BENCHMARK 17: 317.03' RT., STA. 146+28.72 -L-, N=198704.150 E=2355984.737, EL. 45.01

LOCATION SKETCH
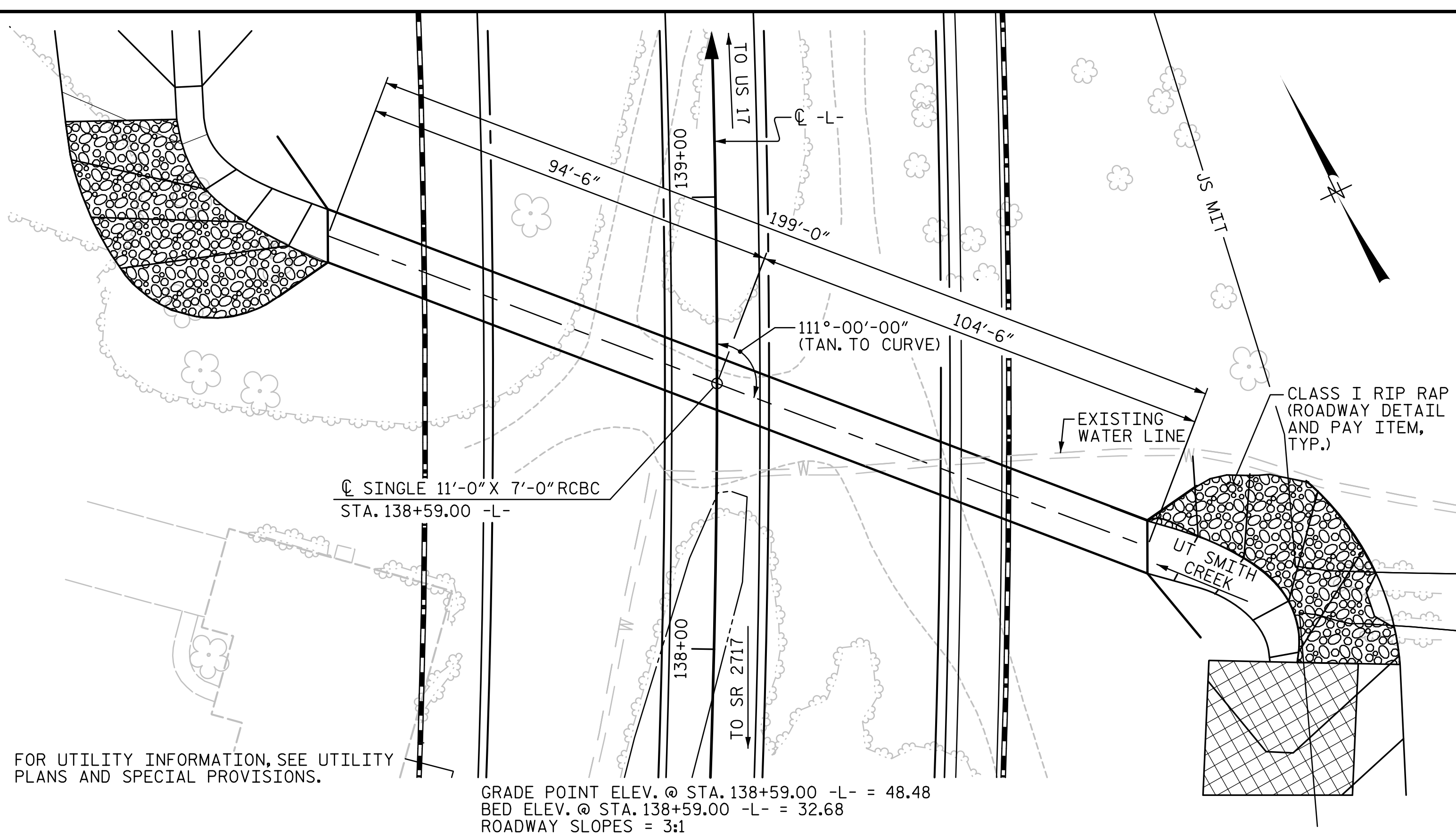
- ℄ -L-
- TO US 17
- 94'-6"
- 139'-00
- 199'-0"
- 111°-00'-00" (TAN. TO CURVE)
- 104'-6"
- US MTT
- CLASS I RIP RAP (ROADWAY DETAIL AND PAY ITEM, TYP.)
- EXISTING WATER LINE
- ℄ SINGLE 11'-0" X 7'-0" RCBC STA. 138+59.00 -L-
- UT SMITH CREEK
- 138+00
- TO SR 2717
- FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.
- GRADE POINT ELEV. @ STA. 138+59.00 -L- = 48.48
- BED ELEV. @ STA. 138+59.00 -L- = 32.68
- ROADWAY SLOPES = 3:1

HYDRAULIC DATA

DESIGN DISCHARGE	=	390 CFS
FREQUENCY OF DESIGN FLOOD	=	50 YRS.
DESIGN HIGH WATER ELEVATION	=	40.0 FT.
DRAINAGE AREA	=	71 ACRES
BASE DISCHARGE (Q100)	=	440 CFS
BASE HIGH WATER ELEVATION	=	40.48 FT.

