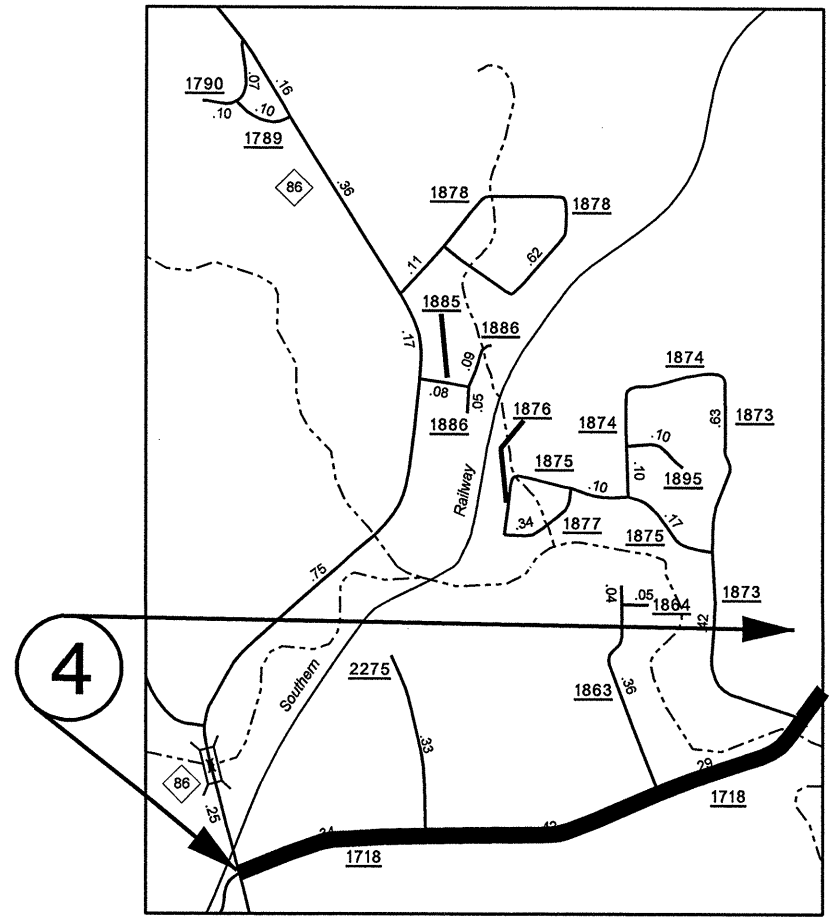
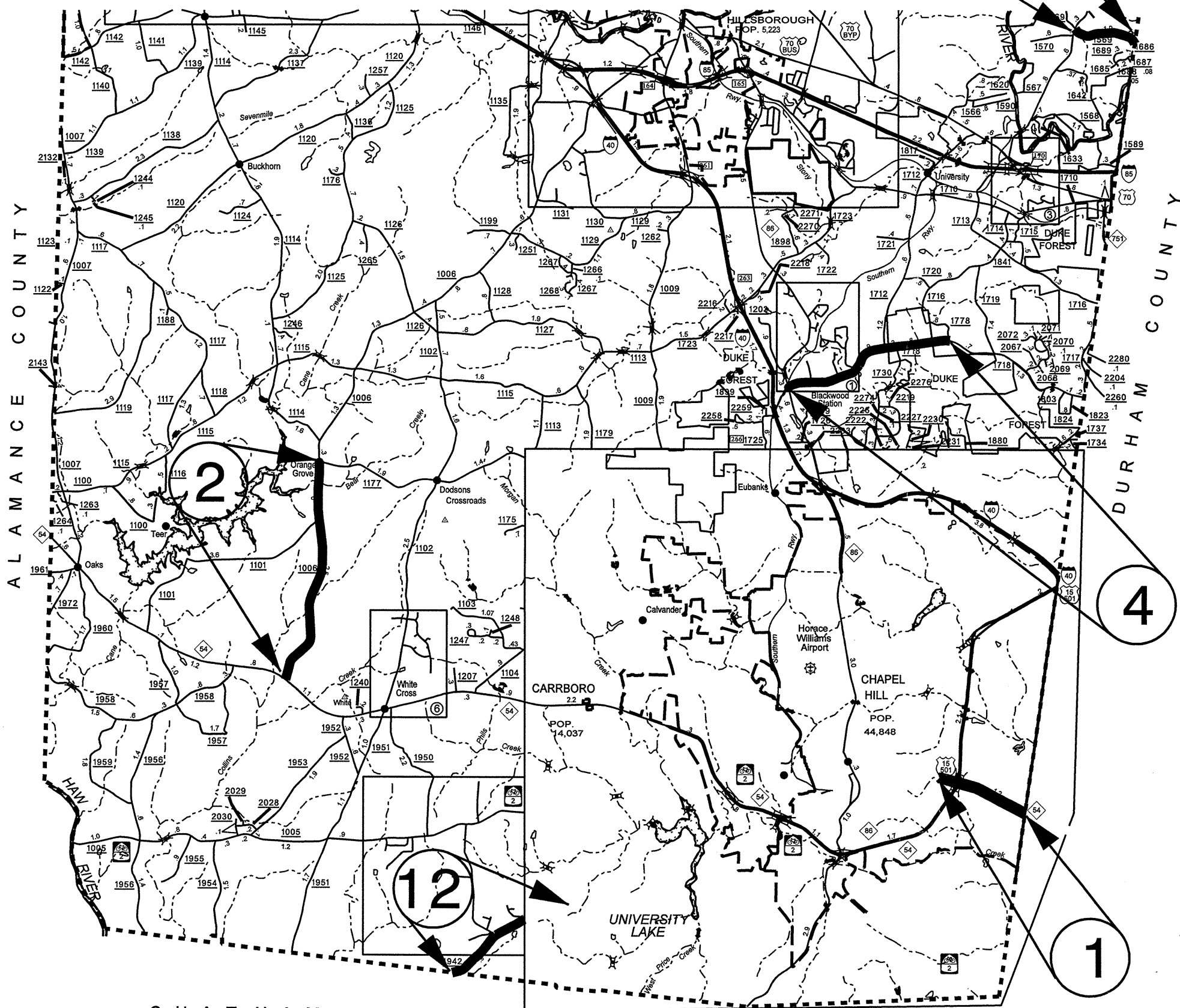


# ORANGE COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16, ETC.	1	11
F.A. PROJ. NO.			

7CR.10681.16  
7CR.20681.16



Inset 1

CHATHAM

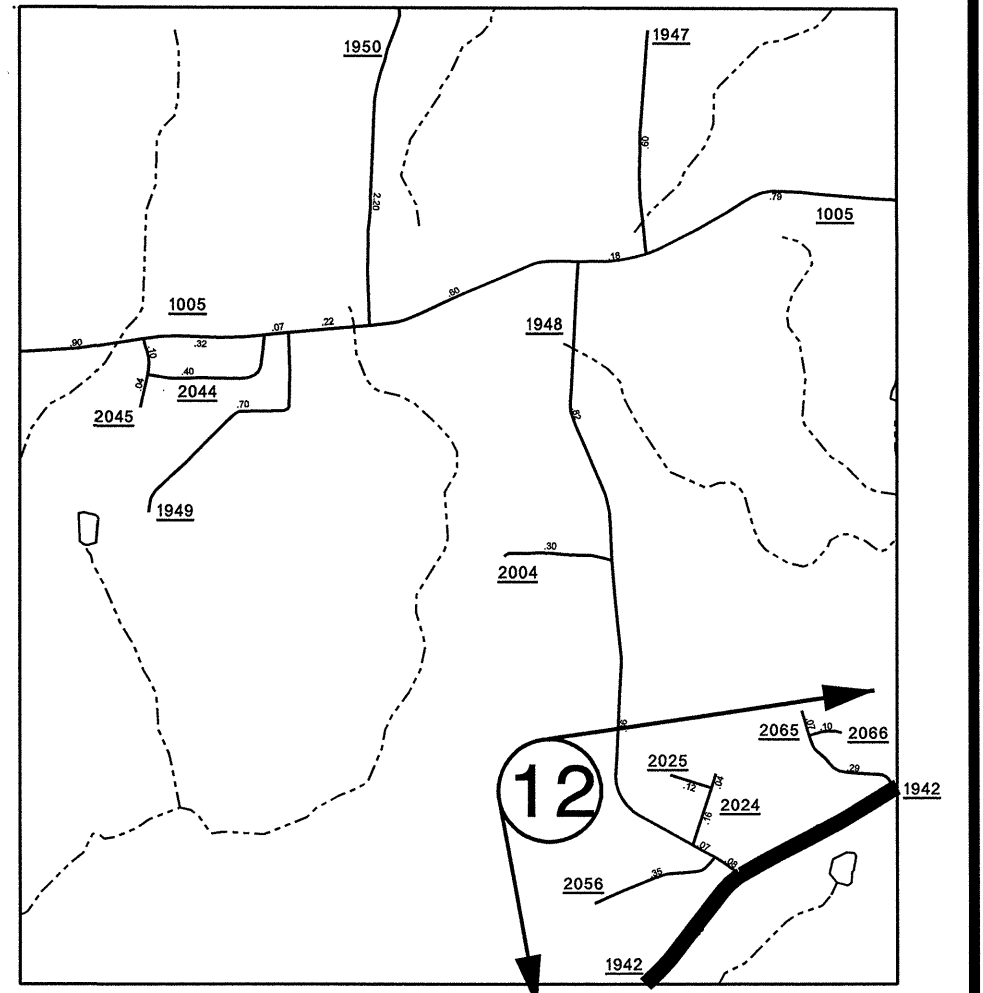
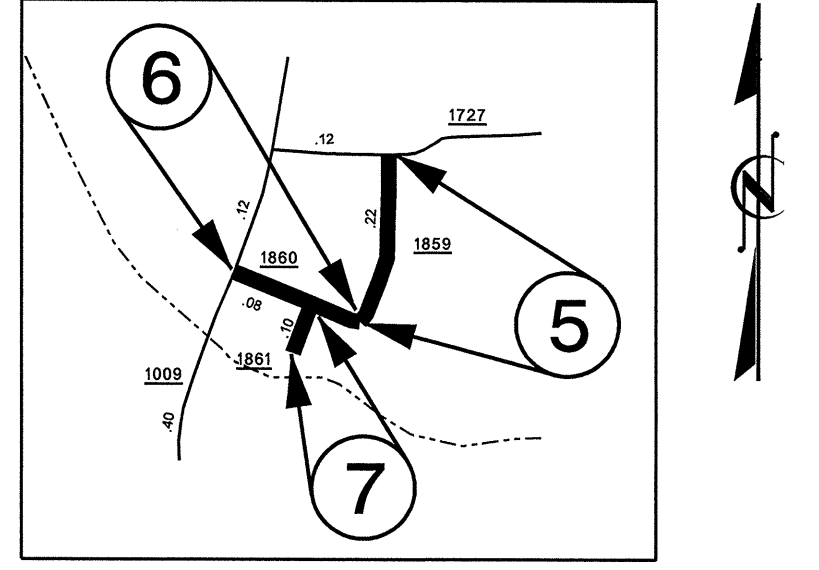
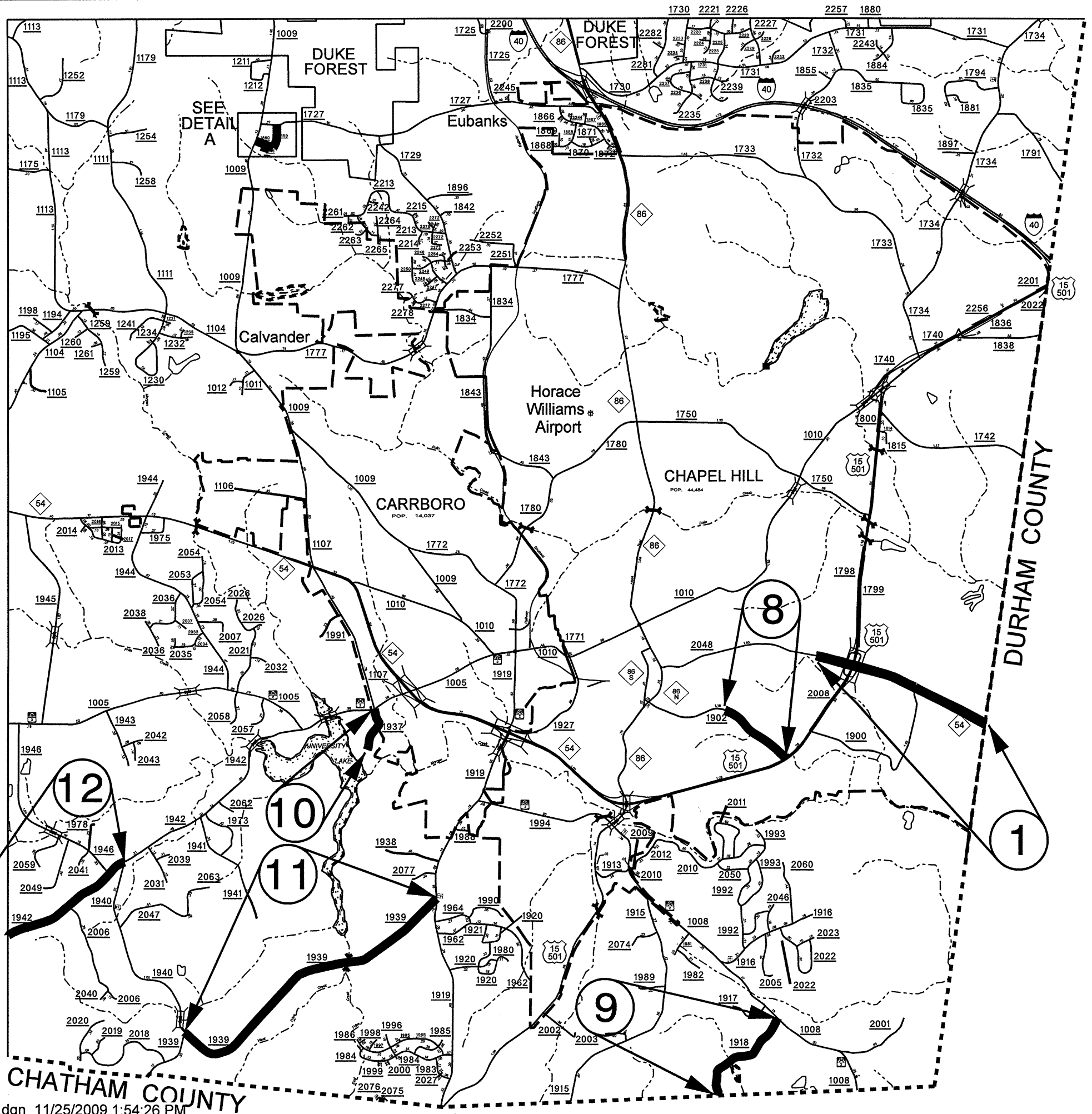
COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16, ETC.	2	11
F.A. PROJ. NO.			

