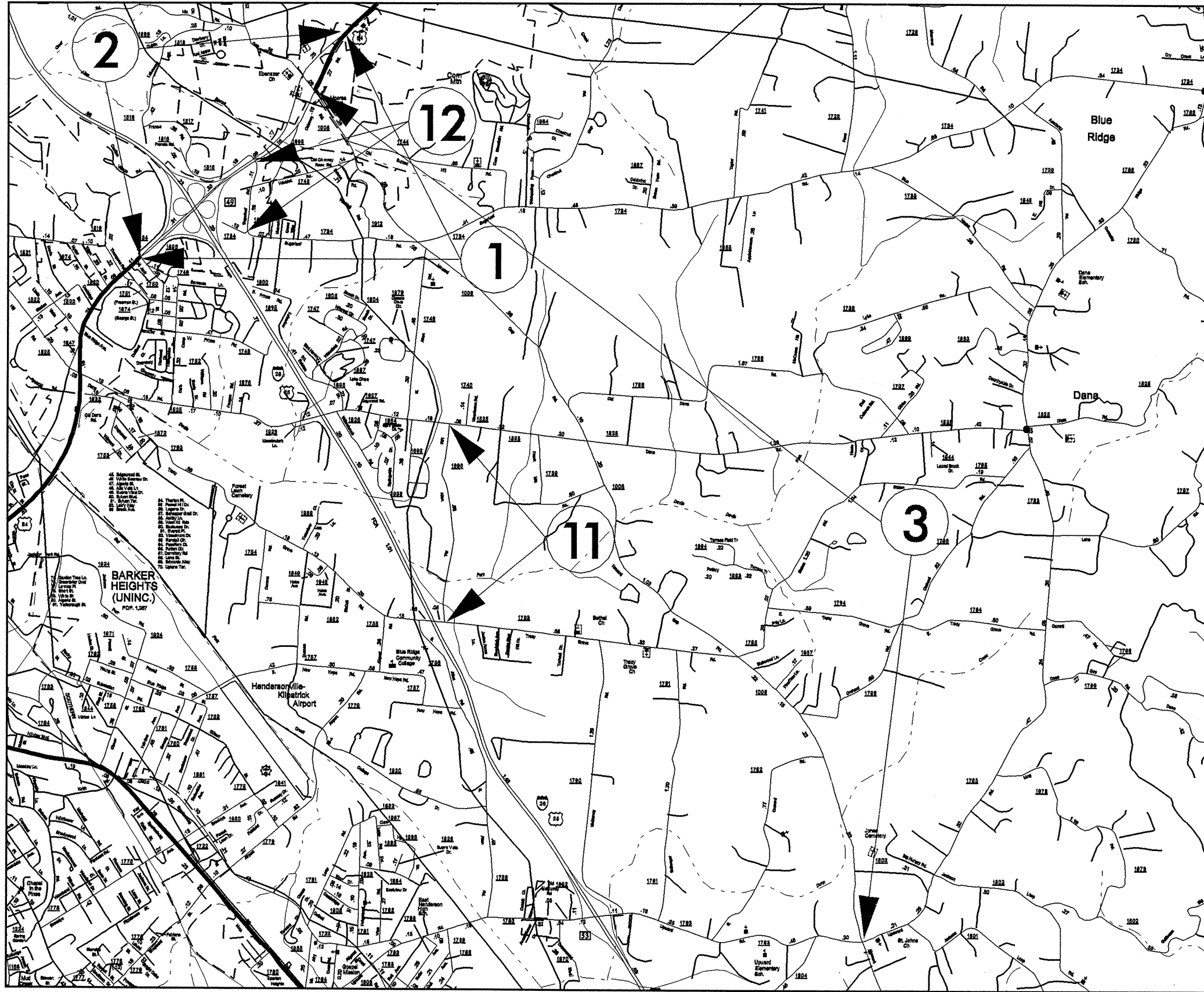


050137

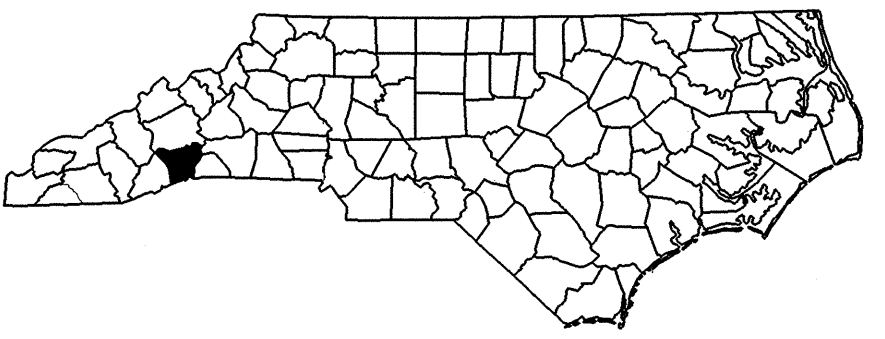
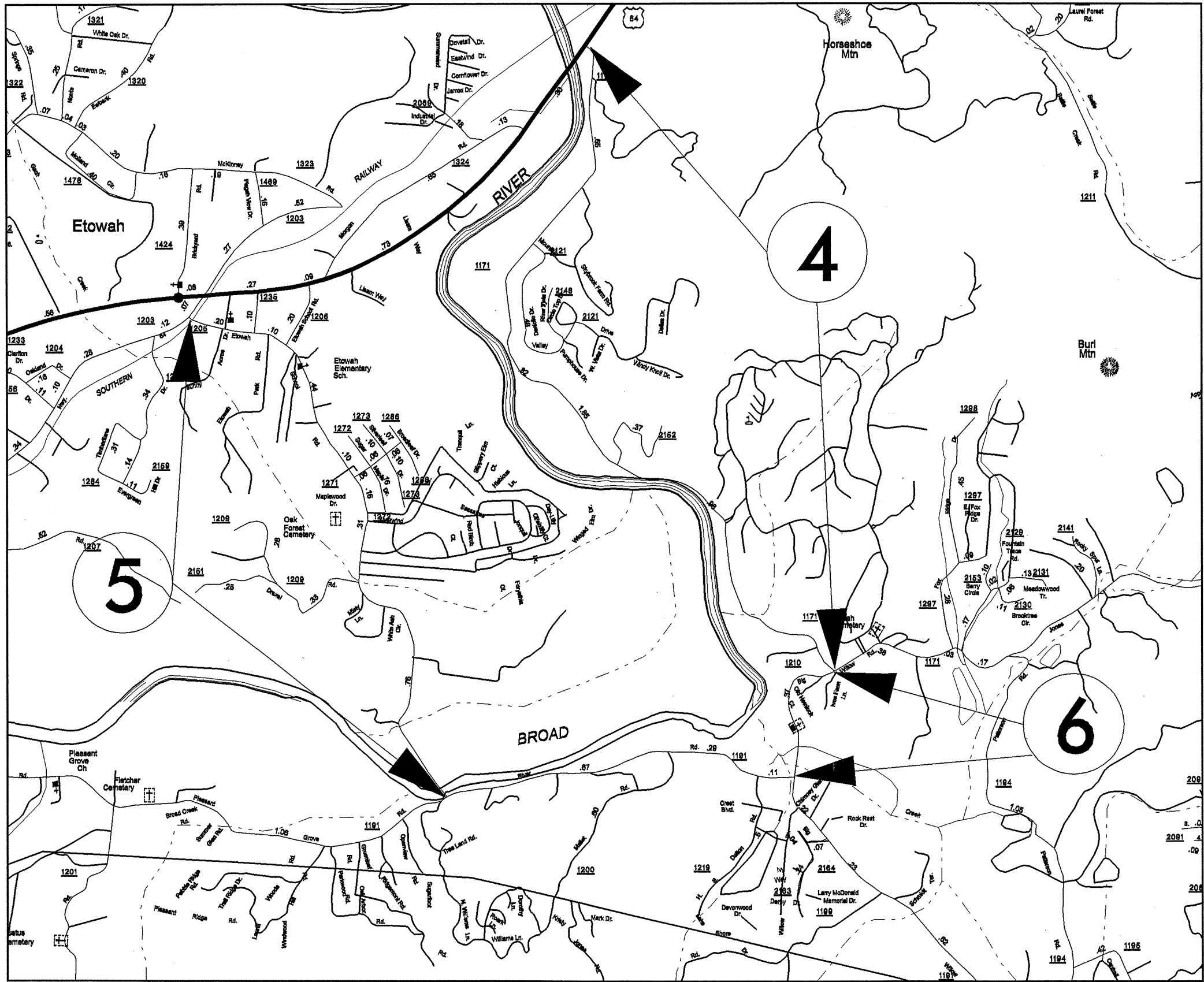
2009 CONTRACT RESURFACING HENDERSON COUNTY

| PROJECT REFERENCE NO. | | SHEET NO. |
|-----------------------|------------------|-------------|
| 14CR.10451.4 | | 1 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10451.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |



