



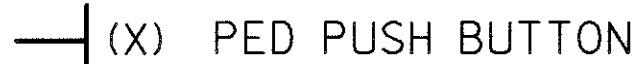



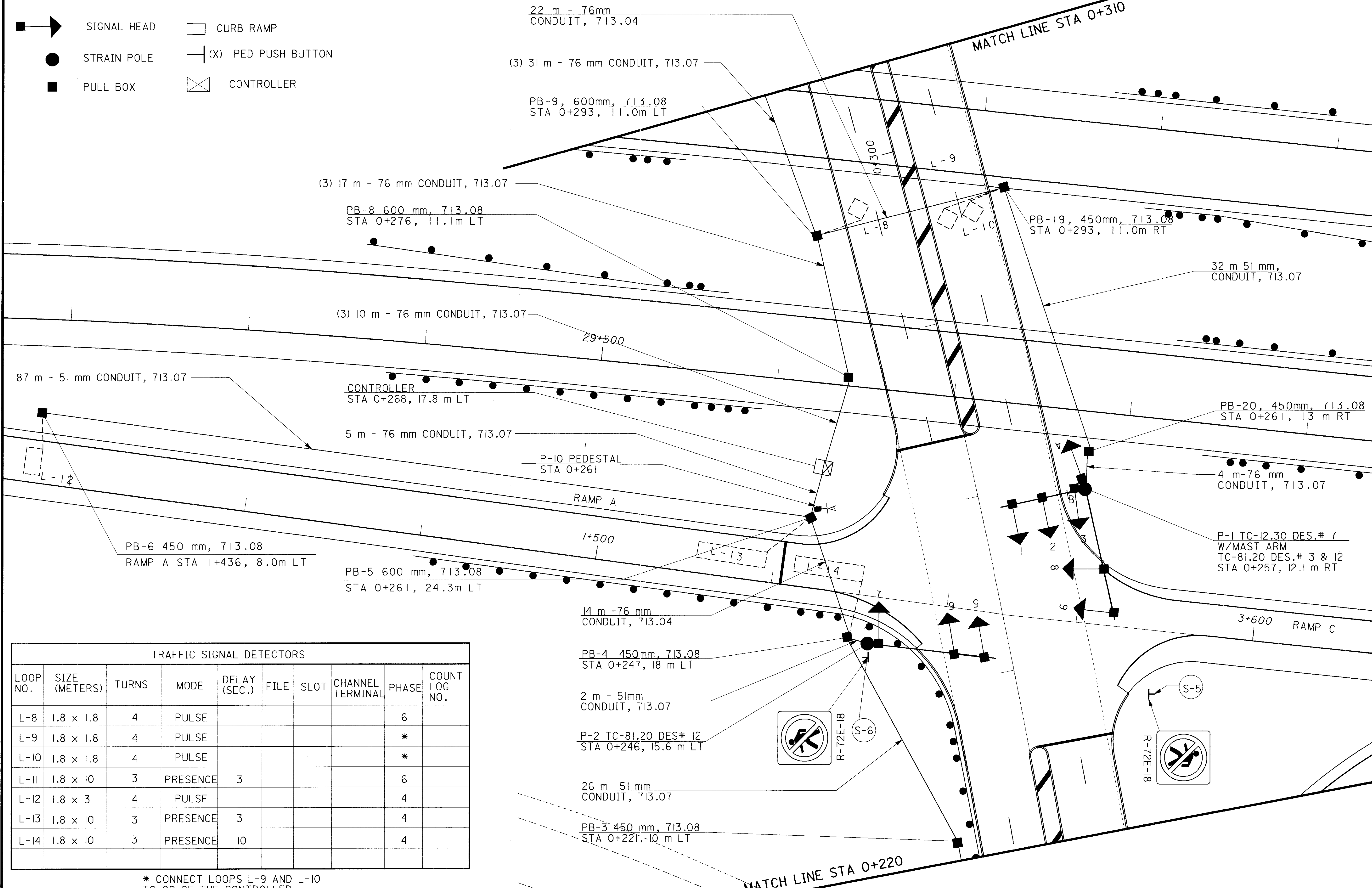
LEGEND

-  SIGNAL HEAD
-  STRAIN POLE
-  PULL BOX
-  CURB RAMP
-  (X) PED PUSH BUTTON
-  CONTROLLER

N

SCALE 1:200  
HORIZONTAL  
SCALE IN METERS

CALCULATED DLW  
CHECKED RM



TRAFFIC SIGNAL DETECTORS

LOOP NO.	SIZE (METERS)	TURNS	MODE	DELAY (SEC.)	FILE	SLOT	CHANNEL TERMINAL	PHASE	COUNT LOG NO.
L-8	1.8 x 1.8	4	PULSE					6	
L-9	1.8 x 1.8	4	PULSE					*	
L-10	1.8 x 1.8	4	PULSE					*	
L-11	1.8 x 10	3	PRESENCE	3				6	
L-12	1.8 x 3	4	PULSE					4	
L-13	1.8 x 10	3	PRESENCE	3				4	
L-14	1.8 x 10	3	PRESENCE	10				4	

\* CONNECT LOOPS L-9 AND L-10 TO 02 OF THE CONTROLLER AT POMEROY ROAD

SIGNAL PLAN  
RAMP A/C

ATH-33-30.981

800  
956

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02/05/00  
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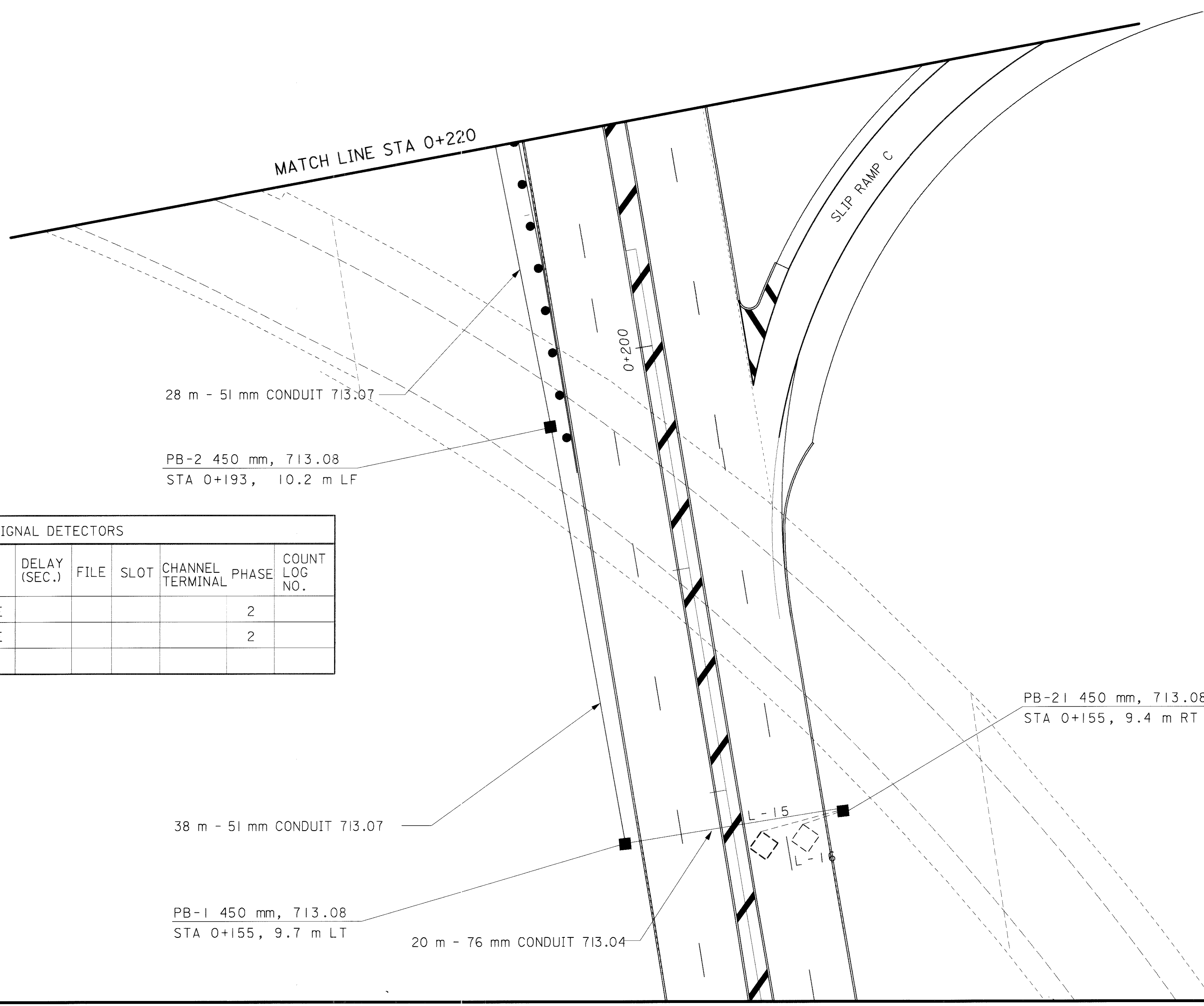


CALCULATED  
DLW  
CHECKED  
RM

**SIGNAL PLAN  
RAMP A/C**

**ATH-33-30.981**

801  
956



MATCH LINE STA 0+220

28 m - 51 mm CONDUIT 713.07

PB-2 450 mm, 713.08  
STA 0+193, 10.2 m LF

PB-21 450 mm, 713.08  
STA 0+155, 9.4 m RT

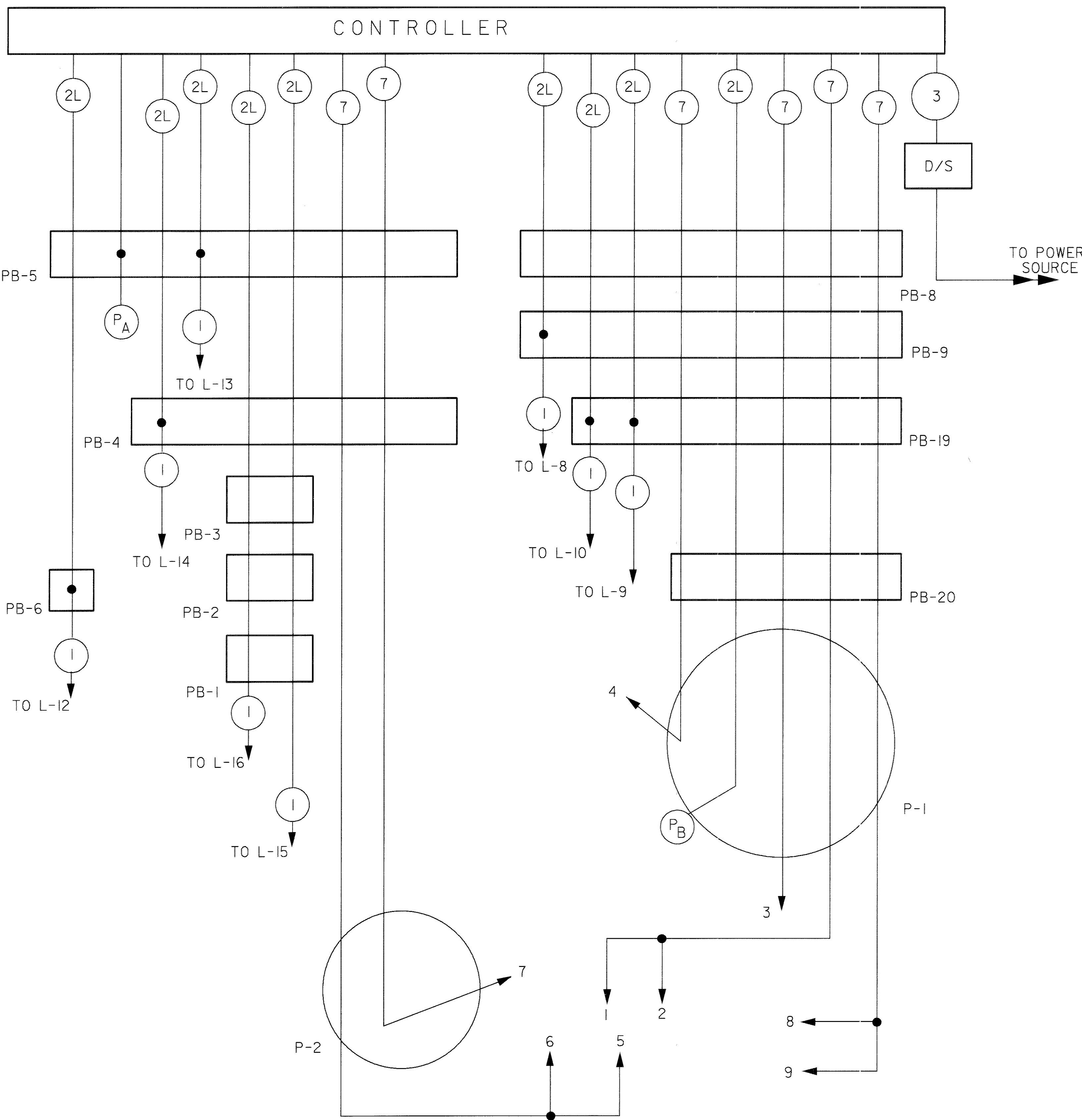
38 m - 51 mm CONDUIT 713.07

PB-1 450 mm, 713.08  
STA 0+155, 9.7 m LT

20 m - 76 mm CONDUIT 713.04

TRAFFIC SIGNAL DETECTORS									
LOOP NO.	SIZE (METERS)	TURNS	MODE	DELAY (SEC.)	FILE	SLOT	CHANNEL TERMINAL	PHASE	COUNT LOG NO.
L-15	1.8 x 1.8	4	PULSE					2	
L-16	1.8 x 1.8	4	PULSE					2	

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WIRING DIAGRAM LEGEND

- ① LOOP DETECTOR WIRE "TYPE E"
- ③ POWER CABLE, 3 CONDUCTOR, #8 AWG
- ②L LOOP DETECTOR LEAD-IN-CABLE
- ⑦ 7 CONDUCTOR, #14 AWG, SIGNAL CABLE
- D/S DISCONNECT SWITCH
- P<sub>a</sub> PEDISTRAN PUSH BUTTON
- SPLICE LOCATION
- ⑥ 6 PAIR, #19 AWG SOLID REA (PE-39), INTERCONNECT CABLE

TO CROSS  
ALBANY ROAD  
PUSH BUTTON  
WAIT FOR  
WALK SIGNAL

R-73A-9

TWO PEDESTRIAN PUSH BUTTON  
SIGNS LOCATED ABOVE PED PUSH  
BUTTON EACH POLE

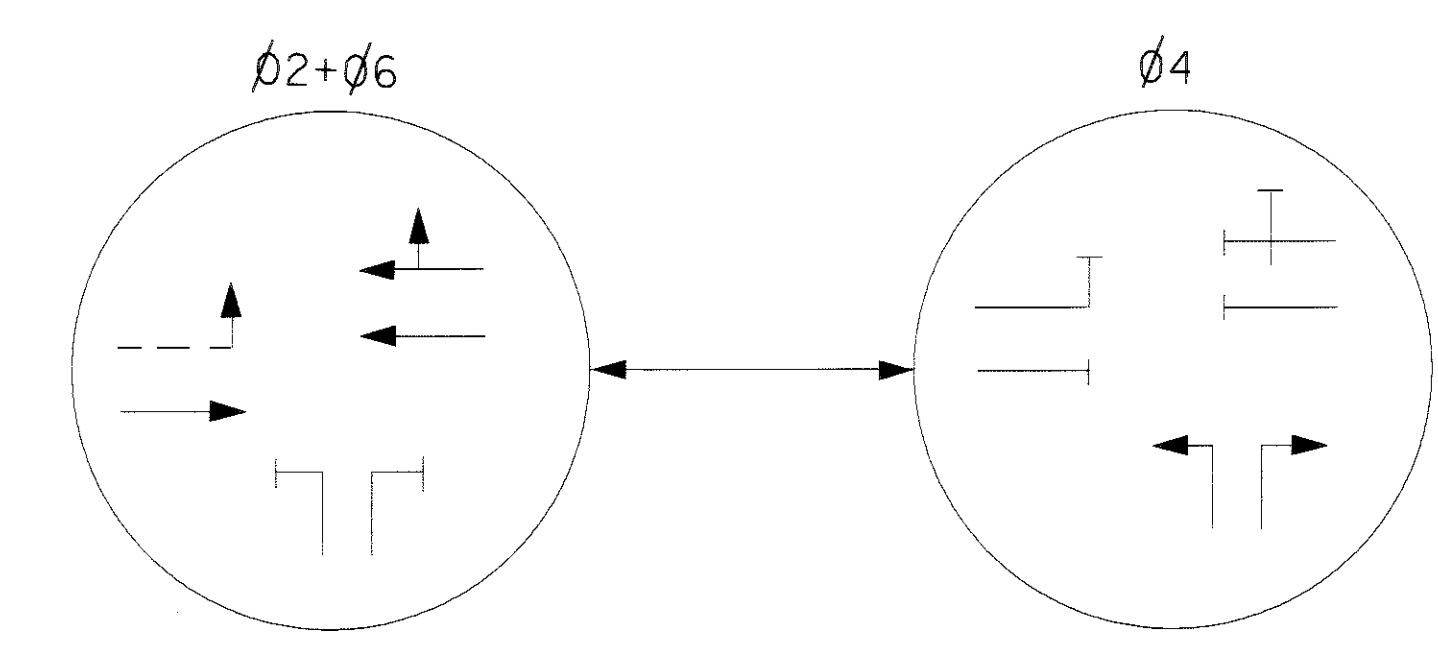


SIGNAL HEAD  
(POLE MOUNTED)  
300 mm LENS  
4

SIGNAL HEAD  
300mm LENS  
1,2,3,5,6,7,8,9

PHASING DIAGRAM  
RAMP A/C

PHASE	MOVEMENT	INTERVAL	SIGNAL NO.								
			1	2	3	4	5	6	7	8	9
ø2 + ø6	↔	RW	G	G	G	G	G	G	R	R	
		C1	Y	Y	Y	Y	Y	Y	R	R	
		C2	R	R	R	R	R	R	R	R	R
		C3									
ø4	↔	RW	R	R	R	R	R	R	R	G	G
		C1	R	R	R	R	R	R	R	G	G
		C2	R	R	R	R	R	R	R	Y	Y
		C3	R	R	R	R	R	R	R	R	R
FLASH			Y	Y	Y	Y	Y	Y	Y	R	R



SIGNAL DETAILS  
RAMP A/C

ATH-33-30.981

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CONTROLLER SETTINGS - POMEROY ROAD

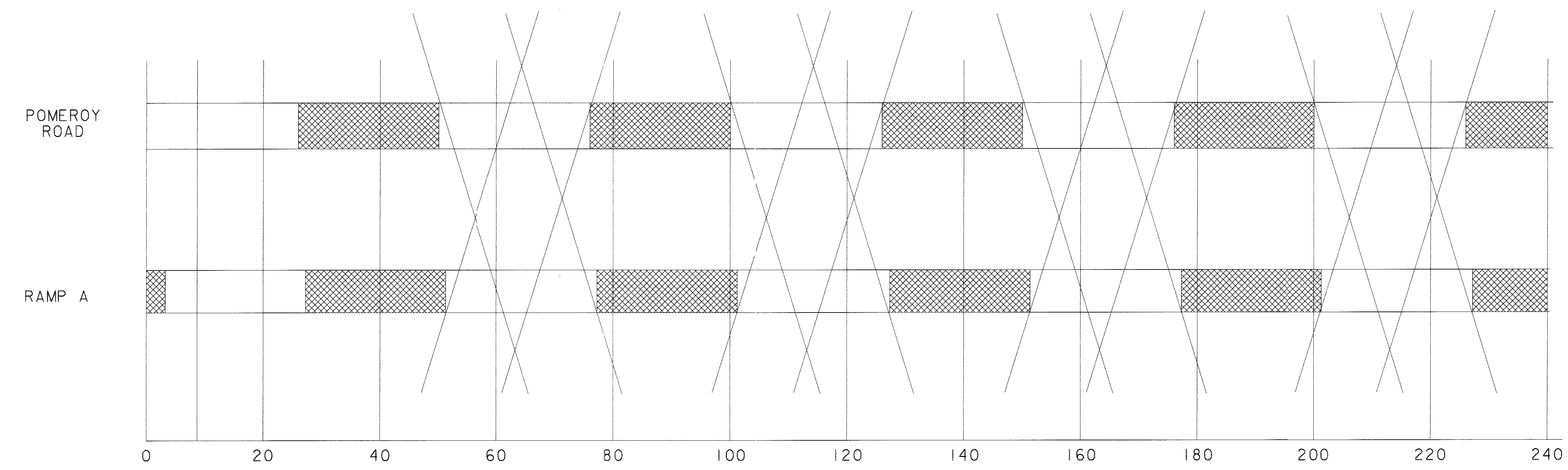
PHASE	1	2	4	6	8
DIRECTION	SBLT	SB	POMEROY RD	NB	RAMP D
MIN GREEN	4	4	4	4	4
BIKE MIN GREEN					
COND SERV MIN GREEN					
WALK			6		6
PED CLEARANCE			16		16
VEH EXTENSION					
ALT VEH EXTENSION					
MAX EXTENSION					
MAX 1	4	26	16	26	16
MAX 2					
MAX 3					
DET FAIL MAX					
YELLOW CHANGE	3	3	3	3	3
RED CLEARANCE	1	1	1	1	1
RED REVERT					
ACT. B4 REDUCTION					
SEC / ACTUATION					
MAX INITIAL					
TIME B4 REDUCTION					
CARS WAITING					
TIME TO REDUCE					
MIN GAP					

MASTER

CONTROLLER SETTINGS - POMEROY ROAD

PHASE	2	4	6
DIRECTION	SB	EB	NB
MIN GREEN	4	4	4
BIKE MIN GREEN			
COND SERV MIN GREEN			
WALK		6	
PED CLEARANCE		16	
VEH EXTENSION			
ALT VEH EXTENSION			
MAX EXTENSION			
MAX 1	26	16	26
MAX 2			
MAX 3			
DET FAIL MAX			
YELLOW CHANGE	3	3	3
RED CLEARANCE	1	1	1
RED REVERT			
ACT. B4 REDUCTION			
SEC / ACTUATION			
MAX INITIAL			
TIME B4 REDUCTION			
CARS WAITING			
TIME TO REDUCE			
MIN GAP			

OFFSET AT START OF PHASE 2 + PHASE 6 GREEN = 3 SEC



NORTHBOUND BANDWIDTH = 16 SEC  
SOUTHBOUND BANDWIDTH = 14 SEC

PROGRESSION SPEED = 35 MPH  
CYCLE LENGTH = 50 SEC

NOTE: A PED CALL WILL EXTEND THE SIDE STREET TIME FOR THE POMEROY RD INTERSECTION AND THE TOTAL CYCLE BY 6 SEC.

## SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REFERENCE SHALL BE MADE TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET OF THESE PLANS.

### 625.03 - POWER SERVICE, AS PER PLAN

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

MR. STEPHEN BELANGER  
COLUMBUS SOUTHERN POWER CO.  
AMERICAN ELECTRIC POWER  
95 EAST MAIN STREET  
CHILLICOTHE, OH 45601-0468  
(740) 774-7136

POWER SERVICE EQUIPMENT SHALL BE INSTALLED AS SPECIFIED IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS, ON STANDARD CONSTRUCTION DRAWINGS HL-40.10M AND HL-60.31M AND AS FOLLOWS:

THE POWER SERVICE SHALL BE 240/480 VOLT, 3 WIRE, SINGLE PHASE, GROUNDED NEUTRAL FOR THE NEW SERVICES TO BE ESTABLISHED AT THE INTERSECTION OF COUNTY ROAD 21 AND US ROUTE 33 AND AT THE INTERSECTION OF COUNTY ROAD 16 AND US ROUTE 33.

ODOT WILL CONTINUE TOPAY FOR ENERGY CONSUMED UNDER THE EXISTING SERVICE ACCOUNT.

CONTROL CENTERS SHALL BE SC60 SINGLE OR DOUBLE STYLE FOR 480 VOLTS, 3 WIRE, GROUNDED NEUTRAL SERVICE, WITH THE PRINCIPLE COMPONENTS BEING A 60 AMPERE COMBINATION FUSED SWITCH AND CONTACTOR AND 60 AMP TERMINAL BLOCKS FOR TERMINATING MULTIPLE CIRCUIT CONDUCTORS. PROVIDE A 76mm, 716.04 CONDUIT BETWEEN EACH COMBINATION CONTACTOR ENCLOSURE AND ITS ASSOCIATED PULL BOX.

CONTRACTOR SHALL PAY ALL CHARGES MADE BY THE POWER COMPANY FOR ESTABLISHMENT OF THE NEW ELECTRICAL SERVICES. CONTRACTOR SHALL PAY ELECTRICAL ENERGY CHARGES FOR ANY ENERGY USED BY THE NEW SERVICES UNTIL THE NEW SERVICES ARE ACCEPTED BY ODOT.

### UTILITIES NOTIFICATION

AT LEAST (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ANY AREA WHICH MAY INVOLVE UNDERGROUND FACILITIES THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UNDERGROUND UTILITY PROTECTION SERVICES AND THE OWNERS OF ALL UNDERGROUND UTILITY FACILITIES SHOWN IN THE PLANS.

AFTER NOTIFICATION, THE OWNER OF ANY UNDERGROUND UTILITY FACILITY THAT IS TO REMAIN IN SERVICE DURING OR AFTER CONSTRUCTION SHALL WITHIN FORTY-EIGHT (48) HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO (2) DAYS AHEAD OF PLANNED CONSTRUCTION.

## LIGHT TOWER LUMINAIRE MOUNTING ARRANGEMENT

LUMINAIRE MOUNTING ARMS FOR TOWER LIGHTING UNITS SHALL BE INSTALLED BY THE POLE MANUFACTURER SO THAT THE REQUIRED NUMBER OF LUMINAIRES CAN BE INSTALLED ON THE LUMINAIRE MOUNTING RING IN A SYMMETRICAL ARRANGEMENT. WHEN ONLY TWO ARMS ARE REQUIRED THEY SHALL BE POSITIONED SO THE ARMS ARE PARALLEL TO THE CENTERLINE OR BASELINE OF THE PAVEMENT FROM WHICH THE TOWER IS STATIONED.

UNLESS OTHERWISE SPECIFIED IN THE PLANS, ALL LUMINAIRES WITH ASYMMETRIC DISTRIBUTIONS SHALL BE INSTALLED SO THE "ARROW" OR "STREET SIDE" DESIGNATION ON THE OPTICAL ASSEMBLY IS POSITIONED PERPENDICULAR TO THE CENTERLINE OR BASELINE OF THE PAVEMENT FROM WHICH THE TOWER IS STATIONED. ANY OPTICAL ROTATION CALLED FOR WILL BE EXPRESSED AS A CLOCKWISE (CW) OR COUNTERCLOCKWISE (CCW) ANGULAR MEASUREMENT FROM THE NORMAL "ARROW" ORIENTATION.

## LIGHT TOWER HANDHOLE LOCATION

FOR LIGHT TOWERS WITH MAINTENANCE PLATFORMS, THE POLE HANDHOLE SHALL BE LOCATED ON THE DOWN SLOPE OR OPEN SIDE OF THE PLATFORM. FOR LIGHT TOWERS WITHOUT MAINTENANCE PLATFORMS, THE POLE HANDHOLE SHALL BE LOCATED ON THE SIDE OPPOSITE TRAFFIC FLOW ON THE ROADWAY FROM WHICH THE TOWER IS STATIONED.

## ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING SPLICES OR CONNECTOR KITS IN THE PULL BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTION IN THE PULL BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

ALL SIGN SERVICE TAPS TO LIGHTING CIRCUITS WILL BE MADE WITH SPLICE KITS PER 713.15, 5. SIGN FEED TO DISCONNECT SWITCH SHALL BE 5000 VOLT CABLE.

## HIGH VOLTAGE DIRECT CURRENT TEST

A HIGH VOLTAGE DIRECT CURRENT TEST SHALL BE PERFORMED IN ACCORDANCE WITH ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 625.22. A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR THIS ITEM.

## PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE MAINTAINING AGENCY. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEMS BEING LOCKED.

## LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", PHILLIPS "CERMALUX", OSRAM "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER.

## LUMINAIRE, HIGH MAST, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE DEPARTMENT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LUMINAIRES SHALL BE AS FOLLOWS:

HIGH (LOW) MAST, ASYMMETRIC DISTRIBUTION, 400 WATT HIGH PRESSURE SODIUM, 480 VOLT; COOPER HMC, TEST #HMA4S4J; GENERAL ELECTRIC HMA, TEST #GE 8946; HOLOPHANE HMST, TEST #36801; OR EQUAL AS APPROVED BY THE ENGINEER.

HIGH (LOW) MAST, SYMMETRIC DISTRIBUTION, 400 WATT HIGH PRESSURE SODIUM, 480 VOLT; COOPER HMX, TEST #HAL4SDW; GENERAL ELECTRIC HMA, TEST #GE6312; HOLOPHANE HMST, TEST #36383; OR EQUAL AS APPROVED BY THE ENGINEER.

## UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD DRAWING HL-30.11M FOR DETAILS OF DRAINING BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 6 METERS.

## LUMINAIRE, CONVENTIONAL, AS PER PLAN

THE CONVENTIONAL STYLE B TYPE II LUMINAIRES SHALL BE AMERICAN ELECTRIC SERIES I25/I26 WITH PHOTOMETRIC DISTRIBUTION AE38491, COOPER LIGHTING OVD WITH PHOTO DISTRIBUTION OVD252F, GENERAL ELECTRIC M-400 WITH PHOTOMETRIC DISTRIBUTION 1014 OR EQUAL AS APPROVED BY THE ENGINEER.

## LUMINAIRE REMOVED, AS PER PLAN

THE WIRING FEEDING POWER TO THE LUMINAIRE SHALL BE DISCONNECTED AT THE LUMINAIRE TERMINALS. THE LUMINAIRE SHALL BE REMOVED FROM ITS SUPPORT. IF THE LUMINAIRE IS NOT PHYSICALLY DAMAGED BEYOND TO A POINT PRECLUDING REUSE, IT SHALL BE STORED FOR PICKUP BY THE CITY OF ATHENS. SEE GENERAL NOTES FOR CITY OF ATHENS PHONE NUMBER. IF THE LUMINAIRE IS DAMAGED BEYOND THE POINT OF REUSE, IT SHALL BE PROPERLY SCRAPPED AT A SUITABLE FACILITY. THE FITNESS OF THE LUMINAIRE FOR REUSE SHALL BE DETERMINED BY THE ENGINEER.

## LIGHT POLE REMOVED, AS PER PLAN

THE POLE AND BRACKET WIRING FEEDING POWER TO THE LUMINAIRE SHALL BE DISCONNECTED AT THE BASE OF THE POLE. THE POLE AND ITS FLANGIBLE BASE SHALL BE REMOVED FROM THE FOUNDATION. IF THE POLE IS NOT PHYSICALLY DAMAGED BEYOND TO A POINT PRECLUDING REUSE, IT SHALL BE STORED FOR PICKUP BY THE CITY OF ATHENS. SEE GENERAL NOTES FOR CITY OF ATHENS PHONE NUMBER. IF THE POLE IS DAMAGED BEYOND THE POINT OF REUSE, IT SHALL BE PROPERLY SCRAPPED AT A SUITABLE FACILITY. THE FITNESS OF THE LIGHT POLE FOR REUSE SHALL BE DETERMINED BY THE ENGINEER.

## LIGHT POLE FOUNDATION REMOVED, AS PER PLAN

THE FOUNDATION SHALL BE REMOVED TO A MINIMUM OF ONE FOOT BELOW FINAL GRADE UNLESS THE PROPOSED WORK REQUIRES FURTHER REMOVAL. THE REMOVED PORTIONS SHALL BE PROPERLY DISPOSED OF AT A SUITABLE FACILITY. THE RESULTANT DEPRESSION SHALL BE FILLED AND COMPACTED. THE SURFACE SHALL BE RESTORED TO MATCH THE SURROUND.

## FENCE, TYPE CL, AS PER PLAN

THE FENCE SHALL BE OF TYPE CL WITH A HEIGHT OF 1.8m. THE TOP OF THE FENCE SHALL HAVE TWO RUNS OF BARBED WIRE. THE WIRE SHALL BE ANGLED OUTWARD, AWAY FROM THE CONTROL CENTER CONTAINED WITHIN. SEE DETAIL SHEET 824.

## GATE, TYPE CL, AS PER PLAN

THE GATE SHALL BE OF TYPE CL WITH A HEIGHT OF 1.8m. THE TOP OF THE GATE SHALL HAVE TWO RUNS OF BARBED WIRE. THE WIRE SHALL BE ANGLED OUTWARD, AWAY FROM THE CONTROL CENTER CONTAINED WITHIN. SEE DETAIL SHEET 824.

CALCULATED  
CHC  
CHECKED  
EAH

LIGHTING GENERAL NOTES

ATH-033-30.981

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ITEM NO.	SHEET NO.										ITEM NO.	EXT	TOTAL	UNIT	DESCRIPTION
	805	806	807	808											
202	2										202	75507	2	EACH	LUMINAIRE REMOVED, AS PER PLAN
202	2										202	75401	2	EACH	LIGHT POLE REMOVED, AS PER PLAN
202	2										202	75501	2	EACH	LIGHT POLE FOUNDATION REMOVED, AS PER PLAN
603	90	78	12	24							603	00400	204	METER	100 mm CONDUIT, TYPE E
625	12	22		8							625	00500	42	EACH	CONNECTOR KIT, TYPE II
625	54	39	6	24							625	01500	123	EACH	CABLE SPLICING KIT
625				4							625	06500	4	EACH	LIGHT POLE, DESIGN AT 5.5B 12.7
625	2	6									625	13200	8	EACH	LIGHT TOWER, BBBB 30.5
625		3									625	13204	3	EACH	LIGHT TOWER, BBBB 33.5
625	2	2									625	13208	4	EACH	LIGHT TOWER, BBBB 36.6
625	1										625	13406	1	EACH	LIGHT TOWER, BBBBBB 36.6
625	1										625	13410	1	EACH	LIGHT TOWER, BBBBBB 39.6
625				4							625	14100	4	EACH	LIGHT POLE FOUNDATION, 610 mm x 2.4 m DEEP
625	6	11									625	15200	17	EACH	LIGHT TOWER FOUNDATION, 914 mm x 7.6 m DEEP
625		2									625	21000	2	EACH	LIGHT TOWER MAINTENANCE PLATFORM, TYPE A
625	1	1									625	21100	2	EACH	LIGHT TOWER MAINTENANCE PLATFORM, TYPE B
625	1	1									625	21200	2	EACH	LIGHT TOWER MAINTENANCE PLATFORM, TYPE C
625	8	138									625	22900	146	METER	NO. 1/0 AWG 5000 VOLT DISTRIBUTION CABLE
625	272			303							625	23200	575	METER	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE
625		75									625	23300	75	METER	NO. 2 AWG 5000 VOLT DISTRIBUTION CABLE
625				144							625	23400	144	METER	NO. 10 AWG POLE AND BRACKET CABLE
625		473									625	24314	473	METER	38 mm DUCT CABLE WITH 3 - NO. 1/0 AWG 5000 VOLT CABLES
625	911			117							625	24320	1028	METER	38 mm DUCT CABLE WITH 3 - NO. 4 AWG 5000 VOLT CABLES
625		3750	803								625	24330	4553	METER	38 mm DUCT CABLE WITH 3 - NO. 2 AWG 5000 VOLT CABLES
625	77	59		80							625	25500	216	METER	CONDUIT, 76 mm, 713.04
625	45										625	25900	45	METER	CONDUIT JACKED OR DRILLED, 76 mm
625				4							625	26251	4	EACH	LUMINAIRE, CONVENTIONAL, AS PER PLAN
625	28	44									625	26261	72	EACH	LUMINAIRE, HIGH MAST, AS PER PLAN
625	821	4216	800	188							625	29002	6025	METER	TRENCH, 0.6 m DEEP
625	14	14	2	8							625	30700	38	EACH	PULL BOX, 713.08, 450 mm
625	1										625	30706	1	EACH	PULL BOX, 713.08, 600 mm
625	7	10		6							625	32000	23	EACH	GROUND ROD
625	1			2							625	34001	3	EACH	POWER SERVICE, AS PER PLAN
625	LUMP										625	38000	LUMP	LUMP	HIGH VOLTAGE TEST
607				12							607	20001	12	METER	FENCE, TYPE CL, AS PER PLAN
607				2							607	50901	2	EACH	GATE, TYPE CL, AS PER PLAN

CALCULATED  
CHC  
CHECKED  
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LIGHTING GENERAL SUMMARY

ATH-033-30.981

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12000  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
CHC  
CHECKED  
EAH

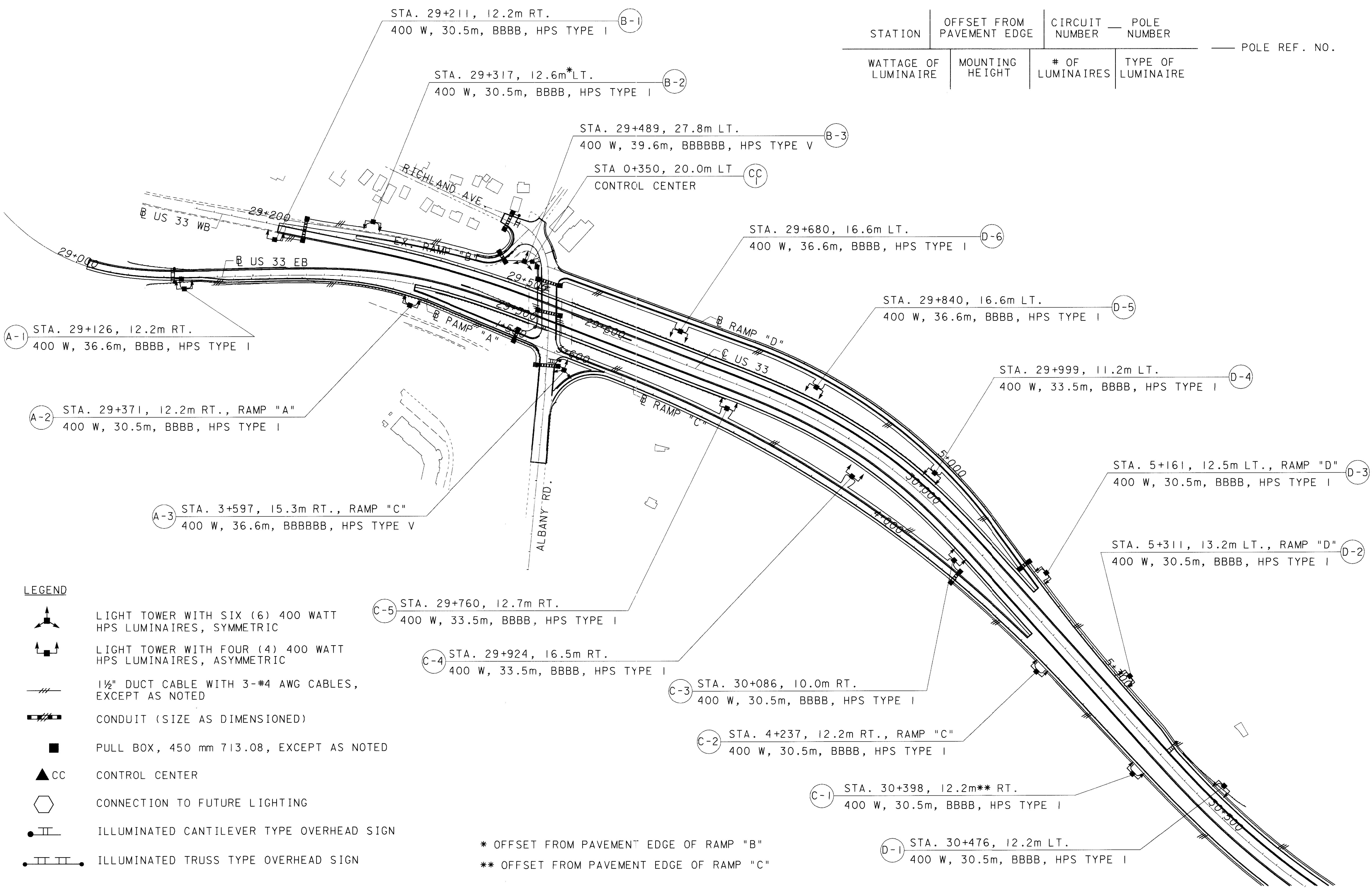
**LIGHTING SCHEMATIC PLAN**  
**US 33 MAINLINE & RICHLAND AVE / ALBANY RD**

**ATH-33-30.981**

809  
956

POLE LEGEND

STATION	OFFSET FROM PAVEMENT EDGE	CIRCUIT NUMBER	POLE NUMBER	POLE REF. NO.
WATTAGE OF LUMINAIRE	MOUNTING HEIGHT	# OF LUMINAIRES	TYPE OF LUMINAIRE	



LEGEND

- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
- LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
- 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CC CONTROL CENTER
- CONNECTION TO FUTURE LIGHTING
- ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
- ILLUMINATED TRUSS TYPE OVERHEAD SIGN

\* OFFSET FROM PAVEMENT EDGE OF RAMP "B"  
 \*\* OFFSET FROM PAVEMENT EDGE OF RAMP "C"

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CONTROL CENTER DATA								
CONTROL CENTER	TYPE OF SERVICE	CONNECTED LOAD KVA	SERVICE ENTRANCE CONDUCTOR SIZE-AWG	ENCLOSURE RATING (AMPS)	CIRCUIT NUMBER	CIRCUIT LOAD AMPS*	CIRCUIT FUSE SIZE AMPS	MAINTAINING AGENCY
CC-2	120/240 V 3 WIRE GROUNDED NEUTRAL	1.0	4	100	E	3	30	ODOT

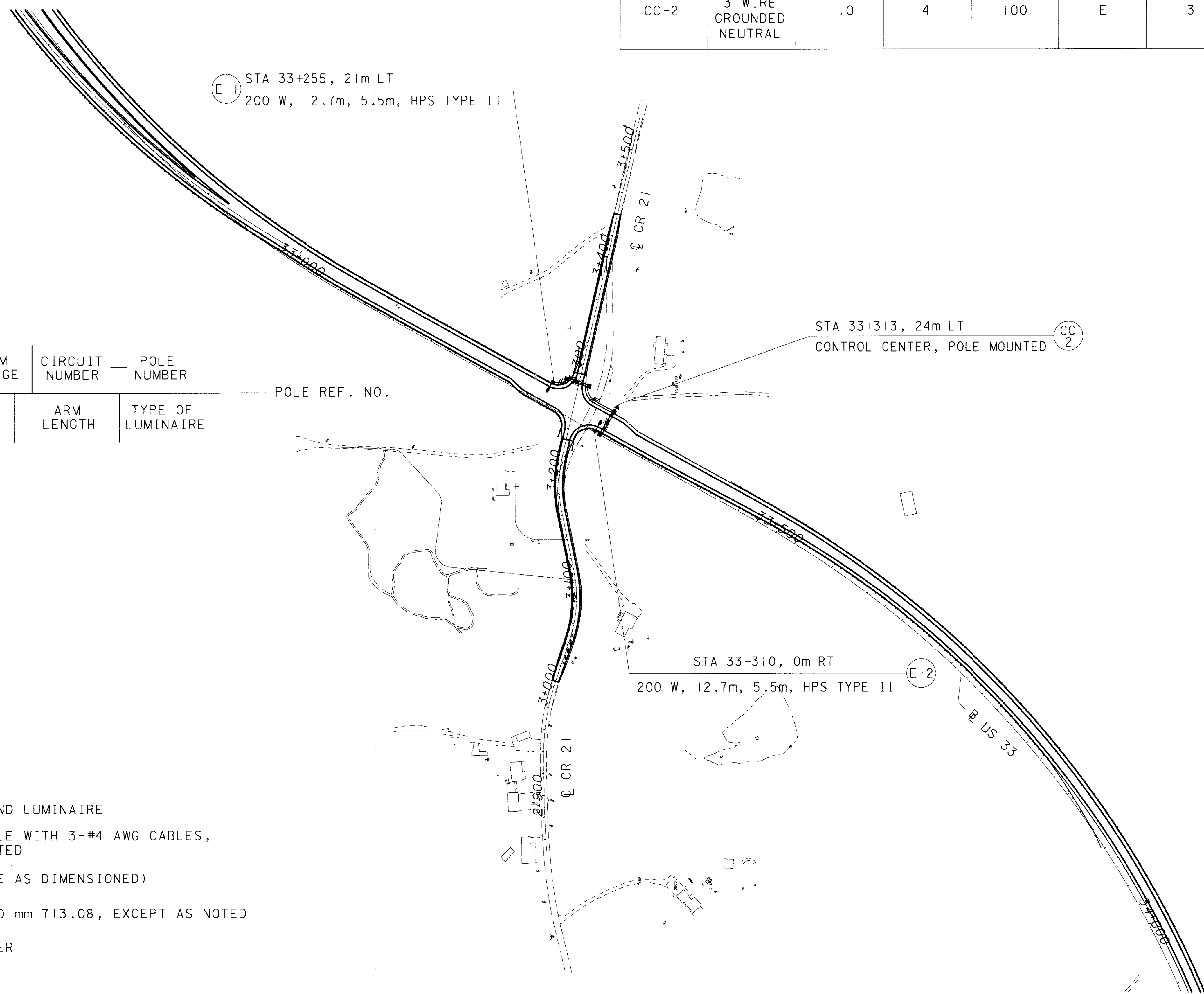
HORIZONTAL SCALE IN METERS

**POLE LEGEND**

STATION	OFFSET FROM PAVEMENT EDGE	CIRCUIT NUMBER	POLE NUMBER	POLE REF. NO.
WATTAGE OF LUMINAIRE	MOUNTING HEIGHT	ARM LENGTH	TYPE OF LUMINAIRE	

**LEGEND**

- LIGHT POLE AND LUMINAIRE
- 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CONTROL CENTER



**LIGHTING SCHEMATIC PLAN  
US 33 MAINLINE & CR 21**

**ATH-33-30.981**



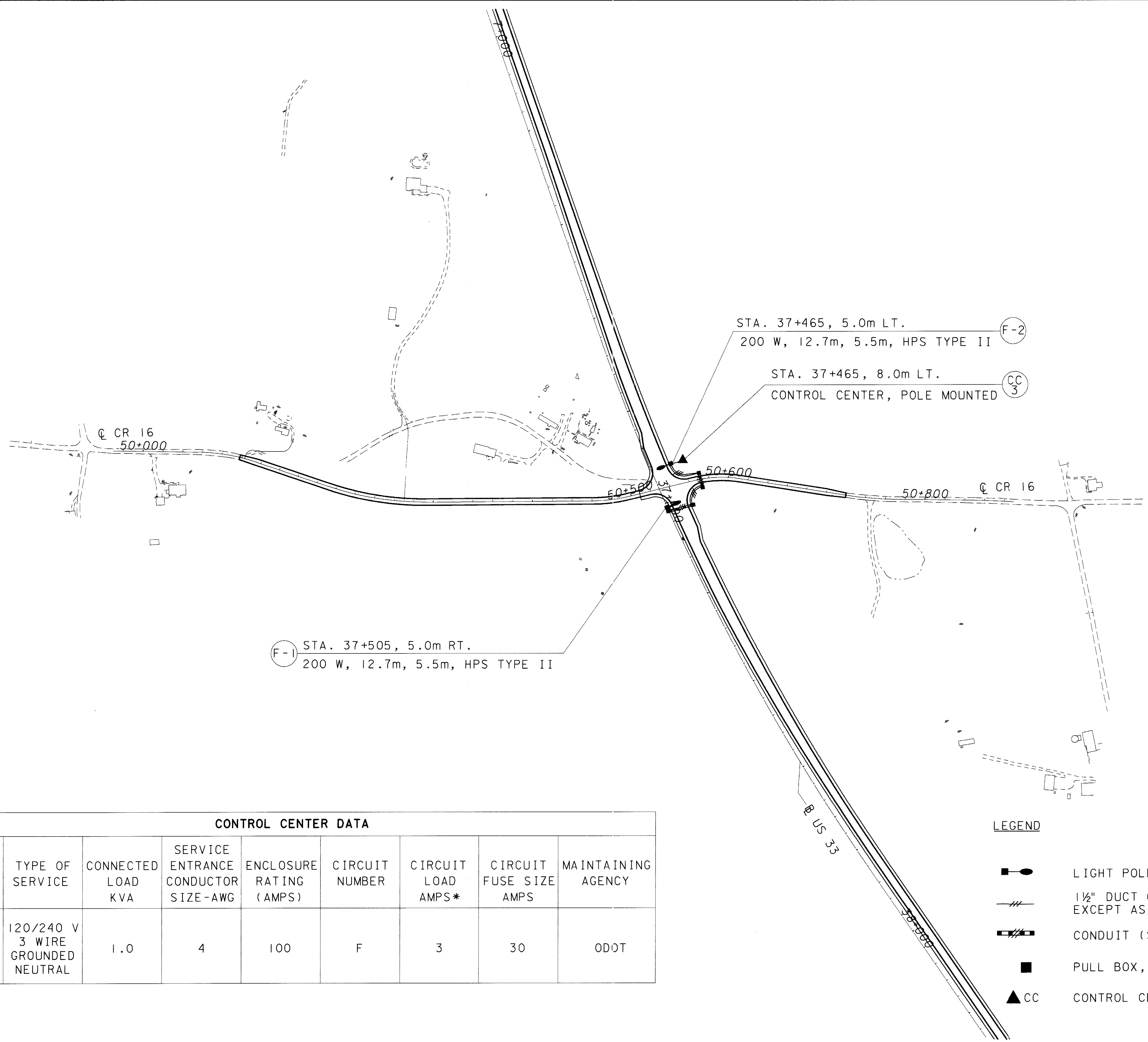
0 10 20 30  
1:2000  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
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**LIGHTING SCHEMATIC PLAN  
US 33 MAINLINE & CR 16**

**ATH-33-30.981**

811  
956



(F-1) STA. 37+505, 5.0m RT.  
200 W, 12.7m, 5.5m, HPS TYPE II


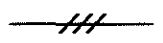



STA. 37+465, 5.0m LT.  
200 W, 12.7m, 5.5m, HPS TYPE II (F-2)

STA. 37+465, 8.0m LT.  
CONTROL CENTER, POLE MOUNTED (CC-3)

**CONTROL CENTER DATA**

CONTROL CENTER	TYPE OF SERVICE	CONNECTED LOAD KVA	SERVICE ENTRANCE CONDUCTOR SIZE-AWG	ENCLOSURE RATING (AMPS)	CIRCUIT NUMBER	CIRCUIT LOAD AMPS*	CIRCUIT FUSE SIZE AMPS	MAINTAINING AGENCY
CC-3	120/240 V 3 WIRE GROUNDED NEUTRAL	1.0	4	100	F	3	30	ODOT

**LEGEND**

-  LIGHT POLE AND LUMINAIRE
-  1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
-  CONDUIT (SIZE AS DIMENSIONED)
-  PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
-  CC CONTROL CENTER

04/02/14 PM  
01/31/01  
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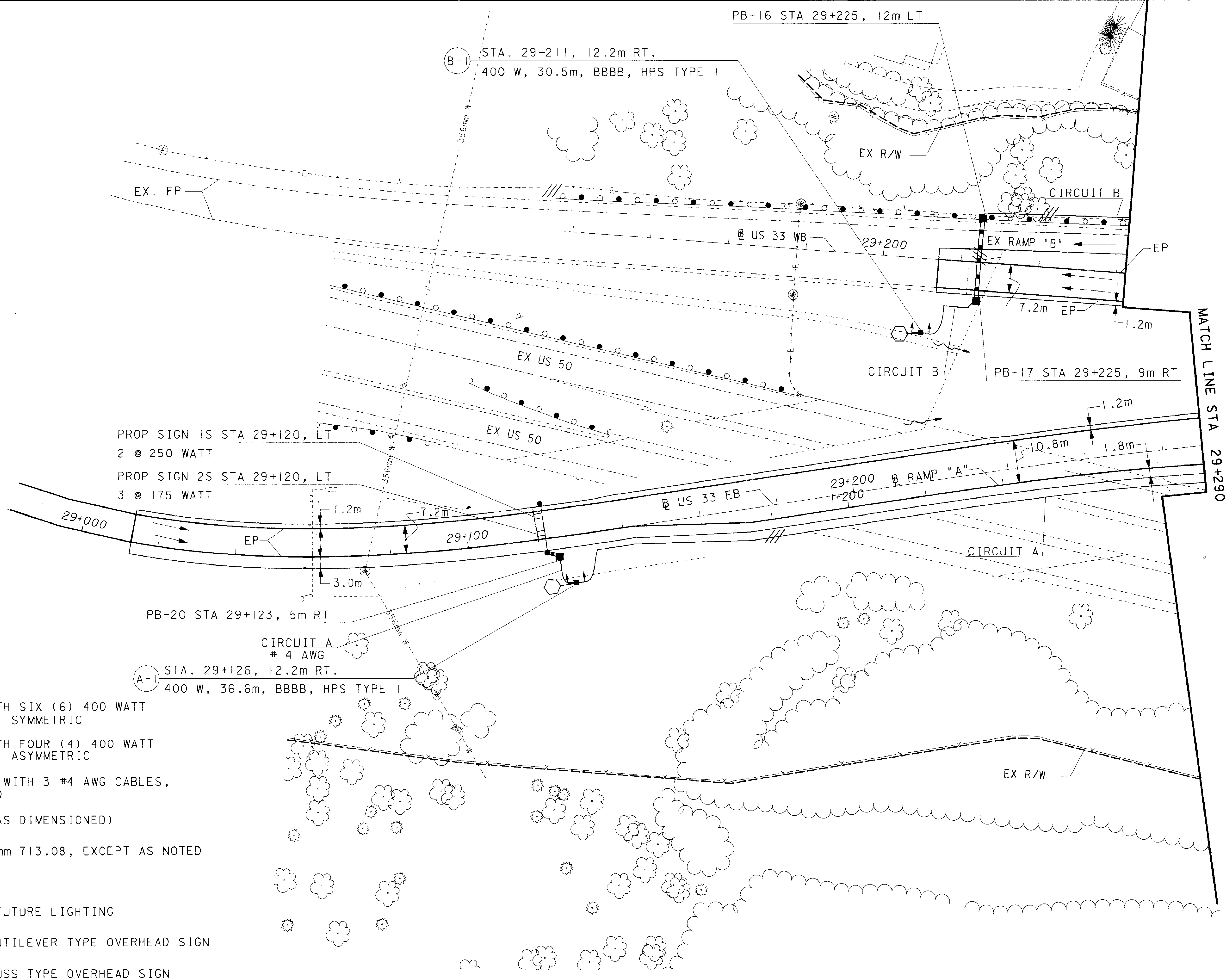
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SCALE IN METERS

CALCULATED  
CHC  
CHECKED  
EAH

**LIGHTING PLAN**  
**STA 28+980 TO STA 29+290**

**ATH-33-30.981**

812  
956



PROP SIGN 1S STA 29+120, LT  
 2 @ 250 WATT  
 PROP SIGN 2S STA 29+120, LT  
 3 @ 175 WATT

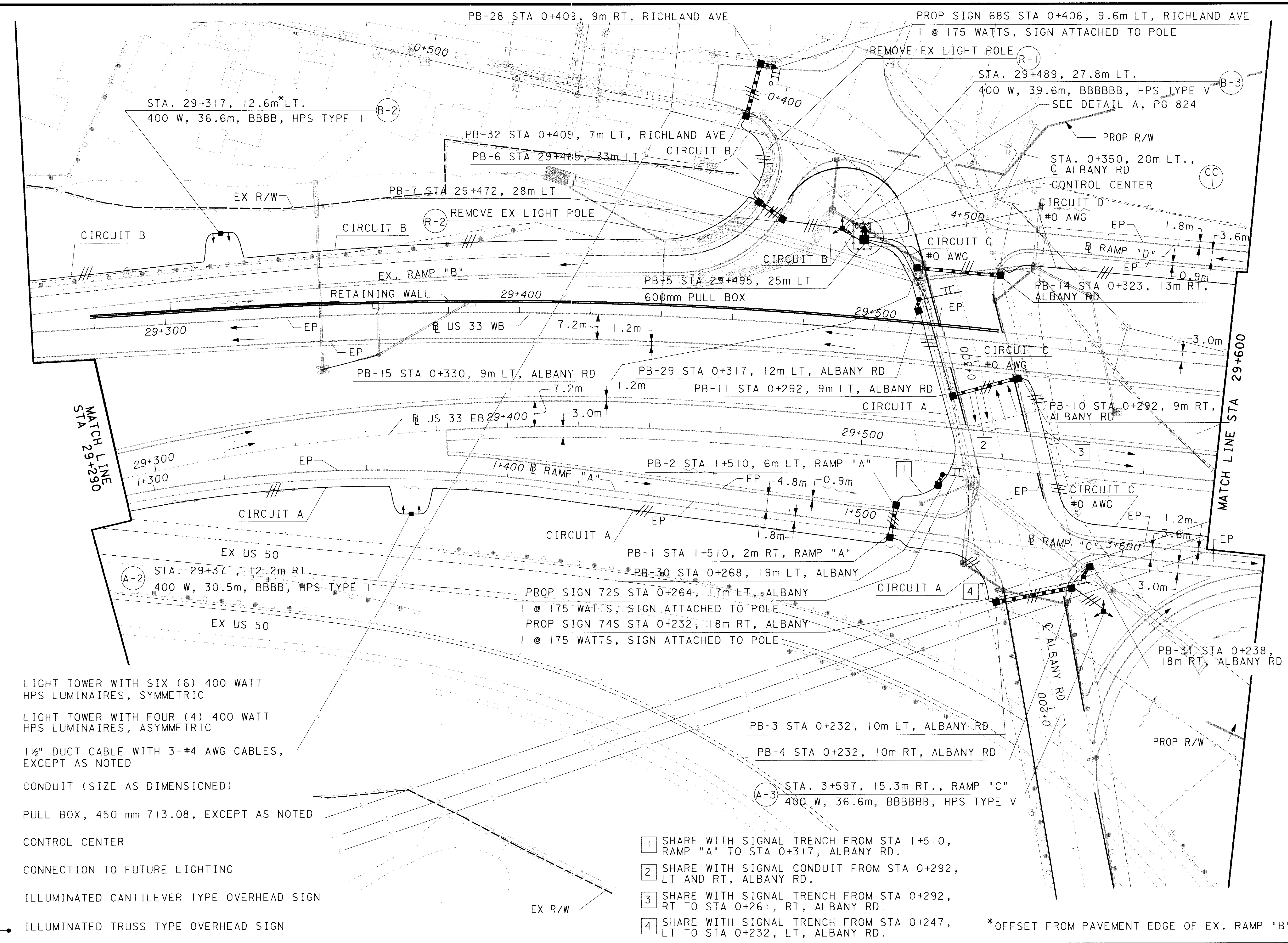
(A-1) STA. 29+126, 12.2m RT.  
 400 W, 36.6m, BBBB, HPS TYPE I

**LEGEND**

- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
- LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
- 1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CONTROL CENTER
- CONNECTION TO FUTURE LIGHTING
- ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
- ILLUMINATED TRUSS TYPE OVERHEAD SIGN

NOTE: PULL BOX NO.'S 18 & 19 WERE NOT USED

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01/31/01  
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- LEGEND**
- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
  - LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
  - 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
  - CONDUIT (SIZE AS DIMENSIONED)
  - PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
  - CONTROL CENTER
  - CONNECTION TO FUTURE LIGHTING
  - ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
  - ILLUMINATED TRUSS TYPE OVERHEAD SIGN

- 1 SHARE WITH SIGNAL TRENCH FROM STA 1+510, RAMP "A" TO STA 0+317, ALBANY RD.
- 2 SHARE WITH SIGNAL CONDUIT FROM STA 0+292, LT AND RT, ALBANY RD.
- 3 SHARE WITH SIGNAL TRENCH FROM STA 0+292, RT TO STA 0+261, RT, ALBANY RD.
- 4 SHARE WITH SIGNAL TRENCH FROM STA 0+247, LT TO STA 0+232, LT, ALBANY RD.

\*OFFSET FROM PAVEMENT EDGE OF EX. RAMP "B"

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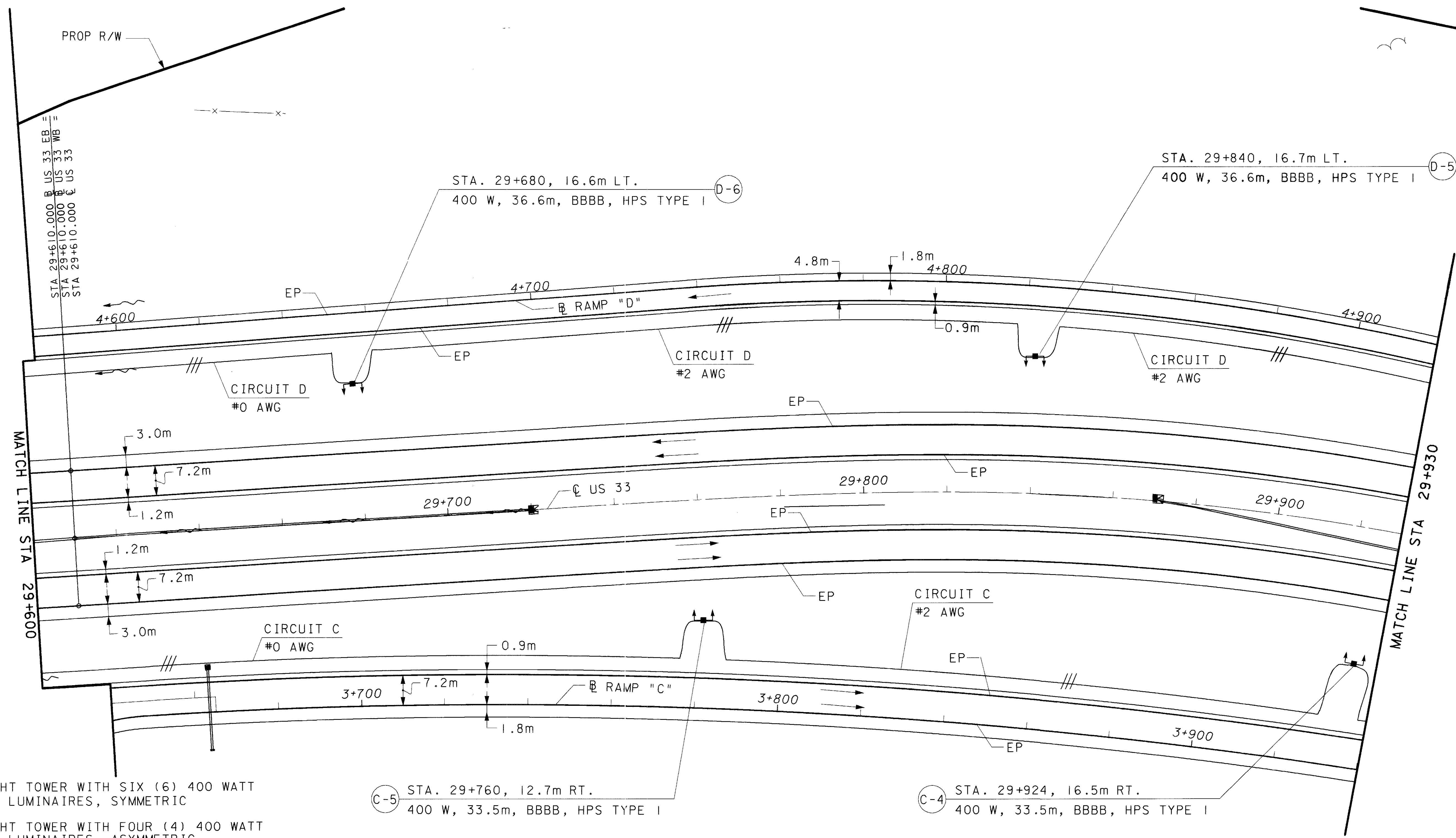
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CALCULATED CHC  
CHECKED EAH

**LIGHTING PLAN**  
**STA 29+600 TO STA 29+930**

**ATH-33-30.981**

814  
956


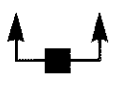
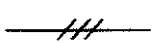



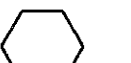
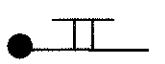
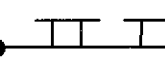


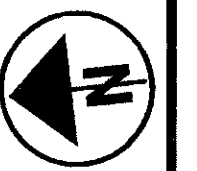
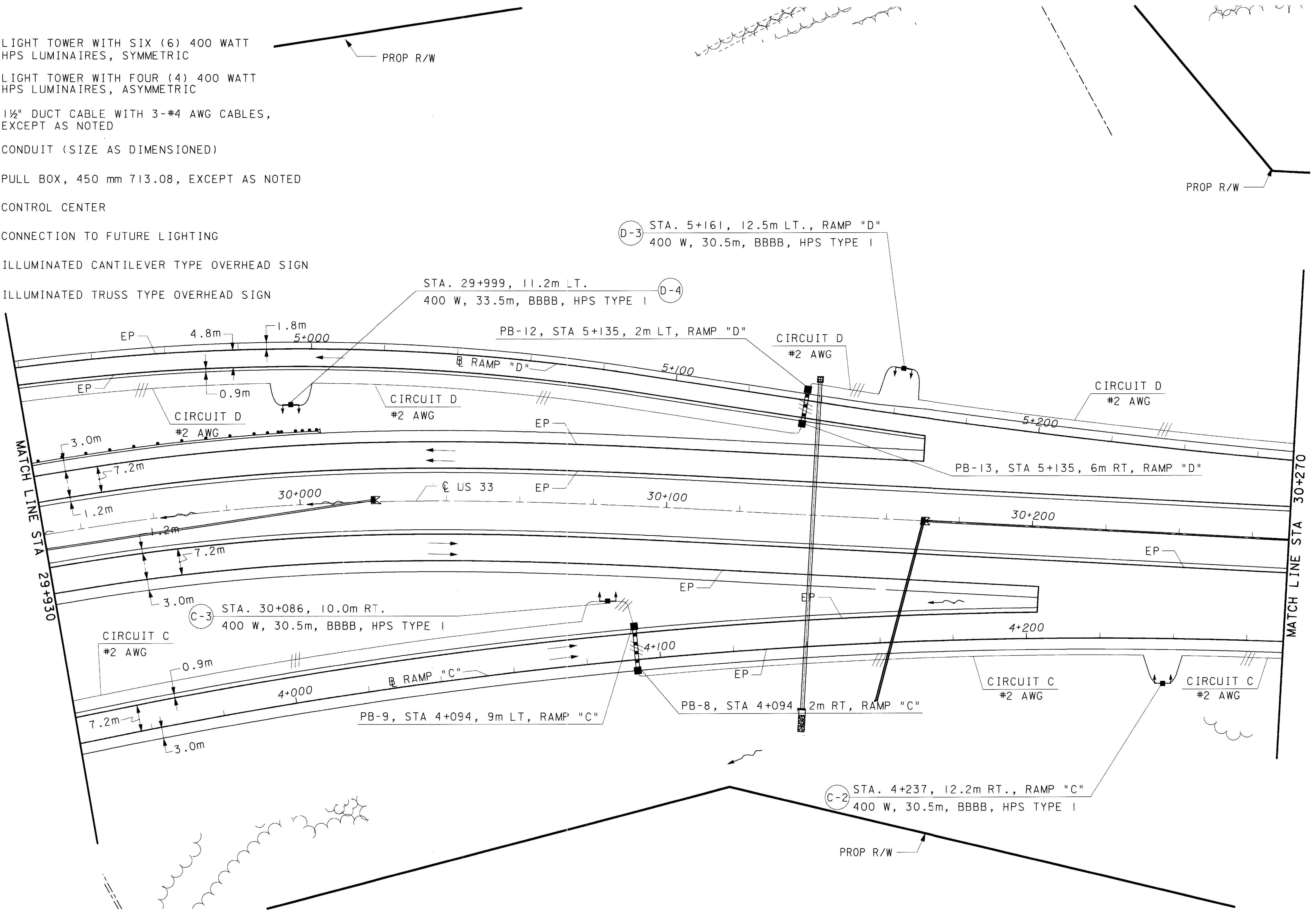
- LEGEND**
- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
  - LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
  - 1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
  - CONDUIT (SIZE AS DIMENSIONED)
  - PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
  - CONTROL CENTER
  - CONNECTION TO FUTURE LIGHTING
  - ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
  - ILLUMINATED TRUSS TYPE OVERHEAD SIGN

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01/31/01  
Us:\316294\18287-FinalDesign\Light\LP103033.dgn



LEGEND

-  LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
-  LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
-  1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
-  CONDUIT (SIZE AS DIMENSIONED)
-  PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
-  CC CONTROL CENTER
-  CONNECTION TO FUTURE LIGHTING
-  ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
-  ILLUMINATED TRUSS TYPE OVERHEAD SIGN

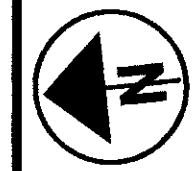


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 CHECKED: EAH

**ATH-33-30.981**  
**LIGHTING PLAN**  
**STA 29+930 TO STA 30+270**

**ATH-33-30.981**

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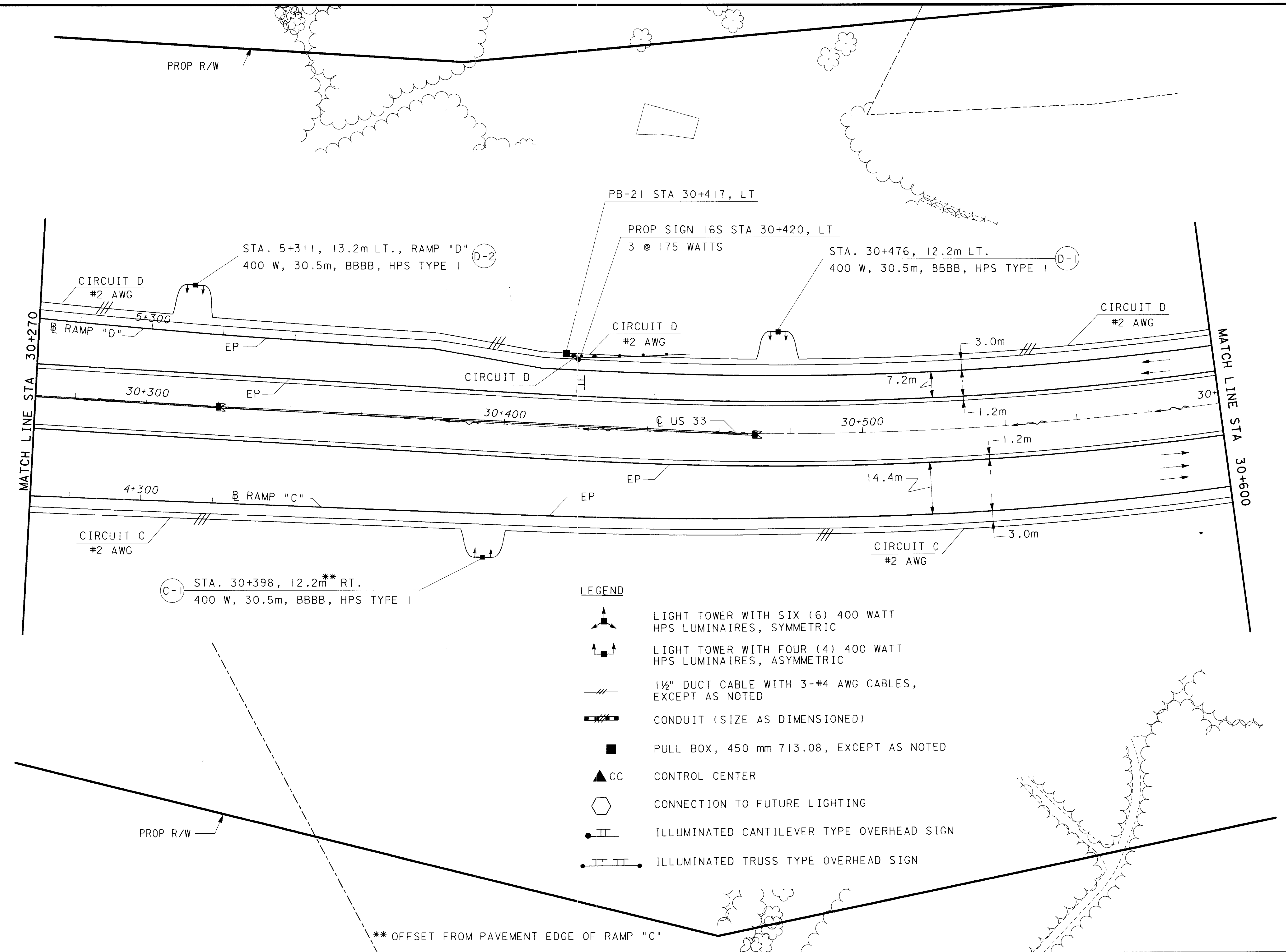
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CALCULATED  
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CHECKED  
EAH

**LIGHTING PLAN  
STA 30+270 TO STA 30+600**

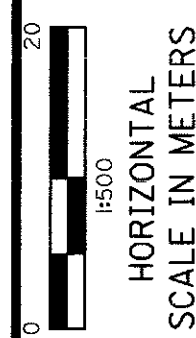
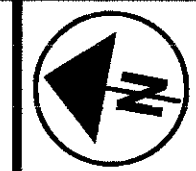
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816  
956



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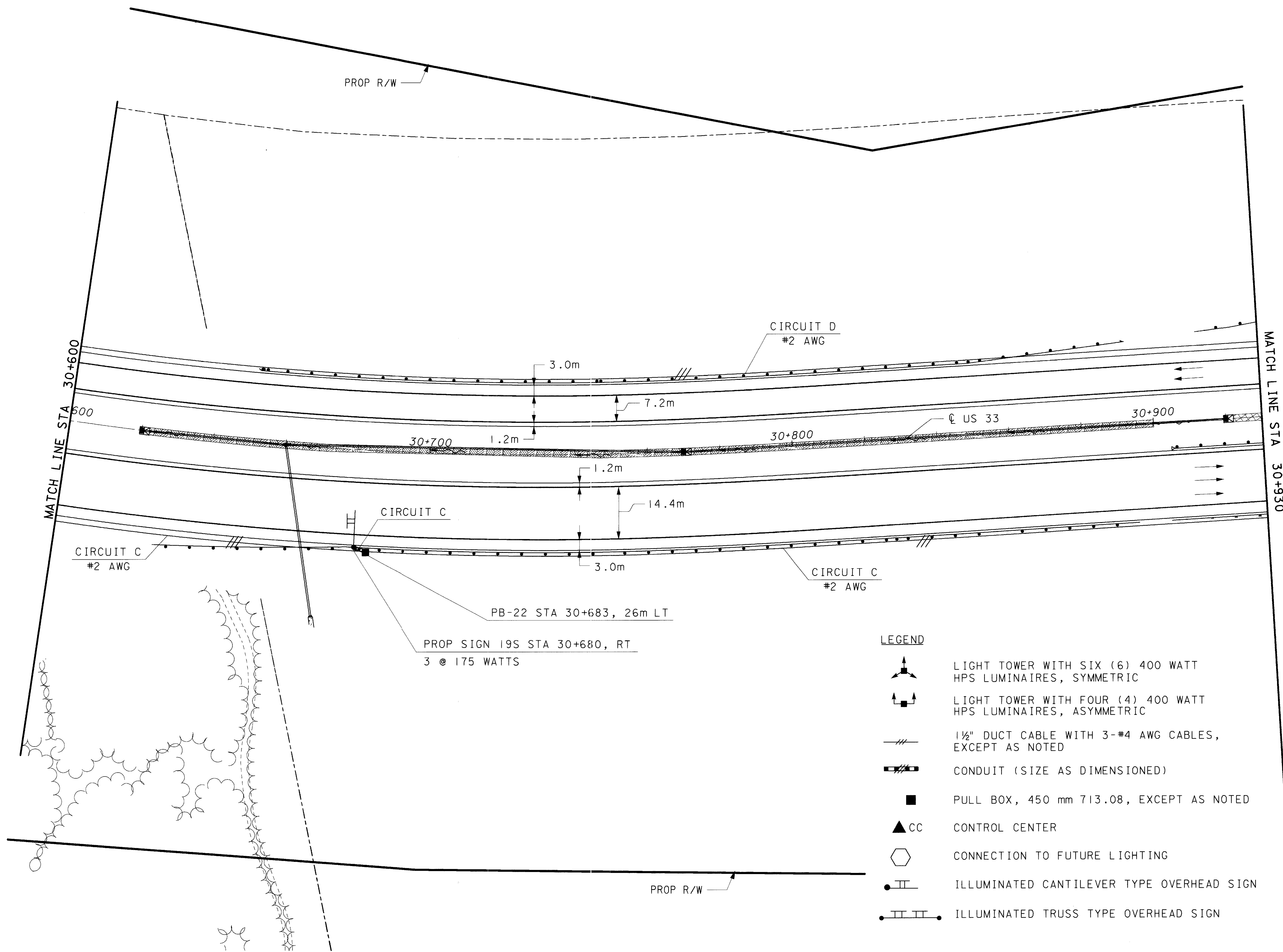
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CALCULATED  
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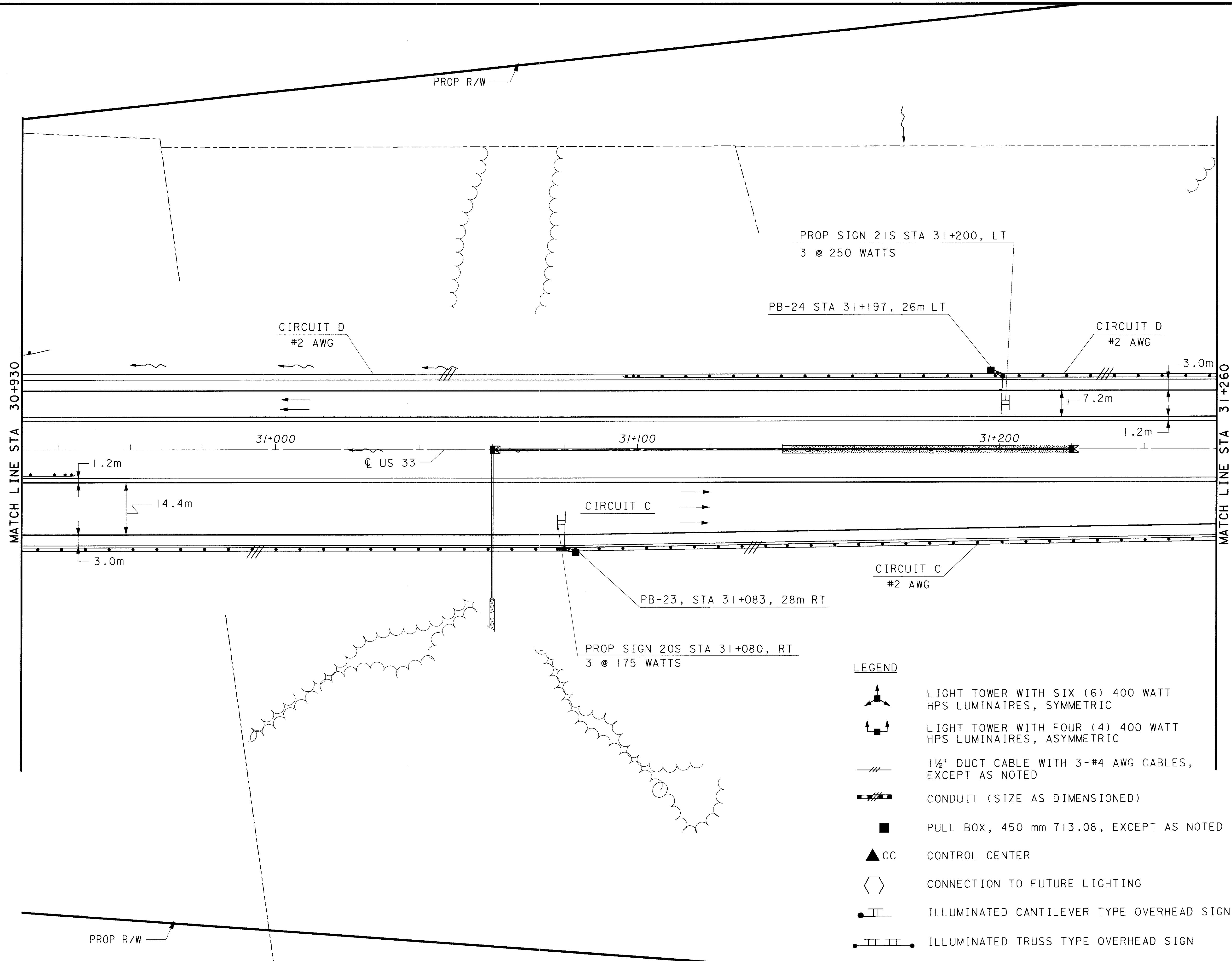
ATH-33-30.981  
 LIGHTING PLAN  
 STA 30+600 TO STA 30+930

ATH-33-30.981



- LEGEND**
- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
  - LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
  - 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
  - CONDUIT (SIZE AS DIMENSIONED)
  - PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
  - CONTROL CENTER
  - CONNECTION TO FUTURE LIGHTING
  - ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
  - ILLUMINATED TRUSS TYPE OVERHEAD SIGN

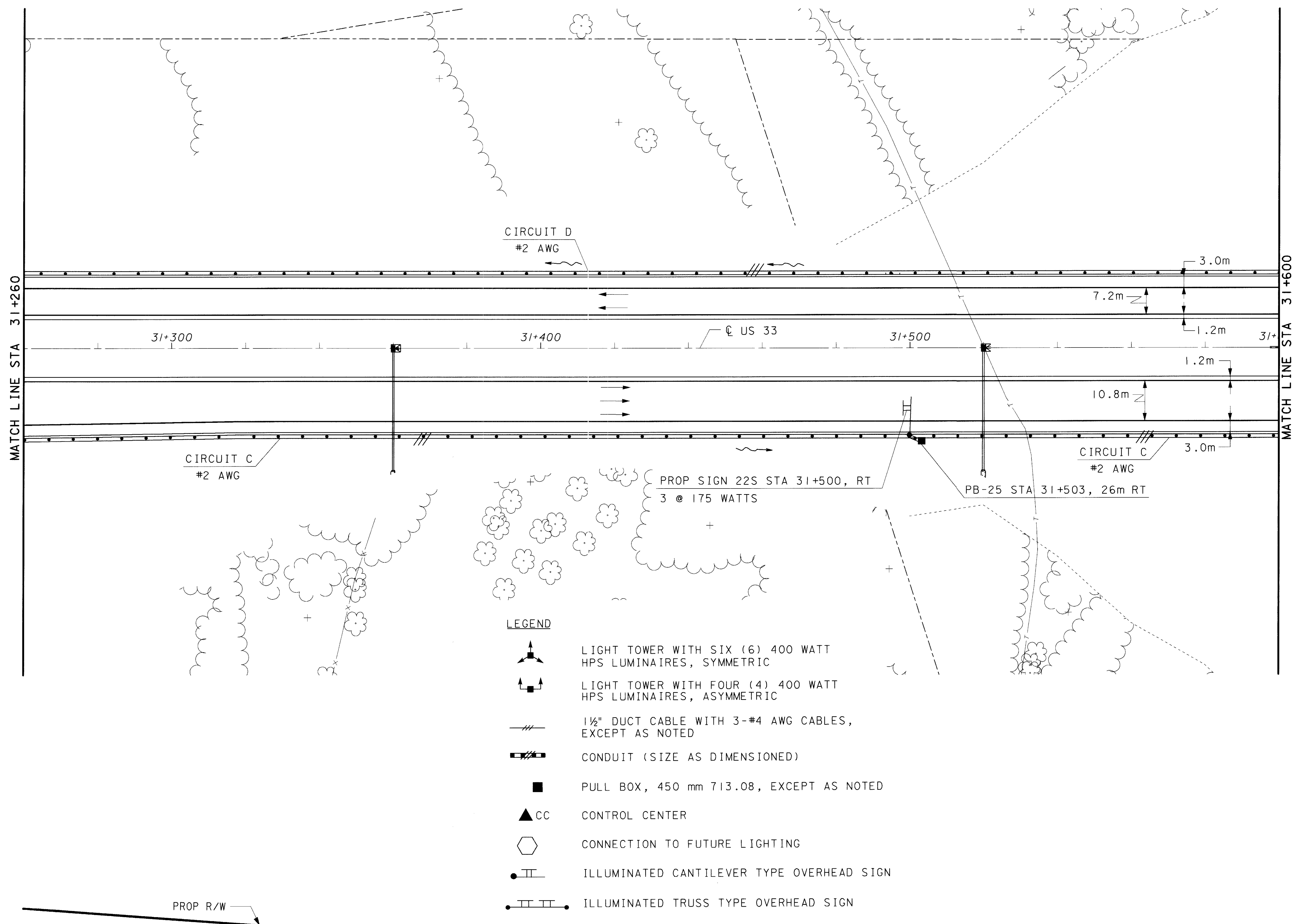
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 SCALE IN METERS  
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 CHECKED EAH

