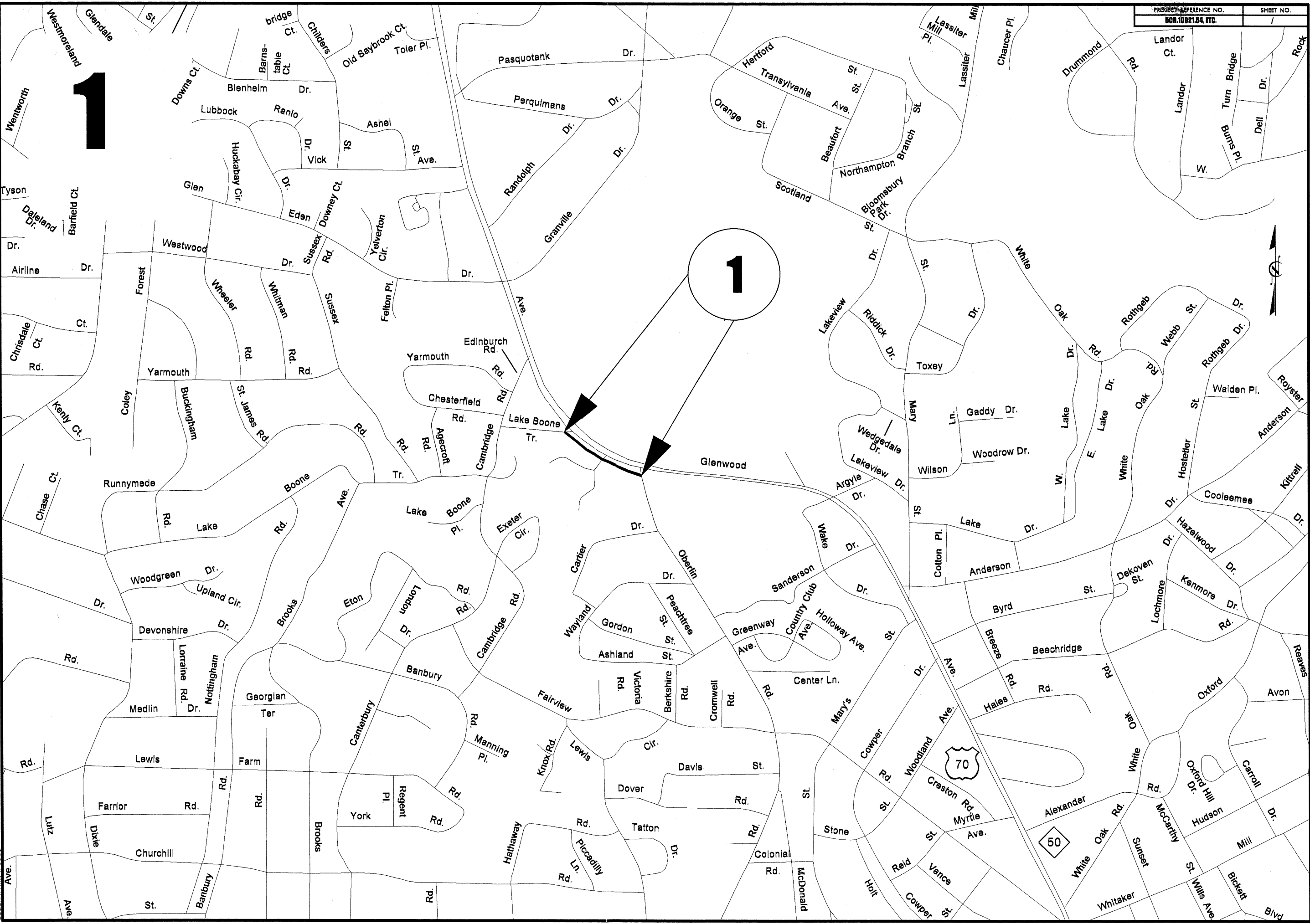


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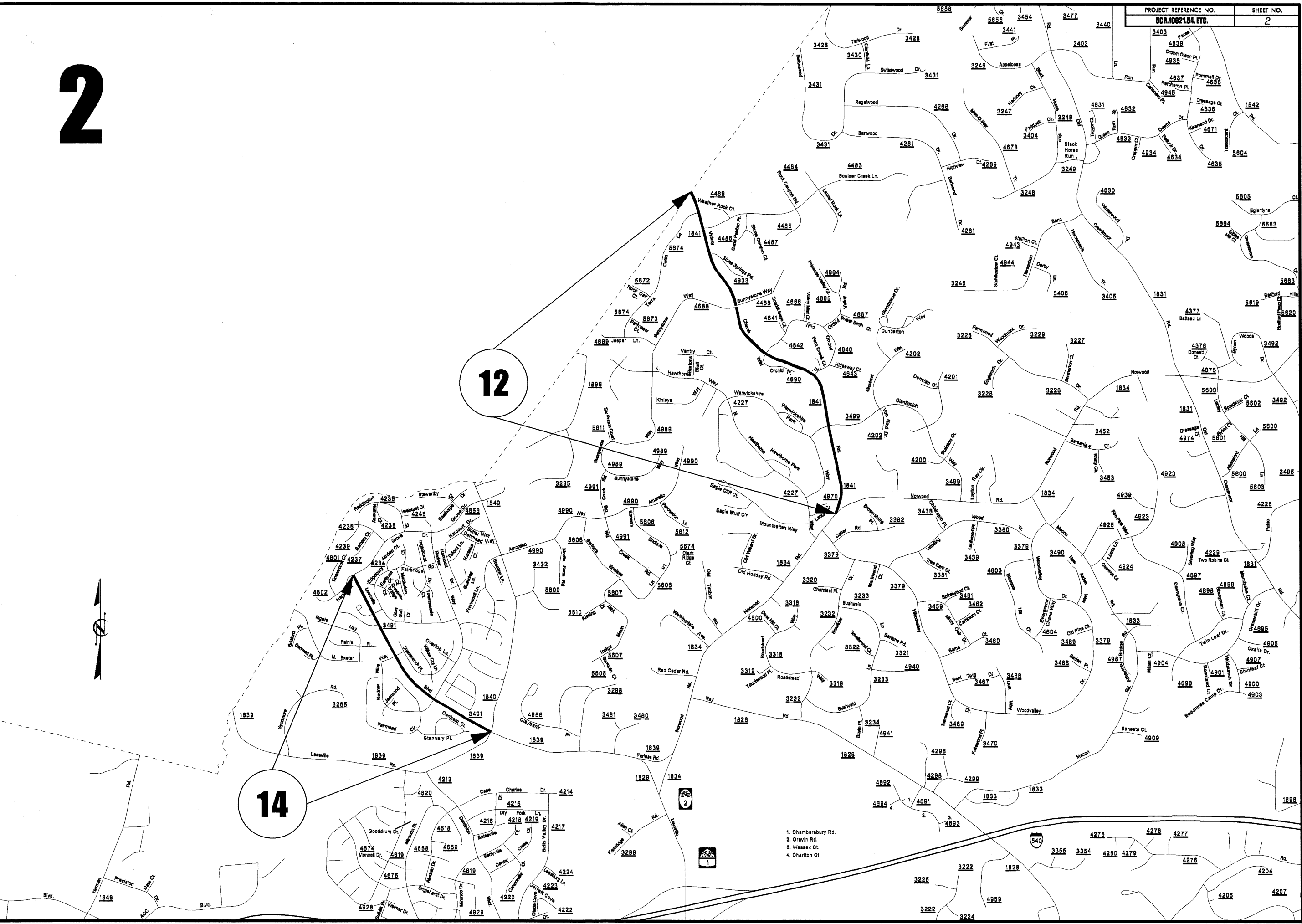
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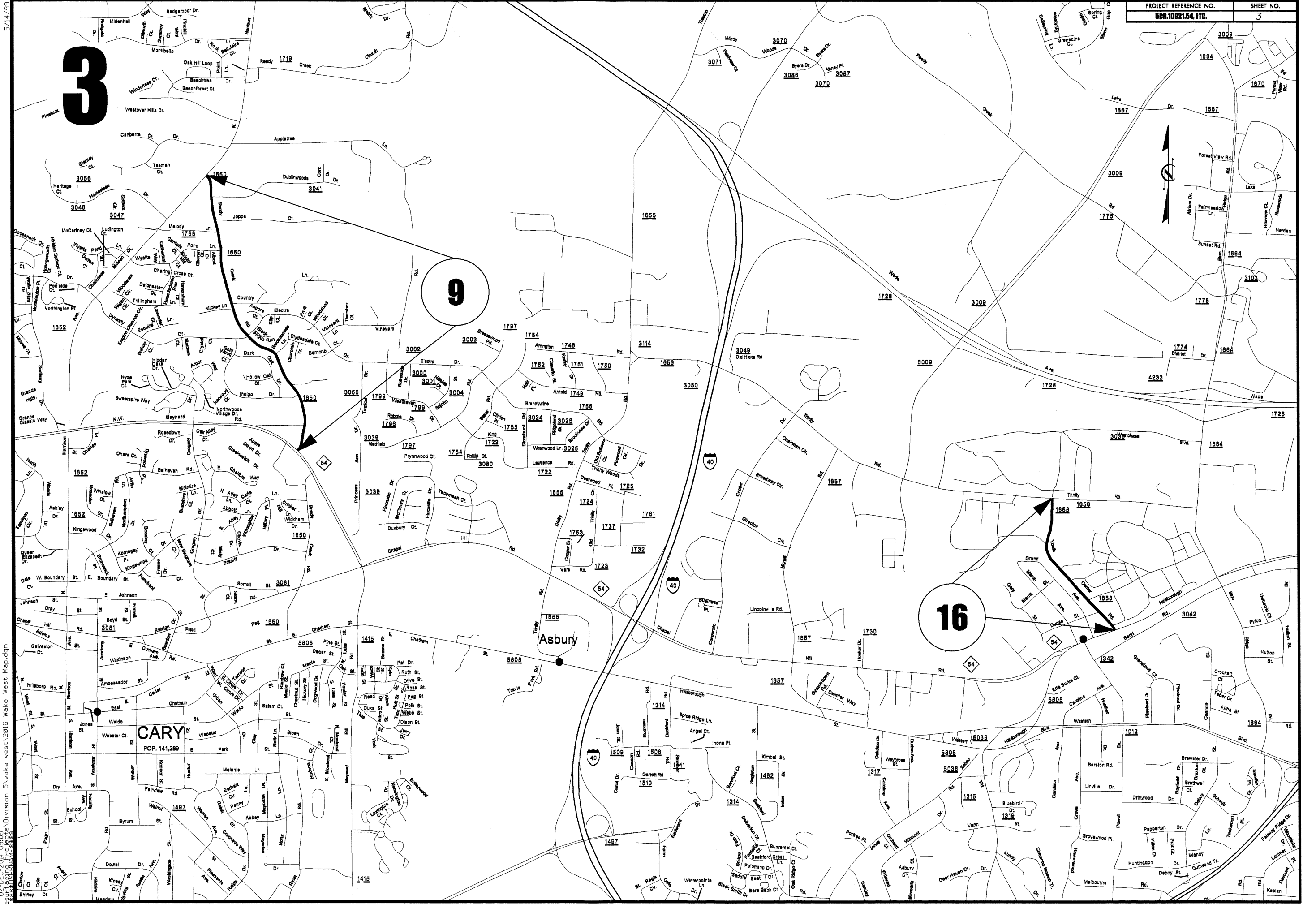
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14



- 1. Chambersbury Rd.
- 2. Graylin Rd.
- 3. Wessan Ct.
- 4. Charlton Ct.





