


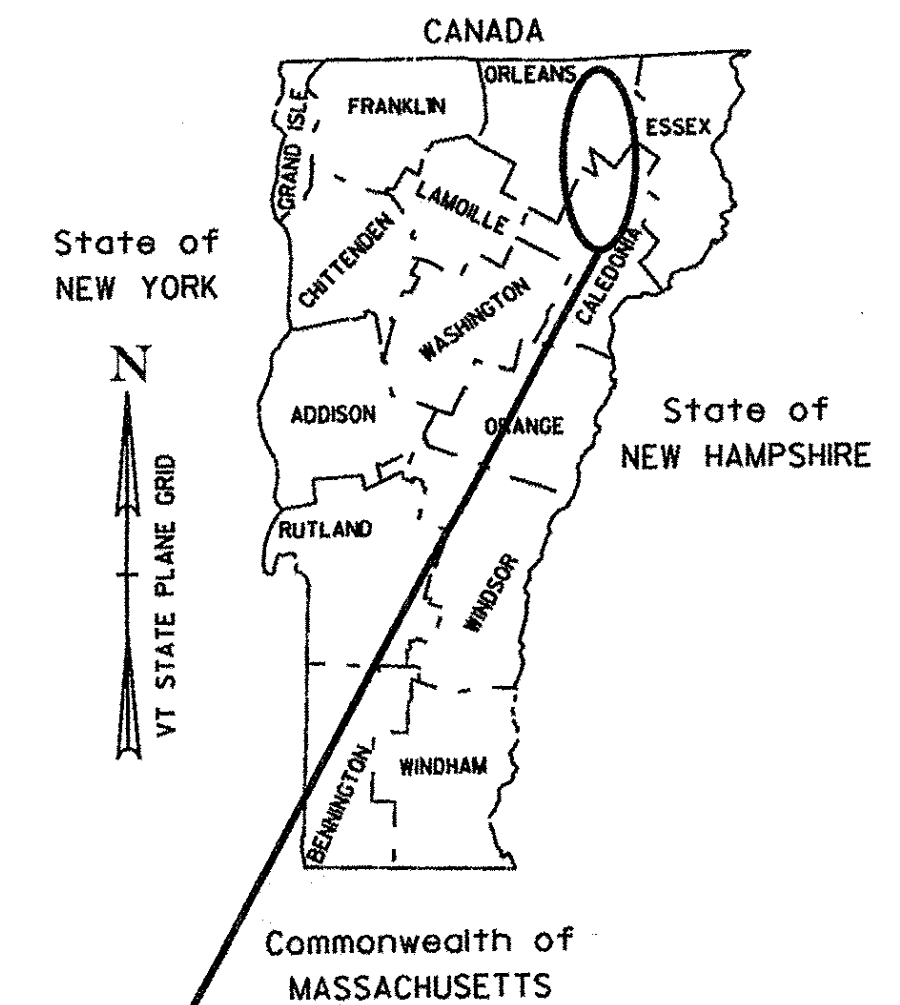
STATE OF VERMONT  
 AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT  
 TOWNS OF LYNDON AND DERBY  
 COUNTIES OF CALEDONIA AND ORLEANS  
 INTERSTATE 91

**INDEX**

1	TITLE SHEET
2	PRELIM. INFORMATION SHEET (BR NO. 111-1)
3	GENERAL NOTES
4	QUANTITY SHEET #1
5	QUANTITY SHEET #2
6	LAYOUT PLAN - LYNDON 96-2N&S
7	PROFILE SHEET - LYNDON 96-2N&S
8	TRAFFIC CONTROL PLAN - LYNDON 96-2N&S
9	EPSC NARRATIVE - LYNDON 96-2N&S
10	EXISTING CONDITIONS - LYNDON 96-2N&S
11	EPSC PLAN - LYNDON 96-2N&S
12	FINAL CONDITIONS - LYNDON 96-2N&S
13	CROSS SECTIONS - LYNDON 96-2N
14	CROSS SECTIONS - LYNDON 96-2S
15	LAYOUT PLAN - DERBY 111-1
16	PROFILE SHEET - DERBY 111-1
17	TRAFFIC CONTROL PLAN - DERBY 111-1
18	EPSC NARRATIVE - DERBY 111-1
19	EXISTING CONDITIONS - DERBY 111-1
20	EPSC PLAN - DERBY 111-1
21	FINAL CONDITIONS - DERBY 111-1
22	CROSS SECTIONS - DERBY 111-1
23	EPSC DETAILS 01
24	EPSC DETAILS 02
25	HEADWALL DETAILS - LYNDON 96-2N&S
26	HEADWALL DETAILS - DERBY 111-1
27	REINF. STEEL SCHEDULE SHEET - LYNDON 96-2N&S
28	REINFORCING STEEL SCHEDULE SHEET - DERBY 111-1



**PROJECT LOCATION:**  
 THE FOLLOWING CULVERTS ALONG THE INTERSTATE 91 CORRIDOR  
 BRIDGE 96-2S AND BRIDGE 96-2N AT MILE MARKER 140.640 IN LYNDON  
 BRIDGE 111-1 AT MILE MARKER 172.565 IN DERBY

**PROJECT DESCRIPTION:**  
 PREVENTATIVE MAINTENANCE TO EXISTING CULVERTS INCLUDING THE  
 INSTALLATION OF PIPE LINERS AND HEADWALLS.  
 LENGTH OF PROJECT = 31.93 MILES

**STANDARDS**

D-34	REINFORCED CONCRETE CRADLE HEADWAL	03/12/2007
E-100	CONSTRUCTION APPROACH SIGNS	01/02/2004
E-101	CONSTRUCTION SIGN DETAILS	05/30/2003
E-102	CONSTRUCTION SIGN DETAILS	06/30/2003
E-102A	CONSTRUCTION SIGN DETAILS	05/01/2004
E-103	MAINLINE TRAFFIC CONTROL	03/01/2004
	DIVIDED HIGHWAY ONE LANE CLOSED	
E-105	TRAFFIC CONTROL FOR CONSTRUCTION	05/01/2004
	VEHICLE U-TURNS ON DIVIDED HIGHWAY	
E-106	TRAFFIC CONTROL MISCELLANEOUS DETAILS	03/01/2004
E-107	DELINEATION, BARRICADES AND DETOURS	06/30/2003
	FOR CONSTRUCTION AREAS	
E-107A	BREAKAWAY BARRICADE DETAILS	06/08/2009
E-110	MAJOR MAINTENANCE OPERATION LANE CLOSURE	08/08/1995
E-111	MINOR MAINTENANCE OPERATION	03/11/1997
E-120	STANDARD SIGN PLACEMENT EXPRESSWAY AND FREEWAY	08/08/1995
E-142	REGULATORY SIGN DETAILS	09/20/1995
G-1	STEEL BEAM GUARDRAIL WITH STEEL POSTS	01/03/2000
	STEEL BEAM GUARDRAIL WITH WOODPOSTS	

**TRAFFIC DATA**

**INTERSTATE 91**

2007 ADT = 6,000
2007 DHV = 780
2007 ADTT = 1,080
%T = 18%
NB %D = 50
SB %D = 50
V = 65 MPH

**CONVENTIONAL SYMBOLS**

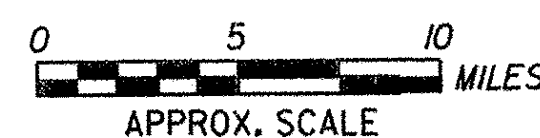
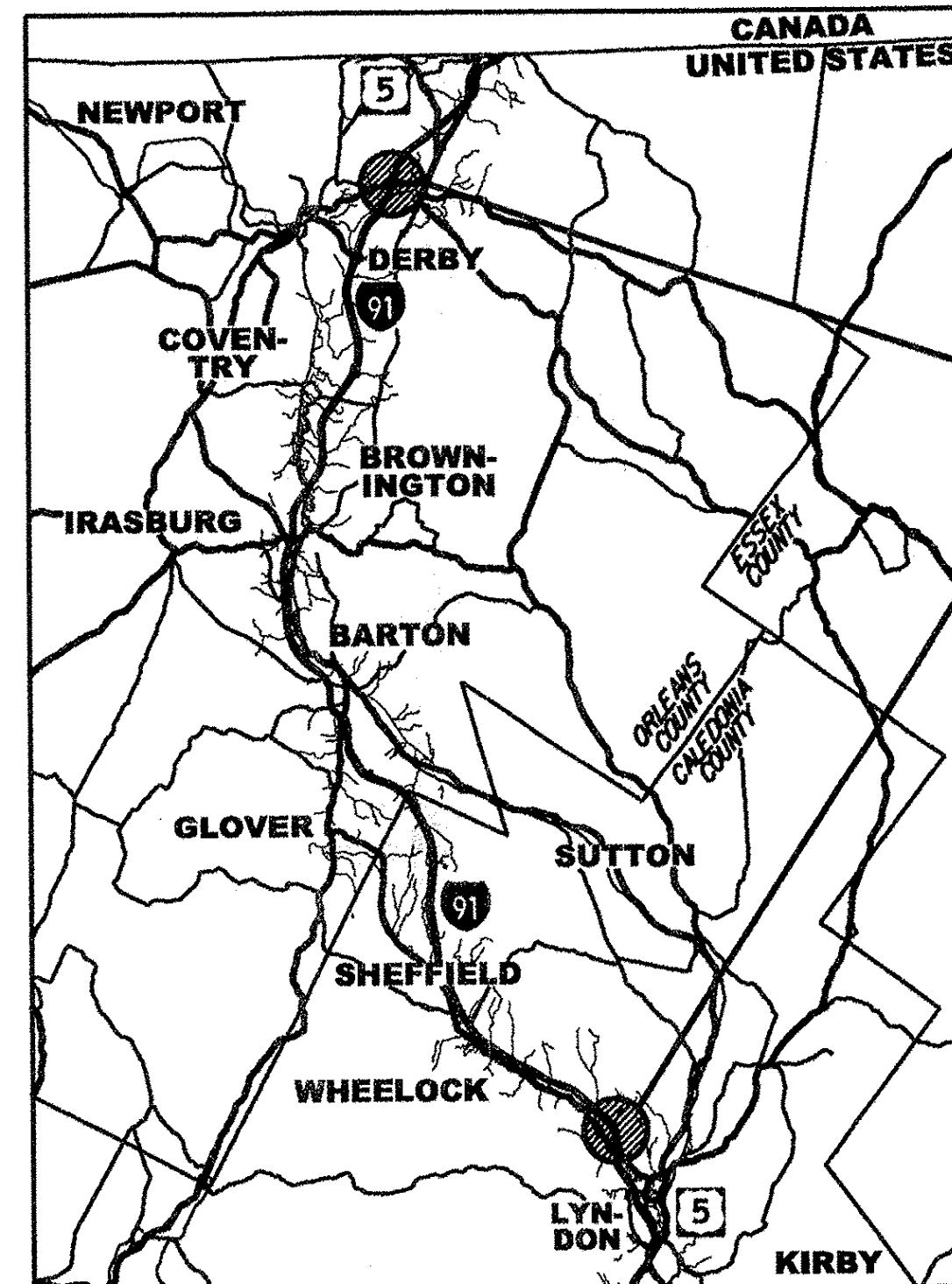
COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	
POINT OF ACCESS	
FENCE LINE	
STONE WALL	
TRAVELED WAY	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : VERMONT SURVEY & ENGINEERING, INC.  
 SURVEYED DATE : 01/2009

**DATUM**  
 VERTICAL      NAVD 88  
 HORIZONTAL    NAD83 (96)



**McFarland Johnson**  
 53 REGIONAL DRIVE  
 CONCORD, NH 03301-5022  
 PHONE (603) 225-2978  
 FAX (603) 225-0095

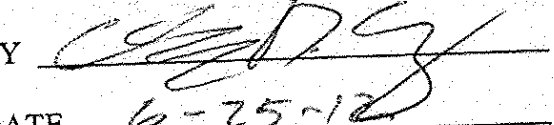


**PROJECT LOCATION**  
 1M CULV (19) LYNDON-DERBY

**RECORD PLANS**

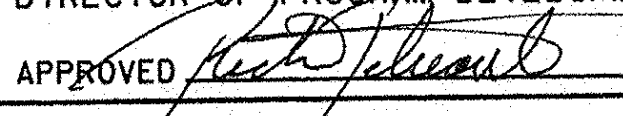
CONTRACTOR:	C.L.H. & SON, INC. - AUBURN, ME
RESIDENT ENGINEER:	CHRIS CRAIG
CONSTRUCTION BEGAN:	JUNE 7, 2010
CONSTRUCTION COMPLETE:	NOVEMBER 7, 2011
RECORD PLANS BY:	CHRIS CRAIG & C. PIERCE

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY  RESIDENT ENGINEER  
 DATE 6-25-12

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.  
 CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED 	DATE 7/6/09
PROJECT MANAGER : D. LANDRY	
PROJECT NAME : LYNDON - DERBY	
PROJECT NUMBER : 1M CULV (19)	
SHEET 1 OF 28 SHEETS	

# PRELIMINARY INFORMATION SHEET

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

### HYDROLOGIC DATA

Date: May 2009

DRAINAGE AREA: 0.7 sq. mi.  
 CHARACTER OF TERRAIN: Forest and open, mixed use, hilly to mountainous  
 STREAM CHARACTERISTICS: Sinuuous, wetlands upstream  
 NATURE OF STREAMBED: Clay and sand

#### PEAK FLOW DATA

Q 2.33 = 50 cfs                      Q 50 = 150 cfs  
 Q 10 = 100 cfs                      Q 100 = 175 cfs  
 Q 25 = 125 cfs                      Q 500 = 250 cfs

DATE OF FLOOD OF RECORD: unknown  
 ESTIMATED DISCHARGE: unknown  
 WATER SURFACE ELEV.: unknown  
 NATURAL STREAM VELOCITY: @ Q100 = 5.5 fps  
 ICE CONDITIONS: moderate to heavy  
 DEBRIS: moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? no  
 IS ORDINARY RISE RAPID? no  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? no  
 IF YES, DESCRIBE: \_\_\_\_\_

WATERSHED STORAGE: 3% HEADWATERS: \_\_\_\_\_  
 UNIFORM: \_\_\_\_\_  
 IMMEDIATELY ABOVE SITE: X

### EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 7' corrugated metal pipe  
 YEAR BUILT: 1963  
 CLEAR SPAN(NORMAL TO STREAM): 7'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 7'  
 WATERWAY OF FULL OPENING: 38.5 sq. ft.  
 DISPOSITION OF STRUCTURE: line  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: unknown

#### WATER SURFACE ELEVATIONS AT:

Q2.33 = 960.0'                      VELOCITY = 6.5 fps  
 Q10 = 961.4'                      "                      7.9 fps  
 Q25 = 962.1'                      "                      8.4 fps  
 Q50 = 962.7'                      "                      8.9 fps  
 Q100 = 963.4'                      "                      9.3 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: \_\_\_\_\_  
 DISCHARGE OVER ROAD @Q100: \_\_\_\_\_

### UPSTREAM STRUCTURE

TOWN: Derby                      DISTANCE: 4,500'  
 HIGHWAY #: TH 27                      STRUCTURE #: \_\_\_\_\_  
 CLEAR SPAN: \_\_\_\_\_                      CLEAR HEIGHT: \_\_\_\_\_  
 YEAR BUILT: \_\_\_\_\_                      FULL WATERWAY: \_\_\_\_\_  
 STRUCTURE TYPE: \_\_\_\_\_

### DOWNSTREAM STRUCTURE

TOWN: Derby                      DISTANCE: 750'  
 HIGHWAY #: US 5                      STRUCTURE #: \_\_\_\_\_  
 CLEAR SPAN: \_\_\_\_\_                      CLEAR HEIGHT: \_\_\_\_\_  
 YEAR BUILT: \_\_\_\_\_                      FULL WATERWAY: \_\_\_\_\_  
 STRUCTURE TYPE: \_\_\_\_\_

### 0 LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEM
INVENTORY							
POSTED							
OPERATING							

### TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2007	6000	780	50	18	1.08

20 year ESAL for flexible pavement from \_\_\_\_\_ to \_\_\_\_\_  
 40 year ESAL for flexible pavement from \_\_\_\_\_ to \_\_\_\_\_  
 Design Speed: mph

### PROPOSED STRUCTURE

STRUCTURE TYPE: 6' CAAP Liner with beveled headwall

CLEAR SPAN(NORMAL TO STREAM): 6'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'  
 WATERWAY OF FULL OPENING: 28.3 sq. ft.

#### WATER SURFACE ELEVATIONS AT:

Q2.33 = 960.4'                      VELOCITY= 6.6 fps  
 Q10 = 961.9'                      "                      8.2 fps  
 Q25 = 962.7'                      "                      8.8 fps  
 Q50 = 963.7'                      "                      9.4 fps  
 Q100 = 966.2'                      "                      9.9 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: \_\_\_\_\_  
 DISCHARGE OVER ROAD @Q100: \_\_\_\_\_

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 963.5' @ inlet  
 VERTICAL CLEARANCE: @ Q50 = 0' (inlet submerged at Q50)

SCOUR: Not calculated for culverts

REQUIRED CHANNEL PROTECTION: Stone Fill, Type II as needed

### PERMIT INFORMATION

AVERAGE DAILY FLOW: 2 cfs                      DEPTH OR ELEVATION: \_\_\_\_\_  
 ORDINARY LOW WATER: 1 cfs                      0.5'  
 ORDINARY HIGH WATER: 25 cfs                      1.0'

### TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A  
 CLEAR SPAN (NORMAL TO STREAM): \_\_\_\_\_  
 VERTICAL CLEARANCE ABOVE STREAMBED: \_\_\_\_\_  
 WATERWAY AREA OF FULL OPENING: \_\_\_\_\_

### ADDITIONAL INFORMATION

### DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO N/A
- DESIGN SPAN N/A
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 4 ksf  
ON LEDGE 10 ksf
- ALLOWABLE LOAD FOR PILING N/A  
TYPE N/A  
ESTIMATED LENGTH N/A
- STRUCTURAL STEEL AASHTO M270M/M270 GRADE 50W
- REINFORCING STEEL GRADE 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 4000 psi  
CONCRETE, HIGH PERFORMANCE CLASS B fc: 3500 psi
- DESIGN SOIL UNIT WEIGHT 140 pcf
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL \_\_\_\_\_

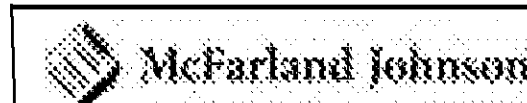
### TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES  
IF YES, ON EXISTING STRUCTURE? ON EXISTING STRUCTURE  
OR ON TEMPORARY BRIDGE? \_\_\_\_\_  
ONE OR TWO-WAY TRAVEL? \_\_\_\_\_
- TRAFFIC CONTROL SIGNALS REQUIRED? NO
- ARE SIDEWALKS REQUIRED? NO  
IF SO, ON WHAT SIDE? \_\_\_\_\_

PROJECT NAME: **LYNDON - DERBY**

PROJECT NUMBER: **IM CULV (19)**

FILE NAME: engpi.xls                      PLOT DATE: 6/18/2009  
 PROJECT LEADER: DMB                      DRAWN BY: RPH  
 DESIGNED BY: RPH                      CHECKED BY: BRC  
 PRELIM. INFORMATION SHEET (BR NO. 111-1)                      SHEET **2** OF **28**



## GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, DATED 2002, AND ITS LATEST REVISIONS.
2. DIMENSIONS, ANGLES, BEARINGS, AND ELEVATIONS OF THE EXISTING CULVERTS SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND LIMITED FIELD INVESTIGATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURE COMPONENTS TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER BEFORE ADVANCING THE WORK. WORKING DRAWINGS REQUIRED FOR VARIOUS ITEMS OF WORK SHALL INDICATE THE ACTUAL FIELD MEASUREMENTS AND SHALL BE SO NOTED.
3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
4. IT IS EXPECTED THAT CULVERT LINING AND HEADWALL CONSTRUCTION WILL BE THE EXTENT OF THE WORK AT EACH SITE. DURING THE COURSE OF CONSTRUCTION IF THE CONTRACTOR SEES AN AREA OF CONCERN, SUCH AS VOIDS AROUND THE EXISTING CULVERT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE ENGINEER WILL MAKE A DETERMINATION AS TO THE NEED FOR FURTHER EXPLORATION. IF FURTHER EXPLORATION IS NEEDED TEST BORINGS SHALL BE CONDUCTED IN THE AREA OF CONCERN. THIS WORK SHALL BE PAID FOR AS ITEM 900.640, "SPECIAL PROVISION (TEST BORINGS)".

## PIPE REHABILITATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO ALL CULVERT REHABILITATION SITES. ALL RESULTING DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)".
2. AT EACH LOCATION SPECIFIED IN THESE PLANS, THE EXISTING CULVERT SHALL REMAIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARATION OF THE EXISTING PIPE TO THE SATISFACTION OF THE ENGINEER. IT IS ANTICIPATED THAT IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE SEDIMENT, LARGE STONES, AND/OR DEBRIS FROM INSIDE THE EXISTING CULVERT, AND TO FILL AND REPAIR LARGE HOLES IN THE EXISTING CULVERT, PRIOR TO INSTALLING THE NEW LINER. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (ALUMINUM PIPE LINER)".
3. THE CONTRACTOR SHALL FILL ANY VOIDS BELOW THE CENTER OF THE CULVERT FROM WITHIN THE CULVERT BEFORE INSTALLING THE LINER. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 541.31, "CONCRETE, CLASS D".
4. THE CONTRACTOR SHALL FILL ANY VOIDS ABOVE THE CENTER OF THE CULVERT FROM WITHIN THE CULVERT BEFORE INSTALLING THE LINER. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 900.608, "SPECIAL PROVISION (CONTROLLED DENSITY (FLOWABLE) FILL)".
5. THE EXISTING CRADLE WALL AT EACH PIPE INLET SHALL BE REMOVED. PAYMENT FOR THIS WORK SHALL BE MADE UNDER ITEM 529.25 "REMOVAL OF CONCRETE OR MASONRY".
6. A NEW FULL BEVELED HEADWALL SHALL BE CONSTRUCTED AT THE INLET OF EACH CULVERT. SEE HEADWALL DETAILS SHEET. THE NEW HEADWALL SHALL BE CONSTRUCTED IN THE DRY. CONTROL OF WATER SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)".
7. THE CONTRACTOR SHALL VERIFY THAT THE RECOMMENDED SIZE LINER WILL FIT IN THE EXISTING PIPE BEFORE ORDERING THE LINER PIPE. SHOULD THE CONTRACTOR DISCOVER THAT THE RECOMMENDED SIZE LINER WILL NOT FIT IN THE EXISTING PIPE, THEN THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER.
8. STABILIZATION AND RESTORATION ASSOCIATED WITH THE TEMPORARY ACCESS SHALL BE INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)". EARTH DISTURBED WITHIN LIMITS OF STRUCTURE EXCAVATION SHALL BE RESTORED AND PAID FOR UNDER CONTRACT ITEMS FOR TURF ESTABLISHMENT.

## CONCRETE NOTES

1. CONCRETE PAYMENT AND CLASSIFICATION SHALL BE AS FOLLOWS:  
HEADWALL: ITEM 541.25, "CONCRETE, CLASS B"  
SUBFOOTING: ITEM 541.30, "CONCRETE, CLASS C"  
FILLING VOIDS UNDER CULVERT: ITEM 541.31, "CONCRETE, CLASS D"
2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH, UNLESS OTHERWISE NOTES.
3. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
4. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT UNLESS OTHERWISE INDICATED. ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
5. FOOTINGS OR SUBFOOTINGS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.
6. UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE RESIDENT ENGINEER SHALL CONTACT THE VTRANS SOILS AND FOUNDATION ENGINEER TO INSPECT THE BEDROCK. THE STRUCTURES ENGINEER WILL ALSO BE NOTIFIED THAT THE BEDROCK IS READY FOR INSPECTION. THE SOILS AND FOUNDATION ENGINEER WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE OF 10,000 PSF. FIVE (5) WORKING DAYS FROM NOTIFICATION SHALL BE ALLOWED TO MAKE THE INSPECTION AND THE DETERMINATION FOR THE COMPETENCY OF THE BEDROCK.
7. IF COMPETENT BEDROCK IS WITHIN 1'-0" BELOW THE DESIGN BOTTOM OF FOOTING FOR THE EXTENT OF THE SUBSTRUCTURE AS SHOWN IN THE CONTRACT PLANS, THE FOOTING MAY BE PLACED INTEGRALLY TO THE TOP OF THE BEDROCK USING THE CONCRETE ITEM SPECIFIED FOR THE FOOTING AT THE CONTRACT UNIT PRICE.
8. WHERE COMPETENT BEDROCK IS BELOW THE DESIGN BOTTOM OF FOOTING BY MORE THAN 1'-0" FOR ANY PORTION OF THE SUBSTRUCTURE, THE STRUCTURES ENGINEER SHALL BE CONTACTED TO DETERMINE WHETHER OR NOT THE FOOTING SHALL BE LOWERED, A SUBFOOTING CONSTRUCTED OR PLACEMENT OF A 1'-0" LAYER OF GRANULAR BACKFILL FOR STRUCTURES BELOW THE FOOTING IS REQUIRED. IF THE DESIGN BOTTOM OF FOOTING ELEVATION IS TO BE LOWERED THE CONTRACTOR SHALL PROVIDE A BEDROCK PROFILE TO THE STRUCTURES ENGINEER. THREE (3) WORKING DAYS FROM RECEIPT OF THE BEDROCK PROFILE SHALL BE ALLOWED TO MAKE THIS DETERMINATION. NO WORK SHALL BE DONE ON THE FOOTINGS UNTIL A REPLY IS RECEIVED.
9. WHERE COMPETENT BEDROCK IS ABOVE THE DESIGN BOTTOM OF FOOTING ELEVATION, IT SHALL BE REMOVED DOWN TO THE BOTTOM OF FOOTING ELEVATION WITH CONTRACT PAY ITEMS OR A BEDROCK PROFILE SHALL BE PROVIDED BY THE CONTRACTOR TO THE STRUCTURES ENGINEER TO DETERMINE WHETHER THE DESIGN BOTTOM OF FOOTING ELEVATION MAY BE RAISED. THREE (3) WORKING DAYS FROM RECEIPT OF THE BEDROCK PROFILE SHALL BE ALLOWED TO MAKE THE DETERMINATION. FOOTING ELEVATIONS SHALL NOT BE ADJUSTED WITHOUT APPROVAL OF THE STRUCTURES ENGINEER.
10. THE LIMITS OF SUBFOOTINGS SHALL BE 1'-0" OUTSIDE OF THE HORIZONTAL LIMITS OF THE FOOTING. IF A SUBFOOTING IS REQUIRED IT SHALL BE PAID FOR UNDER ITEM 541.30, "CONCRETE, CLASS C". THE TOP SURFACE OF ALL SUBFOOTINGS SHALL BE INTENTIONALLY ROUGHENED TO 1/4" AMPLITUDE.
11. A MAXIMUM OF 6" AVERAGE ALLOWANCE FOR OVERBREAKAGE WILL BE ALLOWED. ADDITIONAL OVERBREAKAGE AND REPLACEMENT WITH CONCRETE WILL BE AT THE CONTRACTOR'S EXPENSE.
12. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK WHEN SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE DOWELS SHALL HAVE A 2' -0" MINIMUM EMBEDMENT IN THE BEDROCK AND SHALL EXTEND IN THE FOOTING OR SUBFOOTING A MINIMUM OF 1' -6", UNLESS NOTED OTHERWISE.
13. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. PAYMENT SHALL BE MADE AS ITEM 514.10, "WATER REPELLENT, SILANE". APPLICATION RATE OF WATER REPELLENT, SILANE SHALL BE 1 GAL/14 SY.

## REINFORCING STEEL NOTES

1. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:  
ALONG BACK FACES OF WALLS AGAINST EARTH: 2"  
ELSEWHERE UNLESS OTHERWISE INDICATED: 3"
2. REINFORCEMENT STEEL PLACEMENT TOLERANCES SHALL BE:  
SPACING = +/- 1-INCH  
CLEARANCE = +/- 1/4-INCH

## TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL MEASURES FOR THIS PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH TYPICAL APPLICATIONS TA-5, TA-33, AND TA-34 OF THE 2003 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE REFERENCED VTRANS STANDARD DRAWINGS. CONFLICTS BETWEEN THE MUTCD AND THE VTRANS STANDARD DRAWINGS SHOULD DEFER TO THE MUTCD.
2. THE CONTRACTOR SHALL SUBMIT A SPECIFIC TRAFFIC CONTROL PLAN FOR EACH CONSTRUCTION SITE TO THE ROADWAY, TRAFFIC AND SAFETY ENGINEER FOR APPROVAL PER SUBSECTIONS 104.04 AND 105.03. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN TRAFFIC CONTROL ITEMS.
3. LARGE CONSTRUCTION VEHICLES MAY BE REQUIRED TO BACK DOWN THE TEMPORARY ACCESS ROAD AT EACH CULVERT LOCATION. THESE VEHICLES WILL LIKELY NOT HAVE ADEQUATE SPACE AT THE INTERSECTION OF THE ACCESS ROAD AND THE INTERSTATE TO PERFORM THE NECESSARY TURNING MOVEMENTS. AT THE DISCRETION OF THE ENGINEER, A TEMPORARY CLOSURE OF THE INTERSTATE TRAVEL LANE AND SHOULDER WILL BE ALLOWED FOR ACCESS TO THE PROJECT SITES. SEE VTRANS STANDARD E-103. THIS WORK SHALL BE PAID FOR UNDER ITEM 641.10, "TRAFFIC CONTROL".
4. TEMPORARY LANE AND/OR SHOULDER CLOSURES SHALL BE ALLOWED DURING WORKING HOURS ONLY. THE INTERSTATE SHALL BE RESTORED TO FULL CAPACITY AT THE CLOSE OF DAILY CONSTRUCTION ACTIVITIES.
5. TEMPORARY BARRIER, IF USED, SHALL MEET THE REQUIREMENTS OF SECTION 621. BARRIER ENDS FACING ONCOMING TRAFFIC SHOULD BE TAPERED BEYOND THE CLEAR ZONE. IF NECESSARY, PAYMENT FOR FURNISHING, INSTALLING, RESETTING, AND REMOVING ANY TEMPORARY TRAFFIC BARRIER SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".
6. ENERGY ABSORPTION ATTENUATORS, IF USED, SHALL MEET THE REQUIREMENTS OF SECTION 621. PAYMENT FOR FURNISHING, INSTALLING AND REMOVING ANY ENERGY ABSORPTION ATTENUATORS SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".
7. SIGNS, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE CLEANED WEEKLY AND THIS WORK SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 641.10, "TRAFFIC CONTROL".

