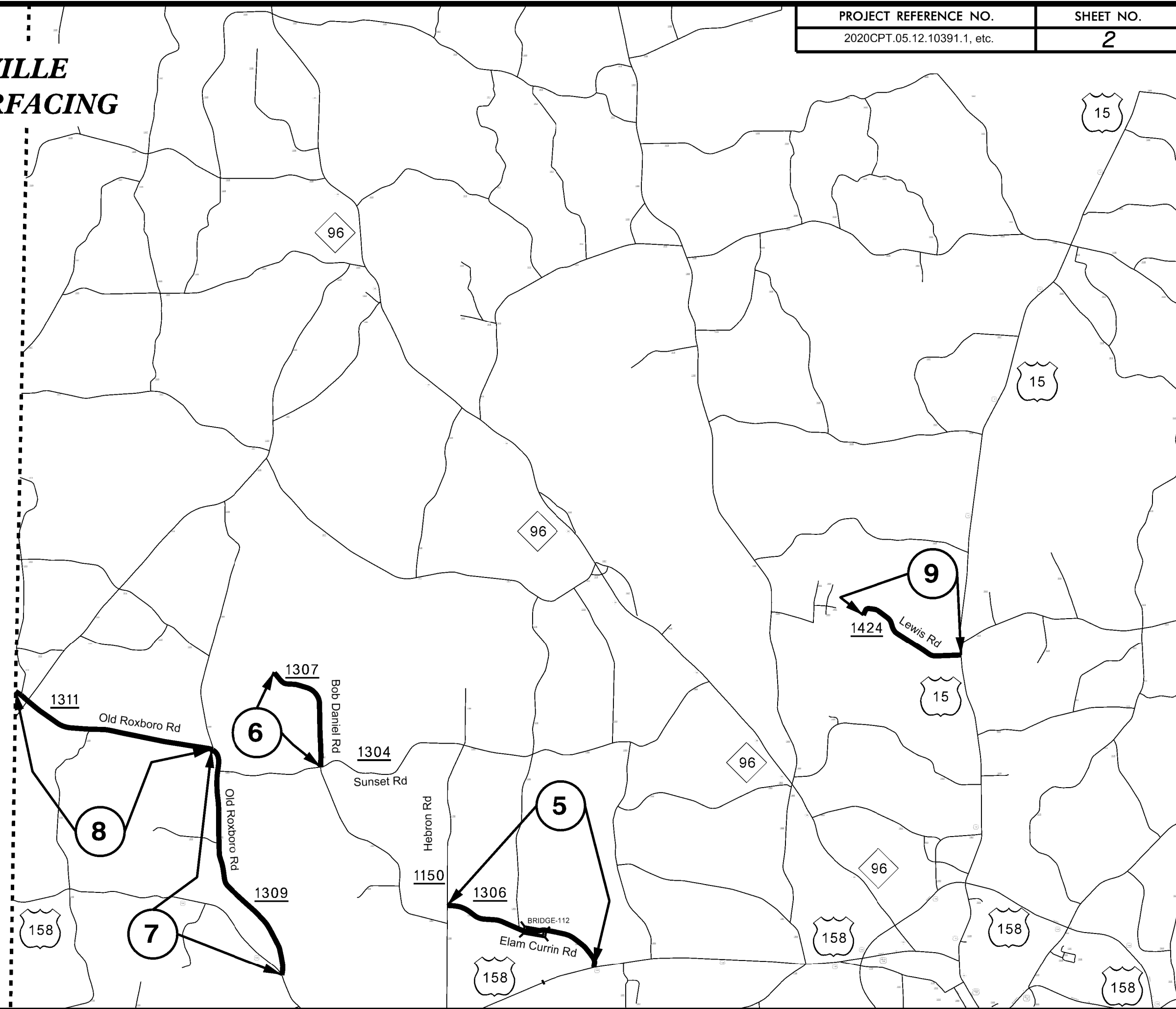




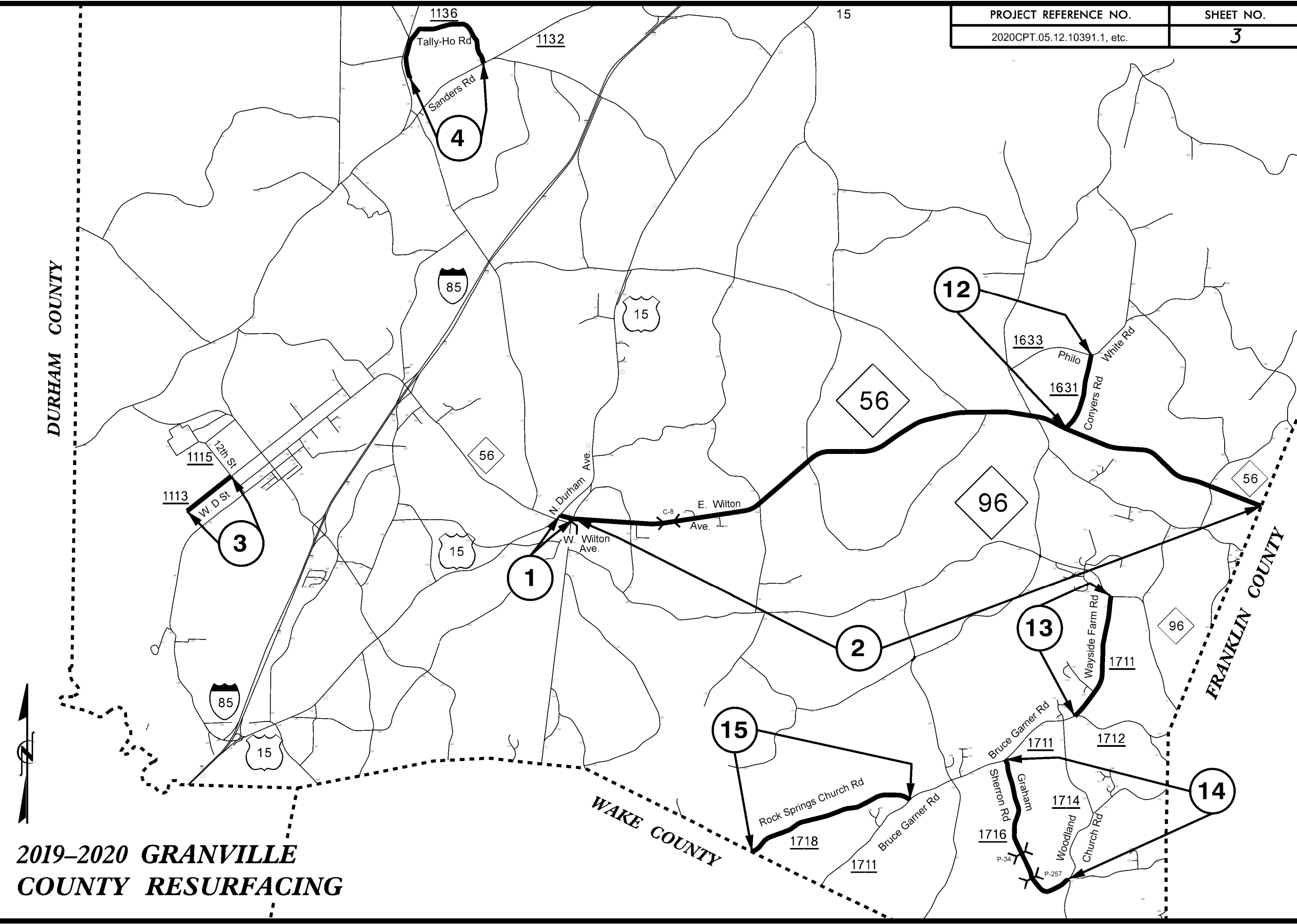
# 2019-2020 GRANVILLE COUNTY RESURFACING



PERSON COUNTY



\*\*\*\*\*  
SUNSHINE  
\*\*\*\*\*



DURHAM COUNTY

FRANKLIN COUNTY

WAKE COUNTY

**2019-2020 GRANVILLE COUNTY RESURFACING**



5/14/20

PAVEMENT SCHEDULE

PROJECT REFERENCE NO.

SHEET NO.

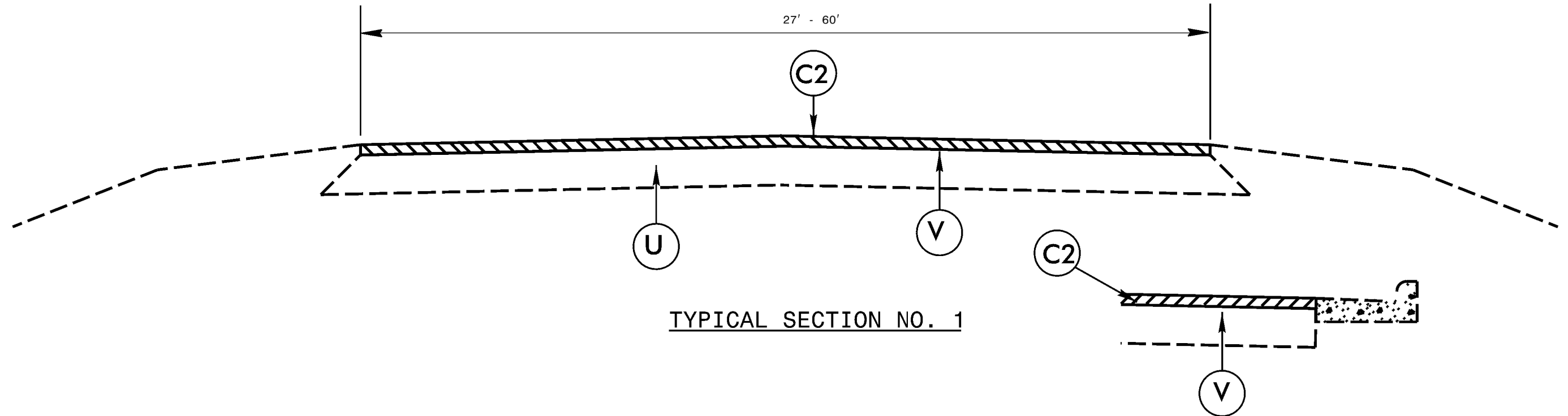
2020CPT.05.12.10391.I, etc.

