| | | | |
|---|---|---|---|
| COMPUTED BY: | CJH | DATE: | 3/11/2022 |
| CHECKED BY: | WJW | DATE: | 5/4/2022 |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| I-5987A | 3D-15 |

**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 % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15 | 18 | 24 | 30 | 36 | 42 | 48 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE / THICKNESS OR GAUGE | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | 1789 | 1721 | | 146.80 | 146.70 | | | | | | | | | | | | |
| SR2 19+02 | 24 RT | 1790 | | | 147.70 | 147.50 | | 44 | | | | | | | | | | |
| LA 308+65 | 3 LT | 1801 | | 148.64 | | | | | | | | | | | | | | |
| | | 1801 | 1802 | | 144.20 | 143.80 | | | | | | | | | | | | |
| LA 308+62 | 3 RT | 1802 | | 148.80 | | | | | | | | | | | | | | |
| | | 1802 | 1822 | | 142.00 | 140.00 | .4 | | | | | | | | | | | |
| LA 308+15 | 3 LT | 1803 | | 148.62 | | | | | | | | | | | | | | |
| | | 1803 | 1804 | | 144.50 | 144.40 | | | | | | | | | | | | |
| LA 308+15 | 3 RT | 1804 | | 148.85 | | | | | | | | | | | | | | |
| | | 1804 | 1802 | | 144.40 | 144.00 | .6 | | | | | | | | | | | |
| LA 309+15 | 3 LT | 1805 | | 148.70 | | | | | | | | | | | | | | |
| | | 1805 | 1806 | | 144.50 | 144.40 | | | | | | | | | | | | |
| LA 309+15 | 3 RT | 1806 | | 148.87 | | | | | | | | | | | | | | |
| | | 1806 | 1802 | | 144.40 | 144.00 | | | | | | | | | | | | |
| LA 302+15 | 3 LT | 1807 | | 153.24 | | | | | | | | | | | | | | |
| | | 1807 | 1808 | | 144.80 | 144.70 | | | | | | | | | | | | |
| LA 302+15 | 5 RT | 1808 | | 153.29 | | | | | | | | | | | | | | |
| | | 1808 | 1810 | | 144.70 | 144.50 | | | | | | | | | | | | |
| LA 302+15 | 131 RT | 1810 | | 149.30 | | | | | | | | | | | | | | |
| Y1ARPA 16+50 | 24 RT | 1811 | | 152.33 | | | | | | | | | | | | | | |
| | | 1811 | 1813 | | 148.30 | 148.20 | | | | | | | | | | | | |
| Y1ARPA 17+00 | 24 RT | 1812 | | 151.87 | | | | | | | | | | | | | | |
| | | 1812 | 1811 | | 148.40 | 148.30 | | | | | | | | | | | | |
| Y1ARPA 13+50 | 23 RT | 1814 | | 151.09 | | | | | | | | | | | | | | |
| | | 1814 | 1815 | | 147.70 | 147.70 | | | | | | | | | | | | |
| Y1ARPA 10+00 | 24 RT | 1816 | | 149.32 | | | | | | | | | | | | | | |
| | | 1816 | 1817 | | 146.00 | 145.90 | .4 | | | | | | | | | | | |
| LA 308+00 | 74 LT | 1818 | | 148.10 | | | | | | | | | | | | | | |
| | | 1818 | 1819 | | 144.20 | 143.80 | | | | | | | | | | | | |
| LA 308+65 | 72 LT | 1819 | | 148.07 | | | | | | | | | | | | | | |
| | | 1819 | 1820 | | 141.00 | 140.80 | .3 | | | | | | | | | | | |
| LA 309+65 | 71 LT | 1821 | | 148.29 | | | | | | | | | | | | | | |
| | | 1821 | 1819 | | 144.40 | 143.80 | | | | | | | | | | | | |
| LA 308+62 | 87 RT | 1822 | | 147.80 | | | | | | | | | | | | | | |
| | | 1822 | 1809 | | 140.00 | 138.00 | .7 | | | | | | | | | | | |
| LA 305+15 | 3 LT | 1823 | | 150.71 | | | | | | | | | | | | | | |
| | | 1823 | 1824 | | 145.80 | 145.70 | | | | | | | | | | | | |
| LA 305+15 | 3 RT | 1824 | | 150.90 | | | | | | | | | | | | | | |
| | | 1824 | 1804 | | 145.70 | 144.40 | | | | | | | | | | | | |
| LA 314+65 | 3 LT | 1901 | | 147.90 | | | | | | | | | | | | | | |
| | | 1901 | 1902 | | 143.40 | 143.00 | | | | | | | | | | | | |
| LA 314+65 | 3 RT | 1902 | | 147.90 | | | | | | | | | | | | | | |
| | | 1902 | 1913 | | 142.00 | 141.90 | .3 | | | | | | | | | | | |
| LA 314+15 | 3 LT | 1903 | | 147.91 | | | | | | | | | | | | | | |
| | | 1903 | 1904 | | 143.70 | 143.60 | | | | | | | | | | | | |
| LA 314+15 | 3 RT | 1904 | | 147.94 | | | | | | | | | | | | | | |
| | | 1904 | 1913 | | 143.60 | 143.00 | | | | | | | | | | | | |
| LA 315+15 | 3 LT | 1905 | | 147.91 | | | | | | | | | | | | | | |
| | | 1905 | 1906 | | 143.70 | 143.50 | | | | | | | | | | | | |
| LA 315+15 | 3 RT | 1906 | | 147.94 | | | | | | | | | | | | | | |
| | | | | | | SHEET TOTAL | | 44 | | | | | | | | | | |

