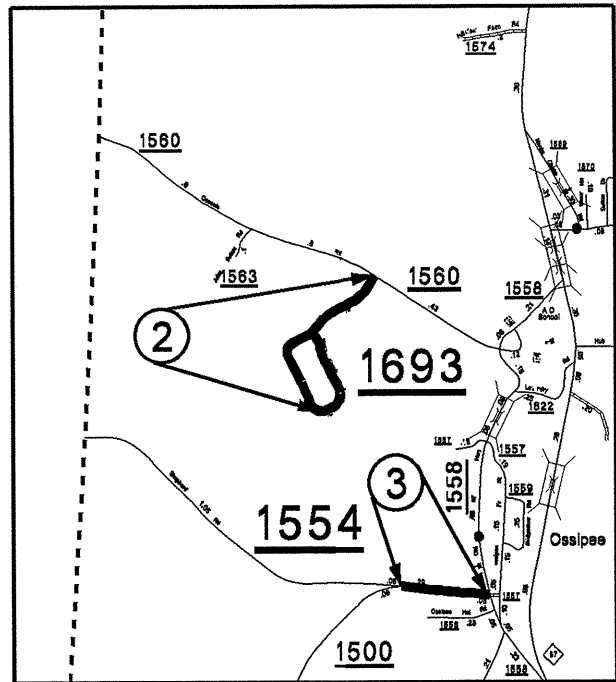
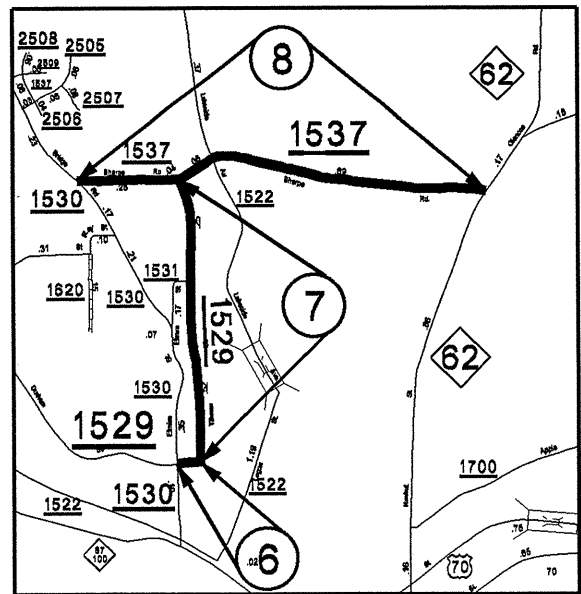


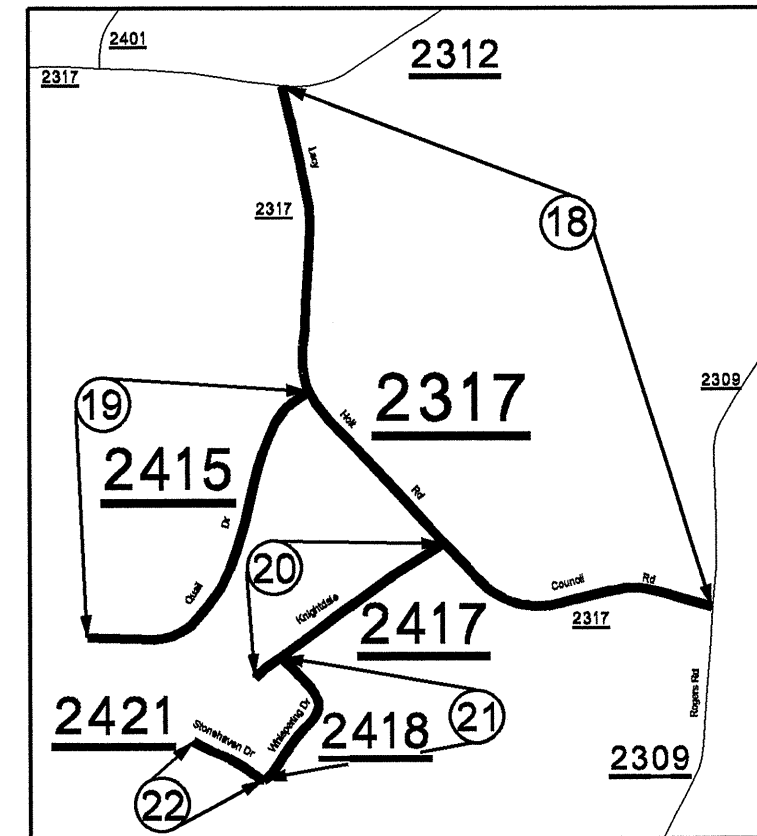
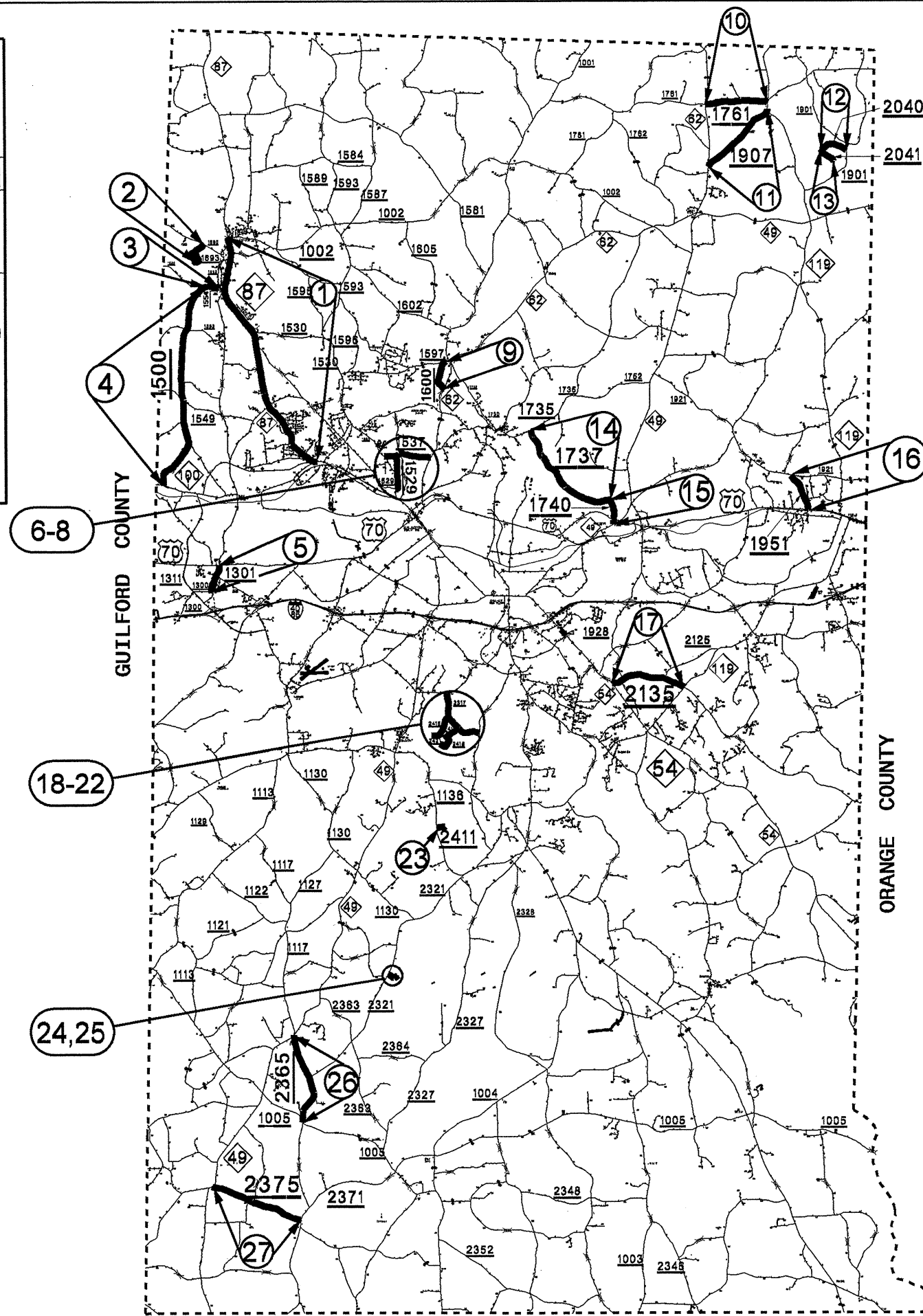
06-OCT-2010 08:00  
S:\Contracts\Resurfacing Projects\Division 7\7cr.10011.23\alamance\REVISED 2011 ALAMANCE 10-4-10\CADD\vicinity.dgn  
\$\$\$LISE RNWF\$\$\$



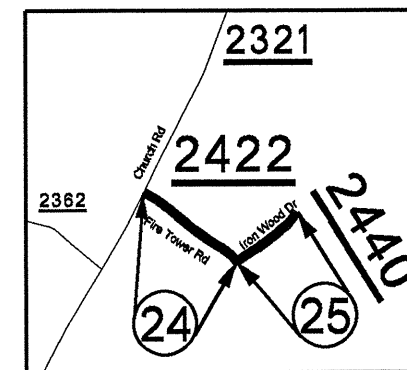
MAPS 2, 3



MAPS 6, 7, 8



MAPS 18-22



MAPS 24,25

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.23, ECT.	1	9
F.A. PROJ. NO.			

