COMPUTED BY: LCF DATE: 3-23-2004
CHECKED BY: BMP DATE: 3-23-2004

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-3403 | 3A |

## LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" | 15" | 18" | 24" | 30" | | 36" | | 42" | | 48" | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THICKNESS OR GAUGE | | | | | | | | | | | | | | | | .064 | .064 | .064 | .064 | .079 | | .079 | | .109 | | .109 | |
| SHEET 04 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14+13 | LT | 1 | | 2517.5 | | | | | | | | | | | | | | | | | | | | | | | |
| 14+13 | CL | 1 | 2 | | 2515.5 | 2515.1 | | | 28 | | | | | | | | | | | | | | | | | | |
| 14+13 | RT | 2 | | 2517.5 | | | | | | | | | | | | | | | | | | | | | | | |
| 14+13 | RT | 2 | OUT | | 2514.6 | 2507.0 | | | | | | | | | | | 24 | | | | | | | | | | |
| 16+20 | LT | 3 | | 2526.6 | | | | | | | | | | | | | | | | | | | | | | | |
| 16+20 | LT | 3 | OUT | | 2523.9 | 2512.5 | | | | | | | | | | | 32 | | | | | | | | | | |
| 16+20 | RT | 4 | | 2526.6 | | | | | | | | | | | | | | | | | | | | | | | |
| 16+20 | RT | 4 | OUT | | 2523.9 | 2523.0 | | | 20 | | | | | | | | | | | | | | | | | | |
| 18+51 | CL | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+73 | CL | 5 | OUT | | 2541.3 | 2529.0 | | | | | | | | | | | | | 80 | | | | | | | | |
| 18+85 | RT | 5 | | 2546.2 | | | | | | | | | | | | | | | | | | | | | | | |
| 18+85 | RT | 6 | 5 | | 2562.3 | 2541.5 | | | 216 | | | | | | | | | | | | | | | | | | |
| 19+99 | CL | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21+00 | RT | 6 | | 2565.0 | | | | | | | | | | | | | | | | | | | | | | | |
| 20+75 | LT | 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+14 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTALS | | | | | | | | | 264 | | | | | | | | 56 | | 80 | | | | | | | | |
| SAY | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| STATION | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') PER EACH (0' THRU 5.0') | LIN. *FT. A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME & GRATE STD. 840.16 | M.D.I. TYPE "A" STD. 840.17 OR 840.26 | M.D.I. TYPE "B" STD. 840.18 OR 840.27 | M.D.I. TYPE "D" STD. 840.19 OR 840.28 | M.D.I. FRAME WITH GRATE STD. 840.20 | M.D.I. FRAME WITH TWO GRATES STD. 840.22 | M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24 | M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | J.B. STD. 840.31 OR 840.32 | TRAFFIC BEARING DROP INLET STD. 840.35 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | | | | | | PIPE CLEAN-OUT | 15" CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET 04 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14+13 | | | | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| 14+13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14+13 | | | | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| 14+13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | |
| 16+20 | | | | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| 16+20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | |
| 16+20 | | | | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| 16+20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 42 | REMOVE 15" METAL PIPE |
| 18+73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+85 | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | |
| 18+85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19+99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 48 | REMOVE 30" METAL PIPE |
| 21+00 | | | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | |
| 20+75 | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23+14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| TOTALS | | | 24 | | | 6 | | | | | | | | | | | | | 2 | | | | 2 | | 4 | 4 | | | | | | | 1 | 4 | | | 90 |
| SAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

## GUARDRAIL SUMMARY

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | LENGTH STRAIGHT | SHOP CURVED | DOUBLE FACED | WARRANT POINT APPROACH END | TRAILING END | "N" DIST. FROM E.O.L. | TOTAL SHOUL. WIDTH | FLARE LENGTH APPROACH END | TRAILING END | W APPROACH END | TRAILING END | ANCHORS XI MOD | XI | GRAU 350 | TEMP. GRAU 350 | III | CAT-1 | VI MOD | BIC | AT-1 | IMPACT ATTENUATOR TYPE 350 EA | G | NG | SINGLE FACED GUARDRAIL | REMOVE EXISTING GUARDRAIL | REMOVE AND STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 12+59.32 | 14+34.32 | RT | 175 | | | 13+25.00 | | 3 | 8 | 50 | | 1 | | | | 1 | | 1 | | | | | | | | | | | |
| L | 11+93.69 | 14+43.69 | LT | 250 | | | | 13+25.00 | 3 | 8 | | 50 | | 1 | | | 1 | | 1 | | | | | | | | | | | |
| L | 15+91.32 | 16+91.32 | RT | 100 | | | | 15+91.32 | 3 | 8 | | 81.25 | | 1.625 | | | 1 | | 1 | | | | | | | | | | | |
| L | 16+00.68 | 20+50.68 | LT | 450 | | | 20+50.00 | | 3 | 8 | 50 | | 1 | | | | 1 | | 1 | | | | | | | | | | | |
| | | | TOTAL | 975 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GRAU-350 | 50 x 4 = 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TYPE III | 18.75 x 4 = 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TOTAL DEDUCTIONS | 275.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 5 ADDITIONAL POSTS | | | | | | | | | | | | | | | | | | | |
| | TOTAL LENGTH | 700.00 ft | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

### ABBREVIATIONS

| | |
|---|---|
| C.B. | CATCH BASIN |
| N.D.I. | NARROW DROP INLET |
| D.I. | DROP INLET |
| M.D.I. | MEDIAN DROP INLET |
| M.D.I. (N.S.) | MEDIAN DROP INLET (NARROW SLOT) |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUCTION BOX |

ARCADIS G&M
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