| LINE & STATION | C. S. PIPE 15 (0.064) | 18 (0.064) | 24 (0.064) | 30 (0.079) | 36 (0.079) | 42 (0.109) | 48 (0.109) | R. C. PIPE CLASS III 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 15 | 18 | 24 | 30 | 36 | 42 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | |
| 1789 1721 | | | | | | | | | | | | | | | | | | | | | |
| SR2 19+02 | | | | | | | | | | | | | | | | | | | | | |
| LA 308+65 | | | | | | | | | | | | | | | | | | | | | |
| 1801 1802 | | | | | | | | | | | | | | | | 8 | | | | | |
| LA 308+62 | | | | | | | | | | | | | | | | | | | | | |
| 1802 1822 | | | | | | | | | | | | | | | | | | | | | |
| LA 308+15 | | | | | | | | | | | | | | | | | | | | | |
| 1803 1804 | | | | | | | | | | | | | | | 8 | | | | | | |
| LA 308+15 | | | | | | | | | | | | | | | | | | | | | |
| 1804 1802 | | | | | | | | | | | | | | | 48 | | | | | | |
| LA 309+15 | | | | | | | | | | | | | | | | | | | | | |
| 1805 1806 | | | | | | | | | | | | | | | 8 | | | | | | |
| LA 309+15 | | | | | | | | | | | | | | | | | | | | | |
| 1806 1802 | | | | | | | | | | | | | | | 56 | | | | | | |
| LA 302+15 | | | | | | | | | | | | | | | | | | | | | |
| 1807 1808 | | | | | | | | | | | | | | | | | | | 8 | | |
| LA 302+15 | | | | | | | | | | | | | | | | | | | | | |
| 1808 1810 | | | | | | | | | | | | | | | | | | | | | |
| LA 302+15 | | | | | | | | | | | | | | | | | | | | | |
| Y1ARPA 16+50 | | | | | | | | | | | | | | | | | | | | | |
| 1811 1813 | | | | | | | | | | | | | | | 24 | | | | | | |
| Y1ARPA 17+00 | | | | | | | | | | | | | | | | | | | | | |
| 1812 1811 | | | | | | | | | | | | | | | 48 | | | | | | |
| Y1ARPA 13+50 | | | | | | | | | | | | | | | | | | | | | |
| 1814 1815 | | | | | | | | | | | | | | | 28 | | | | | | |
| Y1ARPA 10+00 | | | | | | | | | | | | | | | | | | | | | |
| 1816 1817 | | | | | | | | | | | | | | | 28 | | | | | | |
| LA 308+00 | | | | | | | | | | | | | | | | | | | | | |
| 1818 1819 | | | | | | | | | | | | | | | 64 | | | | | | |
| LA 308+65 | | | | | | | | | | | | | | | | | | | | | |
| 1819 1820 | | | | | | | | | | | | | | | 36 | | | | | | |
| LA 309+65 | | | | | | | | | | | | | | | | | | | | | |
| 1821 1819 | | | | | | | | | | | | | | | 96 | | | | | | |
| LA 308+62 | | | | | | | | | | | | | | | | | | | | | |
| 1822 1809 | | | | | | | | | | | | | | | | 36 | | | | | |
| LA 305+15 | | | | | | | | | | | | | | | | | | | | | |
| 1823 1824 | | | | | | | | | | | | | | | | 8 | | | | | |
| LA 305+15 | | | | | | | | | | | | | | | | | | | | | |
| 1824 1804 | | | | | | | | | | | | | | | | 300 | | | | | |
| LA 314+65 | | | | | | | | | | | | | | | | | | | | | |
| 1901 1902 | | | | | | | | | | | | | | | | 8 | | | | | |
| LA 314+65 | | | | | | | | | | | | | | | | | | | | | |
| 1902 1913 | | | | | | | | | | | | | | | | 8 | | | | | |
| LA 314+15 | | | | | | | | | | | | | | | | | | | | | |
| 1903 1904 | | | | | | | | | | | | | | | 8 | | | | | | |
| LA 314+15 | | | | | | | | | | | | | | | | | | | | | |
| 1904 1913 | | | | | | | | | | | | | | | 52 | | | | | | |
| LA 315+15 | | | | | | | | | | | | | | | | | | | | | |
| 1905 1906 | | | | | | | | | | | | | | | 8 | | | | | | |
| LA 315+15 | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTAL | | | | | | | | | | | | | | | 512 | 368 | | | | 8 | |