4

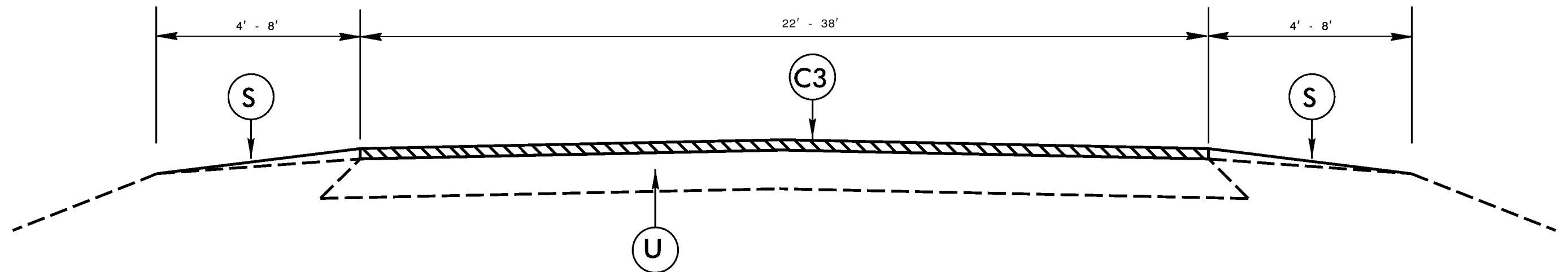
C1	1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	V	1½" MILLING
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	S	SHOULDER GRADING ASB REQUIRED (EXCEPT IN RESIDENTIAL AREAS)
C3	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	U	EXISTING PAVEMENT

NOTES

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



TYPICAL SECTION NO. 1



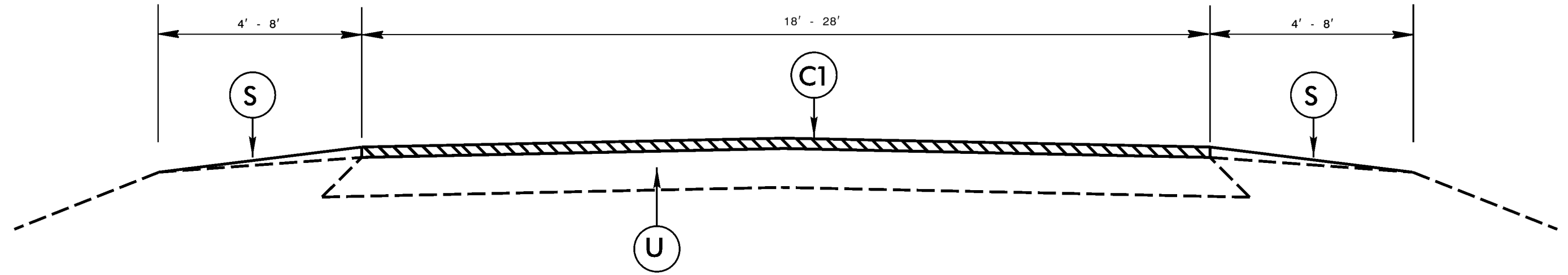
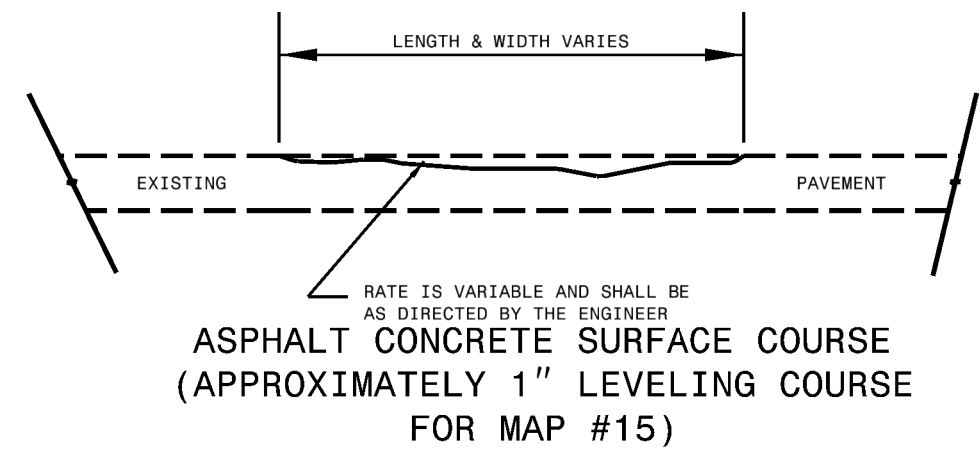
TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE

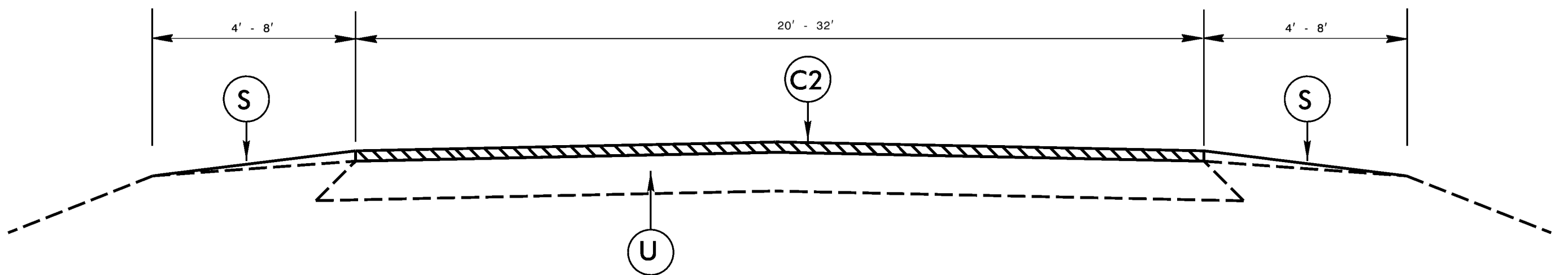
PROJECT REFERENCE NO.  
2020CPT.05.12.10391.I, etc.

SHEET NO.  
5

C1	1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	V	1½" MILLING
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	S	SHOULDER GRADING ASB REQUIRED (EXCEPT IN RESIDENTIAL AREAS)
C3	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	U	EXISTING PAVEMENT

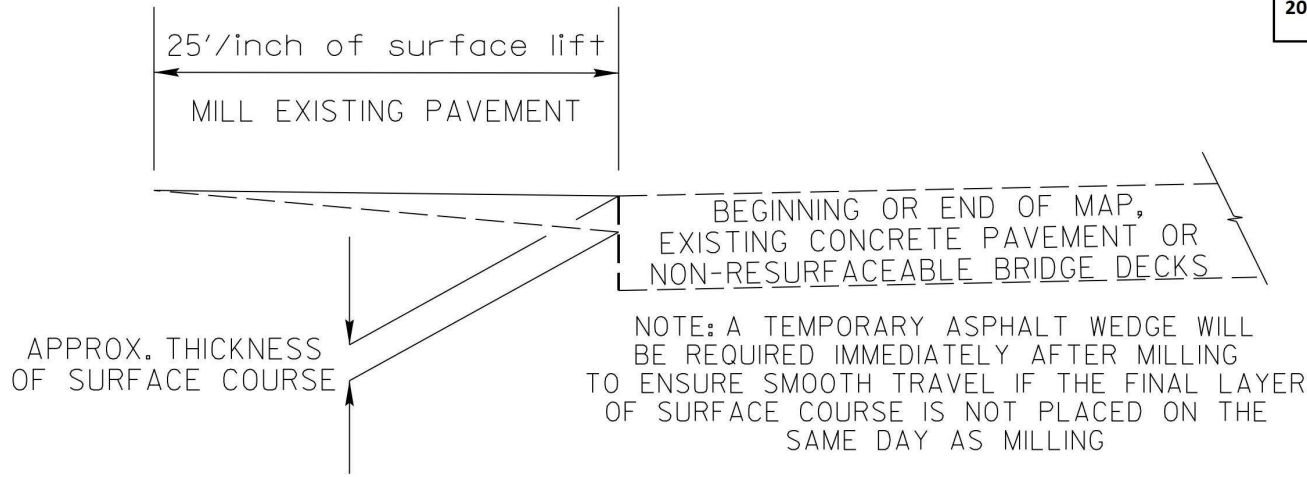


TYPICAL SECTION NO. 3

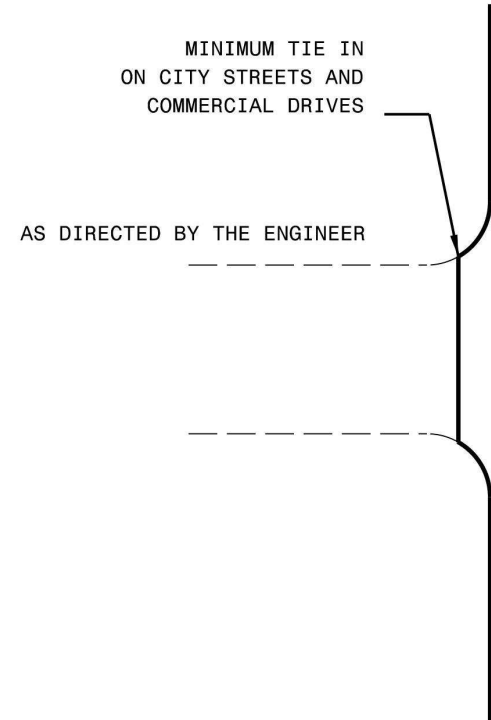


TYPICAL SECTION NO. 4

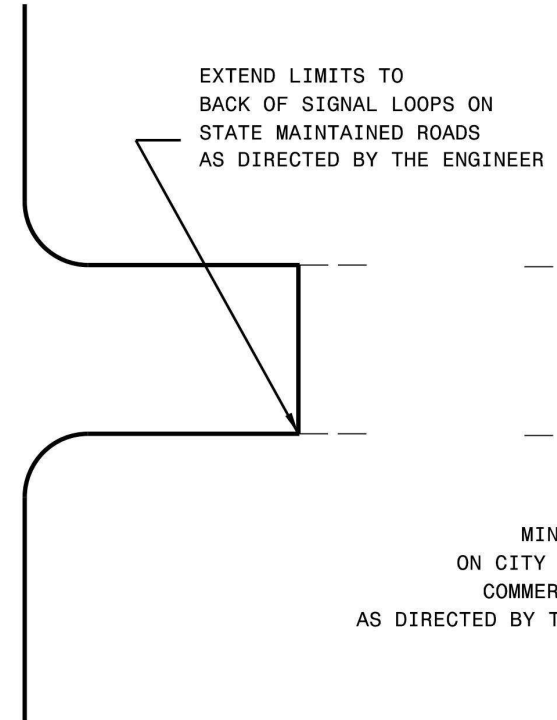
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2020CPT.05.12.10391.1, etc.	6	