3

9

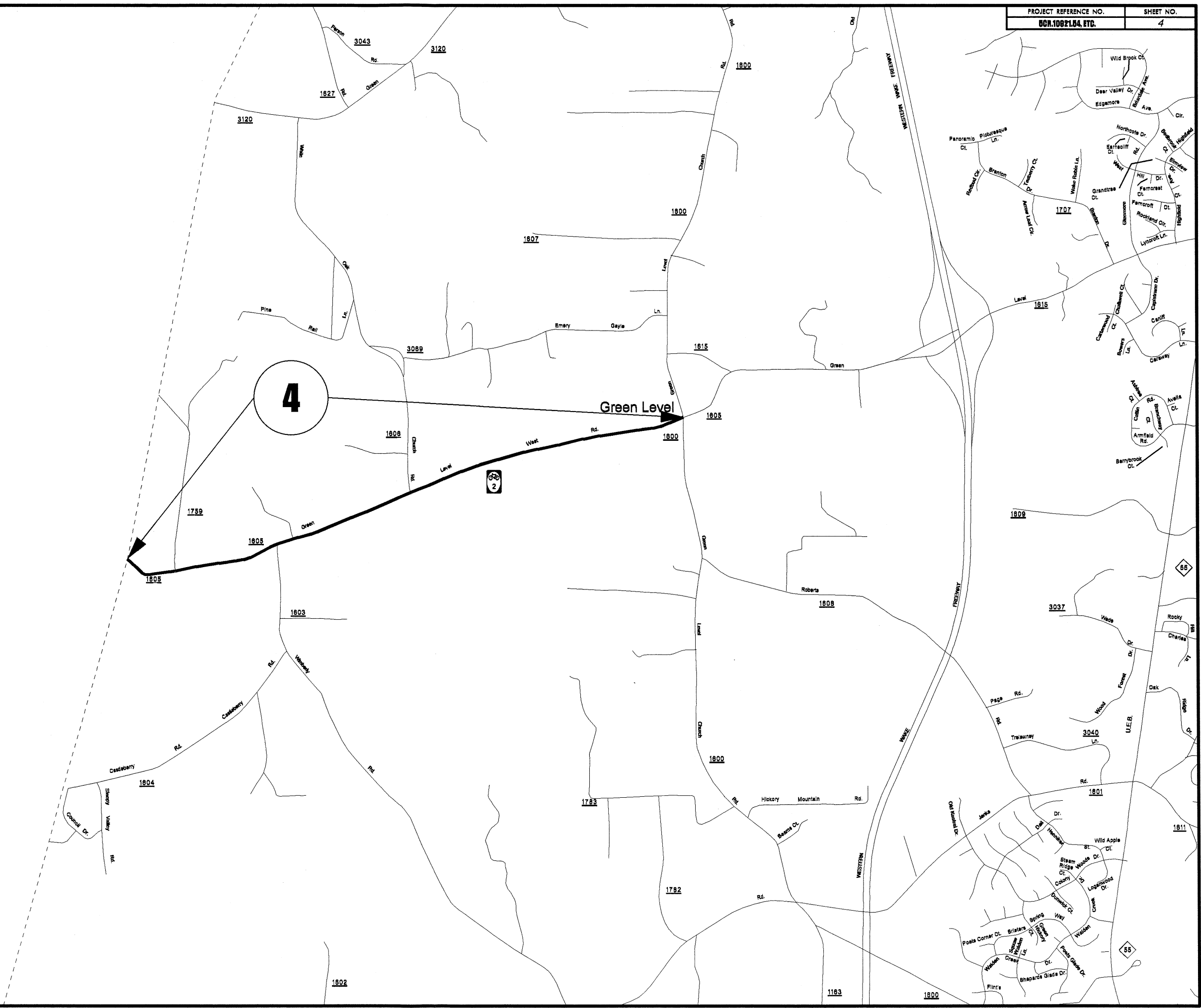
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POP. 141,289

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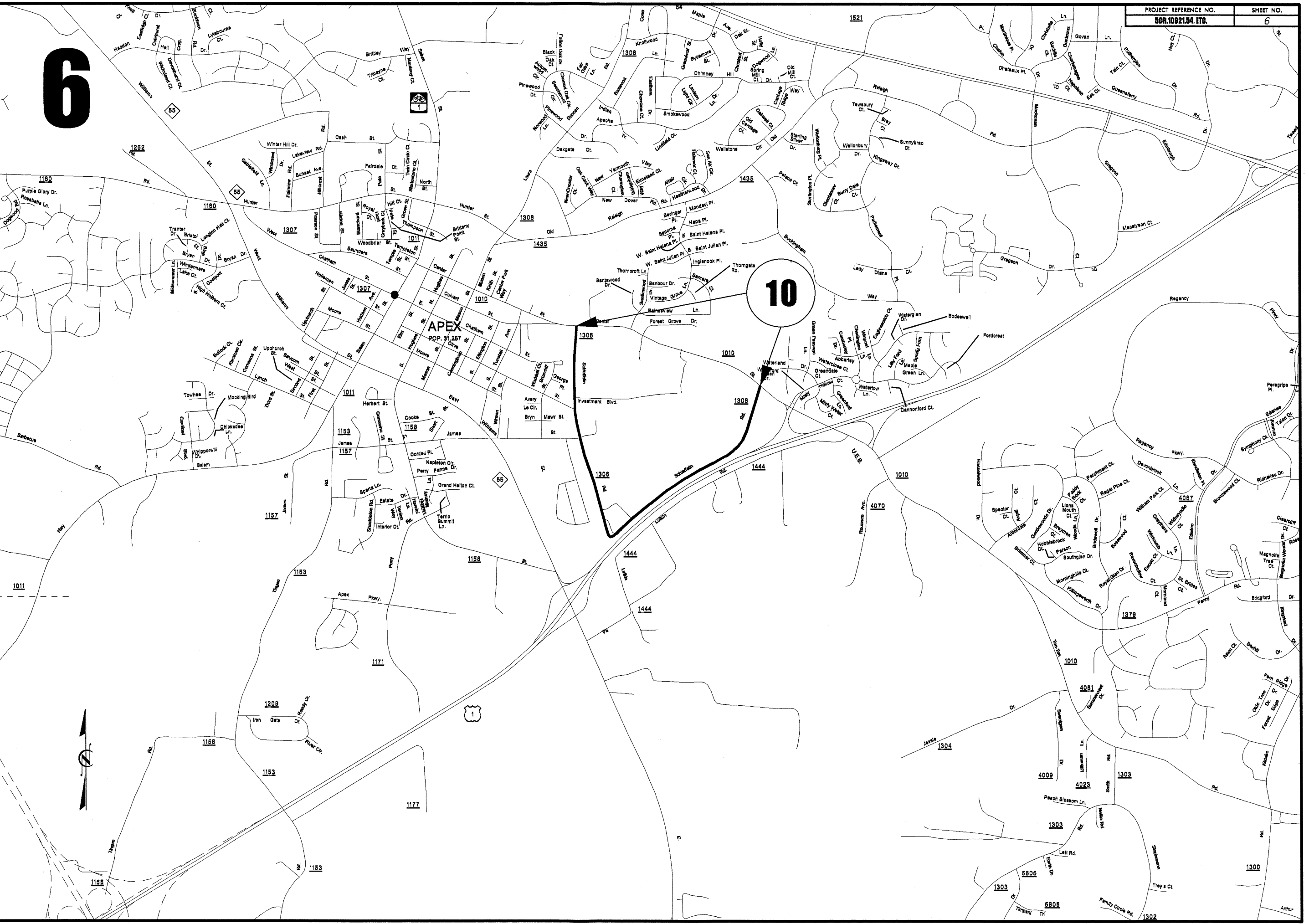


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5/14/19

6

10

APEX
POP. 31,257



5/14/99

1444

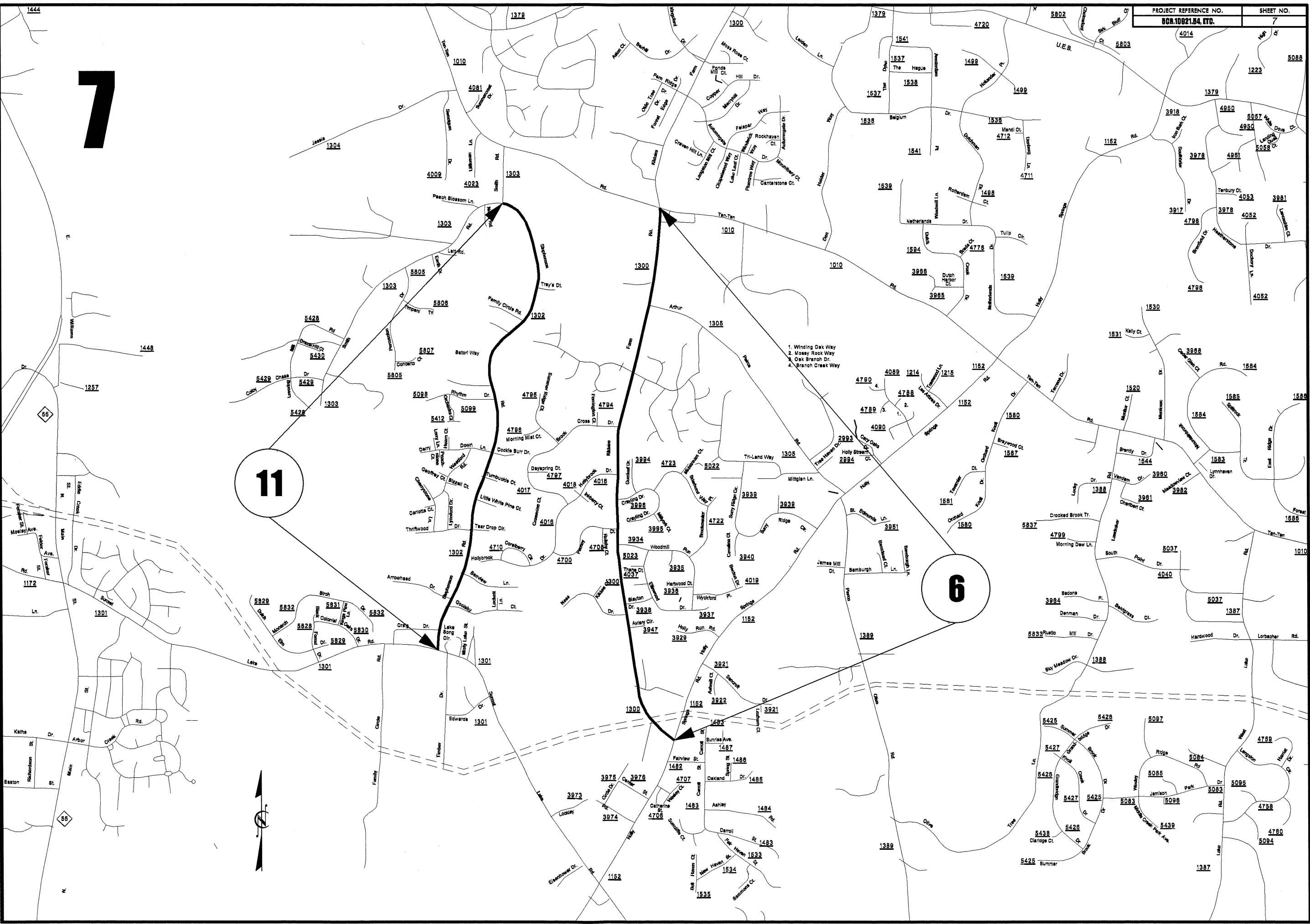
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7