7CR.10681.16  
7CR.20681.16

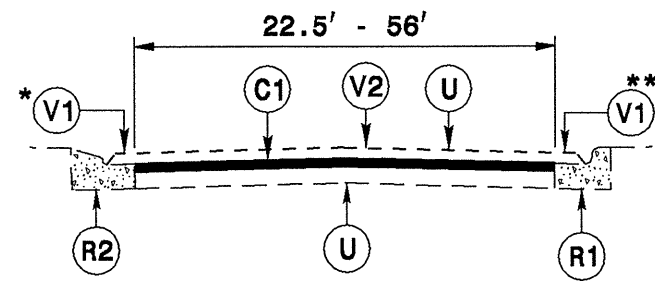
# ORANGE COUNTY

## DETAIL A



Inset 4

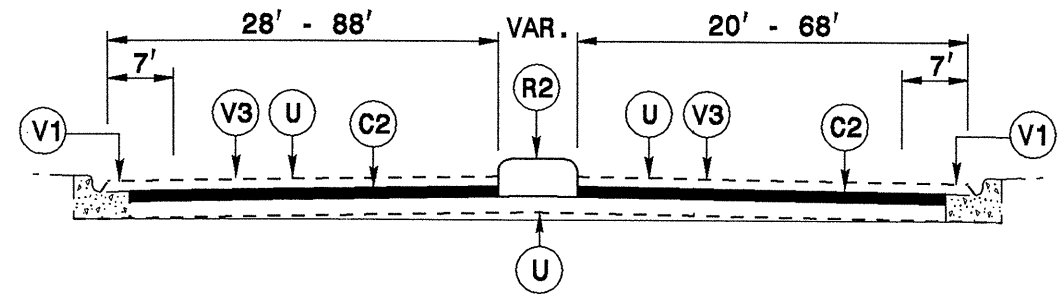
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16, 7CR.20681.16	3	11



MAP 1 STA. 00+00 TO STA. 37+95 EB  
 MAP 1 STA. 40+20 TO STA. 51+50 WB  
 MAP 1 STA. 57+65 TO STA. 80+30 WB  
 NOTE: FINAL SURFACE WILL BE FLUSH WITH GUTTER

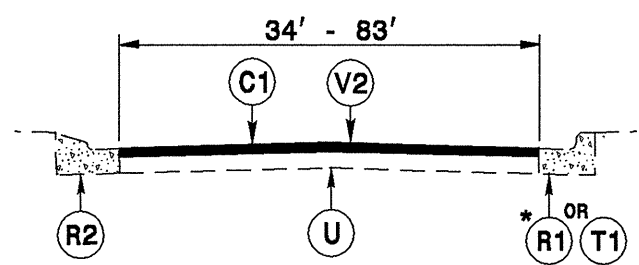
\* TO BE USED STA. 00+00 TO STA. 22+75  
 \*\* TO BE USED STA. 00+00 TO STA. 37+95

**TYPICAL SECTION NO. 1**



MAP 1 - RAMP A STA. 00+00 TO STA. 00+50  
 MAP 1 - RAMP A STA. 04+85 TO STA. 05+40  
 (NO C&G SHOULDER SECTION ONLY)  
 NOTE: FINAL SURFACE WILL BE FLUSH WITH GUTTER

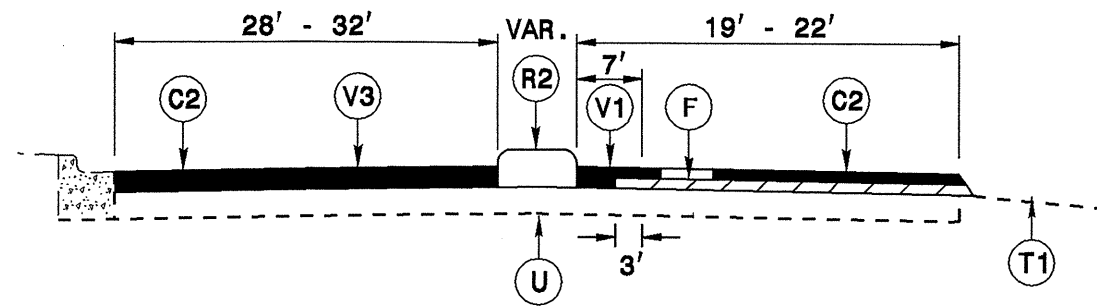
**TYPICAL SECTION NO. 4**



MAP 1 STA. 37+95 TO STA. 41+10 EB  
 MAP 1 STA. 46+75 TO STA. 80+30 EB  
 MAP 1 STA. 00+00 TO STA. 33+10 WB

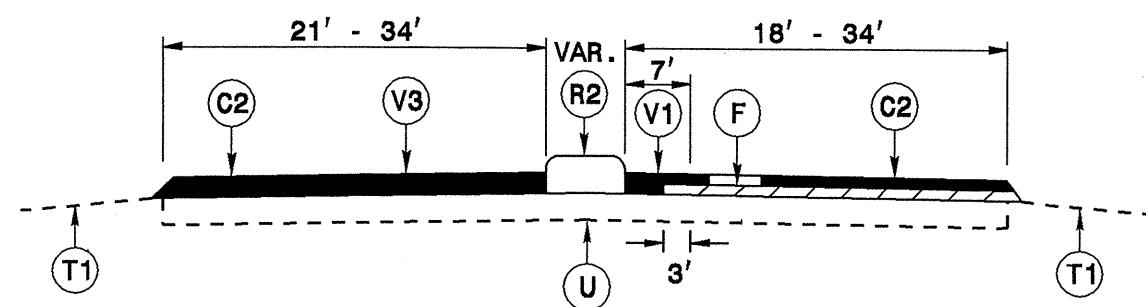
\* NOTE: NO CURB & GUTTER ON RT. SIDE AT THE FOLLOWING LOCATIONS:  
 MAP 1 STA. 47+65 TO STA. 61+95 EB  
 MAP 1 STA. 66+50 TO STA. 80+30 EB  
 MAP 1 STA. 00+00 TO STA. 03+65 WB  
 MAP 1 STA. 05+95 TO STA. 13+00 WB  
 MAP 1 STA. 25+00 TO STA. 30+45 WB

