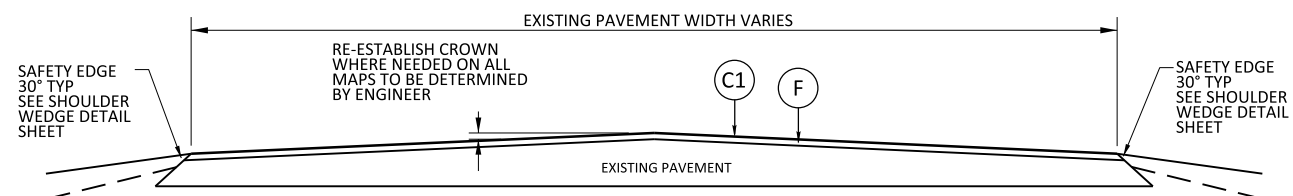
**TYPICAL SECTION NO.2**

Map 2	SR 1729 - Rogers Rd
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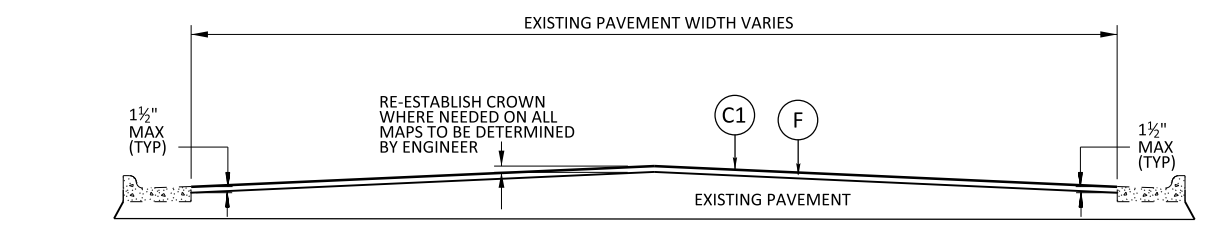
**TYPICAL SECTION NO.3**

Map 3	SR 2065 - Mel Oaks Dr	Map 22	SR 1583 - Apple Ln
Map 4	SR 2066 - Mel Oaks Trl	Map 23	SR 1583 - Buttonwood Dr
Map 13	SR 1626 - Farmview Rd	Map 24	SR 1614 - Woodlawn Dr/Greentree Dr
Map 15	SR 1663 - N English Hill Ln	Map 25	SR 1615 - Greentree Dr
Map 16	SR 1664 - S English Hill Ln	Map 26	SR 1616 - Greentree Dr



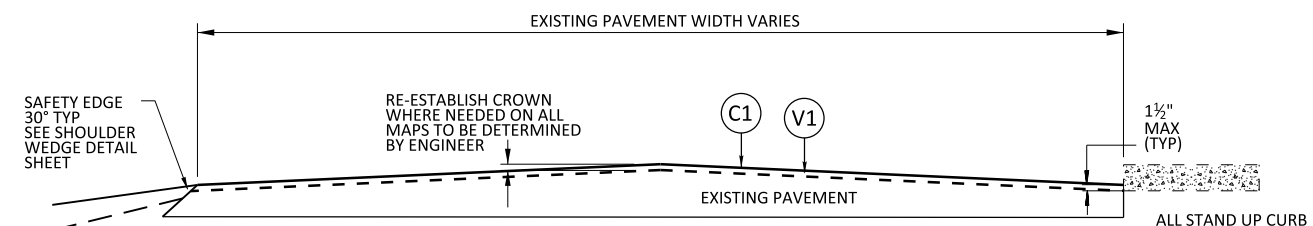
**TYPICAL SECTION NO.4**

*Map 7	SR 1946 - Bowden Rd (Resurface Bridge # 199)
*Map 10	SR 1006 - Orange Grove Rd (No Milling, No Pavement on Bridge# 262)
Map 17	SR 1303 - E Washington St



**TYPICAL SECTION NO.5**

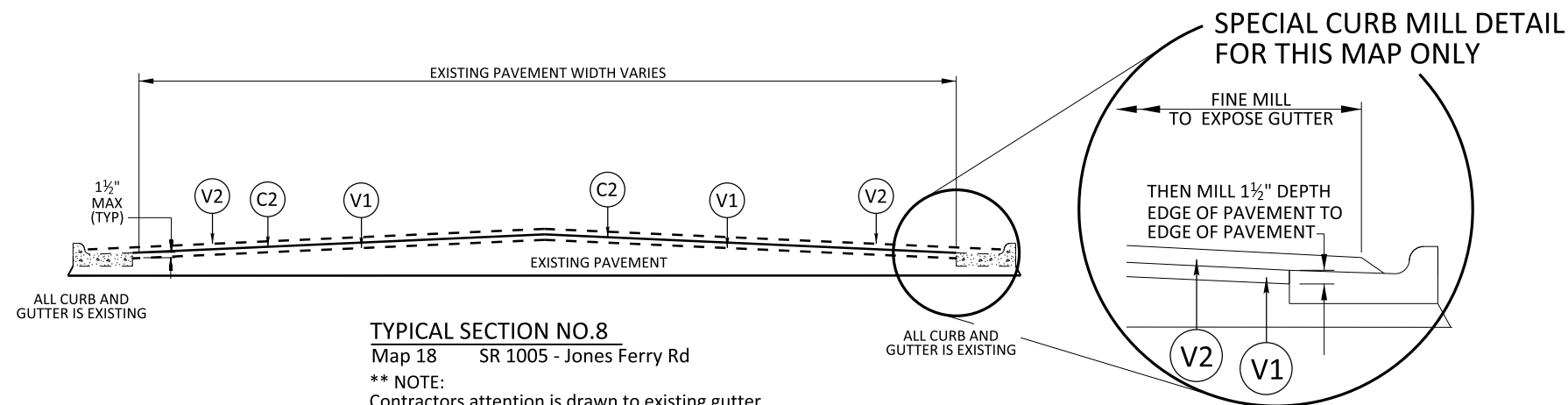
Map 10	SR 1006 - Orange Grove Rd
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**TYPICAL SECTION NO.7**

Map 11	SR 1927 - S Merritt Mill Rd
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PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5.C, TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
F	AST MAT COAT, #67
F1	AST MAT COAT, #78M
U	EXISTING PAVEMENT
V	MILL ASPHALT PAVEMENT, 1 1/4" DEPTH
V1	MILL ASPHALT PAVEMENT, 1 1/2" DEPTH
V2	FINE MILLING

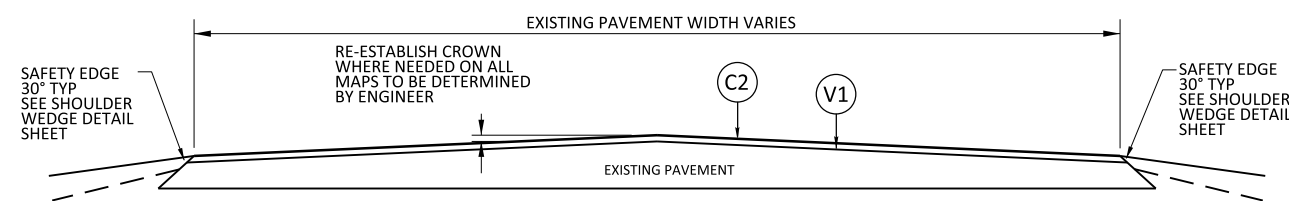


**TYPICAL SECTION NO.8**

Map 18 SR 1005 - Jones Ferry Rd

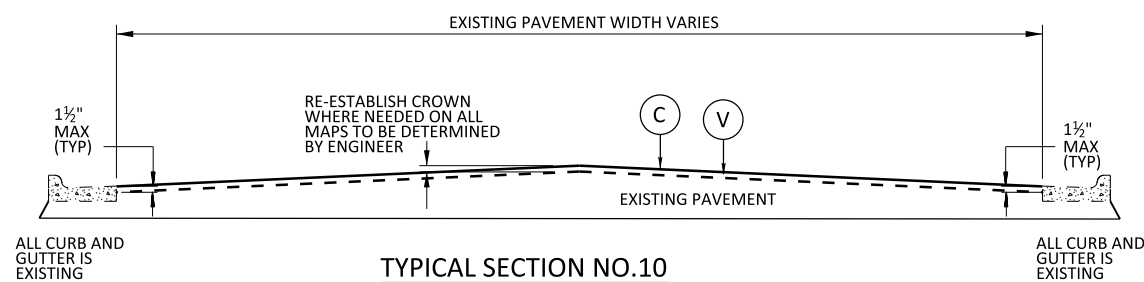
**\*\* NOTE:**

Contractors attention is drawn to existing gutter, Existing surface overlays into existing gutter at various locations and is at varying depths. FINE Mill to remove ALL asphalt from gutter then Mill 1 1/2" depth the Entire Map from edge of pavement to edge of pavement. Pave back with 1 1/2" S9.5C New Pavement is to be flush with Concrete of Curb and Gutter at edge of Pavement. NO ASPHALT IN GUTTER.



