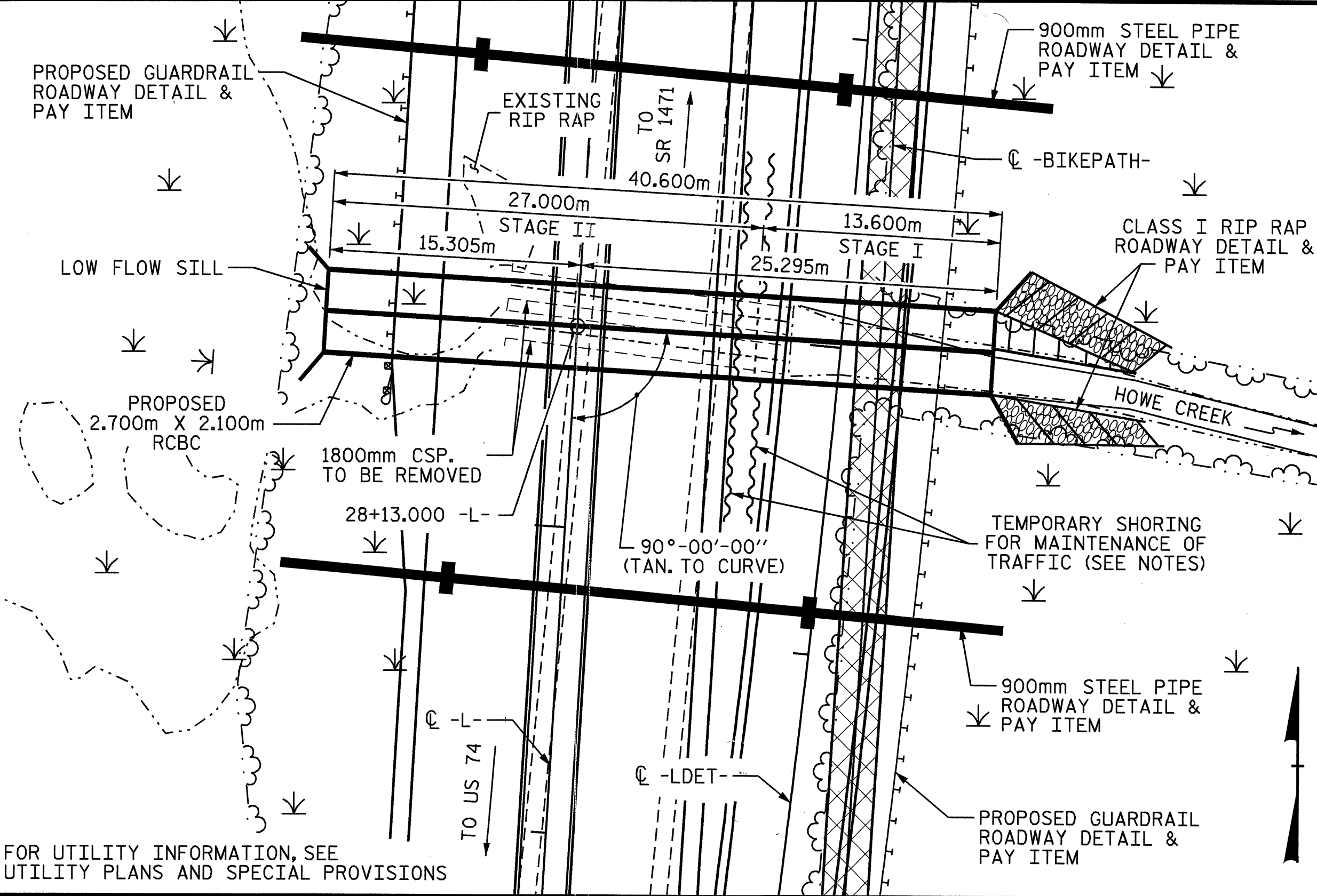


HYDRAULIC DATA



LOCATION SKETCH

GRADE POINT EL. @ STA. 28+13.000-L- = 7.320
 BED EL. @ STA. 28+13.000-L- = 3.627
 ROADWAY SLOPES = 3:1
 DESIGN DISCHARGE = 20.0 m³/s
 FREQUENCY OF DESIGN FLOOD = 50 YEARS
 DESIGN HIGH WATER ELEVATION = 5.740
 DRAINAGE AREA = 1.620 SQ. KM.
 BASIC DISCHARGE (Q100) = 23.2 m³/s
 BASIC HIGH WATER ELEVATION = 5.880