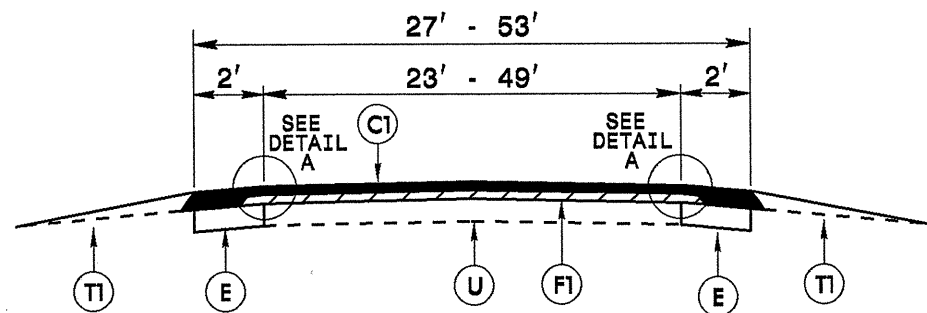
7CR.10011.23  
7CR.20011.23  
7.200112

# ALAMANCE COUNTY



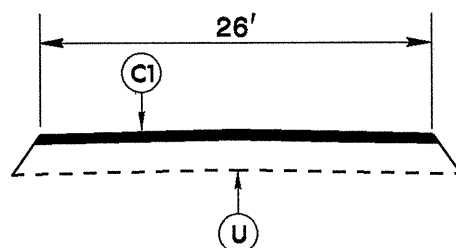
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.23, ECT.	2	9

7CR.10011.23  
7CR.20011.23  
7.200112



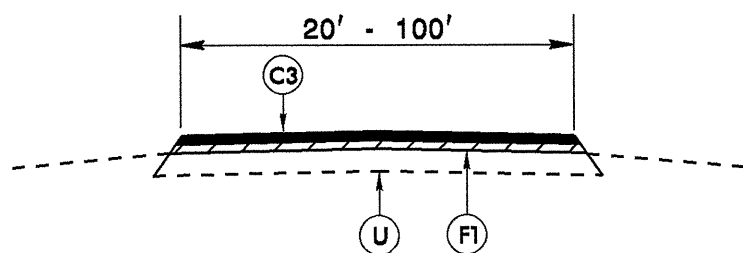
**TYPICAL SECTION NO. 1**

TO BE USED ON MAP 1  
SEE TYPICAL 2 FOR BRIDGE SECTIONS



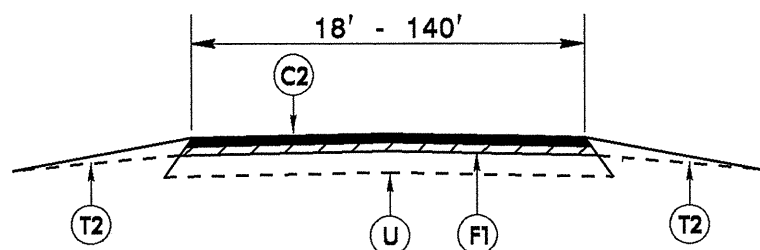
**TYPICAL SECTION NO. 2**

TO BE USED ON BRIDGES ON:  
MAP 1 STA. 240+65 TO STA. 243+70  
MAP 1 STA. 276+50 TO STA. 279+30  
MAP 1 STA. 280+35 TO STA. 280+90



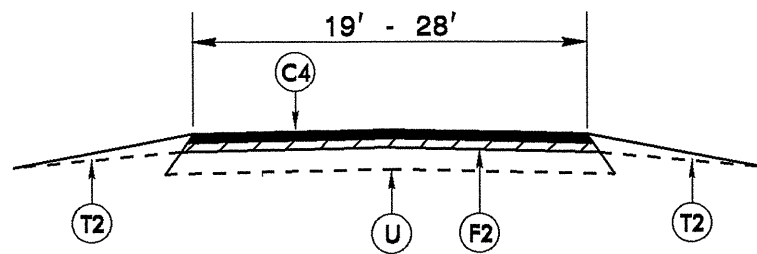
**TYPICAL SECTION NO. 3**

TO BE USED ON MAPS 2, 19, 20, 21, 22



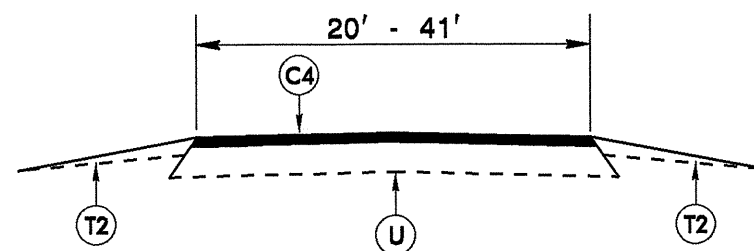
**TYPICAL SECTION NO. 4**

TO BE USED ON MAPS 3, 6, 7, 15, 18  
MAP 4 STA. 00+00 TO STA. 139+60



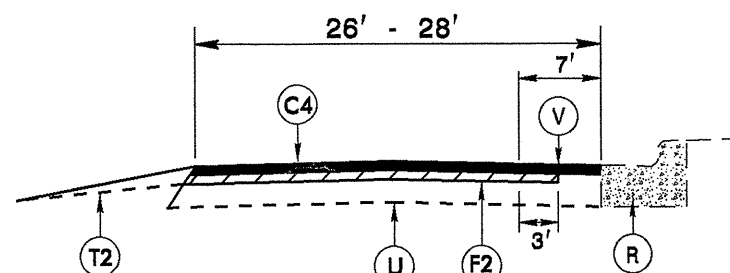
**TYPICAL SECTION NO. 5**

TO BE USED ON:  
MAP 4 STA. 139+60 TO STA. 198+75  
MAP 4 STA. 209+45 TO STA. 211+15  
MAP 4 STA. 221+90 TO STA. 245+20  
MAP 4 STA. 247+55 TO STA. 250+15  
MAP 8 STA. 00+00 TO STA. 02+30  
MAP 8 STA. 08+25 TO STA. 53+60  
MAPS 10, 11, 14, 16, 17, 26, 27



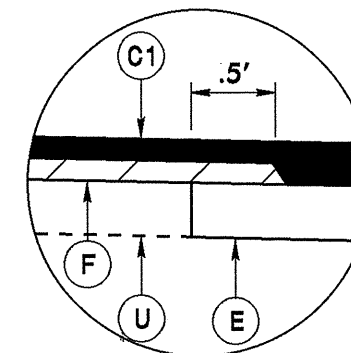
**TYPICAL SECTION NO. 6**

TO BE USED ON:  
MAP 4 STA. 198+75 TO STA. 209+45  
MAP 4 STA. 211+15 TO STA. 221+90



**TYPICAL SECTION NO. 7**

TO BE USED ON:  
MAP 4 STA. 245+20 TO STA. 247+55



**DETAIL A**

**PAVEMENT SCHEDULE**

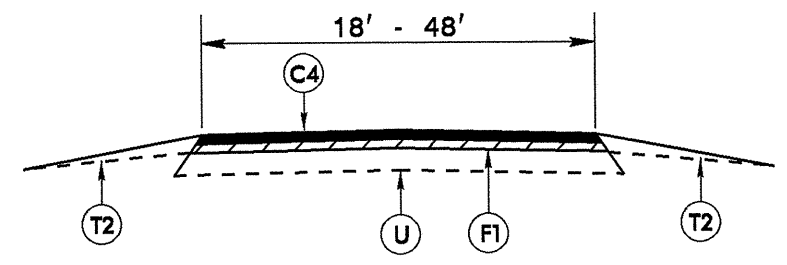
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C3	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
E	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
F1	AST MAT COAT, 78M
F2	AST MAT COAT, 67 STONE
R	EXISTING CONCRETE CURB & GUTTER
U	EXISTING PAVEMENT.
T1	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
T2	INCIDENTAL STONE BASE IN LOW SHOULDER AREAS, AS DIRECTED BY THE ENGINEER.
V	0 - 1½" MILLING

06-OCT-2010 08:02 C:\Users\jfranklin\Documents\Projects\Resurfacing\Projects\10011.23\alalance\REVISED 2011 ALAMANCE 10-4-10\CADD\typical1.dgn

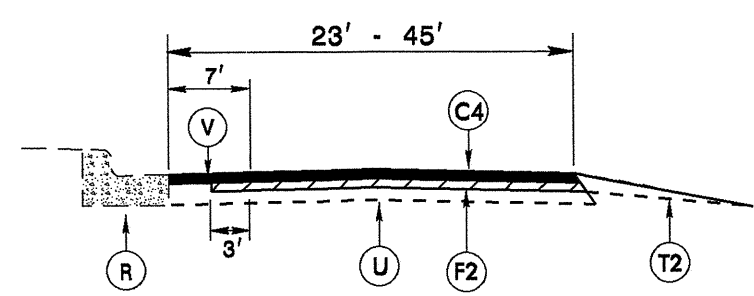
06-OCT-2010 08:02  
 S:\Contracts\Resurfacing Projects\Division 7\7cr.10011.23\alamance\REVISED 2011 ALAMANCE 10-4-10\CADD\typical2.dgn  
 \$\$\$USERNAME\$\$\$