PROJECT NAME: LYNDON - DERBY  
PROJECT NUMBER: IM CULV (19)

FILE NAME: z08a192gn+e.dgn  
PROJECT LEADER: DMB  
DESIGNED BY: MHM  
GENERAL NOTES

PLOT DATE: 24-AUG-2009  
DRAWN BY: MAL  
CHECKED BY: DMB  
SHEET 3 OF 28

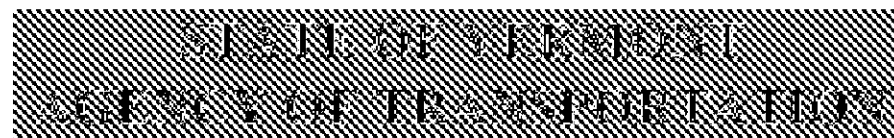




# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
					ROADWAY	EROSION CONTROL	I91 - BR. NO. 96-2N	I91 - BR. NO. 96-2S	I91 - BR. NO. 111-1	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
							15	15	20		50		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
					1						1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
							84	79	83		246		CY	STRUCTURE EXCAVATION	204.25				
							72	81	89		242		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
							3985	4764	2551		11300		LB	REINFORCING STEEL	507.15				
								42	49		91		LF	DRILLING AND GROUTING DOWELS	507.16				
							1.8	1.8	2.2		5.8		GAL	WATER REPELLENT, SILANE	514.10				
							5	9	13		27		CY	REMOVAL OF CONCRETE OR MASONRY	529.25				
							26	30	36		92		CY	CONCRETE, CLASS B	541.25				
							9	9	13		31		CY	CONCRETE, CLASS C	541.30				
							5	5	10		20		CY	CONCRETE, CLASS D	541.31				
							20	20	20		60		CY	STONE FILL, TYPE II	613.11				
							7	8	8		23		CY	STONE FILL, TYPE IV	613.13				
					80						80		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
					1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
							1				1		LS	TRAFFIC CONTROL (I91 - BR. NO. 96-2N)	641.10				
								1			1		LS	TRAFFIC CONTROL (I91 - BR. NO. 96-2S)	641.10				
									1		1		LS	TRAFFIC CONTROL (I91 - BR. NO. 111-1)	641.10				
					4						4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
					4						4		EACH	PORTABLE ARROW BOARD	641.16				
							30	32	35		97		SY	GEOTEXTILE UNDER STONE FILL	649.31				
						125					125		SY	GEOTEXTILE FOR SILT FENCE	649.51				
						1					1		LB	SEED	651.15				
						11					11		LB	FERTILIZER	651.18				
						0.05					0.05		TON	AGRICULTURAL LIMESTONE	651.20				
						0.05					0.05		TON	HAY MULCH	651.25				
						6.2					6.2		CY	TOPSOIL	651.35				
						1					1		LS	EPSC PLAN	652.10				
						32					32		HR	MONITORING EPSC PLAN	652.20				
						1					1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
						110					110		SY	PERMANENT EROSION MATTING	653.21				
						1685					1685		LF	PROJECT DEMARCATION FENCE	653.55				
							5	5	10		20		CY	SPECIAL PROVISION (CONTROLLED DENSITY (FLOWABLE) FILL)	900.608				
							187	201			388		LF	SPECIAL PROVISION (ALUMINUM PIPE LINER) (60") (72" EXISTING PIPE)	900.640				
									783		783		LF	SPECIAL PROVISION (ALUMINUM PIPE LINER) (72") (84" EXISTING PIPE)	900.640				
							100	100	200		400		LF	SPECIAL PROVISION (TEST BORINGS)	900.640				

PROJECT NAME: **LYNDON - DERBY**  
PROJECT NUMBER: **IM CULV (19)**  
FILE NAME: **Quantity Sheet** PLOT DATE: **08/24/2009**  
PROJECT MANAGER: **DMB** DRAWN BY: **RPH**  
DESIGNED BY: **RPH** CHECKED: **BRC**  
**QUANTITY SHEET #1** SHEET **4** OF **28**



# QUANTITY SHEET 2

### SUMMARY OF ESTIMATED QUANTITIES

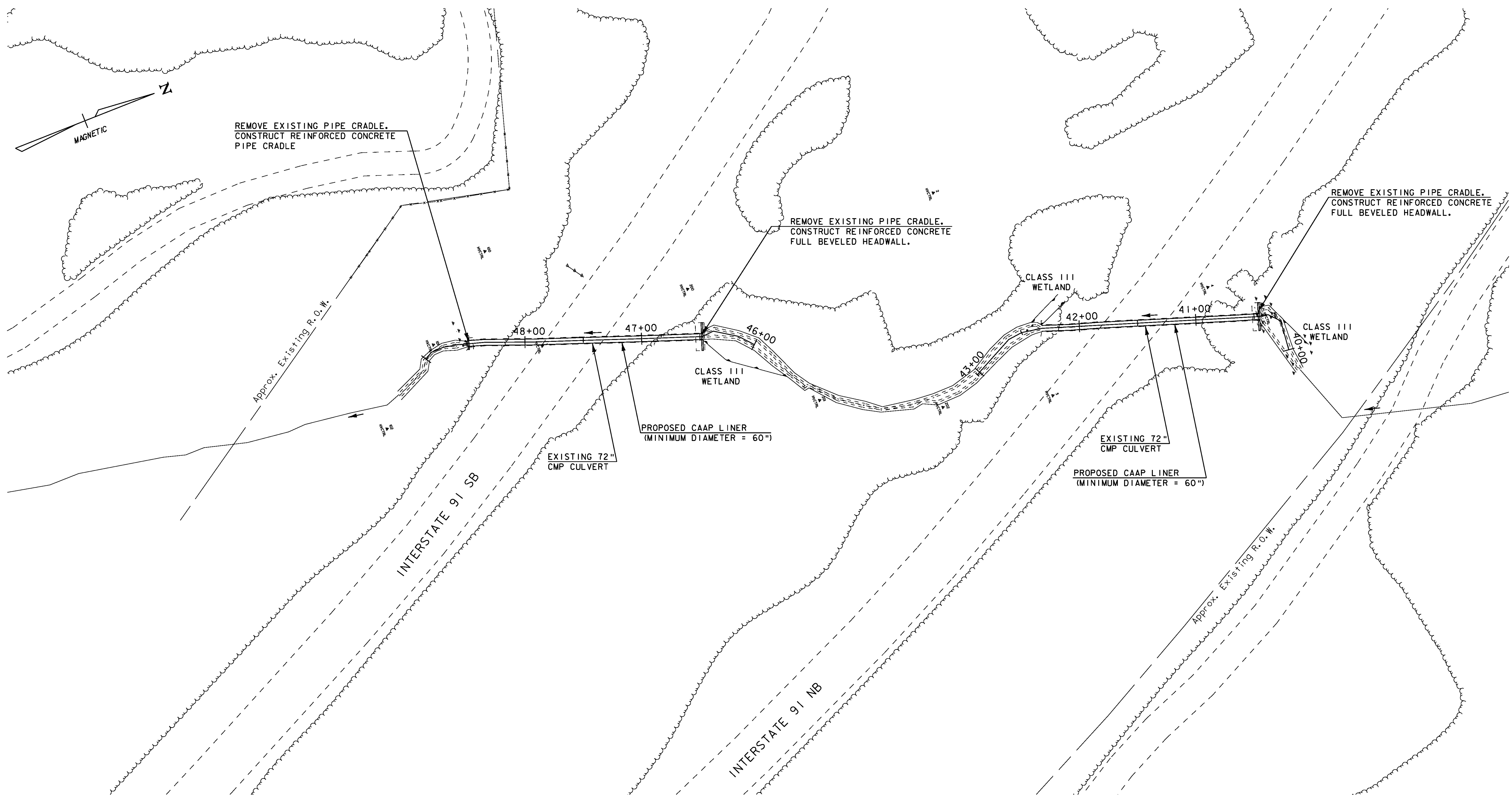
### TOTALS

### DESCRIPTIONS

### DETAILED SUMMARY OF QUANTITIES

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES				
					ROADWAY	EROSION CONTROL	I91 - BR. NO. 96-2N	I91 - BR. NO. 96-2S	I91 - BR. NO. 111-1	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS	
							1				1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I91 - BR. NO. 96-2N)	900.645					
								1			1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I91 - BR. NO. 96-2S)	900.645					
									1		1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)(I91 - BR. NO. 111-1)	900.645					
							1				1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I91 - BR. NO. 96-2N)	900.645					
								1			1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I91 - BR. NO. 96-2S)	900.645					
									1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(I91 - BR. NO. 111-1)	900.645					

PROJECT NAME: **LYNDON - DERBY**  
 PROJECT NUMBER: **IM CULV (19)**  
 FILE NAME: **Quantity Sheet**      PLOT DATE: **08/24/2009**  
 PROJECT MANAGER: **DMB**      DRAWN BY: **RPH**  
 DESIGNED BY: **RPH**      CHECKED: **BRC**  
 QUANTITY SHEET #2      SHEET **5** OF **28**



**GENERAL NOTES:**

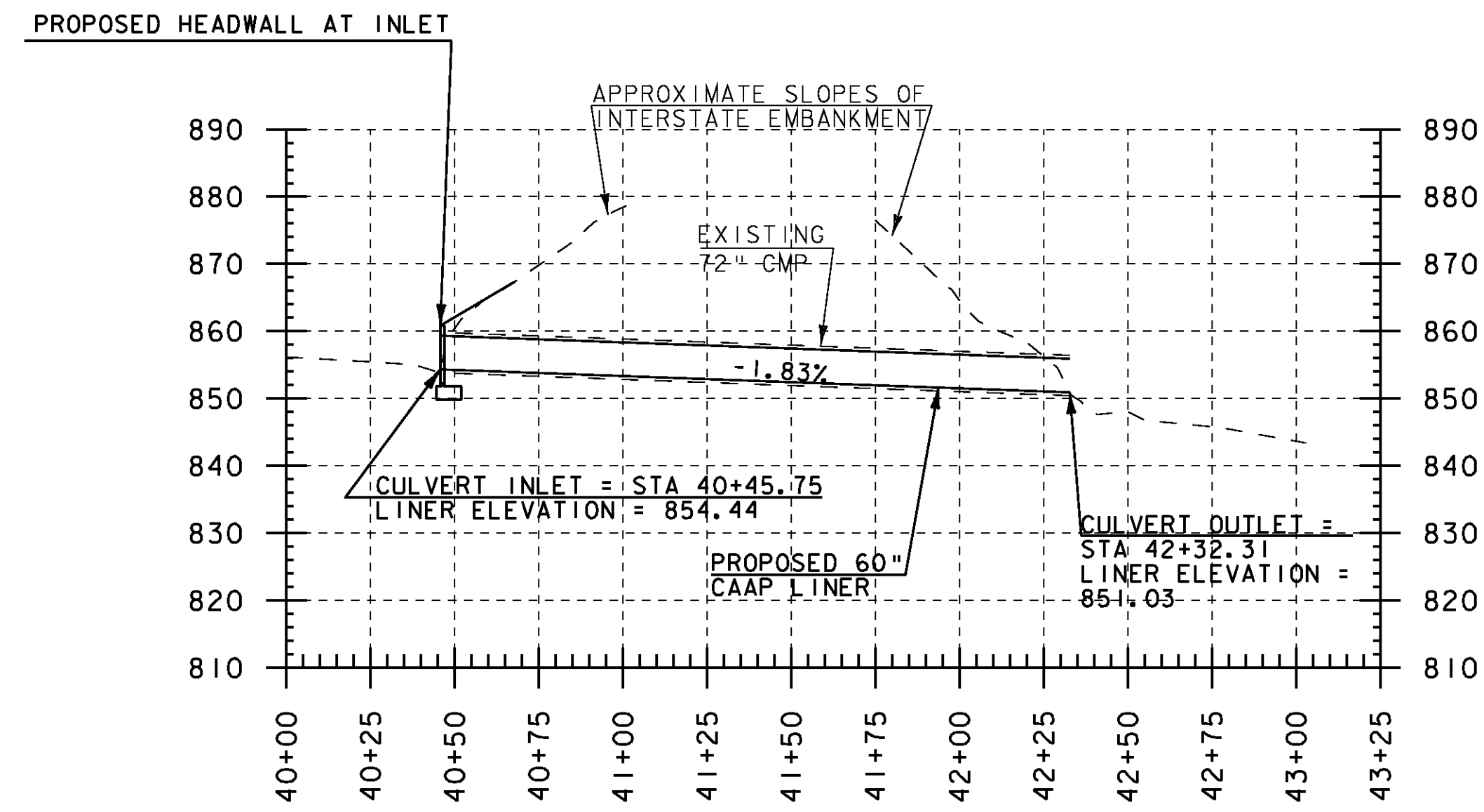
1. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO THE CULVERT ENDS. ALL RESULTING DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.645 - SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT) (191-BR. NO. 96-2N) & (191-BR. NO. 96-2S).



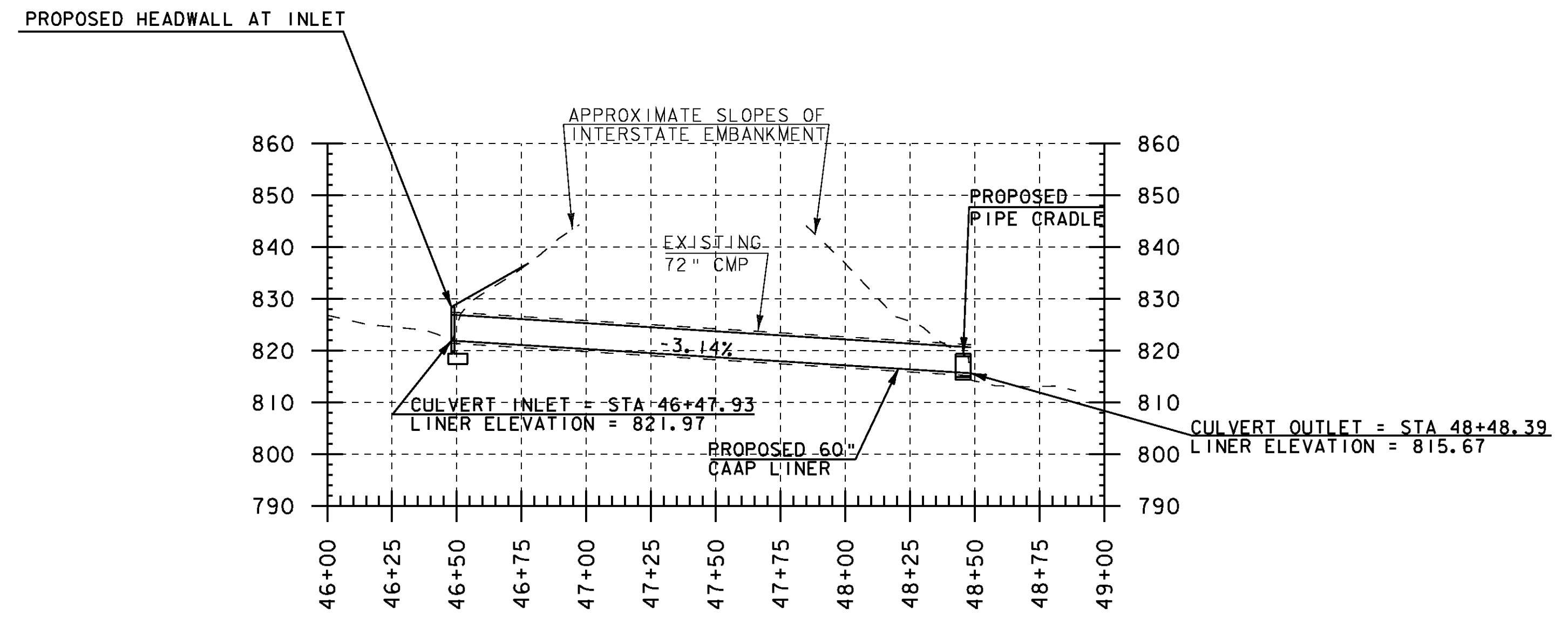
PROJECT NAME: LYNDON - DERBY  
PROJECT NUMBER: IM CULV (19)

FILE NAME: z08a1921o01n.dgn  
PROJECT LEADER: DMB  
DESIGNED BY: MHM  
LAYOUT PLAN - LYNDON 96-2N&S

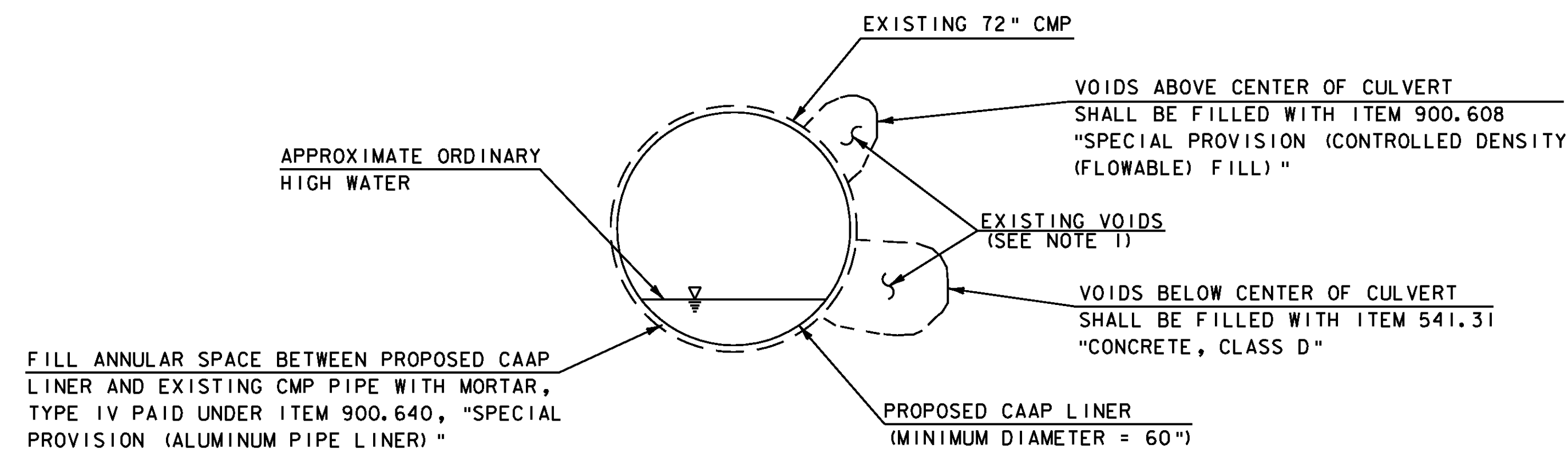
PLOT DATE: 24-AUG-2009  
DRAWN BY: MAL  
CHECKED BY: DMB  
SHEET 6 OF 28



LYNDON BRIDGE NO. 96-2N  
CULVERT CENTERLINE PROFILE



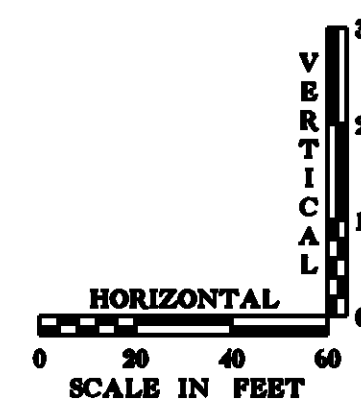
LYNDON BRIDGE NO. 96-2S  
CULVERT CENTERLINE PROFILE



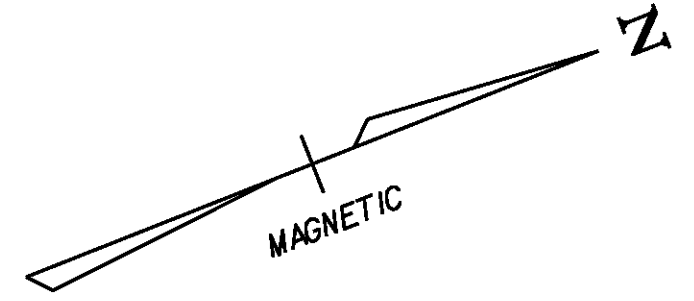
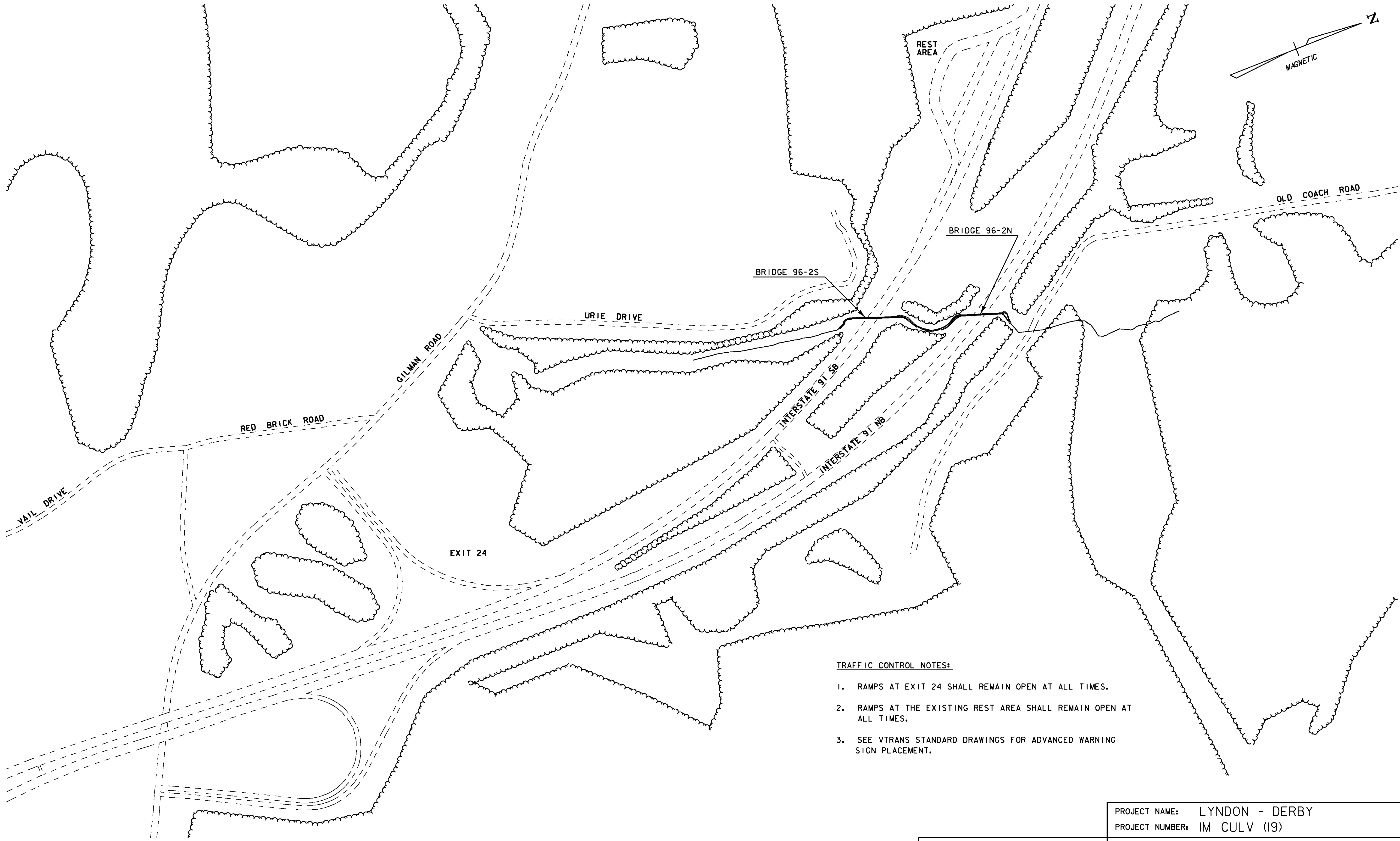
LYNDON BRIDGE NO. 96-2N & 96-2S)  
CULVERT LINING DETAIL  
NOT TO SCALE

**PROJECT NOTES**

- POTENTIAL VOID LOCATIONS SHOWN FOR EXPLANATION PURPOSES ONLY.

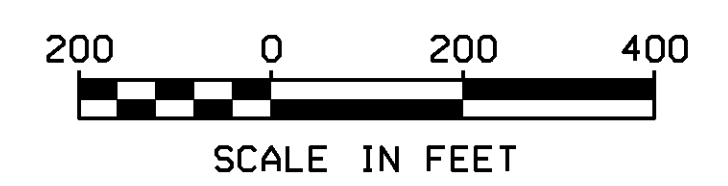


PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: MAL
FILE NAME: z08a192pro01ln.dgn	CHECKED BY: DMB
DESIGNED BY: MHM	SHEET 7 OF 28
PROFILE SHEET - LYNDON 96-2N&S	



TRAFFIC CONTROL NOTES:

1. RAMPS AT EXIT 24 SHALL REMAIN OPEN AT ALL TIMES.
2. RAMPS AT THE EXISTING REST AREA SHALL REMAIN OPEN AT ALL TIMES.
3. SEE VTRANS STANDARD DRAWINGS FOR ADVANCED WARNING SIGN PLACEMENT.



PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: MJF
FILE NAME: z08a192+cp011n.dgn	CHECKED BY: DMB
PROJECT LEADER: DMB	DESIGNED BY: BRC
TRAFFIC CONTROL PLAN - LYNDON 96-2N&S	SHEET 8 OF 28

# EROSION CONTROL NARRATIVE

## 1.1. PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REHABILITATION OF TWO EXISTING 72-INCH CORRUGATED METAL CULVERTS ON INTERSTATE 91 IN THE TOWN OF LYNDON. THE CULVERTS ARE APPROXIMATELY LOCATED AT MILE MARKER 140.640 ON THE INTERSTATE AND ARE DESIGNATED AS STRUCTURES BR 96-2S (UNDER THE SOUTHBOUND LANES) AND BR 96-2N (UNDER THE NORTHBOUND LANES). THE CULVERTS ARE IN LINE WITH ONE ANOTHER AND BOTH CONVEY STORMWATER FROM AN UNNAMED BROOK UNDER THE INTERSTATE. THE BROOK FLOWS FROM EAST TO WEST BENEATH THE NORTHBOUND LANES AND THEN BENEATH THE SOUTHBOUND LANES OF INTERSTATE 91. THE EXISTING CULVERTS WILL BE SLIP-LINED WITH THE PROPOSED 60" CORRUGATED ALUMINUM ALLOY PIPES AS THE EXISTING CULVERTS ARE BEYOND THEIR DESIGN LIFE AND SHOW SIGNS OF DETERIORATION AND STRUCTURAL DEFICIENCY. THE PROJECT ALSO INCLUDES THE CONSTRUCTION OF NEW FULL BEVELED HEADWALLS AT THE INLETS OF EACH OF THE CULVERTS TO IMPROVE HYDRAULICS. THE PIPE CRADLE WILL ALSO BE REPLACED AT THE OUTLET OF THE CULVERT UNDER THE SOUTHBOUND LANES. THERE WILL BE NO IMPACT TO THE EXISTING ROADWAY. TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW, AND CONTRACTOR'S OFF-SITE STAGING AREAS) EQUALS 0.80 ACRES. THE TOTAL DISTURBED AREA INCLUDES THE ENTIRE AREA LOCATED WITHIN THE PROJECT DEMARCATION FENCING SHOWN.

IT IS ANTICIPATED THAT THIS WILL BE A SINGLE CONSTRUCTION SEASON PROJECT.

## 1.2. SITE INVENTORY

### OFF-SITE DRAINAGE CHARACTERISTICS:

THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED VEGETATION WITH MODERATE TO SEVERELY SLOPING TERRAIN. THE AREA IS MOSTLY FORESTED WITH SOME CLEARINGS AND CAN BE DESCRIBED AS HILLY TO MOUNTAINOUS WITH WELL DEFINED DRAINAGE WAYS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN, RUNOFF STORMWATER ENTERING THE PROJECT SITE WILL BE PRIMARILY LIMITED TO THAT WHICH IS CONVEYED WITHIN THE UNNAMED BROOK. THE ROADWAY EMBANKMENT ALSO CONSISTS OF WELL ESTABLISHED GRASSSED SIDE SLOPES CONSTRUCTED AT A 1:2 (VERTICAL: HORIZONTAL) SLOPE.

### 1.2.2. DRAINAGE, WATERWAYS, BODIES OF WATER:

THE UNNAMED BROOK IS LOCATED WITHIN THE PROJECT AREA. THE BROOK FLOWS EAST TO WEST BENEATH THE NORTHBOUND AND SOUTHBOUND EMBANKMENTS OF INTERSTATE 91. THERE ARE NO OTHER WATERWAYS OR BODIES OF WATER WITHIN THE PROJECT AREA. RUNOFF STORMWATER ENTERING THE PROJECT AREA WILL BE PRIMARILY LIMITED TO THAT WHICH IS CONVEYED VIA GRASSSED ROADWAY DITCHES ALONG INTERSTATE 91. STORMWATER RUNOFF COLLECTED BETWEEN THE NORTHBOUND AND SOUTHBOUND LANES DRAINS TO THE INLET OF THE CULVERT UNDER THE SOUTHBOUND LANE.

### 1.2.3. TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

THE TOPOGRAPHY OF THE PROJECT SITE CONSISTS OF THICK BRUSHY ROUGH TERRAIN AT THE INLET AND OUTLET OF THE PIPE WITH 1:2 (VERTICAL: HORIZONTAL) SIDE SLOPES. THERE ARE GRASSSED DITCHES LOCATED BETWEEN THE BARRELS OF THE INTERSTATE. THE PROJECT AREA DOES NOT ENCRANCH UPON ANY BUILDINGS.

### 1.2.4. VEGETATION

THE VEGETATION WITHIN THE PROJECT AREA CONSISTS OF THE GRASSSED INTERSTATE EMBANKMENTS AND THICK BRUSH WITH WELL ESTABLISHED TREES. THE IMPACT TO THE VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY IMPACTED BY THE CULVERT SLIP-LINING OPERATIONS AND THE CONSTRUCTION OF THE PROPOSED HEADWALLS AND PIPE CRADLE. DISTURBED SOILS AND VEGETATION WILL BE REESTABLISHED USING STONE AND STANDARD SEED AND MULCH PRACTICES.

### 1.2.5. SOILS:

THE SOIL FOUND SURROUNDING THE PROJECT SITE IS PRIMARILY VERSHIRE-LOMBARD COMPLEX (ML), 15 TO 25% SLOPES. THE VERSHIRE-LOMBARD SERIES IS A WELL DRAINED VERY FINE SANDY LOAM WITH AN ERODIBILITY FACTOR (K-VALUE) OF 0.37.

GENERALLY, K-VALUES INDICATE THE FOLLOWING:

- 0.23 AND LOWER - LOW ERODIBILITY
- 0.24 TO 0.36 - MODERATE ERODIBILITY
- 0.37 AND HIGHER - HIGH ERODIBILITY

## 1.2.6. SENSITIVE RESOURCE AREAS

NO THREATENED OR ENDANGERED SPECIES OR ARCHEOLOGICAL RESOURCES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND THERE WILL BE NO ADVERSE EFFECT TO AGRICULTURAL FEATURES. CLASS III WETLANDS ARE LOCATED UPSTREAM AND DOWNSTREAM OF THE CULVERT UNDER THE NORTHBOUND LANES AND DOWNSTREAM OF THE CULVERT UNDER THE SOUTHBOUND LANES. DISTURBANCE OF SOILS NEAR THE WATERWAY WILL CONSIST OF THAT WHICH IS NECESSARY TO CONSTRUCT THE PROPOSED HEADWALLS AT THE INLET ENDS OF THE EXISTING CULVERTS, TO CONSTRUCT THE PROPOSED PIPE CRADLE AT THE OUTLET OF THE CULVERT UNDER THE SOUTHBOUND LANES, AND IMPACTS NECESSARY FOR THE CULVERT SLIP-LINING OPERATIONS. PROJECT DEMARCATION FENCING (PDF) SHALL BE CONSTRUCTED ALONG THE PROJECT LIMITS TO PREVENT IMPACTS OUTSIDE THE PROJECT AREA.

## 1.3. RISK EVALUATION

SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING FOR THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

## 1.4. EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

COORDINATE THE INSTALLATION, USE, AND REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES WITH CONSTRUCTION ACTIVITIES TO ENSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION AND SEDIMENT CONTROL. EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS. THE CONTRACTOR SHALL USE ADDITIONAL EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION, FIELD CONDITIONS, AND AS DIRECTED BY THE ENGINEER OR ONSITE COORDINATOR. SEE SECTION 105.23 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006.

INSTALL EROSION AND SEDIMENT CONTROLS MEASURES AS SHOWN IN THE EROSION CONTROL PLAN OR AS DIRECTED BY THE ENGINEER OR ONSITE COORDINATOR. DO NOT MODIFY THE TYPE, SIZE, OR LOCATION OF ANY CONTROL OR PRACTICE WITHOUT APPROVAL OF THE ENGINEER OR ONSITE COORDINATOR. ANY CHANGES SHALL BE NOTED ON THE PLANS, IN THE WEEKLY INSPECTION REPORT, AND REPORTED TO THE APPROPRIATE AUTHORITY IN A TIMELY MANNER. INSPECT ALL CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT THAT PRODUCES RUNOFF FROM THE PROJECT SITE. REPAIR MEASURES PROMPTLY ONCE DAMAGE IS DISCOVERED.

PREVENTING SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS, OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD UP. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

### 1.4.1. MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCE, DENOTED -PDF- IN THE PLANS, IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION. DISTURBANCE OUTSIDE THE LIMITS OF THE PROJECT DEMARCATION FENCE WILL REQUIRE ADDITIONAL PERMIT COVERAGE.

CONTROL ONLY SEDIMENT LADEN STORMWATER RUNOFF GENERATED BY THE PROJECT SITE. COLLECT AND ROUTE CLEAN STORMWATER AROUND THE PROJECT SITE WHENEVER POSSIBLE USING DIVERSION BERMS, CHANNELS, CULVERTS, OR TEMPORARY PIPES.

### 1.4.2. LIMIT DISTURBANCE AREA

CONTRACTOR SHALL LIMIT THE DISTURBANCE TO WITHIN THE IMPACT LINES SHOWN ON THE PLANS. CONTRACTOR SHALL NOT DISTURB ANY AREA OUTSIDE OF THE EXISTING RIGHT OF WAY.

DO NOT ALLOW CONSTRUCTION EQUIPMENT TO OPERATE OUTSIDE OF PERIMETER CONTROL MEASURES.

1.4.3. STABILIZE CONSTRUCTION EXIT  
AT LOCATIONS WHERE CONSTRUCTION VEHICLES WILL BE ENTERING OR LEAVING THE CONSTRUCTION SITE/STAGING AREAS, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED TO LIMIT THE AMOUNT OF SEDIMENT THAT IS TRANSPORTED OFF OF THE SITE BY CONSTRUCTION VEHICLES. STONE WILL BE USED TO REMOVE SEDIMENT FROM THE TIRES OF CONSTRUCTION VEHICLES. IF SEDIMENT IS STILL BEING TRACKED ONTO PUBLIC ROADS, THE LENGTH OF THE PAD SHALL BE EXTENDED OR VEHICLES SHALL BE RINSED WITH A HOSE PRIOR TO LEAVING THE SITE.

1.4.4. INSTALL SILT FENCE  
SILT FENCE WILL BE INSTALLED AT THE TOE OF FILL SLOPES TO PREVENT SEDIMENT TRANSPORT TO DOWN GRADIENT AREAS. EACH LINE OF SILT FENCE WILL BE PLACED ALONG THE CONTOUR WITH THE LOWER EDGE BURIED 6" TO PREVENT UNDERFLOW AND ENDS TURNED SLIGHTLY UP GRADE TO CREATE A PONDING EFFECT. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UPSLOPE EARTHWORK. SILT FENCE SHALL BE PLACED AS SHOWN ON THE EROSION CONTROL PLAN AND AS DIRECTED BY THE ENGINEER.

1.4.5. DIVERT UPLAND FLOW  
THE EXISTING STREAM WILL BE DIVERTED AS DESCRIBED IN THE DEWATERING SECTION BELOW. NO OTHER UPLAND FLOW DIVERSION WILL BE REQUIRED.

1.4.6. SLOW DOWN CHANNELIZED RUNOFF  
CHECK DAMS TO BE USED AS NECESSARY.

1.4.7. CONSTRUCT PERMANENT CONTROLS  
ALL DISTURBED SOIL SHALL BE STABILIZED WITH SEED AND MULCH.

1.4.8. STABILIZE EXPOSED SOILS  
SEEDING AND MULCHING SHALL BE UTILIZED TO STABILIZE SOIL. SOIL SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE AND/OR DURING INTERMITTENT PHASES OF CONSTRUCTION. MULCHING WILL BE UTILIZED ON A REGULAR BASIS. ANY SOIL TO BE EXPOSED FOR SEVERAL DAYS PRIOR TO FINAL GRADING SHALL BE MULCHED. SOIL SHALL BE STABILIZED WITHIN 48 HOURS PRIOR TO FORECASTED RAIN. THEREFORE, STABILIZE ALL DISTURBED AREAS PROMPTLY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY VEGETATION SHALL BE ESTABLISHED IF THE AREA IS TO BE WITHOUT CONSTRUCTION ACTIVITY FOR A PERIOD OF 14 DAYS. PERIMETER CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. INSTALL OTHER TEMPORARY CONTROLS IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS.

1.4.9. WINTER STABILIZATION  
THE NON-WINTER EPSC SEASON SHALL BE FROM MAY 1 TO OCTOBER 15. IF ANY EARTHWORK IS TO BE PERFORMED OUTSIDE THE CONSTRUCTION SEASON, A WINTER EROSION AND SEDIMENT CONTROL PLAN DESCRIBING ALTERNATIVE STABILIZATION METHODS SHALL BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO AUGUST 15 FOR APPROVAL.

1.4.10. STABILIZE SOIL AT FINAL GRADE  
SEEDING AND MULCHING SHALL BE UTILIZED TO STABILIZE SOIL. SOIL SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEEDING, MULCHING, AND BIODEGRADABLE EROSION CONTROL MATTING OR EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

1.4.11. DEWATERING ACTIVITIES  
STREAM DIVERSION IS REQUIRED DURING THE GROUT PLACEMENT OPERATIONS AND DURING THE CONSTRUCTION OF THE HEADWALLS AND CRADLE WALLS. THE IMPACTS SHOWN ON THIS PLAN ASSUME THAT STREAM DIVERSIONS WILL BE ACCOMPLISHED THROUGH THE USE OF SAND BAGS TO DIVERT WATER INTO A SMALLER PIPE INSERTED INTO THE LINER.