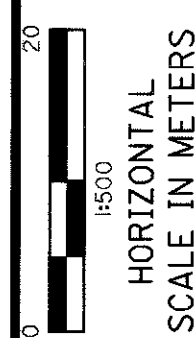
**ATH-33-30.981**  
**LIGHTING PLAN**  
**STA 30+930 TO STA 31+260**

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**LEGEND**

- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
- LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
- 1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CC CONTROL CENTER
- CONNECTION TO FUTURE LIGHTING
- ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
- ILLUMINATED TRUSS TYPE OVERHEAD SIGN

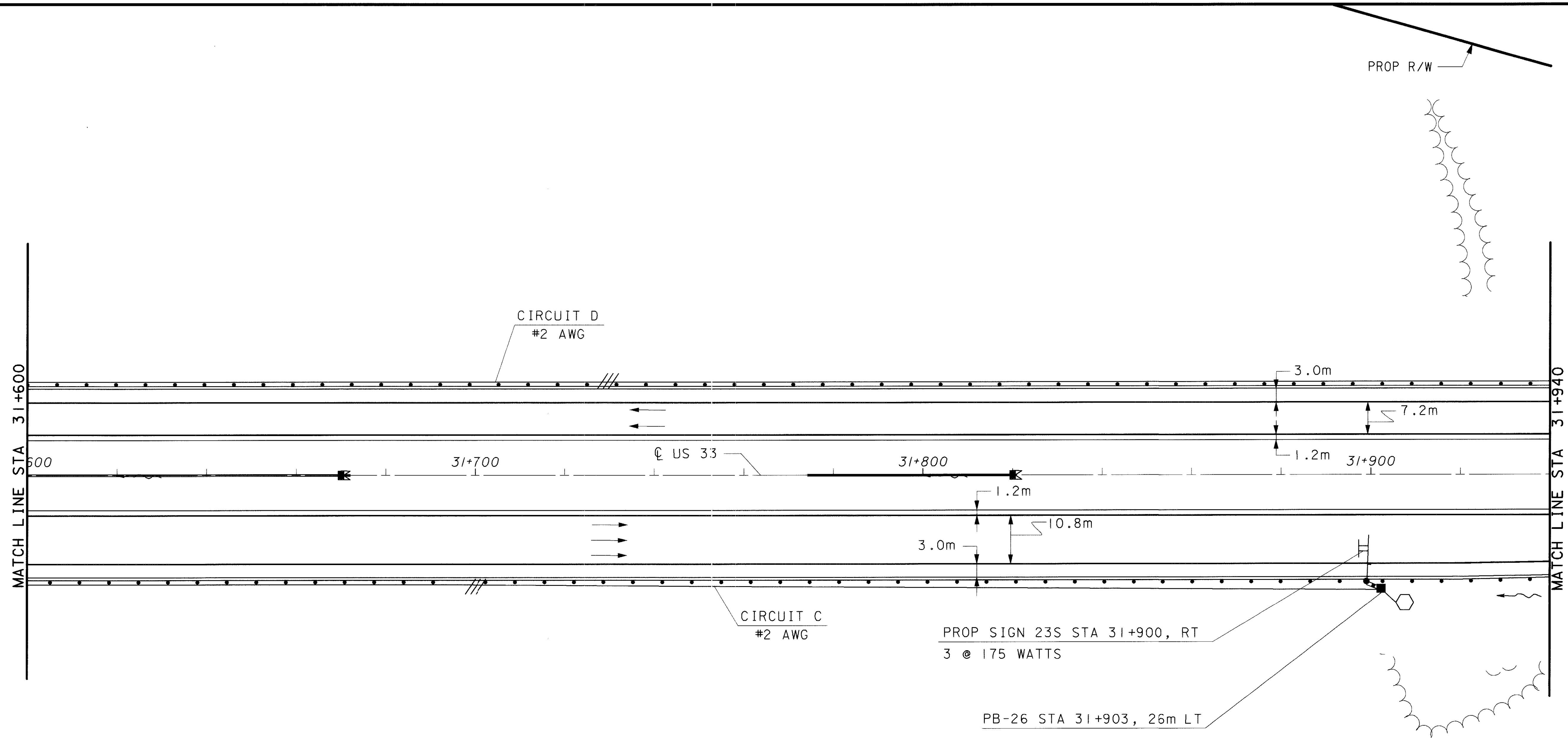


CALCULATED  
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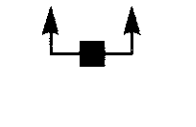
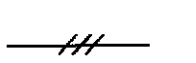



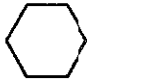
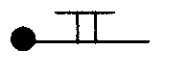
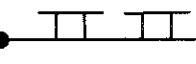
**LIGHTING PLAN  
 STA 31+260 TO STA 31+600**

**ATH-33-30.981**

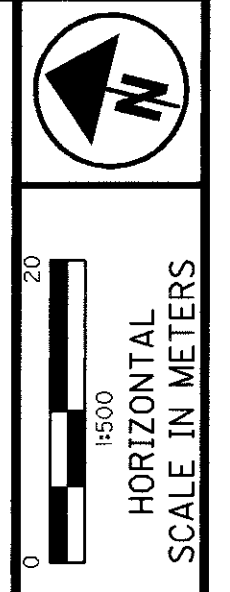
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**LEGEND**

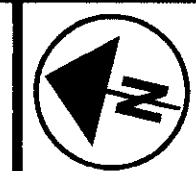
-  LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
-  LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
-  1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
-  CONDUIT (SIZE AS DIMENSIONED)
-  PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
-  CC CONTROL CENTER
-  CONNECTION TO FUTURE LIGHTING
-  ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
-  ILLUMINATED TRUSS TYPE OVERHEAD SIGN

CALCULATED  
 CHC  
 CHECKED  
 EAH



**LIGHTING PLAN  
 STA 31+600 TO STA 31+940**

**ATH-33-30.981**



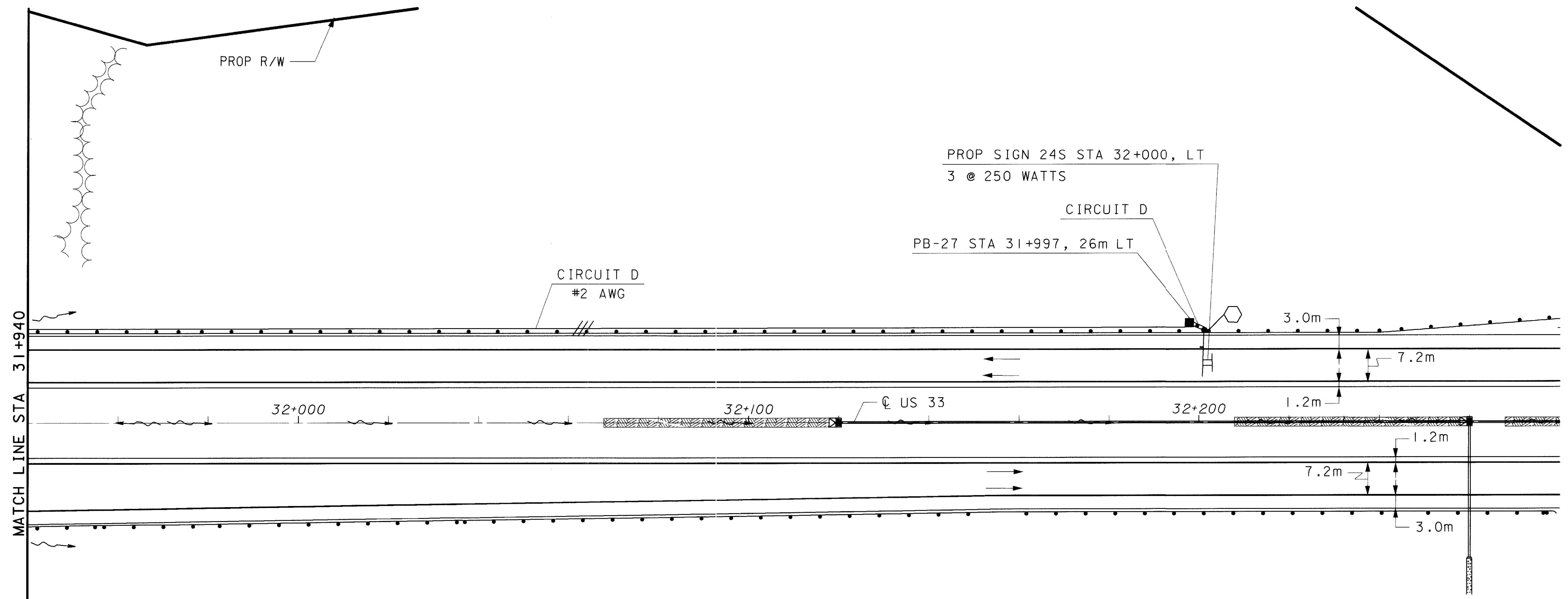
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SCALE IN METERS

CALCULATED  
CHC  
CHECKED  
EAH

**ATH-33-30.981**  
**LIGHTING PLAN**  
**STA 31+940 TO STA 32+280**

**ATH-33-30.981**

821  
956



**LEGEND**

- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
- LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
- 1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CONTROL CENTER
- CONNECTION TO FUTURE LIGHTING
- ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
- ILLUMINATED TRUSS TYPE OVERHEAD SIGN

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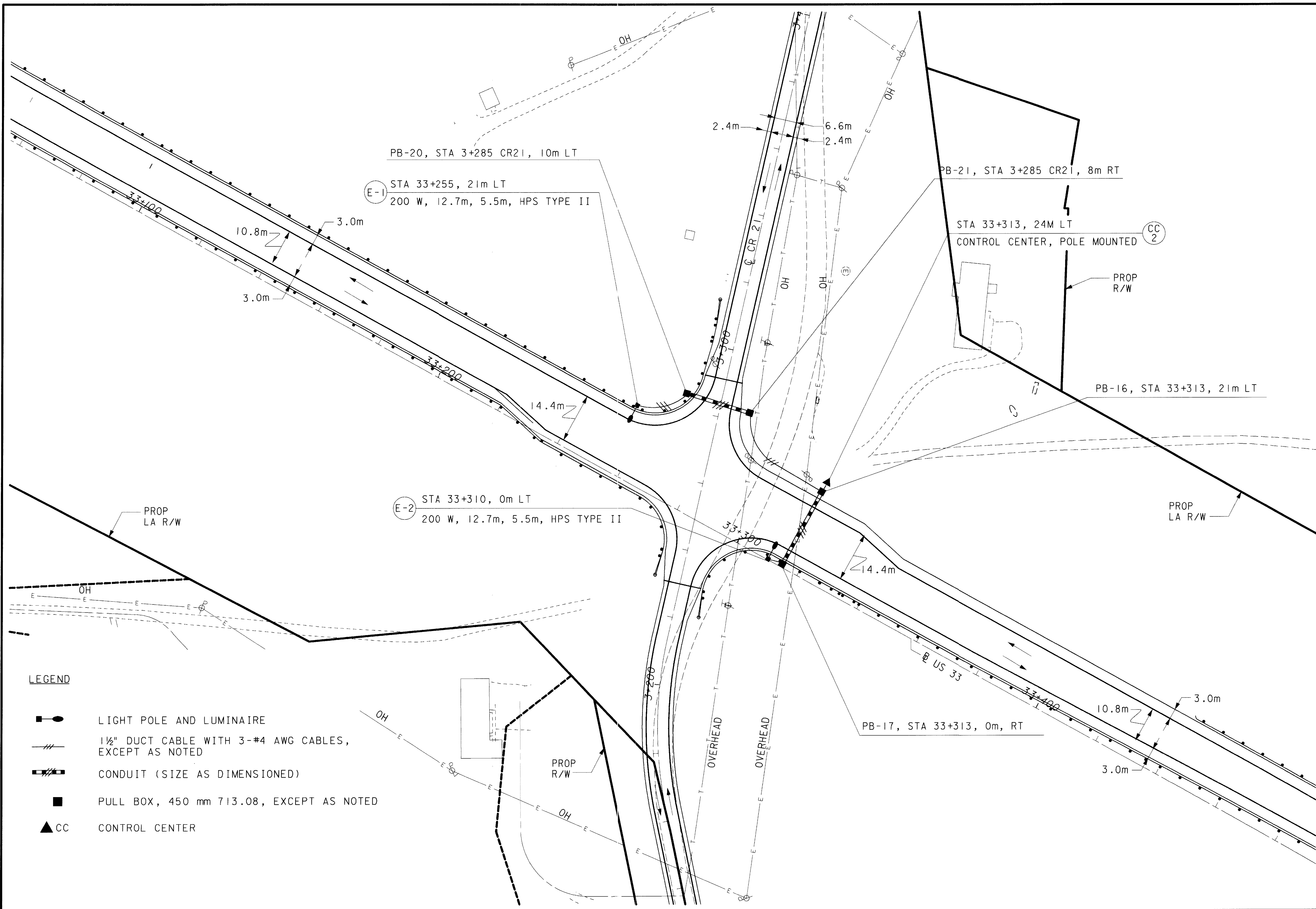
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CALCULATED  
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EAH

**LIGHTING PLANS  
US 33 MAINLINE & CR 21**

**ATH-33-30.981**

822  
956



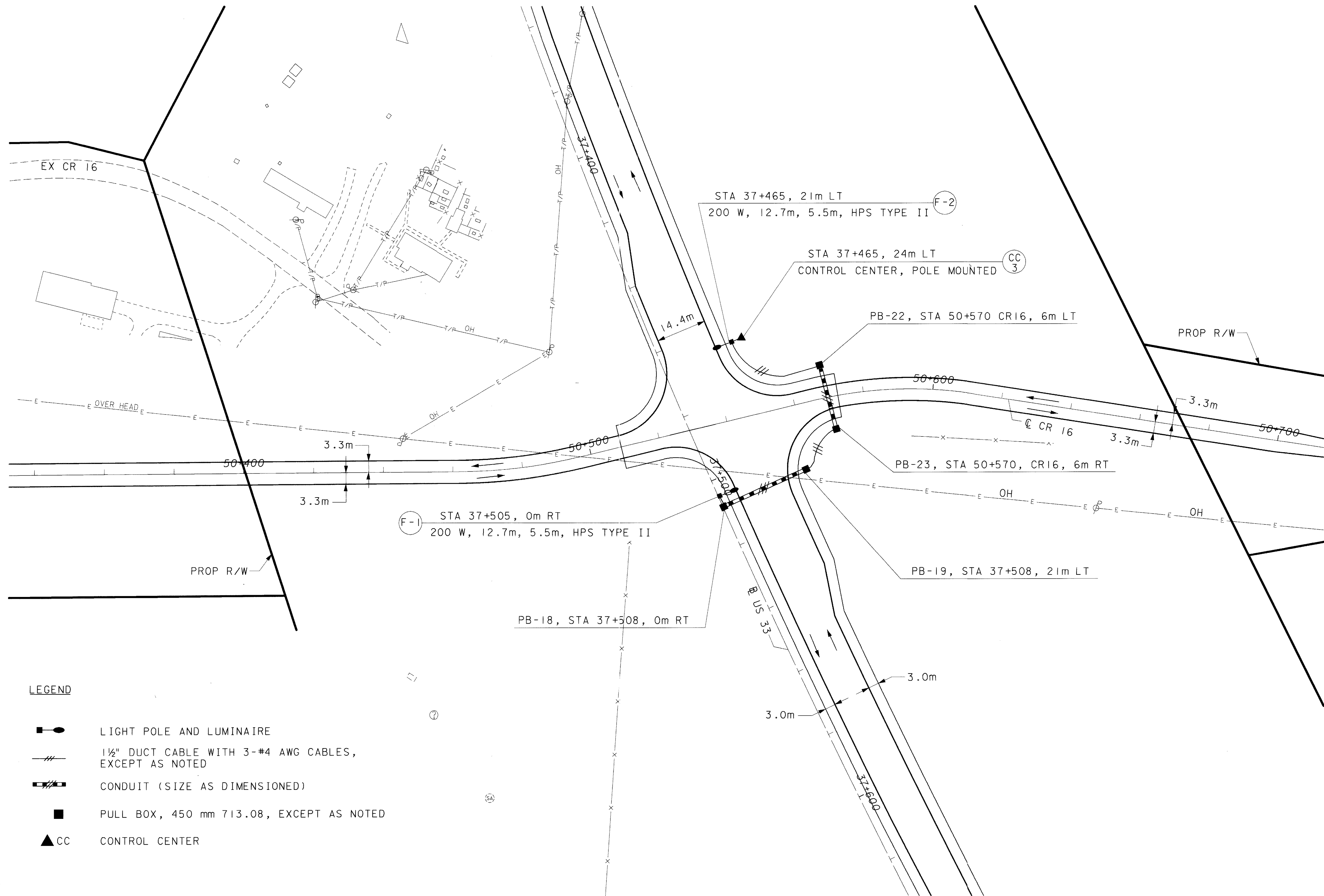
**LEGEND**

- LIGHT POLE AND LUMINAIRE
- 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CONTROL CENTER


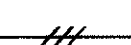



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**LEGEND**

-  LIGHT POLE AND LUMINAIRE
-  1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
-  CONDUIT (SIZE AS DIMENSIONED)
-  PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
-  CONTROL CENTER

CALCULATED CHC  
 CHECKED EAH

0 1500 20  
 HORIZONTAL SCALE IN METERS

**LIGHTING PLAN  
 US 33 MAINLINE & CR 16 (AT-GRADE)**

**ATH-33-30.981**

**CIRCUIT "A" (HOLOPHANE AND COOPER)**

2 @ 4 - 400 WATT LIGHTS @ 1.0 AMP EA. = 8.0 AMPS  
 1 @ 6 - 400 WATT LIGHTS @ 1.0 AMP EA. = 6.0 AMPS  
 3 SIGNS W/ 1-175 WATT LIGHT @ 0.36 AMPS = 1.08 AMPS  
 1 SIGN W/ 3 - 175 WATT LIGHTS = 1.09 AMPS  
 1 SIGN W/ 2 - 250 WATT LIGHTS = 1.04 AMPS  
**17.21 AMPS**

**CIRCUIT "B" (HOLOPHANE AND COOPER)**

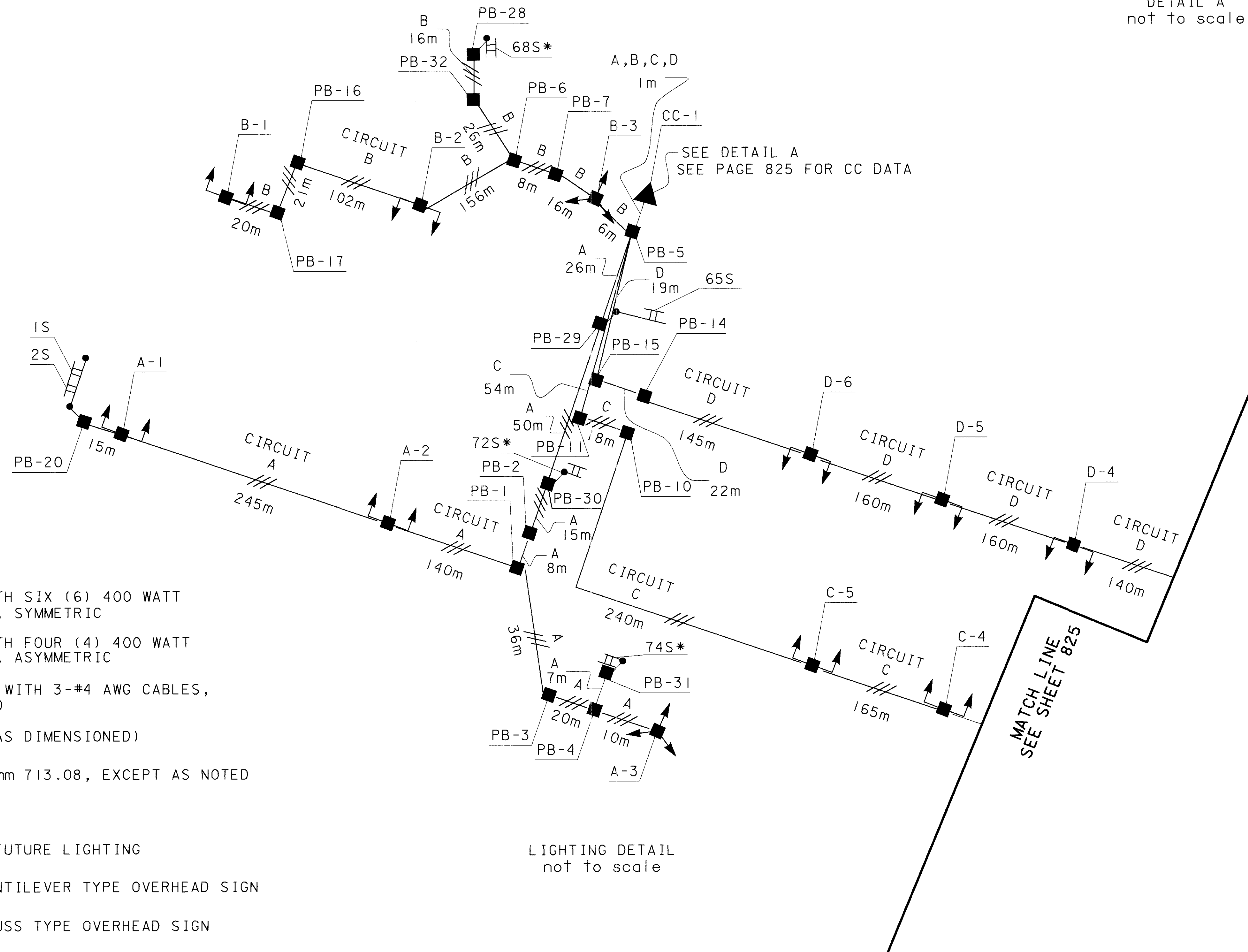
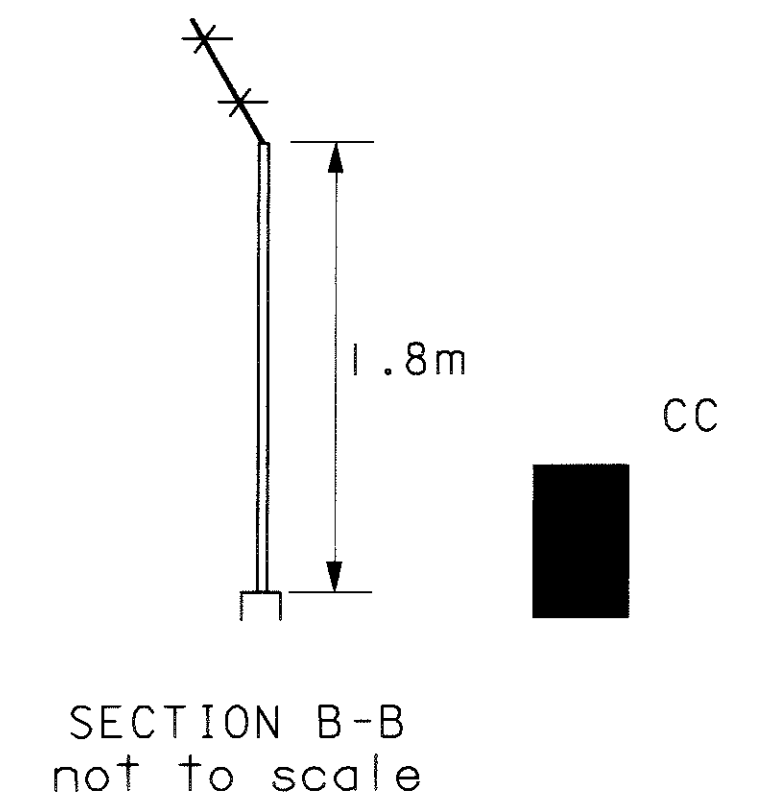
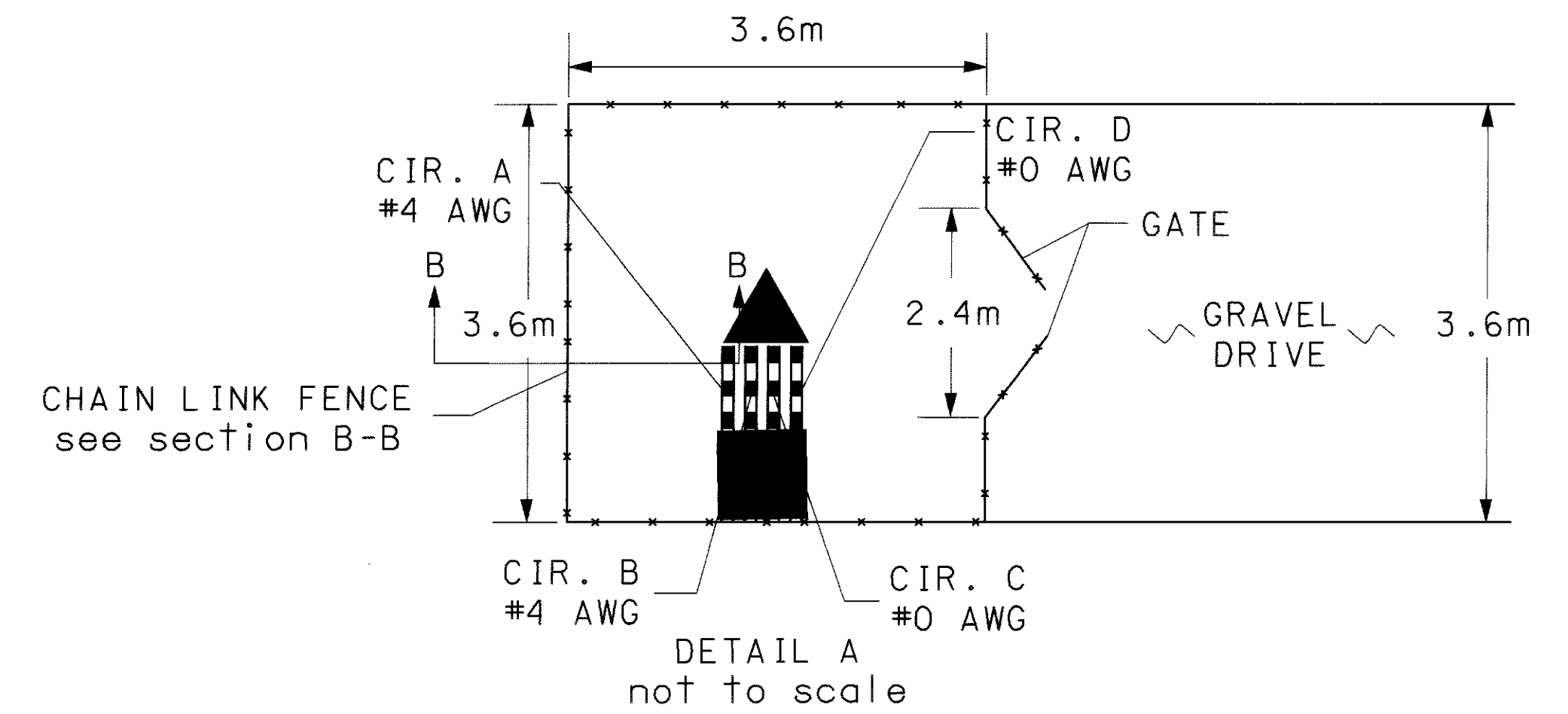
2 @ 4 - 400 WATT LIGHTS @ 1.0 AMP EA. = 8.0 AMPS  
 1 @ 6 - 400 WATT LIGHTS @ 1.0 AMP EA. = 6.0 AMPS  
 1 SIGN W/ 1 - 175 WATT LIGHT = 0.36 AMPS  
**14.36 AMPS**

**CIRCUIT "A" (GE)**

2 @ 4 - 400 WATT LIGHTS @ 1.1 AMP EA. = 8.8 AMPS  
 1 @ 6 - 400 WATT LIGHTS @ 1.1 AMP EA. = 6.6 AMPS  
 3 SIGNS W/ 1-175 WATT LIGHT @ 0.36 AMPS = 1.08 AMPS  
 1 SIGN W/ 3 - 175 WATT LIGHTS = 1.09 AMPS  
 1 SIGN W/ 2 - 250 WATT LIGHTS = 1.04 AMPS  
**18.61 AMPS**

**CIRCUIT "B" (GE)**

3 @ 4 - 400 WATT LIGHTS @ 1.1 AMP EA. = 8.8 AMPS  
 1 @ 6 - 400 WATT LIGHTS @ 1.1 AMP EA. = 6.6 AMPS  
 1 SIGN W/ 1 - 175 WATT LIGHT = 0.36 AMPS  
**15.76 AMPS**



**LEGEND**

- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
- LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
- 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CONTROL CENTER
- CONNECTION TO FUTURE LIGHTING
- ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
- ILLUMINATED TRUSS TYPE OVERHEAD SIGN

LIGHTING DETAIL  
not to scale

\* SIGN ATTACHED TO POLE

10:59:17 AM  
02/05/2001  
U:\98294\8287\_F\InclDesign\sgn\Light\LD101033.dgn

**CIRCUIT "C" (HOLOPHANE AND COOPER)**

5 @ 4 - 400 WATT LIGHTS @ 1.0 AMP EA. = 20.0 AMPS  
 4 @ 3 - 175 WATT LIGHTS @ 1.09 AMPs = 4.36 AMPS  
24.36 AMPS

**CIRCUIT "D" (HOLOPHANE AND COOPER)**

6 @ 4 - 400 WATT LIGHTS @ 1.0 AMP EA. = 24.0 AMPS  
 2 SIGNS W/ 3-250 WATT LIGHTS @ 1.56 AMPS = 3.12 AMPS  
 1 SIGN W/ 3 - 175 WATT LIGHT = 1.09 AMPS  
28.21 AMPS

**CIRCUIT "C" (GE)**

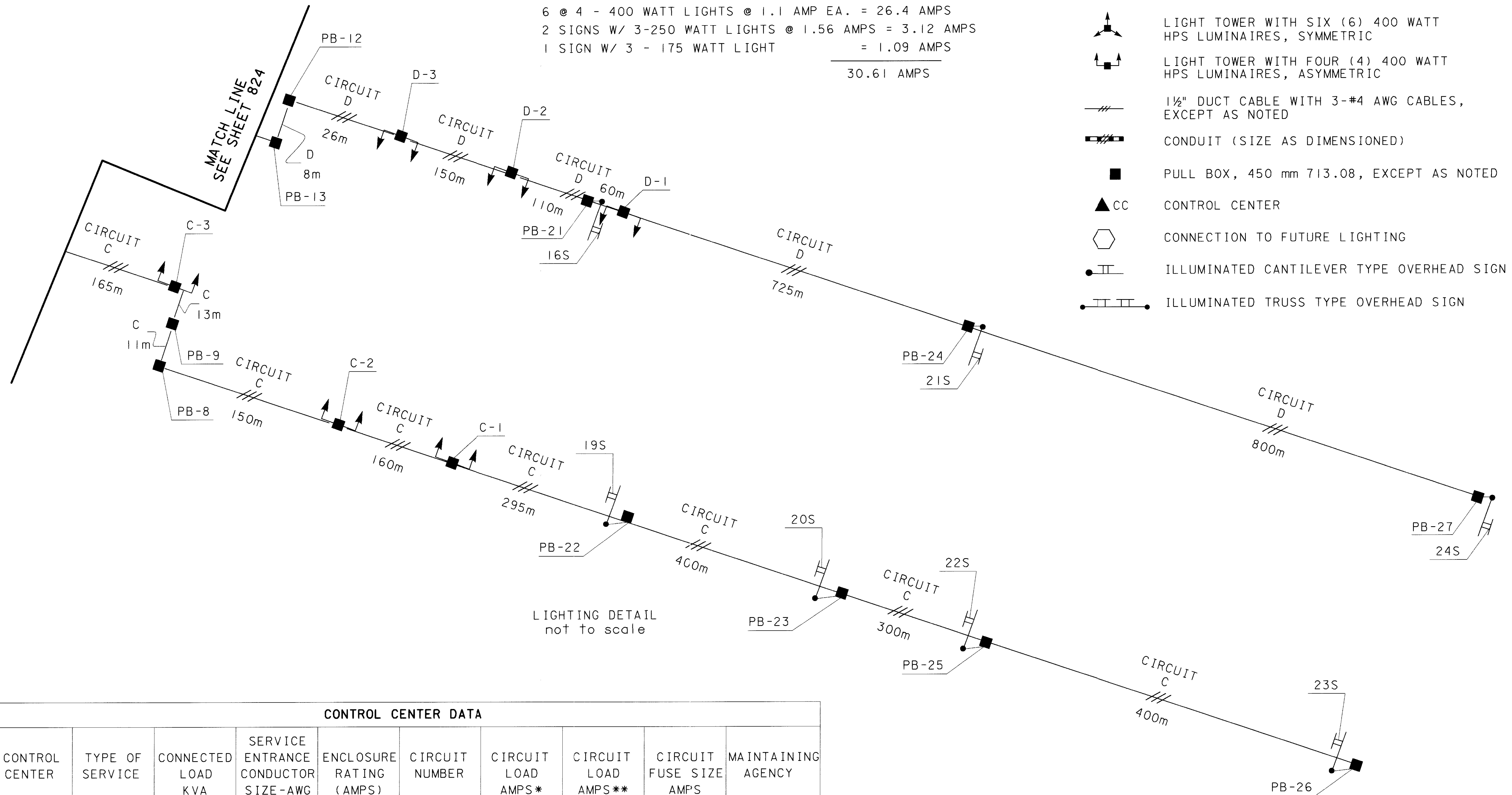
5 @ 4 - 400 WATT LIGHTS @ 1.1 AMP EA. = 22.0 AMPS  
 4 @ 3 - 175 WATT LIGHTS @ 1.09 AMPs = 4.36 AMPS  
26.36 AMPS

**CIRCUIT "D" (GE)**

6 @ 4 - 400 WATT LIGHTS @ 1.1 AMP EA. = 26.4 AMPS  
 2 SIGNS W/ 3-250 WATT LIGHTS @ 1.56 AMPS = 3.12 AMPS  
 1 SIGN W/ 3 - 175 WATT LIGHT = 1.09 AMPS  
30.61 AMPS

**LEGEND**

- LIGHT TOWER WITH SIX (6) 400 WATT HPS LUMINAIRES, SYMMETRIC
- LIGHT TOWER WITH FOUR (4) 400 WATT HPS LUMINAIRES, ASYMMETRIC
- 1 1/2" DUCT CABLE WITH 3-#4 AWG CABLES, EXCEPT AS NOTED
- CONDUIT (SIZE AS DIMENSIONED)
- PULL BOX, 450 mm 713.08, EXCEPT AS NOTED
- CC CONTROL CENTER
- CONNECTION TO FUTURE LIGHTING
- ILLUMINATED CANTILEVER TYPE OVERHEAD SIGN
- ILLUMINATED TRUSS TYPE OVERHEAD SIGN



**CONTROL CENTER DATA**

CONTROL CENTER	TYPE OF SERVICE	CONNECTED LOAD KVA	SERVICE ENTRANCE CONDUCTOR SIZE -AWG	ENCLOSURE RATING (AMPS)	CIRCUIT NUMBER	CIRCUIT LOAD AMPS*	CIRCUIT LOAD AMPS**	CIRCUIT FUSE SIZE AMPS	MAINTAINING AGENCY
CC-1	240/480 V 3 WIRE GROUNDED NEUTRAL	50* 54**	4	100	A	17.21	18.61	60	ODOT
			4		B	14.36	15.76	60	
			0		C	24.36	26.36	100	
			0		D	28.21	30.61	100	

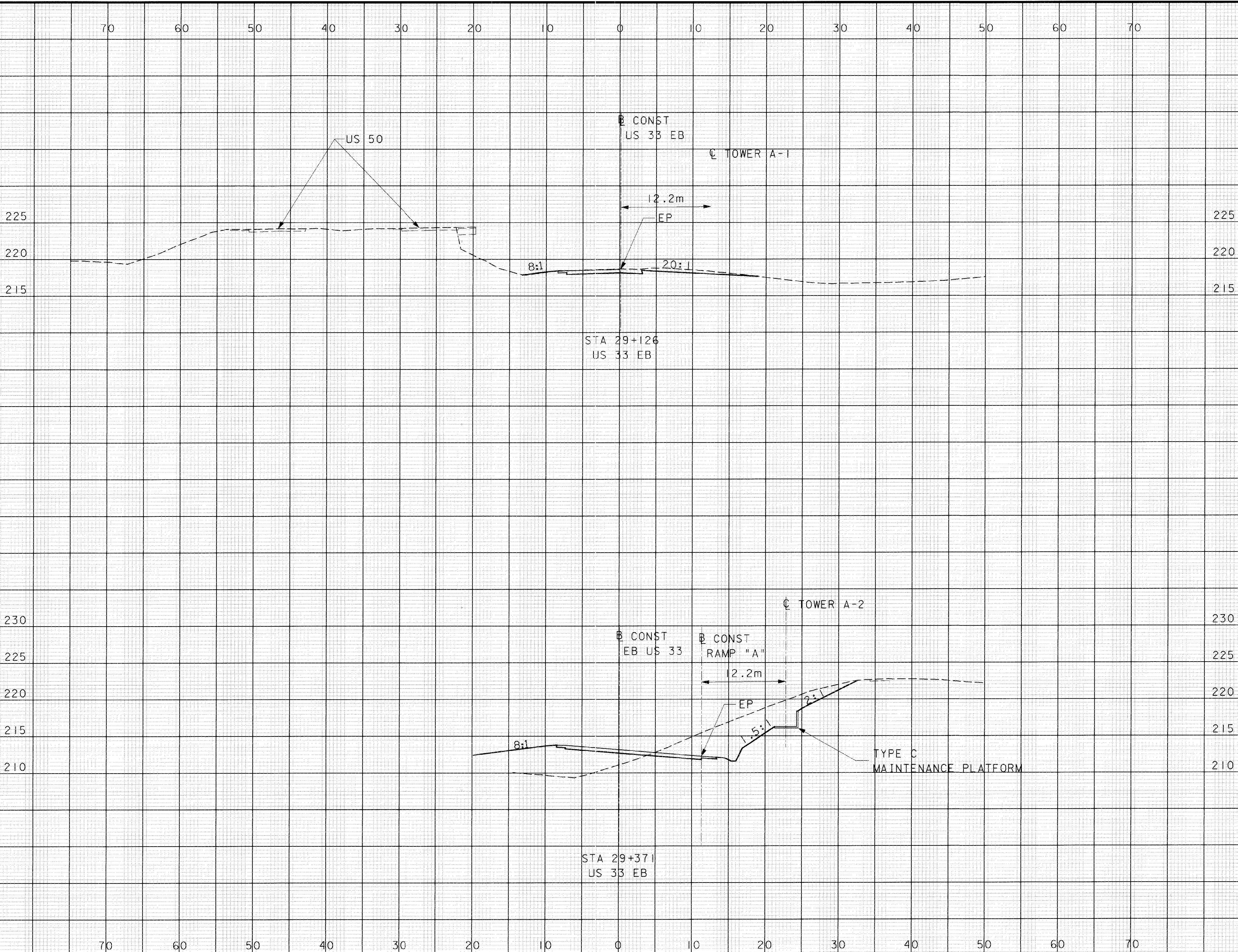
\* HOLOPHANE AND COOPER LUMINAIRES  
 \*\* GE LUMINAIRES

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SEEDING  
END SO.  
WIDTH METERS

END AREA VOLUME  
CUT FILL CUT FILL

CALCULATED  
CHC  
CHECKED  
EAH



CROSS SECTIONS  
LIGHT TOWERS A-1 & A-2

ATH-33-30.981

826  
956

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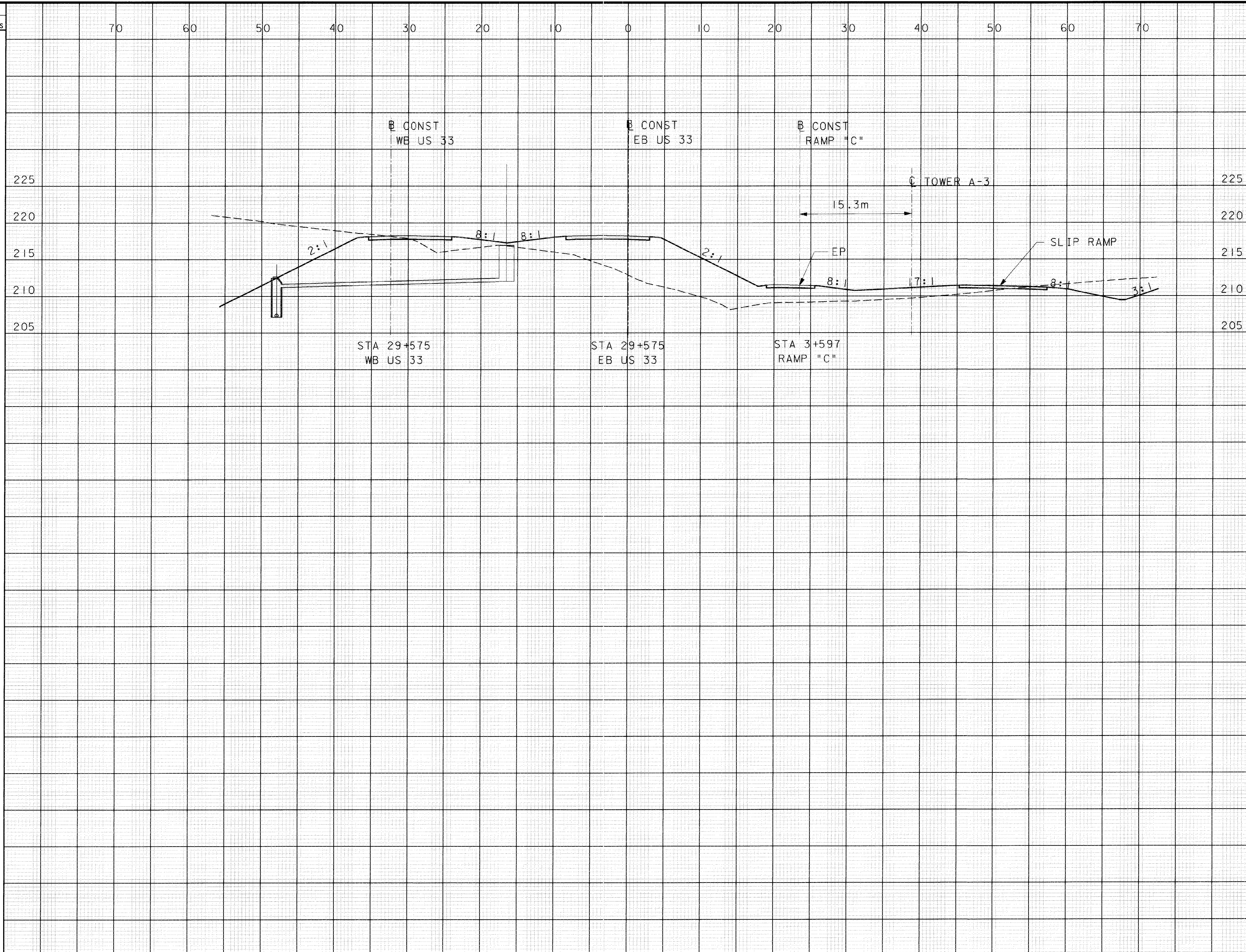
SHEET TOTAL

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SEEDING	
END WIDTH	SO. METERS

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	CHC
CHECKED	EAH



**CROSS SECTIONS  
LIGHT TOWER A-3**

**ATH-33-30.981**

827  
956

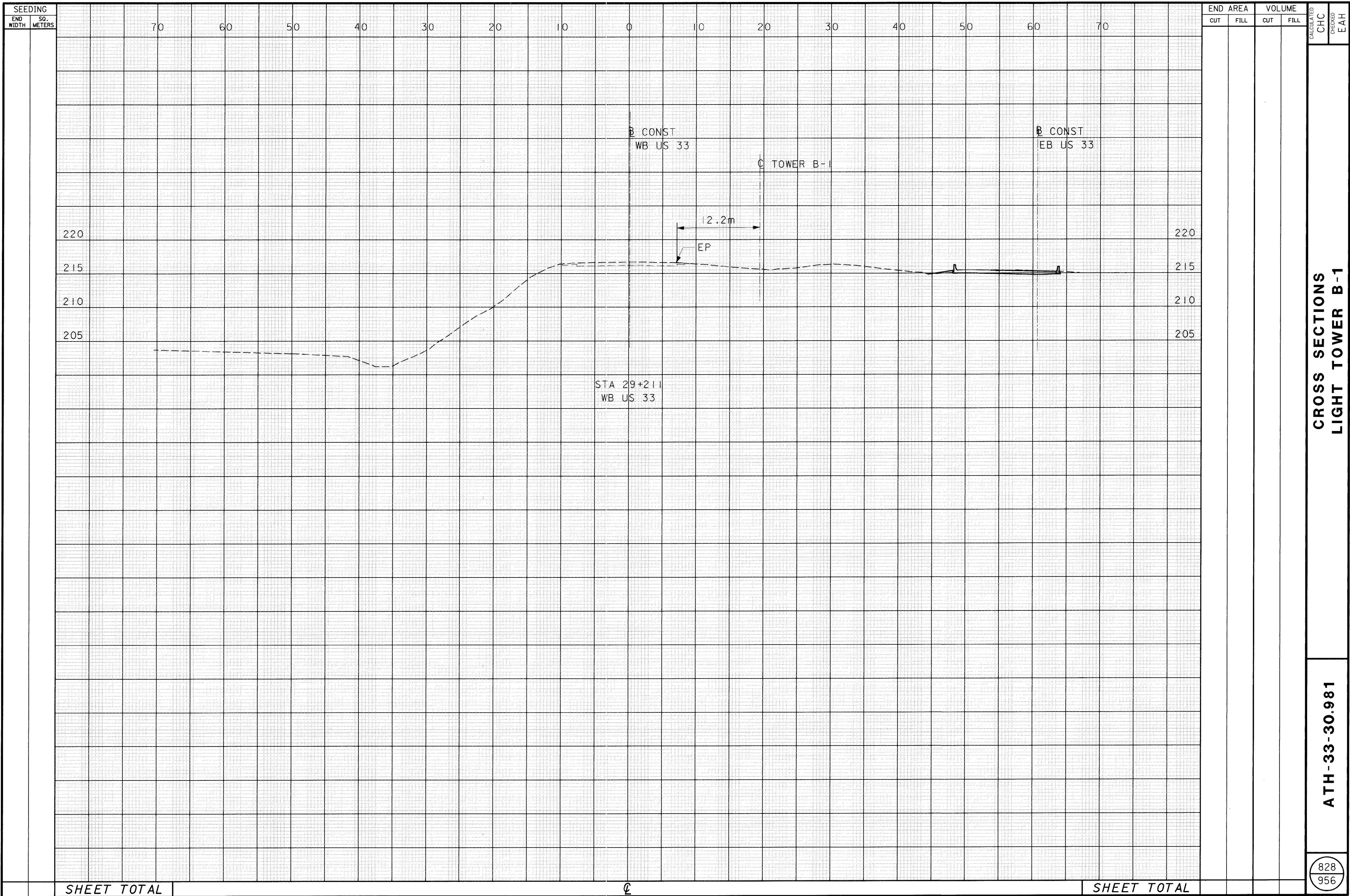
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**SHEET TOTAL**

**SHEET TOTAL**

0

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**CROSS SECTIONS  
 LIGHT TOWER B-1**

**ATH-33-30.981**

828  
 956

SHEET TOTAL

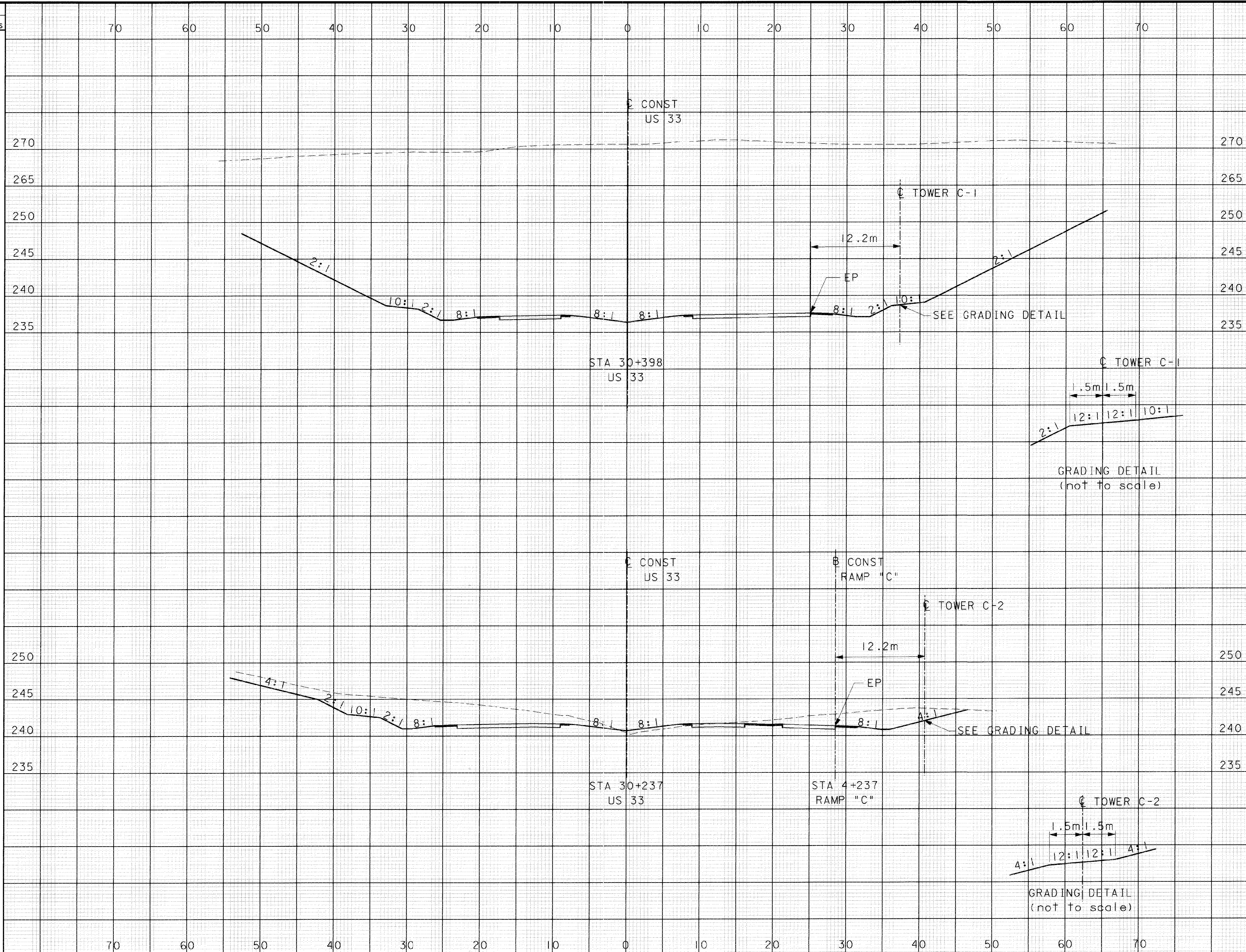
SHEET TOTAL

Q



SEEDING  
END WIDTH SO. METERS

END AREA VOLUME  
CUT FILL CUT FILL  
CALCULATED CHC CHECKED EAH



CROSS SECTIONS  
LIGHT TOWERS C-1 & C-2

ATH-33-30.981

830  
956

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SHEET TOTAL

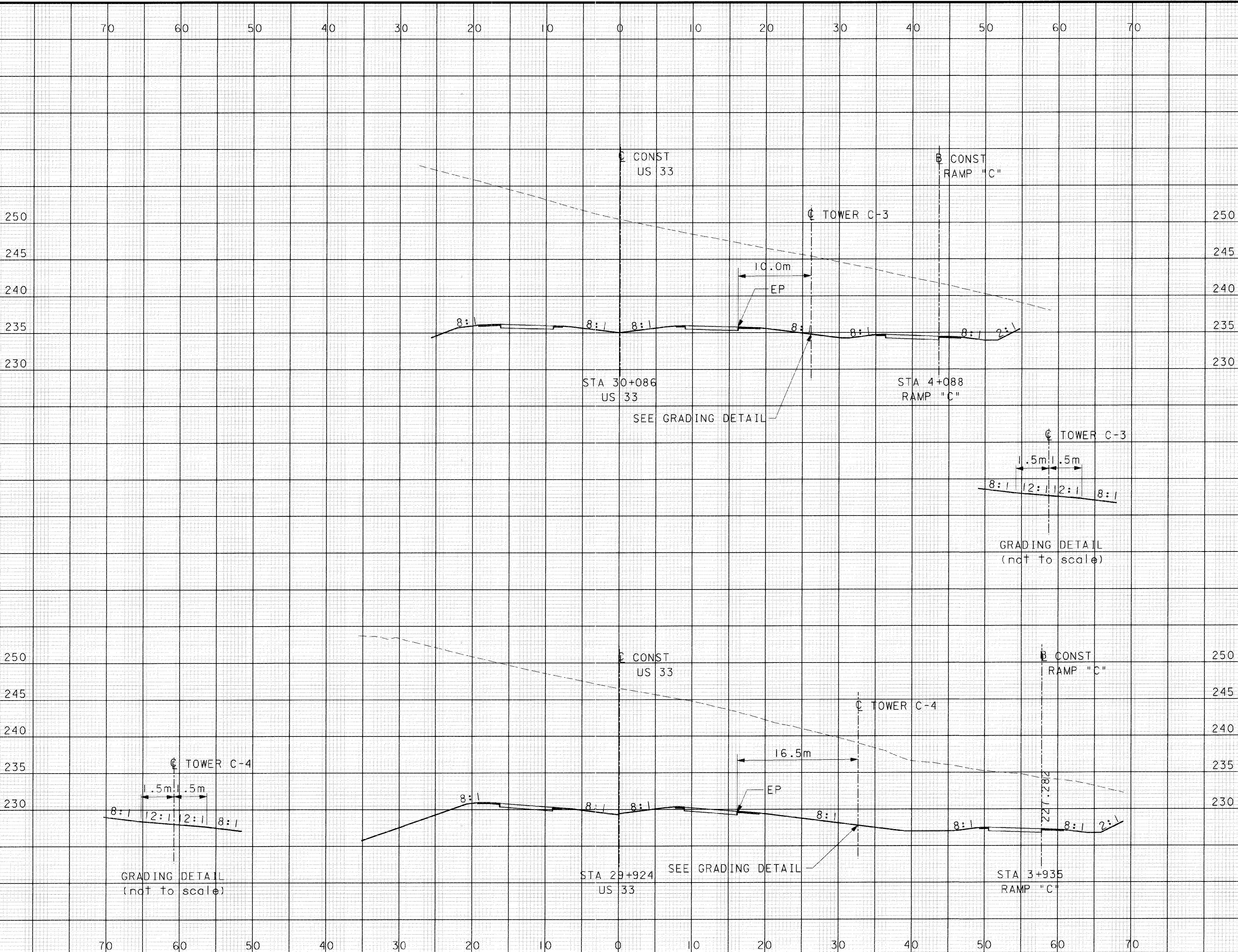
SHEET TOTAL



SEEDING  
END WIDTH SO. METERS

END AREA VOLUME  
CUT FILL CUT FILL

CALCULATED  
CHC  
CHECKED  
EAH



SHEET TOTAL

SHEET TOTAL

CROSS SECTIONS  
LIGHT TOWERS C-3 & C-4

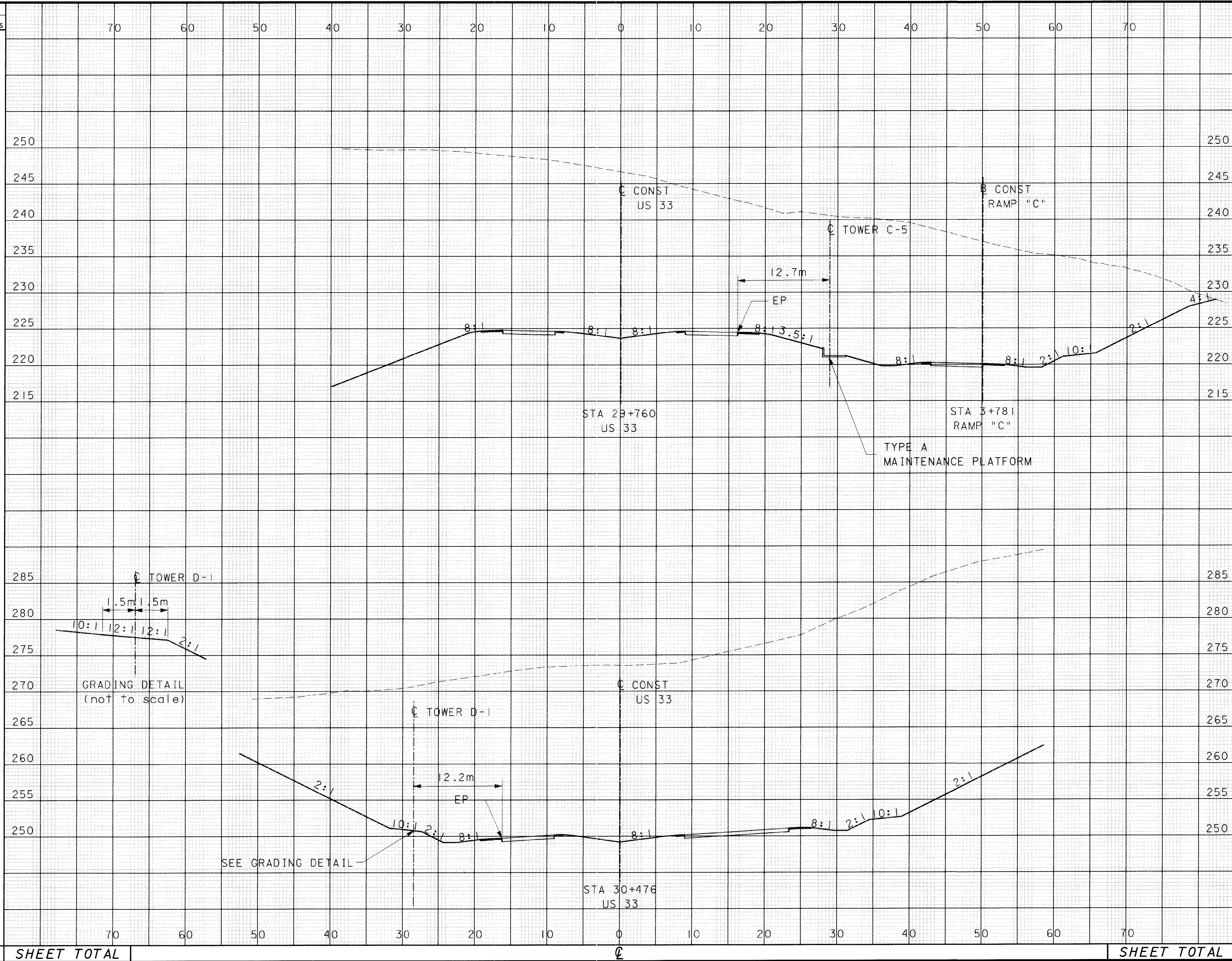
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831  
956

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SEEDING  
END WIDTH SO. METERS

END AREA VOLUME  
CUT FILL CUT FILL  
CALCULATED CHC CHECKED EAH



CROSS SECTIONS  
LIGHT TOWERS C-5 & D-1

ATH-33-30.981

832  
956

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SHEET TOTAL

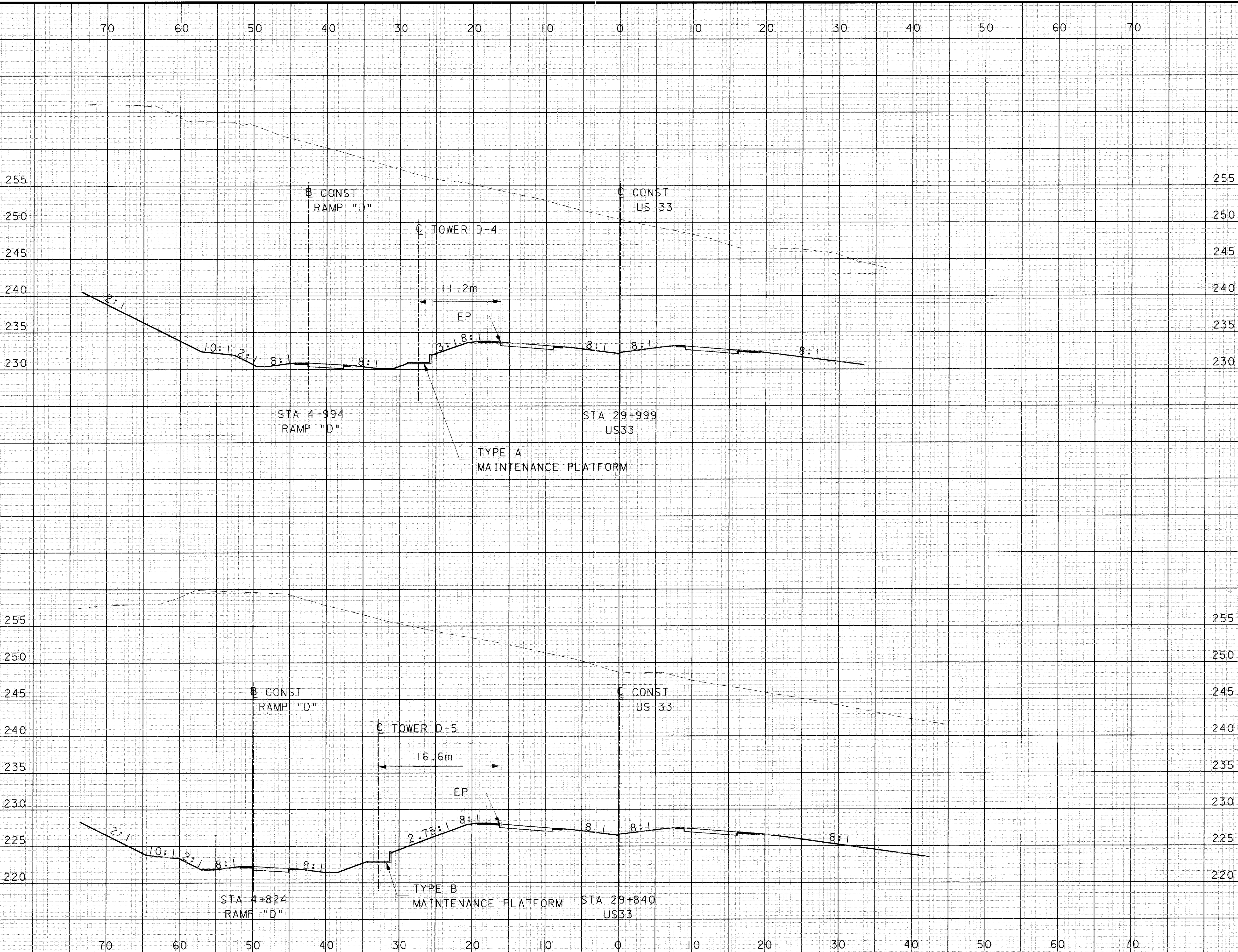
SHEET TOTAL



SEEDING  
END WIDTH SO. METERS

END AREA VOLUME  
CUT FILL CUT FILL

CALCULATED CHC  
CHECKED EAH



SHEET TOTAL

SHEET TOTAL

CROSS SECTIONS  
TOWERS D-4 & D-5

ATH-33-30.981

834  
956

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ITEM 603 3300mm CONDUIT TYPE A, 707.03, AS PER PLAN

ALL REQUIREMENTS OF 603 AND 707.03 SHALL BE MET EXCEPT AS DETAILED HEREIN:

603.02 MATERIALS

BEDDING AND BACKFILL MATERIAL SHALL BE LIMITED TO GRANULAR MATERIAL, TYPE 1

603.03 EXCAVATION

PROPER EMBANKMENT MATERIAL SHALL BE CONSTRUCTED TO AT LEAST THE SPRINGLINE OF THE CONDUIT. THE WIDTH OF THE CONSTRUCTED EMBANKMENT SHALL BE NOT LESS THAN 2 PIPE DIAMETERS OR 6 m, WHICH EVER IS LESS. THE EMBANKMENT SHALL THEN BE EXCAVATED TO A MINIMUM TRENCH WIDTH OF 1.8 m ON BOTH SIDES OF THE CONDUIT.

603.06 JOINING CONDUITS

THE CONTRACTOR SHALL PROVIDE A MANUFACTURER'S REPRESENTATIVE WHO SHALL ASSEMBLE THE CONDUIT.

PLATE ASSEMBLY SHALL BE AS PER 603.06 AND THE MANUFACTURER'S RECOMMENDATIONS.

THE FINAL MAXIMUM TIGHTENING OF BOLTS SHALL BE A TORQUE OF 300 FT-LB.

603.08 BACKFILLING

GRANULAR MATERIAL, TYPE I SHALL BE PLACED AND COMPACTED FOR A MINIMUM WIDTH OF 1.8 m ON BOTH SIDES OF THE CONDUIT, AND TO A MINIMUM OF AT LEAST 0.60 m ABOVE THE CONDUIT.

603.11 FIELD PAVING OF PIPE

FIELD PAVING, WHEN SPECIFIED, SHALL BE PLACED AFTER THE COMPLETION OF THE FILL OVER THE CONDUIT.

707.03 BOLT HOLES

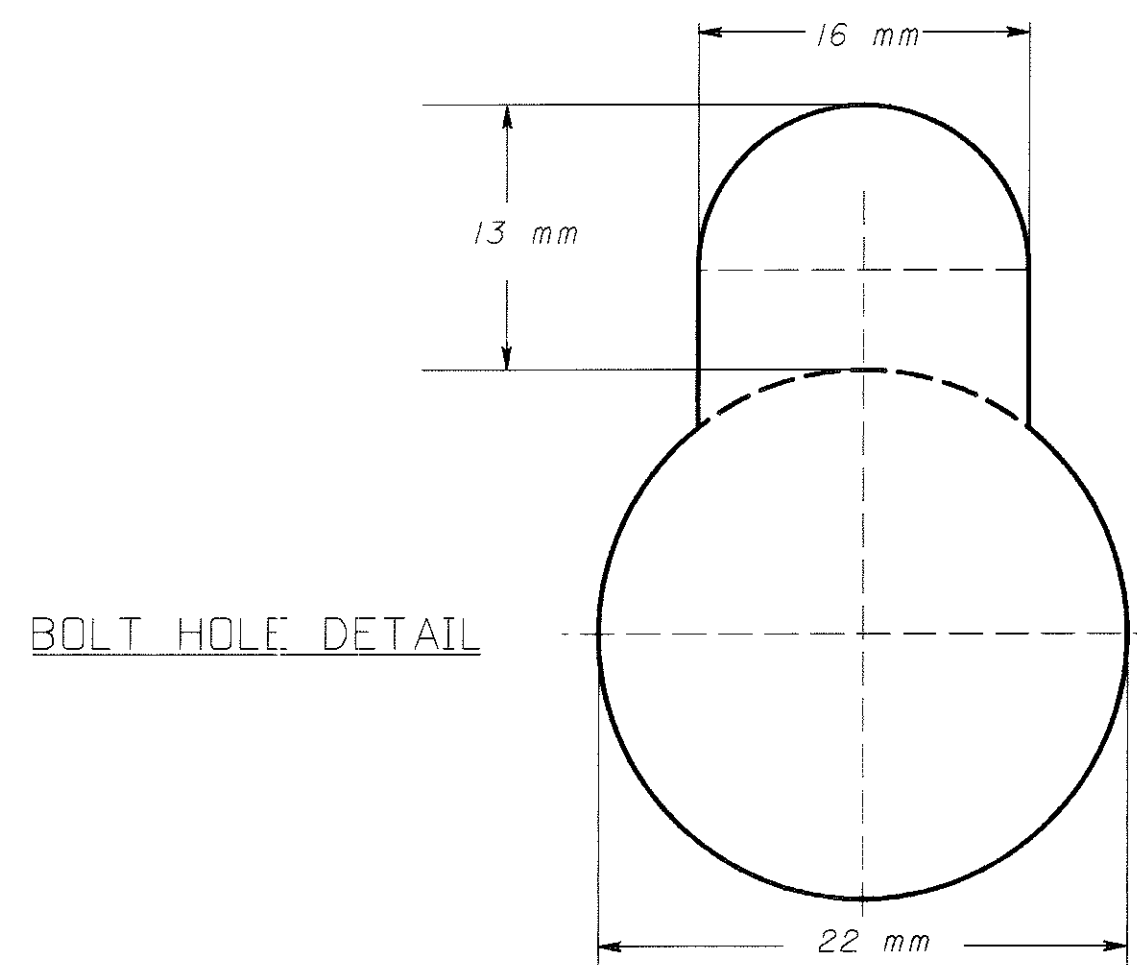
BOLT HOLES SHALL BE OF A KEYHOLE SLOT DESIGN AS DETAILED HEREIN.

INSPECTION:

THE CONTRACTOR SHALL PROVIDE A MANUFACTURER'S REPRESENTATIVE WHO SHALL, THROUGH THE ENGINEER, INSPECT, TEST, REJECT, OR APPROVE THE FILL MATERIAL AND ITS PLACEMENT. THE REPRESENTATIVE

SHALL ALSO MONITOR THE STRUCTURE DURING ITS ASSEMBLY AND ERECTION TO MAKE CERTAIN THE STRUCTURE IS SYMMETRICAL AND PROPERLY SHAPED. THE REPRESENTATIVE SHALL ALSO MONITOR THE SHAPE, JOINT SLIPPAGE, AND ANY DISTORTION OF THE CONDUIT DURING THE PLACING OF THE FILL MATERIAL TO ENSURE ANY MOVEMENT OR DISTORTION IS WITHIN THE MANUFACTURER'S TOLERANCE RANGE.

THE REPRESENTATIVE SHALL PROVIDE THE ENGINEER A WRITTEN INSPECTION REPORT, SIGNED BY A REGISTERED PROFESSIONAL ENGINEER, OF ALL TESTS, MEASUREMENTS, AND FINDINGS. PAYMENT FOR MATERIAL, LABOR, ETC., SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TYPE A CONDUITS, AS PER PLAN.

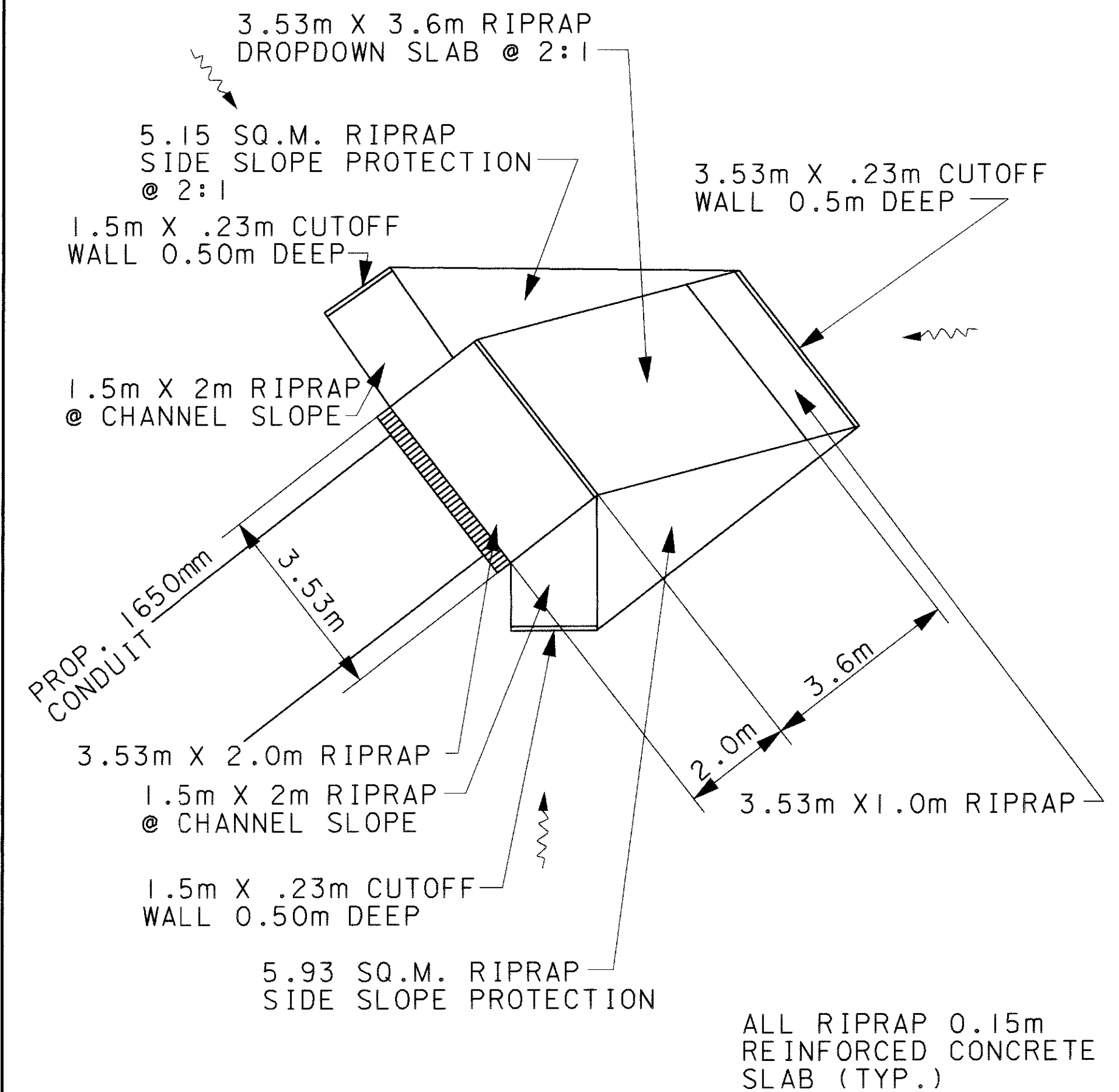


ITEM 603.04 BEDDING, CLASS B, AS PER PLAN

TYPE B BEDDING FOR CONDUITS SHALL EXTEND A MINIMUM OF 0.60 m BELOW FLOW LINE. UNSUITABLE "VERY HARD OR VERY SOFT" MATERIAL MUST BE REMOVED AND REPLACED WITH SUITABLE BEDDING MATERIAL ACCORDING TO SUB NUMBER 603.03 "EXCAVATION" IN THE ODOT CMS. PAYMENT FOR MATERIAL, LABOR, ETC., SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TYPE A CONDUITS, AS PER PLAN. APPLIES TO CULVERTS AT STATIONS: 30+738, 31+180, 31+694, 32+154, 32+765, 32+943, 33+726, 34+118, 34+427.

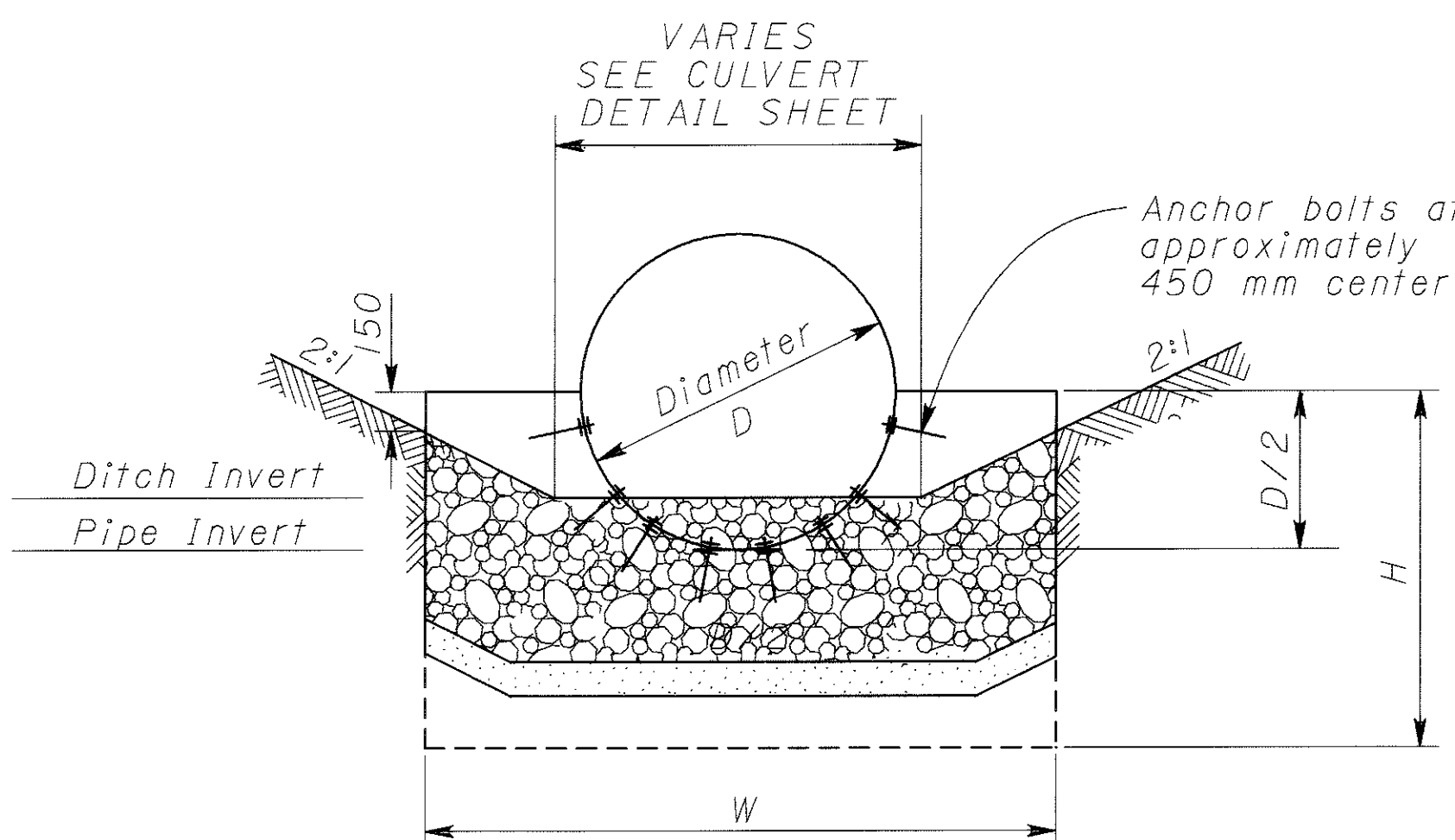
ITEM 603 CONDUIT, TYPE A, AS PER PLAN

THESE PIPES SHALL BE OF THE LOCK-SEAM OR WELDED SEAM FABRICATION ONLY.

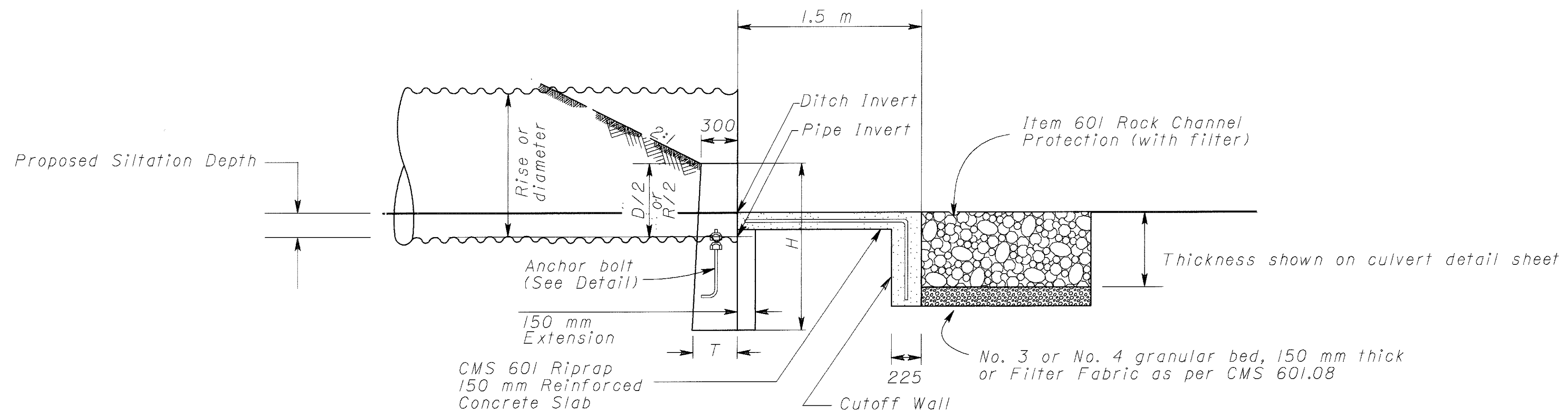


DROP DOWN INLET DETAIL (RICHLAND AVENUE)

(SEE HW-2.2M FOR ADDITIONAL DETAIL)



**CIRCULAR**  
Width of riprap and rock channel protection shall be equal to the width of headwall unless otherwise shown on the plans. (Minimum width 1.2 m.)



**OUTLET CHANNEL PROTECTION DETAIL (AT WARMWATER HABITAT STREAMS) (CORRUGATED METAL PIPE)**

(APPLIES TO CULVERTS AT STATIONS: 35+965, 36+910, 37+540, 38+266)

The depth of the riprap cutoff wall (750 mm min.) shall match the thickness of the rock channel protection shown on the plan plus 150 mm.

