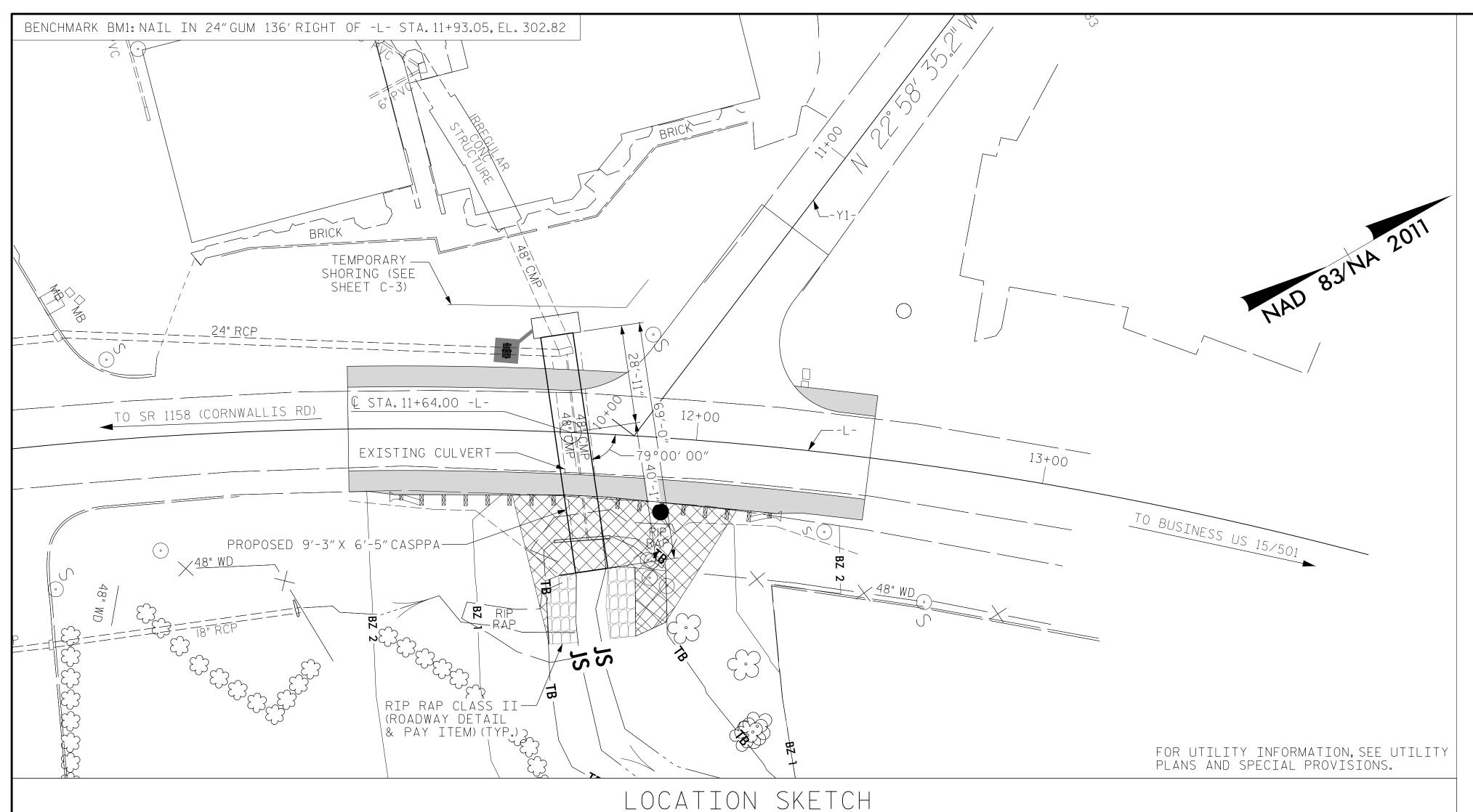
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1. ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

2. DESIGN FILL IS 5.4 FEET.

3. THE EXISTING CULVERT INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING CULVERT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

4. FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.

5. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

6. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

7. HEADWALL SHALL BE DESIGNED FOR LIVE LOAD SURCHARGE.

8. FOR CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH (CASPPA), SEE SPECIAL PROVISIONS.

9. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

10. FOR SHORING, SEE SPECIAL PROVISIONS.

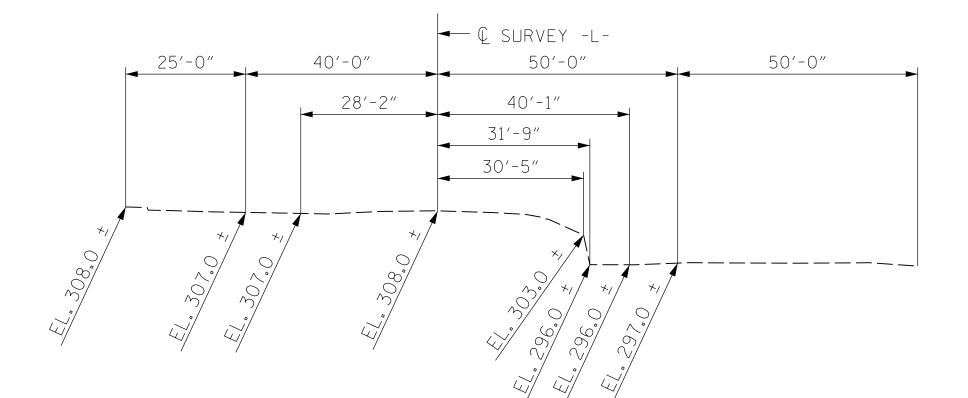
11. FOR REMOVAL OF EXISTING CULVERT, SEE SPECIAL PROVISIONS.

12. THE PROPOSED CULVERT SHALL BE CONSTRUCTED WITH A MINIMUM 12 INCH BLANKET OF FOUNDATION CONDITIONING MATERIAL BELOW THE BOTTOM OF CULVERT.

13. OVERHEAD POWER LINES RUNNING ALONG THE EAST SIDE OF ROADWAY AND TELEPHONE LINES CROSSING UNIVERSITY DRIVE NORTH OF THE PROJECT WILL REMAIN IN PLACE DURING CONSTRUCTION. CONTRACTOR SHALL PLAN FOR INSTALLATION OF CULVERT THAT WILL ACCOMMODATE THIS CONSTRAINT.

14.7 FOR SELECT MATERIAL, CLASS IV, SEE SPECIAL PROVISIONS. 

TOTAL STRUCTURE Q	UANTITIES
REMOVAL OF EXISTING CULVERT @ STA.11+64.00 -L-	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	68 TONS
GEOTEXTILE FOR DRAINAGE	275 SY
CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH @ STA.11+64.00 -L-	69'-0"LIN.FT.
SELECT MATERIAL, CLASS IV	550 TONS



PROFILE ALONG Q OF CULVERT

GEOTEXTILE — FOR DRAINAGE 9'-3" X 6'-5"— CASPPA -SELECT MATERIAL, CLASS IV

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



Firm License No. C-1051 421 Fayetteville St, Suite 400 Raleigh, NC 27601 T 919.380.8750 www.stewartinc.com

SHEET 1 OF 2 STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT NO. <u>17BP.5.C.02</u>

