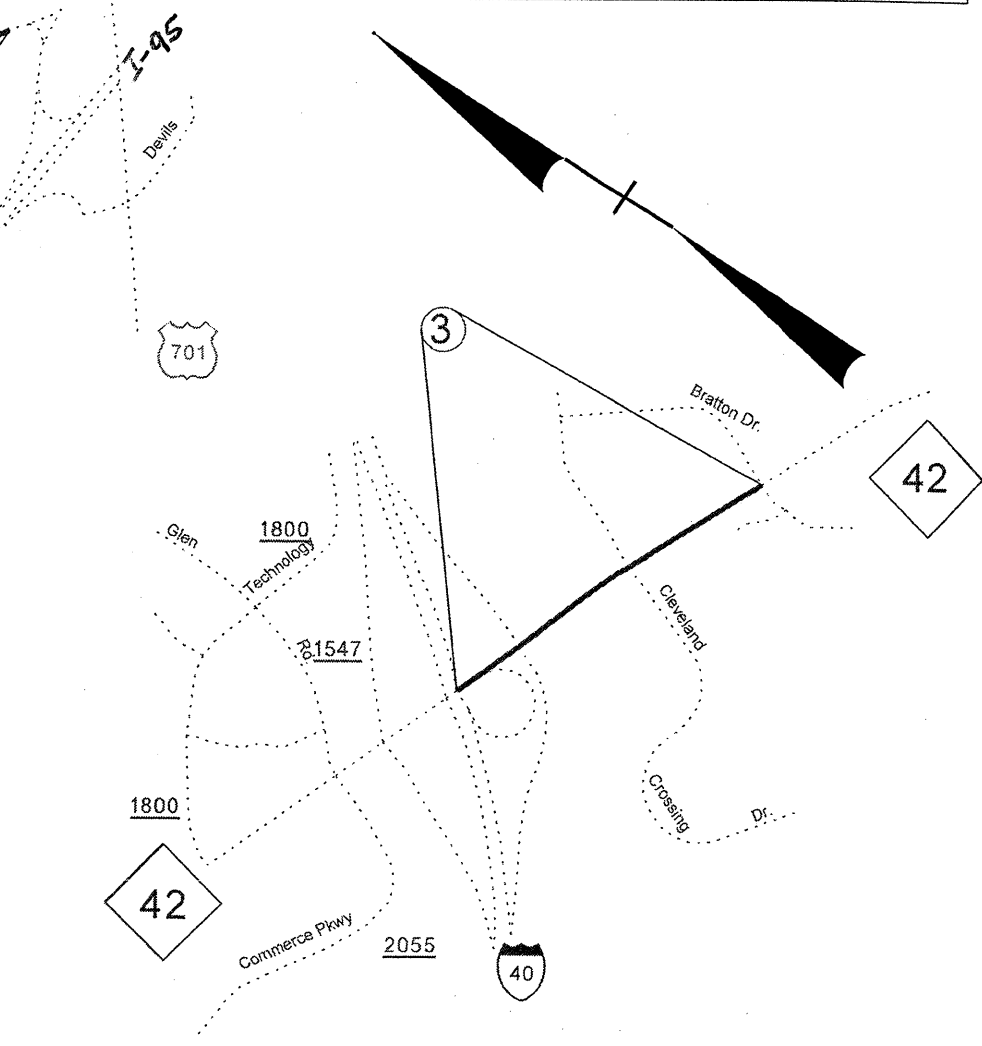
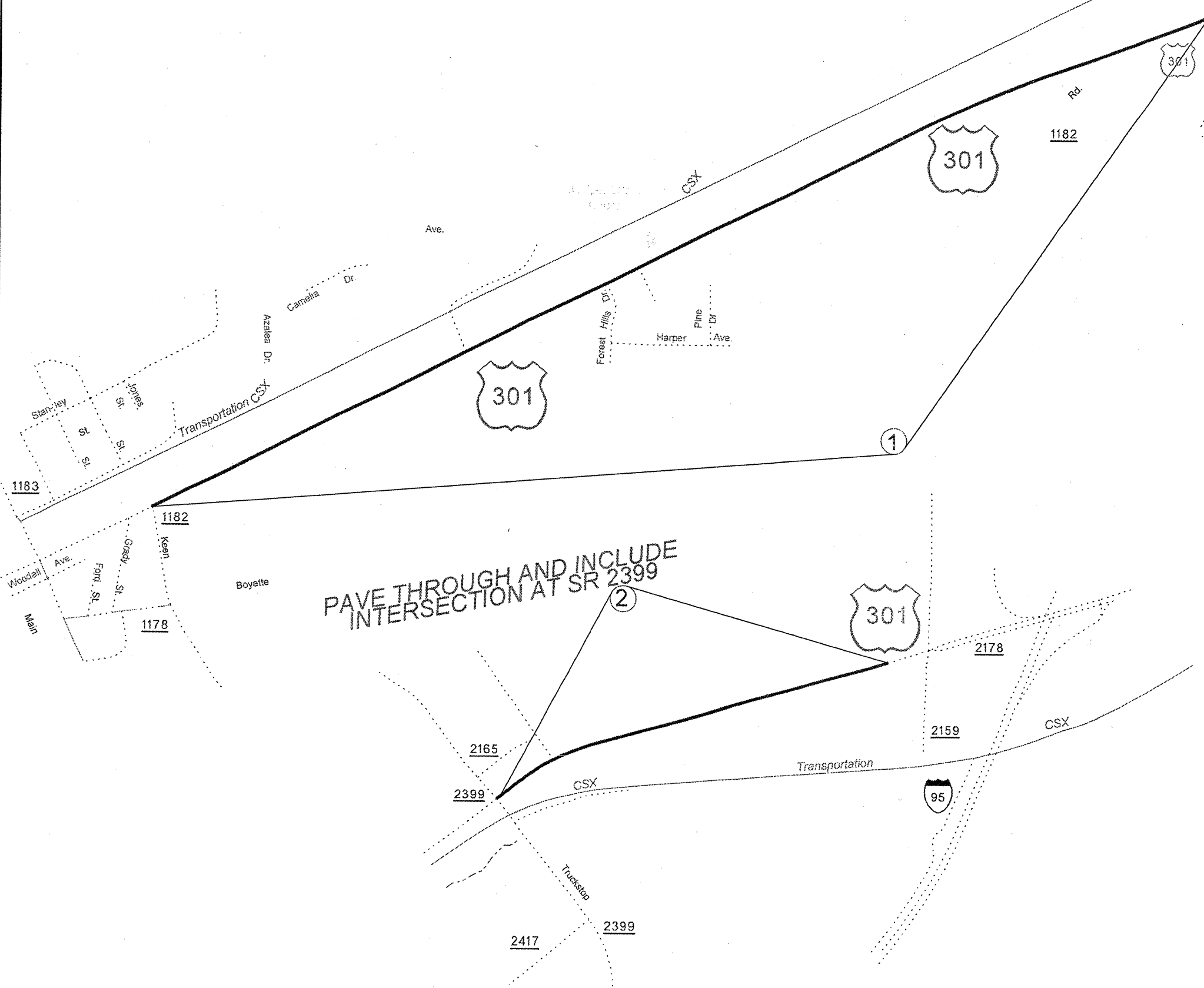
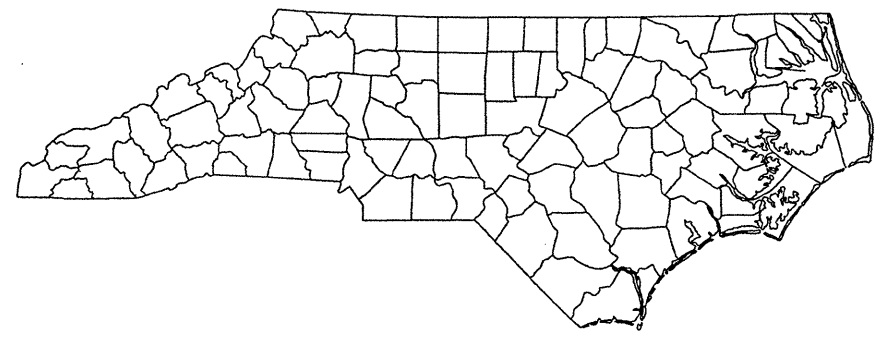