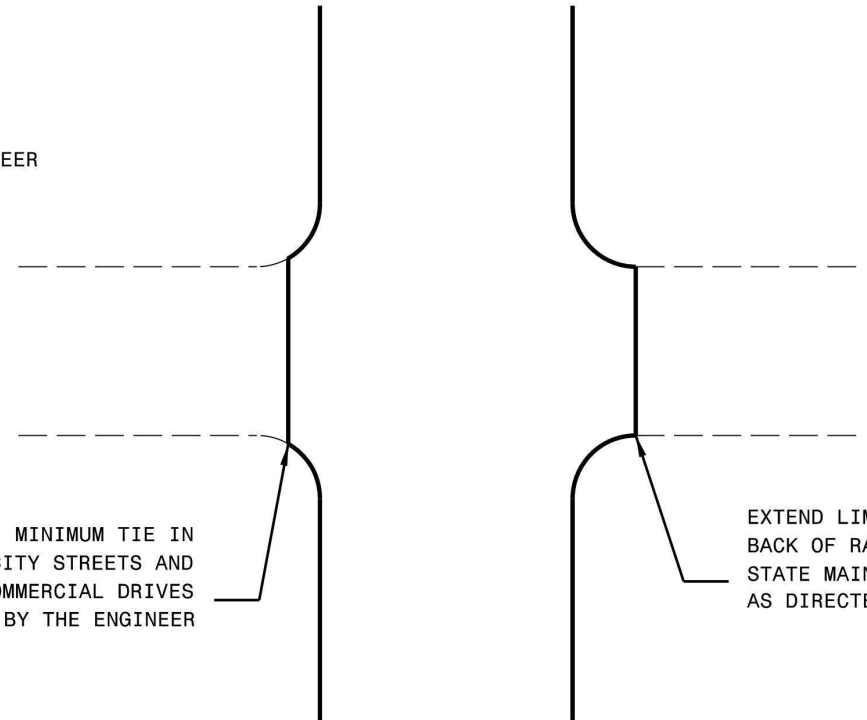
**DETAIL OF INCIDENTAL MILLING**



**DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES**

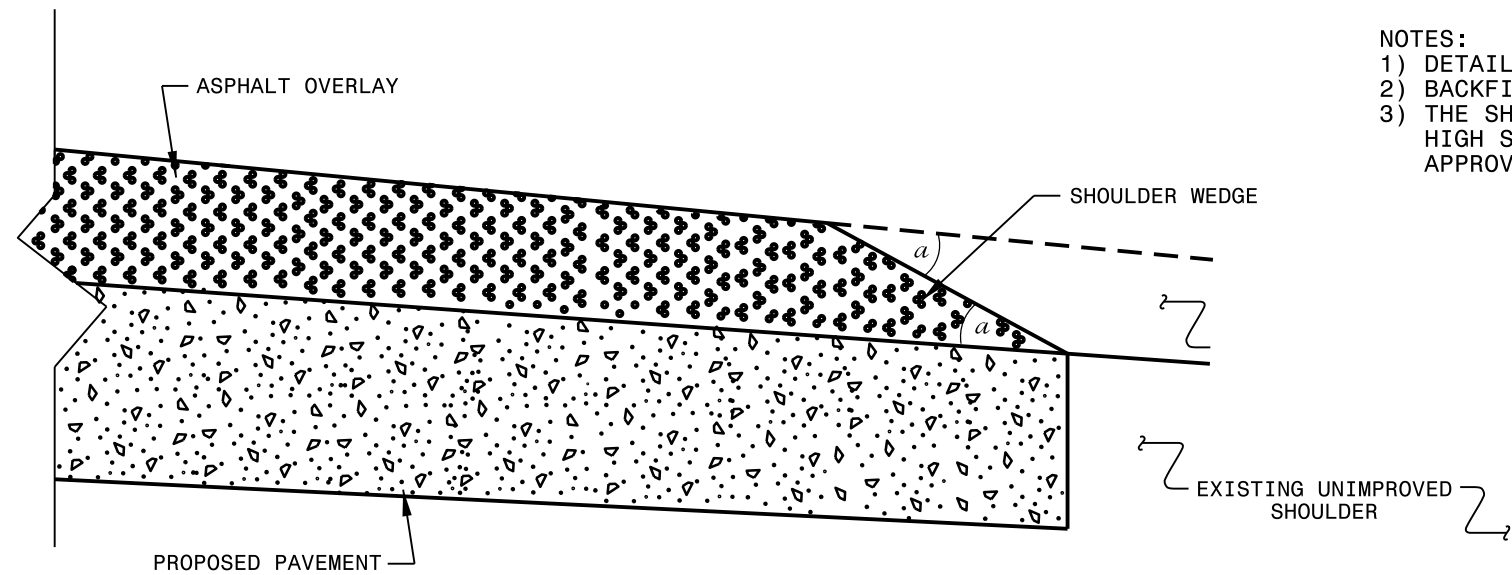


MINIMUM TIE IN ON CITY STREETS AND COMMERCIAL DRIVES AS DIRECTED BY THE ENGINEER

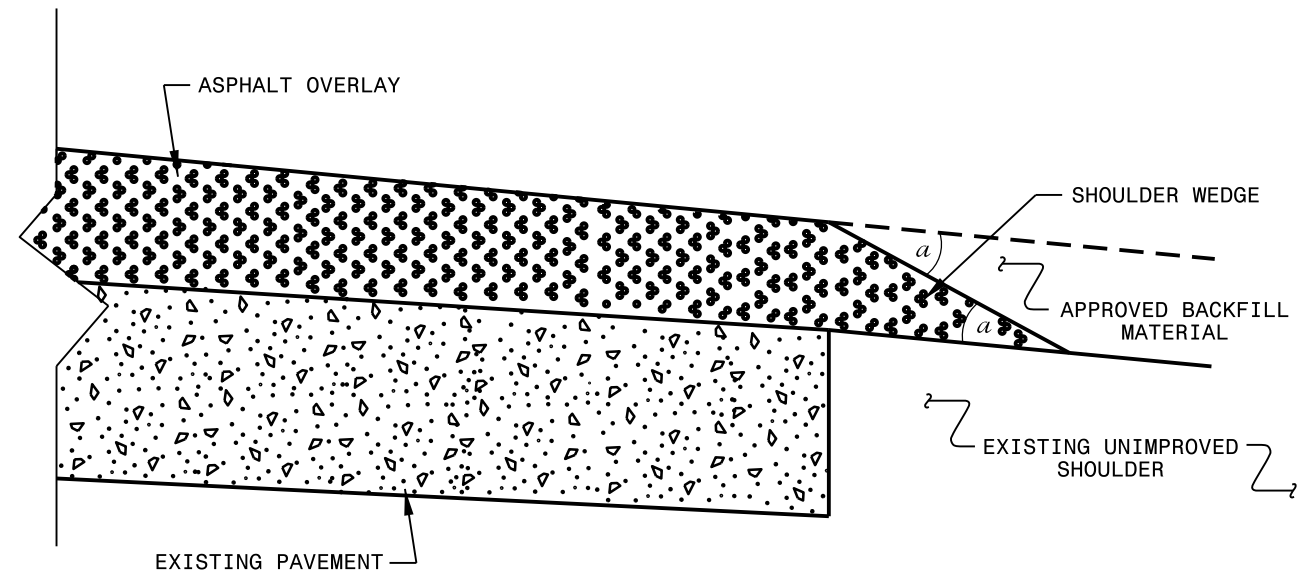


**DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES**

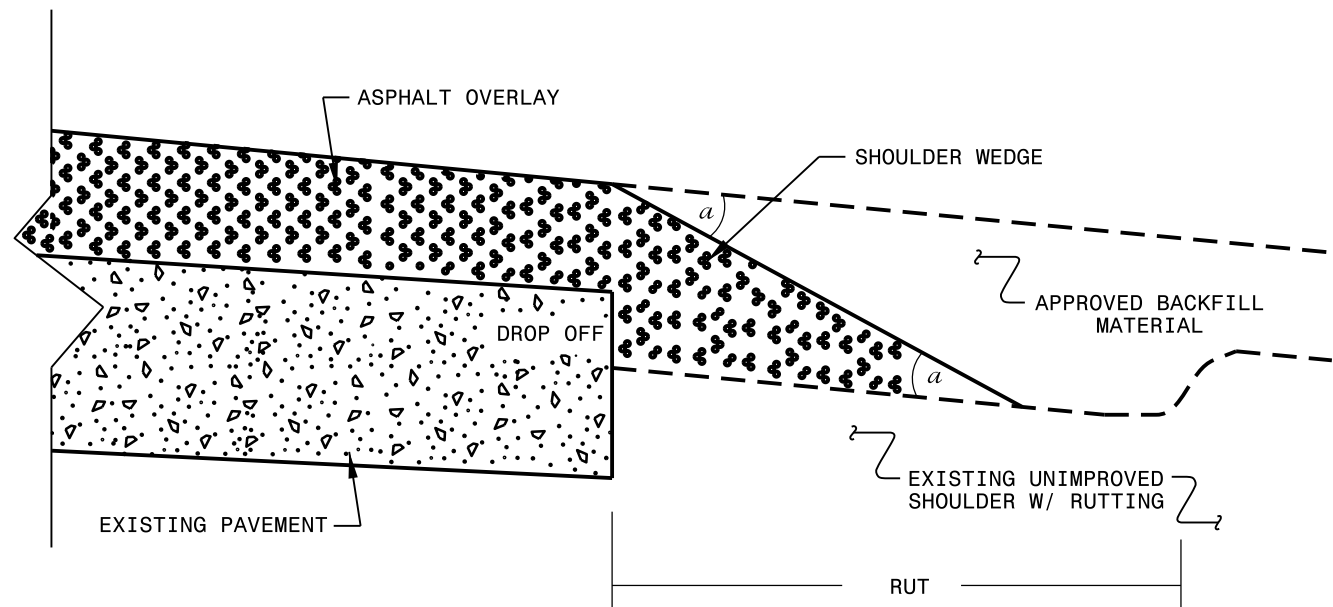
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



