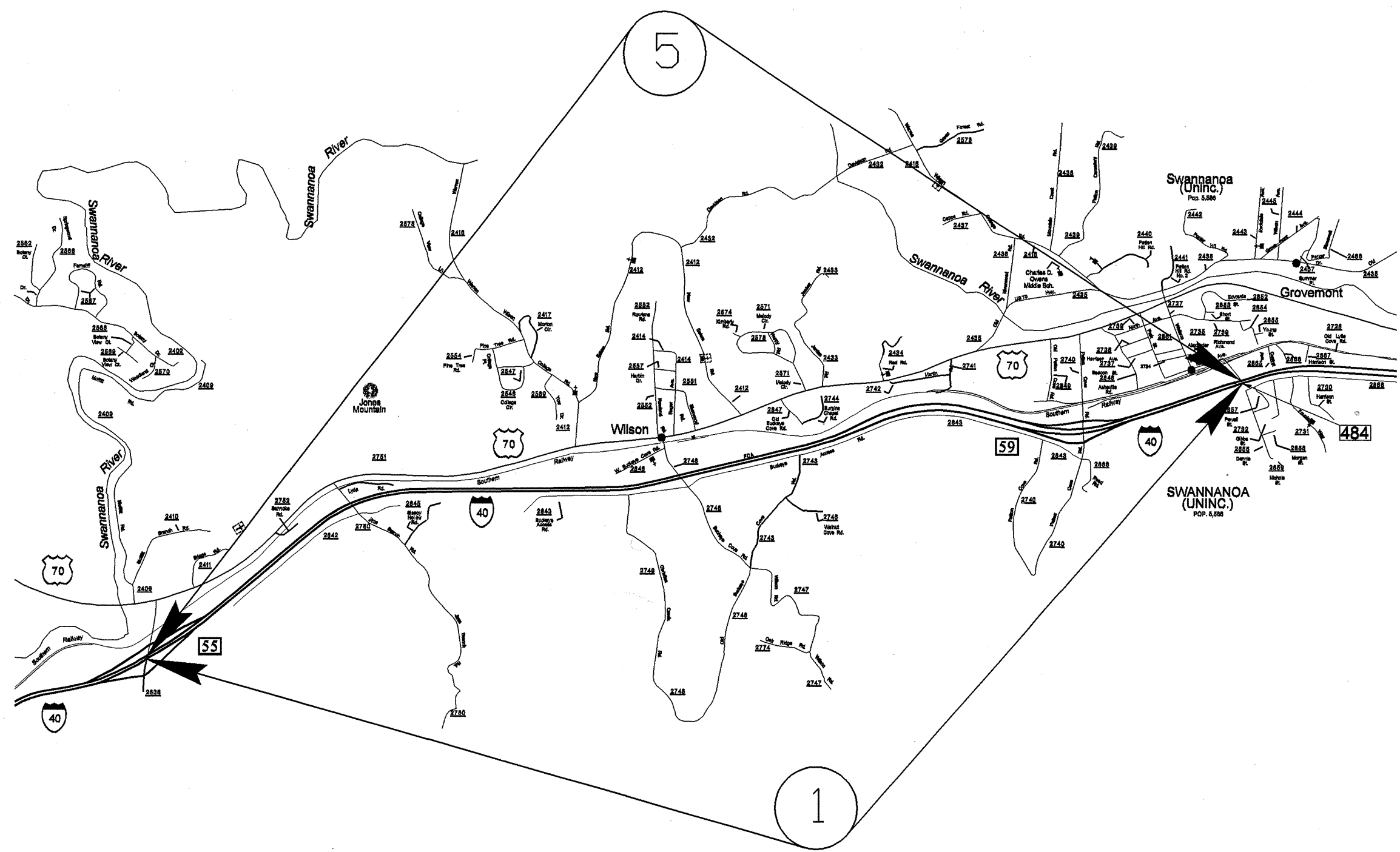
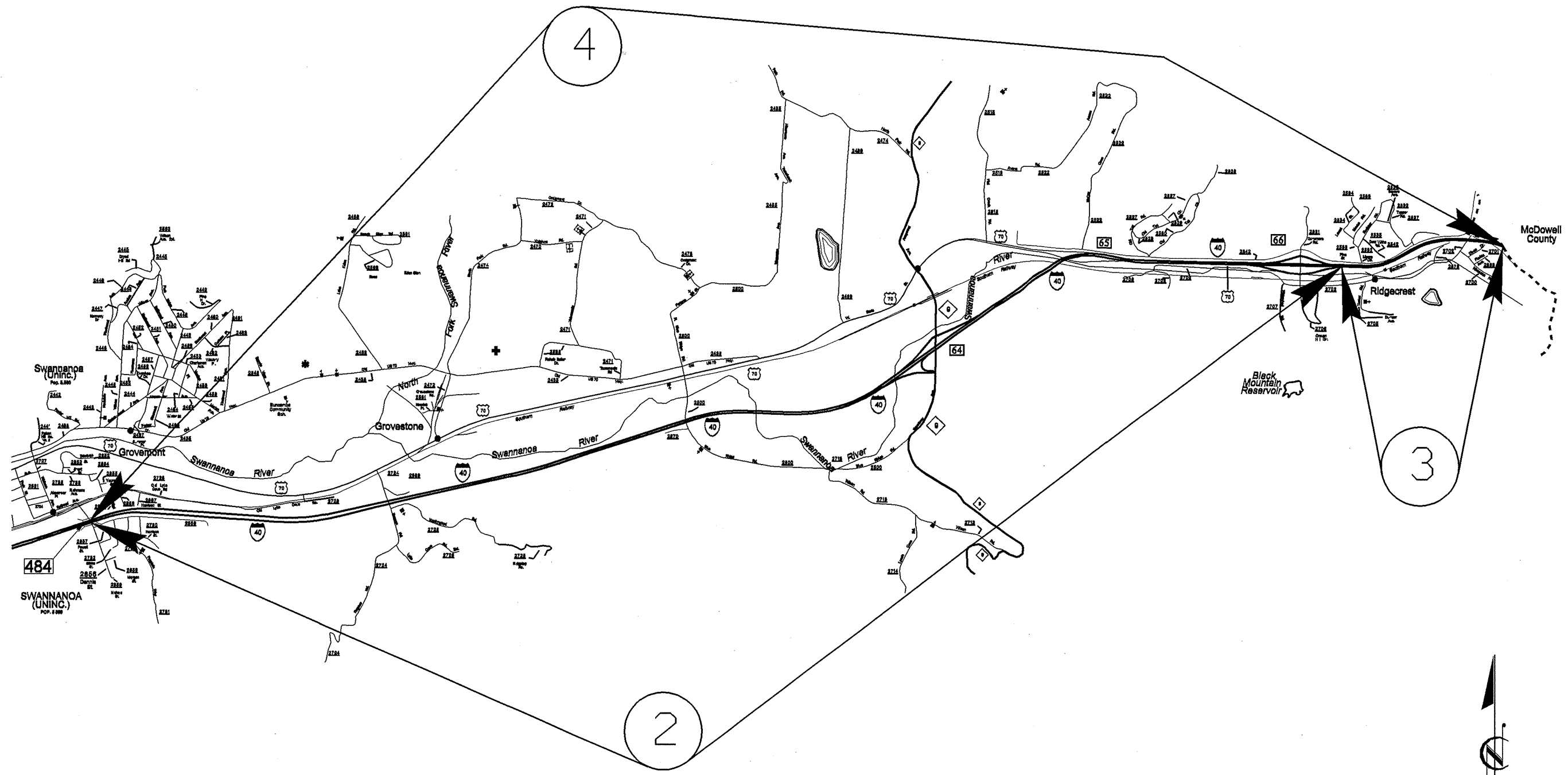


PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5131 (45114.3.ST1)	1	9



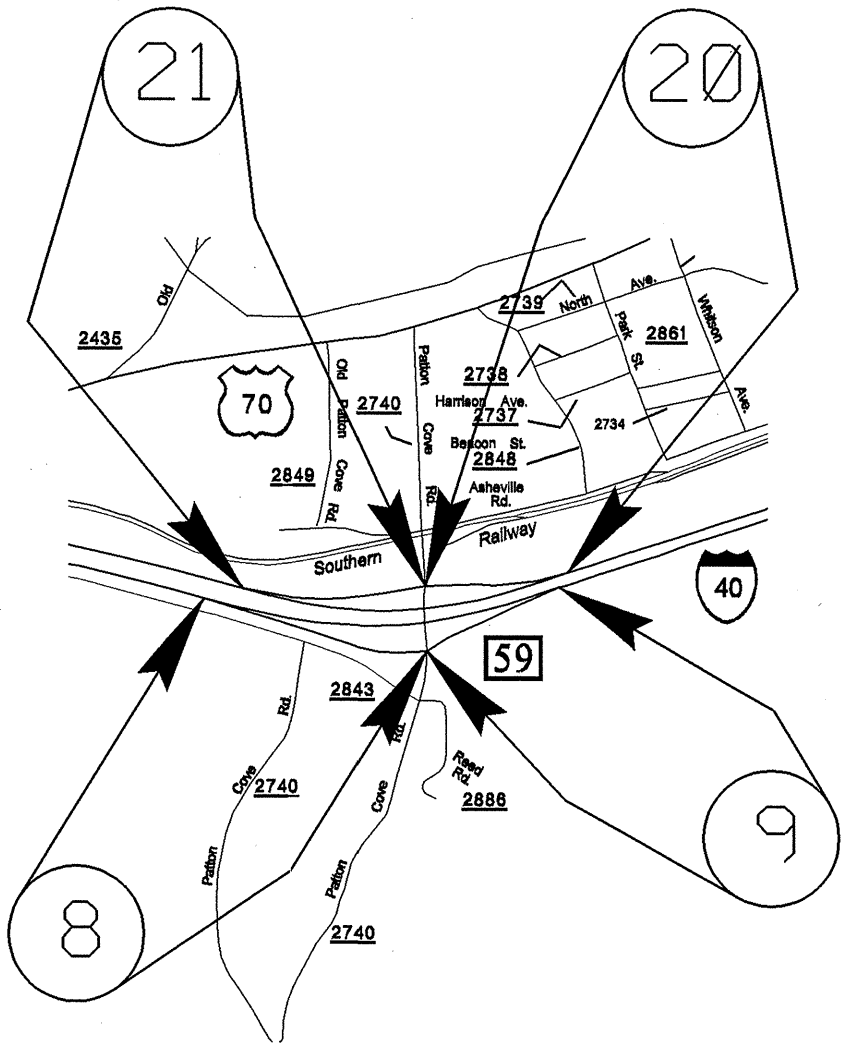
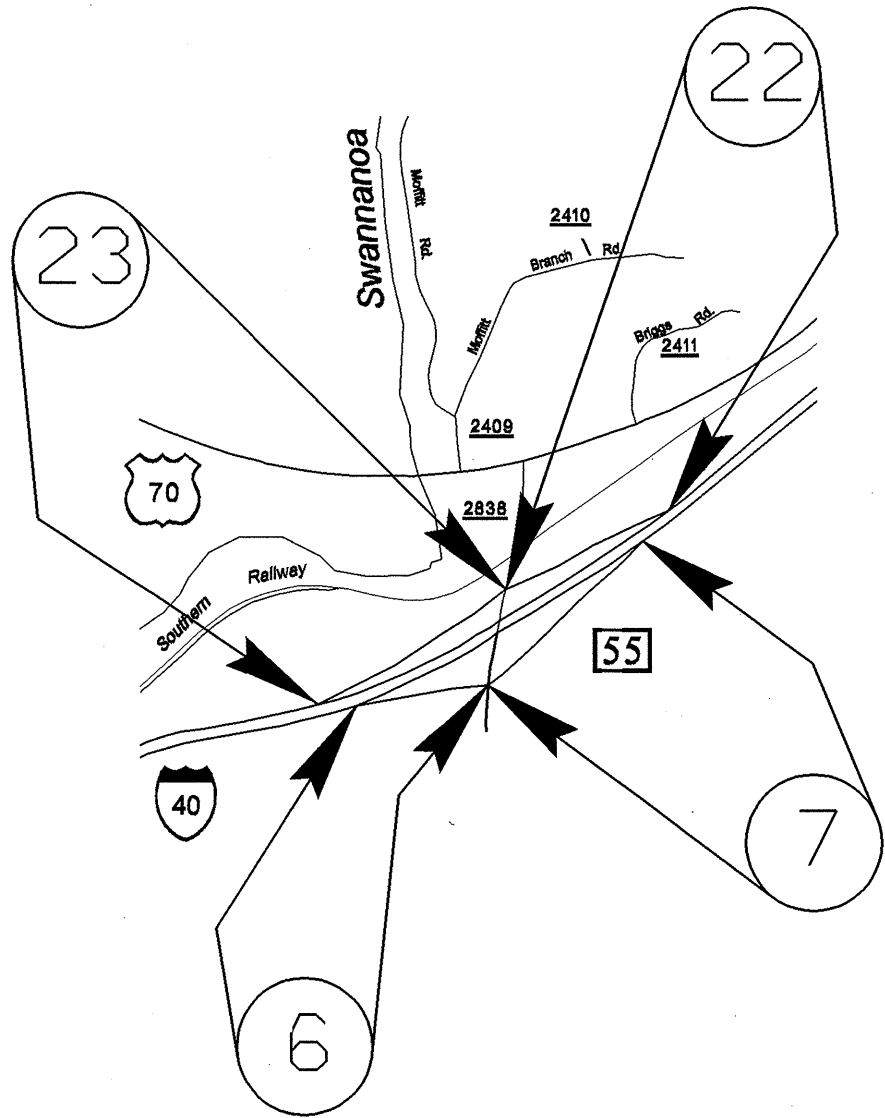
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5131 (45114.3.ST1)	2	9