**TYPICAL SECTION NO.9**

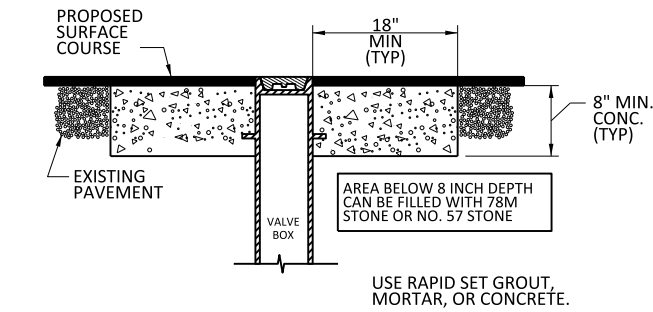
Map 18 SR 1005 - Jones Ferry Rd



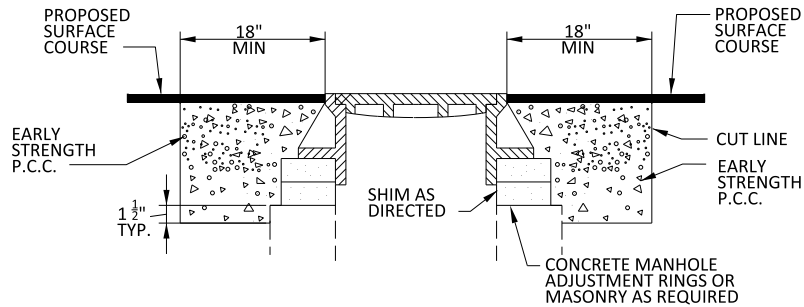
**TYPICAL SECTION NO.10**

Map 14 SR 1662 - Nancy Dr  
Map 19 SR 1150 - W King St

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5.C, TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
F	AST MAT COAT, #67
F1	AST MAT COAT, #78M
U	EXISTING PAVEMENT
V	MILL ASPHALT PAVEMENT, 1 1/4" DEPTH
V1	MILL ASPHALT PAVEMENT, 1 1/2" DEPTH
V2	FINE MILLING

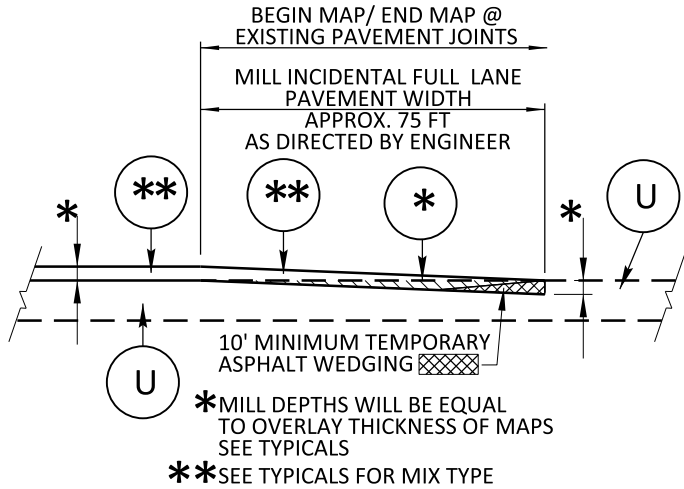


**STANDARD CONCRETE ENCASEMENT FOR VALVE CASTINGS IN PAVEMENT**

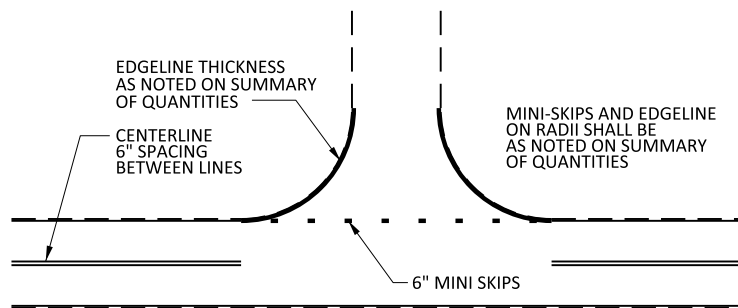


- NOTES:
- MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
  - ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
  - EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
  - RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.

**STANDARD CONCRETE ENCASEMENT FOR MANHOLE CASTINGS IN PAVEMENT**

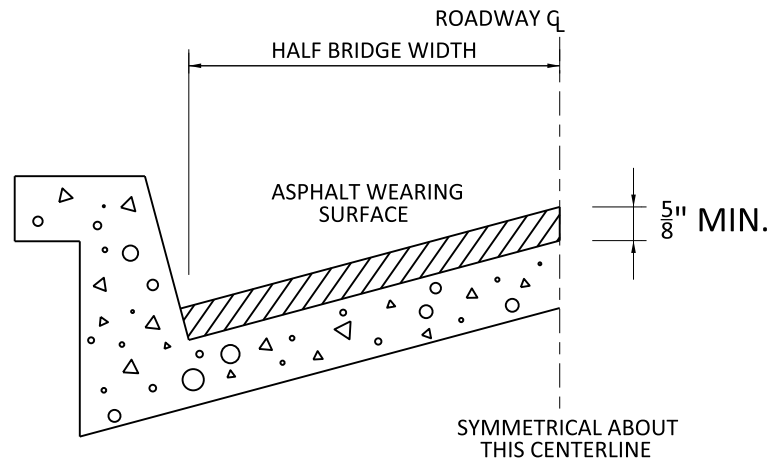


**INCIDENTAL MILLING AT TIE-IN DETAIL**



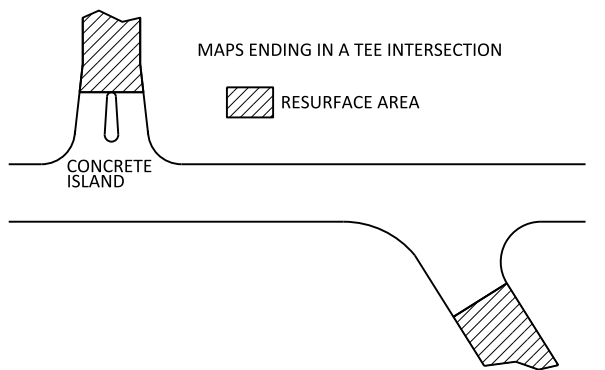
NOTE: MINI SKIPS SHALL BE PLACED ON A 8' CYCLE, CONTAINING A 6' AND 2' SKIP, THE WIDTH OF THE SKIP SHALL BE 6".

**NON-SIGNALIZED INTERSECTIONS TO BE USED AS DIRECTED BY ENGINEER**

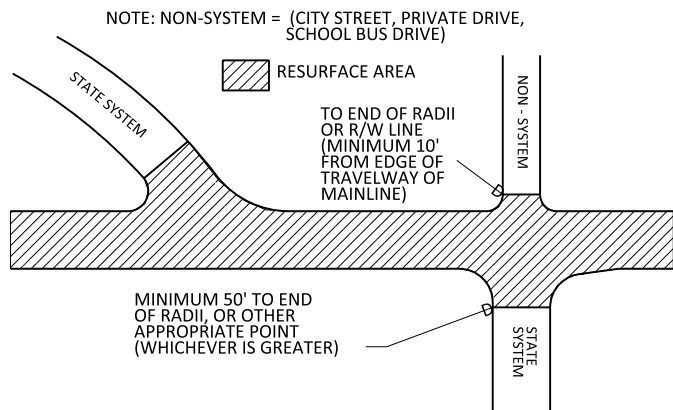


**BRIDGE HALF TYPICAL SECTION**

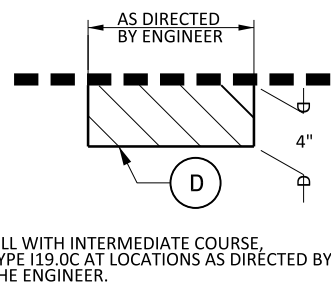
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN. THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 5/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1-1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.