**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.: susr/details/stand/shoulderwedgedetail.dgn			

SYSTEMS DESIGN  
 USER NAME

PROJECT NO.	SHEET NO.	TOTAL NO.
2020CPT.05.12.10391.1, etc.	8	

**SUMMARY OF QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	0106000000-E	0264000000-E	1220000000-E	1260000000-E	1297000000-E	1330000000-E	1519000000-E	1520000000-E	1523000000-E	1575000000-E	1704000000-E	6000000000-E	6071010000-E	6084000000-E	7444000000-E		
											BORROW	SHOULDER GRADING	INCIDENTAL STONE BASE	AGGREGATE SHOULDER BORROW	1½" MILLING	INCIDENTAL MILLING	SURFACE COURSE, \$9.5B	LEVELING COURSE, TYPE \$9.5B	SURFACE COURSE, \$9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	TEMPORARY SILT FENCE	WATTLE	SEED & MULCHING	INDUCTIVE LOOP SAWCUT		
											MI	FT	CY	SMI	TONS	TON	SY	SY	TONS	TON	TONS	TON	TONS	LF	LF	AC	LF
2020CPT.05.12.10391.1	Granville	1	NC 50 - W. WILTON AVE	NC 56 - E. WILTON AVE TO US 15 - N. DURHAM AVE	1	2	NO	NO	0.18	34-60			9		2,864		248			17							198
2020CPT.05.12.10391.1	Granville	2	NC 56 - E. WILTON AVE	NC 50 - W. WILTON AVE TO FRANKLIN CO	2	2	NO	YES	9.81	22-38	196	19.61	490	1,450		5,725			12,622	757	50	285	720	2.85		1,476	
<b>TOTAL FOR PROJ NO. 2020CPT.05.12.10391.1</b>											<b>9.99</b>		<b>196</b>	<b>19.61</b>	<b>499</b>	<b>1,450</b>	<b>2,864</b>	<b>5,725</b>	<b>248</b>	<b>12,622</b>	<b>774</b>	<b>50</b>	<b>285</b>	<b>720</b>	<b>2.85</b>	<b>1,674</b>	
2020CPT.05.12.20391.1	Granville	3	SR 1113 - W. D ST	SR 1115 - 12TH ST TO END MAINT	3	2	NO	NO	0.75	22	75	1.50	38			686	722			48	20	109	280	1.09			
2020CPT.05.12.20391.1	Granville	4	SR 1136 - TALLY-HO RD	SR 1132 - SANDERS RD TO END PVT	3	2	NO	NO	1.81	20	49	3.62	91	244		675	1,561			105	150	71	180	0.71			
2020CPT.05.12.20391.1	Granville	5	SR 1306 - ELAM CURRIN RD	SR 1150 - HEBRON RD TO US 158	4	2	NO	NO	2.08	20-32	42	4.16	104	308		1,056	2,174			146	500	61	160	0.61			
2020CPT.05.12.20391.1	Granville	6	SR 1307 - BOB DANIEL RD	SR 1304 - SUNSET RD TO DEAD END	3	2	NO	NO	1.49	20	21	2.98	75	237		233	1,269			85		30	80	0.30			
2020CPT.05.12.20391.1	Granville	7	SR 1309 - OLD ROXBORO RD	US 158 TO SR 1311 - OLD ROXBORO RD	3	2	NO	YES	3.01	20-28	39	6.01	150	483		761	2,589			173	175	57	150	0.57			
2020CPT.05.12.20391.1	Granville	8	SR 1311 - OLD ROXBORO RD	PERSON CO TO SR 1309 - OLD ROXBORO RD	3	2	NO	YES	2.55	20	38	5.09	127	400		1,578	2,260			151	200	56	140	0.56			
2020CPT.05.12.20391.1	Granville	9	SR 1424 - LEWIS RD	US 15 TO END MAINT	3	2	NO	NO	1.32	20	26	2.91	73	220		167	1,124			75	150	38	100	0.38			
2020CPT.05.12.20391.1	Granville	10	SR 1436 - DALTON MILL RD	SR 1300 - CORNWALL RD TO SR 1431 - GRASSY CREEK RD	3	2	NO	NO	3.22	20	58	6.44	161	488		1,578	2,796			187	800	84	220	0.84			
2020CPT.05.12.20391.1	Granville	11	SR 1442 - DAVE WINSTON RD	SR 1431 - GRASSY CREEK RD - TO VA LINE	3	2	NO	NO	2.00	18	40	4.00	100	296		721	1,564			105	75	58	150	0.58			
2020CPT.05.12.20391.1	Granville	12	SR 1631 - CONYERS RD	SR 1623 - PHILO WHITE RD TO NC 56	3	2	NO	NO	1.05	20	54	2.10	53	95		766	920			62	500	78	200	0.78			
2020CPT.05.12.20391.1	Granville	13	SR 1711 - WAYSIDE FARM RD	NC 96 TO SR 1712 - BRUCE GARNER RD	3	2	NO	YES	1.71	20	43	3.42	86	237		519	1,470			98	800	62	160	0.62			
2020CPT.05.12.20391.1	Granville	14	SR 1716 - GRAHAM SHERRON RD	SR 1711 - BRUCE GARNER RD TO SR 1714 - WOODLAND CHURCH RD	3	2	NO	NO	2.33	20	54	4.66	117	332		1,277	2,053			138	500	78	200	0.78			
2020CPT.05.12.20391.1	Granville	15	SR 1718 - ROCK SPRING CHURCH RD	SR 1711 - BRUCE GARNER RD TO WAKE CO	4	2	NO	NO	2.30	20-29	74	4.60	115	289		458	2,352	1,565		262	600	107	270	1.07			
<b>TOTAL FOR PROJ NO. 2020CPT.05.12.20391.1</b>											<b>25.62</b>		<b>613</b>	<b>51.49</b>	<b>1,290</b>	<b>3,629</b>	<b>10,475</b>	<b>22,854</b>	<b>1,565</b>	<b>1,635</b>	<b>4,470</b>	<b>889</b>	<b>2,290</b>	<b>8.89</b>			
<b>GRAND TOTAL</b>											<b>35.61</b>		<b>809</b>	<b>71.10</b>	<b>1,789</b>	<b>5,079</b>	<b>2,864</b>	<b>16,200</b>	<b>23,102</b>	<b>1,565</b>	<b>12,622</b>	<b>2,409</b>	<b>4,520</b>	<b>1,174</b>	<b>3,010</b>	<b>11.74</b>	<b>1,674</b>



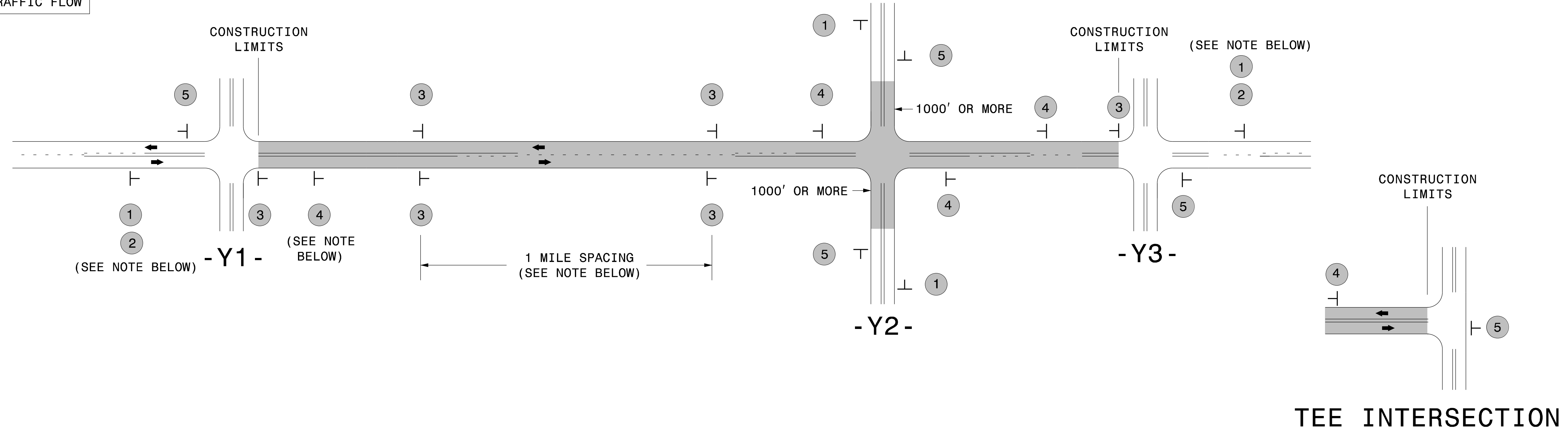
PROJECT NO.	SHEET NO.	TOTAL NO.
2020CPT.05.12.10391.1, etc	9	