**TYPICAL SECTION NO. 2**



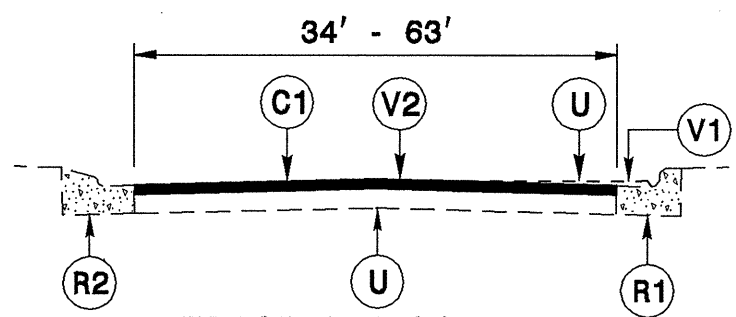
MAP 1 - RAMP A STA. 00+50 TO STA. 01+00

**TYPICAL SECTION NO. 5**



MAP 1 - RAMP A STA. 01+00 TO STA. 04+85  
 MAP 1 - RAMP D STA. 00+00 TO STA. 04+40

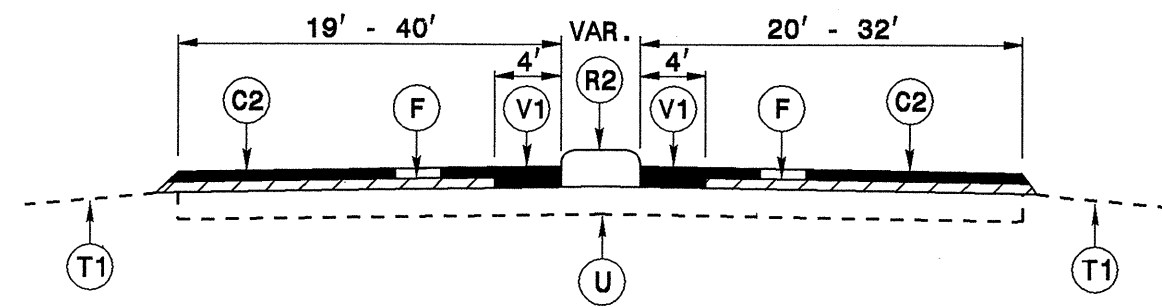
**TYPICAL SECTION NO. 6**



MAP 1 STA. 41+10 TO STA. 46+75 EB  
 MAP 1 STA. 33+10 TO STA. 40+20 WB  
 MAP 1 STA. 51+50 TO STA. 57+65 WB

NOTE: FINAL SURFACE ON RIGHT SIDE WILL BE FLUSH WITH GUTTER

**TYPICAL SECTION NO. 3**



MAP 1 - RAMP B STA. 00+00 TO STA. 07+15

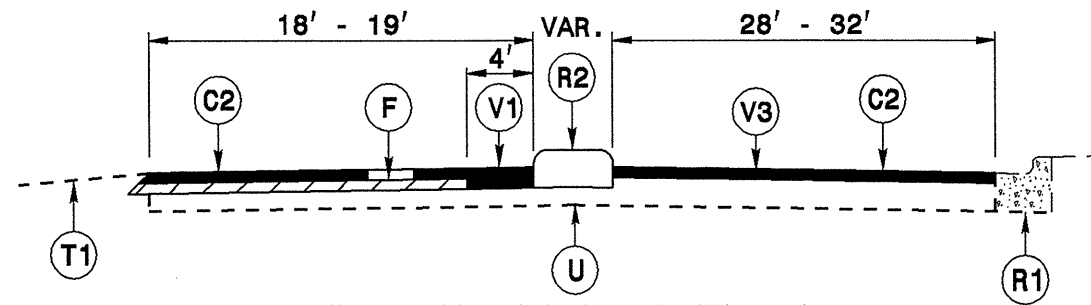
**TYPICAL SECTION NO. 7**

**PAVEMENT SCHEDULE**

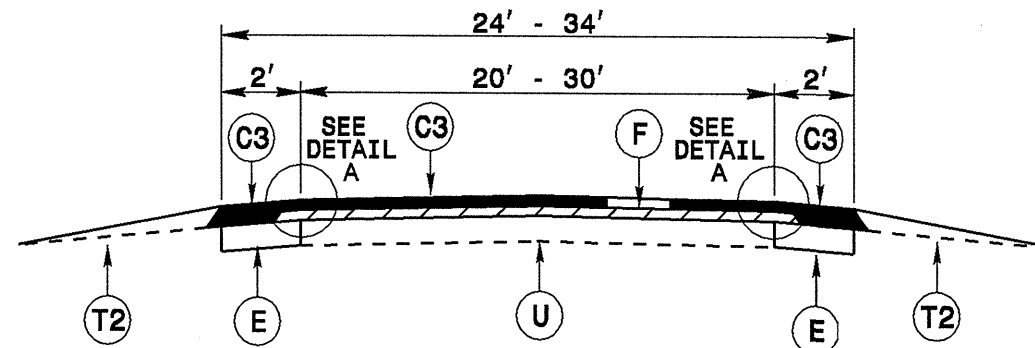
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C4	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
F	AST MAT COAT, 76M
R1	EXISTING 2' - 6" CURB & GUTTER
R2	EXIST. 1'-0" CURB & GUTTER OR CONCRETE ISLAND
T1	EXISTING EARTH SHOULDER
T2	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V2	2" MILLING
V3	1½" MILLING
V4	0 - 2½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 1½" MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V6	0 - 1¼" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V7	3" TO 5½" MILLING FOR 11 FT TO 12 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	3" MILLING FOR PATCHING
V9	6" MILLING FOR PATCHING

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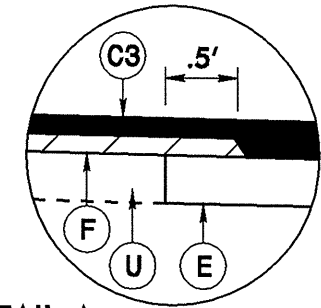
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16, 7CR.20681.16	4	11



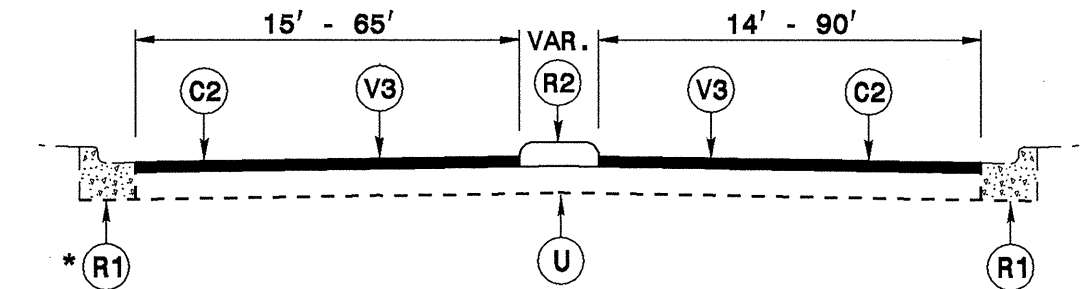
MAP 1 - RAMP B STA. 07+15 TO STA. 7+40  
TYPICAL SECTION NO. 8



MAP 2 STA. 00+00 TO STA. 175+82  
MAP 12  
TYPICAL SECTION NO. 12



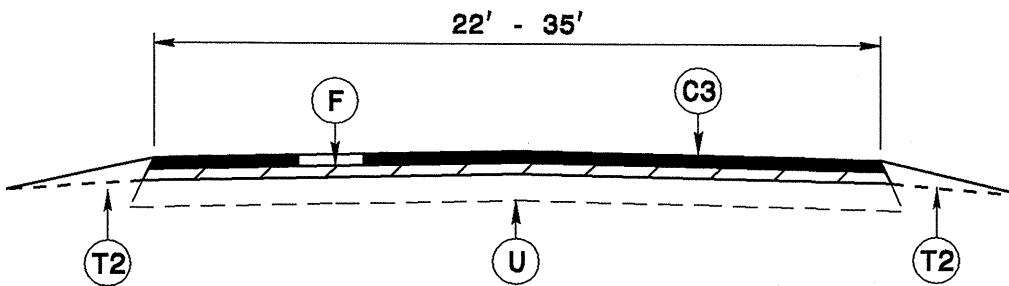
DETAIL A



\* NO C&G ON LT FROM STA 4+40 TO STA 5+00

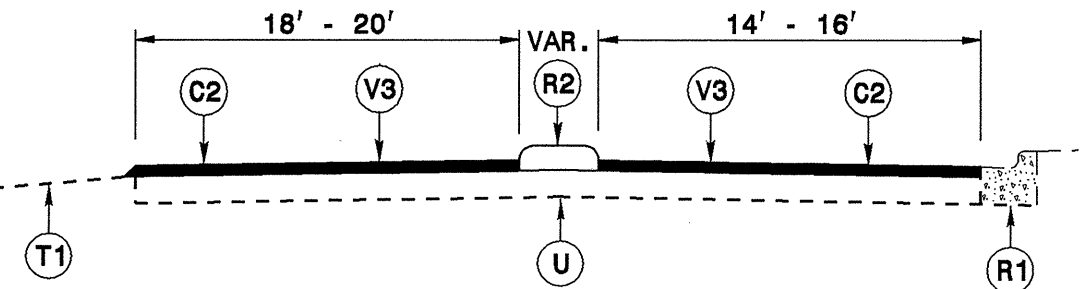
MAP 1 - RAMP B STA. 07+40 TO STA. 08+00  
MAP 1 - RAMP C STA. 00+00 TO STA. 00+95  
MAP 1 - RAMP D STA. 04+40 TO STA. 05+50