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



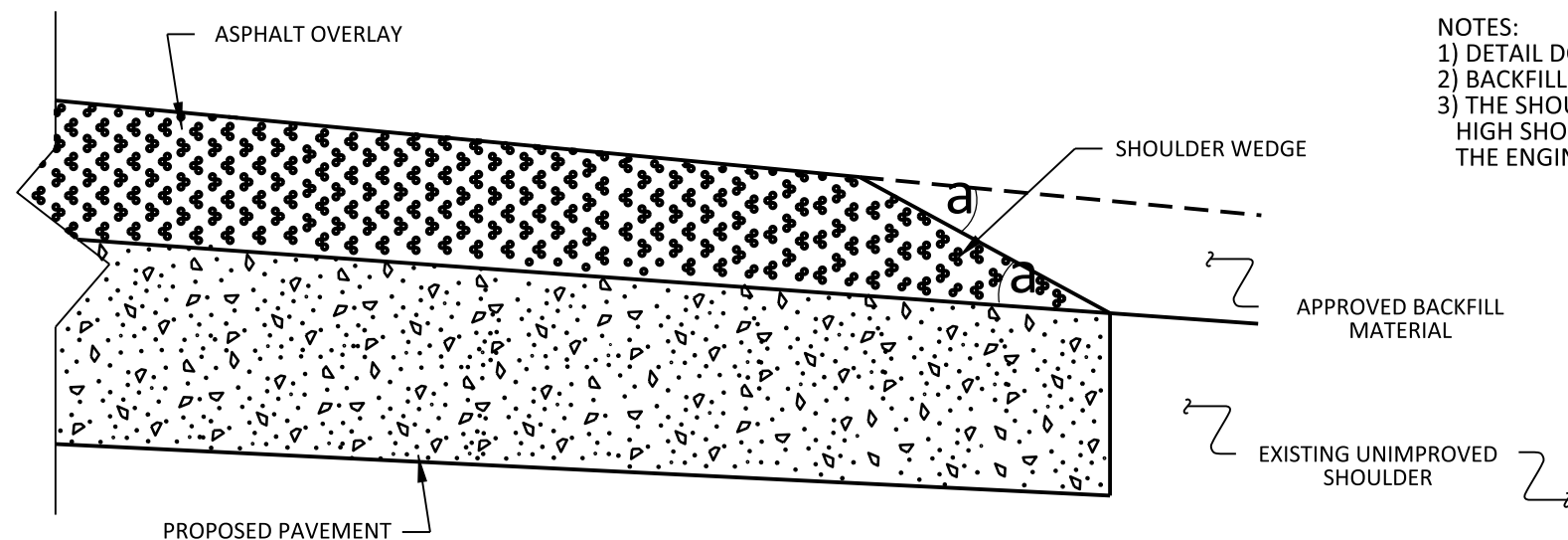
**PAVING DETAIL 2  
MAIN LINE IS BEING RESURFACED**



FILL WITH INTERMEDIATE COURSE, TYPE I19.0C AT LOCATIONS AS DIRECTED BY THE ENGINEER.

**PATCHING EXISTING PAVEMENT DETAIL**

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5.C, TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
F	AST MAT COAT, #67
F1	AST MAT COAT, #78M
U	EXISTING PAVEMENT
V	MILL ASPHALT PAVEMENT, 1 1/4" DEPTH
V1	MILL ASPHALT PAVEMENT, 1 1/2" DEPTH
V2	FINE MILLING
Y1	SHOULDER WEDGE (SEE DETAIL)

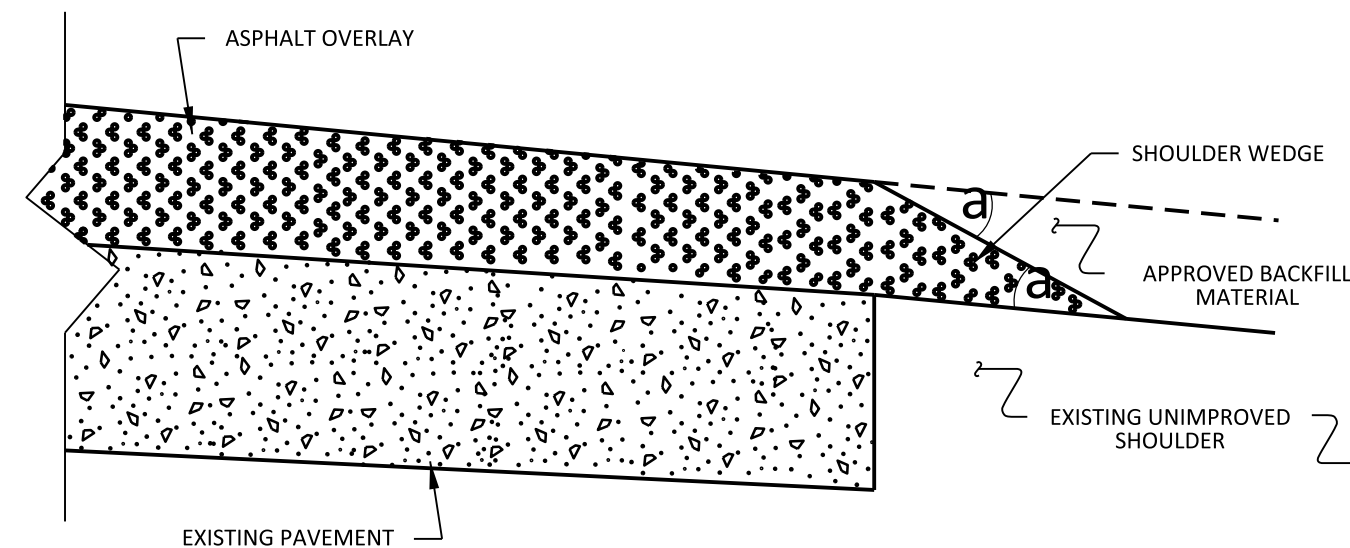


NOTES:

- 1) DETAIL DOES NOT APPLY TO OGAF C 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, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS DIRECTED BY THE ENGINEER.