CALCULATED  
MCR  
CHECKED  
JDH

CULVERT PLAN NOTES AND DETAILS

ATH-33-30.981

836  
956

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SHEET NO.	601	601	601	601		602	603	603	603	603	603	603	603	603	603	603	603	603	603			603																				
	RIPRAP	ROCK CHANNEL PROTECTION TYPE A W/FILTER	ROCK CHANNEL PROTECTION TYPE B W/FILTER	ROCK CHANNEL PROTECTION TYPE C W/FILTER		CONCRETE MASONRY	375mm CONDUIT TYPE B	600mm CONDUIT TYPE A	750mm CONDUIT TYPE A	750mm CONDUIT TYPE B	900mm CONDUIT TYPE B	900mm CONDUIT TYPE A	1050mm CONDUIT TYPE A	1050mm CONDUIT TYPE A AS PER PLAN	1050 CONDUIT TYPE B	1200mm CONDUIT TYPE A	1200mm CONDUIT TYPE A AS PER PLAN	1350mm CONDUIT TYPE A	1350mm CONDUIT TYPE A AS PER PLAN			1500mm CONDUIT TYPE A AS PER PLAN																				
	SQ. METER	CU. METER	CU. METER	CU. METER		CU. METER	METER	METER	METER	METER	METER	METER	METER	METER	METER	METER	METER	METER	METER			METER																				
839	46.13	26.04				4.91																																				
840	3.68		8.27			0.82									90																											
841	9.60	18.40				3.22																156.0																				
842	7.35	12.25				2.02											204.5																									
843	10.74	38.59				3.76																																				
844	8.49	15.57				2.46																255																				
845	8.49		10.61			2.46																278																				
846	6.39		7.19			1.66								302.5																												
847	6.39	13.42	12.95			1.66							270																													
848	7.35		7.96			2.02											192.5																									
849	7.35		7.72			2.02											191.5																									
850	7.35		8.09			2.02									159																											
851				2.30		1.06			61.5																																	
852	11.85		17.03			4.32																																				
853	10.50	73.50				18.20																																				
854	4.25		10.19			9.10																95																				
855	5.40		14.75			15.18																																				
856				3.41		0.82									57																											
857	2.75		5.49			0.66				83.5																																
858	6.39		6.39			1.66						105.5																														
859	3.20		6.39			0.66				89.5																																
860	1.13			0.66		0.22	17																																			
861	1.85			1.72		0.78		54.5																																		
862	4.59		4.02			1.06			71.5																																	
863	5.49		5.49			1.34					83.5																															
864	2.75			2.29		1.34					31																															
<b>SHEET TOTAL</b>																						189.46	197.77	132.54	10.38		85.43	17	54.5	71.5	61.5	173.0	114.5	105.5	572.5	147	159	588.5	95	533		156.0
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>																						190	198	133	11		85.5	17	54.5	71.5	61.5	173.0	114.5	105.5	572.5	147	159	588.5	95	533		156.0

<b>CULVERT SUBSUMMARY</b>	CALCULATED	MCR	CHECKED	JDH
	<b>ATH-33-30.981</b>			
837				
956				







20  
1000  
HORIZONTAL  
SCALE IN METERS

CALCULATED MCR  
CHECKED JDH

**DRAINAGE DETAIL  
ALBANY ROAD**

**ATH-33-30.981**

839  
956

**R<sub>s</sub> HYDRAULIC DESIGN DATA**

DRAINAGE AREA	= 45.1 HECTARES
Q <sub>25</sub>	= 4.41 m <sup>3</sup> /s
Q <sub>50</sub>	= 5.42 m <sup>3</sup> /s
HW <sub>25</sub>	= 209.82
HW <sub>50</sub>	= 210.07
V <sub>25</sub>	= 2.00 m/s
V <sub>50</sub>	= 5.45 m/s

**R<sub>w</sub> HYDRAULIC DESIGN DATA**

DRAINAGE AREA	= 68.2 HECTARES
Q <sub>25</sub>	= 6.02 m <sup>3</sup> /s
Q <sub>50</sub>	= 7.40 m <sup>3</sup> /s
HW <sub>25</sub>	= 208.17
HW <sub>50</sub>	= 208.43
V <sub>25</sub>	= 2.27 m/s
V <sub>50</sub>	= 5.61 m/s

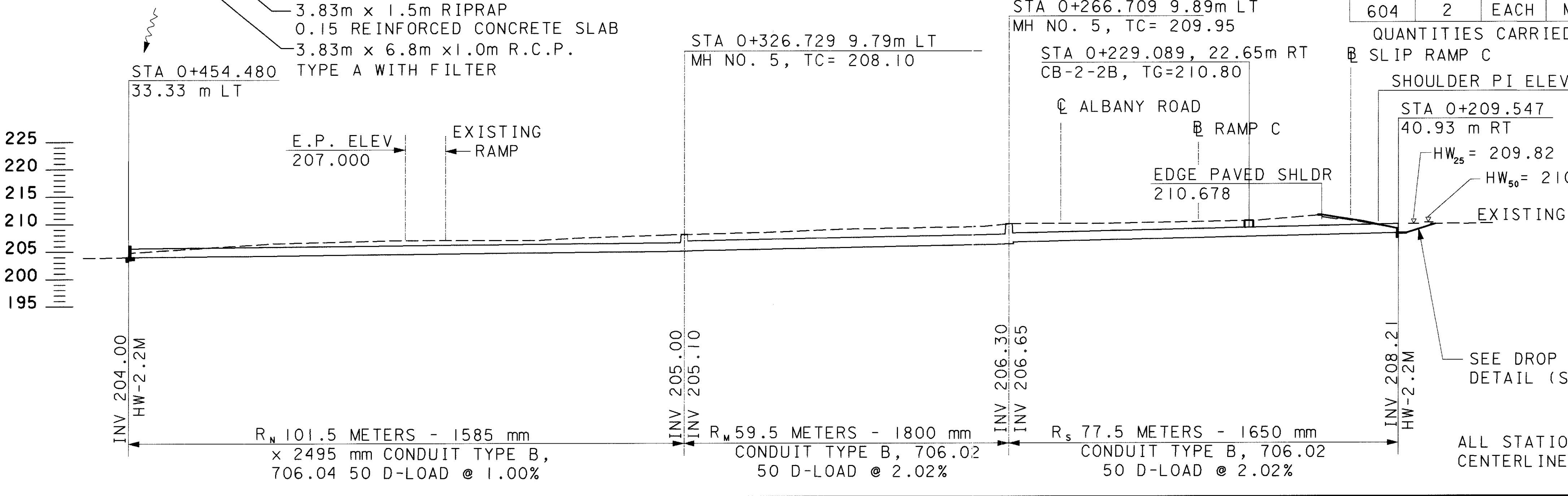
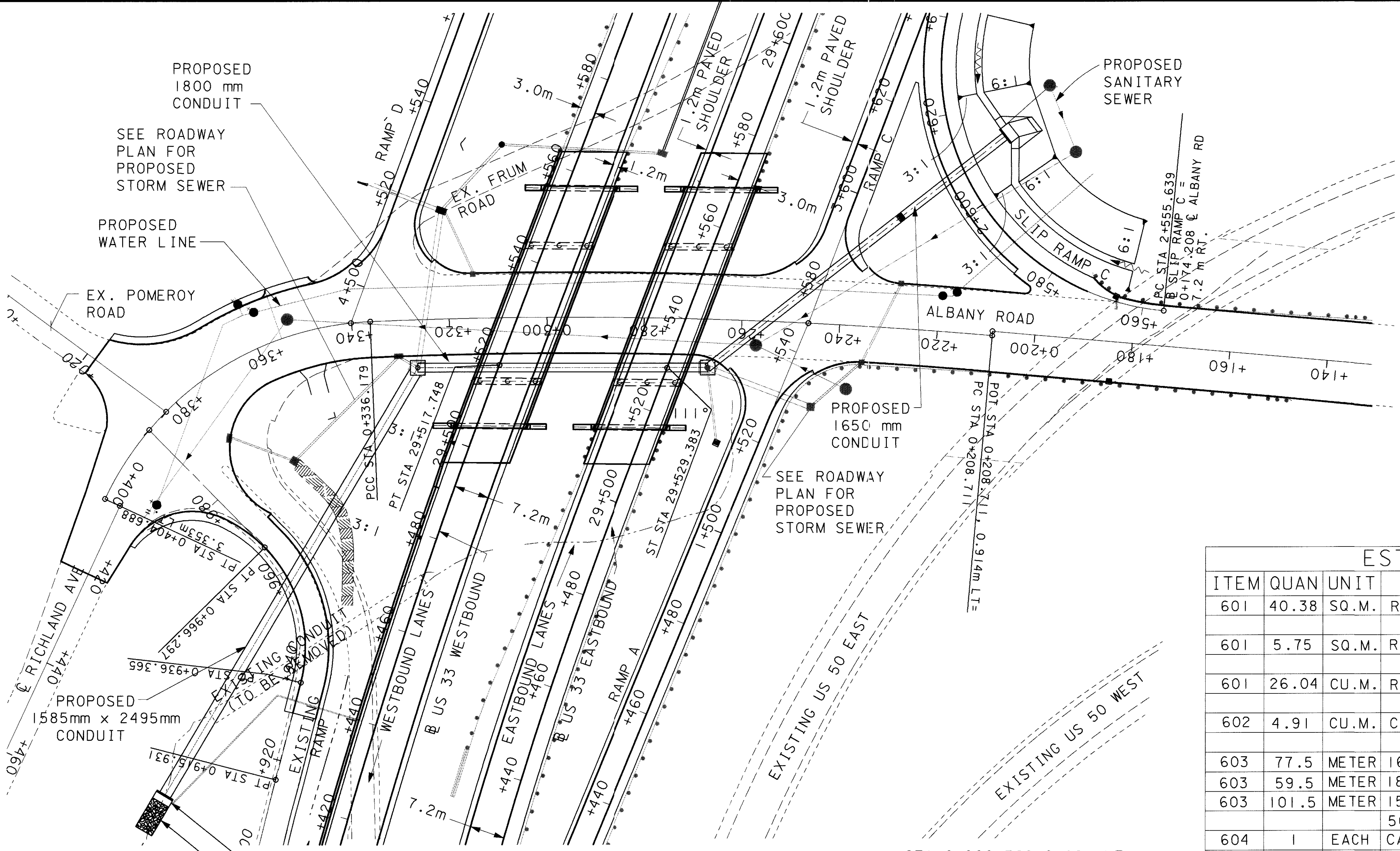
**R<sub>N</sub> HYDRAULIC DESIGN DATA**

DRAINAGE AREA	= 69.7 HECTARES
Q <sub>25</sub>	= 6.14 m <sup>3</sup> /s
Q <sub>50</sub>	= 7.54 m <sup>3</sup> /s
HW <sub>25</sub>	= 206.63
HW <sub>50</sub>	= 206.86
V <sub>25</sub>	= 4.32 m/s
V <sub>50</sub>	= 4.55 m/s

**ESTIMATED QUANTITIES**

ITEM	QUAN	UNIT	DESCRIPTION
601	40.38	SQ.M.	RIPRAP (INLET)
601	5.75	SQ.M.	RIPRAP (OUTLET)
601	26.04	CU.M.	ROCK CHANNEL PROTECTION TYPE A W/FILTER
602	4.91	CU.M.	CONCRETE MASONRY
603	77.5	METER	1650 mm CONDUIT TYPE B, 706.02 50 D-LOAD
603	59.5	METER	1800 mm CONDUIT TYPE B, 706.02 50 D-LOAD
603	101.5	METER	1585 mm x 2495 CONDUIT TYPE B, 706.04 50 D-LOAD
604	1	EACH	CATCH BASIN 2-2B
604	2	EACH	MANHOLE NO. 5

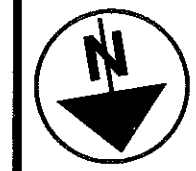
QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



- NOTES:**
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING.
  2. REFER TO PLAN AND PROFILE SHEET FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION.
  3. FOR PROPOSED SANITARY SEWER, SEE ROADWAY PLAN.
  4. FOR PROPOSED STORM SEWERS, SEE ROADWAY PLAN.
  5. FOR PROPOSED WATER LINE, SEE ROADWAY PLAN.

ALL STATIONING BASED ON CENTERLINE OF ALBANY ROAD.

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HORIZONTAL  
SCALE IN METERS

CALCULATED  
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CHECKED  
JDH

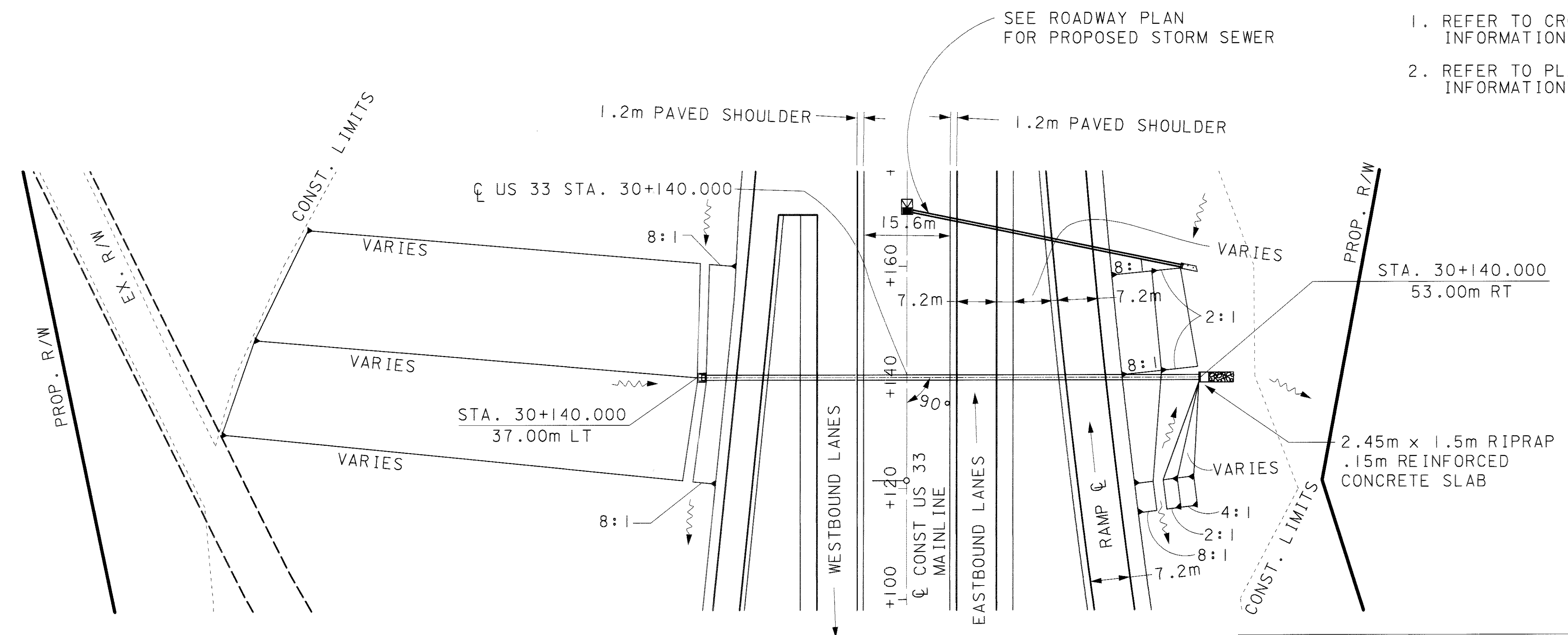
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STA 30+140.000

ATH-33-30.981

840  
956

NOTES:

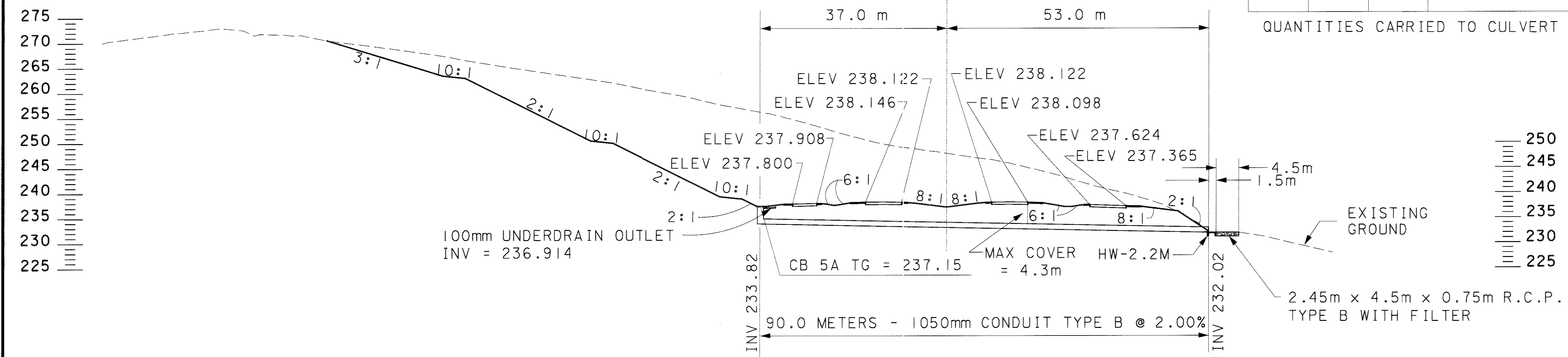
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



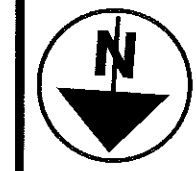
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DRAINAGE AREA = 8.8 HECTARES	
Q <sub>50</sub>	= 2.08 m <sup>3</sup> /s
Q <sub>100</sub>	= 2.50 m <sup>3</sup> /s
HW <sub>50</sub>	= 235.25
HW <sub>100</sub>	= 235.55
V <sub>50</sub>	= 4.54 m/s
V <sub>100</sub>	= 4.73 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	3.68	SQ. M.	RIPRAP
601	8.27	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	0.82	CU. M.	CONCRETE MASONRY
603	90.0	METER	1050mm CONDUIT TYPE B, 706.02 62.5 D-LOAD
604	1	EACH	CATCH BASIN, NO. 5A

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



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HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

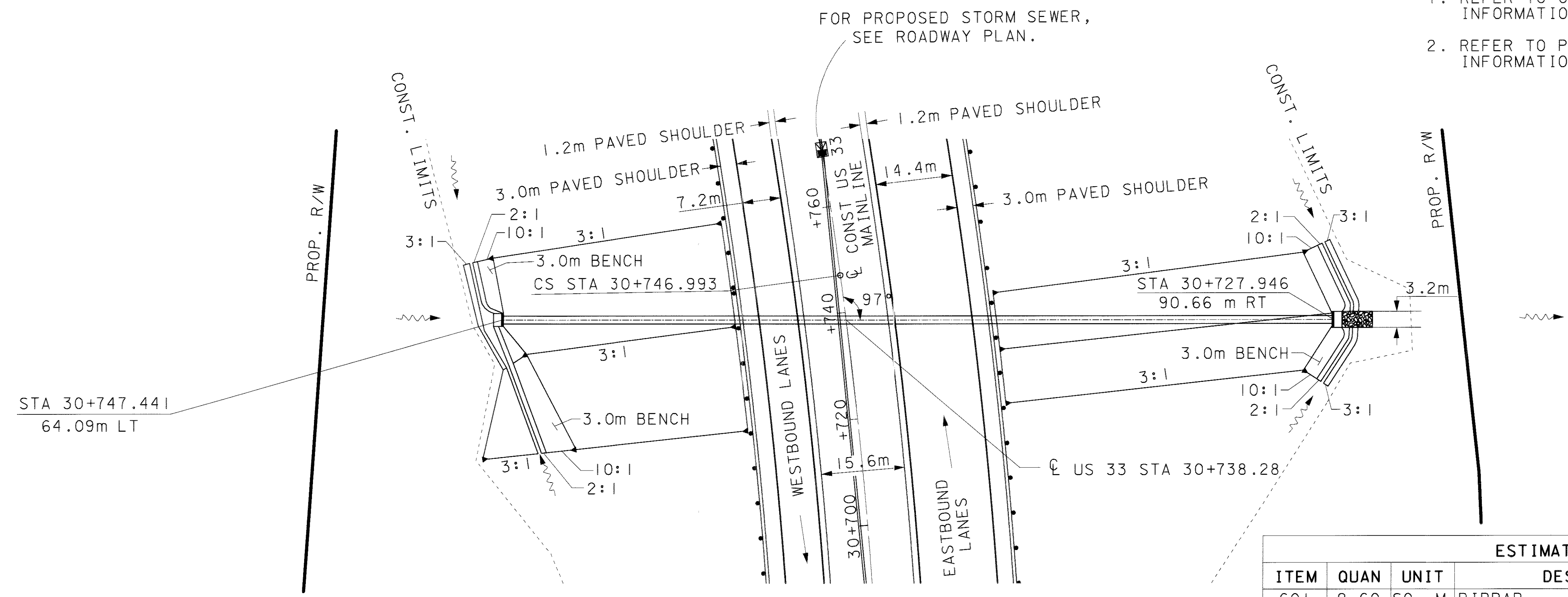
CULVERT DETAIL  
STA 30+738.282

ATH-33-30.981

841  
956

NOTES:

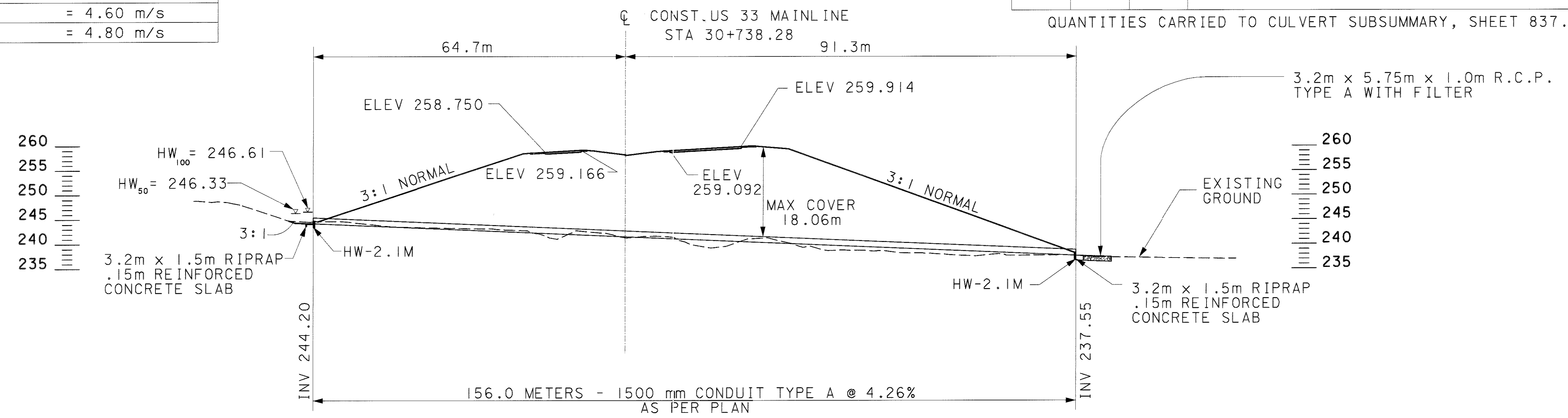
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 31.1 HECTARES	
$Q_{50}$	= 4.33 m <sup>3</sup> /s
$Q_{100}$	= 5.17 m <sup>3</sup> /s
$HW_{50}$	= 246.33
$HW_{100}$	= 246.61
$V_{50}$	= 4.60 m/s
$V_{100}$	= 4.80 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	9.60	SQ. M.	RIPRAP
601	18.40	CU. M.	ROCK CHANNEL PROTECTION, TYPE A W/FILTER
602	3.22	CU. M.	CONCRETE MASONRY
603	156.0	METER	1500mm CONDUIT TYPE A, 707.01 WITH CONCRETE FIELD PAVING (2.77mm) AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.

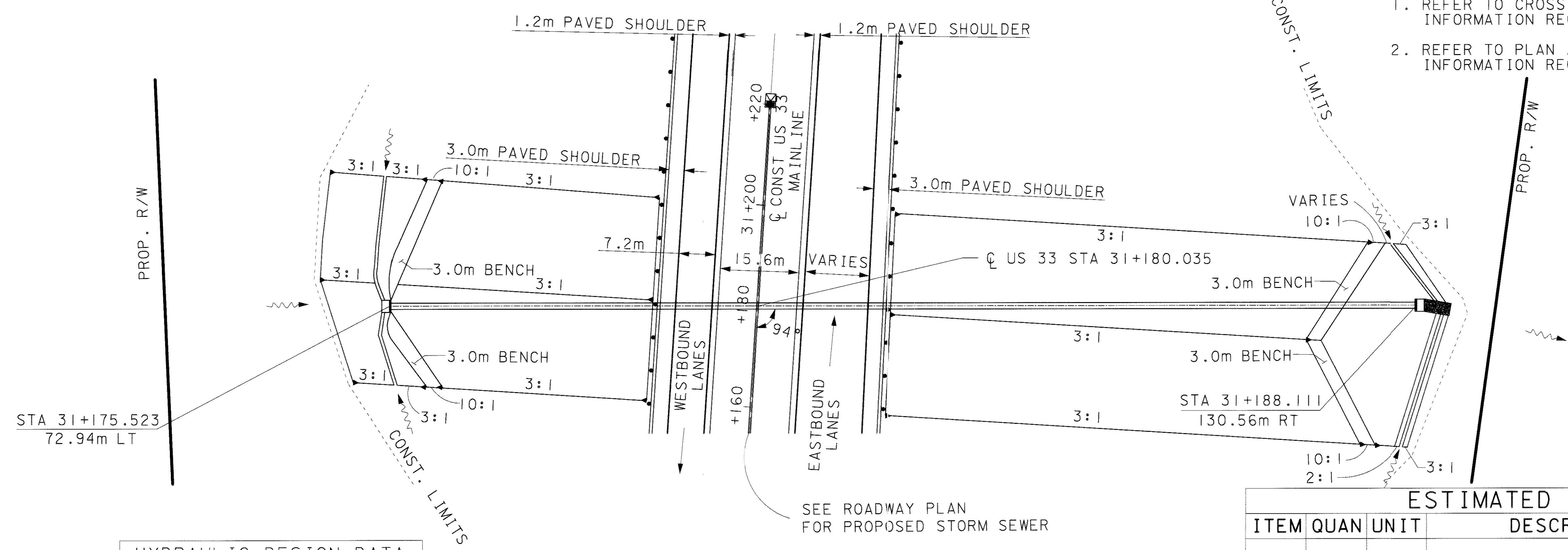


CULVERT #2

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NOTES:

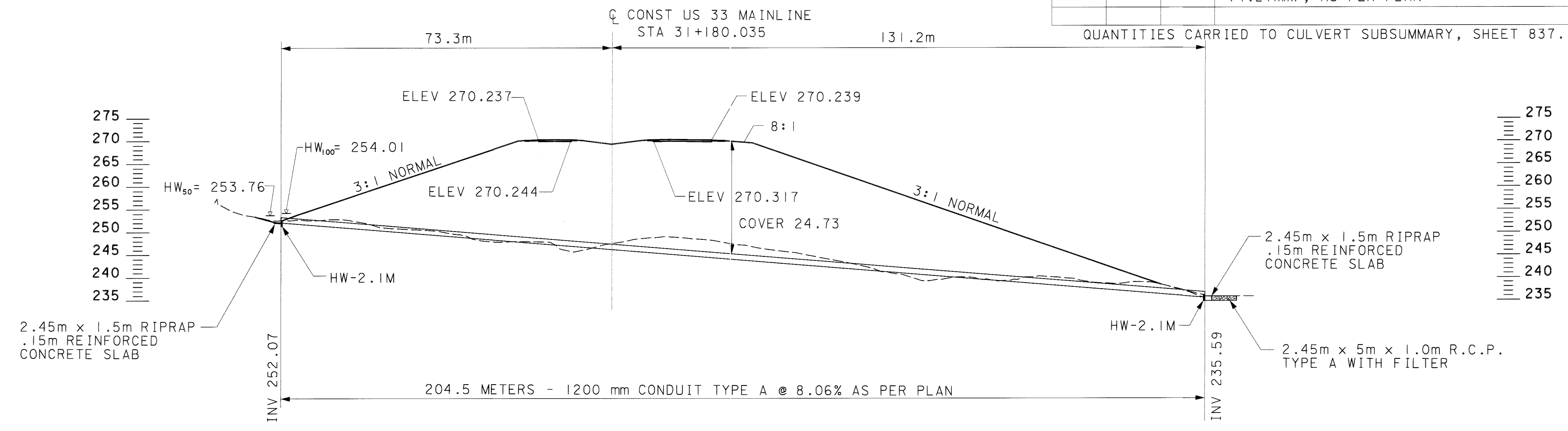
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 12.2 HECTARES
Q <sub>50</sub>	= 2.62 m <sup>3</sup> /s
Q <sub>100</sub>	= 3.15 m <sup>3</sup> /s
HW <sub>50</sub>	= 253.76
HW <sub>100</sub>	= 254.01
V <sub>50</sub>	= 5.12 m/s
V <sub>100</sub>	= 5.37 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	7.35	SQ. M.	RIPRAP
601	12.25	CU. M.	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER
602	2.02	CU. M.	CONCRETE MASONRY
603	204.5	METER	1200mm CONDUIT TYPE A, 707.01 ALUMINUM COATED WITH BITUMINOUS PAVED INVERT (4.27mm), AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



CULVERT #3



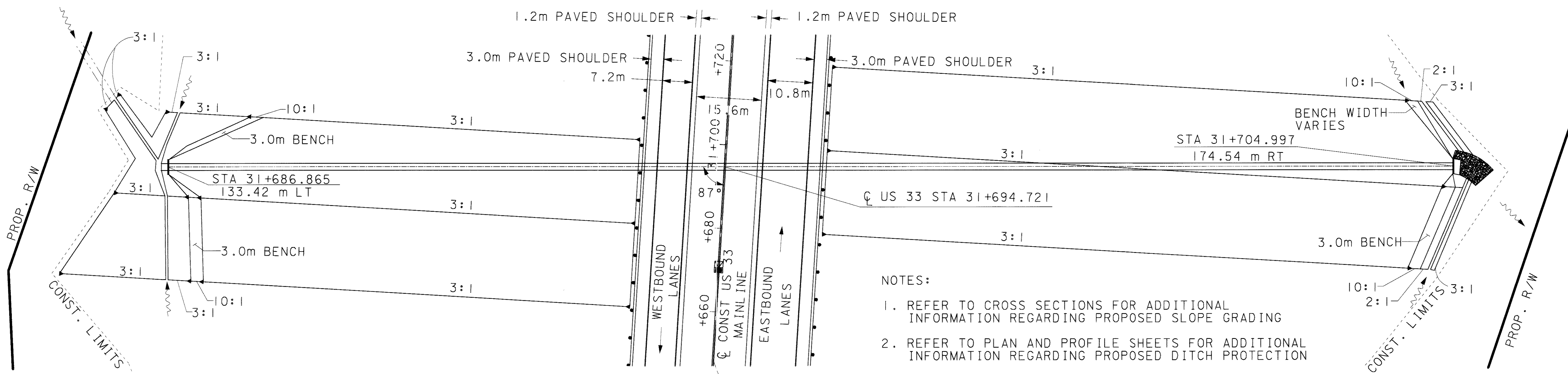
HORIZONTAL SCALE IN METERS

CALCULATED MCR CHECKED JDH

CULVERT DETAIL STA 31+694.721

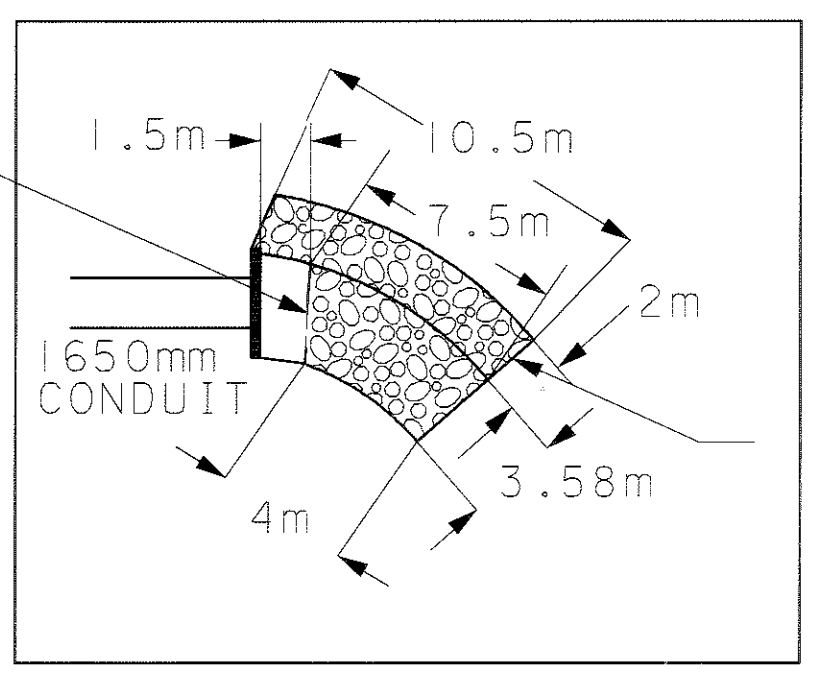
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- NOTES:
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
  2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

3.58m x 5.75m x 1.0m  
R.C.P. TYPE A  
WITH FILTER



OUTLET AND SLOPE PROTECTION DETAIL

SEE ROADWAY PLAN FOR PROPOSED STORM SEWER

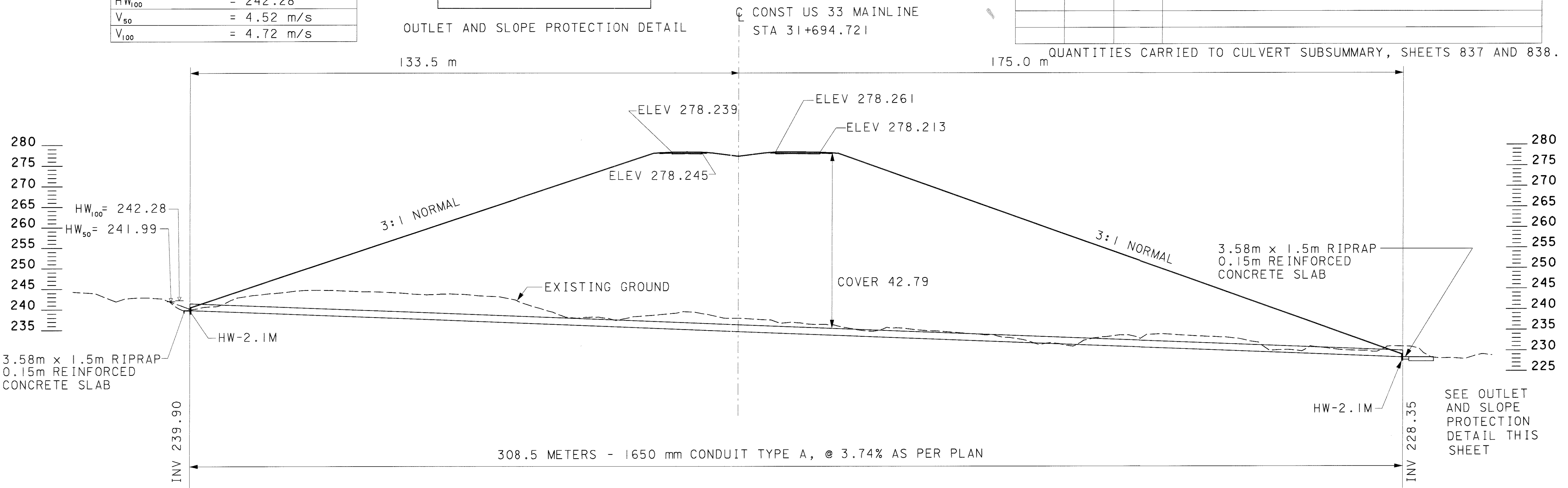
**HYDRAULIC DESIGN DATA**

DRAINAGE AREA	= 29.3 HECTARES
Q <sub>50</sub>	= 5.00 m <sup>3</sup> /s
Q <sub>100</sub>	= 6.00 m <sup>3</sup> /s
HW <sub>50</sub>	= 241.99
HW <sub>100</sub>	= 242.28
V <sub>50</sub>	= 4.52 m/s
V <sub>100</sub>	= 4.72 m/s

**ESTIMATED QUANTITIES**

ITEM	QUAN	UNIT	DESCRIPTION
601	10.74	SQ. M.	RIPRAP
601	38.59	CU. M.	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER
602	3.76	CU. M.	CONCRETE MASONRY
603	308.5	METER	1650mm CONDUIT TYPE A, 707.03 (4.27 mm), WITH CONCRETE FIELD PAVING, AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



CULVERT #4

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0 1500 20  
HORIZONTAL  
SCALE IN METERS

CALCULATED MCR  
CHECKED JDH

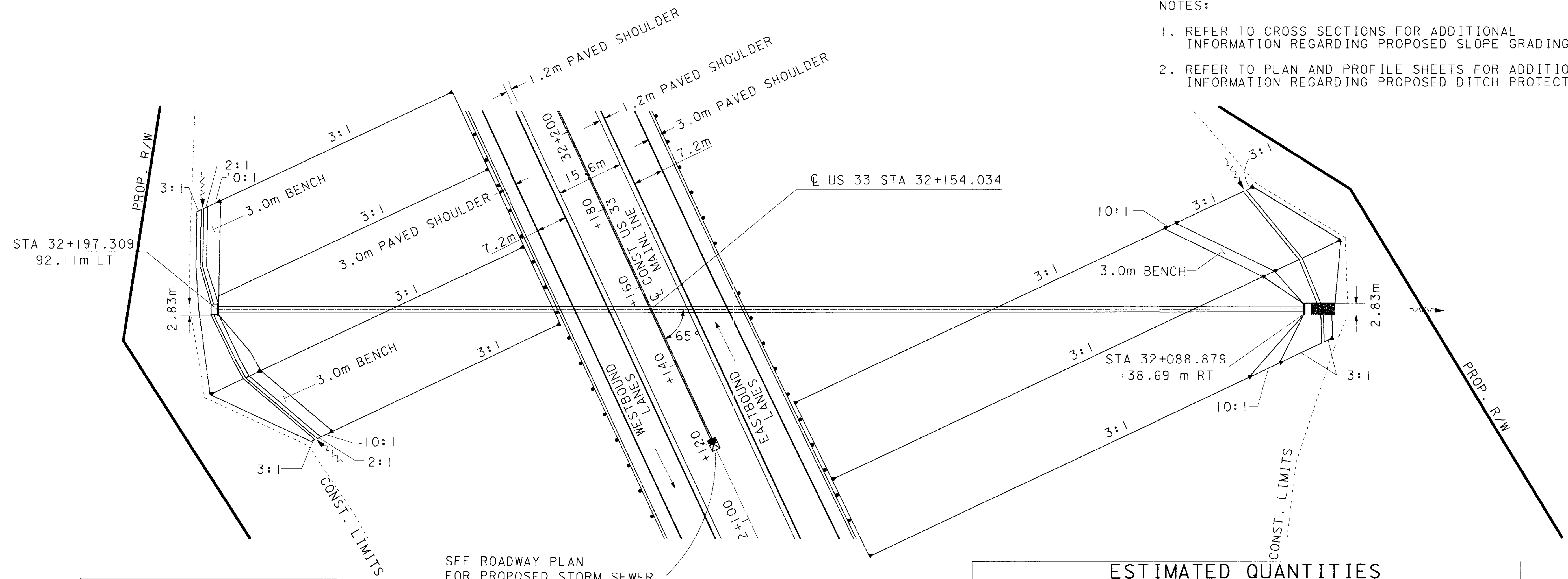
CULVERT DETAIL  
STA 32+154.034

ATH-33-30.981

844  
956

NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



SEE ROADWAY PLAN FOR PROPOSED STORM SEWER

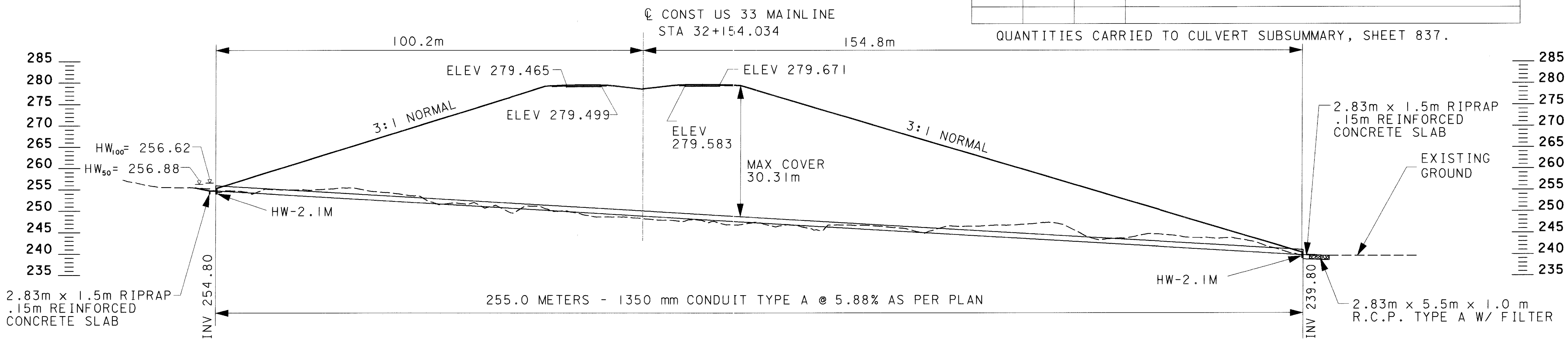
HYDRAULIC DESIGN DATA

DRAINAGE AREA	= 16.3 HECTARES
Q <sub>50</sub>	= 3.32 m <sup>3</sup> /s
Q <sub>100</sub>	= 3.98 m <sup>3</sup> /s
HW <sub>50</sub>	= 256.62
HW <sub>100</sub>	= 256.88
V <sub>50</sub>	= 4.83 m/s
V <sub>100</sub>	= 5.06 m/s

ESTIMATED QUANTITIES

ITEM	QUAN	UNIT	DESCRIPTION
601	8.49	SQ. M.	RIPRAP
601	15.57	CU. M.	ROCK CHANNEL PROTECTION, TYPE A W/ FILTER
602	2.46	CU. M.	CONCRETE MASONRY
603	255.0	METER	1350mm CONDUIT TYPE A, 707.01 WITH CONCRETE FIELD PAVING, (3.51mm), AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



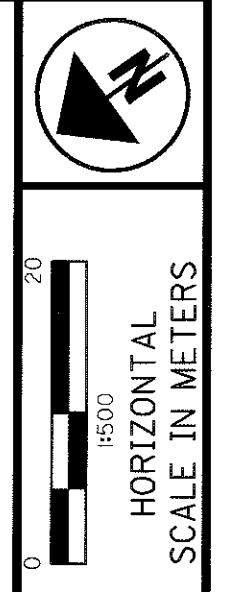
2.83m x 1.5m RIPRAP  
.15m REINFORCED  
CONCRETE SLAB

2.83m x 1.5m RIPRAP  
.15m REINFORCED  
CONCRETE SLAB

2.83m x 5.5m x 1.0 m  
R.C.P. TYPE A W/ FILTER

CULVERT #5

03/19/10 AM  
02/07/10  
U:\98294\8287\_Fin\Design\Drawings\0304033.dgn



CALCULATED  
MCR  
CHECKED  
JQH

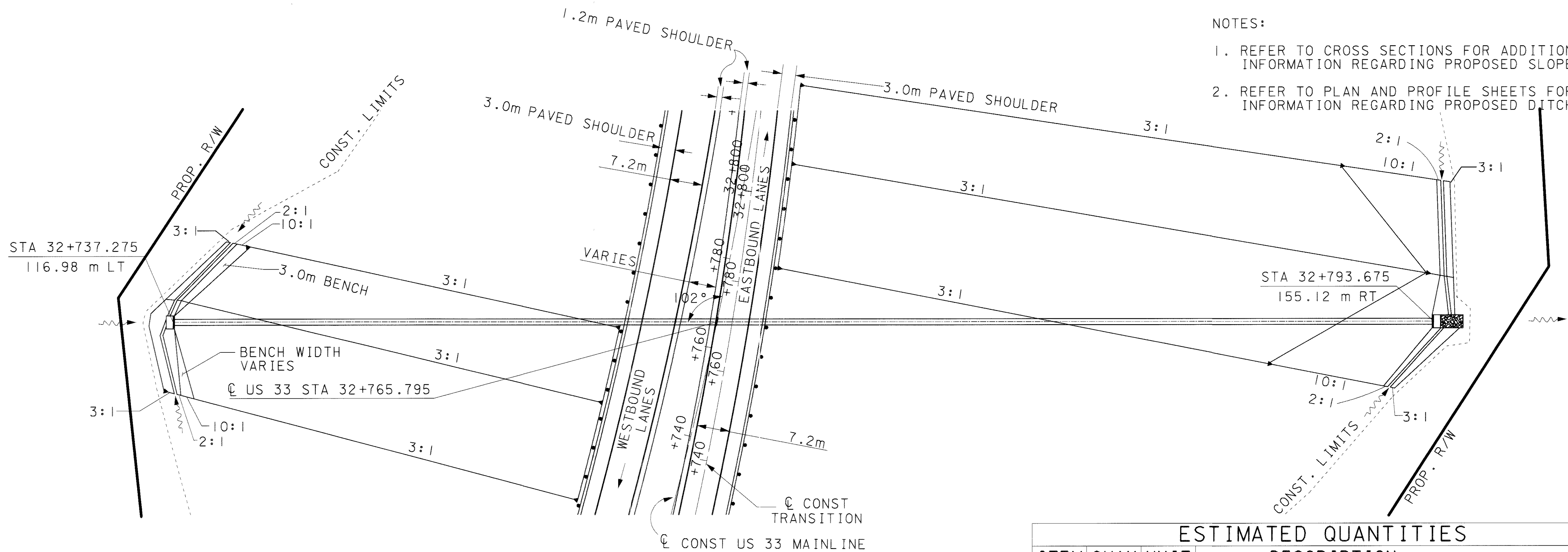
CULVERT DETAIL  
STA 32+765.795

ATH-33-30.981

845  
956

NOTES:

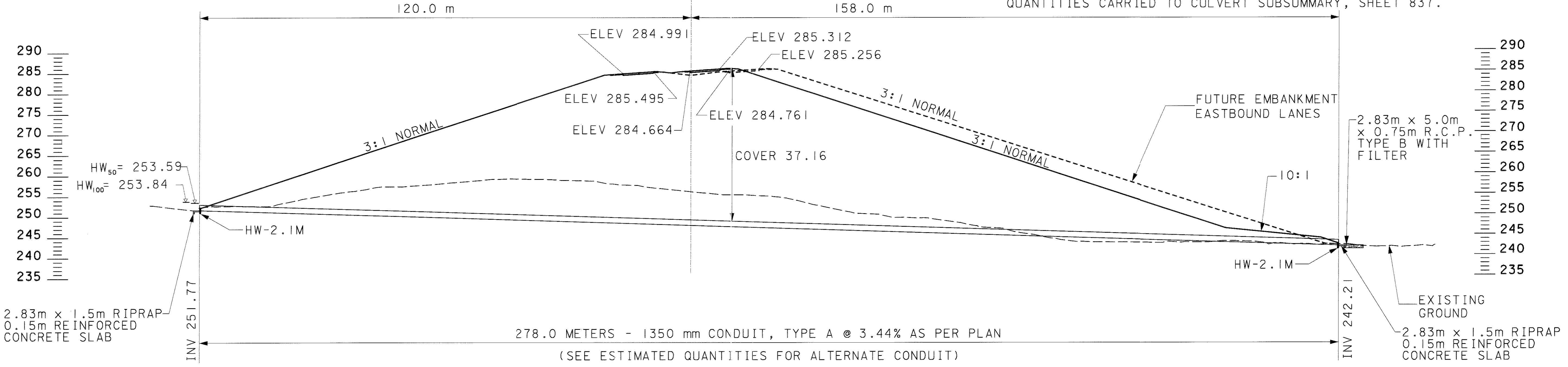
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 22.3 HECTARES	
Q <sub>50</sub>	= 3.31 m <sup>3</sup> /s
Q <sub>100</sub>	= 3.95 m <sup>3</sup> /s
HW <sub>50</sub>	= 253.59
HW <sub>100</sub>	= 253.84
V <sub>50</sub>	= 3.94 m/s
V <sub>100</sub>	= 4.10 m/s

ESTIMATED QUANTITIES		
ITEM	QUAN	UNIT DESCRIPTION
601	8.49	SQ. M. RIPRAP
601	10.61	CU. M. ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	2.46	CU. M. CONCRETE MASONRY
603	278.0	METER 1350mm CONDUIT TYPE A, 707.02 (3.51mm) WITH CONCRETE FIELD PAVING, 707.07 (3.51mm), OR 707.04 (3.51mm) (25mm CORR.), AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



CULVERT #6

06:49:59 PM  
01/31/01  
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2.83m x 1.5m RIPRAP  
0.15m REINFORCED  
CONCRETE SLAB

2.83m x 5.0m  
x 0.75m R.C.P.  
TYPE B WITH  
FILTER

278.0 METERS - 1350 mm CONDUIT, TYPE A @ 3.44% AS PER PLAN  
(SEE ESTIMATED QUANTITIES FOR ALTERNATE CONDUIT)

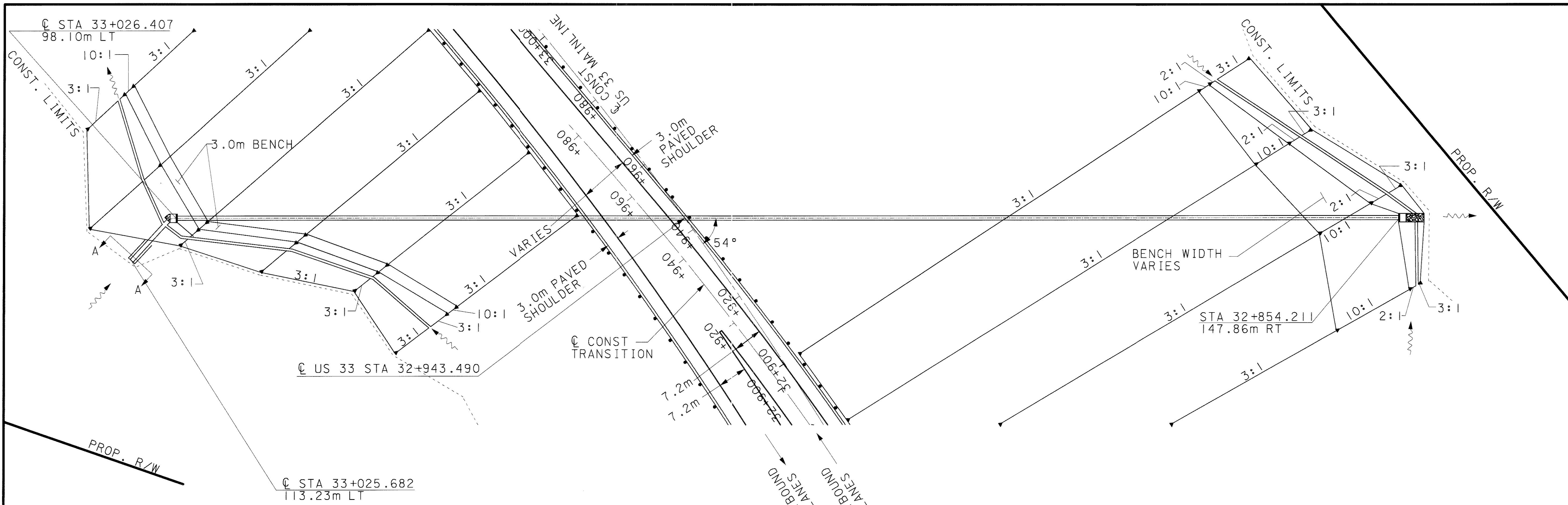


CALCULATED  
MCR  
CHECKED  
JDH

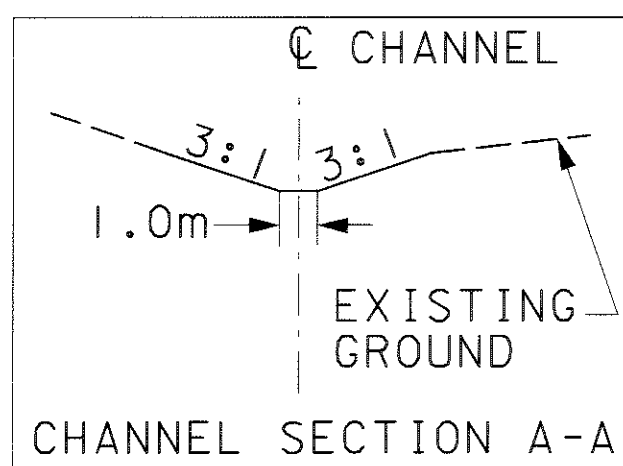
**CULVERT DETAIL  
STA 32+943.490**

**ATH-33-30.981**

846  
956



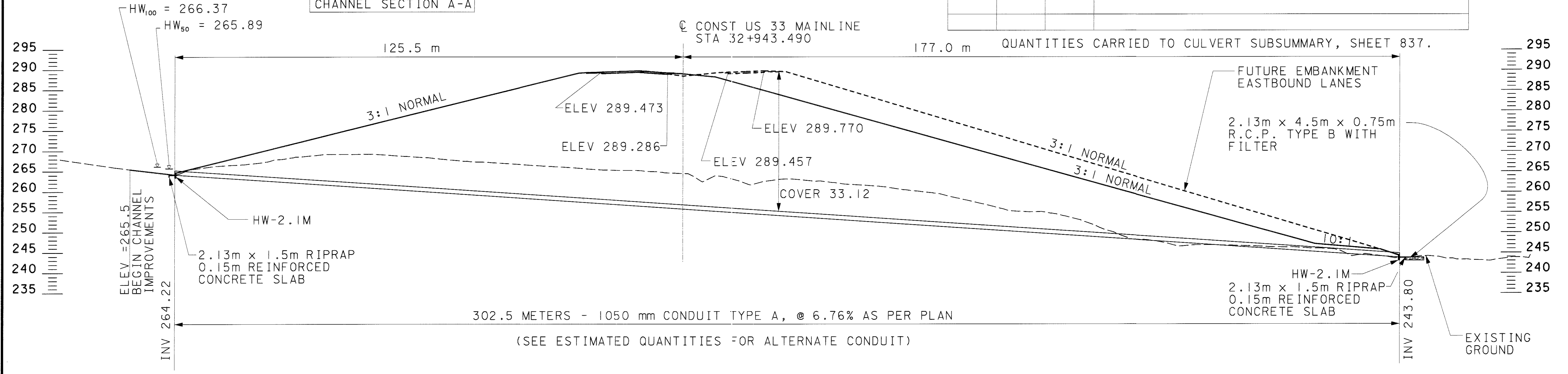
HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 9.84 HECTARES	
Q <sub>50</sub>	= 2.22 m <sup>3</sup> /s
Q <sub>100</sub>	= 2.66 m <sup>3</sup> /s
HW <sub>50</sub>	= 265.89
HW <sub>100</sub>	= 266.37
V <sub>50</sub>	= 4.60 m/s
V <sub>100</sub>	= 4.80 m/s



NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

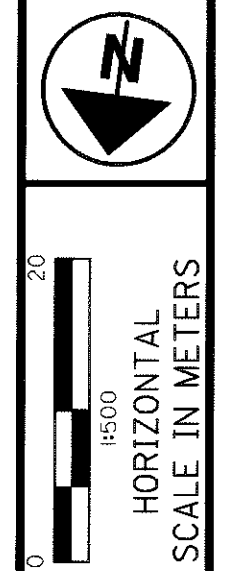
ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	6.39	SQ. M.	RIPRAP
601	7.19	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	1.66	CU. M.	CONCRETE MASONRY
603	302.5	METER	1050mm CONDUIT TYPE A, 707.02 (3.51mm) WITH CONCRETE FIELD PAVING, 707.07 (3.51mm), OR 707.04 (3.51mm) (25mm CORR.), AS PER PLAN



CULVERT #7

06:50:01 PM  
01/31/01  
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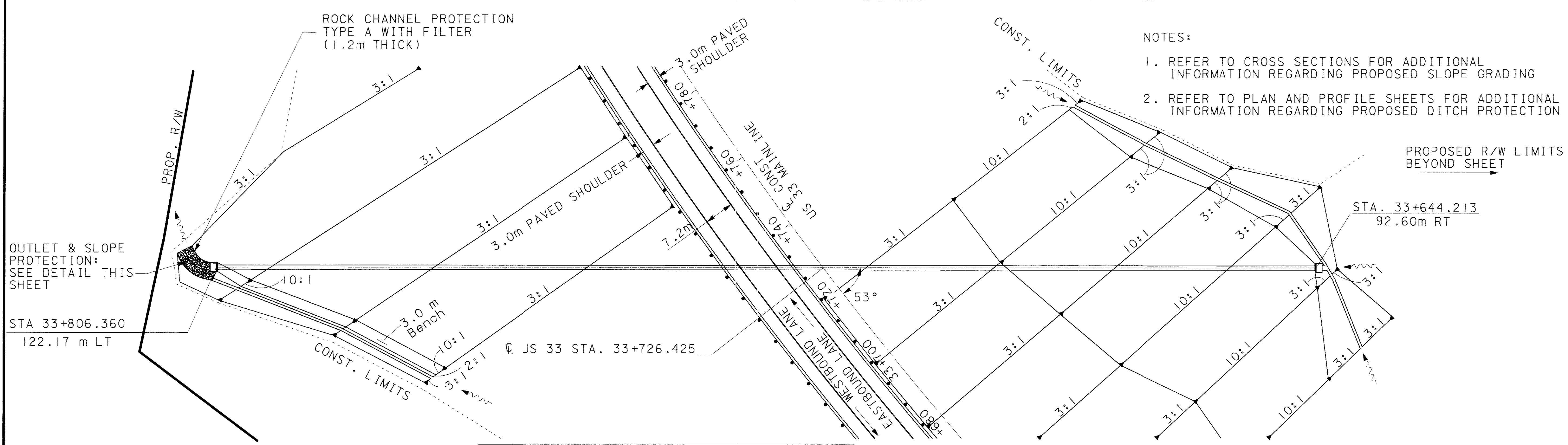


CALCULATED  
MCR  
CHECKED  
JDH

CULVERT DETAIL  
STA 33+726.425

ATH-33-30.981

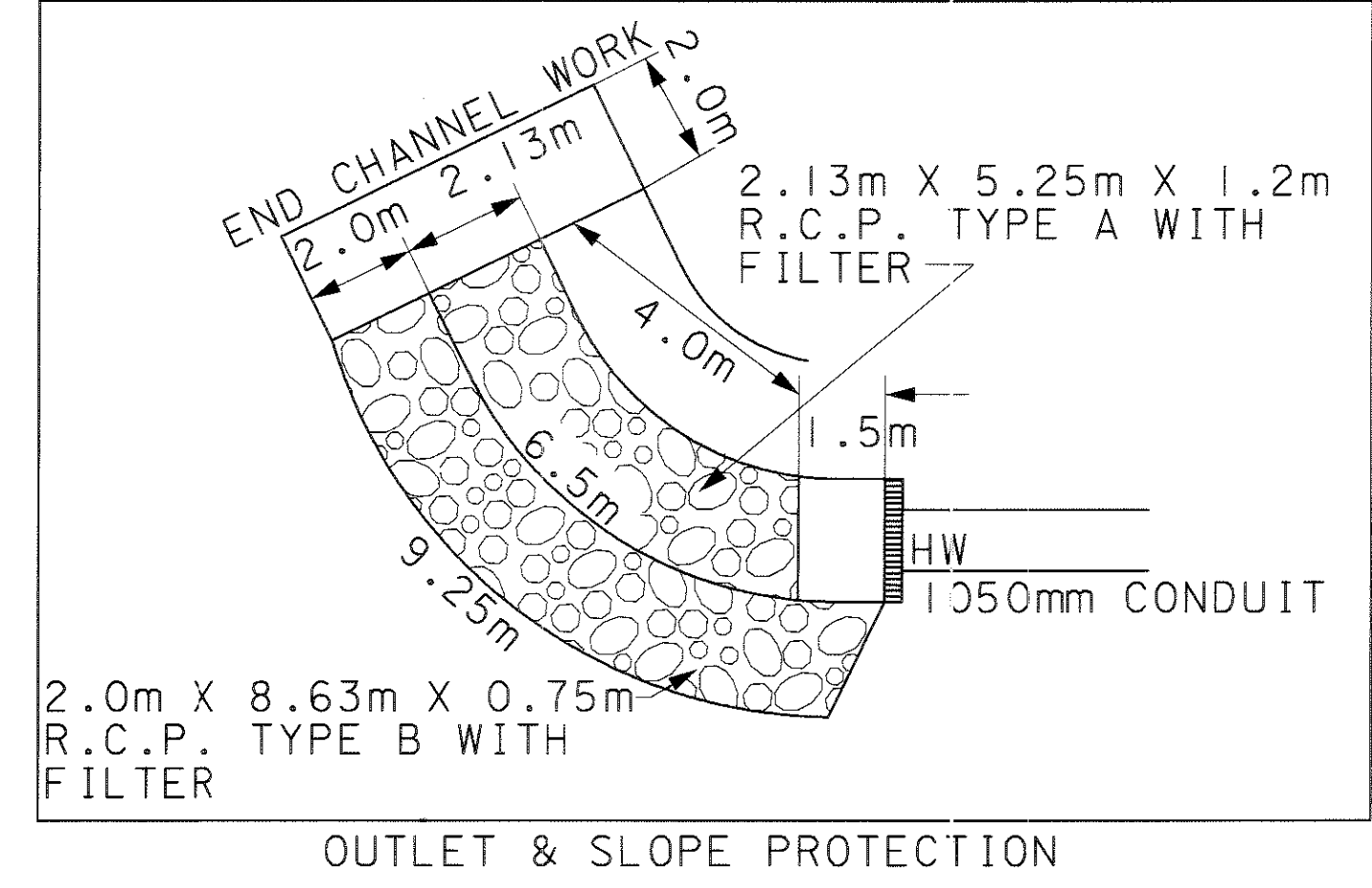
847  
956



- NOTES:
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
  2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

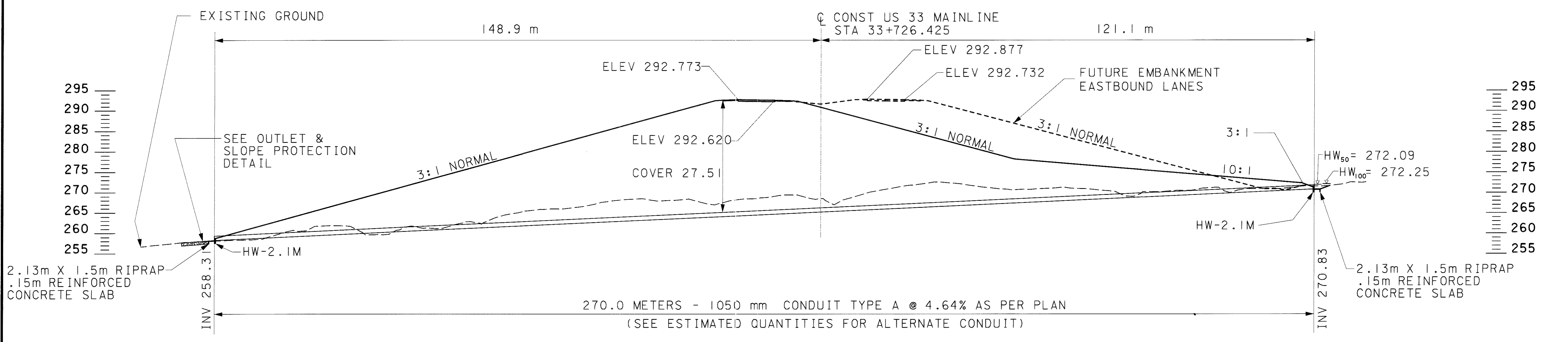
CULVERT #9

HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 12.2 HECTARES
Q <sub>50</sub>	= 1.49 m <sup>3</sup> /s
Q <sub>100</sub>	= 1.77 m <sup>3</sup> /s
HW <sub>50</sub>	= 272.09
HW <sub>100</sub>	= 272.25
V <sub>50</sub>	= 5.66 m/s
V <sub>100</sub>	= 5.94 m/s

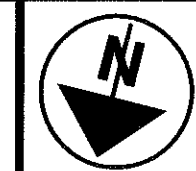


ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	6.39	SQ. M.	RIPRAP
601	13.42	CU. M.	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER
601	12.95	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	1.66	CU. M.	CONCRETE MASONRY
603	270.0	METER	1050mm CONDUIT TYPE A, 706.02, 130 D-LOAD INDUCED TRENCH OR 707.01 (3.51mm) ALUMINUM COATED, 707.05 (3.51mm), OR 707.04 (3.51mm) (13mm CORR.), AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



06:50:04 PM  
01/31/01  
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0 10 20  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

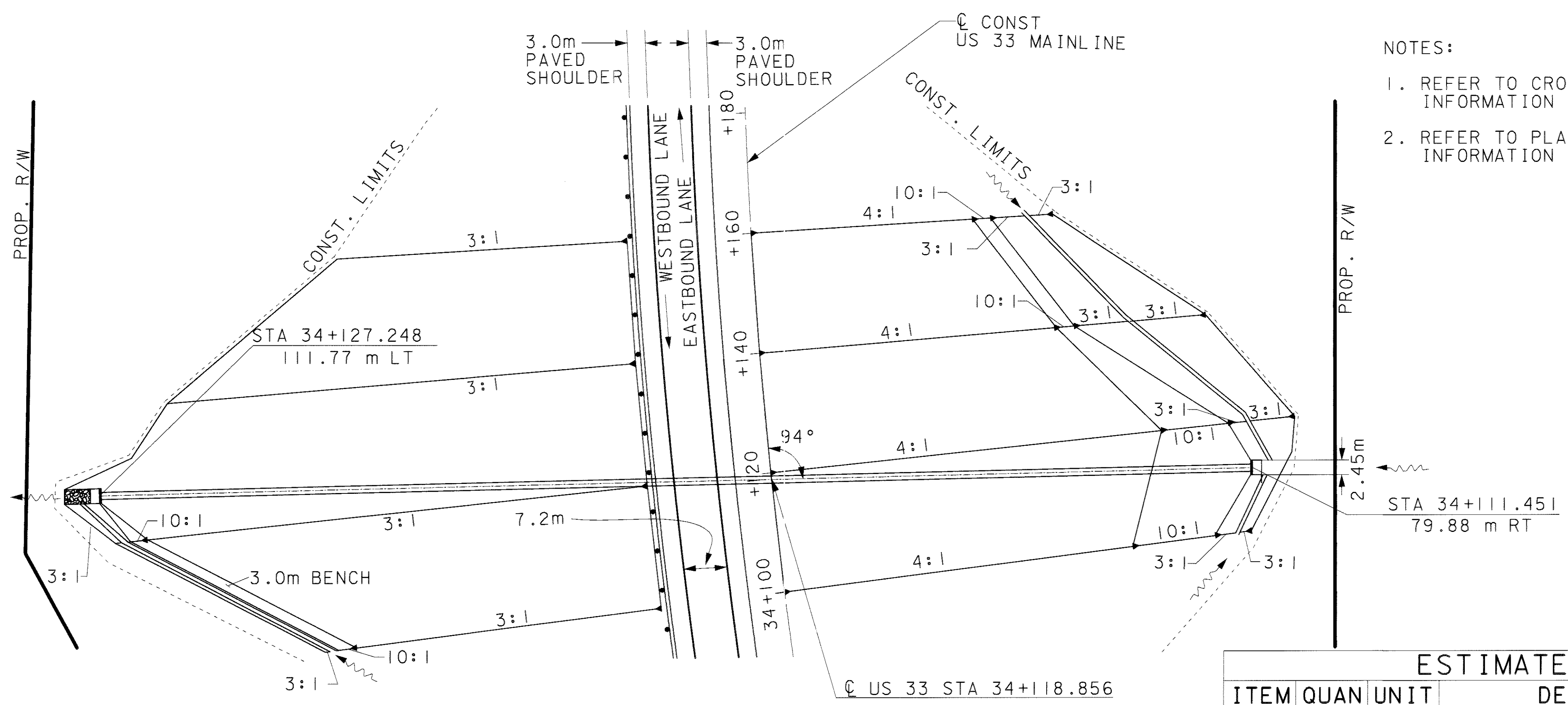
CULVERT DETAIL  
STA 34+118.856

ATH-33-30.981

848  
956

NOTES:

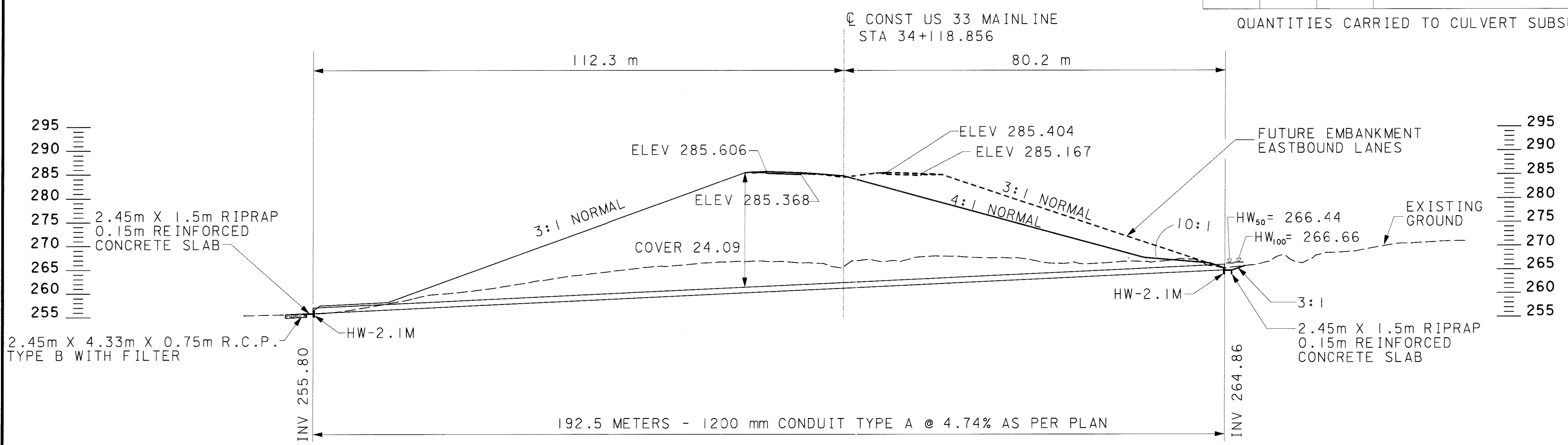
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 15.5 HECTARES	
Q <sub>50</sub>	= 2.37 m <sup>3</sup> /s
Q <sub>100</sub>	= 2.82 m <sup>3</sup> /s
HW <sub>50</sub>	= 266.44
HW <sub>100</sub>	= 266.64
V <sub>50</sub>	= 4.09 m/s
V <sub>100</sub>	= 4.27 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	7.35	SQ. M.	RIPRAP
601	7.96	CU. M.	ROCK CHANNEL PROTECTION, TYPE B W/FILTER
602	2.02	CU. M.	CONCRETE MASONRY
603	192.5	METER	1200mm CONDUIT TYPE A, 707.01 ALUMINUM COATED WITH BITUMINOUS PAVED INVERT (4.27mm) AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.

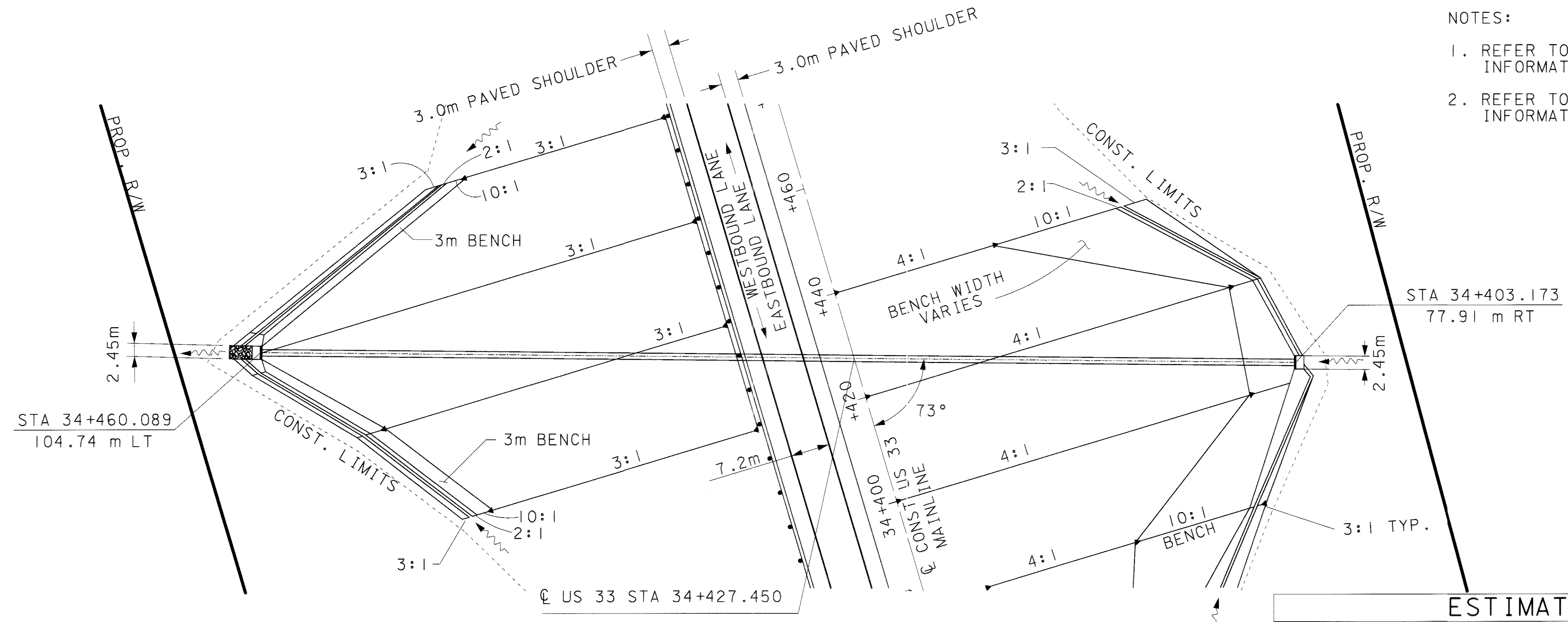


CULVERT #10

06:50:06 PM  
01/31/01  
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NOTES:

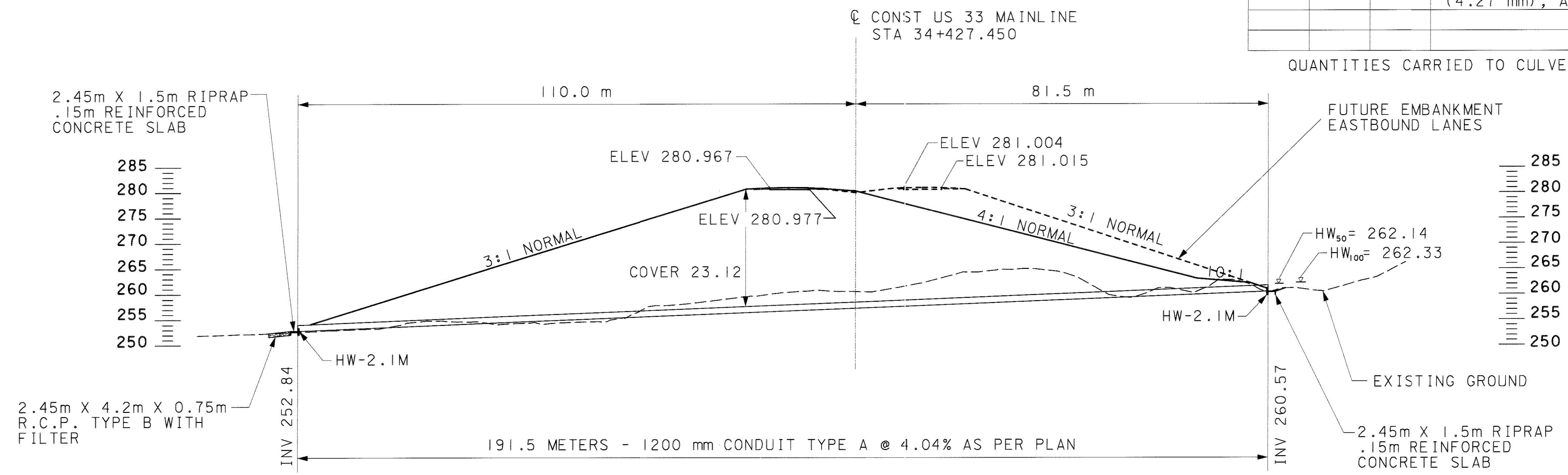
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 24.6 HECTARES
Q <sub>50</sub>	= 2.35 m <sup>3</sup> /s
Q <sub>100</sub>	= 2.77 m <sup>3</sup> /s
HW <sub>50</sub>	= 262.14
HW <sub>100</sub>	= 262.33
V <sub>50</sub>	= 3.84 m/s
V <sub>100</sub>	= 4.00 m/s

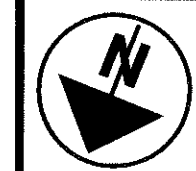
ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	7.35	SQ.M.	RIPRAP
601	7.72	CU.M.	ROCK CHANNEL PROTECTION, TYPE B W/ FILTER
602	2.02	CU.M.	CONCRETE MASONRY
603	191.5	METER	1200 mm CONDUIT TYPE A, 707.01 ALUMINUM COATED WITH BITUMINOUS PAVED INVERT (4.27 mm), AS PER PLAN

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



CULVERT #11

06:50:09 PM  
01/31/01  
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0 20  
1:500  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JQH

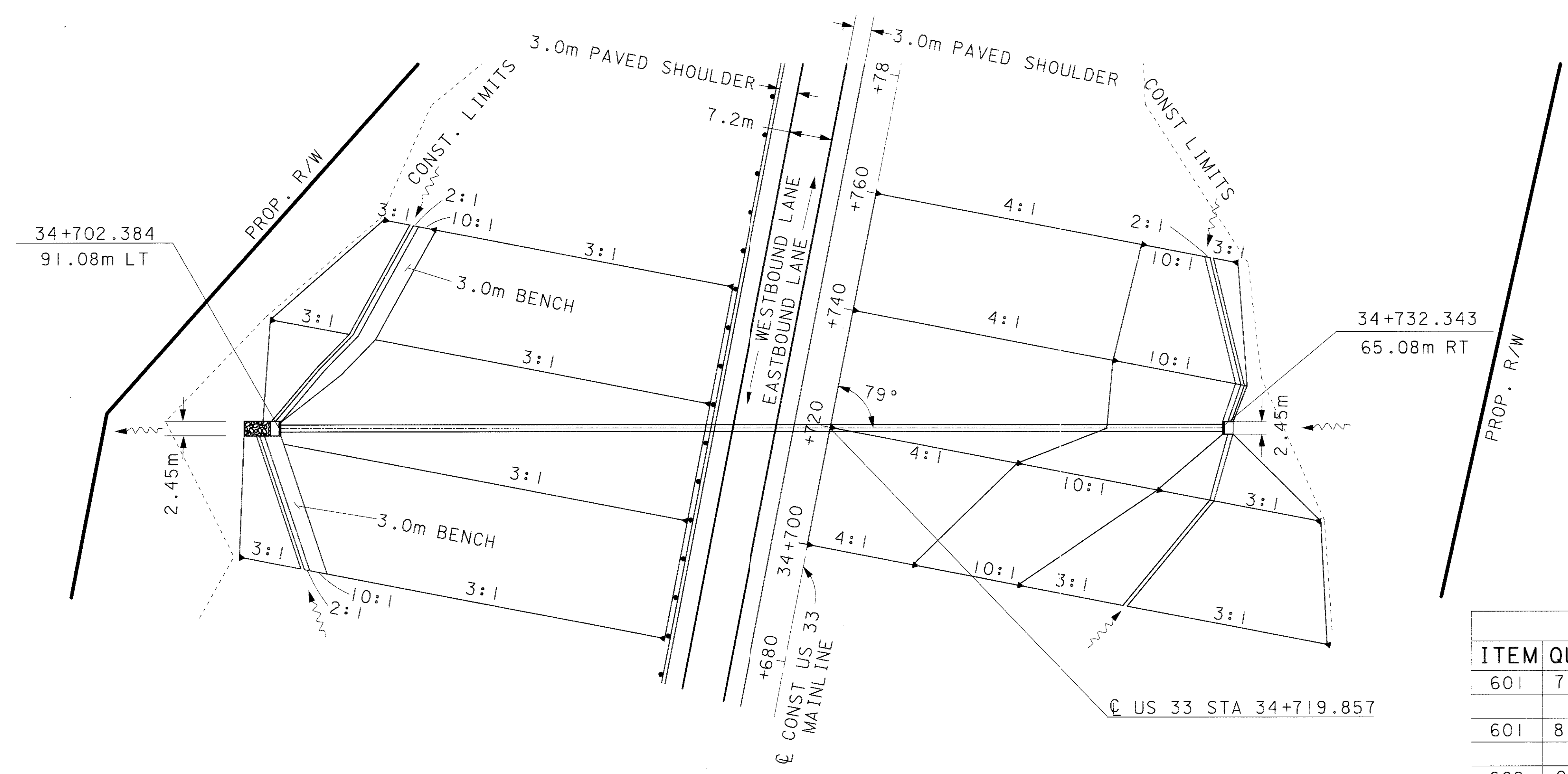
CULVERT DETAIL  
STA 34+719.857

ATH-33-30.981

850  
956

NOTES:

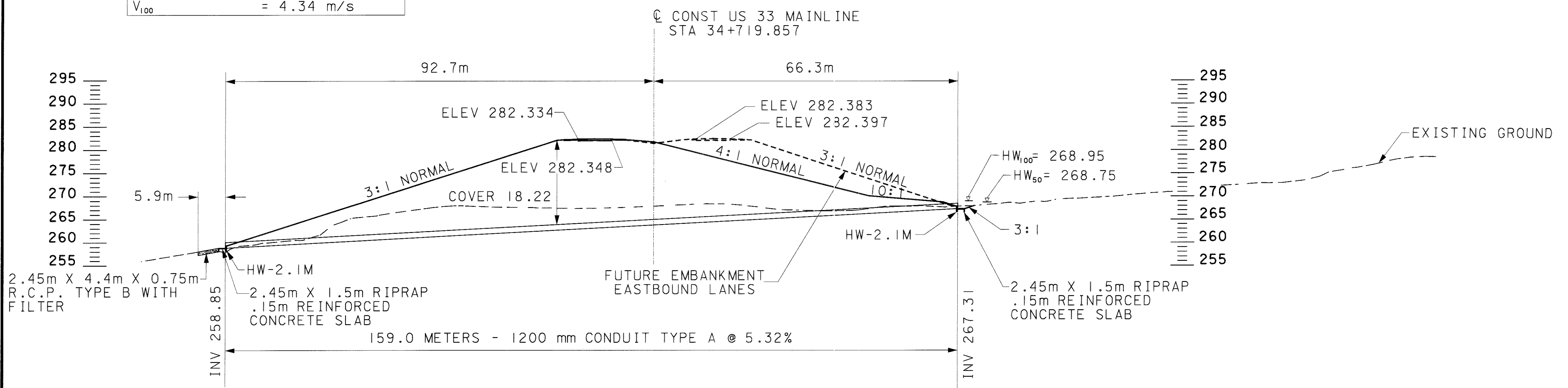
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 10.6 HECTARES
Q <sub>50</sub>	= 2.10 m <sup>3</sup> /s
Q <sub>100</sub>	= 2.51 m <sup>3</sup> /s
HW <sub>50</sub>	= 268.75
HW <sub>100</sub>	= 268.95
V <sub>50</sub>	= 4.15 m/s
V <sub>100</sub>	= 4.34 m/s

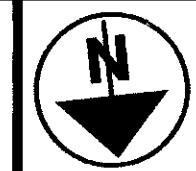
ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	7.35	SQ. M.	RIPRAP
601	8.09	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	2.02	CU. M.	CONCRETE MASONRY
603	159.0	METER	1200mm CONDUIT TYPE A, 707.02 ALUMINUM COATED WITH BITUMINOUS PAVED INVERT (3.51mm).