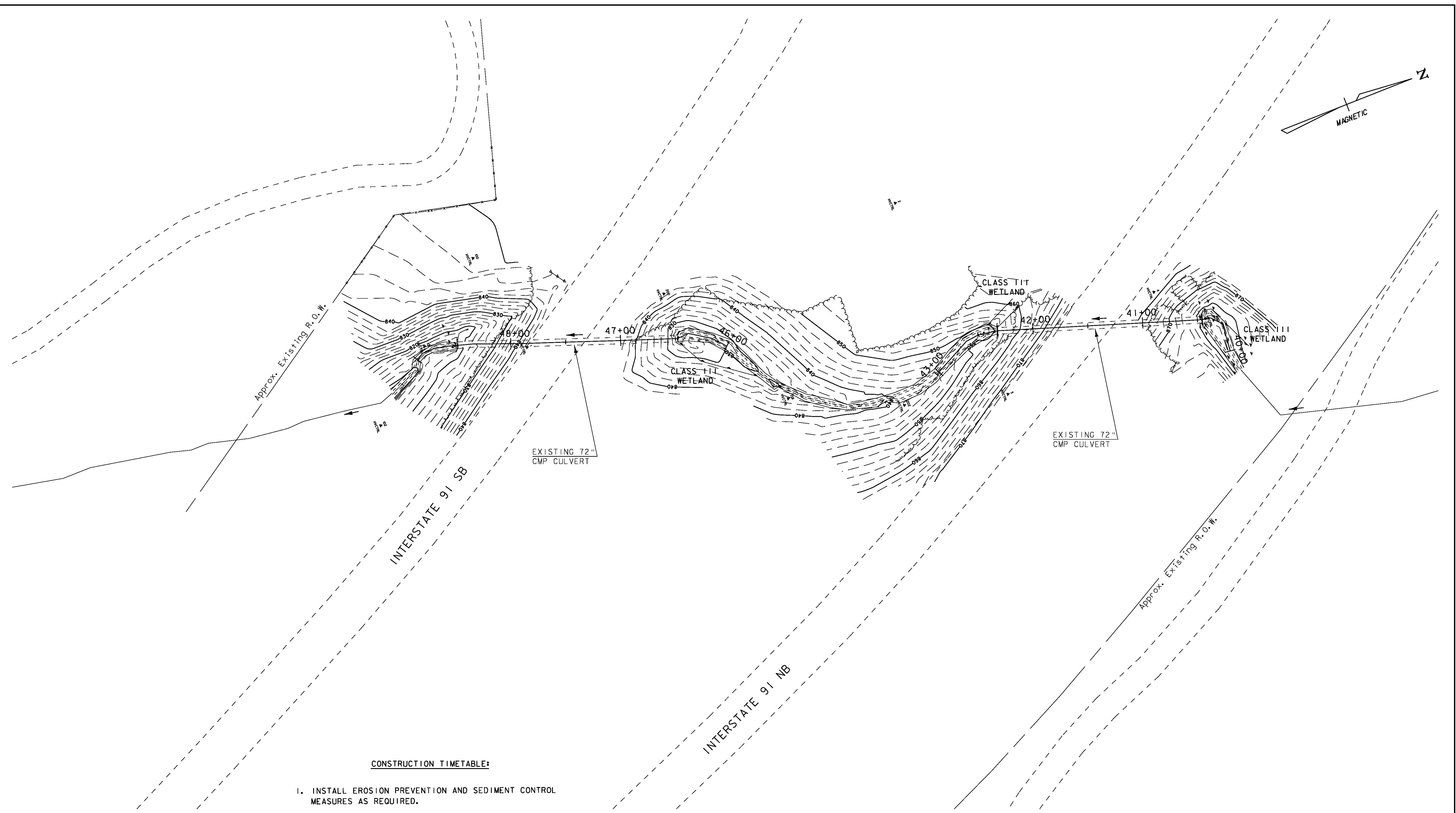
1.4.12. SITE INSPECTION  
TEMPORARY EROSION CONTROL MEASURES SHALL BE REGULARLY INSPECTED AND MAINTAINED FOR SEDIMENT BUILDUP. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT REACHES ONE-HALF THE HEIGHT OF THE CONTROL MEASURE. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE SUCH THAT IT WILL NOT BE SUBJECT TO EROSION.

PROJECT NAME: LYNDON - DERBY  
PROJECT NUMBER: IM CULV (19)

FILE NAME: z08a192ern0lin.dgn  
PROJECT LEADER: DMB  
DESIGNED BY: MHM  
EPSC NARRATIVE - LYNDON 96-2N&S

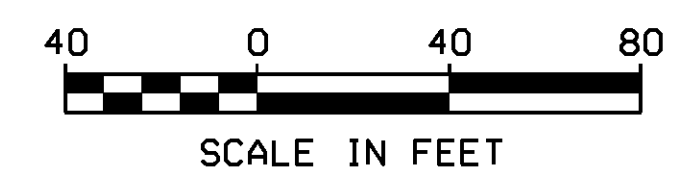
PLOT DATE: 24-AUG-2009  
DRAWN BY: MAL  
CHECKED BY: DMB  
SHEET 9 OF 28





**CONSTRUCTION TIMETABLE:**

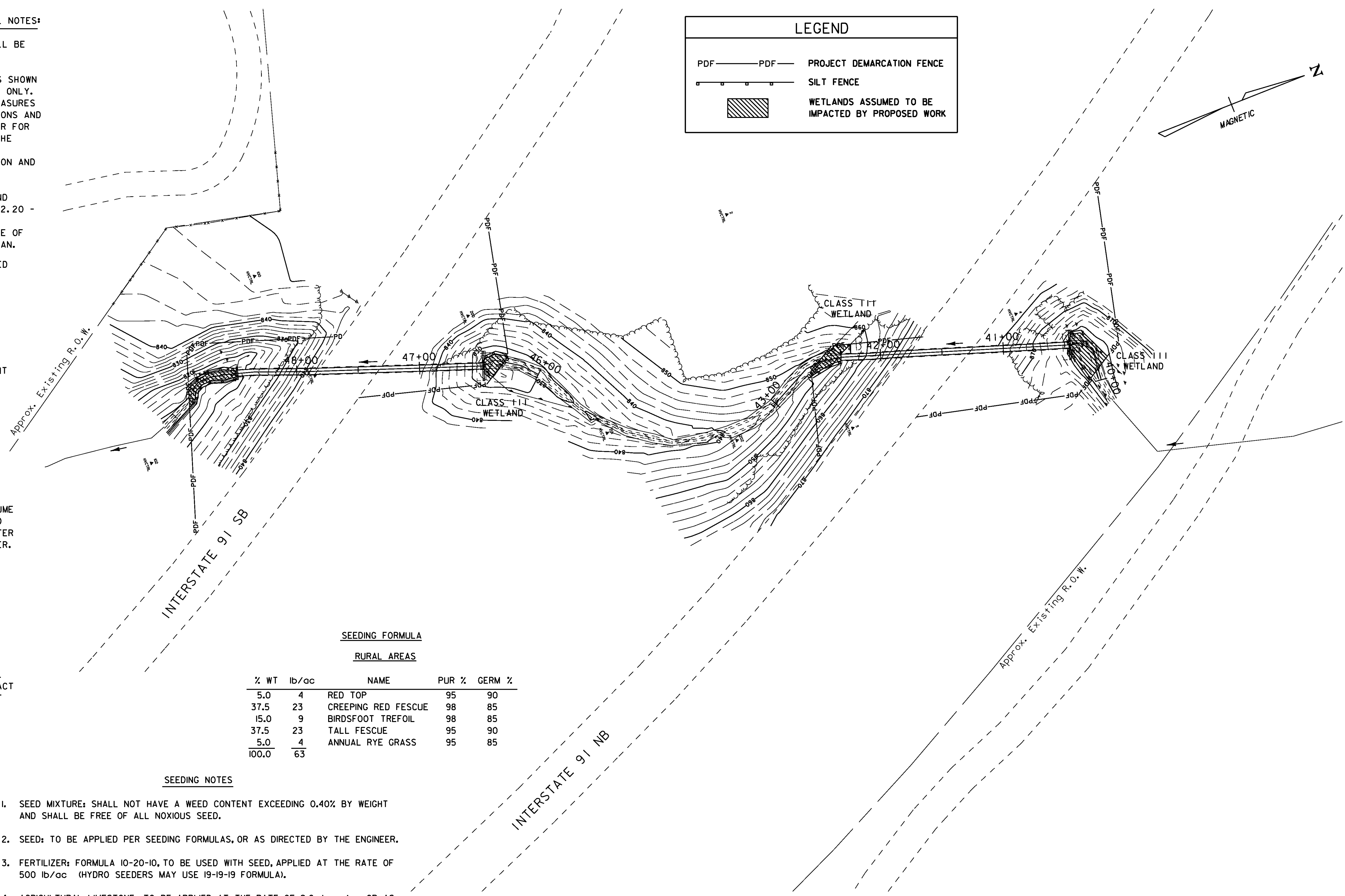
1. INSTALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES AS REQUIRED.
2. INSTALL CAAP LINER PIPE.
3. CONSTRUCT FULL BEVELED HEADWALL AT CULVERT INLETS AND PIPE CRADLE AT SOUTHERN CULVERT OUTLET.
4. STABILIZED ALL DISTURBED AREAS



PROJECT NAME: LYNDON - DERBY	
PROJECT NUMBER: IM CULV (19)	
FILE NAME: z08a192ec01ln.dgn	PLOT DATE: 24-AUG-2009
PROJECT LEADER: DMB	DRAWN BY: MAL
DESIGNED BY: MHM	CHECKED BY: DMB
EXISTING CONDITIONS - LYNDON 96-2N&S	SHEET 10 OF 28

**GENERAL EROSION PREVENTION & SEDIMENT CONTROL NOTES:**

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE.
2. THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE BASED UPON EXISTING FIELD CONDITIONS AND SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL. PAYMENT FOR THE DEVELOPMENT OF THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE INCLUDED IN ITEM 652.10 - EROSION PREVENTION AND SEDIMENT CONTROL PLAN.
3. MONITORING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE PER ITEM 652.20 - MONITORING EROSION PREVENTION AND SEDIMENT CONTROL PLAN, AND ITEM 652.30 - MAINTENANCE OF EROSION PREVENTION AND SEDIMENT CONTROL PLAN.
4. FOR CLARITY, AREAS TO BE SEEDED AND MULCHED HAVE NOT BEEN SHOWN. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
5. THE LOCATION OF ANY WASTE OR BORROW AREAS AND HAUL ROADS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
6. CONSTRUCTION ENTRANCES AND EXITS HAVE NOT BEEN SHOWN. CONSTRUCTION ENTRANCE TREATMENT SHALL BE PLACED AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES WILL LEAVE THE CONSTRUCTION DISTURBED AREA AND ENTER A PUBLIC ROADWAY.
7. SEE SEEDING FORMULA AND SEEDING NOTES FOR TURF REESTABLISHMENT REQUIREMENTS.
8. STREAM DIVERSION IS REQUIRED DURING THE GROUT PLACEMENT OPERATIONS AND DURING THE CONSTRUCTION OF THE HEADWALLS AND CRADLE WALLS. THE IMPACTS SHOWN ON THIS PLAN ASSUME THAT STREAM DIVERSION WILL BE ACCOMPLISHED THROUGH THE USE OF SAND BAGS TO DIVERT WATER INTO A SMALLER PIPE INSERTED INTO THE LINER.
9. CLEARING AND RESTORATION OF TURF TO RE-ESTABLISH DISTURBED SOIL CAUSED BY THE CONTRACTOR'S ACCESS ROAD AND STAGING AREA WILL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)".
10. CLEARING AND RESTORATION OF TURF TO RE-ESTABLISH DISTURBED SOIL WITHIN THE PAYMENT LIMITS OF HEADWALL AND CRADLE WALL CONSTRUCTION WILL BE PAID FOR UNDER CONTRACT ITEMS. RESTORATION OF TURF OUTSIDE PAYMENT LIMITS OF HEADWALL AND CRADLE WALL CONSTRUCTION SHALL BE INCLUDED IN ITEM 900.645 - SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)



**SEEDING FORMULA**

**RURAL AREAS**

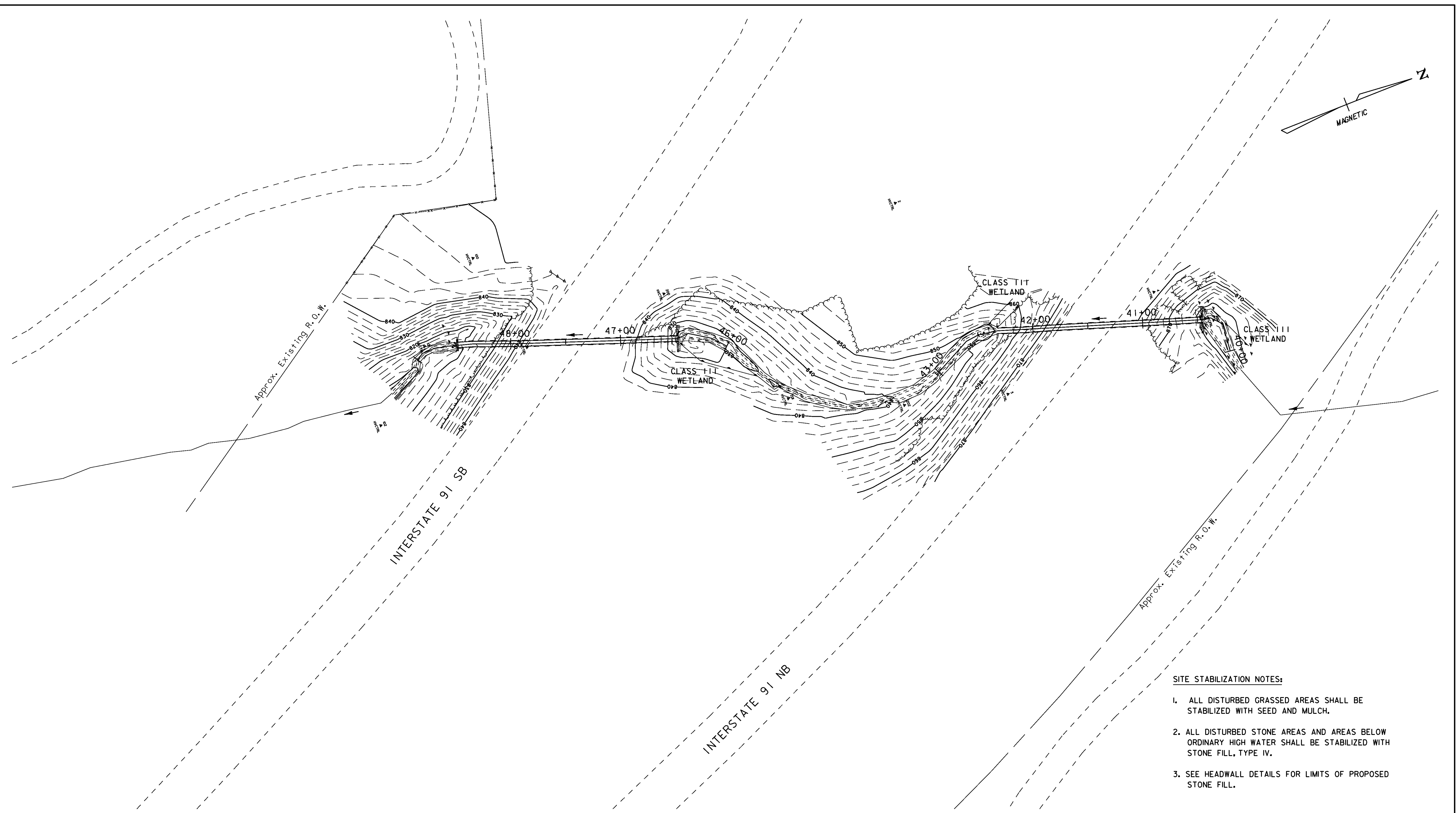
% WT	lb/ac	NAME	PUR %	GERM %
5.0	4	RED TOP	95	90
37.5	23	CREEPING RED FESCUE	98	85
15.0	9	BIRDSFOOT TREFLOIL	98	85
37.5	23	TALL FESCUE	95	90
5.0	4	ANNUAL RYE GRASS	95	85
100.0	63			

**SEEDING NOTES**

1. SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
2. SEED: TO BE APPLIED PER SEEDING FORMULAS, OR AS DIRECTED BY THE ENGINEER.
3. FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 lb/ac (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
4. AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2.0 tons/ac, OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2.0 tons/ac, OR AS DIRECTED BY THE ENGINEER.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

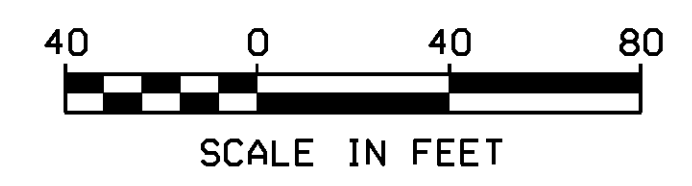


PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: MAL
FILE NAME: z08a192epsc01n.dgn	DESIGNED BY: MHM
PROJECT LEADER: DMB	CHECKED BY: DMB
EPSC PLAN - LYNDON 96-2N&S	SHEET II OF 28

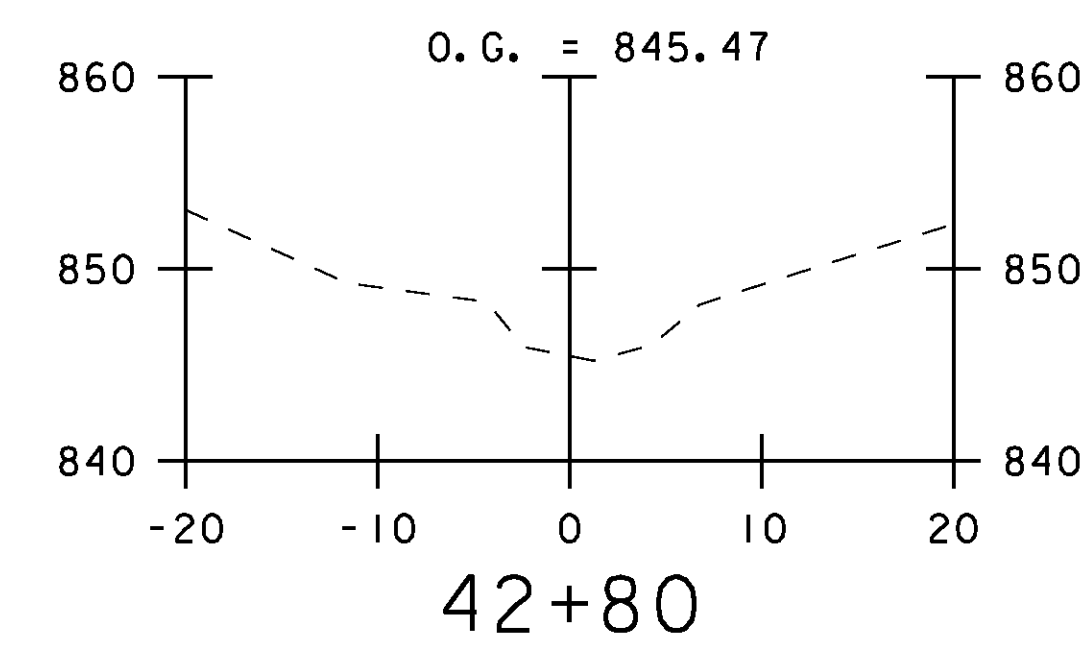
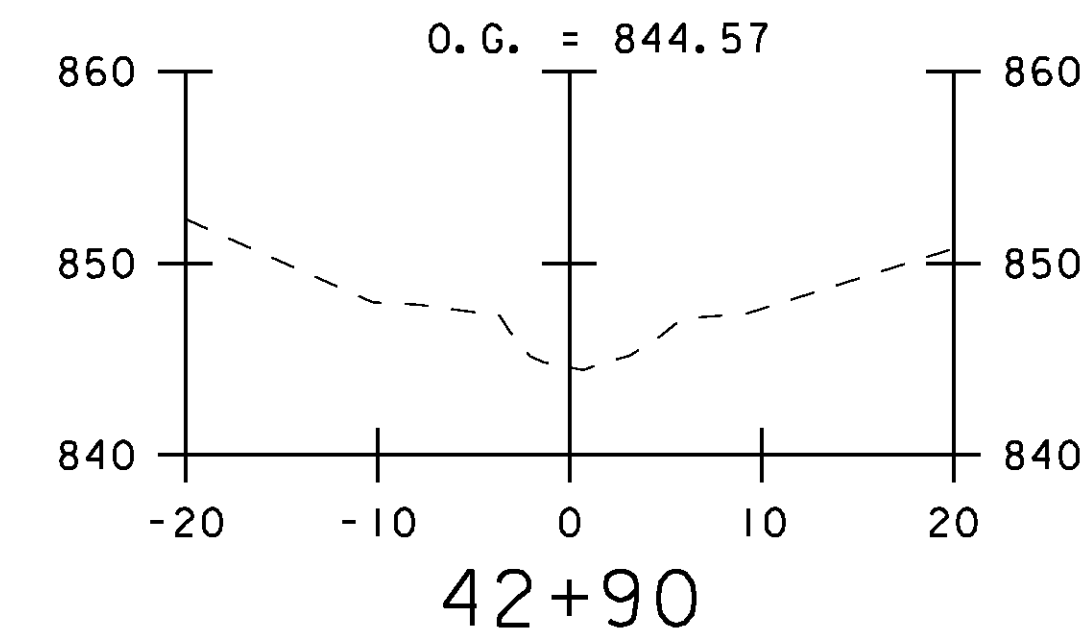
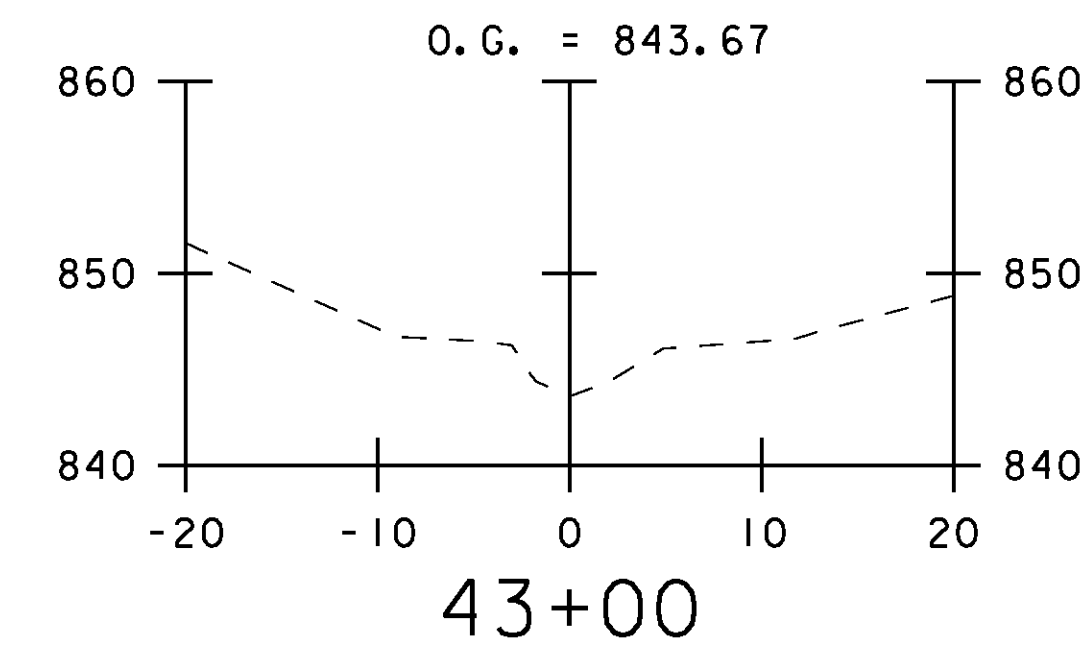
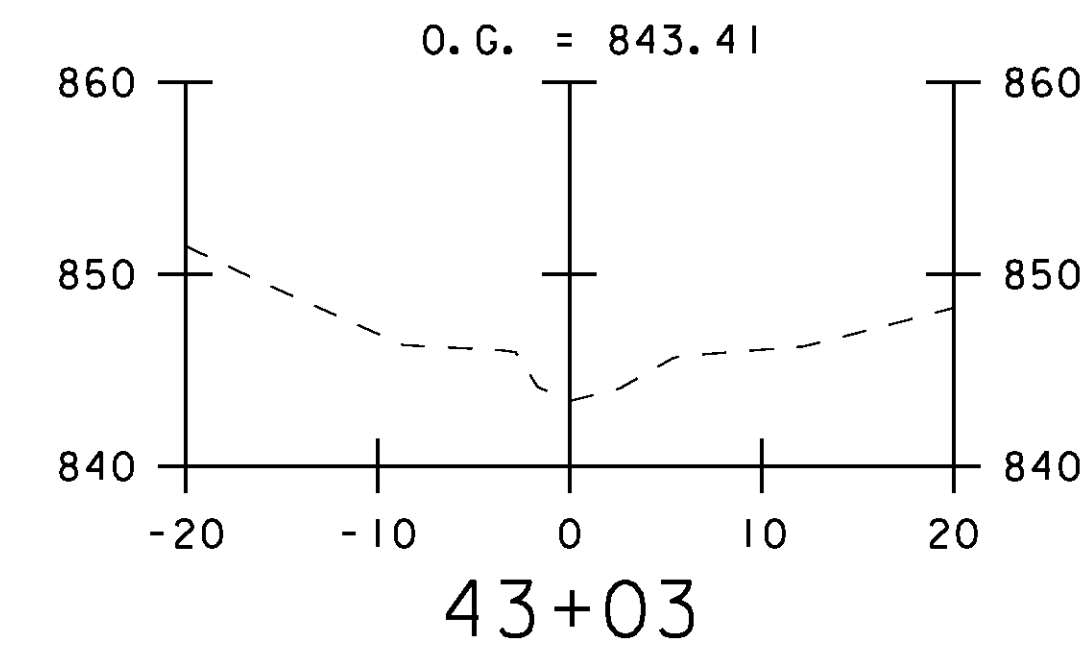
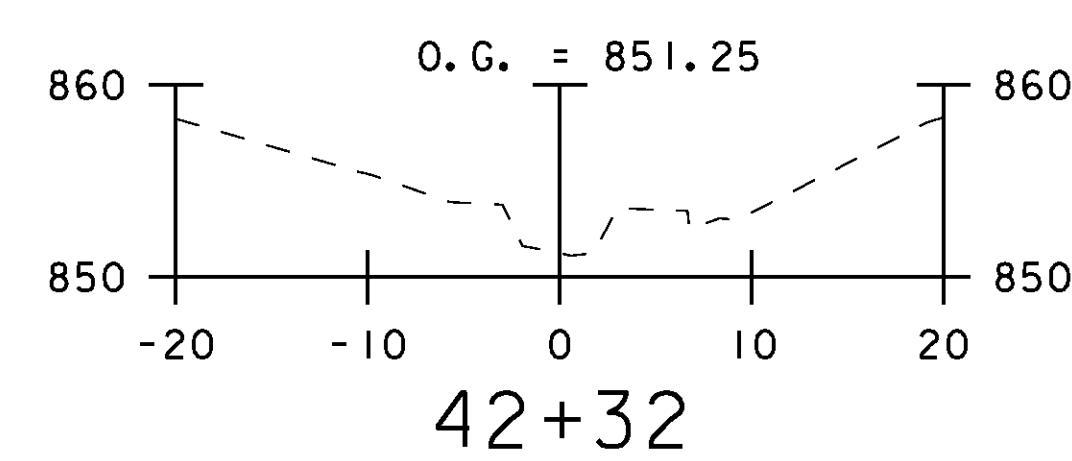
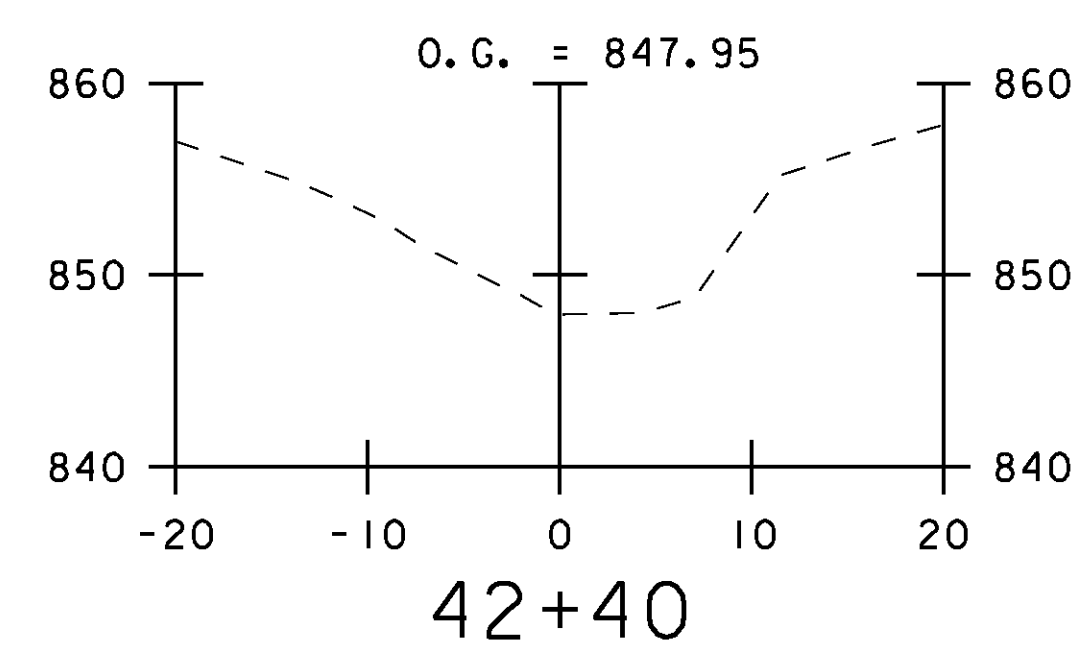
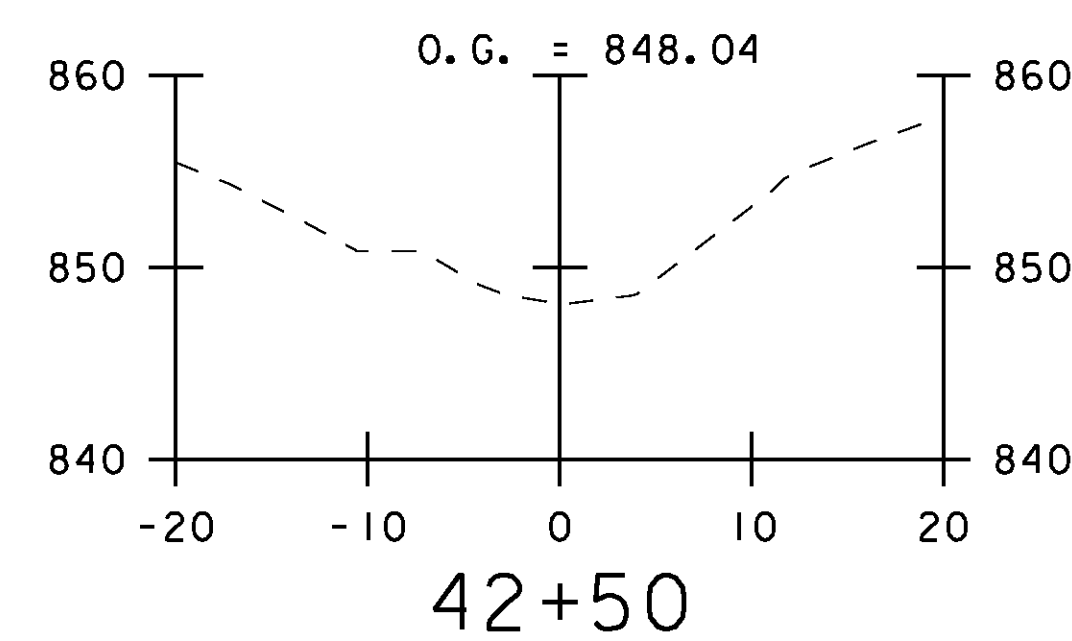
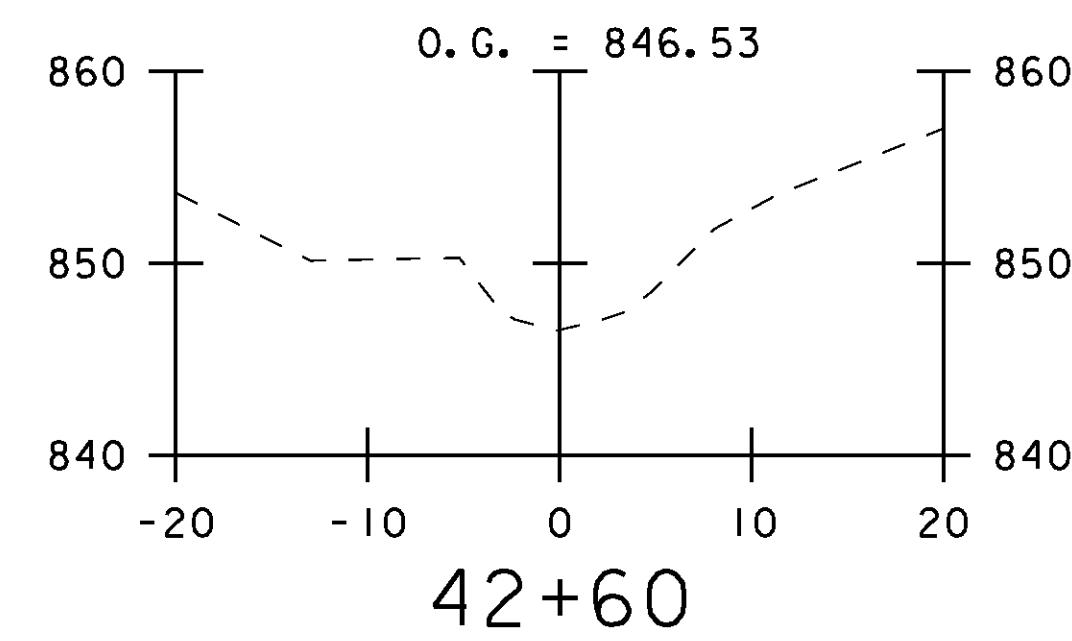
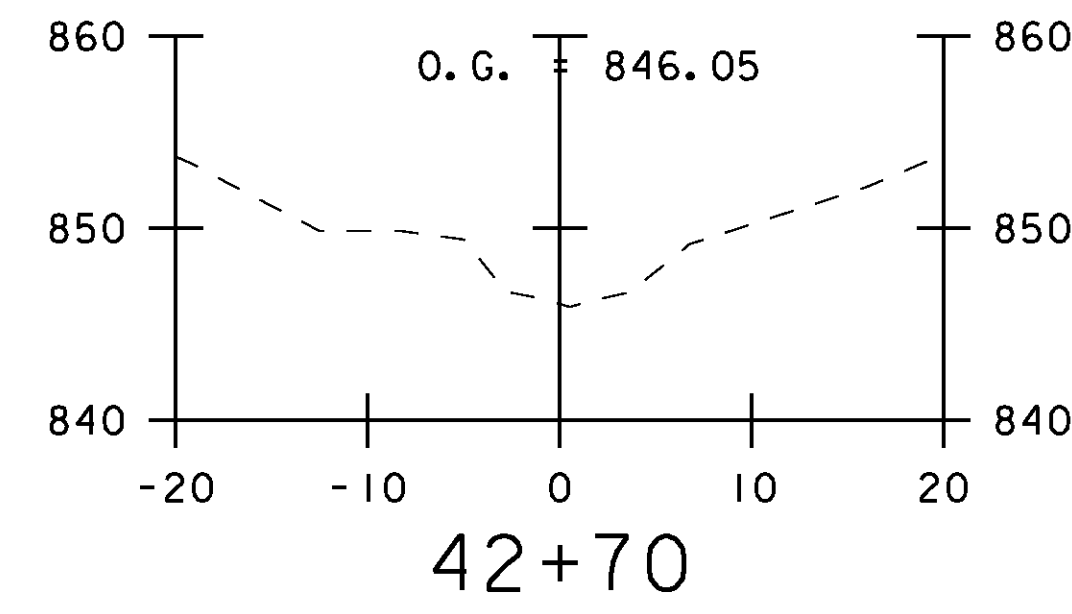
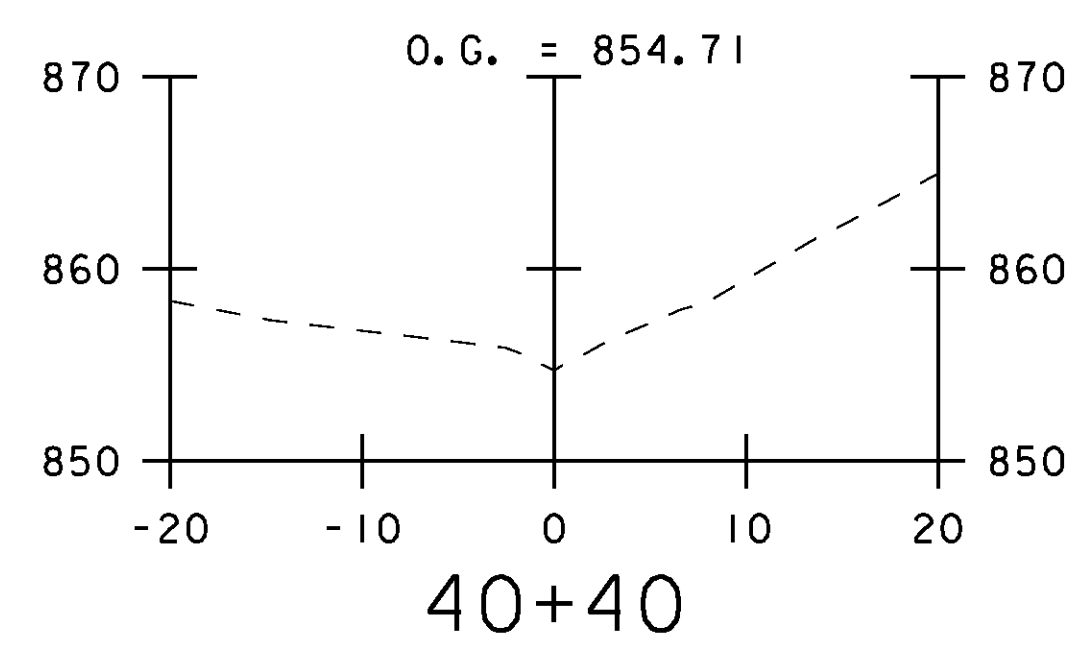
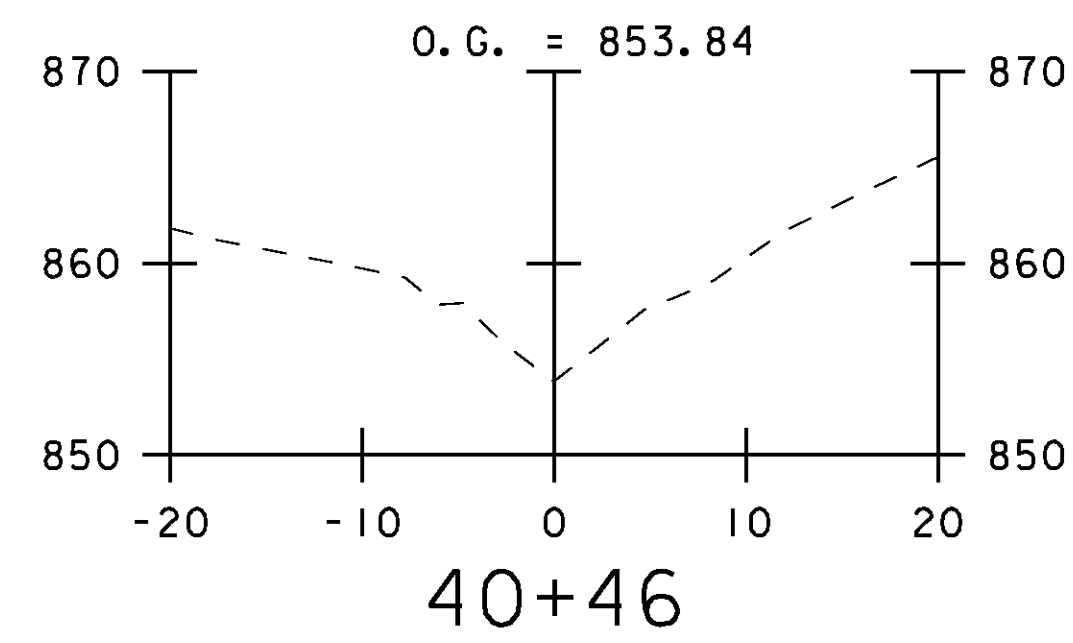
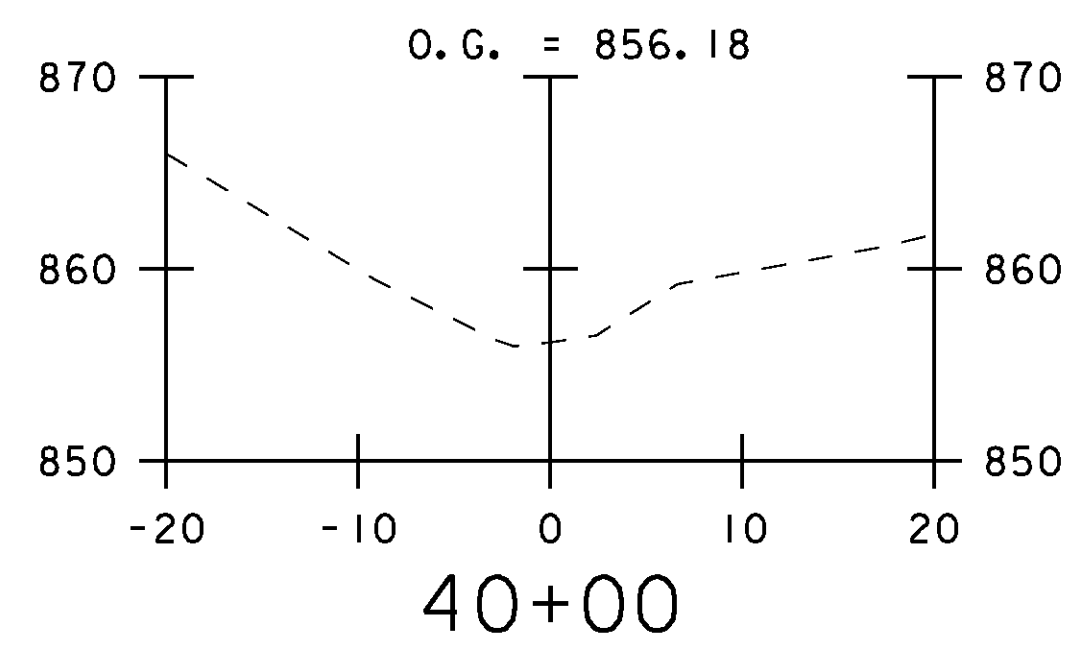
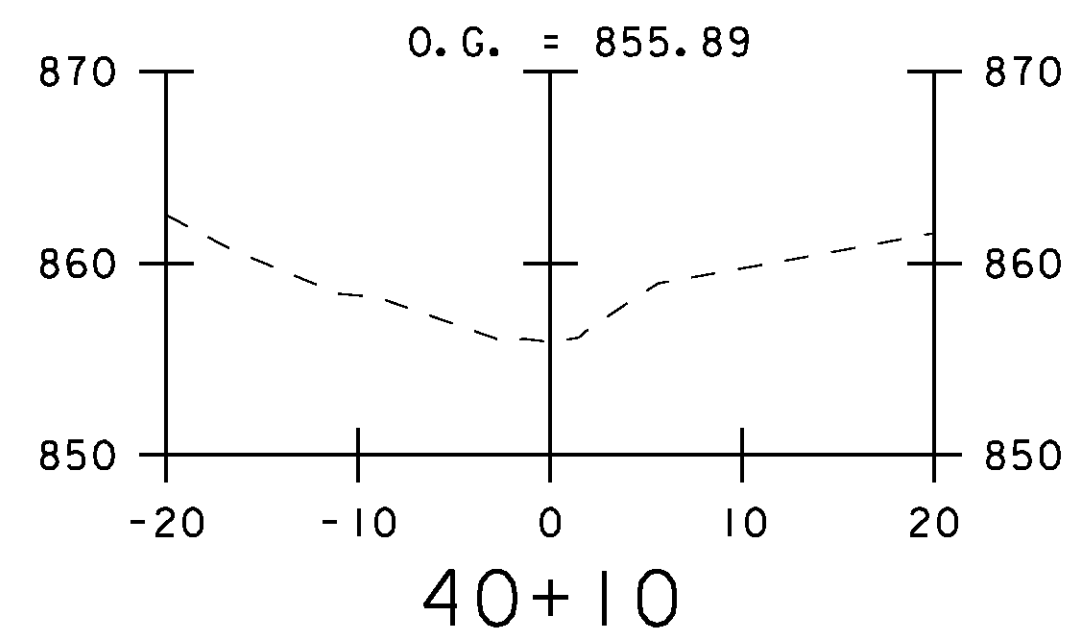
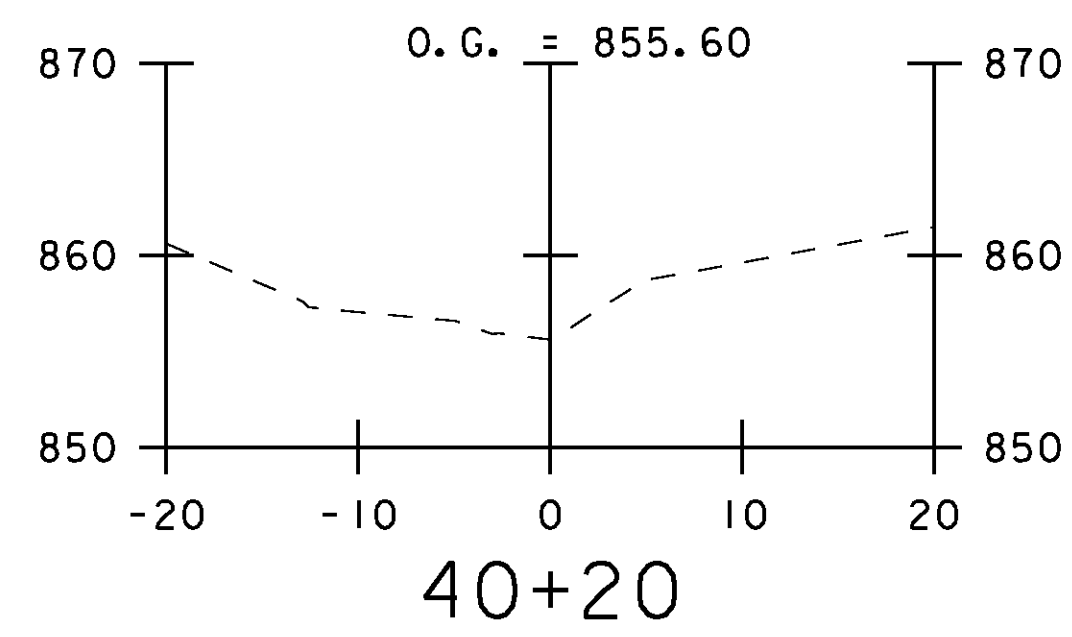
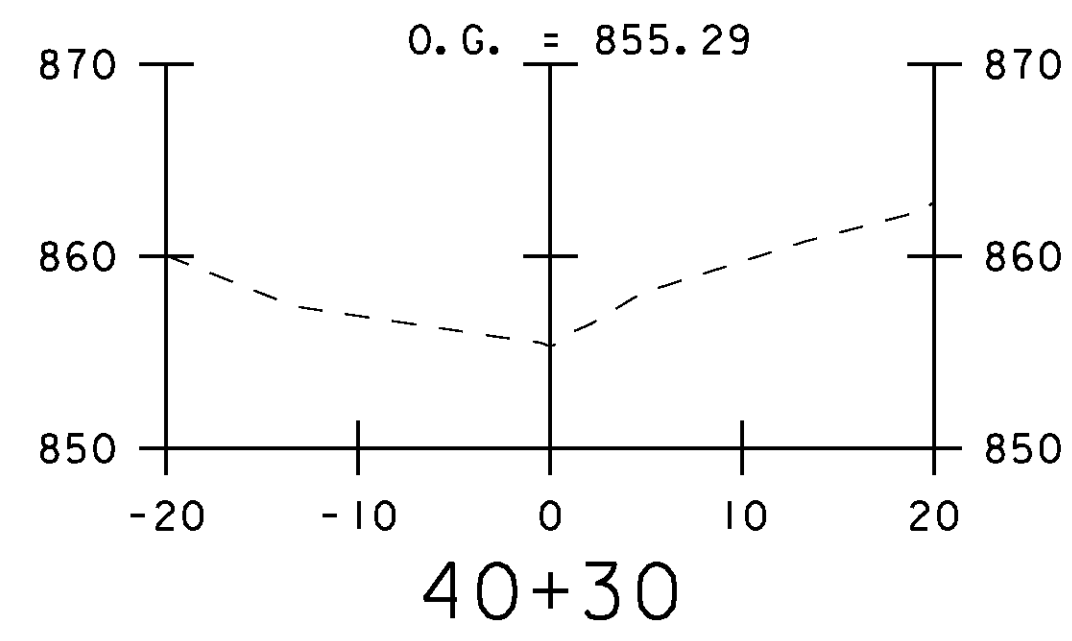