2009 CONTRACT RESURFACING HENDERSON COUNTY

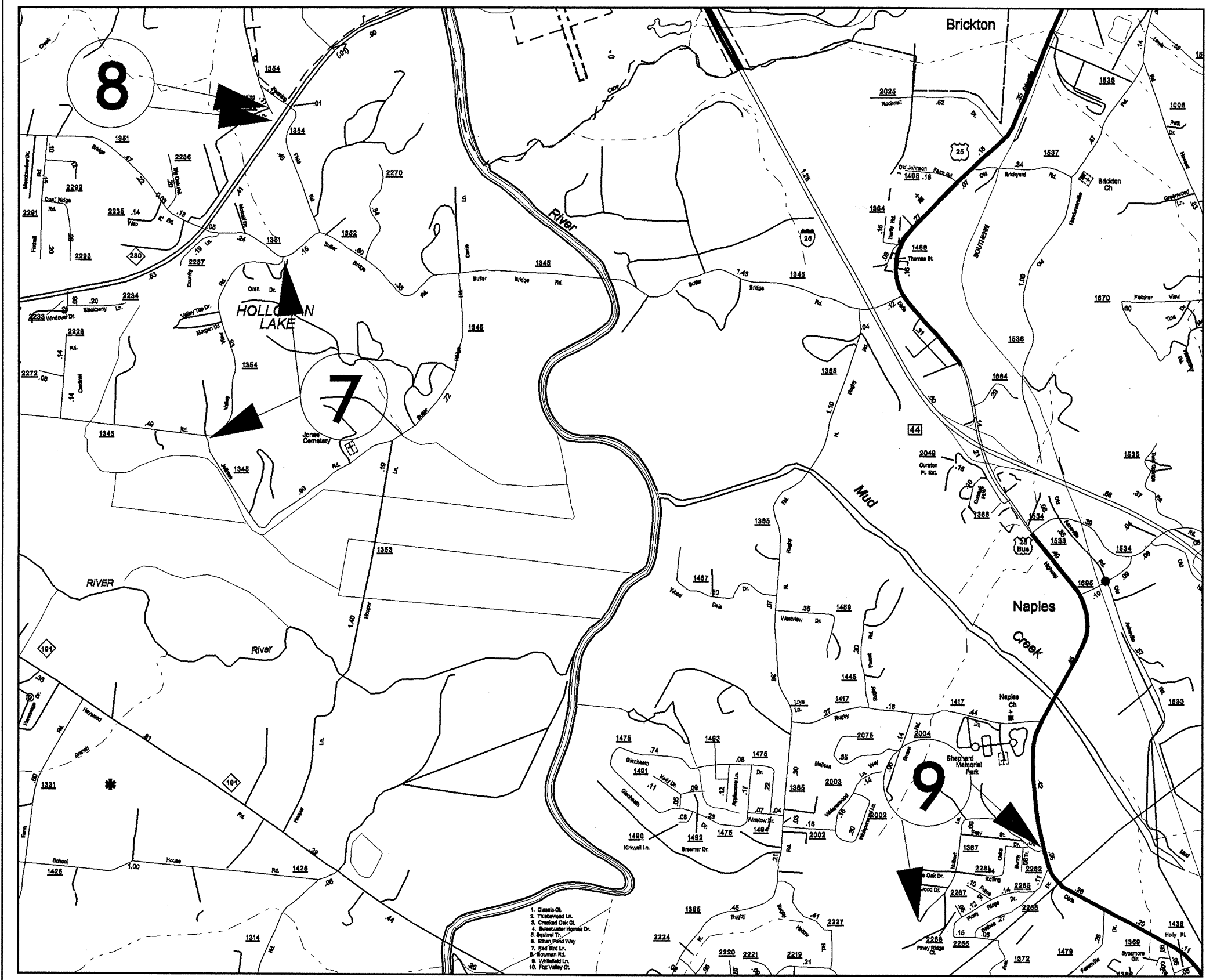
| PROJECT REFERENCE NO. | | SHEET NO. |
|-----------------------|------------------|-------------|
| 14CR.10451.4 | | 2 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10451.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |



060137

2009 CONTRACT RESURFACING HENDERSON COUNTY

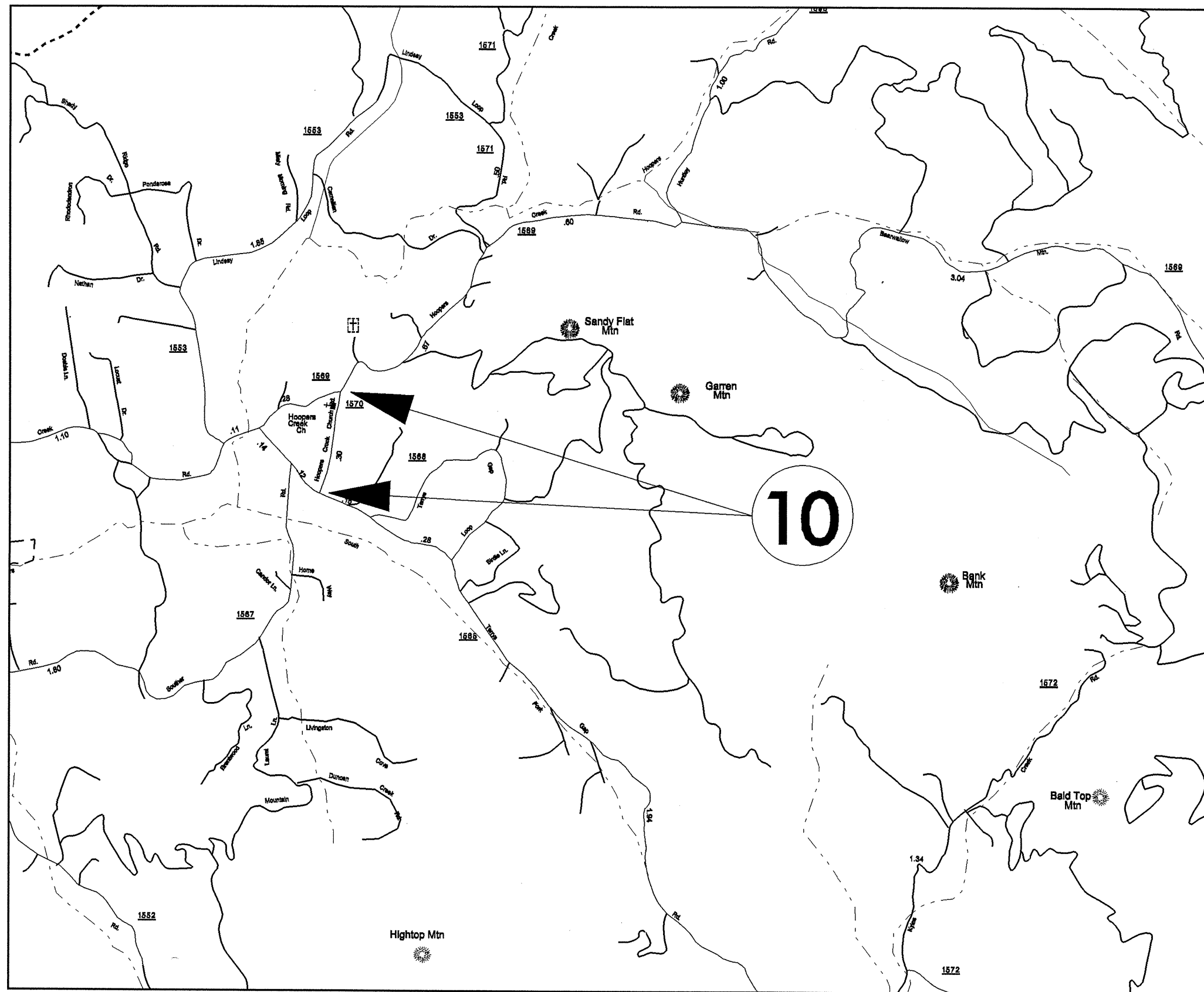
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|-----------------------|------------------|-------------|
| 14CR.10431.4 | | 3 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10431.4 | | |
| 14CR.20431.9 | | |
| 14CR.10781.2 | | |
| 14CR.20751.8 | | |



050197

2009 CONTRACT RESURFACING HENDERSON COUNTY

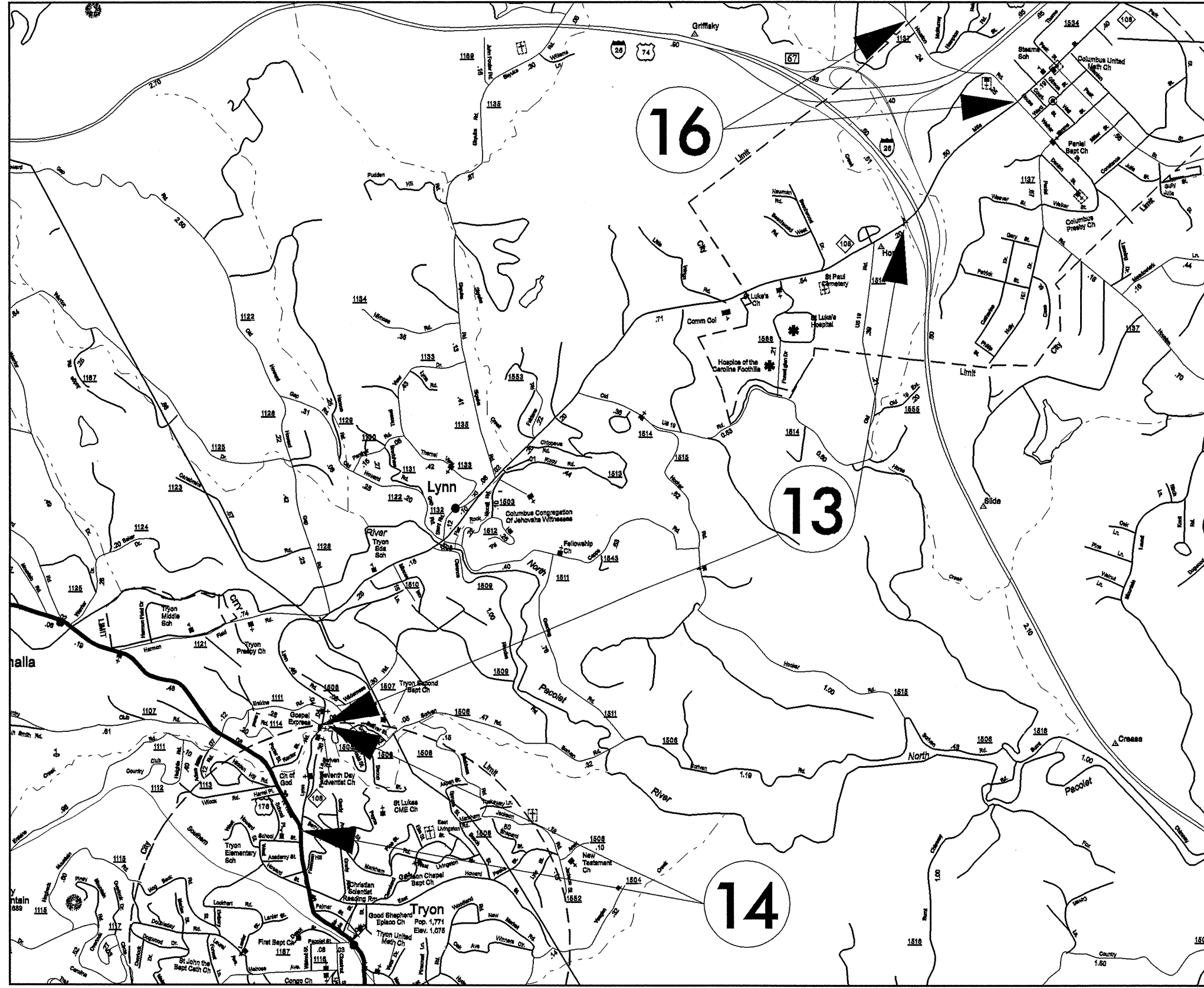
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|-----------------------|------------------|-------------|
| 14CR.10451.4 | | 4 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10501.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |



