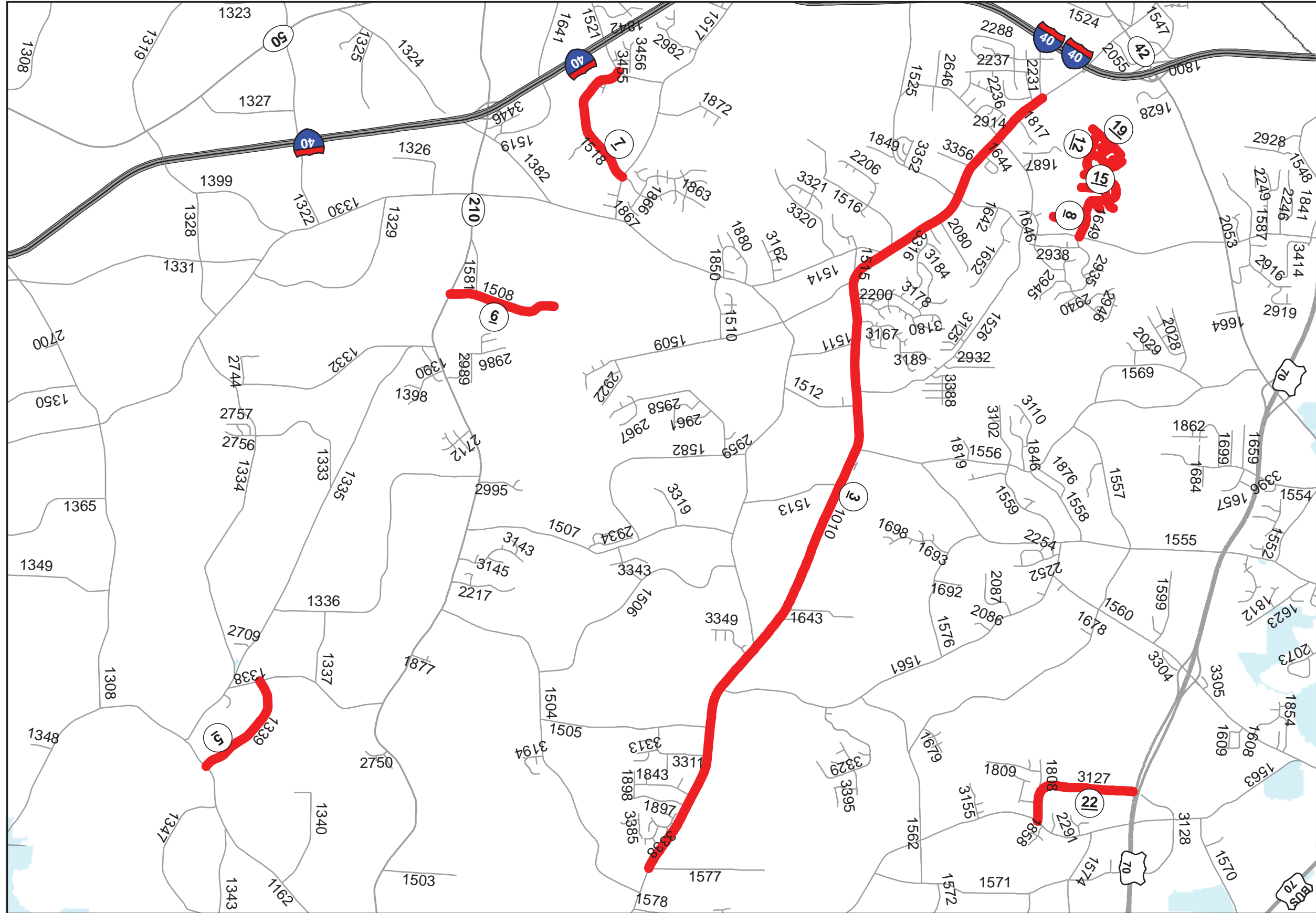


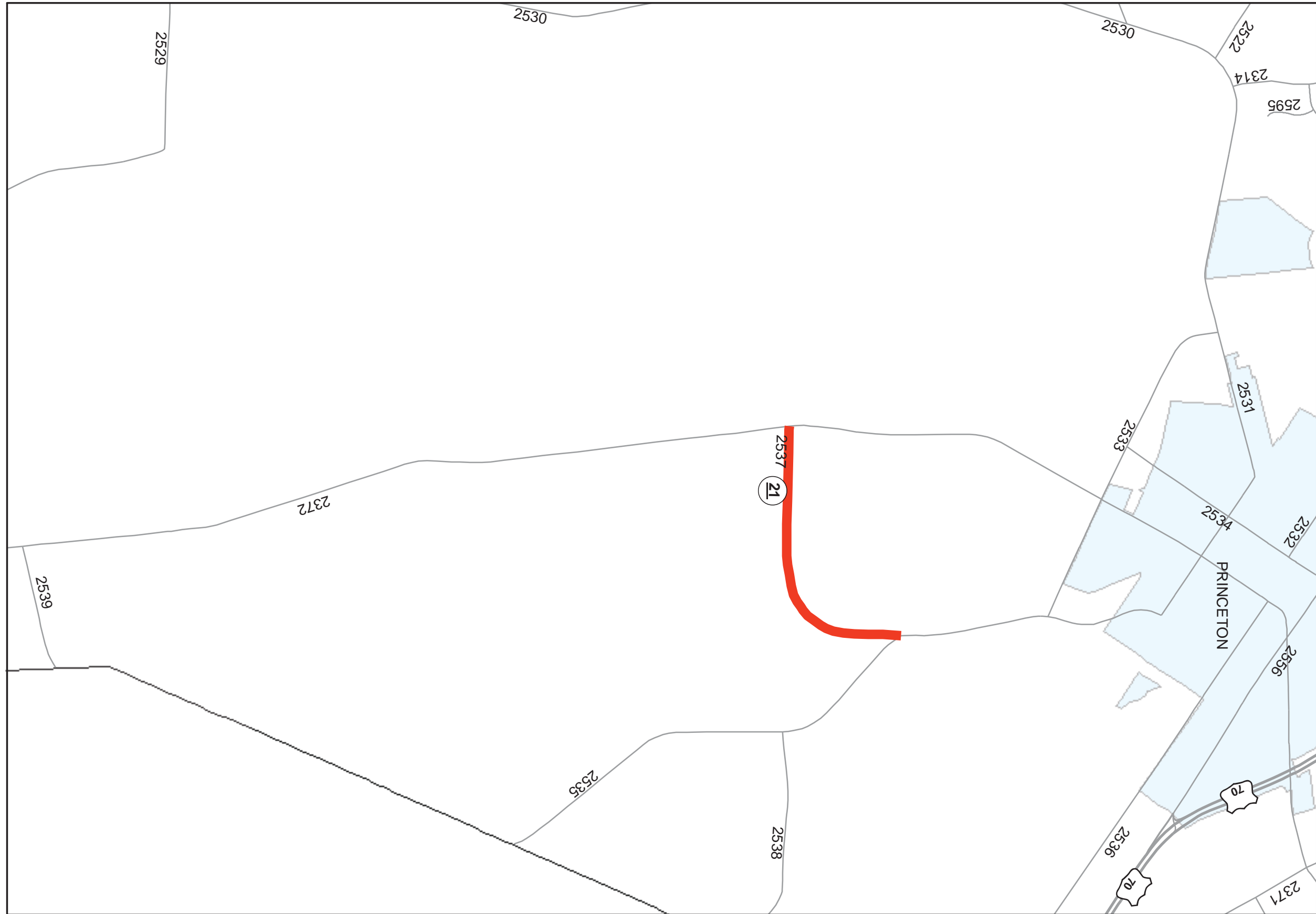
Johnston County

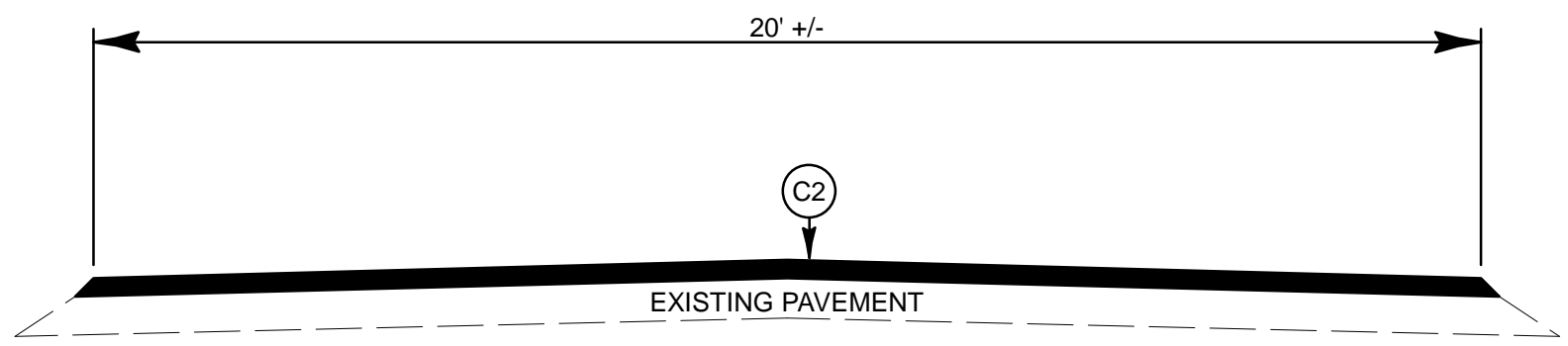
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Sheet No. 2

