WKST1

| COMPUTED BY: | RBR | DATE: | 6/15/2018 |
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| CHECKED BY: | ECOLOGICAL ENGINEERING, LLP | DATE: | 6/15/2018 |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| U-4405 | 3D-43 |

**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 54 INCHES & OVER)*

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 54 | 60 | 66 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | R. C. PIPE CLASS III 54 | 60 | 66 | 72 | 78 | 84 | R. C. PIPE CLASS IV 54 | 60 | 66 | 72 | 78 | 84 | R. C. PIPE CLASS V 54 | 60 | 66 | 72 | 78 | 84 | STRUCTURAL PLATE PIPE 60 | 66 | 72 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1626 | 1632 | | 195.0 | 194.7 | | | | | | | | | | | | | | | | | 104 | | | | | | | | | | | | | |
| L 177+11 | 44 LT | 1627 | | 205.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1627 | 1626 | | 195.9 | 195.3 | | | | | | | | | | | | | | | | 36 | | | | | | | | | | | | | | |
| L 175+72 | 44 LT | 1632 | | 204.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1632 | 1623 | | 194.7 | 194.3 | | | | | | | | | | | | | | | | | 120 | | | | | | | | | | | | | |
| L 178+36 | 44 LT | 1636 | | 206.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1636 | 1627 | | 196.3 | 195.9 | | | | | | | | | | | | | | | | 124 | | | | | | | | | | | | | | |
| | | 1640 | 1636 | | 196.7 | 196.3 | | | | | | | | | | | | | | | | 128 | | | | | | | | | | | | | | |
| L 179+64 | 56 LT | 1640 | | 206.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 181+36 | 45 LT | 1709 | | 207.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1709 | 1640 | | 197.2 | 196.7 | | | | | | | | | | | | | | | | 172 | | | | | | | | | | | | | | |
| | | 2015 | 2035 | | 188.0 | 175.4 | | 148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 223+67 | 55 RT | 2017 | | 197.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2017 | 2015 | | 189.7 | 188.0 | | | | | | | | | | | | | | | | 68 | | | | | | | | | | | | | | |
| L 225+25 | 55 RT | 2018 | | 199.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2018 | 2017 | | 190.6 | 190.2 | | | | | | | | | | | | | | | | 156 | | | | | | | | | | | | | | |
| L 225+96 | 55 RT | 2019 | | 200.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2019 | 2018 | | 190.9 | 190.6 | | | | | | | | | | | | | | | | 68 | | | | | | | | | | | | | | |
| L 228+95 | 56 RT | 2024 | | 204.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2024 | 2019 | | 196.8 | 193.8 | | | | | | | | | | | | | | | | 300 | | | | | | | | | | | | | | |
| L 230+50 | 55 RT | 2031 | | 206.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2031 | 2024 | | 198.3 | 197.8 | | | | | | | | | | | | | | | | 152 | | | | | | | | | | | | | | |
| | | 2035 | 2033 | | 173.9 | 173.5 | | | | | | | | | | | | | 44 | | | | | | | | | | | | | | | | | |
| L 221+52 | 70 RT | 2035 | | 193.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+15 | 69 LT | 2036 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+20 | 87 LT | 2037 | 2036 | | 178.3 | 178.3 | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | |
| L 221+22 | 69 LT | 2038 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+28 | 87 LT | 2039 | 2038 | | 178.3 | 178.2 | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | |
| L 221+30 | 69 LT | 2040 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+36 | 87 LT | 2041 | 2040 | | 178.3 | 178.3 | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | |
| L 221+51 | 68 LT | 2042 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+51 | 86 LT | 2043 | 2042 | | 175.8 | 175.5 | | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | |
| L 221+51 | 0 CL | 2042 | 2035 | | 175.5 | 174.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+14 | 69 RT | 2044 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+20 | 91 RT | 2044 | 2045 | | 176.0 | 176.0 | | | | | | | | | | 44 | | | | | | | | | | | | | | | | | | | | |
| L 221+23 | 69 RT | 2046 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+29 | 91 RT | 2046 | 2047 | | 176.2 | 176.0 | | | | | | | | | | 44 | | | | | | | | | | | | | | | | | | | | |
| L 221+31 | 69 RT | 2048 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+37 | 91 RT | 2048 | 2049 | | 176.6 | 176.0 | | | | | | | | | | 44 | | | | | | | | | | | | | | | | | | | | |
| SR1 18+57 | 52 RT | 2809 | | 216.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SR1 18+43 | 10 RT | 2810 | 2809 | | 209.3 | 209.3 | | | | | | | | | | | | | | | | 104 | | | | | | | | | | | | | | |
| L 82+05 | 102 LT | 0943 | | 182.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0943 | 0923 | | 176.0 | 175.9 | | | | | | | | | | | | | 40 | | | | | | | | | | | | | | | | | |
| L 81+90 | 88 LT | 0948 | 0949 | | 175.9 | 174.9 | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | |
| L 81+99 | 73 LT | 0949 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 82+05 | 88 LT | 0950 | 0951 | | 175.0 | 174.8 | | | | | | | | | | | | 40 | | | | | | | | | | | | | | | | | | |
| L 82+18 | 73 LT | 0951 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 82+71 | 75 RT | 0952 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 82+72 | 79 RT | 0952 | 0953 | | 174.9 | 174.9 | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | |
| L 82+80 | 77 RT | 0954 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | SHEET TOTALS | | | 148 | | | | | | | | 284 | 40 | 120 | | | | 1308 | 224 | | | | | | | | | | | | | |