**THERMOPLASTIC AND PAINT QUANTITIES**

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LENGTH	WIDTH	441300000-E	445700000-N	685000000-E	468600000-E	469500000-E	470500000-E	471000000-E	472100000-E					472500000-E					477000000-E	485000000-E	490500000-N			
									WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	4" X 90 M WHITE THERMO	4" X 120 M YELLOW THERMO	4" 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	THERMO MSG SCHOOL 120 M	THERMO RXR 120 M	THERMO LT ARROW 90 M	THERMO LT STR RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO RT ARROW 90 M	4" WHITE COLD APPLIED PLASTIC, TYPE II	4" YELLOW COLD APPLIED PLASTIC, TYPE II	4" LINE REMOVAL	SNOW PLOWABLE MARKERS			
									SF	LS	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA				
2020CPT.05.12.10391.1	Granville	1	NC 50 - W. WILTON AVE	NC 56 - E. WILTON AVE TO US 15 - N. DURHAM AVE	1	2	0.18	34-60	20	1.00	1,017	2,704	108	185		20				1	1	1						26			
2020CPT.05.12.10391.1	Granville	2	NC 56 - E. WILTON AVE	NC 50 - W. WILTON AVE TO FRANKLIN CO	2	2	9.81	22-38	126	*	105,556	107,699	2,293	55	167					31			7	1			768				
<b>TOTAL FOR PROJ NO. 2020CPT.05.12.10391.1</b>									<b>146</b>	<b>1.00</b>	<b>106,573</b>	<b>110,403</b>	<b>2,401</b>	<b>240</b>	<b>167</b>		<b>898</b>	<b>24</b>		<b>32</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>1</b>				<b>794</b>			
												<b>112,804</b>	<b>407</b>				<b>24</b>			<b>42</b>											
2020CPT.05.12.20391.1	Granville	3	SR 1113 - W. D ST	SR 1115 - 12TH ST TO END MAINT	3	2	0.75	22	84			8,070	7,234	110																	
2020CPT.05.12.20391.1	Granville	4	SR 1136 - TALLY-HO RD	SR 1132 - SANDERS RD TO END PVT	3	2	1.81	20	203			19,476	19,114				50	25		2											
2020CPT.05.12.20391.1	Granville	5	SR 1306 - ELAM CURRIN RD	SR 1150 - HEBRON RD TO US 158	4	2	2.08	20-32	233			22,381	21,855	38																	
2020CPT.05.12.20391.1	Granville	6	SR 1307 - BOB DANIEL RD	SR 1304 - SUNSET RD TO DEAD END	3	2	1.49	20	167			16,032	15,734																		
2020CPT.05.12.20391.1	Granville	7	SR 1309 - OLD ROXBORO RD	US 158 TO SR 1311 - OLD ROXBORO RD	3	2	3.01	20-28	337			32,388	26,991	48																	
2020CPT.05.12.20391.1	Granville	8	SR 1311 - OLD ROXBORO RD	PERSON CO TO SR 1309 - OLD ROXBORO RD	3	2	2.55	20	285			27,438	23,525	36																	
2020CPT.05.12.20391.1	Granville	9	SR 1424 - LEWIS RD	US 15 TO END MAINT	3	2	1.32	20	163			13,939	13,939																		
2020CPT.05.12.20391.1	Granville	10	SR 1436 - DALTON MILL RD	SR 1300 - CORNWALL RD TO SR 1431 - GRASSY CREEK RD	3	2	3.22	20	361			34,647	33,153	63											325	325	650				
2020CPT.05.12.20391.1	Granville	11	SR 1442 - DAVE WINSTON RD	SR 1431 - GRASSY CREEK RD - TO VA LINE	3	2	2.00	18	224			21,520	20,642	29																	
2020CPT.05.12.20391.1	Granville	12	SR 1631 - CONYERS RD	SR 1623 - PHILO WHITE RD TO NC 56	3	2	1.05	20	118			11,298	11,088	120																	
2020CPT.05.12.20391.1	Granville	13	SR 1711 - WAYSIDE FARM RD	NC 96 TO SR 1712 - BRUCE GARNER RD	3	2	1.71	20	192			18,400	15,349	88																	
2020CPT.05.12.20391.1	Granville	14	SR 1716 - GRAHAM SHERRON RD	SR 1711 - BRUCE GARNER RD TO SR 1714 - WOODLAND CHURCH RD	3	2	2.33	20	261			25,071	24,605	85																	
2020CPT.05.12.20391.1	Granville	15	SR 1718 - ROCK SPRING CHURCH RD	SR 1711 - BRUCE GARNER RD TO WAKE CO	4	2	2.30	20-29	257			24,748	21,840																		
<b>TOTAL FOR PROJ NO. 2020CPT.05.12.20391.1</b>									<b>2,885</b>		<b>275,408</b>	<b>255,069</b>	<b>617</b>			<b>50</b>	<b>25</b>		<b>2</b>						<b>325</b>	<b>325</b>	<b>650</b>				
												<b>255,686</b>					<b>2</b>							<b>650</b>							
<b>GRAND TOTAL</b>											<b>35.61</b>	<b>3,031</b>	<b>1.00</b>	<b>381,981</b>	<b>365,472</b>	<b>3,018</b>	<b>240</b>	<b>167</b>	<b>50</b>	<b>923</b>	<b>24</b>	<b>2</b>	<b>32</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>1</b>	<b>325</b>	<b>325</b>	<b>650</b>	<b>794</b>
												<b>368,490</b>			<b>407</b>				<b>26</b>			<b>42</b>			<b>650</b>						

# SIGNING FOR RESURFACING PROJECTS

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



## MAINLINE (-L-) SIGNING

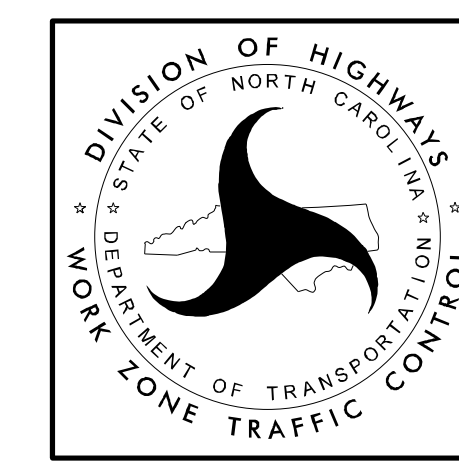
## -Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1		PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</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		- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.	
	4		- 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. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE.	
	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

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

***SOIL STABILIZATION TIMEFRAMES***

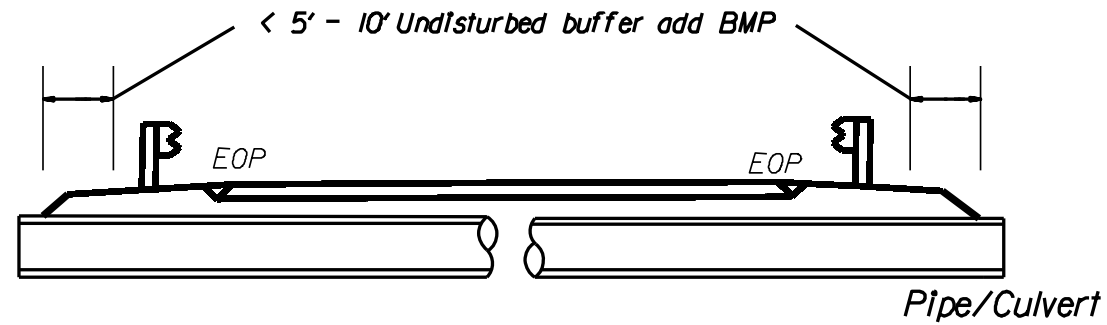
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
<b>PERIMETER DIKES, SWALES, DITCHES AND SLOPES</b>	<b>7 DAYS</b>	<b>NONE</b>
<b>HIGH QUALITY WATER (HOW) ZONES</b>	<b>7 DAYS</b>	<b>NONE</b>
<b>SLOPES STEEPER THAN 3:1</b>	<b>7 DAYS</b>	<b>IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.</b>
<b>SLOPES 3:1 OR FLATTER</b>	<b>14 DAYS</b>	<b>7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.</b>
<b>ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1</b>	<b>14 DAYS</b>	<b>NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.</b>

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

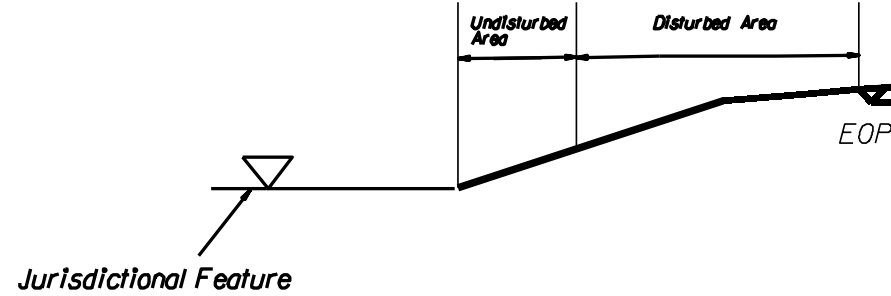
BMP Options: Wattle, Silt Fence, or Hardened Aggregate.

# EROSION CONTROL DETAIL

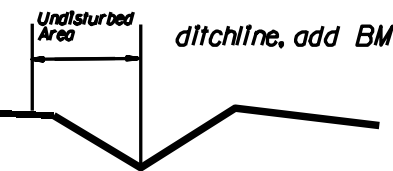
PROJECT REFERENCE NO. 2020CPT.05.12.10391.1	SHEET NO. EC 2
RDW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



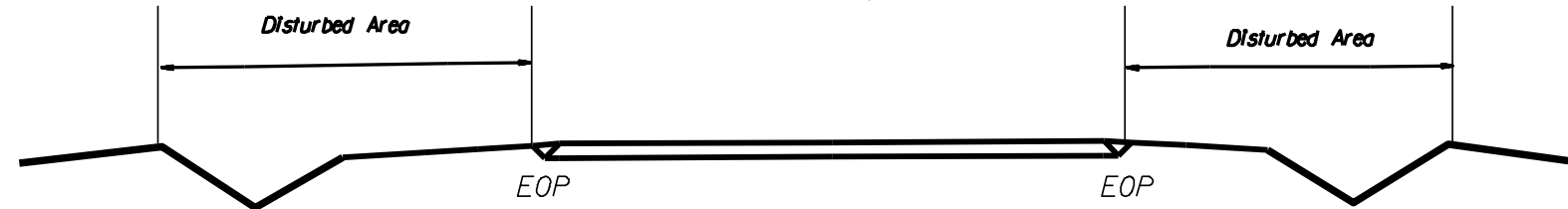
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



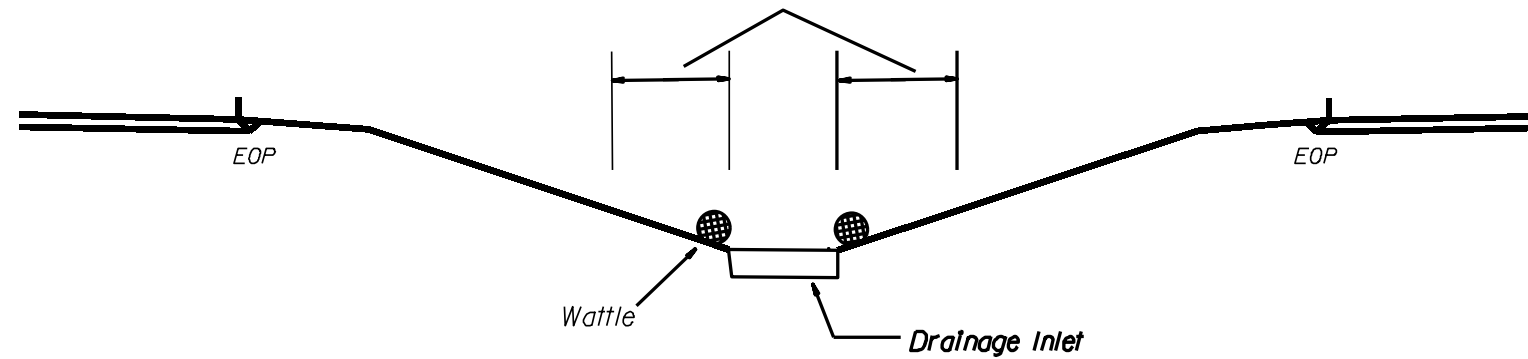
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