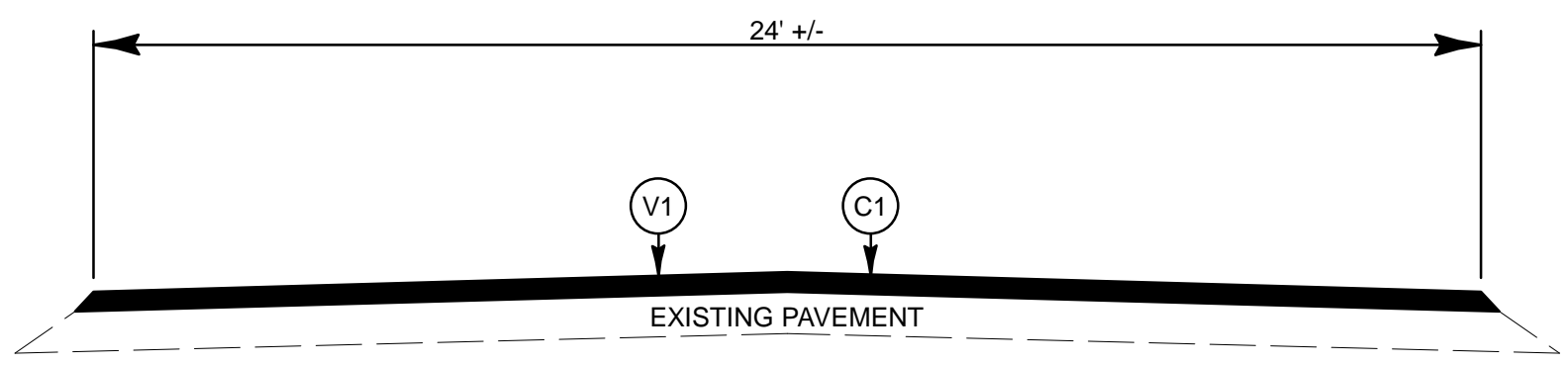




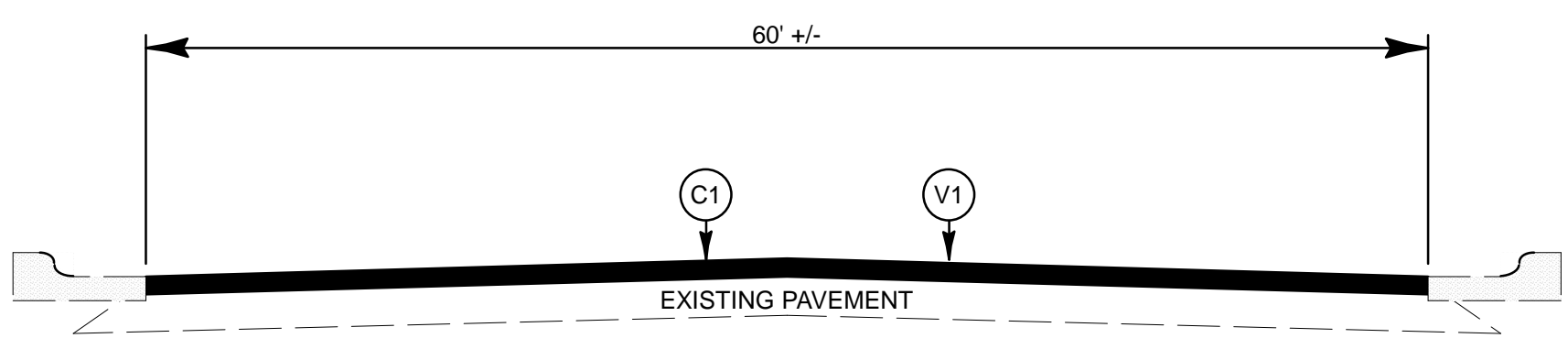




TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

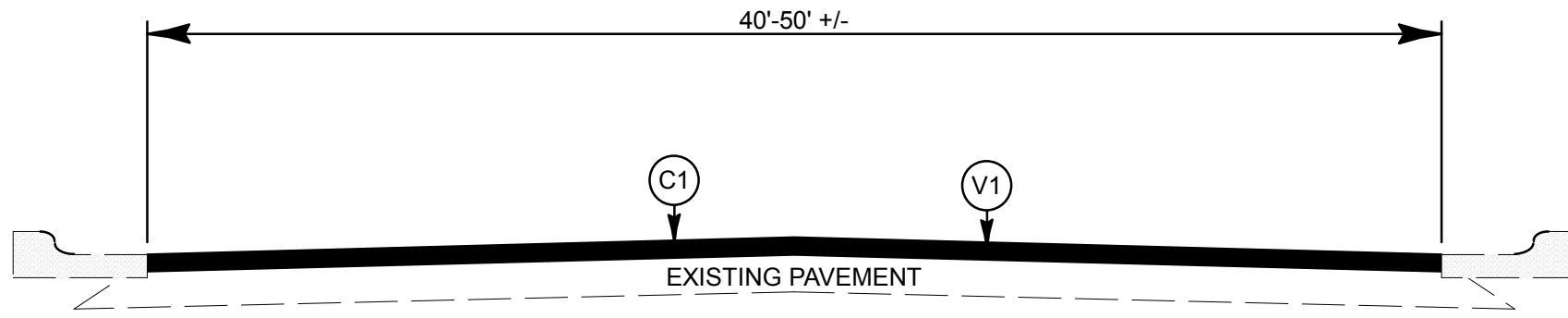


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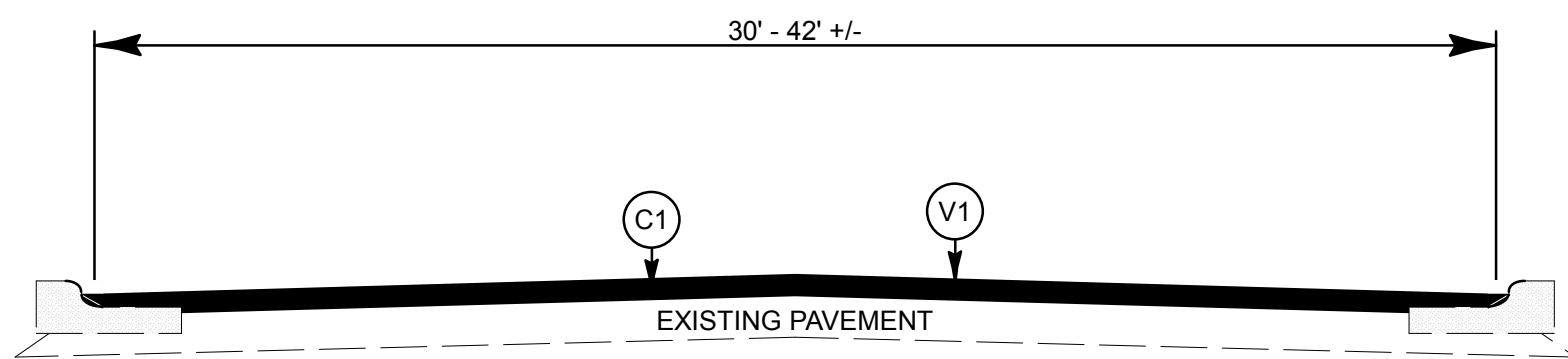
NOTE:

1. All widths are approximate. SR routes may be less than 20'. Contractor is responsible for appropriate size paving equipment.
2. Shoulder Reconstruction will be by NCDOT forces.

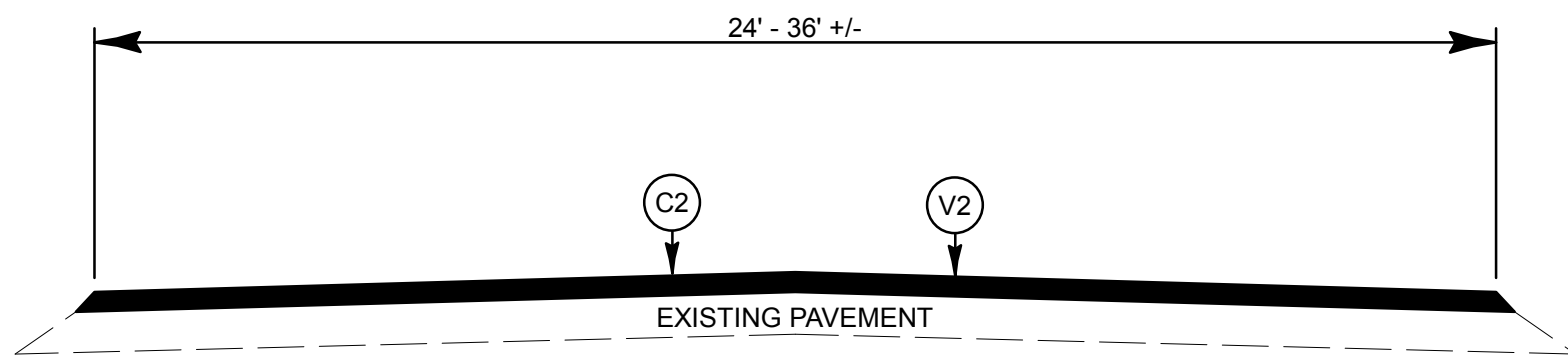
PAVEMENT SCHEDULE	
C1	APPROX 2" OF S9.5C AT AN AVERAGE RATE OF 224 LB/SY
C2	APPROX 1.5" OF S9.5B AT AN AVERAGE RATE OF 165 LB/SY
V1	MILL 2" AS DIRECTED BY THE ENGINEER PRIOR TO RESURFACING
V2	MILL 1.5" AS DIRECTED BY THE ENGINEER PRIOR TO RESURFACING



TYPICAL SECTION NO. 4

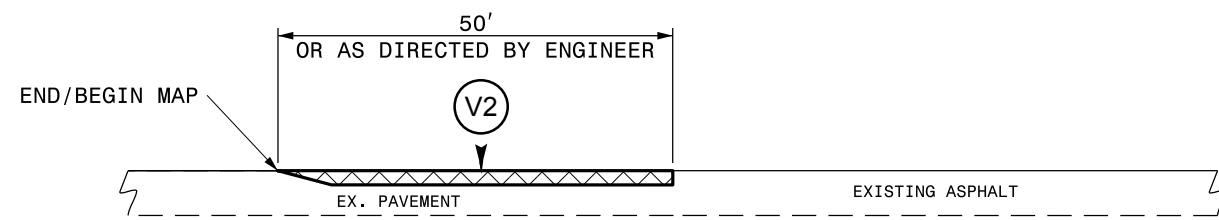
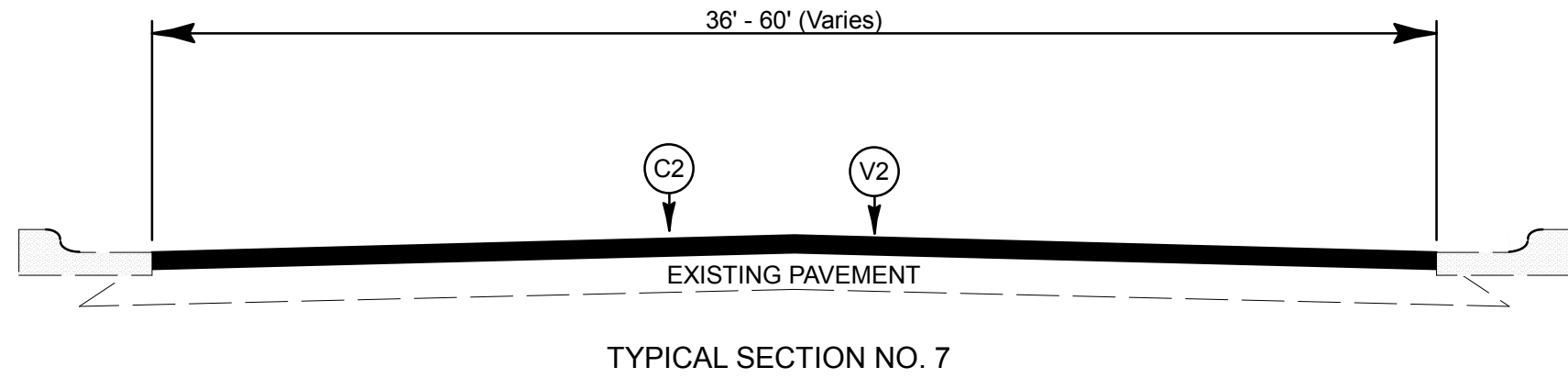