OVERTOPPING FLOOD DATA

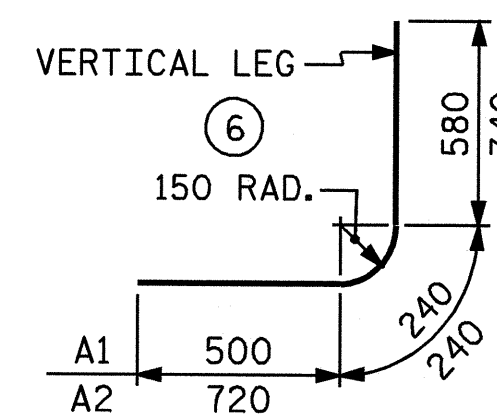
OVERTOPPING DISCHARGE = 46.0± m³/s
 FREQUENCY OF OVERTOPPING FLOOD = 500+ YEARS
 OVERTOPPING FLOOD EL. = 7.290

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	542	13		1320	711
A2	542	19		1700	2059
A100	272	16	STR.	5860	2474
A200	272	13	STR.	5860	1584
A300	272	19	STR.	5860	3562
A400	272	19	STR.	5860	3562
B1	272	13	STR.	2440	660
B2	542	13	STR.	1880	1013
B3	542	13	STR.	2440	1315
C1	438	13	STR.	7300	3178
D1	38	19	STR.	760	65
D2	7	19	STR.	400	6
D3	5	19	STR.	680	8
G1	9	16	STR.	5900	82

EPOXY COATED REINFORCING STEEL - kg 20279

BAR TYPE



DIMENSIONS ARE OUT TO OUT

SPLICE CHART

BAR	SIZE	SPLICE LENGTH
A200	13	610
A400	19	1050
B1	13	610
B3	13	610
C1	13	720

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
STAGE I BARREL	58.8 m ³
STAGE II BARREL	116.6 m ³
WINGS, ETC.	15.3 m ³
TOTAL	190.7 m ³

EPOXY COATED REINFORCING STEEL	
BARREL	20279 kg
WINGS, ETC.	513 kg
TOTAL	20792 kg

CULVERT EXCAVATION	LUMP SUM
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NOTES

ASSUMED LIVE LOAD -----MS18 OR ALTERNATE LOADING.
 DESIGN FILL----- 1.600m (MAX), 0.000m (MIN)
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SNSM.
 76mm 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 100mm OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 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.
 TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 21.0m. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR 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.

NO WORK SHALL BE DONE ON THE CULVERT AT STA. 28+13.000-L- UNTIL THE AREA OF THE BOX CULVERT HAS BEEN UNDERCUT TO ELEVATION 2.200 AND UNSUITABLE MATERIAL REPLACED WITH #57 STONE BACKFILL AND PROPERLY COMPACTED TO THE ELEVATION OF THE PROPOSED FLOOR SLAB. THE LIMITS OF THIS UNDERCUT EXCAVATION SHALL BE AT LEAST THE LIMITS OF THE BOX CULVERT INCLUDING THE WINGS PLUS 300mm BEYOND THE STRUCTURE LIMITS. PAYMENT FOR EXCAVATION, #57 STONE BACKFILL AND 1800 CSP PIPE REMOVAL SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000kg OF REINFORCING STEEL, TWO 760mm SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