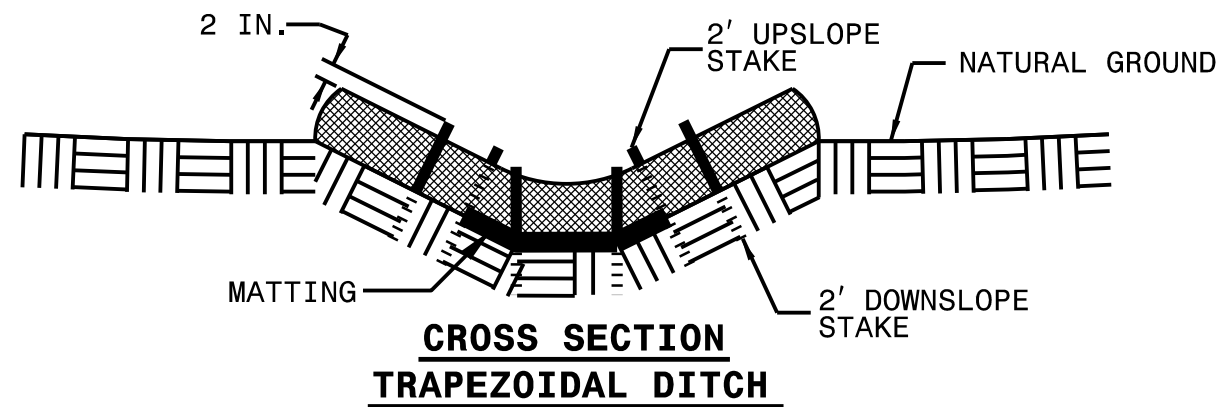
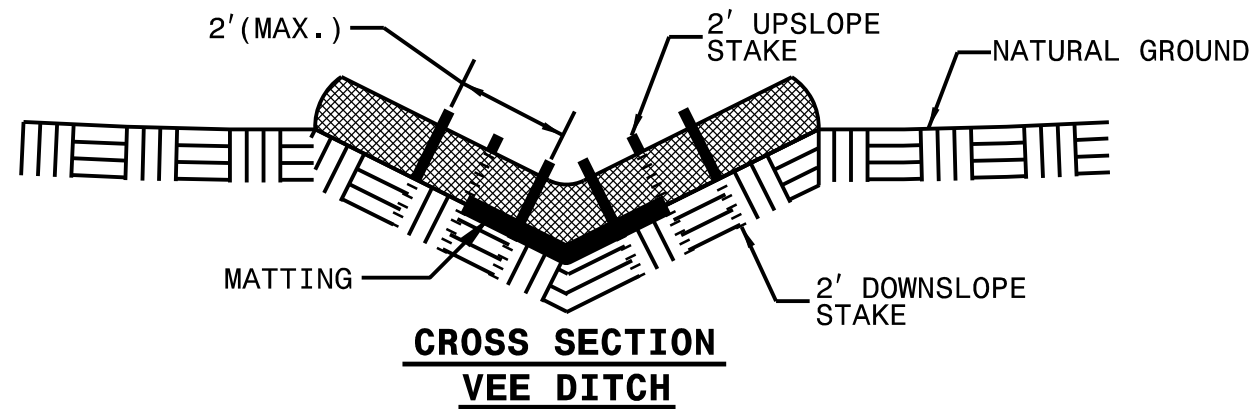
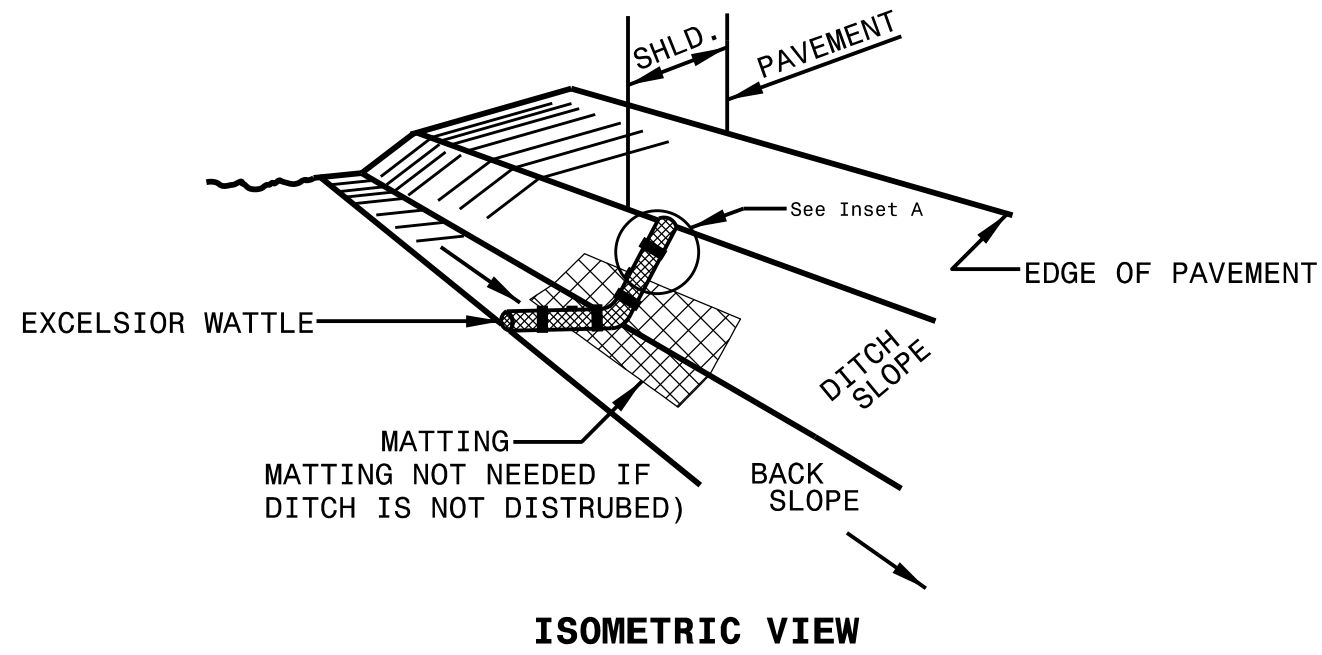


< 5' - 10' Undisturbed buffer from Inlet, add wattle



NOT TO SCALE

# WATTLE DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

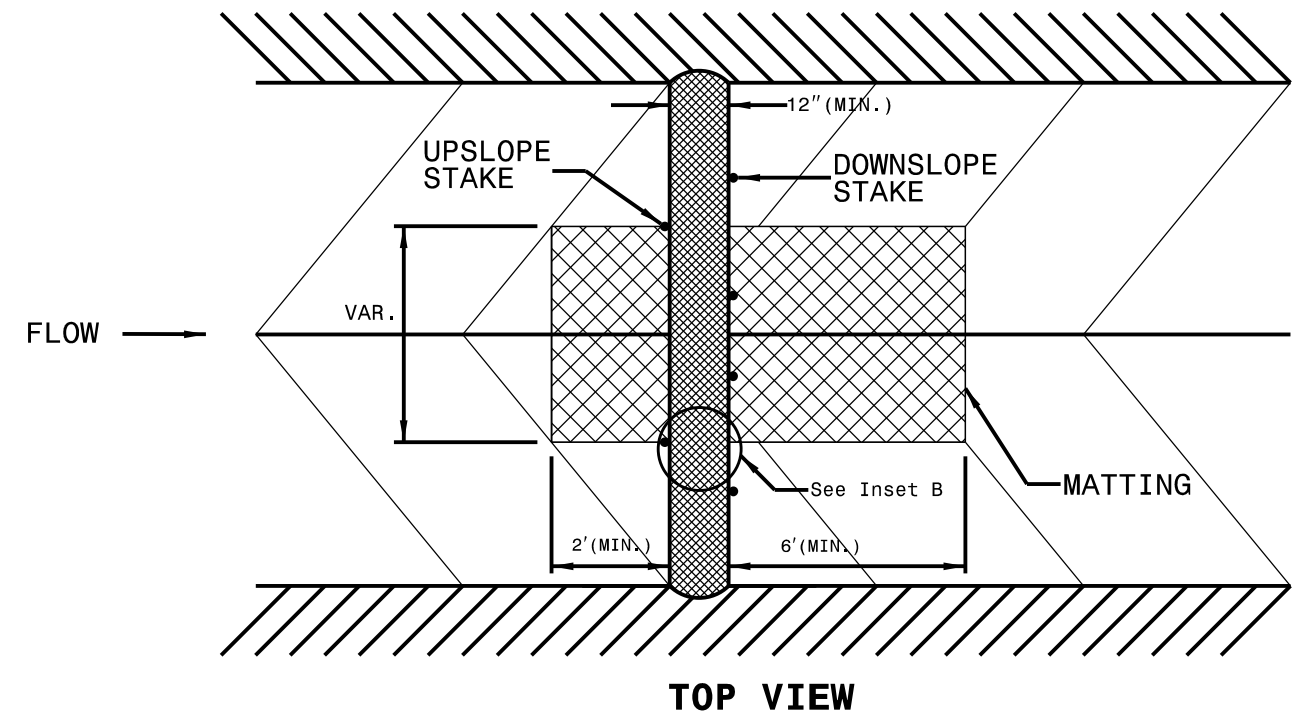
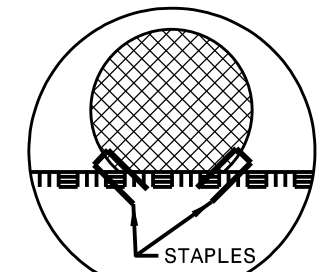
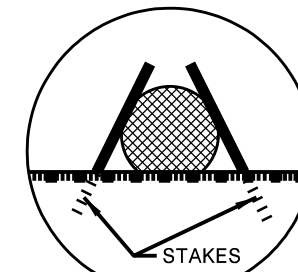
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