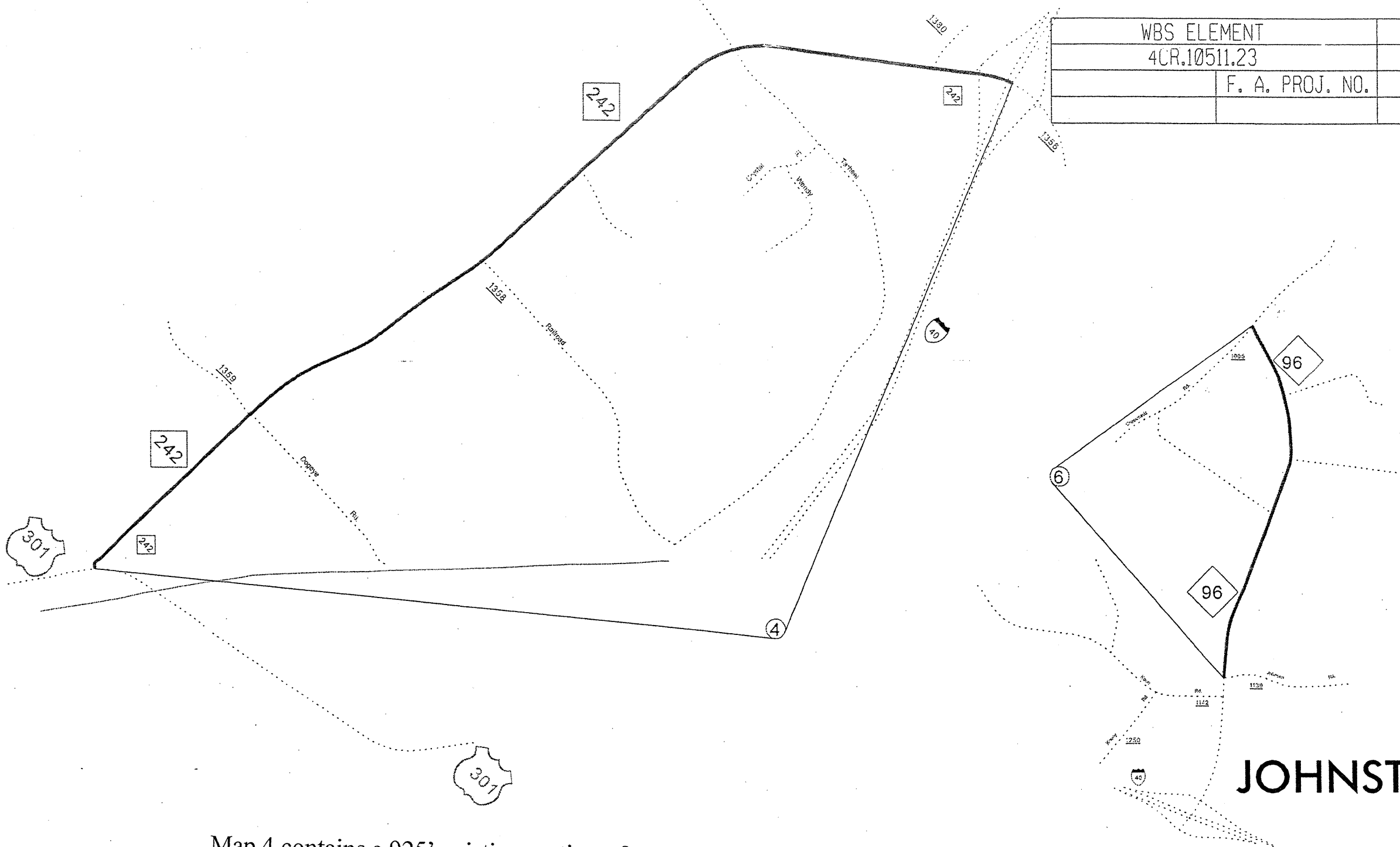
WBS ELEMENT	SHEET NO.	TOTAL SHEETS
4CR.10511.23	1	
F. A. PROJ. NO.	DESCRIPTION	
	PRIMARY	