| LINE & STATION | 16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL | 18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL | 24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL | 30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL | 36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL | 48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL | 16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL | 18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL | 24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL | 30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL | 36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL | 48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL | ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY | REINFORCED ENDWALLS CY | 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' | LIN.FT. 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 | 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 GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | 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 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME AND TWO GRATES STD. 840.37 | M.H. STD. 840.51, STD. 840.52, OR STD.53 | M.H. FRAME AND COVER STD. 840.54 | TEMP STEEL PLATE COVER MASONARY DRAINAGE | 15" C.S. ELBOW | 15" SIDE DRAIN PIPE ELBOW | FLOWABLE FILL, C.Y. | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1789 1721 | | 12 | | | | | | | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SR2 19+02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1801 1802 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.8 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1802 1822 | | 44 | | | | | | | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1803 1804 | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1804 1802 | | | | | | | | | | | | | | | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 309+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1805 1806 | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4.5 | | |
| LA 309+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1806 1802 | | | | | | | | | | | | | | | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 302+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 3.4 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46) |
| 1807 1808 | | | | | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 302+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 3.6 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46) |
| 1808 1810 | | | | | | | | | | | | | | | | | | | | | | 64 | | | | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 302+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.8 | | | | | | | | | | | | | | | | | | | | | | |
| Y1ARPA 16+50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1811 1813 | | | | | | | | | | | | | | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y1ARPA 17+00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1812 1811 | | | | | | | | | | | | | | | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y1ARPA 13+50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1814 1815 | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y1ARPA 10+00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1816 1817 | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1818 1819 | | | | | | | | | | | | | | | 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.1 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1819 1820 | | | | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 309+65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1821 1819 | | | | | | | | | | | | | | | 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 308+62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.8 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1822 1809 | | | | | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 305+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1823 1824 | | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 305+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.2 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1824 1804 | | | | | | | | | | | | | | | | 300 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 314+65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1901 1902 | | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 314+65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.9 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1902 1913 | | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 314+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1903 1904 | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 314+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1904 1913 | | | | | | | | | | | | | | | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LA 315+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| 1905 1906 | | | | | | | | | | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1099 | |
| LA 315+15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 0.2 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | |
| SHEET TOTAL | | 56 | | | | 64 | | | 56 | | | | 64 | | 3.8 | | 24 | 15.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | 24 | 24 | | | | | 4.5 | 1099 | |

### ABBREVIATIONS

C.A.A - CORRUGATED ALUMINUM INLET
C.B - CATCH BASIN
C.S. - CORRUGATED STEEL
D.I. - DROP INLET
G.D.I. - GRATED DROP INLET
P.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