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.23, ECT.	3	9

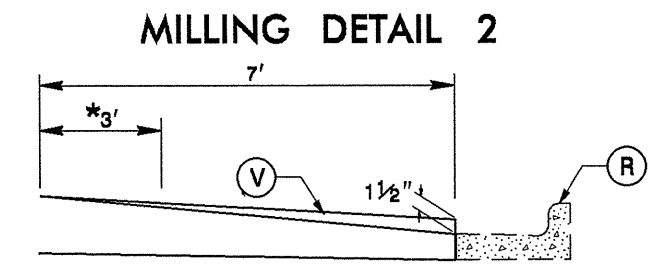
7CR.10011.23  
 7CR.20011.23  
 7.200112



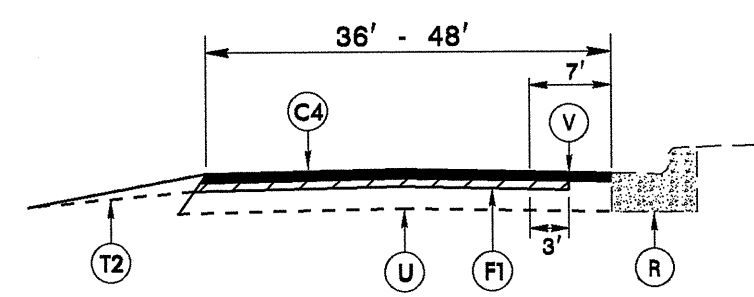
**TYPICAL SECTION NO. 8**  
 TO BE USED ON:  
 MAP 5 STA. 00+00 TO STA. 00+50  
 MAP 5 STA. 02+25 TO STA. 09+90  
 MAP 5 STA. 16+05 TO STA. 30+60  
 MAP 9



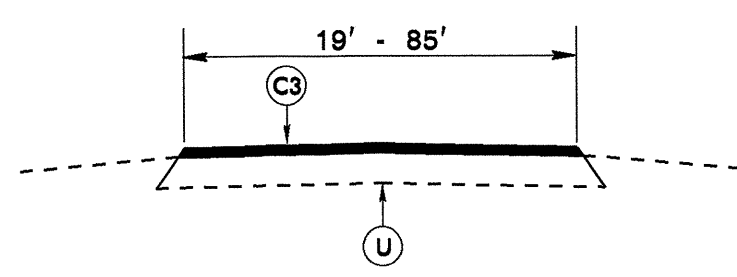
**TYPICAL SECTION NO. 11**  
 TO BE USED ON:  
 MAP 8 STA. 02+30 TO STA. 08+25



**MILLING DETAIL 2**  
 0 - 1 1/2" MILLING  
 \*IF 78M IS INVOLVED OVERLAP 3'  
 USE ON MAP 5 STA. 09+90 TO STA. 16+05 LT



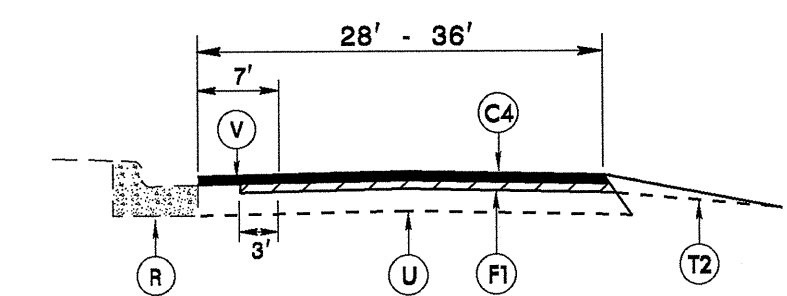
**TYPICAL SECTION NO. 9**  
 TO BE USED ON:  
 MAP 5 STA. 00+50 TO STA. 02+25



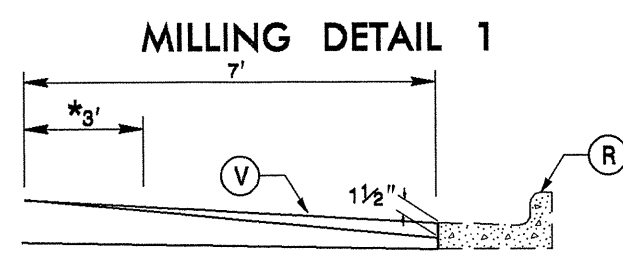
**TYPICAL SECTION NO. 12**  
 TO BE USED ON MAPS 12, 13, 23, 24, 25

**PAVEMENT SCHEDULE**

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C3	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
E	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
F1	AST MAT COAT, 78M
F2	AST MAT COAT, 67 STONE
R	EXISTING CONCRETE CURB & GUTTER
U	EXISTING PAVEMENT.
T1	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
T2	INCIDENTAL STONE BASE IN LOW SHOULDER AREAS, AS DIRECTED BY THE ENGINEER.
V	0 - 1 1/2" MILLING



**TYPICAL SECTION NO. 10**  
 TO BE USED ON:  
 MAP 5 STA. 09+90 TO STA. 16+05



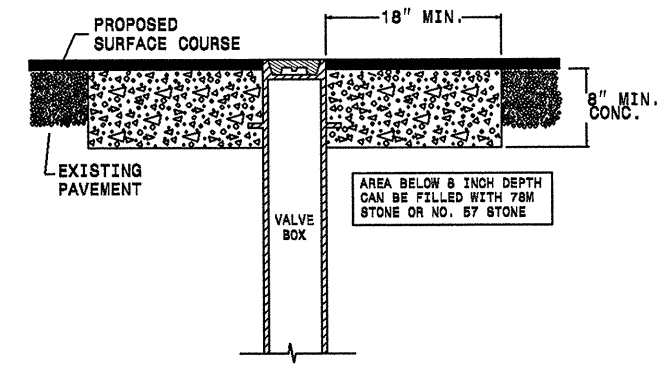
**MILLING DETAIL 1**  
 0 - 1 1/2" MILLING  
 \*IF 78M IS INVOLVED OVERLAP 3'  
 USE ON MAP 4 STA. 245+20 TO STA. 247+55 RT  
 USE ON MAP 5 STA. 00+50 TO STA. 02+25 RT  
 USE ON MAP 8 STA. 02+30 TO STA. 08+25 LT

5/28/99  
 06-OCT-2010 08:04  
 S:\Contracts\Projects\Resurfacing Projects\Division 7\7cr.10011.23\alamance\REVISED 2011 ALAMANCE 10-4-10\CADD\typical3.dgn  
 \$\$\$USERNAME\$\$\$

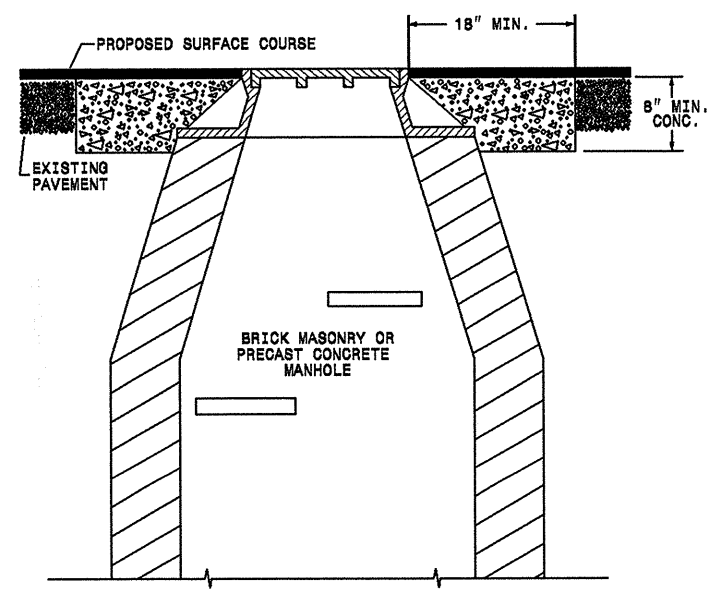
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10011.23, ECT.	4	9

7CR.10011.23  
7CR.20011.23  
7.200112

**STANDARD CONCRETE ENCASEMENT FOR MANHOLE & VALVE CASTINGS IN PAVEMENT**  
DETAIL DRAWING NO. 858.01

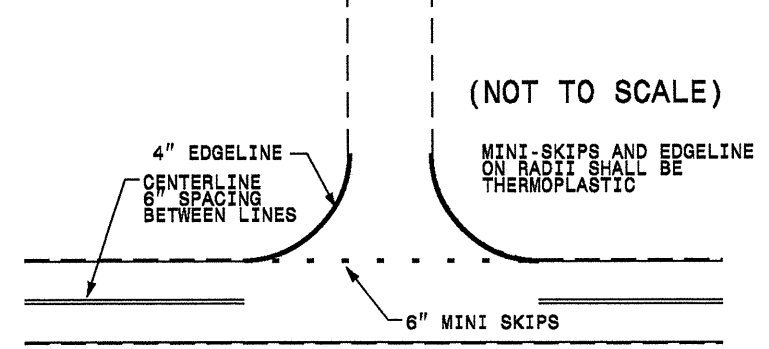


USE RAPID SET GROUT, MORTAR, OR CONCRETE CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.