**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 1 OF 3**

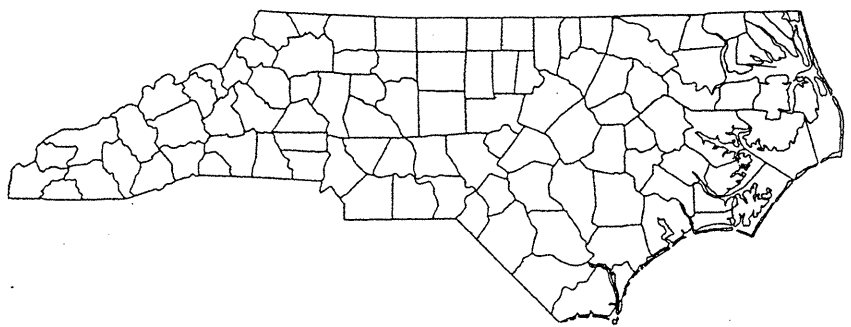


WBS ELEMENT	SHEET NO.	TOTAL SHEETS
4CR.10511.23	2	
F. A. PROJ. NO.	DESCRIPTION	
	PRIMARY	

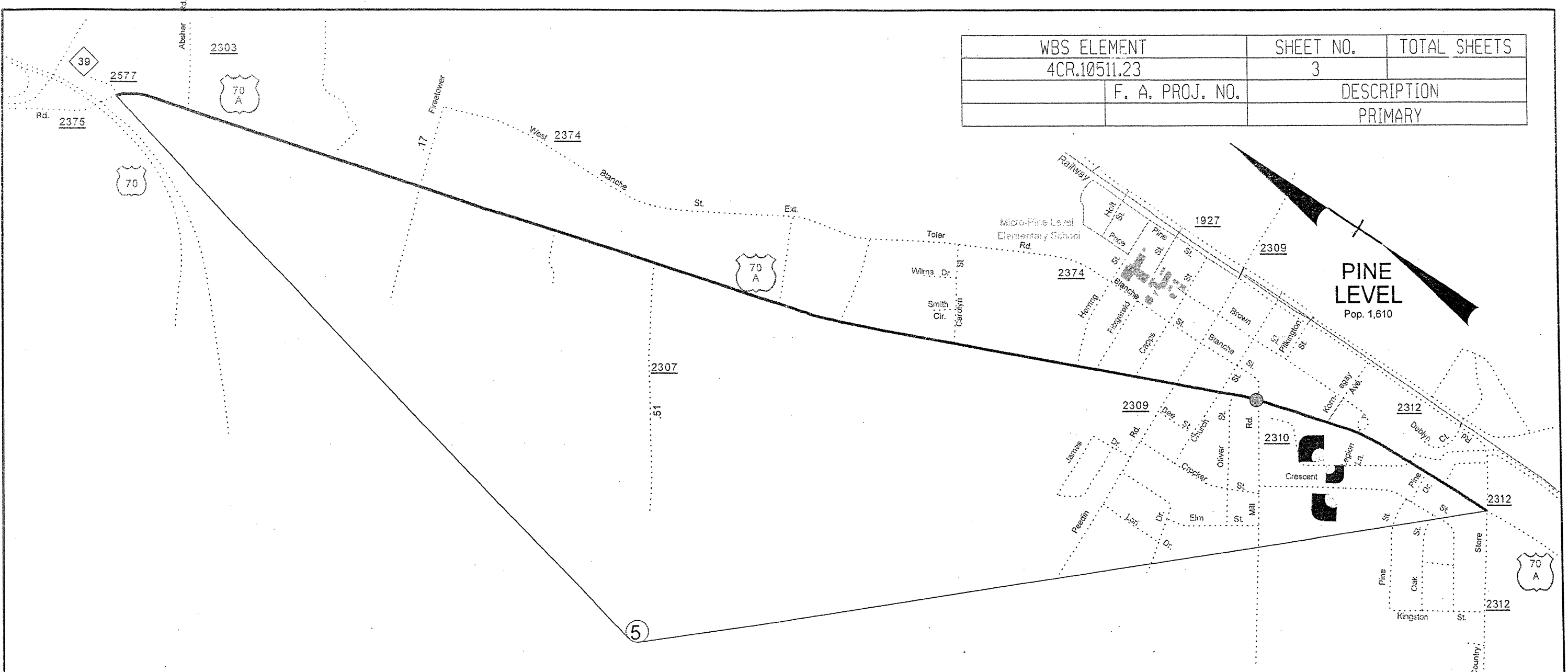


Map 4 contains a 925' existing section of curb and gutter at turn lane for entrance to Liberty Commons.