050137

2009 CONTRACT RESURFACING POLK COUNTY

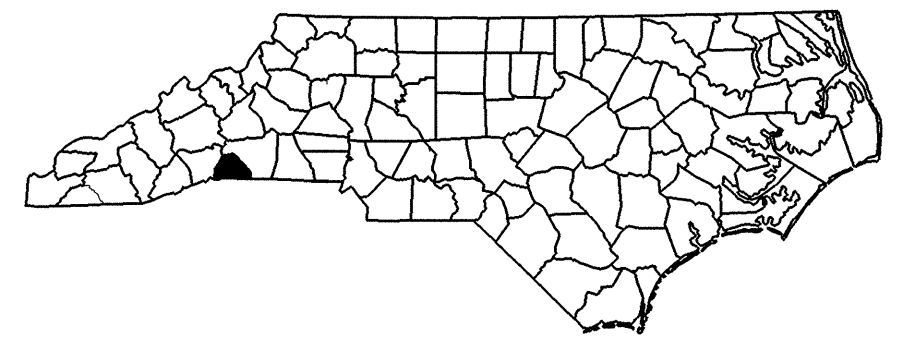
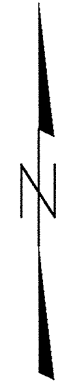
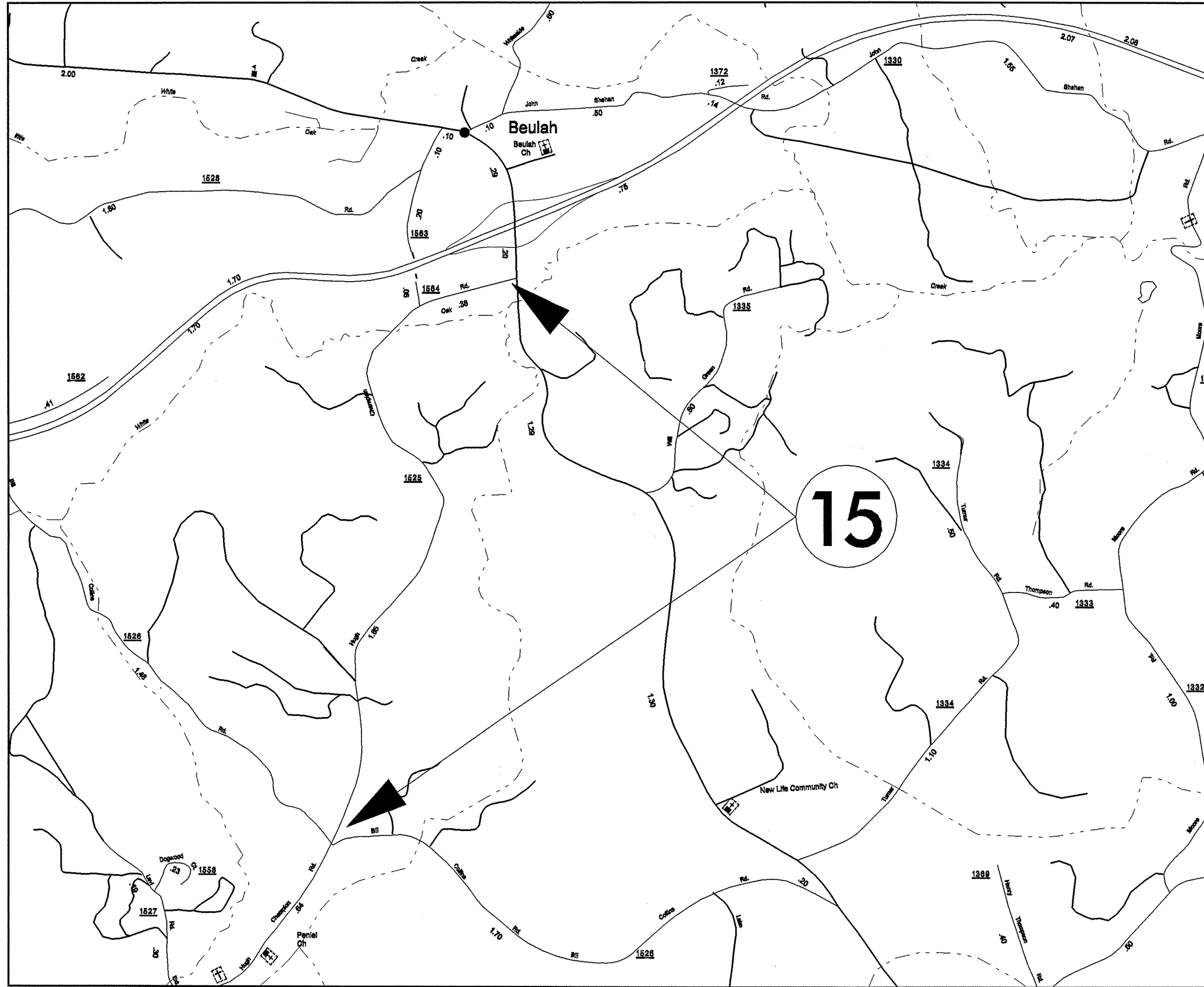
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|-----------------------|------------------|-------------|
| 14CR10481.4 | | 5 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR10481.4 | | |
| 14CR20481.9 | | |
| 14CR20781.2 | | |
| 14CR20781.8 | | |



050197

2009 CONTRACT RESURFACING POLK COUNTY

| PROJECT REFERENCE NO. | | SHEET NO. |
|-----------------------|------------------|-------------|
| 14CR10451.4 | | 6 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR10451.4 | | |
| 14CR20451.9 | | |
| 14CR10751.2 | | |
| 14CR20751.8 | | |



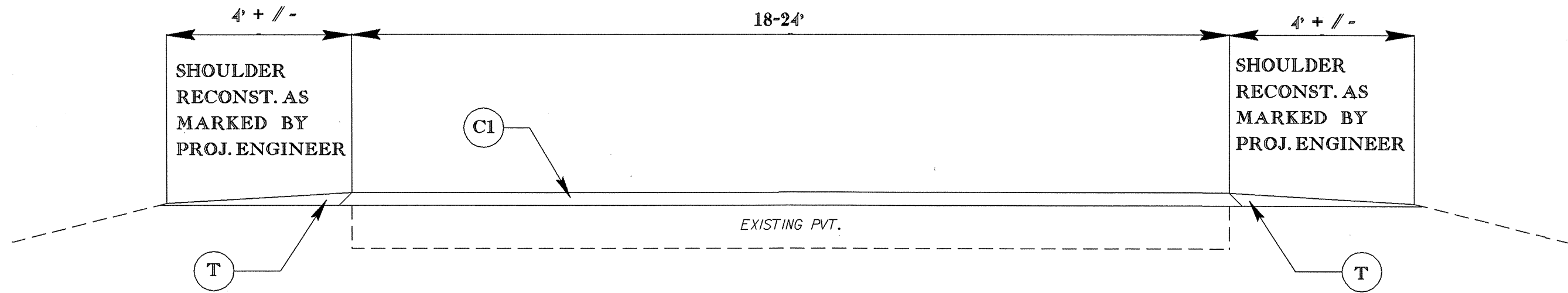
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|-----------------------|------------------|-------------|
| 14CR.10451.4 | | 7 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10451.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |

SURFACING SCHEDULE

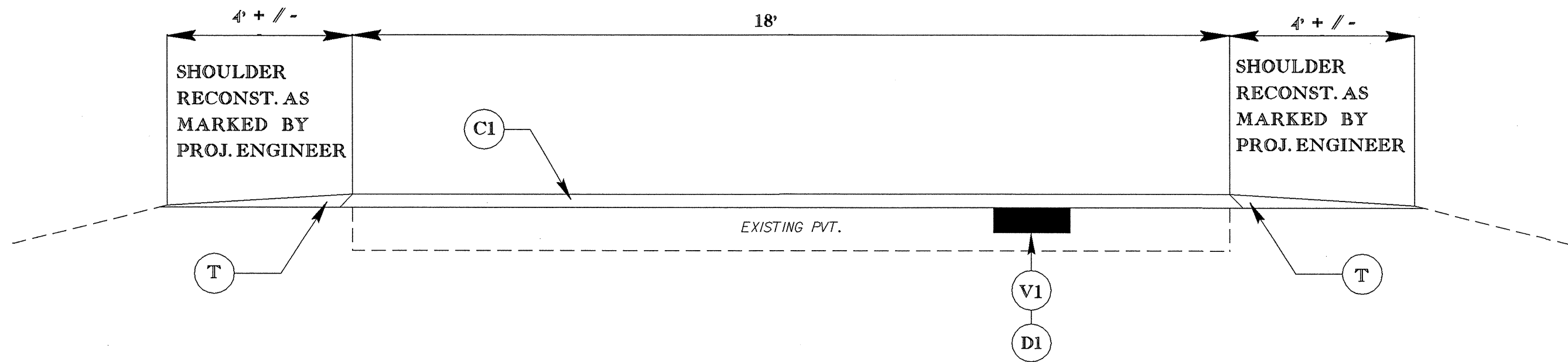
| ITEM NO | DESCRIPTION |
|---------|---|
| C1 | ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. (1 1/2") |
| C2 | PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 70 LBS PER SQ. YD. (LEVELING COURSE) |
| C3 | PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 112 LBS PER SQ. YD. (LEVELING COURSE) |
| C4 | ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS PER SQ. YD. (1 1/2") |
| D1 | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQ. YD. (2 1/2") |
| D2 | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS PER SQ. YD. (3") |
| D3 | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS PER SQ. YD. (2 1/2") |
| T | SHOULDER RECONSTRUCTION WITH ABCM-SEE SPECIAL PROVISIONS |
| V1 | MILLING ASPHALT PAVEMENT 2 1/2" IN DEPTH & 4FT. OR GREATER IN WIDTH IN DISTRESSED AREAS AS DIRECTED BY PROJECT ENGINEER |
| V2 | MILLING ASPHALT PAVEMENT 3" IN DEPTH & 4FT. OR GREATER IN WIDTH IN DISTRESSED AREAS AS DIRECTED BY PROJECT ENGINEER |

| PROJECT REFERENCE NO. | | SHEET NO. |
|-----------------------|------------------|-------------|
| 14CR.10451.4 | | 8 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10451.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |

TYPICAL 1

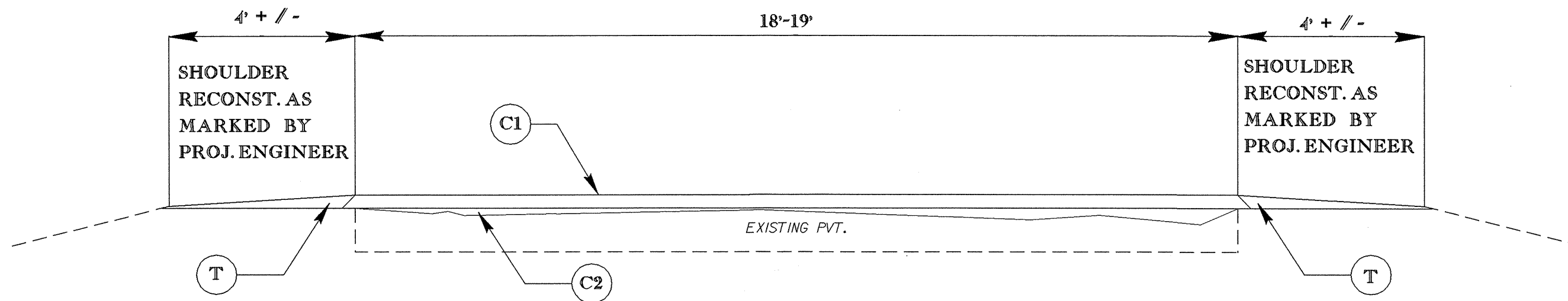


TYPICAL 2

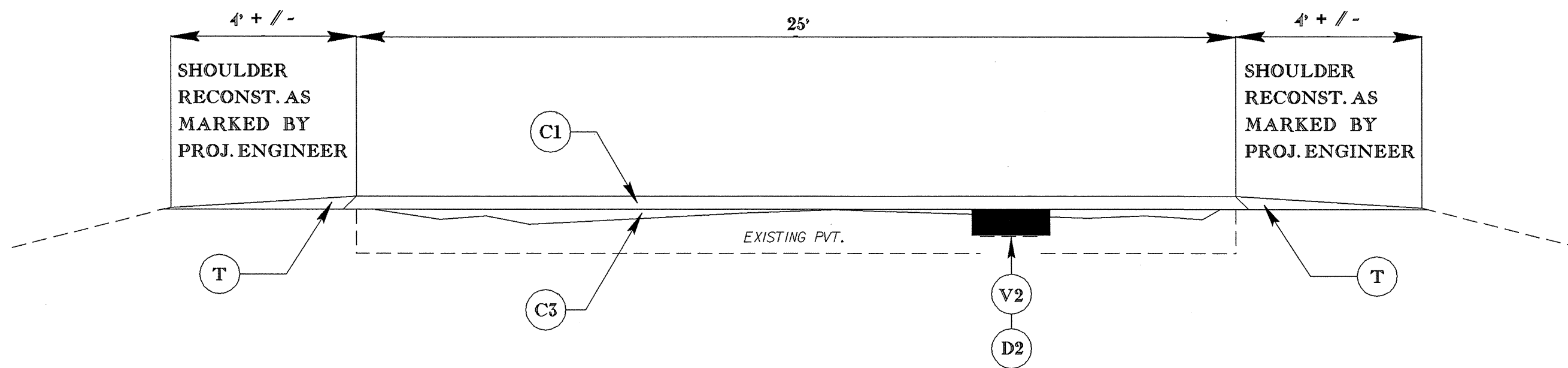


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|-----------------------|------------------|-------------|
| PROJECT REFERENCE NO. | | SHEET NO. |
| 14CR.10451.4 | | 9 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10451.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |

TYPICAL 3



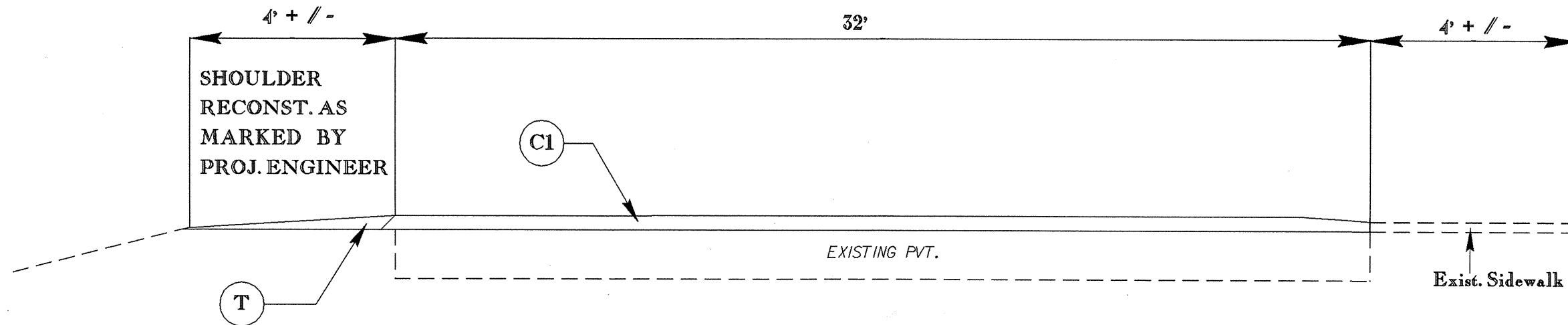
TYPICAL 4



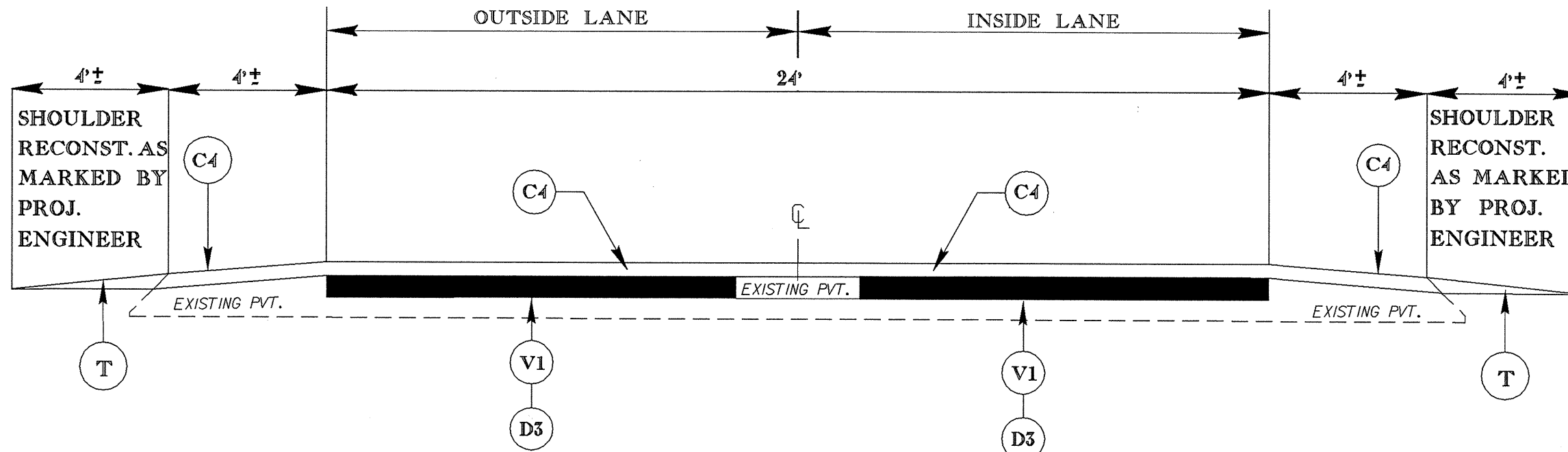
050191

| | | |
|-----------------------|------------------|-------------|
| PROJECT REFERENCE NO. | | SHEET NO. |
| 14CR.10451.4 | | 10 OF 11 |
| STATE PROJECT | F.A. PROJECT NO. | DESCRIPTION |
| 14CR.10451.4 | | |
| 14CR.20451.9 | | |
| 14CR.10751.2 | | |
| 14CR.20751.8 | | |

TYPICAL 5



TYPICAL 6



| | | |
|---|-----------|-----------|
| PROJECT NO. | SHEET NO. | TOTAL NO. |
| 14CR.10451.4, 14CR.20451.9 14CR.210751.2, ETC. | 11 | 12 |