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

A 900mm STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

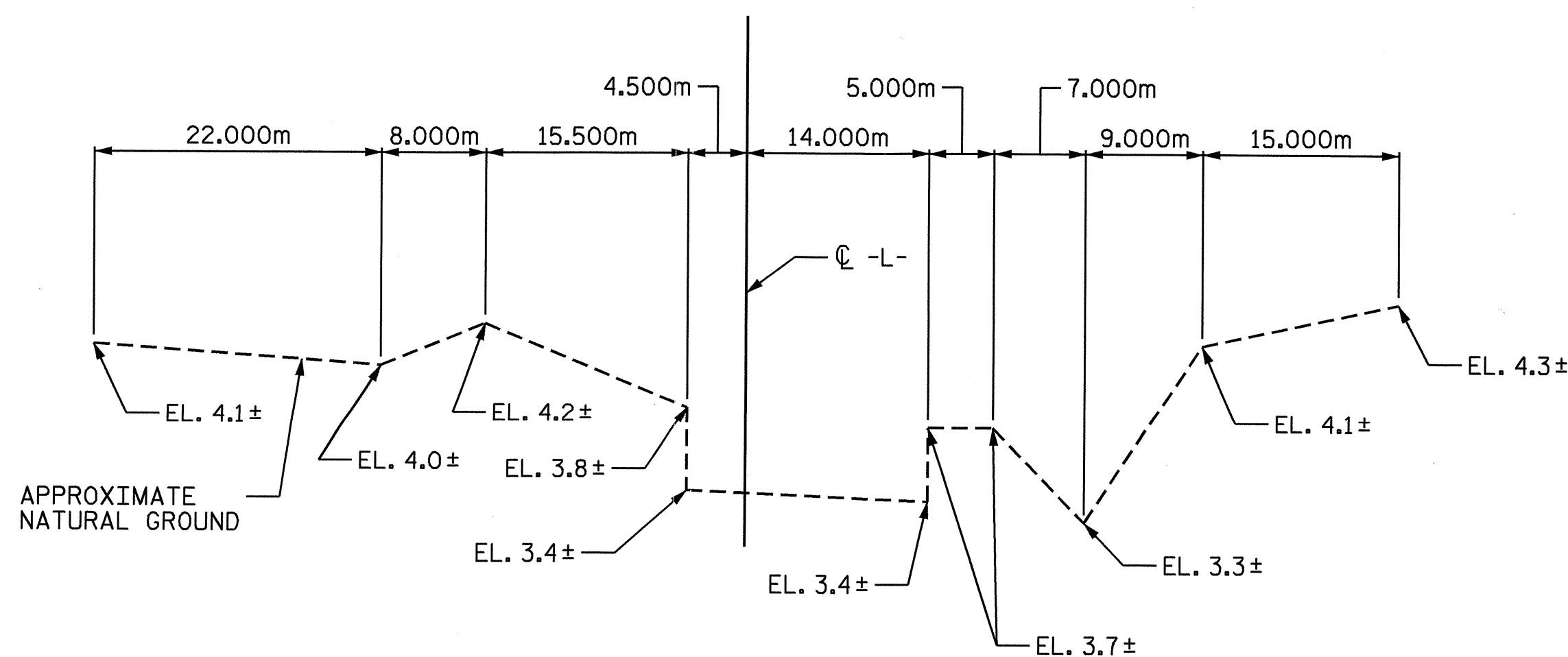
ALL BAR SUPPORTS AND REINFORCING STEEL INCLUDING INCIDENTAL STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TRAFFIC ON SR 1409 SHALL BE MAINTAINED. IN ORDER TO MAINTAIN TRAFFIC THE CULVERT SHALL BE CONSTRUCTED IN SECTIONS AS DIRECTED BY THE PLANS AND THE ENGINEER.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

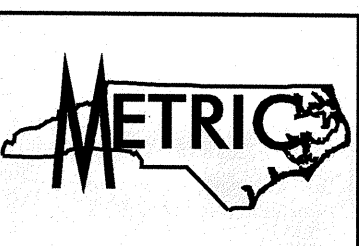
DOWELS SHALL BE USED TO CONNECT STAGE 2 OF THE CULVERT TO STAGE 1 AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SNSM.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.



PROFILE ALONG CULVERT

DRAWN BY: William J. Parker DATE: 12/03/03
 CHECKED BY: A.B. NAIK DATE: 12/15/03



PROJECT NO. U-2734
 NEW HANOVER COUNTY
 STATION: 28+13.000-L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE
 2.700m X 2.100m
 CONCRETE BOX CULVERT
 90° SKEW

REVISIONS

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

SHEET NO. C-1

TOTAL SHEETS 6