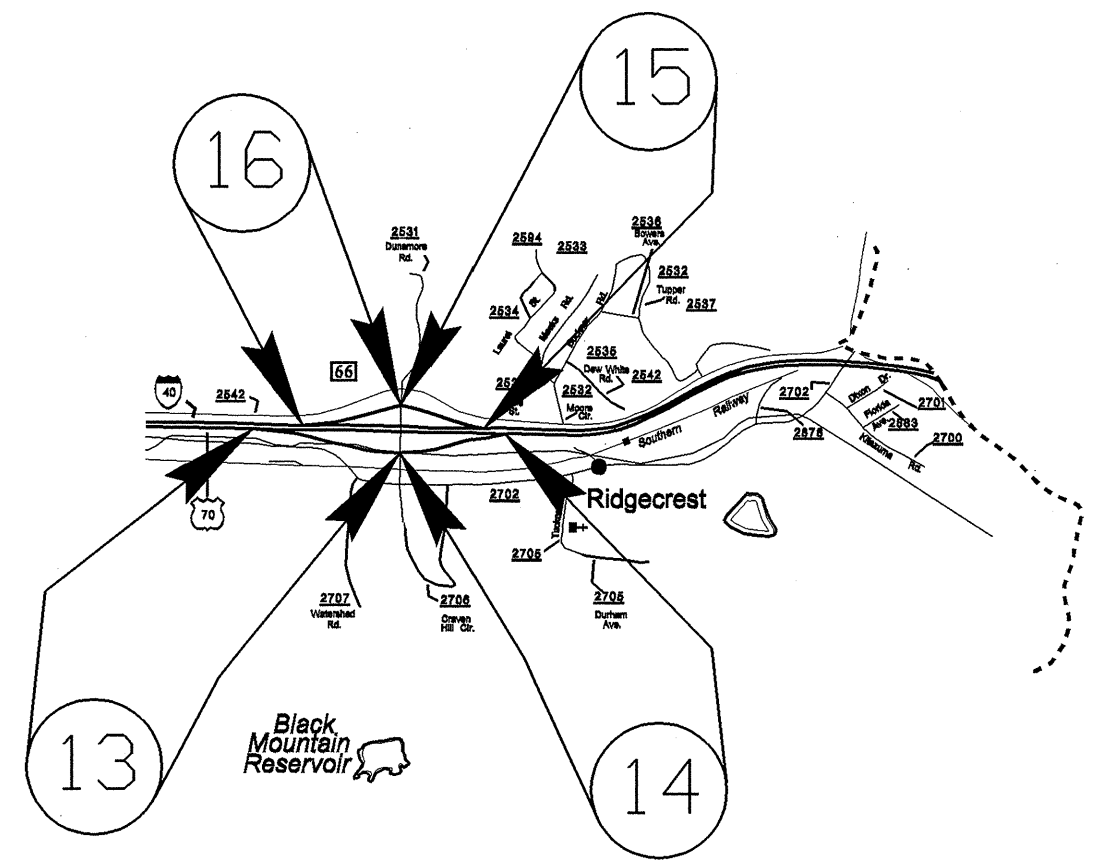
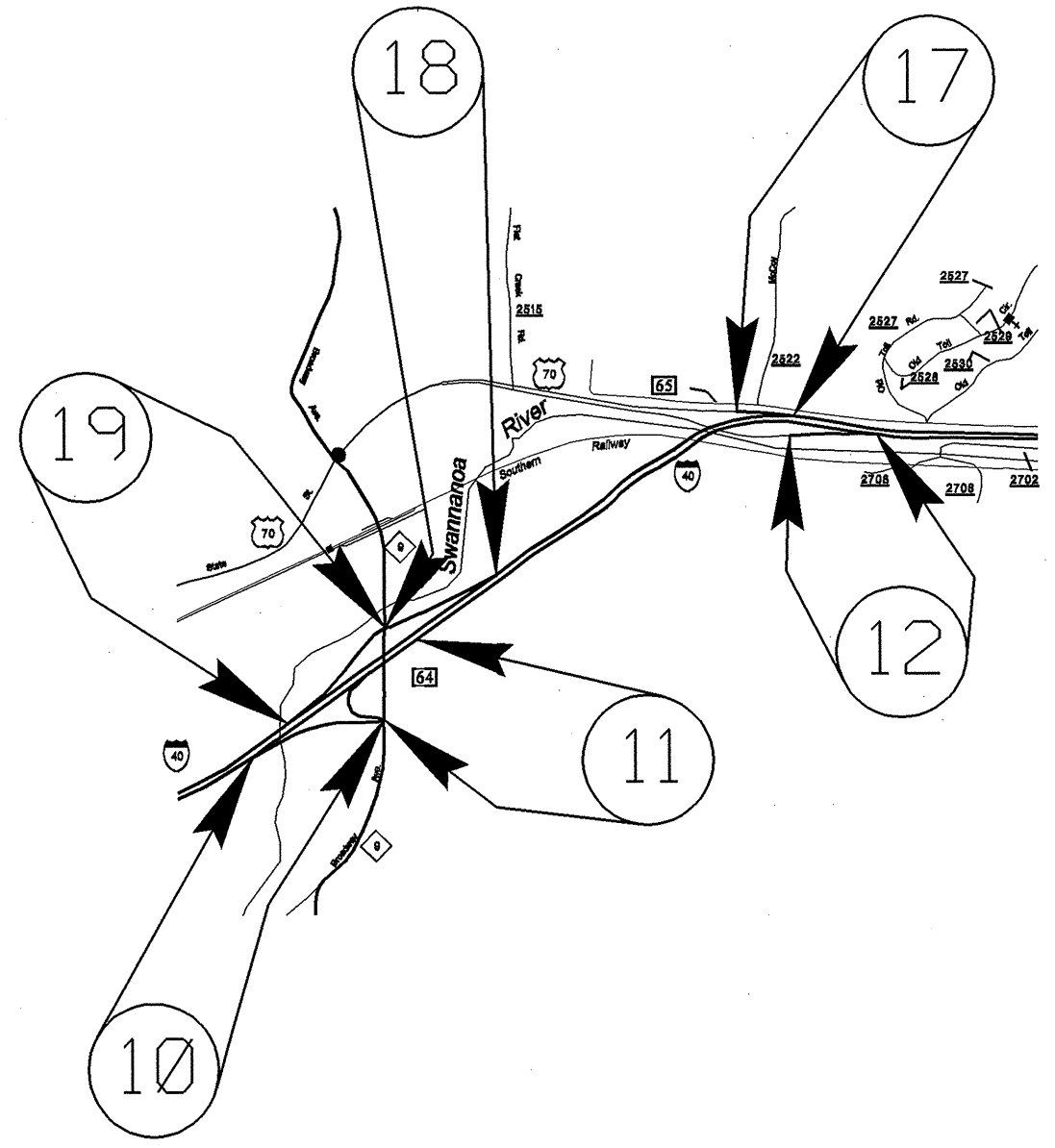
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5131 (45114.3.ST1)	3	9



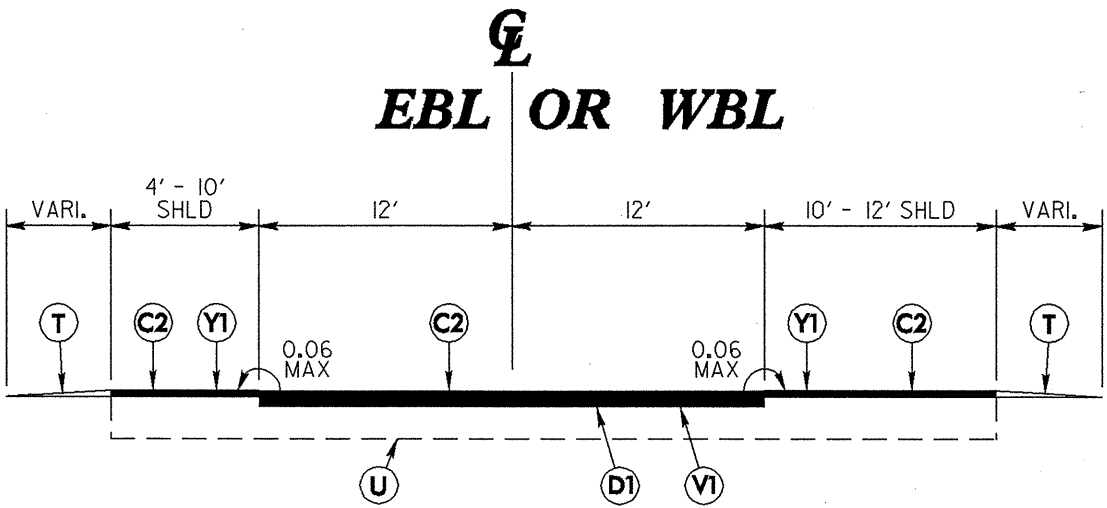
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5131 (45114.3.ST1)	4	9