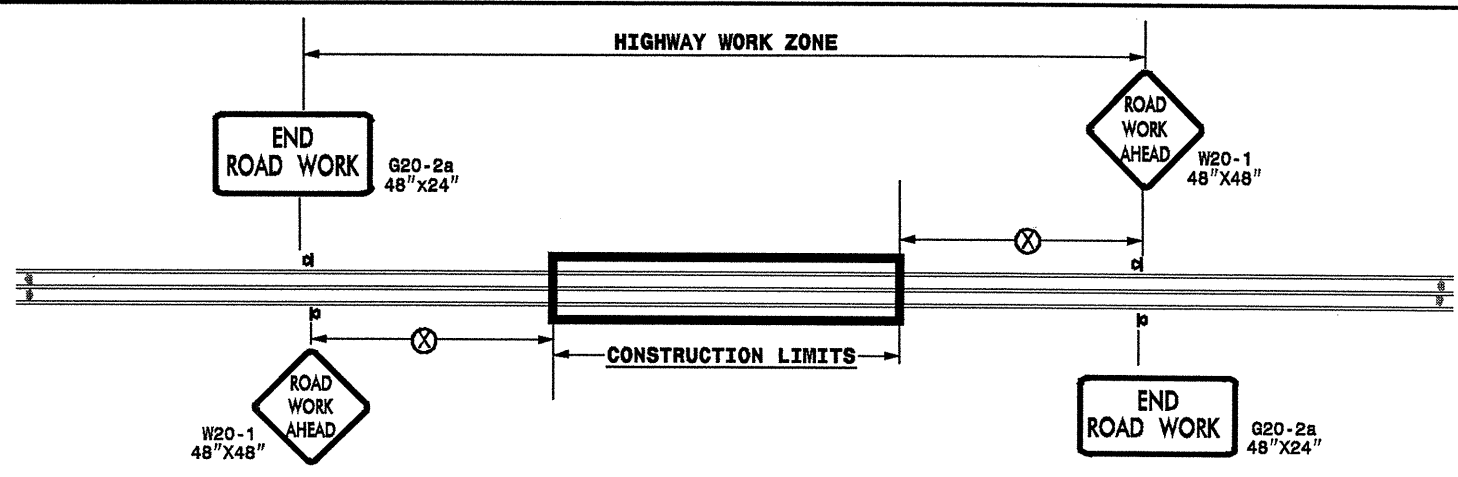
SUMMARY OF QUANTITIES

| PROJECT NO | COUNTY | MAP NO | ROUTE | DESCRIPTION | TYP | LENGTH MI | WIDTH FT | SHOULDER RECONSTRUCTION SMI | 3" MILLING SY | 2 1/2" MILLING SY | INCIDENTAL MILLING SY | INTERMEDIATE COURSE, I19.0B TONS | INTERMEDIATE COURSE, I19.0C TONS | SURFACE COURSE, S9.5B TONS | SURFACE COURSE, S9.5C TONS | SURFACE COURSE, SF9.5A (LEVELING COURSE) TONS | PG 64-22 PLANT MIX TONS | PG 70-22 PLANT MIX TONS | ADJ. OF DROP INLET EA | ADJ. OF MANHOLES EA | ADJ. OF METER OR VALVE BOX EA | PORTABLE LIGHTING LS | INDUCTIVE LOOP SAWCUT LF | LEAD-IN CABLE, 18-2 LF | |
|----------------------------------|-----------|--------|-----------|--|-----|-----------|----------|-----------------------------|---------------|-------------------|-----------------------|----------------------------------|----------------------------------|----------------------------|----------------------------|---|-------------------------|-------------------------|-----------------------|---------------------|-------------------------------|----------------------|--------------------------|------------------------|--|
| 14CR.10451.4 | Henderson | 1 | US64 EAST | FROM 0.18 MILES EAST OF SR1006 TO SR1749 | 6 | 1.3 | 38 | 1.70 | | 18,500 | 1,000 | | 2,650 | | 2,440 | | 125 | 146 | 2 | 1 | 5 | 1 | 732 | 675 | |
| | | 2 | US64WEST | FROM 0.18 MILES EAST OF SR1006 TO SR1749 | 6 | 1.3 | 38 | 1.70 | | 18,500 | 1,000 | | 2,650 | | 2,440 | | 125 | 146 | 2 | 1 | 5 | | 1,140 | 965 | |
| TOTAL FOR PROJ NO. 14CR.10451.4 | | | | | | 2.6 | | 3.40 | | 37,000 | 2,000 | | 5,300 | | 4,880 | | 250 | 292 | 4 | 2 | 10 | 1 | 1,872 | 1,640 | |
| 14CR.20451.9 | Henderson | 3 | SR1006 | FROM US64 TO SR1783 | 1 | 4.63 | 19 | 9.26 | | | | | | 4,552 | | | 273 | | | | | | | | |
| | | 4 | SR1171 | FROM US64 TO SR1210 | 1 | 2.45 | 24 | 4.90 | | | | | | 3,043 | | | 183 | | | | | | | | |
| | | 5 | SR1205 | FROM SR1191 TO SR1203 | 2 | 1.83 | 18 | 3.66 | | 1,111 | | 166 | | 1,704 | | | 110 | | | | | | | | |
| | | 6 | SR1210 | FROM SR1191 TO SR1171 | 3 | 0.42 | 18 | 0.84 | | | | | | 391 | | 163 | 34 | | | | | | | | |
| | | 7 | SR1354 | FROM SR1351 TO SR1345 | 1 | 0.83 | 18 | 1.66 | | | | | | 773 | | | 46 | | | | | | | | |
| | | 8 | SR1354 | FROM NC280 TO PVMT CHNG 0.33 MILE NORTH | 1 | 0.33 | 18 | 0.66 | | | | | | 307 | | | 18 | | | 1 | | | | | |
| | | 9 | SR1367 | FROM US25 TO DEAD END | 1 | 0.60 | 20 | 1.20 | | | | | | 621 | | | 37 | | | | | | | | |
| | | 10 | SR1570 | FROM SR1565 TO SR1569 | 3 | 0.30 | 19 | 0.60 | | | | | | 295 | | 123 | 26 | | | | | | | | |
| | | 11 | SR1893 | FROM SR1793 TO SR1525 | 1 | 0.87 | 20 | 1.74 | | | | | | 900 | | | 54 | | | | | | | | |
| | | 12 | SR1897 | FROM US64 TO PVMT CHNG 0.29 MILES SOUTH | 1 | 0.29 | 22 | 0.58 | | | | | | 330 | | | 20 | | | | | | | | |
| TOTAL FOR PROJ NO. 14CR.20451.9 | | | | | | 12.55 | | 25.10 | | 1,111 | | 166 | | 12,916 | | 286 | 801 | | | 1 | | | | | |
| 14CR.210751.2 | Polk | 13 | NC108 | FROM I-26 EXIT RAMP TRAFFIC CIRCLE TO SR1505 | 4 | 3 | 25 | 6.00 | 3,344 | | | 606 | | 3,918 | | 2,612 | 433 | | | 1 | | 4 | | | |
| | | 14 | NC108 | FROM SR1505 TO US176 | 5 | 0.36 | 32 | 0.36 | | | | | | 568 | | | 34 | | | | | | | | |
| TOTAL FOR PROJ NO. 14CR.210751.2 | | | | | | 3.36 | | 6.36 | 3,344 | | | 606 | | 4,486 | | 2,612 | 467 | | | 1 | | 4 | | | |
| 14CR.20751.8 | Polk | 15 | SR1525 | FROM NC9 TO PVMT CHNG 2.00 MILES SOUTH | 1 | 2.00 | 20 | 4.00 | | | | | | 2,070 | | | 124 | | | | | | | | |
| | | 16 | SR1137 | FROM SR1135 TO NC108 | 1 | 0.5 | 20 | 0.80 | | | | | | 517 | | | 31 | | | | | | | | |
| TOTAL FOR PROJ NO. 14CR.20751.8 | | | | | | 2.5 | | 4.80 | | | | | | 2,587 | | | 155 | | | | | | | | |
| GRAND TOTAL | | | | | | 21.01 | | 39.66 | 3,344 | 38,111 | 2,000 | 772 | 5,300 | 19,989 | 4,880 | 2,898 | 1,673 | 292 | 4 | 4 | 14 | 1 | 1,872 | 1,640 | |

PAINT QUANTITIES

| PROJECT NO | COUNTY | MAP NO | ROUTE | DESCRIPTION | 4400000000-E | 4405000000-E | 4415000000-N | 4420000000-N | 4430000000-N | 4516000000-N | 4810000000-E | | 4820000000-E | 4835000000-E | 4840000000-N | 4845000000-N | 4845000000-N | 4845000000-N | 4845000000-N | 4845000000-N | 4845000000-N | 4480000000-N | |
|----------------------------------|-----------|--------|-----------|--|---------------------------|-------------------------|----------------------------------|----------------------------|--------------|----------------|-------------------|--------------------|--------------------|--------------------|---------------------|--------------------|-------------------|-------------------|-------------------------|-------------------------|--------------|--------------|--|
| | | | | | STATIONARY WORK ZONE SIGN | PORTABLE WORK ZONE SIGN | FLASHING ARROW PANELS, TYPE C EA | CHANGEABLE MESSAGE SIGN EA | DRUMS EA | SKINNY DRUM EA | 4" WHITE PAINT LF | 4" YELLOW PAINT LF | 8" YELLOW PAINT LF | 24" WHITE PAINT LF | PAINT MSG SCHOOL EA | PAINT STR ARROW EA | PAINT LT ARROW EA | PAINT RT ARROW EA | PAINT STR & LT ARROW EA | PAINT STR & RT ARROW EA | TMIA EA | | |
| 14CR.10451.4 | Henderson | 1 | US64 EAST | FROM 0.18 MILES EAST OF SR1006 TO SR1749 | 288 | 96 | 2 | 2 | 24 | 200 | 28,770 | 20,775 | | 433 | | 46 | 17 | 14 | 12 | 8 | | 1 | |
| | | 2 | US64WEST | FROM 0.18 MILES EAST OF SR1006 TO SR1749 | | | | | | | 28,770 | 20,775 | | 433 | | 46 | 17 | 14 | 10 | 10 | | 1 | |
| TOTAL FOR PROJ NO. 14CR.10451.4 | | | | | 288 | 96 | 2 | 2 | 24 | 200 | 57,540 | 41,550 | | 866 | | 92 | 34 | 28 | 22 | 18 | | 2 | |
| | | | | | | | | | | | 99,090 | | | | | | | | | | | | |
| 14CR.20451.9 | Henderson | 3 | SR1006 | FROM US64 TO SR1783 | | | | | | | 97,786 | 97,786 | | | | | | | | | | | |
| | | 4 | SR1171 | FROM US64 TO SR1210 | | | | | | | 55,000 | 51,488 | | 348 | | 2 | 2 | | | | | | |
| | | 5 | SR1205 | FROM SR1191 TO SR1203 | | | | | | | 38,650 | 38,650 | | 72 | 12 | | | | | | | | |
| | | 6 | SR1210 | FROM SR1191 TO SR1171 | | | | | | | 13,306 | 13,306 | | | | | | | | | | | |
| | | 7 | SR1354 | FROM SR1351 TO SR1345 | | | | | | | 17,530 | 17,530 | | | | | | | | | | | |
| | | 8 | SR1354 | FROM NC280 TO PVMT CHNG 0.33 MILE NORTH | | | | | | | 6,970 | 6,970 | | | | | | | | | | | |
| | | 9 | SR1367 | FROM US25 TO DEAD END | | | | | | | 12,672 | 12,672 | | | | | | | | | | | |
| | | 10 | SR1570 | FROM SR1565 TO SR1569 | | | | | | | 6,336 | 6,336 | | | | | | | | | | | |
| | | 11 | SR1893 | FROM SR1793 TO SR1525 | | | | | | | 18,374 | 18,374 | | | | | | | | | | | |
| | | 12 | SR1897 | FROM US64 TO PVMT CHNG 0.29 MILES SOUTH | | | | | | | 6,724 | 6,724 | | 40 | | 2 | 4 | | | | | | |
| TOTAL FOR PROJ NO. 14CR.20451.9 | | | | | | | | | | | 273,348 | 269,836 | | 460 | 12 | 2 | 4 | 4 | | | | | |
| | | | | | | | | | | | 543,184 | | | | | | | | | | | | |
| 14CR.10751.2 | Polk | 13 | NC108 | FROM I-26 EXIT RAMP TRAFFIC CIRCLE TO SR1505 | | | | | | | 95,940 | 104,070 | 1,272 | 90 | | 1 | 12 | | | | | | |
| | | 14 | NC108 | FROM SR1505 TO US176 | | | | | | | 7,604 | 9,964 | | 40 | | | | | | | 1 | | |
| TOTAL FOR PROJ NO. 14CR.210751.2 | | | | | | | | | | | 103,544 | 114,034 | 1,272 | 130 | | 1 | 12 | | | | 1 | | |
| | | | | | | | | | | | 217,578 | | | | | | | | | | | | |
| 14CR.20751.8 | Polk | 15 | SR1525 | FROM NC9 TO PVMT CHNG 2.00 MILES SOUTH | | | | | | | 42,240 | 42,240 | | | | | | | | | | | |
| | | 16 | SR1137 | FROM SR1135 TO NC108 | | | | | | | 10,560 | 10,560 | | | | | | | | | | | |
| TOTAL FOR PROJ NO. 14CR.20751.8 | | | | | | | | | | | 52,800 | 52,800 | | | | | | | | | | | |
| | | | | | | | | | | | 105,600 | | | | | | | | | | | | |
| GRAND TOTAL | | | | | | 288 | 96 | 2 | 2 | 24 | 200 | 487,232 | 478,220 | 1,272 | 1,456 | 12 | 93 | 48 | 32 | 26 | 19 | 2 | |
| | | | | | | | | | | | 965,452 | | | | | | | | | | | | |
| | | | | | | | | | | | 218 | | | | | | | | | | | | |