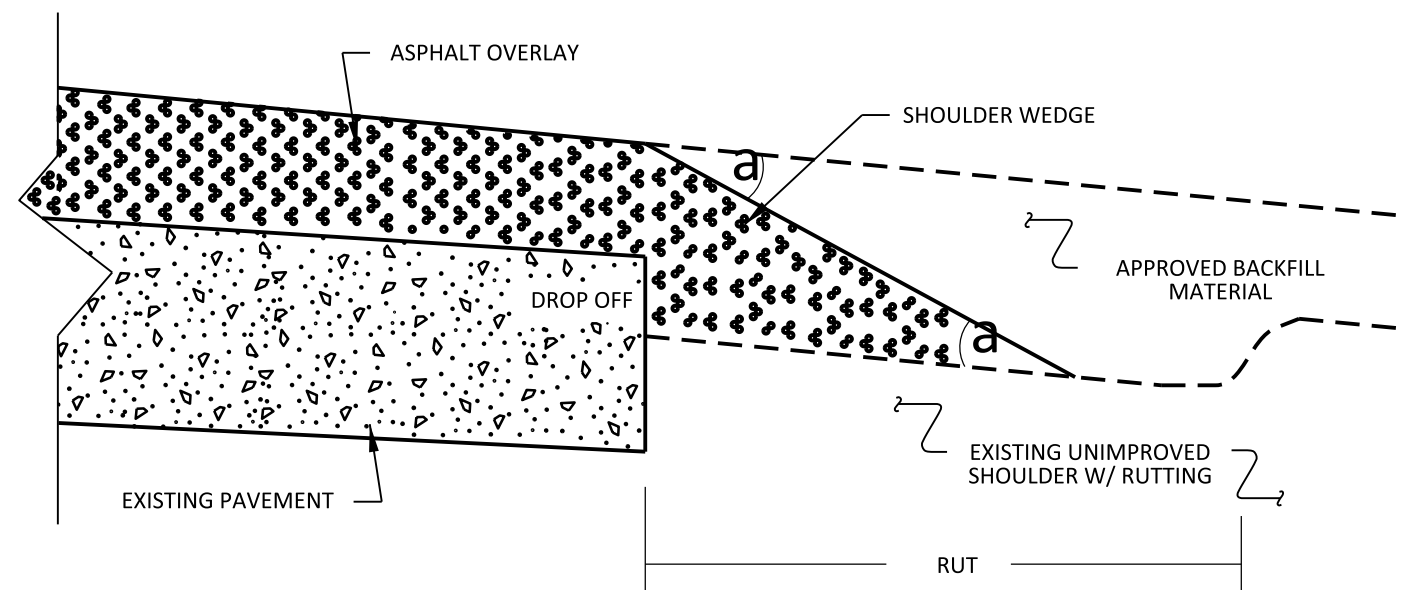
### SHOULDER WEDGE DETAIL

(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°

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



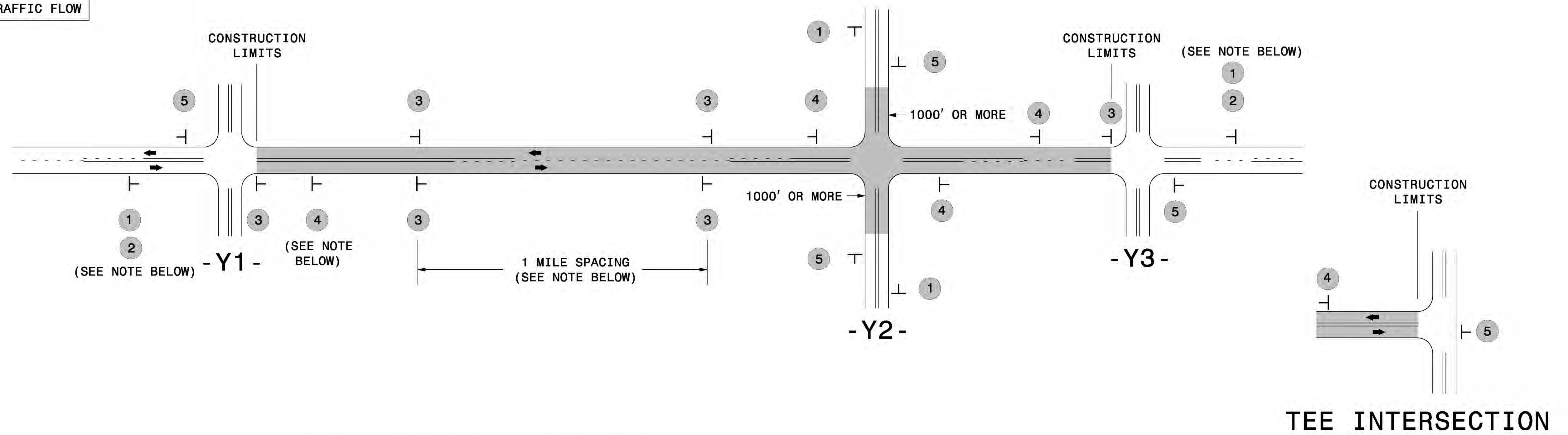


# SIGNING FOR RESURFACING PROJECTS

**LEGEND**

┃ STATIONARY SIGN

← DIRECTION OF TRAFFIC FLOW



## MAINLINE (-L-) SIGNING

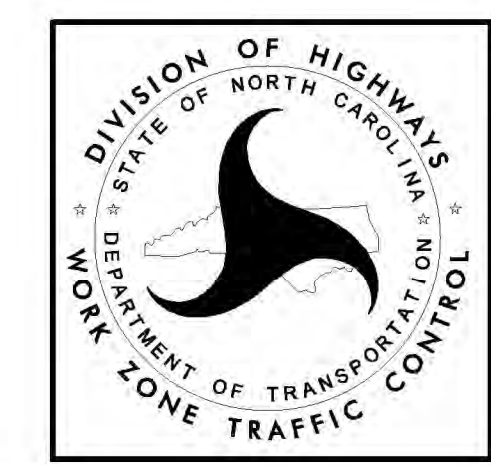
## -Y- LINE SIGNING

<b>SIGNING NOTES AND PLACEMENT PER DIRECTION</b>	1		PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<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, PORTABLE ADVANCE WARNING 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;">               PLACED 500' IN ADVANCE OF FLAGGER.         </div> <div style="text-align: center;">               PLACED 250' IN ADVANCE OF FLAGGER.         </div> </div>
	2		#2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3		<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 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.</li> </ul>	
	4		<ul style="list-style-type: none"> <li>- THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS.</li> <li>- 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		PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.	

THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.

**MAPS LESS THAN 2 MILES**

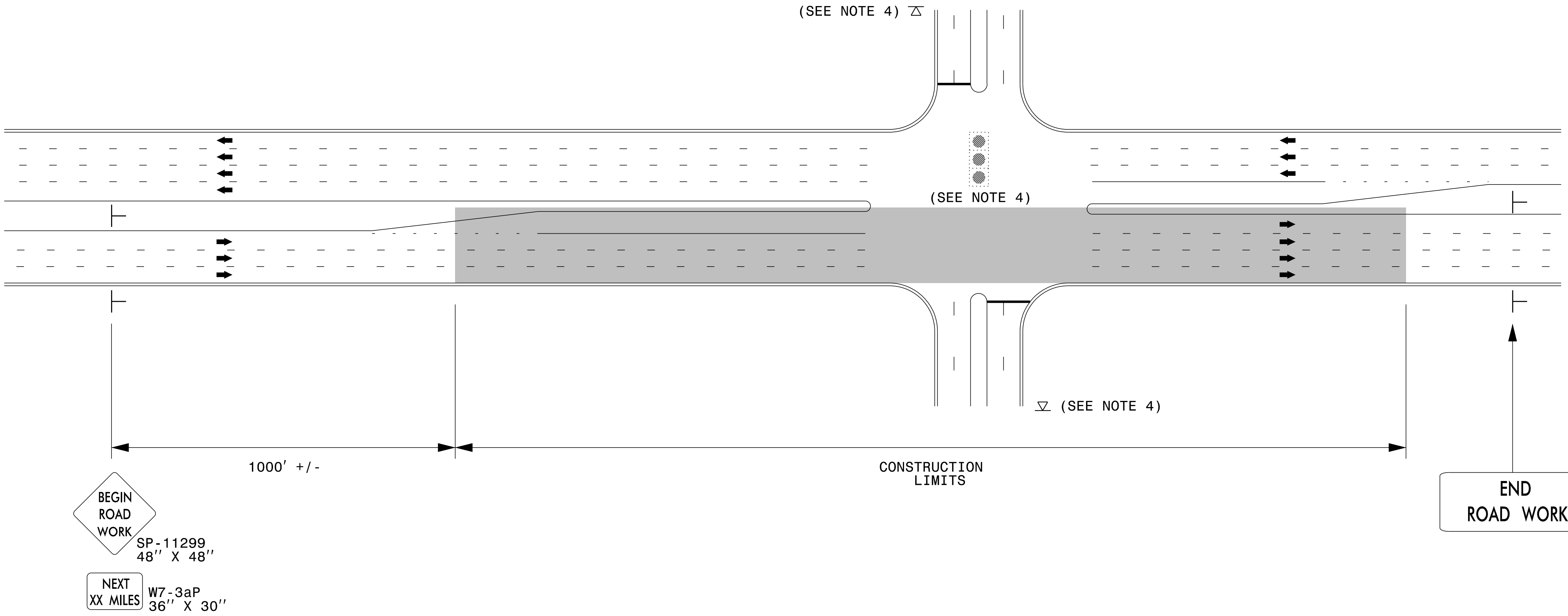
FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.



**ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING**

5/15/2017 5:11:10 PM \\NCDOT\resurfacing\212W & AST Resurfacing Details\Resurfacing\_AdvWarn\_2Ln.dgn User:keads