TYPICAL SECTION NO. 9

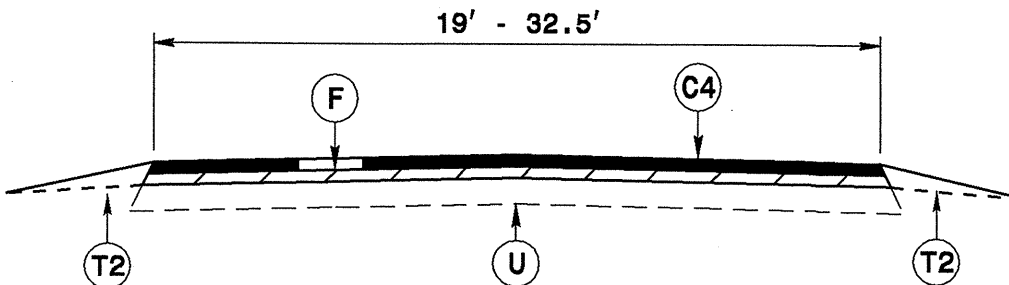


MAP 2 STA. 175+82 TO STA. 177+85  
MAP 3

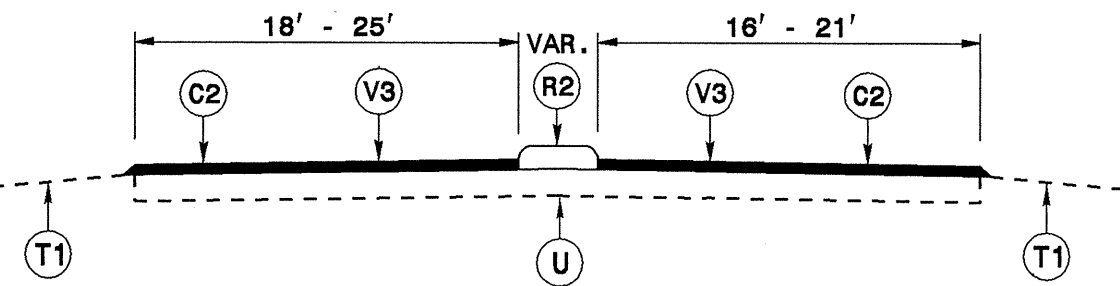
TYPICAL SECTION NO. 13



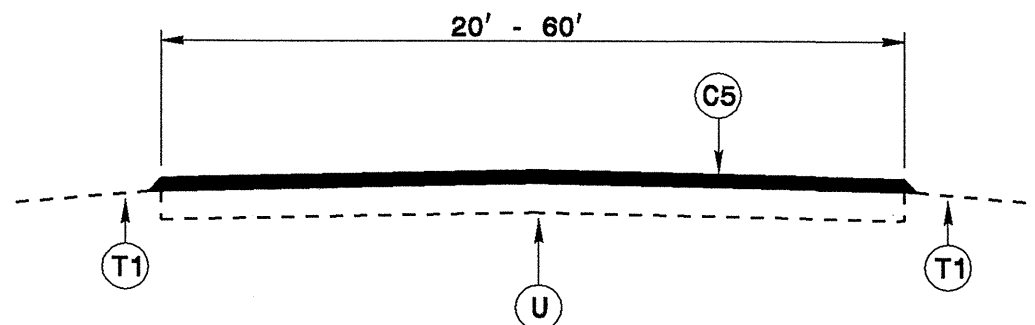
MAP 1 - RAMP C STA. 00+95 TO STA. 03+80  
TYPICAL SECTION NO. 10



MAP 4  
MAP 10 STA. 03+48 TO STA. 15+53  
TYPICAL SECTION NO. 14



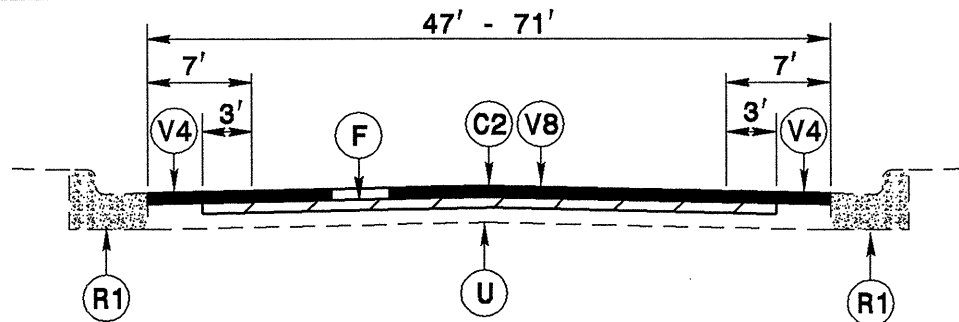
MAP 1 - RAMP C STA. 03+80 TO STA. 06+00  
TYPICAL SECTION NO. 11



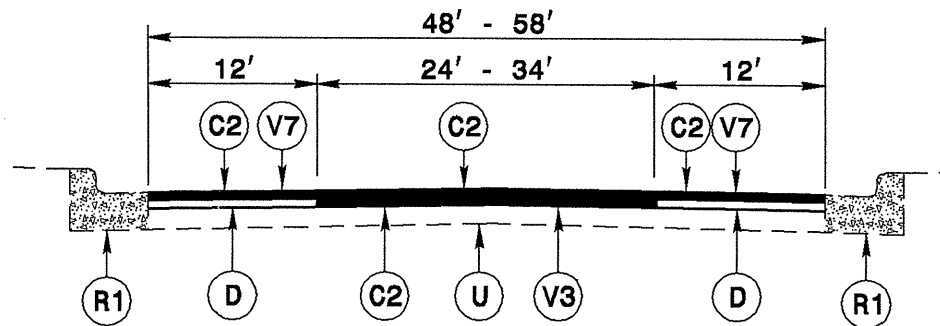
MAPS 5, 6 & 7  
TYPICAL SECTION NO. 15

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C4	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
F	AST MAT COAT, 78M
R1	EXISTING 2' - 6" CURB & GUTTER
R2	EXIST. 1'-6" CURB & GUTTER OR CONCRETE ISLAND
T1	EXISTING EARTH SHOULDER
T2	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1 1/2" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V2	2" MILLING
V3	1 1/2" MILLING
V4	0 - 2 1/2" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 1 1/2" MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V6	0 - 1 1/4" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V7	3" TO 5 1/2" MILLING FOR 11 FT TO 12 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	3" MILLING FOR PATCHING
V9	8" MILLING FOR PATCHING

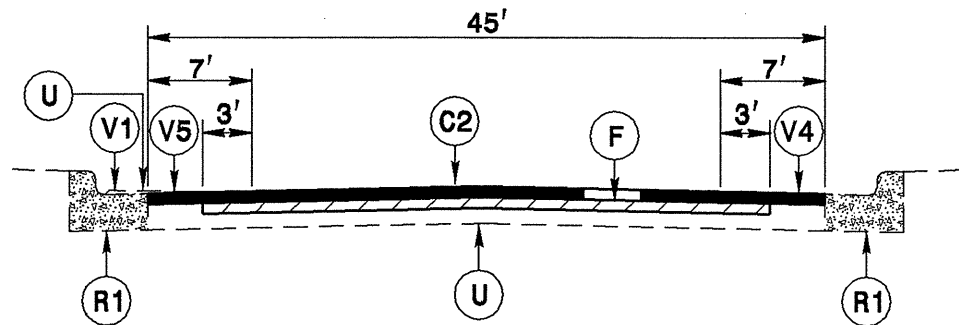
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16,7CR.20681.16	5	11



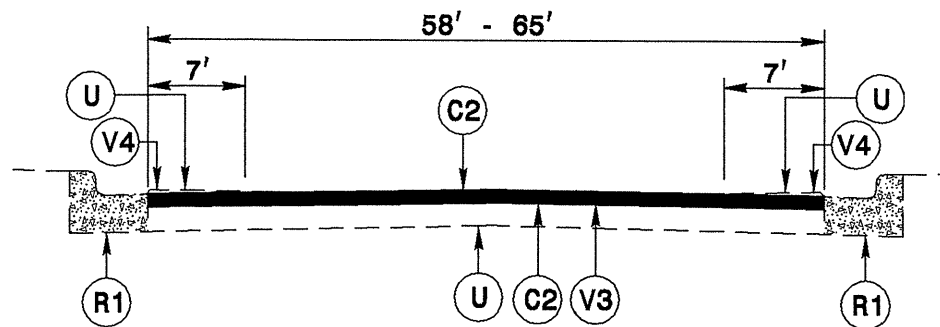
MAP 8 STA. 00+00 TO STA. 04+50  
**TYPICAL SECTION NO. 16**



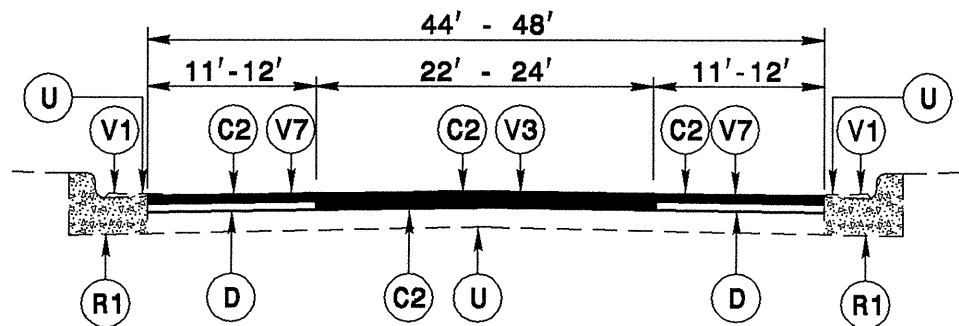
MAP 8 STA. 28+45 TO STA. 28+60  
NOTE: FINAL SURFACE WILL BE FLUSH WITH GUTTER  
**TYPICAL SECTION NO. 20**



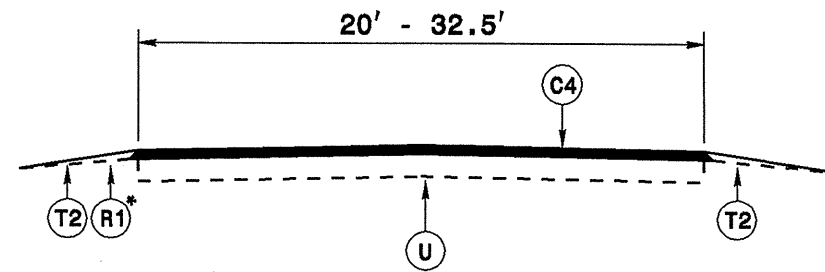
MAP 8 STA. 04+50 TO STA. 12+55  
NOTE: FINAL SURFACE ON LEFT SIDE WILL BE FLUSH WITH GUTTER  
**TYPICAL SECTION NO. 17**



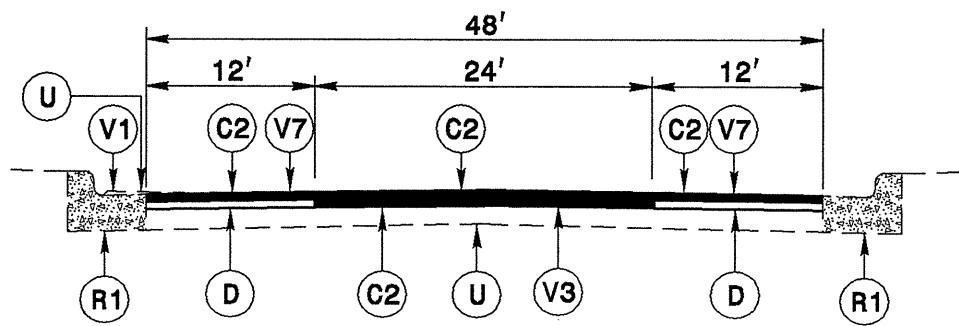
MAP 8 STA. 28+60 TO STA. 30+15  
NOTE: FINAL SURFACE WILL BE FLUSH WITH GUTTER  
**TYPICAL SECTION NO. 21**



