RAL-2UA2440BPJ

| COMPUTED BY: | CGM | DATE: | 3/06/14 |
|---|---|---|---|
| CHECKED BY: | JRR | DATE: | |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
## DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| U-2579B | 3D-3 |

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".**

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

| LINE & STATION | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % |
|---|---|---|---|---|---|---|---|
| 18+10 -Y1RPA- | LT | 0044 | | 895.6 | 887.3 | | |
| | | 0044 | 0047 | | 887.3 | 886.8 | |
| 494+93 -L- | CL | 0047 | | 900.2 | 886.8 | | |
| | | 0047 | 0048 | | 886.8 | 884.3 | |
| 494+93 -L- | RT | 0048 | | 888.3 | 884.3 | | |
| | | 0048 | 0051 | | 884.3 | 874.5 | |
| 18+42 -Y1RPD- | LT | 0049 | | 886.7 | 884.0 | | |
| | | 0049 | 0051 | | 884.0 | 875.8 | |
| 17+21 -Y1RPD- | LT | 0050 | | 895.3 | 892.6 | | |
| | | 0050 | 0051 | | 892.6 | 875.8 | |
| 18+01 -Y1RPD- | LT | 0051 | | 879.4 | 874.5 | | |
| | | 0051 | OUT | | 874.5 | 873.5 | |
| 497+50 -L- | CL | 0046 | | 903.6 | 898.7 | | |
| | | 0046 | 0047 | | 898.7 | 888.1 | |
| 497+50 -L- | LT | 0045 | | 901.7 | 899.0 | | |
| | | 0045 | 0046 | | 899.0 | 898.7 | |
| 18+40 -Y1LPA- | RT | 0060 | | 906.4 | 903.6 | | |
| | | 0060 | 0061 | | 903.6 | 903.5 | |
| 18+40 -Y1LPA- | LT | 0061 | | 906.7 | 903.5 | | |
| | | 0061 | OUT | | 903.5 | 900.0 | |
| 28+46 -Y1- | LT | 63A | | | | | |
| | | 63A | 0062 | | 897.0 | 885.4 | |
| 28+01 -Y1- | LT | 0062 | | 891.2 | 885.4 | | |
| 28+01 -Y1- | RT | 0063 | | | | | |
| | | 0063 | OUT | | EX | 883.0 | |
| 28+10 -Y1- | RT | 0064 | | 916.4 | 913.6 | | |
| | | 0064 | OUT | | 913.6 | 884.3 | |
| 20+80 -Y1LPD- | CL | 0052 | | | 890.5 | 877.5 | |
| 41+60 -Y1- | LT | 0053 | | | 875.0 | EX | |
| 41+68 -Y1- | RT | 0054 | | | EX | 865.0 | |
| 39+50 -Y1- | LT | 0055 | | 906.2 | 903.0 | | |
| | | 0055 | 0056 | | 903.0 | 902.5 | |

SIDE DRAIN PIPE (STATEWIDE TIER) (RCP, CSP, CAAP, HDPE, or PVC); C. S. PIPE (SE: SHOP ELONGATED); R. C. PIPE CLASS III; R. C. PIPE CLASS IV; R. C. PIPE CLASS V (SIZE / THICKNESS OR GAUGE)

| FROM | TO | Side Drain 15 | Side Drain 18 | Side Drain 24 | Side Drain 30 | Side Drain 36 | Side Drain 42 | Side Drain 48 | DO NOT USE RCP | C.S. 15 (.064) | C.S. 18 (.064) | C.S. 24 (.064) | C.S. 30 (.064) | C.S. 36 (.079) | C.S. 42 (.109) | R.C. III 15 | R.C. III 18 | R.C. III 24 | R.C. III 30 | R.C. III 36 | R.C. III 42 | R.C. III 48 | R.C. IV 15 | R.C. IV 18 | R.C. IV 24 | R.C. IV 30 | R.C. IV 42 | R.C. IV 48 | R.C. V 24 | R.C. V 30 | R.C. V 36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0044 | 0047 | | | | | | | | | | | | | | | | | | 168 | | | | | | | | | | | | |
| 0047 | 0048 | | | | | | | | | | | | | | | | | | 128 | | | | | | | | | | | | |
| 0048 | 0051 | | | | | | | | | | | | | | | | | | 160 | | | | | | | | | | | | |
| 0049 | 0051 | 40 | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | |
| 0050 | 0051 | 96 | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | |
| 0051 | OUT | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0046 | 0047 | 260 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0045 | 0046 | | | | | | | | | | | | | | | 92 | | | | | | | | | | | | | | | |
| 0060 | 0061 | | | | | | | | | | | | | | | | | | | | | | 48 | | | | | | | | |
| 0061 | OUT | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63A | 0062 | | | | | | 80 | | | | | | | | | | | | | | | | | | | | | | | | |
| 0063 | OUT | | | | | | | | | | | | | | | | | | | | | | | | | | 96 | | | | |
| 0064 | OUT | | | | | | | | | 76 | | | | | | | | | | | | | | | | | | | | | |
| 0052 | | | | | | | | | | | | | | | | | 232 | | | | | | | | | | | | | | |
| 0053 | | | | | | | | | | | | | | | | | | | | | | | | | | 48 | | | | | |
| 0054 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 92 | |
| 0055 | 0056 | | | | | | | | | | | | | | | | | | | | | | 56 | | | | | | | | |
| SHEET TOTALS | | 440 | | | 36 | | 80 | | | 76 | | | | | | 92 | 232 | | 456 | | | | 104 | | | 48 | 96 | | | 92 | |