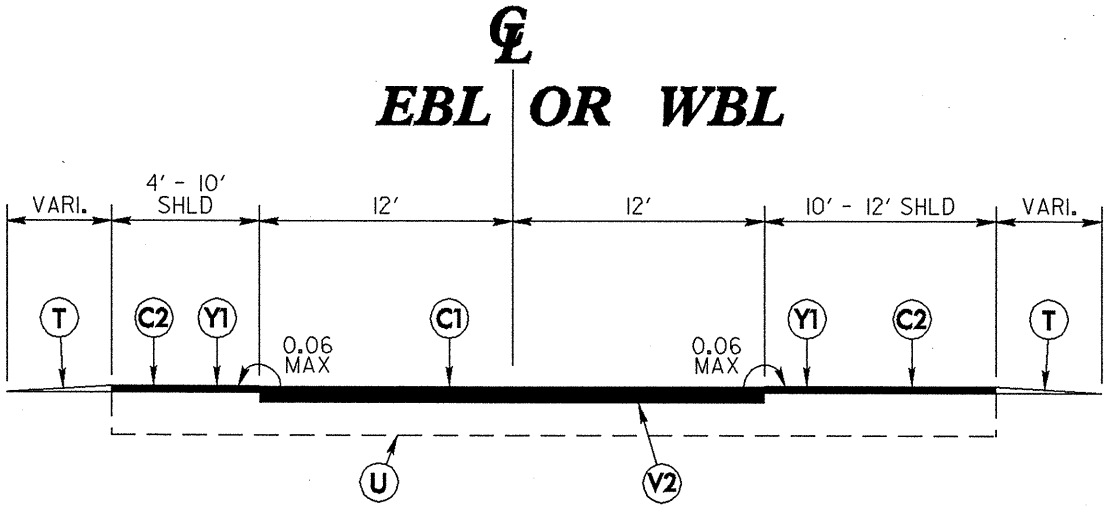


BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
<i>I-5131 (45114.3.ST1)</i>	5	9



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS, PER SQ. YD.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
T	SHOULDER RECONSTRUCTION USING EARTH MATERIAL, LOCATIONS AS DIRECTED BY ENGINEER
U	EXISTING PAVEMENT
V1	MILL 2½"
V2	MILL 1½"
Y1	MILLED RUMBLE STRIPS IN ACCORDANCE WITH STD. DWG. 665.01

2006 ROADWAY ENGLISH STANDARD DRAWINGS

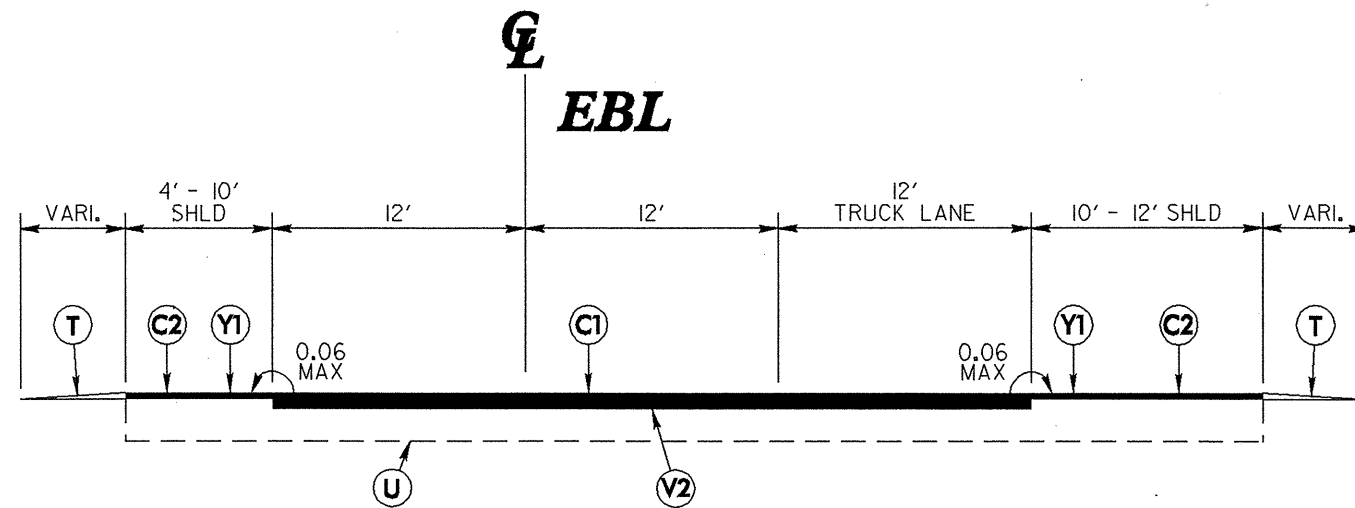
EEF 07-18-06
REV. 01-02-07

The following Roadway Standards as appear in, "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

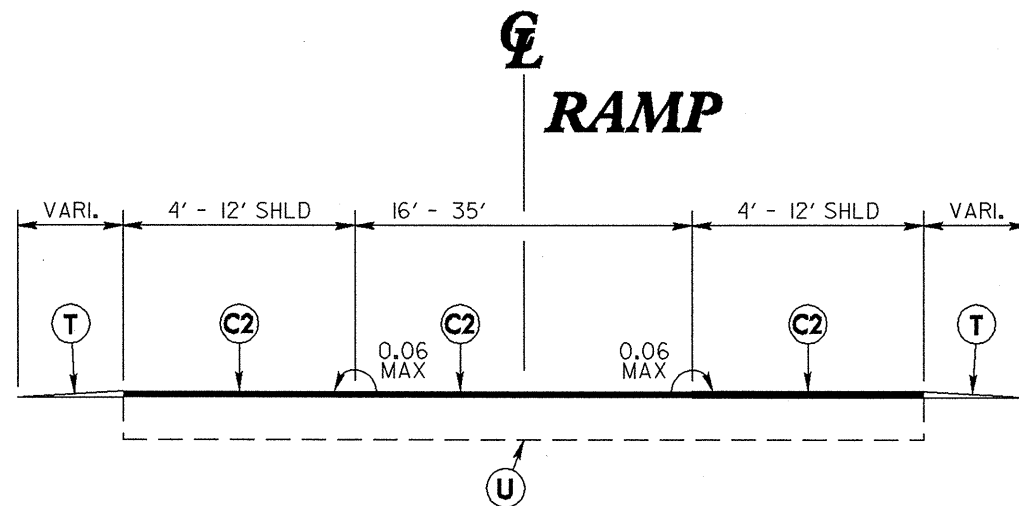
STD. NO. 665.01 TITLE
DIVISION 6 - ASPHALT BASES AND PAVEMENTS
Milled Rumble Strips - Asphalt Pavements

BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5131 (45114.3.ST1)	6	9



TYPICAL SECTION NO. 3

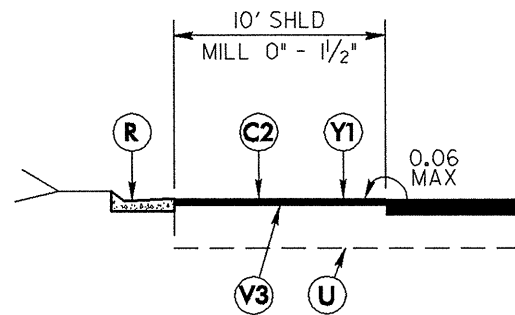


TYPICAL SECTION NO. 4

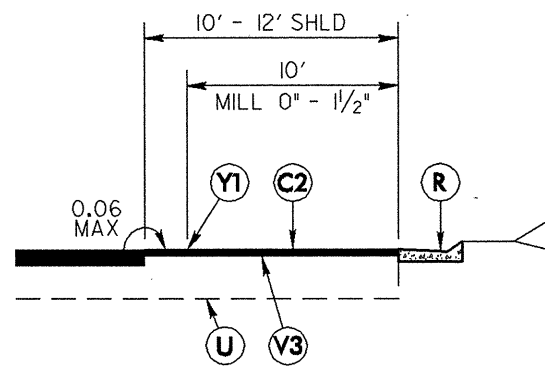
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS, PER SQ. YD.
T	SHOULDER RECONSTRUCTION USING EARTH MATERIAL, LOCATIONS AS DIRECTED BY ENGINEER
U	EXISTING PAVEMENT
V2	MILL 1½"
Y1	MILLED RUMBLE STRIPS IN ACCORDANCE WITH STD. DWG. 665.01

BUNCOMBE COUNTY

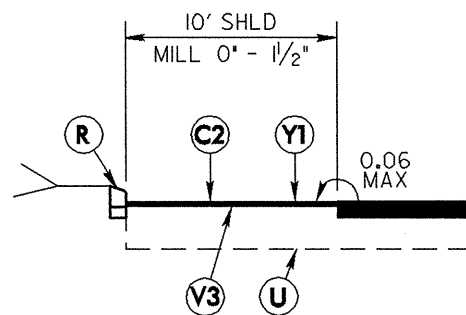
PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5131 (45114.3.ST1)	7	9



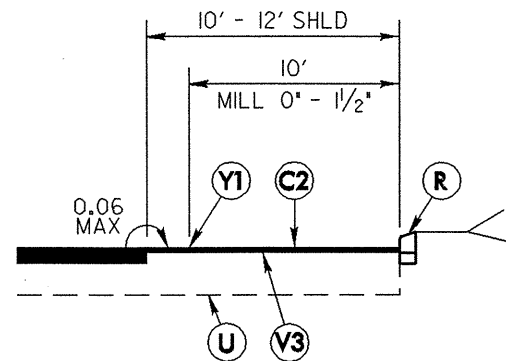
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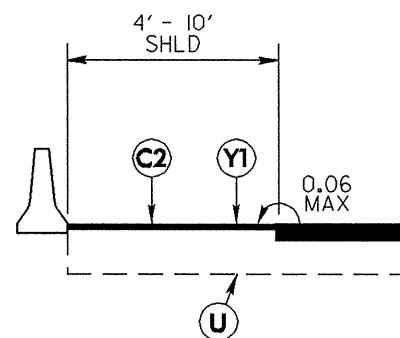
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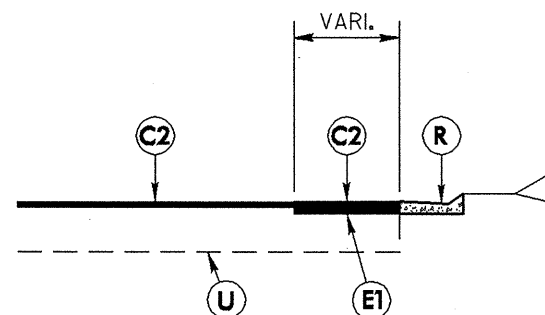
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PARTIAL SECTION TO BE USED WITH TYPICAL SECTION NO. 1 & NO. 2



PARTIAL SECTION TO BE USED WITH TYPICAL SECTION NO. 2 & NO. 3



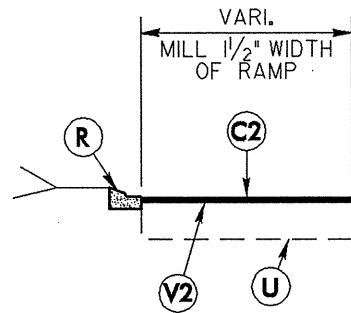
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PAVEMENT SCHEDULE