OVERTOPPING FLOOD DATA

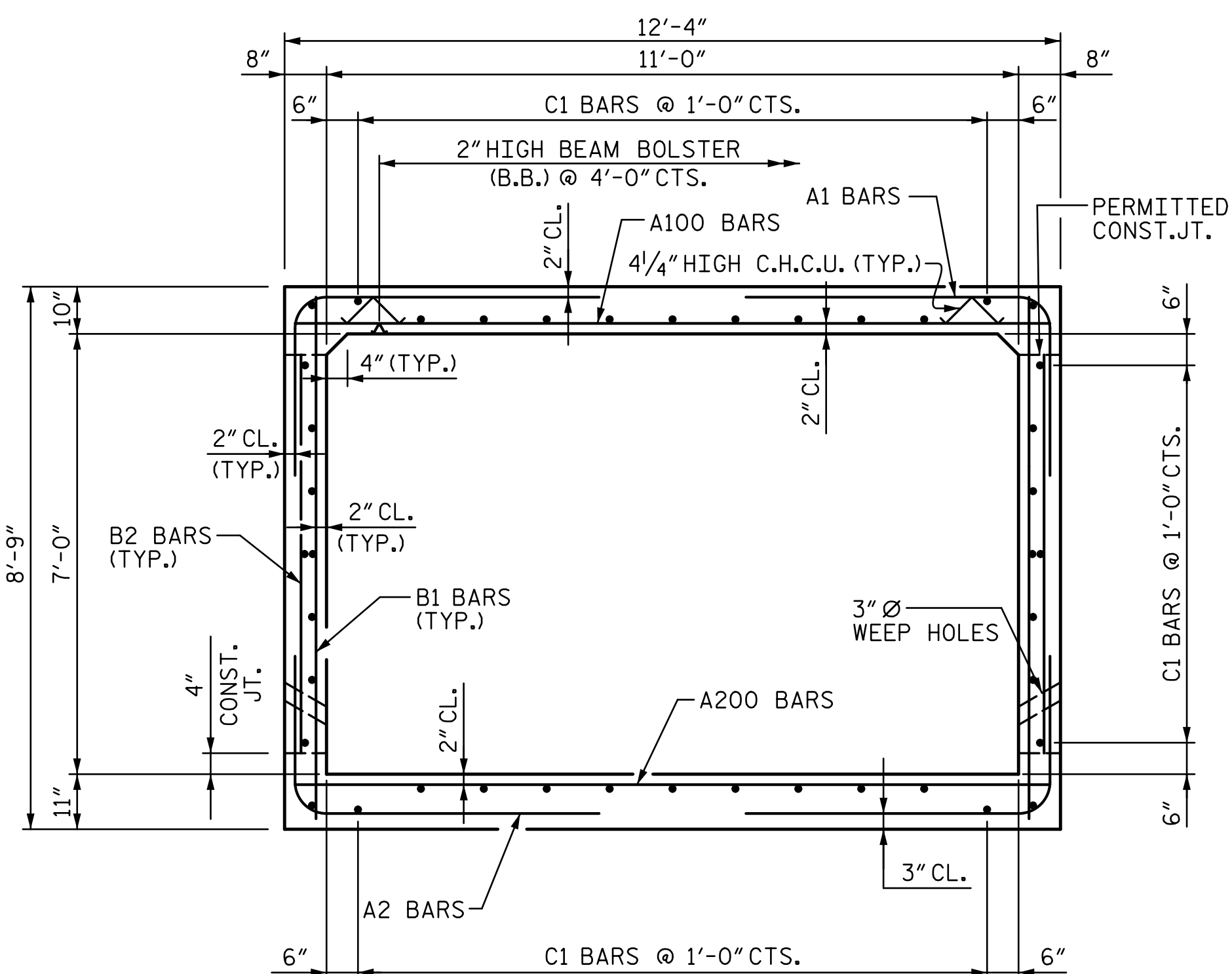|		
OVERTOPPING DISCHARGE	=	600 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	100+ YRS.
OVERTOPPING FLOOD ELEVATION @ STA. 18+40 -Y4-	=	42.4 FT.