**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 2 OF 3**

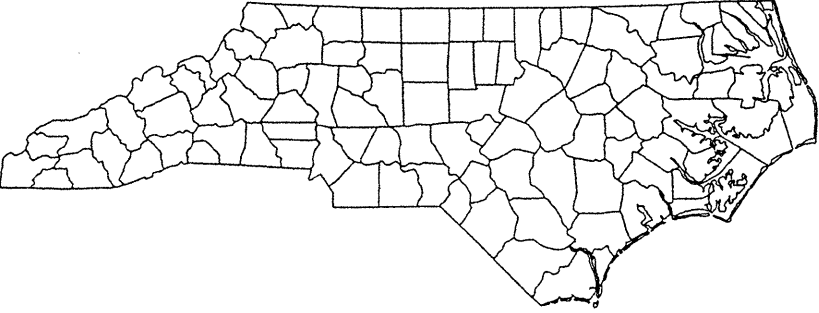


WBS ELEMENT	SHEET NO.	TOTAL SHEETS
4CR.10511.23	3	
F. A. PROJ. NO.	DESCRIPTION	
	PRIMARY	

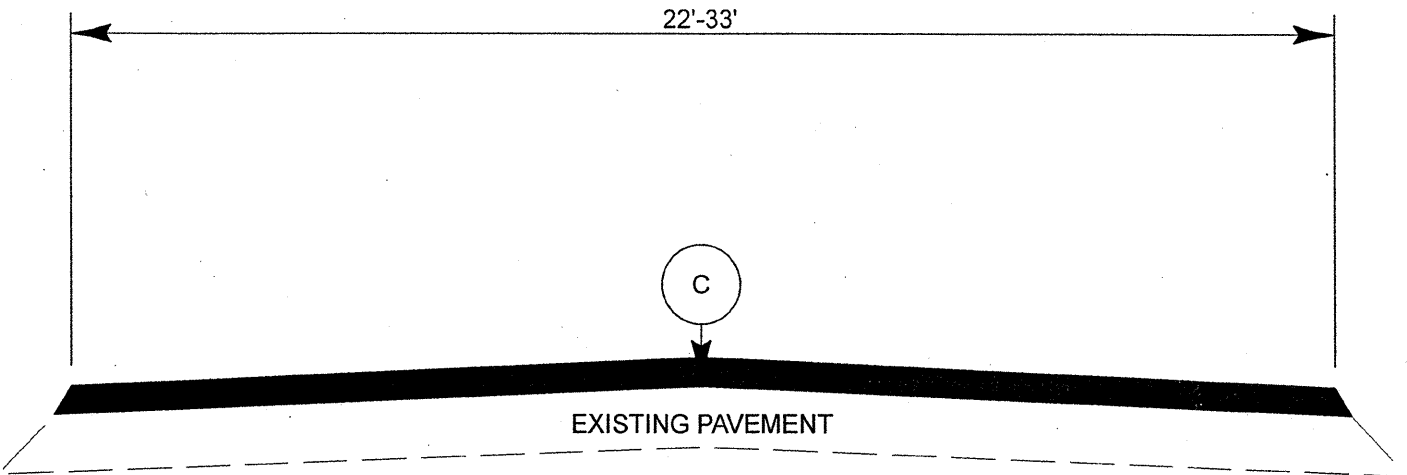


Map 5 contains a 925' existing section of curb and gutter at turn lanes and intersections.

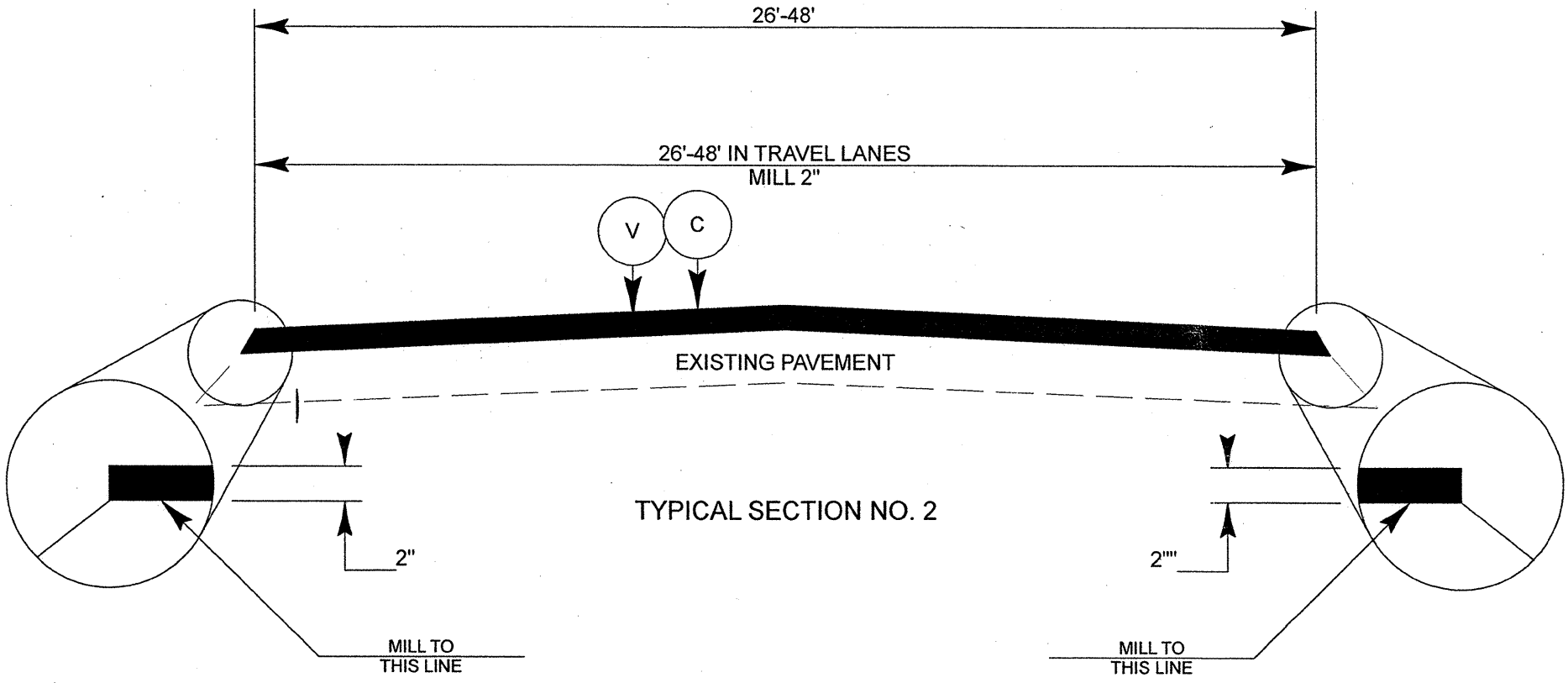
**JOHNSTON COUNTY**  
**NORTH CAROLINA**  
**SHEET 3 OF 3**