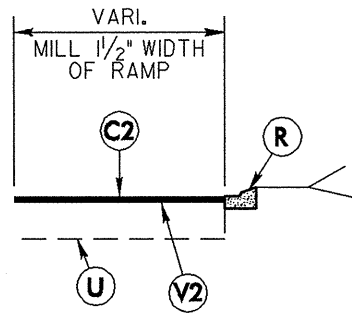
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS, PER SQ. YD.
E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS, PER SQ. YD.
R	EXISTING CONCRETE SHOULDER BERM GUTTER OR CONCRETE CURB
U	EXISTING PAVEMENT
V3	MILL 0" TO 1 1/2"
Y1	MILLED RUMBLE STRIPS IN ACCORDANCE WITH STD. DWG. 665.01

BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
<i>I-5131 (45114.3.ST1)</i>	8	9

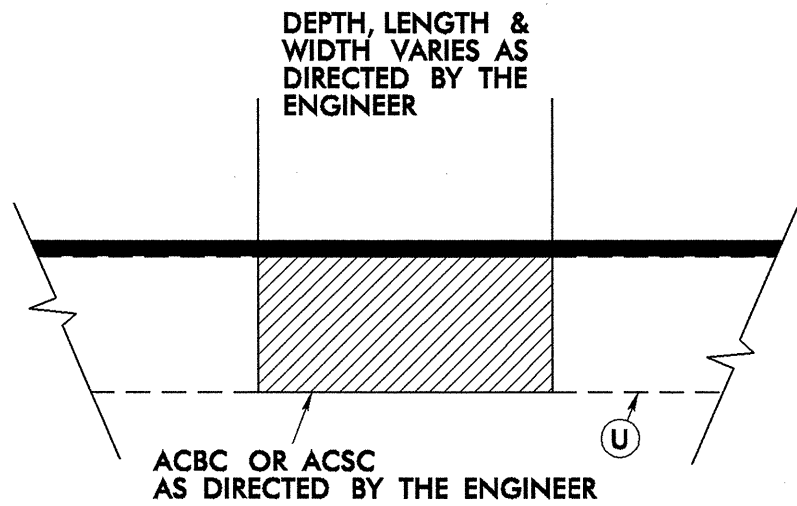


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TYPICAL SECTION NO. 4



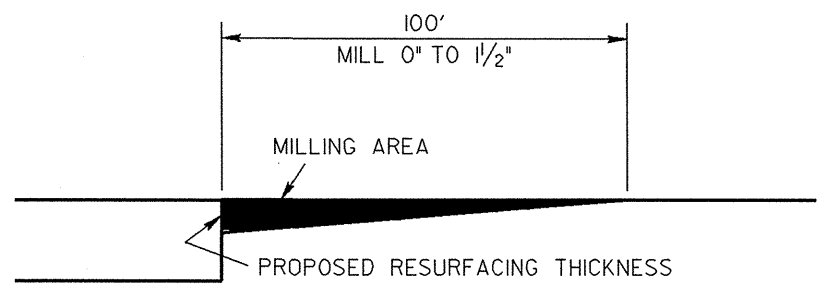
PARTIAL SECTION TO BE USED WITH
TYPICAL SECTION NO. 4

PAVEMENT SCHEDULE	
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS, PER SQ. YD.
R	EXISTING CONCRETE SHOULDER BERM GUTTER OR CONCRETE CURB
U	EXISTING PAVEMENT
V2	MILL 1 1/2"



PATCHING DETAIL

PATCH EXISTING ASPHALT PAVEMENT



MILLING DETAIL AT BRIDGE APPROACHES

COST OF MILLING IS INCIDENTAL TO OTHER ITEMS

BUNCOMBE COUNTY

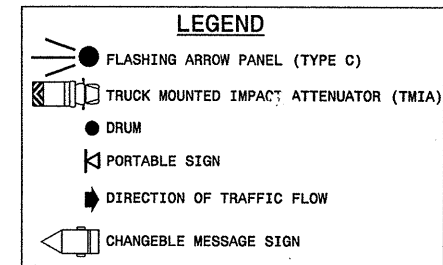
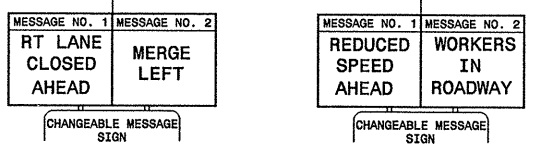
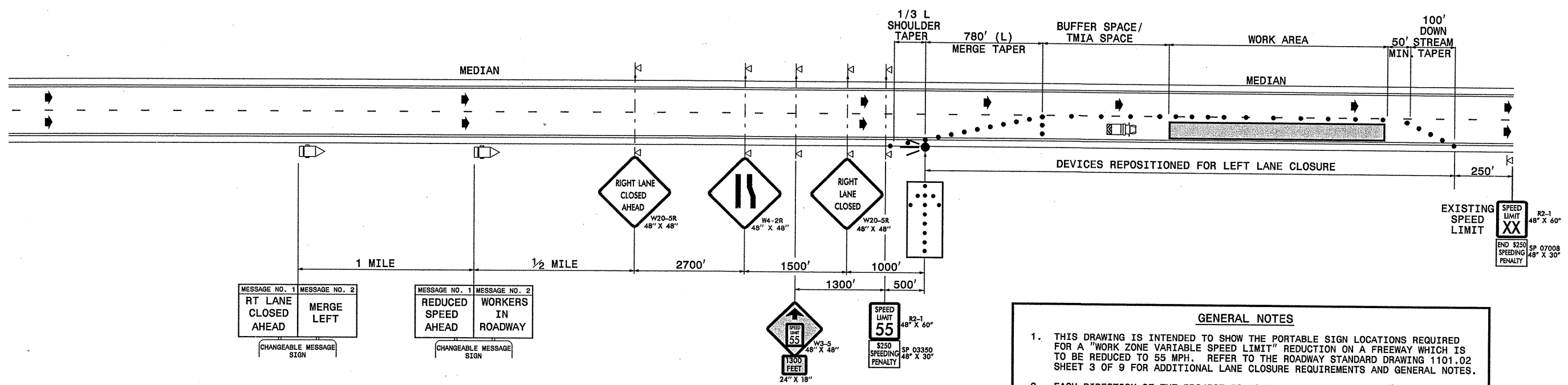
PROJECT NO.	SHEET NO.	TOTAL NO.
I-5131 (45114.3.ST1)	9	9