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



CULVERT #12

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0 10 20  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

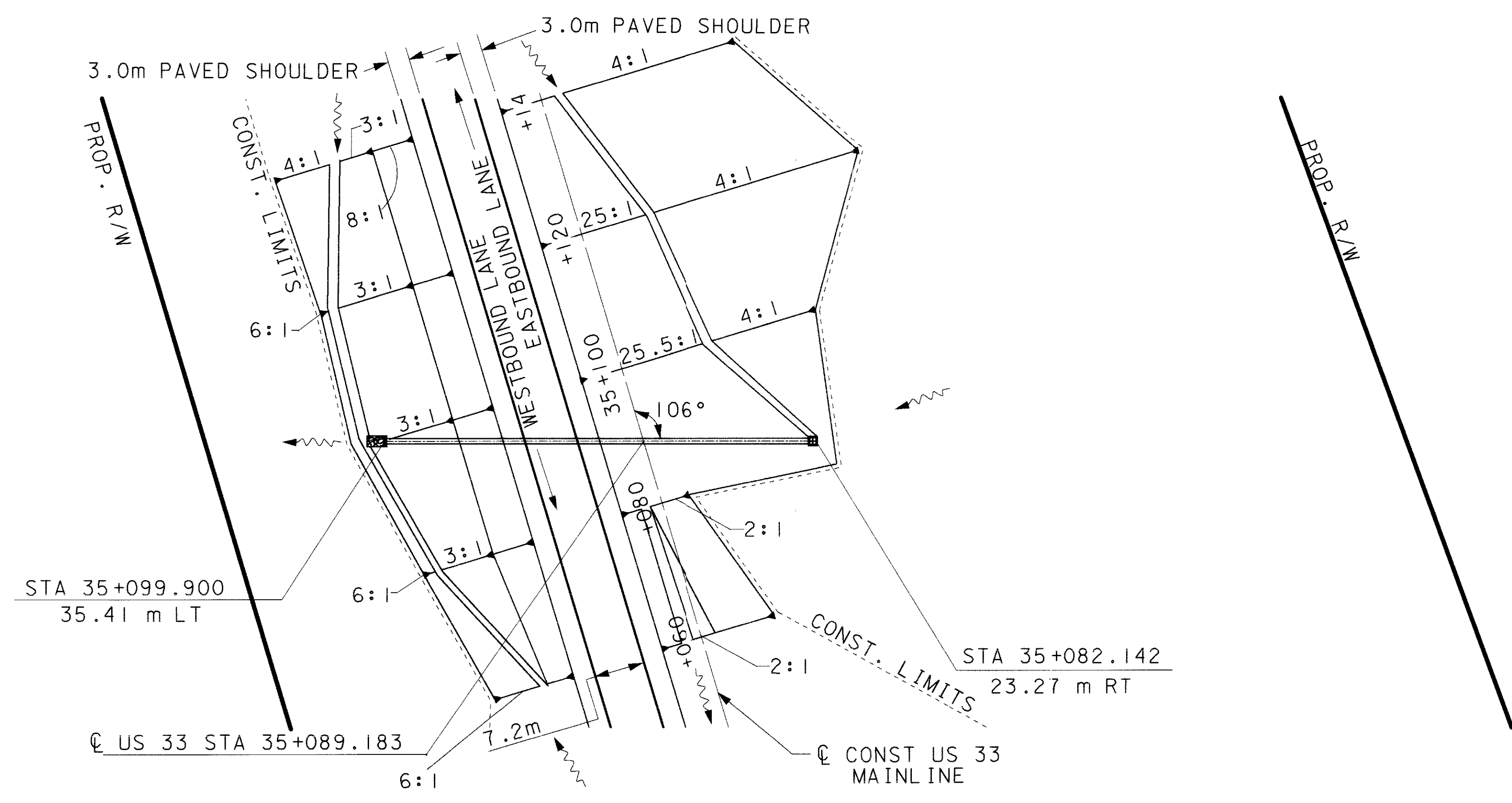
CULVERT DETAIL  
STA 35+089.183

ATH-33-30.981

851  
956

NOTES:

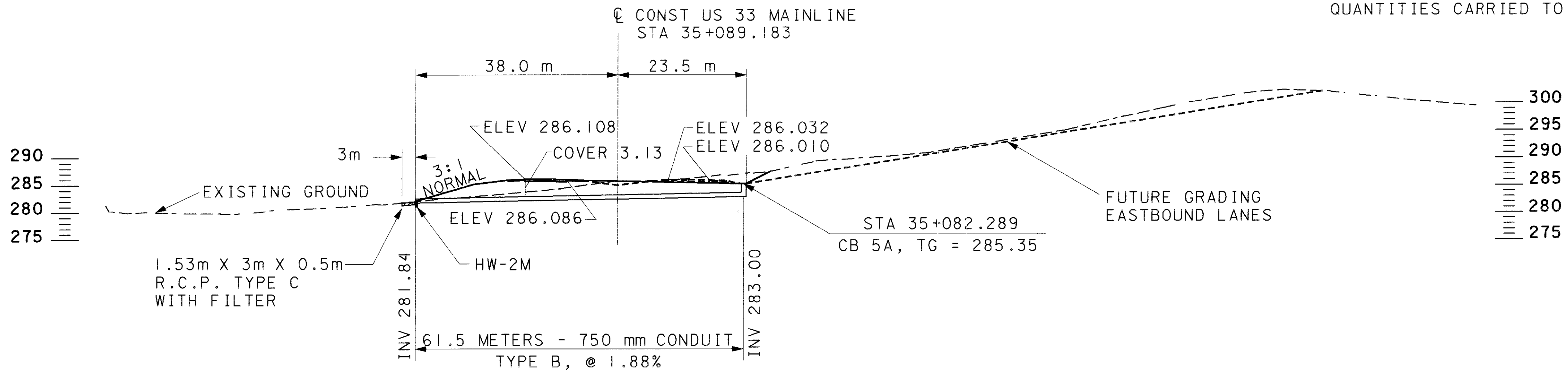
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 2.1 HECTARES	
Q <sub>50</sub>	= 0.41 m <sup>3</sup> /s
Q <sub>100</sub>	= 0.46 m <sup>3</sup> /s
HW <sub>50</sub>	= 283.62
HW <sub>100</sub>	= 283.67
V <sub>50</sub>	= 3.54 m/s
V <sub>100</sub>	= 3.65 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	2.30	CU. M.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
602	1.06	CU. M.	CONCRETE MASONRY
603	61.5	METER	750 mm CONDUIT TYPE B, 706.02 62.5 D-LOAD
604	1	EACH	CATCH BASIN, NO. 5A

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



CULVERT #13

07:00:22 PM  
01/31/01  
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0 1500 20  
HORIZONTAL  
SCALE IN METERS

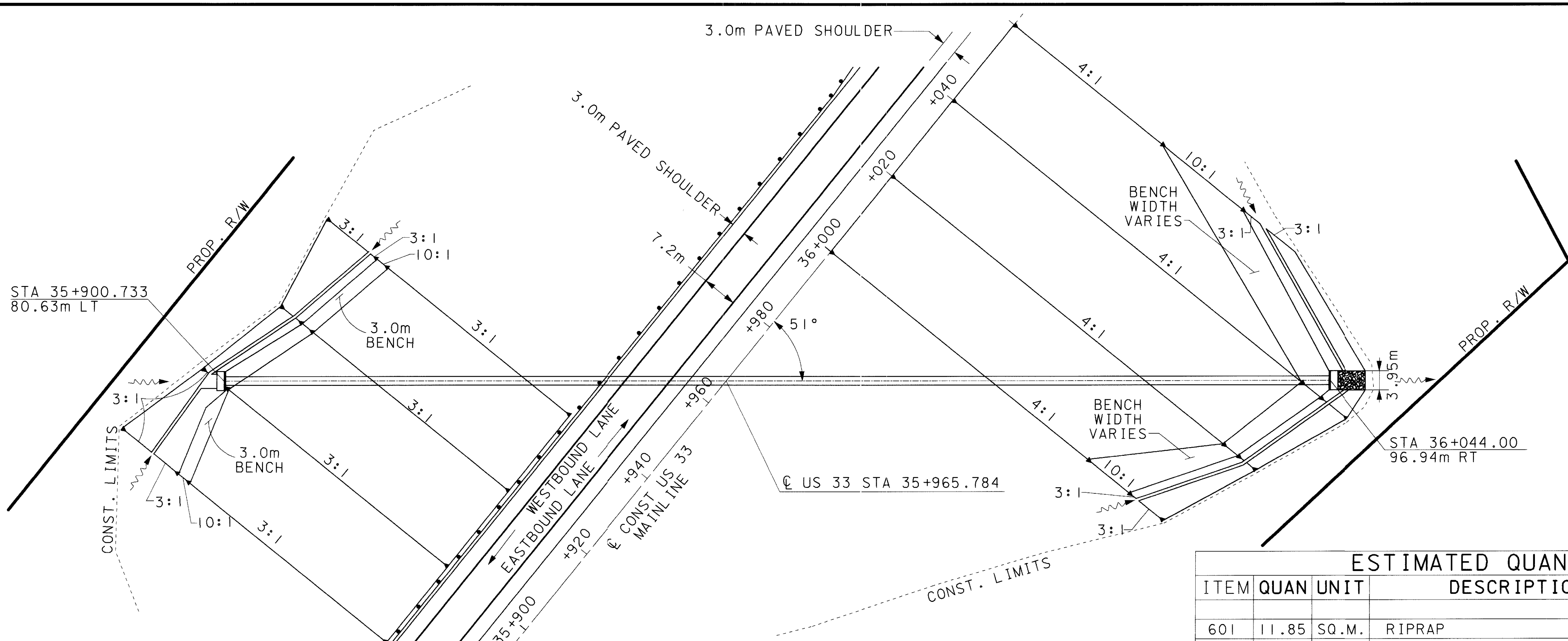
CALCULATED  
MCR  
CHECKED  
JDH

CULVERT DETAIL  
STA 35+965.784

ATH-33-30.981

852  
956

CULVERT #14 WARMWATER HABITAT CULVERT

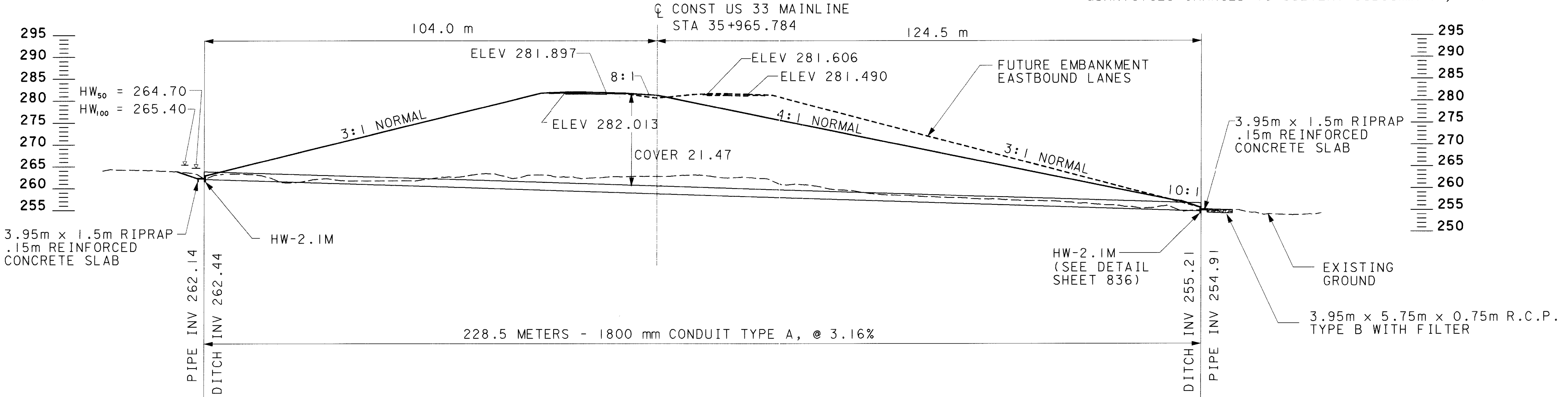


HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 30.6 HECTARES	
Q <sub>50</sub>	= 4.10 m <sup>3</sup> /s
Q <sub>100</sub>	= 4.88 m <sup>3</sup> /s
HW <sub>50</sub>	= 264.70
HW <sub>100</sub>	= 265.40
V <sub>50</sub>	= 3.87 m/s
V <sub>100</sub>	= 4.04 m/s

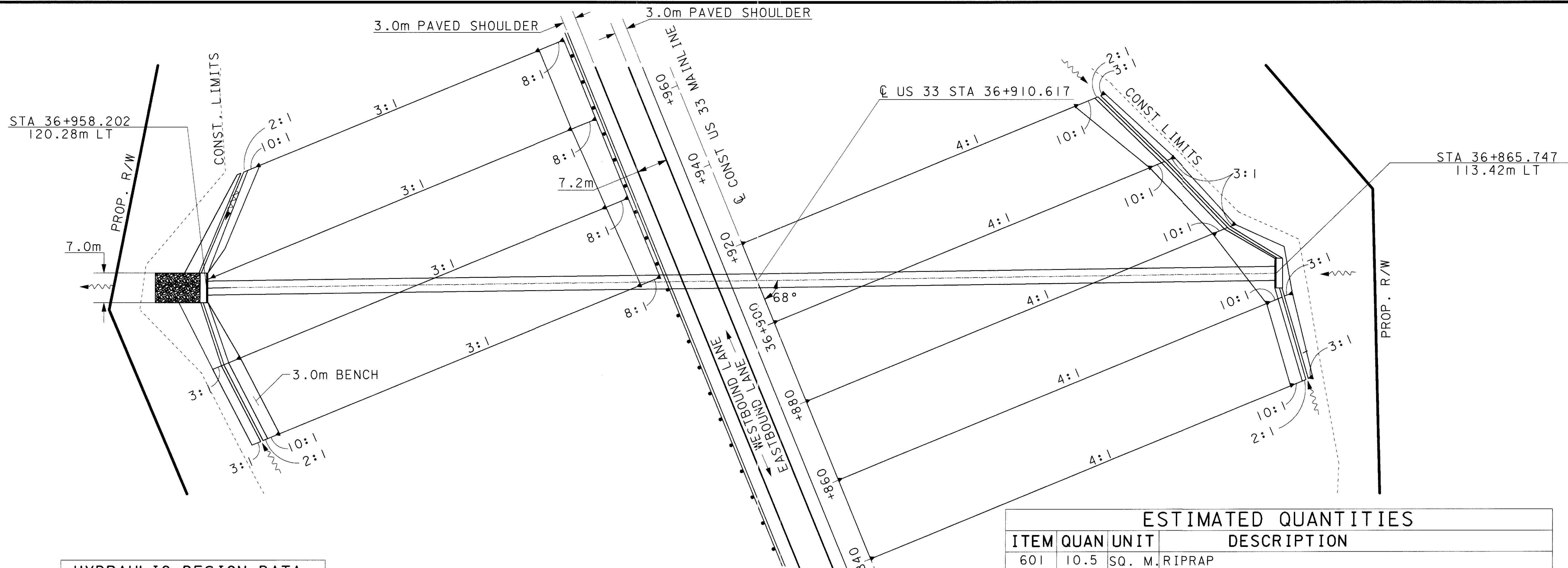
- NOTES:
- REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
  - REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	11.85	SQ.M.	RIPRAP
601	17.03	CU. M	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	4.32	CU. M	CONCRETE MASONRY
603	228.5	METER	1800mm CONDUIT TYPE A, 707.03 (4.27mm)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838



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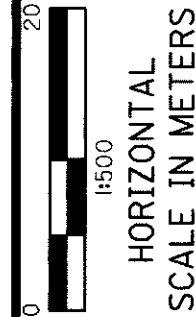
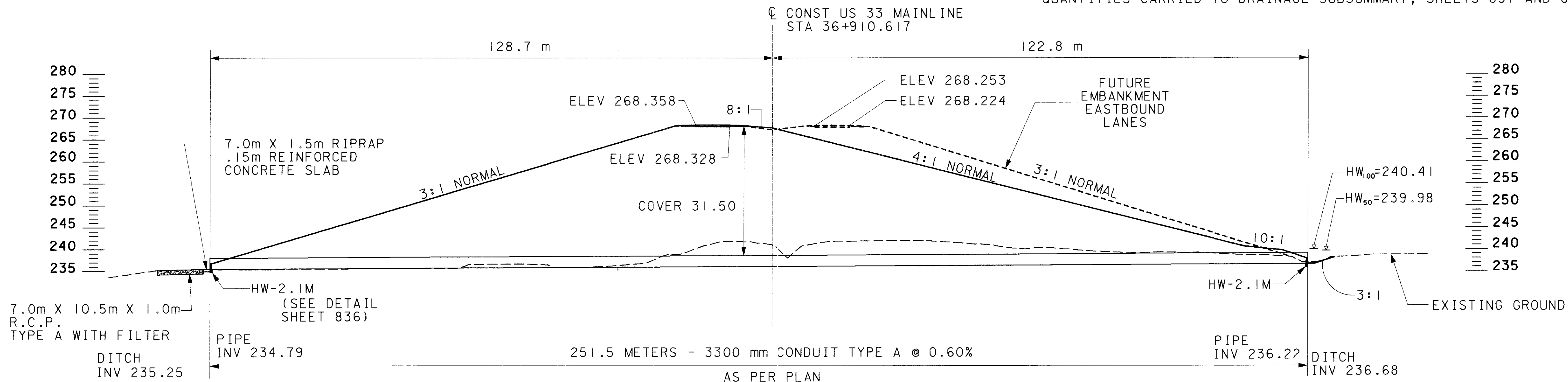
HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 424.8 HECTARES	
Q <sub>50</sub>	= 17.42 m <sup>3</sup> /s
Q <sub>100</sub>	= 20.36 m <sup>3</sup> /s
HW <sub>50</sub>	= 239.98
HW <sub>100</sub>	= 240.41
V <sub>50</sub>	= 3.79 m/s
V <sub>100</sub>	= 4.00 m/s

NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	10.5	SQ. M.	RIPRAP
601	73.5	CU. M.	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER
602	18.20	CU. M.	CONCRETE MASONRY
603	251.5	METER	3300mm CONDUIT TYPE A 707.03 (7.11mm) WITH SLOTTED-JOINTS, AS PER PLAN

QUANTITIES CARRIED TO DRAINAGE SUBSUMMARY, SHEETS 837 AND 838.



CALCULATED  
MCR  
CHECKED  
JDH

CULVERT DETAIL  
STA 36+910.617

ATH-33-30.981

853  
956



0 10 20  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

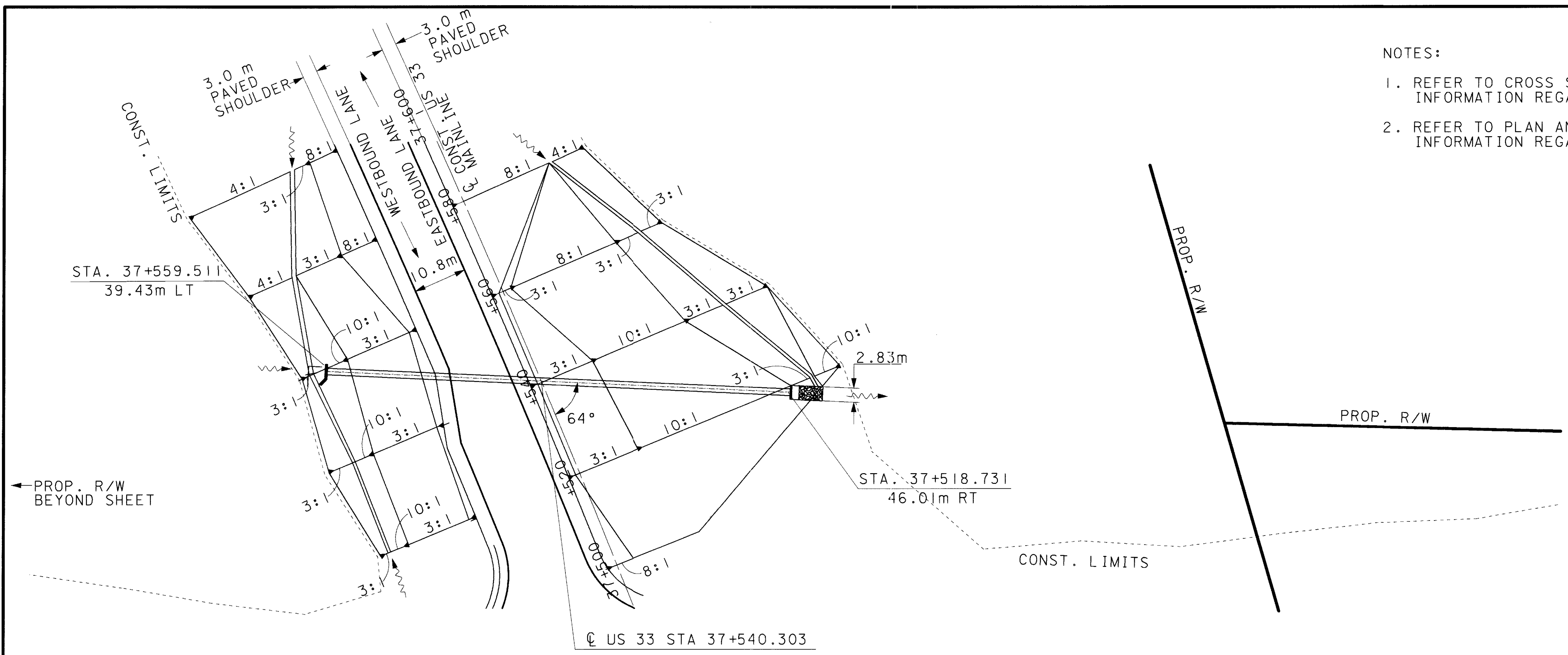
CULVERT DETAIL  
STA 37+540.303

ATH-33-30.981

854  
956

NOTES:

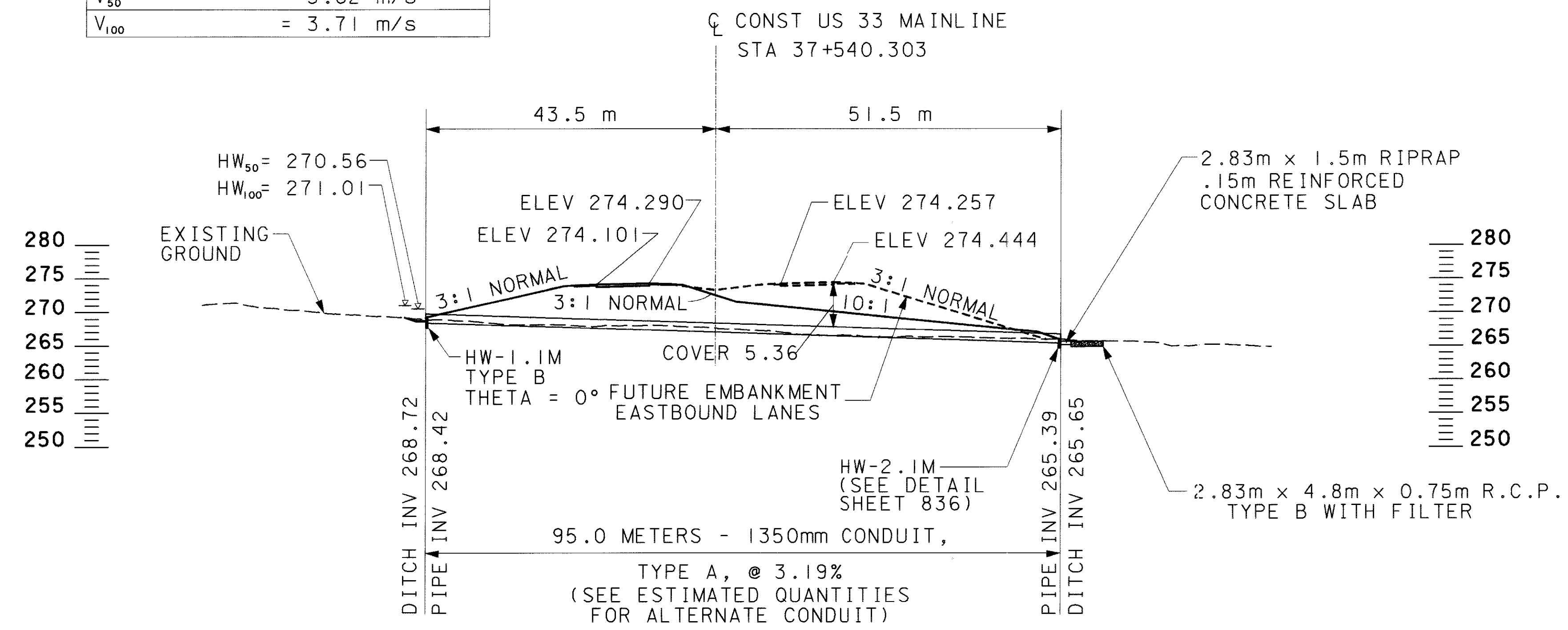
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 19.9 HECTARES
$Q_{50}$	= 3.05 m <sup>3</sup> /s
$Q_{100}$	= 3.64 m <sup>3</sup> /s
$HW_{50}$	= 270.56
$HW_{100}$	= 271.01
$V_{50}$	= 3.62 m/s
$V_{100}$	= 3.71 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	4.25	SQ.M.	RIPRAP
601	10.19	CU.M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	9.10	CU.M.	CONCRETE MASONRY
603	95.0	METER	1350mm CONDUIT TYPE A, 707.02 (3.51mm), 707.07 (2.77mm), or 707.04 (2.77mm) (25mm CORR)

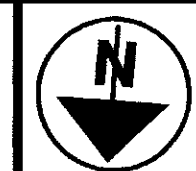
QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



WARMWATER HABITAT CULVERT  
CULVERT #15

07:00:29 PM  
0/3/01  
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0 20  
1:500  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

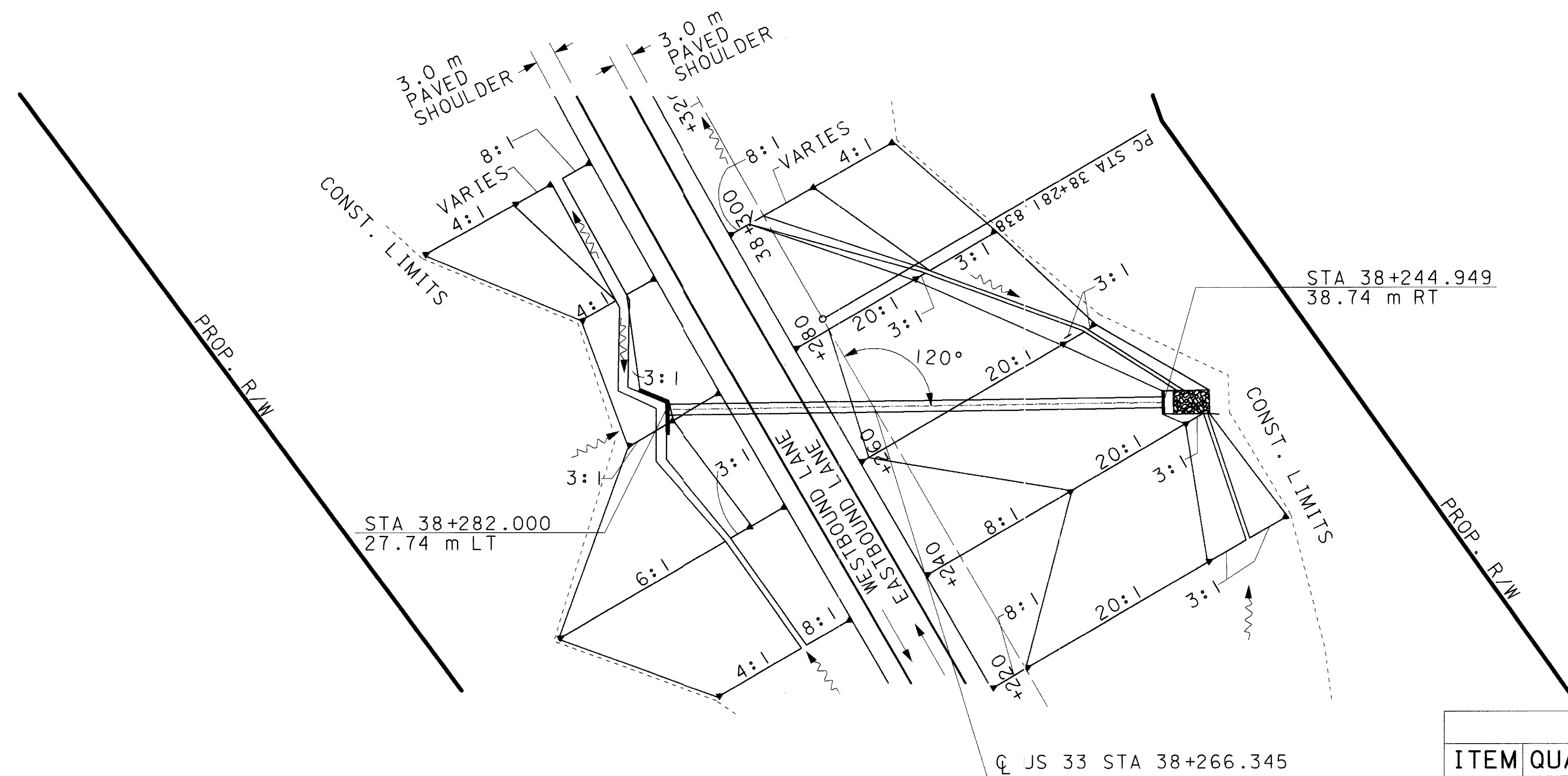
CULVERT DETAIL  
STA 38+266.345

ATH-33-30.981

855  
956

NOTES:

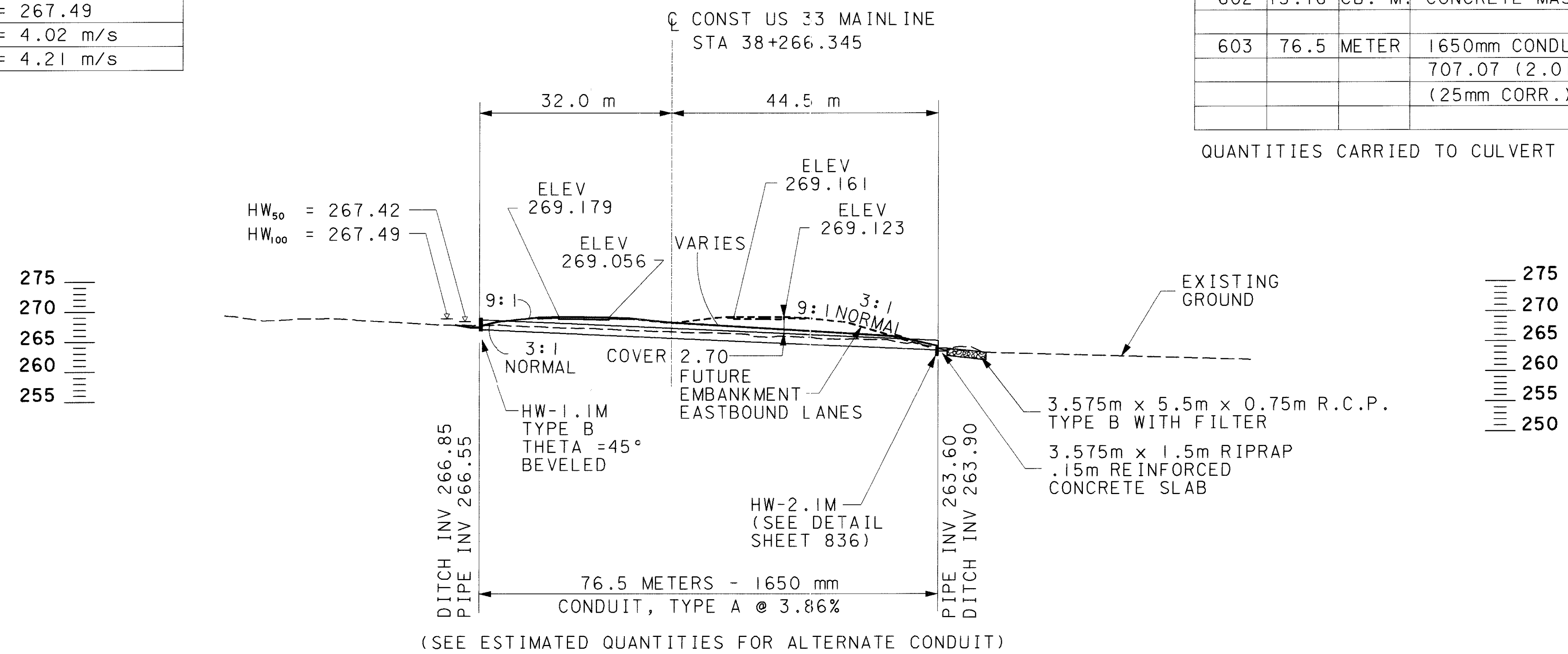
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 9.1 HECTARES
Q <sub>50</sub>	= 3.18 m <sup>3</sup> /s
Q <sub>100</sub>	= 3.80 m <sup>3</sup> /s
HW <sub>50</sub>	= 267.42
HW <sub>100</sub>	= 267.49
V <sub>50</sub>	= 4.02 m/s
V <sub>100</sub>	= 4.21 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	5.4	SQ. M.	RIPRAP
601	14.75	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	15.18	CU. M.	CONCRETE MASONRY
603	76.5	METER	1650mm CONDUIT TYPE A, 707.02 (2.77mm), 707.07 (2.01mm), OR 707.04 (2.01mm) (25mm CORR.)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



(SEE ESTIMATED QUANTITIES FOR ALTERNATE CONDUIT)



0 1500 20  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

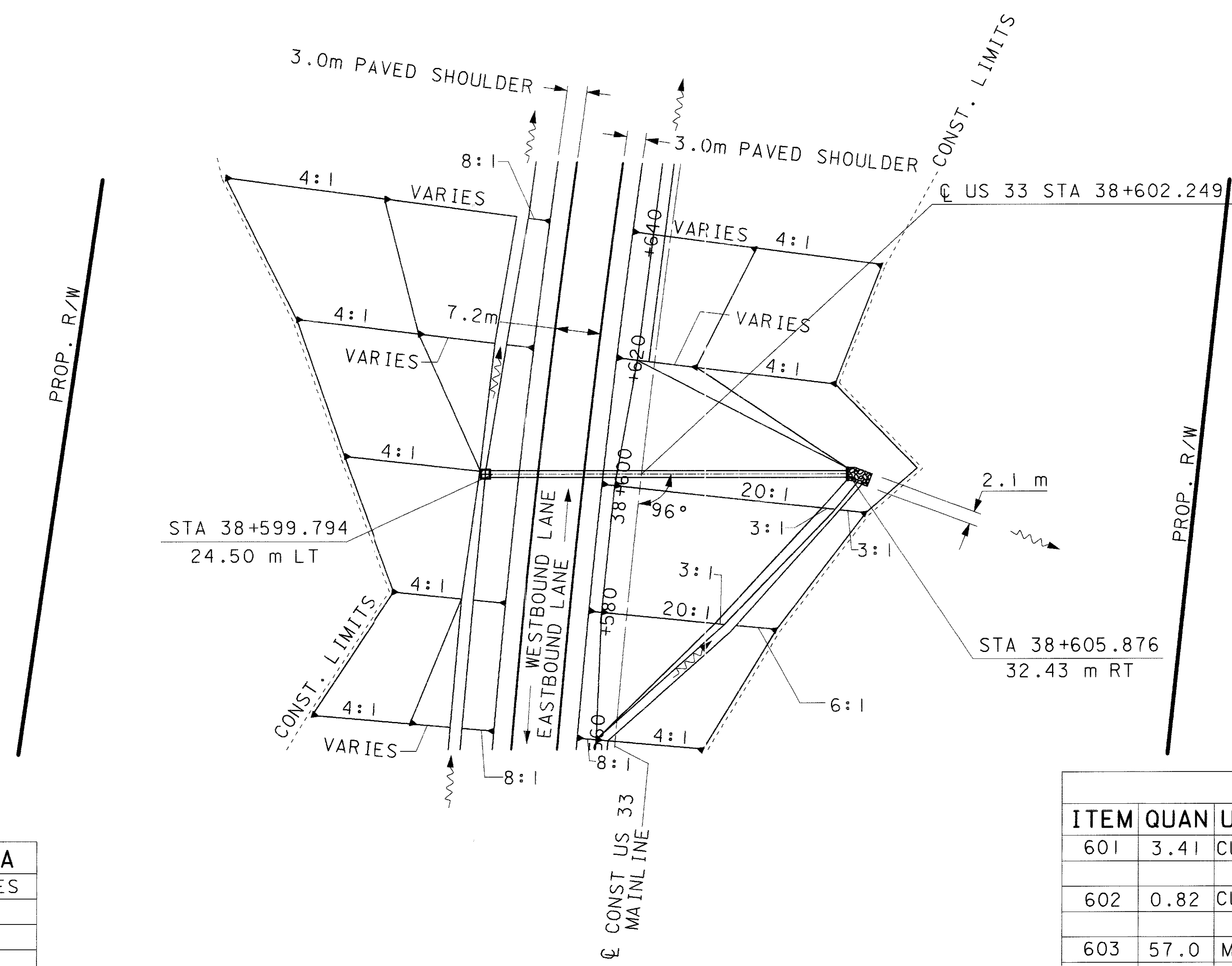
CULVERT DETAIL  
STA 38+602.249

ATH-33-30.981

856  
956

NOTES:

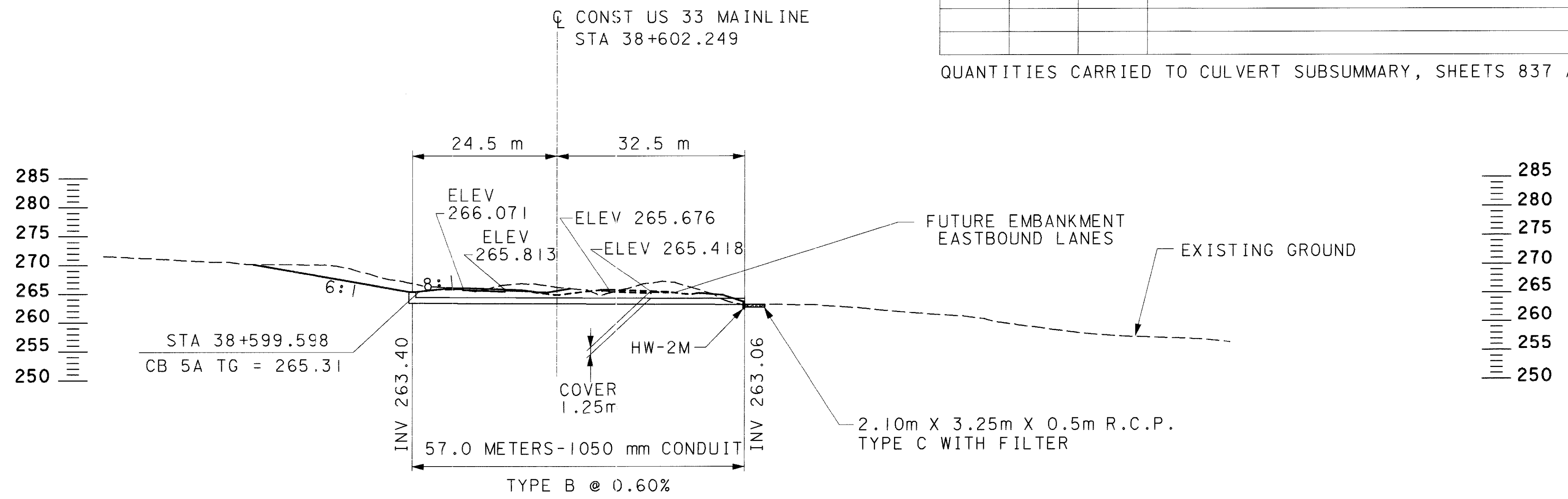
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 5.7 HECTARES	
$Q_{50}$	= 1.43 m <sup>3</sup> /s
$Q_{100}$	= 1.72 m <sup>3</sup> /s
$HW_{50}$	= 264.51
$HW_{100}$	= 264.65
$V_{50}$	= 2.76 m/s
$V_{100}$	= 2.87 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	3.41	CU. M.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
602	0.82	CU. M.	CONCRETE MASONRY
603	57.0	METER	1050mm CONDUIT TYPE B, 706.02 50 D-LOAD
604	1	EACH	CATCH BASIN, NO. 5A

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



CULVERT #18

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0 10 20  
1:500  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

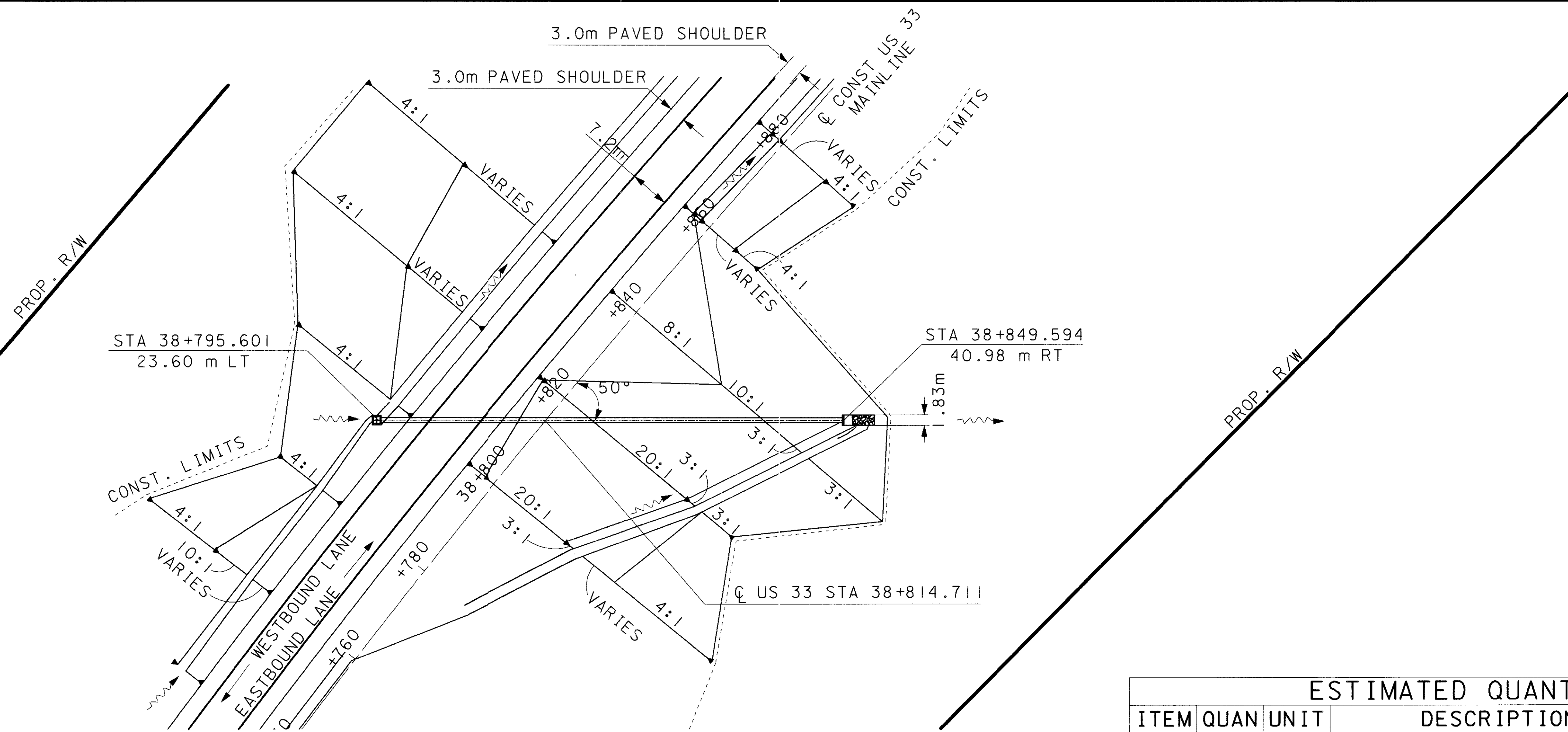
CULVERT DETAIL  
STA 38+814.711

ATH-33-30.981

857  
956

CULVERT #19

07:00:36 PM  
01/31/01  
ur:\98294\18287\_fina\design\dm\drain\c\dl\1u33.dgn



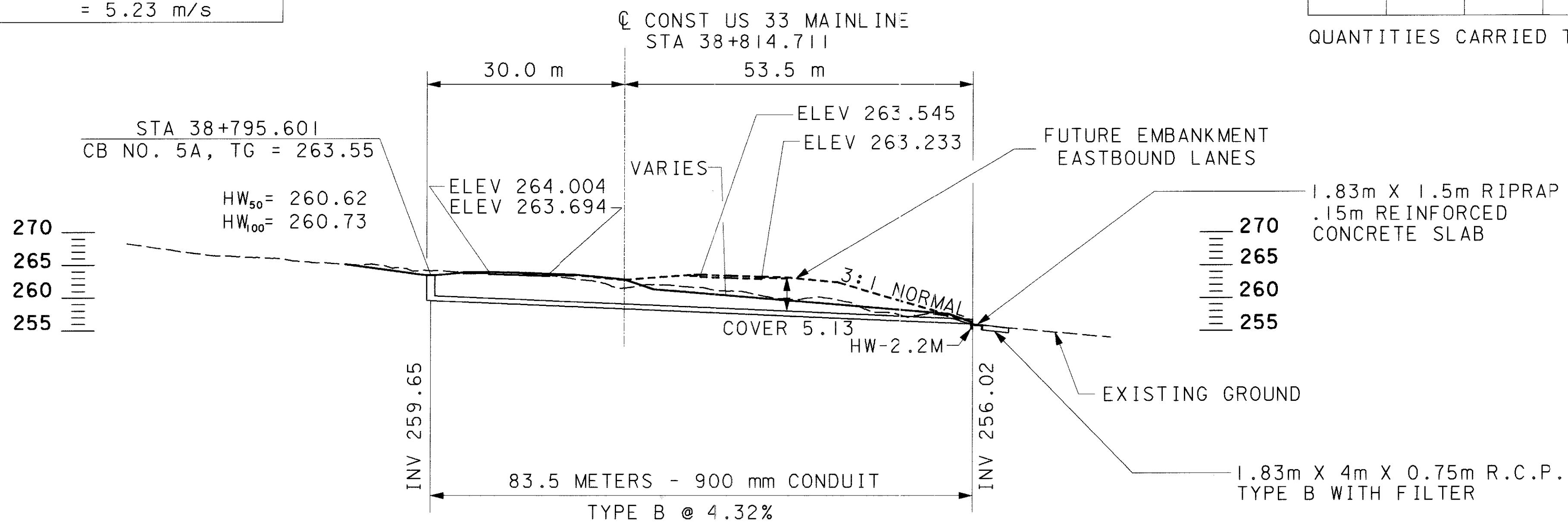
HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 3.6 HECTARES	
$Q_{50}$	= 0.99 m <sup>3</sup> /s
$Q_{100}$	= 1.18 m <sup>3</sup> /s
$HW_{50}$	= 260.62
$HW_{100}$	= 260.73
$V_{50}$	= 4.98 m/s
$V_{100}$	= 5.23 m/s

NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

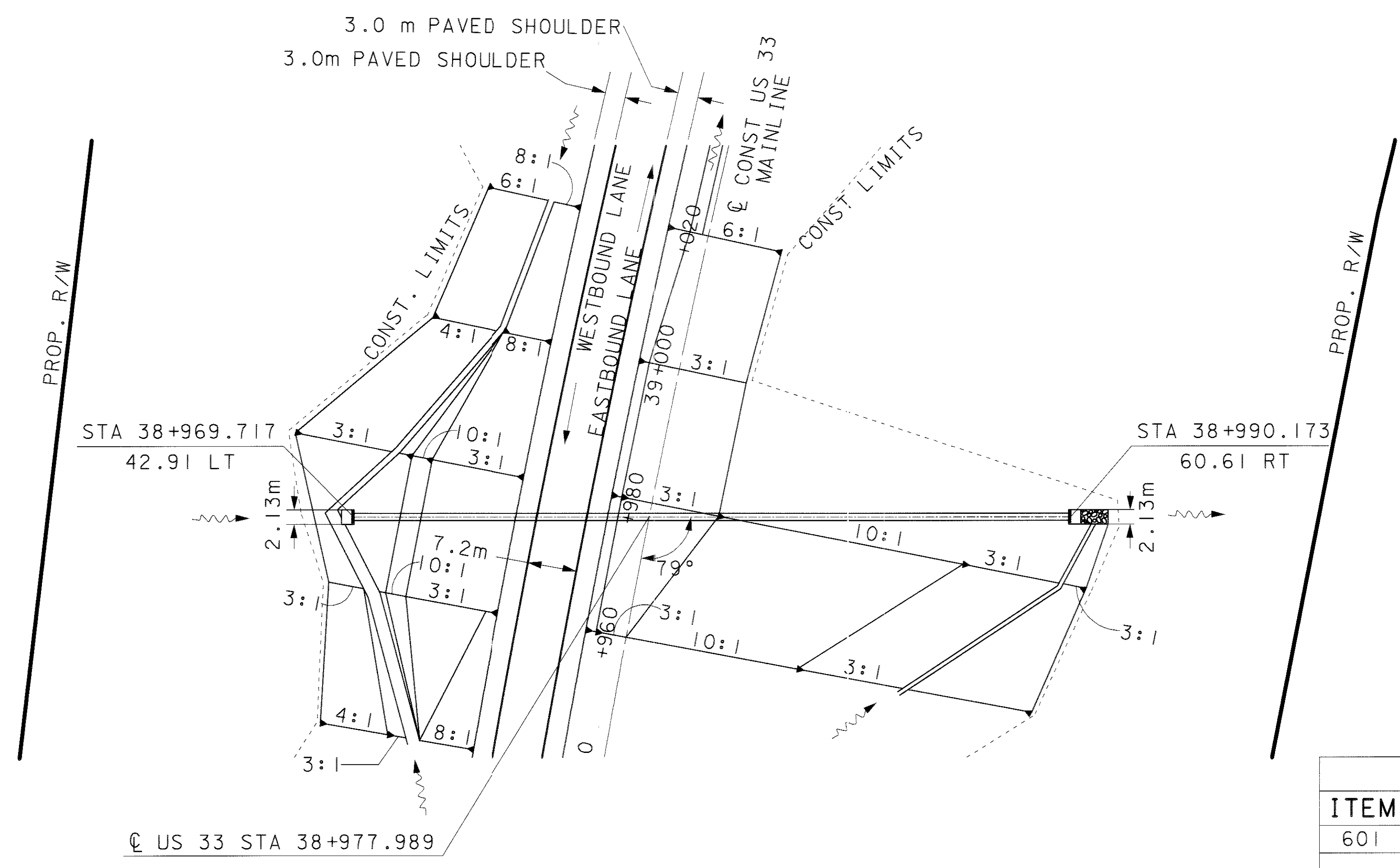
ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	2.75	SQ. M.	RIPRAP
601	5.49	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	0.66	CU. M.	CONCRETE MASONRY
603	83.5	METER	900mm CONDUIT TYPE B, 706.02 62.5 D-LOAD
604	1	EACH	CATCH BASIN, NO. 5A

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.



NOTES:

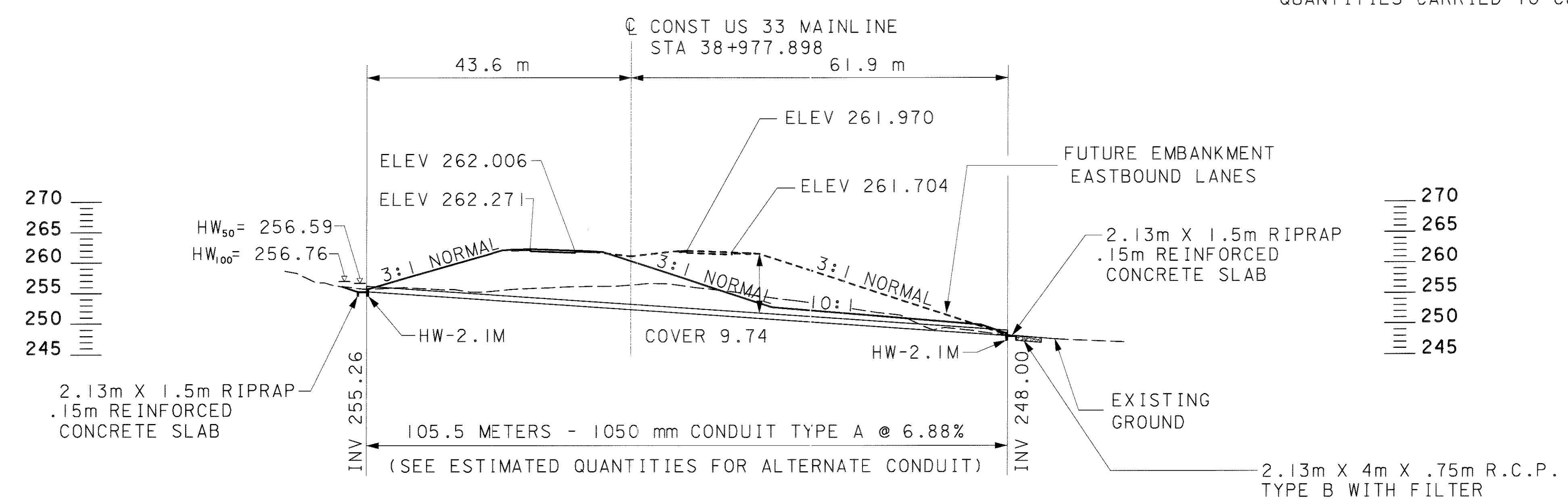
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 7.5 HECTARES	
$Q_{50}$	= 1.61 m <sup>3</sup> /s
$Q_{100}$	= 1.92 m <sup>3</sup> /s
$HW_{50}$	= 256.59
$HW_{100}$	= 256.76
$V_{50}$	= 4.27 m/s
$V_{100}$	= 4.47 m/s

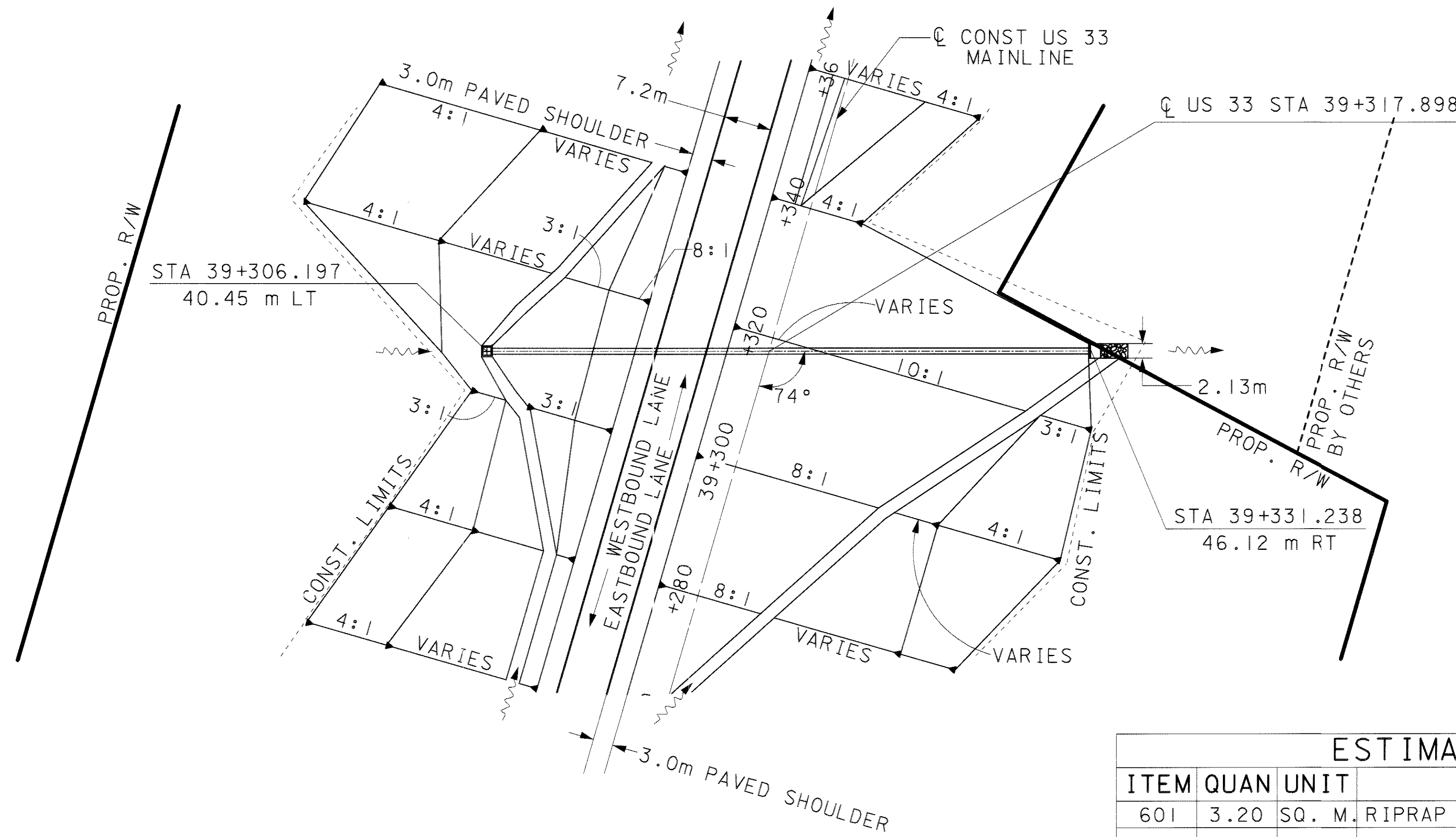
ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	6.39	SQ. M.	RIPRAP
601	6.39	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	1.66	CU. M.	CONCRETE MASONRY
603	105.5	METER	1050mm CONDUIT TYPE A, 707.01 (2.77mm), 707.05 (2.01mm) or 707.04 (2.01mm) (13mm CORR.)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



CULVERT #20

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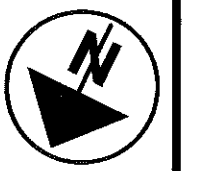
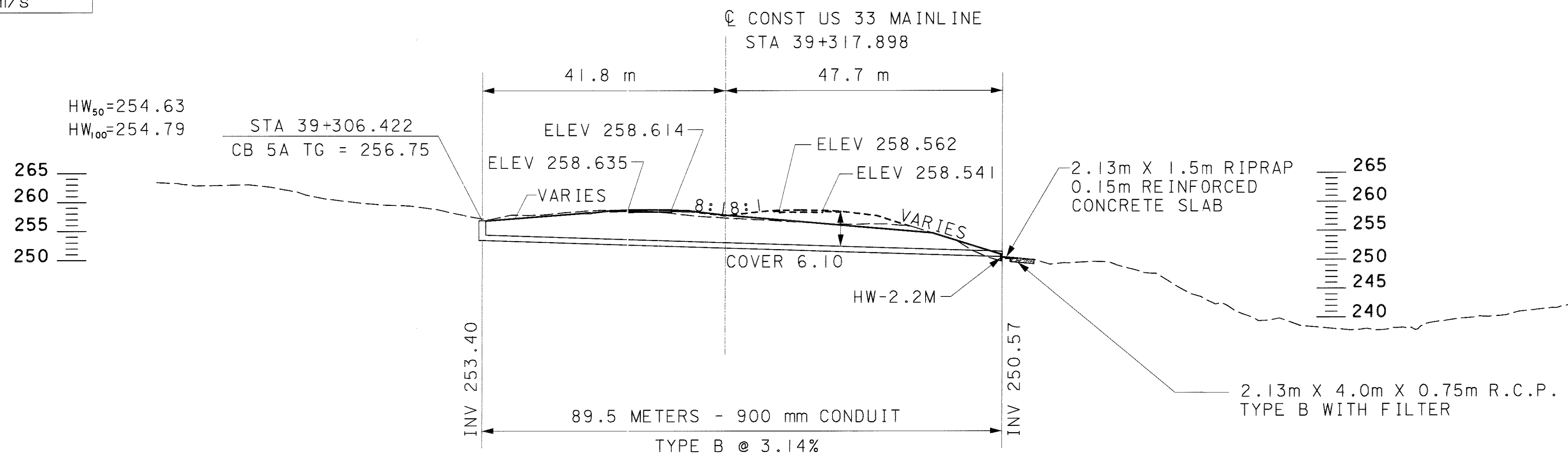
HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 7.5 HECTARES	
$Q_{50}$	= 1.43 m <sup>3</sup> /s
$Q_{100}$	= 1.71 m <sup>3</sup> /s
$HW_{50}$	= 254.63
$HW_{100}$	= 254.79
$V_{50}$	= 5.20 m/s
$V_{100}$	= 5.44 m/s

NOTES:

- REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
- REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	3.20	SQ. M.	RIPRAP
601	6.39	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	0.66	CU. M.	CONCRETE MASONRY
603	89.5	METER	CONDUIT TYPE B, 900mm 706.02 87.5 D-LOAD
604	1	EACH	CATCH BASIN, NO. 5A

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.

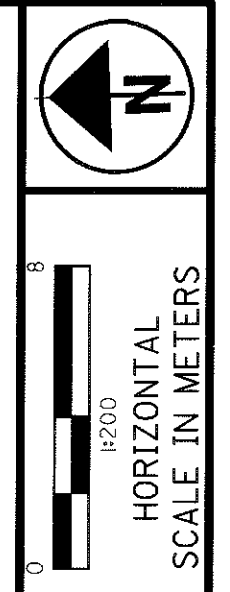


0 20  
1:500  
HORIZONTAL  
SCALE IN METERS

CALCULATED  
MCR  
CHECKED  
JDH

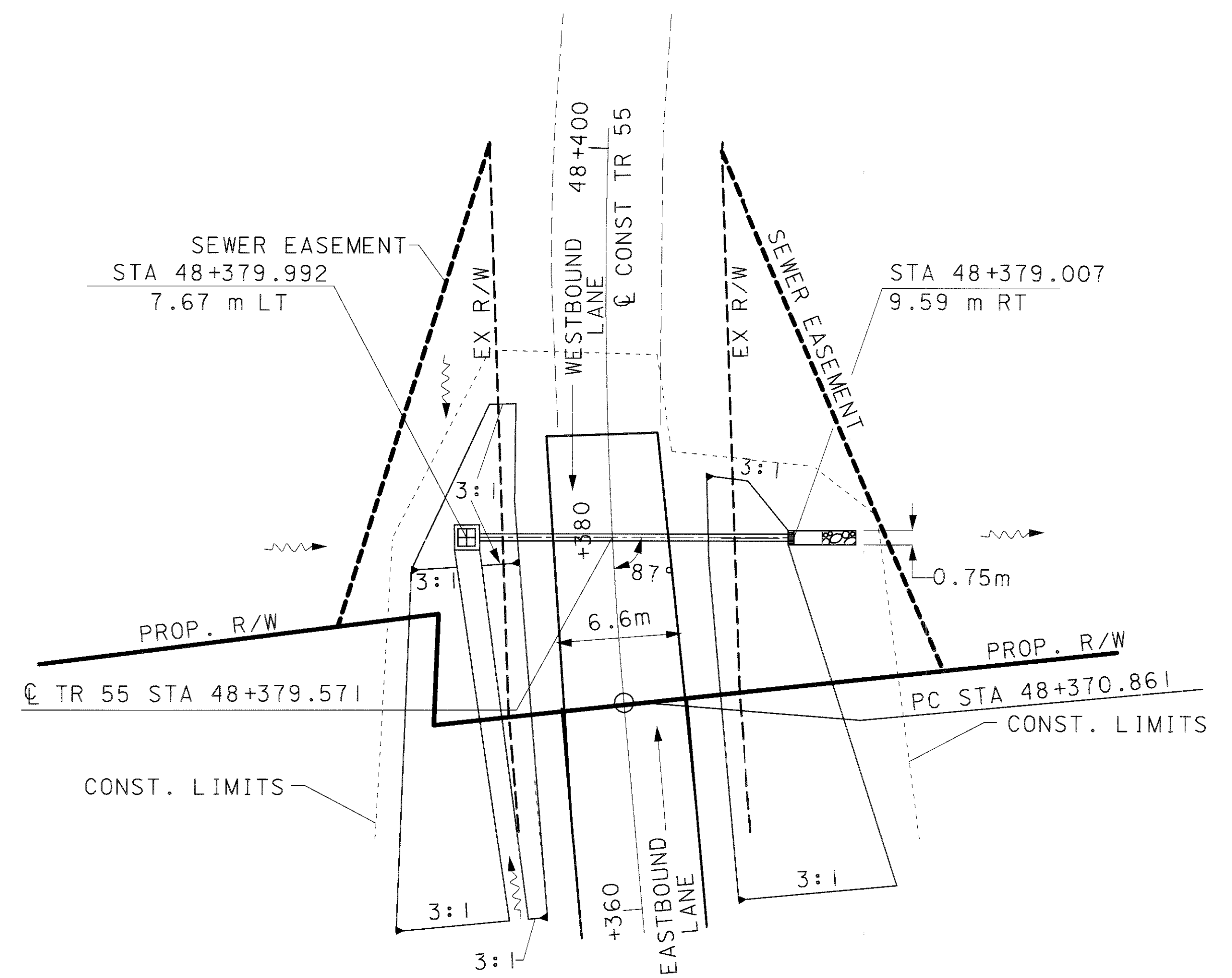
CULVERT DETAIL  
STA 39+317.898

ATH-33-30.981

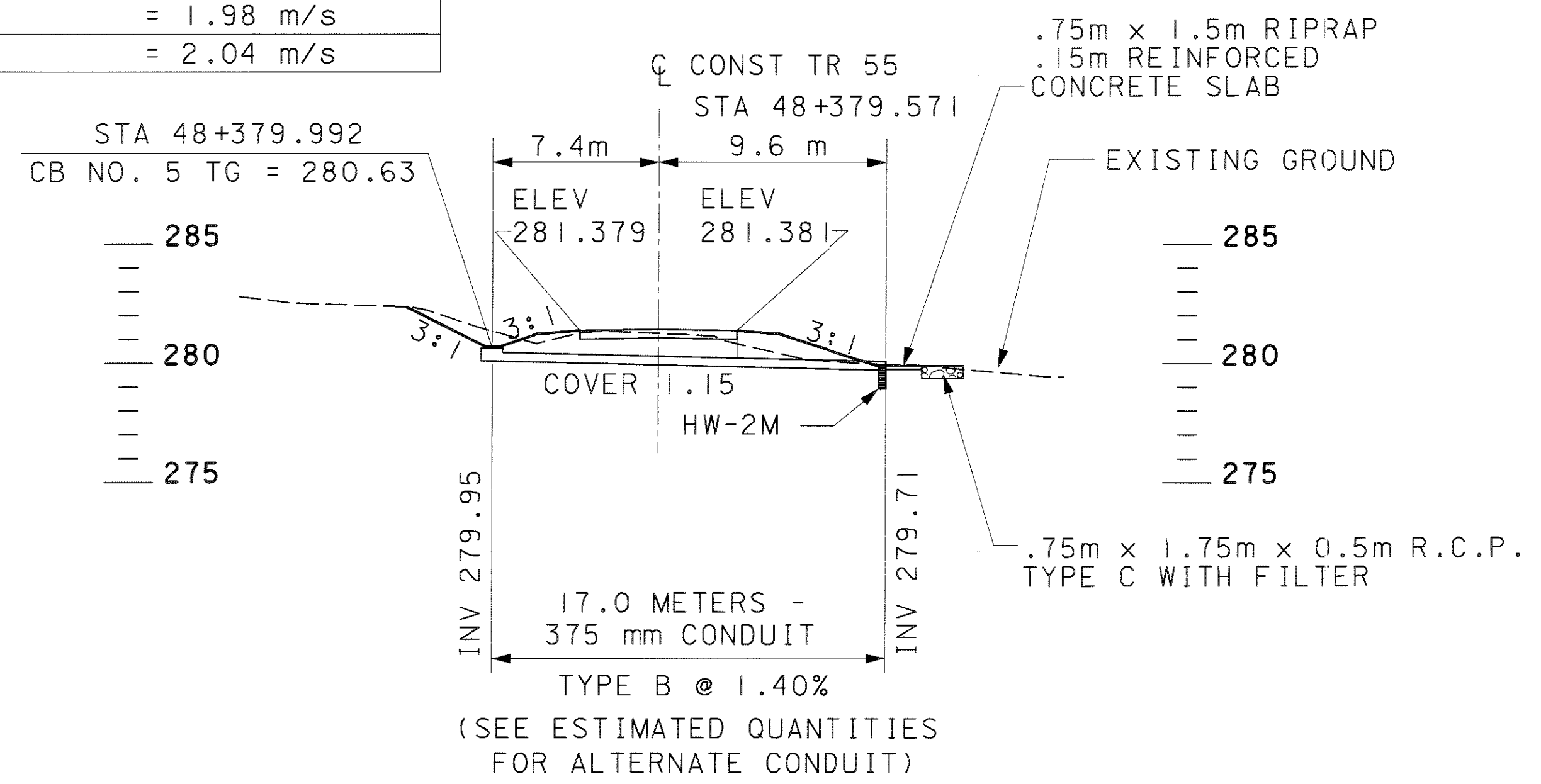


NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 0.52 HECTARES
Q <sub>25</sub>	= 0.12 m <sup>3</sup> /s
Q <sub>50</sub>	= 0.14 m <sup>3</sup> /s
HW <sub>25</sub>	= 280.37
HW <sub>50</sub>	= 280.42
V <sub>25</sub>	= 1.98 m/s
V <sub>50</sub>	= 2.04 m/s



ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	1.13	SQ. M.	RIPRAP
601	0.66	CU. M.	ROCK CHANNEL PROTECTION, TYPE C W/ FILTER
602	0.22	CU. M.	CONCRETE MASONRY
603	17.0	METER	375 mm CONDUIT TYPE B, 706.02 50 D-LOAD OR 707.33
604	1	EACH	CATCH BASIN, NO. 5

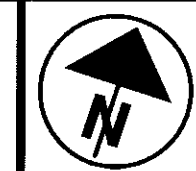
QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEETS 837 AND 838.

CULVERT #5e

CULVERT DETAIL  
TR 55 STA 48+379.571

ATH-33-30.981

860  
956



HORIZONTAL SCALE IN METERS

CALCULATED MCR CHECKED JDH

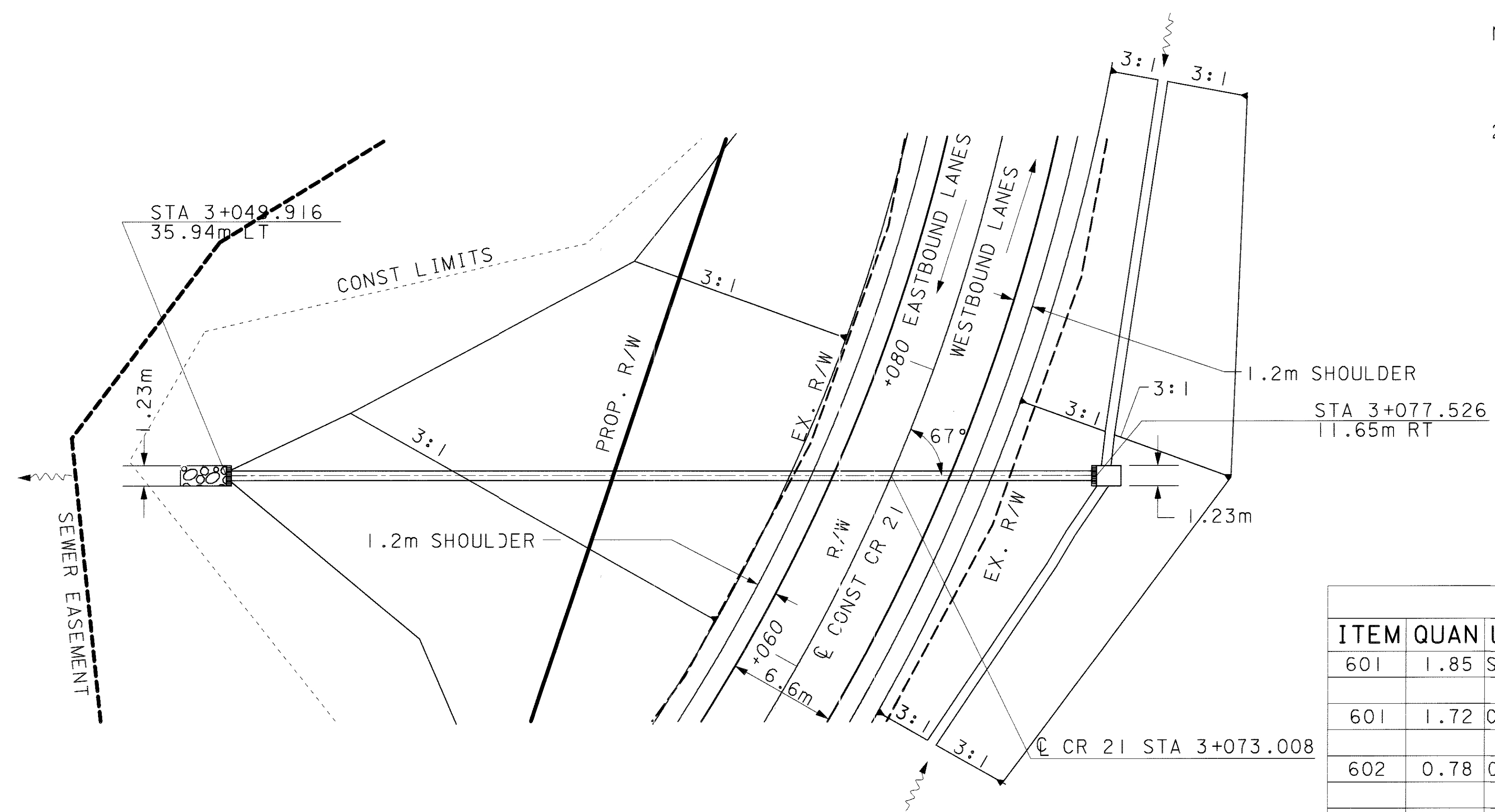
CULVERT DETAIL  
CR 21 STA 3+073.008

ATH-33-30.981

861  
956

NOTES:

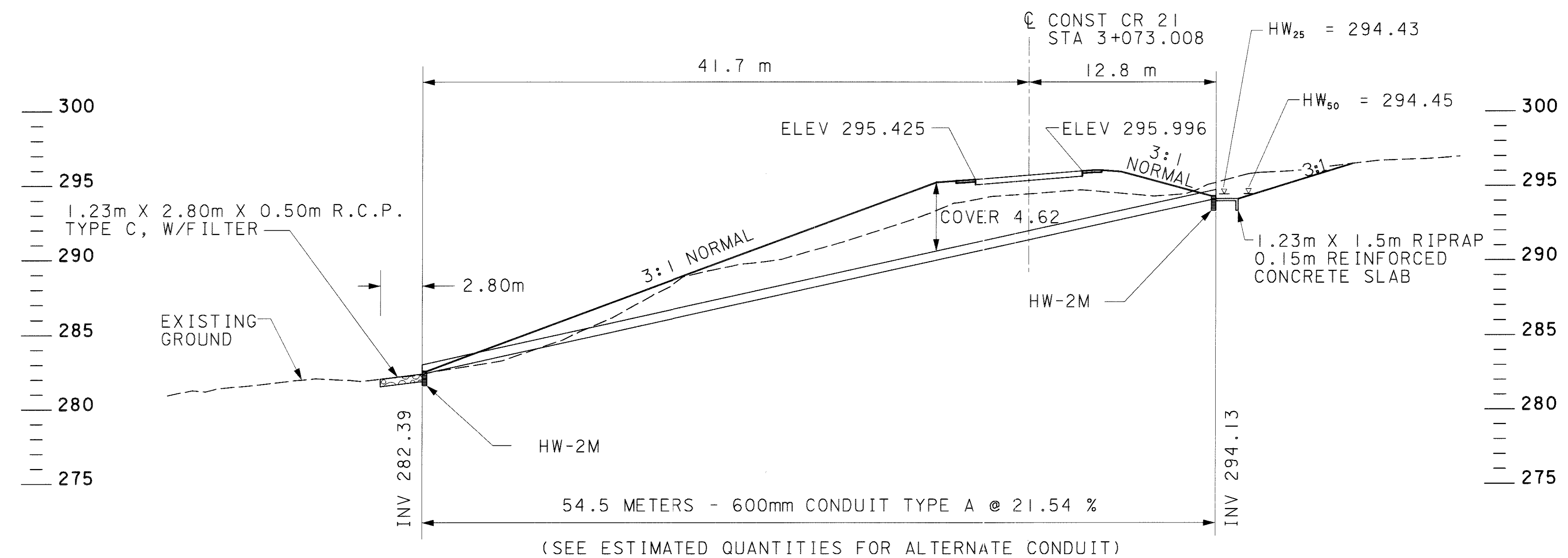
1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 0.26 HECTARES
Q <sub>25</sub>	= 0.08 m <sup>3</sup> /s
Q <sub>50</sub>	= 0.09 m <sup>3</sup> /s
HW <sub>25</sub>	= 294.43
HW <sub>50</sub>	= 294.45
V <sub>25</sub>	= 4.41 m/s
V <sub>50</sub>	= 4.57 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	1.85	SQ. M.	RIPRAP
601	1.72	CU. M.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
602	0.78	CU. M.	CONCRETE MASONRY
603	54.5	METER	600mm CONDUIT, TYPE A, 706.02, 75 D-LOAD OR: 707.01 (2.01mm), 707.05 (1.63mm) OR 707.04 (1.63mm) (13mm CORR.)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



(SEE ESTIMATED QUANTITIES FOR ALTERNATE CONDUIT)

CULVERT #8W

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HORIZONTAL SCALE IN METERS

CALCULATED MCR CHECKED JDH

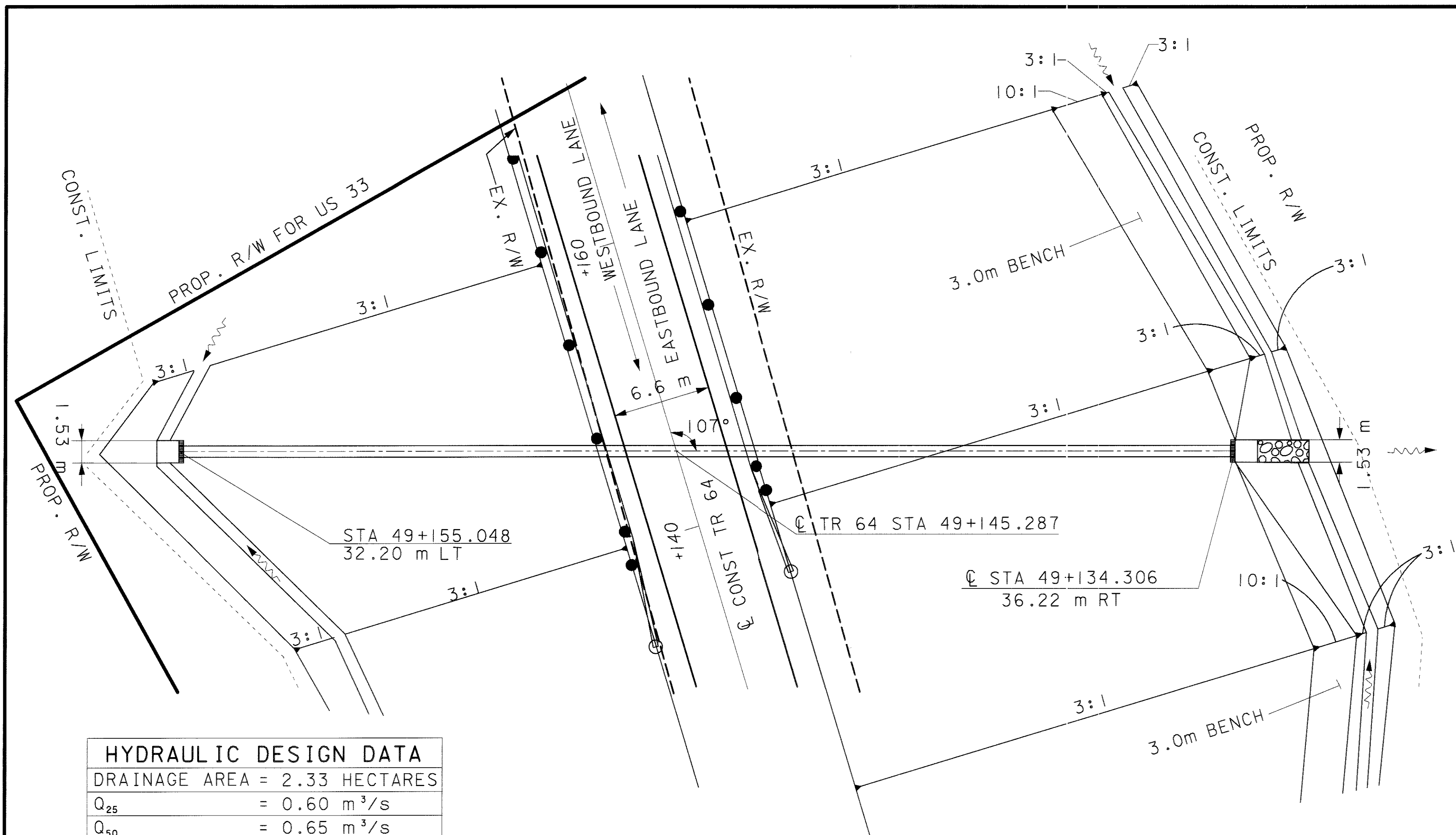
CULVERT DETAIL TR 64 STA 49+145.287

ATH-33-30.981

862 956

NOTES:

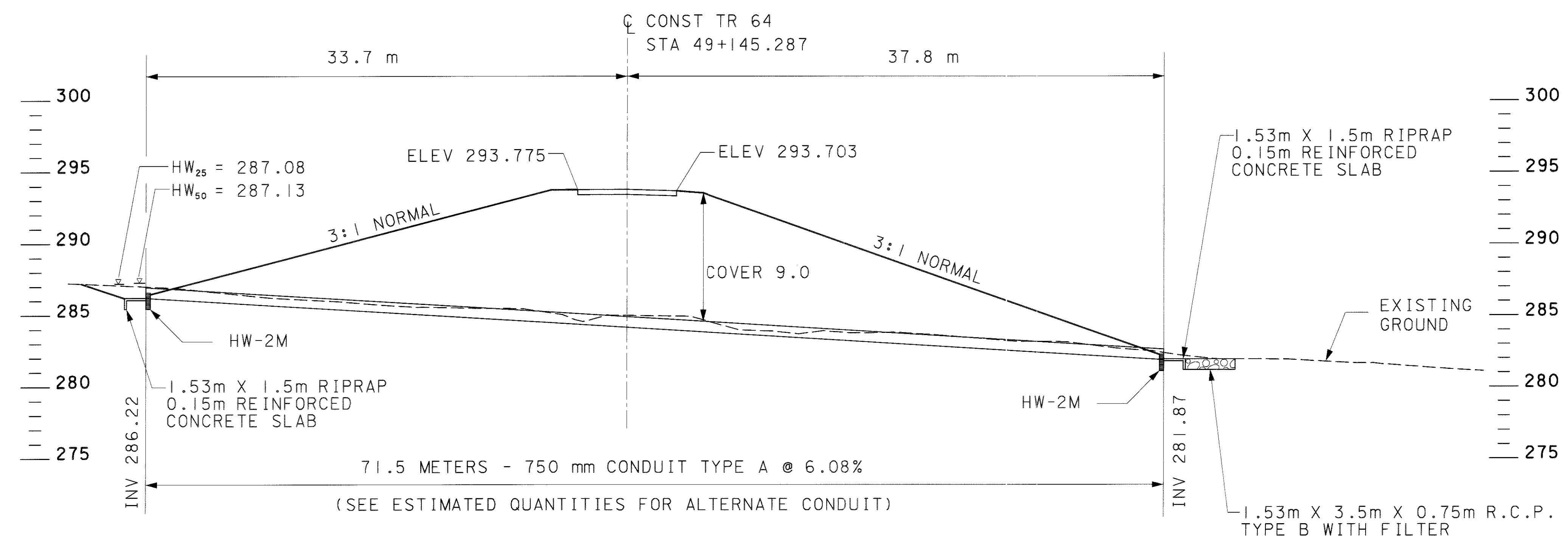
- 1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
- 2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 2.33 HECTARES
Q <sub>25</sub>	= 0.60 m <sup>3</sup> /s
Q <sub>50</sub>	= 0.65 m <sup>3</sup> /s
HW <sub>25</sub>	= 287.08
HW <sub>50</sub>	= 287.13
V <sub>25</sub>	= 4.97 m/s
V <sub>50</sub>	= 5.09 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	4.59	SQ. M.	RIPRAP
601	4.02	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	1.06	CU. M.	CONCRETE MASONRY
603	71.5	METER	750mm CONDUIT TYPE A, 706.02 130 D-LOAD, OR: 707.01 (2.01mm), 707.05 (1.63mm) OR 707.04 (1.63mm) (13mm CORR.)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



CULVERT #13W

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HORIZONTAL SCALE IN METERS

CALCULATED MCR CHECKED JDH

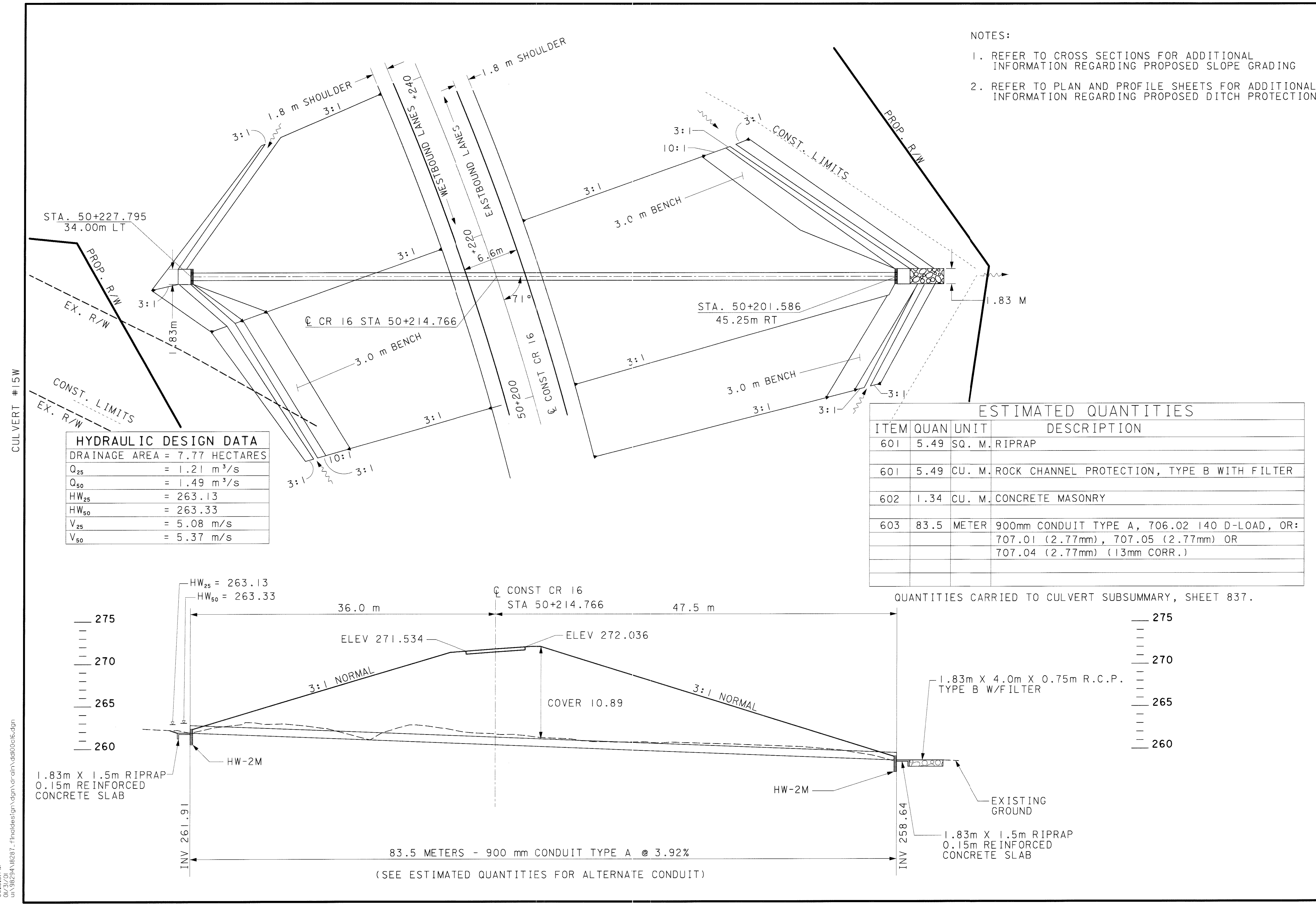
CULVERT DETAIL CR 16 STA 50+214.766

ATH-33-30.981

863 956

NOTES:

- 1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
- 2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION



**HYDRAULIC DESIGN DATA**

DRAINAGE AREA	= 7.77 HECTARES
Q <sub>25</sub>	= 1.21 m <sup>3</sup> /s
Q <sub>50</sub>	= 1.49 m <sup>3</sup> /s
HW <sub>25</sub>	= 263.13
HW <sub>50</sub>	= 263.33
V <sub>25</sub>	= 5.08 m/s
V <sub>50</sub>	= 5.37 m/s

**ESTIMATED QUANTITIES**

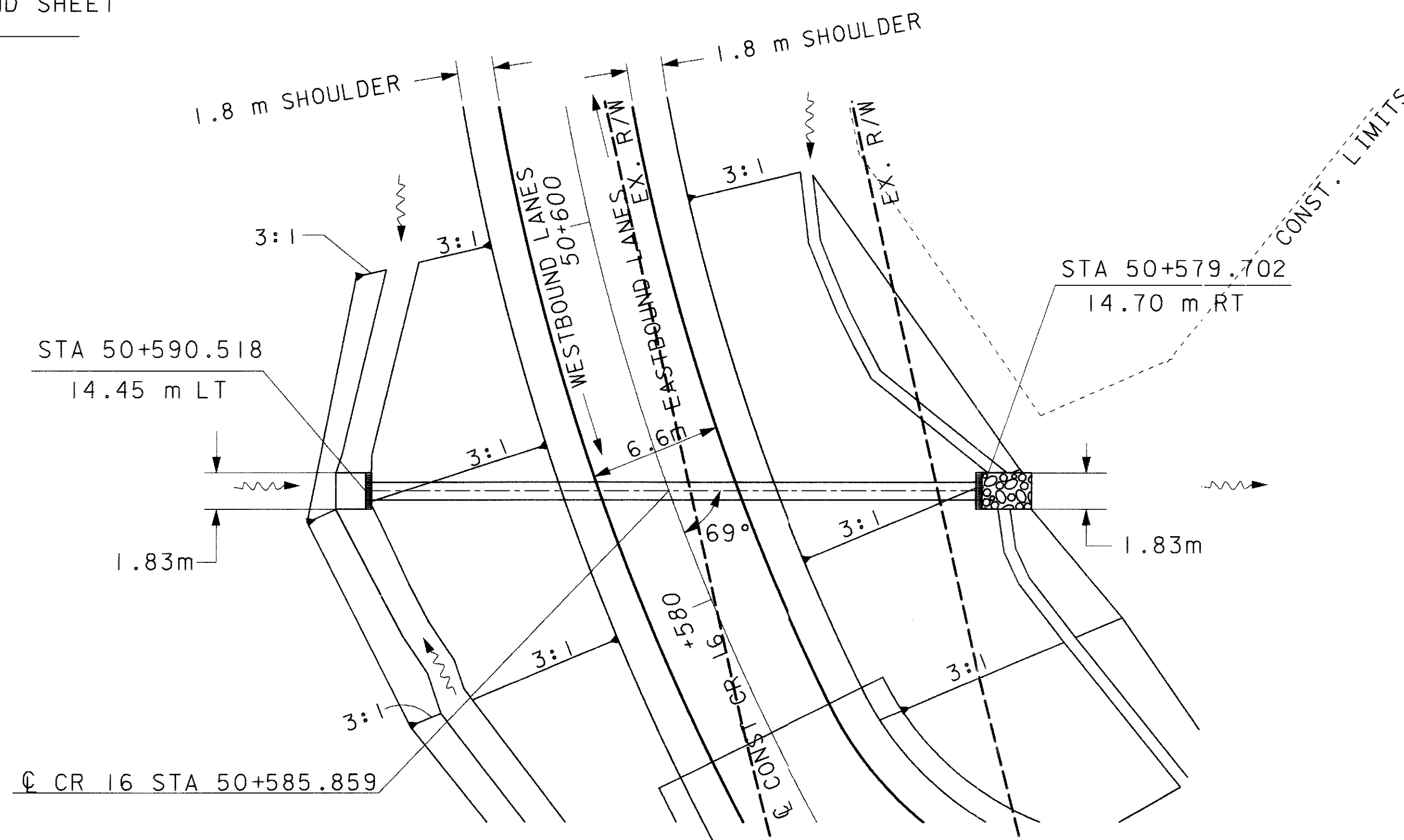
ITEM	QUAN	UNIT	DESCRIPTION
601	5.49	SQ. M.	RIPRAP
601	5.49	CU. M.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	1.34	CU. M.	CONCRETE MASONRY
603	83.5	METER	900mm CONDUIT TYPE A, 706.02 140 D-LOAD, OR: 707.01 (2.77mm), 707.05 (2.77mm) OR 707.04 (2.77mm) (13mm CORR.)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.