COUNTY

DURHAM

STATION: <u>11+64.00 -L-</u>

9'-3" X 6'-5" CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH

SHEET NO REVISIONS C-1 NO. BY: DATE: ECP 1/7/19 TOTAL SHEETS

E. PHELPS DATE : 7/18 DRAWN BY: D. RUGGLES DATE : 7/18 DESIGN ENGINEER OF RECORD: <u>D.RUGGLES</u> DATE: <u>7/18</u>

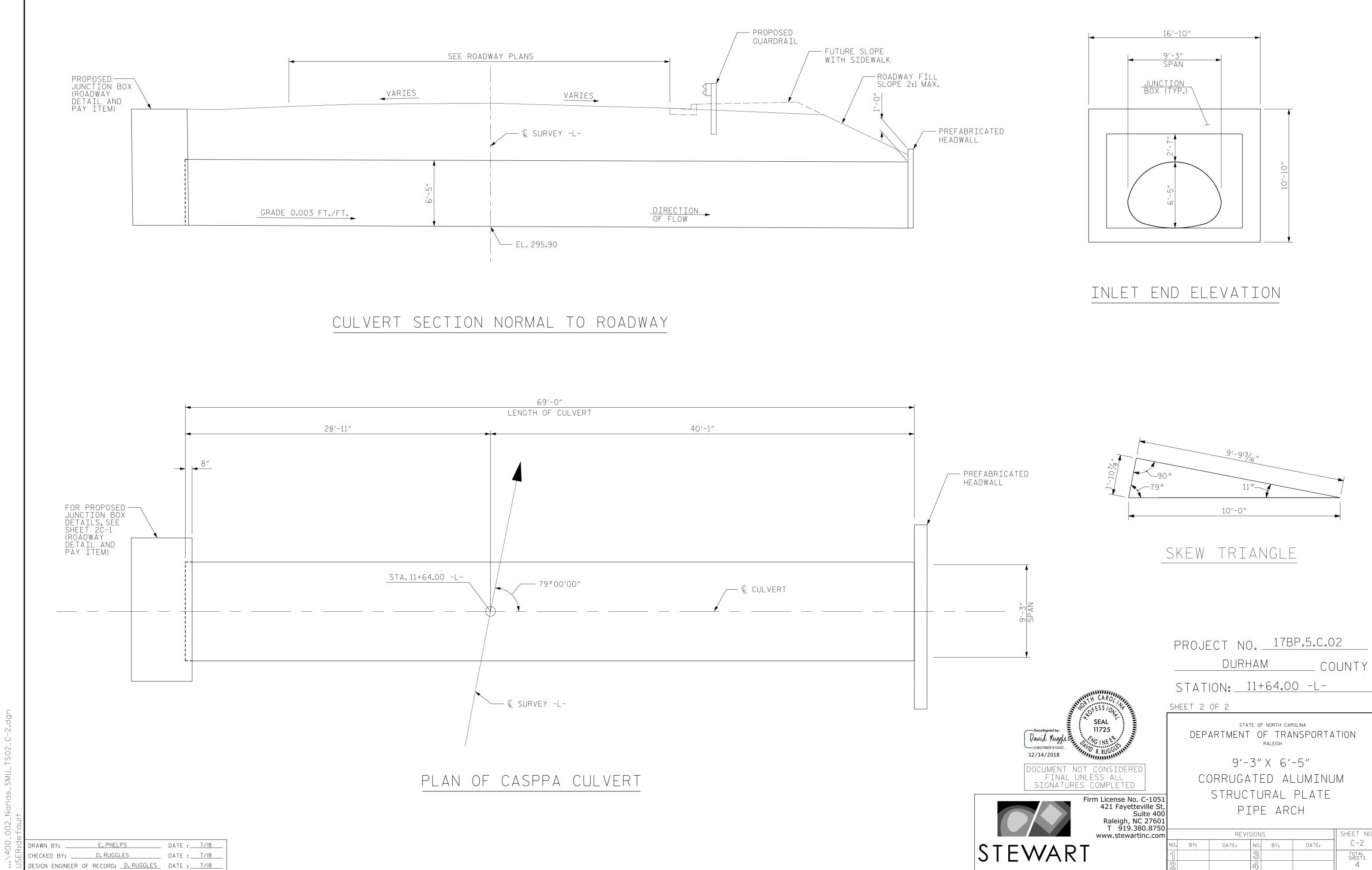
ROADWAY DATA

BED ELEV. @ STATION 11+64.00 -L- = 295.9

ROADWAY SLOPES = VARIES

GRADE POINT ELEV. @ STATION 11+64.00 -L- = 307.5

AREVISE BACKFILL MATERIAL



END SHORING-

PROPOSED JUNCTION BOX

\ 21'-0"

51'\6"

### NOTES:

CONTRACTOR SHALL SUBMIT PROPOSED SHORING METHOD AND DETAILS TO ENGINEER FOR APPROVAL.

APPROXIMATE LIMITS OF SHORING ARE SHOWN. ACTUAL SHORING LIMITS WILL BE ESTABLISTED BY CONTRACTOR.

AT&T UNDERGROUND FIBER OPTIC LINE HAS BEEN RELOCATED (TO BE CONFIRMED BY CONTRACTOR).

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY 2 SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE CULVERT INSTALLATION - $_{>}$  FROM STATION 11+31.81 -L-, 36.07 FT.LEFT, TO STATION 10+34.64 -Y1-, 25.5 FT. LEFT.

> BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, -SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORINGS LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

 $^{\succ}$  design temporary shoring no.1 for the following assumed soil  $^{ ilde{ extsf{-}}}$ PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT  $(\gamma) = 120 \text{ LB/CF}$ FRICTION ANGLE (Φ) = 30 DEGREES COHESION (c) = 0 LB/SF GROUNDWATER ELEVATION = 300 FT\*

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING NO.1.

 $_{\succ}$  at the contractor's option, use standard temporary shoring for > TEMPORARY SHORING FROM STATION 11+31.81 -L-, 36.07 FT. LEFT, TO STATION 10+34.64 -Y1-, 25.5 FT. LEFT. SEE STANDARD DETAIL NO. 7 1801.01 FOR STANDARD TEMPORARY SHORING.

PROJECT NO. <u>178P.5.C.02</u>

DURHAM

COUNTY

STATION: 11+64.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SHORING DETAIL

STEWART

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1 UPDATE SHORING NOTES

SHEET NO REVISIONS C-3 DATE: NO. BY: TOTAL SHEETS VC 1/7/19

E. PHELPS DATE : 7/18 DRAWN BY: D. RUGGLES DATE : 7/18 DESIGN ENGINEER OF RECORD: <u>D.RUGGLES</u> DATE: 7/18

EXISTING— RIGHT OF

PROPOSED INLET -

# MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

EQUIVALENT FLUID PRESSURE OF EARTH ---- 30 LBS.PER CU.FT.

(MINIMUM)

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

# CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

# CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED \( \frac{3}{4}\)" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1\( \frac{1}{2}\)" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A \( \frac{1}{4}\)" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A \( \frac{1}{4}\)" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

# DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

# ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT,

# ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

# REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

# STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE  $\frac{7}{8}$ "  $\varnothing$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\varnothing$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\varnothing$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\varnothing$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\varnothing$  STUDS THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\varnothing$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\varnothing$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\varnothing$  STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/6" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY /16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

# HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

# SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. 17BP.5.C.02

DURHAM COUNTY

STATION: 11+64.00 -L-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD NOTES

ENGLISH

JANUARY, 1990