SUMMARY OF QUANTITIES

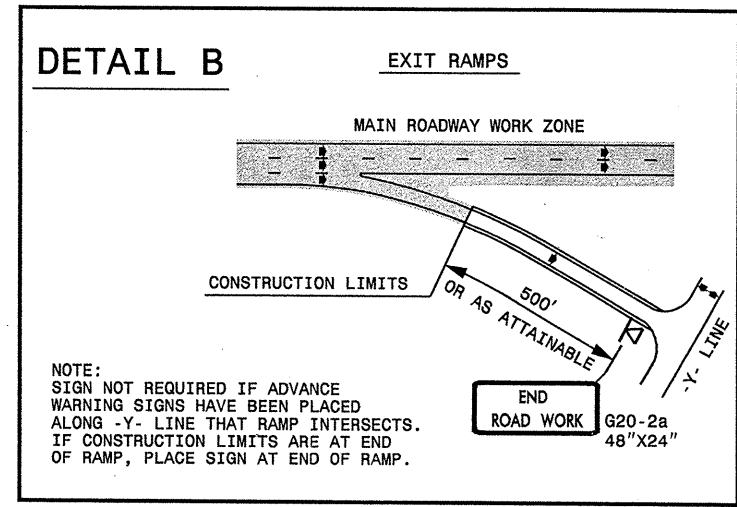
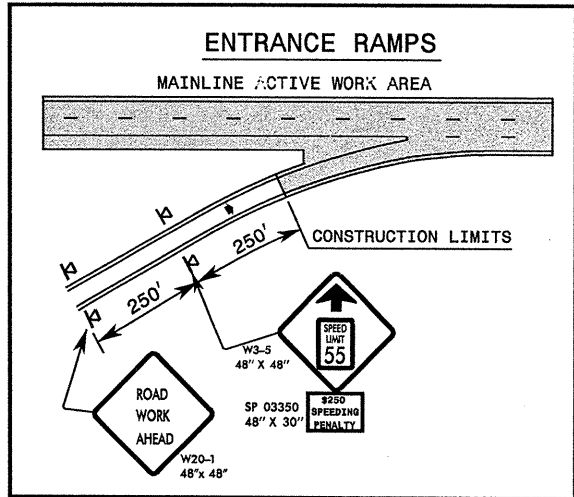
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	SHOULDER RECONSTRUCTION SMI	2 1/2" MILLING SY	1 1/2" MILLING SY	0" TO 1.5" MILLING SY	BASE COURSE, TYPE B25.0C TONS	INTERMEDIATE COURSE, H19.0C TONS	SURFACE COURSE, S9.5C TONS	PG 64-22 PLANT MIX TONS	PG 70-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	MILLED RUMBLE STRIPS LF	ADJUSTMENT OF DROP INLETS EA	GUARDRAIL ANCHOR UNITS, TYPE 350 EA	REMOVE & RESET EXISTING GUARDRAIL LF	PORTABLE LIGHTING LS	SEEDING & MULCHING AC	JUNCTION BOX (STANDARD SIZE) EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF	
I-5131	Buncombe	1	I-40 (EB 55 TO 59.5)	EASTBOUND FROM SR 2838 TO BRIDGE #484	1	YES	4.32	24	6.34	60,826		7,050		8,743	8,790	411	527		45,620		3	1,000	1	3.84				
*	*	2	I-40 (EB 59.5 TO 66)	EASTBOUND FROM BRIDGE #484 TO MP 66	2	YES	6.5	24	10.45		91,520	9,100			20,790		1,247	65	68,640	3	4	1,000		6.33		90	180	
*	*	3	I-40 (EB 3 LANES)	EASTBOUND FROM MP 66 TO McDOWELL COUNTY LINE	3	YES	0.9	36	0.12		19,008				3,940		236	10	9,504	3		500		0.07				
*	*	4	I-40 (WB 66.9 TO 59.5)	WESTBOUND FROM McDOWELL COUNTY LINE TO BRIDGE #484	2	YES	7.4	24	10.92		104,192	7,350			23,340		1,400	75	78,144	11	4	1,000		6.82		90	180	
*	*	5	I-40 (WB 59.5 TO 55)	WESTBOUND FROM BRIDGE #484 TO SR 2838	1	YES	4.32	24	6.74	60,826		6,470		8,743	8,520	411	511		45,620		6	1,000		4.08				
*	*	6	EXIT 55 (EB OFF)	EXIT 55 EASTBOUND OFF RAMP	4	YES	0.3	28	0.33						451		27							0.20	1	400	800	
*	*	7	EXIT 55 (EB ON)	EXIT 55 EASTBOUND ON RAMP	4	YES	0.42	24	0.38						561		34							0.23				
*	*	8	EXIT 59 (EB OFF)	EXIT 59 EASTBOUND OFF RAMP	4	YES	0.27	32	0.22						462		28							0.14				
*	*	9	EXIT 59 (EB ON)	EXIT 59 EASTBOUND ON RAMP	4	YES	0.3	24	0.29						429		26							0.17				
*	*	10	EXIT 64 (EB OFF)	EXIT 64 EASTBOUND OFF RAMP	4	YES	0.25	24	0.35		1,440				374		22							0.21	1	400	800	
*	*	11	EXIT 64 (EB ON)	EXIT 64 EASTBOUND ON RAMP	4	YES	0.3	24	0.05		4,177				396		24							0.03				
*	*	12	EXIT 65 (EB ON)	EXIT 65 EASTBOUND ON RAMP	4	YES	0.24	24	0.31						319		19							0.19				
*	*	13	EXIT 66 (EB OFF)	EXIT 66 EASTBOUND OFF RAMP	4	YES	0.25	30	0.17						407		24							0.10				
*	*	14	EXIT 66 (EB ON)	EXIT 66 EASTBOUND ON RAMP	4	YES	0.18	30	0.13						297		18							0.08				
*	*	15	EXIT 66 (WB OFF)	EXIT 66 WESTBOUND OFF RAMP	4	YES	0.17	24	0.32						231		14							0.19				
*	*	16	EXIT 66 (WB ON)	EXIT 66 WESTBOUND ON RAMP	4	YES	0.34	24	0.5						451		27							0.31				
*	*	17	EXIT 65 (WB OFF)	EXIT 65 WESTBOUND OFF RAMP	4	YES	0.18	24	0.1						242		15							0.06				
*	*	18	EXIT 64 (WB OFF)	EXIT 64 WESTBOUND OFF RAMP	4	YES	0.32	30	0.45		560		280		517	12	31							0.27				
*	*	19	EXIT 64 (WB ON)	EXIT 64 WESTBOUND ON RAMP	4	YES	0.43	30	0.54		680				561		34							0.33				
*	*	20	EXIT 59 (WB OFF)	EXIT 59 WESTBOUND OFF RAMP	4	YES	0.2	34	0.25						374		22							0.15				
*	*	21	EXIT 59 (WB ON)	EXIT 59 WESTBOUND ON RAMP	4	YES	0.3	32	0.09						528		32							0.05				
*	*	22	EXIT 55 (WB OFF)	EXIT 55 WESTBOUND OFF RAMP	4	YES	0.31	32	0.17						528		32							0.11				
*	*	23	EXIT 55 (WB ON)	EXIT 55 WESTBOUND ON RAMP	4	YES	0.47	30	0.65						759		46							0.40				
TOTAL FOR PROJ NO. I-5131							28.67		39.87	121,652	221,577	29,970	280	17,486	73,267	834	4,396	150	247,528	17	17	4,500	1	24.16	2	980	1,960	
GRAND TOTAL							28.67		39.87	121,652	221,577	29,970	280	17,486	73,267	834	4,396	150	247,528	17	17	4,500	1	24.16	2	980	1,960	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4405000000-E WORK ZONE SIGN (PORTABLE) SF	4415000000-N FLASHING ARROW PANELS, TYPE C EA	4420000000-N CHANGEABLE MESSAGE SIGN EA	4430000000-N DRUMS EA	4480000000-N TMIA EA	4510000000-N LAW ENFORCEMENT HR	4688000000-N 6" X 90 M WHITE THERMO LF	4690000000-N 6" X 90 M YELLOW THERMO LF	4690000000-N 6" X 120 M WHITE THERMO LF	4700000000-N 12" X 90 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	THERMO LT ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO MERGE ARROW 90 M EA	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF	4905000000-N SNOWPLOWABLE PAVEMENT MARKERS EA
I-5131	Buncombe	1	I-40 (EB 55 TO 59.5)	EASTBOUND FROM SR 2838 TO BRIDGE #484	192	4	4	620	2	1,200	22,810	22,810	5,702						28,512	22,810	286
*	*	2	I-40 (EB 59.5 TO 66)	EASTBOUND FROM BRIDGE #484 TO MP 66							34,320	34,320	6,580						42,900	34,320	429
*	*	3	I-40 (EB 3 LANES)	EASTBOUND FROM MP 66 TO McDOWELL COUNTY LINE							4,752	4,752	2,376						7,128	4,752	120
*	*	4	I-40 (WB 66.9 TO 59.5)	WESTBOUND FROM McDOWELL COUNTY LINE TO BRIDGE #484							39,072	39,072	9,768						48,840	39,072	489
*	*	5	I-40 (WB 59.5 TO 55)	WESTBOUND FROM BRIDGE #484 TO SR 2838							22,810	22,810	5,702						28,512	22,810	286
*	*	6	EXIT 55 (EB OFF)	EXIT 55 EASTBOUND OFF RAMP							1,590	790	60	610					1,960	790	31
*	*	7	EXIT 55 (EB ON)	EXIT 55 EASTBOUND ON RAMP							2,220	1,015	140	990					2,860	1,015	50
*	*	8	EXIT 59 (EB OFF)	EXIT 59 EASTBOUND OFF RAMP							1,430	780	60	700					1,840	780	35
*	*	9	EXIT 59 (EB ON)	EXIT 59 EASTBOUND ON RAMP							1,590	500	160	620					2,060	500	31
*	*	10	EXIT 64 (EB OFF)	EXIT 64 EASTBOUND OFF RAMP							1,370	1,320	40	520	48	2	2		1,670	1,320	30
*	*	11	EXIT 64 (EB ON)	EXIT 64 EASTBOUND ON RAMP							1,040	520	220	260					1,390	520	13
*	*	12	EXIT 65 (EB ON)	EXIT 65 EASTBOUND ON RAMP							1,250	250	150	780					1,790	250	39
*	*	13	EXIT 66 (EB OFF)	EXIT 66 EASTBOUND OFF RAMP							1,320	900	40	670					1,700	900	34
*	*	14	EXIT 66 (EB ON)	EXIT 66 EASTBOUND ON RAMP							960	700		430					1,180	700	22
*	*	15	EXIT 66 (WB OFF)	EXIT 66 WESTBOUND OFF RAMP							900	580	40	530					1,210	580	27
*	*	16	EXIT 66 (WB ON)	EXIT 66 WESTBOUND ON RAMP							1,800	640	280	440				3	2,300	640	22
*	*	17	EXIT 65 (WB OFF)	EXIT 65 WESTBOUND OFF RAMP							960	230	60	730					1,390	230	37
*	*	18	EXIT 64 (WB OFF)	EXIT 64 WESTBOUND OFF RAMP							1,680	890	70	820					2,170	890	41
*	*	19	EXIT 64 (WB ON)	EXIT 64 WESTBOUND ON RAMP							2,270	850	280	630				3	2,870	850	32
*	*	20	EXIT 59 (WB OFF)	EXIT 59 WESTBOUND OFF RAMP							1,080	570	60	530					1,390	570	27
*	*	21	EXIT 59 (WB ON)	EXIT 59 WESTBOUND ON RAMP							1,590	580	150	950					2,220	580	48
*	*	22	EXIT 55 (WB OFF)	EXIT 55 WESTBOUND OFF RAMP							1,640	890	40	1,040					2,200	890	52
*	*	23	EXIT 55 (WB ON)	EXIT 55 WESTBOUND ON RAMP							2,490	1,430	90	780					2,970	1,430	39
TOTAL FOR PROJ NO. I-5131					192	4	4	620	2	1,200	150,934	137,199	34,068	12,030	48	2	2	6	191,062	137,199	2,220
GRAND TOTAL					192	4	4	620	2	1,200	150,934	137,199	34,068	12,030	48	2	2	6	191,062	137,199	2,220

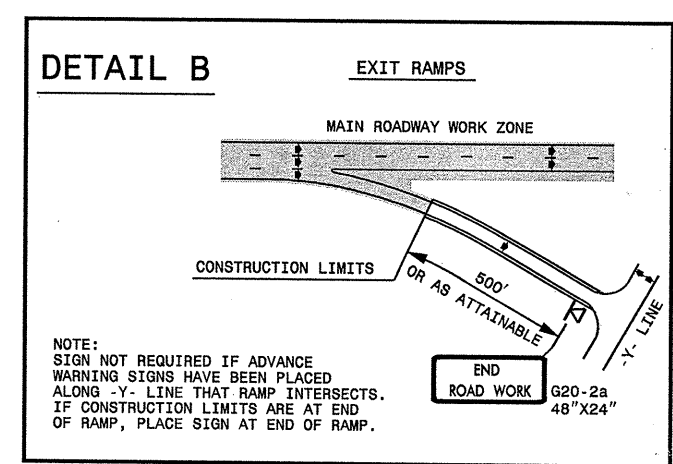
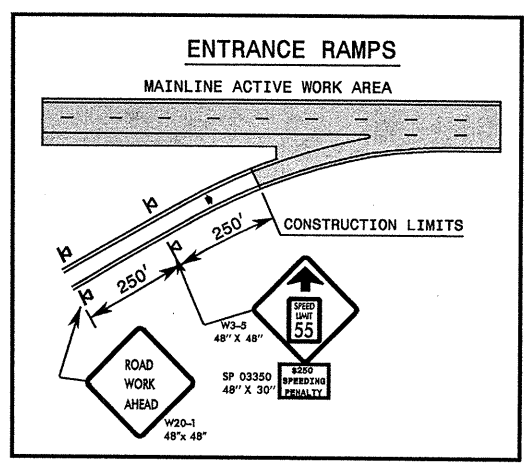
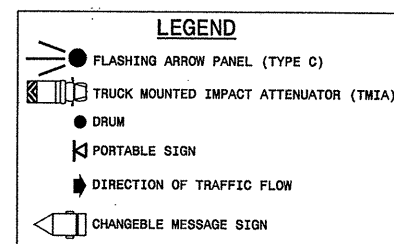
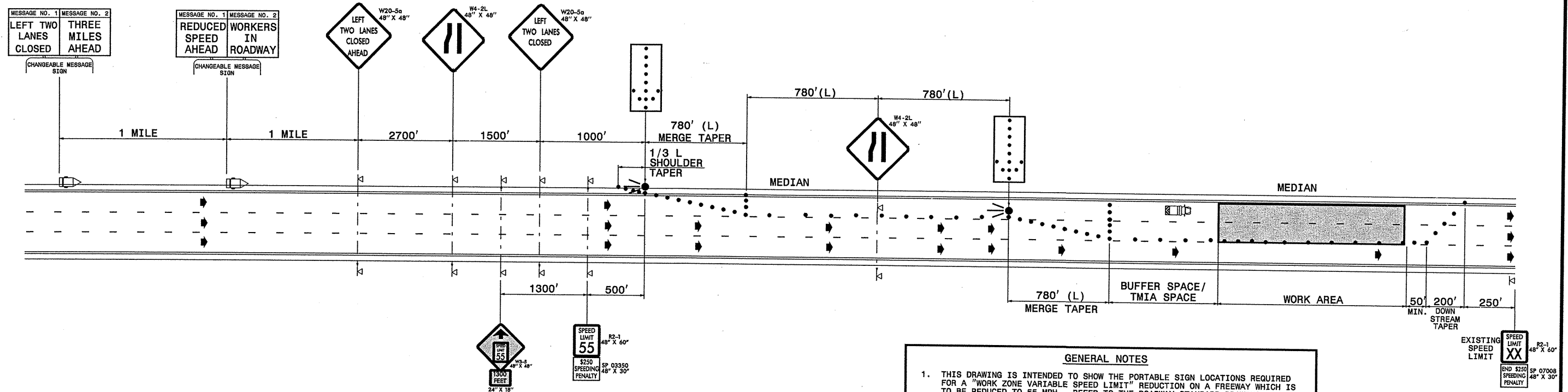