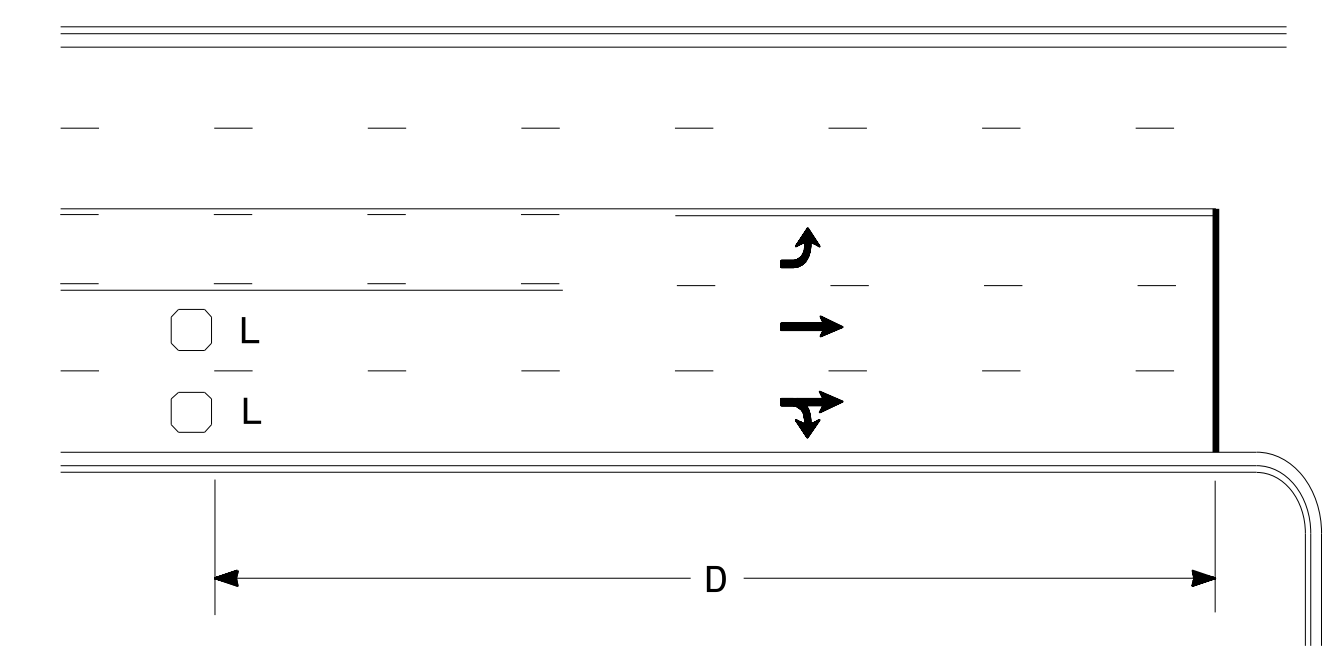
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

IF DITCH WILL BE DISTURBED, INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