TYPICAL SECTION NO. 5



TYPICAL SECTION NO. 6

PAVEMENT SCHEDULE	
C1	APPROX 2" OF S9.5C AT AN AVERAGE RATE OF 224 LB/SY
C2	APPROX 1.5" OF S9.5B AT AN AVERAGE RATE OF 165 LB/SY
V1	MILL 2" AS DIRECTED BY THE ENGINEER PRIOR TO RESURFACING;
V2	MILL 1.5" AS DIRECTED BY THE ENGINEER PRIOR TO RESURFACING



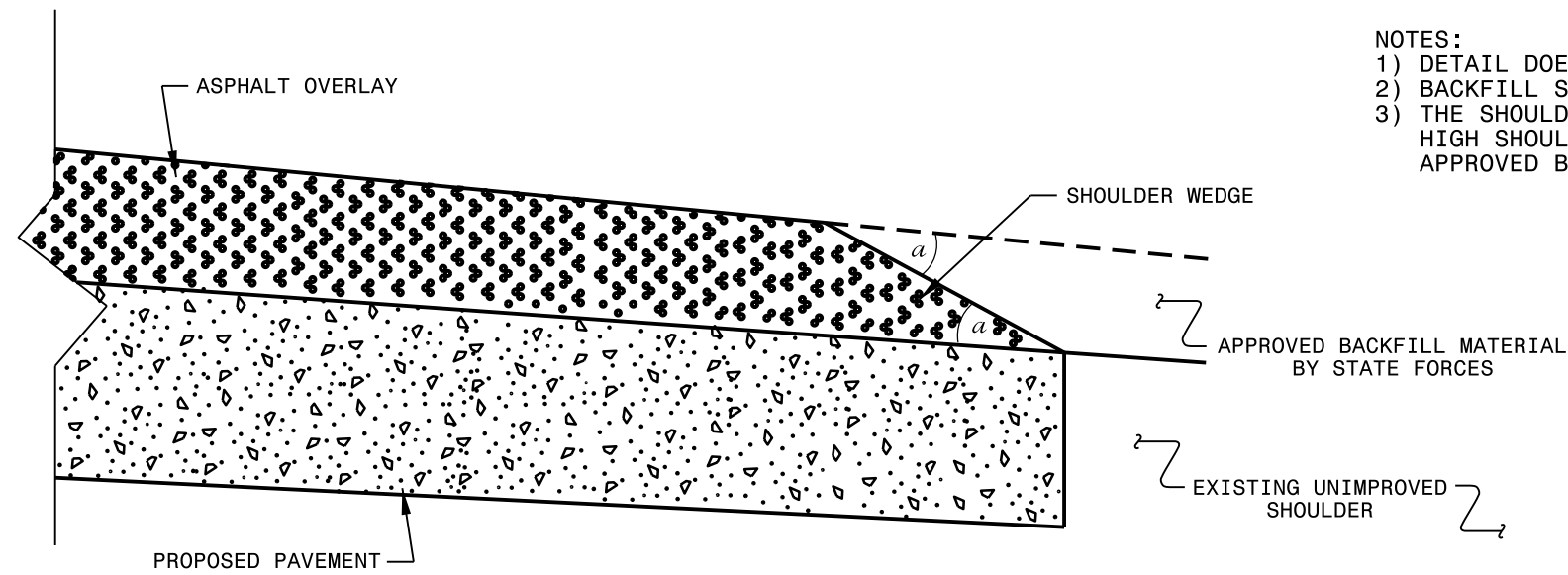
DETAIL 1
INCIDENTAL MILLING

NOTE:
1. PERFORM INCIDENTAL MILLING AT THE TIE INS, RAILROADS, BRIDGE DECKS AND APPROACHES AT THE DIRECTION OF THE ENGINEER

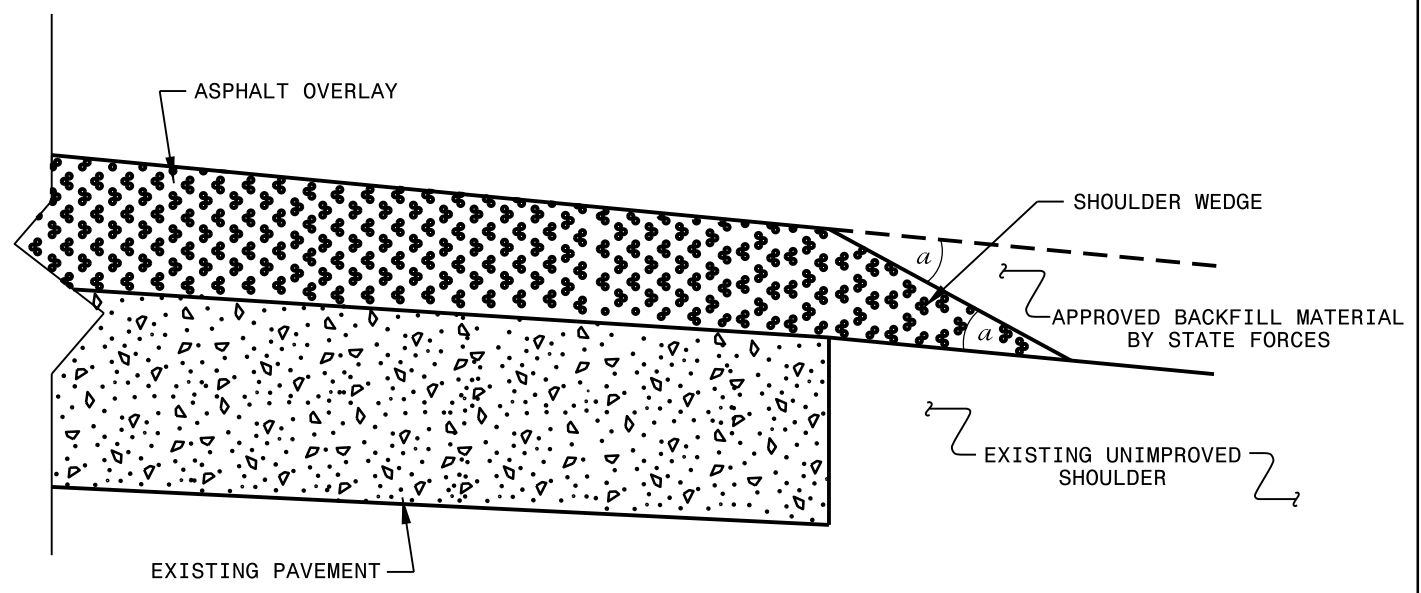
PAVEMENT SCHEDULE	
C1	APPROX 2" OF S9.5C AT AN AVERAGE RATE OF 224 LB/SY
C2	APPROX 1.5" OF S9.5B AT AN AVERAGE RATE OF 165 LB/SY
V1	MILL 2" AS DIRECTED BY THE ENGINEER PRIOR TO RESURFACING;
V2	MILL 1.5" AS DIRECTED BY THE ENGINEER PRIOR TO RESURFACING

etc

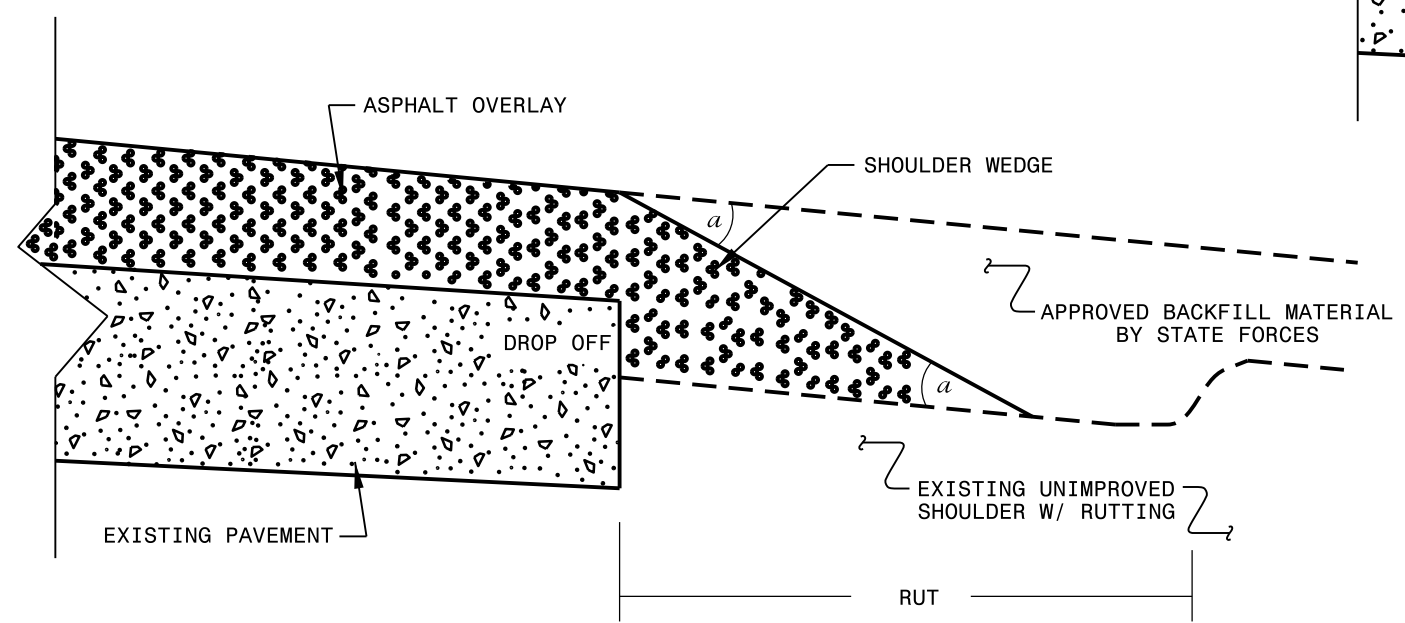
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
 - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ NO Widening)