- GENERAL NOTES**
1. THIS DRAWING IS INTENDED TO SHOW THE PORTABLE SIGN LOCATIONS REQUIRED FOR A "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION ON A FREEWAY WHICH IS TO BE REDUCED TO 55 MPH. REFER TO THE ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 9 FOR ADDITIONAL LANE CLOSURE REQUIREMENTS AND GENERAL NOTES.
 2. EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION. THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.
 3. IN ADDITION, FOR ACTIVE WORK AREAS THAT EXCEED 1 MILE IN LENGTH, AN EVALUATION IS TO BE MADE TO DETERMINE IF ADDITIONAL SIGNS ARE NEEDED TO SUPPLEMENT THE INITIAL ONES. PORTABLE MOUNTED W3-5 SIGNS WITH SPEED PENALTY SIGNS ARE TO BE PLACED ALONG ENTRANCE RAMP LOCATED WITHIN THE ACTIVE WORK AREA.
 4. THE \$250 SPEEDING PENALTY APPLIES FOR ALL PROJECTS THAT QUALIFY FOR A "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION. PORTABLE SIGNS ARE TO BE USED TO DISPLAY THE \$250 SPEEDING PENALTY.
 5. THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION IS ONLY IN EFFECT WHEN A LANE CLOSURE IS IN PLACE. THE PORTABLE SPEED LIMIT AND SPEED PENALTY SIGNS ARE TO BE REMOVED WHEN THE LANE CLOSURE IS REMOVED. AT THE COMPLETION OF THE PROJECT, THE ENGINEER SHALL NOTIFY THE REGIONAL TRAFFIC ENGINEER TO RESCIND THE ORDINANCE.
 6. WHEN "WORK ZONE VARIABLE SPEED LIMIT" REDUCTIONS ARE IN EFFECT, THE CONTRACTOR IS TO COVER ANY EXISTING SPEED LIMIT SIGNS LOCATED WITHIN THE ACTIVE WORK AREA THAT CONFLICT WITH THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION.
 7. DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
 8. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
 9. SINGLE MOUNTED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.
 10. THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION MUST BE ORDINANCED AND SIGNED BY THE STATE TRAFFIC ENGINEER BEFORE ANY SPEED LIMIT SIGNS ARE USED FOR REDUCING THE SPEED LIMIT.
 11. SYMBOLS SHOWN ARE FOR RIGHT LANE CLOSURE. USE APPROPRIATE SIGNS, MESSAGES AND ARROWS FOR LEFT LANE CLOSURE. PORTABLE CMS'S TO REMAIN AS SHOWN.



APPROVED: _____ DATE: _____	I-40 SINGLE LANE CLOSURE	
SEAL		
SCALE: NONE	DATE: 10-12-09	
DWG. BY: SBC	DESIGN BY: JWG	
REVIEWED BY: JWG		

13-OCT-2009 10:30
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 scotts AT WZTC237457



- GENERAL NOTES**
- THIS DRAWING IS INTENDED TO SHOW THE PORTABLE SIGN LOCATIONS REQUIRED FOR A "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION ON A FREEWAY WHICH IS TO BE REDUCED TO 55 MPH. REFER TO THE ROADWAY STANDARD DRAWING 1101.02 SHEET 5 OF 9 FOR ADDITIONAL LANE CLOSURE REQUIREMENTS AND GENERAL NOTES.
 - EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION. THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.
 - IN ADDITION, FOR ACTIVE WORK AREAS THAT EXCEED 1 MILE IN LENGTH, AN EVALUATION IS TO BE MADE TO DETERMINE IF ADDITIONAL SIGNS ARE NEEDED TO SUPPLEMENT THE INITIAL ONES. PORTABLE MOUNTED W3-5 SIGNS WITH SPEED PENALTY SIGNS ARE TO BE PLACED ALONG ENTRANCE RAMPS LOCATED WITHIN THE ACTIVE WORK AREA.
 - THE \$250 SPEEDING PENALTY APPLIES FOR ALL PROJECTS THAT QUALIFY FOR A "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION. PORTABLE SIGNS ARE TO BE USED TO DISPLAY THE \$250 SPEEDING PENALTY.
 - THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION IS ONLY IN EFFECT WHEN A LANE CLOSURE IS IN PLACE. THE PORTABLE SPEED LIMIT AND SPEED PENALTY SIGNS ARE TO BE REMOVED WHEN THE LANE CLOSURE IS REMOVED. AT THE COMPLETION OF THE PROJECT, THE ENGINEER SHALL NOTIFY THE REGIONAL TRAFFIC ENGINEER TO RESCIND THE ORDINANCE.
 - WHEN "WORK ZONE VARIABLE SPEED LIMIT" REDUCTIONS ARE IN EFFECT, THE CONTRACTOR IS TO COVER ANY EXISTING SPEED LIMIT SIGNS LOCATED WITHIN THE ACTIVE WORK AREA THAT CONFLICT WITH THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION.
 - DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
 - ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
 - SINGLE MOUNTED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.
 - THE "WORK ZONE VARIABLE SPEED LIMIT" REDUCTION MUST BE ORDINANCED AND SIGNED BY THE STATE TRAFFIC ENGINEER BEFORE ANY SPEED LIMIT SIGNS ARE USED FOR REDUCING THE SPEED LIMIT.
 - SYMBOLS SHOWN ARE FOR TWO LEFT LANES CLOSURE. USE APPROPRIATE SIGNS, MESSAGES AND ARROWS FOR TWO RIGHT LANES CLOSURE. PORTABLE CMS'S TO REMAIN AS SHOWN.

APPROVED: _____ DATE: _____

SEAL

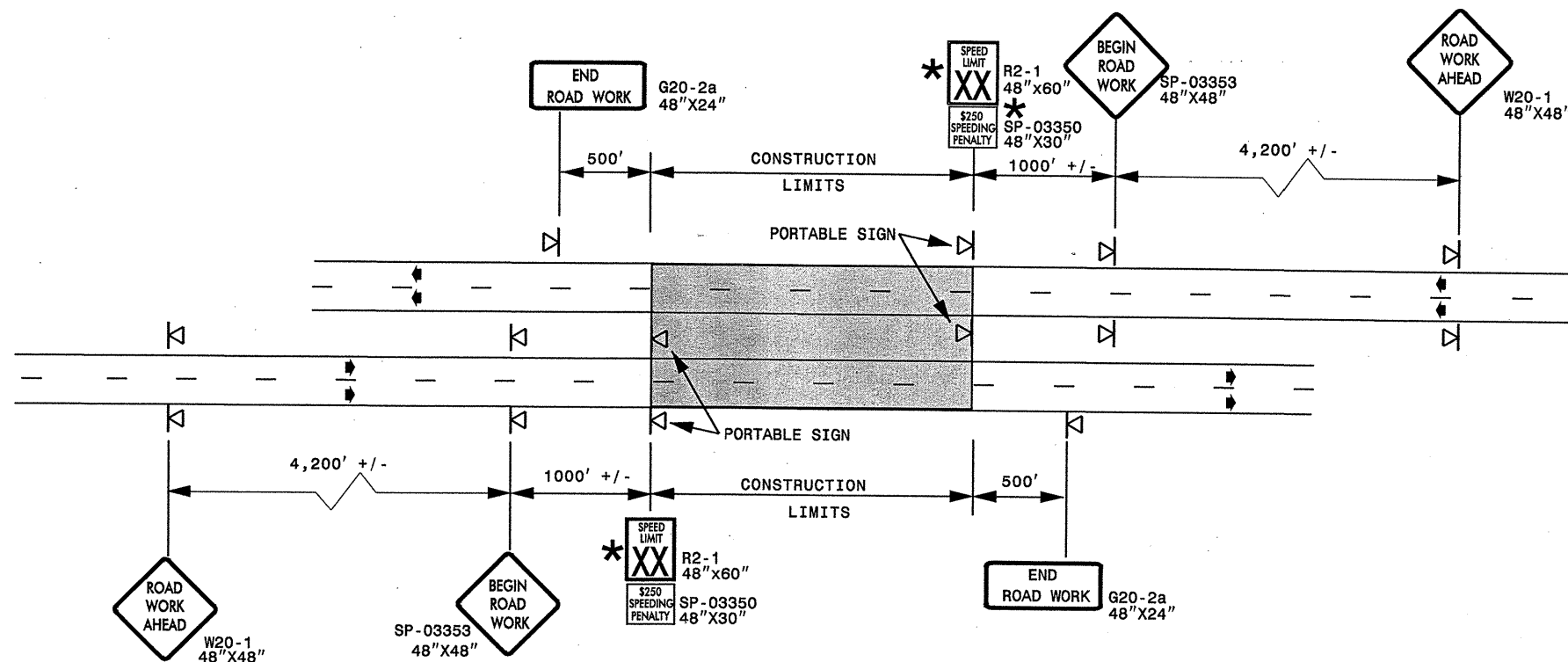
I-40 TWO LANE CLOSURE

SCALE: NONE		REVISIONS
DATE: 10-12-09		
DWG. BY: SBC		
DESIGN BY: JWG		
REVIEWED BY: JWG		

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 scoats AT WZTC237457

ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

PROJ. REFERENCE NO. I-5131	SHEET NO. TCP-3
-------------------------------	--------------------



LEGEND	
◁	PORTABLE SIGN
▶	DIRECTION OF TRAFFIC FLOW

THE WORK ZONE "SPEED LIMIT" SIGNS (R2-1) AND "\$250 SPEEDING PENALTY" SIGNS (SP-03350) SHALL BE PORTABLE MOUNTED. THE "SPEED LIMIT" SIGNS SHALL REFLECT THE EXISTING SPEED LIMIT WHEN NO LANE CLOSURES ARE INSTALLED (SEE GENERAL NOTES). WHEN LANE CLOSURES ARE INSTALLED, THE "SPEED LIMIT" SIGNS SHALL COINCIDE WITH THE SPEED LIMITS INTRODUCED BY THE WORK ZONE "VARIABLE" SPEED LIMITS (SEE SHEETS TCP-1 AND TCP-2). EXTEND LANE CLOSURES AS NECESSARY TO AVOID CONFLICTING SPEED LIMIT MESSAGES.

* USE THE "\$250 SPEEDING PENALTY" SIGN AND SPEED LIMIT SIGN ONLY WHEN A "\$250 SPEEDING PENALTY" ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.

GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- WHEN NO WORK ACTIVITY IS ANTICIPATED TO OCCUR IN THE WORK ZONE FOR SEVEN (7) CONSECUTIVE DAYS OR IF NO WORK HAS OCCURRED IN THE WORK ZONE IN SEVEN (7) CONSECUTIVE DAYS, THE \$250 SPEEDING PENALTY SIGNS (SP 03350) SHALL BE COVERED/REMOVED BY THE CONTRACTOR UNTIL SUCH TIME THE CONTRACTOR IS WHEN READY TO CONTINUE WORK. UNCOVER/REINSTALL \$250 SPEEDING PENALTY SIGNS WHEN READY TO CONTINUE WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL STATIONARY WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B); MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.