CULVERT #15W

06:55:31PM 01/31/01 ur:\96294\B287 - Final\design\dgn\var\ain\dell00c16.dgn

PROPOSED R/W & CONSTRUCTION LIMITS BEYOND SHEET



NOTES:

1. REFER TO CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING PROPOSED SLOPE GRADING
2. REFER TO PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION REGARDING PROPOSED DITCH PROTECTION

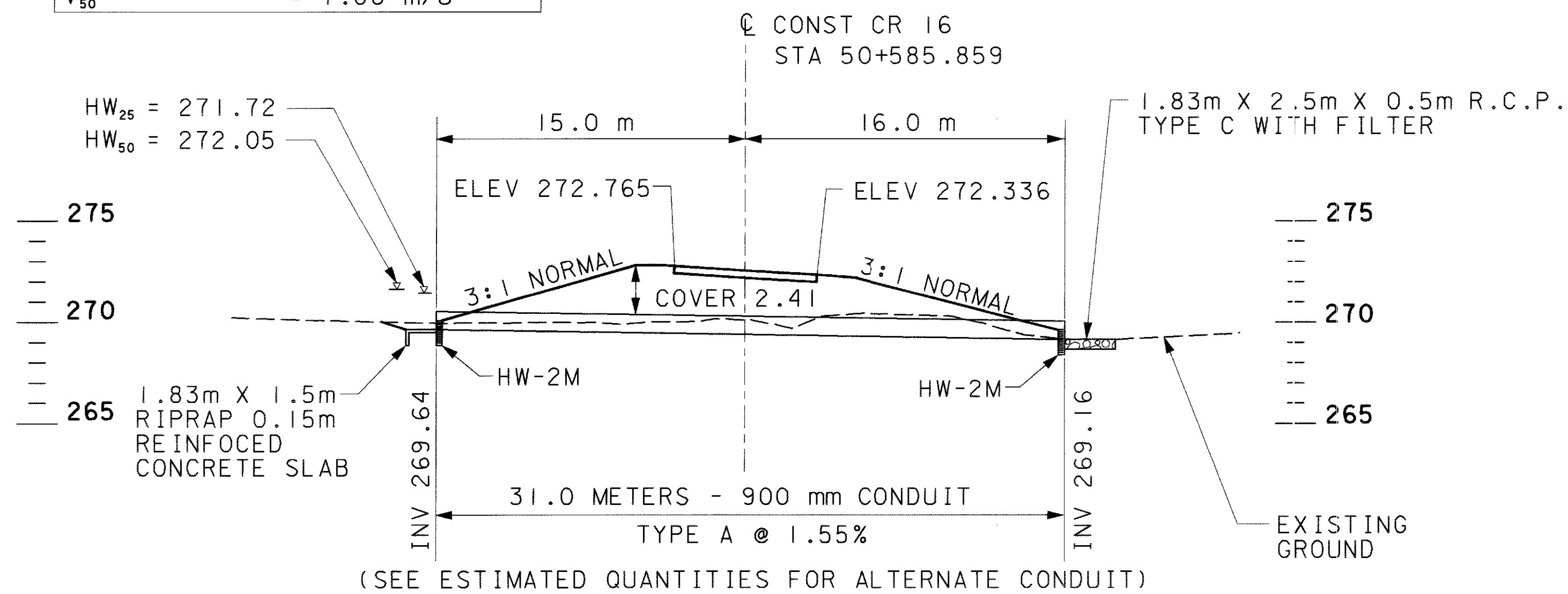
PROPOSED R/W LIMITS BEYOND SHEET

CULVERT #15E

HYDRAULIC DESIGN DATA	
DRAINAGE AREA = 8.55 HECTARES	
$Q_{25}$	= 0.99 m <sup>3</sup> /s
$Q_{50}$	= 1.22 m <sup>3</sup> /s
$HW_{25}$	= 271.72
$HW_{50}$	= 272.05
$V_{25}$	= 1.51 m/s
$V_{50}$	= 1.86 m/s

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
601	2.75	SQ. M.	RIPRAP
601	2.29	CU. M.	ROCK CHANNEL PROTECTION TYPE C WITH FILTER
602	1.34	CU. M.	CONCRETE MASONRY
603	31.0	METER	900mm CONDUIT TYPE A, 706.02 50 D-LOAD, OR: 707.01 (2.01mm), 707.05 (1.63mm) OR 707.04 (1.63mm) (13mm CORR.)

QUANTITIES CARRIED TO CULVERT SUBSUMMARY, SHEET 837.



(SEE ESTIMATED QUANTITIES FOR ALTERNATE CONDUIT)



HORIZONTAL SCALE IN METERS

CALCULATED MCR CHECKED JDH

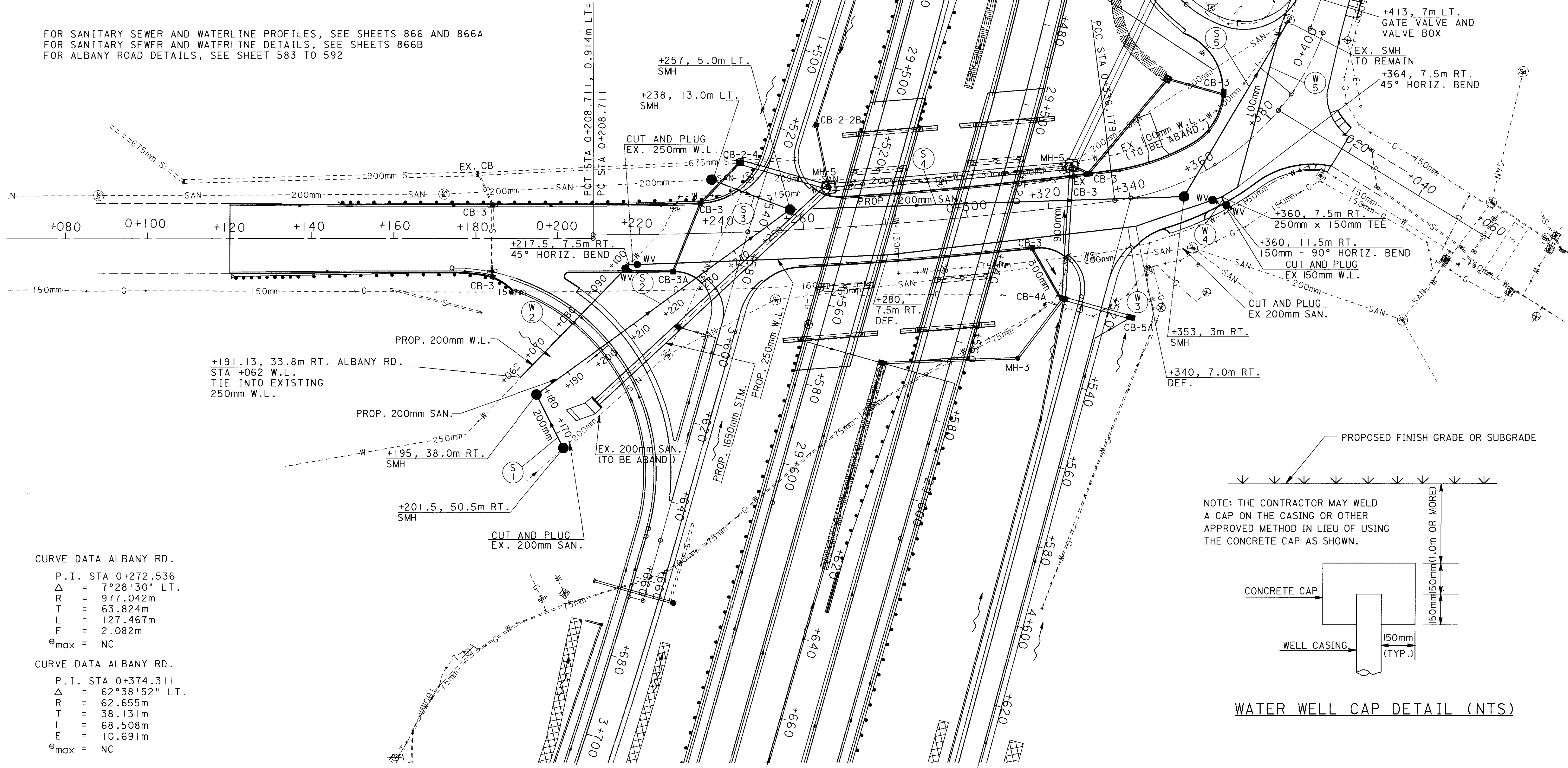
CULVERT DETAIL  
CR 16 STA 50+585.859

ATH-33-30.981

864  
956

REF. NO.	STATION TO STATION		SIDE	ESTIMATED QUANTITIES - UTILITIES											
				202	202	603	604	604	638	638	638	638	638	638	
				MANHOLE REMOVED	VALVE BOX REMOVED	200mm CONDUIT, MISC.: EDR 35 OR CLASS 200 IPS PVC. (707.44)	MANHOLE, NO. 3	MANHOLE ADJUSTED TO GRADE	100mm WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, PUSH ON JOINTS AND FITTINGS	150mm WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, PUSH ON JOINTS AND FITTINGS	250mm WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, PUSH ON JOINTS AND FITTINGS	100mm GATE VALVE AND VALVE BOX	150mm GATE VALVE AND VALVE BOX	250mm GATE VALVE AND VALVE BOX	150mm FIRE HYDRANT
W2	0+191.130	0+217.500	RT	EACH	EACH	METER	EACH	EACH	METER	METER	METER	EACH	EACH	EACH	EACH
W3	0+217.500	0+360.000	LT/RT		4						38				
W4	0+360.000		RT								142.5			2	
W5	0+360.000	0+415.000	LT/RT						56	4					
S1	0+201.500	0+195.000	RT			14									
S2	0+195.000	0+257.000	LT/RT	2		76									
S3	0+238.000	0+257.000	LT	1		20									
S4	0+257.000	0+358.000	LT/RT	2		100									
S5	0+358.000	0+404.500	LT			49									
TOTALS CARRIED TO GENERAL SUMMARY				5	4	259	5	1	56	4	180.5			3	1

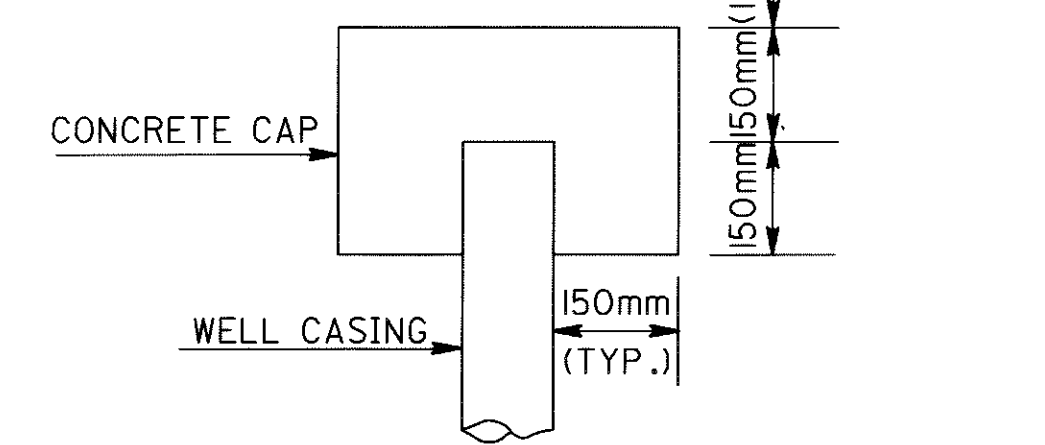
FOR SANITARY SEWER AND WATERLINE PROFILES, SEE SHEETS 866 AND 866A  
FOR SANITARY SEWER AND WATERLINE DETAILS, SEE SHEETS 866B  
FOR ALBANY ROAD DETAILS, SEE SHEET 583 TO 592



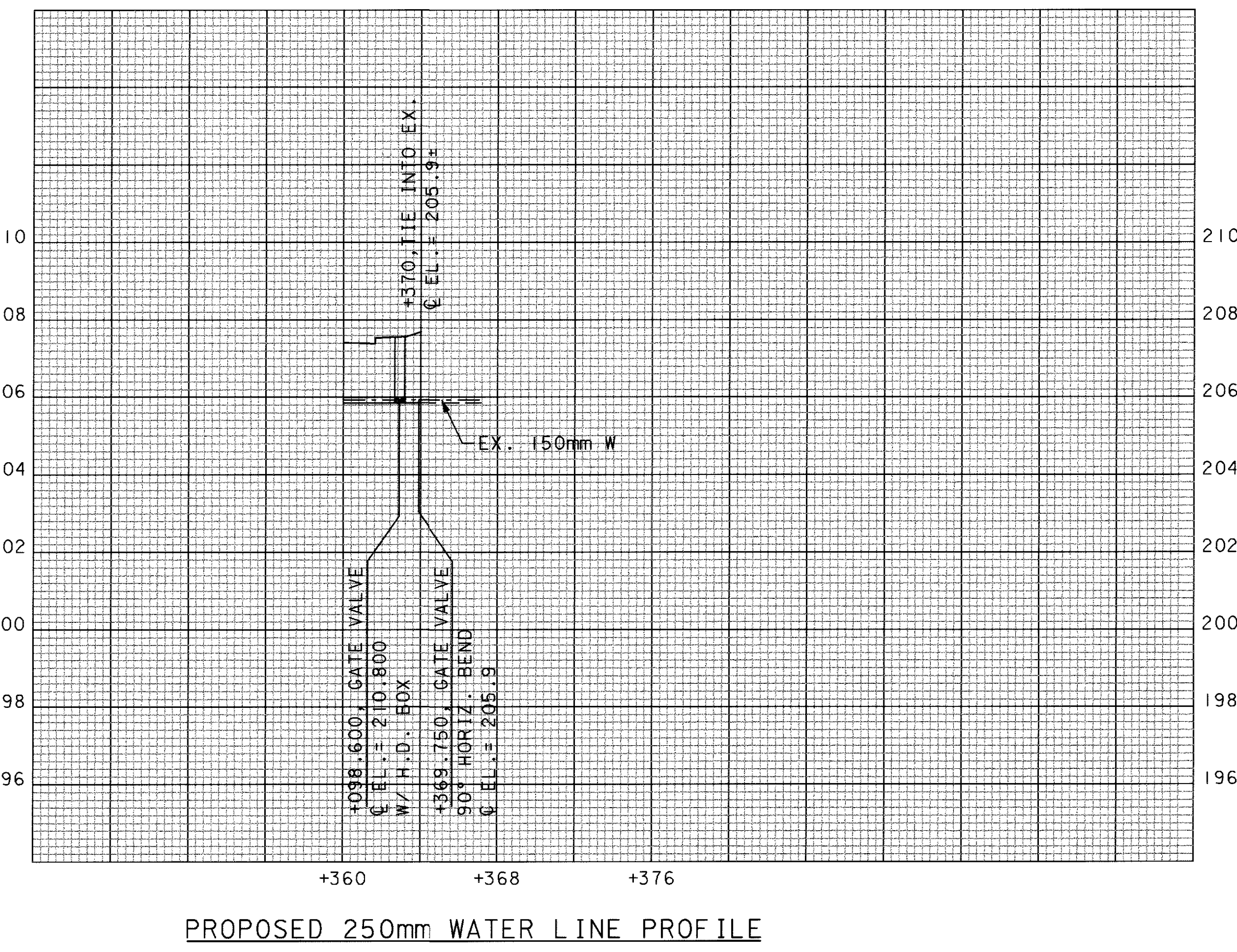
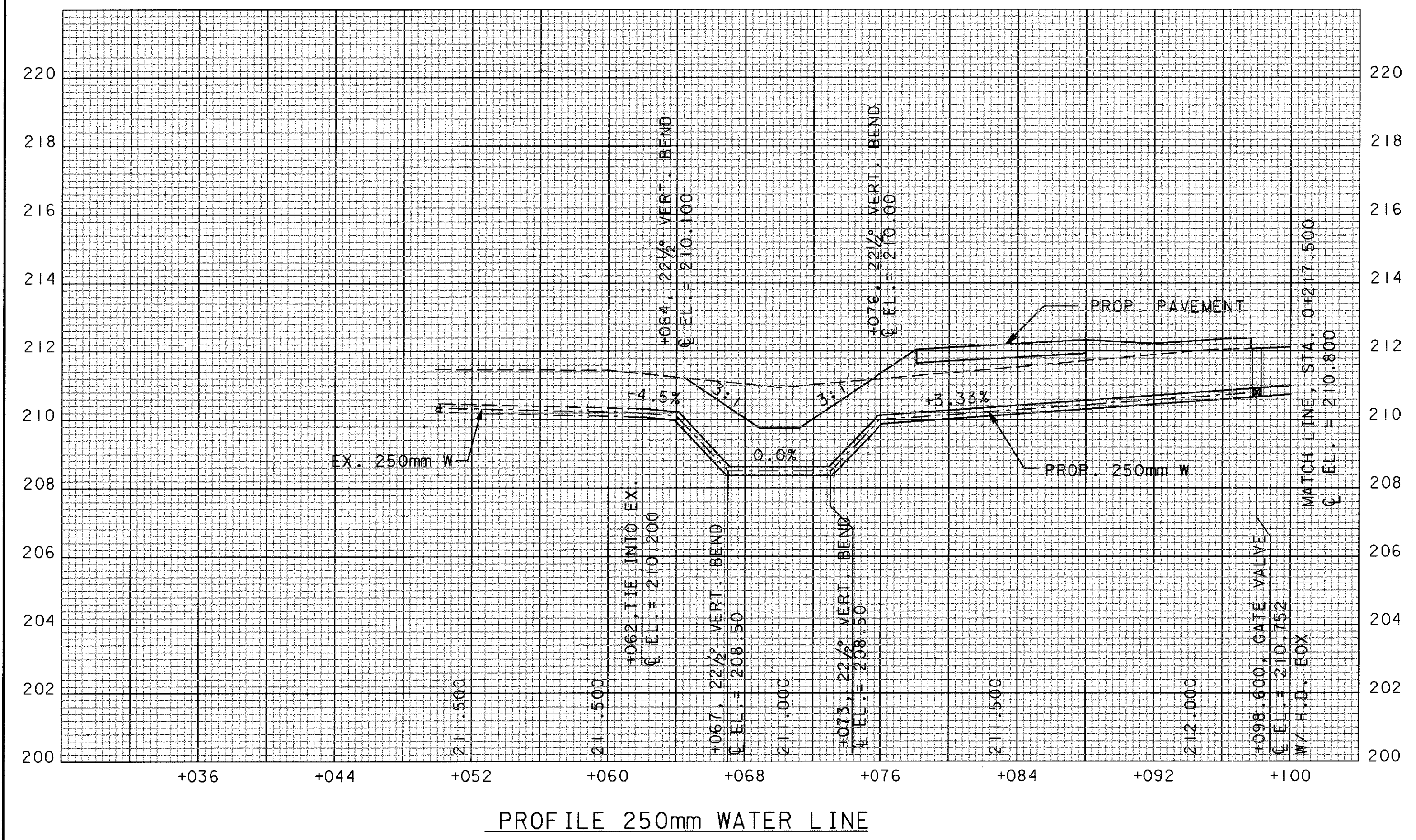
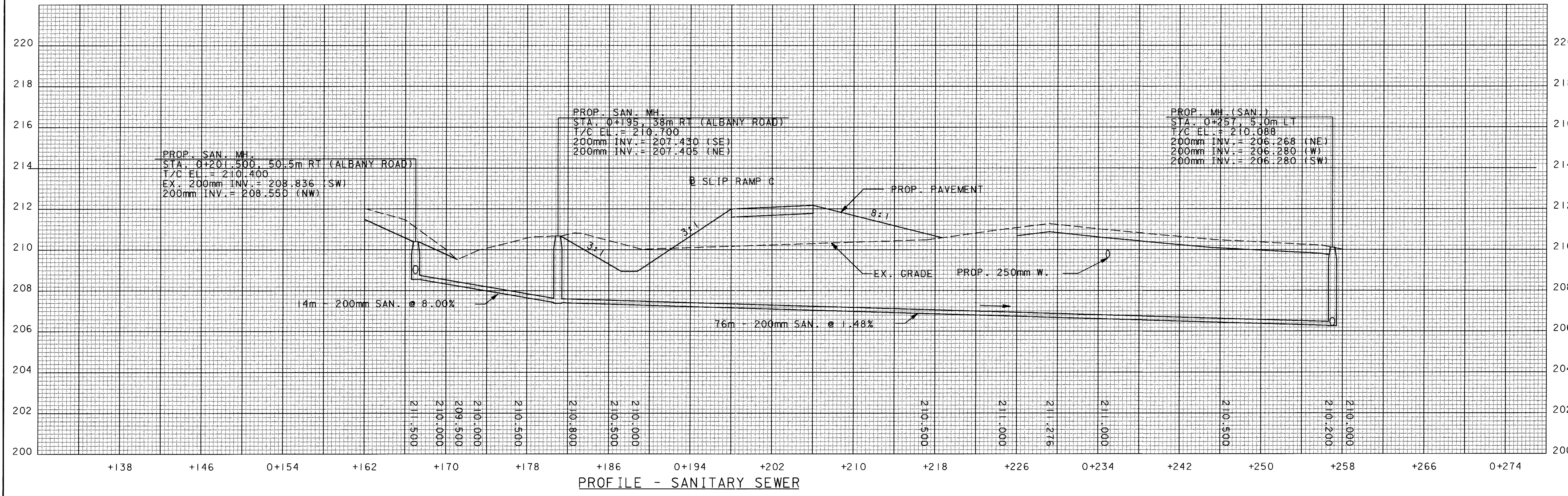
CURVE DATA ALBANY RD.  
P.I. STA 0+272.536  
Δ = 7°28'30" LT.  
R = 977.042m  
T = 63.824m  
L = 127.467m  
E = 2.082m  
e<sub>max</sub> = NC

CURVE DATA ALBANY RD.  
P.I. STA 0+374.311  
Δ = 62°38'52" LT.  
R = 62.655m  
T = 38.131m  
L = 68.508m  
E = 10.691m  
e<sub>max</sub> = NC

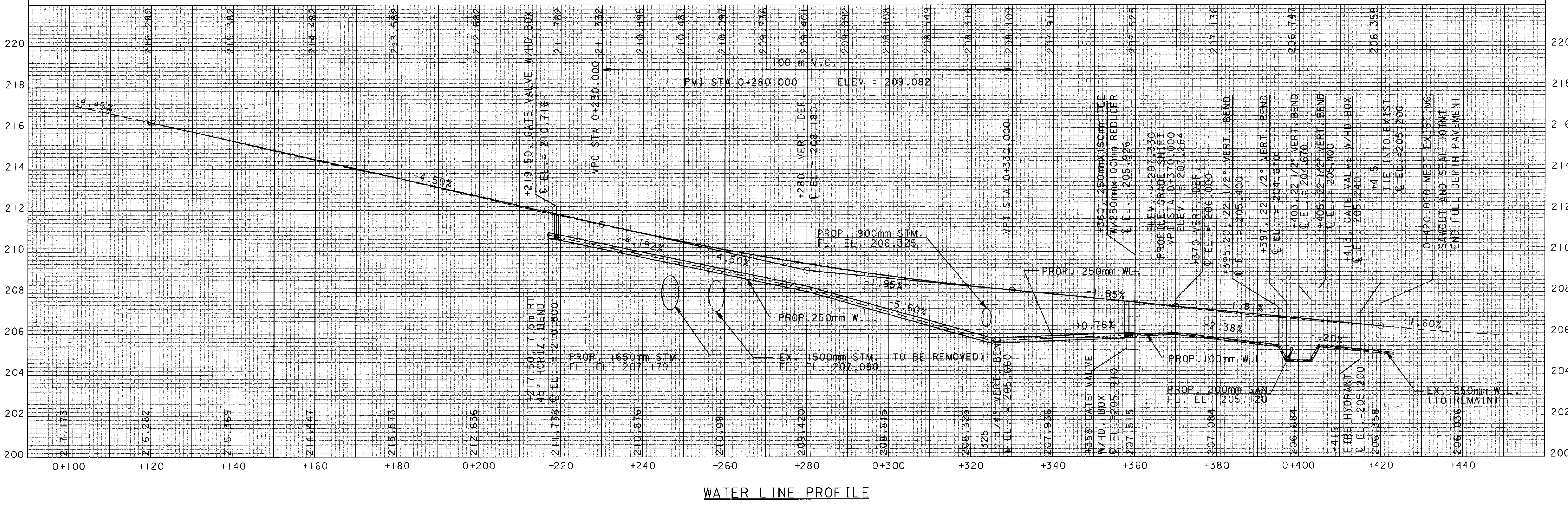
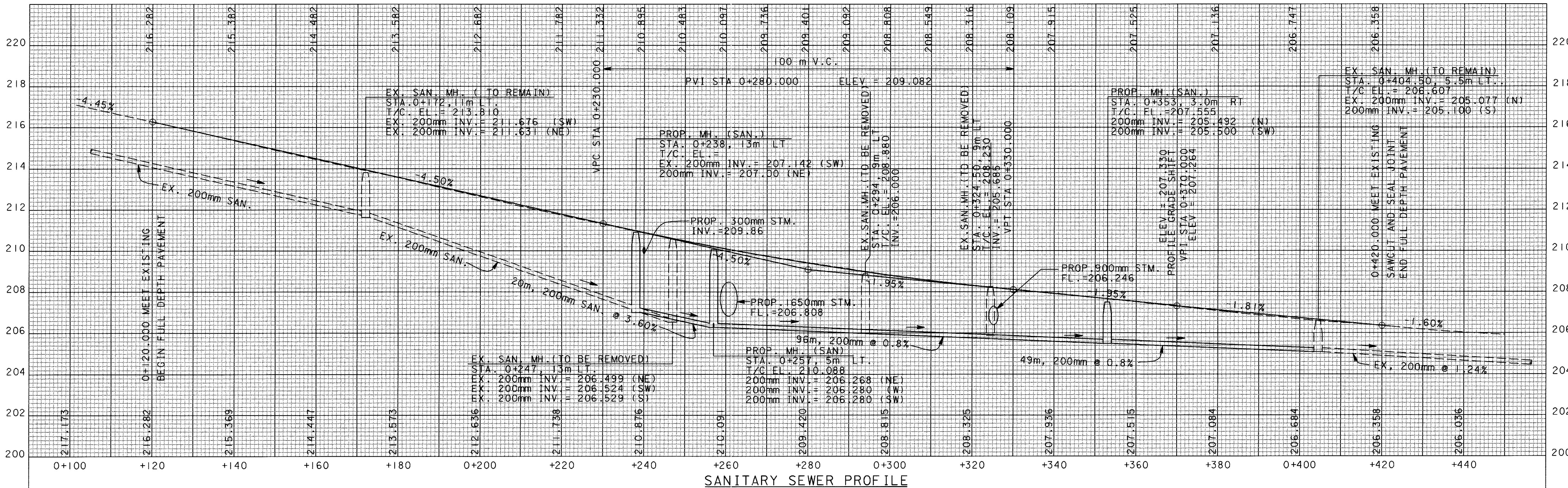
NOTE: THE CONTRACTOR MAY WELD A CAP ON THE CASING OR OTHER APPROVED METHOD IN LIEU OF USING THE CONCRETE CAP AS SHOWN.

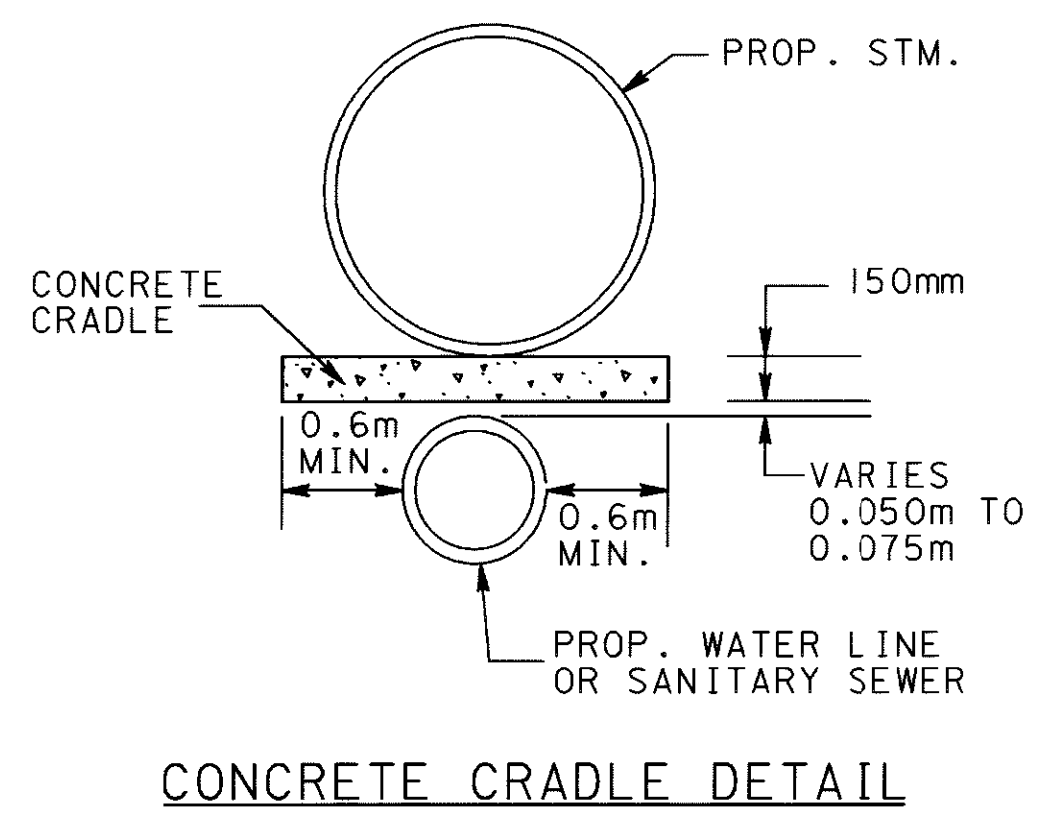
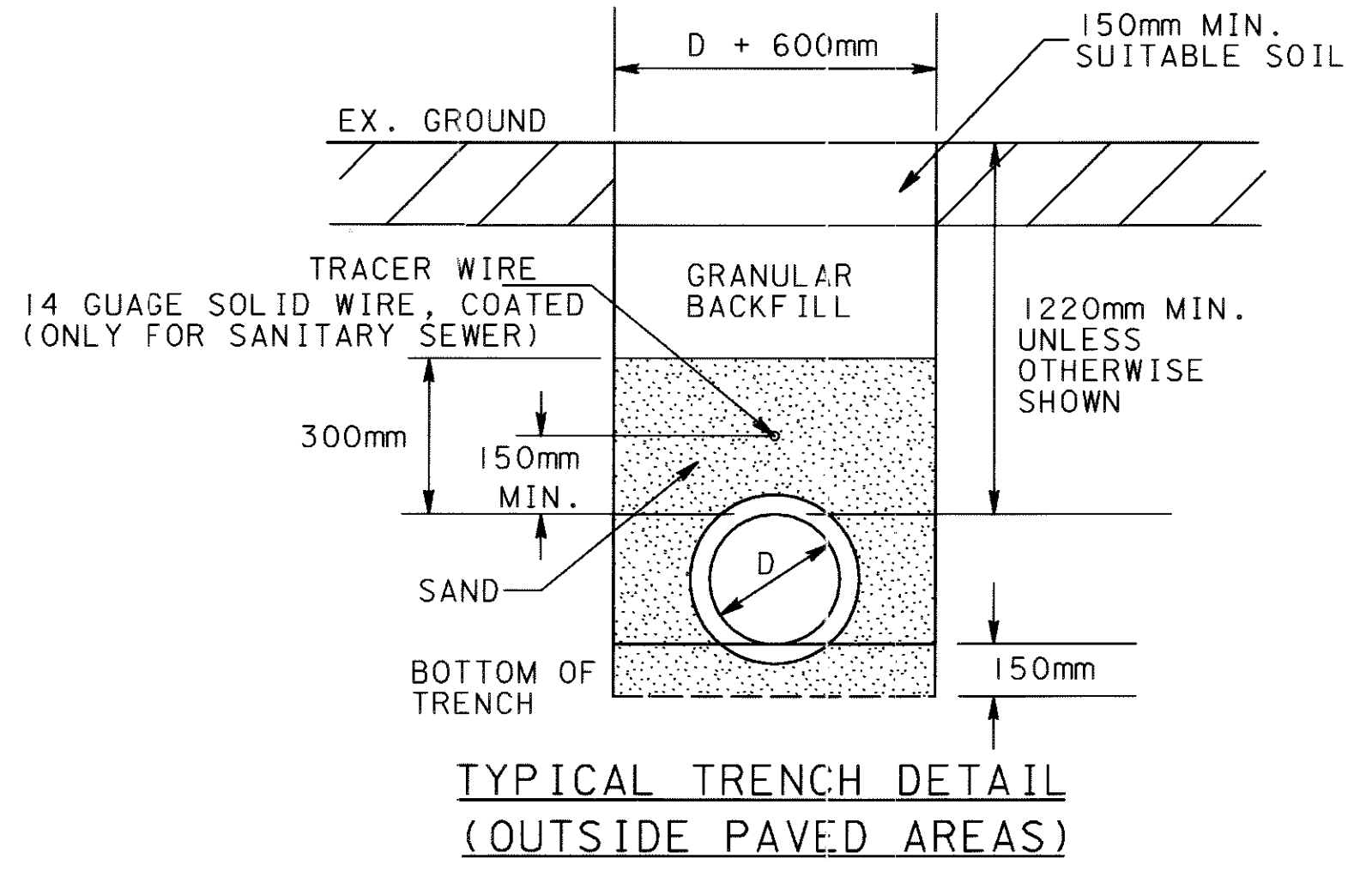
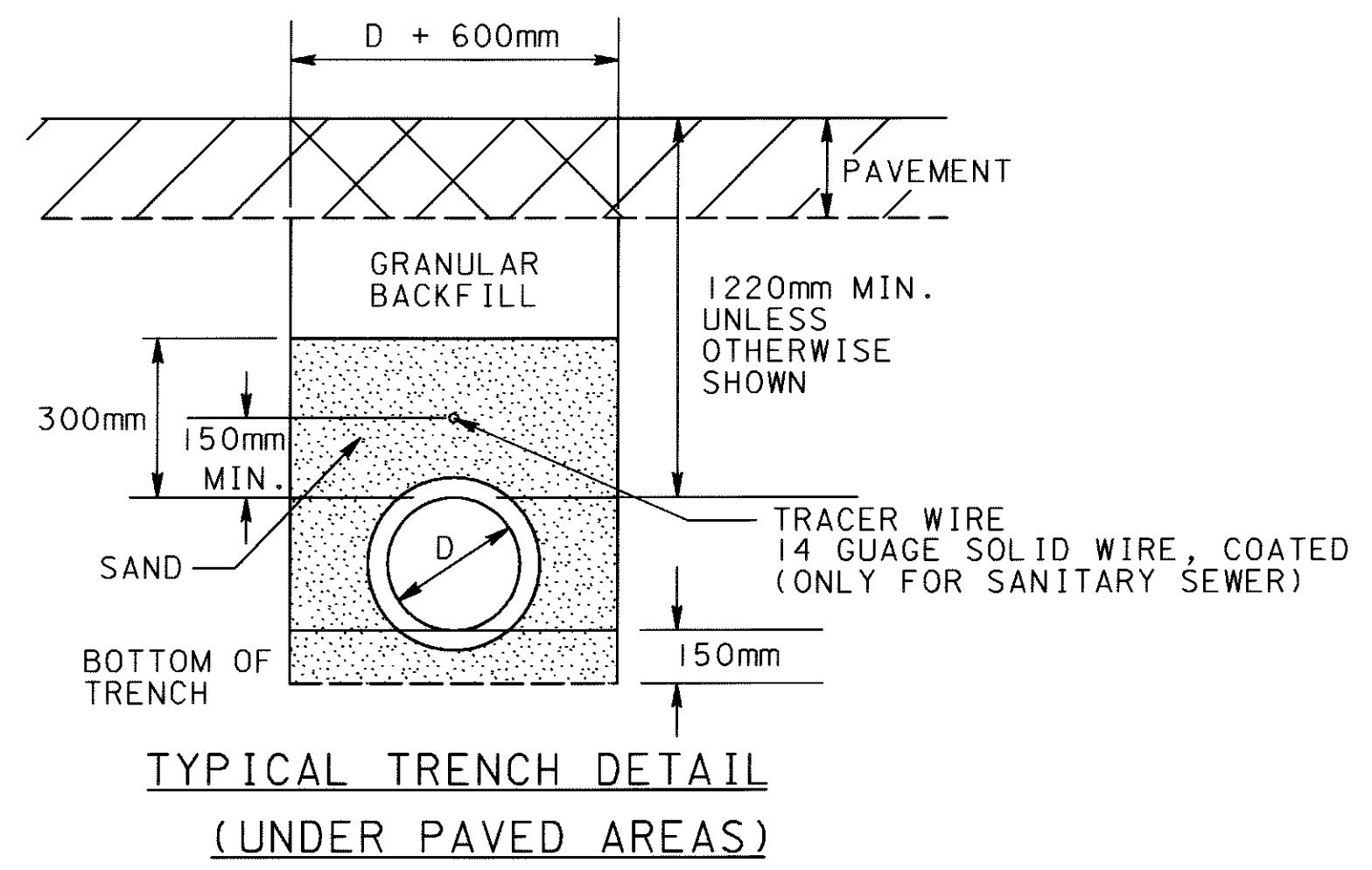


WATER WELL CAP DETAIL (NTS)

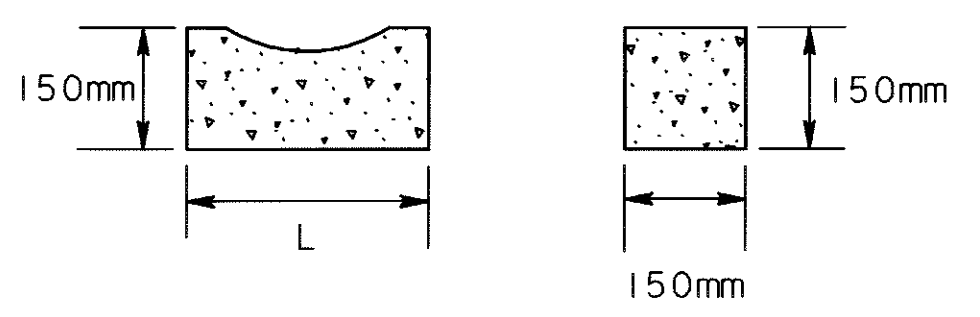


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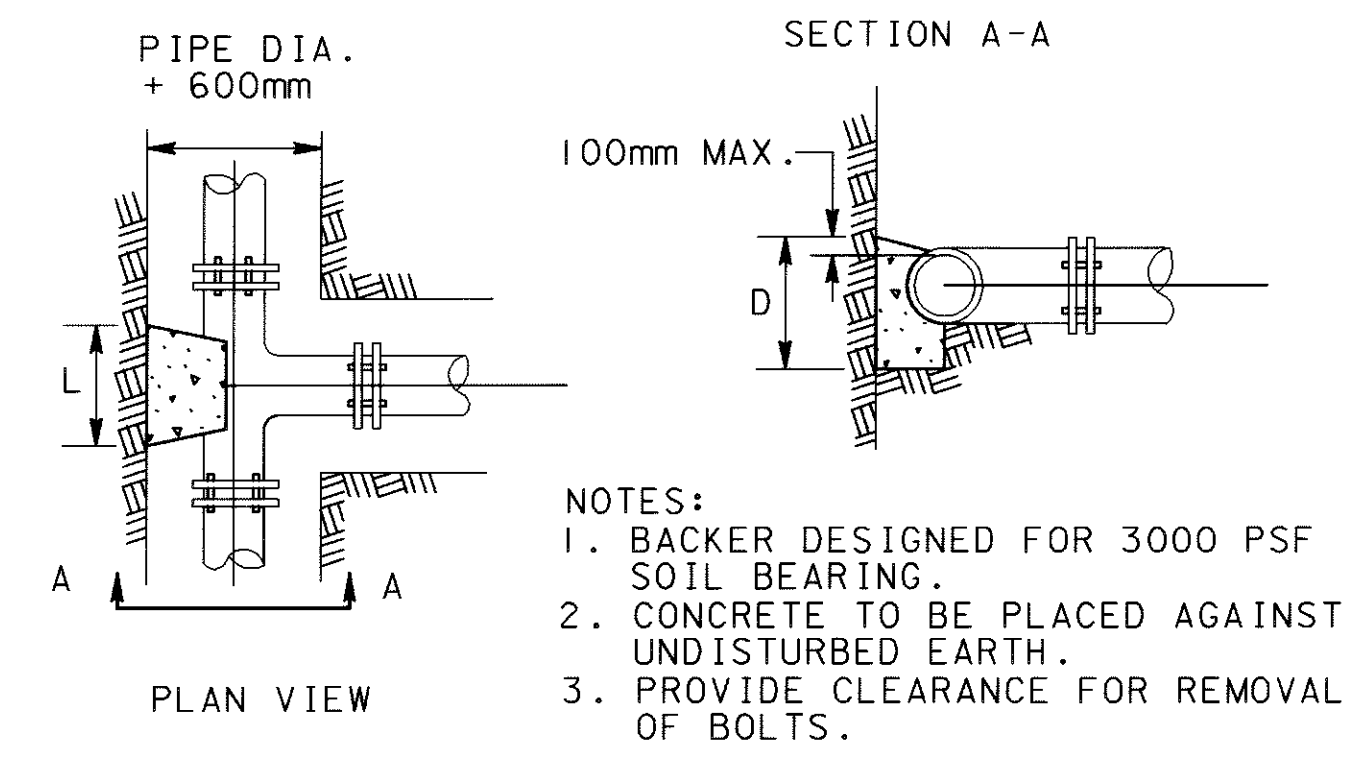




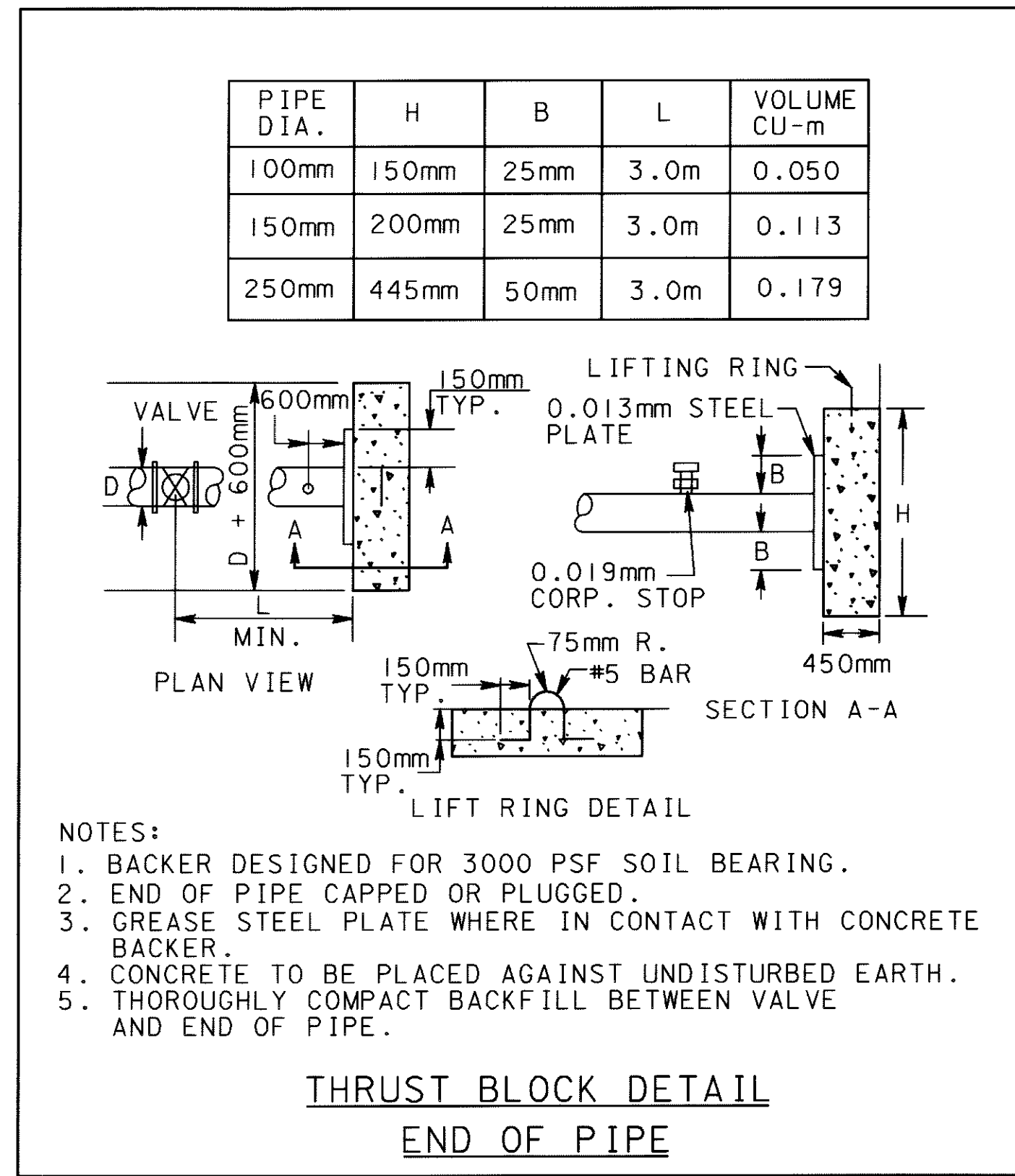
SIZE OF VALVE	L	VOLUME CU-m
100mm	400mm	0.009
150mm	425mm	0.012
250mm	550mm	0.013



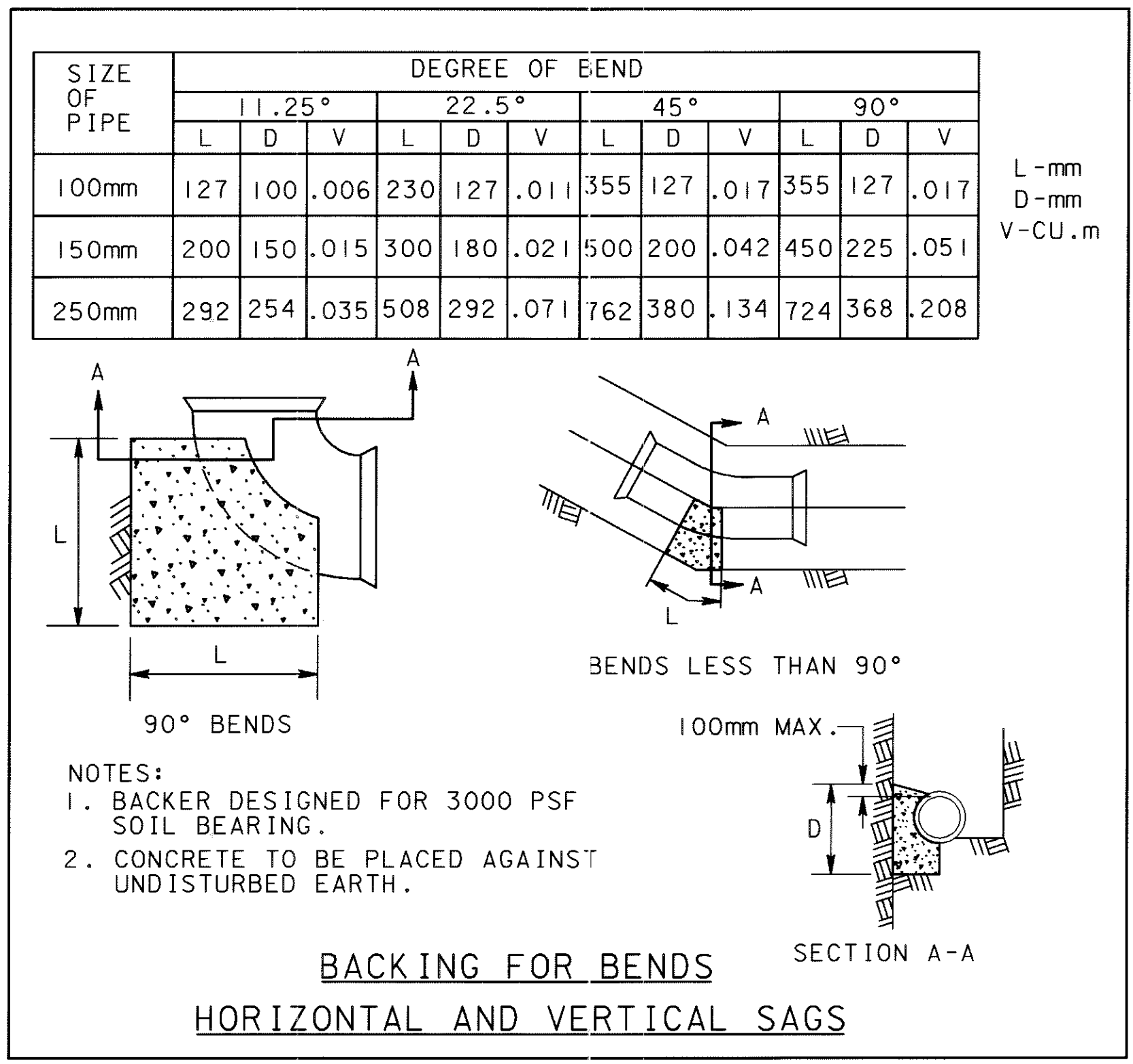
RUN	BRANCH									L -mm D -mm V -CU.m
	100mm			150mm			250mm			
	L	D	V	L	D	V	L	D	V	
100mm	280	200	.023							
150mm	280	200	.023	585	405	.099				
250mm	230	267	.021	585	405	.099	775	485	.173	



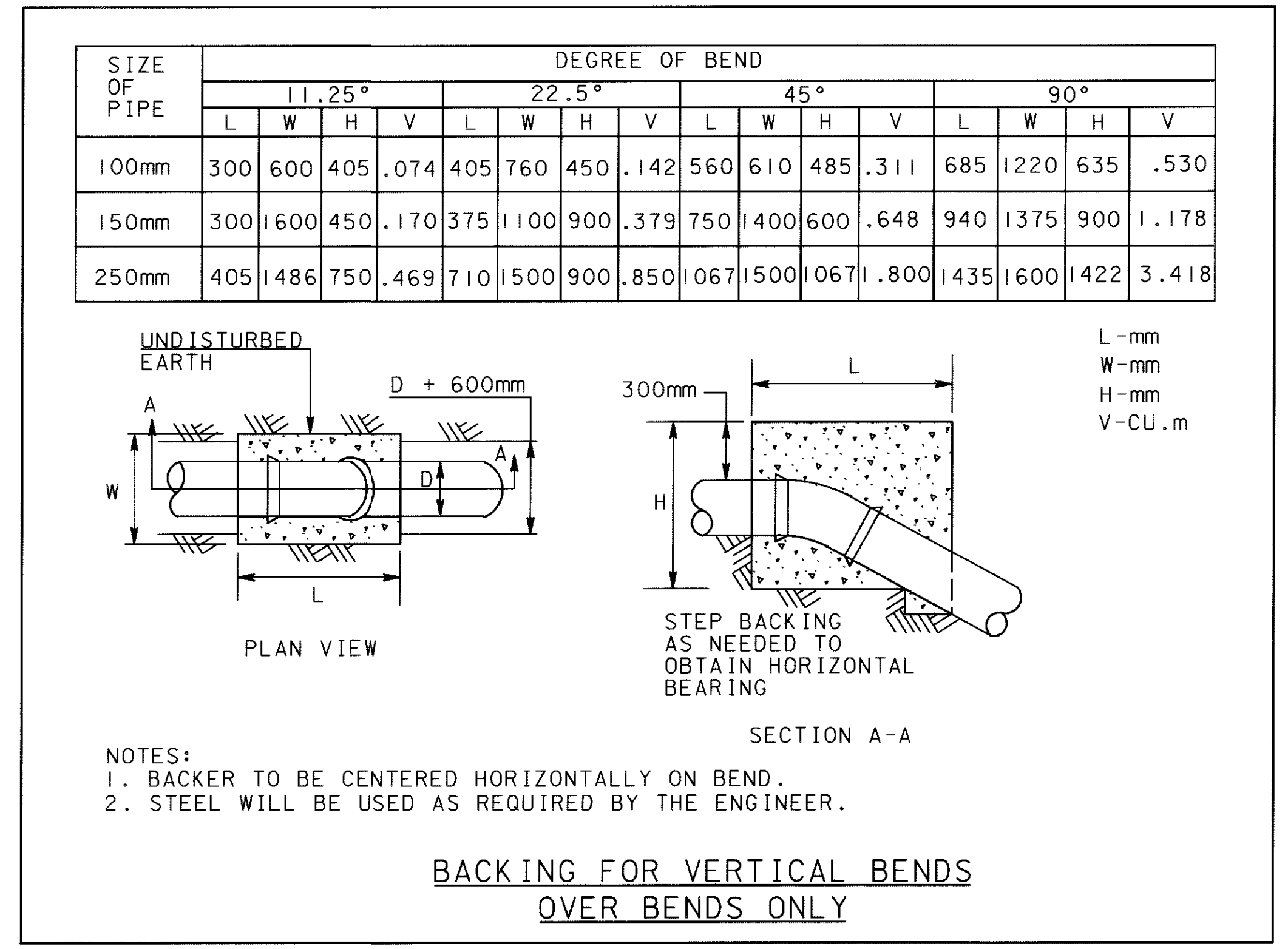
BACKING FOR TEES



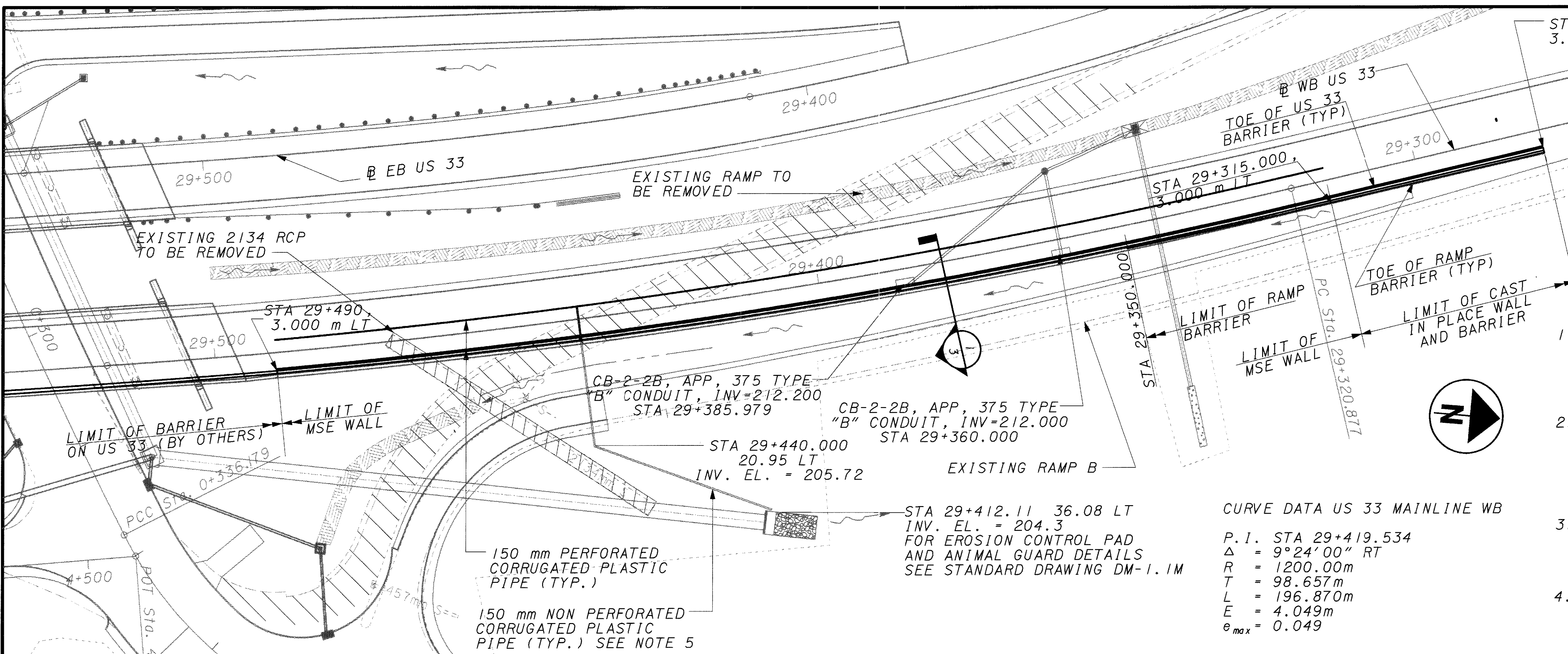
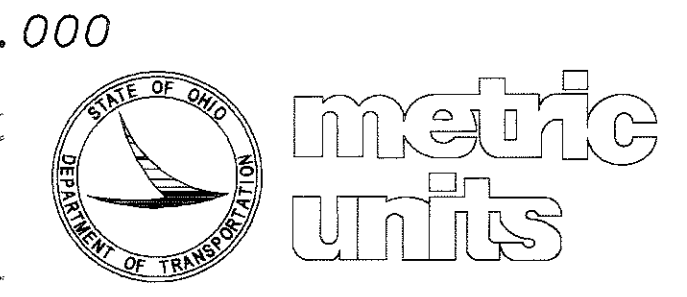
THRUST BLOCK DETAIL  
END OF PIPE



BACKING FOR BENDS  
HORIZONTAL AND VERTICAL SAGS



BACKING FOR VERTICAL BENDS  
OVER BENDS ONLY

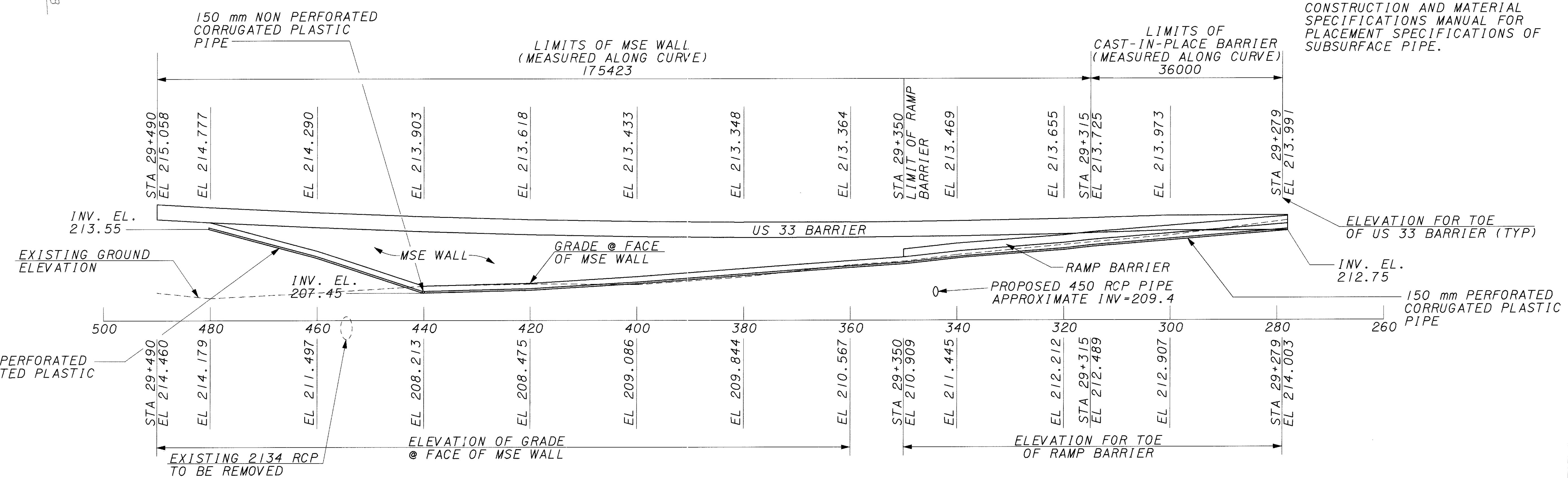


**LEGEND**  
 TO BE REMOVED

- NOTES**
- ALL DIMENSIONS ARE IN MILLIMETERS, ALL STATIONS AND ELEVATIONS ARE IN METERS, UNLESS NOTED OTHERWISE.
  - REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:  
 BR-1M REVISED 1-06-99  
 RM-4.3M DATE 10-21-97  
 RM-4.5M DATE 10-21-97
  - STATIONING & OFFSET SHOWN ARE FOR THE TOE OF BARRIER ALONG US 33, UNLESS NOTED OTHERWISE.
  - WALL FOOTING IS NOT SHOWN FOR CLARITY. TYPE, SIZE AND LOCATION OF FOOTING SHALL BE PER THE MSE WALL MANUFACTURER AND SHALL CONFORM TO THE REQUIREMENTS OF THE BRIDGE DESIGN MANUAL.
  - REFER TO 518.05 OF ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS MANUAL FOR PLACEMENT SPECIFICATIONS OF SUBSURFACE PIPE.

**CURVE DATA US 33 MAINLINE WB**  
 P.I. STA 29+419.534  
 $\Delta = 9^{\circ}24'00''$  RT  
 $R = 1200.00m$   
 $T = 98.657m$   
 $L = 196.870m$   
 $E = 4.049m$   
 $e_{max} = 0.049$

LOCATION & PLAN VIEW



ELEVATION

**RAMP B RETAINING WALL  
PLAN AND ELEVATION DETAILS**

**ATH-33-30.981**

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**GENERAL NOTES**

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996, INCLUDING THE 1997, 1998 AND 1999 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS

RW-1-63 DATED 12/20/63  
RM-4.3M DATED 10/21/99

REFERENCE SHALL ALSO BE MADE TO THE FOLLOWING OHIO DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS:

842 DATED 1/06/99  
899 DATED 10/21/98

DESIGN LOADING: MS-22.5

ALLOWABLE BEARING PRESSURE FOR DESIGN OF MSE WALLS

THE ALLOWABLE BEARING PRESSURE FOR THE DESIGN OF THE MSE WALL AT RAMP B ALONG US 33 IS 230 kPa.

MSE RETAINING WALL, REMOVAL OF IN-SITU SOILS AND BACKFILLING WITH 304: PRIOR TO THE CONSTRUCTION OF MECHANICALLY STABILIZED EARTH RETAINING WALL, THE EXISTING IN-SITU SOILS SHALL BE REMOVED AND THE RESULTING EXCAVATION SHALL BE BACKFILLED AS PER ITEM 304 OF CMS. THE LIMITS OF THE REMOVAL OF THE IN-SITU SOILS SHALL BE DEFINED AS PER THE DETAIL ON SHEET 3. THE LENGTH OF THE EXCAVATION SHALL BE EQUAL TO THE LENGTH OF THE RETAINING WALL. AN ADDITIONAL 2 METERS SHALL BE REMOVED AND REPLACED WITH ITEM 304 FOR THE WIDTH SHOWN ON SHEET 3, BETWEEN STATIONS 29+465 AND 29+445. THE EXCAVATION SHALL BE BACKFILLED AS PER ITEM 304 TO THE BOTTOM OF SELECT GRANULAR BACKFILL ELEVATIONS.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES:

COLOR FOR EPOXY-URETHANE SEALANT SHALL BE AS FOLLOWS: FEDERAL COLOR NO. 17778-NEUTRAL. - TO BE APPLIED TO ALL PORTLAND CEMENT SURFACES INCLUDING PARAPETS, MSE WALL PANELS, COPING AND HEADWALLS. AS INDICATED IN THE DRAWINGS.