PROJECT NO.	SHEET NO.	TOTAL SHEETS
4CR.10511.23	4	



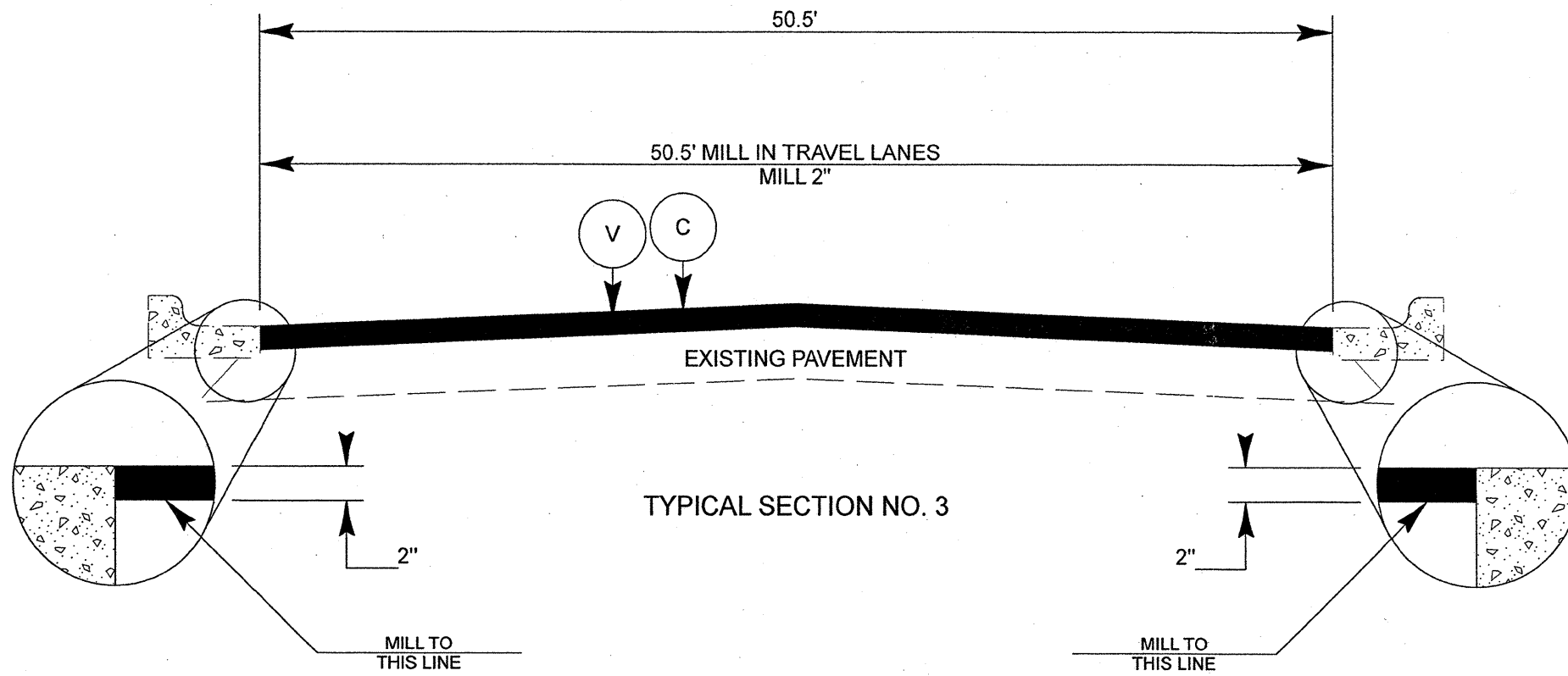
TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
C	PROPOSED APPROX 2.0" OF S9.5B AT AN AVERAGE RATE OF 224 LBS. SQ. YD.
V	MILL TRAVEL LANES APPROX. 2"