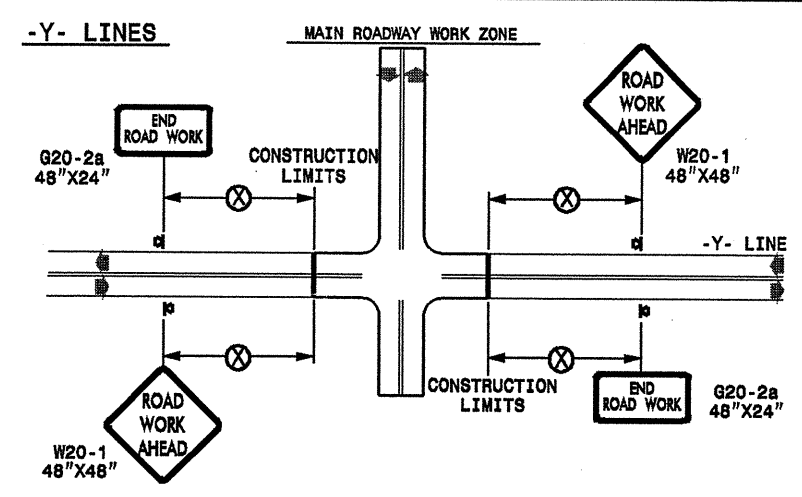
TWO-WAY UNDIVIDED ** (L-LINES)



| 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 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

DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

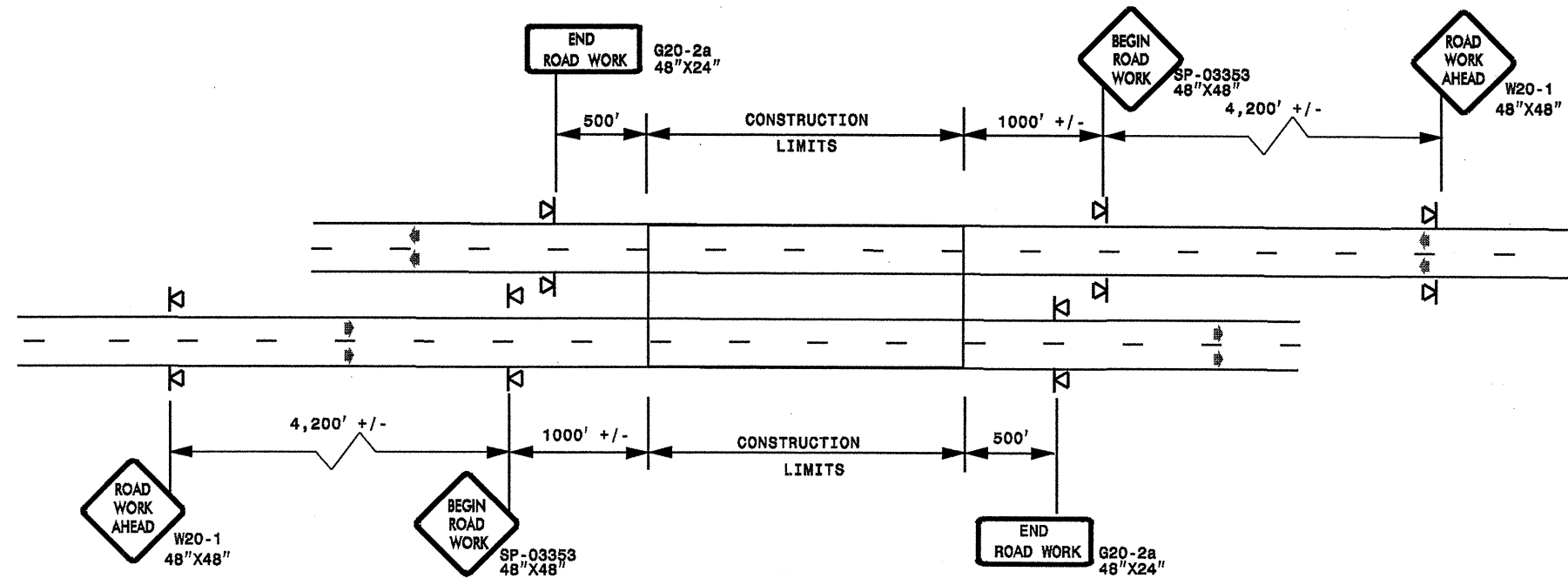
SHEET 1 OF 1

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

10-NOV-2009 10:46
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ADVANCE WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

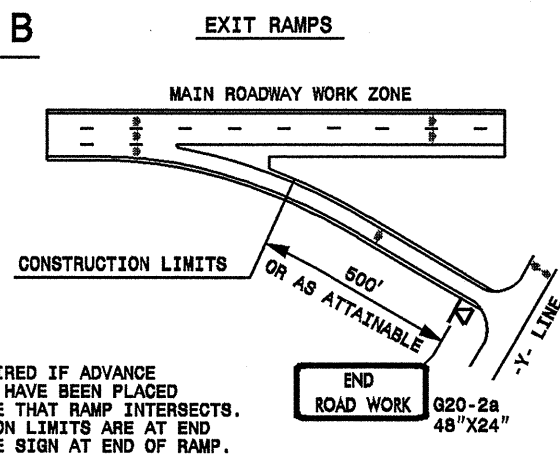
DETAIL A



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

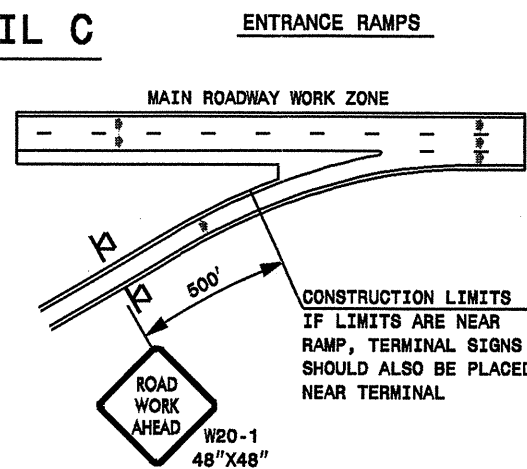
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B



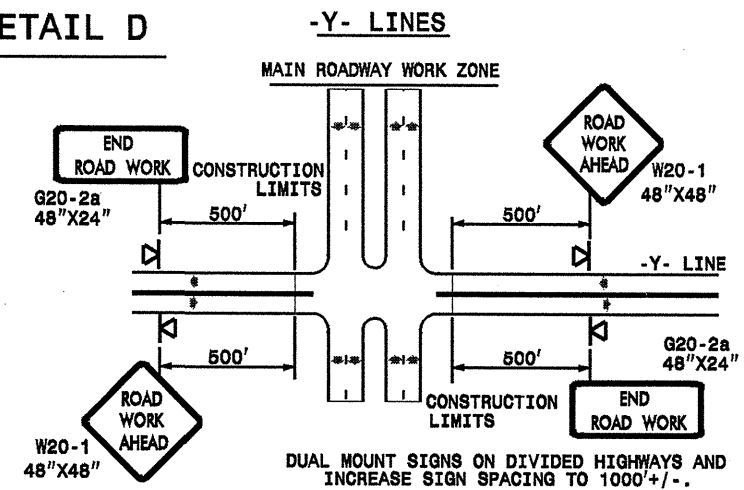
NOTE:
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C



CONSTRUCTION LIMITS IF LIMITS ARE NEAR RAMP, TERMINAL SIGNS SHOULD ALSO BE PLACED NEAR TERMINAL.