**ABBREVIATIONS**

- E.F. = EACH FACE
- EL. = ELEVATION
- EXP. = EXPANSION
- C.P.P. = CORRUGATED EXPANSION JOINT
- INV. = INVERT
- JT. = JOINT
- MSE = MECHANICALLY STABILIZED EARTH
- MIN. = MINIMUM
- MAX. = MAXIMUM
- PEJF = PREFORMED EXPANSION JOINT FILLER
- TYP. = TYPICAL

QUANTITIES CALCULATED BY: ENB - JANUARY 9, 2001 ESTIMATED QUANTITIES--CAST IN PLACE WALL QUANTITIES CHECKED BY: JBK - JANUARY 10, 2001

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	AS PER PLAN SHEET NO.
503	21300		LUMP	UNCLASSIFIED EXCAVATION	
SPECIAL	51267510	88	SQ METER	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) *	
516	13600	3	SQ METER	25 MM PREFORMED EXPANSION JOINT FILLER	
516	13200	30	SQ METER	13 MM PREFORMED EXPANSION JOINT FILLER	
518	21200	28	CU METER	POROUS BACKFILL WITH FILTER FABRIC	
518	40000	36	METER	150 MM PERFORATED CORRUGATED PLASTIC PIPE	
842	46000	49	CU METER	CLASS C CONCRETE	
842	34000	226	CU METER	CLASS S CONCRETE SUPERSTRUCTURE	
622	24000	36	METER	CONCRETE BARRIER, TYPE D	

QUANTITIES CALCULATED BY: ENB - JANUARY 9, 2001 ESTIMATED QUANTITIES--MSE WALL COMMON QUANTITIES QUANTITIES CHECKED BY: JBK - JANUARY 10, 2001

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	AS PER PLAN SHEET NO.
516	13600	14	SQ METER	25 MM PREFORMED EXPANSION JOINT FILLER	
516	13200	124	SQ METER	13 MM PREFORMED EXPANSION JOINT FILLER	
518	40000	351	METER	150 MM PERFORATED CORRUGATED PLASTIC PIPE	
518	40010	56	METER	150 MM NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	
622	24000	35	METER	CONCRETE BARRIER, TYPE D	
842	34000	215	CU METER	CLASS S CONCRETE SUPERSTRUCTURE	

QUANTITIES CALCULATED BY: ENB - JANUARY 9, 2001 ESTIMATED QUANTITIES--MSE WALL DESIGN A (THE REINFORCED EARTH COMPANY) QUANTITIES CHECKED BY: JBK - JANUARY 10, 2001

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	AS PER PLAN SHEET NO.
203	20001	420	CU METER	EMBANKMENT, AS PER PLAN	3
SPECIAL	61013500	708	SQ METER	REINFORCED EARTH WALL **	
203	35001	2723	CU METER	SELECT GRANULAR EMBANKMENT, AS PER PLAN	3
SPECIAL	51267510	1121	SQ METER	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
304	20001	917	CU METER	AGGREGATE BASE, AS PER PLAN	2 & 3
503	21101	1411	CU METER	UNCLASSIFIED EXCAVATION, AS PER PLAN	2 & 3

QUANTITIES CALCULATED BY: ENB - JANUARY 9, 2001 ESTIMATED QUANTITIES--MSE WALL DESIGN B (FOSTER GEOTECHNICAL) QUANTITIES CHECKED BY: JBK - JANUARY 10, 2001

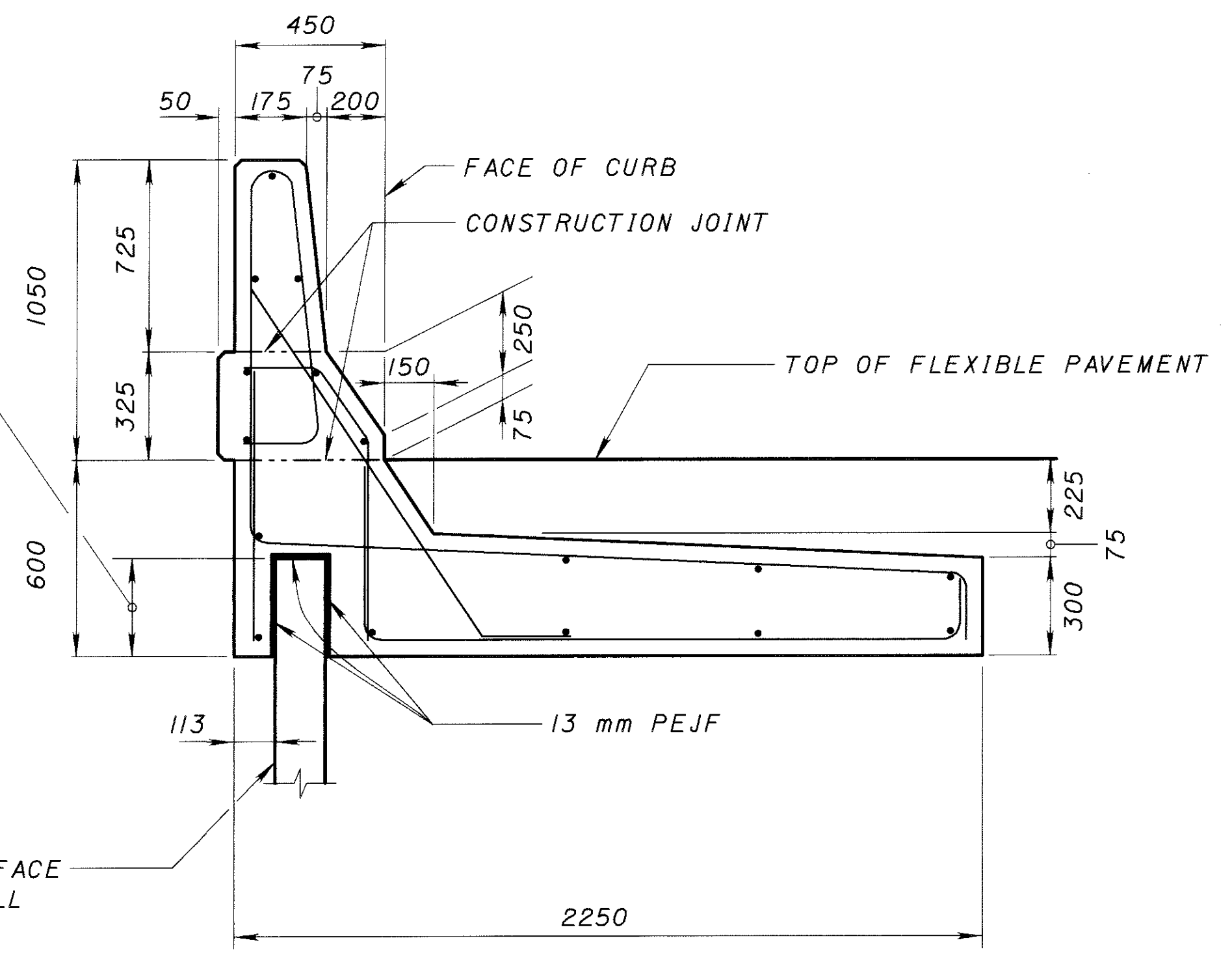
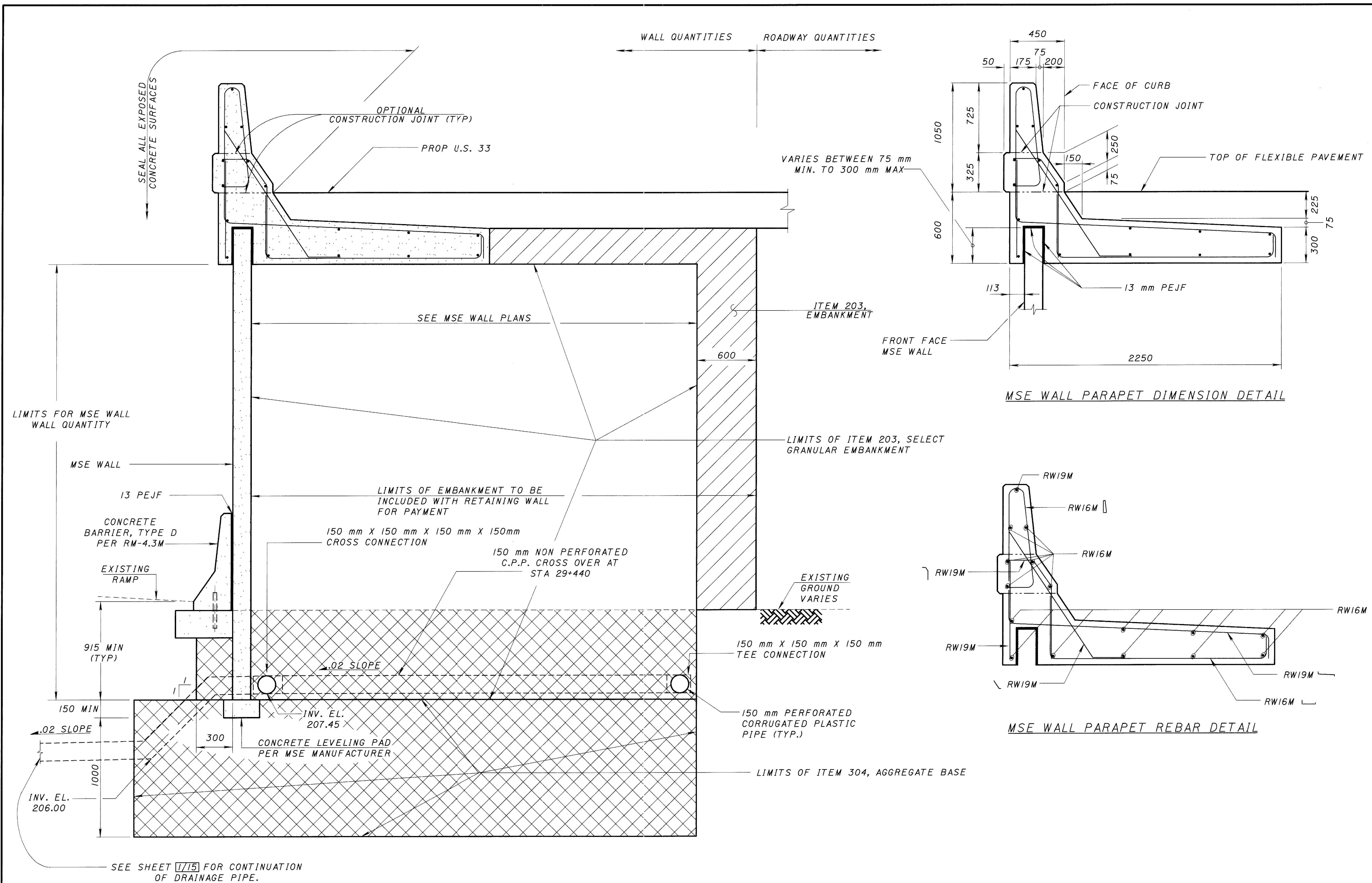
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203	20001	448	CU METER	EMBANKMENT, AS PER PLAN	3
SPECIAL	61013700	739	SQ METER	RETAINED EARTH WALL **	
203	35001	2692	CU METER	SELECT GRANULAR EMBANKMENT, AS PER PLAN	3
SPECIAL	51267510	1171	SQ METER	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
304	20001	908	CU METER	AGGREGATE BASE, AS PER PLAN	2 & 3
503	21101	1361	CU METER	UNCLASSIFIED EXCAVATION, AS PER PLAN	2 & 3

\* SEE PROPOSAL NOTE

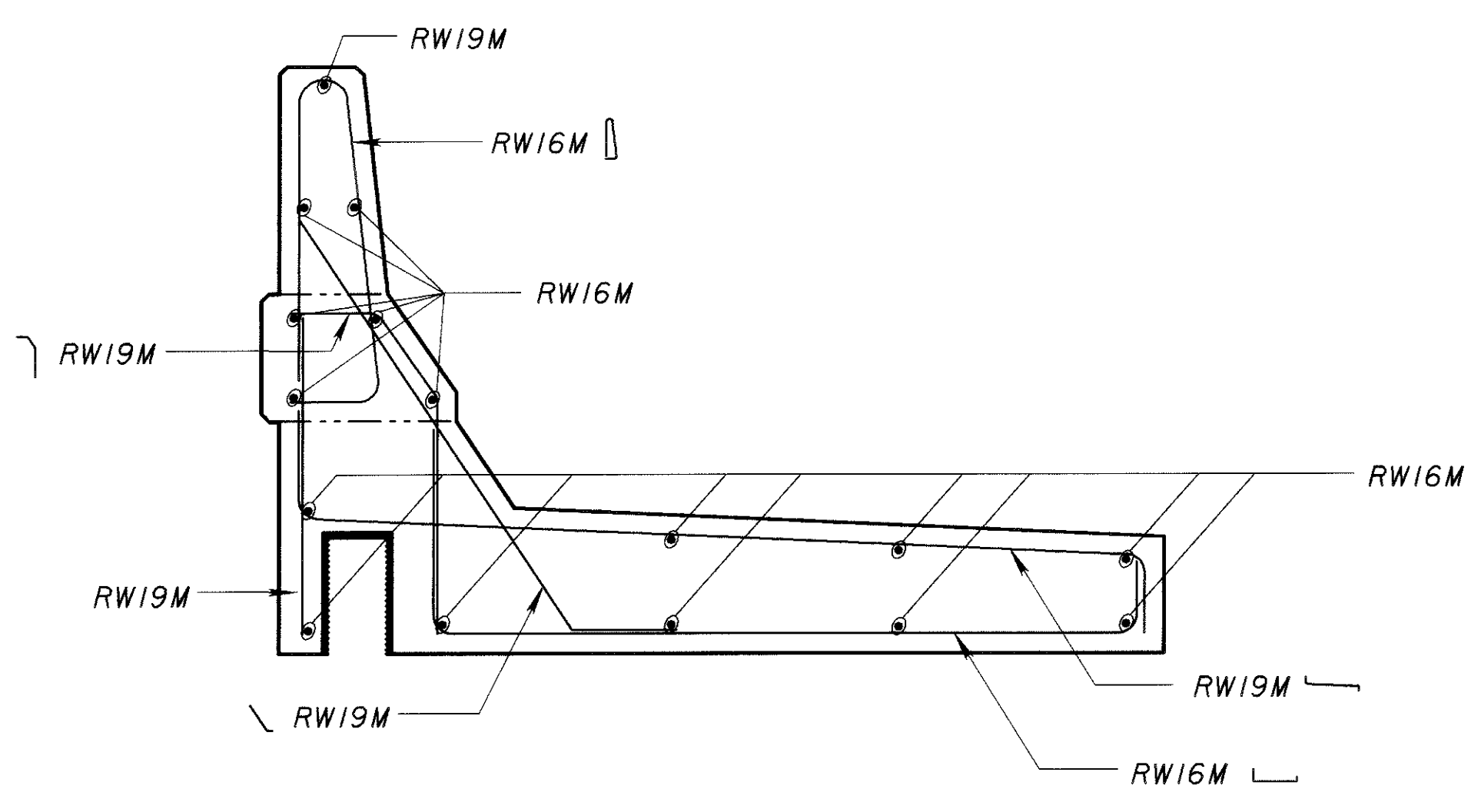
\*\* SEE MSE PROPOSAL NOTE



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MSE WALL PARAPET DIMENSION DETAIL



MSE WALL PARAPET REBAR DETAIL

SECTION 1  
 MSE WALL OPTION 1

UNCLASSIFIED EXCAVATION

DESIGN AGENCY  
 635 Brookside Boulevard  
 Westerville, OH 43081  
 ME COMPANIES

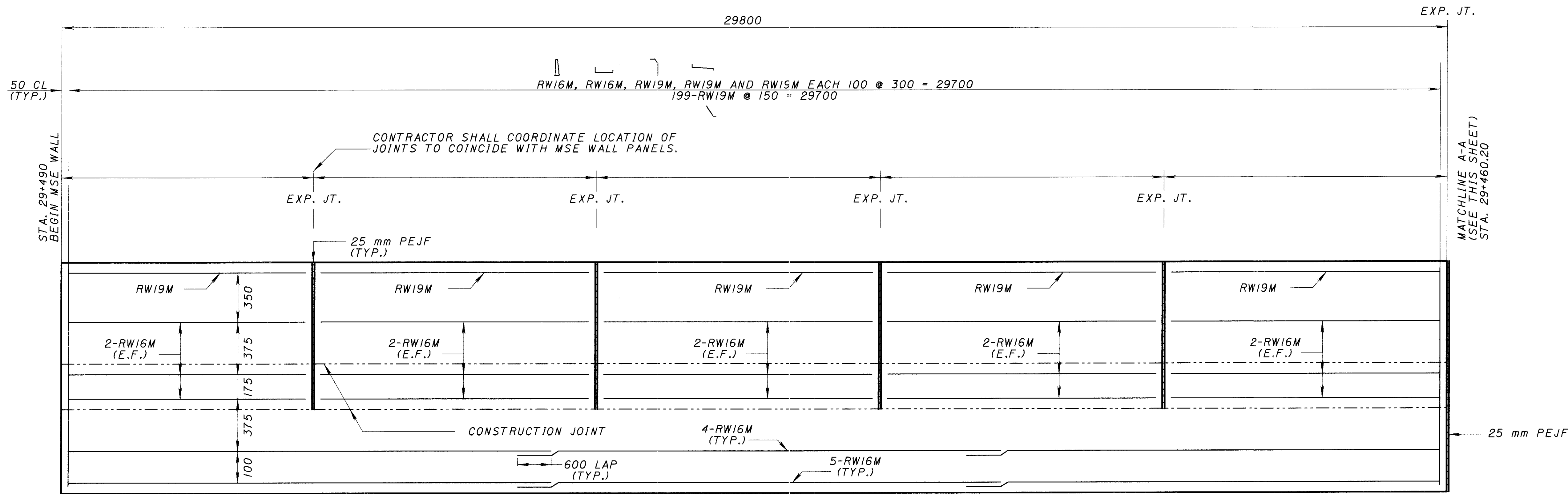
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DRAWN	ENB	REVISED	
REVIEWED	TLW	DATE	1/12/01
STRUCTURE FILE NUMBER			

MSE WALL - GENERAL SECTIONS AND DETAILS  
 RETAINING WALL - RAMP B  
 U.S. 33

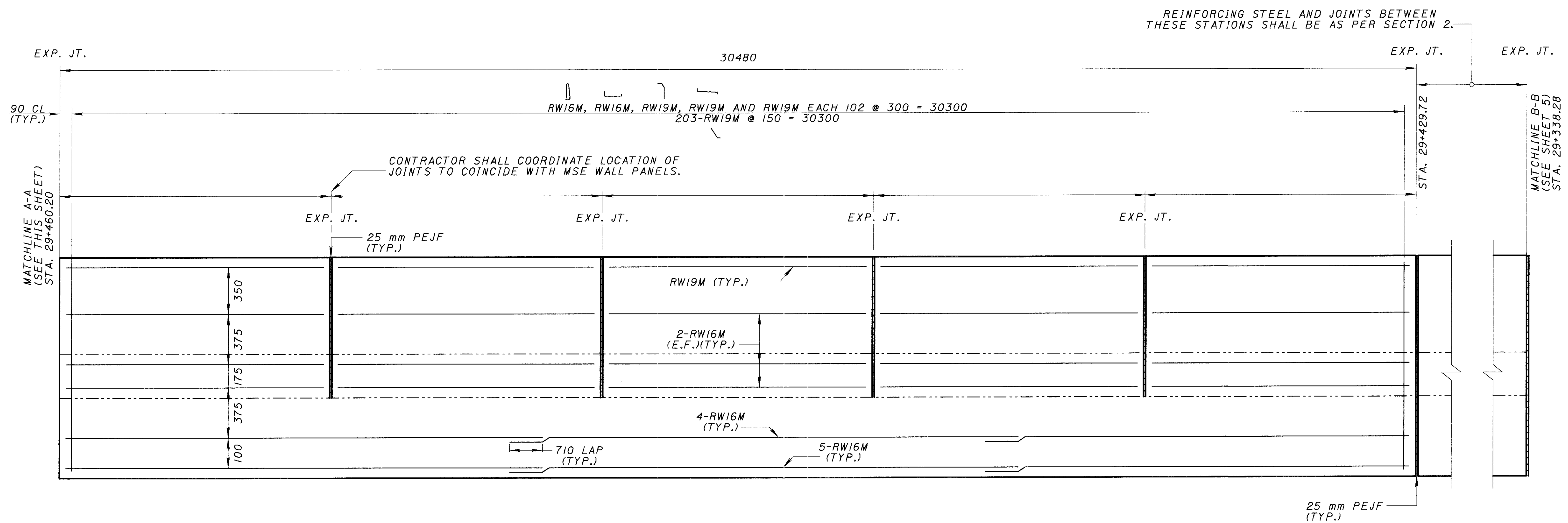
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SECTION 1 - MSE WALL MOUNTED PARAPET ELEVATION

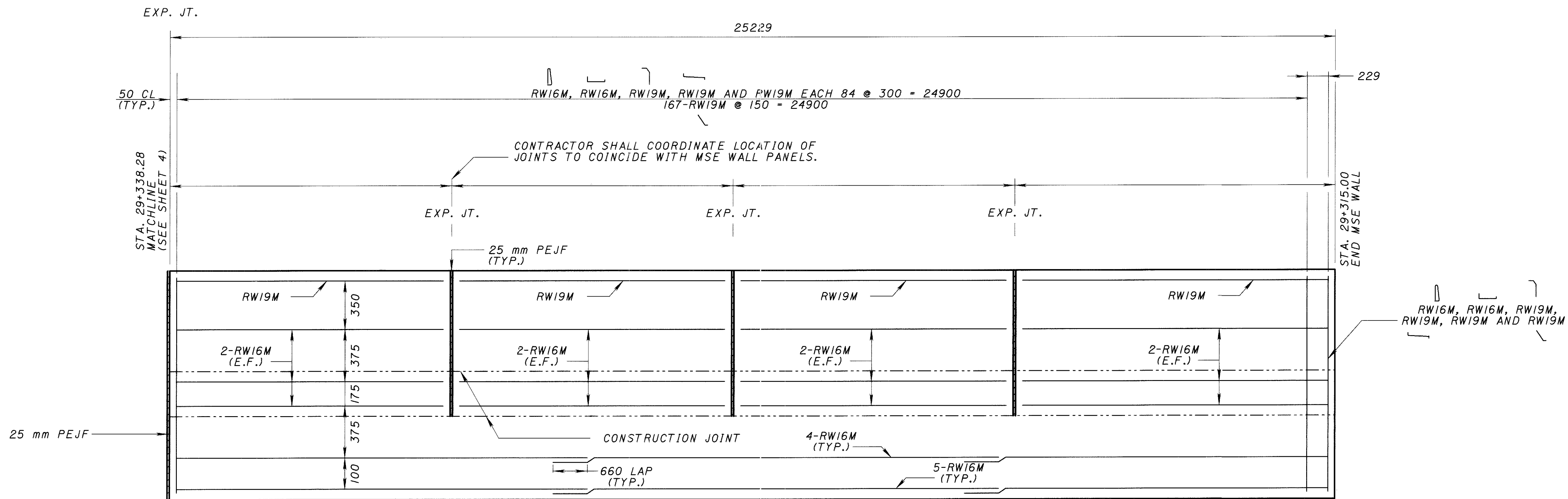


SECTION 2 - MSE WALL MOUNTED PARAPET ELEVATION

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	<b>DESIGN AGENCY</b> 635 Brookside Boulevard Westerville, OH 43081															
<b>ATH-33-30.981</b>	<b>MSE WALL - MOUNTED PARAPET ELEVATION</b> RETAINING WALL - RAMP B U.S. 33															
4 / 14	870 956															
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DESIGNED	ENB	CHECKED	JBK													
DRAWN	ENB	REVISED														
REVIEWED	TLW	DATE	1/12/01	STRUCTURE FILE NUMBER												

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SECTION 3 - MSE WALL MOUNTED PARAPET ELEVATION

**ME**  
 COMPANIES  
 DESIGN AGENCY  
 635 Brookside Boulevard  
 Westerville, OH 43081

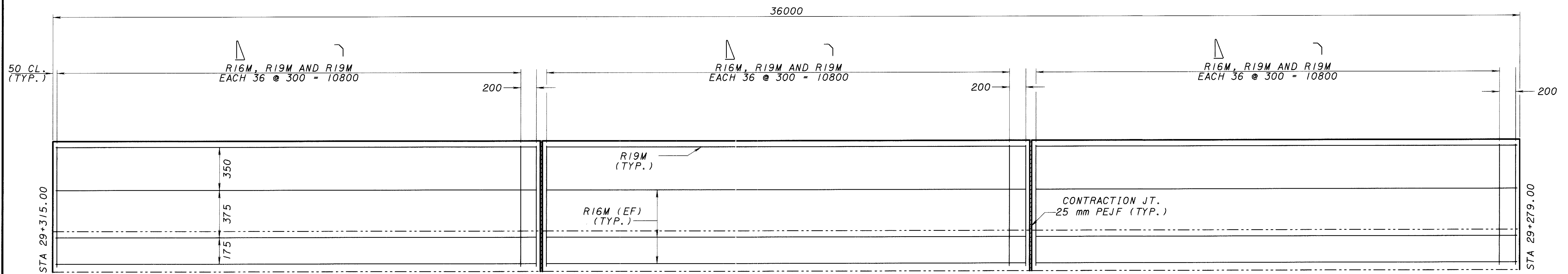
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 DESIGNED ENB  
 ENB CHECKED JBK

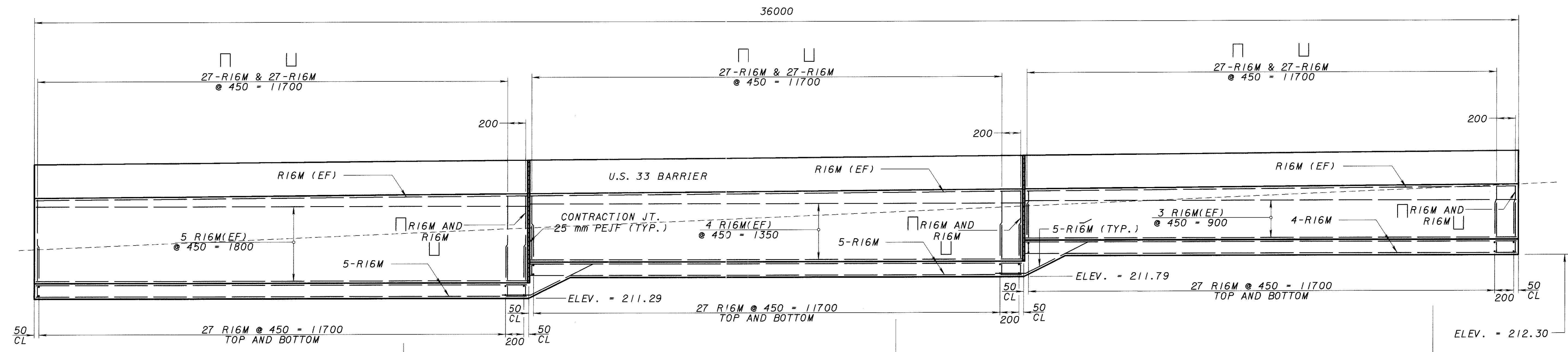
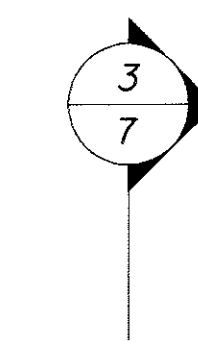
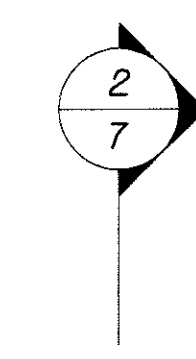
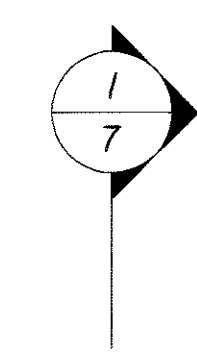
MSE WALL - MOUNTED PARAPET ELEVATION  
 RETAINING WALL - RAMP B  
 U.S. 33

ATH-33-30.981

5 / 14  
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 956



US 33 BARRIER ELEVATION



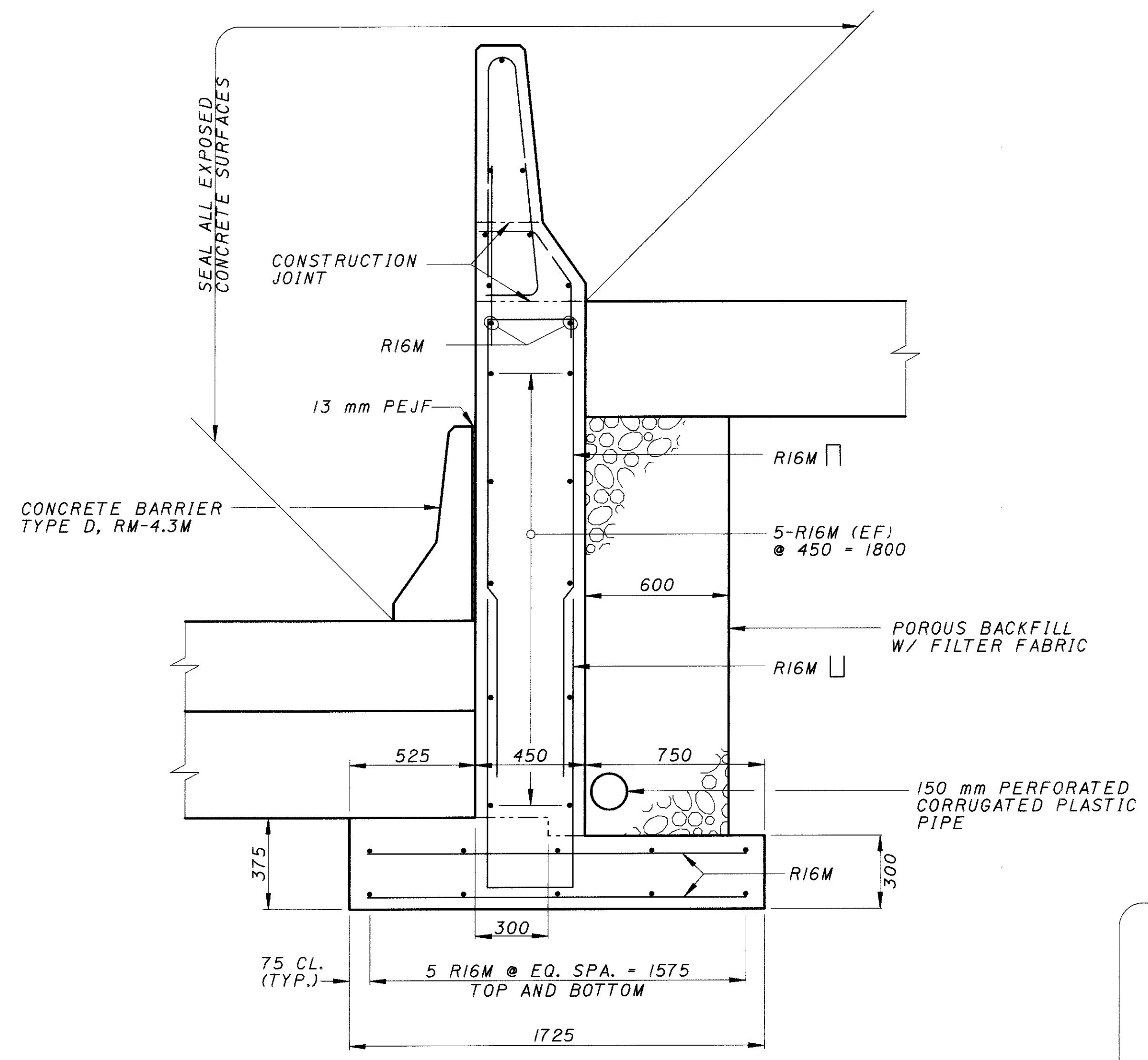
CAST-IN-PLACE WALL ELEVATION

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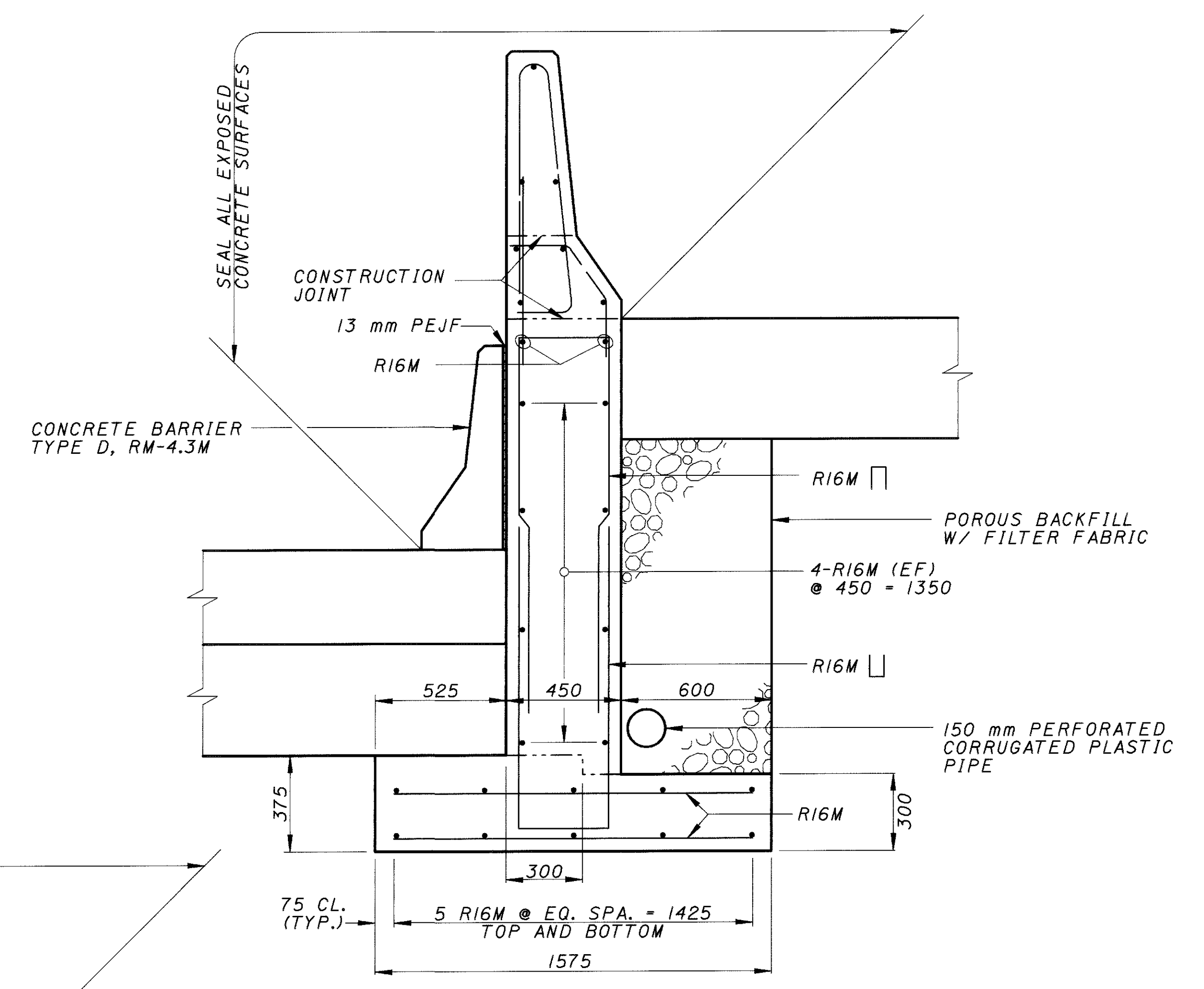
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JBK		REVISED	

**CAST-IN-PLACE WALL ELEVATION**  
 RETAINING WALL - RAMP B  
 U.S. 33

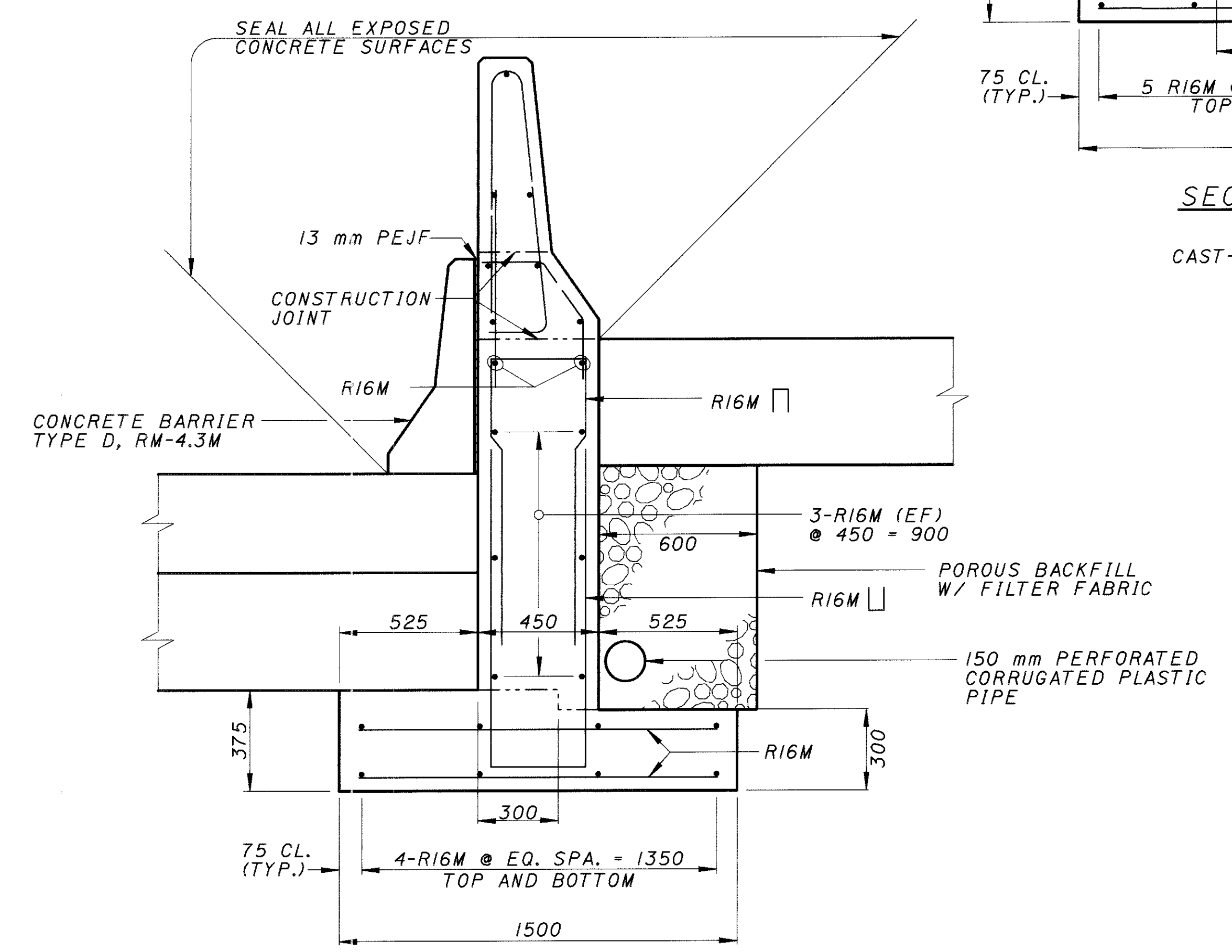
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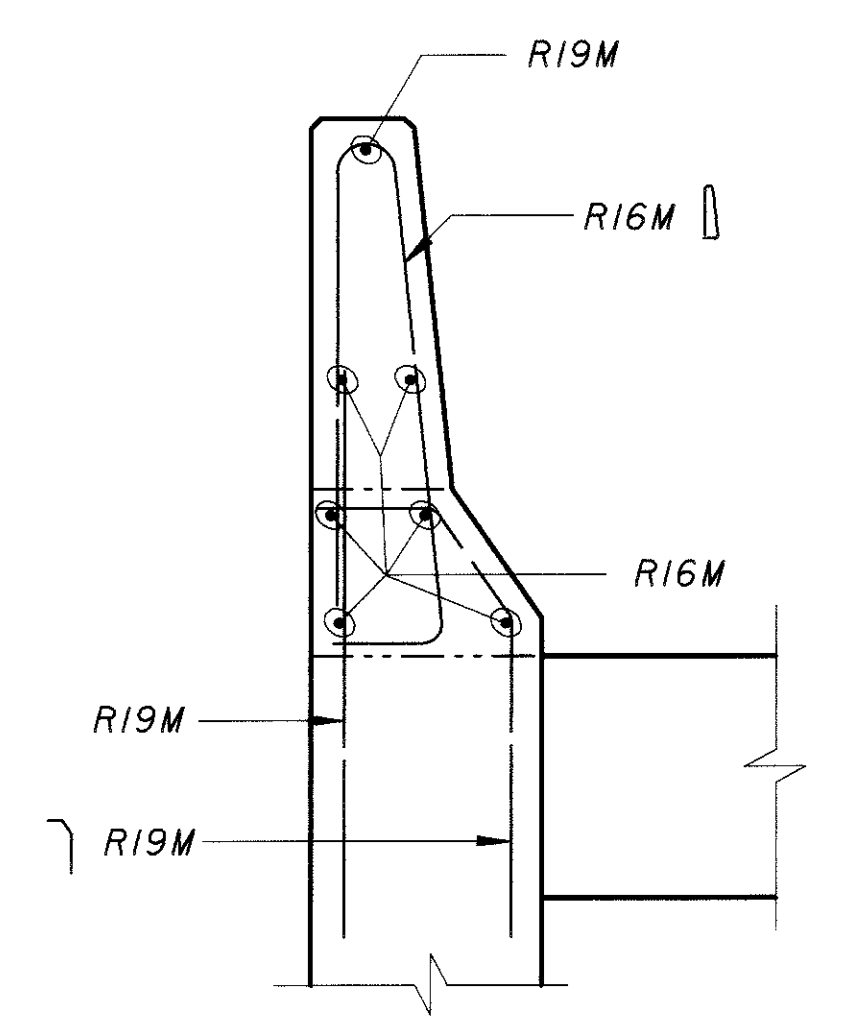
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 CAST-IN-PLACE WALL



SECTION 2  
 6  
 CAST-IN-PLACE WALL



SECTION 3  
 6  
 CAST-IN-PLACE WALL

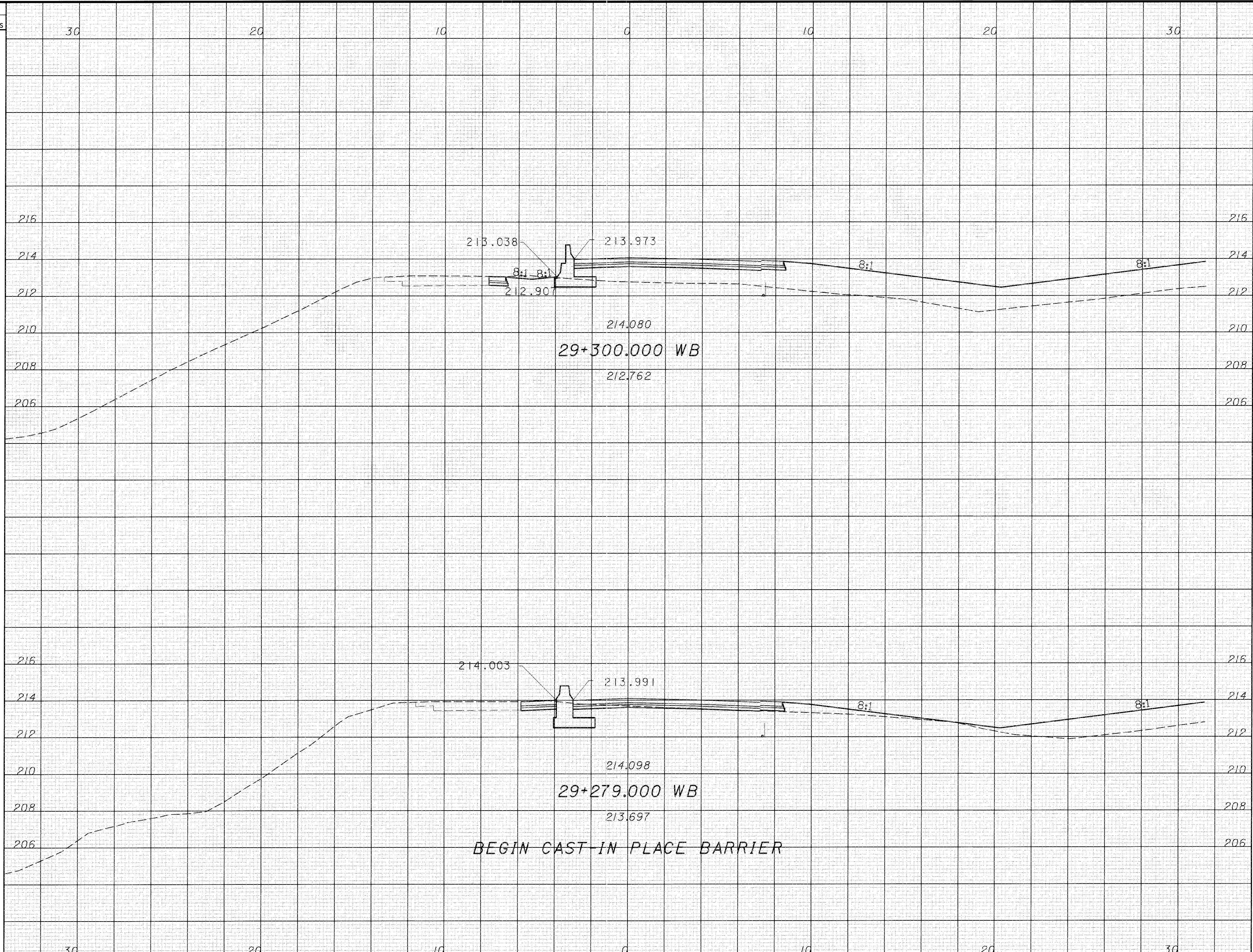


US 33 BARRIER DETAIL

SEEDING	
END WIDTH	SQ. METERS

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED AJP	CHECKED JBK
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SHEET TOTAL

SHEET TOTAL

RETAINING WALL CROSS SECTIONS

ATH-33-30.981

8 / 4

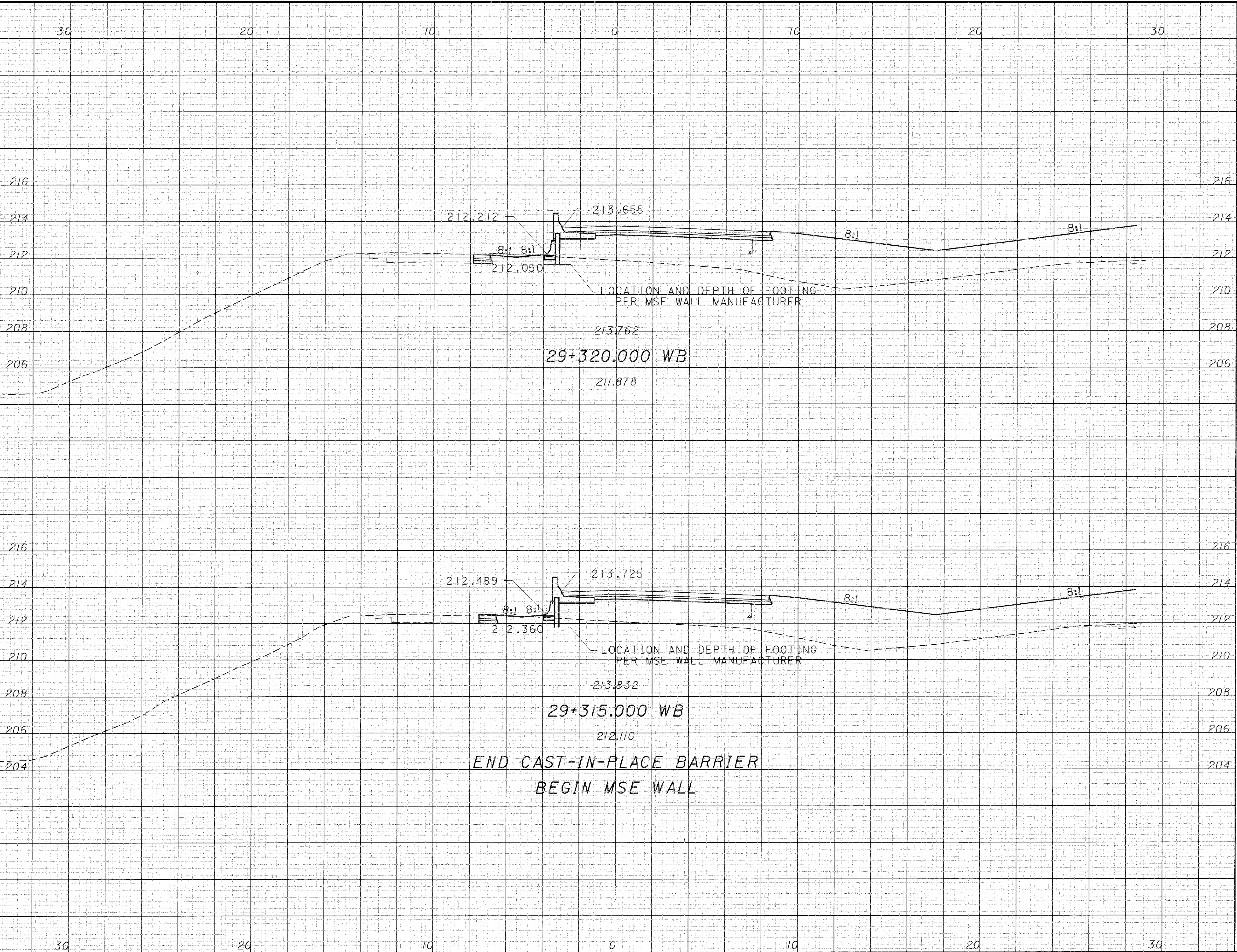
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SEEDING	
END WIDTH	SO. METERS

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	AJP
CHECKED	JBK



SHEET TOTAL

SHEET TOTAL

RETAINING WALL CROSS SECTIONS

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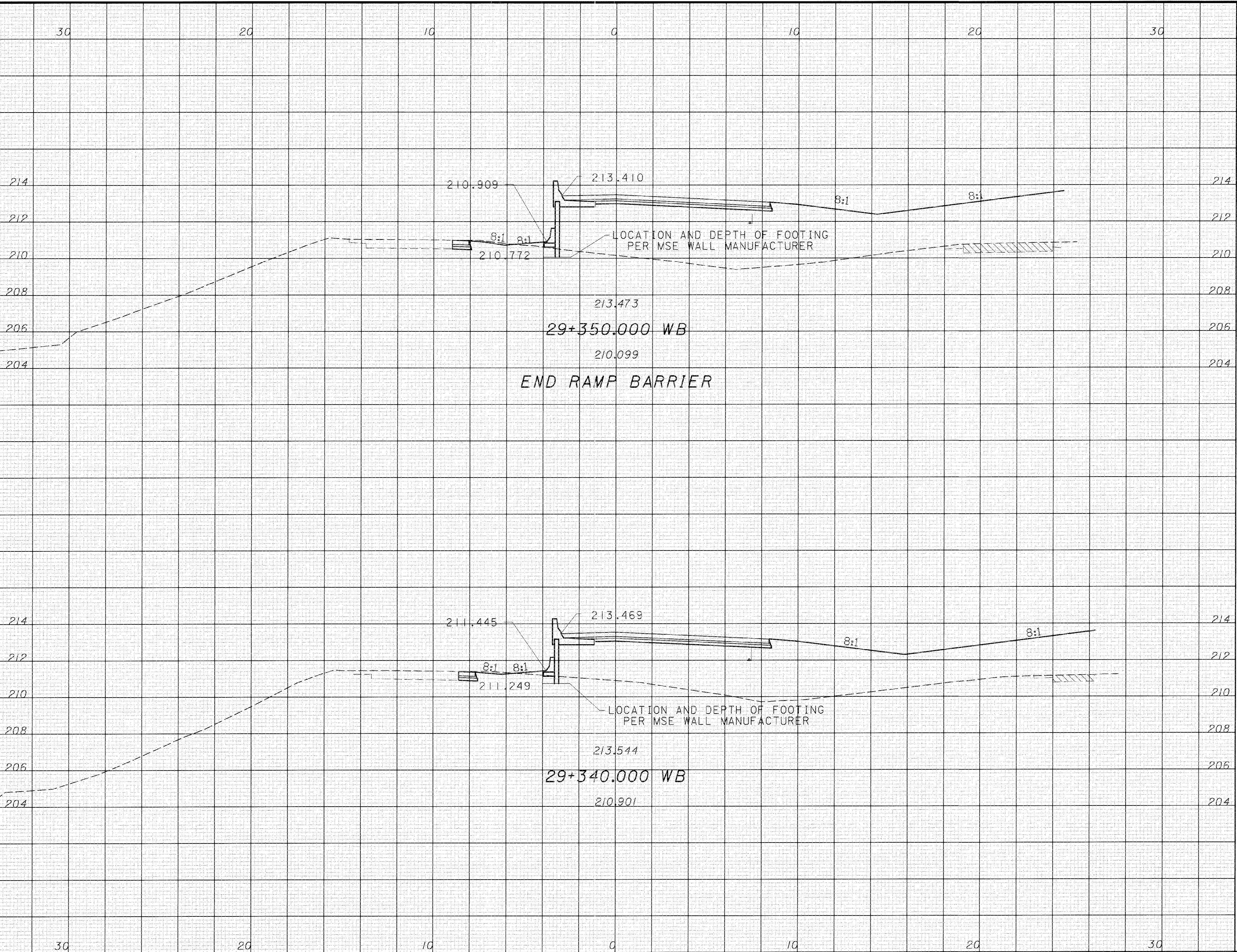
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SEEDING	
END WIDTH	SQ. METERS

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	AJP
CHECKED	JBK



SHEET TOTAL

SHEET TOTAL

RETAINING WALL CROSS SECTIONS

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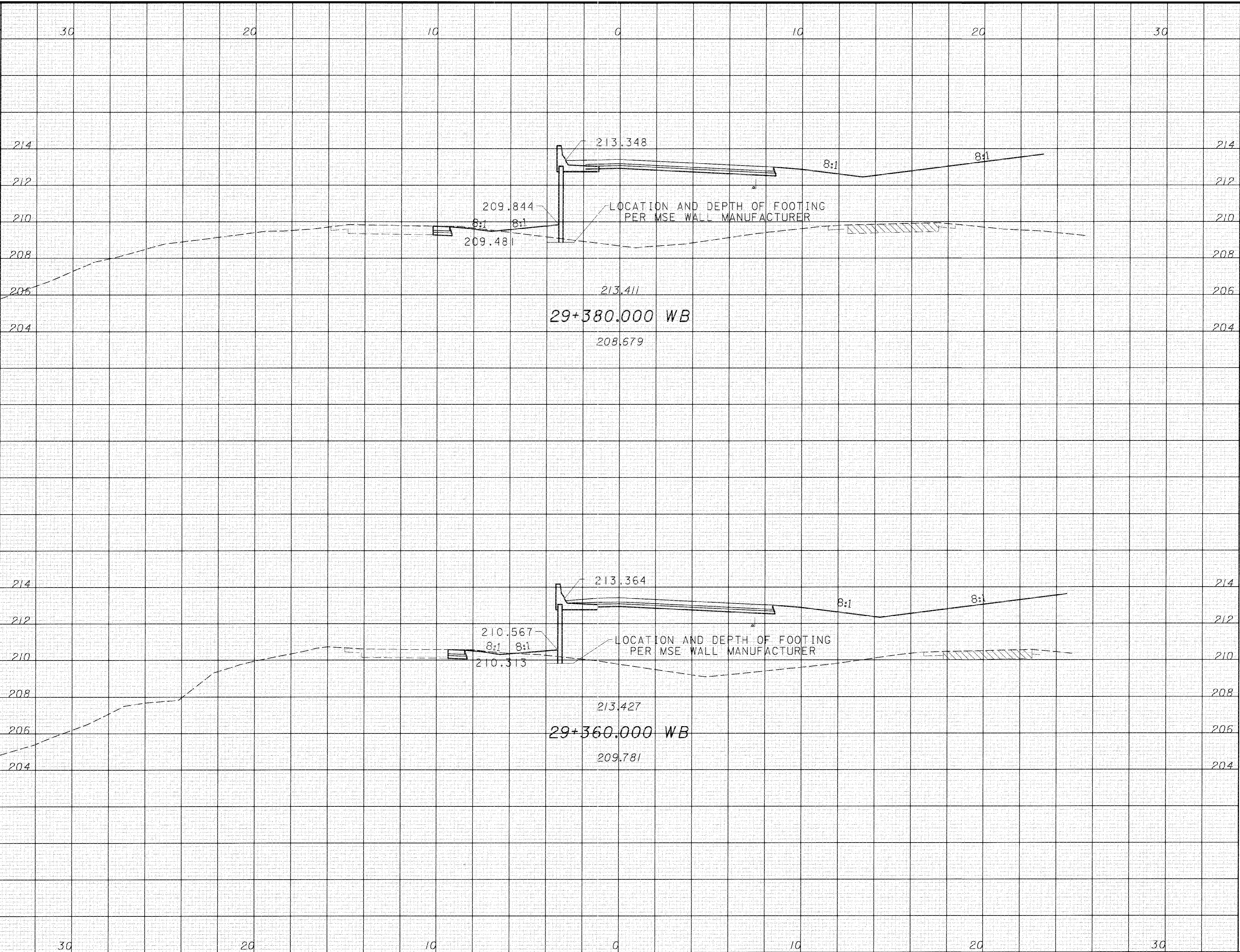
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SEEDING  
END SQ.  
WIDTH METERS

END AREA VOLUME  
CUT FILL CUT FILL  
CALCULATED  
AJP  
CHECKED  
JBK



SHEET TOTAL

SHEET TOTAL

RETAINING WALL CROSS SECTIONS

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11 / 4

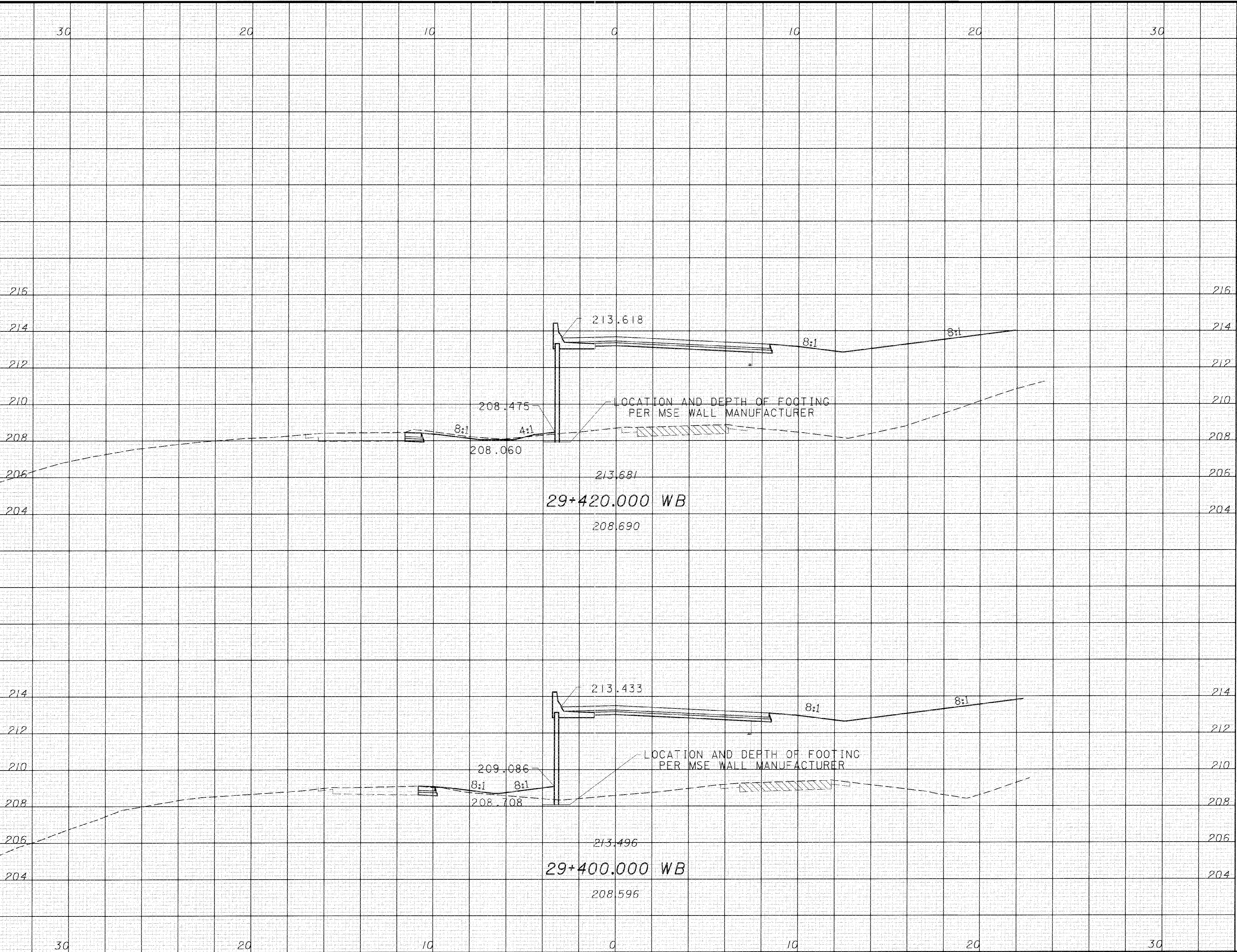
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SEEDING	
END WIDTH	SQ. METERS

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	AJP
CHECKED	JBK



SHEET TOTAL

SHEET TOTAL

RETAINING WALL CROSS SECTIONS

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SEEDING  
END SO.  
WIDTH METERS

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20

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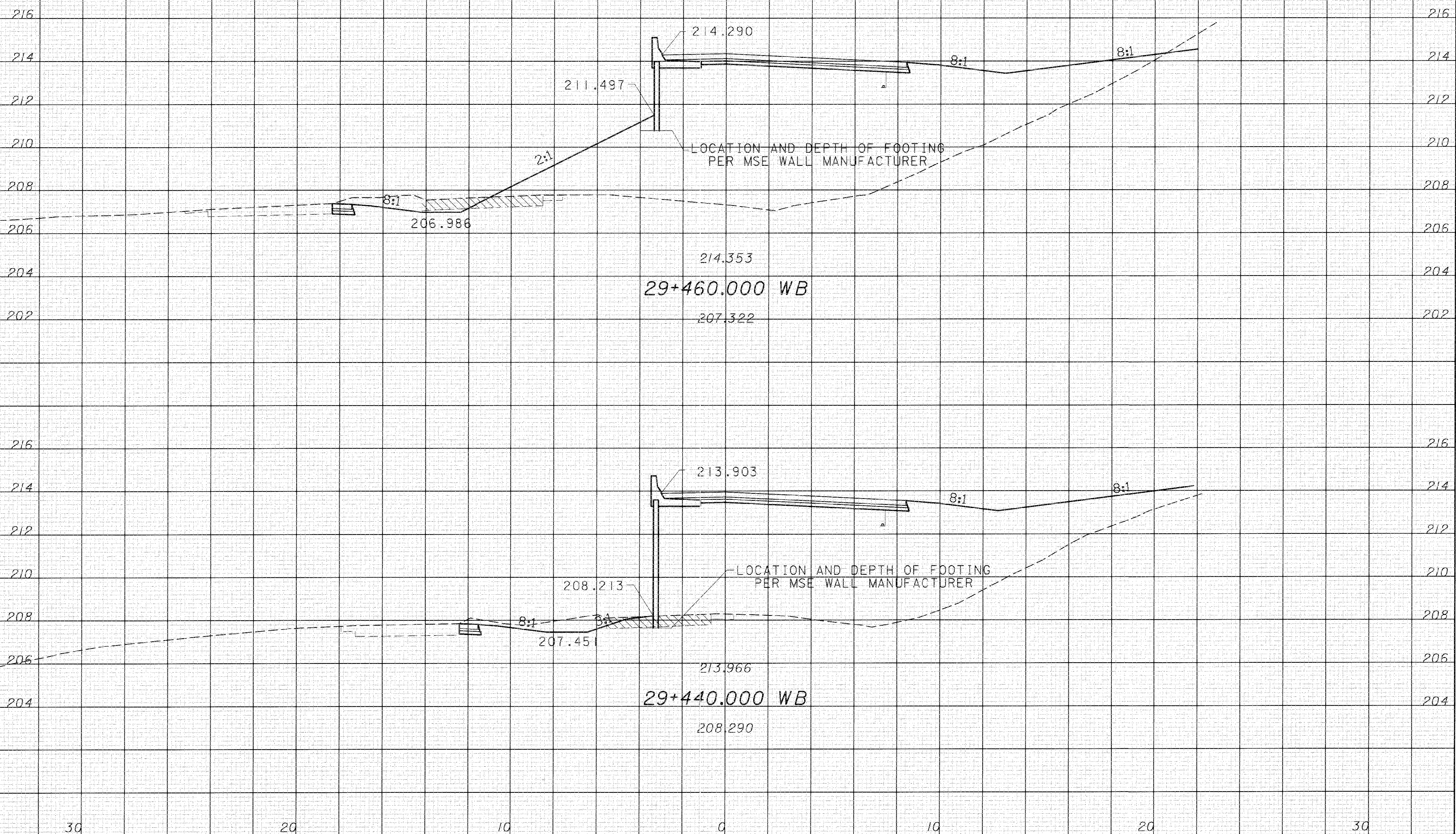
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END AREA VOLUME  
CUT FILL CUT FILL

CALCULATED  
AJP  
CHECKED  
JBK



SHEET TOTAL

SHEET TOTAL

RETAINING WALL CROSS SECTIONS

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SEEDING  
END SQ.  
WIDTH METERS

END AREA  
CUT FILL  
VOLUME  
CUT FILL

CALCULATED  
AJP  
CHECKED  
JBK

30

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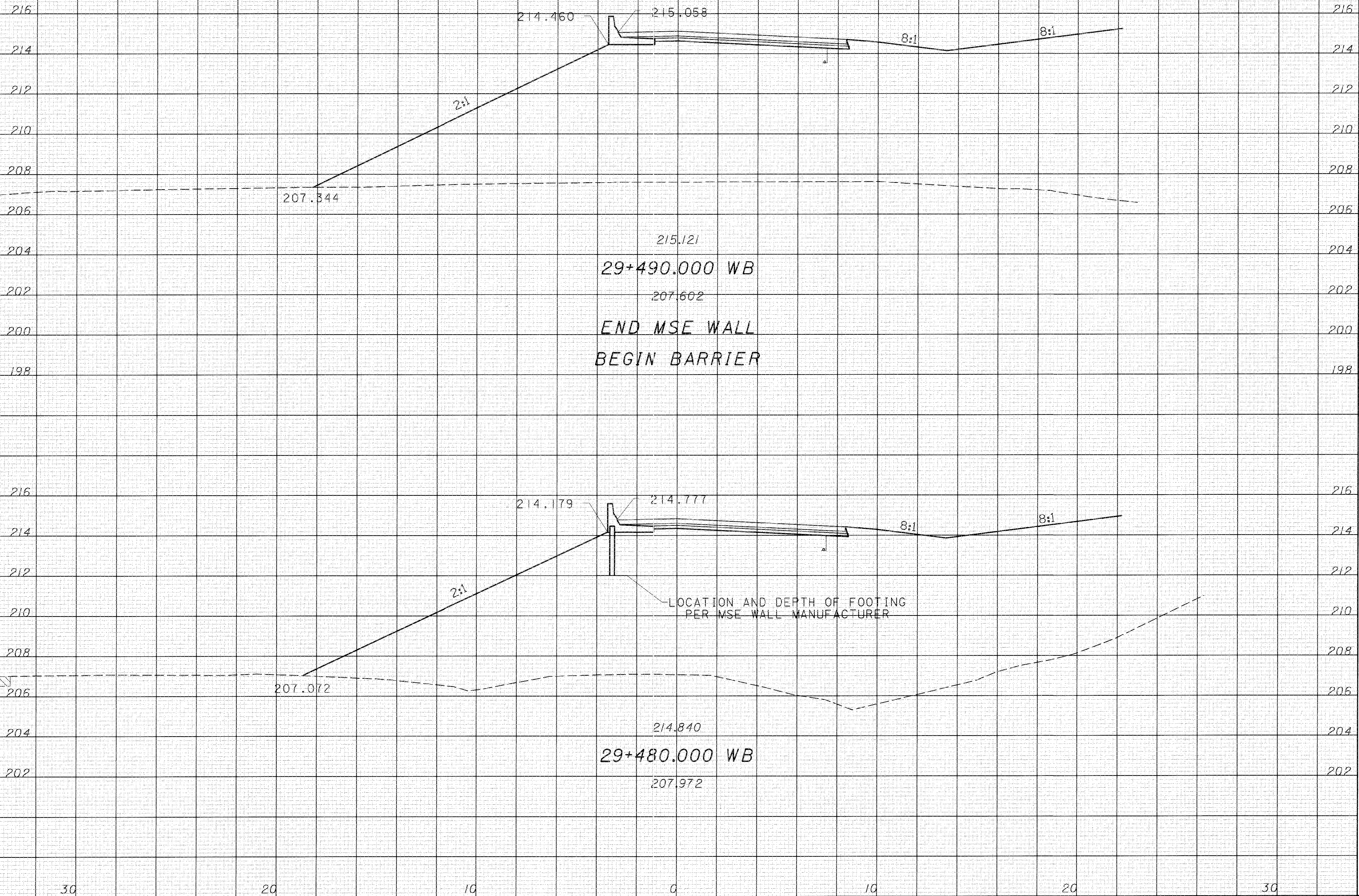
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SHEET TOTAL

SHEET TOTAL

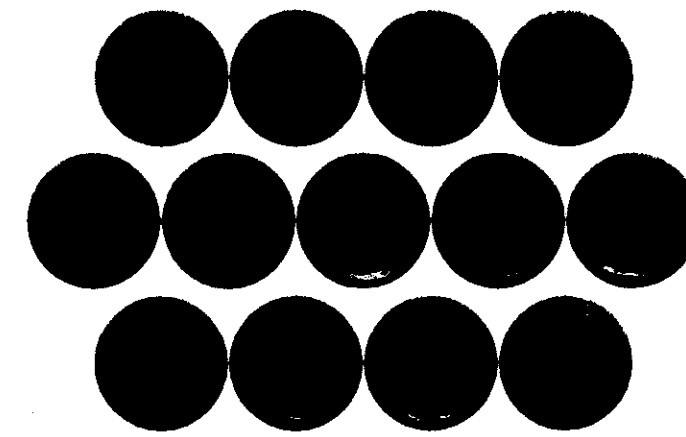
RETAINING WALL CROSS SECTIONS

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# The Reinforced Earth Company

8614 Westwood Center Drive Suite 1100, Vienna, Virginia 22182 (703) 821-1175

## GENERAL NOTES

### DESIGN CRITERIA

- DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE REINFORCED EARTH VOLUME, METHODS OF CONSTRUCTION AND QUALITY OF PREFABRICATED MATERIALS SHALL CONFORM TO THE CONTRACTING AGENCY'S TECHNICAL SPECIFICATIONS FOR REINFORCED EARTH WALLS. MSE WALL DESIGN AND FABRICATION SHALL COMPLY WITH SPECIAL PROVISIONS AS SUPPLIED BY ODOT (DATED 4-10-2000) AND MODIFIED BY M-E COMPANIES.
- SOILS CHARACTERISTICS ASSUMED FOR DESIGN:
  - SELECT GRANULAR BACKFILL  
 $\phi = 34$  degrees,  $c = 0$  KPa,  $\gamma = 20.43$  KN/m<sup>3</sup>
  - RANDOM BACKFILL  
 $\phi = 30$  degrees,  $c = 0$  KPa,  $\gamma = 20.43$  KN/m<sup>3</sup>
  - FOUNDATION MATERIAL  
 $\phi = 30$  degrees,  $c = 0$  KPa,
- THE MAXIMUM APPLIED BEARING PRESSURE AT THE FOUNDATION LEVEL IS AS SHOWN ON THE WALL ELEVATIONS FOR EACH DESIGN CASE. IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE THAT THIS APPLIED BEARING PRESSURE IS ALLOWABLE FOR THAT LOCATION.
- ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE REINFORCED EARTH VOLUME, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SUITABLE MATERIAL OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER.
- REINFORCING STRIPS SHALL BE 50mm WIDE AND 4mm THICK, AND SHALL CONFORM TO THE PHYSICAL AND MECHANICAL PROPERTIES OF ASTM A-572 GRADE 65. GALVANIZATION SHALL BE APPLIED IN ACCORDANCE WITH ASTM A-123 OR AASHTO M111 (610 g/m<sup>2</sup>).

### WALL CONSTRUCTION

- STATIONS SHOWN ARE ALONG WESTBOUND US 33 BASELINE.
- REINFORCED EARTH WALLS IN CURVES WILL FORM A SERIES OF SHORT CHORDS OF 1.50m EACH TO MATCH DESIRED WALL ALIGNMENT.
- FOR LOCATION AND ALIGNMENT OF REINFORCED EARTH WALLS. SEE PLAN VIEW, SHEET 2.
- IF MANHOLES AND DROP INLETS ARE PRESENT, THEY SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS.
- IF PILES ARE LOCATED WITHIN THE REINFORCED EARTH VOLUME, THEY SHALL BE DRIVEN PRIOR TO CONSTRUCTION OF THE REINFORCED EARTH WALL UNLESS A METHOD TO PROTECT THE STRUCTURE, WHICH IS ACCEPTABLE TO THE ENGINEER AND THE REINFORCED EARTH COMPANY, AND IS PROPOSED AND APPROVED IN WRITING.
- BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR REINFORCED EARTH WALLS TO A LEVEL OF 50mm(±) ABOVE THE TIE STRIPS EMBEDDED IN THE PANELS. INSTALLATION OF REINFORCING STRIPS SHALL BE PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.

### WALL CONSTRUCTION (CONT.)

- COMPACTION AND OPERATION EQUIPMENT SHALL BE KEPT A MINIMUM DISTANCE OF 1.0m FROM THE BACK FACE OF THE REINFORCED EARTH PANELS. COMPACTION WITHIN 1.0m OF THE REINFORCED EARTH PANELS SHALL BE ACHIEVED WITH AT LEAST THREE (3) PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM. NO COMPACTION DENSITY TESTS SHALL BE TAKEN WITHIN THE 1.0m. ZONE.
- IF STRUCTURES IN EXCESS OF 6.0m IN HEIGHT OCCUR, THE FINISHED GRADE IN FRONT OF THE WALL SHALL BE PLACED AND COMPACTED BEFORE WALL CONSTRUCTION EXCEEDS A HEIGHT OF 6.0m. FINISHED GRADE BACKFILL SHALL BE COMPACTED TO 95% OF ASTM D-698, METHODS 'C' OR 'D', UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ANY GUARDRAIL POSTS BEHIND THE REINFORCED EARTH PANELS. PRIOR TO PLACEMENT OF THE TOP LAYER OF REINFORCING STRIPS, INDIVIDUAL STRIPS MAY BE SKEWED TO AVOID THE POST LOCATIONS IF AUTHORIZED BY THE REINFORCED EARTH COMPANY. ANY DAMAGE DONE TO THE REINFORCING STRIPS DUE TO THE INSTALLATION OF THE GUARDRAIL SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- IF EXISTING OR FUTURE STRUCTURES, PIPES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN THE REINFORCED EARTH VOLUME INTERFERE WITH THE NORMAL PLACEMENT OF REINFORCING STRIPS AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE REINFORCED EARTH COMPANY TO DETERMINE WHAT COURSE OF ACTION SHOULD BE TAKEN.
- ALL DETAILING AND CHECKING OF REINFORCING STEEL FOR ANY C.I.P. CONCRETE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR.
- TOP PANELS BENEATH CAST-IN-PLACE COPING SHALL HAVE 3 DOWELS PROTRUDING FROM THEIR TOP EDGE.
- FOR OTHER INFORMATION PERTAINING TO WALL CONSTRUCTION PLEASE REFER TO THE REINFORCED EARTH CONSTRUCTION MANUAL.
- THE CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER REINFORCING STRIPS DOWNWARD TO AVOID CONFLICTS WITH PAVING AND SUBGRADE PREPARATION. THE CONTRACTOR'S ATTENTION IS DIRECTED ESPECIALLY TO SITUATIONS WHERE ROADWAY SUPERELEVATION AND/OR SOIL MIXING ARE ANTICIPATED.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING STORM WATER DRAINAGE IN THE VICINITY OF THE WALL DURING CONSTRUCTION. STORM WATER RUNOFF IS TO BE COLLECTED AND DISCHARGED AWAY FROM THE WALL AND REINFORCED BACKFILL.

### MATERIALS NOTES

- NOMINAL STRIP LENGTHS  
 THE REINFORCING STRIP LENGTHS SHOWN ON THE PLANS, MEASURED FROM BACK FACE OF PANEL, ARE THE NOMINAL LENGTHS REQUIRED BY CALCULATION. THE ACTUAL FABRICATED STRIP LENGTHS ARE OFTEN LONGER (UP TO 15 cm) DUE TO MANUFACTURING TOLERANCES. THE REQUIRED HORIZONTAL LIMIT OF GRANULAR BACKFILL IS EQUAL TO THE NOMINAL STRIP LENGTH. ADDITIONAL GRANULAR BACKFILL BEYOND THE NOMINAL STRIP LENGTH IS NOT REQUIRED BY CALCULATION.

### MATERIALS NOTES (CONT.)

- PANEL FINISH  
 THE PRECAST PANELS FOR THIS PROJECT SHALL HAVE A PLAIN STEEL FORM FINISH UNLESS OTHERWISE SPECIFIED.
- NOTE TO CONTRACTORS  
 ONLY THE FOLLOWING MATERIALS ARE SUPPLIED BY THE REINFORCED EARTH COMPANY:
  - PRECAST CONCRETE FACING PANELS
  - REINFORCING STRIPS
  - BOLT SETS (FOR ATTACHING PANELS TO THE REINFORCING STRIPS)
  - BEARING BLOCKS
  - RUBBER SHIMS
  - FILTER CLOTH AND ADHESIVE (FOR PANEL JOINTS ONLY)
- THE REINFORCED EARTH COMPANY SUPPLIES PRECAST CONCRETE FACING PANELS AND ACCESSORIES TO BE USED IN CONJUNCTION WITH OTHER MATERIALS IN THE CONSTRUCTION OF THE REINFORCED EARTH® RETAINING WALLS DETAILED HEREIN. THE CONSTRUCTION AND QUALITY CONTROL PROCEDURES MANUAL FURNISHED BY THE REINFORCED EARTH COMPANY IS INTENDED TO PROVIDE A GENERAL EXPLANATION OF THE SYSTEM. IT IS THE CONTRACTOR'S OBLIGATION TO DEVISE AND EXECUTE A PROJECT SPECIFIC ERECTION SEQUENCE, PANEL UNLOADING, HANDLING AND BRACING SYSTEM, AND FALL PROTECTION SYSTEM. THE BRACING SYSTEM SHOWN IN THE CONSTRUCTION AND QUALITY CONTROL PROCEDURES MANUAL IS GENERAL IN NATURE AND DOES NOT ACCOUNT FOR PROJECT SPECIFIC CRITERIA. COMPLIANCE WITH THE GUIDELINES IN THIS MANUAL DOES NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITY TO ADHERE TO THE PROJECT PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS OR COMPLIANCE WITH ALL FALL PROTECTION, SAFETY, LAWS, STANDARDS AND PROCEDURES AT THE JOBSITE. CONTRACTORS SHOULD TAKE SPECIAL PRECAUTIONS TO PREVENT THE PANELS FROM SHIFTING OR FALLING DURING THE ERECTION PROCESS.

INDEX	
SHEET NO.	CONTENTS
1	COVER SHEET -- GENERAL NOTES
2	PLAN VIEW
3	MSE WALL ELEVATION
4	MSE WALL ELEVATION
5	MISCELLANEOUS DETAILS
6	MISCELLANEOUS INLET DETAILS
7	STANDARD PANEL DETAILS



*Alexander Abraham*

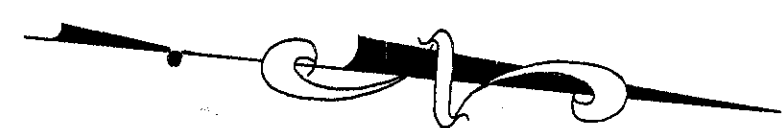
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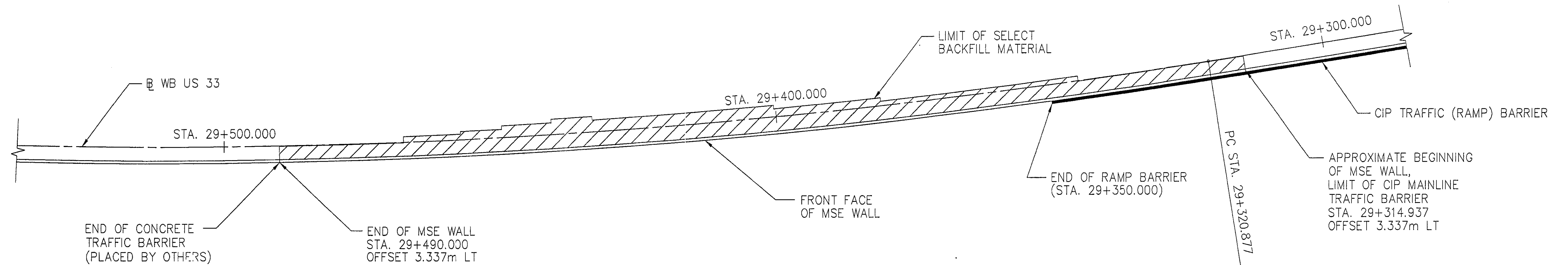
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GENERAL NOTES	REINFORCED EARTH WALL	RAMP B MSE WALL	ATH - 33 - 30.981	STRUCTURE FILE NO.					

1 / 7  
 882  
 956



CURVE DATA, US 33 MAINLINE WB

P.I. STA. 29+419.534  
 $\Delta = 9^\circ 24' 00''$   
 $R = 1200.00\text{m}$   
 $T = 98.657\text{m}$   
 $L = 196.870\text{m}$   
 $E = 4.049\text{m}$   
 $e_{\text{max}} = 0.049$



SELECT BACKFILL AREA

**PLAN VIEW**  
 SCALE 1:400

*Alexander Abraham*

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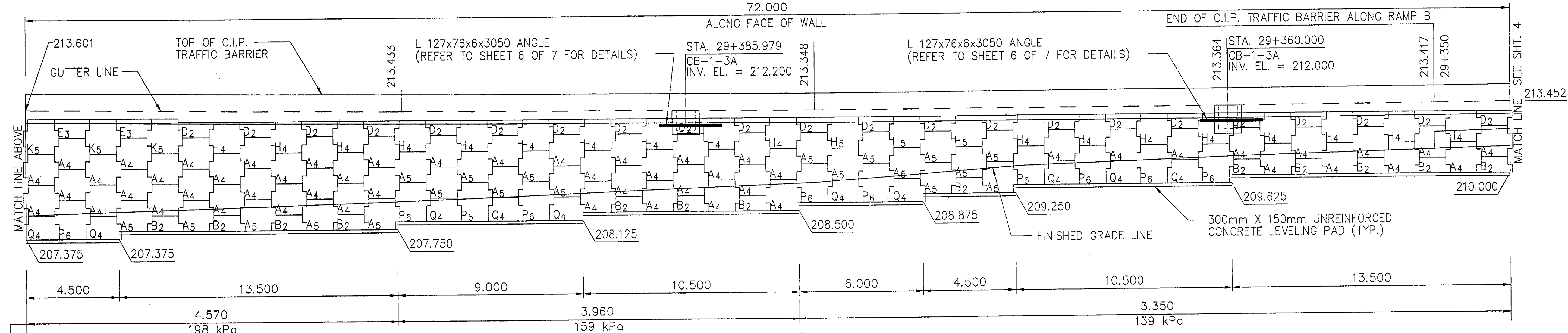
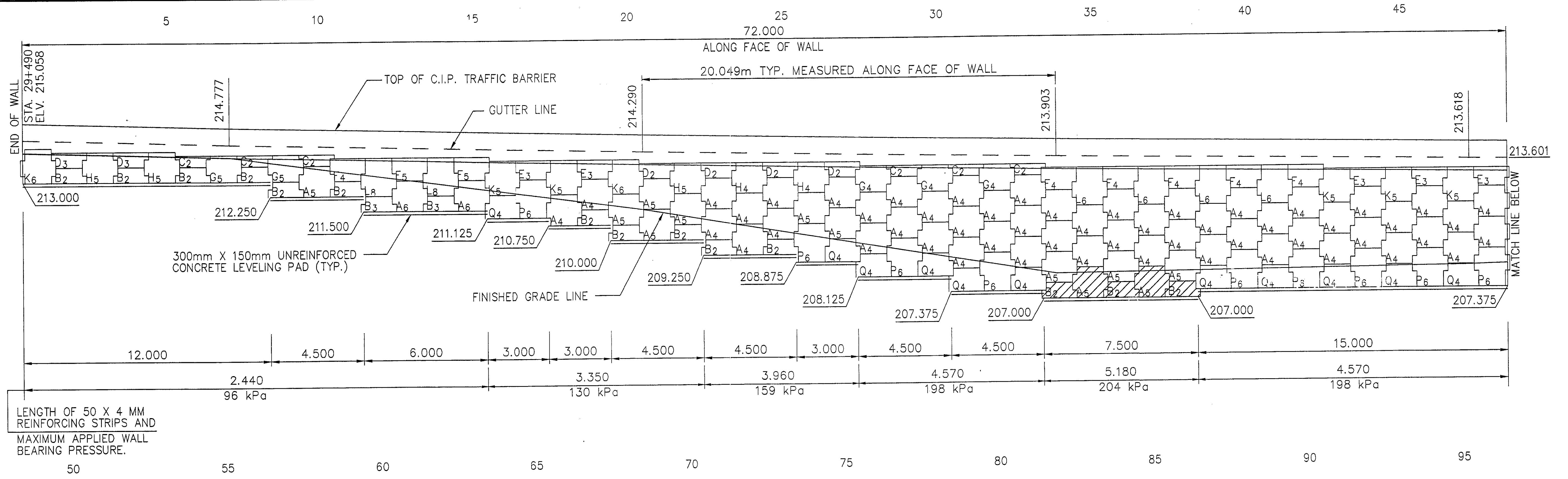
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REVIEWED	LT	STRUCTURE FILE NO.	
DATE	1/30/2001		

M.S.E. WALL PLAN VIEW  
 REINFORCED EARTH WALL  
 RAMP B. MSE WALL  
 ATH - 33 - 30.981





**KEY**

- PANEL DESIGNATION
- NUMBER OF REINFORCING STRIPS
- R4 REINFORCEMENT
- R6 REINFORCEMENT

**ELEVATION - FRONT FACE**  
SCALE = 1 : 100



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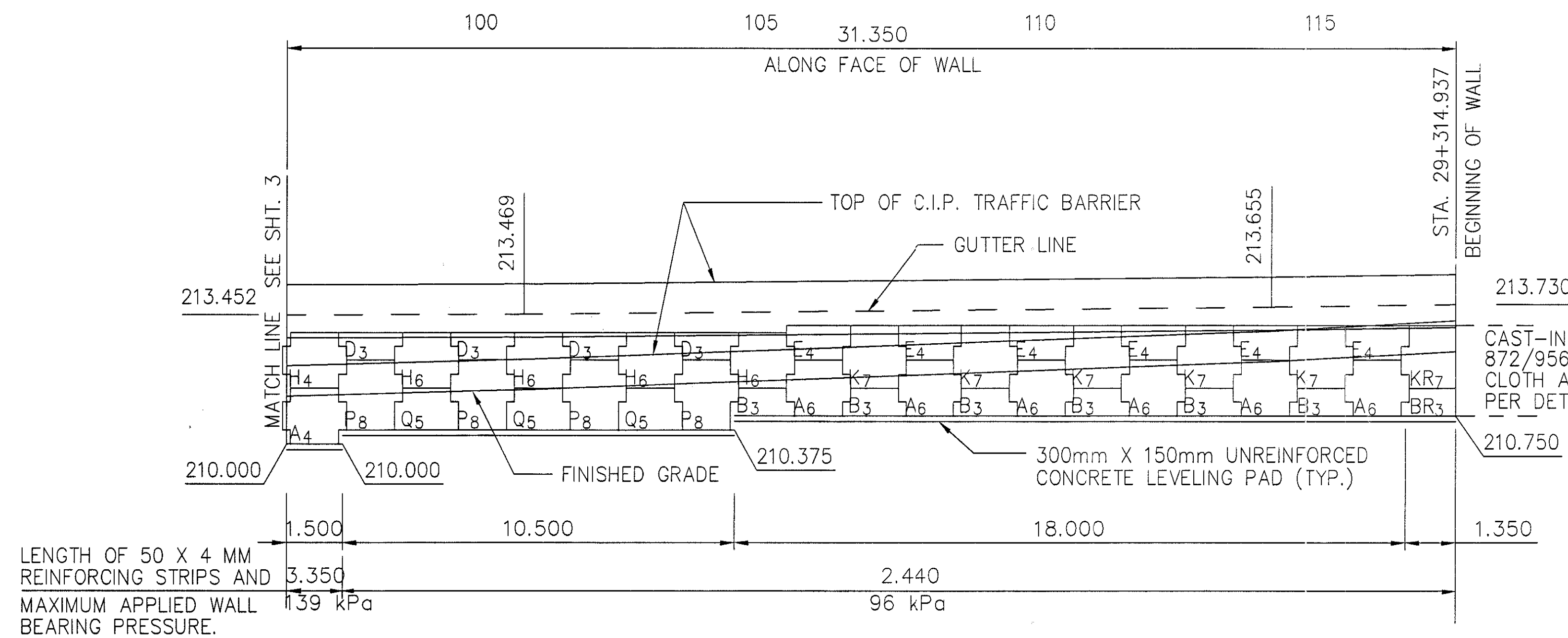
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DRAWN: RMA/HPKA  
CHECKED: RMA/HPKA  
REVIEWED: RMA/HPKA  
DATE: 1/30/2001  
STRUCTURE FILE NO.:

**MSE WALL ELEVATION**  
**REINFORCED EARTH WALL**  
RAMP B MSE WALL  
ATH - 33 - 30.981

3 / 7

882B  
956

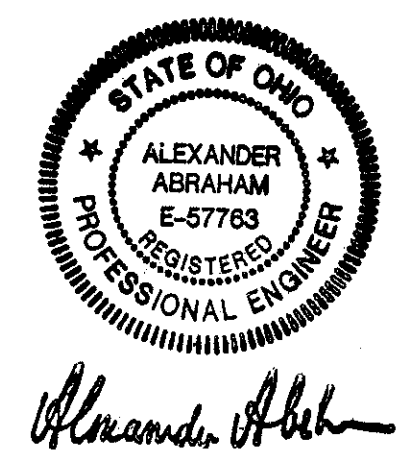
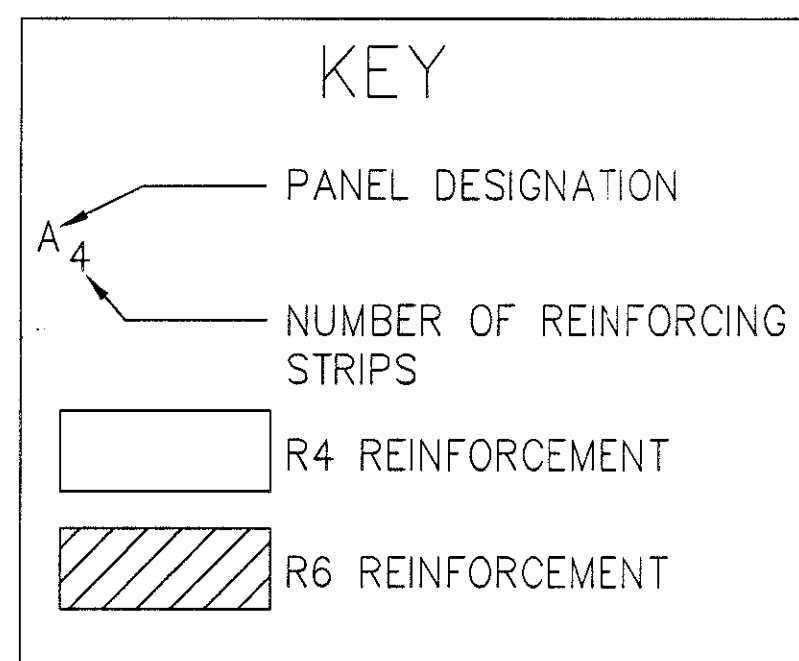
RE-8621



CAST-IN-PLACE WALL, SEE SHEET 872/956 FOR DETAILS. PLACE FILTER CLOTH ACROSS JOINT ON REAR FACE PER DETAIL ON SHEET 882F/956.