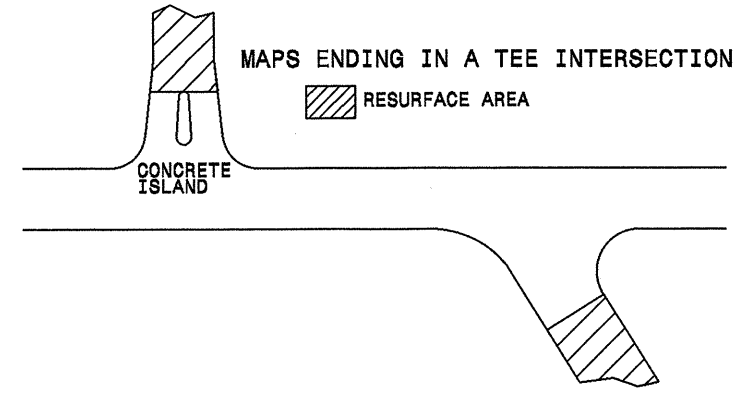
- NOTES:
- MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
  - ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
  - EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
  - RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED

**TO BE USED AT ALL NON-SIGNALIZED INTERSECTIONS**



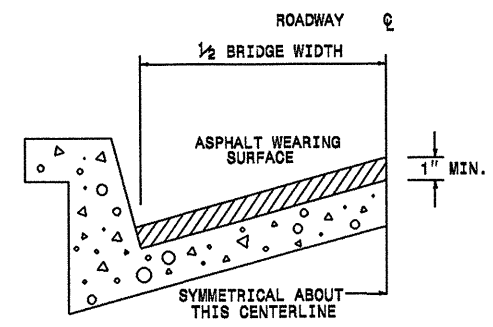
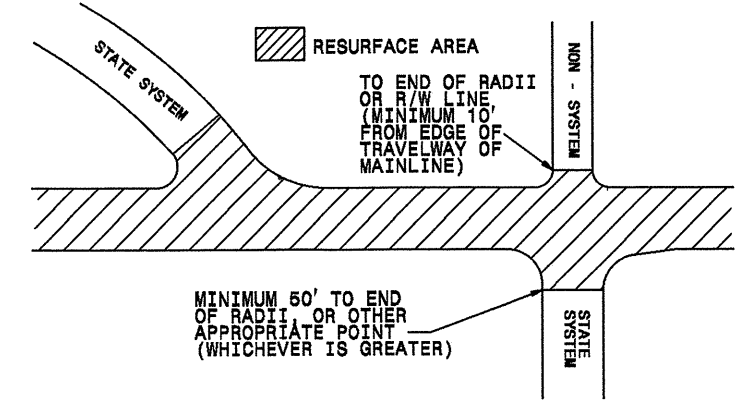
NOTE: MINI SKIPS SHALL BE PLACED ON A 10' CYCLE, CONTAINING AN 8' AND 2' SKIP, THE WIDTH OF THE SKIP SHALL BE 6".

**PAVING DETAIL 1**  
MAIN LINE IS NOT BEING RESURFACED



**PAVING DETAIL 2**  
MAIN LINE IS BEING RESURFACED

NOTE: NON-SYSTEM (CITY STREET, PRIVATE DRIVE, SCHOOL BUS DRIVE)



FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN. THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 1" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1-1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

NOTES

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

**PAVEMENT SCHEDULE**

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C3	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
E	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
F1	AST MAT COAT, 78M
F2	AST MAT COAT, 67 STONE
R	EXISTING CONCRETE CURB & GUTTER
U	EXISTING PAVEMENT.
T1	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
T2	INCIDENTAL STONE BASE IN LOW SHOULDER AREAS, AS DIRECTED BY THE ENGINEER.
V	0 - 1 1/2" MILLING











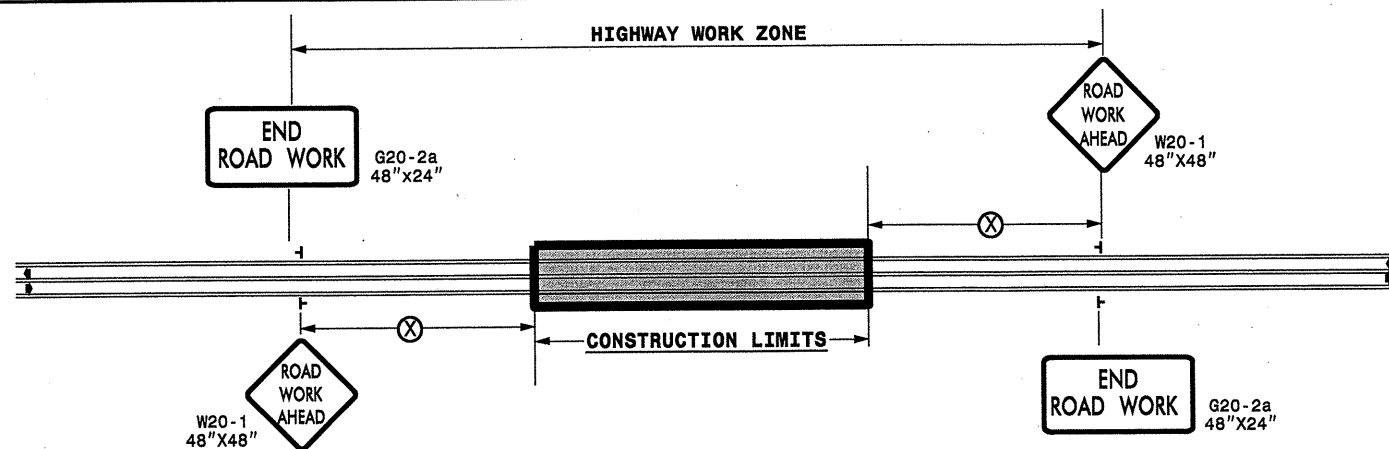
PROJECT NO. 7CR.10011.23, 7CR.20011.23 7.200112,	SHEET NO. 9	TOTAL NO. 9
--	----------------	----------------

### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E	4686000000-E	4690000000-E	4695000000-E	4697000000-E	4710000000-E	4721000000-E	4725000000-E					4810000000-E	4820000000-E	4900000000-N	4905000000-N				
					4" X 90 M WHITE THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	6" X 120 M WHITE THERMO	8" X 90 M YELLOW THERMO	8" X 120 M WHITE THERMO	24" X 120 M YELLOW THERMO	24" X 120 M WHITE THERMO	THERMO MSG SCHOOL 120 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO STR & LT ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT	8" YELLOW PAINT	YELLOW & YELLOW MARKERS	SNOW PLOWABLE MARKERS	
					LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA				
7CR.20011.23	Alamance	21	SR 2418 (WHISPERING HILL DR)	FROM SR 2417 (KNIGHTDALE DR) TO SR 2421 (STONEHAVEN DR)																				
		<b>TOTAL FOR MAP NO. 21</b>																						
		22	SR 2421 (STONEHAVEN DR)	FROM SR 2418 (WHISPERING HILL DR) TO EOM (CUL-DE-SAC)																				
		<b>TOTAL FOR MAP NO. 22</b>																						
		23	SR 2411 (HAZEL DR)	FROM SR 1136 (BELLEMONT MT HERMON RD) TO EOM																				
		<b>TOTAL FOR MAP NO. 23</b>																						
		24	SR 2422 (FIRE TOWER RD)	FROM SR 2321 (MT. HERMON ROCK CREEK RD) TO EOM																				
		<b>TOTAL FOR MAP NO. 24</b>																						
		25	SR 2440 (IRON WOOD DR)	FROM SR 2422 (FIRE TOWER DR) TO EOM																				
		<b>TOTAL FOR MAP NO. 25</b>																						
26	SR 2365 (COBLE MILL RD)	FROM SR 1005 (GREENSBORO-CHAPEL HILL RD) TO NC-49	225			44											42,380	34,358						
<b>TOTAL FOR MAP NO. 26</b>					225			44									42,380	34,358						
27	SR 2375 (PLEASANT HILL LIBERTY RD)	FROM NC-49 TO SR 2371 (PLEASANT HILL CHURCH RD)	150			50											43,000	30,610						
<b>TOTAL FOR MAP NO. 27</b>					150			50									43,000	30,610						
<b>TOTAL FOR PROJ NO. 7CR.20011.23</b>					18,340	926	18,458	730	205	112		297	12	17	8	2	5	3	428,302	377,006	474			
							19,384											805,308						
7.200112	Alamance	3	SR 1554 GIBSONVILLE-OSSIPEE RD	FROM SR 1558 (OLD NC 87) TO SR 1500 (GIBSONVILLE-OSSIPEE RD)																18				
		<b>TOTAL FOR MAP NO. 3</b>																		18				
		4	SR 1500 (GIBSONVILLE-OSSIPEE RD)	FROM SR 1554 (GIBSONVILLE-OSSIPEE RD) TO THE BACK OF RADIUS OF NC 100																	313			
		<b>TOTAL FOR MAP NO. 4</b>																			313			
		5	SR 1301 (ST. MARKS CHURCH RD)	FROM JOINT A COUPLE HUNDRED FEET SOUTH OF US-70 TO JOINT SOUTH OF SR 1300 (RURAL RETREAT RD)																	39			
		<b>TOTAL FOR MAP NO. 5</b>																			39			
		8	SR 1537 (SHARPE RD)	FROM SR 1530 (BIRCH BRIDGE RD) TO NC 62																	68			
		<b>TOTAL FOR MAP NO. 8</b>																			68			
		14	SR 1737 (HAW RIVER HOPEDALE RD)	FROM SR 1735 (SANDY CROSS RD) TO SR 1740 (HOPEDALE- HAW RIVER RD)																	172			
		<b>TOTAL FOR MAP NO. 14</b>																			172			
16	SR 1951 (WOODLAWN RD)	FROM US-70 TO SR 1921 (MEBANE ROGERS RD)																	55					
<b>TOTAL FOR MAP NO. 16</b>																			55					
17	SR 2135 (JIM MINOR RD)	FROM NC-54 TO NC-119																	107					
<b>TOTAL FOR MAP NO. 17</b>																			107					
18	SR 2317 (LACY HOLT RD)	FROM SR 2312 (MONROE HOLT RD) TO SR 2309 (ROGERS RD)																	88					
<b>TOTAL FOR MAP NO. 18</b>																			88					
<b>TOTAL FOR PROJ NO. 7.200112</b>																				860				
<b>GRAND TOTAL</b>					74,760	1,636	64,588	1,098	1,285	112		234	831	48	24	9	3	7	3	428,302	377,006	474	860	352
							66,224													805,308				