| LINE & STATION | ### R. C. PIPE CULVERTS, CONTRACTOR DESIGN | ### R. C. PIPE CULVERTS, CONTRACTOR DESIGN | ### R. C. PIPE CULVERTS, CONTRACTOR DESIGN | 72" WELDED STEEL PIPE 1" THICK, GRADE B IN SOIL | 72" WELDED STEEL PIPE 1" THICK, GRADE B NOT IN SOIL | 60" WELDED STEEL PIPE 0.875" THICK, GRADE B IN SOIL | 60" WELDED STEEL PIPE 0.875" THICK, GRADE B NOT IN SOIL | REINFORCED ENDWALLS CY | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | J.B. STD. 840.31 OR STD. 840.32 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | CONCRETE COLLARS CL. "B" STD. 840.72 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 177+11 | | | | | | | | | 3.368 | | | | 1 | | 1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 175+72 | | | | | | | | | 3.446 | | | | | | | | | | | | | | | | | | | See Special Detail 2C-6 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 178+36 | | | | | | | | | 3.528 | | | | 1 | | 1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 179+64 | | | | | | | | | 3.464 | | | | 1 | 1 | | | | | | | | | | | | | | |
| L 181+36 | | | | | | | | | 3.452 | | | | 1 | | 1 | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 223+67 | | | | | | | | | 2.612 | | | | 1 | | | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 225+25 | | | | | | | | | 2.918 | | | | 1 | | | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 225+96 | | | | | | | | | 3.175 | | | | 1 | | | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 228+95 | | | | | | | | | 2.646 | | | | 1 | | | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 230+50 | | | | | | | | | 2.758 | | | | 1 | | | 1 | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-28 |
| L 221+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-26 |
| L 221+20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-26 |
| L 221+28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-26 |
| L 221+36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+51 | | | | | | | | | | | | | | | | | | | | | | | | | | 3.4176 | | |
| L 221+51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+51 | | | | 70 | 70 | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-26 |
| L 221+20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-26 |
| L 221+29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 221+31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-26 |
| L 221+37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SR1 18+57 | | | | | | | | | 4.334 | | | | | | | | | | | 1 | | 1 | | | | | | |
| SR1 18+43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 82+05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 81+90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 81+99 | | | | | | | | | | | | | | | | | | | | | | | | | | 2.8506 | | See Special Detail 2C-30 |
| L 82+05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 82+18 | | | | | | | | | | | | | | | | | | | | | | | | | | 3.1307 | | See Special Detail 2C-30 |
| L 82+71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-30 |
| L 82+72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L 82+80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | See Special Detail 2C-30 |
| SHEET TOTALS | | | | 70 | 70 | | | | 35.701 | | | | 9 | 1 | 3 | 5 | | | | 1 | | 1 | 9.3989 | | | | | |

**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 |