DETAIL D



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000' +/-.

GENERAL NOTES

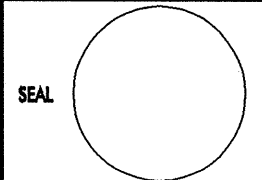
- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH 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 MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

- ◀ PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

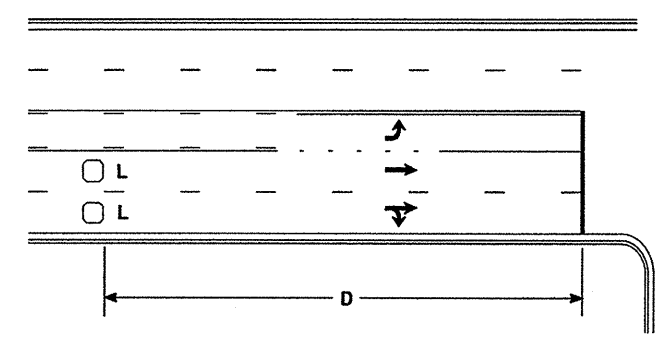
DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS (SHORT-DURATION LANE CLOSURES)

SHEET 1 OF 1

| | | | |
|---|-------------|---|--|
| APPROVED: _____ | DATE: _____ | DETAIL DRAWING FOR FREEWAYS 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: _____ | | | |

10-NOV-2009 18:48
 s:\signing\resur\facimg2010\dwg\c202514q-d\14cr10451x3.hendersonpok.us64ml6\c202514a-d\14cr10451x3.free4lanesgreat.july2006.portable.dgn
 pseymore AT WZTC237502

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

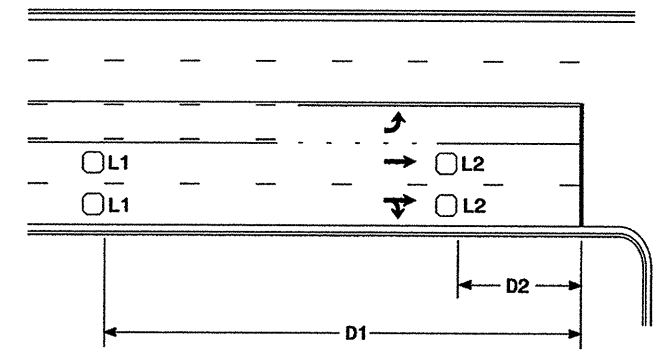


| Speed Limit mph (km/hr) | D ft (m) |
|----------------------------|-------------|
| 40 (64) | 250 (75) |
| 45 (72) | 300 (90) |
| 50 (80) | 355 (110) |
| 55 (88) | 420 (130) |

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



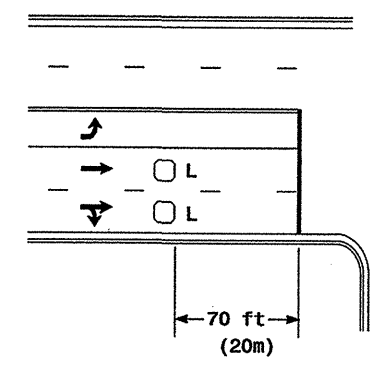
| Speed Limit mph (km/hr) | D1 ft (m) | D2 ft (m) |
|----------------------------|--------------|--------------|
| 40 (64) | 250 (75) | 80 (25) |
| 45 (72) | 300 (90) | 90 (27) |
| 50 (80) | 355 (110) | 100 (30) |
| 55 (88) | 420 (130) | 110 (35) |

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

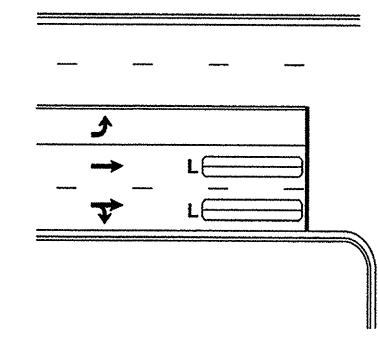
Low Speed Detection [≤35 mph (56 km/hr)]

14CR.10541.4, 14CR.10751.2,
14CR.20451.9 & 14CR.20751.8



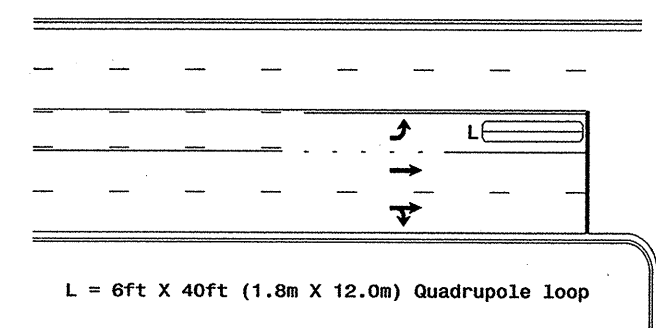
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

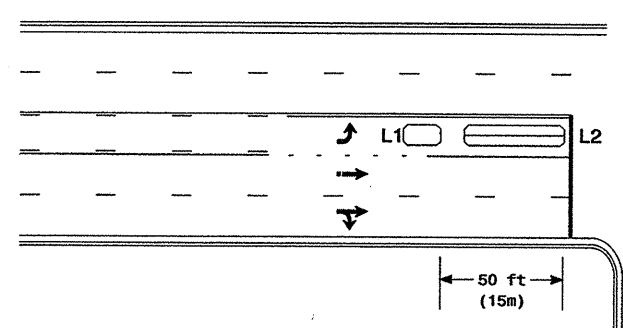
Left Turn Lane Detection



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

Presence Loop Detection

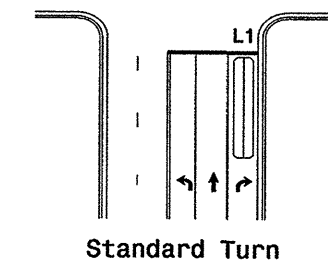
OR



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

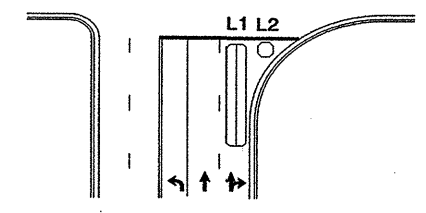
Queue Loop Detection

Right Turn Lane Detection

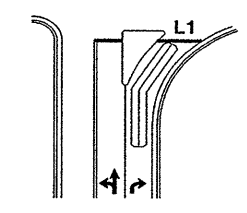


Standard Turn

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

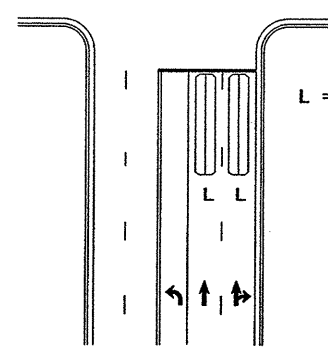


Wide Radius Turn



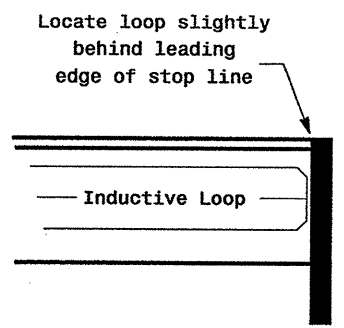
Channelized Turn

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



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 | REVIEWED BY: DATE: |
| SCALE: N/A | REVISIONS: 1. Revise pavement markings. | SIGNATURE: [Signature] DATE: 6/6/06 |

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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

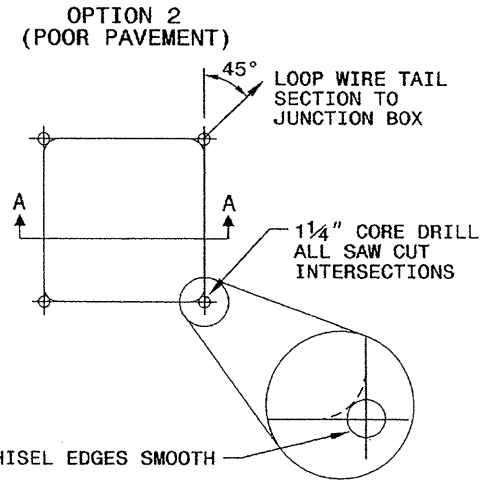
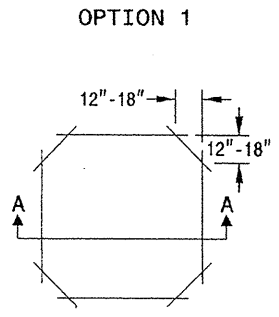
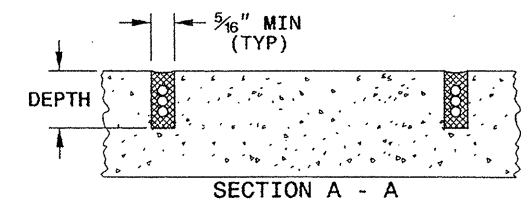
SHEET 1 OF 3
1725D01

CONVENTIONAL 4-SIDED LOOP

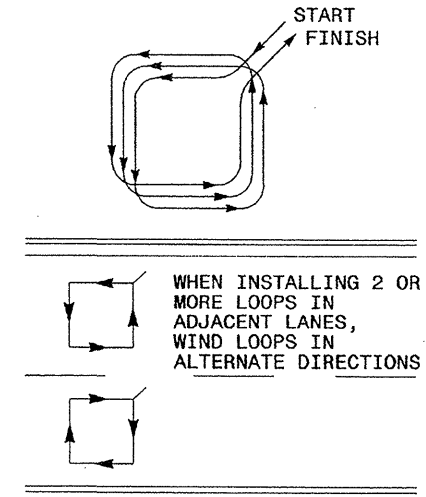
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