\*\*\* SEPARATE WBS FOR MARKERS

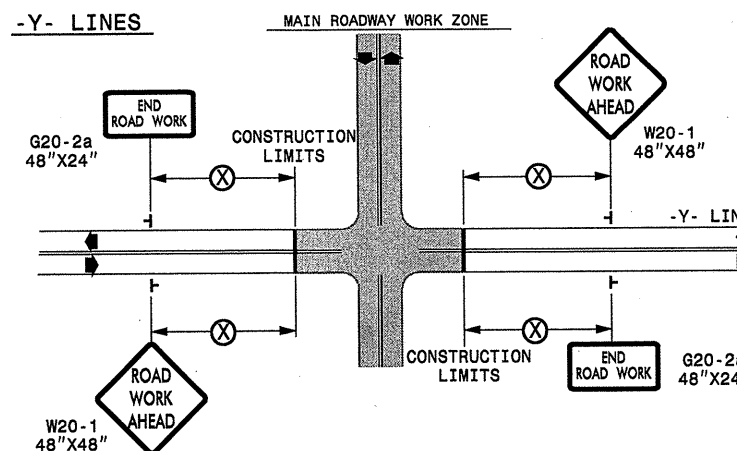
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

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

**ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)**



**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.
- 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 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.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

**DETAIL DRAWING FOR  
TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS**

**LEGEND**

- └ STATIONARY SIGN
- ◀ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

SEAL

DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS

SCALE: NONE	REVISIONS	
DATE: 10-98	7-98	10/01
DWG. BY:	10-98	03/04
DESIGN BY:	01/01	11/04
REVIEWED BY:		

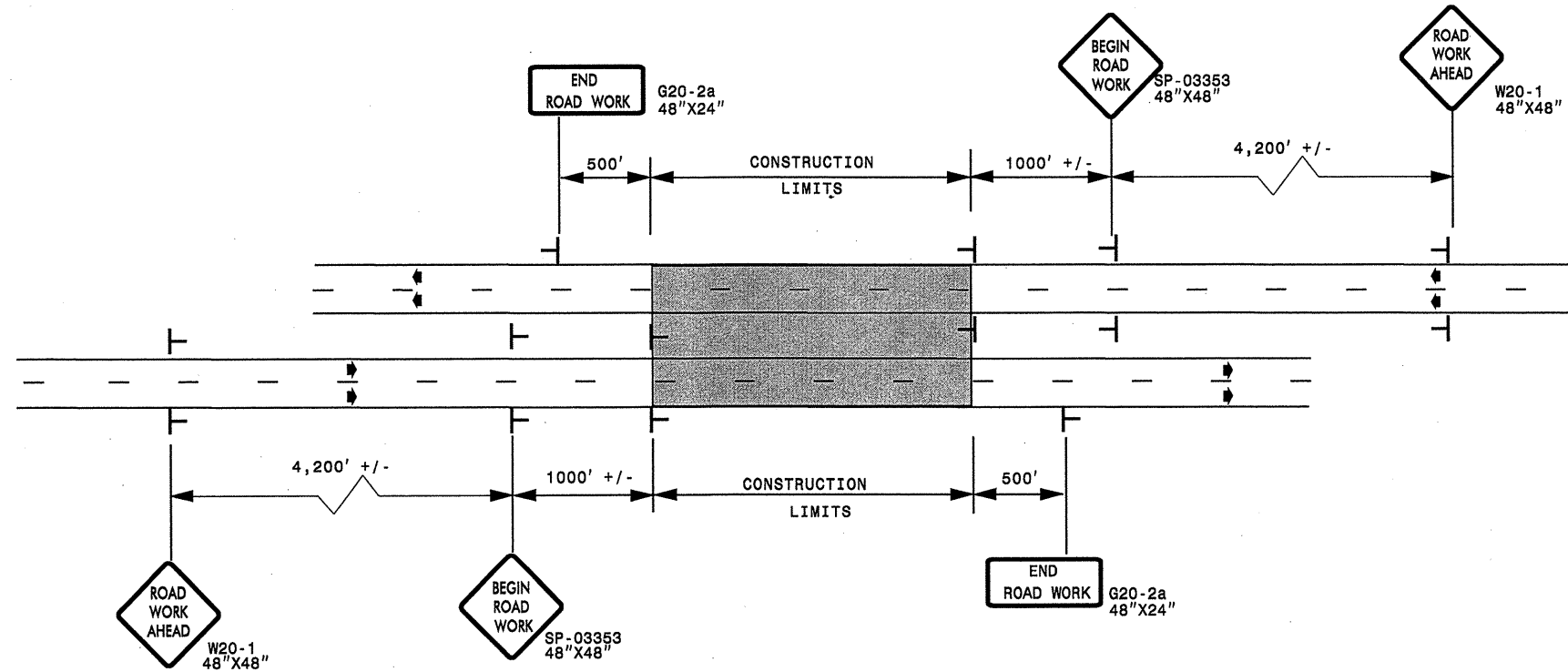
05-OCT-2010 08:25  
 \\DOT\DESIGN\GROUPS\WZTC\Resurfacing\2010\Centr alRegion\Div07\C202631A-C-7.200112x3-2way\_Undiv.&Urban\_Frwys\_stationary.dgn  
 AT: WZTC4437  
 bpschoenauer

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

WBS ELEMENTS: 7.200112,  
7CR.10011.23, 7CR.20011.23

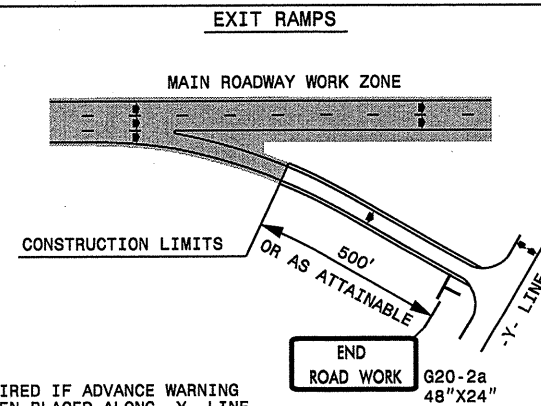
PROJ. REFERENCE NO. SEE TO THE LEFT	SHEET NO. TCP-2
--	--------------------

## DETAIL A



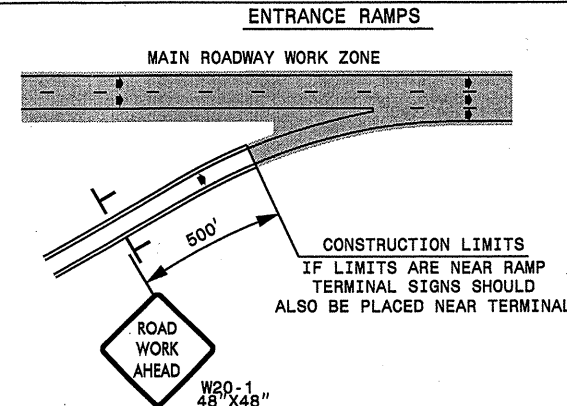
\* USE THE "\$250 SPEEDING PENALTY" SIGN, SPEED LIMIT SIGN, AND ORANGE PANEL; ONLY WHEN A "\$250 SPEEDING PENALTY" ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.

## DETAIL B

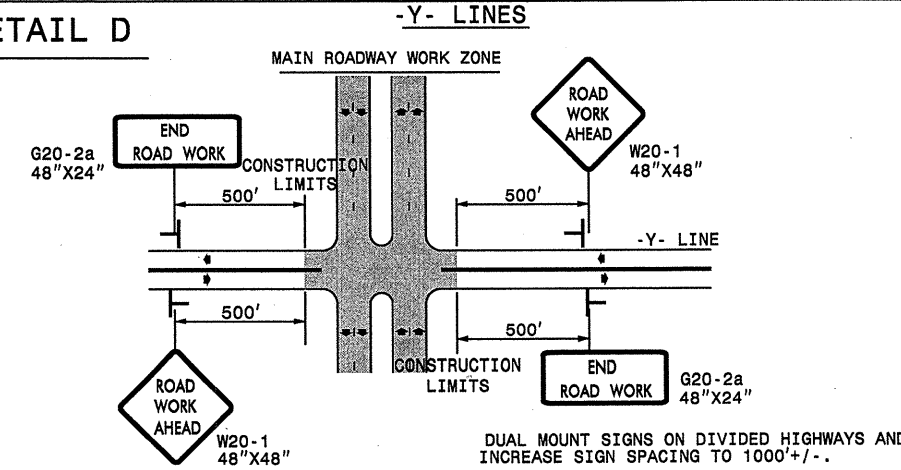


NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

## DETAIL C

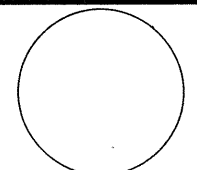


## DETAIL D



## 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.
- 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 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.