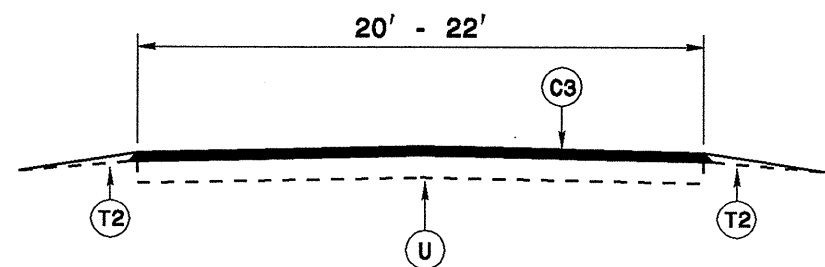
MAP 8 STA. 12+55 TO STA. 21+35  
NOTE: FINAL SURFACE WILL BE FLUSH WITH GUTTER  
**TYPICAL SECTION NO. 18**



MAP 9  
\* MAP 10 STA. 00+00 TO STA. 03+48 \*  
**TYPICAL SECTION NO. 22**



MAP 8 STA. 21+35 TO STA. 28+45  
NOTE: FINAL SURFACE WILL BE FLUSH WITH GUTTER  
**TYPICAL SECTION NO. 19**



MAP 11  
**TYPICAL SECTION NO. 23**

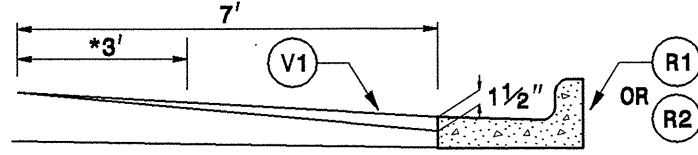
**PAVEMENT SCHEDULE**

C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 8F9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C4	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE 8F9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C5	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE 8F9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
F	AST MAT COAT, 78M
R1	EXISTING 2' - 6" CURB & GUTTER
R2	EXIST. 1'-6" CURB & GUTTER OR CONCRETE ISLAND
T1	EXISTING EARTH SHOULDER
T2	SHOULDER RECONSTRUCTION, AS DIRECTED BY THE ENGINEER.
U	EXISTING PAVEMENT.
V1	0 - 1½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V2	2" MILLING
V3	1½" MILLING
V4	0 - 2½" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V5	0 - 1½" MILLING FOR 7 FT FROM THE FACE OF CURB TO THE ROADWAY
V6	0 - 1¼" MILLING FOR 7 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V7	3" TO 5½" MILLING FOR 11 FT TO 12 FT FROM THE FRONT OF THE GUTTER TO THE ROADWAY
V8	3" MILLING FOR PATCHING
V9	8" MILLING FOR PATCHING

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STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16,7CR.20681.16	6	11

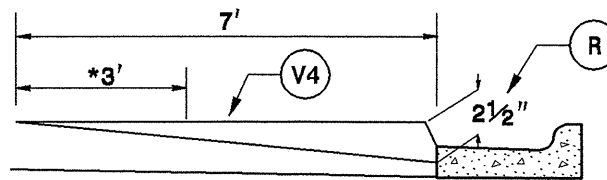
**MILLING DETAIL 1**



\* IF 78M SEAL IS INVOLVED OVERLAP 3'  
MILL EXISTING ASPHALT PAVEMENT 0-1 1/2" AT  
LOCATIONS AS DIRECTED BY THE ENGINEER

NOTE: TO BE USED IN CONJUNCTION WITH  
TS. NO. 5 ON MAP 1 - RAMP A STA. 00+50 TO STA. 01+00 RT  
TS. NO. 6 ON MAP 1 - RAMP A STA. 01+00 TO STA. 04+85 LT/RT  
TS. NO. 7 ON MAP 1 - RAMP B STA. 00+00 TO STA. 07+15 LT/RT  
TS. NO. 8 ON MAP 1 - RAMP B STA. 07+15 TO STA. 07+40 RT

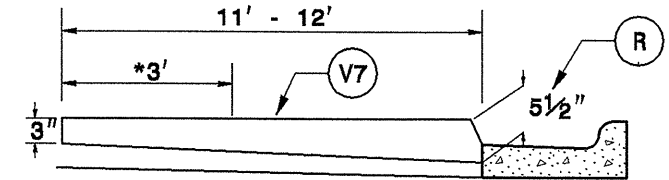
**MILLING DETAIL 4**



\* IF 78M SEAL IS INVOLVED OVERLAP 3'  
MILL EXISTING ASPHALT PAVEMENT 0" - 2 1/2" AT  
LOCATIONS AS DIRECTED BY THE ENGINEER

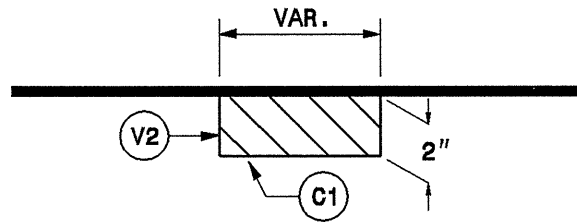
NOTE: TO BE USED IN CONJUNCTION WITH  
TS. NO. 16 ON MAP 8 STA. 00+00 TO STA. 04+50 LT/RT  
TS. NO. 17 ON MAP 8 STA. 04+50 TO STA. 12+55 RT  
TS. NO. 19 ON MAP 8 STA. 21+35 TO STA. 26+45 RT  
TS. NO. 20 ON MAP 8 STA. 26+45 TO STA. 28+60 LT/RT  
TS. NO. 21 ON MAP 8 STA. 23+60 TO STA. 30+15 LT/RT

**MILLING DETAIL 7**



\* IF 78M SEAL IS INVOLVED OVERLAP 3'  
MILL EXISTING ASPHALT PAVEMENT 3" - 5 1/2" AT  
LOCATIONS AS DIRECTED BY THE ENGINEER  
NOTE: TO BE USED IN CONJUNCTION WITH  
TS. NO. 18,19,20 ON MAP 8 STA. 12+55 TO STA. 28+60

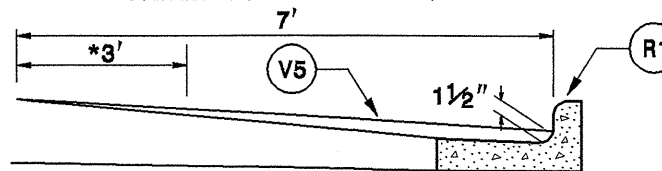
**MILLING DETAIL 2**



MILL EXISTING ASPHALT PAVEMENT 2" IN DEPTH, FOR  
PATCHING, AT LOCATIONS AS DIRECTED BY THE ENGINEER.

NOTE: TO BE USED IN CONJUNCTION WITH  
TS NO. 1,2,3 ON MAP 1 STA. 00+00 TO STA. 80+30 EB  
TS NO. 1,2,3 ON MAP 1 STA. 00+00 TO STA. 80+30 WB

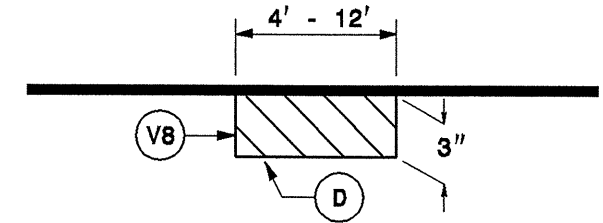
**MILLING DETAIL 5**



\* IF 78M SEAL IS INVOLVED OVERLAP 3'  
MILL EXISTING ASPHALT PAVEMENT 0-1 1/2" AT  
LOCATIONS AS DIRECTED BY THE ENGINEER

NOTE: TO BE USED IN CONJUNCTION WITH  
TS NO 1 ON MAP 1 - EB STA. 00+00 TO STA. 23+50 LT/RT  
TS NO 1 ON MAP 1 - EB STA. 23+50 TO STA. 37+95 RT  
TS NO 3 & 4 ON MAP 1 - EB STA. 41+10 TO STA. 47+65 RT  
TS NO 3 ON MAP 1 - WB STA. 33+10 TO STA. 40+20 RT  
TS NO 1 ON MAP 1 - WB STA. 40+20 TO STA. 51+50 LT/RT  
TS NO 1 ON MAP 1 - WB STA. 51+50 TO STA. 80+30 LT/RT  
TS NO 18 ON MAP 8 STA. 12+55 TO STA. 21+35 LT/RT  
TS NO 19 ON MAP 8 STA. 21+35 TO STA. 26+45 LT

**MILLING DETAIL 8**

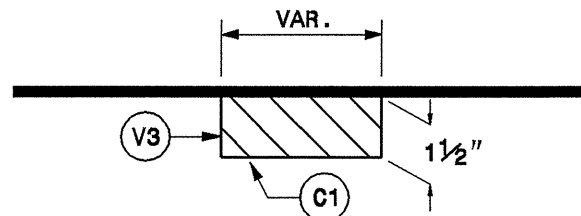


MILL EXISTING ASPHALT PAVEMENT 3" IN DEPTH, FOR  
PATCHING, AT LOCATIONS AS DIRECTED BY THE ENGINEER.

NOTE: TO BE USED IN CONJUNCTION WITH  
TS NO. 16 ON MAP 8 STA. 00+00 TO STA. 01+75

THIS ITEM IS CONTIGENT FOR MAP 1 EB/WB & RAMPS A, B C, D

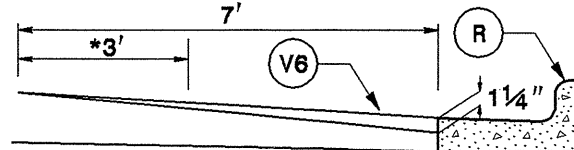
**MILLING DETAIL 3**



MILL EXISTING ASPHALT PAVEMENT 1 1/2" IN DEPTH, FOR  
PATCHING, AT LOCATIONS AS DIRECTED BY THE ENGINEER.