PROJECT NO.	SHEET NO.	TOTAL SHEETS
4CR.10511.23	5	



PROJECT NO.	SHEET NO.	TOTAL NO.
4CR.10511.23	6	

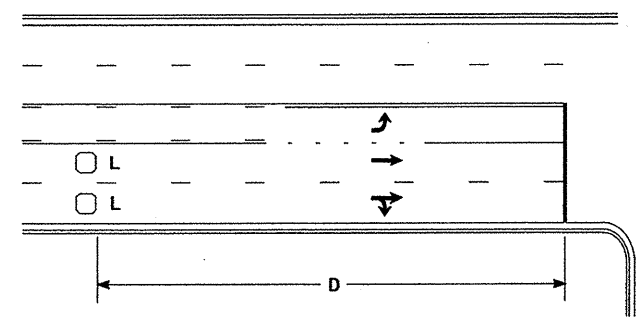
### SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	2.0" MILLING SY	SURFACE COURSE, S9.5B TONS	ASPHALT BINDER FOR PLANT MIX TONS	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	INDUCTIVE LOOP LF
4CR.10511.23	Johnston	1	US 301 (FOUR OAKS)	FROM JNT @ I-95 TO JNT JUST BEFORE INT. OF SR 1182 (KEEN RD)	2	NO	2.1	33	40,656	4,910	295			300
		2	US 301 (KENLY)	FROM SR 2399 (TRUCK STOP RD) - INCLUDE INTERSECTION - JNT 500+/- WEST OF SR 2159	2	NO	0.7	26-48	10,267	1,688	101	2	2	300
		3	NC 42	I-40 BRIDGE TO SIGNAL @ BRATTON DRIVE	3	NO	0.57	50-78	16,887	1,992	120	22	3	300
		4	NC 242	FROM EOR ON NC 242 @ INT OF US 301 TO I-40 BRIDGE	1	NO	2.62	24		4,728	284		3	
		5	US 70-A	FROM P JT ON US 70-A (IN A TAPER) TO P JT ON US 70-A @ INT SR 2312	2	NO	3	30-48	64,272	7,556	453	2	12	300
		6	NC 96	FROM P JT @ SR 1139 (WEST JOHNSON RD) TO EOR ON NC 96 @ INT. OF SR 1005 (WOODS XRDS RD)	1	NO	1.32	22		2,111	127			
<b>TOTAL FOR PROJ NO. 4CR.10511.23</b>							<b>10.31</b>		<b>132,082</b>	<b>22,985</b>	<b>1,380</b>	<b>26</b>	<b>20</b>	<b>1,200</b>

### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4810000000-E		4835000000-E	4845000000-N					
							4" WHITE PAINT LF	4" YELLOW PAINT LF	24" WHITE PAINT LF	PAINT LT ARROW EA	PAINT STR ARROW EA	PAINT RT ARROW EA	PAINT STR & RT ARROW EA	PAINT STR & LT ARROW EA	
4CR.10511.23	Johnston	1	US 301 (FOUR OAKS)	FROM JNT @ I-95 TO JNT JUST BEFORE INT. OF SR 1182 (KEEN RD)	2.1	33	45,192	110,880	36	69					
		2	US 301 (KENLY)	FROM SR 2399 (TRUCK STOP RD) - INCLUDE INTERSECTION - JNT 500+/- WEST OF SR 2159	0.7	26	15,364	37,960	150	3	2	1	2		
		3	NC 42	I-40 BRIDGE TO SIGNAL @ BRATTON DRIVE	0.57	50.5	12,494	24,077	240	6	13	3	22	12	
		4	NC 242	FROM EOR ON NC 242 @ INT OF US 301 TO I-40 BRIDGE	2.62	24	13,833	13,834		2					
		5	US 70-A	FROM P JT ON US 70-A (IN A TAPER) TO P JT ON US 70-A @ INT SR 2312	3	30	13,560	15,560	58	45	3	3	3		
		6	NC 96	FROM P JT @ SR 1139 (WEST JOHNSON RD) TO EOR ON NC 96 @ INT. OF SR 1005 (WOODS XRDS RD)	1.32	22	28,406	17,424							
<b>TOTAL FOR PROJ NO. 4CR.10511.23</b>					<b>10.31</b>		<b>128,849</b>	<b>219,735</b>	<b>484</b>	<b>125</b>	<b>18</b>	<b>7</b>	<b>27</b>	<b>12</b>	
							<b>348,584</b>			<b>189</b>					