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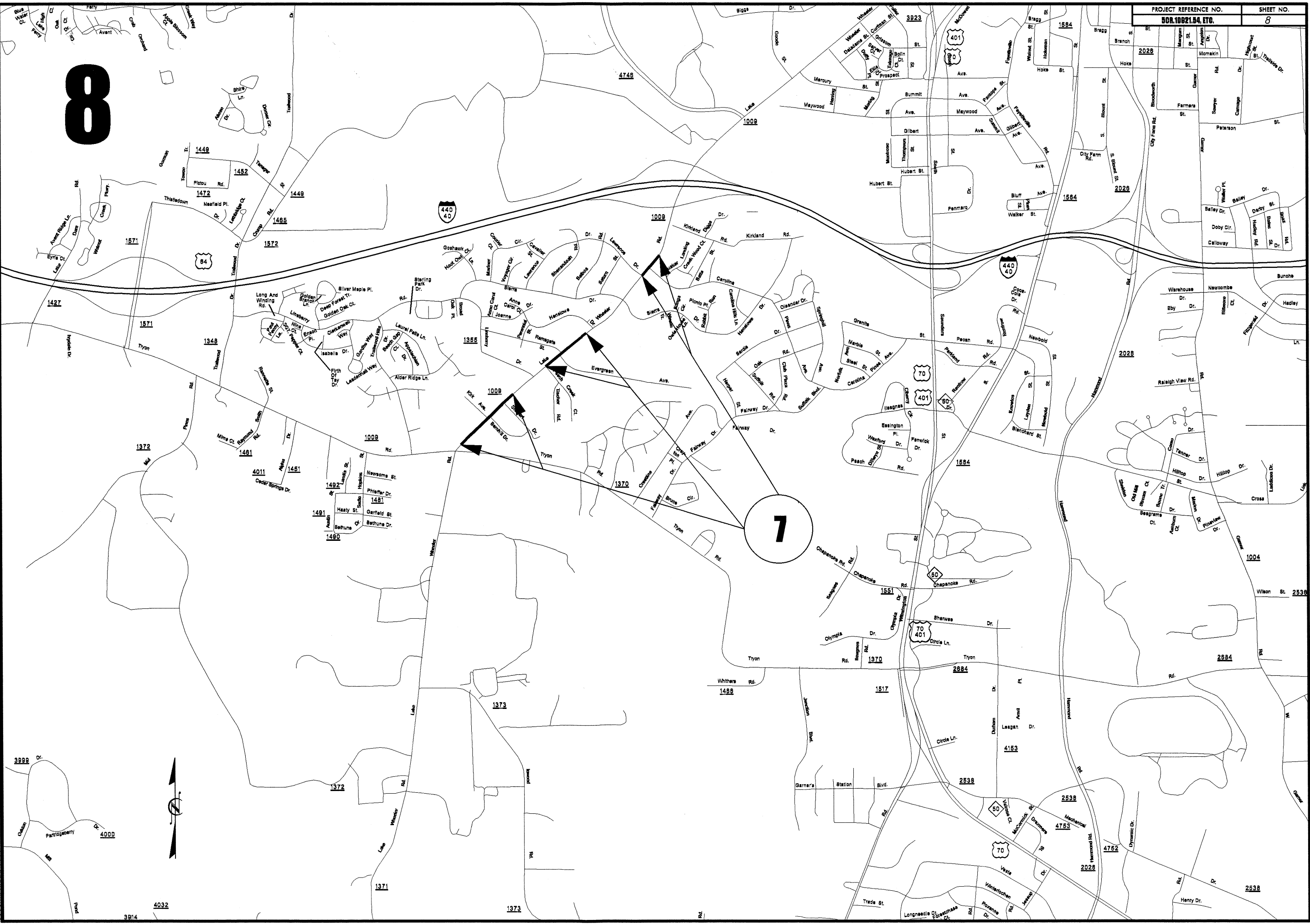
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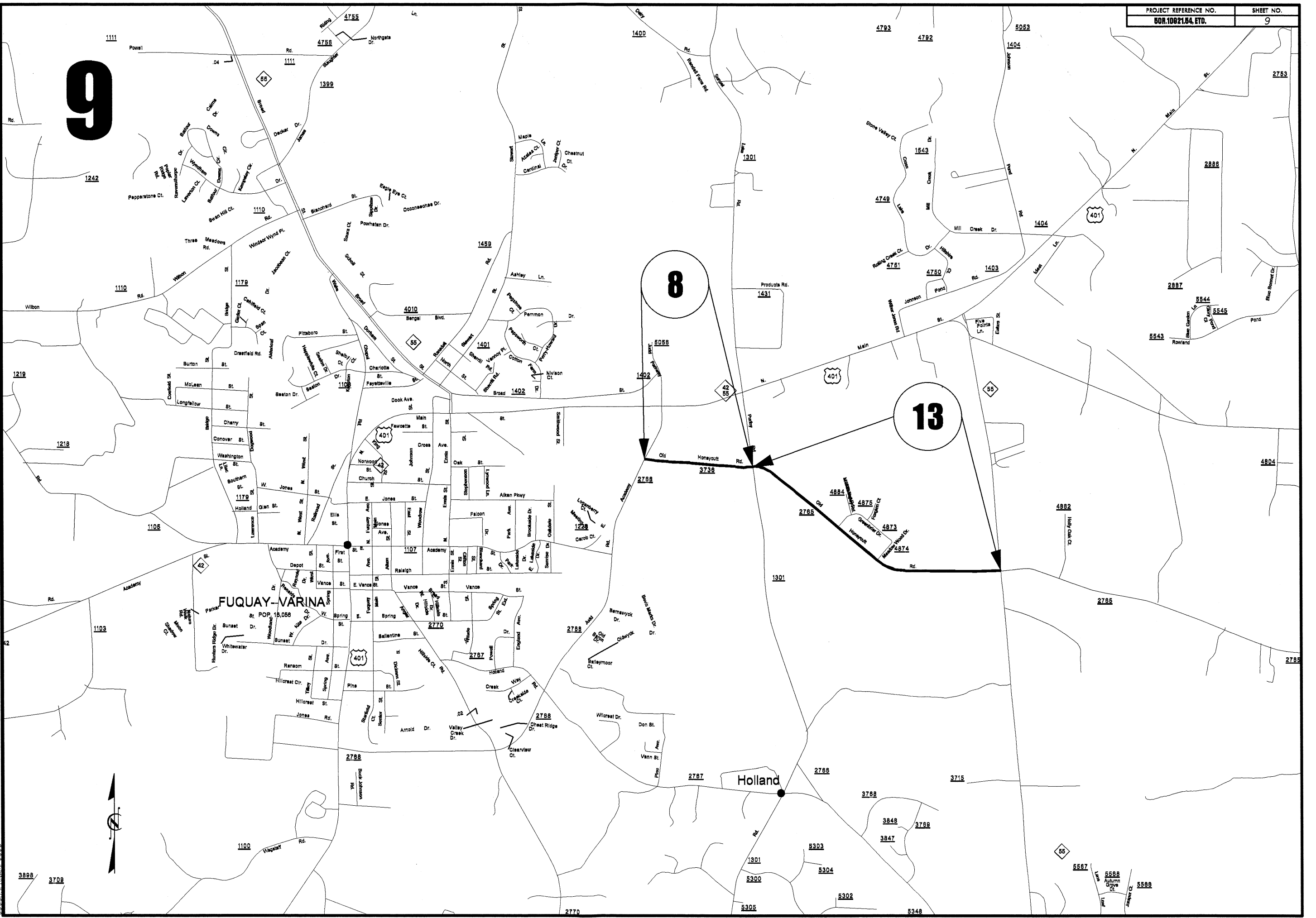
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5/14/99

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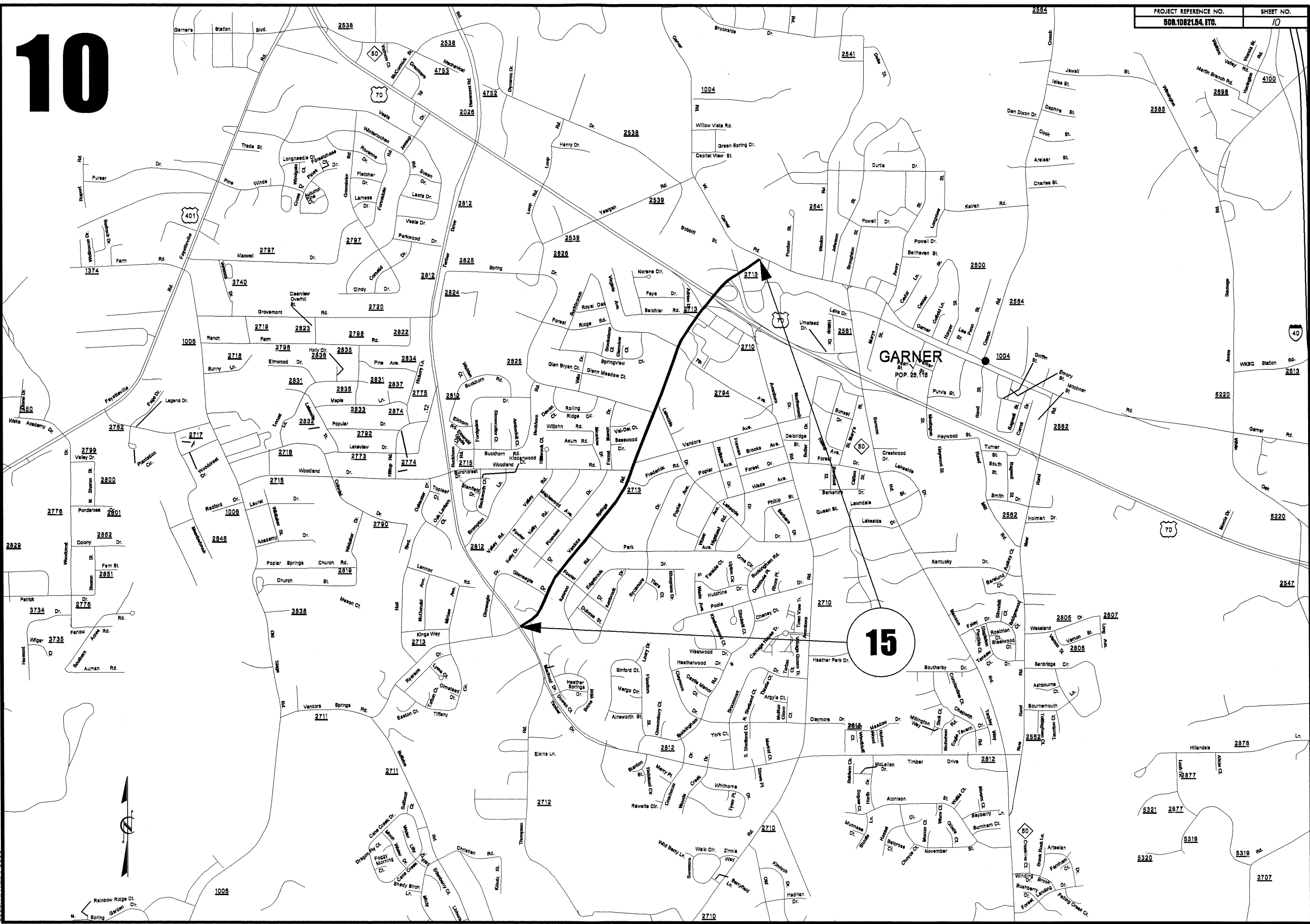


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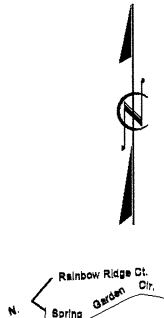
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PROJECT REFERENCE NO. 50R.10B21.54, ETC.	SHEET NO. 10
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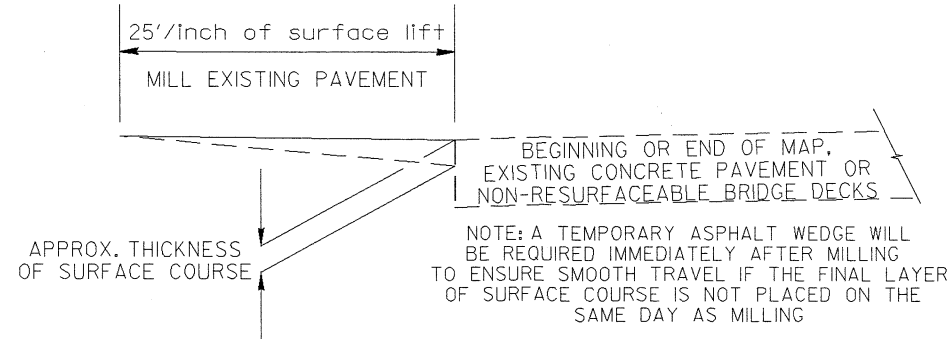


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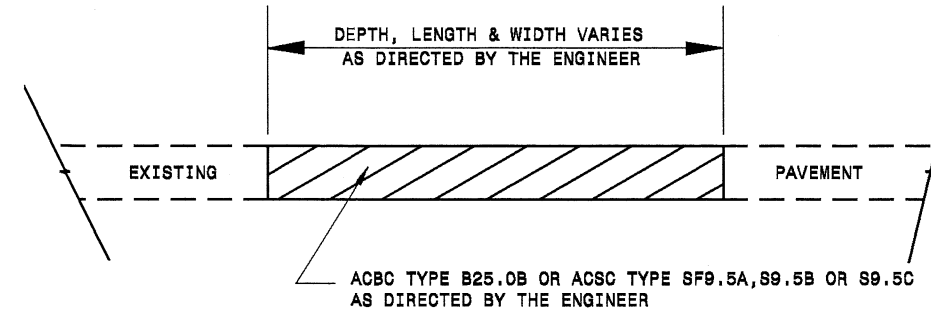
PAVEMENT SCHEDULE

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF (2) LAYERS
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH

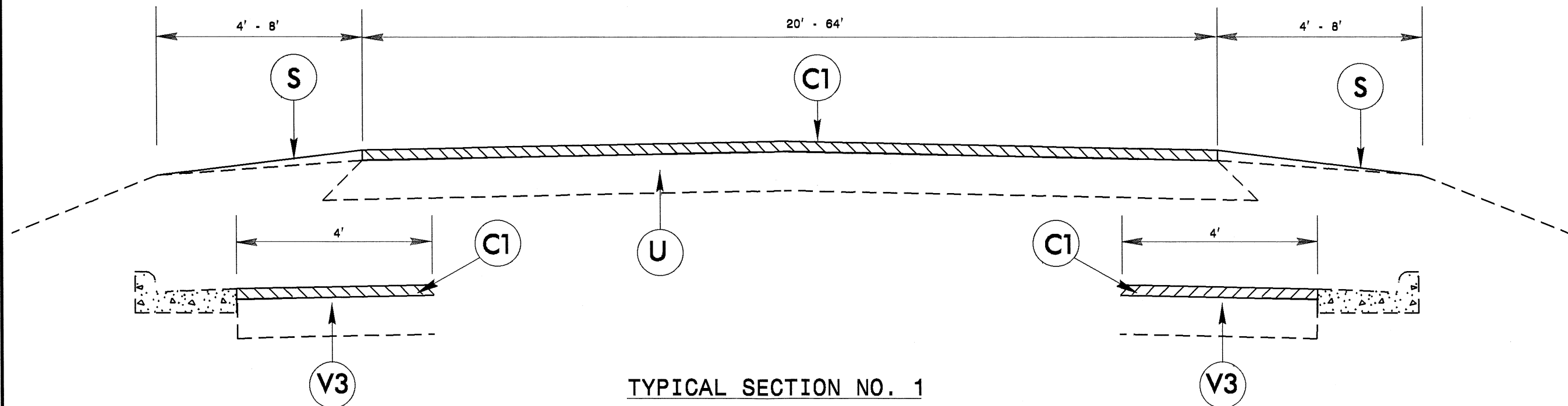


NOTES

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.