**SITE STABILIZATION NOTES:**

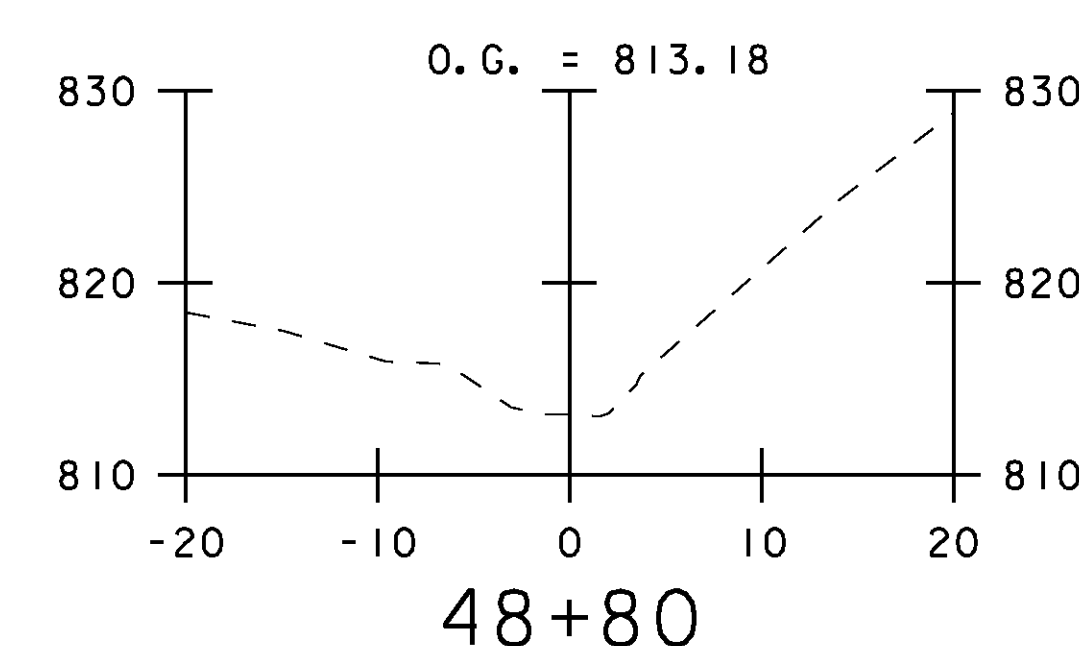
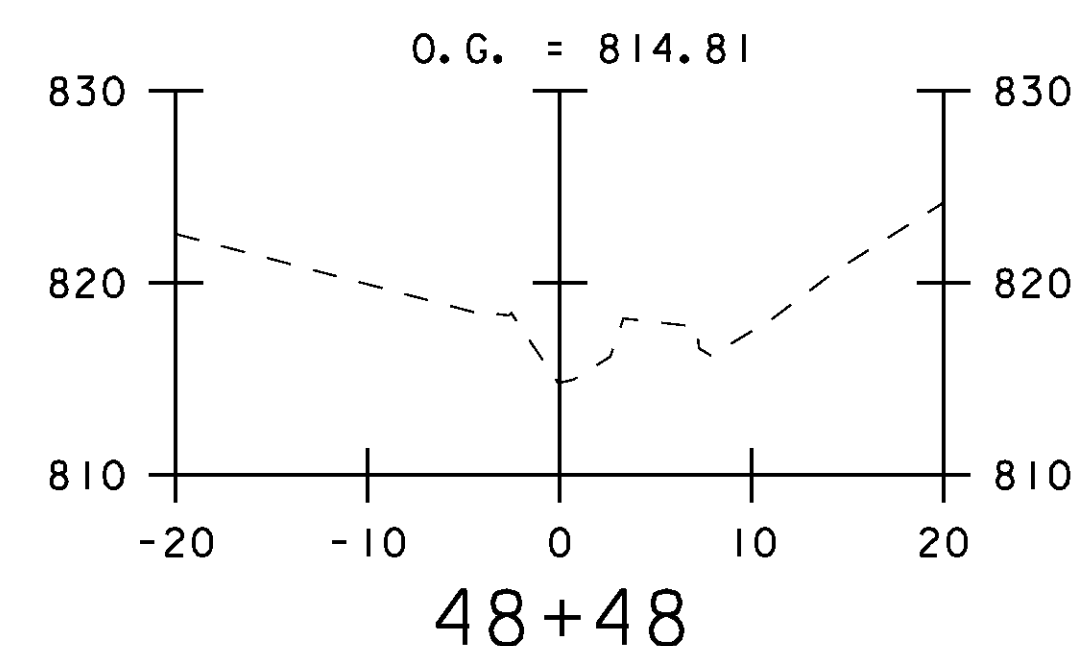
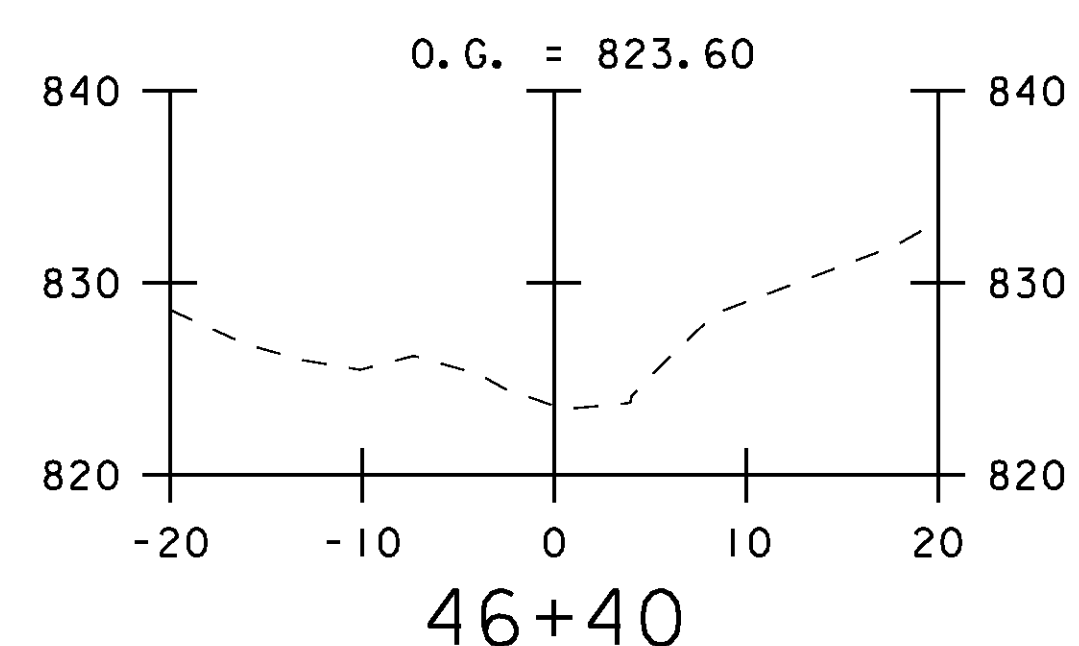
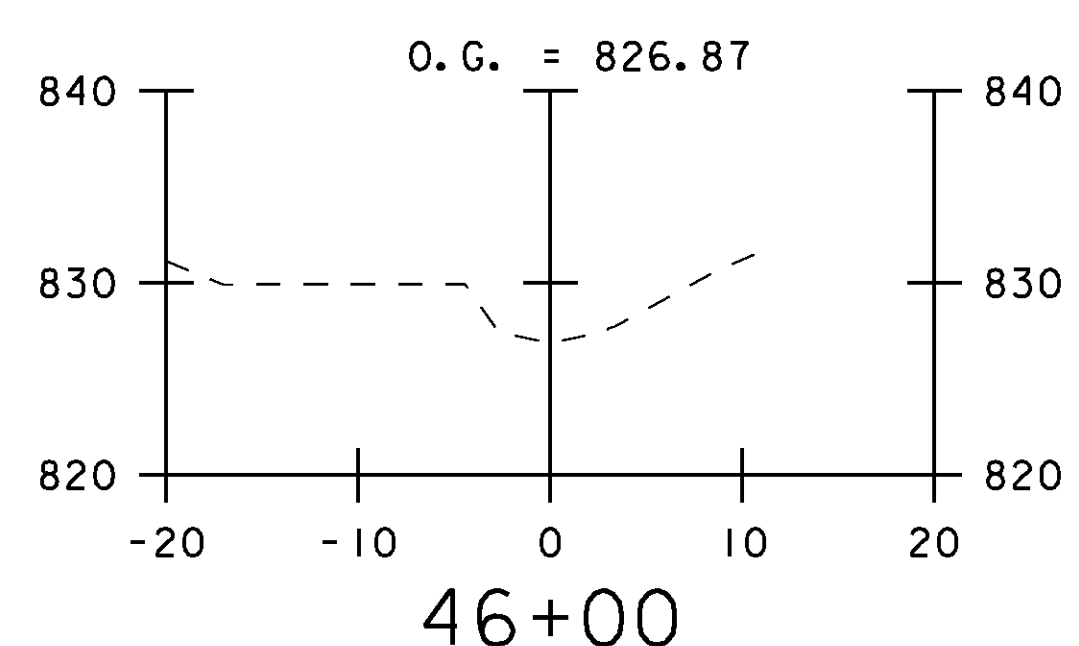
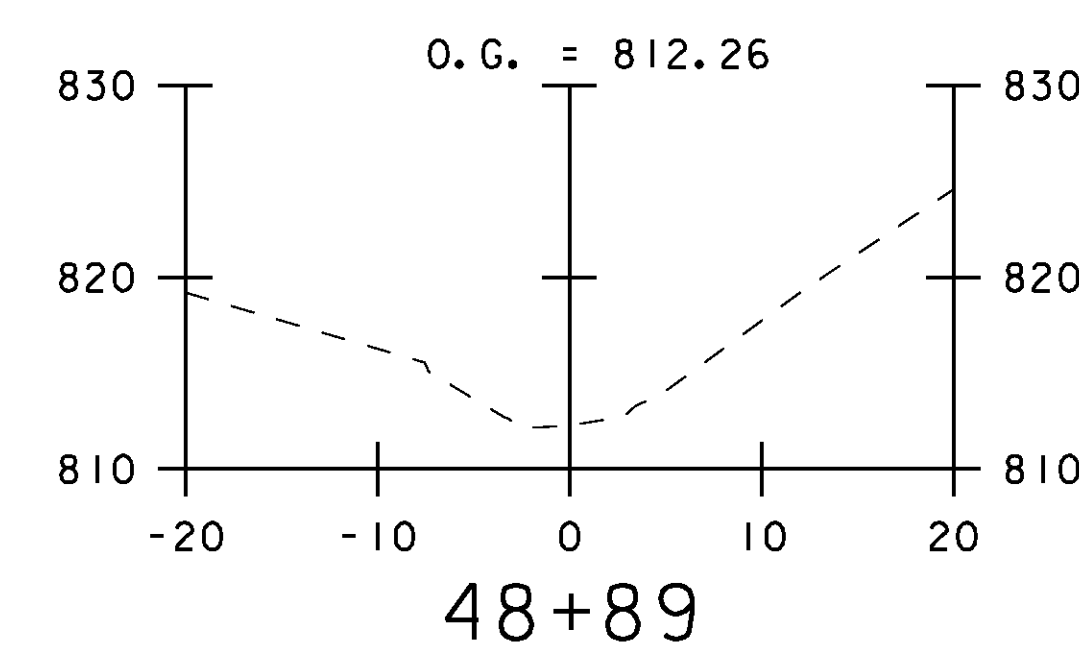
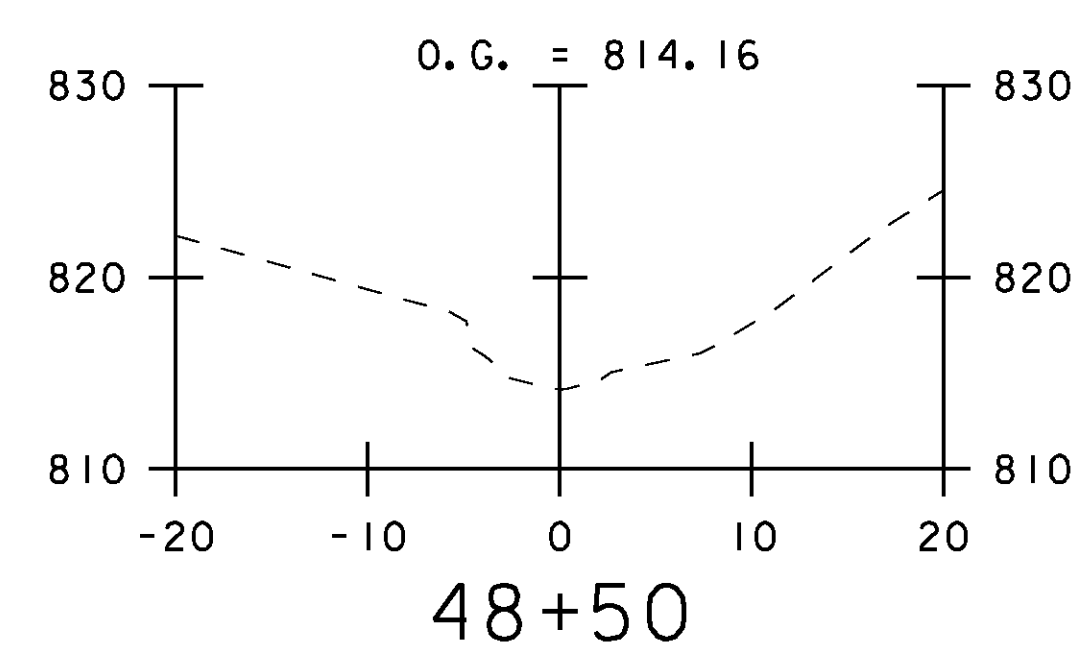
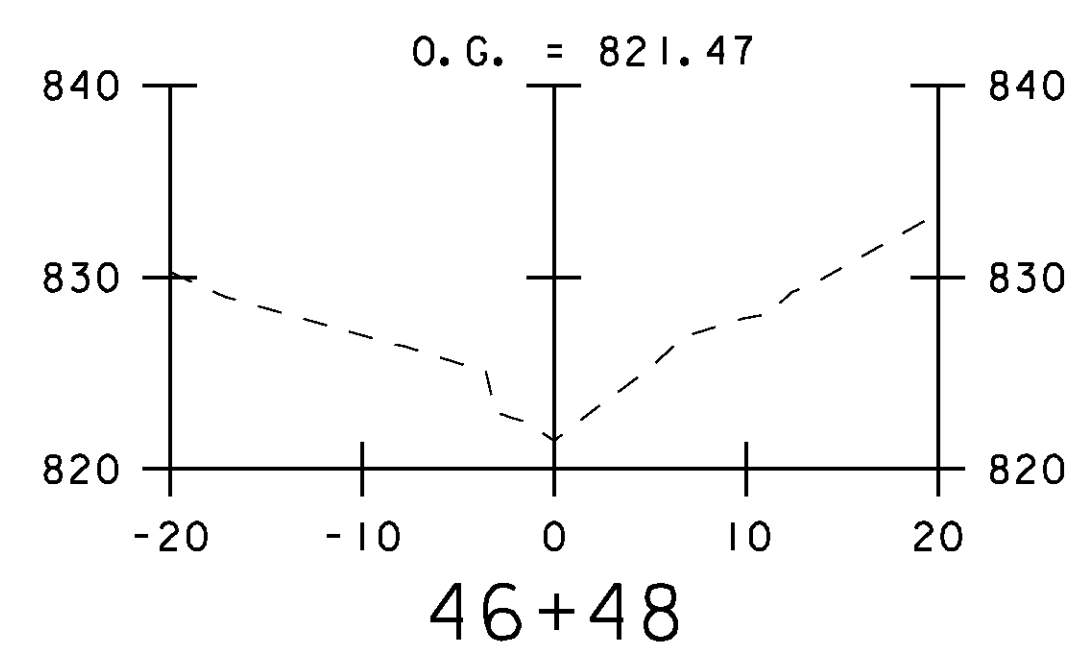
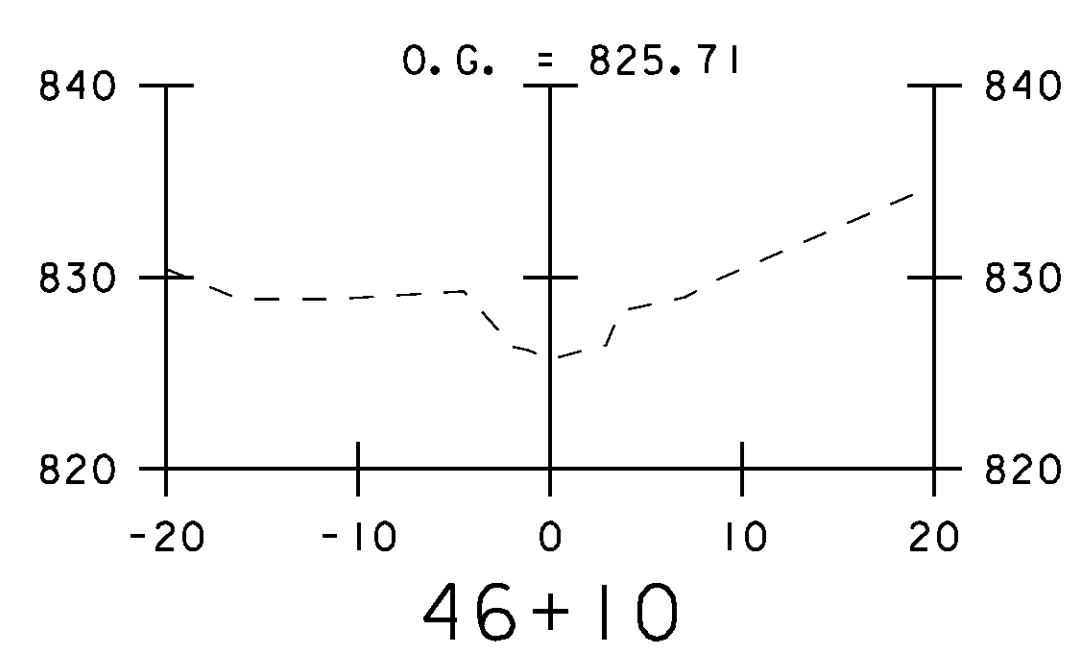
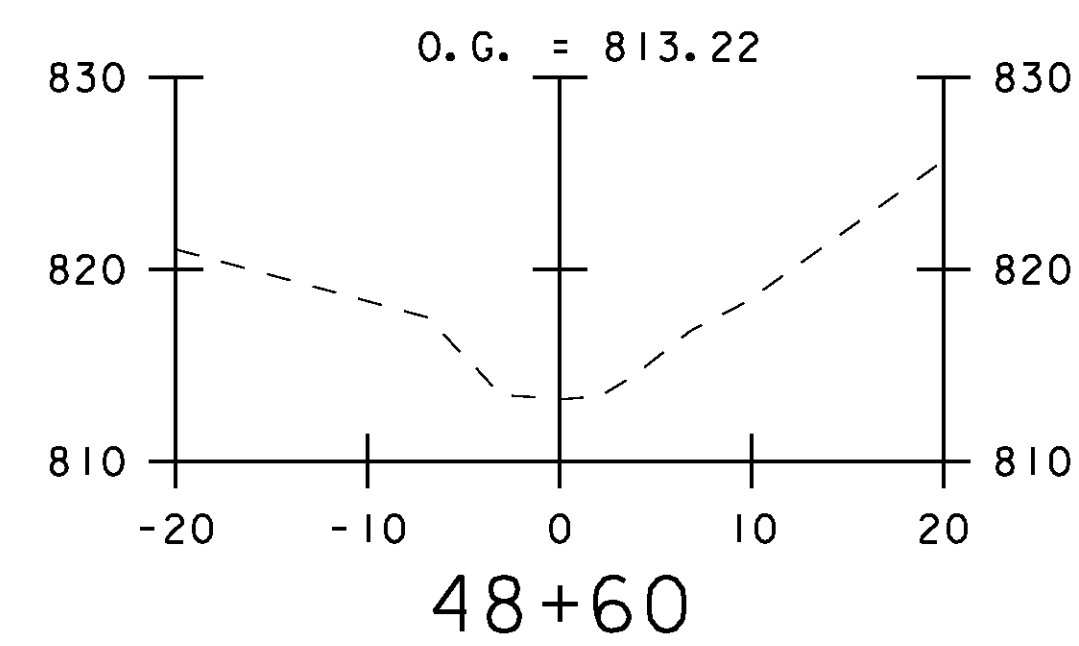
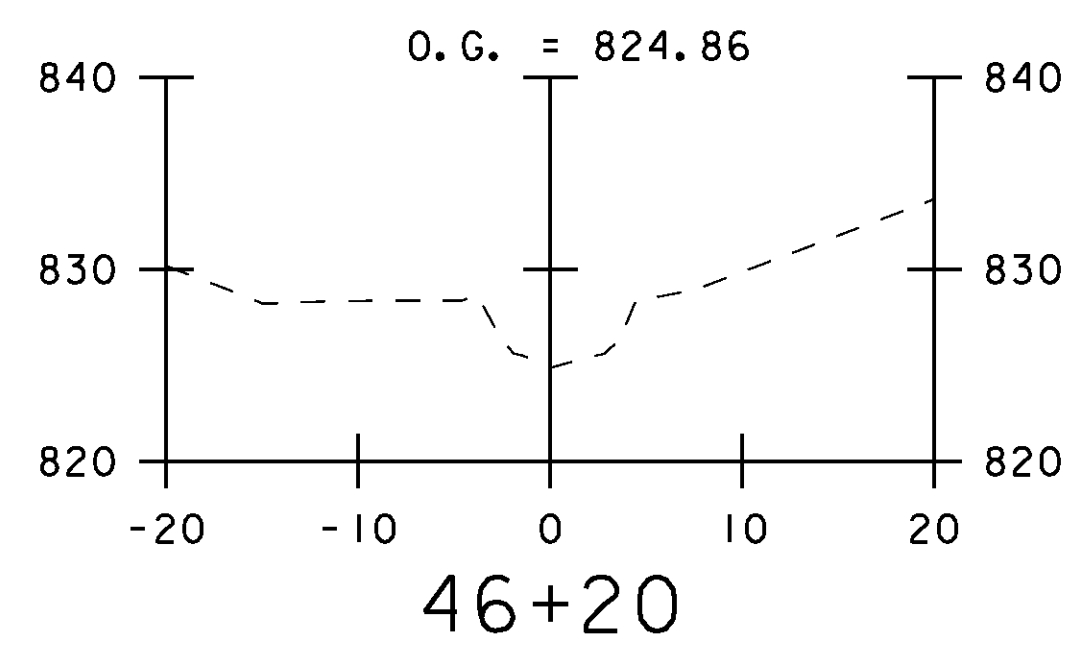
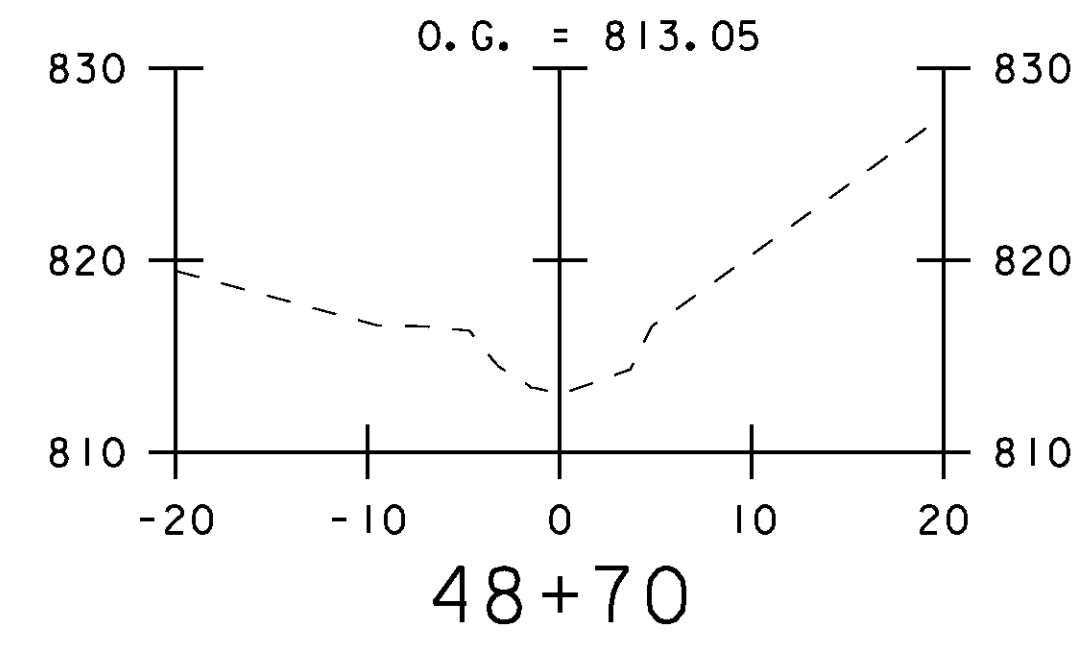
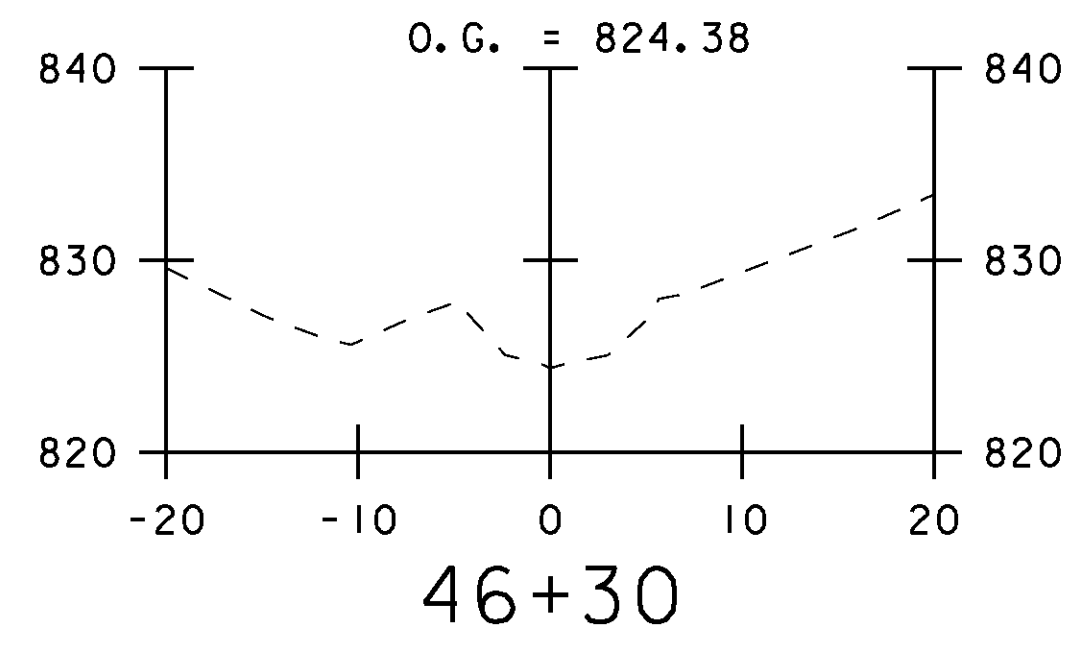
1. ALL DISTURBED GRASSED AREAS SHALL BE STABILIZED WITH SEED AND MULCH.
2. ALL DISTURBED STONE AREAS AND AREAS BELOW ORDINARY HIGH WATER SHALL BE STABILIZED WITH STONE FILL, TYPE IV.
3. SEE HEADWALL DETAILS FOR LIMITS OF PROPOSED STONE FILL.