### ELEVATION - FRONT FACE

SCALE = 1 : 100



*Alexander Abraham*

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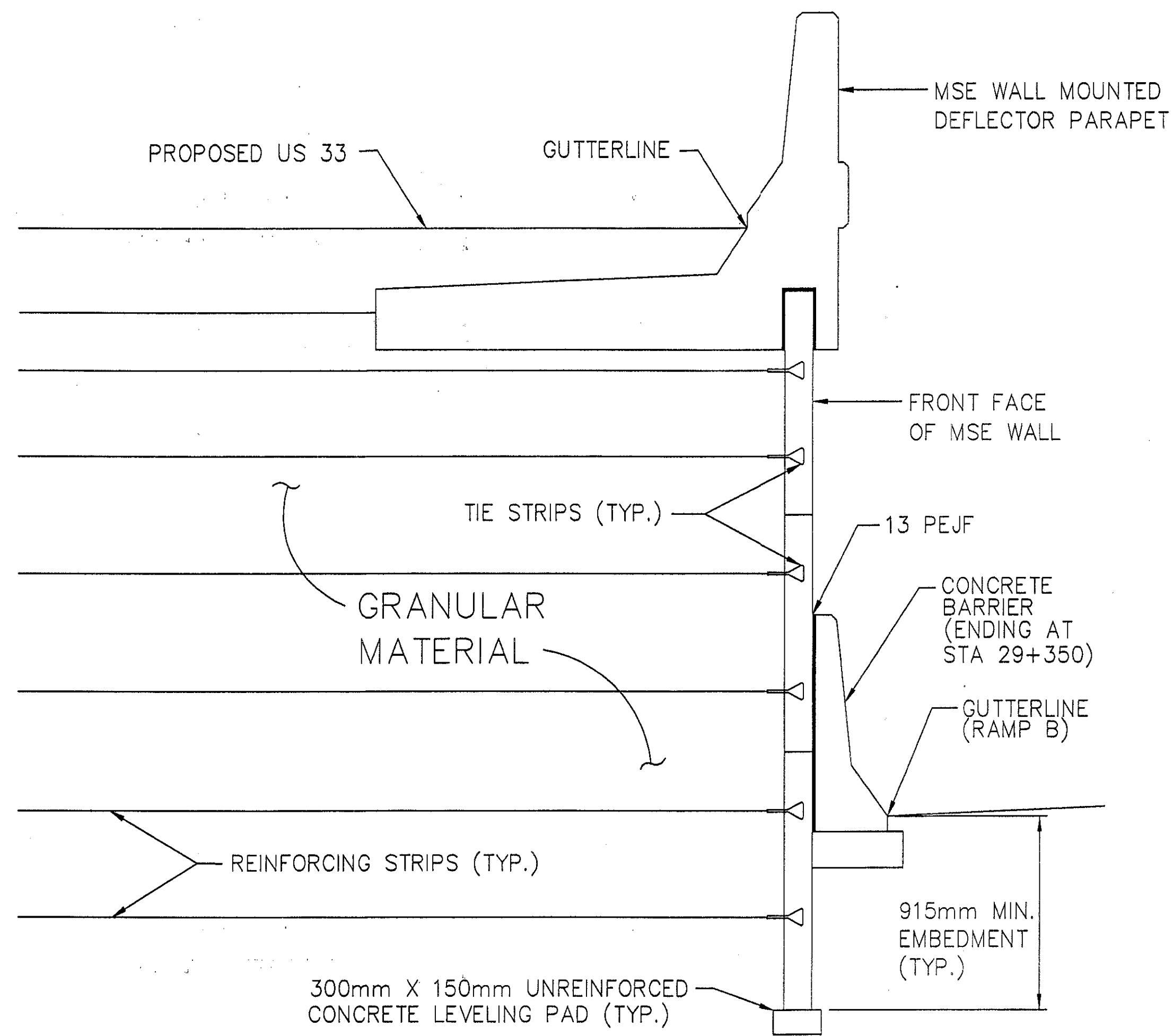
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DRAWN	RMA/HPKA	REVISSED	
REVIEWED	Y-T	STRUCTURE FILE NO.	
DATE	1/30/2001		

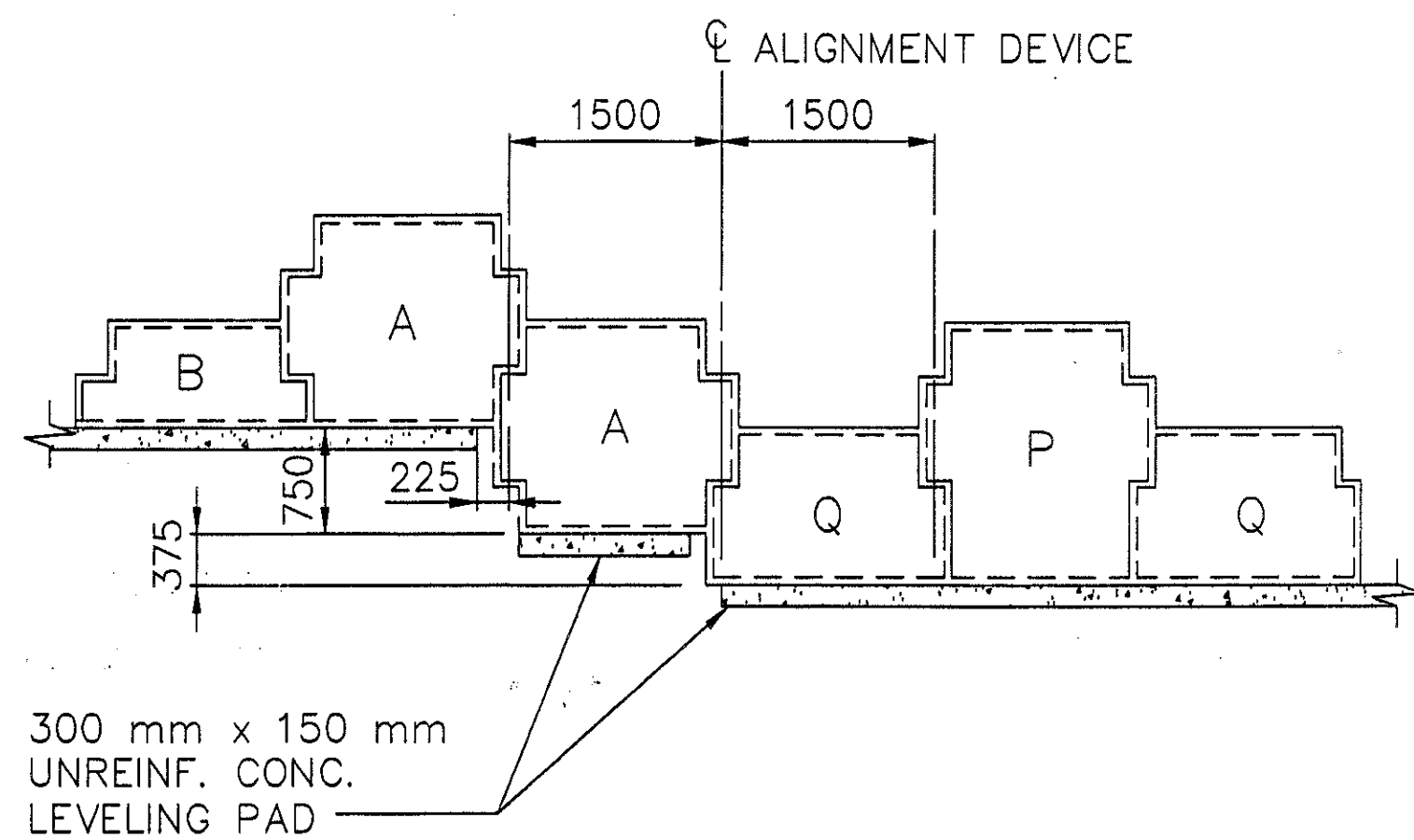
MSE WALL ELEVATION  
 REINFORCED EARTH WALL  
 RAMP B MSE WALL  
 ATH - 33 - 30.981



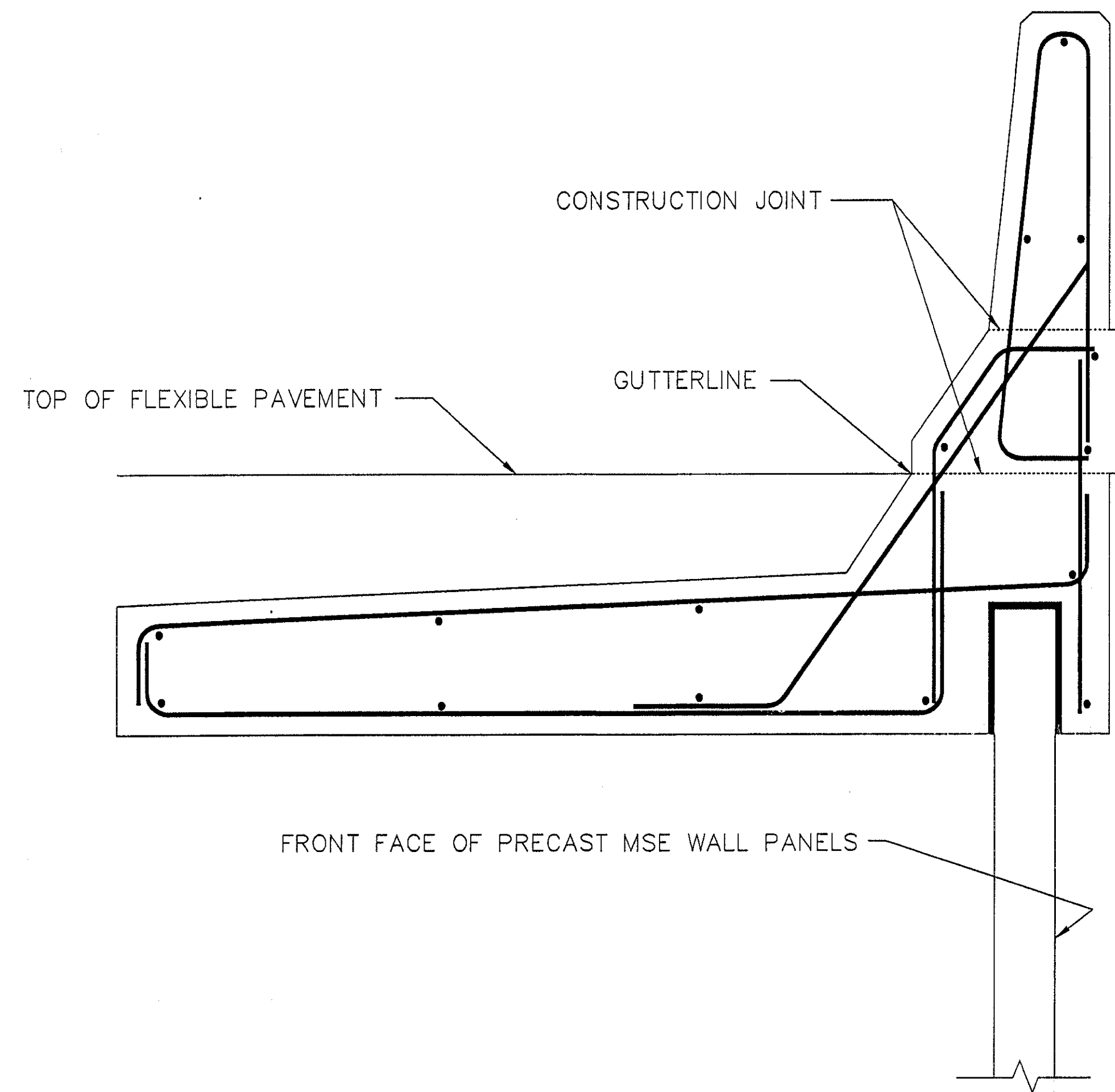




**TYPICAL SECTION**  
SCALE: NO SCALE



**TYPICAL LEVELING PAD STEP DETAIL**  
SCALE 1:50



**MSE WALL MOUNTED DEFLECTOR PARAPET**  
SCALE 1:100

**NOTE:**

ALL REINFORCING STEEL TO BE EPOXY COATED.

REFER TO CONSTRUCTION PLANS FOR PARAPET DIMENSIONS, REINFORCEMENT TYPE AND QUANTITIES.



*Alexander Abraham*

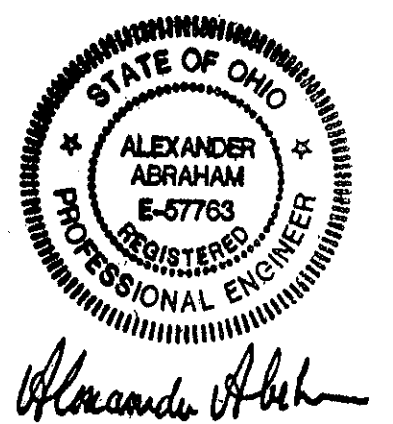
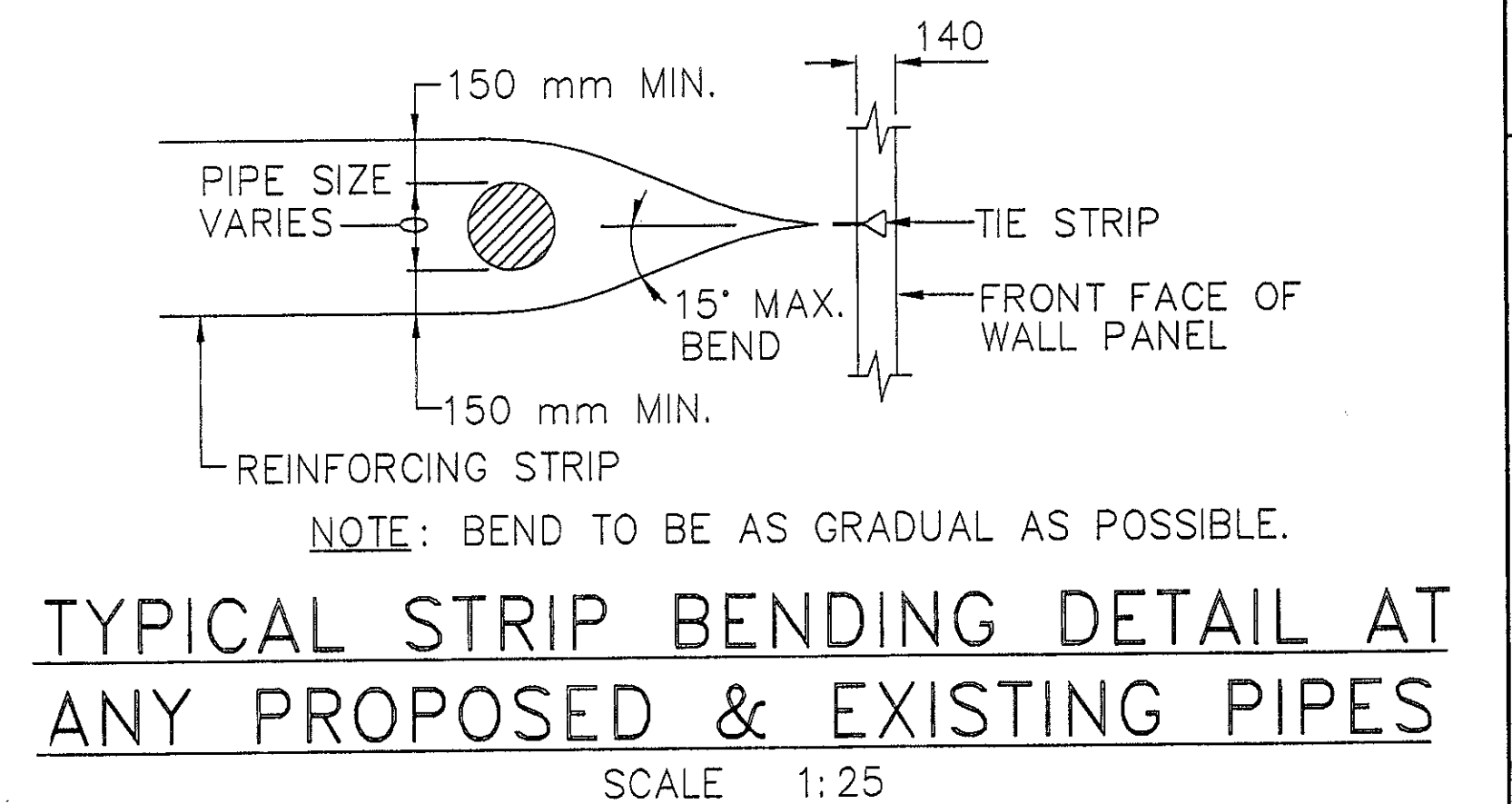
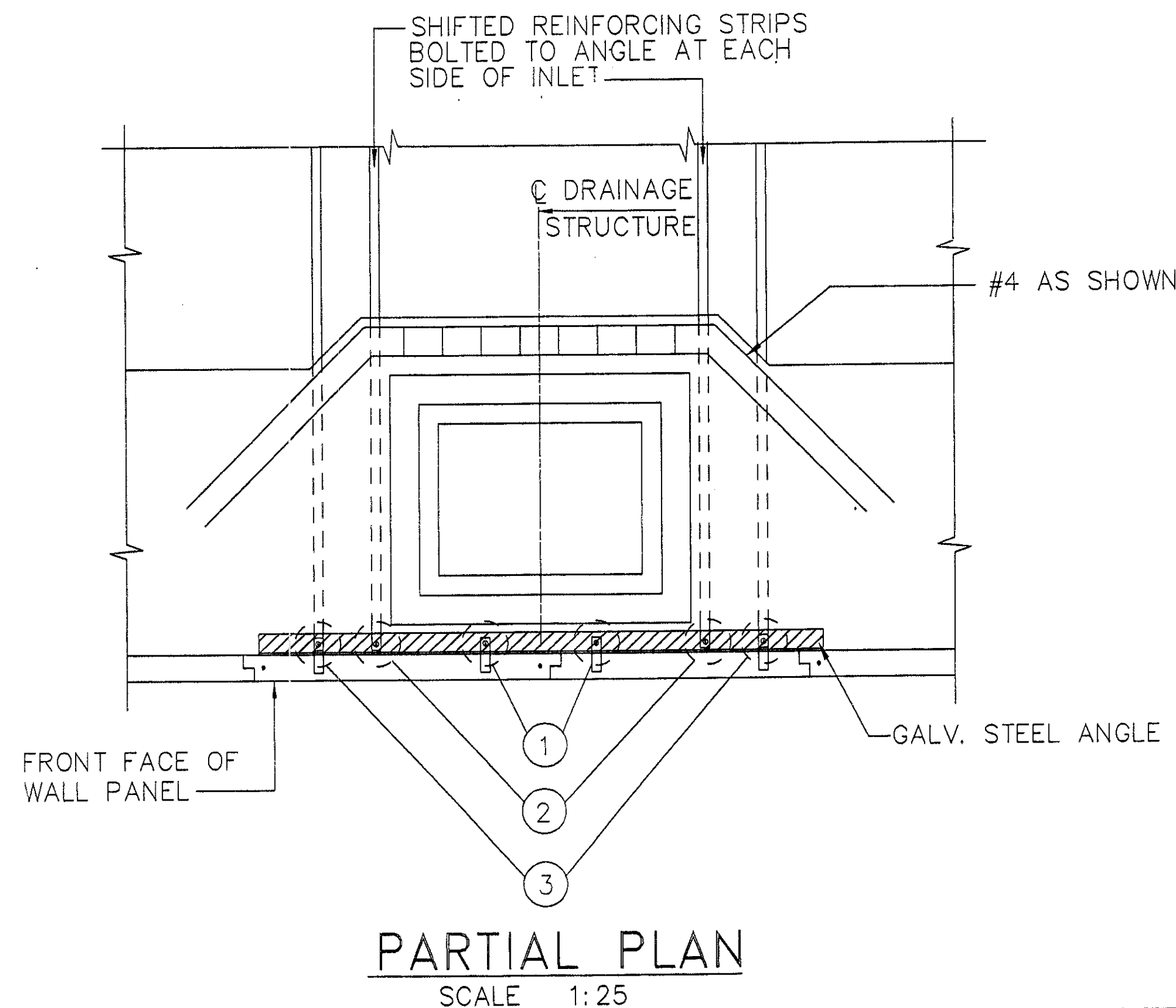
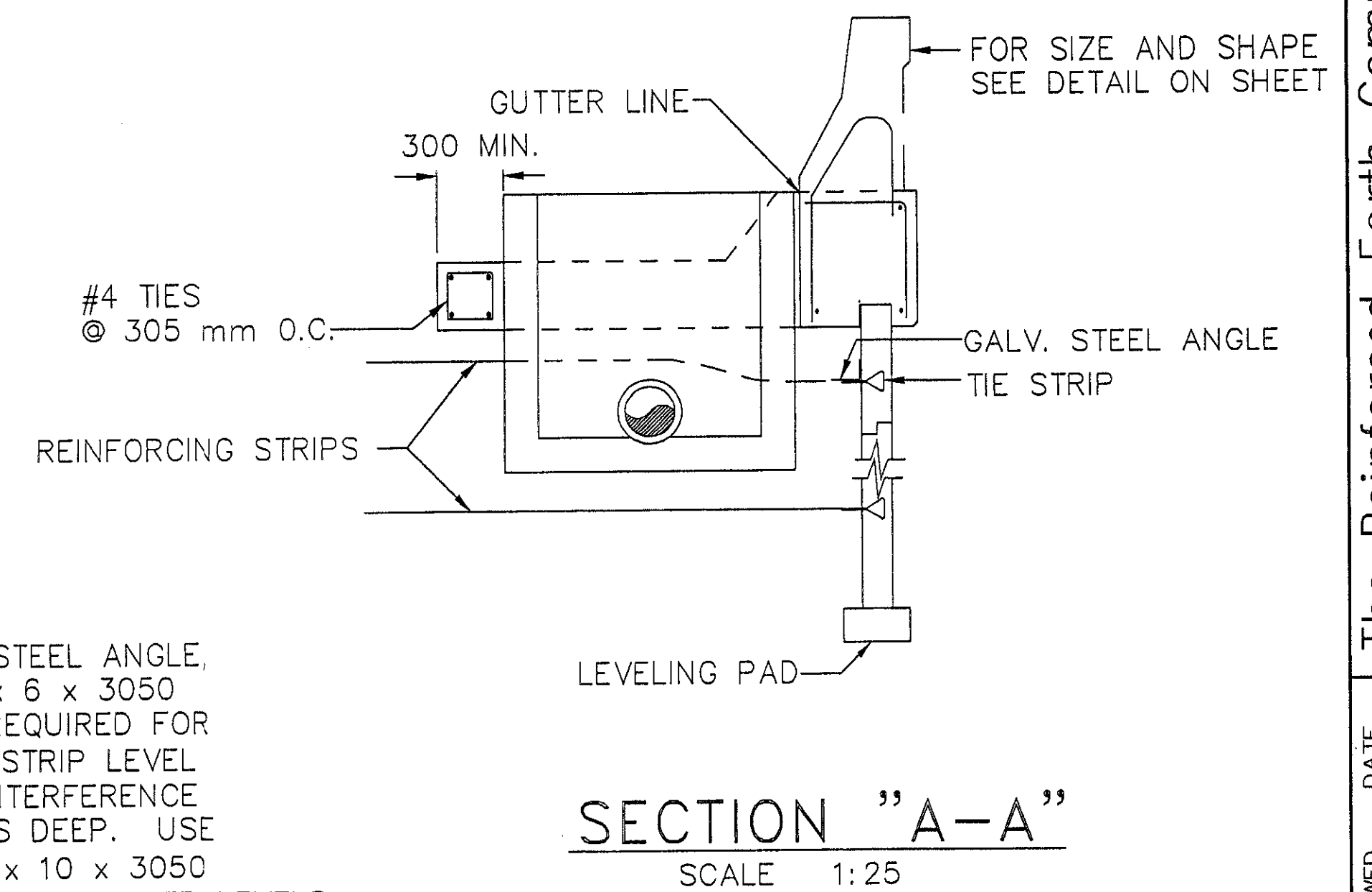
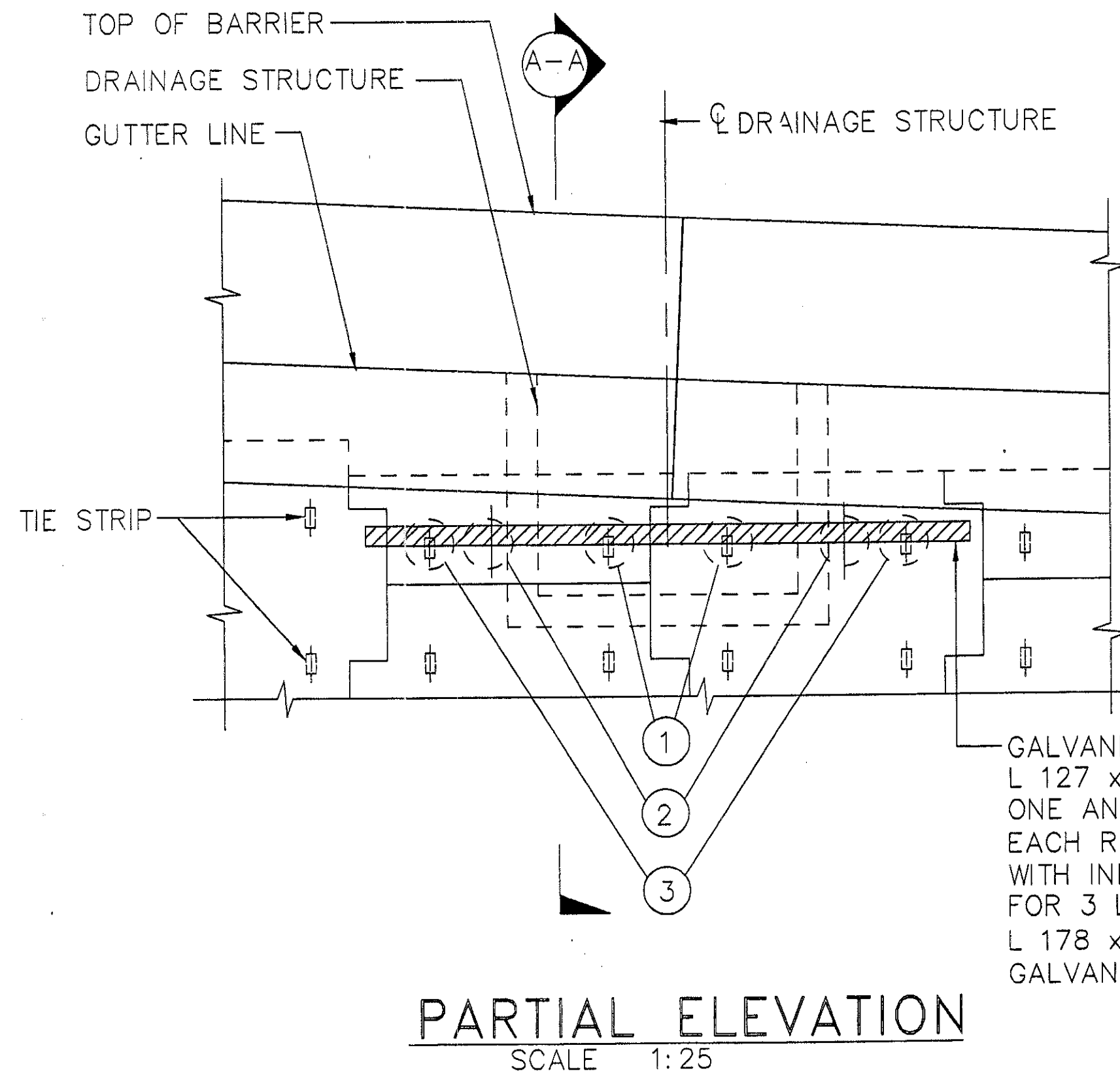
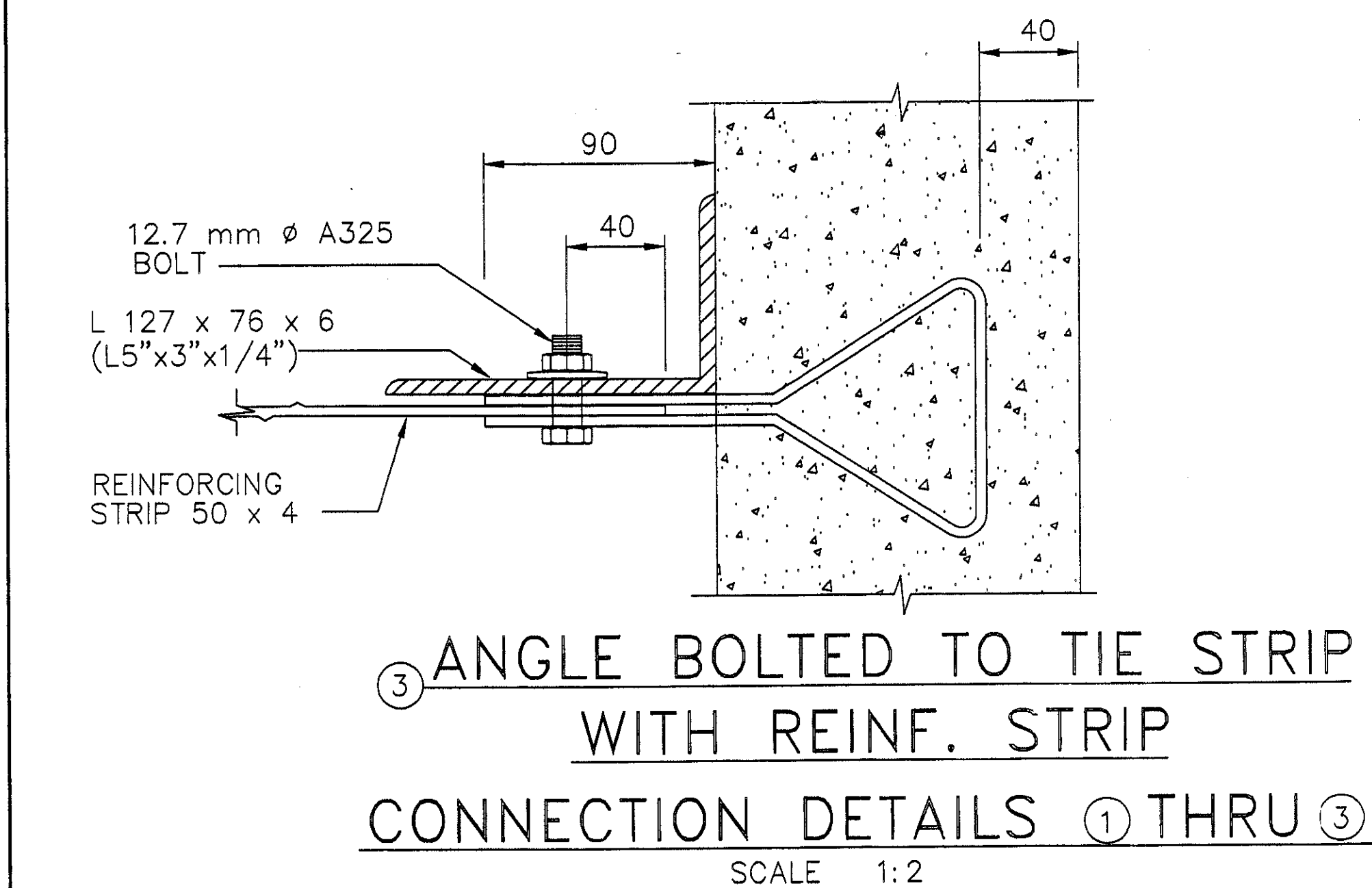
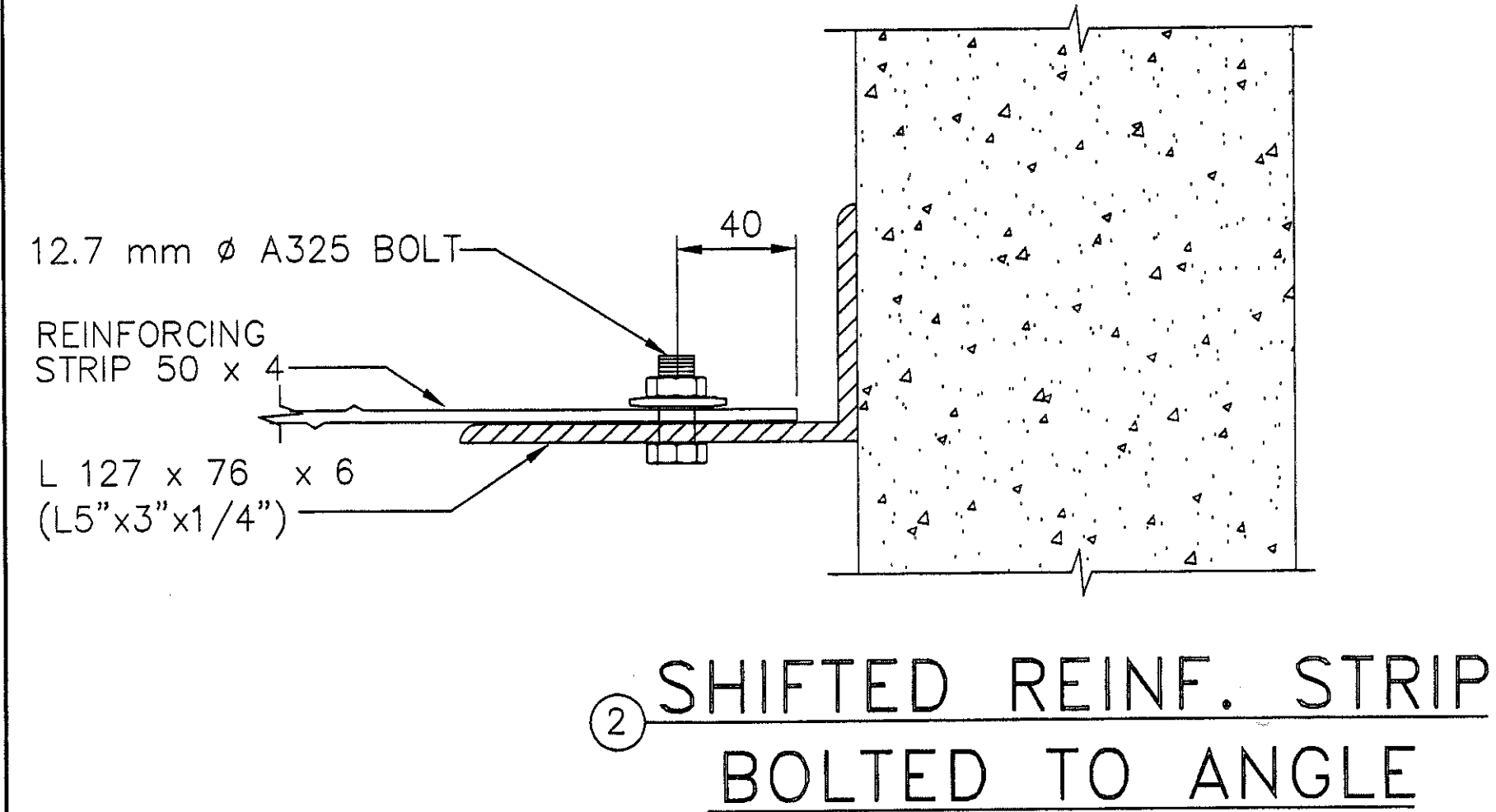
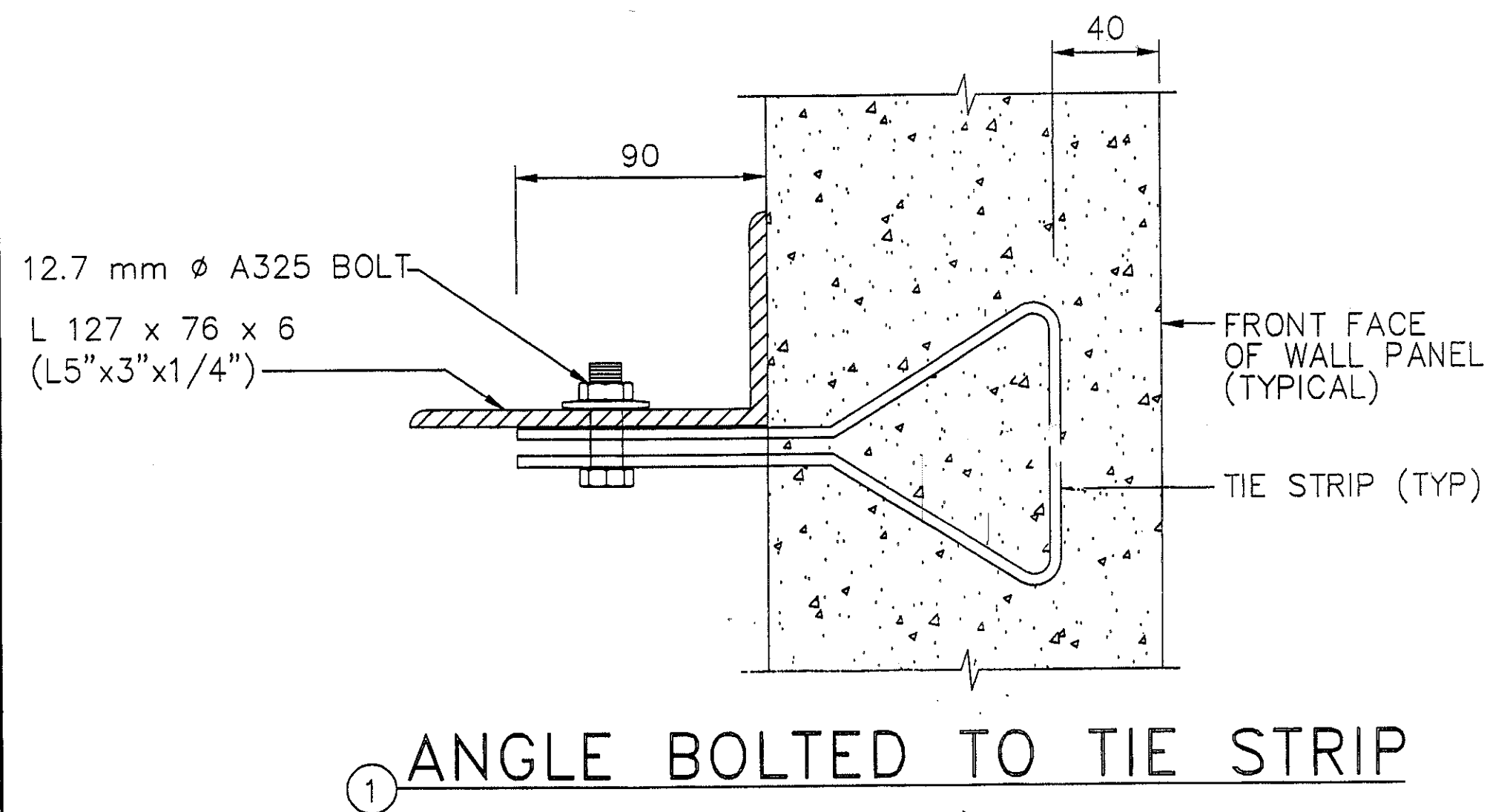
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			1/30/2001	
CHECKED KT	REVISER			

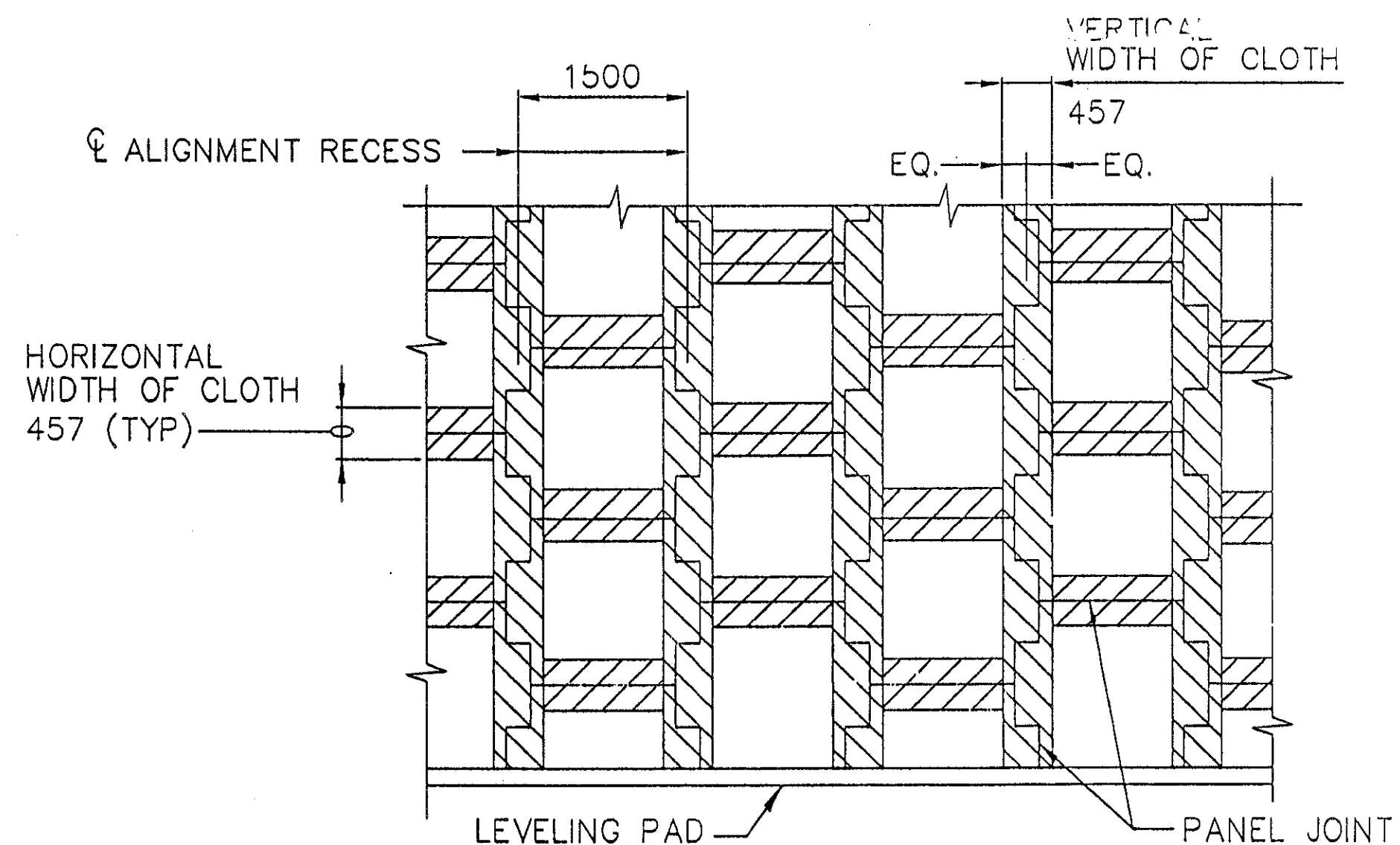
MISCELLANEOUS DETAILS  
REINFORCED EARTH WALL  
RAMP B MSE WALL  
ATH - 33 - 30.981





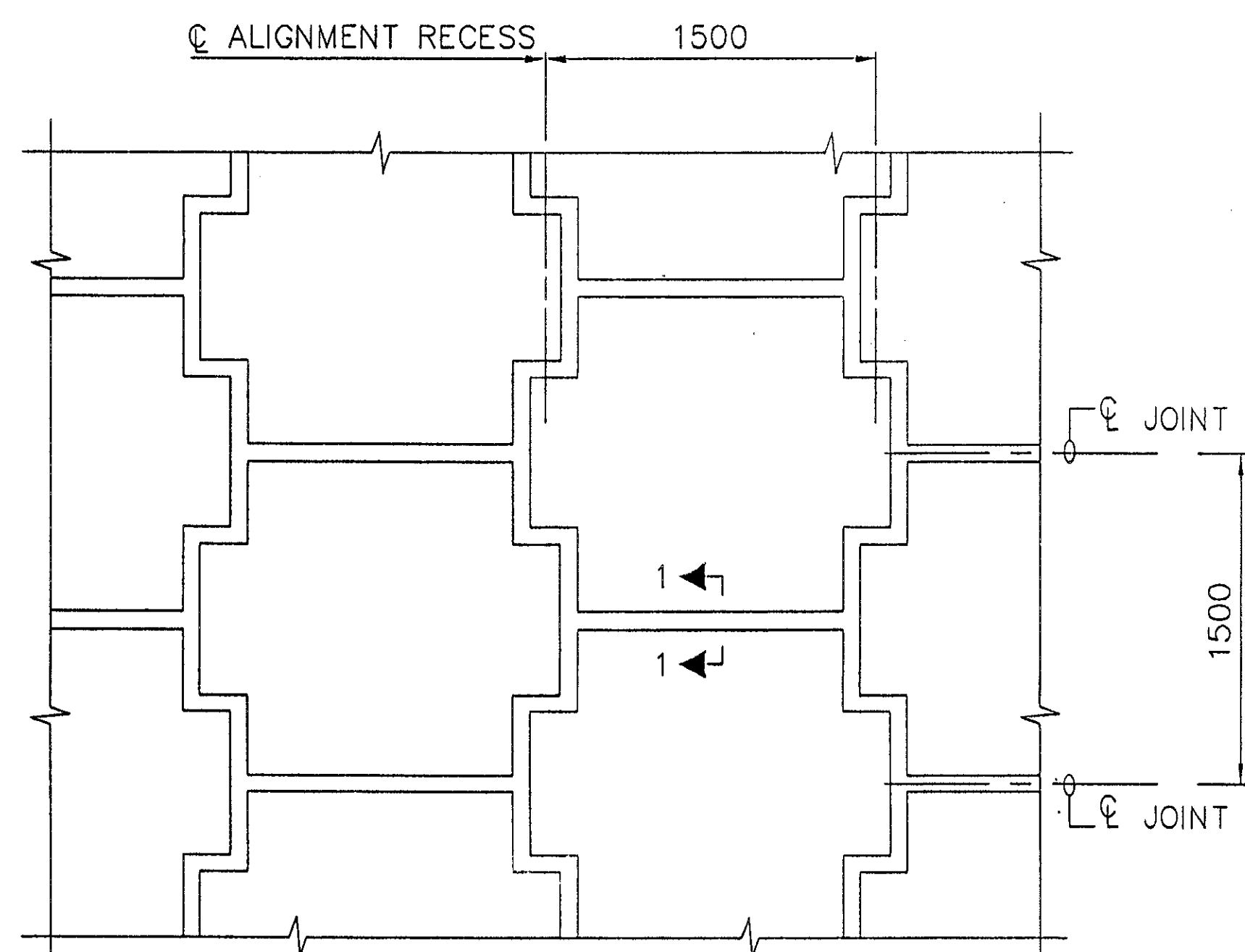
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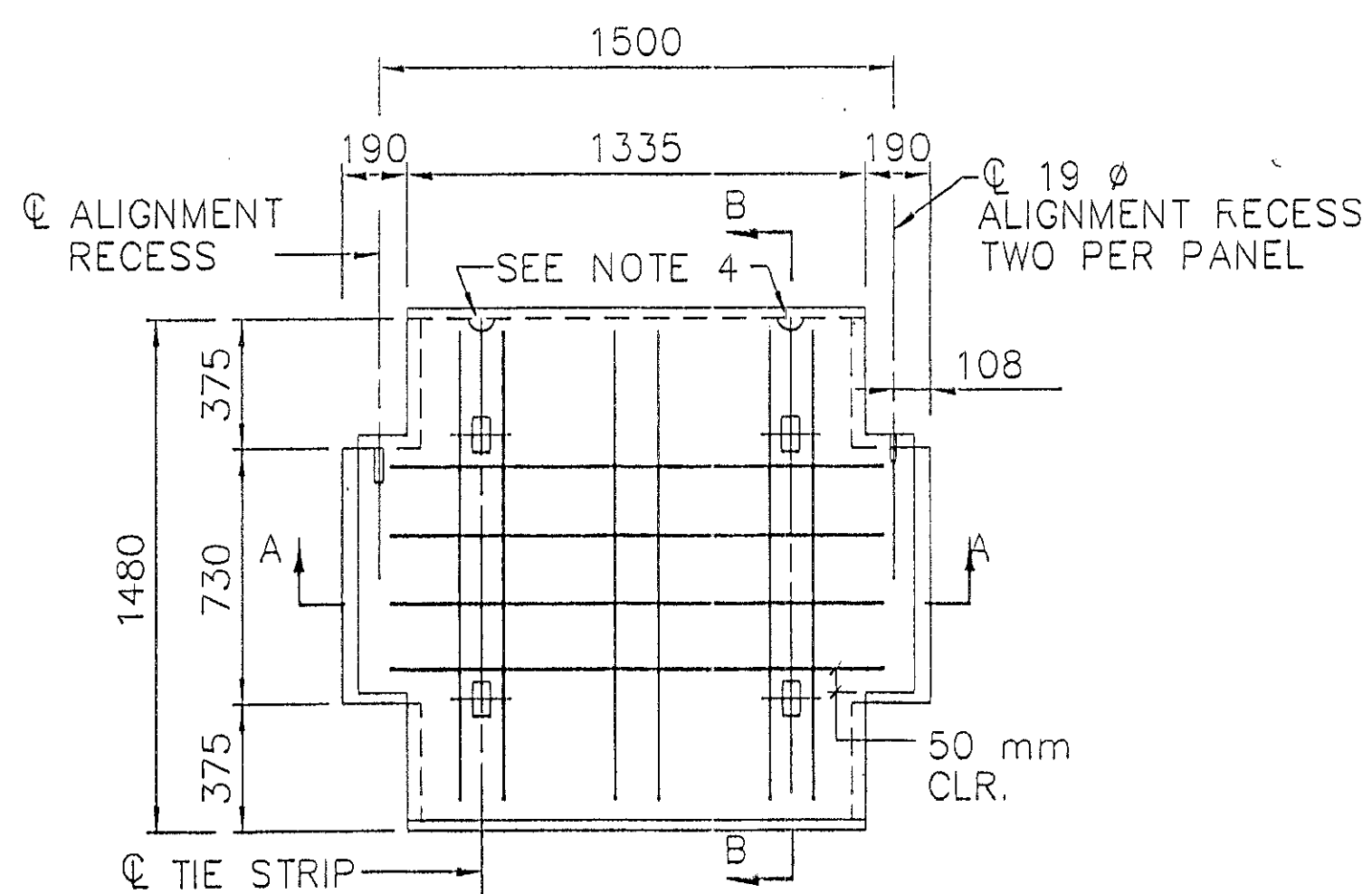


**NOTE:**  
STRIPS OF FILTER CLOTH SHALL BE PLACED ON BACK FACE OF PANEL, OVER PANEL JOINTS. FILTER CLOTH SHALL BE ADHERED TO BACK FACE OF PANELS USING AN ADHESIVE COMPOUND SUPPLIED BY THE REINFORCED EARTH COMPANY.

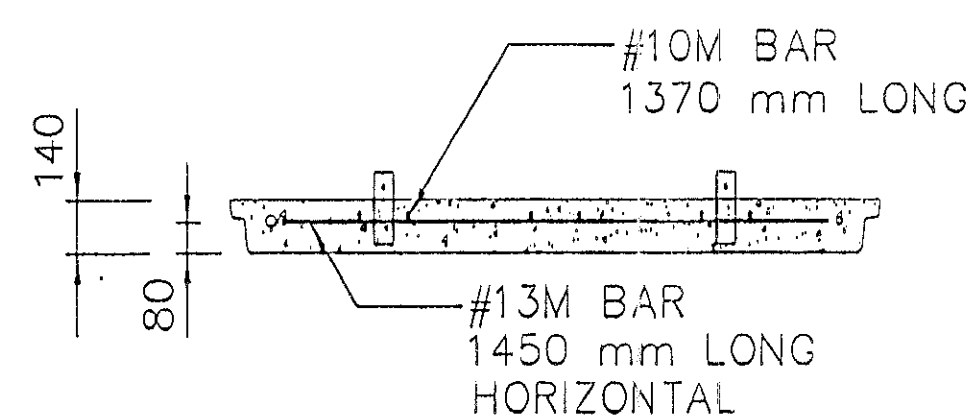
**FILTER CLOTH DETAIL  
PARTIAL ELEVATION - BACK FACE**  
SCALE 1:50



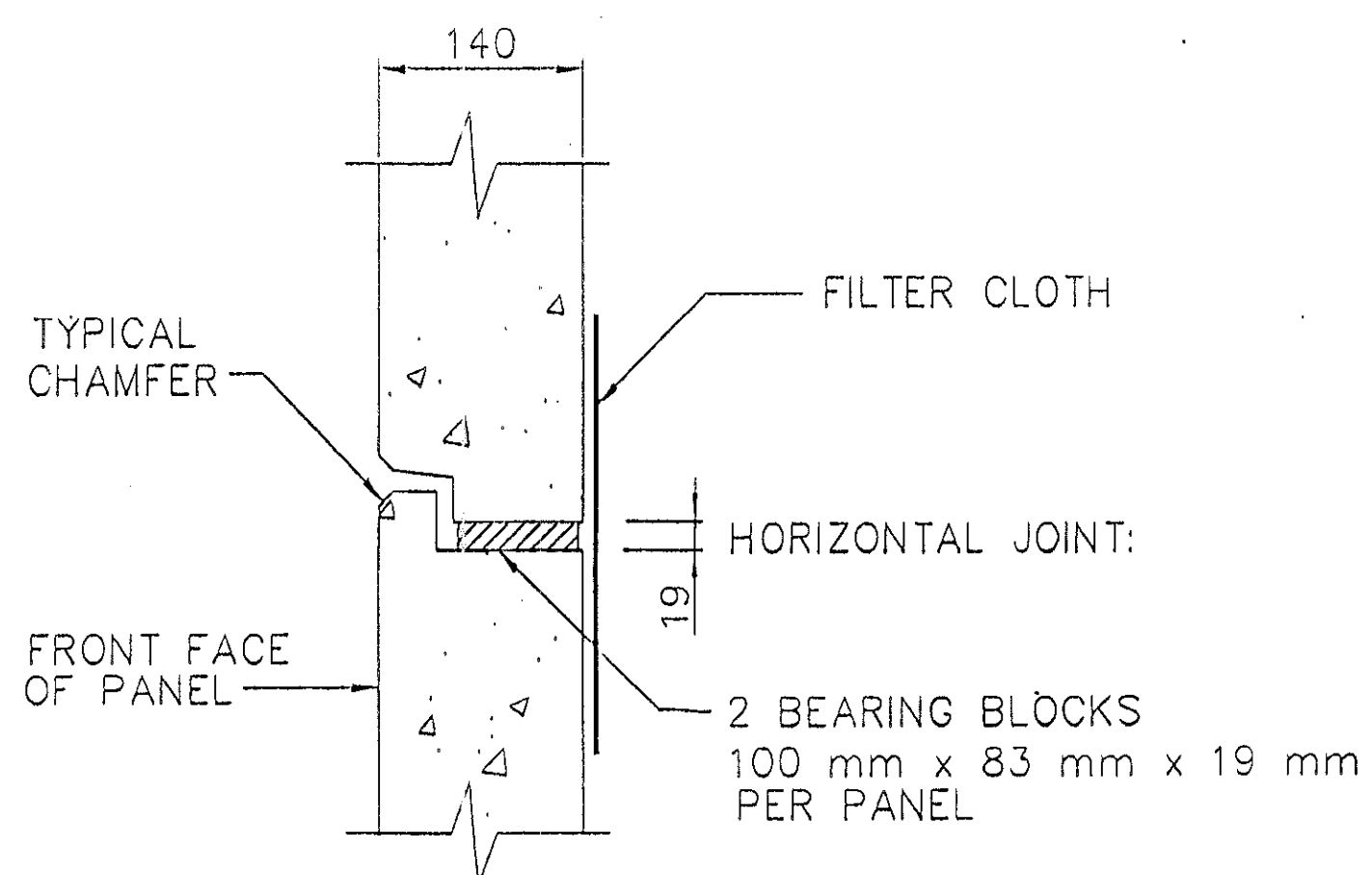
**TYPICAL PANEL LAYOUT  
PARTIAL ELEVATION - FRONT FACE**  
SCALE 1:25



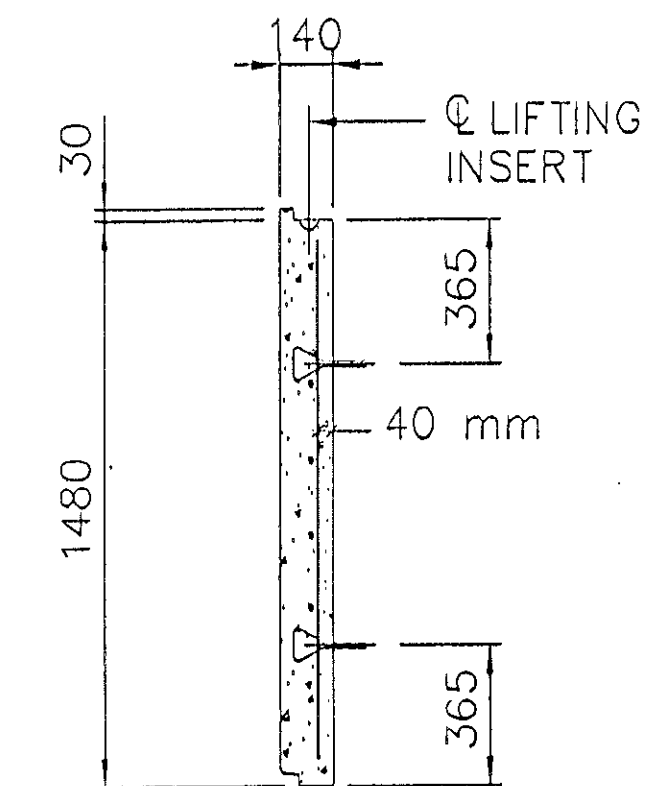
**PANEL TYPE "A"  
WITH R6 REINFORCEMENT  
FRONT VIEW**  
SCALE 1:20



**SECTION A-A**  
SCALE 1:20



**SECTION 1-1**  
SCALE 1:5



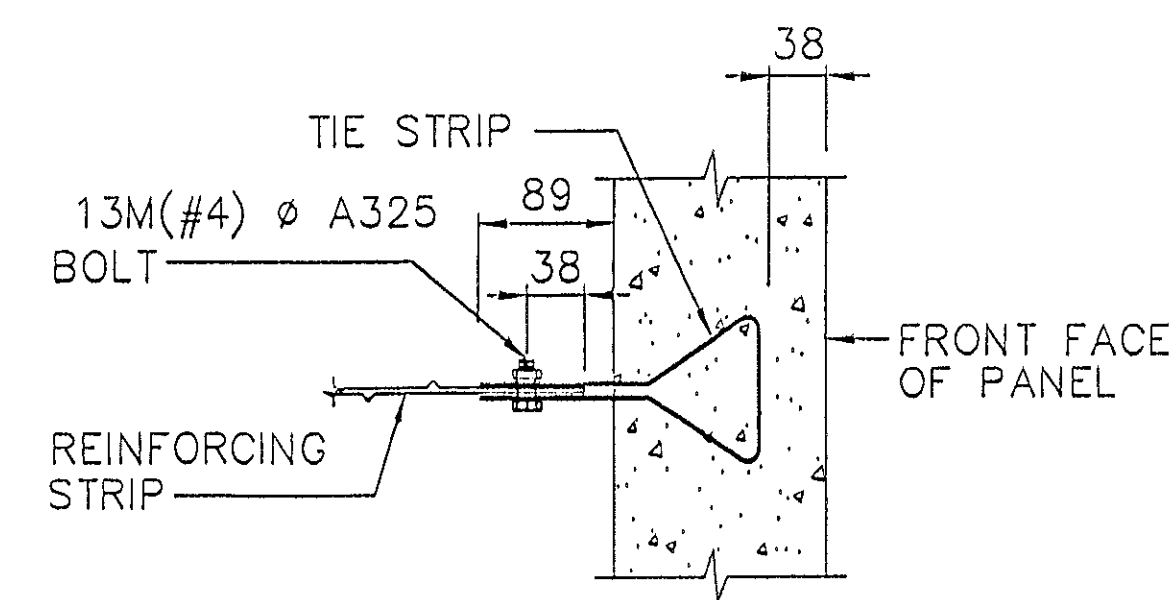
**SECTION B-B**  
SCALE 1:20

PANEL THICKNESS	REINFORCEMENT DESIGNATION	PANEL REINFORCEMENT	MAXIMUM ALLOWABLE HORIZONTAL STRESS AT FACING (KPa)
140	R4	4-10M(#3) $\phi$ VERT. 3-13M(#4) $\phi$ HORIZ.	52.6
	R5	6-10M(#3) $\phi$ VERT. 4-13M(#4) $\phi$ HORIZ.	52.6
	R6	6-10M(#3) $\phi$ VERT. 4-13M(#4) $\phi$ HORIZ.	76.60
	R7	6-13M(#4) $\phi$ VERT. 4-19M(#6) $\phi$ HORIZ.	122.10

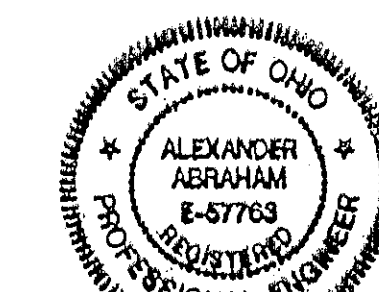
**NOTES:**

1. REINFORCING STEEL TO BE A615 GRADE 410.
2. 10 mm x 10 mm CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES (FRONT FACE ONLY).
3. ALL PANEL TYPES AND OTHER RELATED ELEMENTS WILL BE DETAILED ON SHOP DRAWINGS.
4. ALL PANELS SHALL HAVE TWO LIFTING INSERTS OF ONE TON CAPACITY EACH.
5. PANEL DESIGN THICKNESS IS 140 mm. THICKNESS OF CONCRETE MUST INCREASE TO ACCOMMODATE ANY ARCHITECTURAL SURFACE FINISH THAT MAY BE SPECIFIED.
6. ACTUAL PANEL REINFORCEMENT FOR ALL PANEL TYPES ON THIS PROJECT IS DESIGNATED ABOVE. R6 ILLUSTRATED FOR INFORMATION ONLY.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE



**CONNECTION DETAIL**  
SCALE 1:5



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DESIGNED	RMA/HPKA
DRAWN	RMA/HPKA
REVIEWED	KT
DATE	1/30/2001
CHECKED	KT
STRUCTURE FILE NO.	

**STANDARD PANEL DETAILS**  
**REINFORCED EARTH WALL**  
 RAMP B MSE WALL  
 ATH - 33 - 30.981

7 / 7  
 882F  
 956

# GENERAL NOTES

DESIGN CRITERIA

1. CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

MECHANICALLY STABILIZED EARTH WALL DESIGN AND FABRICATION SHALL COMPLY WITH SPECIAL PROVISIONS AS SUPPLIED BY ODOT (DATED 4-10-2000) AND MODIFIED BY M-E COMPANIES.

2. FACTORS OF SAFETY  
 INTERNAL PULLOUT 1.5  
 SLIDING 1.5  
 OVERTURNING 2.0  
 BEARING CAPACITY = 2.5

3. SOIL CHARACTERISTICS ASSUMED FOR DESIGN:

SELECT GRANULAR BACKFILL

Ø = 34 degrees, γ = 18.85 KN/m3

RANDOM BACKFILL

Ø = 30 degrees, γ = 18.85 KN/m3

FOUNDATION MATERIAL

Ø = 30 degrees,

4. THE MAXIMUM APPLIED BEARING PRESSURE AT THE FOUNDATION LEVEL IS AS SHOWN ON THE WALL ELEVATIONS FOR EACH DESIGN CASE. IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE THAT THIS APPLIED BEARING PRESSURE IS ALLOWABLE FOR THAT LOCATION.

5. ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE REINFORCED EARTH VOLUME, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SUITABLE MATERIAL OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER.

THE DESIGN CONTAINED ON THESE DRAWINGS IS BASED ON INFORMATION PROVIDED BY OTHERS. ON THE BASIS OF THIS INFORMATION, THE WALL COMPANY IS RESPONSIBLE FOR INTERNAL STABILITY OF THE STRUCTURE ONLY. EXTERNAL STABILITY DESIGN INCLUDING FOUNDATION AND SLOPE STABILITY IS THE RESPONSIBILITY OF OTHERS.

REINFORCING ELEMENTS

6. REINFORCING MESH ELEMENTS SHALL BE SHOP FABRICATED FROM COLD DRAWN STEEL ROD CONFORMING TO THE MINIMUM REQUIREMENTS OF ASTM A-82M AND SHALL BE WELDED AT THE JUNCTIONS BETWEEN LONGITUDINAL AND TRANSVERSE WIRES IN ACCORDANCE WITH ASTM A-185M. GALVANIZATION SHALL BE APPLIED AFTER MESH FABRICATION AND SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF ASTM A-123M.

LOOP EMBEDS SHALL BE FABRICATED FROM COLD DRAWN STEEL ROD CONFORMING TO ASTM A-510M OR ASTM A-82M. LOOP EMBEDS SHALL BE WELDED IN ACCORDANCE WITH ASTM A-185M. LOOP EMBEDS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM B-633M.

WALL CONSTRUCTION

7. RETAINED EARTH™ WALLS IN CURVES WILL FORM A SERIES OF SHORT CHORDS OF 1524mm EACH TO MATCH DESIRED WALL ALIGNMENT.
8. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE RETAINED EARTH STRUCTURES ARE BEING INSTALLED AT THE PROPER LOCATIONS, WITH RESPECT TO LINE, GRADE, OFFSETS AND OTHER LOCATION DATA. THE CONTRACTOR SHALL USE THE CONTRACT DRAWINGS FOR THE NECESSARY INFORMATION TO ESTABLISH THE ACTUAL LOCATIONS OF THE RETAINED EARTH™ STRUCTURES IN THE FIELD.
9. IF MANHOLES AND DROP INLETS ARE PRESENT, THEY SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS.
10. BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR RETAINED EARTH™ WALLS TO A LEVEL OF 51mm(+/-) ABOVE THE TIE MESH EMBEDDED IN THE PANELS. INSTALLATION OF REINFORCING MESH SHALL BE PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.
11. THE WALL CONSTRUCTION AND SOIL COMPACTION SHALL BE IN ACCORDANCE WITH THE PROPER WALL ERECTION PROCEDURES OUTLINED IN THE FOSTER GEOTECHNICAL "INSTALLATION MANUAL FOR RETAINED EARTH™ WALLS AND PROJECT SPECIFICATIONS.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ANY GUARDRAIL POSTS BEHIND RETAINED EARTH™ PANELS. PRIOR TO PLACEMENT OF THE TOP LAYER OF REINFORCING MESH, INDIVIDUAL REINFORCING MESH MAY BE SKEWED TO AVOID THE POST LOCATIONS IF AUTHORIZED BY THE ENGINEER. ANY DAMAGE DONE TO THE REINFORCING MESH DUE TO THE INSTALLATION OF THE GUARDRAIL SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
13. IF EXISTING OR FUTURE STRUCTURES, PIPES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN REINFORCED SOIL VOLUME INTERFERE WITH THE NORMAL PLACEMENT OF REINFORCING MESH AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE WHAT COURSE OF ACTION SHOULD BE TAKEN.
14. TOP PANELS BENEATH CAST-IN-PLACE COPING SHALL HAVE #13 BARS PROTRUDING FROM THEIR TOP EDGE.
15. THE CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER REINFORCING MESH DOWNWARD TO AVOID CONFLICTS WITH PAVING AND SUBGRADE PREPARATION. THE CONTRACTOR'S ATTENTION IS DIRECTED ESPECIALLY TO SITUATIONS WHERE ROADWAY SUPER ELEVATION AND/OR SOIL MIXING ARE ANTICIPATED.
16. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
17. BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
18. TOP ROW MESH INTERFERING WITH TRAFFIC BARRIER INSTALLATION SHALL BE DISCONNECTED AND CAST INTO THE MOMENT SLAB OR ATTACHED TO COPING CLEAVISES.

MATERIAL NOTES

19. NOMINAL MESH LENGTHS

THE REINFORCING MESH LENGTH SHOWN ON THE PLANS, MEASURED FROM BACK FACE OF PANEL ARE THE NOMINAL LENGTHS REQUIRED BY CALCULATION. THE ACTUAL FABRICATED MESH LENGTHS ARE OFTEN LONGER (UP TO 152mm) DUE TO MANUFACTURING TOLERANCES. THE REQUIRED HORIZONTAL LIMIT OF GRANULAR BACKFILL IS EQUAL TO THE NOMINAL MESH LENGTH. ADDITIONAL GRANULAR BACKFILL BEYOND THE NOMINAL MESH LENGTH IS NOT REQUIRED BY CALCULATION. BUT MAY BE REQUIRED BY OTHERS.

20. PANEL FINISH

ALL PRECAST PANELS FOR THIS PROJECT SHALL HAVE AN FINISH WHICH IS IN ACCORDANCE WITH SPECIFICATIONS.

21. NOTE TO CONTRACTORS

ONLY THE FOLLOWING MATERIALS ARE SUPPLIED BY FOSTER GEOTECHNICAL

- PRECAST PANEL
- REINFORCING MESH
- LOOP EMBED
- HDPE BEARING PAD
- FILTER CLOTH AND ADHESIVE (FOR PANELS JOINTS ONLY)

ANY OTHER MATERIALS CALLED FOR IN THE CONTRACT PLANS OR SPECIFICATIONS ARE TO BE SUPPLIED BY THE CONTRACTOR. ANY JOINT MATERIALS SHOWN AT THE INTERFACE OF PRECAST PANELS AND CAST-IN-PLACE CONCRETE STRUCTURES ARE TO BE SUPPLIED BY THE ERECTION CONTRACTOR. ALL SANDBLASTING, PAINTING, SEALERS OR OTHER SPECIAL APPLIED COATINGS ARE ALSO SUPPLIED / INSTALLED BY THE CONTRACTOR IN THE FIELD FOLLOWING PANEL ERECTION.

22. FOSTER GEOTECHNICAL SUPPLIES PRECAST CONCRETE FACING PANELS AND ACCESSORIES TO BE USED IN CONJUNCTION WITH OTHER MATERIALS IN THE CONSTRUCTION OF RETAINED EARTH™ WALLS DETAILED HEREIN. THE CONSTRUCTION AND QUALITY CONTROL PROCEDURES MANUAL FURNISHED BY FOSTER GEOTECHNICAL IS INTENDED TO PROVIDE A GENERAL EXPLANATION OF THE SYSTEM. IT IS THE CONTRACTOR'S OBLIGATION TO DEVISE AND EXECUTE A PROJECT SPECIFIC ERECTION SEQUENCE. PANEL UNLOADING, HANDLING AND BRACING SYSTEM. AND FALL PROTECTION SYSTEM, THE BRACING SYSTEM SHOWN IN THE CONSTRUCTION AND QUALITY CONTROL PROCEDURES MANUAL IS GENERAL IN NATURE AND DOES NOT ACCOUNT FOR PROJECT SPECIFIC CRITERIA. COMPLIANCE WITH THE GUIDELINES IN THIS MANUAL DOES NOT RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITY TO ADHERE TO THE PROJECT PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS OR COMPLIANCE WITH ALL FALL PROTECTION, SAFETY, LAWS, STANDARDS AND PROCEDURES AT THE JOBSITE. CONTRACTORS SHOULD TAKE SPECIAL PRECAUTIONS TO PREVENT THE PANELS FROM SHIFTING OR FALLING DURING THE ERECTION PROCESS.

FINAL PLOT 05-DECEMBER-2000

CALCULATED  
TP  
DESIGNED  
IL

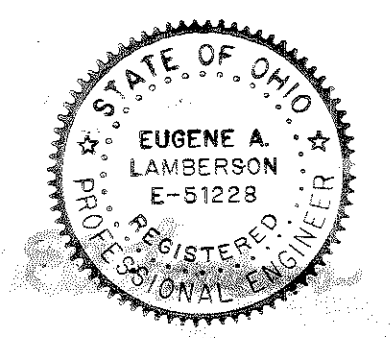
MSE RETAINING WALL GENERAL NOTES

ATH-033-30.981

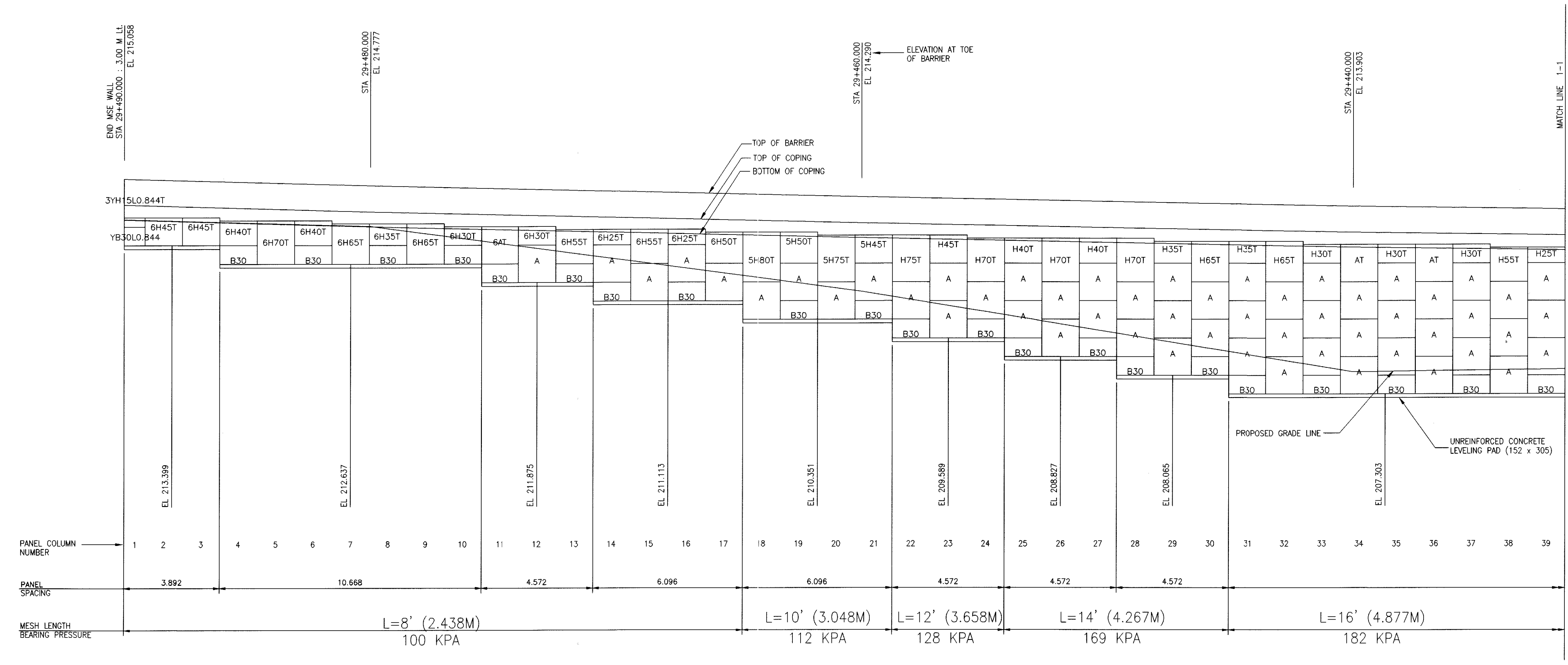
1/6

883  
956

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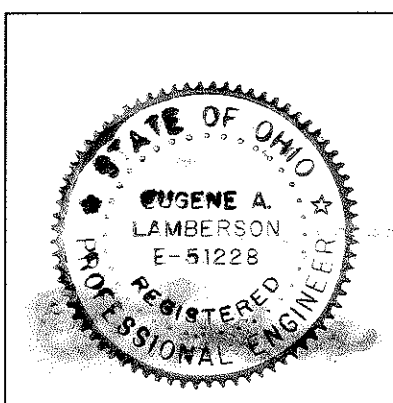
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DRAWN	TP	REVISED	
REVIEWED	IL/HTM	STRUCTURE FILE NUMBER	
DATE	11/00		



**MSE WALL RAMP 'B' FRONT FACE ELEVATION**  
 SCALE 1:10

FINAL PLOT 09-JANUARY-2001

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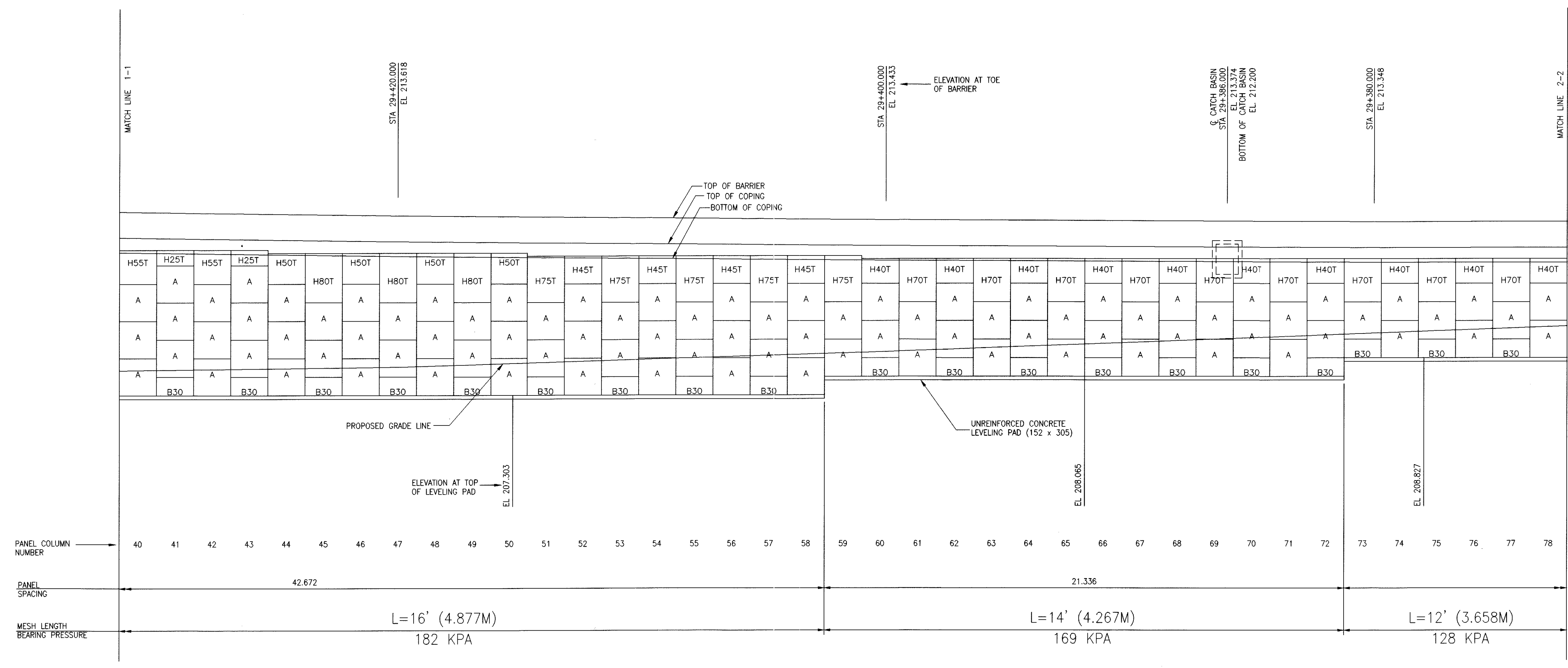


ELEVATION VIEW  
 RETAINING WALL RAMP "B"  
 ATHENS, ALEXANDER "US 33"

ATH-033-30.981

2 / 6  
 883A  
 956

DESIGNED	IL	CHECKED	JN
DRAWN	TP	REVISED	
REVIEWED	IL/HTM	STRUCTURE FILE NUMBER	
DATE	11/00		



**MSE WALL RAMP "B" FRONT FACE ELEVATION**

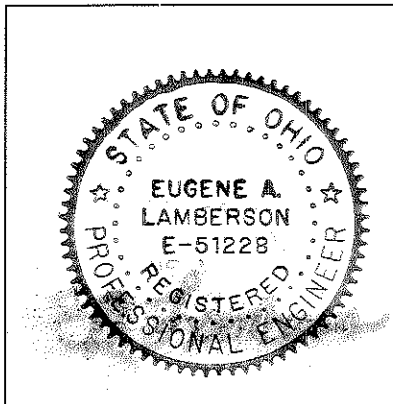
SCALE 1:10

ELEVATION VIEW  
RETAINING WALL RAMP "B"  
ATHENS, ALEXANDER "US 33"

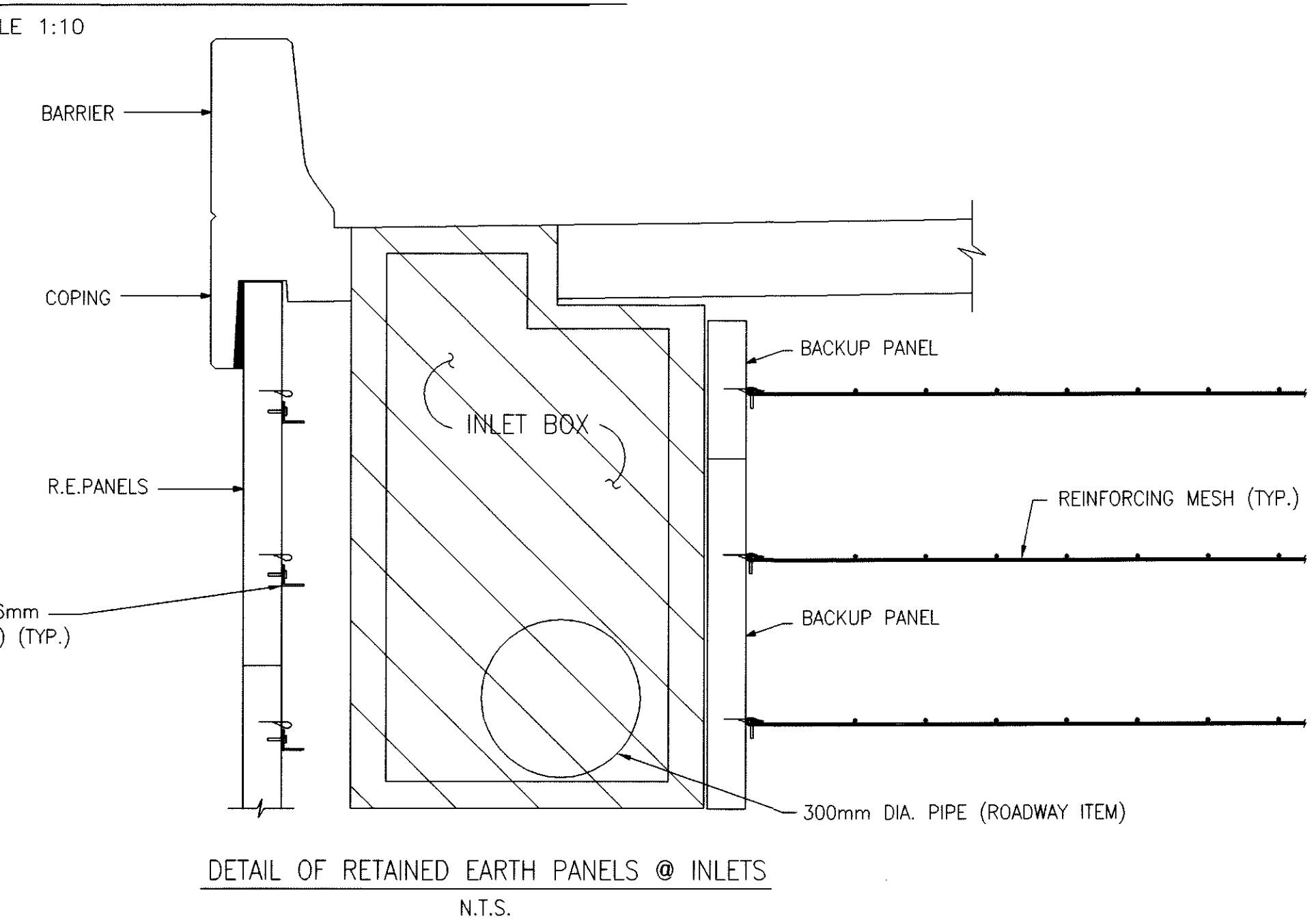
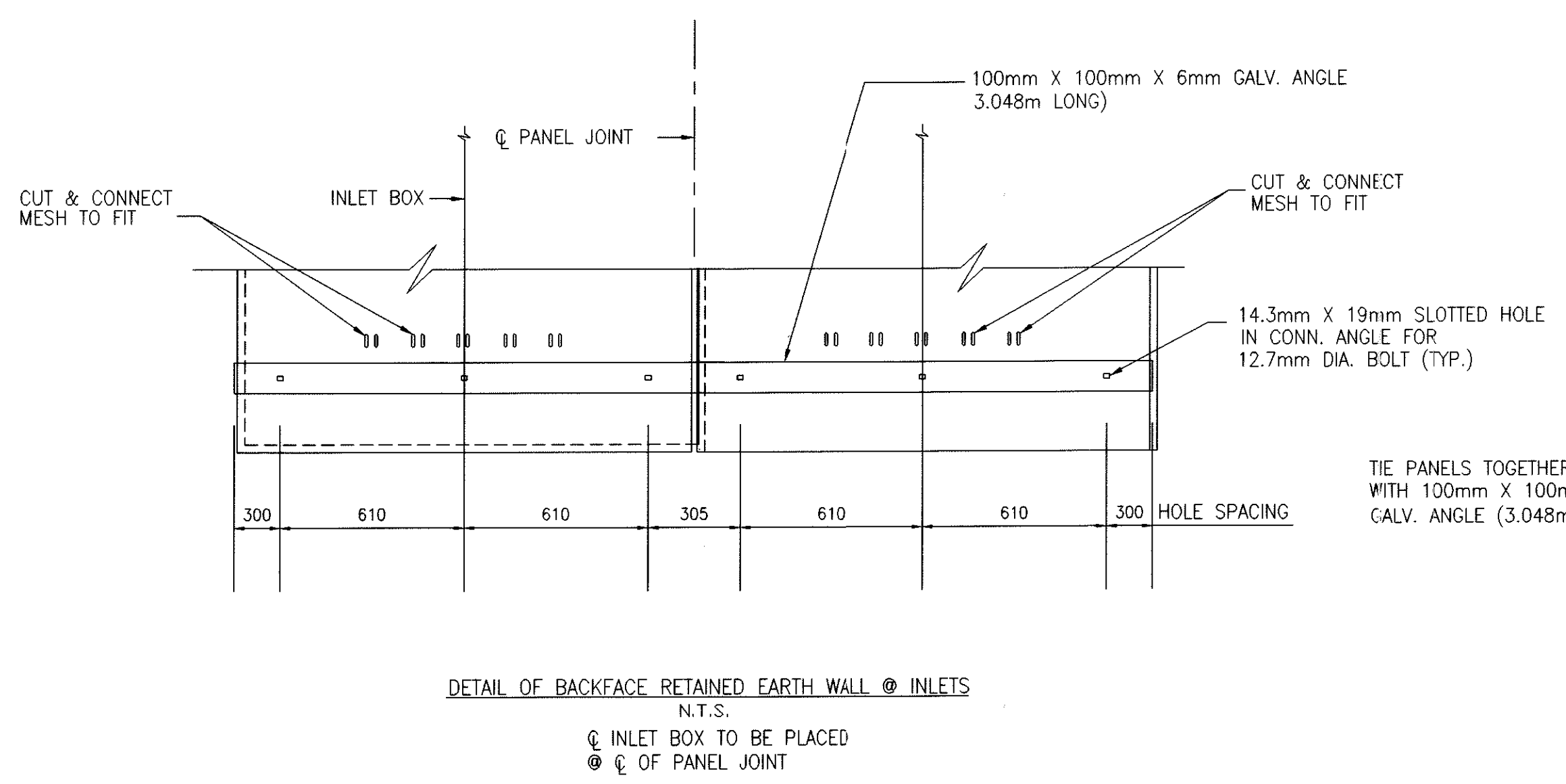
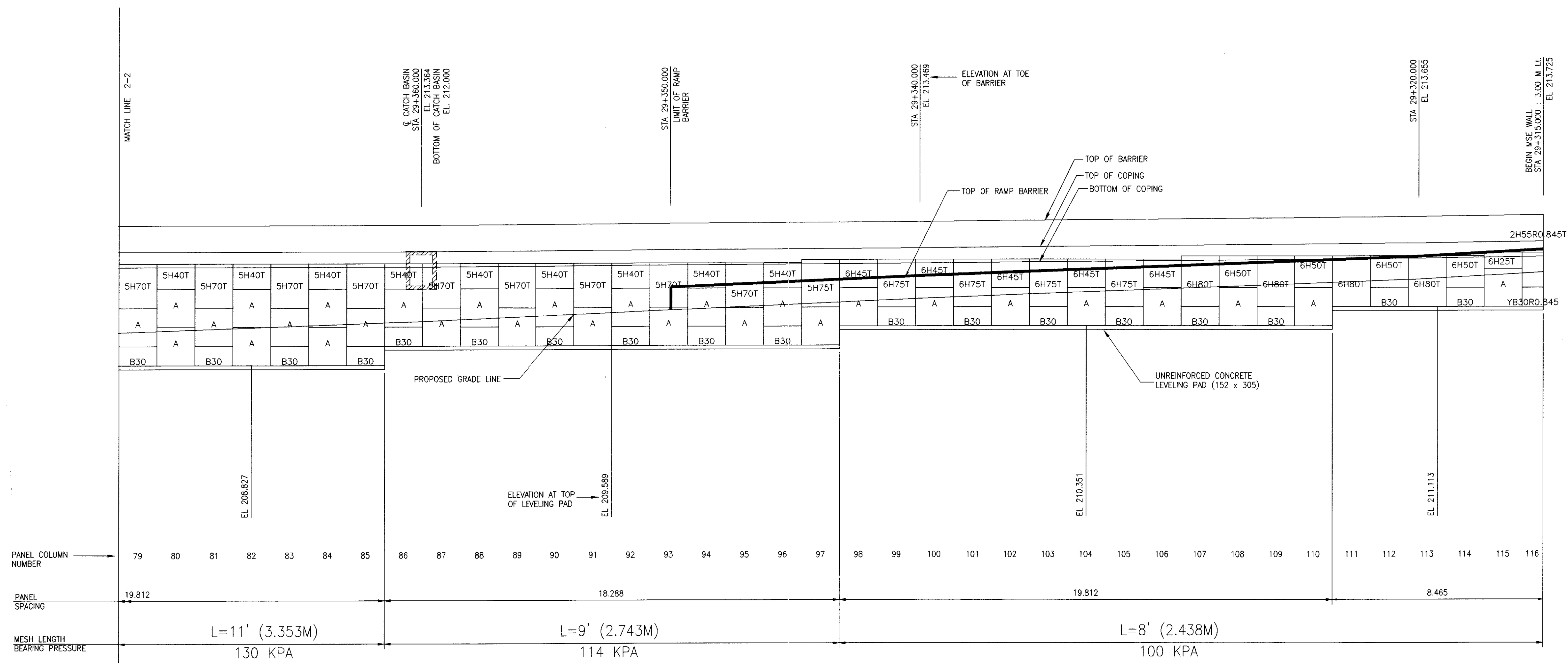
FINAL PLOT 09-JANUARY-2001

ATH-033-30.981

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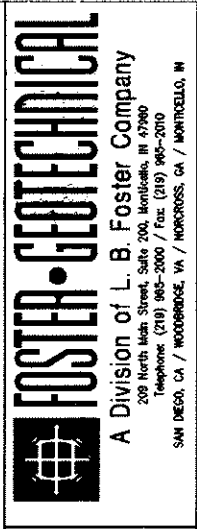
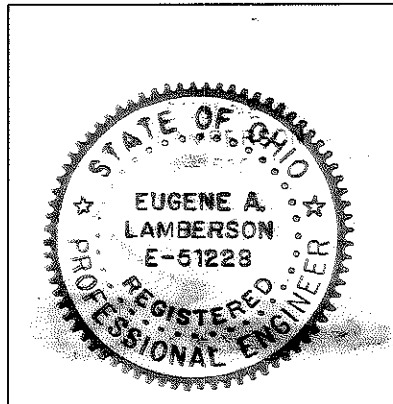


3 / 6  
883B  
956



NOTE: PLACE BACKUP PANEL AND MESH AT ELEVATION CORRESPONDING TO ADJACENT PANEL AND MESH ELEVATION.