PATCHING EXISTING PAVEMENT
 PATCHING TO BE PERFORMED PRIOR TO MILL AND FILL OPERATION

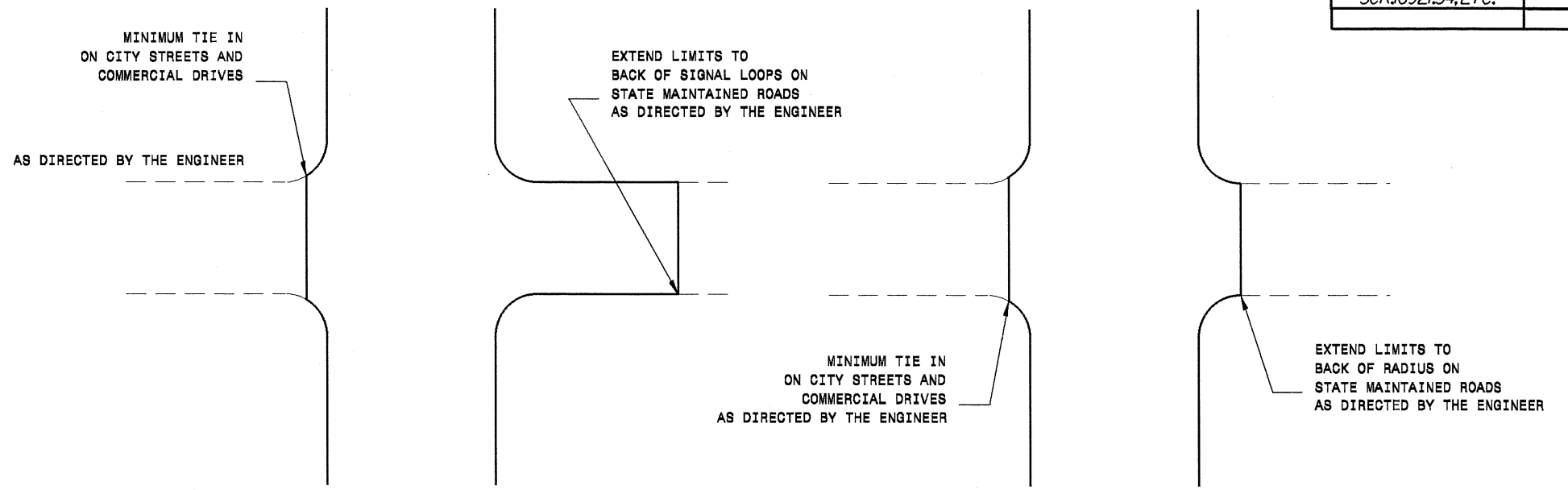


TYPICAL SECTION NO. 1

PAVEMENT SCHEDULE

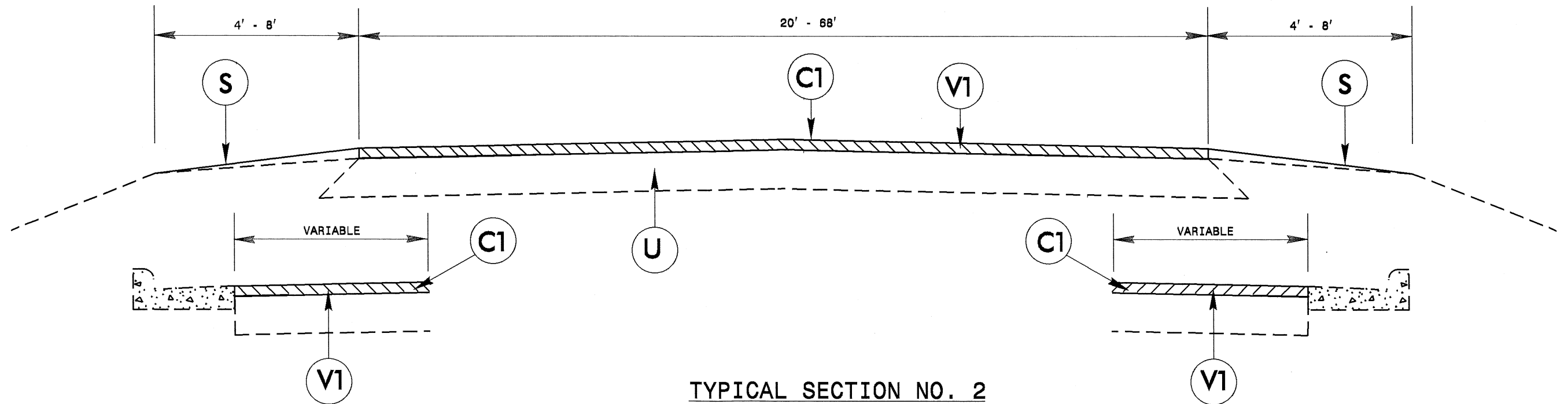
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF (2) LAYERS
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH

PROJECT REFERENCE NO. 5CRJ0921.54, ETC.	SHEET NO. 12
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DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES

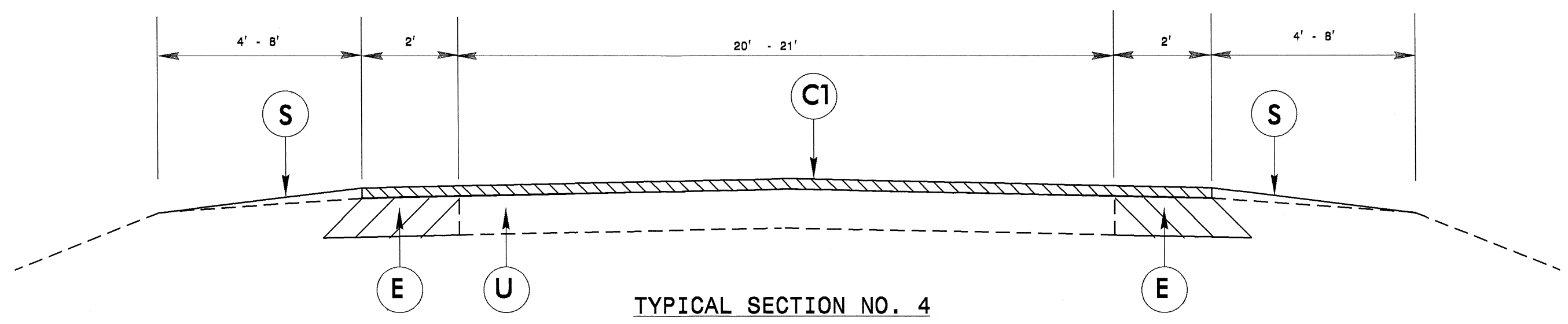
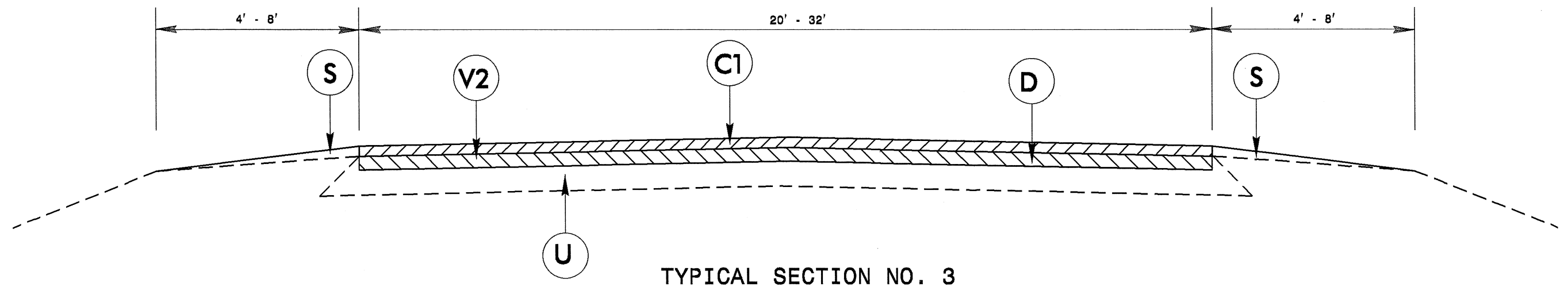
DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES



TYPICAL SECTION NO. 2

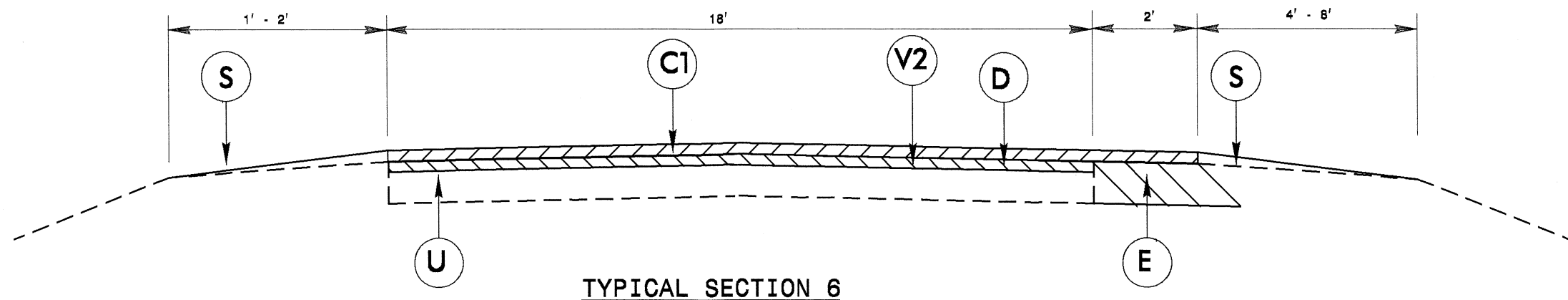
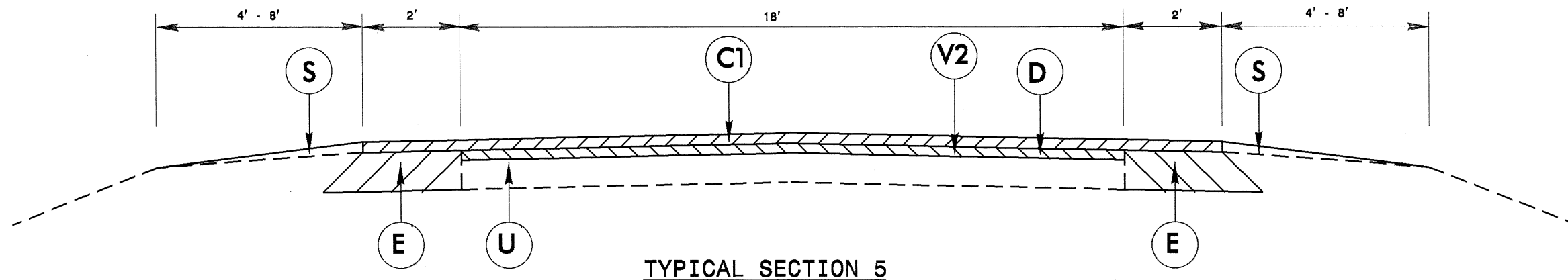
PAVEMENT SCHEDULE

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF (2) LAYERS
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH



PAVEMENT SCHEDULE

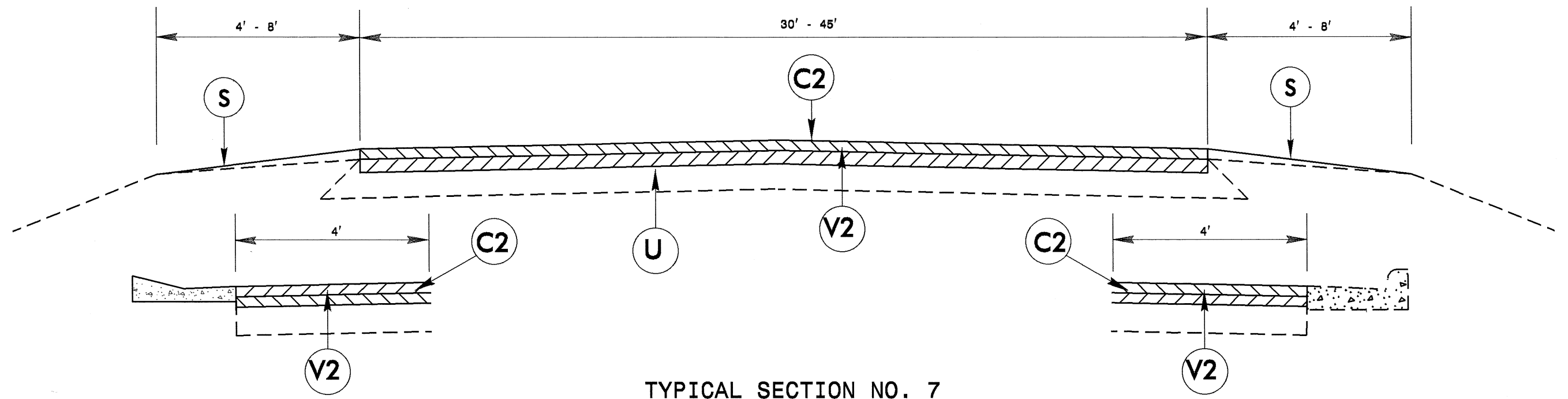
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.
C2	2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF (2) LAYERS
D	2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E	5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH



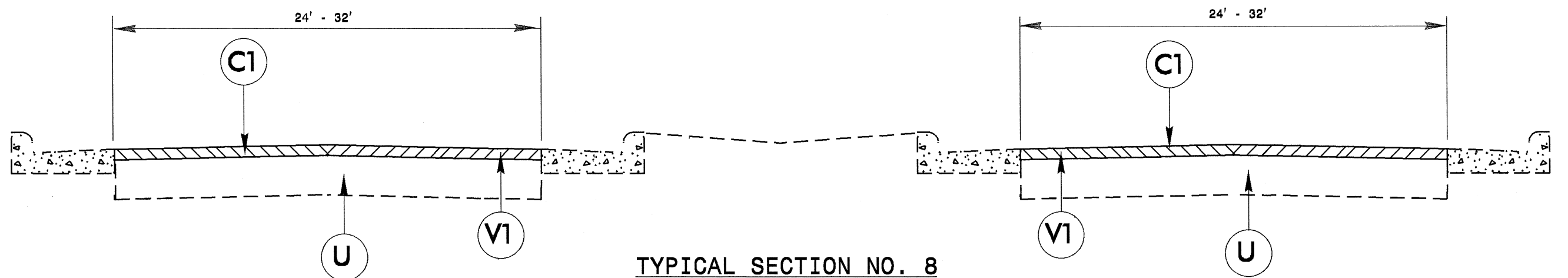
* AREA FROM GREEN LEVEL CH RD WEST TO 3616 GREEN LEVEL WEST RD (THROUGH PIN 0723883379) SHALL USE THIS TYPICAL TO AVOID GREEN LEVEL HISTORIC DISTRICT ON NORTHERN SIDE OF ROADWAY

PAVEMENT SCHEDULE

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF (2) LAYERS
S	PROP. SHOULDER GRADING
U	EXISTING PAVEMENT
V1	1½" MILLING
V2	2½" MILLING
V3	0" - 1½" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH

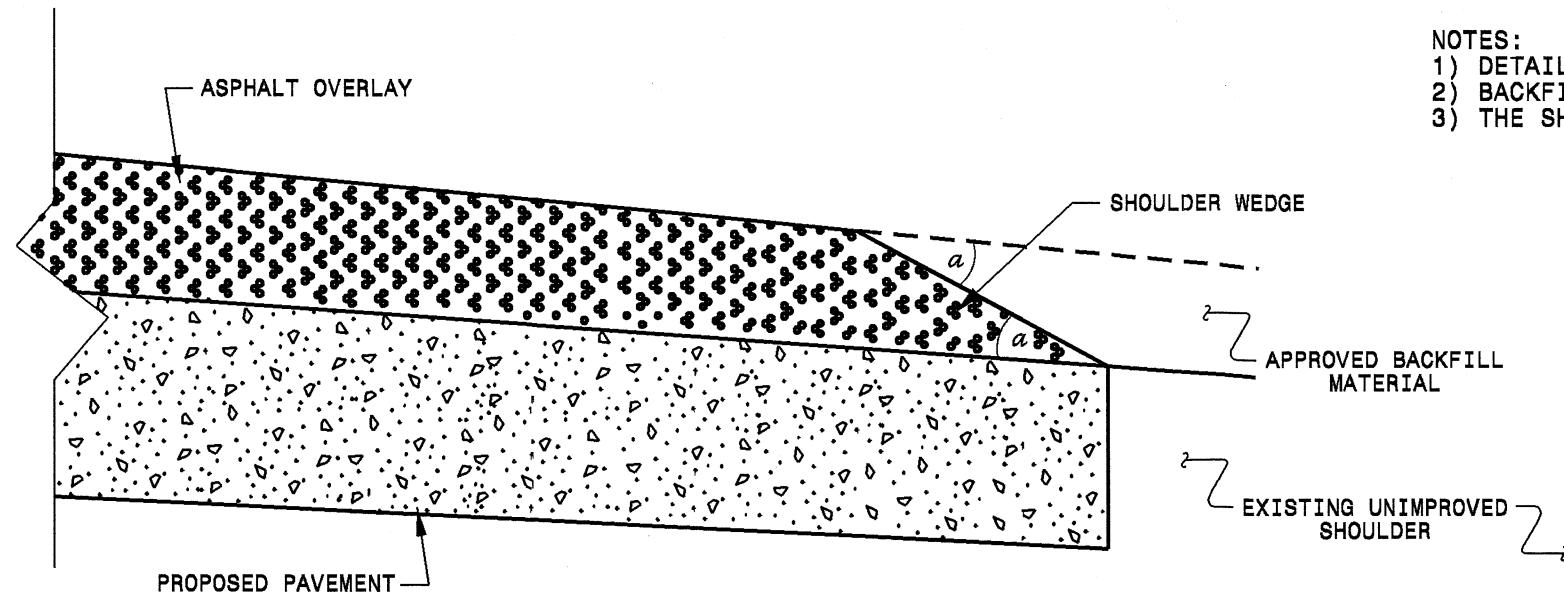


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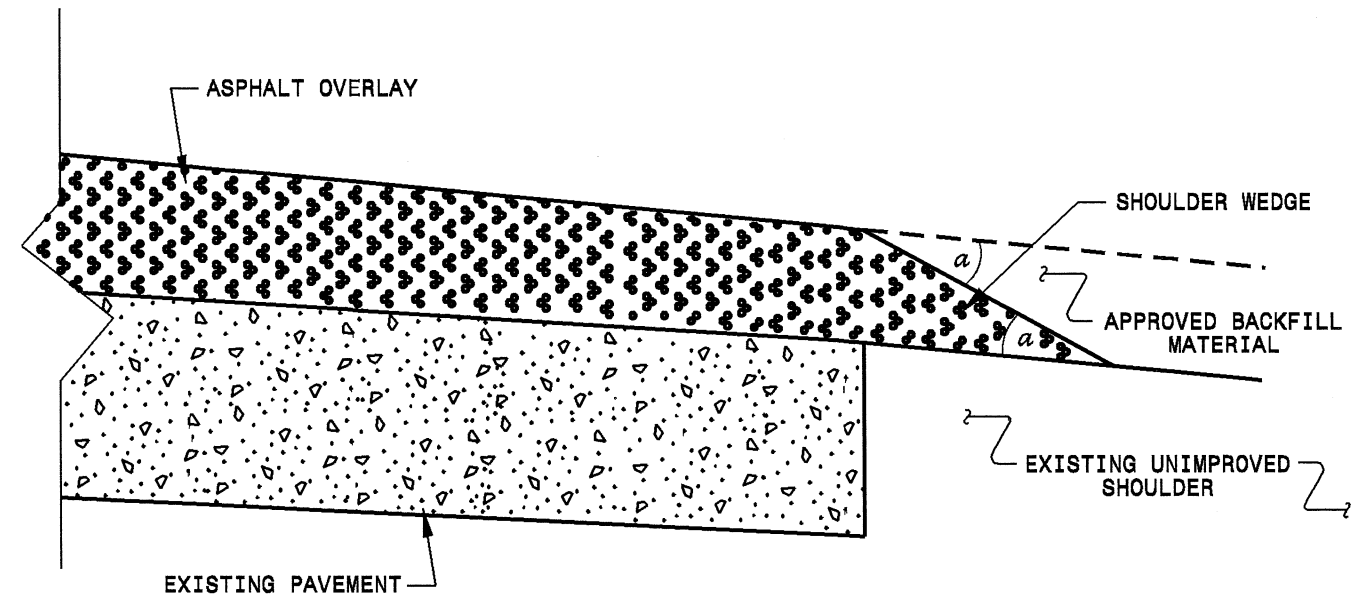


TYPICAL SECTION NO. 8

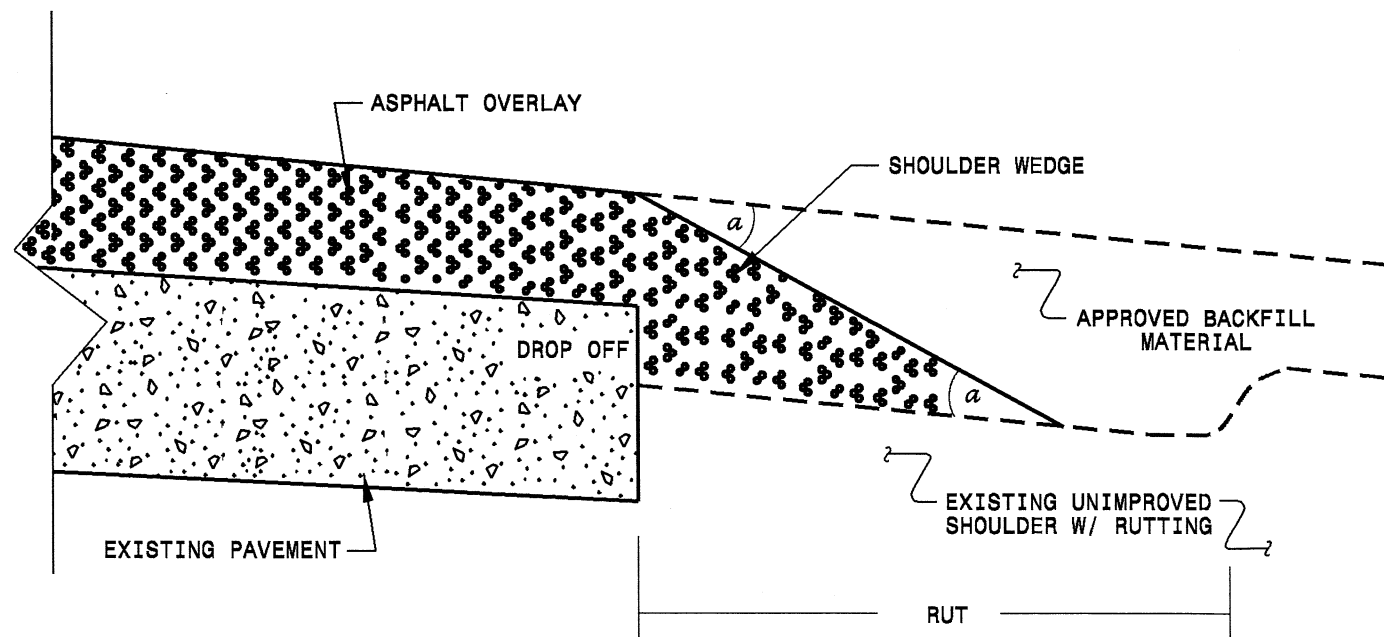
- NOTES:
 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



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:\un\details\stand\shoulderwedgestd1.dgn	

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

SOIL STABILIZATION TIMEFRAMES

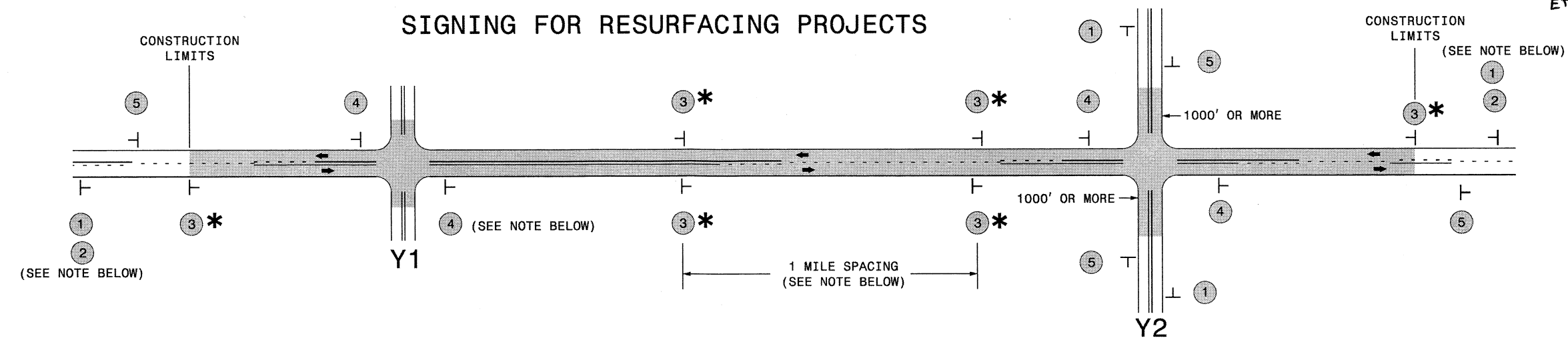
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.10921.54, 5CR.20921.54	18	19