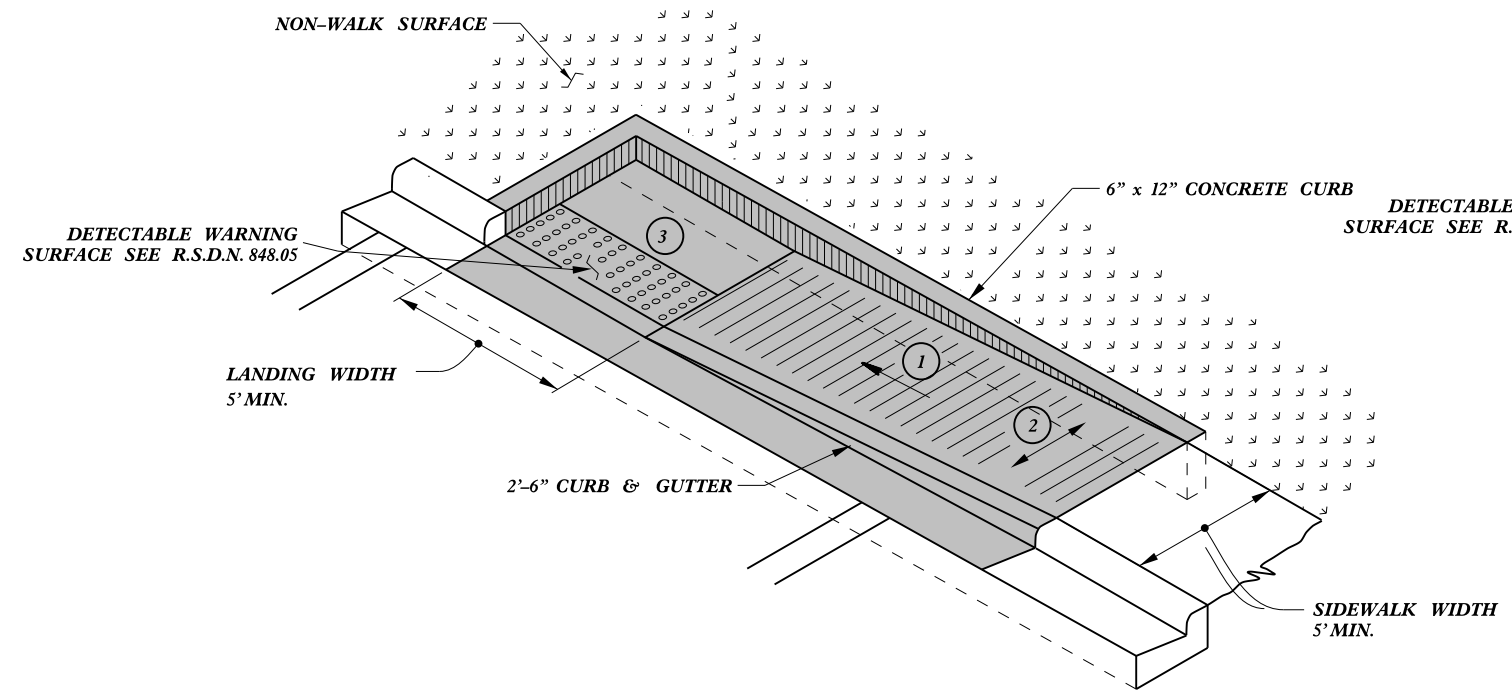
SHOULDER WEDGE DETAIL
 (Resurfacing Adjacent to
 Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

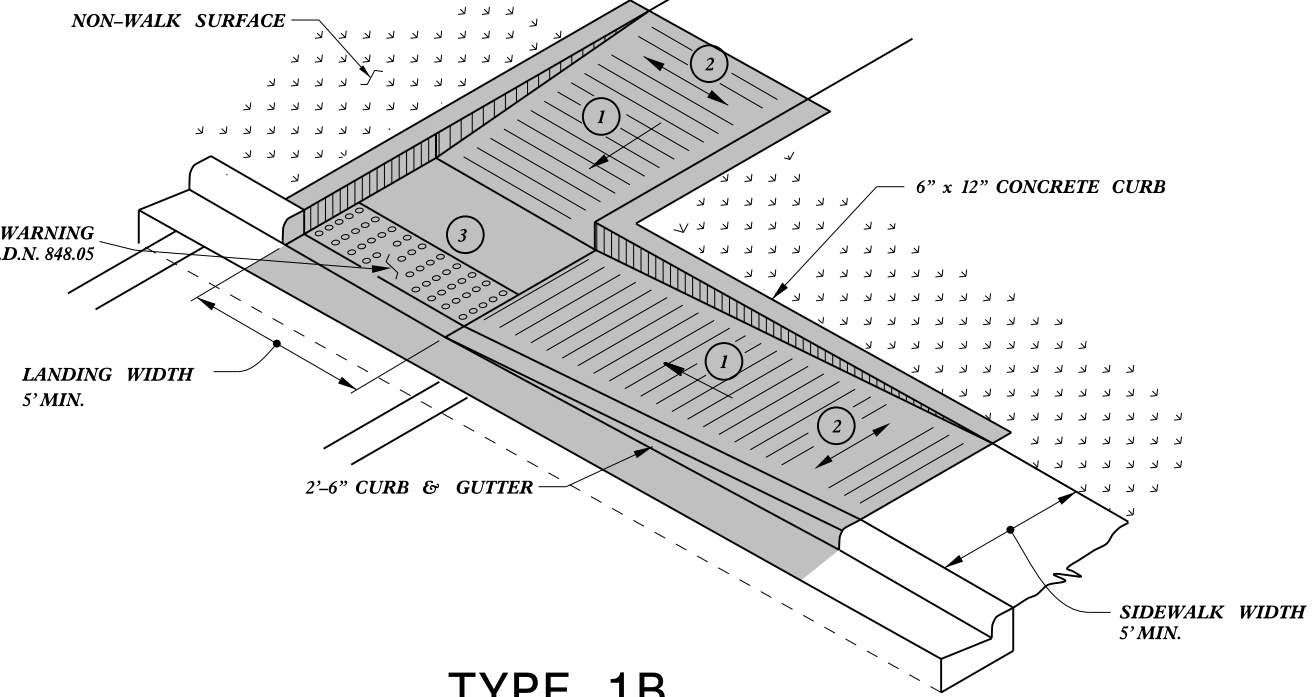
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
SHOULDER WEDGE DETAILS	
ORIGINAL BY: T.SPELL	DATE: 7-19-11
MODIFIED BY:	DATE: 10/16/12
CHECKED BY:	DATE:
FILE SPEC.: s:\usr\details\stand\shoulderwedgedetail.dgn	

Q7-MAY-2018 11:39
 S:\Contracts\CCCR-2018-0255\2
 P:\pwr\ter AT OSD-2018-0255\2
 Resurfacing Projects\Division 4\Nesh County June 2018\Revised Shoulder Wedge Detail.dgn