NOTE: TO BE USED IN CONJUNCTION WITH  
TS. NO. 4 ON MAP 1 - RAMP A STA. 00+00 TO STA. 00+50 LT/RT  
TS. NO. 5 ON MAP 1 - RAMP A STA. 00+50 TO STA. 01+00 LT  
TS. NO. 4 ON MAP 1 - RAMP A STA. 04+85 RO STA. 05+40 LT/RT  
TS. NO. 8 ON MAP 1 - RAMP B STA. 07+15 TO STA. 07+40 RT  
TS. NO. 9 ON MAP 1 - RAMP B STA. 07+40 TO STA. 08+00 LT/RT  
TS. NO. 9 ON MAP 1 - RAMP C STA. 00+00 TO STA. 00+95 LT/RT  
TS. NO. 10 ON MAP 1 - RAMP C STA. 00+95 TO STA. 03+80 LT/RT  
TS. NO. 11 ON MAP 1 - RAMP C STA. 03+80 TO STA. 06+00 LT/RT  
TS. NO. 6 ON MAP 1 - RAMP D STA. 00+00 TO STA. 04+40 LT  
TS. NO. 9 ON MAP 1 - RAMP D STA. 04+40 TO STA. 05+50 LT/RT  
TS. NO. 21 ON MAP 8 STA. 28+60 TO STA. 30+15 LT/RT

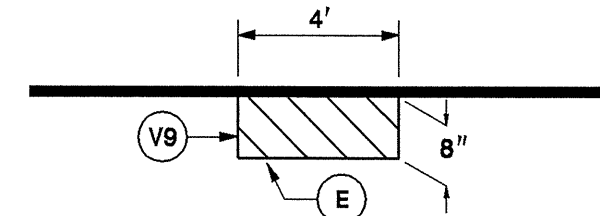
**MILLING DETAIL 6**



\* IF 78M SEAL IS INVOLVED OVERLAP 3'  
MILL EXISTING ASPHALT PAVEMENT 0-1 1/4" AT  
LOCATIONS AS DIRECTED BY THE ENGINEER

NOTE: TO BE USED IN CONJUNCTION WITH  
TS. NO. 22 ON MAP 10 STA. 0+00 TO STA. 3+43

**MILLING DETAIL 9**

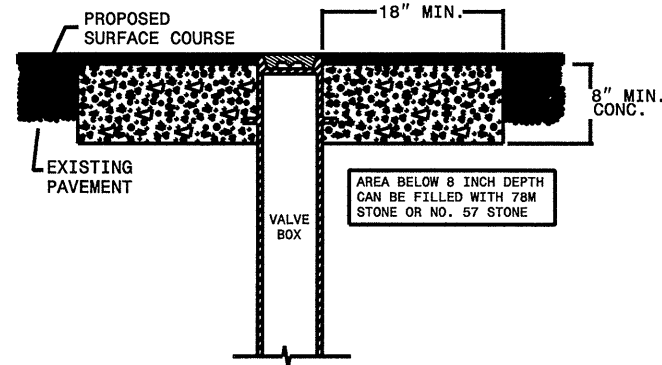


MILL EXISTING ASPHALT PAVEMENT 8" IN DEPTH, FOR  
PATCHING, AT LOCATIONS AS DIRECTED BY THE ENGINEER.  
NOTE: THIS ITEM IS CONTIGENT FOR MAP 1

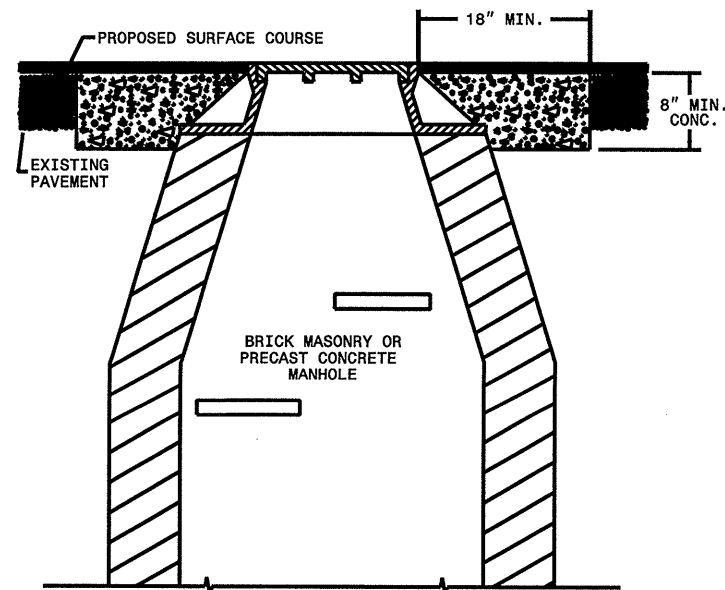


STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.16,7CR.20681.16	7	11

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



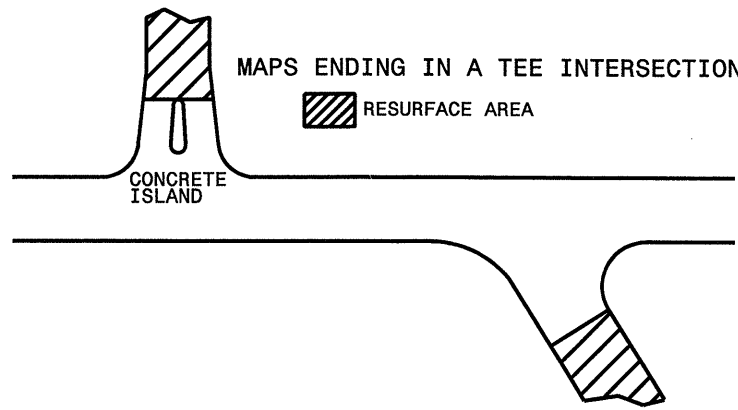
USE RAPID SET GROUT, MORTAR, OR CONCRETE  
CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS  
ARE NOT IN THE TRAVEL LANE.



NOTES:

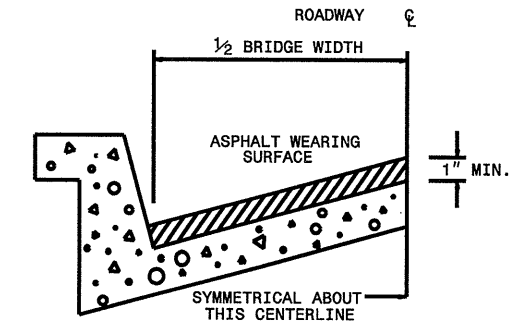
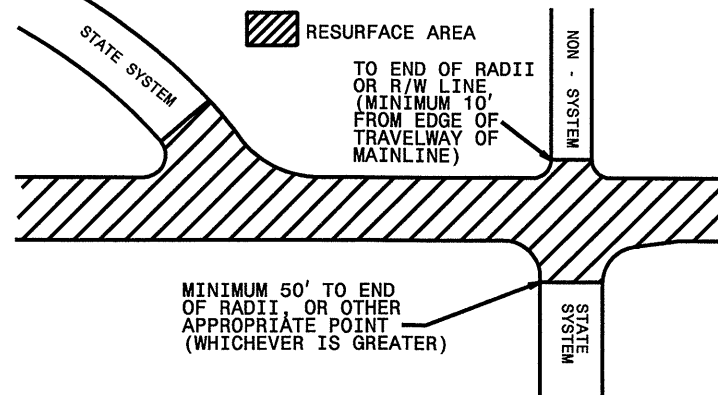
1. MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
2. ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
3. EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
4. RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED

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)



BRIDGE HALF TYPICAL SECTION

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

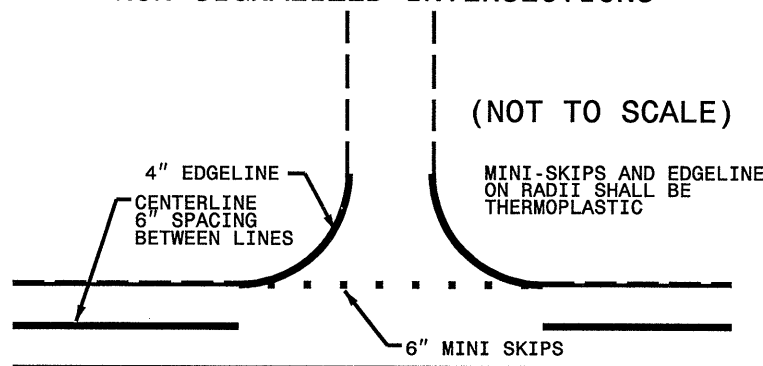
ALL UNPAVED S.R. ROUTES TO BE SURFACED 50' FROM EDGE OF  
PAVEMENT OF MAIN PROJECT. ALL PAVED S.R. ROUTES TO BE  
RESURFACED TO END OF RADII, OR AS DIRECTED BY THE  
ENGINEER. EDGES, PAVEMENT WIDENING, INTERSECTIONS  
AND BRIDGE FLARES ARE INCLUDED IN THE SUMMARY  
OF QUANTITIES. BRIDGES TO BE RESURFACED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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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.	TITLE
DIVISION 8 - INCIDENTALS	
848.05	Wheelchair Ramp - Curb Cut
848.06	Wheelchair Ramp - Retrofitting of Existing Curb

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".

\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$\$\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$



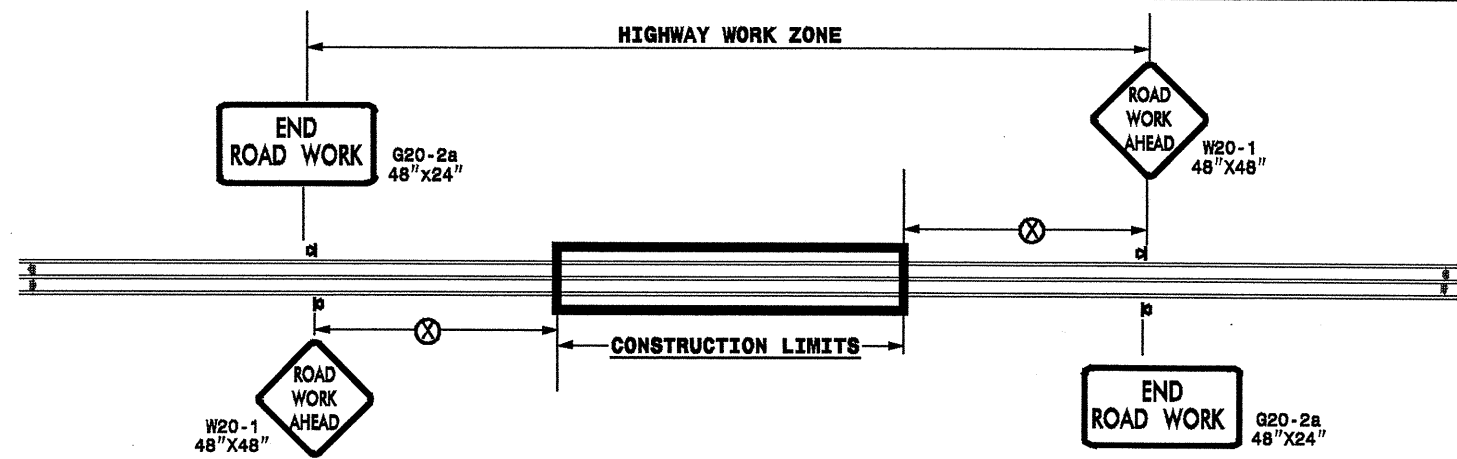








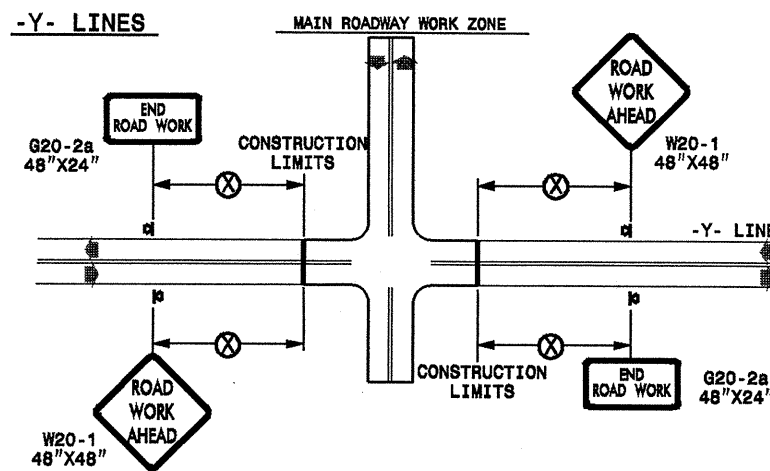
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



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)**



DETAIL DRAWING  
FOR TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS

**GENERAL NOTES**

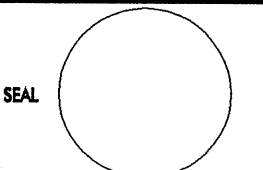

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- \*\* 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.