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	BORROW CY	SHOULDER GRADING SMI	INCIDENTAL STONE BASE TONS	1 1/2" MILLING SY	2.5" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTERMEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TONS	ADJUST DROP INLET EA	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	TEMPORARY SILT FENCE LF	WATTLE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF		
5CR.10921.54	Wake	1	US 70 - GLENWOOD AVE SERVICE RD	LAKE BOONE TRAIL TO OBERLIN RD	2	2		NO	NO	0.17	24-30	8	0.08	4	3,072						272		16	17					6	20	0.06		
TOTAL FOR MAP NO. 1										0.17		8	0.08	4	3,072						272		16	17					6	20	0.06		
TOTAL FOR PROJ NO. 5CR.10921.54										0.17		8	0.08	4	3,072						272		16	17					6	20	0.06		
5CR.20921.54	Wake	2	SR 1147 - EVANS RD	SR 1142 - HUMIE OLIVE RD TO EOM	1	2		NO	NO	0.81	20-24	140	1.40	70			518	592			964		58	81				2	102	260	1.02		
TOTAL FOR MAP NO. 2										0.81		140	1.40	70			518	592			964		58	81				2	102	260	1.02		
5CR.20921.54	Wake	3	SR 1149 - FRIENDSHIP RD	SR 1127 - NEW HILL-HOLLAND RD TO NORTHERN END OF US 1 BRG	3	2		NO	NO	2.39	20-21	478	4.78	239		28,990		1,112		4,381		2,695		372	239				347	870	3.47		
TOTAL FOR MAP NO. 3										2.39		478	4.78	239		28,990		1,112		4,381		2,695		372	239				347	870	3.47		
5CR.20921.54	Wake	4	SR 1605 - GREEN LEVEL WEST RD	SR 1625 - GREEN LEVEL CHURCH RD TO CHATHAM CO	5,6	2		NO	NO	1.99	20-22	394	3.94	199		21,763		510	1,573		3,113		2,456		366	197			287	720	2.87		
TOTAL FOR MAP NO. 4										1.99		394	3.94	199		21,763		510	1,573		3,113		2,456		366	197			287	720	2.87		
5CR.20921.54	Wake	5	SR 1142 - HUMIE OLIVE RD	SR 1141 - NEW HILL OLIVE CHAPEL RD TO SR 1145 - RICHARDSON RD	4	2		NO	NO	1.4	24-25	280	2.80	140				665	1,134			1,910		165	140				204	510	2.04		
TOTAL FOR MAP NO. 5										1.4		280	2.80	140				665	1,134			1,910		165	140				204	510	2.04		
5CR.20921.54	Wake	6	SR 1300 - KILDARE FARM RD	SR 1152 - HOLLY SPRINGS RD TO SR 1010 - TEN TEN RD	1	2		NO	NO	2.02	24-64	286	2.86	143			3,520	2,990				4,491		269	202		2	19	208	520	2.08	630	
TOTAL FOR MAP NO. 6										2.02		286	2.86	143			3,520	2,990				4,491		269	202		2	19	208	520	2.08	630	
5CR.20921.54	Wake	7	SR 1371 - LAKE WHEELER RD	JT S OF KIRKLAND RD TO SR 1009 - TRYON RD	2	2		NO	NO	0.64	24-68	98	0.98	49	14,252							1,261		76	64			3	1	71	180	0.71	
TOTAL FOR MAP NO. 7										0.64		98	0.98	49	14,252							1,261		76	64			3	1	71	180	0.71	
5CR.20921.54	Wake	8	SR 3736 - OLD HONEYCUTT RD	SR 2768 - JUDD ST TO SR 1301 - PURFOY RD	2	2		NO	NO	0.4	20-32	53	0.52	26	6,731							596		36	40				25	70	0.25	420	
TOTAL FOR MAP NO. 8										0.4		53	0.52	26	6,731							596		36	40				25	70	0.25	420	
5CR.20921.54	Wake	9	SR 1650 - REEDY CREEK RD	SR 1652 - HARRISON AVE TO NC 54 - MAYNARD RD	2	2		NO	NO	1.15	20-40	179	1.79	90	18,431							1,643		99	114		1	1	130	330	1.30	1,038	
TOTAL FOR MAP NO. 9										1.15		179	1.79	90	18,431							1,643		99	114		1	1	130	330	1.30	1,038	
5CR.20921.54	Wake	10	SR 1306 - SHIEFFELIN RD	SR 1010 - CENTER ST TO SR 1010 - CENTER ST	2	2		NO	NO	1.61	20-30	210	2.10	105	23,753							2,105		126	161		2	2	152	380	1.52	408	
TOTAL FOR MAP NO. 10										1.61		210	2.10	105	23,753							2,105		126	161		2	2	152	380	1.52	408	
5CR.20921.54	Wake	11	SR 1302 - STEPHENSON RD	SR 1303 - SMITH RD TO SR 1301 - SUNSET LAKE RD	1	2		NO	NO	1.81	20-28	324	3.24	162			877	1,026				2,622		157	180				236	590	2.36		
TOTAL FOR MAP NO. 11										1.81		324	3.24	162			877	1,026				2,622		157	180				236	590	2.36		
5CR.20921.54	Wake	12	SR 1841 - VICTORY CHURCH RD	SR 1834 - NORWOOD RD TO DURHAM CO	3	2		NO	NO	1.39	20-32	278	2.78	139		19,038		2,077		2,874		1,769		244	139				203	510	2.03		
TOTAL FOR MAP NO. 12										1.39		278	2.78	139		19,038		2,077		2,874		1,769		244	139				203	510	2.03		
5CR.20921.54	Wake	13	SR 2765 - OLD HONEYCUTT RD	SR 1301 - PURFOY RD TO NC 55	2	2		NO	NO	1.04	22-40	105	1.05	53	20,632							1,826		110	104		1	2	76	190	0.76	830	
TOTAL FOR MAP NO. 13										1.04		105	1.05	53	20,632							1,826		110	104		1	2	76	190	0.76	830	
5CR.20921.54	Wake	14	SR 3491 - NEW LEESVILLE BLVD	115' +/- EAST OF SR 1840 - HICKORY GROVE CH RD TO END OF ROAD	8	4		NO	NO	0.84	48-64				28,849							2,550		153	168		1	10				1,202	
TOTAL FOR MAP NO. 14										0.84					28,849							2,550		153	168		1	10				1,202	
5CR.20921.54	Wake	15	SR 2713 - VANDORA SPRINGS	SR 1004 - OLD GARNER TO SR 2812 - TIMBER DR	7	3		NO	NO	1.62	30-45	137	1.37	69		36,229		725					5,256	352	50		12	13	100	250	1.00	575	
TOTAL FOR MAP NO. 15										1.62		137	1.37	69		36,229		725					5,256	352	50		12	13	100	250	1.00	575	
5CR.20921.54	Wake	16	SR 1658 - YOUTH CENTER RD	SR 1656 - TRINITY RD TO NC 54 - CHAPEL HILL RD	1	2		NO	NO	0.58	29-45	116	1.16	58				1,000				1,013		61	50	2	1		84	210	0.84		
TOTAL FOR MAP NO. 16										0.58		116	1.16	58				1,000				1,013		61	50	2	1		84	210	0.84		
TOTAL FOR PROJ NO. 5CR.20921.54										19.69		3,078	30.77	1,542	112,648	106,020	4,915	10,697	2,707	10,368	27,901	5,256	2,644	1,929	2	23	50	2,225	5,590	22.25	5,103		
GRAND TOTAL										19.86		3,086	30.85	1,546	115,720	106,020	4,915	10,697	2,707	10,368	28,173	5,256	2,660	1,946	2	23	50	2,231	5,610	22.31	5,103		

ETC.



LEGEND	
⊥	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

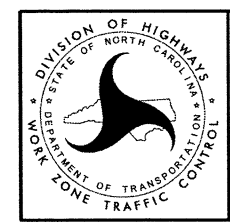
MAINLINE (-L-) SIGNING

-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;"> <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>
		<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>	

* SIGNING FOR ASPHALT SURFACE TREATMENTS (ONLY)

SUBSTITUTE LOW/SOFT SHOULDER SIGNS BY ALTERNATING THE FOLLOWING TWO SIGNS: STARTING WITH "UNMARKED PAVEMENT AHEAD" (SP 06026) FOLLOWED BY "LOOSE GRAVEL" (W8-7).

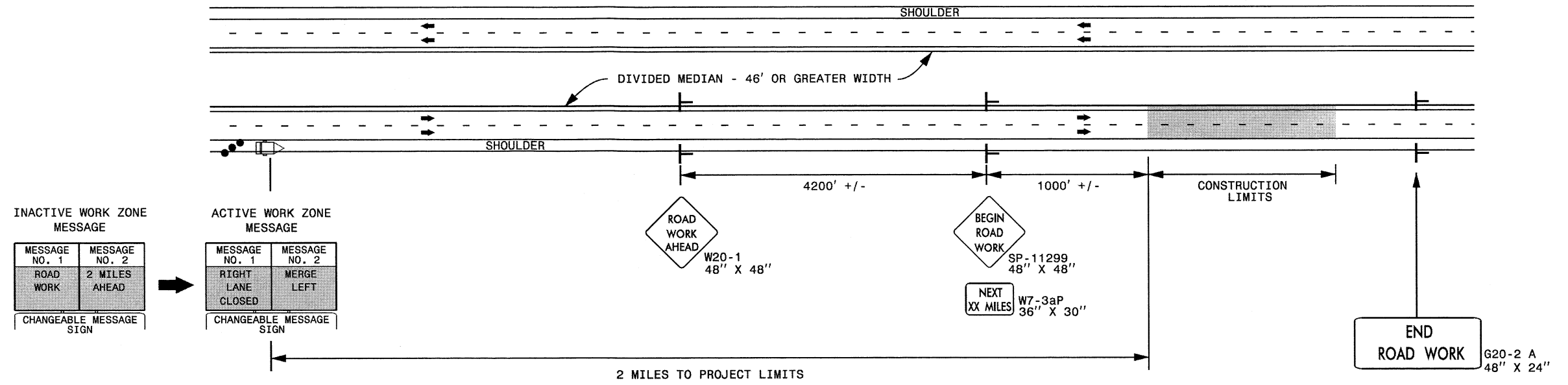


RESURFACING ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2 LANE ROADWAYS

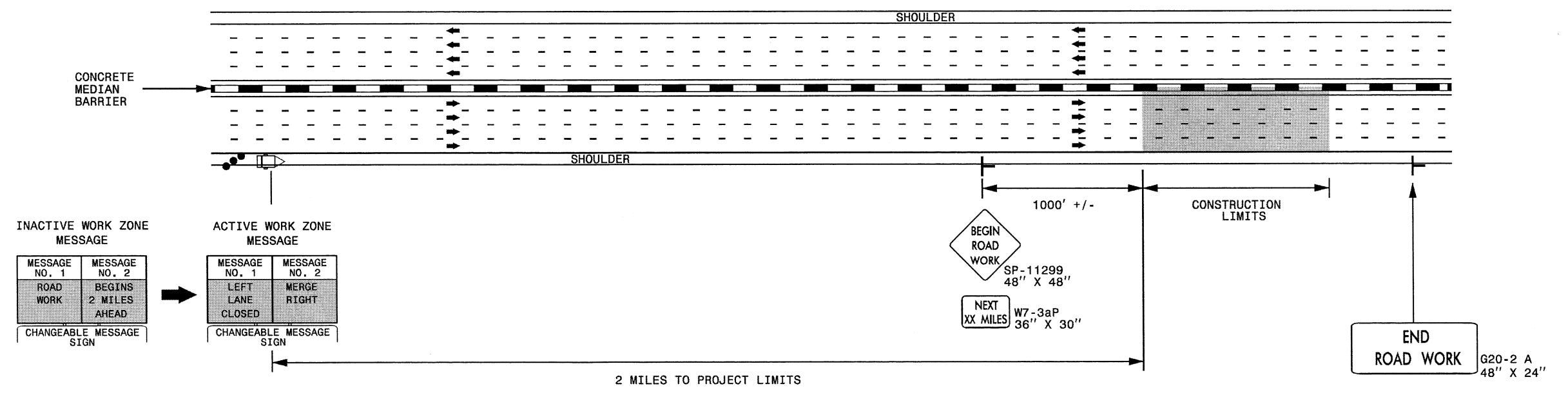
6/21/2014 8:11:00 AM C:\Users\mgarrett\Documents\Resurfacing\Resurfacing\AdvWarn_2Ln.dgn User:mgarrett

F.T.C.