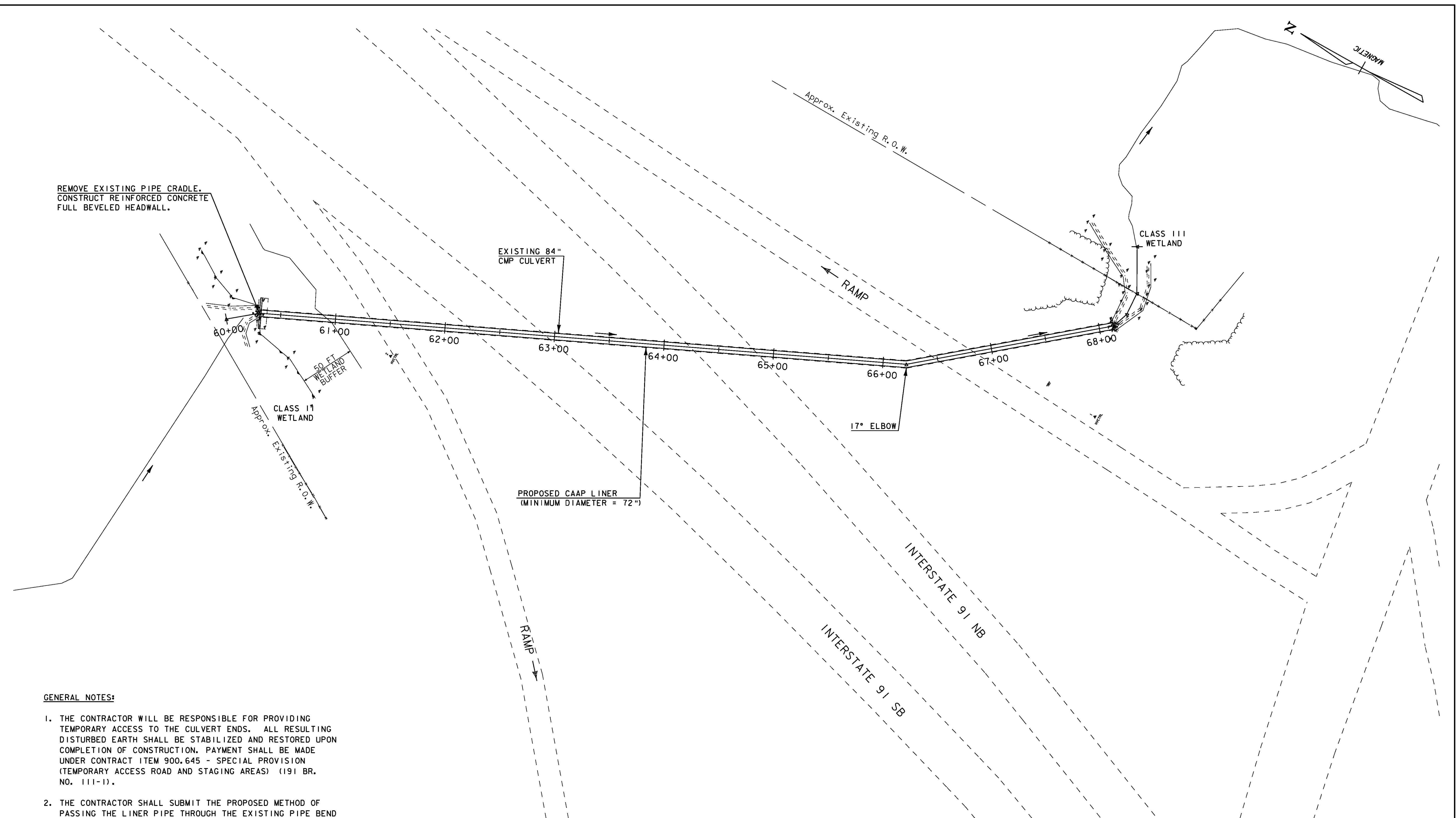
PROJECT NAME: LYNDON - DERBY	
PROJECT NUMBER: IM CULV (19)	
FILE NAME: z08a192fc01ln.dgn	PLOT DATE: 24-AUG-2009
PROJECT LEADER: DMB	DRAWN BY: MAL
DESIGNED BY: MHM	CHECKED BY: DMB
FINAL CONDITIONS - LYNDON 96-2N&S	SHEET 12 OF 28



PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: RPH
FILE NAME: z08a192xs01ln.dgn	CHECKED BY: DMB
PROJECT LEADER: DMB	SHEET 13 OF 28
DESIGNED BY: RPH	
CROSS SECTION - LYNDON 96-2N	



PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: RPH
FILE NAME: z08a192xs02in.dgn	CHECKED BY: DMB
PROJECT LEADER: DMB	SHEET 14 OF 28
DESIGNED BY: RPH	
CROSS SECTION - LYNDON 96-2S	



REMOVE EXISTING PIPE CRADLE.  
CONSTRUCT REINFORCED CONCRETE  
FULL BEVELED HEADWALL.

EXISTING 84"  
CMP CULVERT

CLASS III  
WETLAND

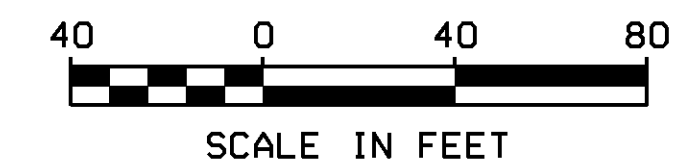
CLASS I  
WETLAND

PROPOSED CAAP LINER  
(MINIMUM DIAMETER = 72")

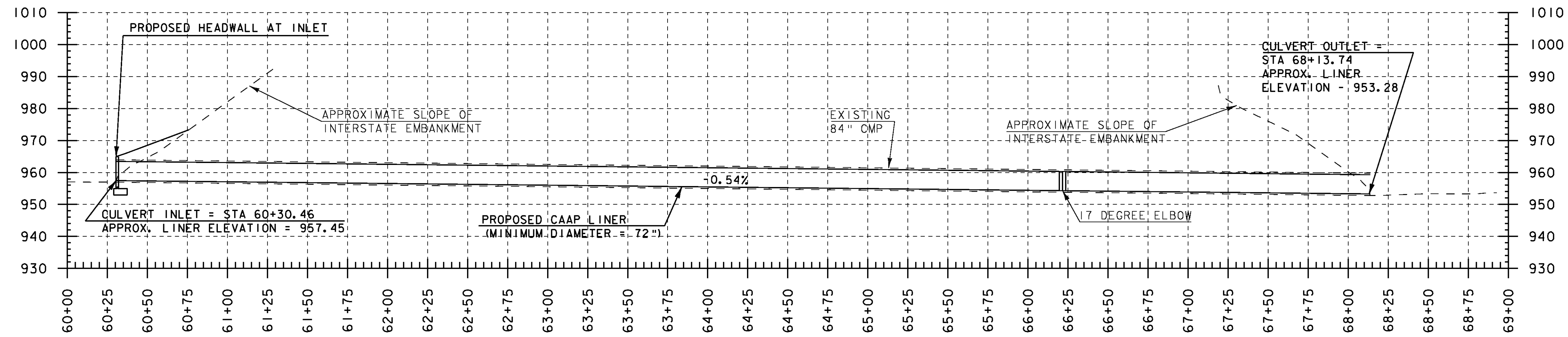
INTERSTATE 91 NB  
INTERSTATE 91 SB

**GENERAL NOTES:**

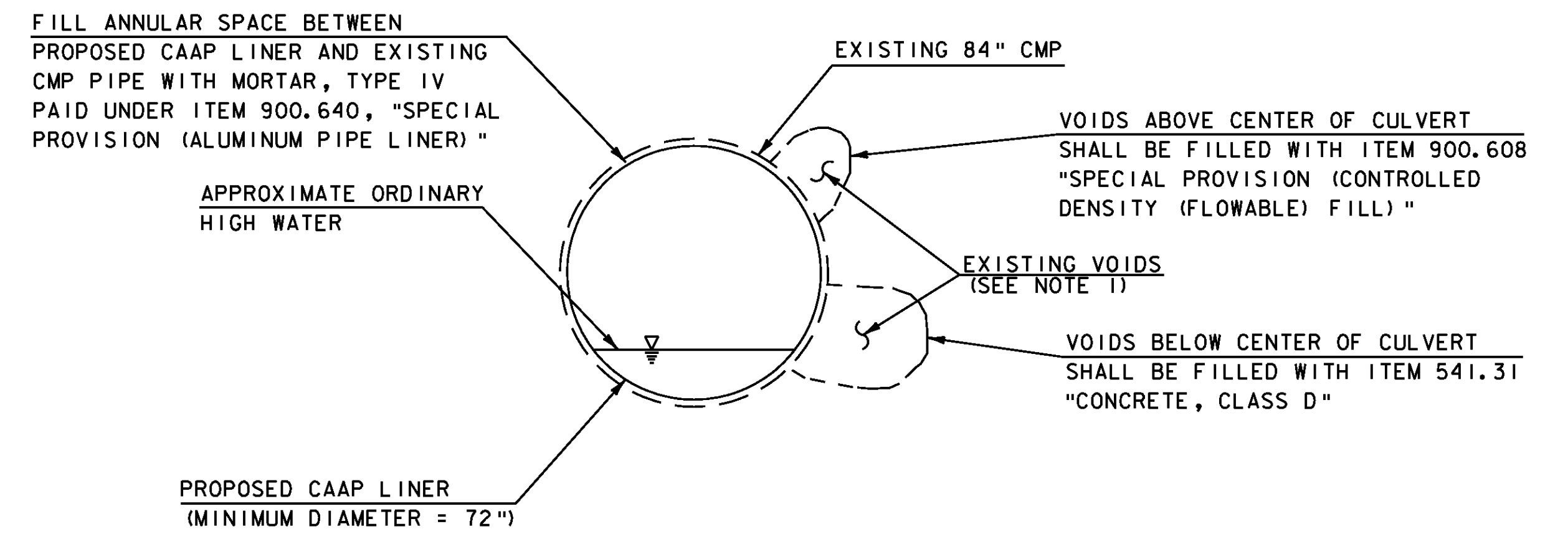
1. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO THE CULVERT ENDS. ALL RESULTING DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.645 - SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS) (191 BR. NO. 111-1).
2. THE CONTRACTOR SHALL SUBMIT THE PROPOSED METHOD OF PASSING THE LINER PIPE THROUGH THE EXISTING PIPE BEND TO THE ENGINEER FOR APPROVAL.



PROJECT NAME: LYNDON - DERBY	
PROJECT NUMBER: IM CULV (19)	
FILE NAME: z08a1921a03dy.dgn	PLOT DATE: 24-AUG-2009
PROJECT LEADER: DMB	DRAWN BY: MAL
DESIGNED BY: MHM	CHECKED BY: DMB
LAYOUT PLAN - DERBY III-1	SHEET 15 OF 28



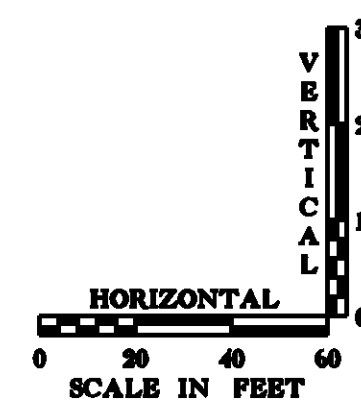
DERBY BRIDGE NO. III-1  
CULVERT CENTERLINE PROFILE



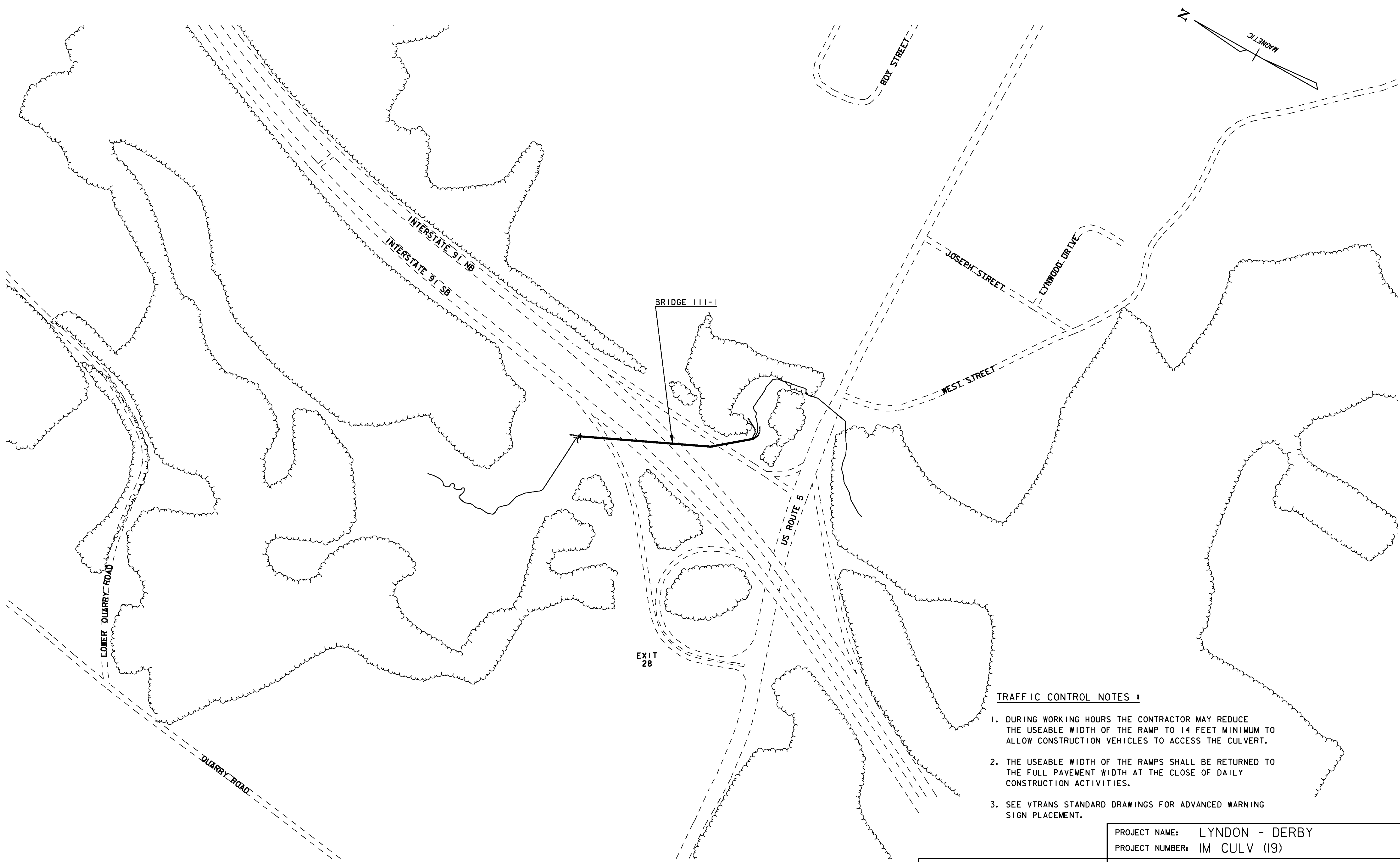
DERBY BRIDGE NO. III-1  
CULVERT LINING DETAIL  
NOT TO SCALE

PROJECT NOTES

- POTENTIAL VOID LOCATIONS SHOWN FOR EXPLANATION PURPOSES ONLY.



PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: MAL
FILE NAME: z08a192pro03dy.dgn	CHECKED BY: DMB
PROJECT LEADER: DMB	SHEET 16 OF 28
DESIGNED BY: MHM	
PROFILE SHEET - DERBY III-1	



BRIDGE III-1

EXIT 28

**TRAFFIC CONTROL NOTES :**

1. DURING WORKING HOURS THE CONTRACTOR MAY REDUCE THE USEABLE WIDTH OF THE RAMP TO 14 FEET MINIMUM TO ALLOW CONSTRUCTION VEHICLES TO ACCESS THE CULVERT.
2. THE USEABLE WIDTH OF THE RAMPS SHALL BE RETURNED TO THE FULL PAVEMENT WIDTH AT THE CLOSE OF DAILY CONSTRUCTION ACTIVITIES.
3. SEE VTRANS STANDARD DRAWINGS FOR ADVANCED WARNING SIGN PLACEMENT.



PROJECT NAME: LYNDON - DERBY	
PROJECT NUMBER: IM CULV (19)	
FILE NAME: z08a192+cp0ldy.dgn	PLOT DATE: 24-AUG-2009
PROJECT LEADER: DMB	DRAWN BY: MJF
DESIGNED BY: BRC	CHECKED BY: DMB
TRAFFIC CONTROL PLAN - DERBY III-1	SHEET 17 OF 28

# EROSION CONTROL NARRATIVE

## 1.1. PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REHABILITATION OF AN EXISTING 84-INCH CORRUGATED METAL CULVERT ON INTERSTATE 91 IN THE TOWN OF DERBY. THE CULVERT IS LOCATED NEAR MILE MARKER 172.565 ON THE INTERSTATE AND IS DESIGNATED AS STRUCTURE BR 111-1. THE 794 FT LONG CULVERT HAS APPROXIMATELY 35 FEET OF COVER AND CONVEYS STORMWATER FROM AN UNNAMED BROOK UNDER THE INTERSTATE. THE EXISTING CULVERT WILL BE SLIP-LINED WITH THE PROPOSED 72" CORRUGATED ALUMINUM ALLOY PIPE AS THE CULVERT IS BEYOND ITS DESIGN LIFE AND SHOWS SIGNS OF DETERIORATION AND STRUCTURAL DEFICIENCY. THE PROJECT ALSO INCLUDES THE CONSTRUCTION OF A NEW FULL BEVELED HEADWALL AT THE INLET OF THE CULVERT TO IMPROVE HYDRAULICS. THERE WILL BE NO IMPACT TO THE EXISTING ROADWAY. TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW, AND CONTRACTOR'S OFF-SITE STAGING AREAS) EQUALS 0.70 ACRES. THE TOTAL DISTURBED AREA INCLUDES THE ENTIRE AREA LOCATED WITHIN THE PROJECT DEMARCATION FENCING SHOWN.

IT IS ANTICIPATED THAT THIS WILL BE A SINGLE CONSTRUCTION SEASON PROJECT.

## 1.2. SITE INVENTORY

### OFF-SITE DRAINAGE CHARACTERISTICS:

THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED VEGETATION WITH MODERATE TO STEEP SLOPING TERRAIN. THE AREA IS PARTIALLY FORESTED WITH CLEARINGS AND CAN BE DESCRIBED AS HILLY TO MOUNTAINOUS WITH WELL DEFINED DRAINAGE WAYS. THERE IS A LARGE WETLAND DIRECTLY UPSTREAM OF THE CULVERT. DUE TO THE NATURE OF THE SURROUNDING TERRAIN, RUNOFF STORMWATER ENTERING THE PROJECT SITE WILL BE PRIMARILY LIMITED TO THAT WHICH IS CONVEYED WITHIN THE UNNAMED BROOK. THE ROADWAY EMBANKMENTS ARE GRASSED WITH WELL ESTABLISHED VEGETATION AND WERE CONSTRUCTED AT A 1:2 (VERTICAL: HORIZONTAL) SLOPE.

### 1.2.2. DRAINAGE, WATERWAYS, BODIES OF WATER:

THE UNNAMED BROOK IS LOCATED WITHIN THE PROJECT AREA. THE BROOK FLOWS WEST TO EAST BENEATH BOTH BARRELS OF INTERSTATE 91 AND TWO INTERSTATE RAMPS. THERE IS A LARGE WETLAND LOCATED UPSTREAM OF THE CULVERT. THERE ARE NO OTHER WATERWAYS OR BODIES OF WATER WITHIN THE PROJECT AREA. RUNOFF STORMWATER ENTERING THE PROJECT AREA WILL BE PRIMARILY LIMITED TO THAT WHICH IS CONVEYED VIA GRASSED ROADWAY DITCHES ALONG INTERSTATE 91.

### 1.2.3. TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

ON EITHER SIDE OF THE CULVERT THE TOPOGRAPHY OF THE SITE CONSISTS OF GRASSY INTERSTATE EMBANKMENTS WITH SOME LIGHT BRUSH AND GENERALLY FLAT TERRAIN AT THE BOTTOM OF THE EMBANKMENTS. THE ROADWAY EMBANKMENTS ARE CONSTRUCTED WITH APPROXIMATE 1:2 (VERTICAL: HORIZONTAL) SLOPES. THE PROJECT AREA DOES NOT ENCRONCH UPON ANY BUILDINGS.

### 1.2.4. VEGETATION:

THE VEGETATION WITHIN THE PROJECT AREA CONSISTS OF MOSTLY GRASS WITH SOME BRUSH ON BOTH SIDES OF THE INTERSTATE. THE INTERSTATE EMBANKMENTS ARE GRASSED WITH BRUSH ON EITHER SIDE. THE IMPACT TO THE VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY IMPACTED BY THE CULVERT SLIP-LINING OPERATIONS AND THE CONSTRUCTION OF THE PROPOSED HEADWALL. DISTURBED SOILS AND VEGETATION WILL BE REESTABLISHED USING STONE AND STANDARD SEED AND MULCH PRACTICES.

### 1.2.5. SOILS:

THE SOIL FOUND AT THE OUTLET SIDE OF THE PROJECT SITE IS PRIMARILY DUMMERSTON VERY FINE SANDY LOAM (CL), 8 TO 15 % SLOPES. THE DUMMERSTON SERIES IS A WELL DRAINED SOIL WITH AN ERODIBILITY FACTOR (K-VALUE) OF 0.32. THE SOIL FOUND AT THE INLET SIDE OF THE PROJECT SITE IS PRIMARILY BUCKLAND FINE SANDY LOAM (ML), 3 TO 8 % SLOPES. THE BUCKLAND SERIES IS A MODERATELY WELL DRAINED SOIL WITH AN ERODIBILITY FACTOR (K-VALUE) OF 0.32. THE ROADWAY EMBANKMENTS ARE MOST LIKELY A COMMON FILL MATERIAL THAT WAS PLACED DURING THE CONSTRUCTION OF THE INTERSTATE.

GENERALLY, K-VALUES INDICATE THE FOLLOWING:  
 0.23 AND LOWER - LOW ERODIBILITY  
 0.24 TO 0.36 - MODERATE ERODIBILITY  
 0.37 AND HIGHER - HIGH ERODIBILITY

## 1.2.6. SENSITIVE RESOURCE AREAS

NO THREATENED OR ENDANGERED SPECIES OR ARCHEOLOGICAL RESOURCES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND THERE WILL BE NO ADVERSE EFFECT TO AGRICULTURAL FEATURES. A CLASS II WETLAND IS LOCATED UPSTREAM AND A CLASS III WETLAND IS LOCATED DOWNSTREAM OF THE CULVERT. DISTURBANCE OF SOILS NEAR THE WATERWAY WILL CONSIST OF THAT WHICH IS NECESSARY TO CONSTRUCT THE PROPOSED HEADWALL AT THE INLET END OF THE EXISTING CULVERT AND IMPACTS NECESSARY FOR THE CULVERT SLIP-LINING OPERATIONS. PROJECT DEMARCATION FENCING (PDF) SHALL BE CONSTRUCTED ALONG THE PROJECT LIMITS TO PREVENT IMPACTS OUTSIDE THE PROJECT AREA.

## 1.3. RISK EVALUATION

SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING FOR THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

## 1.4. EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

COORDINATE THE INSTALLATION, USE, AND REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES WITH CONSTRUCTION ACTIVITIES TO ENSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION AND SEDIMENT CONTROL. EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS. THE CONTRACTOR SHALL USE ADDITIONAL EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION, FIELD CONDITIONS, AND AS DIRECTED BY THE ENGINEER OR ONSITE COORDINATOR. SEE SECTION 105.23 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006.

INSTALL EROSION AND SEDIMENT CONTROLS MEASURES AS SHOWN IN THE EROSION CONTROL PLAN OR AS DIRECTED BY THE ENGINEER OR ONSITE COORDINATOR. DO NOT MODIFY THE TYPE, SIZE, OR LOCATION OF ANY CONTROL OR PRACTICE WITHOUT APPROVAL OF THE ENGINEER OR ONSITE COORDINATOR. ANY CHANGES SHALL BE NOTED ON THE PLANS, IN THE WEEKLY INSPECTION REPORT, AND REPORTED TO THE APPROPRIATE AUTHORITY IN A TIMELY MANNER. INSPECT ALL CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT THAT PRODUCES RUNOFF FROM THE PROJECT SITE. REPAIR MEASURES PROMPTLY ONCE DAMAGE IS DISCOVERED.

PREVENTING SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS, OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD UP. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

1.4.1. MARK SITE BOUNDARIES  
 PROJECT DEMARCATION FENCE, DENOTED -PDF- IN THE PLANS, IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION. DISTURBANCE OUTSIDE THE LIMITS OF THE PROJECT DEMARCATION FENCE WILL REQUIRE ADDITIONAL PERMIT COVERAGE.

CONTROL ONLY SEDIMENT LADEN STORMWATER RUNOFF GENERATED BY THE PROJECT SITE. COLLECT AND ROUTE CLEAN STORMWATER AROUND THE PROJECT SITE WHENEVER POSSIBLE USING DIVERSION BERMS, CHANNELS, CULVERTS, OR TEMPORARY PIPES.

1.4.2. LIMIT DISTURBANCE AREA  
 CONTRACTOR SHALL LIMIT THE DISTURBANCE TO WITHIN THE IMPACT LINES SHOWN ON THE PLANS. CONTRACTOR SHALL NOT DISTURB ANY AREA OUTSIDE OF THE EXISTING RIGHT OF WAY.

DO NOT ALLOW CONSTRUCTION EQUIPMENT TO OPERATE OUTSIDE OF PERIMETER CONTROL MEASURES.

## 1.4.3. STABILIZE CONSTRUCTION EXIT

AT LOCATIONS WHERE CONSTRUCTION VEHICLES WILL BE ENTERING OR LEAVING THE CONSTRUCTION SITE/STAGING AREAS, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED TO LIMIT THE AMOUNT OF SEDIMENT THAT IS TRANSPORTED OFF OF THE SITE BY CONSTRUCTION VEHICLES. STONE WILL BE USED TO REMOVE SEDIMENT FROM THE TIRES OF CONSTRUCTION VEHICLES. IF SEDIMENT IS STILL BEING TRACKED ONTO PUBLIC ROADS, THE LENGTH OF THE PAD SHALL BE EXTENDED OR VEHICLES SHALL BE RINSED WITH A HOSE PRIOR TO LEAVING THE SITE.

## 1.4.4. INSTALL SILT FENCE

SILT FENCE WILL BE INSTALLED AT THE TOE OF FILL SLOPES TO PREVENT SEDIMENT TRANSPORT TO DOWN GRADIENT AREAS. EACH LINE OF SILT FENCE WILL BE PLACED ALONG THE CONTOUR WITH THE LOWER EDGE BURIED 6" TO PREVENT UNDERFLOW AND ENDS TURNED SLIGHTLY UP GRADE TO CREATE A PONDING EFFECT. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UPSLOPE EARTHWORK. SILT FENCE SHALL BE PLACED AS SHOWN ON THE EROSION CONTROL PLAN AND AS DIRECTED BY THE ENGINEER.

## 1.4.5. DIVERT UPLAND FLOW

THE EXISTING STREAM WILL BE DIVERTED AS DESCRIBED IN THE DEWATERING SECTION BELOW. NO OTHER UPLAND FLOW DIVERSION WILL BE REQUIRED.

## 1.4.6. SLOW DOWN CHANNELIZED RUNOFF

CHECK DAMS TO BE USED AS NECESSARY.

## 1.4.7. CONSTRUCT PERMANENT CONTROLS

ALL DISTURBED SOIL SHALL BE STABILIZED WITH SEED AND MULCH.

## 1.4.8. STABILIZE EXPOSED SOILS

SEEDING AND MULCHING SHALL BE UTILIZED TO STABILIZE SOIL. SOIL SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE AND/OR DURING INTERMITTENT PHASES OF CONSTRUCTION. MULCHING WILL BE UTILIZED ON A REGULAR BASIS. ANY SOIL TO BE EXPOSED FOR SEVERAL DAYS PRIOR TO FINAL GRADING SHALL BE MULCHED. SOIL SHALL BE STABILIZED WITHIN 48 HOURS PRIOR TO FORECASTED RAIN. THEREFORE, STABILIZE ALL DISTURBED AREAS PROMPTLY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY VEGETATION SHALL BE ESTABLISHED IF THE AREA IS TO BE WITHOUT CONSTRUCTION ACTIVITY FOR A PERIOD OF 14 DAYS. PERIMETER CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. INSTALL OTHER TEMPORARY CONTROLS IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS.

## 1.4.9. WINTER STABILIZATION

THE NON-WINTER EPSC SEASON SHALL BE FROM MAY 1 TO OCTOBER 15. IF ANY EARTHWORK IS TO BE PERFORMED OUTSIDE THE CONSTRUCTION SEASON, A WINTER EROSION AND SEDIMENT CONTROL PLAN DESCRIBING ALTERNATIVE STABILIZATION METHODS SHALL BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO AUGUST 15 FOR APPROVAL.

## 1.4.10. STABILIZE SOIL AT FINAL GRADE

SEEDING AND MULCHING SHALL BE UTILIZED TO STABILIZE SOIL. SOIL SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEEDING, MULCHING, AND BIODEGRADABLE EROSION CONTROL MATTING OR EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

## 1.4.11. DEWATERING ACTIVITIES

STREAM DIVERSION IS REQUIRED DURING THE GROUT PLACEMENT OPERATIONS AND DURING THE CONSTRUCTION OF THE HEADWALLS AND CRADLE WALLS. THE IMPACTS SHOWN ON THIS PLAN ASSUME THAT STREAM DIVERSIONS WILL BE ACCOMPLISHED THROUGH THE USE OF SAND BAGS TO DIVERT WATER INTO A SMALLER PIPE INSERTED INTO THE LINER.

## 1.4.12. SITE INSPECTION

TEMPORARY EROSION CONTROL MEASURES SHALL BE REGULARLY INSPECTED AND MAINTAINED FOR SEDIMENT BUILDUP. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT REACHES ONE-HALF THE HEIGHT OF THE CONTROL MEASURE. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE SUCH THAT IT WILL NOT BE SUBJECT TO EROSION.