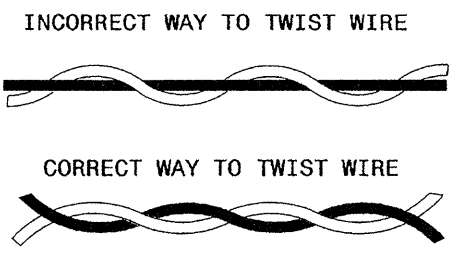
| DEPTH (IN) | NO. OF WIRE TURNS | | | | |
|------------|-------------------|-----|-----|-----|-----|
| | 2 | 3 | 4 | 5 | 6 |
| CONCRETE | 2.0 | 2.0 | 2.5 | 2.5 | 3.0 |
| ASPHALT | 2.0 | 2.5 | 3.0 | 3.0 | 3.0 |



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

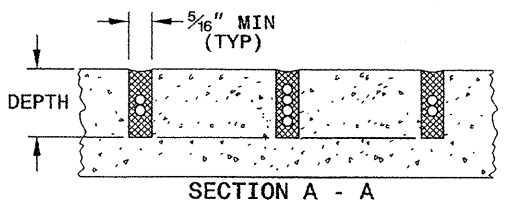
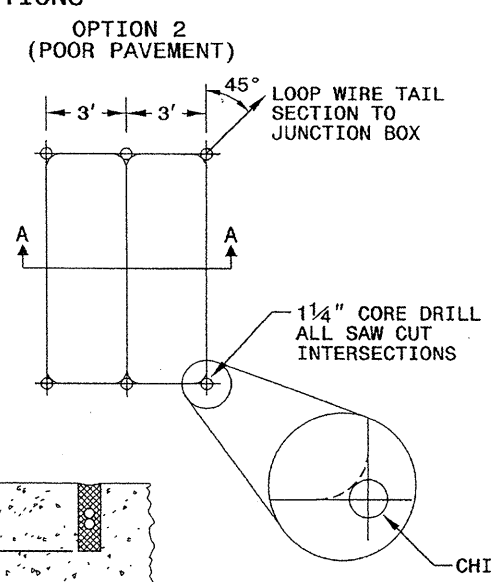
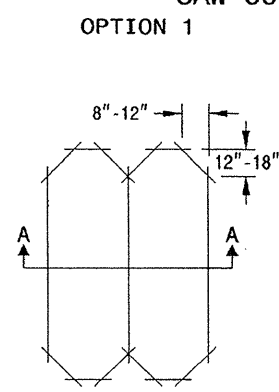


NOTES

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.

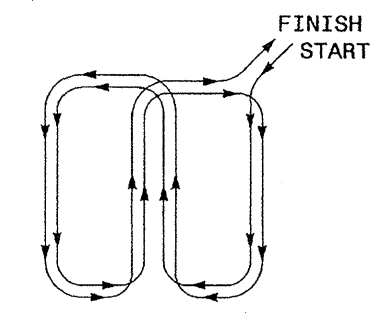
QUADRUPOLE LOOP

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

SIGNATURE: *Milton A. Dean* DATE: 11/24/08

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 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

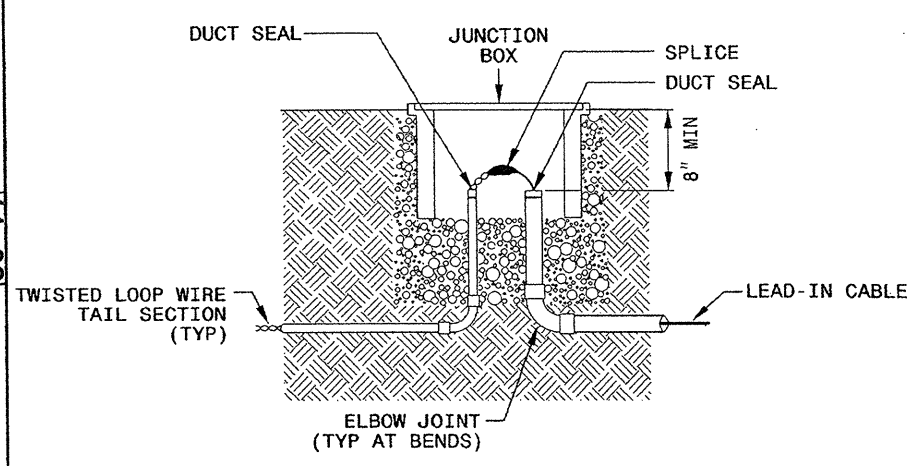
11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

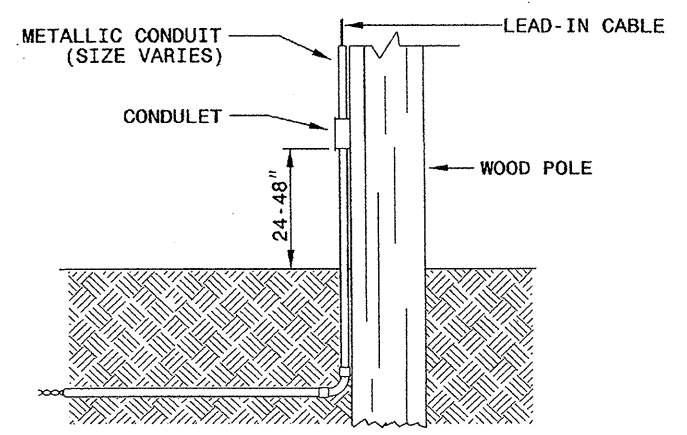
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

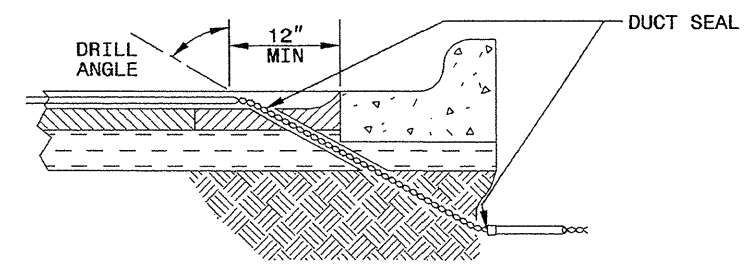


NOTE

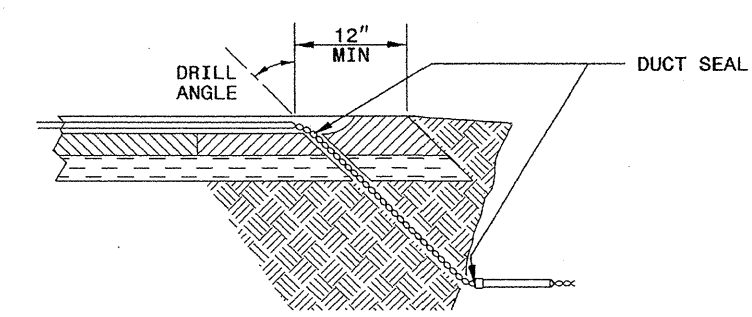
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

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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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

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Milton I. Dean 11/24/08
 SIGNATURE DATE

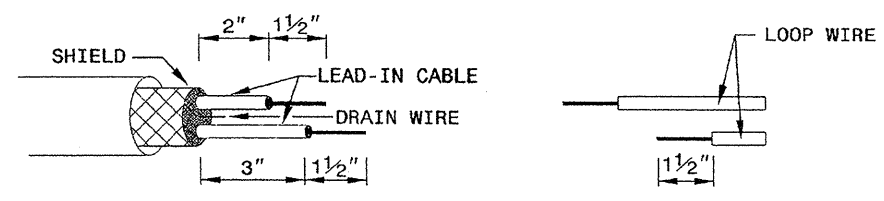
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 111118

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

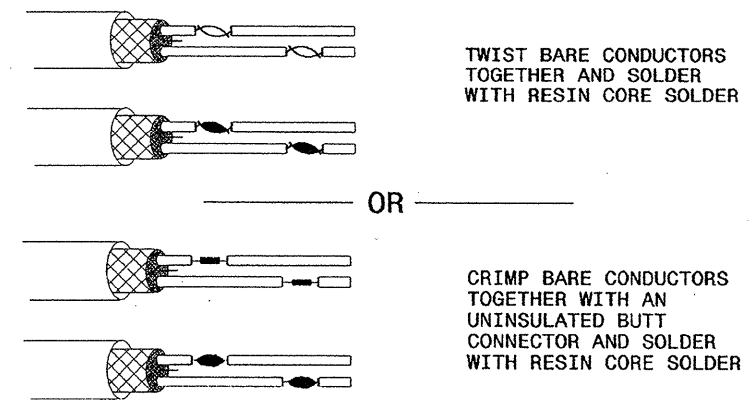
11-08
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

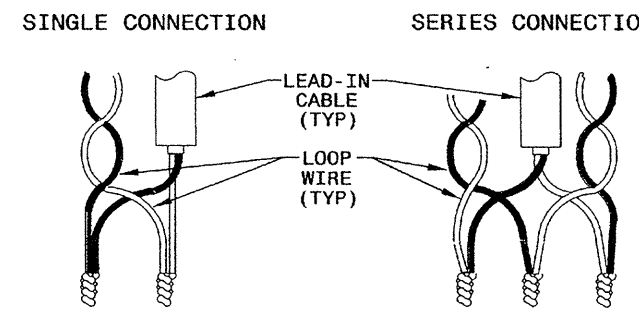


STEP 2. CONNECT AND SOLDER

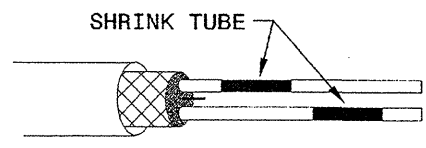


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

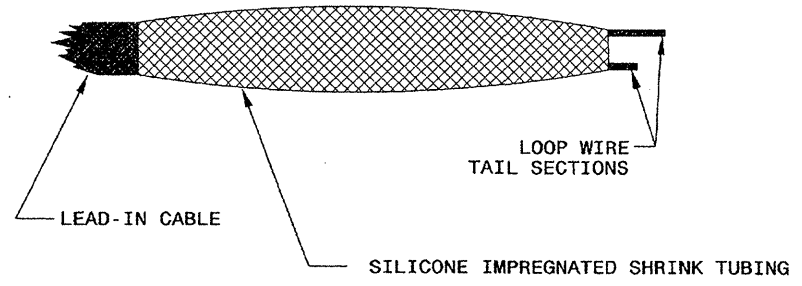
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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RALEIGH, N.C.

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

SHEET 3 OF 3
1725D01

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