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

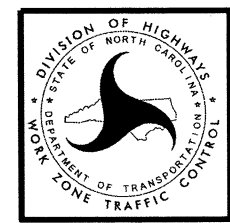


NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 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) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) 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 AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

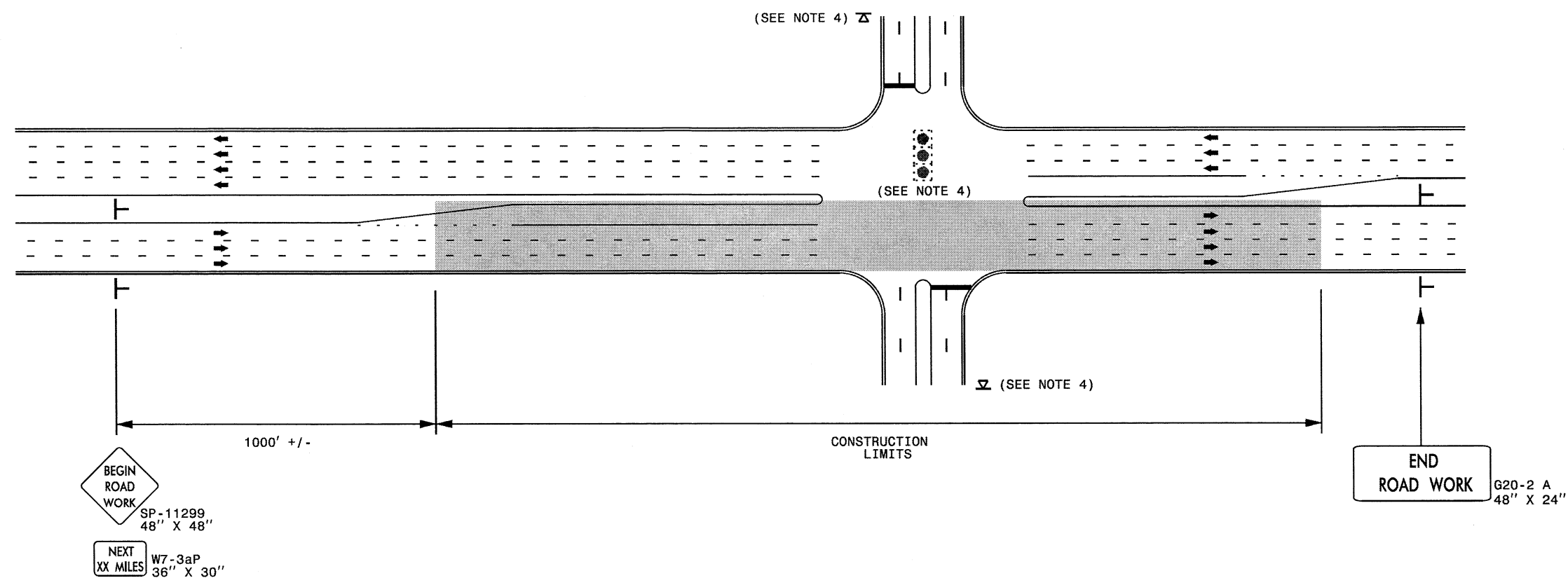
- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

10/3/2013 10:31:27 AM \\ZTC\Resurfacing\2013\Resurfacing\New_Procedures_05_09_2013\Resurfacing_AdvWarn_HSpd.dgn User:mgarratt

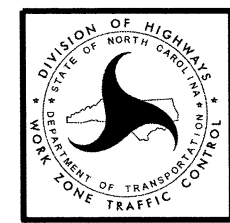
URBAN / SUBURBAN WORKZONES



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.

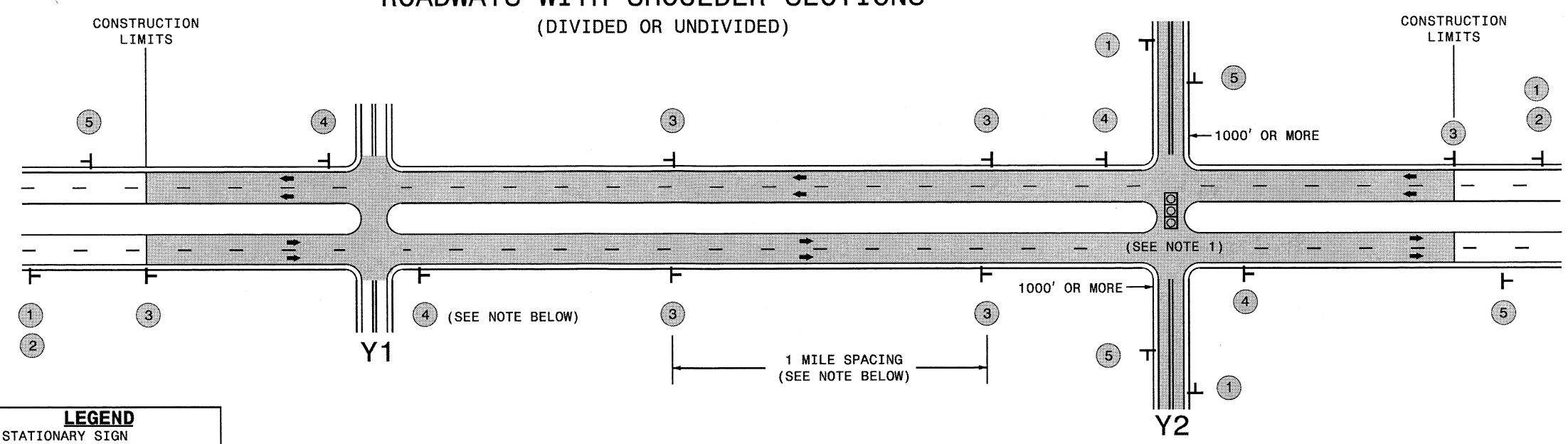
LEGEND	
┆	STATIONARY SIGN
➔	DIRECTION OF TRAFFIC FLOW



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

2/24/2014 S:\TMU\WZTC\Resurfacing\2013\Documents\New_Procedures_05_09_2013\Resurfacing_AdvWarn_Ur_Sub.dgn

SIGNING FOR RURAL AND SUBURBAN MULTI-LANE ROADWAYS WITH SHOULDER SECTIONS (DIVIDED OR UNDIVIDED)



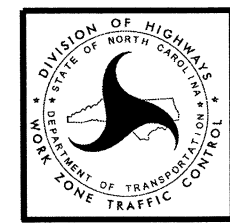
LEGEND	
⊥	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

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) NEXT XX MILES W7-3aP 24" X 18"</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;"> <div style="text-align: center;"> </div> <div style="text-align: center;"> </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>	

2/24/2014 10:51:10 AM J:\NMD\NMT\Resurfacing\2013\Documents\New_Procedures_05_09_2013\Resurfacing_AdvWarn_Ur-Su_Shldr.dgn User:mgc

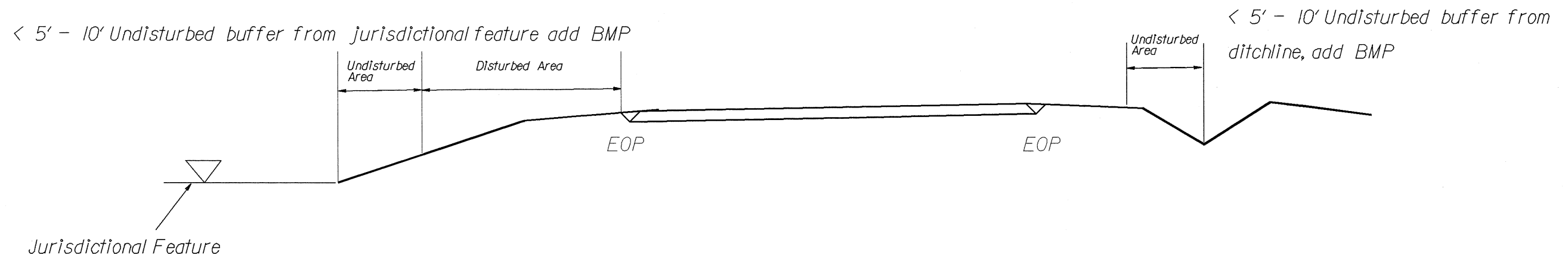
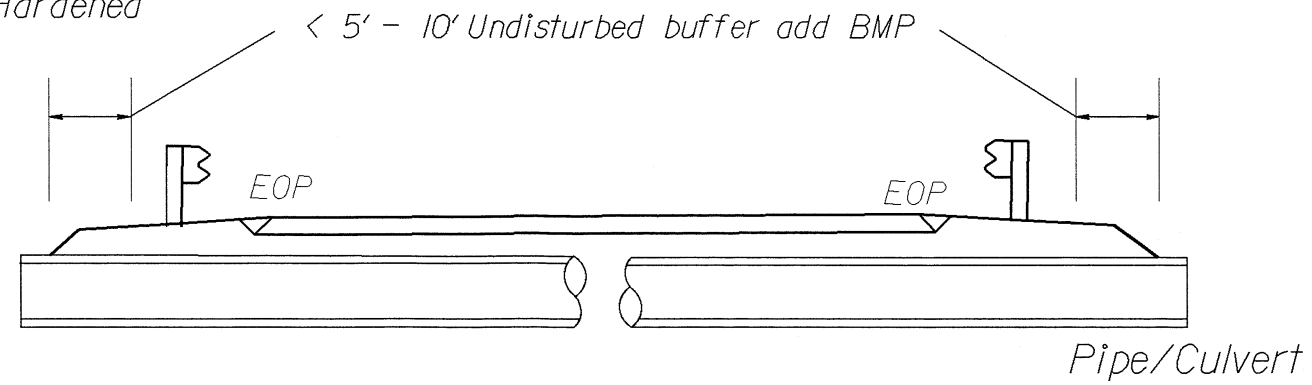


RESURFACING ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN MULTI-LANE ROADWAYS W/ SHOULDER SECTIONS

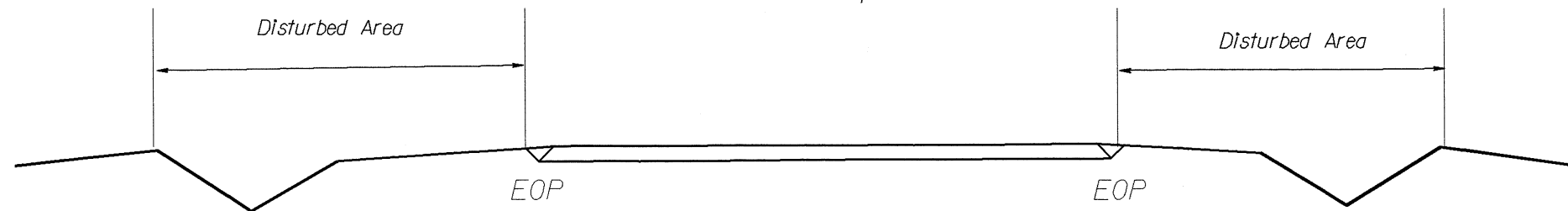
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

EROSION CONTROL DETAIL

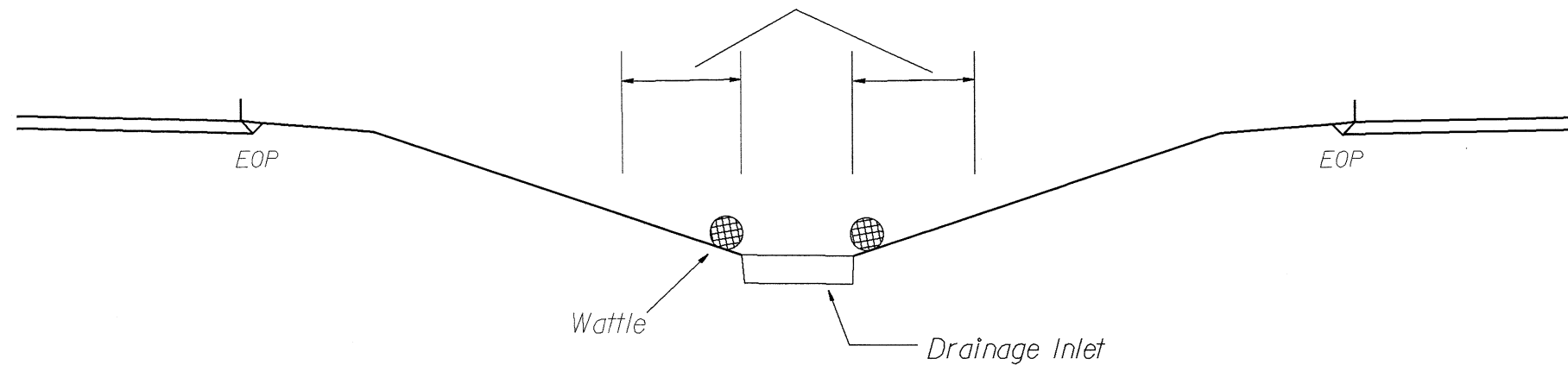
BMP Options: Wattle, Silt Fence or Hardened Aggregate.