**LEGEND**

◀ PORTABLE SIGN

➔ DIRECTION OF TRAFFIC FLOW

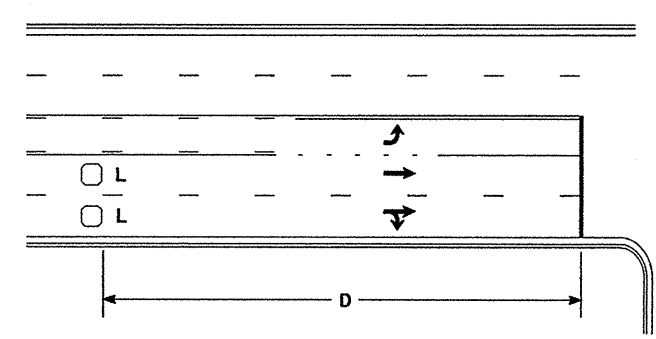
SHEET 1 OF 1

APPROVED: _____	DATE: _____	DETAIL DRAWING FOR TWO-WAY UNDIVIDED ADVANCED WORK ZONE WARNING SIGNS	
			
SCALE: NONE		REVISIONS	
DATE: _____		7-98	10/01
DWG. BY: _____		10-98	03/04
DESIGN BY: _____		01/01	11/04
REVIEWED BY: _____			

04-DEC-2009 12:43  
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 pseymore AT WZ1237502



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

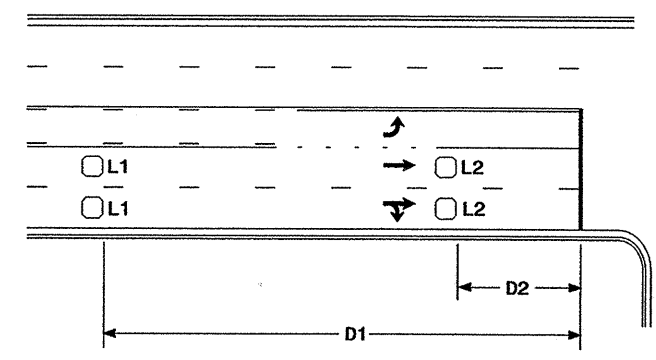


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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



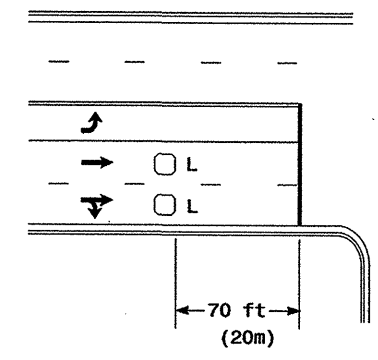
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

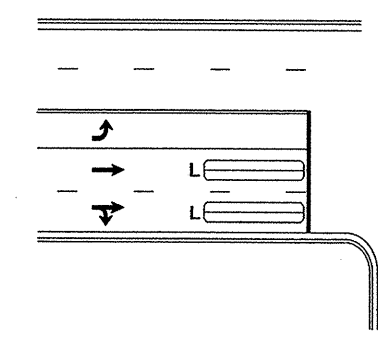
### Low Speed Detection [≤35 mph (56 km/hr)]

7CR.10681.16 & 7CR.20681.16



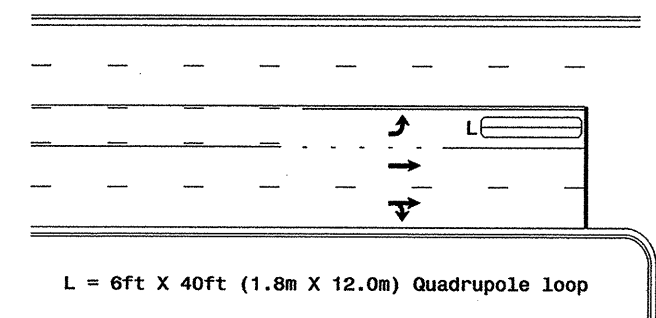
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

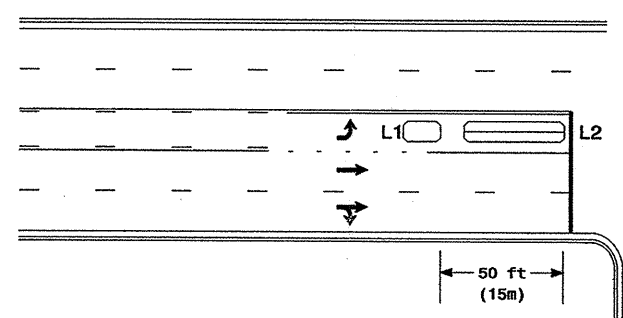
### Left Turn Lane Detection



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

Presence Loop Detection

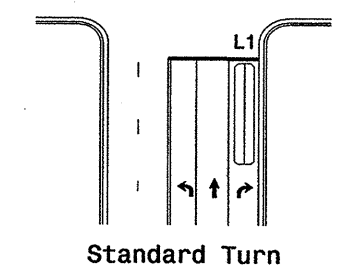
OR



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

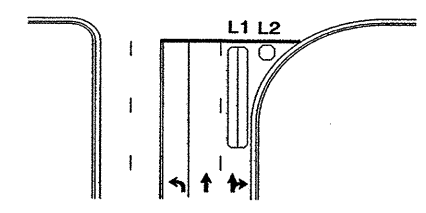
Queue Loop Detection

### Right Turn Lane Detection

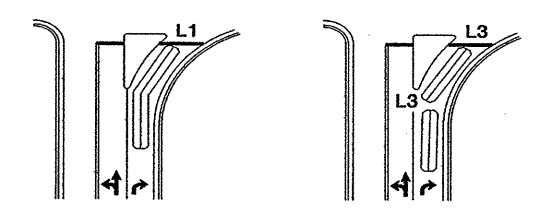


Standard Turn

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

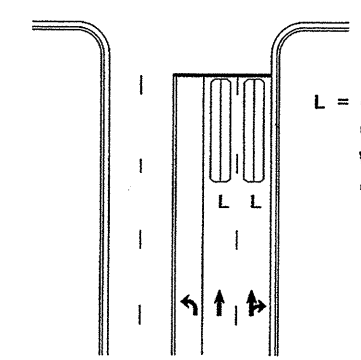


Wide Radius Turn



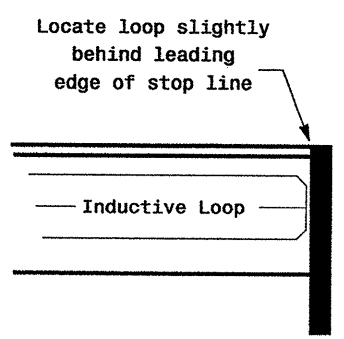
Channelized Turn

### 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 PREPARED BY: P L Alexander SCALE: N/A	REVIEWED BY: REVISIONS: INIT. DATE:	



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

11-08

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

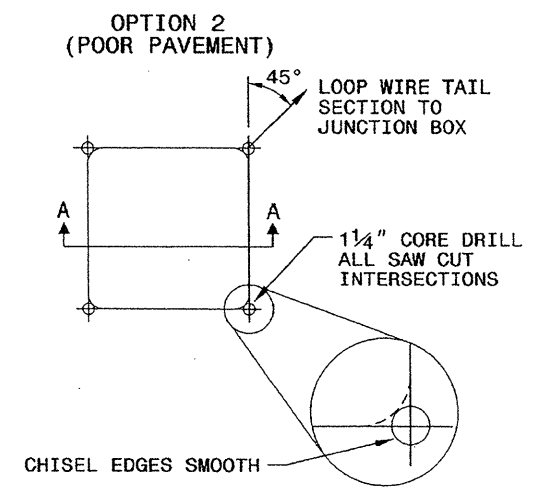
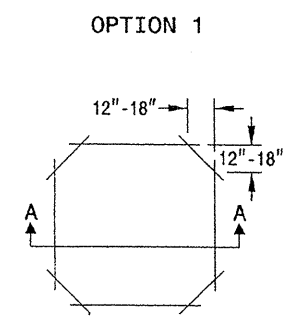
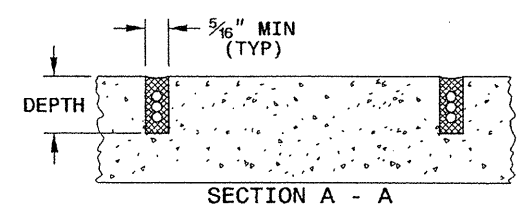
SHEET 1 OF 3  
**1725D01**

**CONVENTIONAL 4-SIDED LOOP**

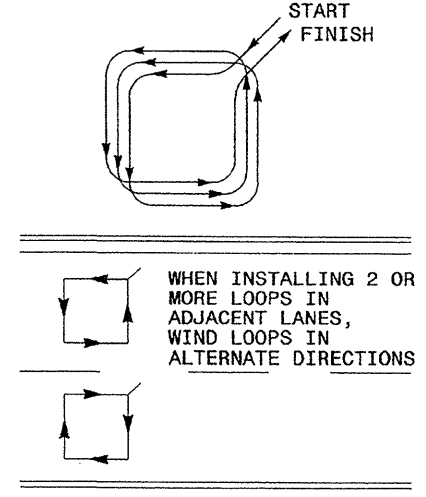
**SAW CUT OPTIONS**

**SAW SLOT DEPTH CHART**

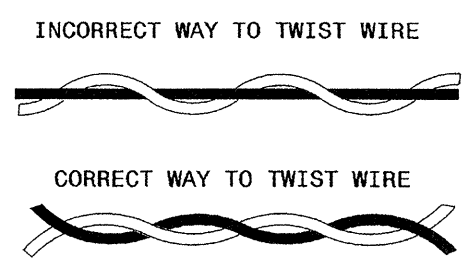
DEPTH (IN)	NO. OF WIRE TURNS					
	2	3	4	5	6	
CONCRETE	2.0	2.0	2.5	2.5	3.0	
ASPHALT	2.0	2.5	3.0	3.0	3.0	