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

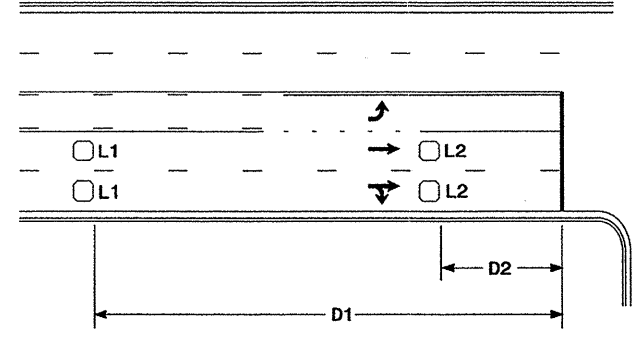


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

Volume Density Operation

OR

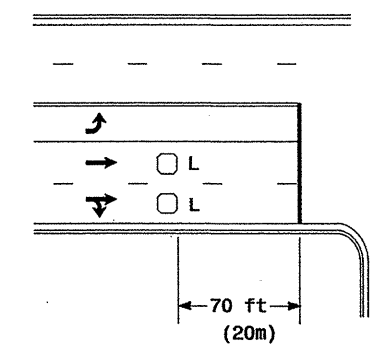


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

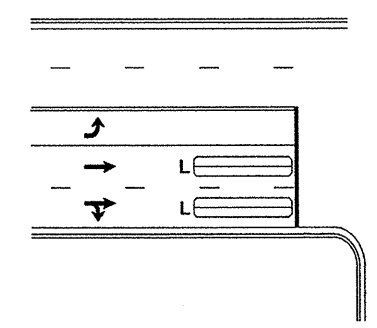
"Stretch" Operation

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



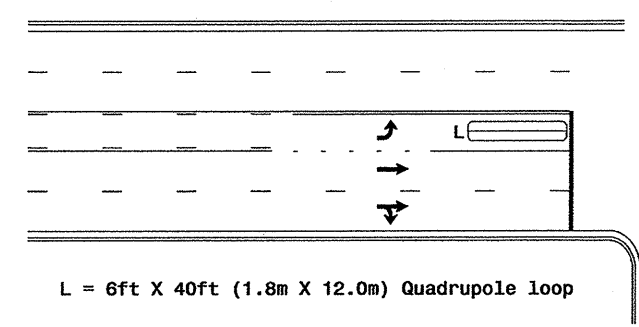
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

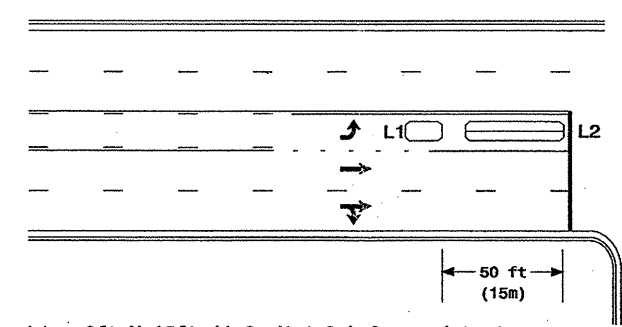
### Left Turn Lane Detection



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

Presence Loop Detection

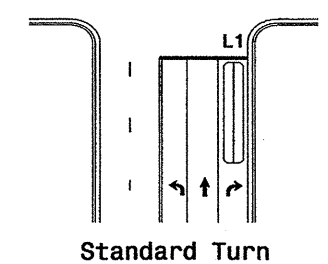
OR



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

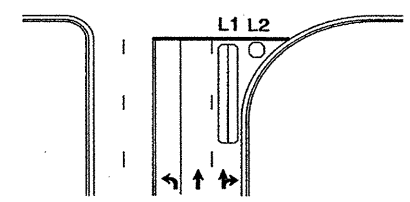
Queue Loop Detection

### Right Turn Lane Detection

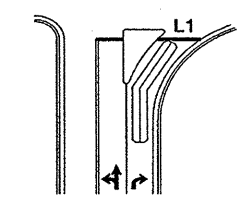


Standard Turn

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

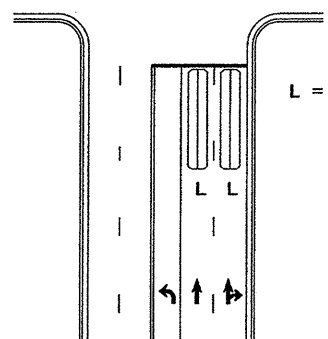


Wide Radius Turn



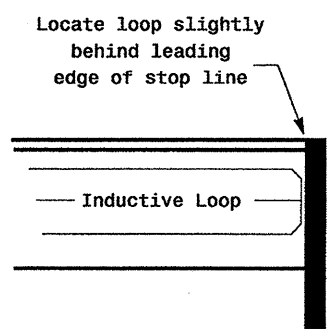
Channelized Turn

### Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)  
Quadrupole loop  
Wired to separate  
detectors/channels

### Presence Loop Placement at Stop Lines



Locate loop slightly  
behind leading  
edge of stop line

Note:  
Loop may be located in advance  
of stop line when stop line is  
greater than 15' (4.5m) from edge  
of intersecting roadway; or, when  
loop detects a permissive or  
protected/permissive left turn.

### Recommended Number of Turns

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

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

Quadrupole loops: Use 2-4-2 turns

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

#### Typical Loop Locations

PLAN DATE: <b>JUNE 2006</b>	REVIEWED BY:
PREPARED BY: <b>P. L. Alexander</b>	REVIEWED BY:
REVISIONS	INIT. DATE
1. Revise pavement markings	<i>PLA</i> 12/1/06
SIGNATURE	DATE
<i>P. L. Alexander</i>	6/1/06

SCALE: N/A