# 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**

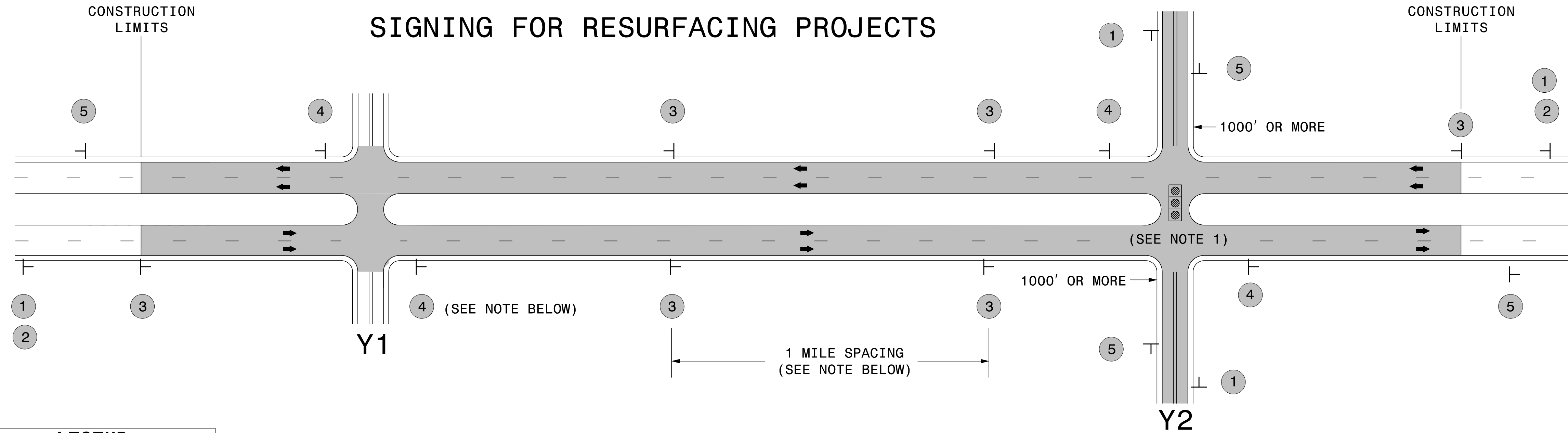
┆ STATIONARY SIGN

➔ DIRECTION OF TRAFFIC FLOW



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





**LEGEND**  
 ┆ STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW


**MAINLINE (-L-) SIGNING**

**-Y- LINE SIGNING**

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<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; align-items: center;"> <div style="text-align: center;">           W20-1          48" X 48"       </div> <div style="text-align: center;">           W20-7 A          48" X 48"       </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p> <p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>1) 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.</li> </ol>
	2	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	3	 SP 13107 48" X 48"	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.	
	4	 SP 13106 48" X 48"	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.	
	5	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	

3/23/2015  
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 User:rmgarrrett

**RESURFACING  
 ADVANCE WARNING SIGNS  
 FOR RURAL AND SUBURBAN  
 MULTI-LANE ROADWAYS  
 W/ SHOULDER SECTIONS**

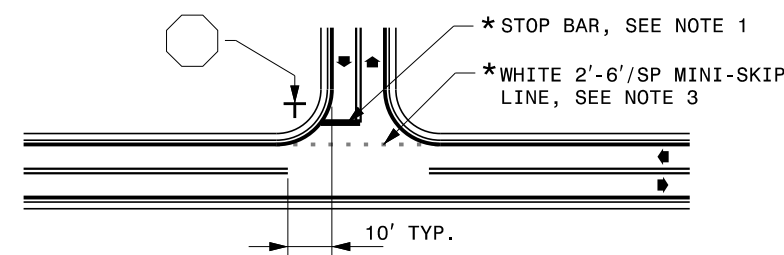
TIP NO.	SHEET NO.
DocuSigned by: <i>Matthew V. Springer</i>	
APPROVED:	8/13/2019
DATE:	6609-523B584403...
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STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

8-19

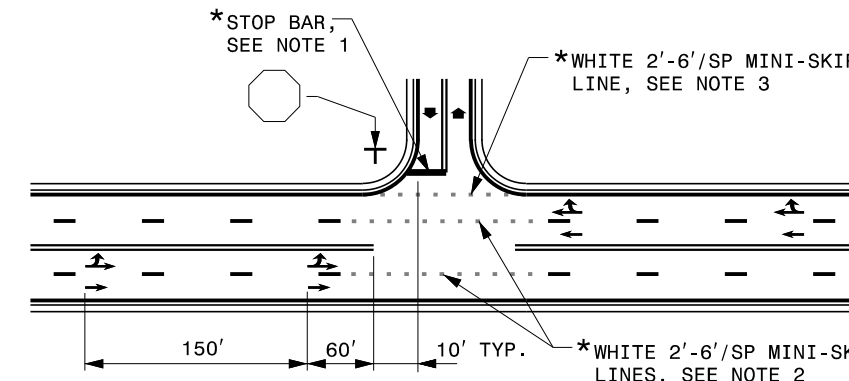
ENGLISH DETAIL DRAWING FOR  
PAVEMENT MARKINGS  
INTERSECTIONS

**TWO-LANE, TWO-WAY ROADWAY**



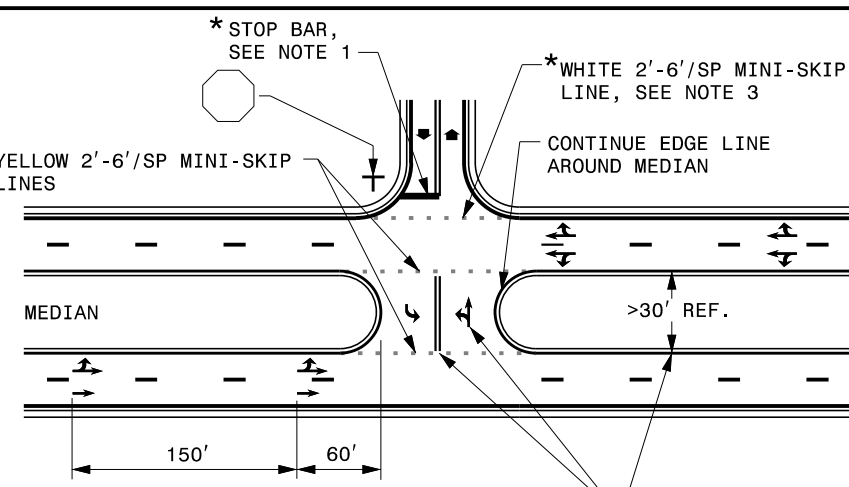
\* STOP BAR, SEE NOTE 1  
\* WHITE 2'-6"/SP MINI-SKIP LINE, SEE NOTE 3  
10' TYP.

**UNDIVIDED MULTI-LANE ROADWAY**



\* STOP BAR, SEE NOTE 1  
\* WHITE 2'-6"/SP MINI-SKIP LINE, SEE NOTE 3  
150' 60' 10' TYP.  
\* WHITE 2'-6"/SP MINI-SKIP LINES, SEE NOTE 2

**DIVIDED MULTI-LANE ROADWAY WITH WIDE MEDIAN CROSSOVER**



\* STOP BAR, SEE NOTE 1  
\* WHITE 2'-6"/SP MINI-SKIP LINE, SEE NOTE 3  
CONTINUE EDGE LINE AROUND MEDIAN  
YELLOW 2'-6"/SP MINI-SKIP LINES  
MEDIAN  
>30' REF.  
150' 60'

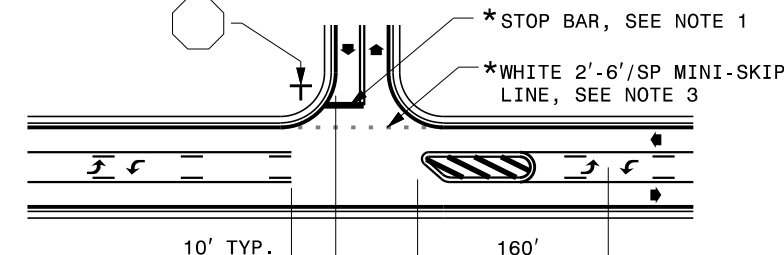
USE DOUBLE YELLOW CENTER LINE AND ARROW SYMBOLS IN MEDIAN CROSSOVER WHEN WIDTH OF MEDIAN EXCEEDS 30 FT, OTHERWISE THEY ARE NOT REQUIRED.

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RALEIGH, N.C.

8-19

ENGLISH DETAIL DRAWING FOR  
PAVEMENT MARKINGS  
INTERSECTIONS

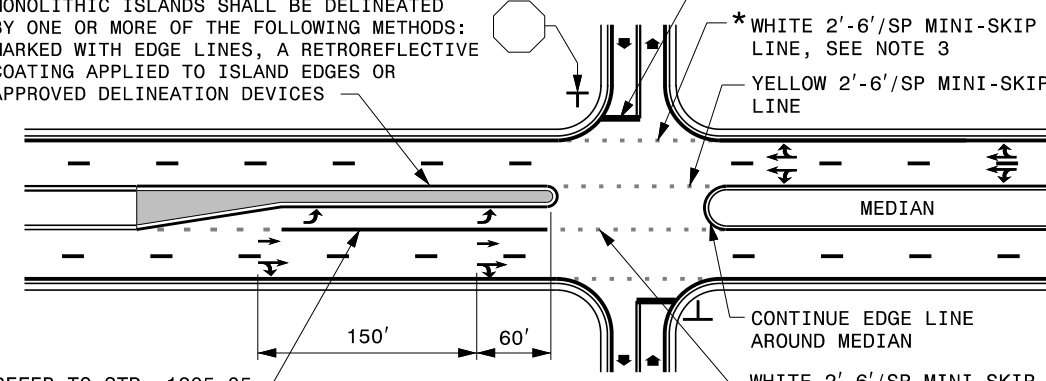
**TWO-LANE, TWO-WAY ROADWAY WITH TWO-WAY LEFT TURN LANE**