APPROVED: _____	DATE: _____	<b>ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)</b>	
			
		DATE: 8/03	03/04
DESIGN BY: JI	REVIEWED BY:		

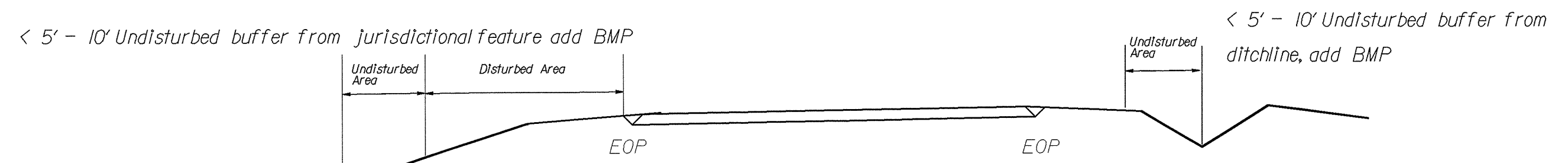
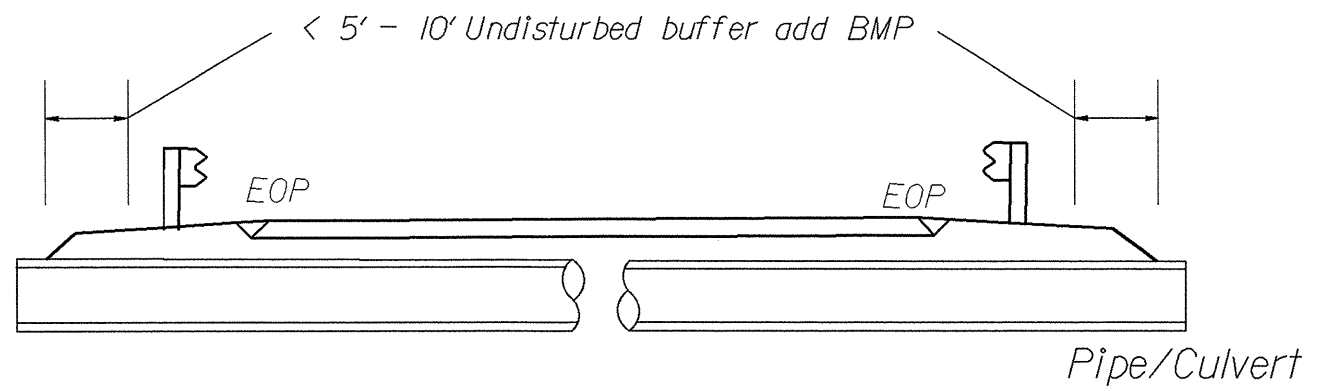
05-047-2010\_08336 (10) GROUPS-WZTC (Resurfacing) 2010.Centr alRegion.DIV07.C20263A-C.7.200112X3.Alamance.NC.87.m27.C20263A-C.7.200112X3.freeways\_4lanes\_or\_greater\_stationary.dgn

PROJECT REFERENCE NO. 7CRJ0011.23, ETC.	SHEET NO. EC-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

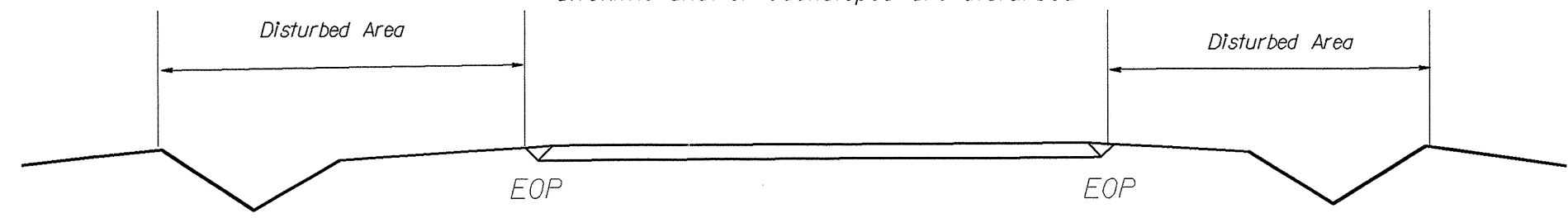
BMP Options: Wattle or Silt Fence

# EROSION CONTROL DETAIL

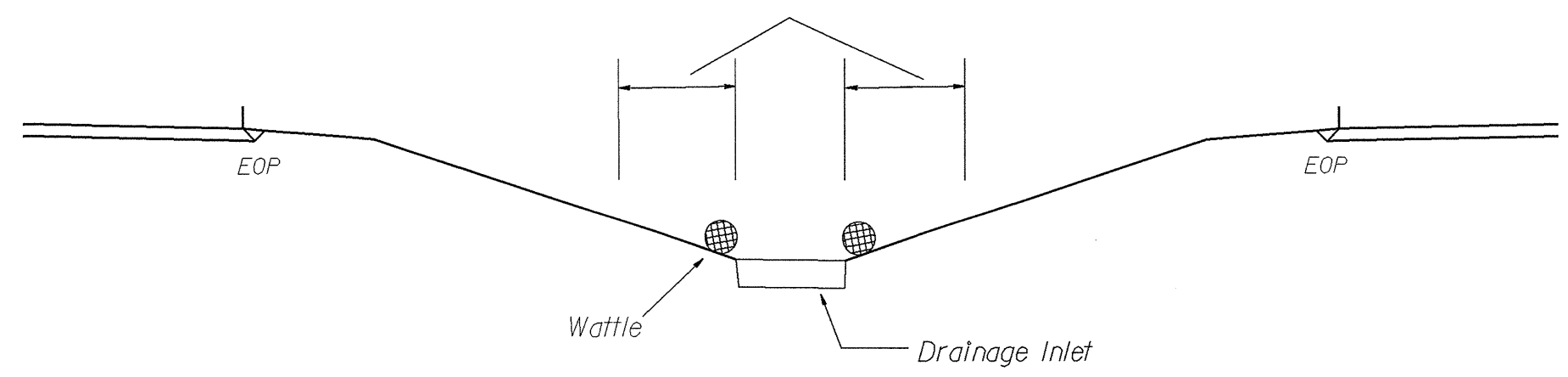


Jurisdictional Feature

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

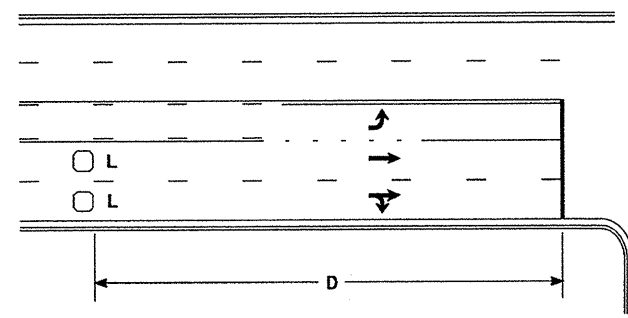


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

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

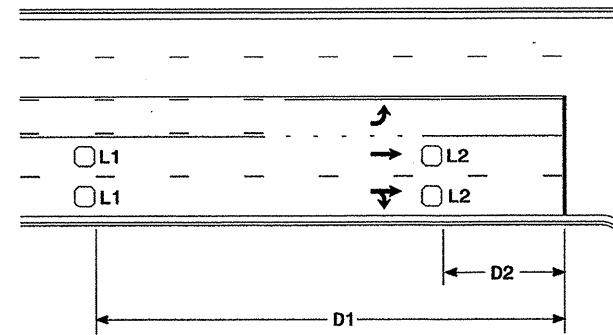


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

Volume Density Operation

OR

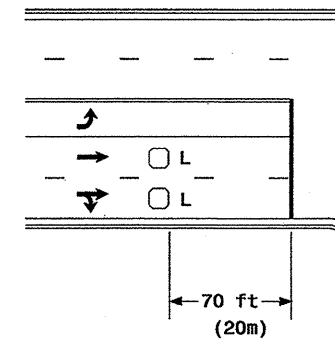


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

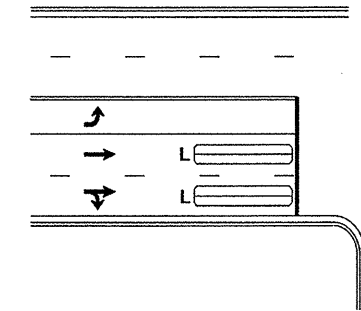
"Stretch" Operation

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



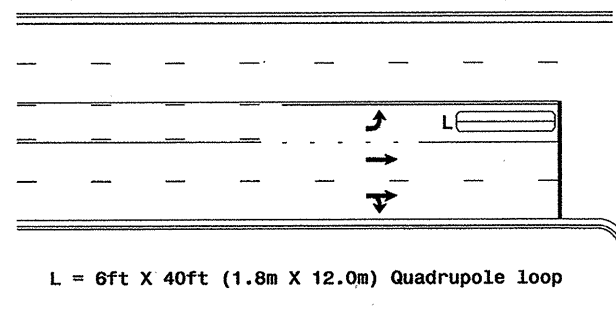
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