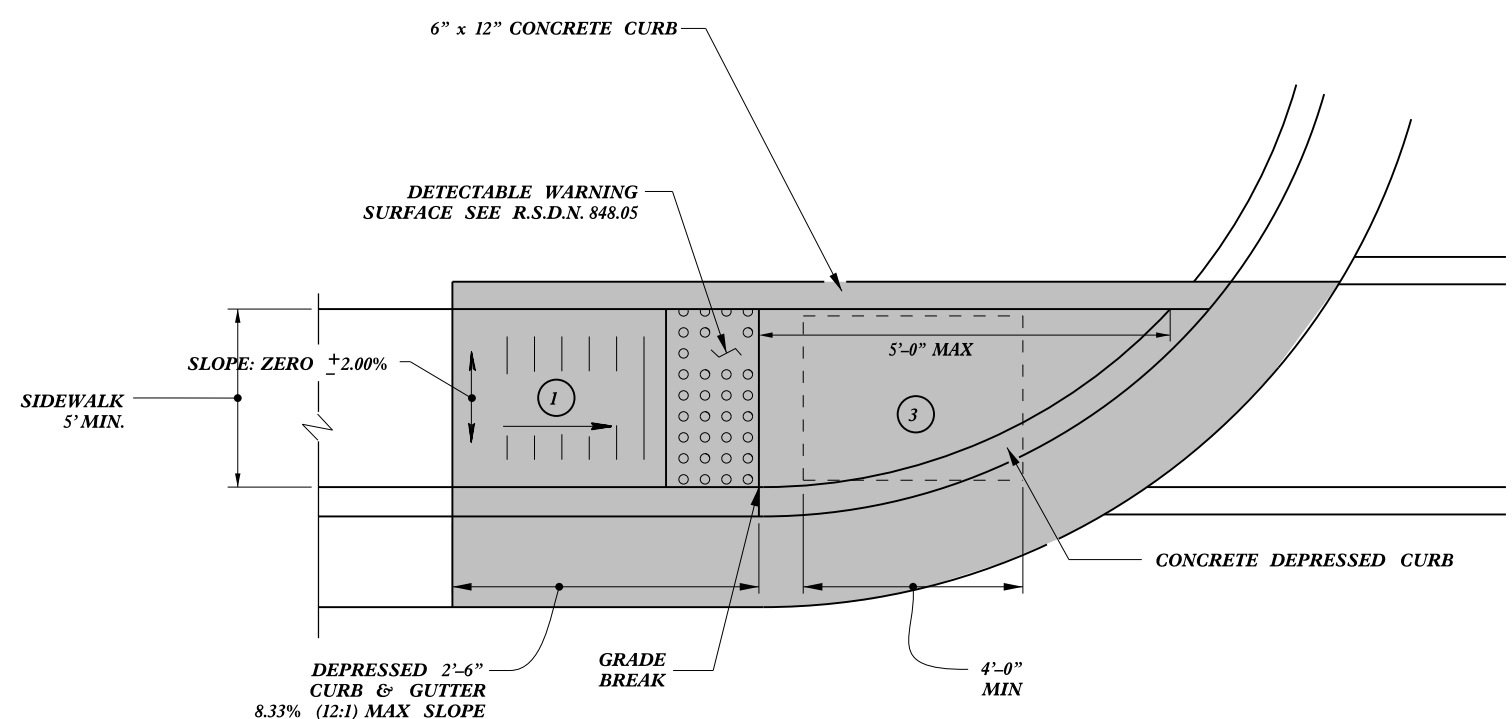
etc



TYPE 1A



TYPE 1B



TYPE 1

PAY LIMITS FOR 1 CURB RAMP

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES



DocuSign by
Joel S. Howerton

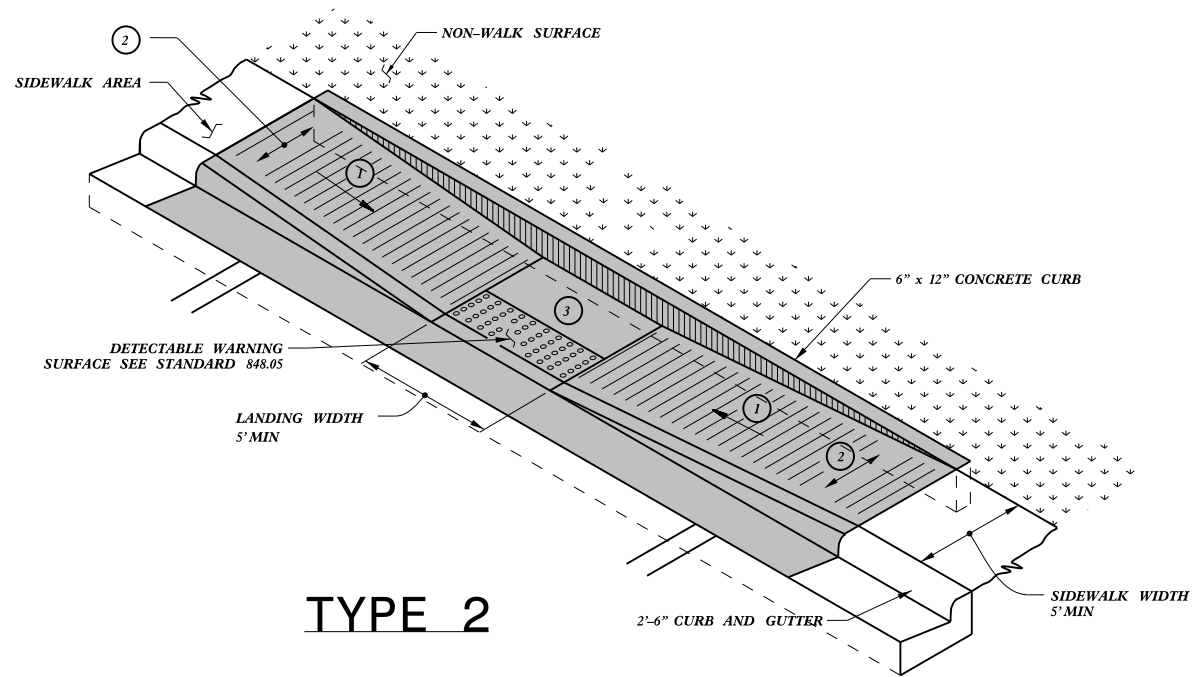
449E8E25522144F...
11/18/2015

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dwg	

5/14/99
CONSTRUCTION USER NAME

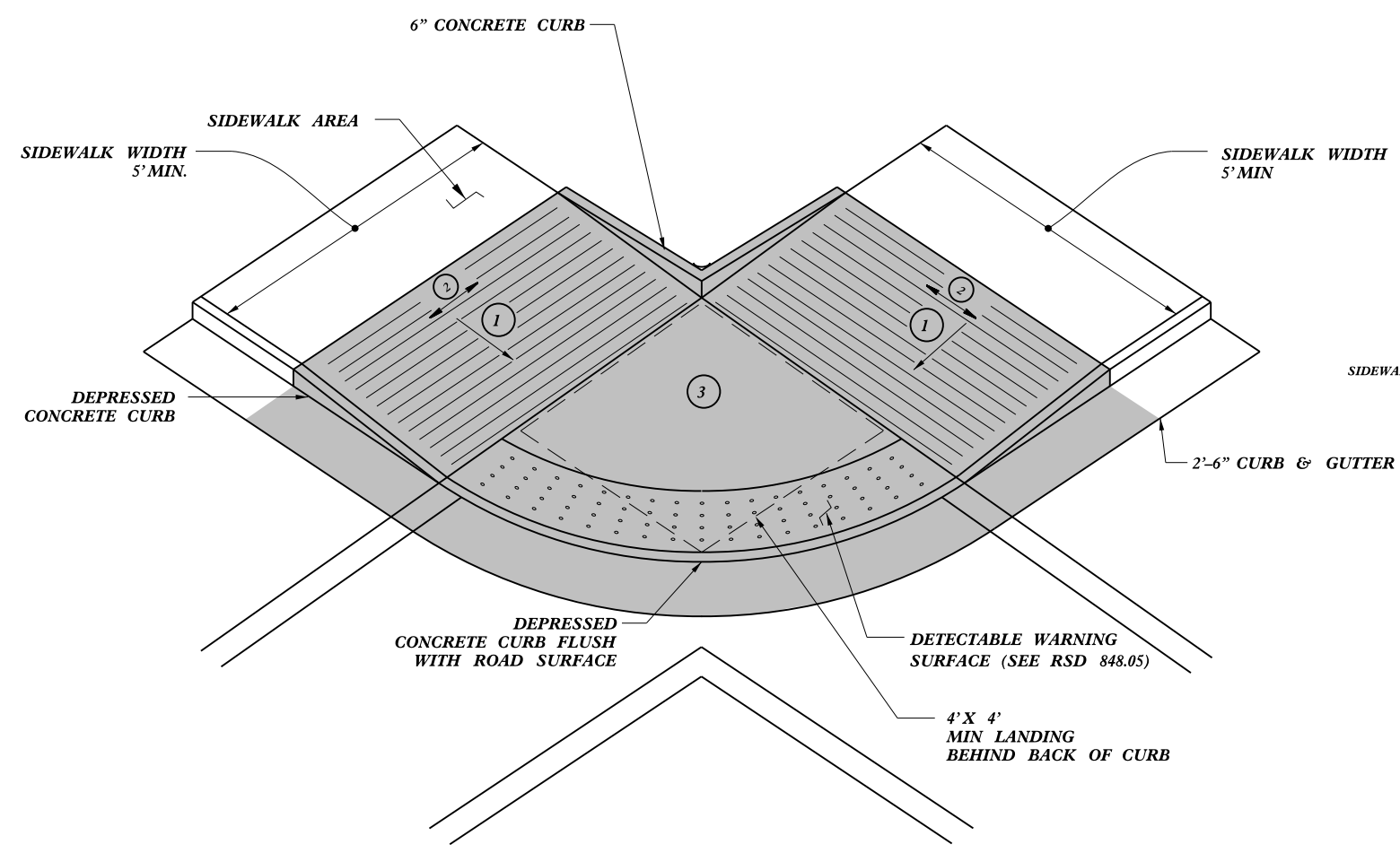
etc



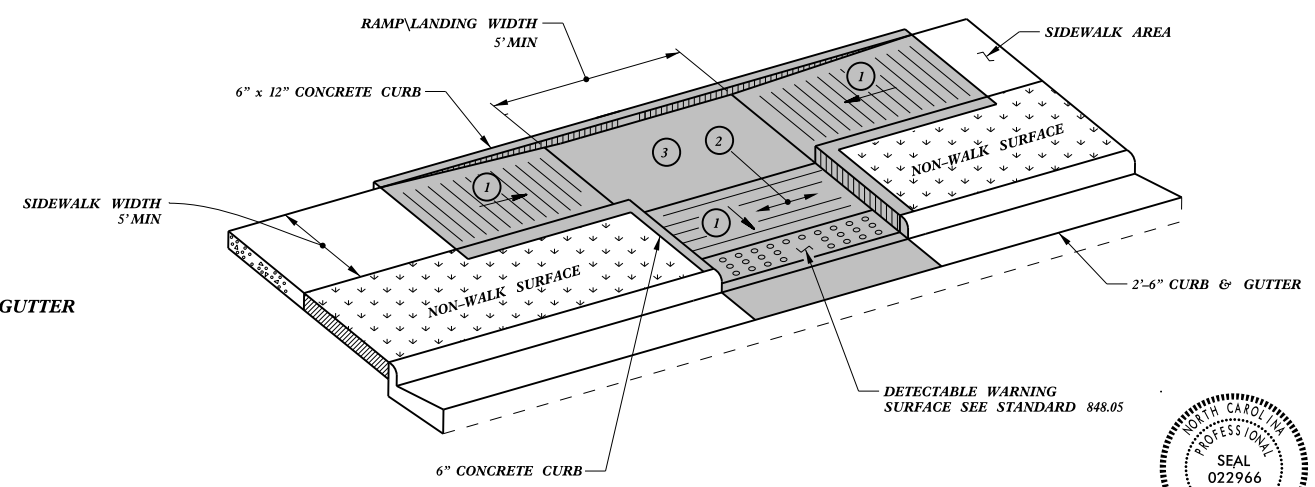
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



TYPE 2A



TYPE 3

5/14/99
SYMBOLS TO BE USED FOR CONSTRUCTION
TIME TO BE USED FOR CONSTRUCTION
CONSTRUCTION TO BE USED FOR CONSTRUCTION
CONSTRUCTION TO BE USED FOR CONSTRUCTION
CONSTRUCTION TO BE USED FOR CONSTRUCTION