\* STOP BAR, SEE NOTE 1  
\* WHITE 2'-6"/SP MINI-SKIP LINE, SEE NOTE 3  
10' TYP. 160'

**DIVIDED MULTI-LANE ROADWAY WITH TURN BAY**

MONOLITHIC ISLANDS SHALL BE DELINEATED BY ONE OR MORE OF THE FOLLOWING METHODS:  
MARKED WITH EDGE LINES, A RETROREFLECTIVE COATING APPLIED TO ISLAND EDGES OR APPROVED DELINEATION DEVICES







\* STOP BAR, SEE NOTE 1  
\* WHITE 2'-6"/SP MINI-SKIP LINE, SEE NOTE 3  
YELLOW 2'-6"/SP MINI-SKIP LINE  
MEDIAN  
CONTINUE EDGE LINE AROUND MEDIAN  
WHITE 2'-6"/SP MINI-SKIP LINE  
150' 60'

REFER TO STD. 1205.05 FOR TURN LANE MARKING GUIDANCE

**GENERAL NOTES:**

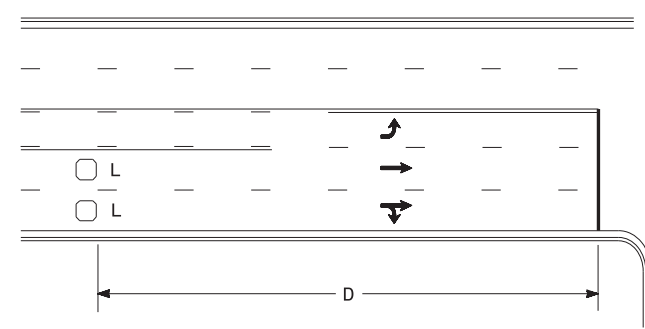
- 1- PLACEMENT OF STOP BARS AT NON-SIGNALIZED INTERSECTIONS IS OPTIONAL AND USED WHERE IT IS IMPORTANT TO INDICATE THE POINT WHICH VEHICLES ARE REQUIRED TO STOP. PLACE STOP BARS NO LESS THAN 4 FEET AND NO MORE THAN 30 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY. USE 10 FEET AS THE TYPICAL SETBACK DISTANCE OR AS DIRECTED BY THE ENGINEER.
- 2- MINI-SKIP LANE LINE EXTENSIONS SHOULD BE USED AT INTERSECTIONS THAT HAVE REDUCED VISIBILITY CONDITIONS SUCH AS OFFSET, SKEWED, OR CURVED ROADWAYS.
- 3- MINI-SKIP EDGE LINE EXTENSIONS MAY BE PLACED THROUGH INTERSECTIONS AND MAJOR DRIVEWAYS.
- 4- REFER TO ROADWAY STANDARD DRAWINGS 1205.01, 1205.02, 1205.05, 1205.08 AND 1205.09 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

**LEGEND**

 STOP SIGN	 STATIONARY SIGN
 DIRECTION OF TRAFFIC FLOW	 PAVEMENT MARKING SYMBOLS
* OPTIONAL	

U:\8\13\17\Standards Group\Standards and Drawings\Drawings\2018 Standard Dwg\Division 12 Final\2050402\_08-13-19.dgn  
User:dstokes

### High Speed Detection (≥40 mph)

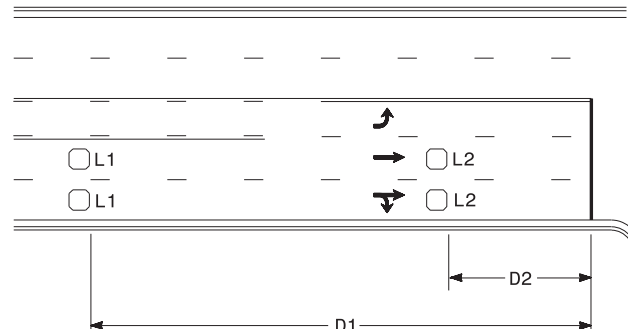


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft  
Wired separately

Volume Density Operation

OR

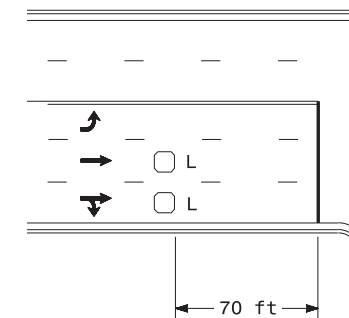


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

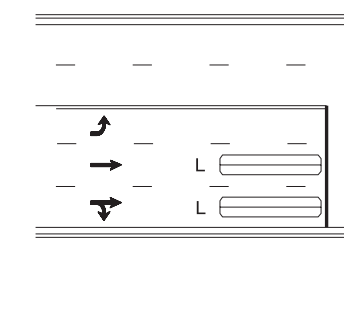
"Stretch" Operation

### Low Speed Detection (≤35 mph)



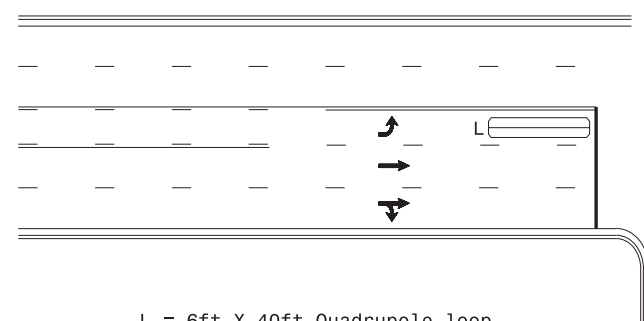
L = 6ft X 6ft  
Wired in series

OR



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

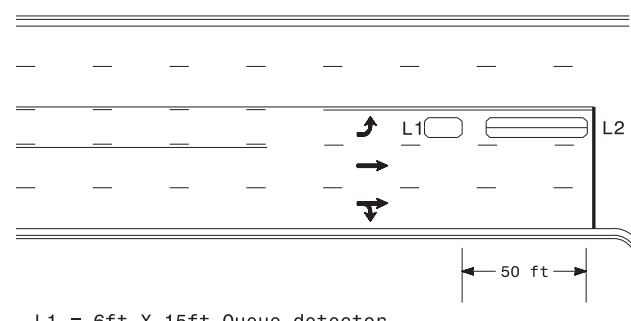
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

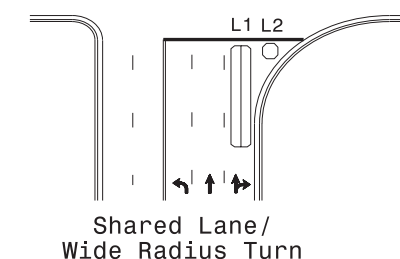
OR



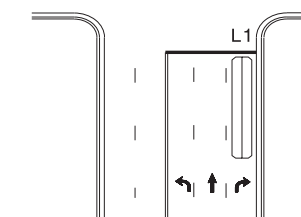
L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

Queue Loop Detection

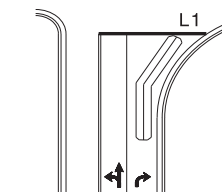
### Right Turn Lane Detection



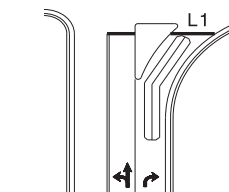
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

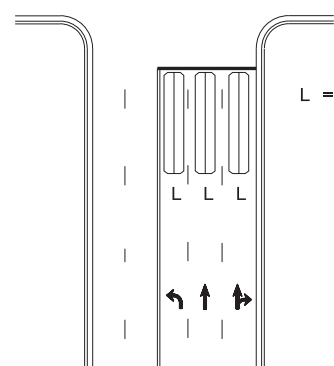


Wide Radius Turn



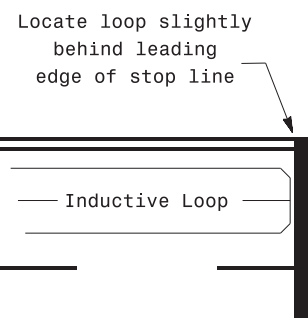
Channelized Turn

### 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:

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.