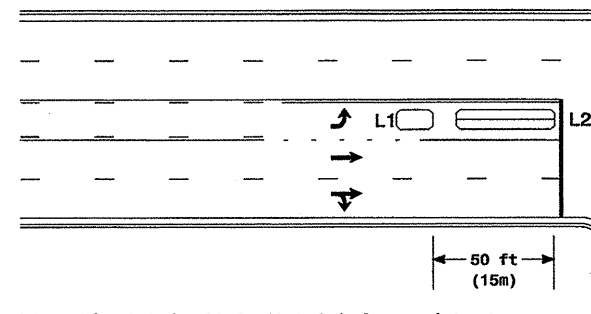
### Left Turn Lane Detection



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

Presence Loop Detection

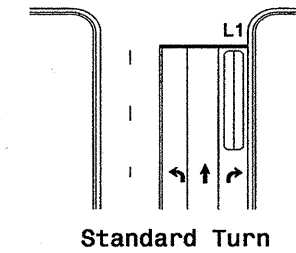
OR



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

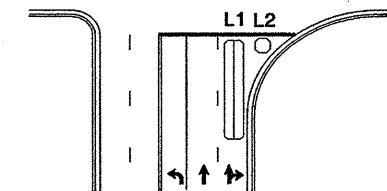
Queue Loop Detection

### Right Turn Lane Detection

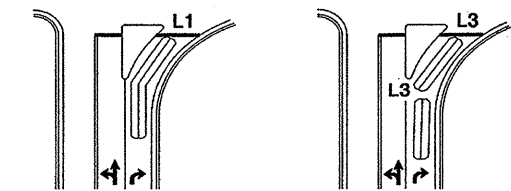


Standard Turn

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

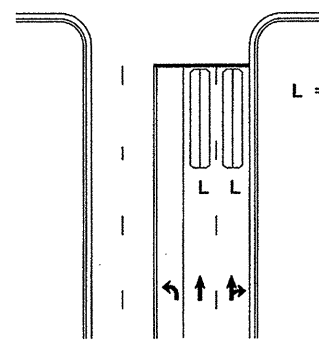


Wide Radius Turn



Channelized Turn

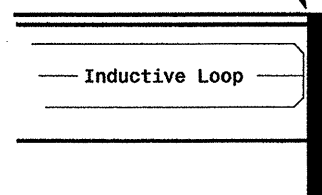
### Side Street Detection



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

### Presence Loop Placement at Stop Lines

Locate loop slightly  
behind leading  
edge of stop line



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

### Recommended Number of Turns

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

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

Quadrupole loops: Use 2-4-2 turns

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

	<p>Typical Loop Locations</p>									
	<p>PLAN DATE: June 2006</p>	<p>REVIEWED BY:</p>		<p>SCALE N/A</p>						
	<p>PREPARED BY: P L Alexander</p>	<p>REVIEWED BY:</p>		<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>12/13/06</td> <td>PLA</td> <td></td> </tr> </tbody> </table>	NO.	DATE	INIT.	DATE	1	12/13/06
NO.	DATE	INIT.	DATE							
1	12/13/06	PLA								

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

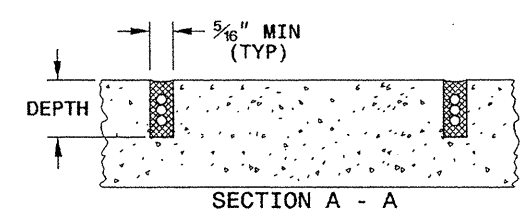
11-08

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

SHEET 1 OF 3  
**1725D01**

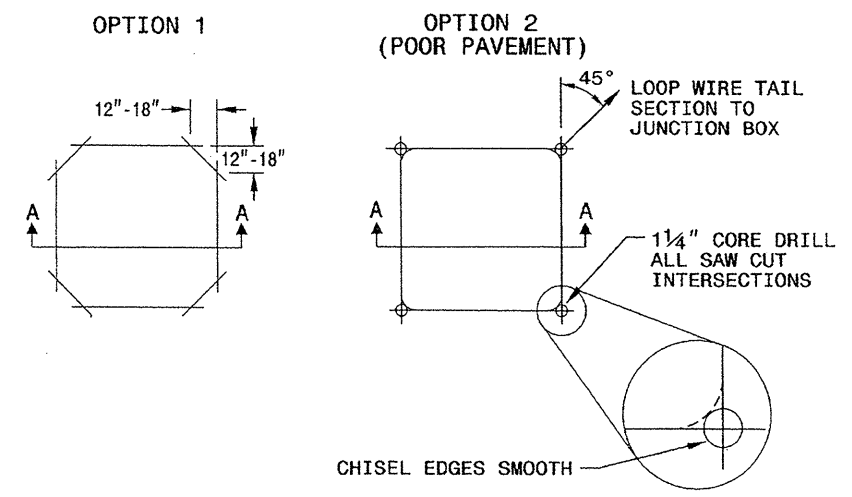
**SAW SLOT DEPTH CHART**

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

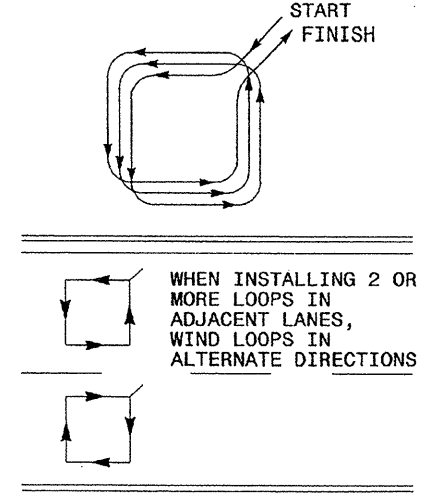


**CONVENTIONAL 4-SIDED LOOP**

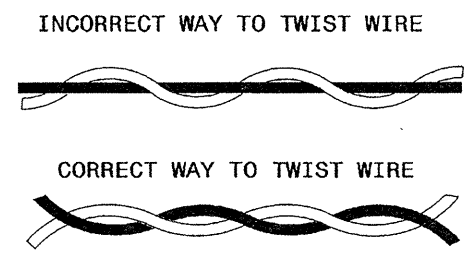
**SAW CUT OPTIONS**



**LOOP WINDING METHOD**



**LOOP WIRE TWISTING METHOD**

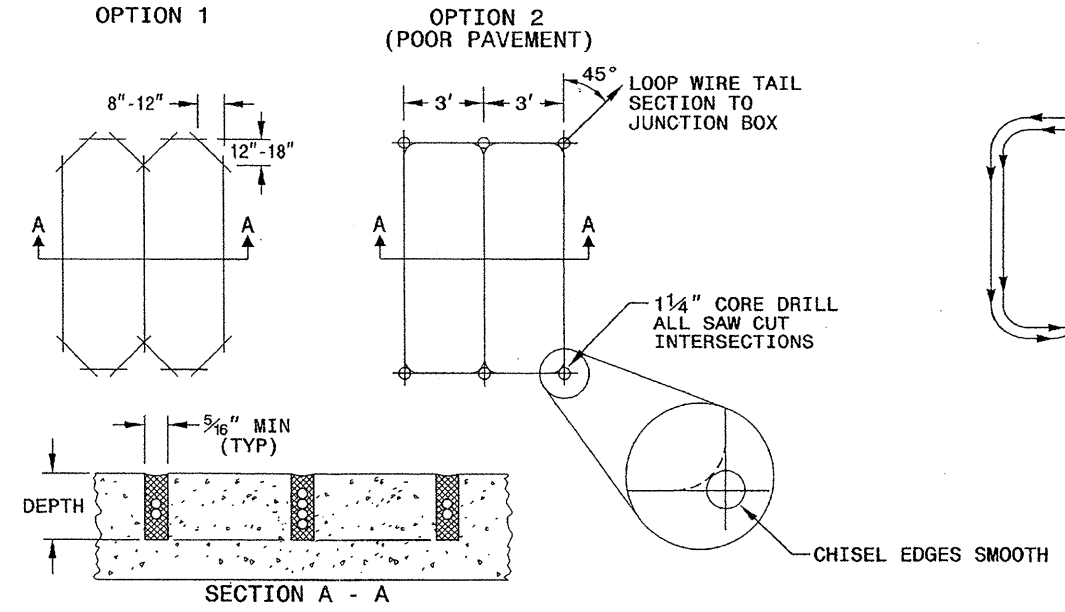


**NOTES**

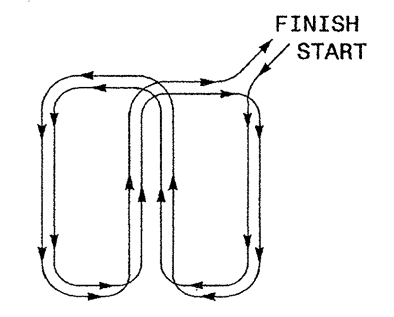
1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