**LOOP WINDING METHOD**



**LOOP WIRE TWISTING METHOD**

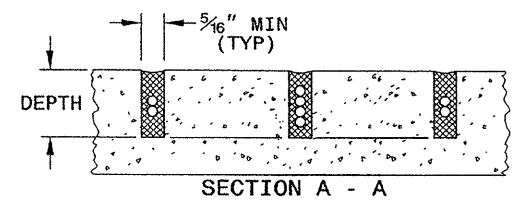
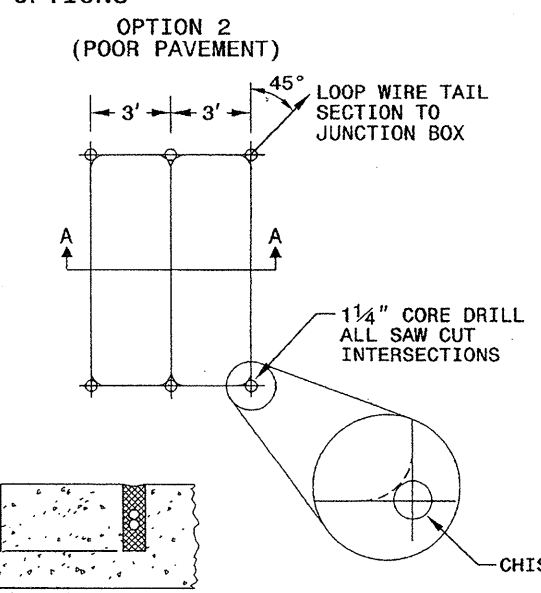
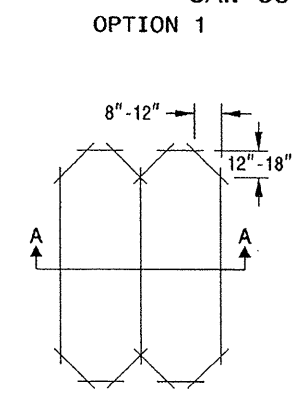


**NOTES**

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.

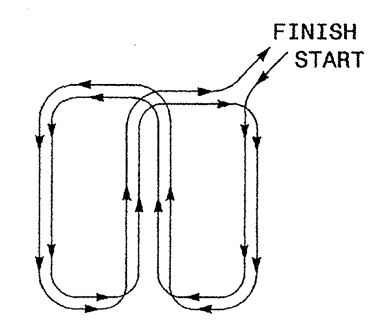
**QUADRUPOLE LOOP**

**SAW CUT OPTIONS**



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

**LOOP WINDING METHOD**



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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

Michael J. Dean 4/24/08  
SIGNATURE DATE

24-1004-2008\_08/28  
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iml:tlc

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

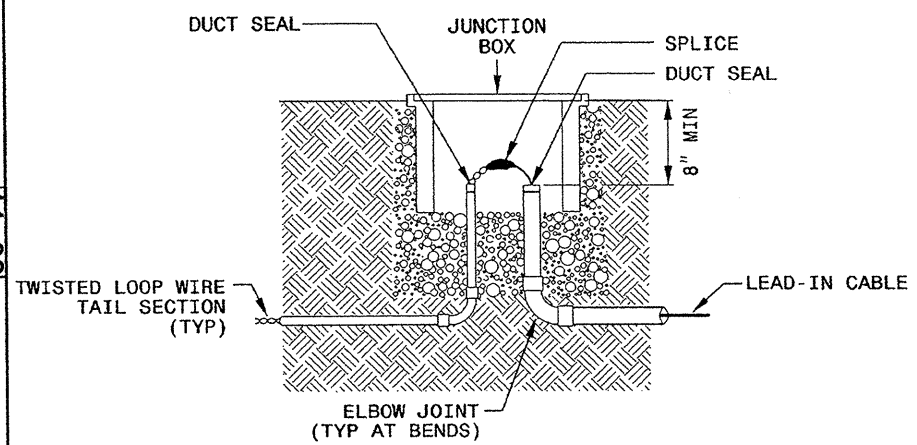
11-08

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

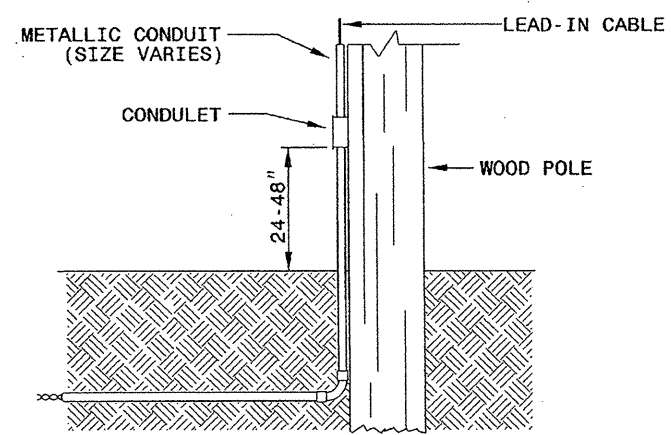
SHEET 2 OF 3  
**1725D01**

**LOOP WIRE SPLICE POINT DETAILS**

**LOOP WIRE AT JUNCTION BOX**



**LOOP WIRE AT POLE**

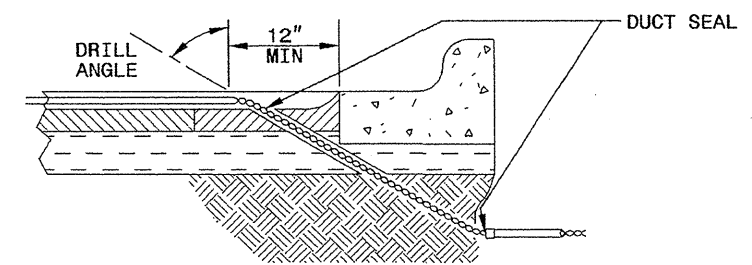


**NOTE**

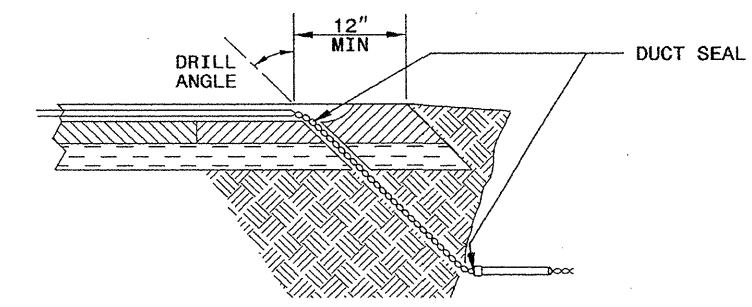
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

**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.

STATE OF NORTH CAROLINA  
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RALEIGH, N.C.

11-08

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

SHEET 2 OF 3  
**1725D01**

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

Milton L. Dean 11/24/08  
SIGNATURE DATE

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11/17/08

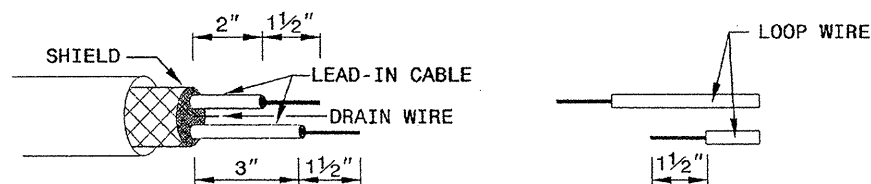
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

11-08

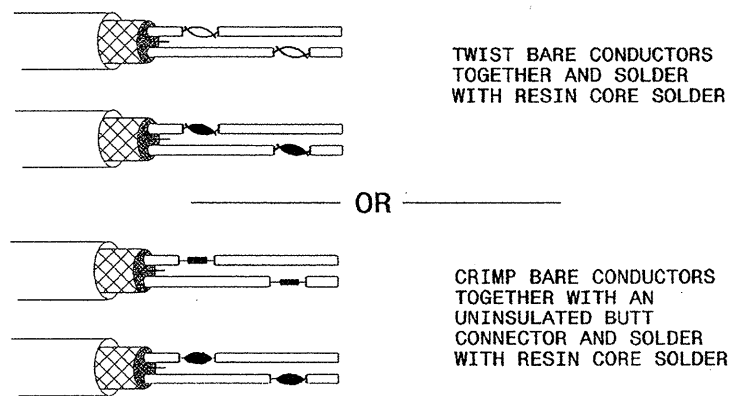
ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
**1725D01**

**STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE**

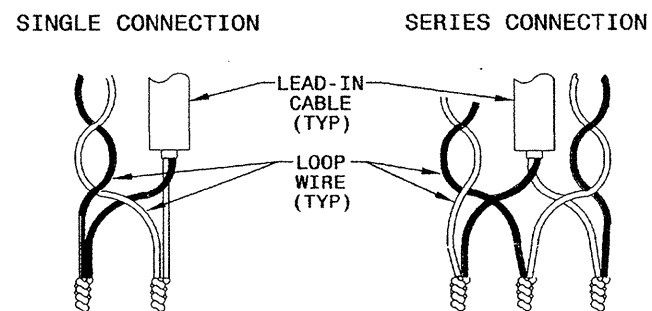


**STEP 2. CONNECT AND SOLDER**

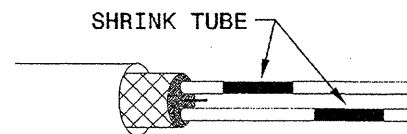


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

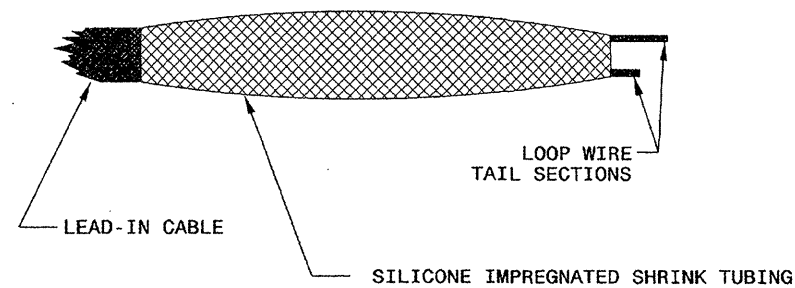
**LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS**



**STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY**



**STEP 4. ENVIRONMENTALLY PROTECT SPLICE**



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11-08

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

SHEET 3 OF 3  
**1725D01**

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Milton I. Dean 11/24/08  
SIGNATURE      DATE