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

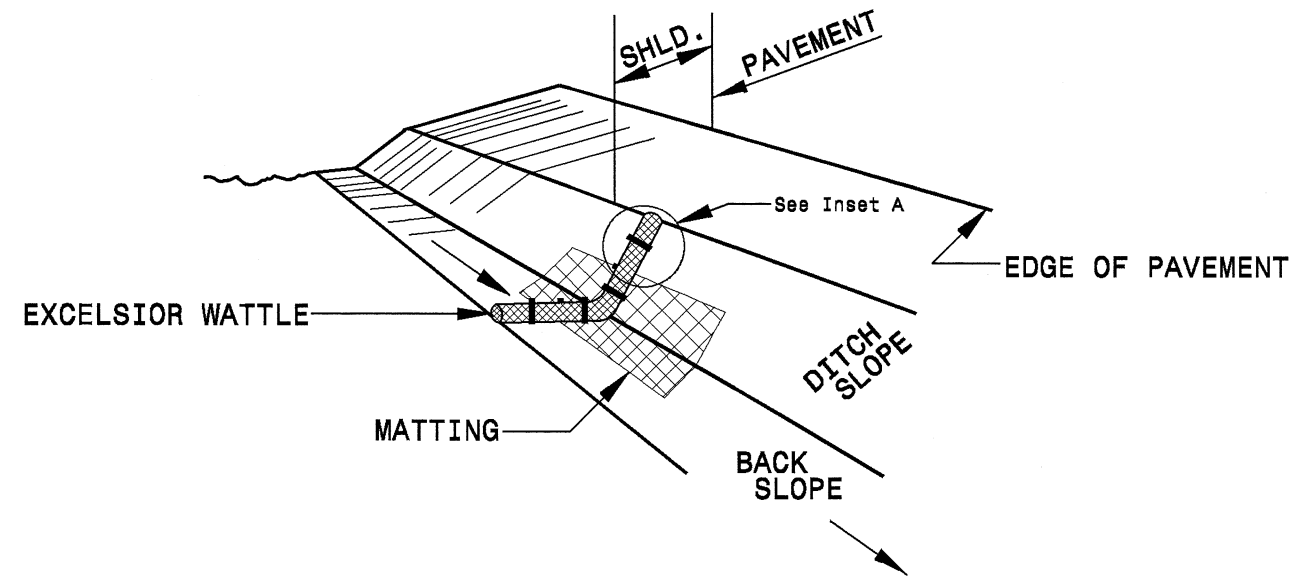


< 5' - 10' Undisturbed buffer from inlet, add wattle

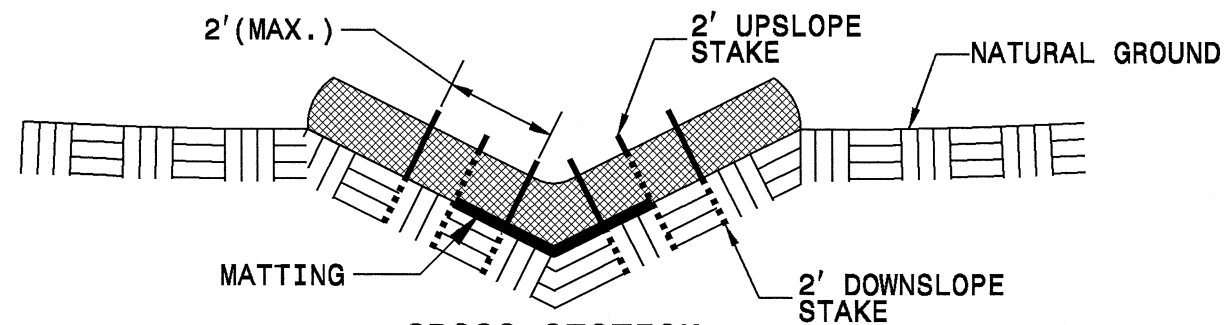


NOT TO SCALE

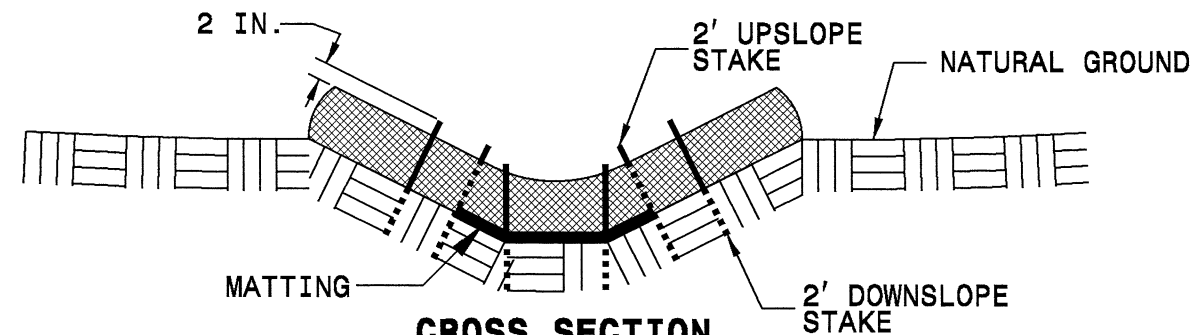
WATTLE DETAIL



ISOMETRIC VIEW



**CROSS SECTION
VEE DITCH**



**CROSS SECTION
TRAPEZOIDAL DITCH**

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

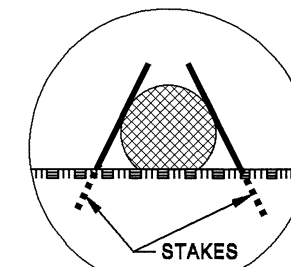
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

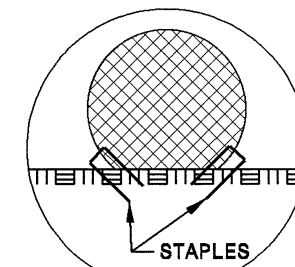
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

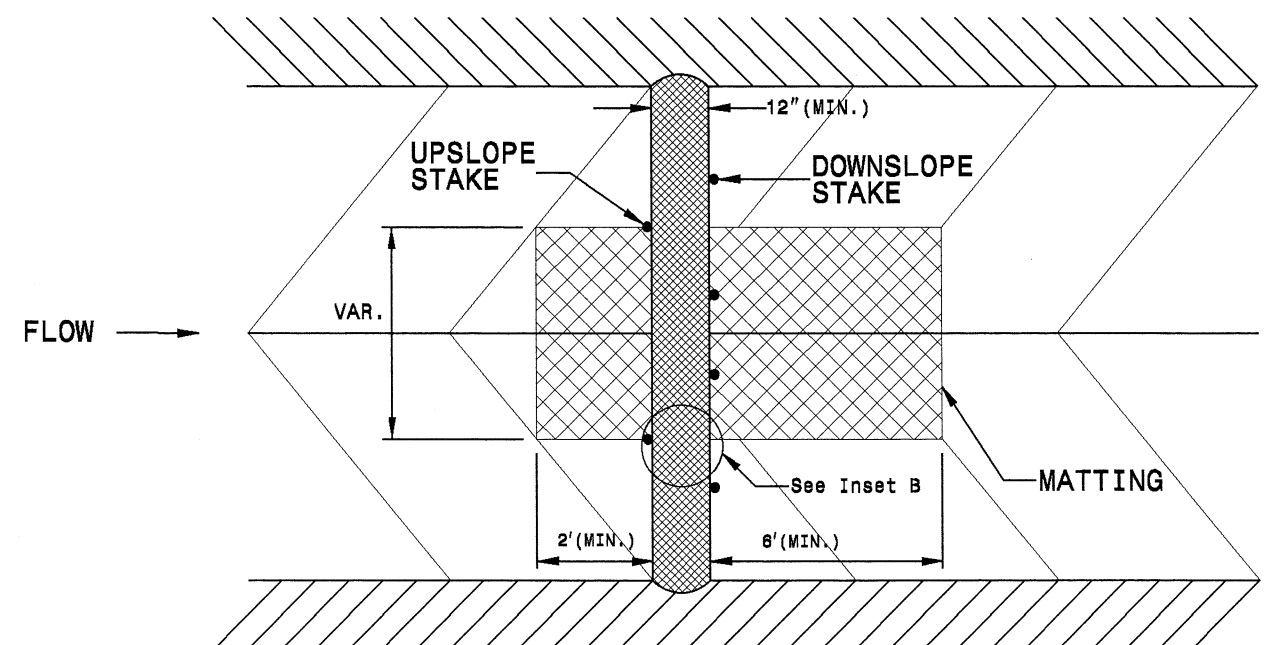
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A

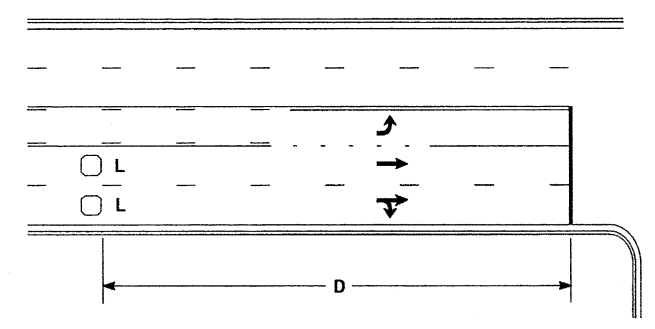


INSET B



TOP VIEW

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

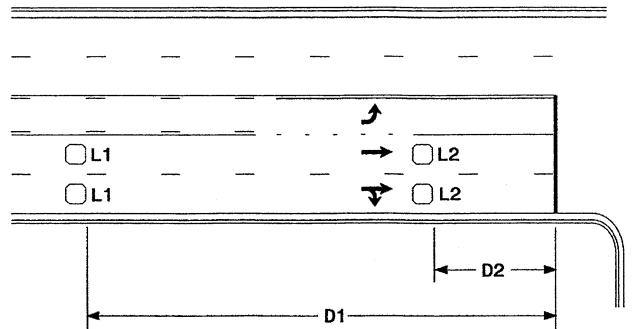


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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



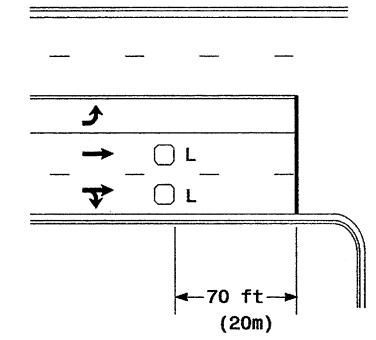
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

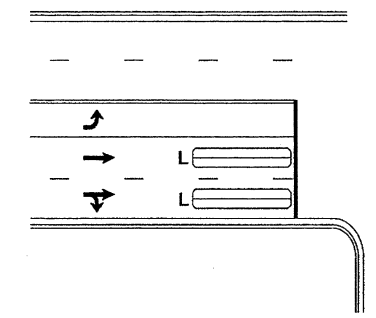
Low Speed Detection [≤35 mph (56 km/hr)]

ETC.



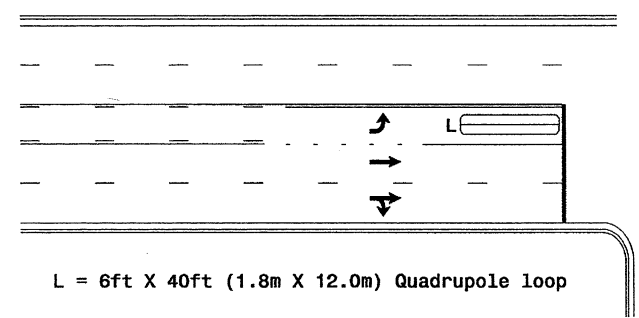
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

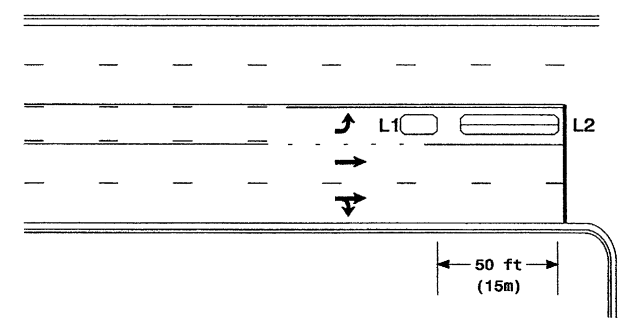
Left Turn Lane Detection



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

Presence Loop Detection

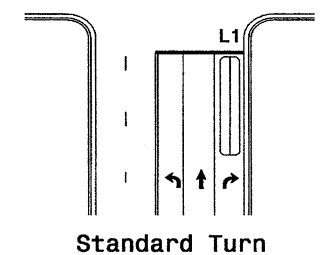
OR



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

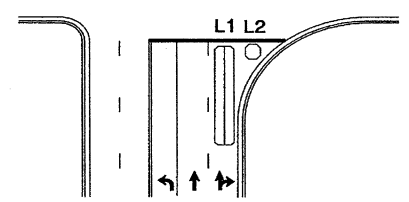
Queue Loop Detection

Right Turn Lane Detection

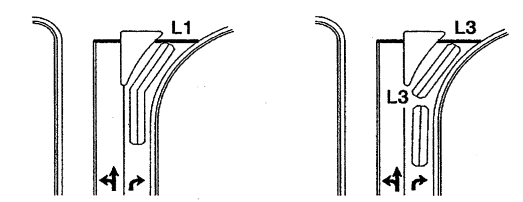


Standard Turn

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

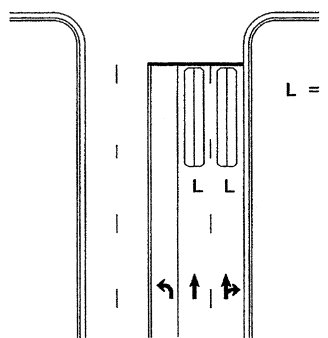


Wide Radius Turn



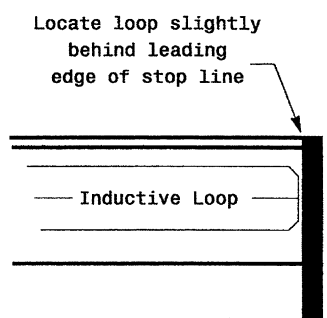
Channelized Turn

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: June 2006	REVIEWED BY:
PREPARED BY: P. L. Alexander	REVIEWED BY:
SCALE: N/A	REVISIONS:
	INIT. DATE
	DATE
	SIGNATURE DATE
	SIG. INVENTORY NO.