**QUADRUPOLE LOOP**

**SAW CUT OPTIONS**



**LOOP WINDING METHOD**



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

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

11-08

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

SHEET 1 OF 3  
**1725D01**

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

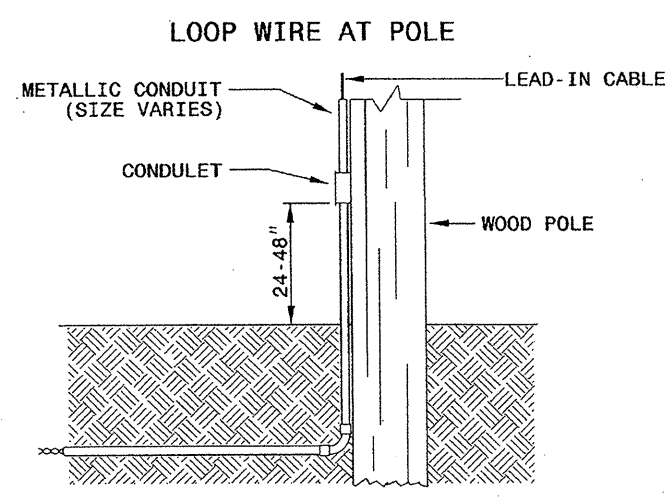
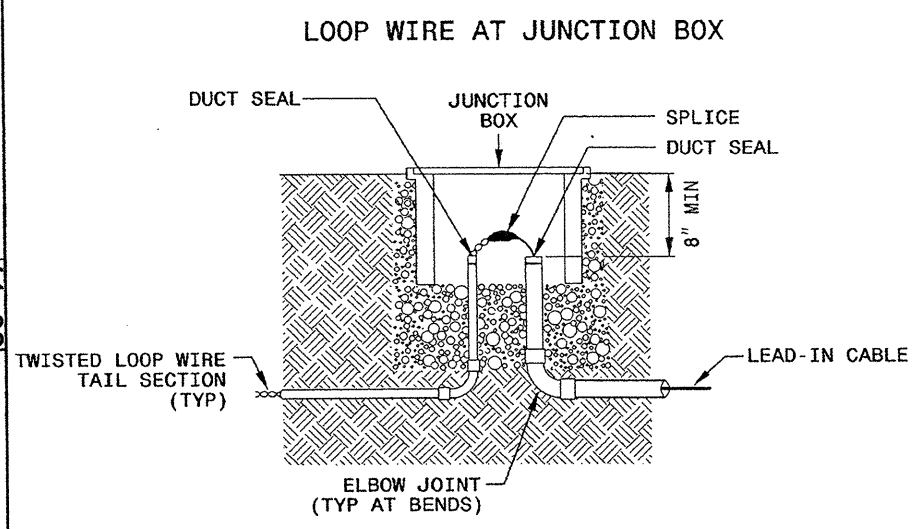
Milton A. Dean 11/24/08  
SIGNATURE DATE

24-101-2008 08-28  
d:\work\1725d01\1725d01.dwg  
zml:tlc

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

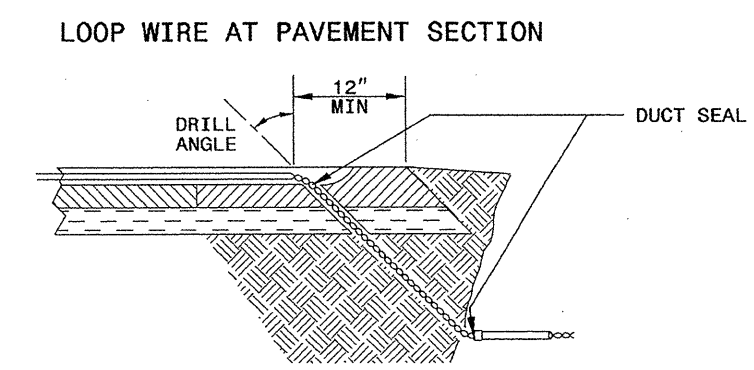
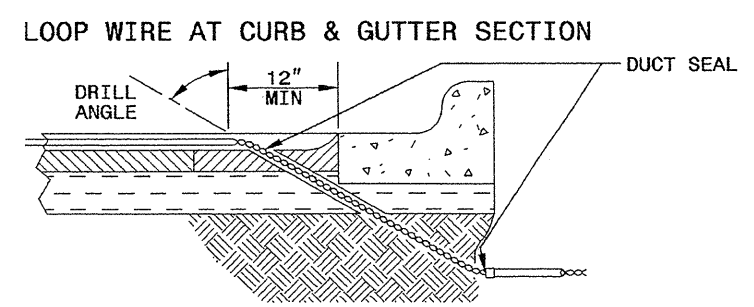
11-08  
 ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
 LOOP WIRE DETAILS

**LOOP WIRE SPLICE POINT DETAILS**



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

**LOOP WIRE PAVEMENT EDGE DETAILS**

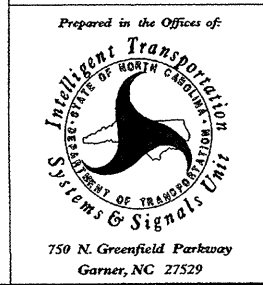


- NOTES**
1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
  2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
  3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT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

11-08  
 STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
 LOOP WIRE DETAILS

See Plate for Title



SEAL

*Milton I. Dean* 11/24/08  
 SIGNATURE DATE

24-Nov-2008 09:23  
 C:\work\_files\1725D01\1725D01.dgn  
 2/11/11

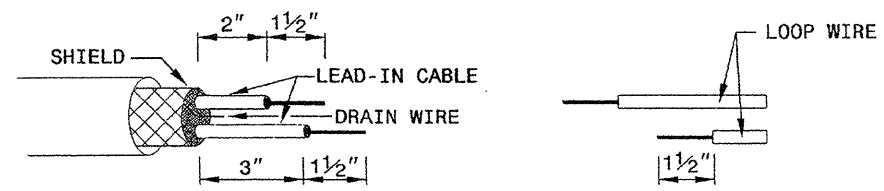
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

11-08

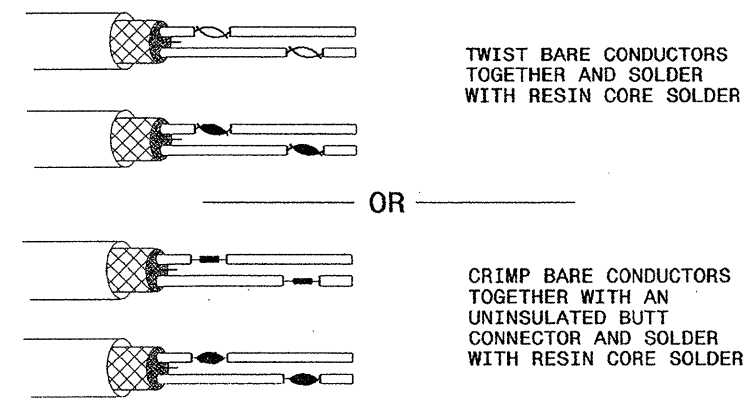
ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

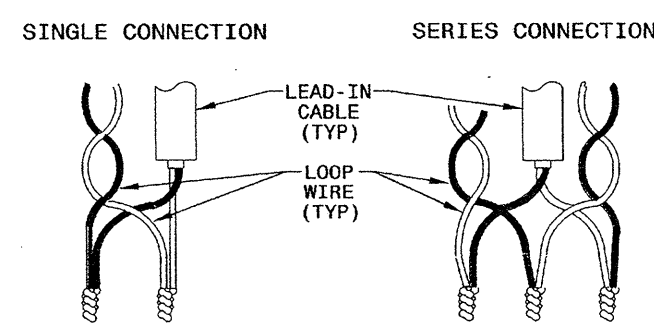


STEP 2. CONNECT AND SOLDER

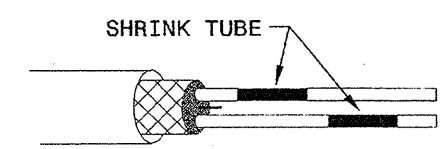


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

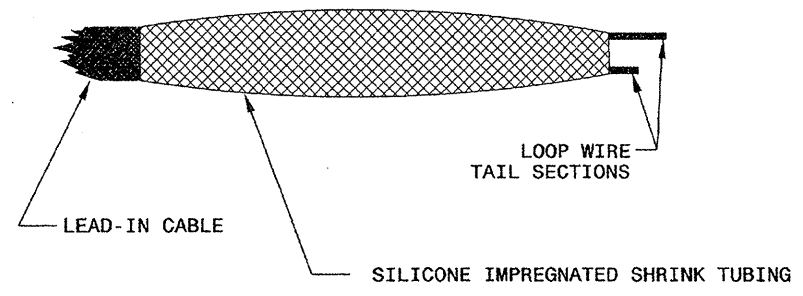
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

*Milton Dean* 11/24/08  
SIGNATURE DATE

24-Nov-2008 09:35  
d:\work\_files\nc-standard plate sheets\1725D01.mxd\307.dgn  
zml1111b