-L- CURVE DATA

P.I. STA. = 146+07.40 -L-
Δ = 58°-00'-14.91"(LT)
RADIUS = 2,610'
TANGENT = 1,446.87'
LENGTH = 2,642.27'

TOTAL STRUCTURE QUANTITIES

CULVERT EXCAVATION @ STA. 138+59.00 -L-	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	
TOTAL:	235 TONS
CLASS A CONCRETE	
BARREL @ 1.149 CU.YDS./FT.	228.7 CU.YDS.
WING ETC.	30.6 CU.YDS.
TOTAL	259.3 CU.YDS.
REINFORCING STEEL	
BARREL	39,822 LBS.
WINGS ETC.	1,797 LBS.
TOTAL	41,619 LBS.
PLACEMENT OF NATURAL STREAM BED MATERIAL	
TOTAL:	LUMP SUM

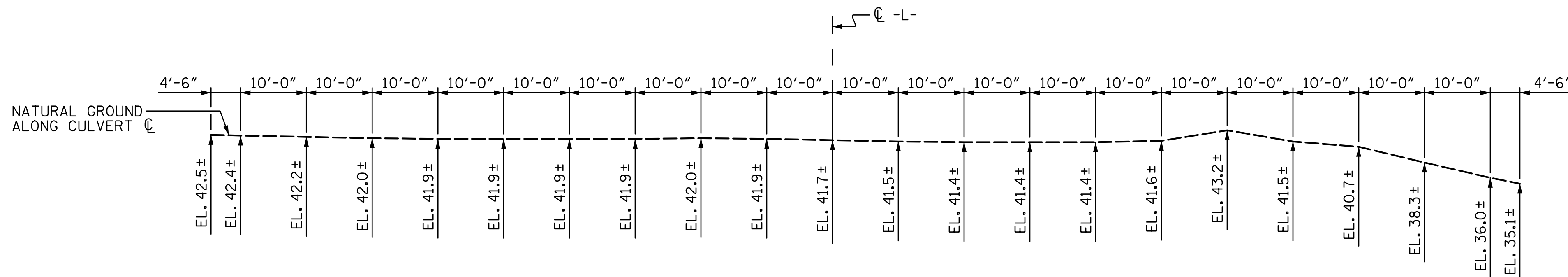## NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = 6.91' MIN. AND 11.22' MAX.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERT TO BE POURED IN THE FOLLOWING ORDER:
1. WING FOOTINGS, AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALL.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET (SHEET 4 OF 4).

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

CULVERT TO BE BACK FILLED WITH NATIVE MATERIAL TO A DEPTH OF 1'-0". NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

FOR PLACEMENT OF NATURAL STREAM BED MATERIAL, SEE SPECIAL PROVISIONS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

RIGHT ANGLE SECTION OF BARREL

THERE ARE 42 "C" BARS IN SECTION OF BARREL

- 12'-4"
- 11'-0"
- 8"
- 6"
- C1 BARS @ 1'-0" CTS.
- 2" HIGH BEAM BOLSTER (B.B.) @ 4'-0" CTS.
- A1 BARS
- A100 BARS
- 4¼" HIGH C.H.C.U. (TYP.)
- PERMITTED CONST. JT.
- 4" (TYP.)
- 2" CL. (TYP.)
- 2" CL. (TYP.)
- B2 BARS (TYP.)
- B1 BARS (TYP.)
- 3" Ø WEEP HOLES
- A200 BARS
- 4" CONST. JT.
- A2 BARS
- C1 BARS @ 1'-0" CTS.
- 10"
- 8'-9"
- 7'-0"
- 11"
- 6"
- 6"
- 3" CL.

PROFILE ALONG ℄ CULVERT

℄ -L-

NATURAL GROUND ALONG CULVERT ℄

Spacing: 4'-6" / 10'-0" (×20) / 4'-6"

Elevations: EL. 42.5± | EL. 42.4± | EL. 42.2± | EL. 42.0± | EL. 41.9± | EL. 41.9± | EL. 41.9± | EL. 41.9± | EL. 42.0± | EL. 41.9± | EL. 41.7± | EL. 41.5± | EL. 41.4± | EL. 41.4± | EL. 41.4± | EL. 41.6± | EL. 43.2± | EL. 41.5± | EL. 40.7± | EL. 38.3± | EL. 36.0± | EL. 35.1±

PROJECT NO. U-4751

NEW HANOVER COUNTY

STATION: 138+59.00 -L-

SHEET 1 OF 4

SEAL 036940
NORTH CAROLINA PROFESSIONAL ENGINEER BRIAN M. CURRY
7/12/2017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 11'-0" X 7'-0"
CONCRETE BOX CULVERT
111°-00'-00" SKEW

STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

DRAWN BY :	JWJ	DATE :	5-17	
CHECKED BY :	MLO	DATE :	5-17	

DESIGN ENGINEER OF RECORD: J. JONES DATE : 5-17

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C2-1

TOTAL SHEETS 4

CULV. #2

It:\Projects\40\8617\40\8617_000\50_Deliverables & Submittals\U-4751\Structures\Culverts\CU #2\410_00\U4751_SMU_CU_00L640002.dgn

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