DocuSign
Joel S. Howerton
449E8E25522144E

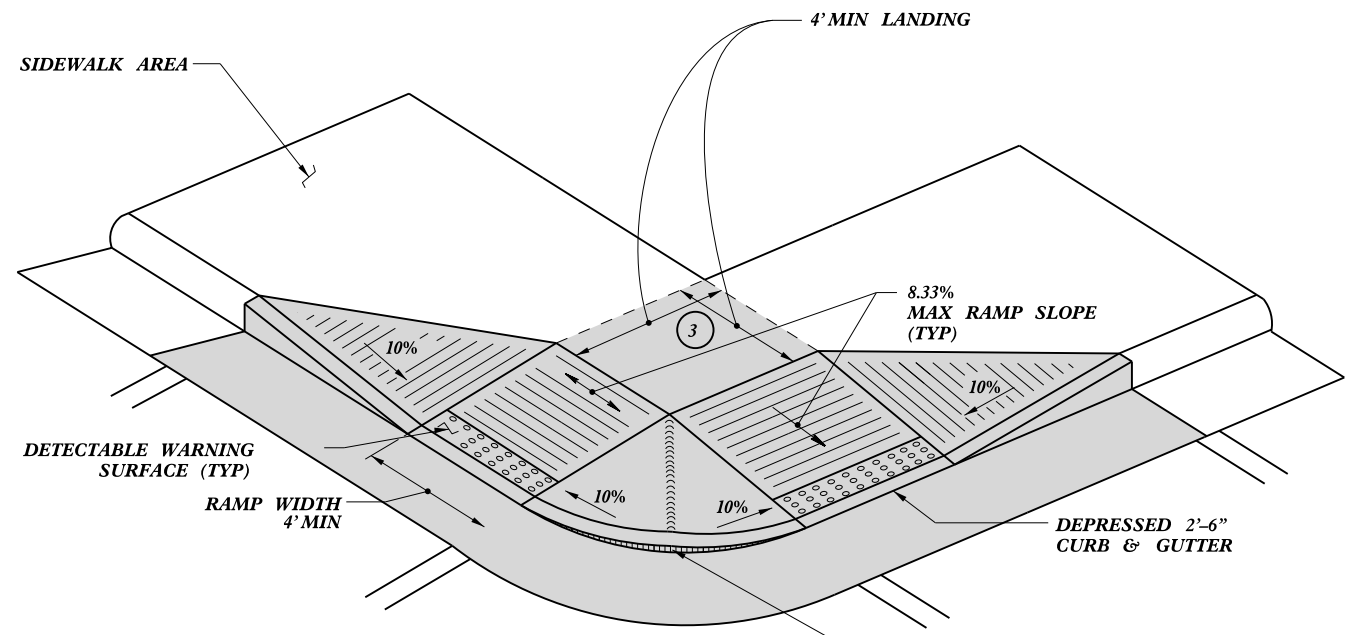
11/18/2015

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
CURB RAMPS Parallel Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dwg	

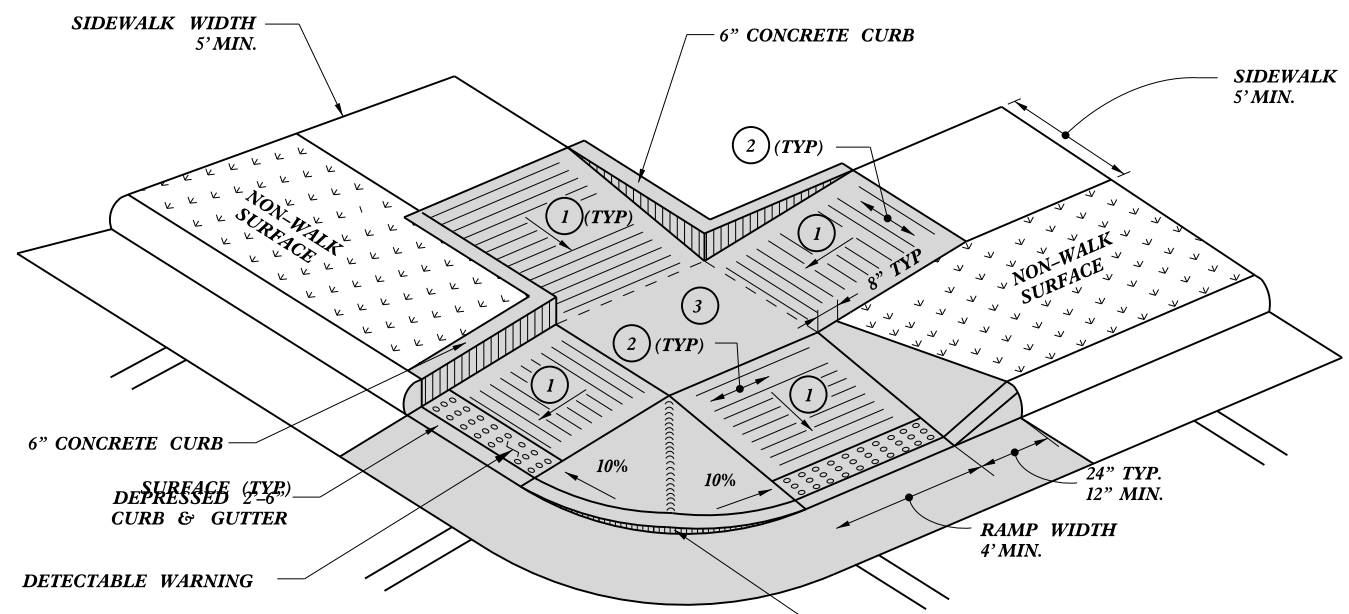
REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

etc

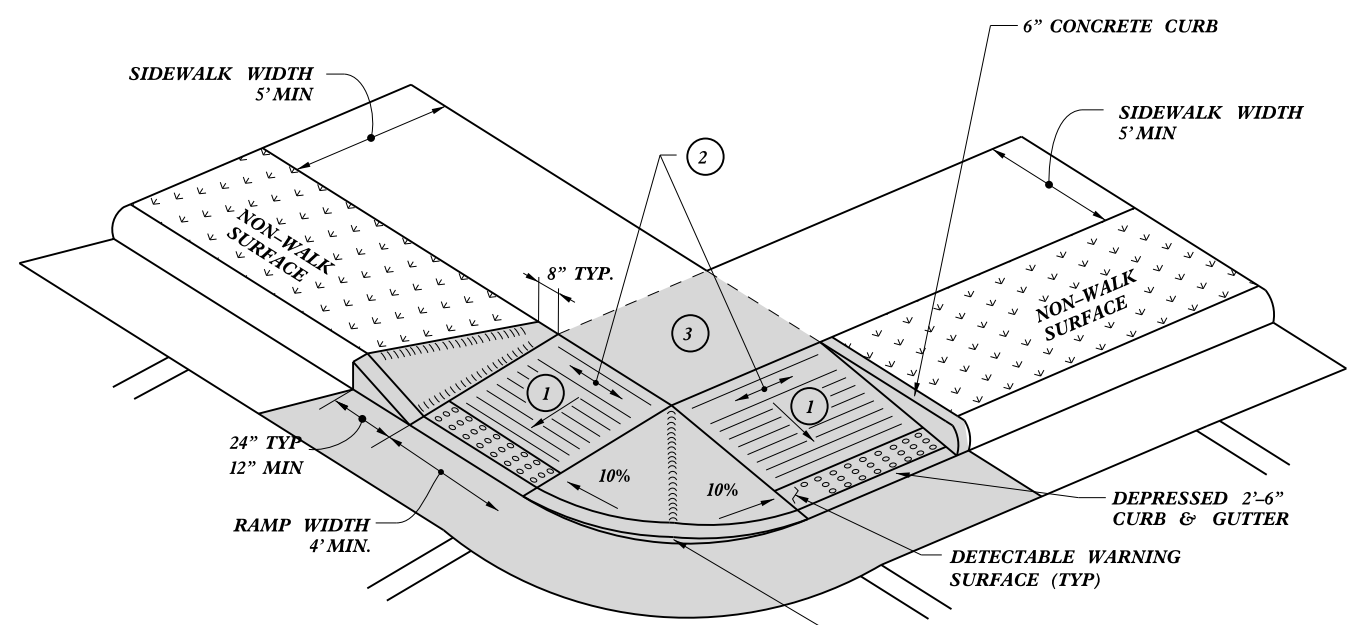
PAY LIMITS FOR 2 CURB RAMPS



TYPE 4



TYPE 5



TYPE 4A

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

DocuSigned by:
Joel S Howerton
 449E8E25522144F...



11/18/2015

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Shared Landing	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dwg	