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

ENGLISH STANDARD DRAWING FOR  
**DEEP-CUT INDUCTIVE DETECTION LOOPS**  
(FOR INSTALLATION PRIOR TO MILLING)

**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 IN SERIES.
- LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS.
- USE A SERIES OF ONE INCH PIECES OF BACKER ROD SPACED ONE FOOT APART ALONG THE ENTIRE LENGTH OF THE FEEDER SLOT AND LOOP SAW SLOT.
- CONSULT LOOP SEALANT MANUFACTURER TO DETERMINE CURING TIME REQUIRED PRIOR TO MILLING.
- REFER TO STANDARD DRAWING 1725.01 SHEETS 2 AND 3 FOR ADDITIONAL REQUIREMENTS.

**SAW SLOT DEPTH CHART**  
ASSUMING 2" MILLING DEPTH

DEPTH (IN)	MAX NO. OF WIRE LAYERS				
	2	3	4	5	6
SAW SLOT DEPTH	4.0	4.5	5.0	5.0	5.0
MINIMUM TOTAL ASPHALT DEPTH REQUIRED	5.0	5.5	6.0	6.0	6.0

**LOOP WIRE TWISTING METHOD**

INCORRECT WAY TO TWIST WIRE

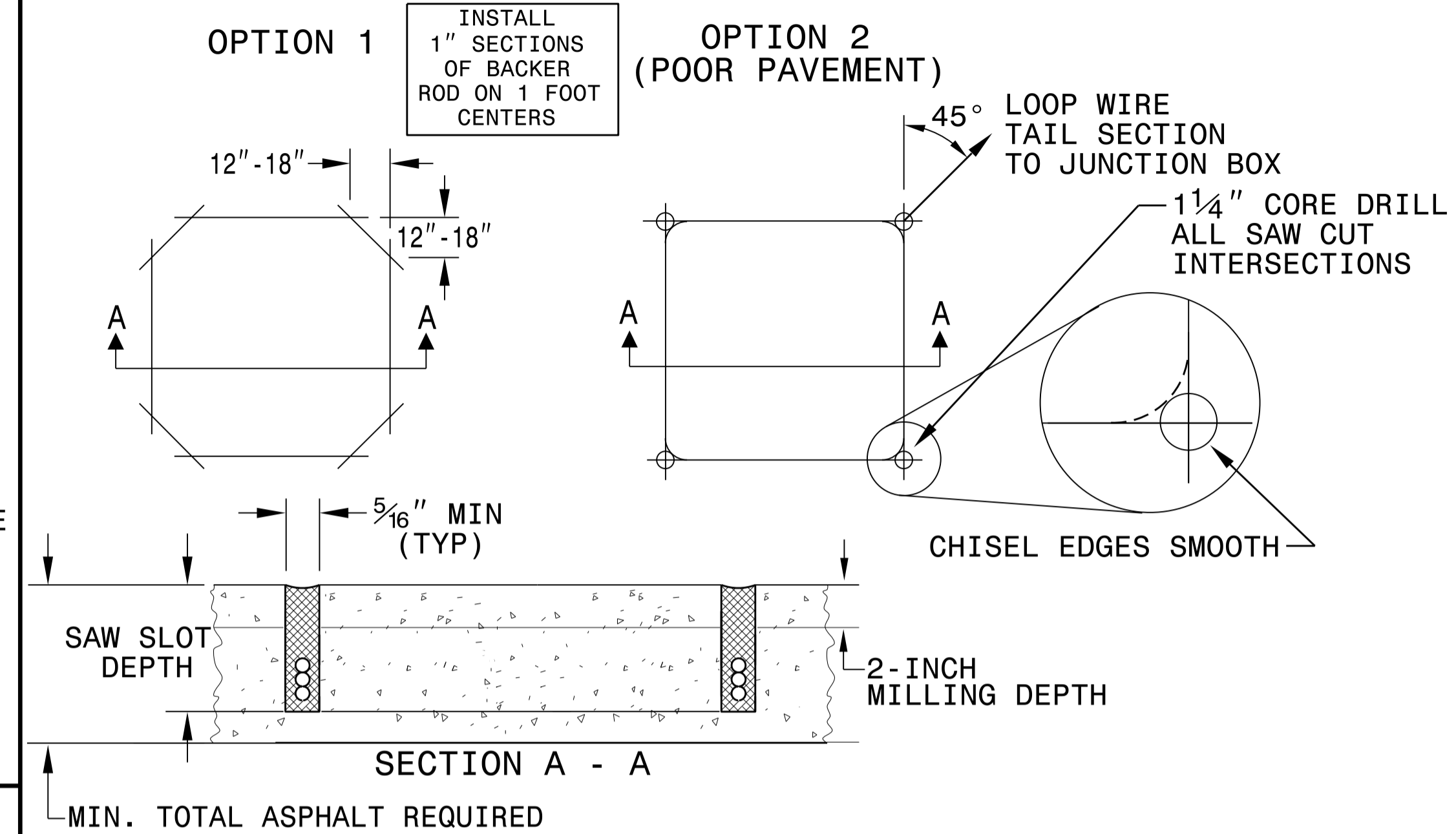


CORRECT WAY TO TWIST WIRE

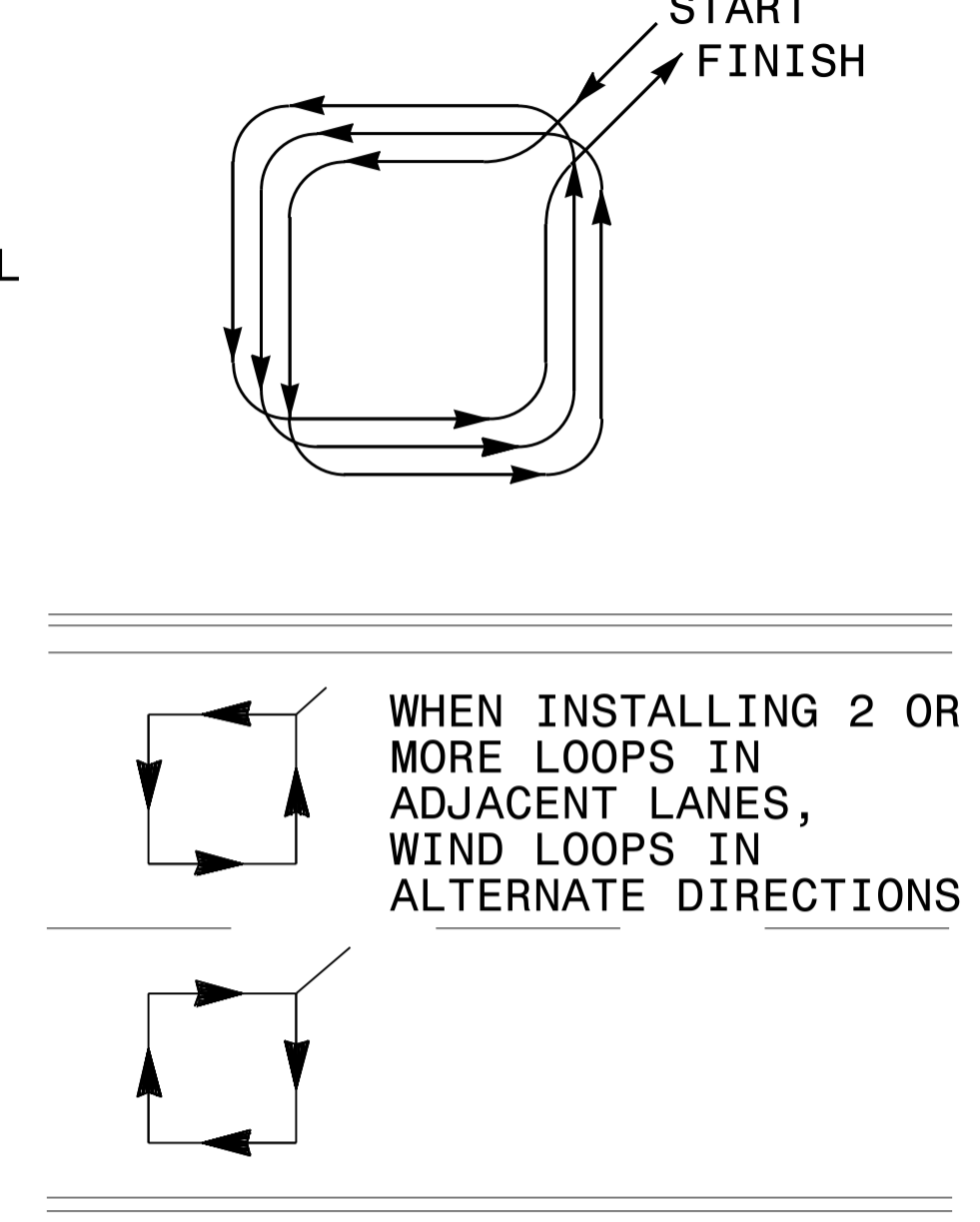


**CONVENTIONAL 4-SIDED LOOP**

**SAW CUT OPTIONS**

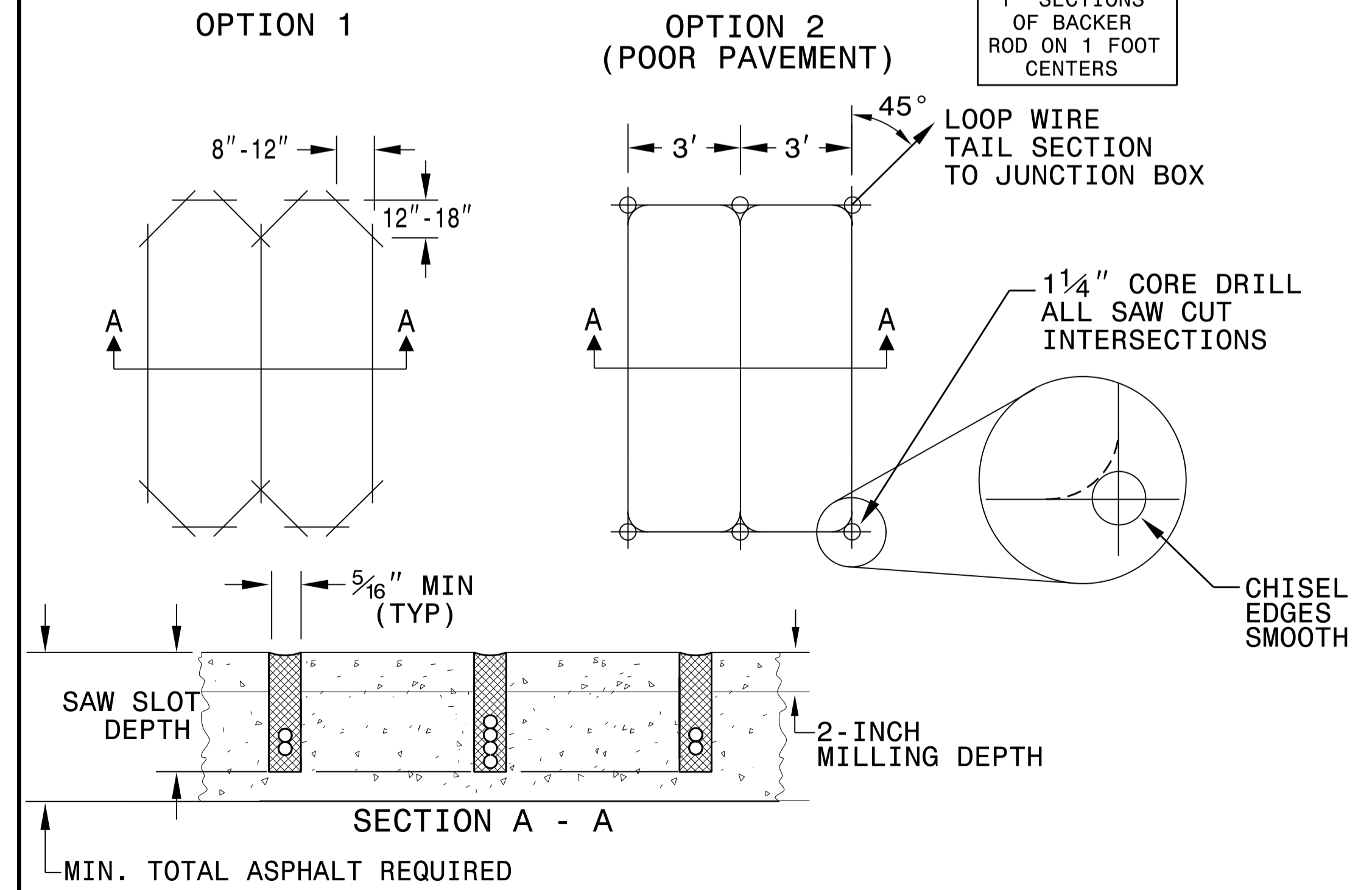


**LOOP WINDING METHOD**

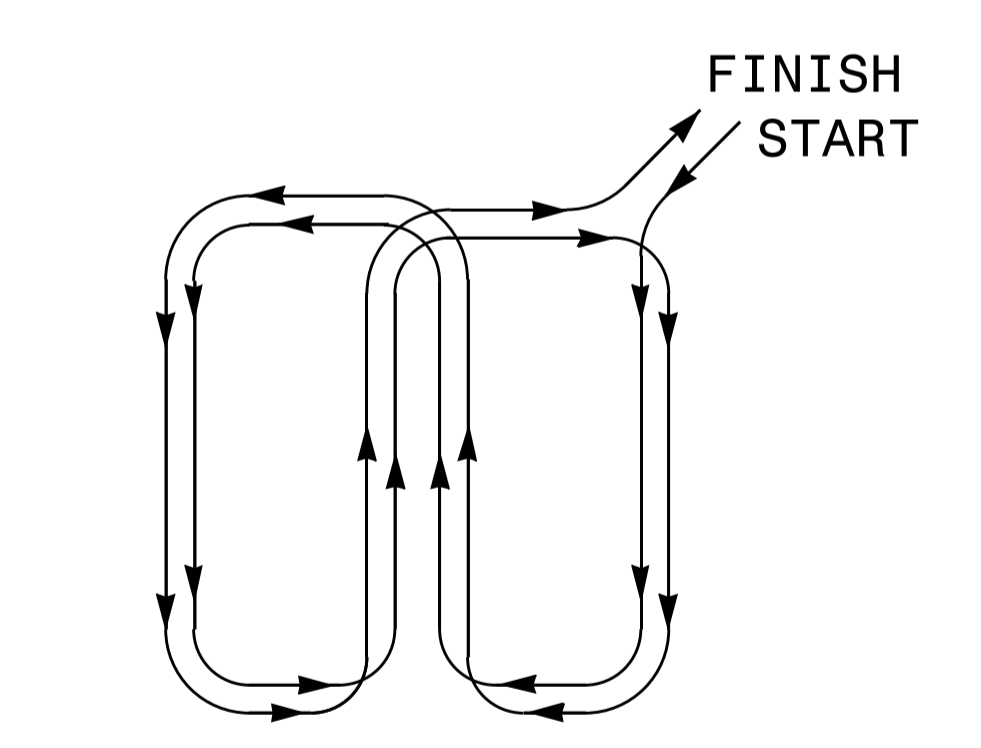


**QUADRUPOLE LOOP**

**SAW CUT OPTIONS**

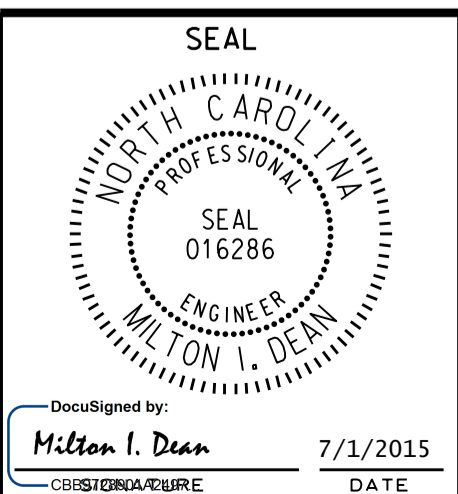
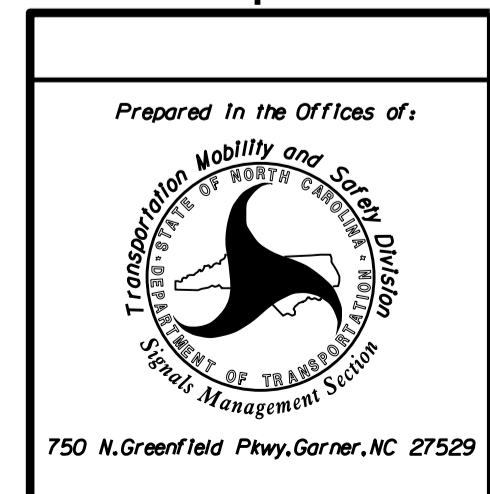


**LOOP WINDING METHOD**



**REVISIONS**

1. REMOVED TWISTING NOTES FROM TAIL SECT. TO JUNCTION BOX. 2/26/08 MWH
2. REVISED SECTION A - A DETAILS. 6/29/15 JTP



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ENGLISH STANDARD DRAWING FOR  
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