PROJECT NAME: LYNDON - DERBY

PROJECT NUMBER: IM CULV (19)

FILE NAME: z08a192ern03dy.dgn

PROJECT LEADER: DMB

DESIGNED BY: MHM

ESPC NARRATIVE - DERBY III-1

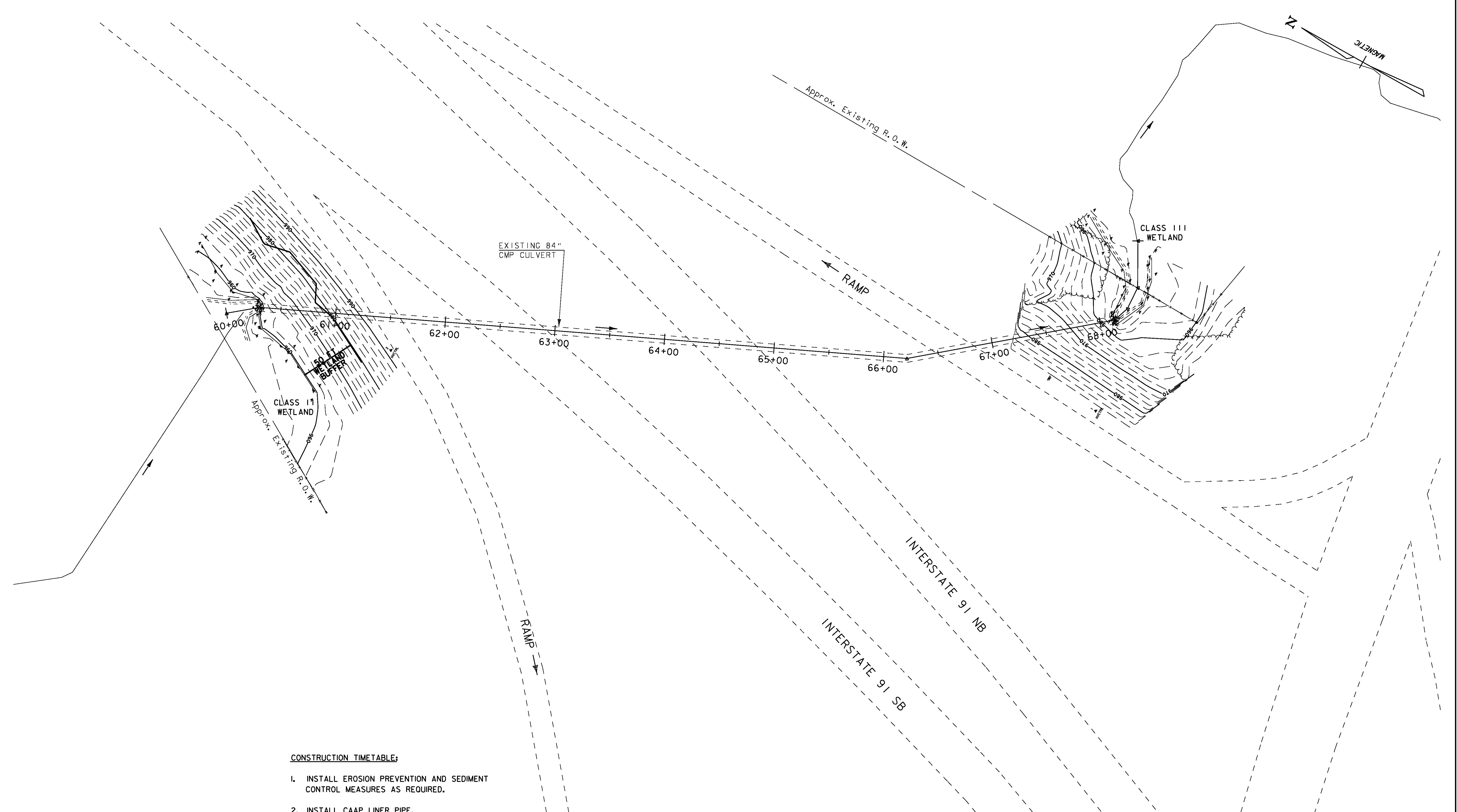
PLOT DATE: 24-AUG-2009

DRAWN BY: MAL

CHECKED BY: DMB

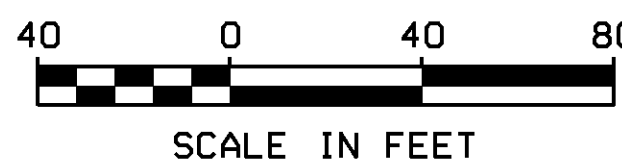
SHEET 18 OF 28



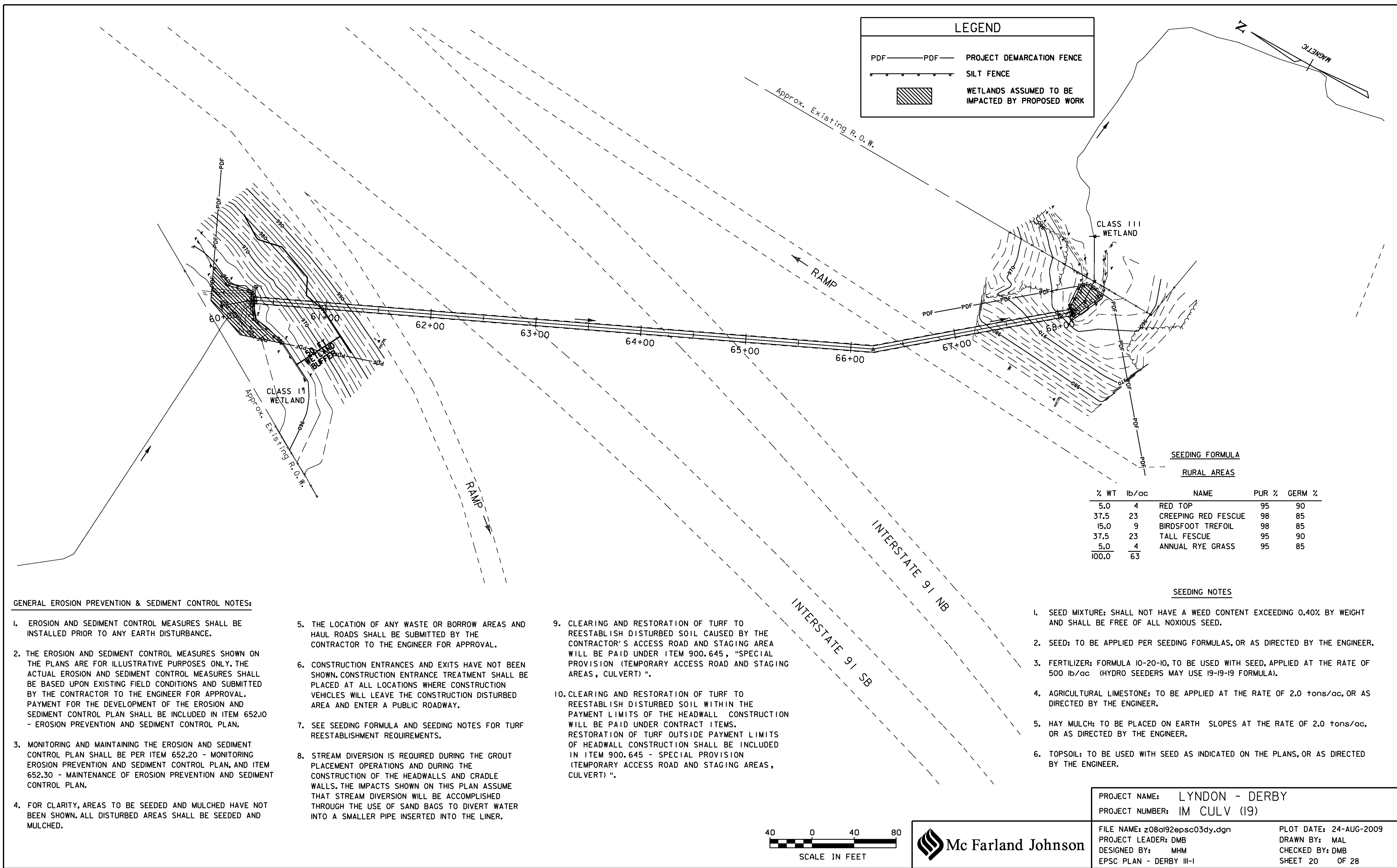


**CONSTRUCTION TIMETABLE:**

1. INSTALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES AS REQUIRED.
2. INSTALL CAAP LINER PIPE.
3. CONSTRUCT FULL BEVELED HEADWALL AT CULVERT INLET.
4. STABILIZE ALL DISTURBED AREAS.



PROJECT NAME: LYNDON - DERBY	
PROJECT NUMBER: IM CULV (19)	
FILE NAME: z08a192ec03dy.dgn	PLOT DATE: 24-AUG-2009
PROJECT LEADER: DMB	DRAWN BY: MAL
DESIGNED BY: MHM	CHECKED BY: DMB
EXISTING CONDITIONS - DERBY III-1	SHEET 19 OF 28



LEGEND		
PDF — PDF	PROJECT DEMARCATION FENCE	
— — —	SILT FENCE	
[Hatched Box]	WETLANDS ASSUMED TO BE IMPACTED BY PROPOSED WORK	

**SEEDING FORMULA**

**RURAL AREAS**

% WT	lb/ac	NAME	PUR %	GERM %
5.0	4	RED TOP	95	90
37.5	23	CREeping RED FESCUE	98	85
15.0	9	BIRDSFOOT TREFOIL	98	85
37.5	23	TALL FESCUE	95	90
5.0	4	ANNUAL RYE GRASS	95	85
100.0	63			

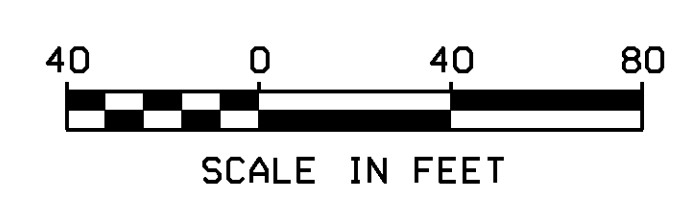
**SEEDING NOTES**

1. SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
2. SEED: TO BE APPLIED PER SEEDING FORMULAS, OR AS DIRECTED BY THE ENGINEER.
3. FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 lb/ac (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
4. AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2.0 tons/ac, OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2.0 tons/ac, OR AS DIRECTED BY THE ENGINEER.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

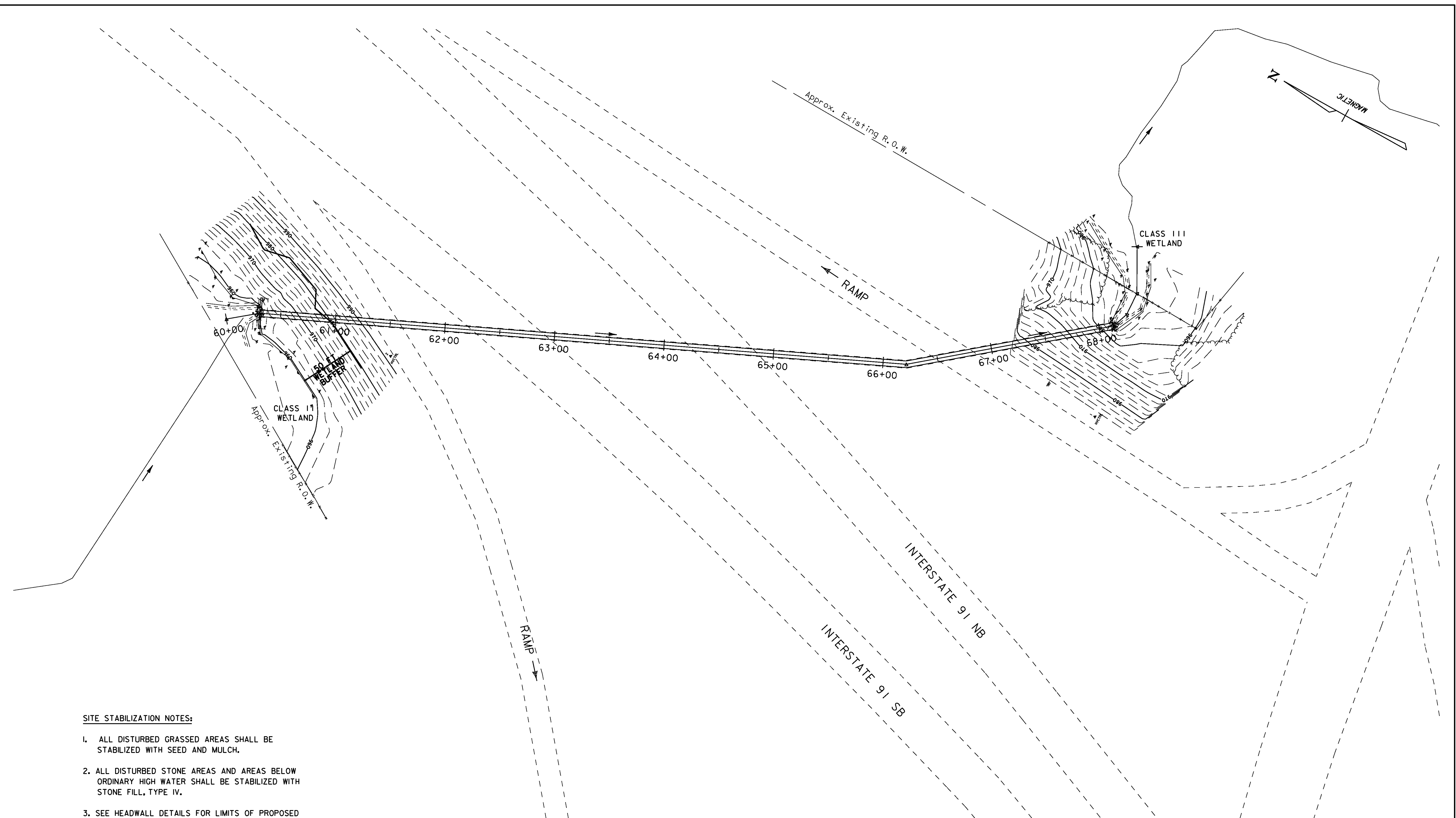
**GENERAL EROSION PREVENTION & SEDIMENT CONTROL NOTES:**

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE.
2. THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE BASED UPON EXISTING FIELD CONDITIONS AND SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL. PAYMENT FOR THE DEVELOPMENT OF THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE INCLUDED IN ITEM 652.10 - EROSION PREVENTION AND SEDIMENT CONTROL PLAN.
3. MONITORING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE PER ITEM 652.20 - MONITORING EROSION PREVENTION AND SEDIMENT CONTROL PLAN, AND ITEM 652.30 - MAINTENANCE OF EROSION PREVENTION AND SEDIMENT CONTROL PLAN.
4. FOR CLARITY, AREAS TO BE SEEDED AND MULCHED HAVE NOT BEEN SHOWN. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
5. THE LOCATION OF ANY WASTE OR BORROW AREAS AND HAUL ROADS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
6. CONSTRUCTION ENTRANCES AND EXITS HAVE NOT BEEN SHOWN. CONSTRUCTION ENTRANCE TREATMENT SHALL BE PLACED AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES WILL LEAVE THE CONSTRUCTION DISTURBED AREA AND ENTER A PUBLIC ROADWAY.
7. SEE SEEDING FORMULA AND SEEDING NOTES FOR TURF REESTABLISHMENT REQUIREMENTS.
8. STREAM DIVERSION IS REQUIRED DURING THE GROUT PLACEMENT OPERATIONS AND DURING THE CONSTRUCTION OF THE HEADWALLS AND CRADLE WALLS. THE IMPACTS SHOWN ON THIS PLAN ASSUME THAT STREAM DIVERSION WILL BE ACCOMPLISHED THROUGH THE USE OF SAND BAGS TO DIVERT WATER INTO A SMALLER PIPE INSERTED INTO THE LINER.

9. CLEARING AND RESTORATION OF TURF TO REESTABLISH DISTURBED SOIL CAUSED BY THE CONTRACTOR'S ACCESS ROAD AND STAGING AREA WILL BE PAID UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)".
10. CLEARING AND RESTORATION OF TURF TO REESTABLISH DISTURBED SOIL WITHIN THE PAYMENT LIMITS OF THE HEADWALL CONSTRUCTION WILL BE PAID UNDER CONTRACT ITEMS. RESTORATION OF TURF OUTSIDE PAYMENT LIMITS OF HEADWALL CONSTRUCTION SHALL BE INCLUDED IN ITEM 900.645 - SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)".

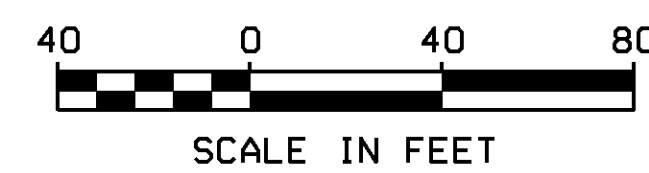


PROJECT NAME: LYNDON - DERBY	PLOT DATE: 24-AUG-2009
PROJECT NUMBER: IM CULV (19)	DRAWN BY: MAL
FILE NAME: z08a192epsc03dy.dgn	CHECKED BY: DMB
PROJECT LEADER: DMB	SHEET 20 OF 28
DESIGNED BY: MHM	
EPSC PLAN - DERBY III-1	

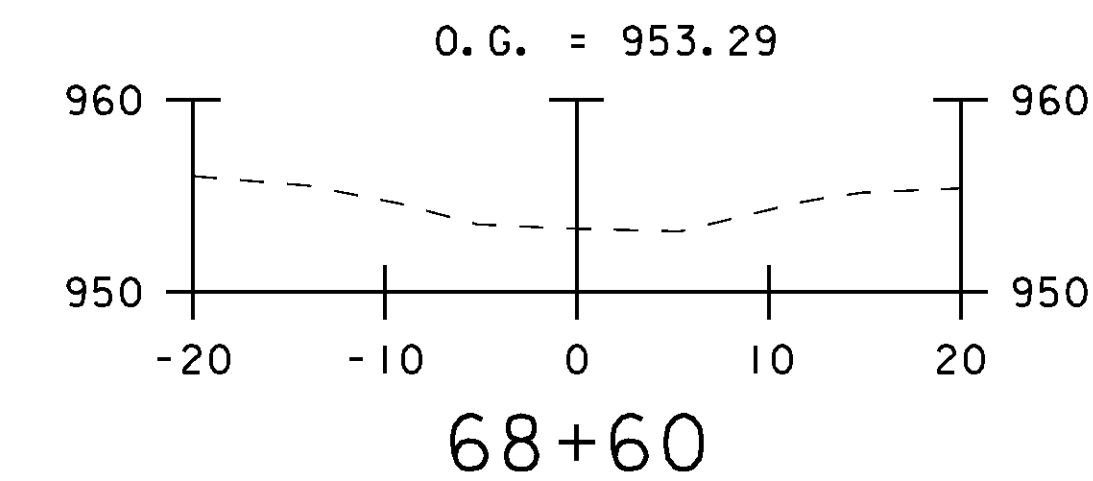
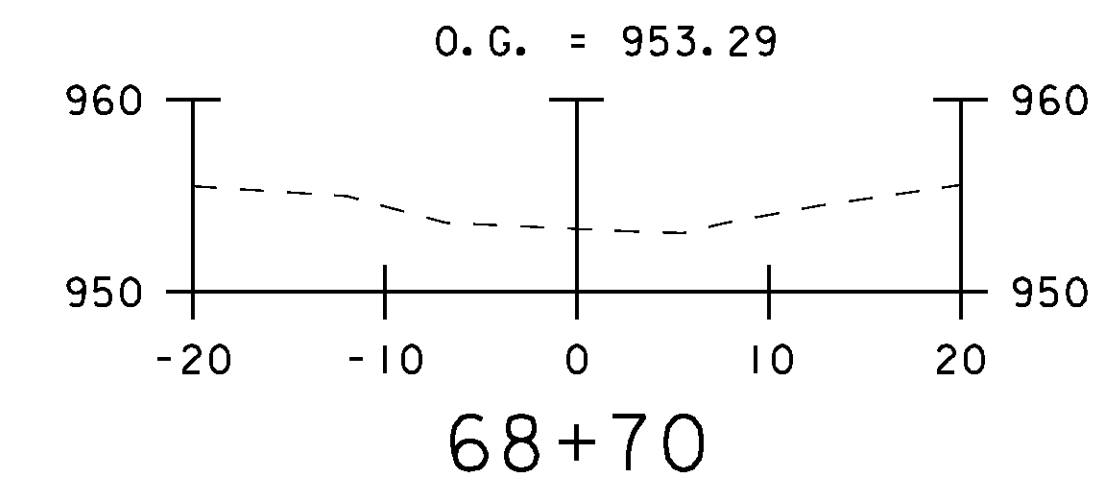
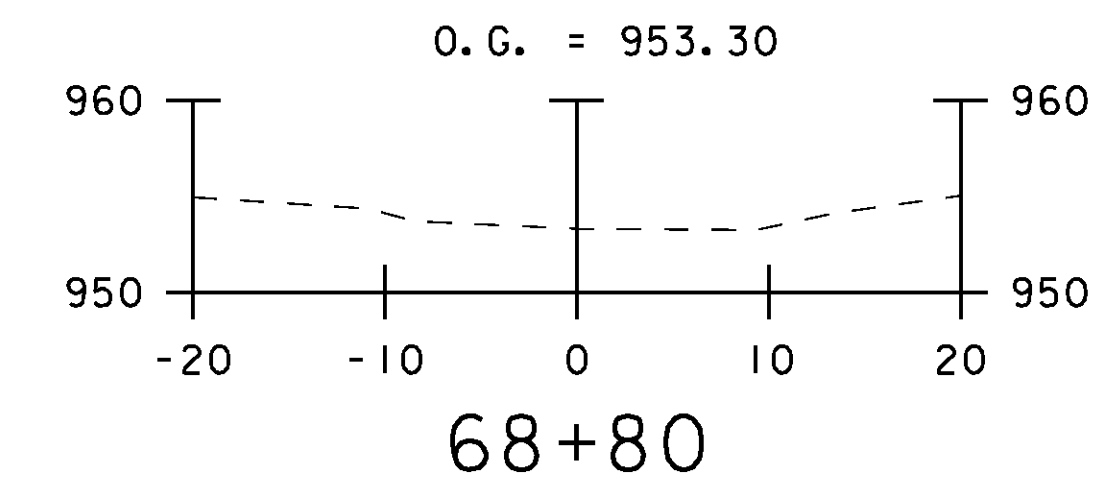
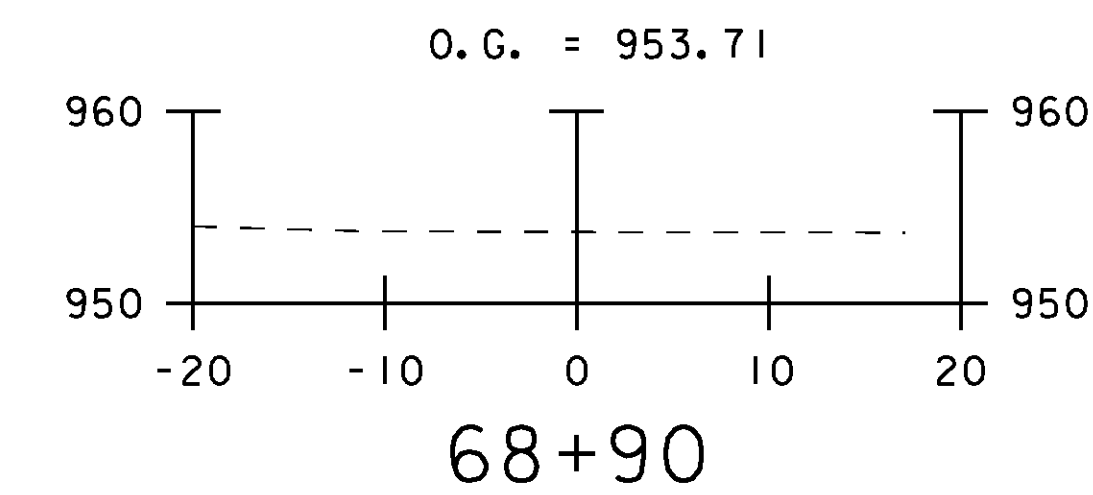
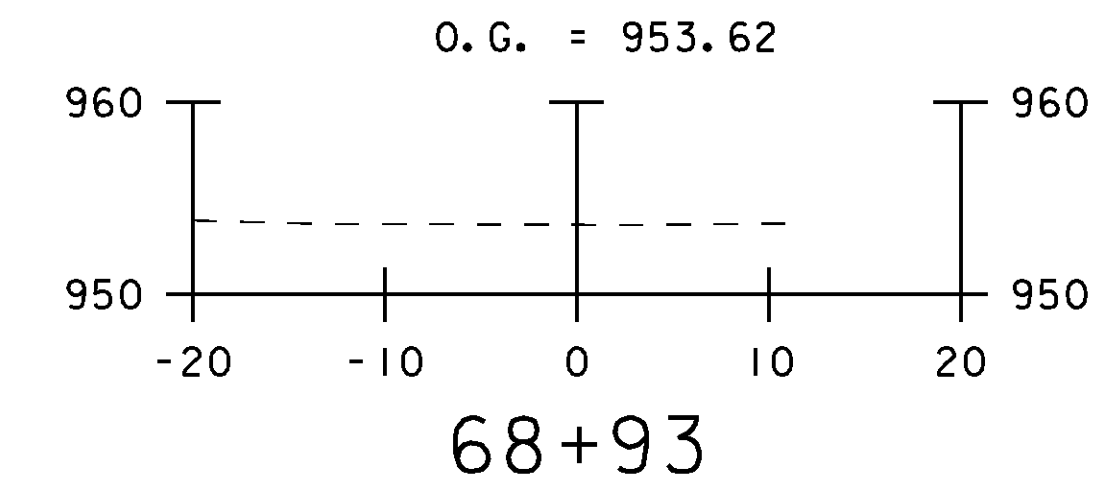
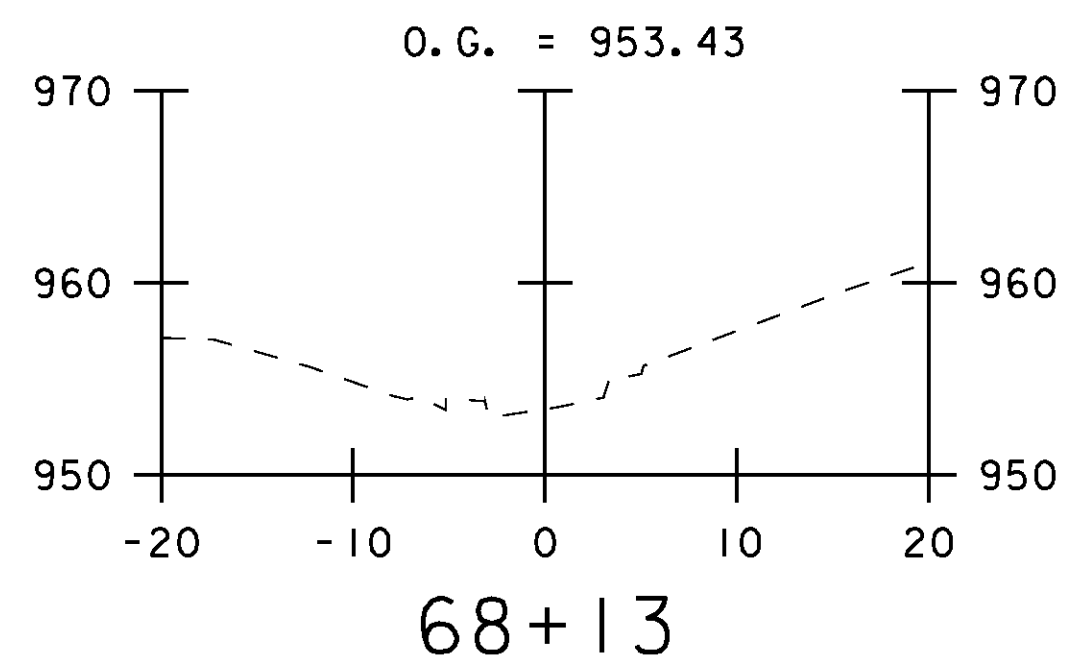
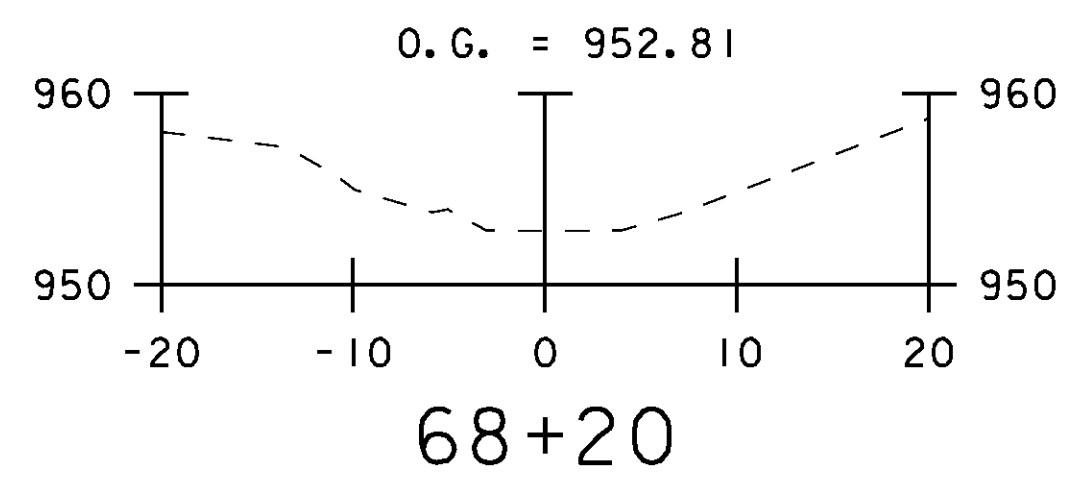
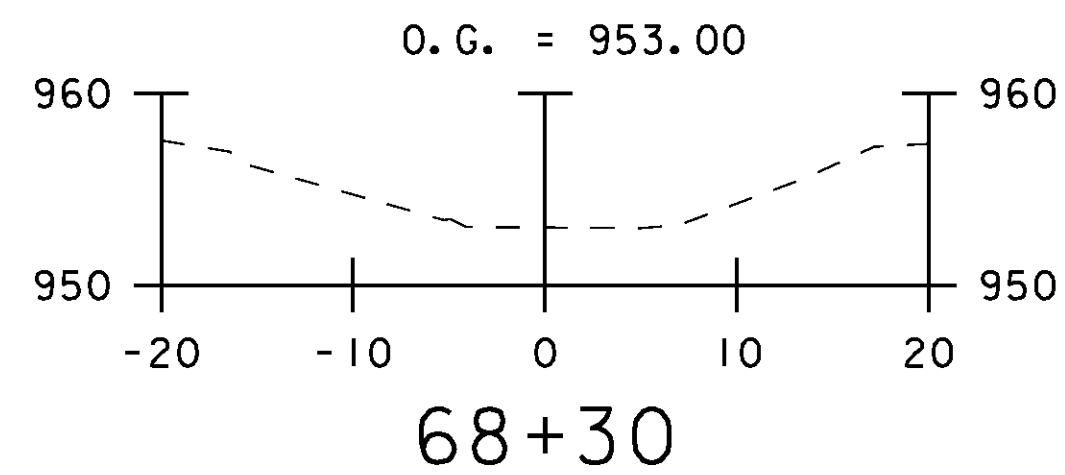
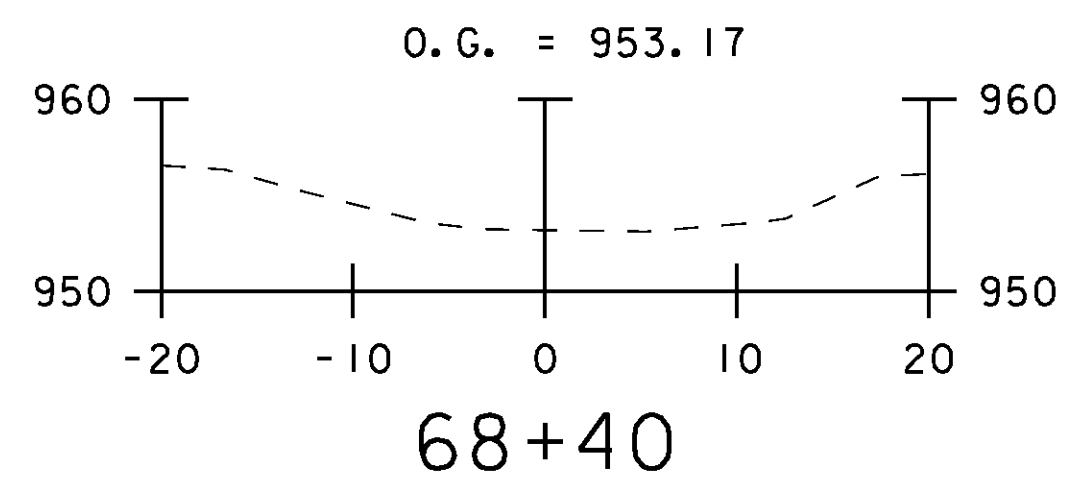
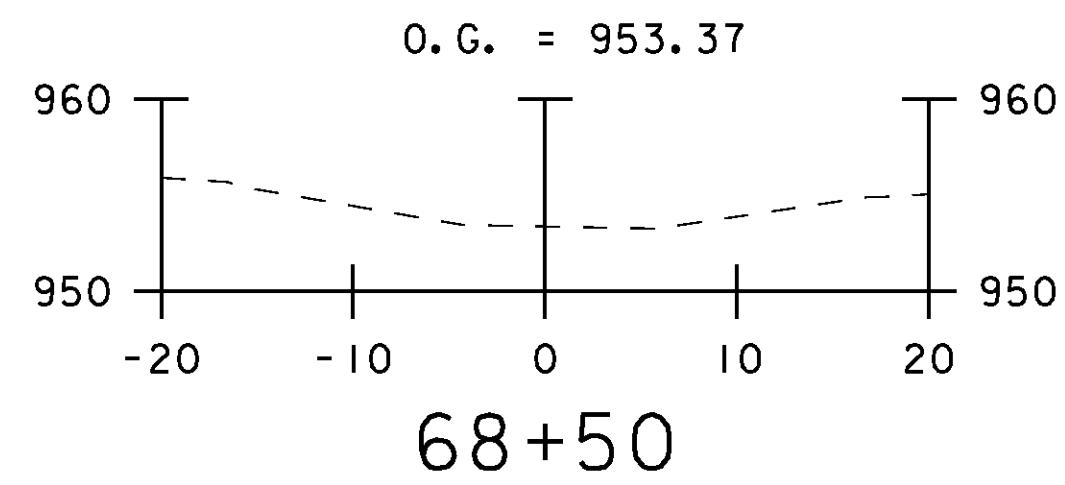
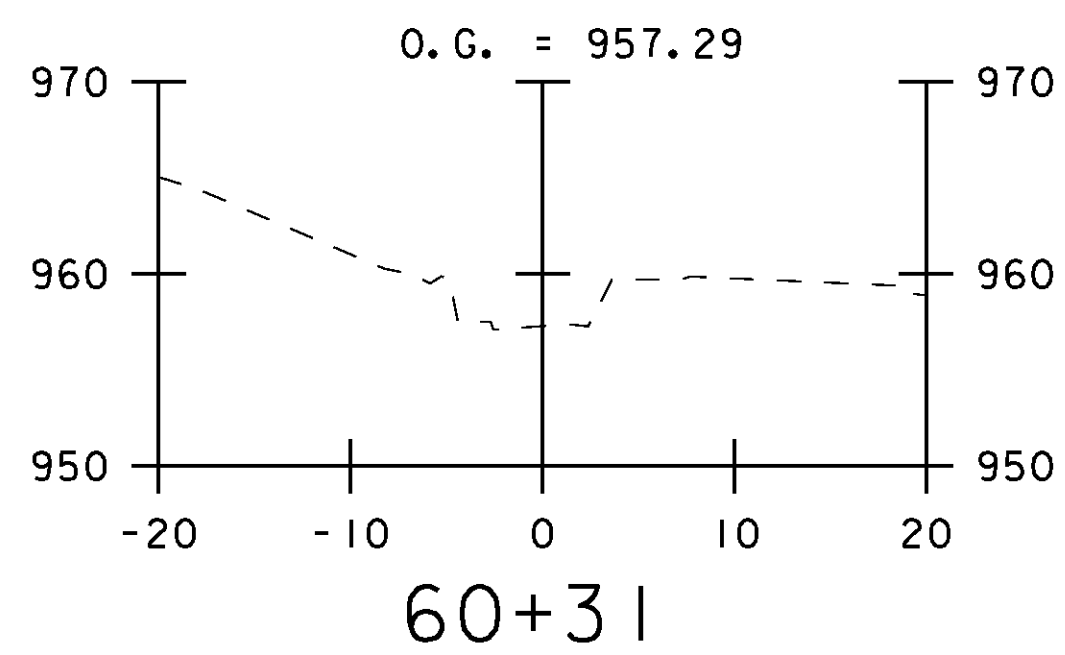
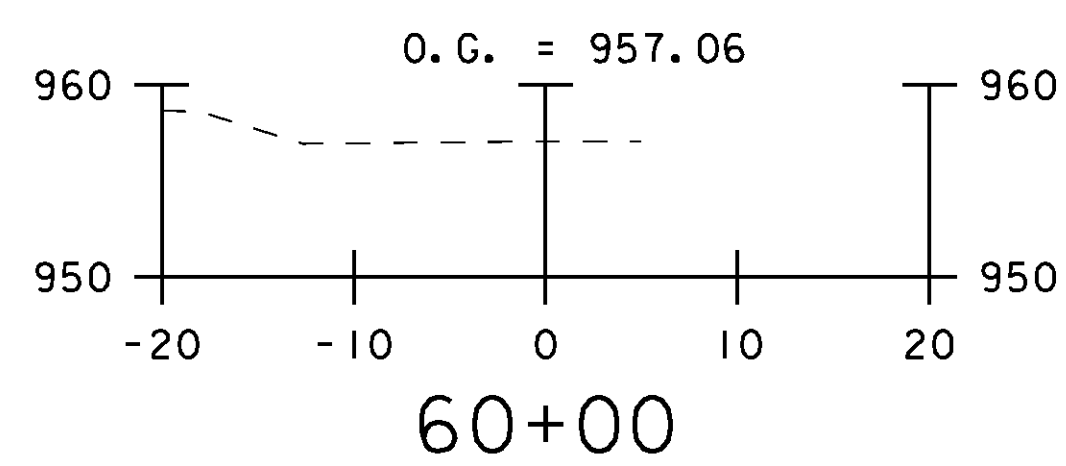
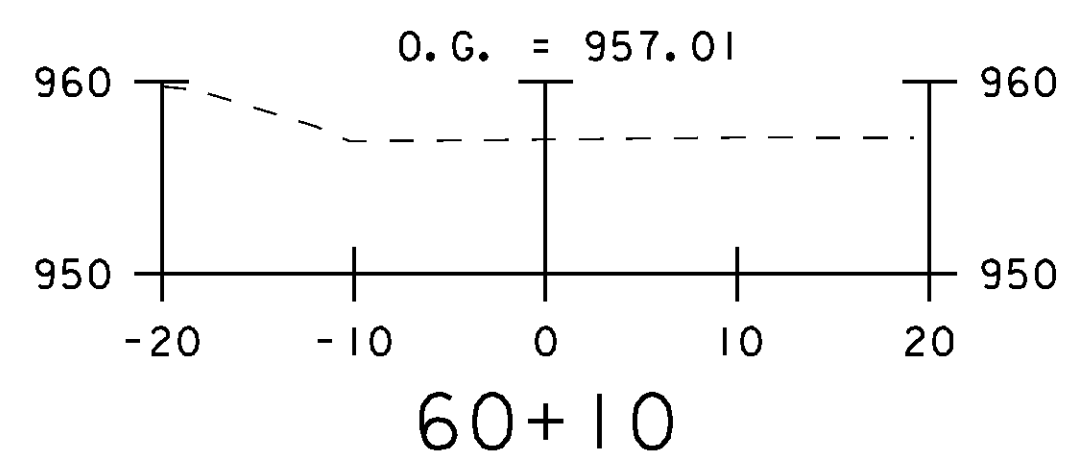
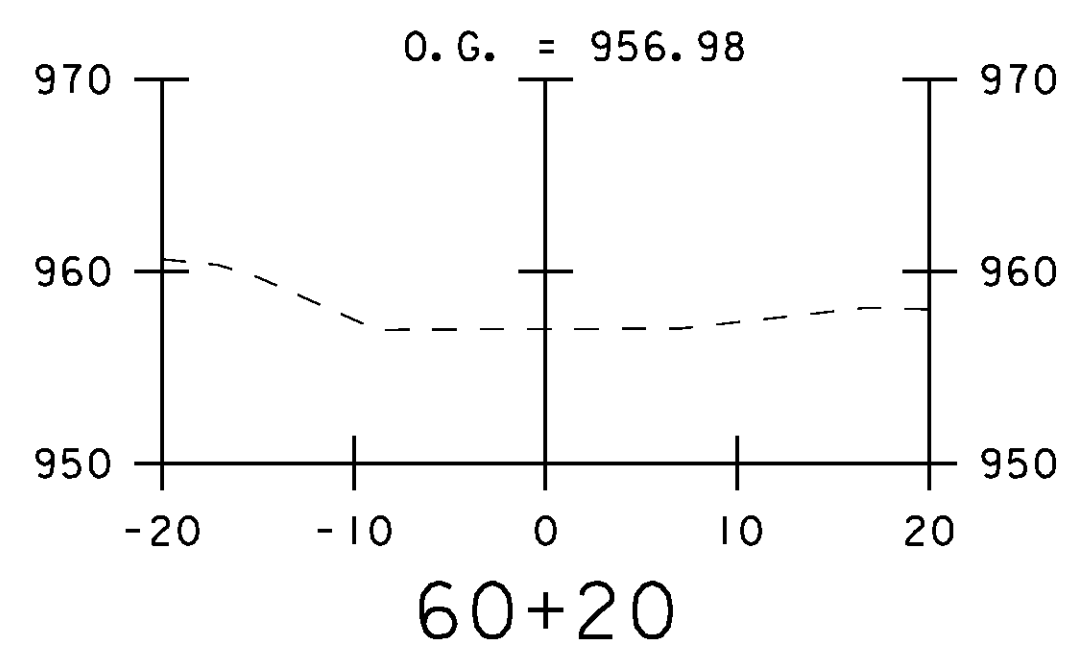
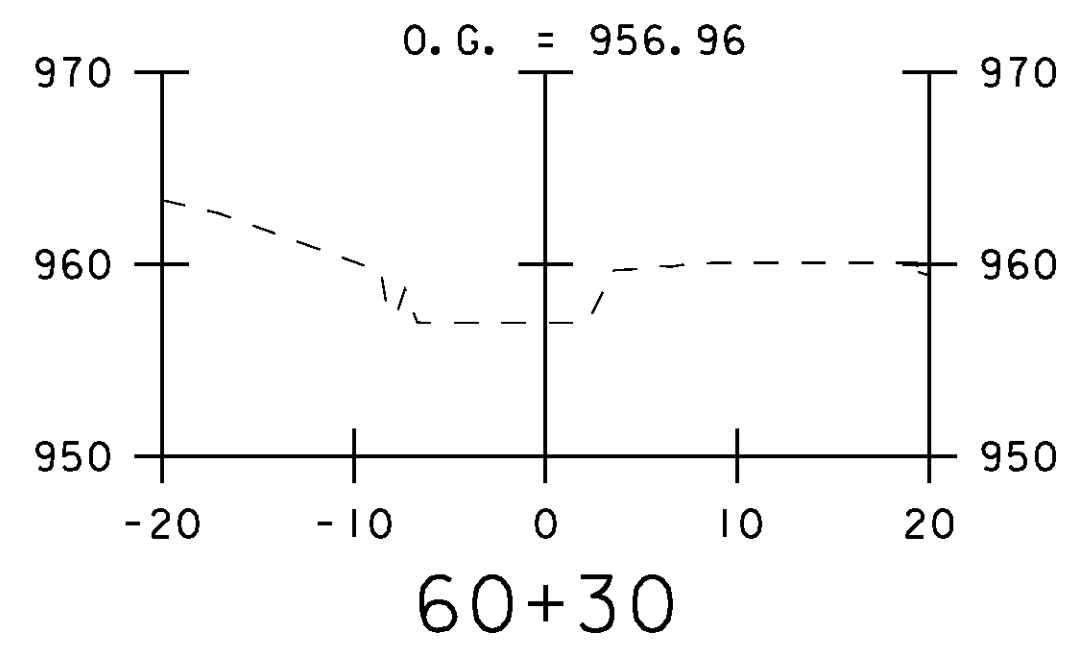