| FROM | TO | 8" DIP (DUCTILE IRON PIPE) | 42" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 48" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 36" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 18" R.C. PIPE CULVERTS, CONTRACTOR DESIGN | 30" WELDED STEEL PIPE, 0.500, TRENCLESS INSTALLATION | 36" WELDED STEEL PIPE, 0.500, TRENCLESS INSTALLATION | 42" WELDED STEEL PIPE, 0.625, TRENCLESS INSTALLATION | 48" WELDED STEEL PIPE, 0.625, TRENCLESS INSTALLATION | ENDWALLS STD. 838.01 OR STD. 838.11 OR 838.80 (UNLESS NOTED OTHERWISE) CY | QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH | 5' THRU 10' (A) LIN. FT. | 10' AND ABOVE (B) LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0044 | | | | | | | | | | | | 1 | 3.3 | | | | | |
| 0047 | | | | | | | | | | | | 1 | 5.0 | 3.4 | | | | |
| 0048 | | | | | | | | | | | | 1 | | | | | | |
| 0049 | | | | | | | | | | | | 1 | | | | | | |
| 0050 | | | | | | | | | | | | 1 | | | | | | |
| 0051 | | | | | | | | | | | | 1 | | | | | | |
| 0046 | | | | | | | | | | | | 1 | | | | | | |
| 0045 | | | | | | | | | | | | 1 | | | | | | |
| 0060 | | | | | | | | | | | | 1 | | | | | | |
| 0061 | | | | | | | | | | | | 1 | | | 1 | | | 1 |
| 63A | | | | | | | | | | | 4.500 | | | | | | | |
| 0062 | | | | | | | | | | | | 1 | 0.3 | | | | | |
| 0064 | | | | | | | | | | | | 1 | | | | | | |
| 0055 | | | | | | | | | | | | 1 | | | | | | |
| SHEET TOTALS | | | | | | | | | | | 4.500 | 13 | 8.6 | 3.4 | 1 | | | 1 |

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

| FROM | TO | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | J.B. STD. 840.31 OR STD. 840.32 | T.B.D.I. STD. 840.36 | STEEL GRATE AND FRAME STD. 840.37 | SPRING BOX STD. 840.41 | M.H. FRAME AND COVER STD. 840.54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0044 | | | | | | | 1 | | | | 1 | | | | | | | |
| 0047 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0048 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0049 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0050 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0051 | | | | | | | | | | | | | | 1 | | | | 1 |
| 0046 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0045 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0060 | | | | | | | | 1 | | | 1 | | | | | | | |
| 0062 | | | | | | | | | | | | | | 1 | | | | |
| 0064 | | | | | | | | 1 | | | | | 1 | | | | | |
| 0055 | | 1 | | | 1 | 1 | | | | | | | | | | | | |
| SHEET TOTALS | | 1 | | | 1 | 1 | 1 | 8 | | | 8 | | 1 | 2 | | | | 1 |

| FROM | TO | CONVERT EXISTING C.B. TO J.B. | CONVERT EXISTING O.T.C.B. TO 2GI | 15" SIDE DRAIN PIPE ELBOW | 18" SIDE DRAIN PIPE ELBOW | 24" SIDE DRAIN PIPE ELBOW | 30" SIDE DRAIN PIPE ELBOW | 36" SIDE DRAIN PIPE ELBOW | 15" C.S. PIPE ELBOW | 18" C.S. PIPE ELBOW | 24" C.S. PIPE ELBOW | 42" C.S. PIPE ELBOW | BERM DITCH OUTLET STD. 850.10 | MODIFIED CONC. FLUME | PREFORMED SCOUR HOLE (PER EACH) | ENERGY DISSIPATION BASIN | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0048 | | | | | | | | | | | | | | | | | | | | | SHOULDER DRAIN OUTLET |
| 0049 | 0051 | | | 2 | | | | | | | | | | | | | | | | | |
| 0050 | 0051 | | | 2 | | | | | | | | | | | | | | | | | |
| 0062 | | | | | | | | | | | | | | | | | | | | | JB W/ SLAB LID |
| 0063 | | | | | | | | | | | | | | | | | | 0.8900 | | | |
| 0064 | OUT | | | | | | | | 2 | | | | | | | | | | | | |
| 0053 | | | | | | | | | | | | | | | | | | 0.6600 | | | |
| 0054 | | | | | | | | | | | | | | | | | | 0.6600 | | | |
| SHEET TOTALS | | | | 4 | | | | | 2 | | | | | | | | | 2.2100 | | | |

**ABBREVIATIONS**

| | |
|---|---|
| C.A.A. | CORRUGATED ALUMINIUM ALLOY |
| C.B. | CATCH BASIN |
| C.S. | CORRUGATED STEEL |
| D.I. | DROP INLET |
| G.D.I. | GRATED DROP INLET |
| H.D.P.E. | HIGH DENSITY POLYETHYLENE |
| J.B. | JUNCTION BOX |
| M.H. | MANHOLE |
| N.S. | NARROW SLOT |
| P.V.C. | POLYVINYL CHLORIDE |
| R.C. | REINFORCED CONCRETE |
| T.B.D.I. | TRAFFIC BEARING DROP INLET |
| T.B.J.B. | TRAFFIC BEARING JUNCTION BOX |
| W.S. | WIDE SLOT |