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 13-OCT-2009 10:35
 scoots AT WZTC237457

APPROVED: _____ DATE: _____ 	ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SCALE:</td> <td>NONE</td> </tr> <tr> <td>DATE:</td> <td>8/03</td> </tr> <tr> <td>DWG. BY:</td> <td>JJ</td> </tr> <tr> <td>DESIGN BY:</td> <td>JJ</td> </tr> <tr> <td>REVIEWED BY:</td> <td></td> </tr> </table>	SCALE:	NONE	DATE:	8/03	DWG. BY:	JJ	DESIGN BY:	JJ	REVIEWED BY:	
SCALE:	NONE											
DATE:	8/03											
DWG. BY:	JJ											
DESIGN BY:	JJ											
REVIEWED BY:												
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">REVISIONS</th> </tr> <tr> <td style="width: 50%; text-align: center;">03/04</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> </table>	REVISIONS		03/04							
REVISIONS												
03/04												

SIGN NUMBER: SP-03350	BACKG COLOR: White	DESIGN BY: CL DOWNEY	CHECKED BY:	STD #: REGULATORY	
TYPE: D	COPY COLOR: Black	PROJECT ID:	DIV: DIV	DATE: Aug 18, 2003	
QUANTITY: 1	SYMBOL	X	Y	WID	HT
SIGN WIDTH: 4'-0"					
HEIGHT: 2'-6"					
TOTAL AREA: 10.0 Sq.Ft.					
BORDER TYPE: FLUSH					
RECESS: 0.4"					
WIDTH: 0.5"					
RADII: 1.5"					
NO. Z BARS: N/A	MAT'L:				
LENGTH: N/A					

SP 03350

LETTER POSITIONS

Letter spacings are to start of next letter

	S	P	E	E	D	I	N	G		Series/Size
15.1	5.3	4.6	4.2	3.5	15.4					C6
										17.8
8.1	4.8	4.5	4	4	4.8	2.1	4.4	3.4	8.2	C6
										31.8
11.9	4.6	4	4.3	4.7	3.4	3.3	3.7	8.2		C6
										28

Spacing Factor is 1 unless specified otherwise

SIGN NUMBER: SP07008	BACKG COLOR: White	DESIGN BY: R. HENNEIN	CHECKED BY:	STD #: N/A	
TYPE: D	COPY COLOR: Black	PROJECT ID: N/A	DIV: N/A	DATE: Jan 12, 2007	
QUANTITY: 1	SYMBOL	X	Y	WID	HT
SIGN WIDTH: 48"					
HEIGHT: 30"					
TOTAL AREA: 10.0 Sq.Ft.					
BORDER TYPE: FLUSH					
RECESS: 0.5"					
WIDTH: 0.75"					
RADII: 1.88"					
NO. Z BARS:	MAT'L: 0.125" (3.2 mm) ALUMINUM				
LENGTH:	0.078" COMPOSITE				

SP 07008

LETTER POSITIONS

Letter spacings are to start of next letter

	E	N	D	S	P	E	E	D	I	N	G		Series/Size
8.9	4.1	4.7	3.4	6	4.3	4.1	4.3	3.5	8.9				C 2000
													34.3
8.1	4.4	4.6	4.1	4.1	4.6	2.2	4.6	3.4	8.1				C 2000
													31.7
9.9	4.6	4.1	4.2	4.7	3.4	3.4	3.8	9.9					C 2000
													28.2

Spacing Factor is 1 unless specified otherwise

SP 03353

SIGN NUMBER: SP-03353	BACKG COLOR: Fluorescent Orange	DESIGN BY: CL DOWNEY	CHECKED BY: CHECKED	STD #: W20-1	
TYPE: A	COPY COLOR: Black	PROJECT ID: ALL PROJECTS	DIV: DIV	DATE: Aug 20, 2003	
QUANTITY: 1	SYMBOL	X	Y	WID	HT
SIGN WIDTH: 4'-0"					
HEIGHT: 4'-0"					
TOTAL AREA: 16.0 Sq.Ft.					
BORDER TYPE: FLUSH					
RECESS: 0.59"					
WIDTH: 0.75"					
RADII: 1.38"					
NO. Z BARS: N/A	MAT'L:				
LENGTH: N/A					

BORDER
R=1.38"
TH=0.75"
IN=0.59"

LETTER POSITIONS

Letter spacings are to start of next letter

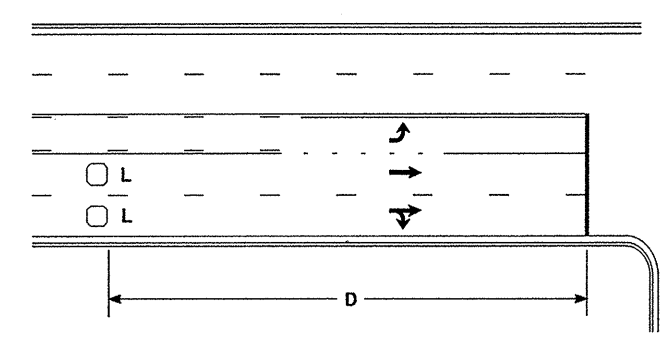
	B	E	G	I	N		Series/Size
22.4	5.3	4.6	5.4	2.5	3.8	22.4	C7
							21.6
23.4	5	5.2	5.8	3.8	23.4		C7
							19.6
22.6	6.4	5.8	5.2	4	22.6		C7
							21.2

Spacing Factor is 1 unless specified otherwise

I3-OCT-2009.lh04
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SCOOT'S AT WZTC237457

APPROVED: _____ DATE: _____	SIGN DESIGNS		
	SCALE: NONE		
	DATE: _____		REVISIONS
	DWG. BY: _____		
	DESIGN BY: _____		
REVIEWED BY: _____			

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

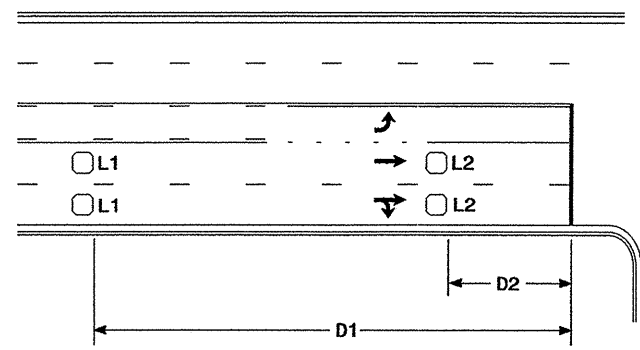


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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



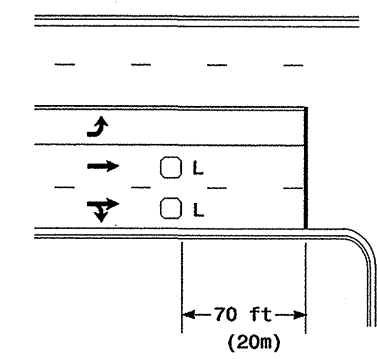
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

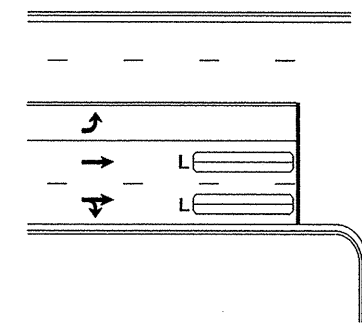
Low Speed Detection [≤35 mph (56 km/hr)]

45114.3.ST1 (I-5131)



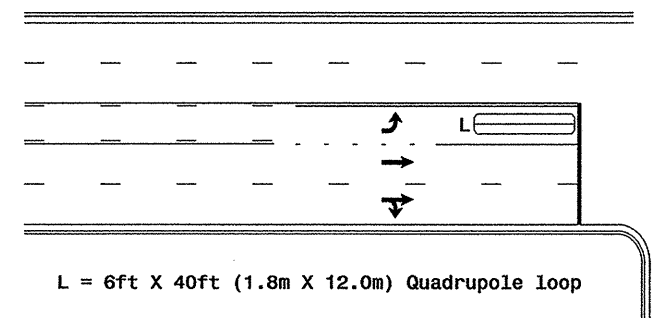
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

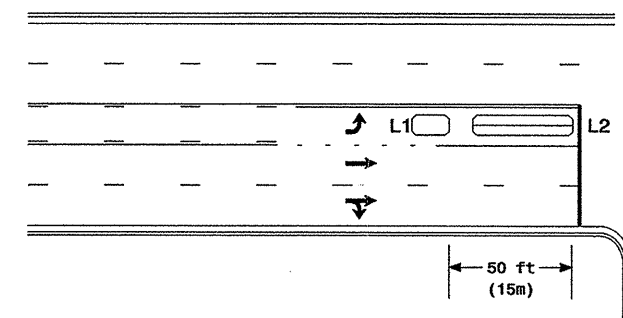
Left Turn Lane Detection



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

Presence Loop Detection

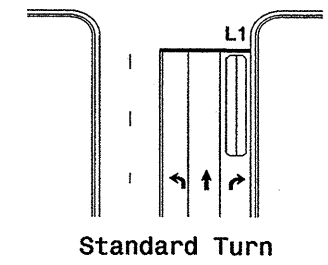
OR



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

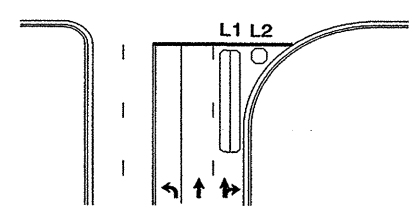
Queue Loop Detection

Right Turn Lane Detection

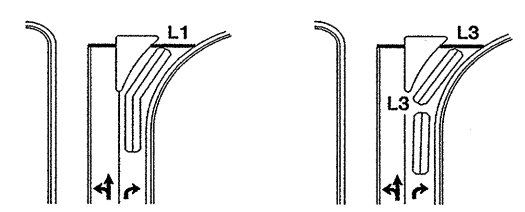


Standard Turn

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

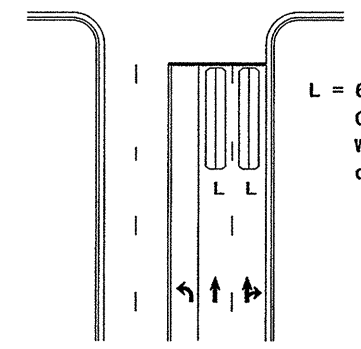


Wide Radius Turn



Channelized Turn

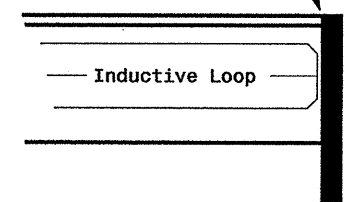
Side Street Detection



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



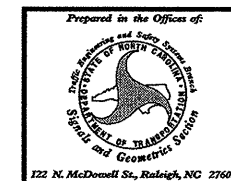
Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

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

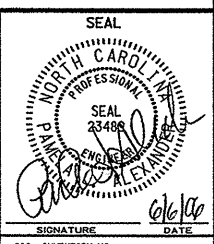
Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns



Typical Loop Locations

PLAN DATE: June 2006 REVIEWED BY:
PREPARED BY: P. L. Alexander REVIEWED BY:

REVISIONS	INIT.	DATE
✓ Revise pavement markings	PLA	12/10/06



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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

11-08

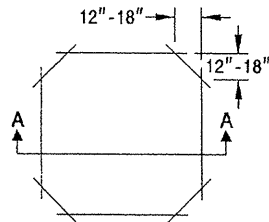
INDUCTIVE DETECTION LOOPS
 ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3
 1725D01