**SITE STABILIZATION NOTES:**

1. ALL DISTURBED GRASSED AREAS SHALL BE STABILIZED WITH SEED AND MULCH.
2. ALL DISTURBED STONE AREAS AND AREAS BELOW ORDINARY HIGH WATER SHALL BE STABILIZED WITH STONE FILL, TYPE IV.
3. SEE HEADWALL DETAILS FOR LIMITS OF PROPOSED STONE FILL.



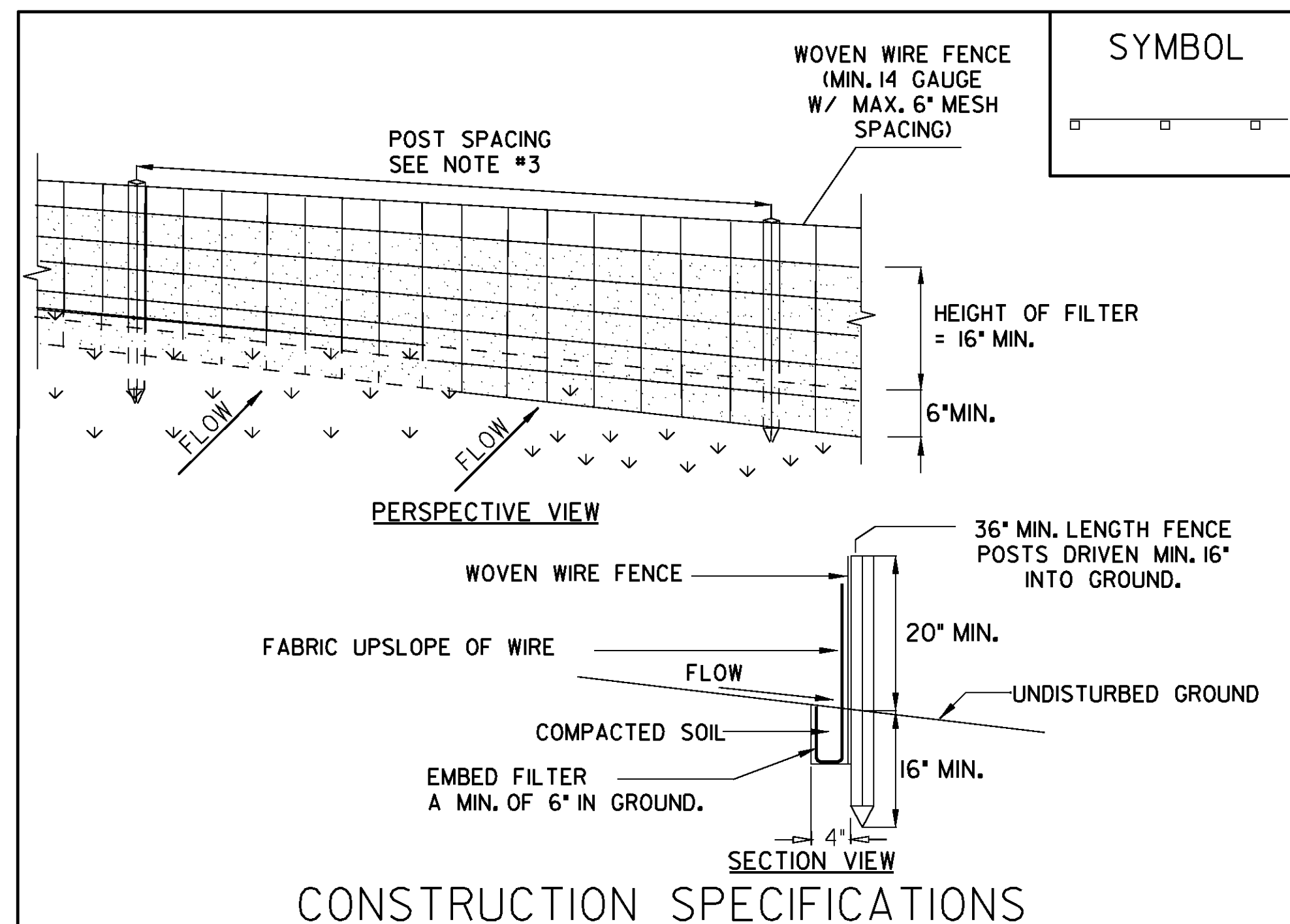
PROJECT NAME: LYNDON - DERBY	
PROJECT NUMBER: IM CULV (19)	
FILE NAME: z08a192fc03dy.dgn	PLOT DATE: 24-AUG-2009
PROJECT LEADER: DMB	DRAWN BY: MAL
DESIGNED BY: MHM	CHECKED BY: DMB
FINAL CONDITIONS - DERBY III-1	SHEET 21 OF 28



PROJECT NAME: LYNDON - DERBY  
PROJECT NUMBER: IM CULV (19)

FILE NAME: z08a192xs05dy.dgn  
PROJECT LEADER: DMB  
DESIGNED BY: RPH  
CROSS SECTION - DERBY III-1

PLOT DATE: 24-AUG-2009  
DRAWN BY: RPH  
CHECKED BY: DMB  
SHEET 22 OF 28



**CONSTRUCTION SPECIFICATIONS**

1. WOVEN WIRE FENCE REINFORCEMENT IS ONLY REQUIRED WITHIN 100 FT UPSLOPE OF RECEIVING WATERS.
2. WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6\"/>

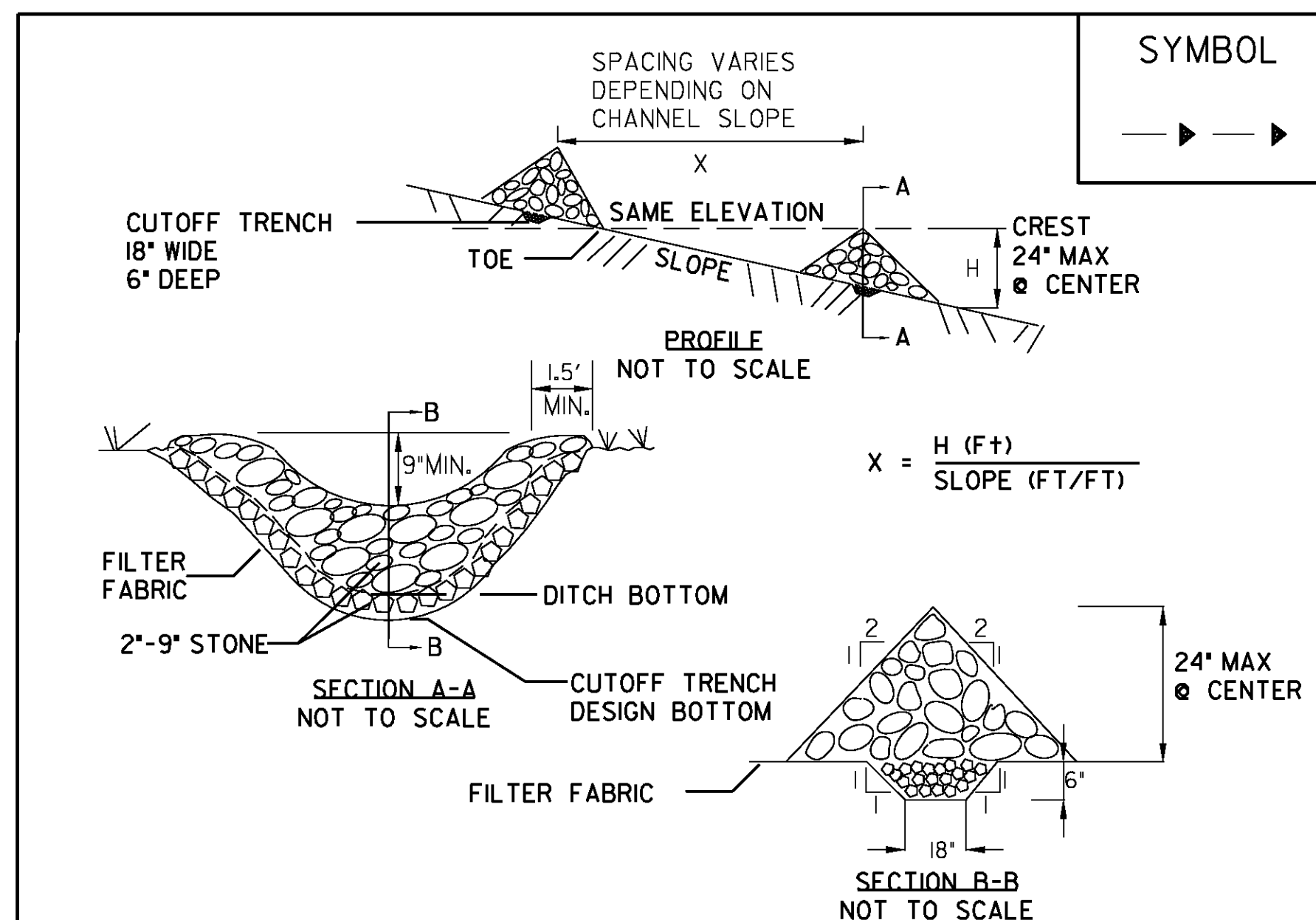
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**SILT FENCE**

NOTES:  
REFER TO \*THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- \* FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

SILT FENCE REQUIRED TO PROTECT THE PROPOSED HEADWALL CONSTRUCTION SHALL BE PAID FOR UNDER ITEM 649.51, \*GEOTEXTILE FOR SILT FENCE\*.

SILT FENCE REQUIRED AS PART OF THE CONTRACTOR'S TEMPORARY ACCESS ROAD OR STAGING AREA SHALL BE INCIDENTAL TO ITEM 900.645, \*SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)\*.



**CONSTRUCTION SPECIFICATIONS**

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. SET SPACING OF CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE. MAXIMUM DRAINAGE AREA 2 ACRES.

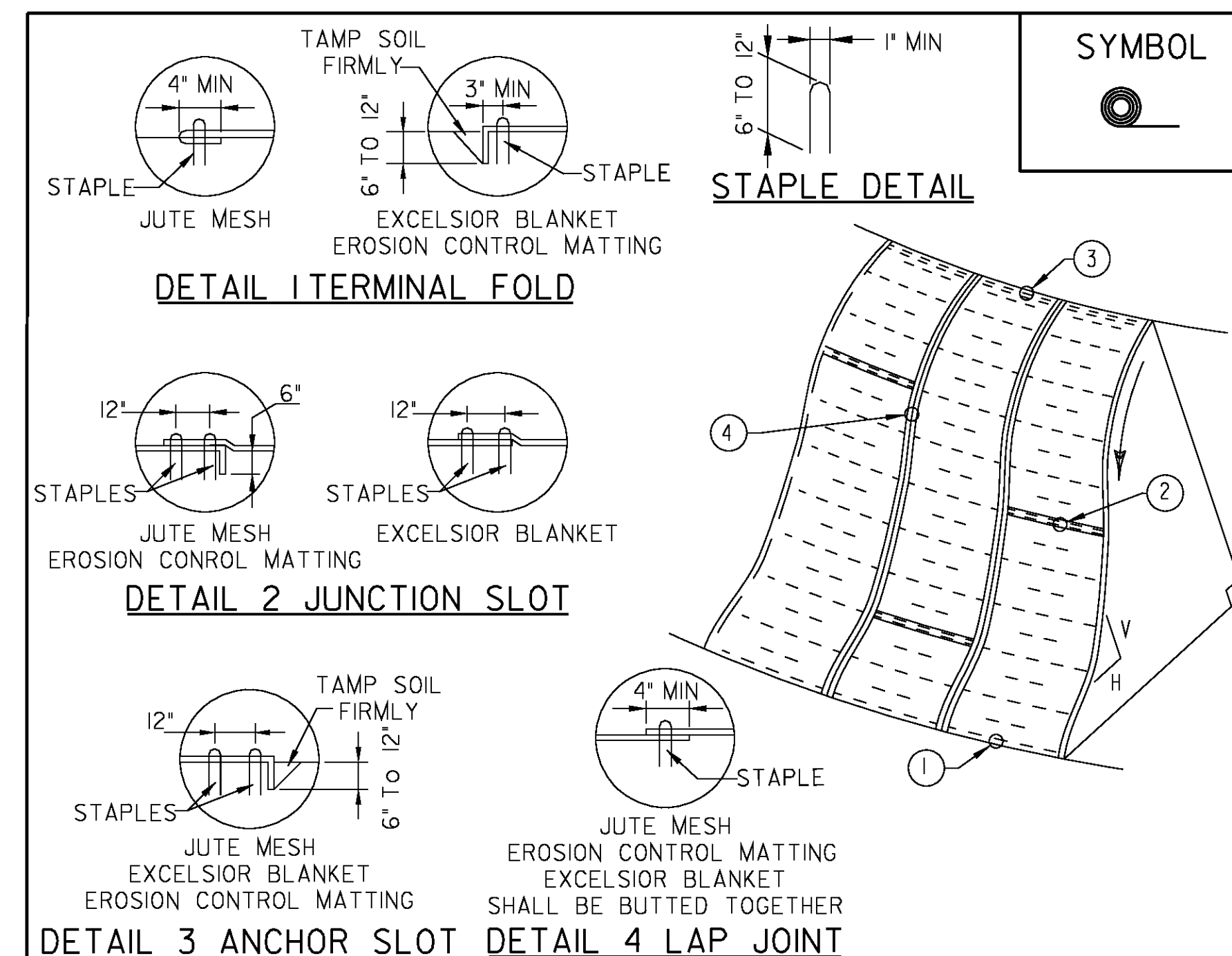
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DECORIGINALLY DEVELOPED BY USDA-NRCSVERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**CHECK DAM**

NOTES:  
REFER TO \*THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- \* FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

CHECK DAMS REQUIRED AS PART OF THE CONTRACTOR'S TEMPORARY ACCESS ROAD OR STAGING AREA SHALL BE INCIDENTAL TO ITEM 900.645, \*SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)\*.

REVISIONS	
MARCH 8, 2007	JMF



**CONSTRUCTION SPECIFICATIONS**

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME AND SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12' INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE**

NEW	
APRIL 16, 2007	WHF
REVISIONS	

NOTES:

REFER TO \*THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- \* FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

PERMANENT EROSION MATTING REQUIRED TO STABILIZE SOIL DISTURBED AS PART OF THE PROPOSED HEADWALL CONSTRUCTION SHALL BE PAID FOR UNDER ITEM 653.21, \*PERMANENT EROSION MATTING\*.

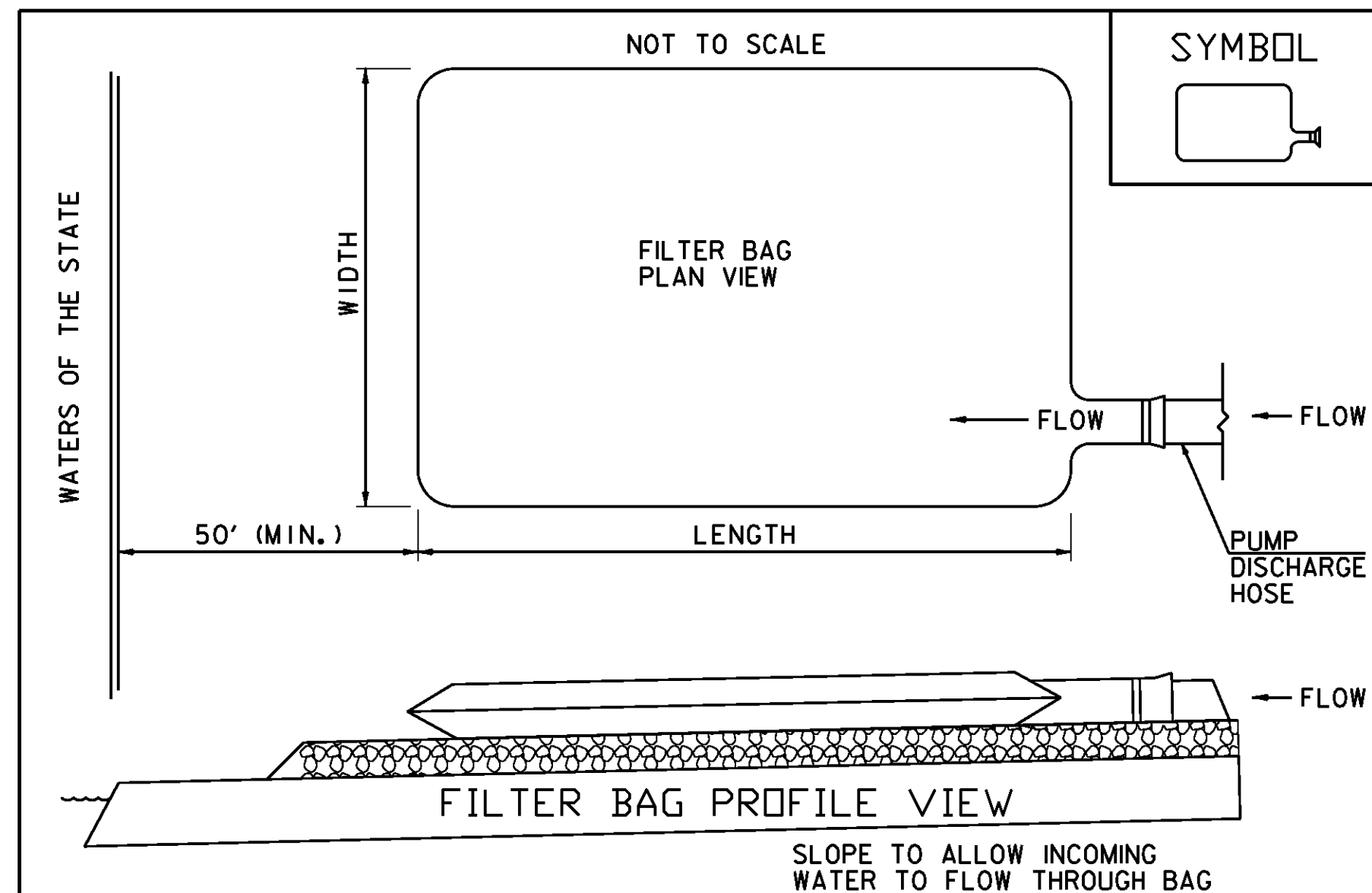
TEMPORARY EROSION MATTING REQUIRED AS PART OF THE CONTRACTOR'S TEMPORARY ACCESS ROAD OR STAGING AREA SHALL BE INCIDENTAL TO ITEM 900.645, \*SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)\*.

PROJECT NAME: LYNDON - DERBY  
PROJECT NUMBER: IM CULV (19)



FILE NAME: epsc01.dgn  
PROJECT LEADER: DMB  
DESIGNED BY: MHM  
EPSC DETAIL 01

PLOT DATE: 24-AUG-2009  
DRAWN BY: MAL  
CHECKED BY: DMB  
SHEET 23 OF 28



**APPLICATION NOTES:**

THE PRIMARY PURPOSE OF THE FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS WHILE ALLOWING WATER TO PASS THROUGH THE BAG.

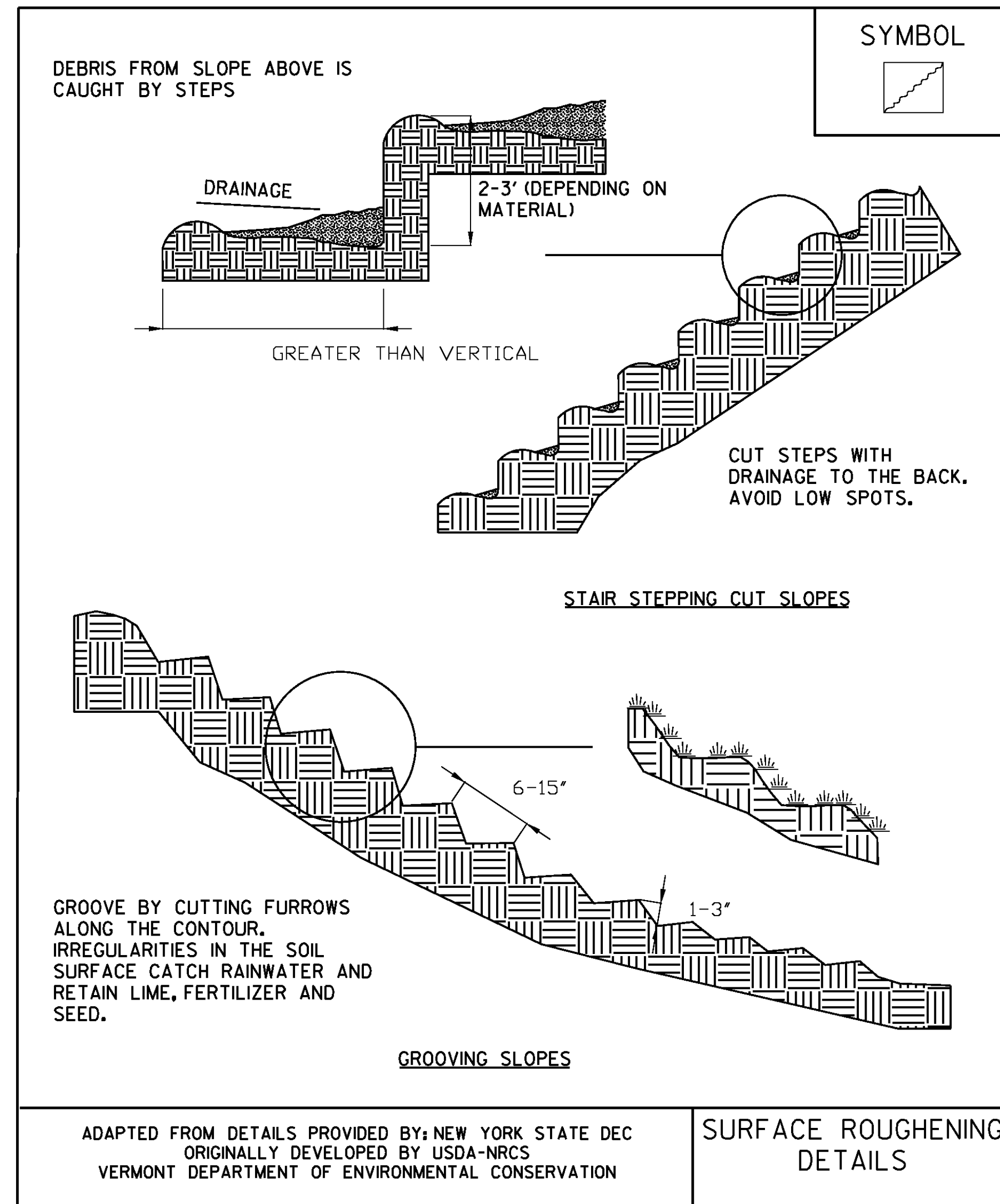
**GENERAL NOTES:**

1. FILTER BAG SHALL BE INSTALLED ON A VEGETATED SLOPE TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
2. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
3. FILTER BAG SHALL BE LOCATED A MINIMUM OF 50 FEET FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
5. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
6. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

REVISIONS		
SEPTEMBER 18, 2007	WHF	
DECEMBER 13, 2007	WHF	

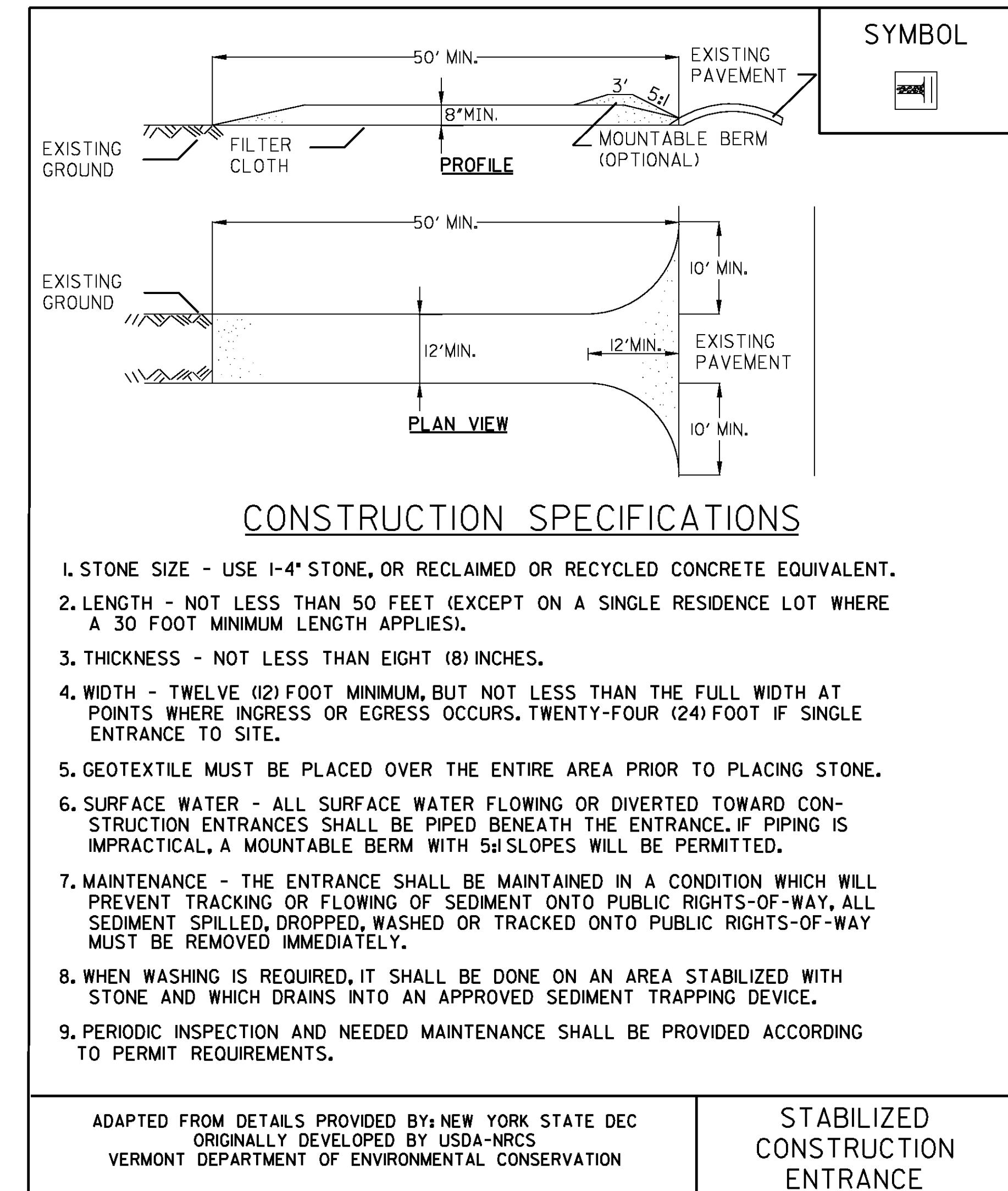
FILTER BAGS REQUIRED AS PART OF THE CONTRACTOR'S WORK SHALL BE INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)".



ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING  
DETAILS

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS ITEM SHALL BE CONSIDERED INCIDENTAL TO THE MATERIAL ITEM SPECIFIED



**CONSTRUCTION SPECIFICATIONS**

1. STONE SIZE - USE 1-4" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH APPLIES).
3. THICKNESS - NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED  
CONSTRUCTION  
ENTRANCE

REVISIONS		
FEBRUARY 9, 2007	WHF	
MARCH 8, 2007	JMF	

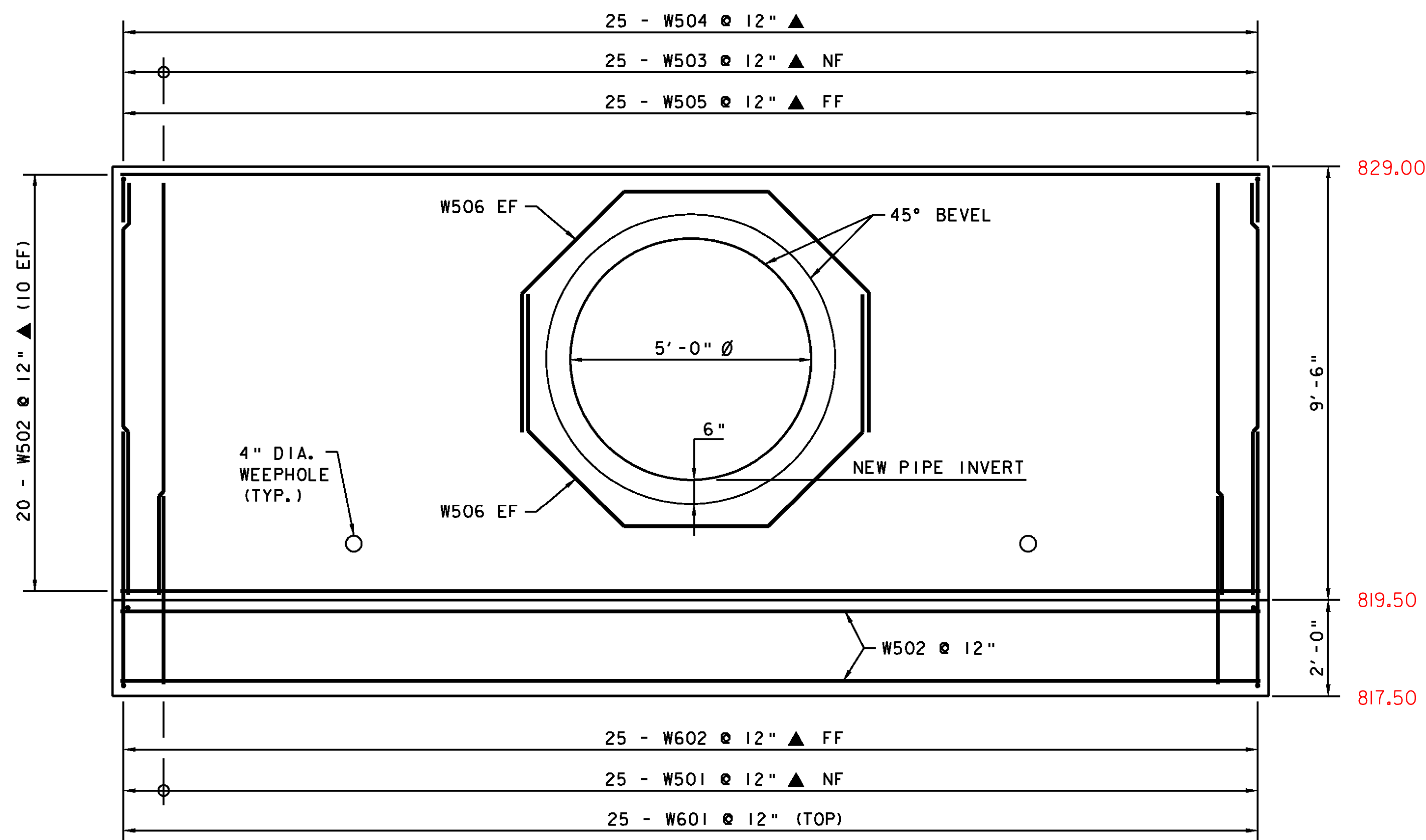
VEHICLE TRACKING PADS REQUIRED AS PART OF THE CONTRACTOR'S TEMPORARY ACCESS ROAD OR STAGING AREA SHALL BE INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)".



PROJECT NAME: LYNDON - DERBY  
PROJECT NUMBER: IM CULV (19)

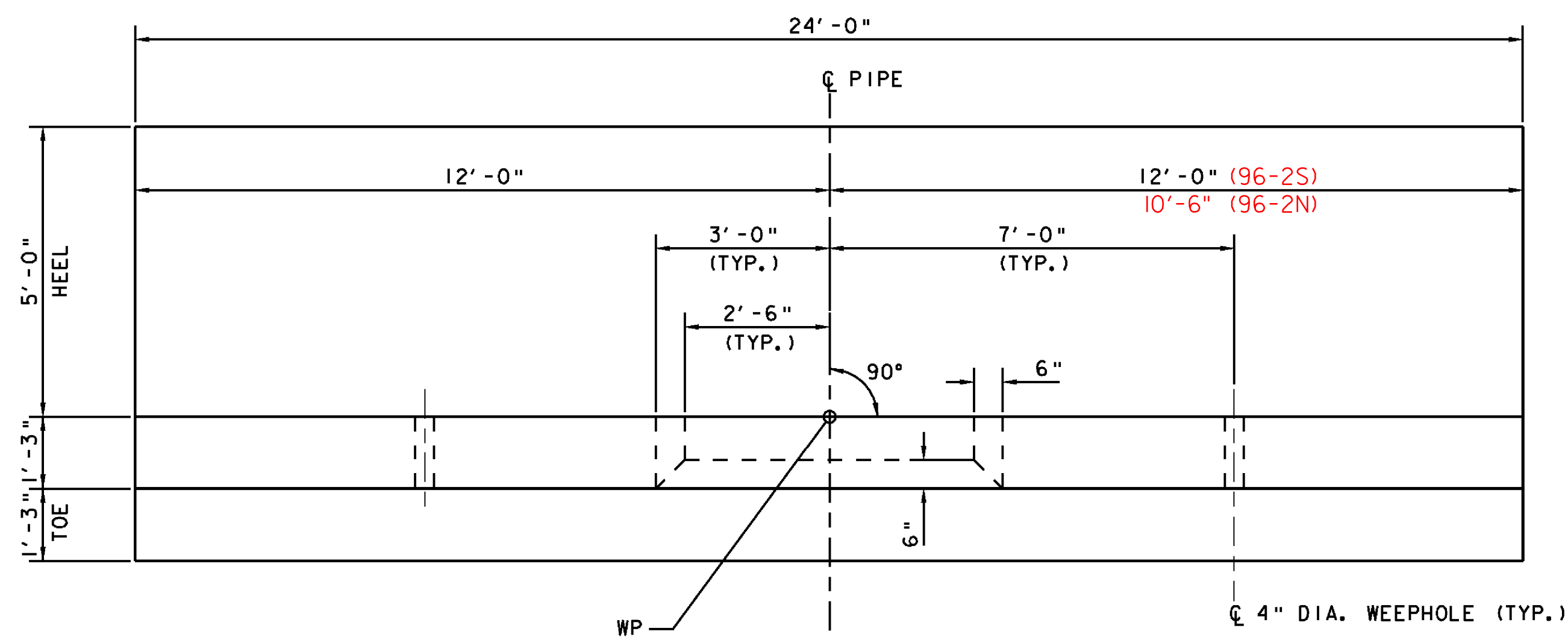
FILE NAME: epsc02.dgn  
PROJECT LEADER: DMB  
DESIGNED BY: MHM  
EPSC DETAIL 02

PLOT DATE: 24-AUG-2009  
DRAWN BY: MAL  
CHECKED BY: DMB  
SHEET 24 OF 28



HEADWALL ELEVATION

SCALE 1/2" = 1'-0"  
 1 0 1 2



HEADWALL PLAN

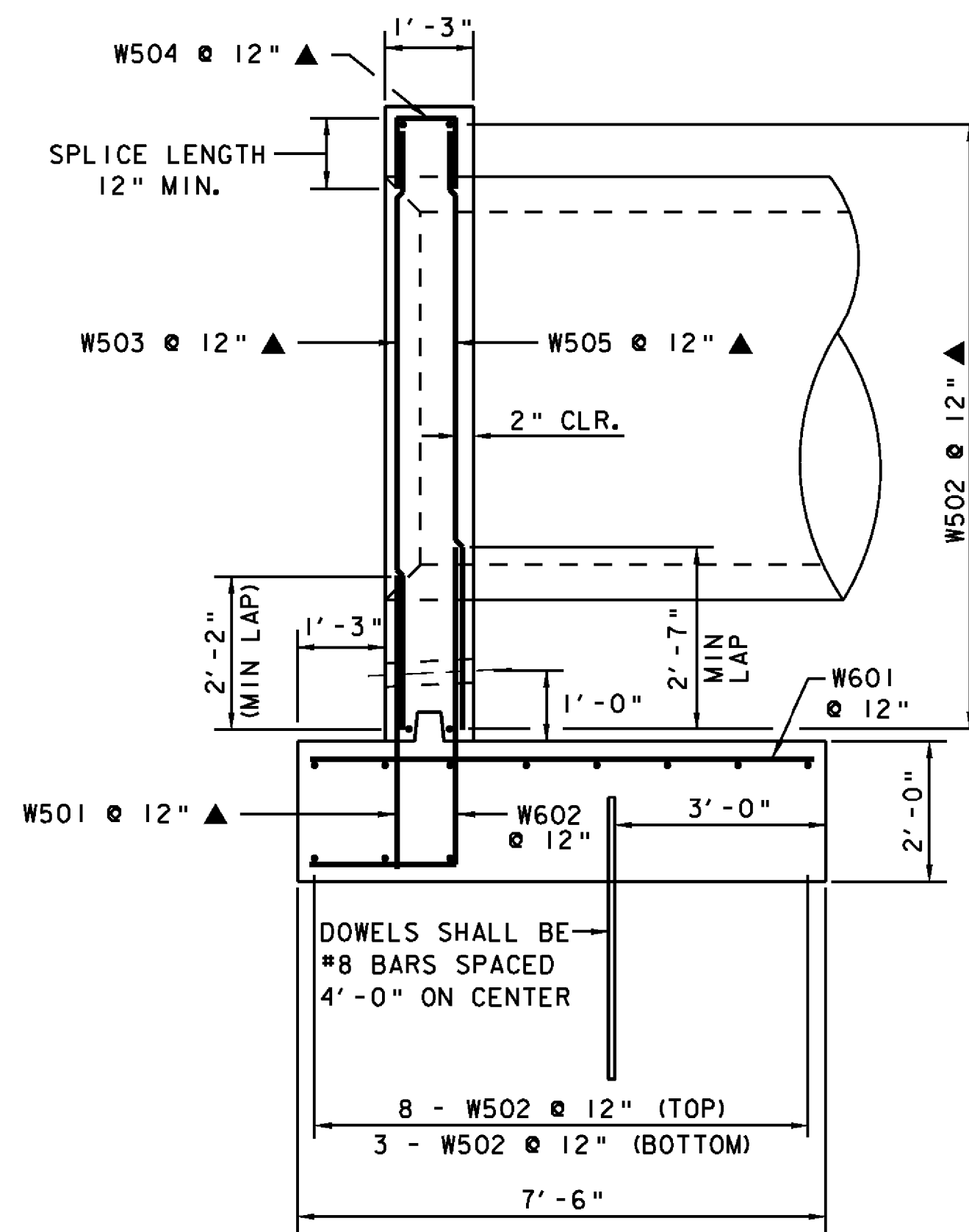
SCALE 1/2" = 1'-0"  
 1 0 1 2

**NOTE:**

- NF - NEAR FACE
- FF - FAR FACE
- EF - EACH FACE
- ▲ - CUT TO FIT IN FIELD
- 3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

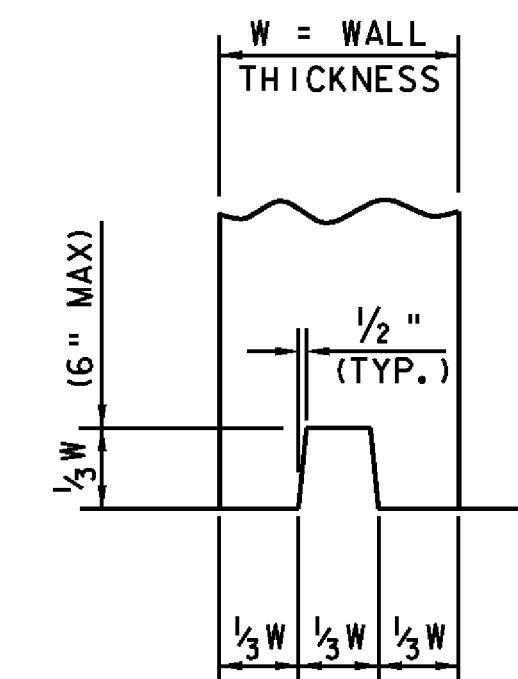
**NOTES:**

1. HEADWALL DETAILS TO BE USED FOR BRIDGES 96-2S AND 96-2N.
2. SEE STD. D-34 FOR CRADLE HEADWALL DETAILS.

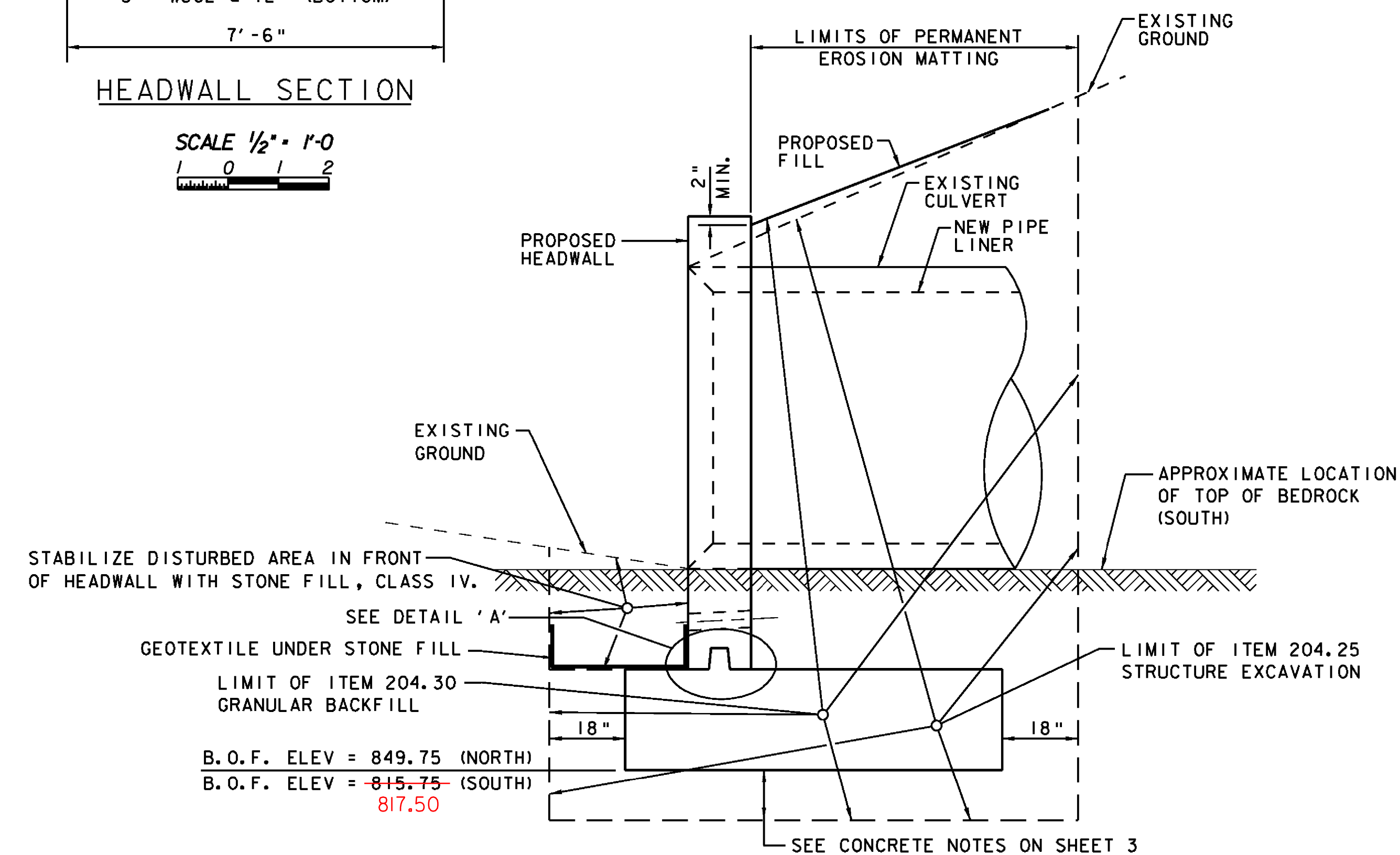


HEADWALL SECTION

SCALE 1/2" = 1'-0"  
 1 0 1 2



DETAIL 'A'  
 NOT TO SCALE



PROPOSED HEADWALL SECTION

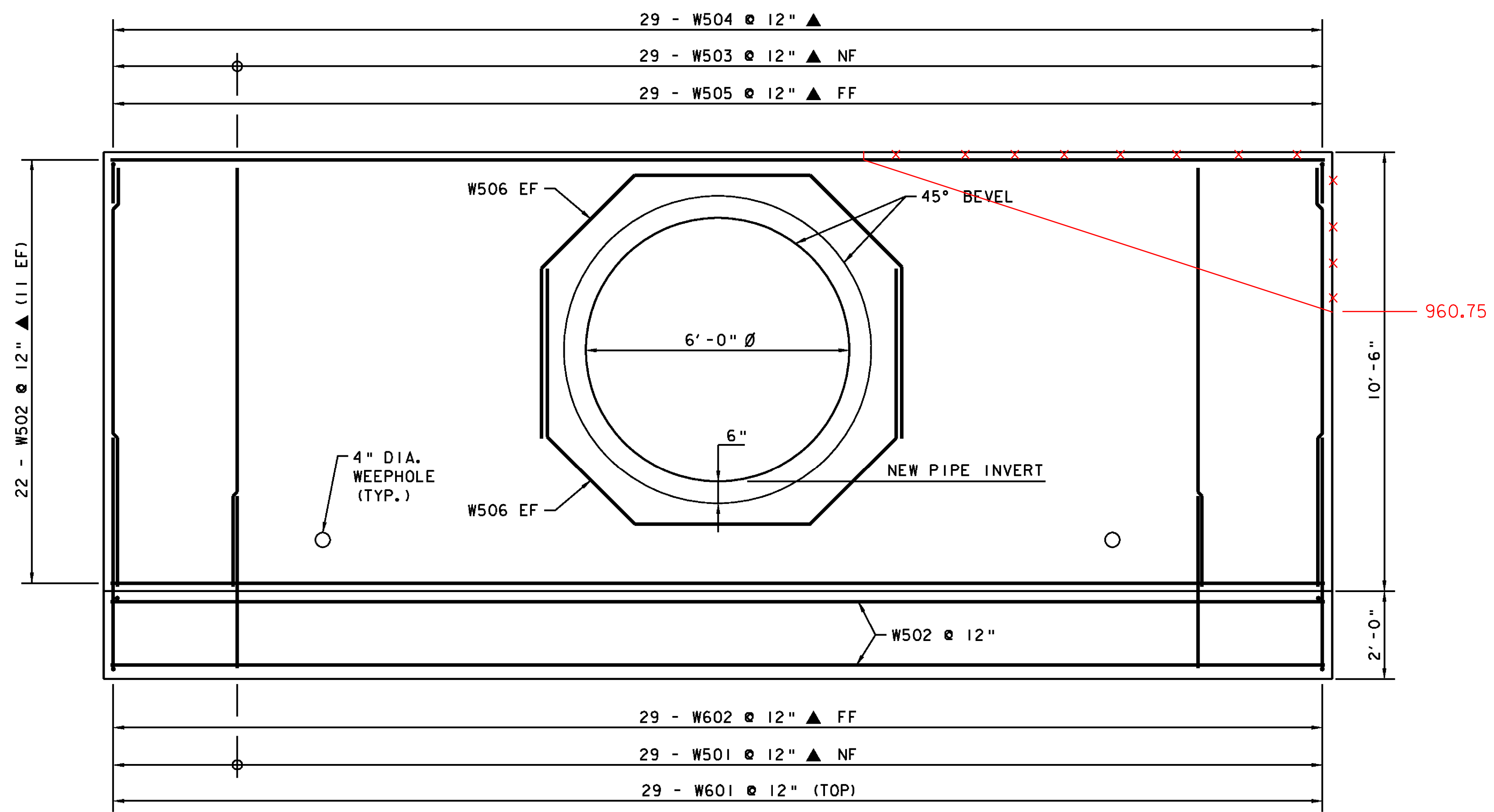
SCALE 1/2" = 1'-0"  
 1 0 1 2

PROJECT NAME: LYNDON - DERBY  
 PROJECT NUMBER: IM CULV (19)

FILE NAME: headwall2lyndon.dgn  
 PROJECT LEADER: DMB  
 DESIGNED BY: LKW  
 HEADWALL DETAILS - LYNDON 96-2N&S

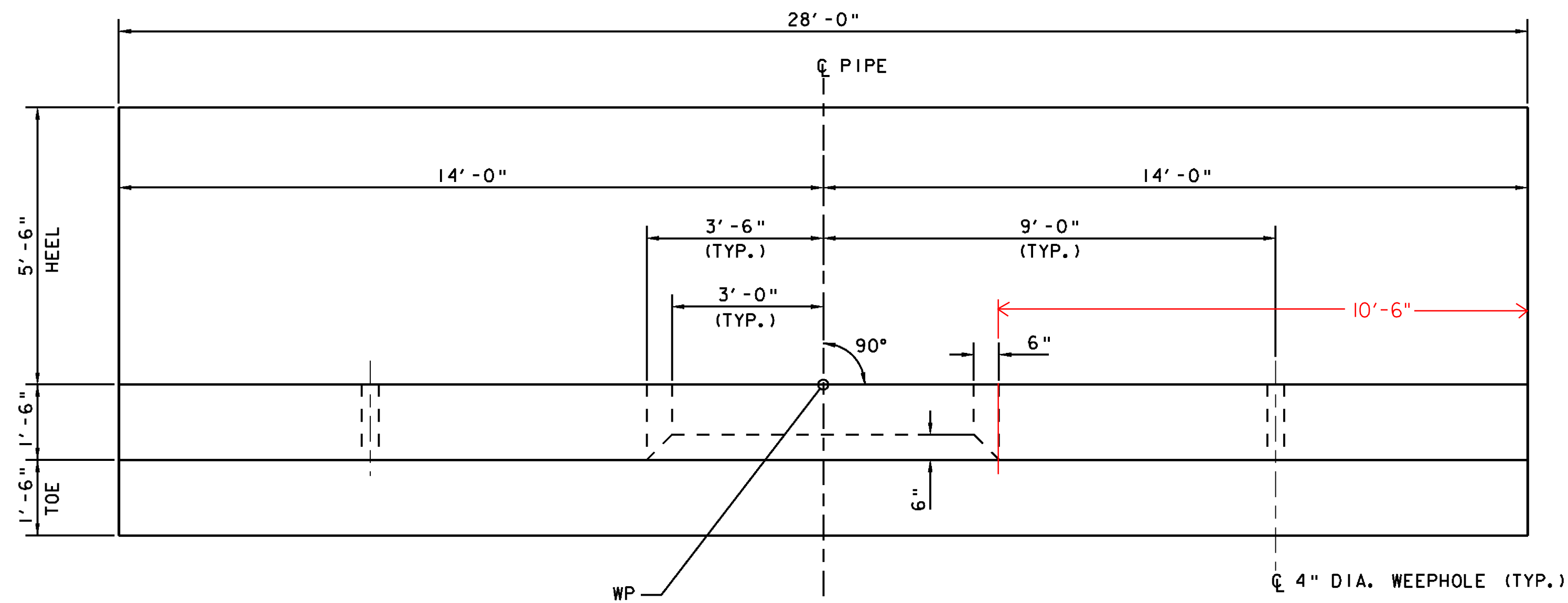
PLOT DATE: 24-AUG-2009  
 DRAWN BY: SLM  
 CHECKED BY: WLD  
 SHEET 25 OF 28





HEADWALL ELEVATION

SCALE 1/2" = 1'-0"  
 1 0 1 2

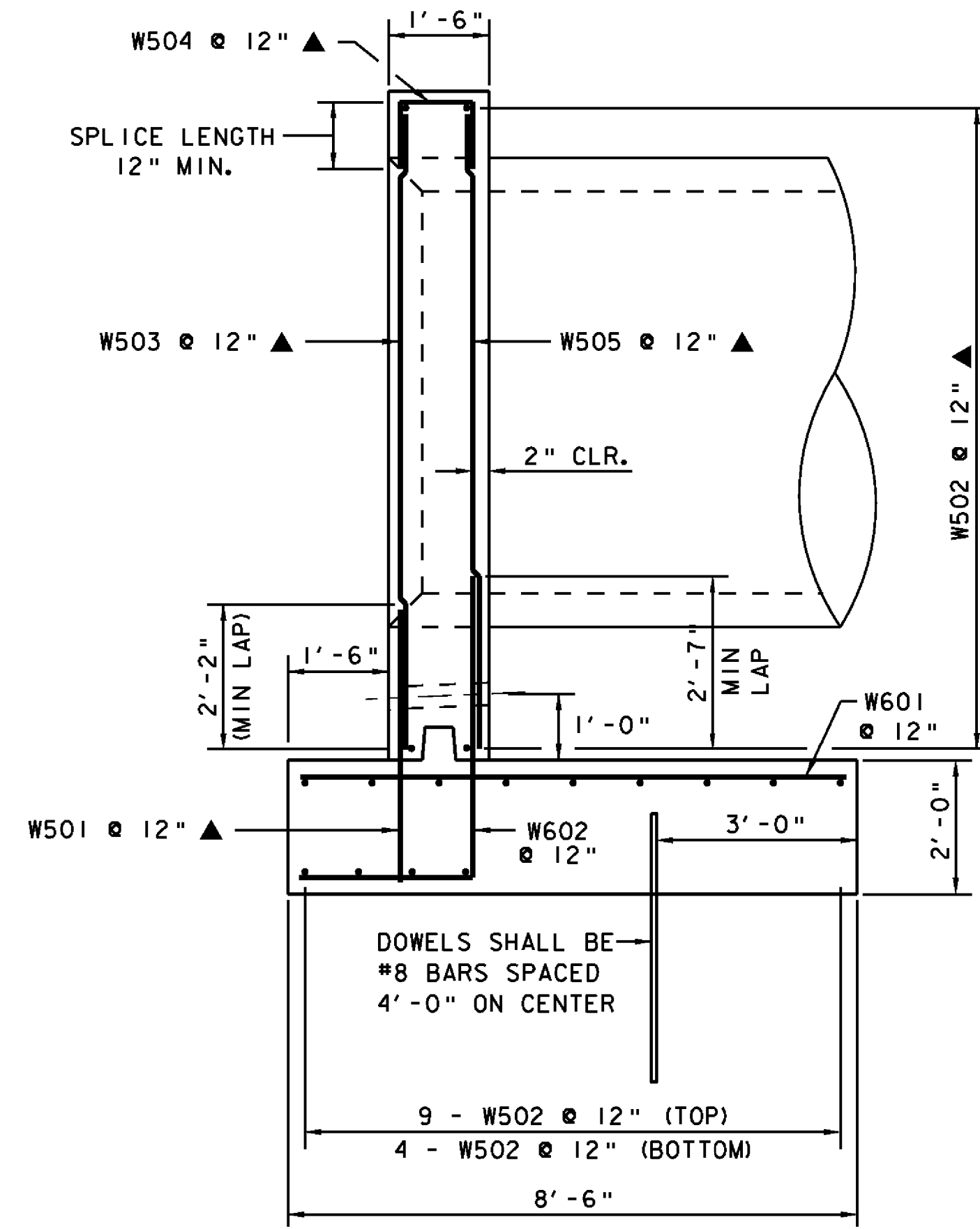


HEADWALL PLAN

SCALE 1/2" = 1'-0"  
 1 0 1 2

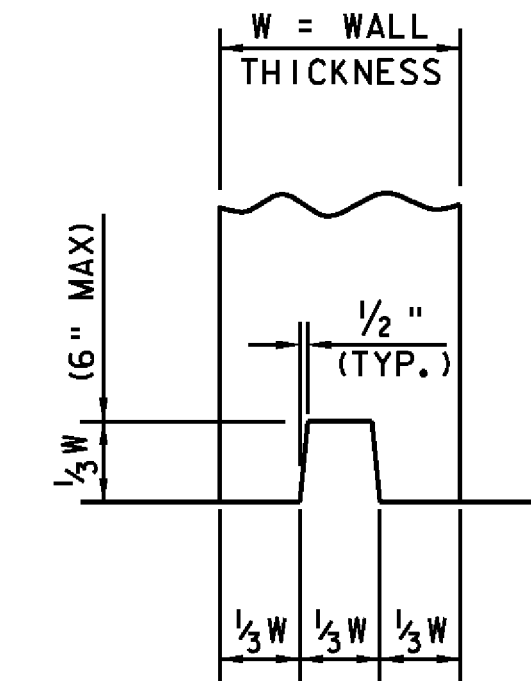
**NOTE:**

- NF - NEAR FACE
- FF - FAR FACE
- EF - EACH FACE
- ▲ - CUT TO FIT IN FIELD
- 3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

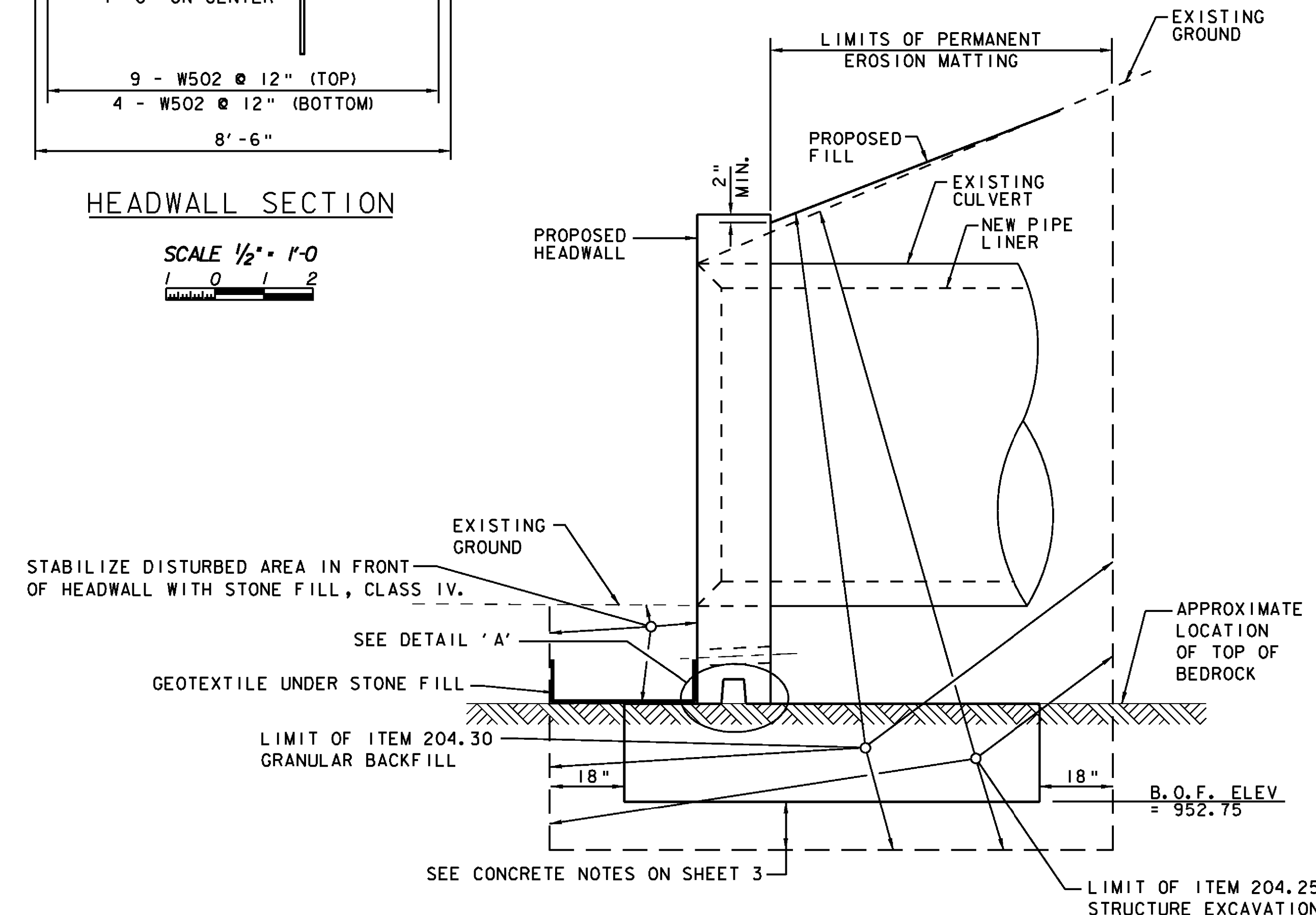


HEADWALL SECTION

SCALE 1/2" = 1'-0"  
 1 0 1 2



DETAIL 'A'  
 NOT TO SCALE



PROPOSED HEADWALL SECTION

SCALE 1/2" = 1'-0"  
 1 0 1 2



PROJECT NAME: LYNDON - DERBY  
 PROJECT NUMBER: IM CULV (19)

FILE NAME: headwall84-derby.dgn  
 PROJECT LEADER: DMB  
 DESIGNED BY: LKW  
 HEADWALL DETAILS - DERBY III-I

PLOT DATE: 24-AUG-2009  
 DRAWN BY: SLM  
 CHECKED BY: WLD  
 SHEET 26 OF 28