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

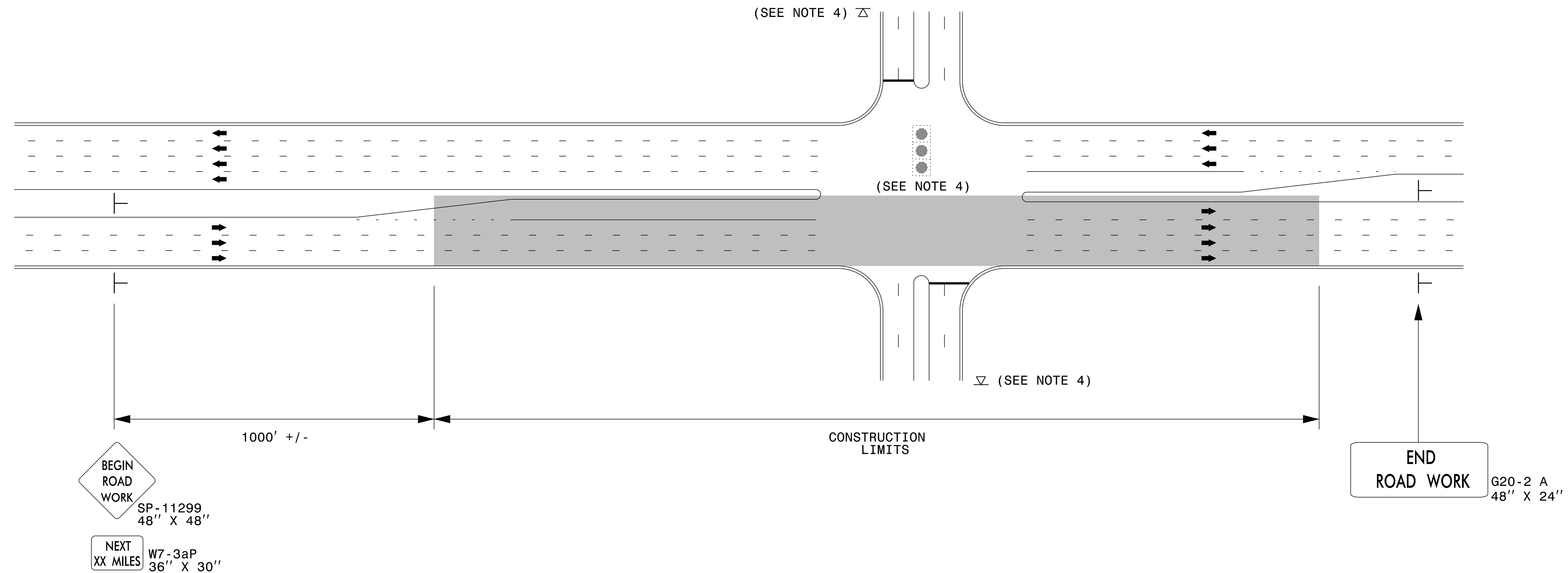
5/14/1999

PROJECT NO.	SHEET NO.	TOTAL NO.
2019CPT.04.09.10511, etc	12	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH		INCIDENTAL STONE BASE	2"	1½"	INCIDENTAL MILLING	SURFACE COURSE, S9.5B	SURFACE COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	RETROFIT EXISTING CURB RAMPS	ADJ. OF DROP INLETS	ADJ. OF MAN-HOLES	ADJ. OF METER OR VALVE BOXES	PORTABLE LIGHTING	INDUCTIVE LOOP	
										MI	FT		TONS	SY											SY
2019CPT.04.09.10511	Johnston	1	NC 50 (2 LANE)	FROM SAMPSON CL TO BEGIN CURB & GUTTER	2	2	2WU	NO	NO	11.6	24	200	177,223				19,849	1,191							
		"	"	FROM BEGIN CURB & GUTTER TO FAYETTEVILLE ST.	3	5	MU	NO	NO	0.4	60		14,402				1,613	97						1,000	
		"	"	FROM FAYETTEVILLE ST. TO N. DUNN ST	4	4	MU	NO	NO	0.05	50		1,500				168	10					*		
		"	"	FROM N. DUNN ST. TO US 301	5	3	MU	NO	NO	0.45	30		10,634				1,191	71	22		14	15		4,000	
TOTAL FOR PROJ NO. 2019CPT.04.09.10511										12.5		200	203,759				22,821	1,369	22		14	15	1	5,000	
2019CPT.04.09.20511	Johnston	2	SR 1108 - MCLAMB RD.	SR 1005 TO SR 1107	1	2	2WU	NO	NO	1.8	20				400	1,821		122							
		3	SR 1010 - CLEVELAND RD	FROM SR 1577 TO SR 2231	6	2	2WU	NO	NO	8.7	24				147,738		12,410		832		1	3	23		4,500
		4	SR 1138 - CREEK BRIDGE RD.	FROM SR 1144 TO SR 1116	1	2	2WU	NO	NO	2.5	20						837	2,611		175					
		5	SR 1339 - SEDGEWOOD RD.	FROM SR 1338 TO SR 1162	1	2	2WU	NO	NO	1.1	20						400	1,113		75					
		6	SR 1508 - BEREA CHURCH RD.	FROM NC 210 TO END MAINTENANCE	1	2	2WU	NO	NO	1.1	20						400	1,154		77					
		7	SR 1518 - WEST WATSON RD.	FROM SR 1521 TO SR 1517	1	2	2WU	NO	NO	1.3	20						400	1,356		91					
		8	SR 1649 - KERI DR.	FROM SR 1525 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.731	20						400	780		52			2		
		9	SR 1650 - KRISTI DR.	FROM SR 1649 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.31	20							354		24					
		10	SR 2058 - CHASE CIR.	FROM SR 1649 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.08	20							122		8					
		11	SR 2059 - KASEY DEE CIR.	FROM SR 1649 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.1	20							142		10					
		12	SR 2060 - ZACHARY WAY	FOM SR 1649 TO SR 2083	1	2	2WU	NO	NO	0.7	20							708		47			2		
		13	SR 2061 - SAMANTHA DR.	FROM SR 2060 TO END MAINTENANCE	1	2	2WU	NO	NO	0.21	20							212		14			2		
		14	SR 2062 - TODD PL.	FROM 2060 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.1	20							142		10			2		
		15	SR 2063 - SHERRY LYNNE DR.	FROM SR 2060 TO DEAD END	1	2	2WU	NO	NO	0.36	20							364		24					
		16	SR 2064 - CHARLOTTE DR.	FROM SR 2063 TO SR 2083	1	2	2WU	NO	NO	0.16	20							162		11			4		
		17	SR 2065 - ASHLEY PL.	FROM SR 2064 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.1	20							142		10			2		
		18	SR 2066 - MARGARET PL.	FROM SR 2063 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.1	20							142		10					
		19	SR 2083 - DREW DR.	FROM DEAD END TO CUL-DE-SAC	1	2	2WU	NO	NO	0.36	20							405		27					
		20	SR 2084 - KODI CT.	FROM SR 2083 TO CUL-DE-SAC	1	2	2WU	NO	NO	0.1	20							142		10					
		21	SR 2537 - HOLT RD.	FROM SR 2372 TO SR 2535	1	2	2WU	NO	NO	0.84	20							400	850	57					
		22	SR 3127 - HOOD FARM RD.	FROM SR 1563 TO DEAD END	1	2	2WU	NO	NO	1.2	20							400	1,336	90					
		TOTAL FOR PROJ NO. 2019CPT.04.09.20511										21.951				147,738	3,637	26,468		1,776		1	3	37	
TOTAL FOR 2018CPT.03.02.10821	Sampson	23	NC 50 (JOHNSTON HWY)	FROM NC 55 TO JOHNSTON CL	2	2	2WU	NO	NO	1.28	24		18,509				2,073	124							
GRAND TOTAL										35.731		200	222,268	147,738	3,637	26,468	24,894	3,269	22	1	17	52	1	9,500	

URBAN / SUBURBAN WORKZONES

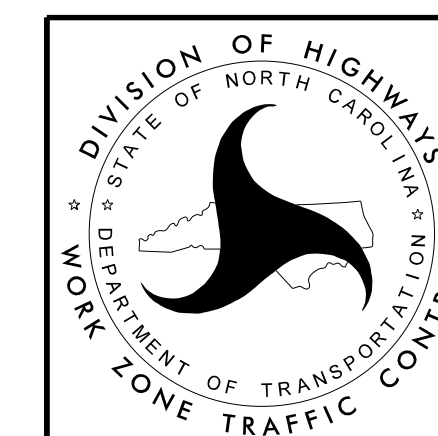


NOTES:

- 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

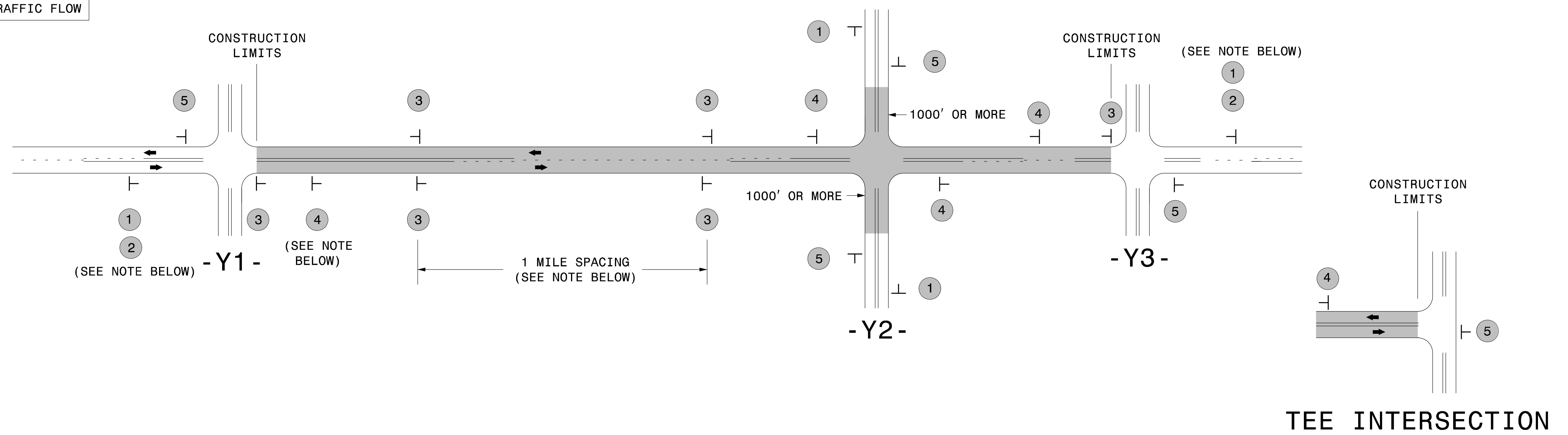
- ┆ STATIONARY SIGN
- ➔ DIRECTION OF TRAFFIC FLOW



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

SIGNING FOR RESURFACING PROJECTS

LEGEND
 ┆ STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW



MAINLINE (-L-) SIGNING

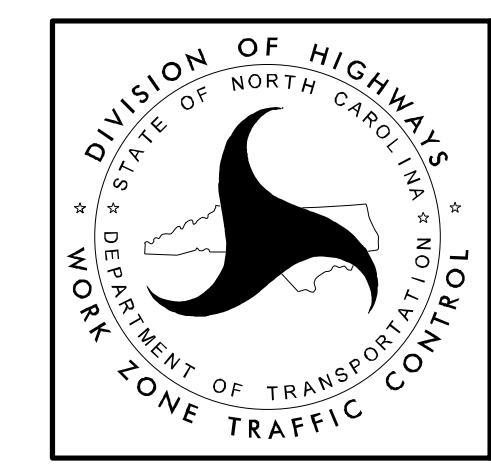
-Y- LINE SIGNING

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"> LESS THAN 1000' OF RESURFACING ALONG -Y- LINE SUBDIVISION ROADS DEAD END ROADS <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.