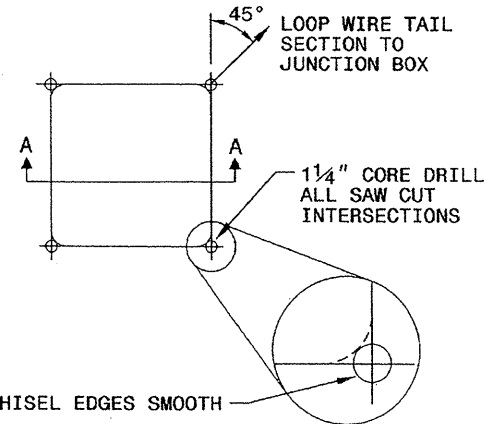
CONVENTIONAL 4-SIDED LOOP

SAW CUT OPTIONS

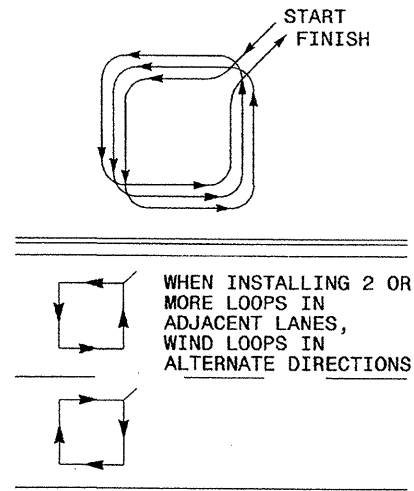
OPTION 1



OPTION 2 (POOR PAVEMENT)

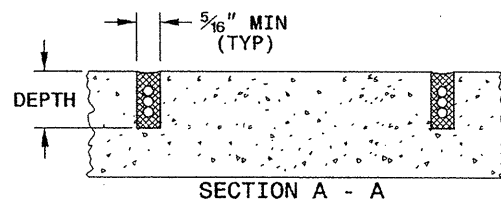


LOOP WINDING METHOD



SAW SLOT DEPTH CHART

DEPTH (IN)	NO. OF WIRE TURNS					
	2	3	4	5	6	
CONCRETE	2.0	2.0	2.5	2.5	3.0	
ASPHALT	2.0	2.5	3.0	3.0	3.0	



LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE



CORRECT WAY TO TWIST WIRE



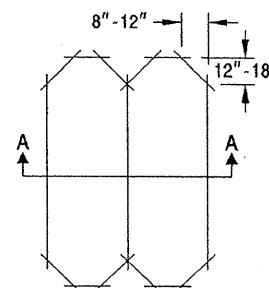
NOTES

- OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
- MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
- WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
- LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

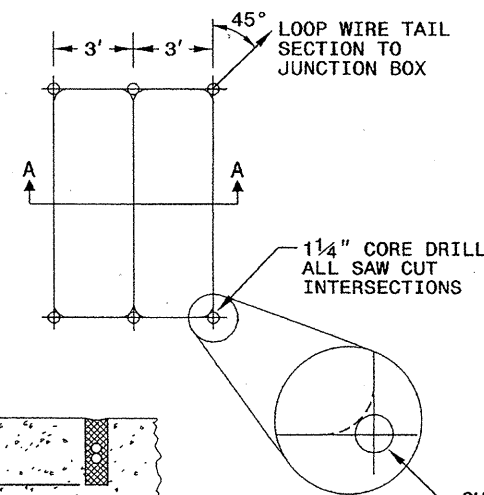
QUADRUPOLE LOOP

SAW CUT OPTIONS

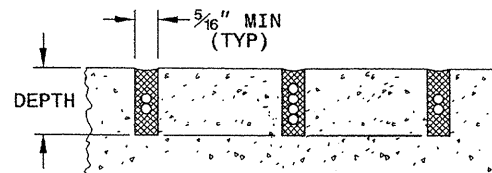
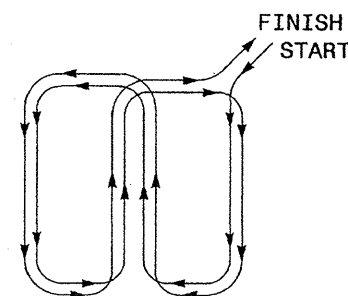
OPTION 1



OPTION 2 (POOR PAVEMENT)



LOOP WINDING METHOD



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

STATE OF NORTH CAROLINA
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 RALEIGH, N.C.

11-08

INDUCTIVE DETECTION LOOPS
 ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3
 1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
 Garner, NC 27529

SEAL

Milton I. Dean 4/24/08
 SIGNATURE DATE

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

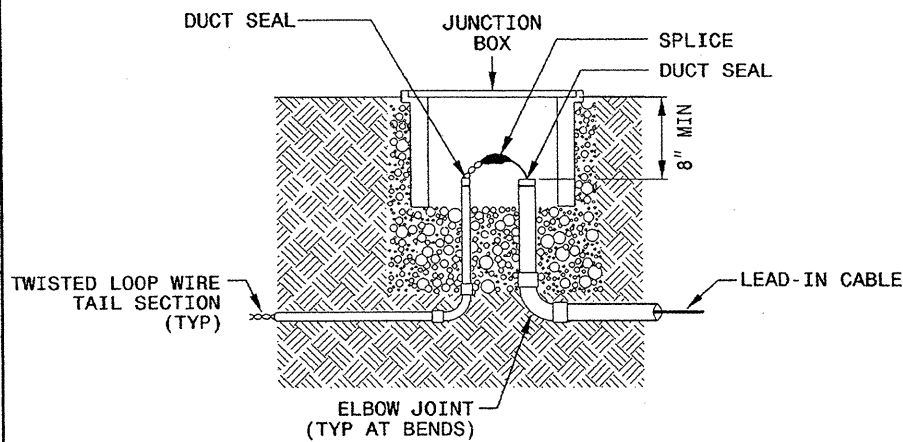
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

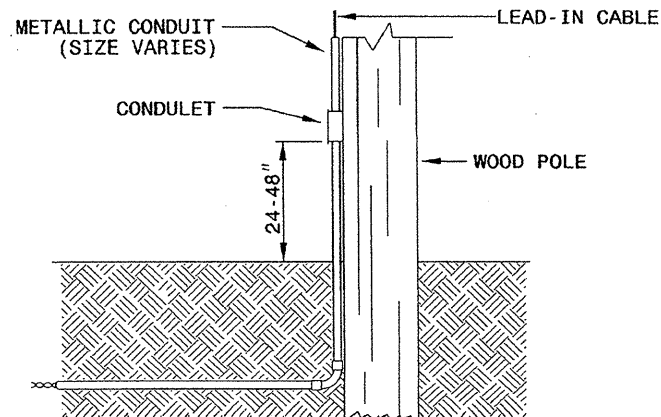
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

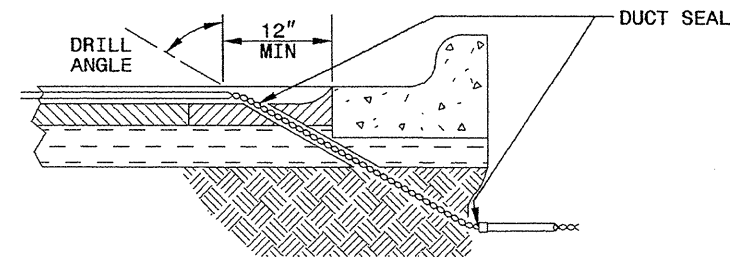


NOTE

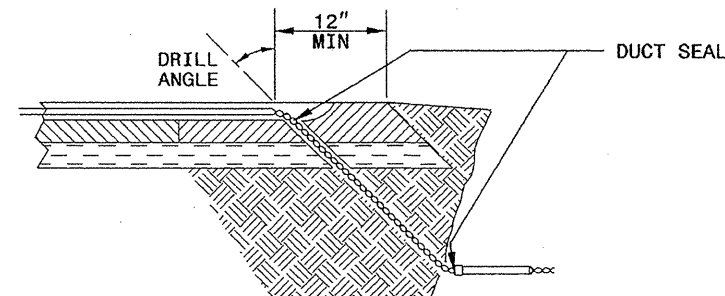
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

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11-08

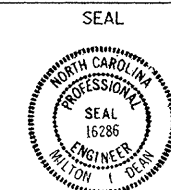
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title



750 N. Greenfield Parkway
 Garner, NC 27529



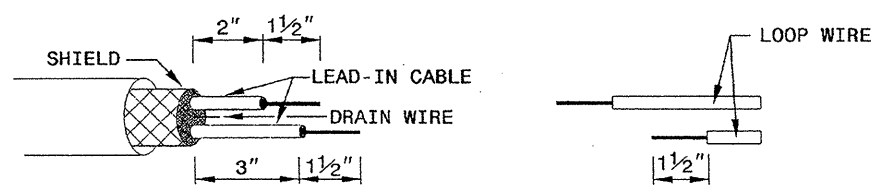
Milton S. Dean 11/24/08
 SIGNATURE DATE

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

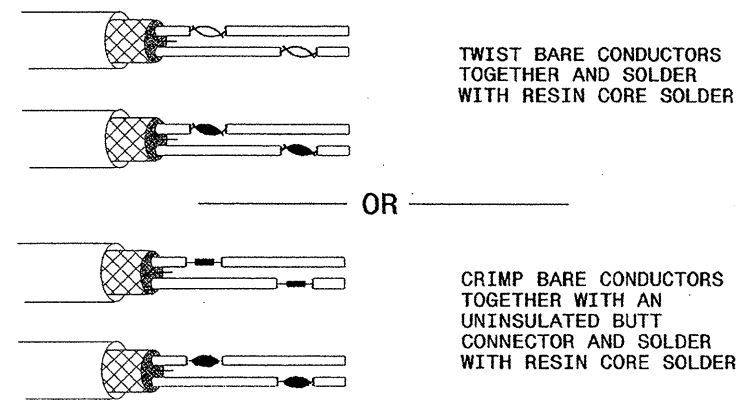
11-08
 ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

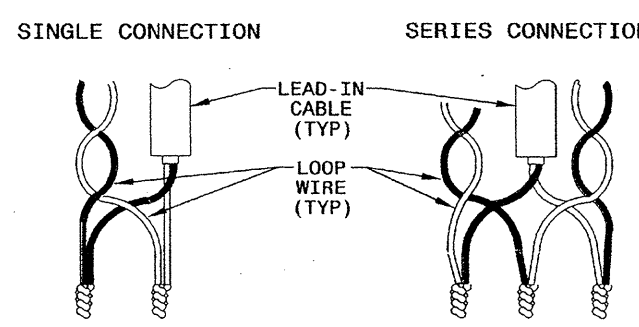


STEP 2. CONNECT AND SOLDER

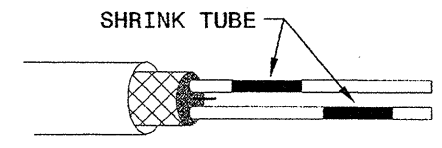


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

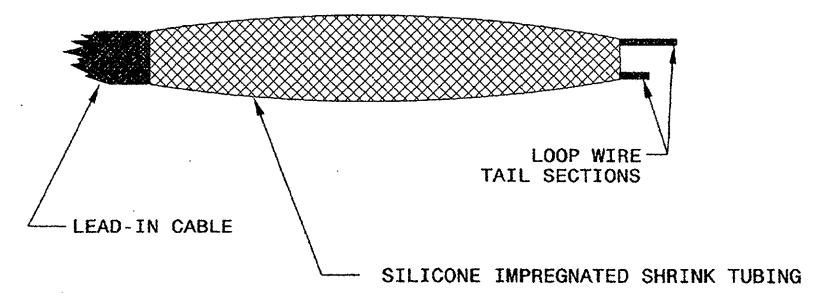
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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 ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
 Garner, NC 27529

SEAL

Milton Dean 11/24/08
 SIGNATURE DATE

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