### High Speed Detection (≥40 mph)

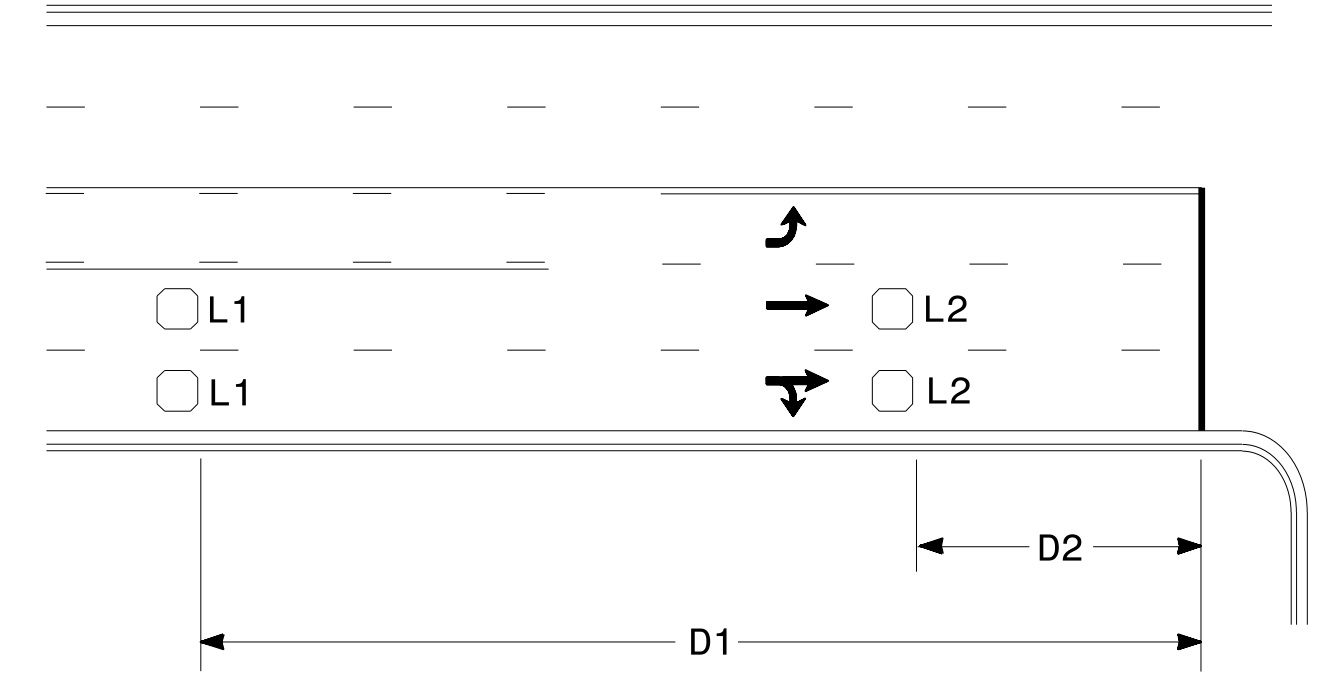


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

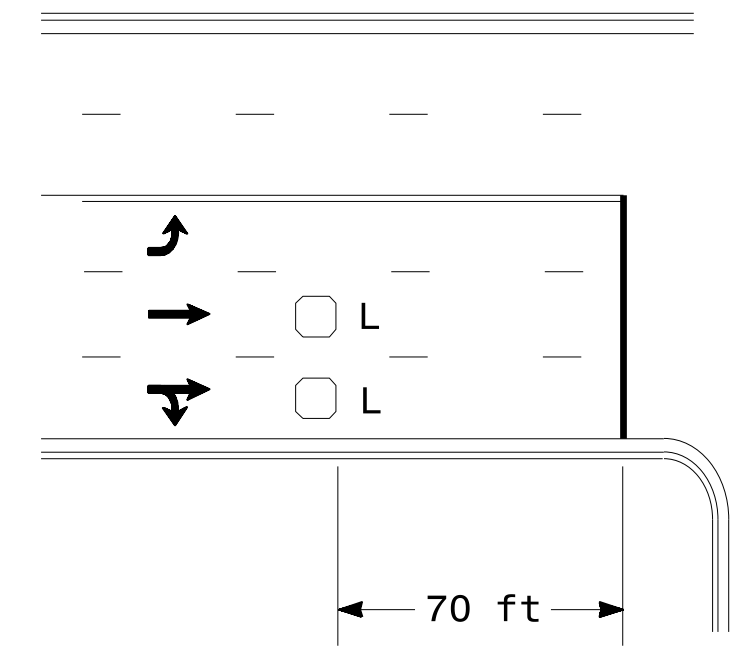


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

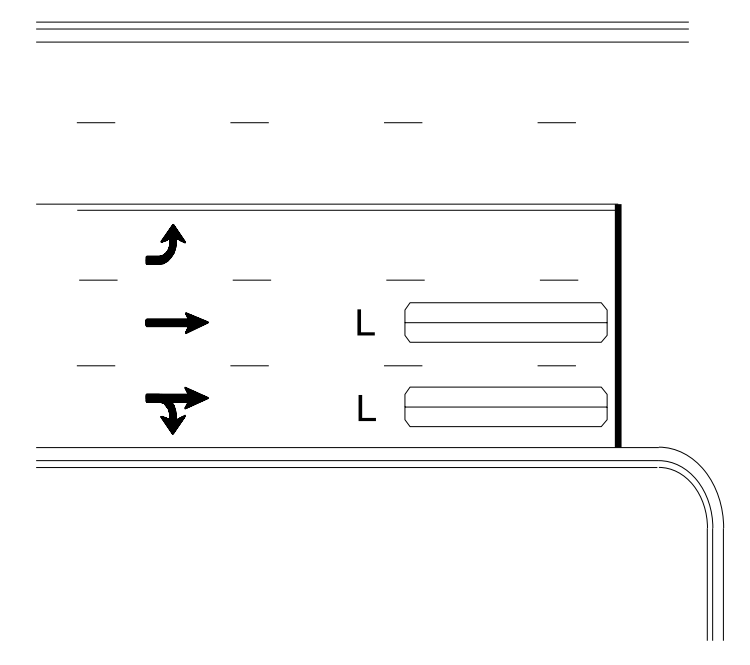
"Stretch" Operation

### Low Speed Detection (≤35 mph)



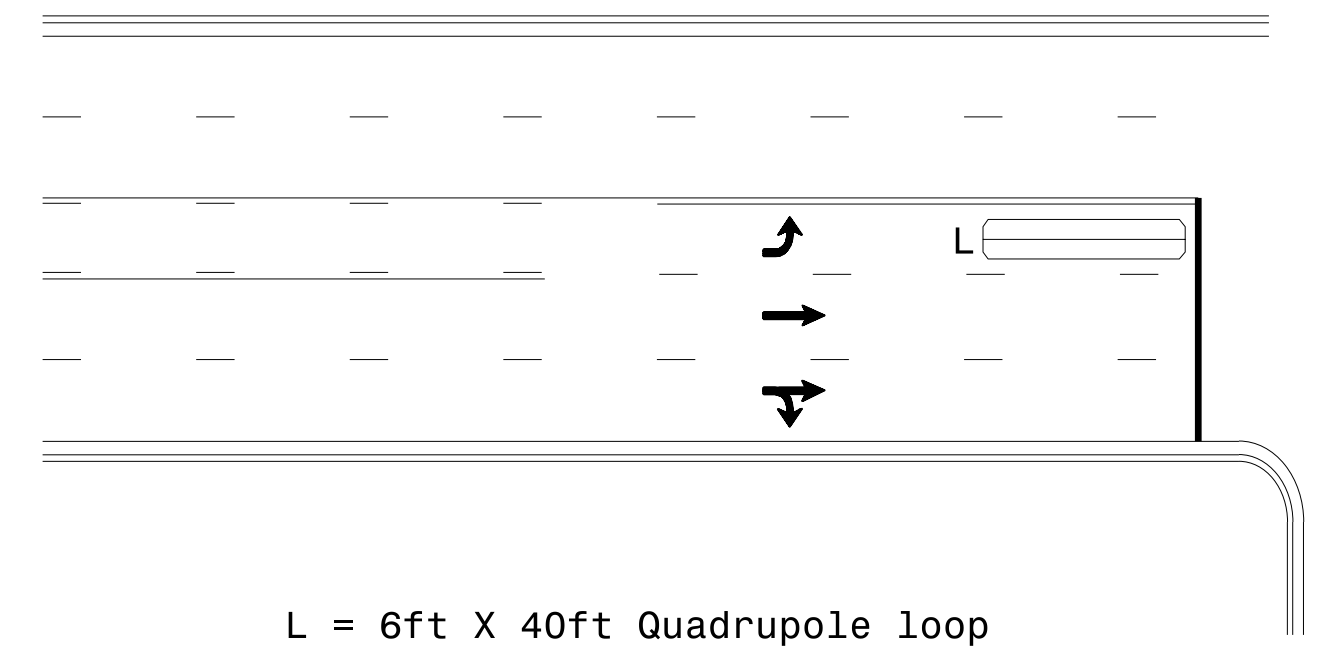
L = 6ft X 6ft  
Wired in series

OR



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

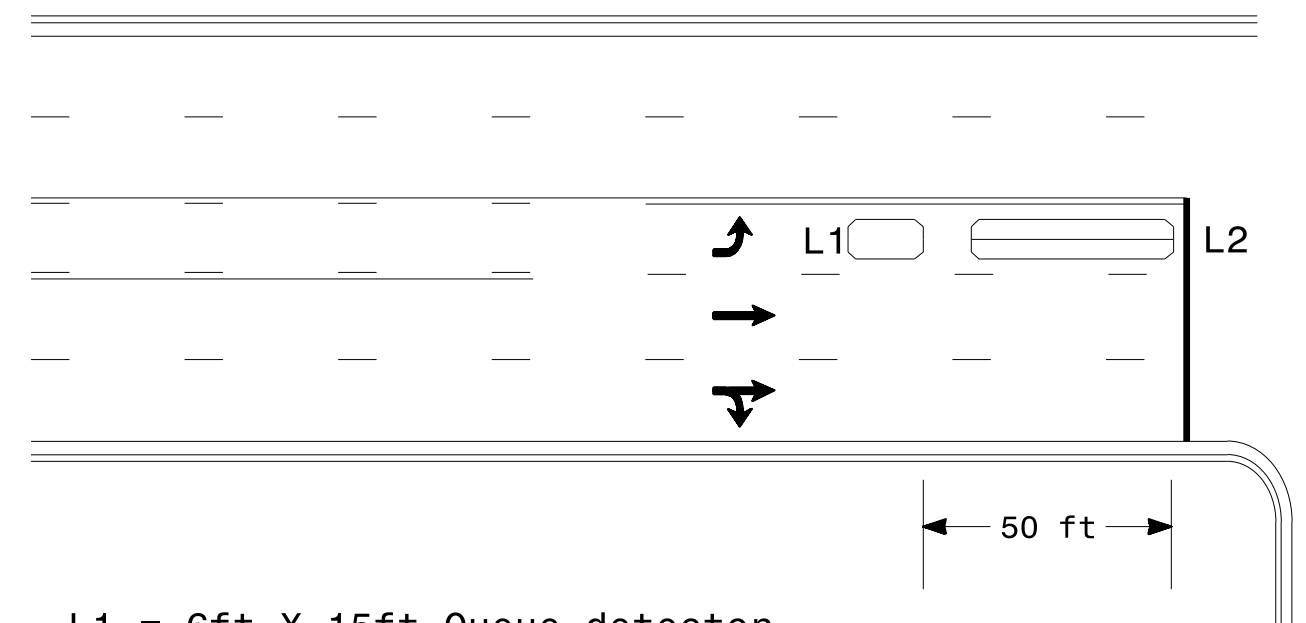
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

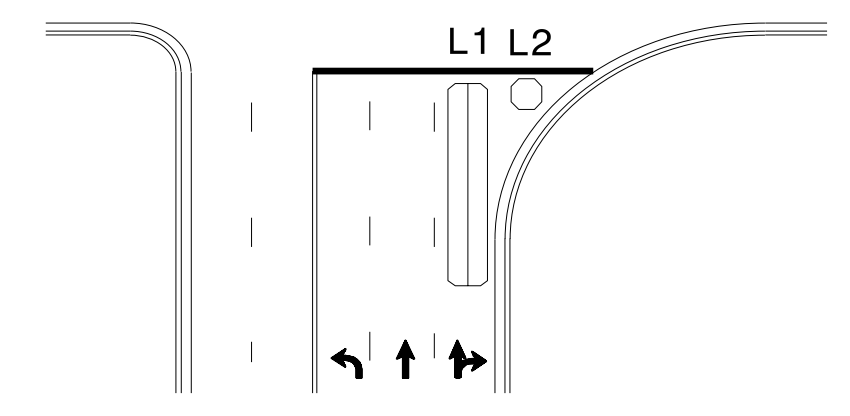
OR



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

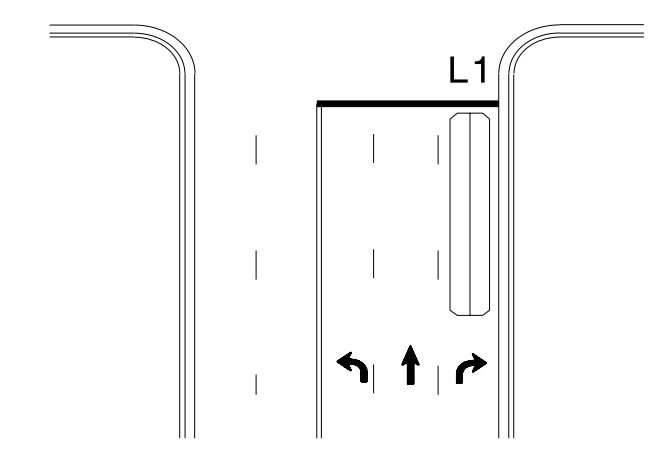
Queue Loop Detection

### Right Turn Lane Detection

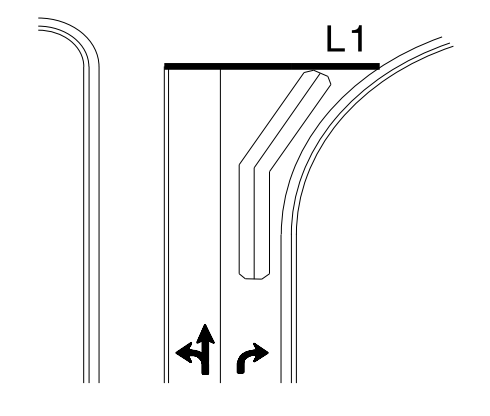


Shared Lane/  
Wide Radius Turn

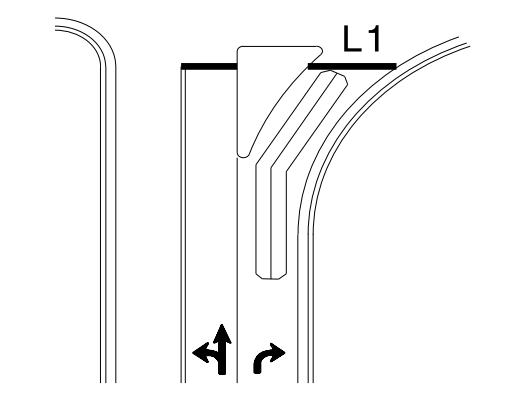
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

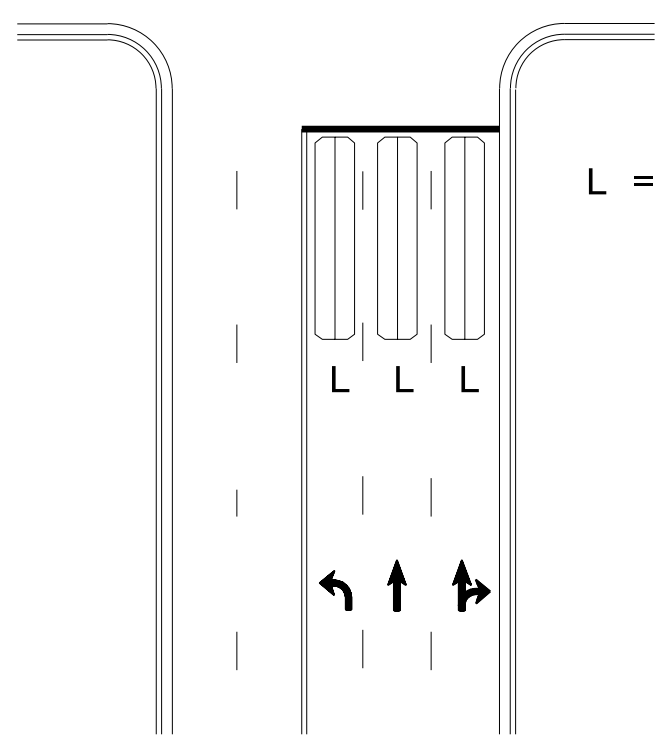


Wide Radius Turn



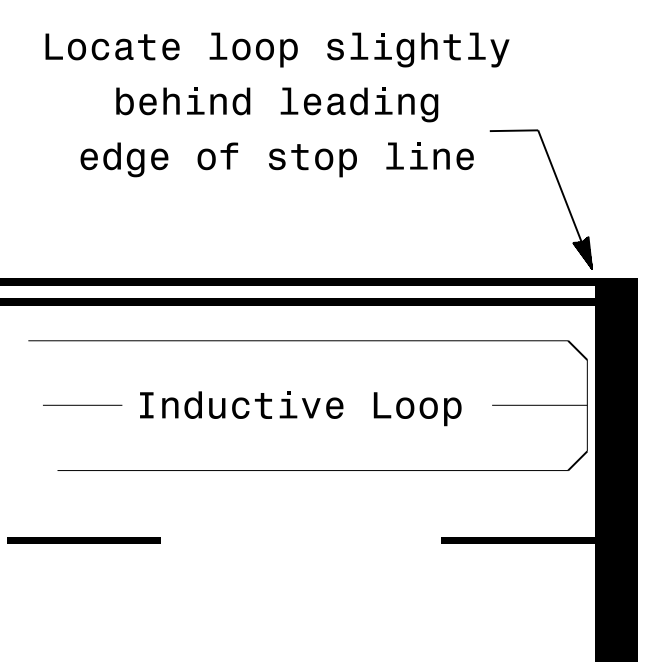
Channelized Turn

### Side Street Detection



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

### Presence Loop Placement at Stop Lines



Locate loop slightly  
behind leading  
edge of stop line

- 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

#### Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SCALE: N/A

SEAL

DocuSigned by:  
P. Alexander  
1/30/2015 10:46:44 AM

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 paalexander