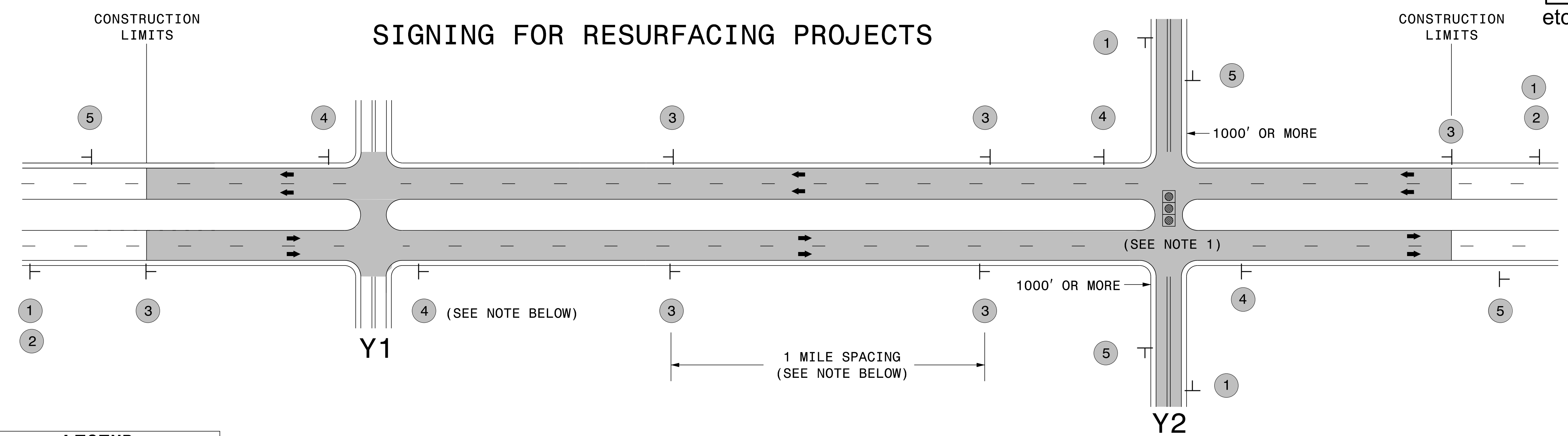
MAPS LESS THAN 2 MILES

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

5/15/2017 S:\TMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln.dgn User:kadai



LEGEND
 ┆ STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	 	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>#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)</p>	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <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;"> <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;"> <small>W20-7 A 48" X 48"</small> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 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.
		<p>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.</p>	
		<p>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.</p>	
		<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>	

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

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)



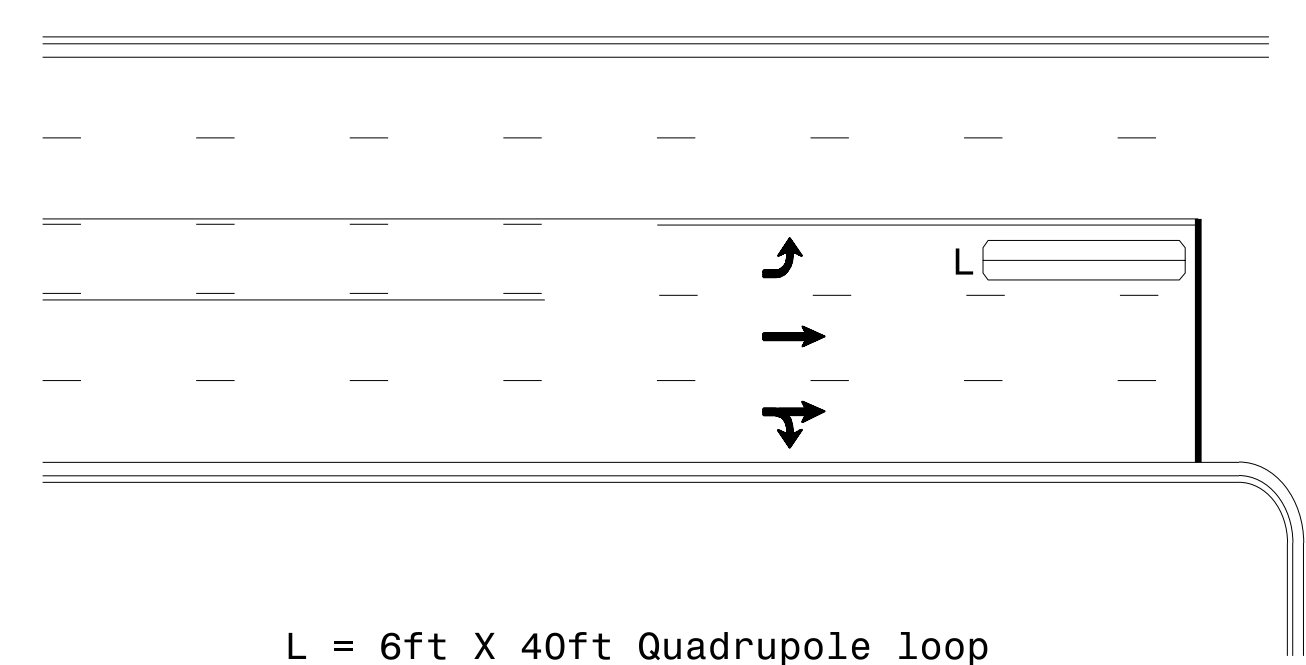
L = 6ft X 6ft
Wired in series

OR



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

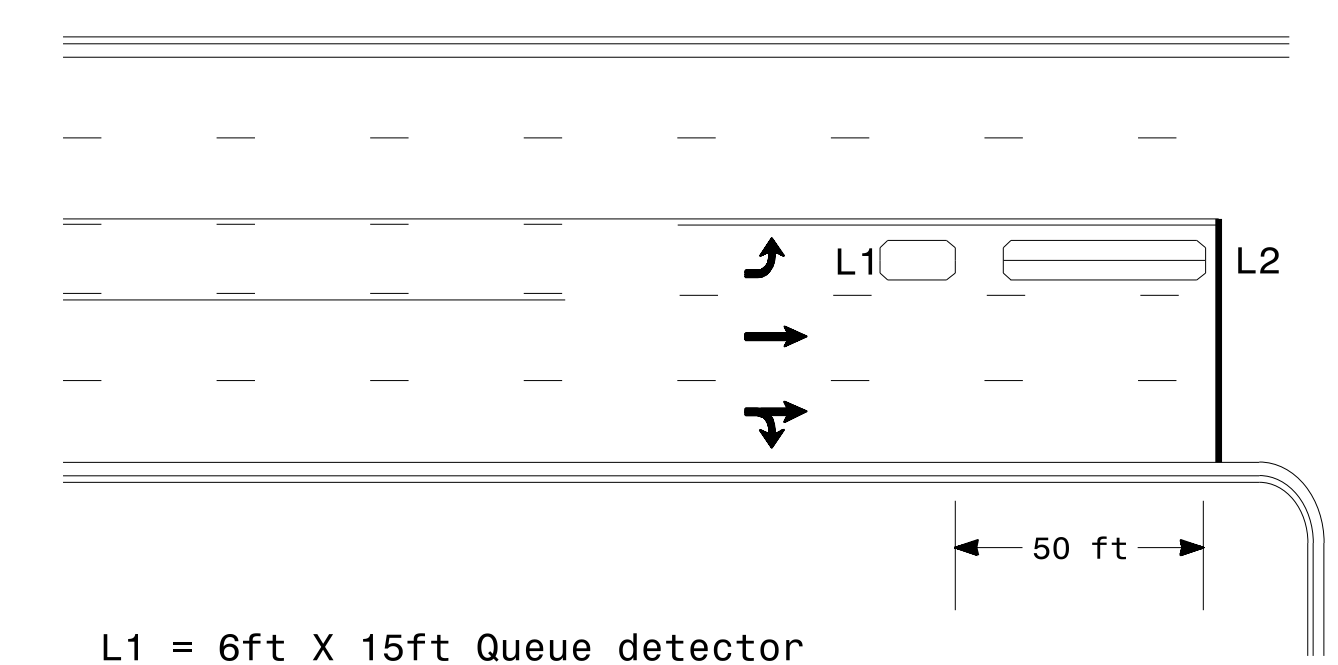
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

OR



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

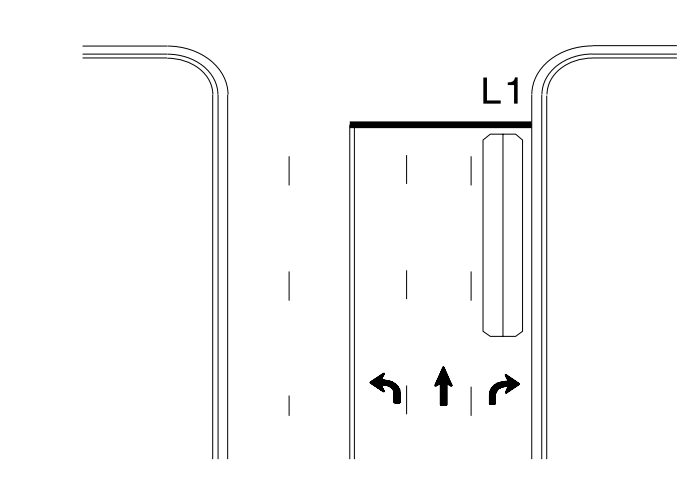
Queue Loop Detection

Right Turn Lane Detection



Shared Lane/
Wide Radius Turn

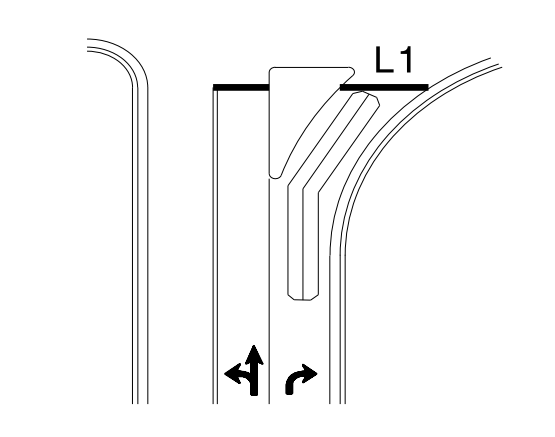
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



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

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

DocuSigned by:
P. Alexander
1/30/2015 10:45:00 AM
DATE

3D:\146-2015-12-29-SIGNALS\SIG-1\SIG-1_Signal Loop Design_Section\Eastern_Regional\loop\ypj\ca\2015.dgn
 paalexander