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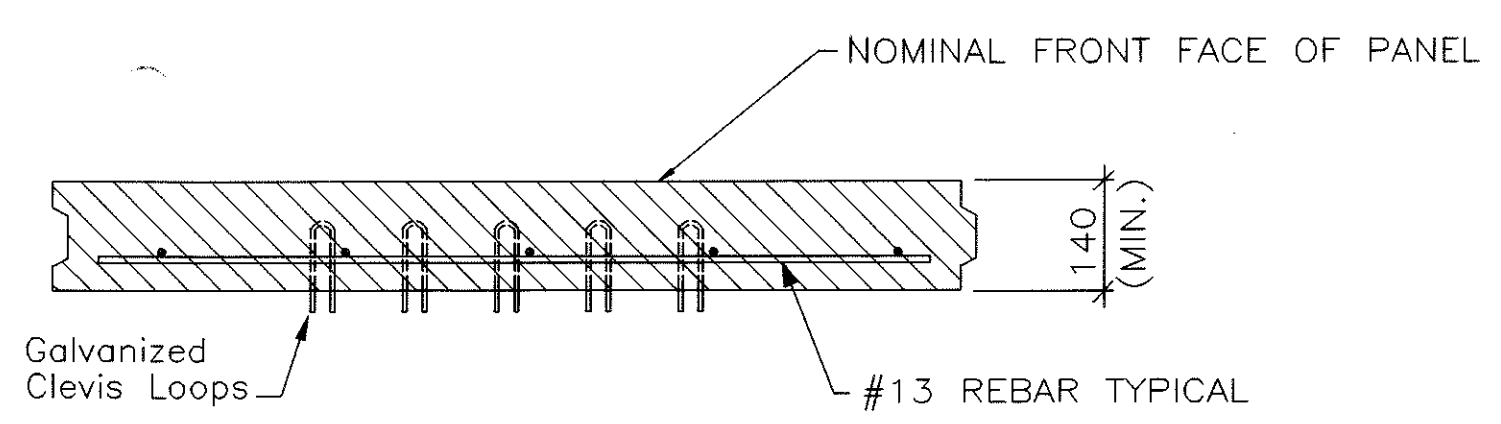
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DRAWN	TP	REVISED	
REVIEWED	IL/HTM	STRUCTURE FILE NUMBER	
DATE	11/00		

ELEVATION VIEW  
RETAINING WALL RAMP "B"  
ATHENS, ALEXANDER "US 33"

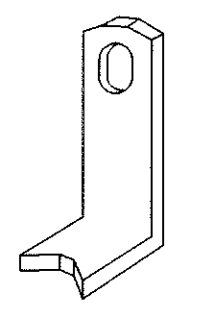
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4 / 6

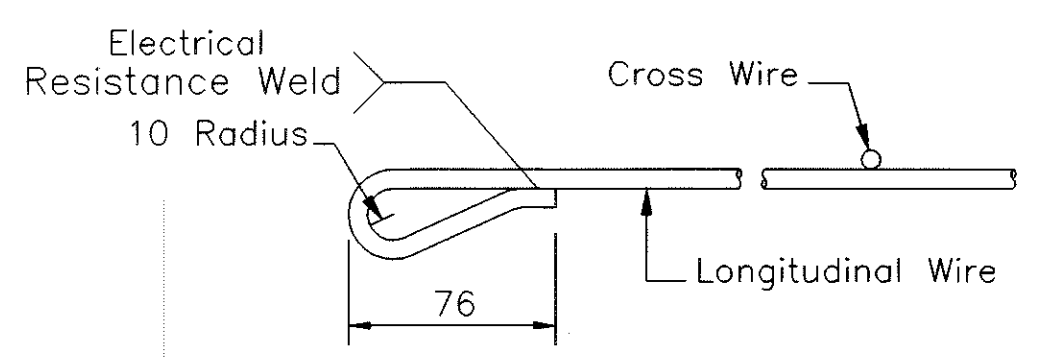
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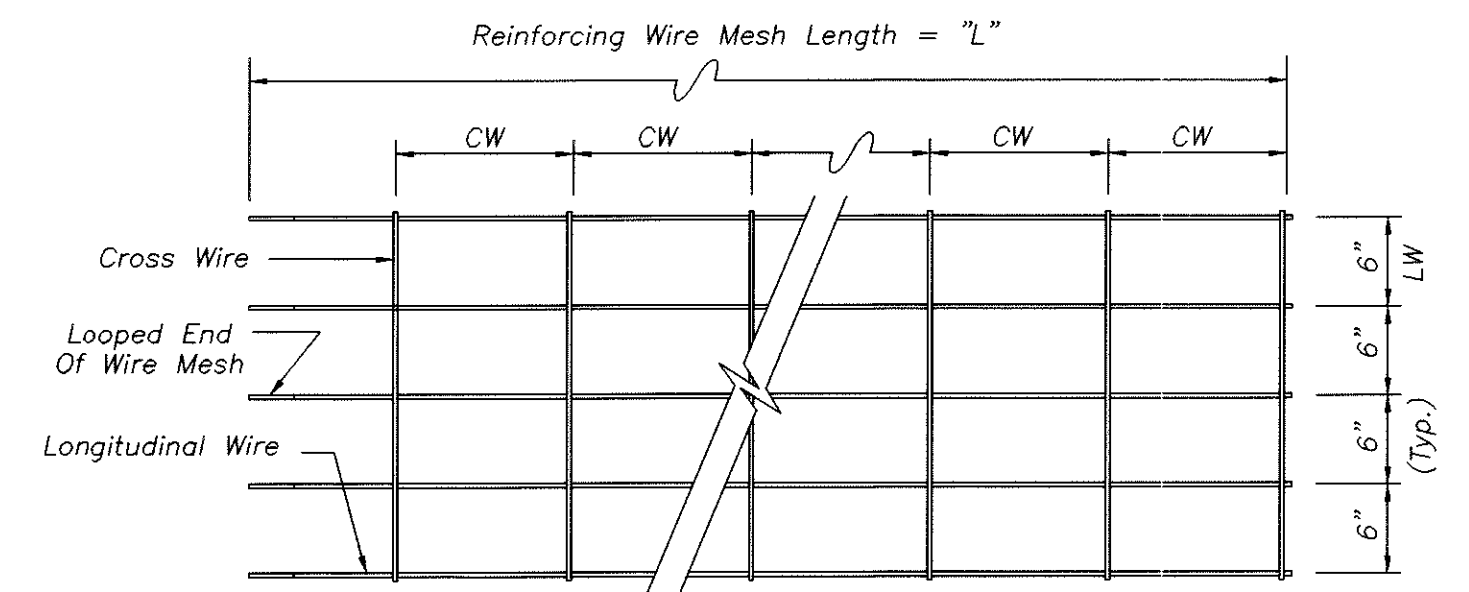
**SECTION A-A**  
N.T.S.



**LIFTING INSERT DETAIL**  
(DAYTON SUPERIOR "L" ANCHOR OR EQUAL)  
(ONE TON)



**WIRE MESH LOOP DETAIL**  
N.T.S.



**WIRE MESH DESIGNATION**  
5W15 + W11 x 12"

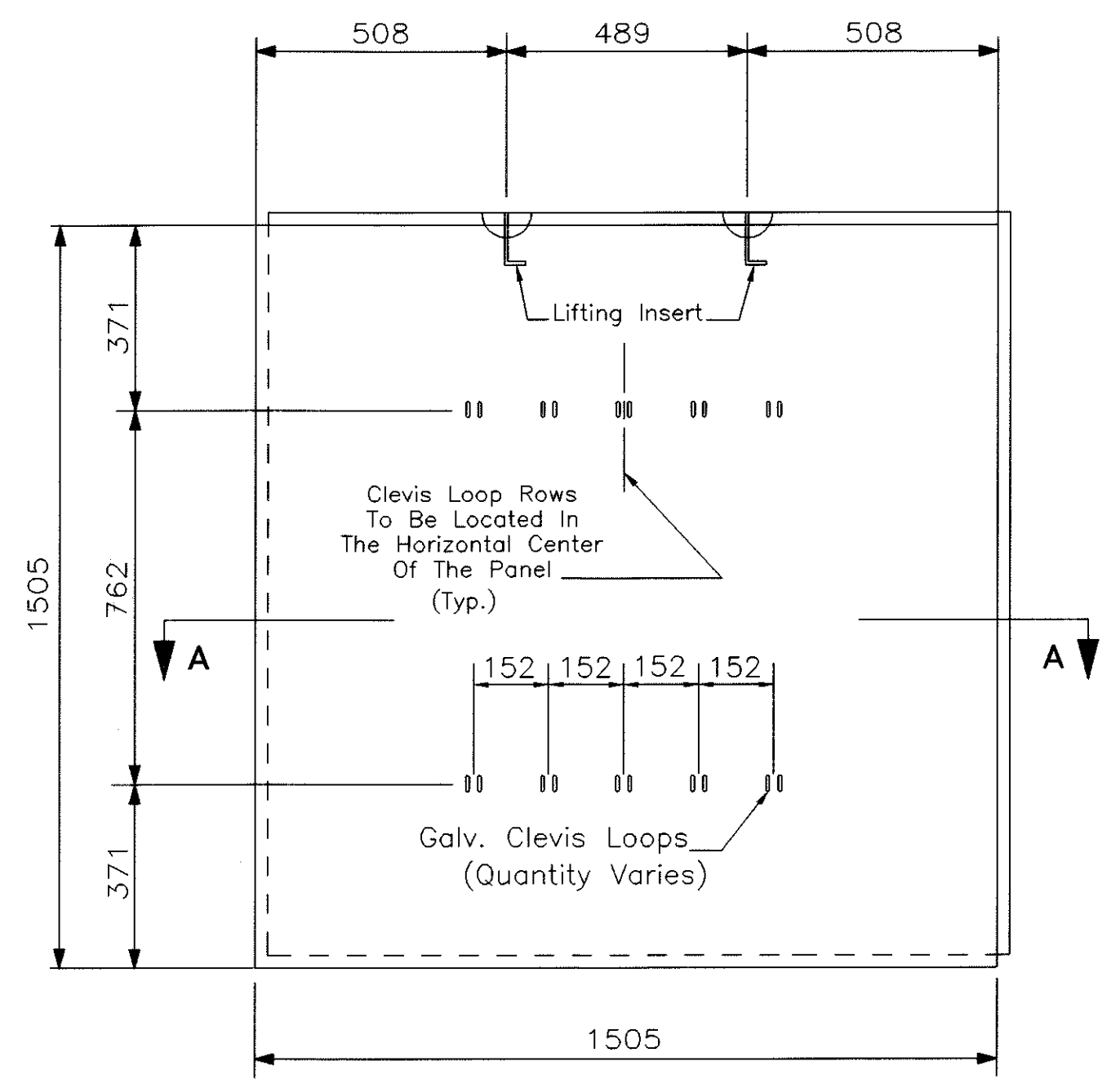
No. Of Longitudinal Wires  
Size Of Longitudinal Wires (LS)  
Size Of Cross Wires (CS)  
(If No Cross Wire Size Shown, Cross Wire Is Same Size As The Longitudinal Wire)  
Spacing (Inches) Of Cross Wires (CW)

NOTE: FOR EXAMPLE ABOVE,  
EQUIVALENT INDUSTRY STANDARD DESIGNATION = 6 X 12 - W15 X W11-24" X "L"  
(LW) (CW) (LS) (CS)

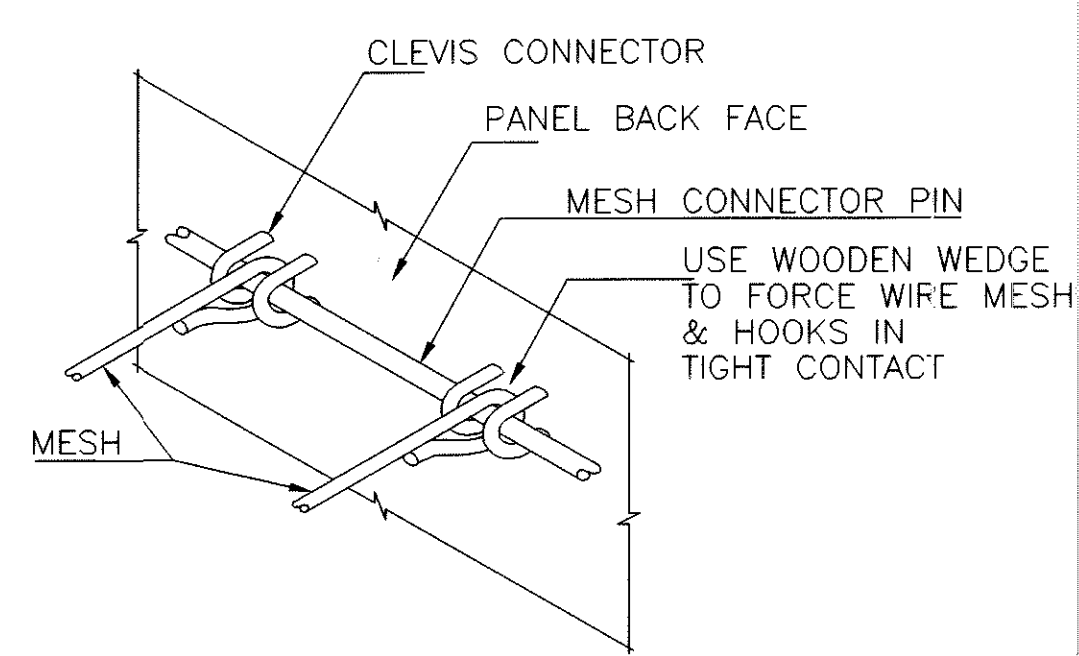
**REINFORCING MESH DETAIL**

**NOTES :**

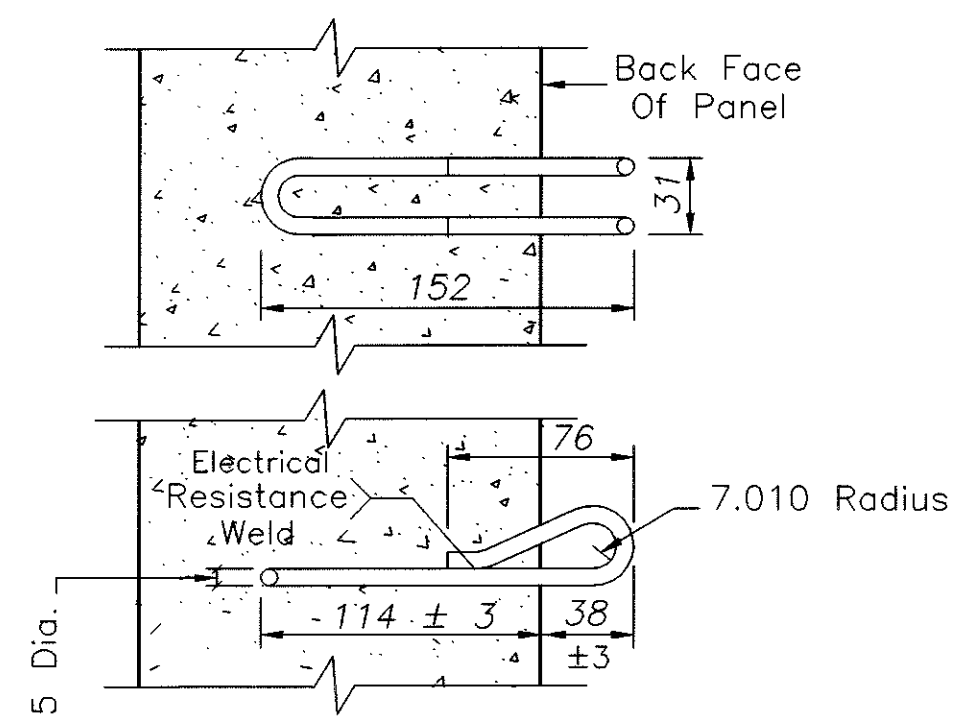
- The "Reinforcing Mesh Detail" And The "Soil Reinforcement Key" Are Shown In Imperial Units. This Is Done Because The Mesh Is Manufactured, Bundled And Tagged Using The Imperial Industry Standard Designation.
- 5W15 Mesh Shown, Mesh Configuration Varies. In 5W15, 5 Designates The No. Of Longitudinal Members Per Unit, While W15 Is The ASTM Standard Wire Reinforcement Designation. See Wall Elevations For Individual Mesh Configurations.
- Number Of Mesh Wire Loops Varies According To Mesh Configuration.
- All Panel Joints On Back Face Of Panels To Be Covered With Geotextile Fabric. Refer To Partial Wall Elevation Detail, This Sheet.
- All Connections Must Align Within 3mm Of Alignment.



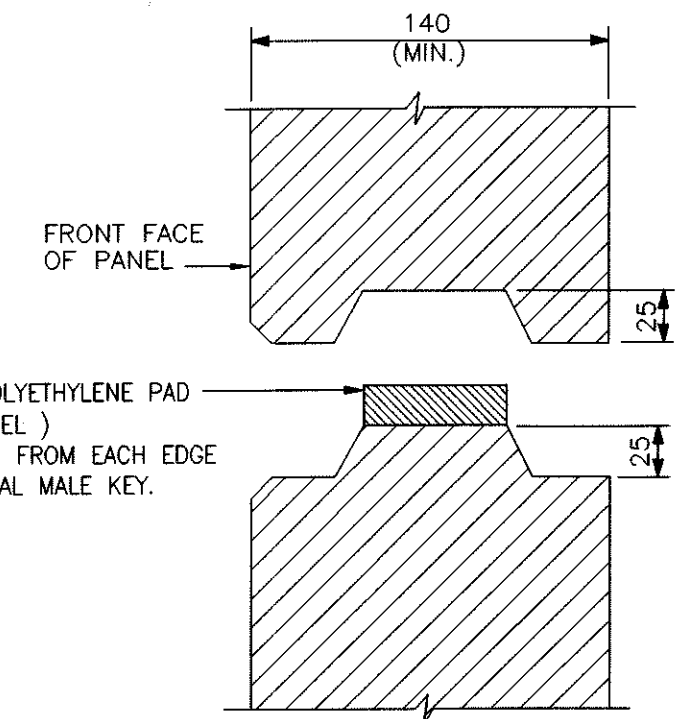
**STANDARD '5A' PANEL**  
Back Face View



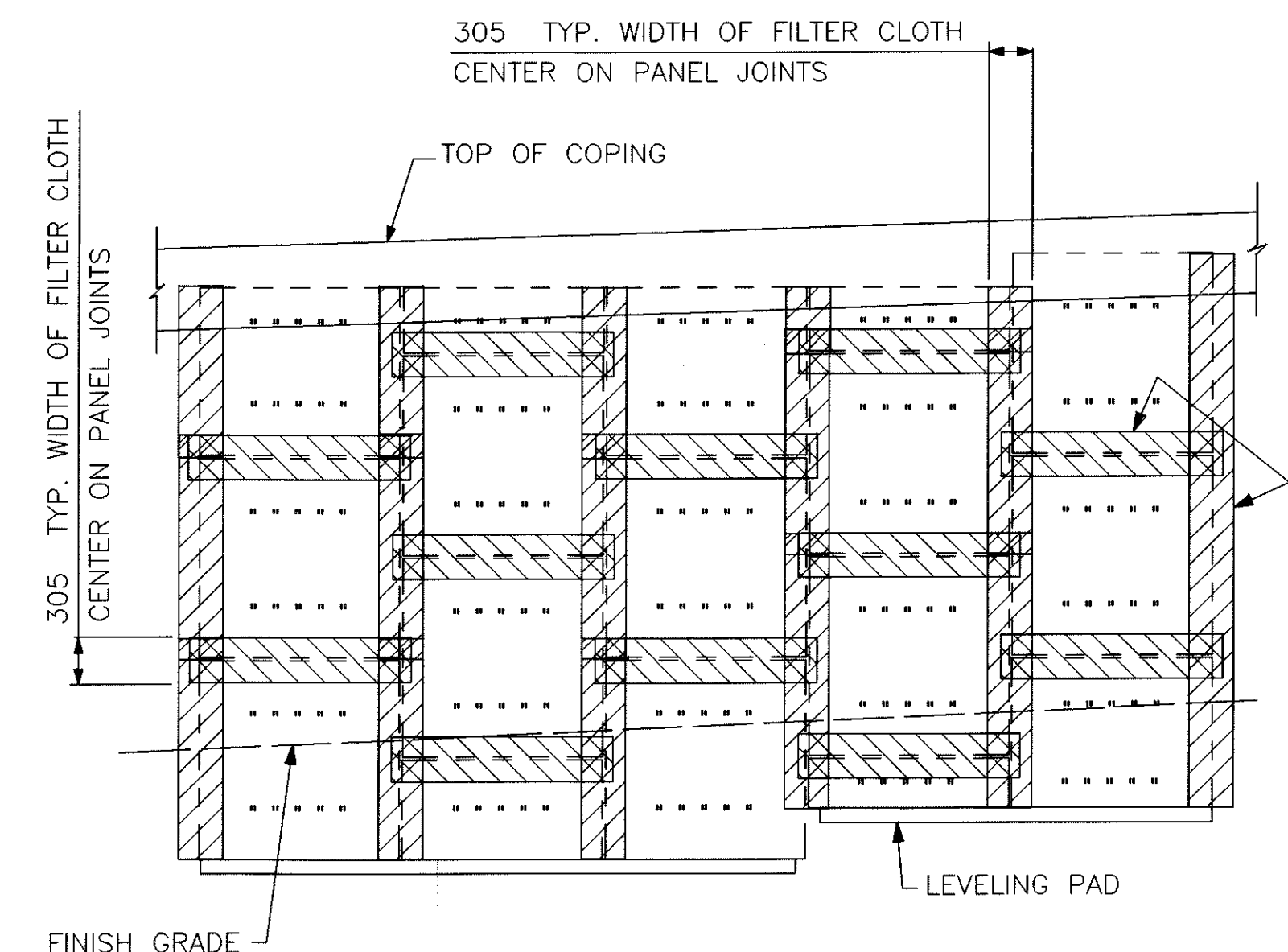
**MESH CLEVIS CONNECTOR**  
FOSTER GEOTECHNICAL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



**CLEVIS LOOP DETAIL**  
N.T.S.

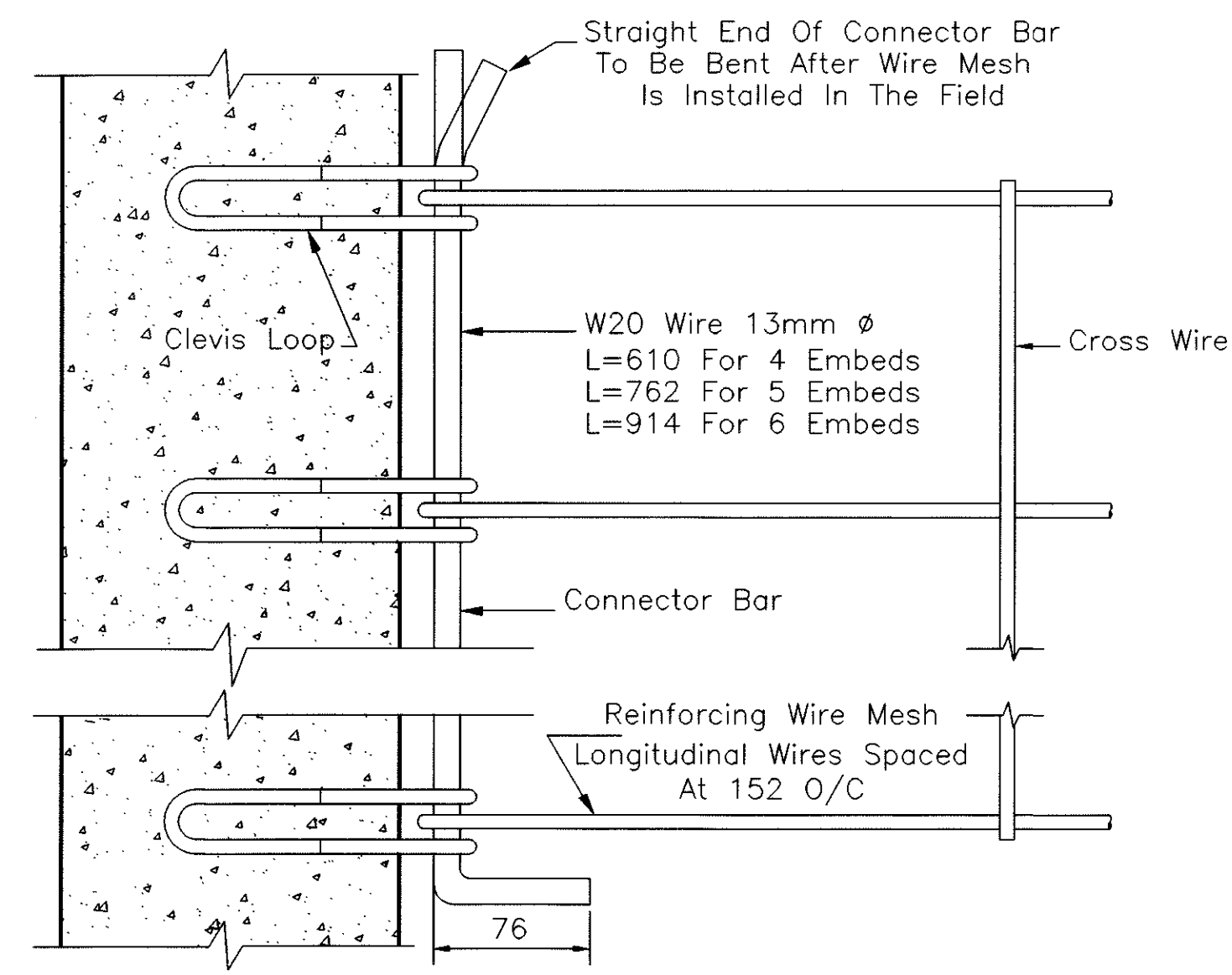


**PANEL JOINT DETAIL**  
N.T.S.



**PARTIAL WALL ELEVATION**  
(BACK FACE)

FILTER CLOTH.  
APPLY ADHESIVE COATING TO PANELS ONLY. DO NOT APPLY ADHESIVE TO GEOTEXTILE OR WITHIN 50mm OF JOINT (TYP.)



**REINFORCING MESH CONNECTION DETAIL**  
N.T.S.

NOTE:  
ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (MM) U.O.N.

**Soil Reinforcement Key**  
Mesh Types Are Designated Below Mesh Length Line. Heavy Horizontal Lines On Wall Elev. Separate Zones Of Different Mesh Types. (See "Reinforcing Mesh Detail" This Sheet For Mesh Type Details).

Example:

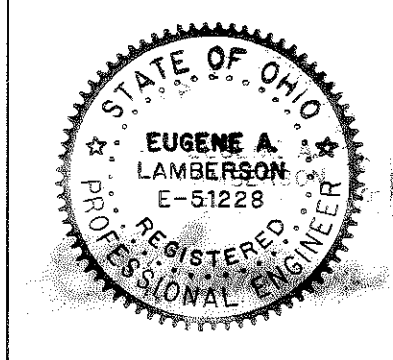
5A	4H30	5H70	4H40	} 4W11+W11x6" (1 LAYER)
5A	5B30	5A	5B30	

**MESH LENGTH** L=3.048 (10')

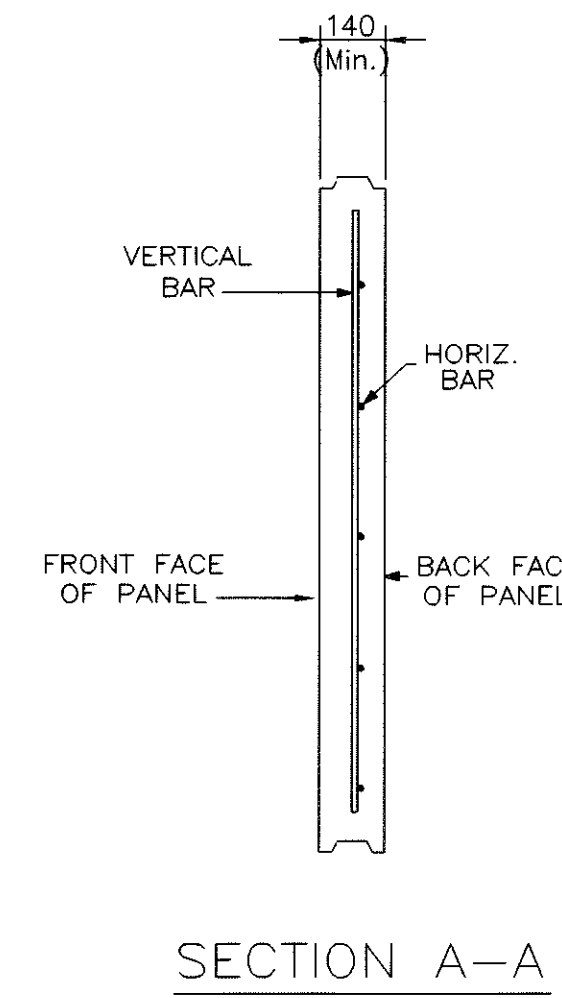
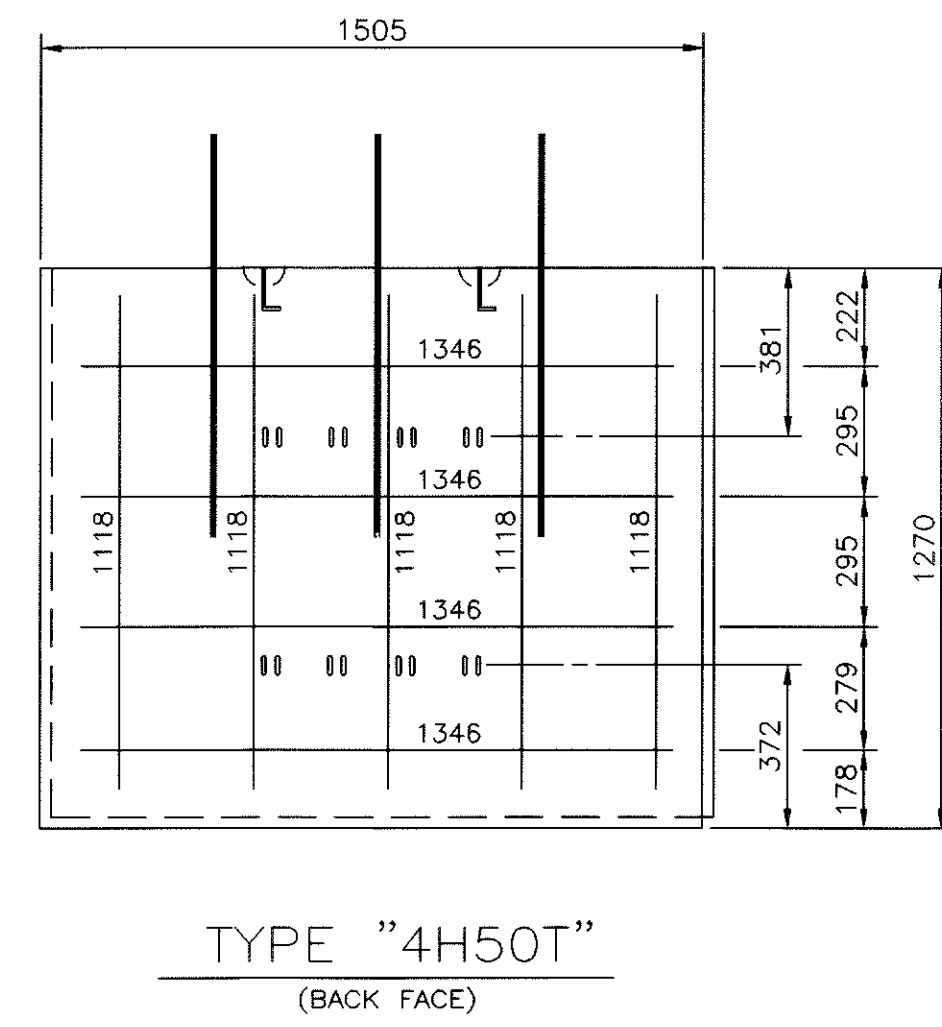
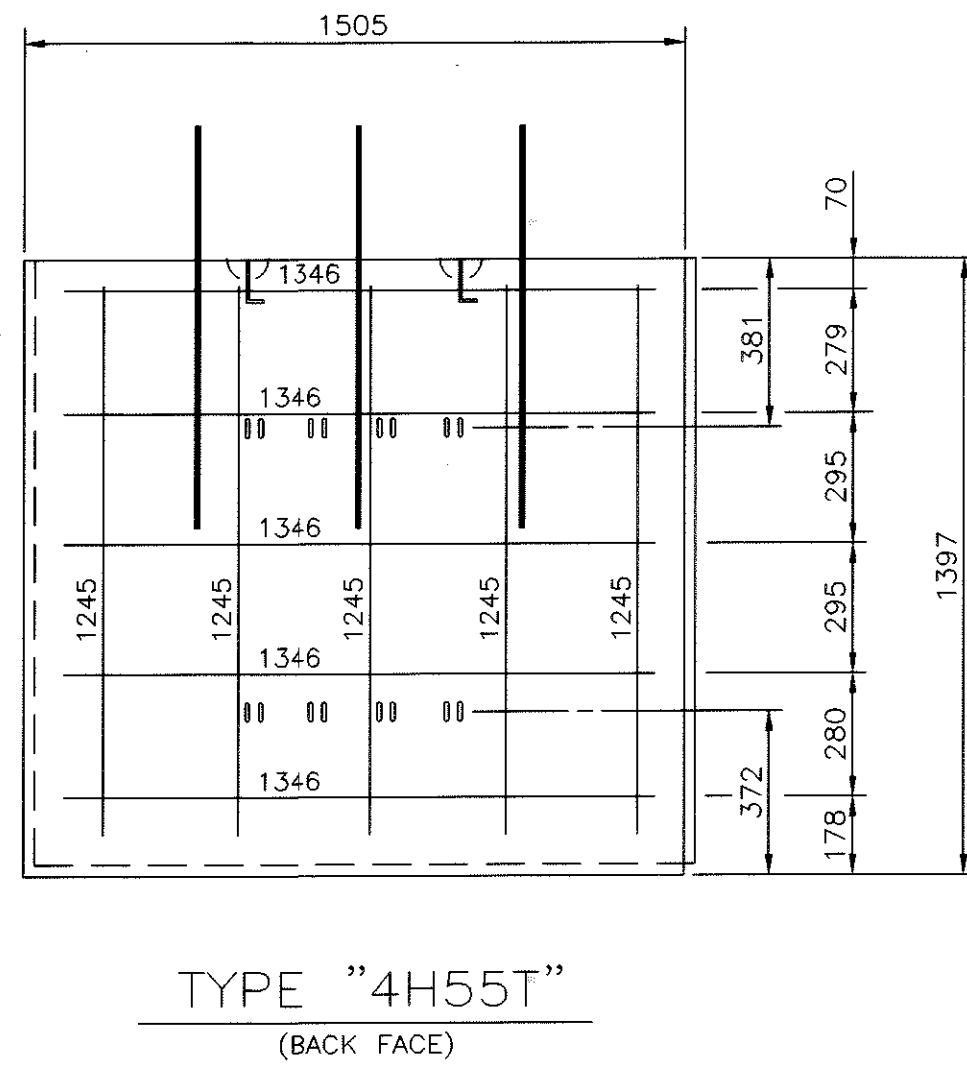
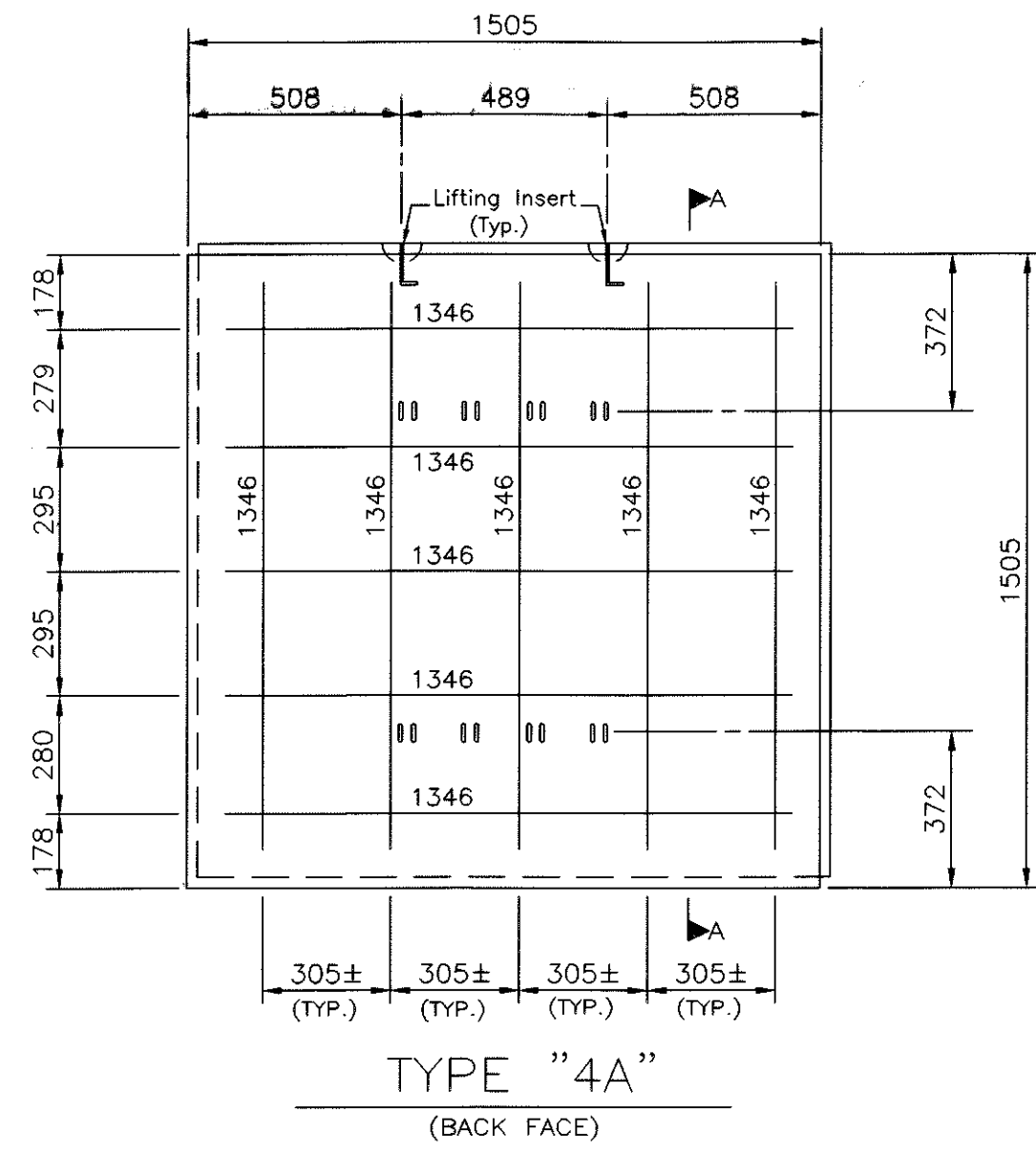
**MESH TYPE** 1(4W11 x 6")  
3(5W15+W11x12")

Contact Foster Geotechnical For Questions Concerning Placement Of Soil Reinforcement.

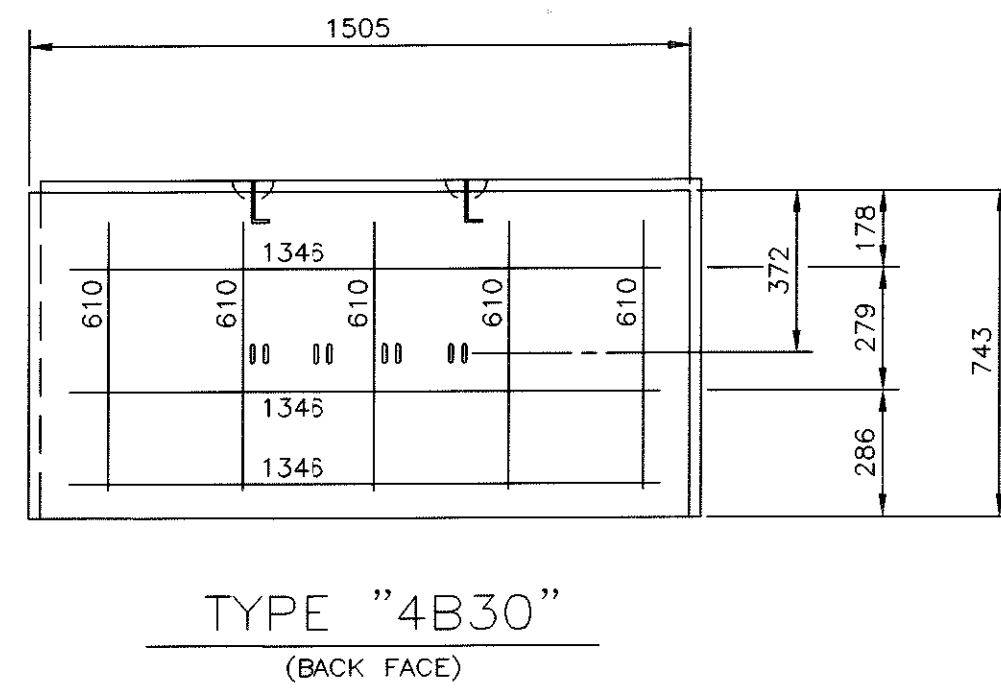
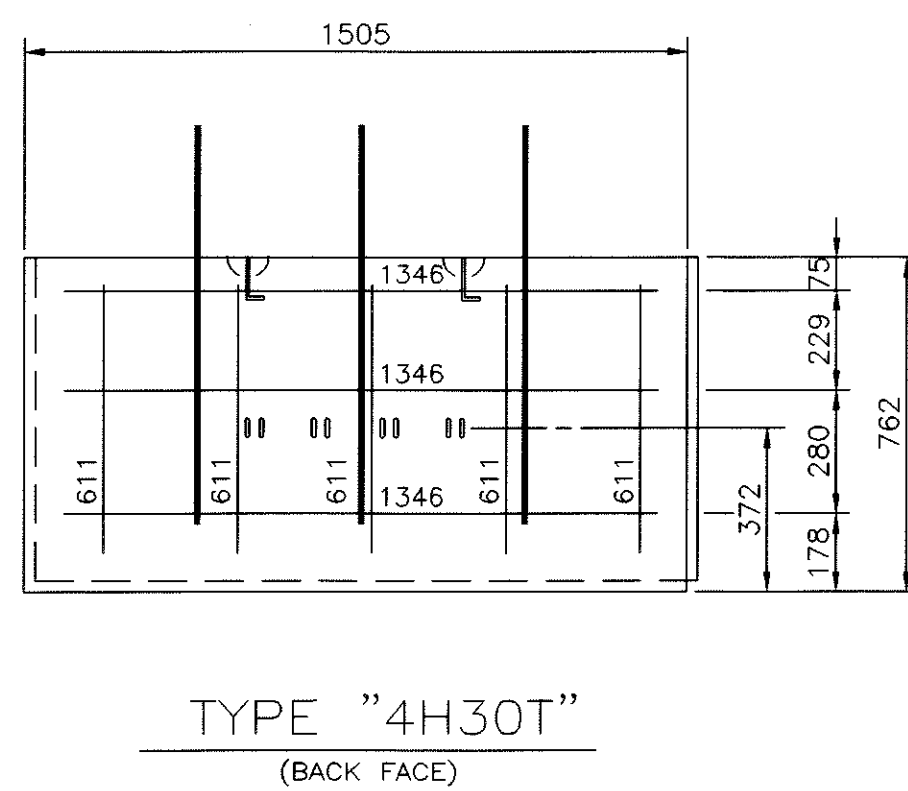
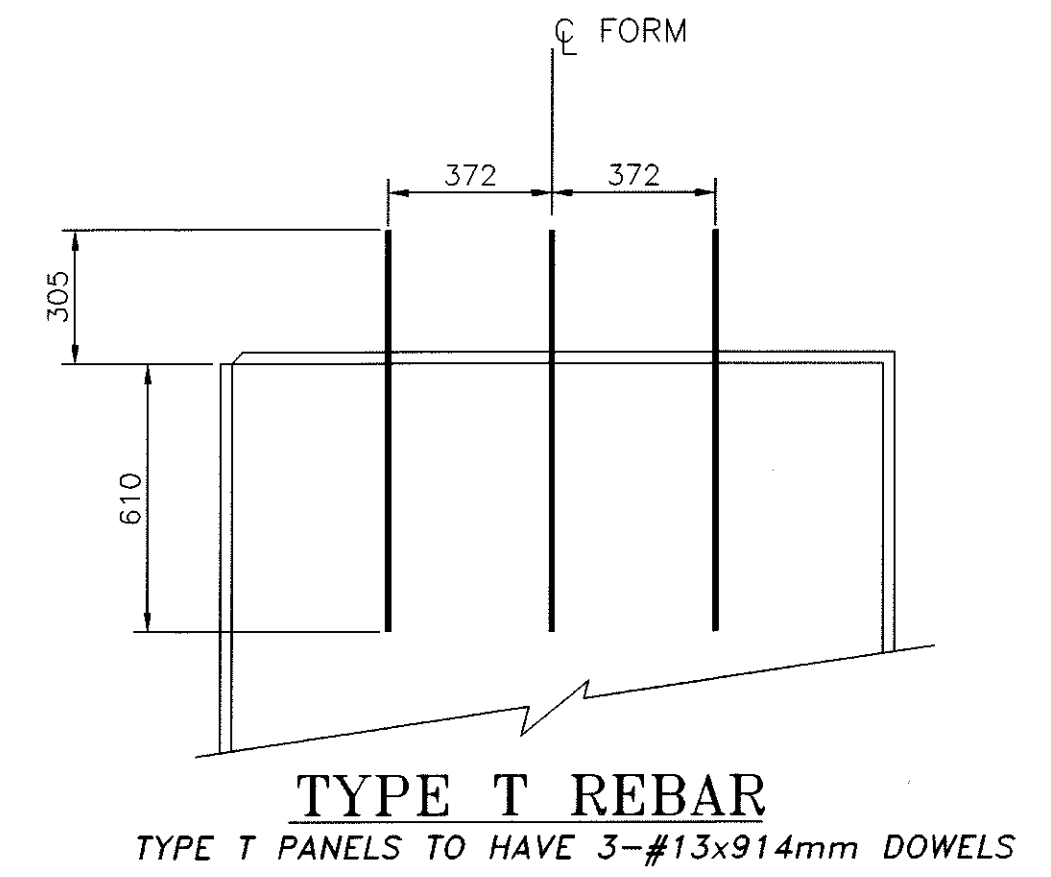
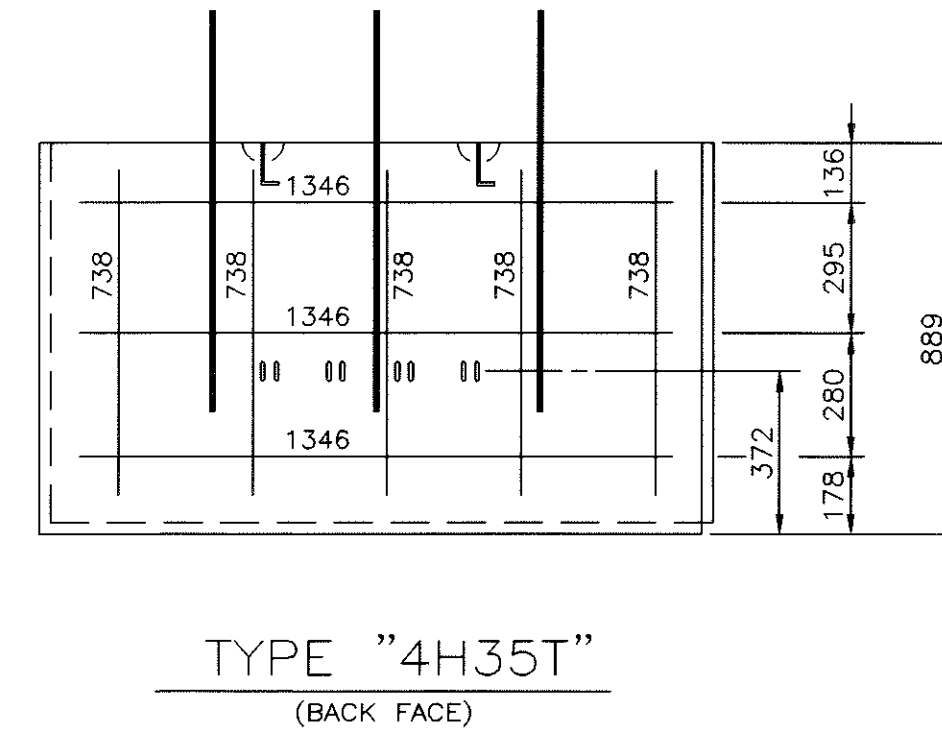
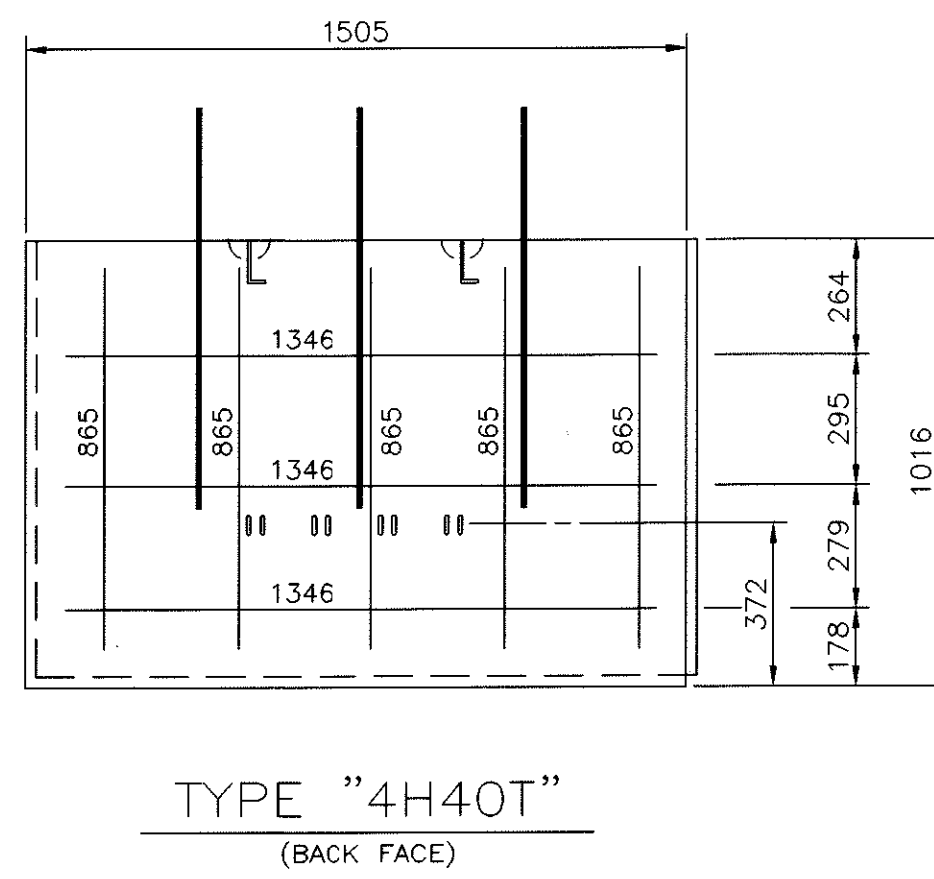
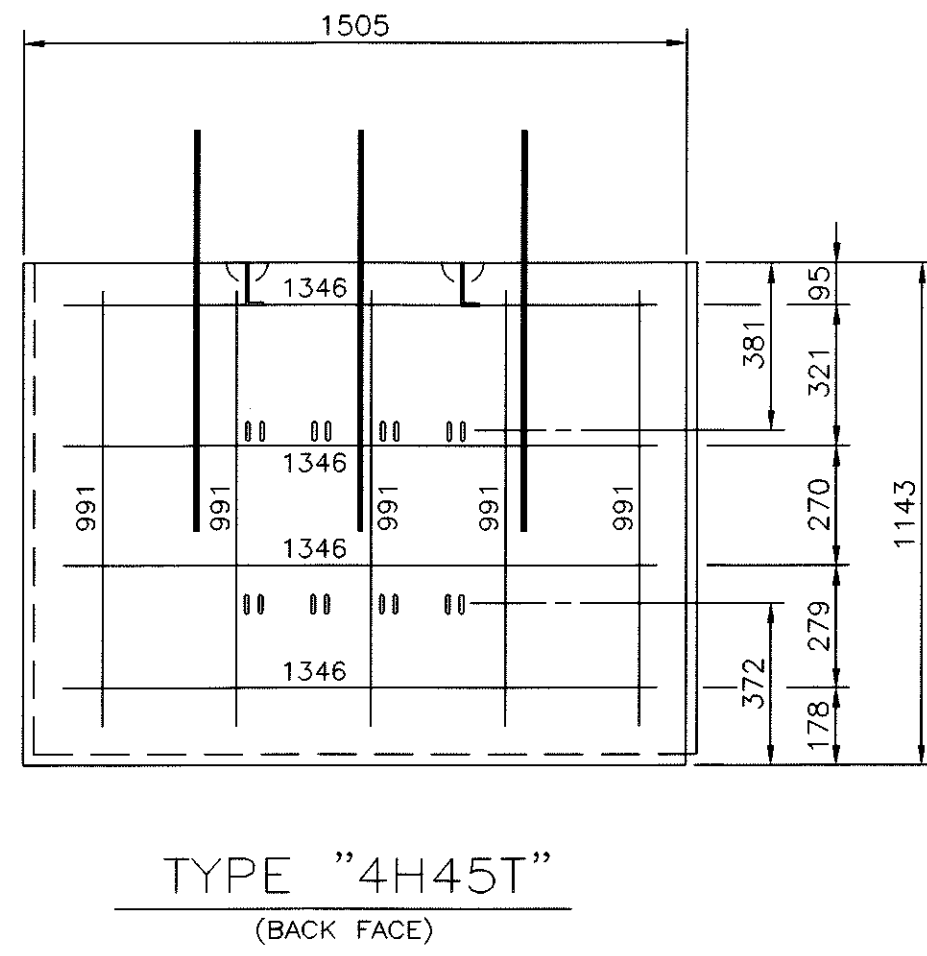
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.





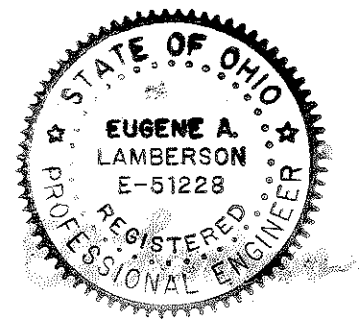


- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
  2. DIMENSIONS ARE TO FORM INSIDE BACK FACE.
  3. VERTICAL REINFORCEMENT SHALL HAVE 51mm MINIMUM, 64mm MAXIMUM COVER TO THE BACK FACE.
  4. HORIZONTAL REINFORCEMENT SHALL HAVE 38mm MINIMUM, 51mm MAXIMUM COVER TO THE BACK FACE.
  5. ALL REINFORCEMENT SHALL HAVE 51mm MINIMUM COVER TO THE SIDES.
  6. REINFORCEMENT LABELS INDICATE BAR AND LENGTH. EXAMPLE: 1346 IS A #13 BAR 1346mm LONG.
  7. REINFORCEMENT SHALL BE GRADE 60.
  8. FOSTER GEOTECHNICAL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
  9. ALL PANELS TO USE 0.375Ø CLEVIS LOOPS.
  10. ALL PANELS SHALL HAVE AN FINISH WHICH IS IN ACCORDANCE WITH SPECIFICATIONS.



FINAL PLOT 09-JANUARY-2001

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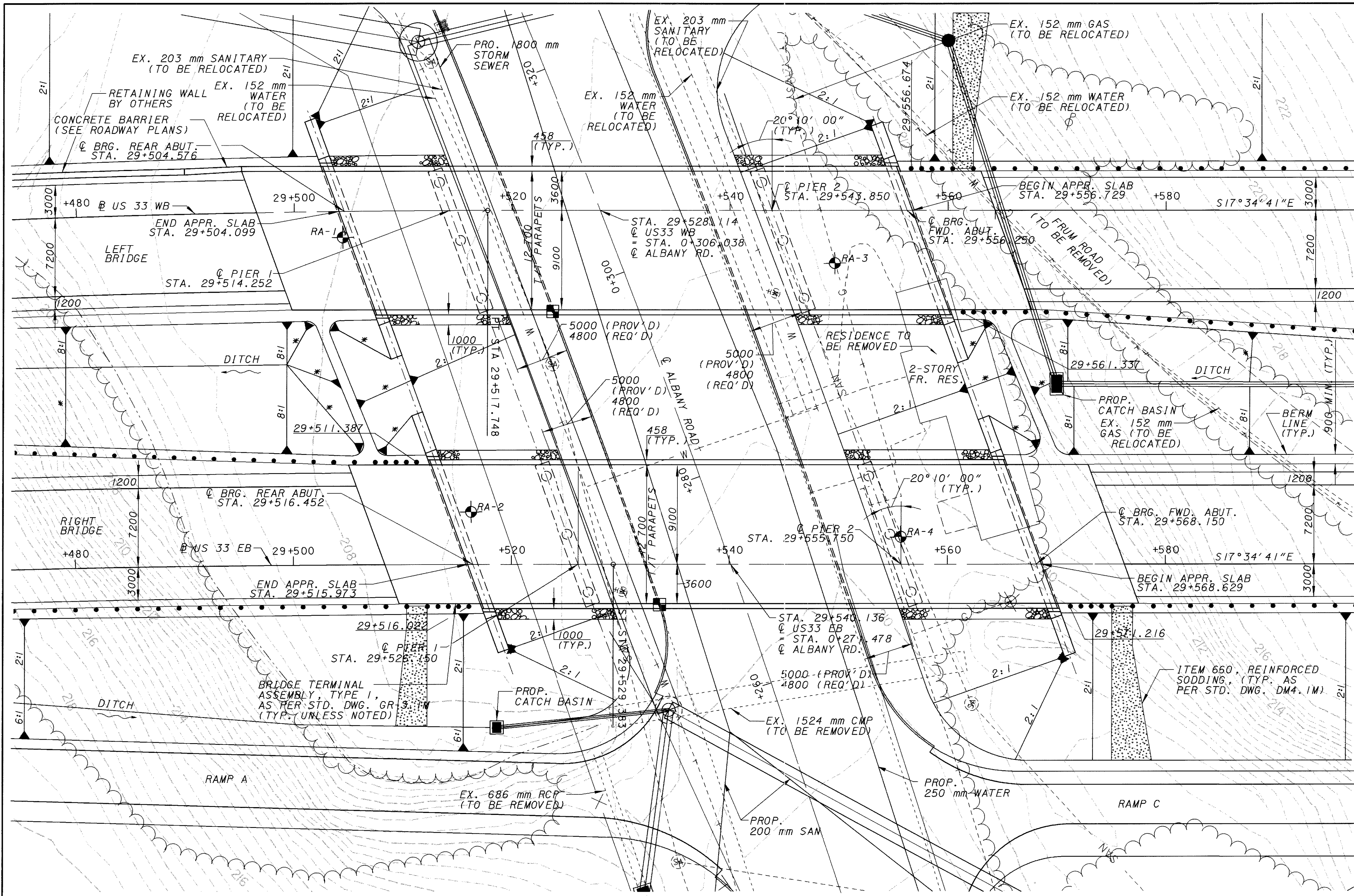


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DRAWN	TP	REVISED	
REVIEWED	IL/HTM	STRUCTURE FILE NUMBER	
DATE	11/00		

RETAINING WALL DETAILS  
PANEL REINFORCEMENT

ATH-033-30.981

6/6  
883E  
956



**LEGEND**

- = SOIL BORING LOCATION
- = POINT OF MINIMUM VERTICAL CLEARANCE
- = ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
- = REINFORCED SODDING

**TRAFFIC DATA**

ADT (2001) = 4540  
 ADTT (2001) = 318  
 ADT (2021) = 7690  
 ADTT (2021) = 538

**BENCHMARK DATA**

BENCHMARK # A 10 B  
 BRASS TAB IN CONCRETE  
 NORTHING = 145745.1970  
 EASTING = 634333.7563  
 ELEV. = 202.750

BENCHMARK # E 76 X  
 BRASS TAB IN CONCRETE  
 LOCATED 3.7m NORTHWEST OF  
 UTILITY POLE AND 8 m EAST OF  
 RICH LAND AVENUE  
 ELEV. = 205.451

**PROPOSED STRUCTURE**

TYPE: PRESTRESSED CONCRETE I-BEAMS (AASHTO TYPE 4) MADE CONTINUOUS FOR LIVE LOAD WITH COMPOSITE REINFORCED CONCRETE DECK ON INTEGRAL ABUTMENTS AND CAP AND COLUMN PIERS ON DRILLED SHAFTS.

SPANS: 9332 - 28 864 - 12 032 mm c/c BEARING ALONG REFERENCE TANGENT

ROADWAY: 12 700 mm t/t PARAPETS.

LOADING: MS 22.5 AND ALTERNATE MILITARY LOADING

ALIGNMENT: TANGENT AND HORIZ. CURVE NORTH BOUND TANGENT AND SPIRAL CURVE SOUTH BOUND

SKEW: 20° 10' 00" RIGHT FORWARD TO TANGENT

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: AS-1-81M (7600 mm ALONG REF. TANGENT)

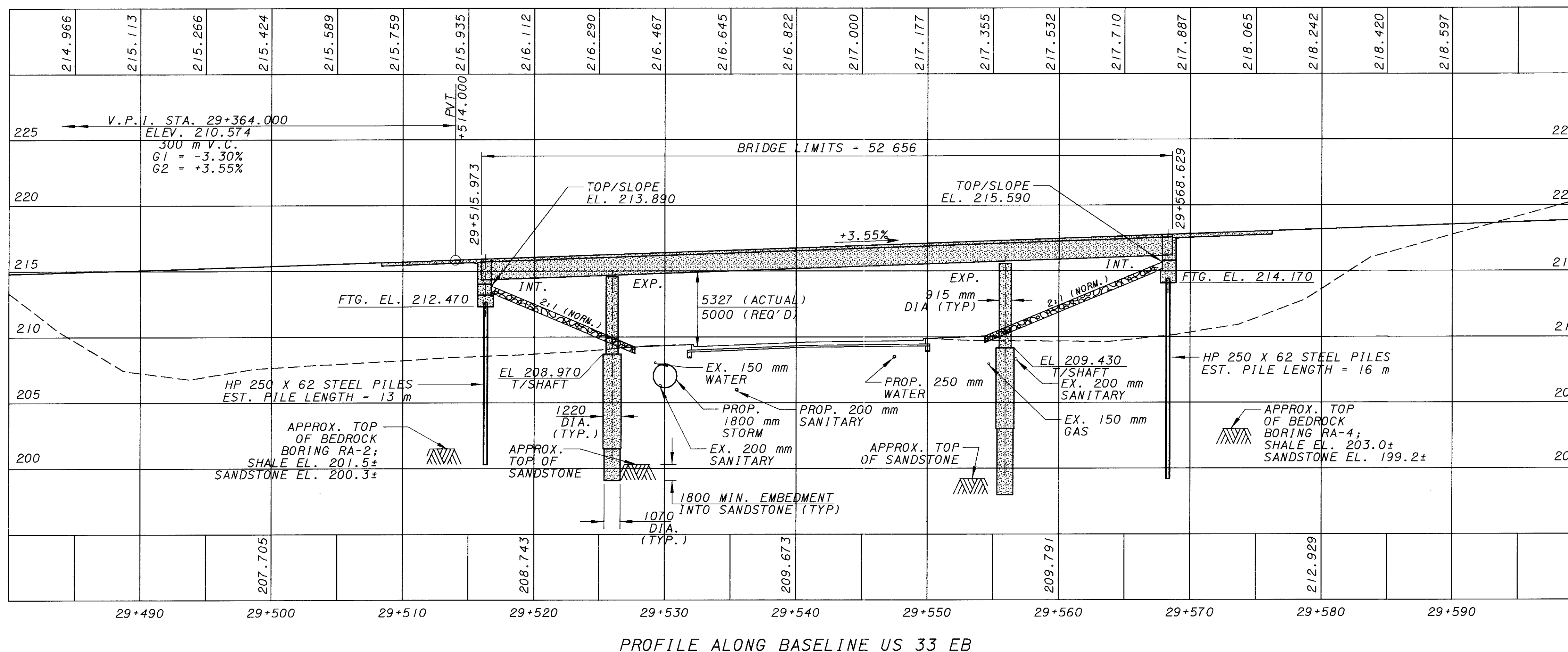
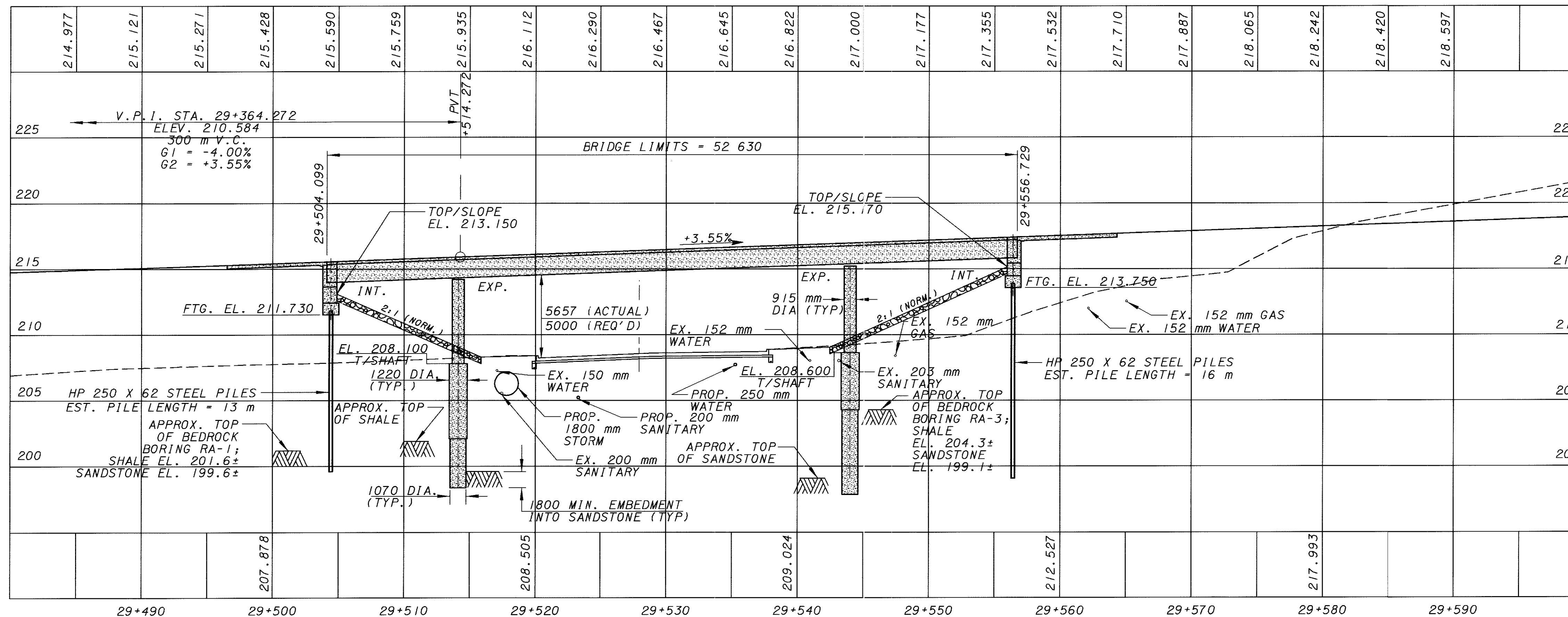
SUPER ELEVATION: VARIES

LATITUDE: N 39° 18' 11"

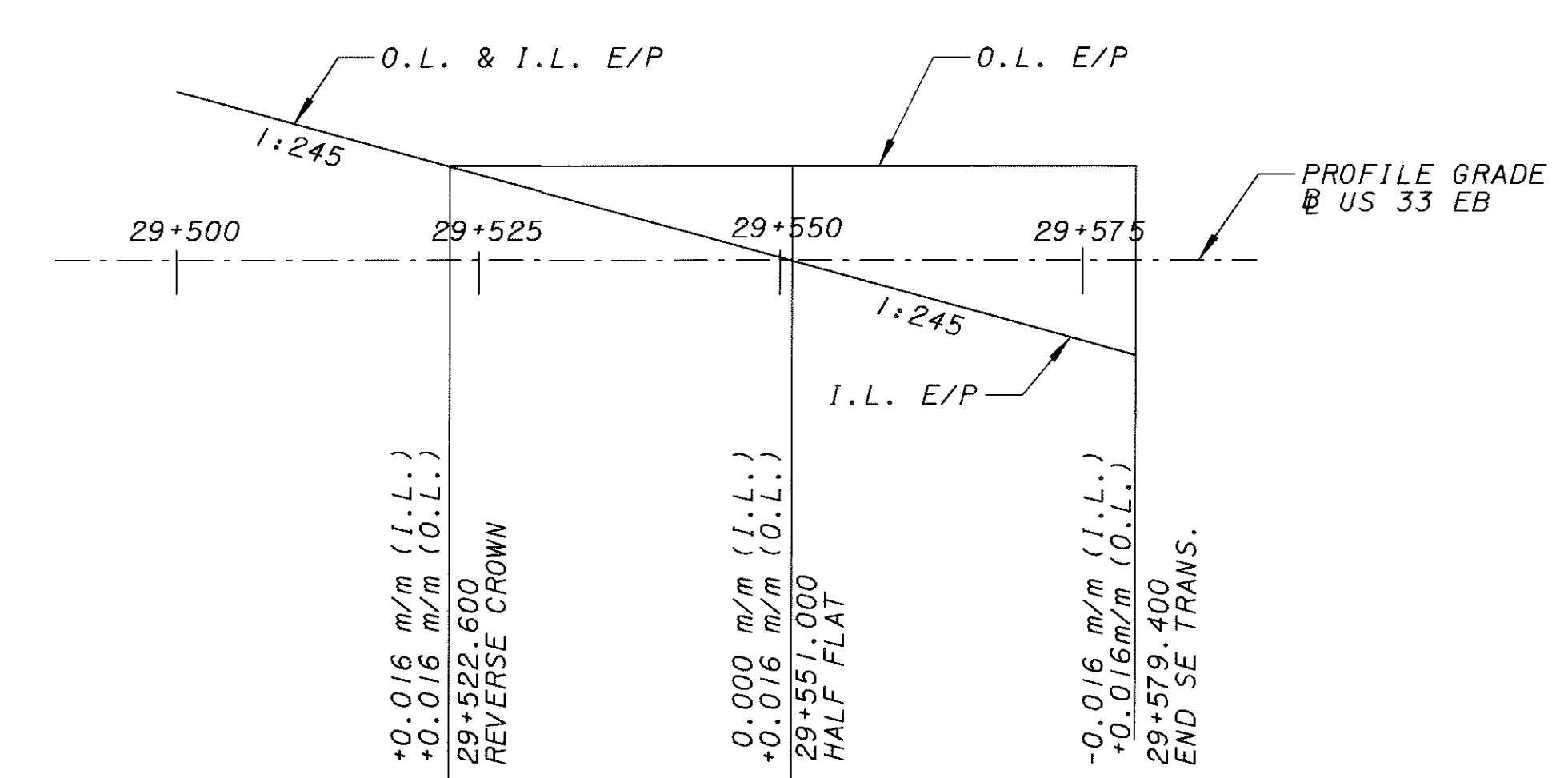
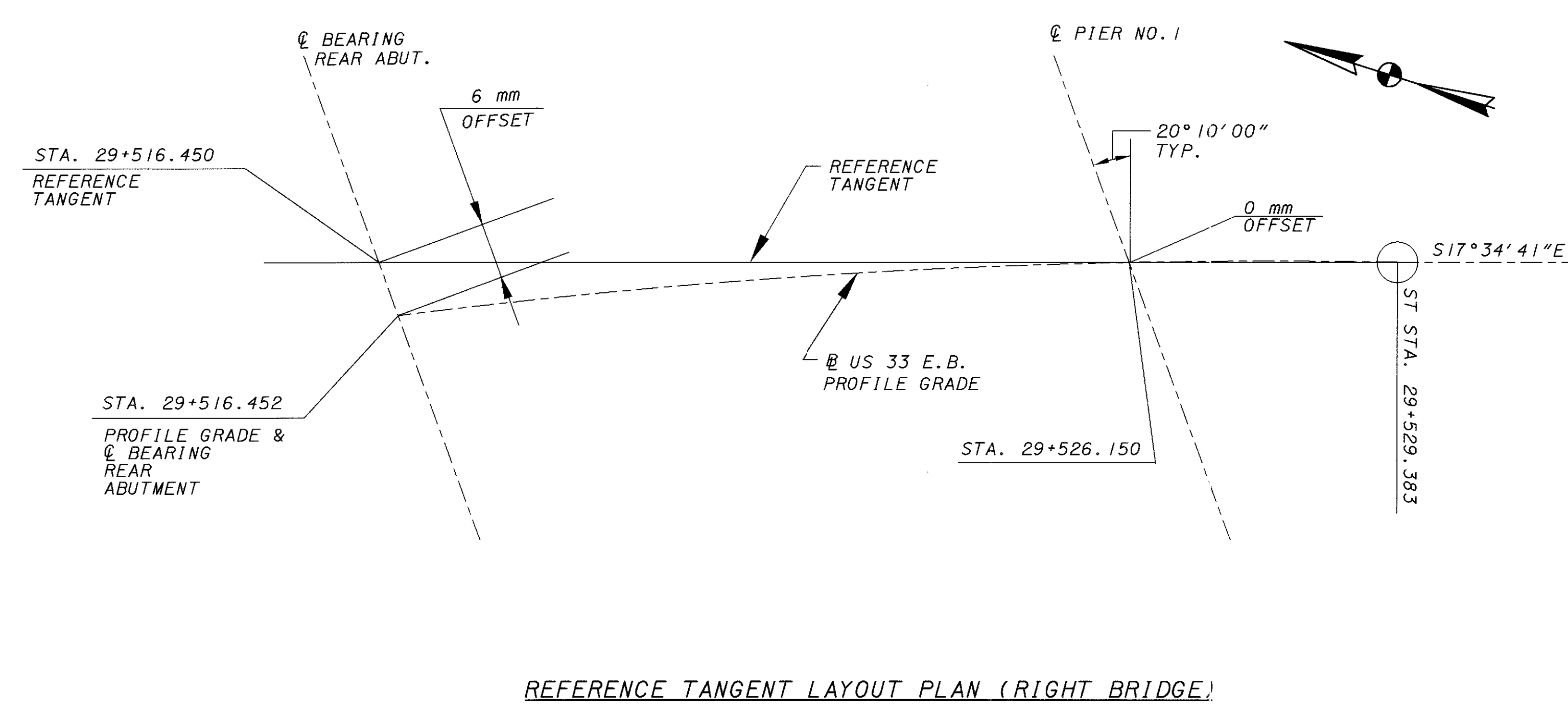
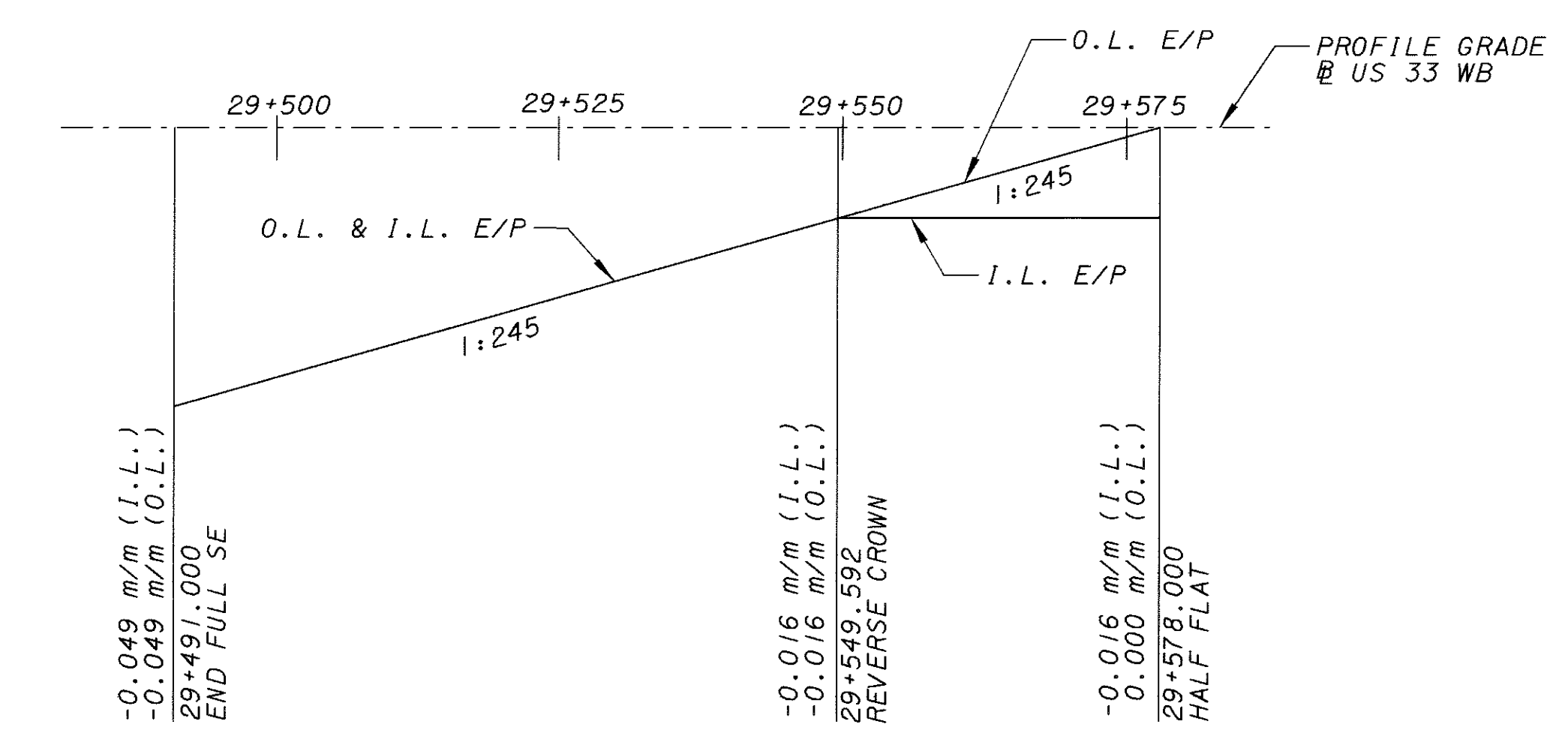
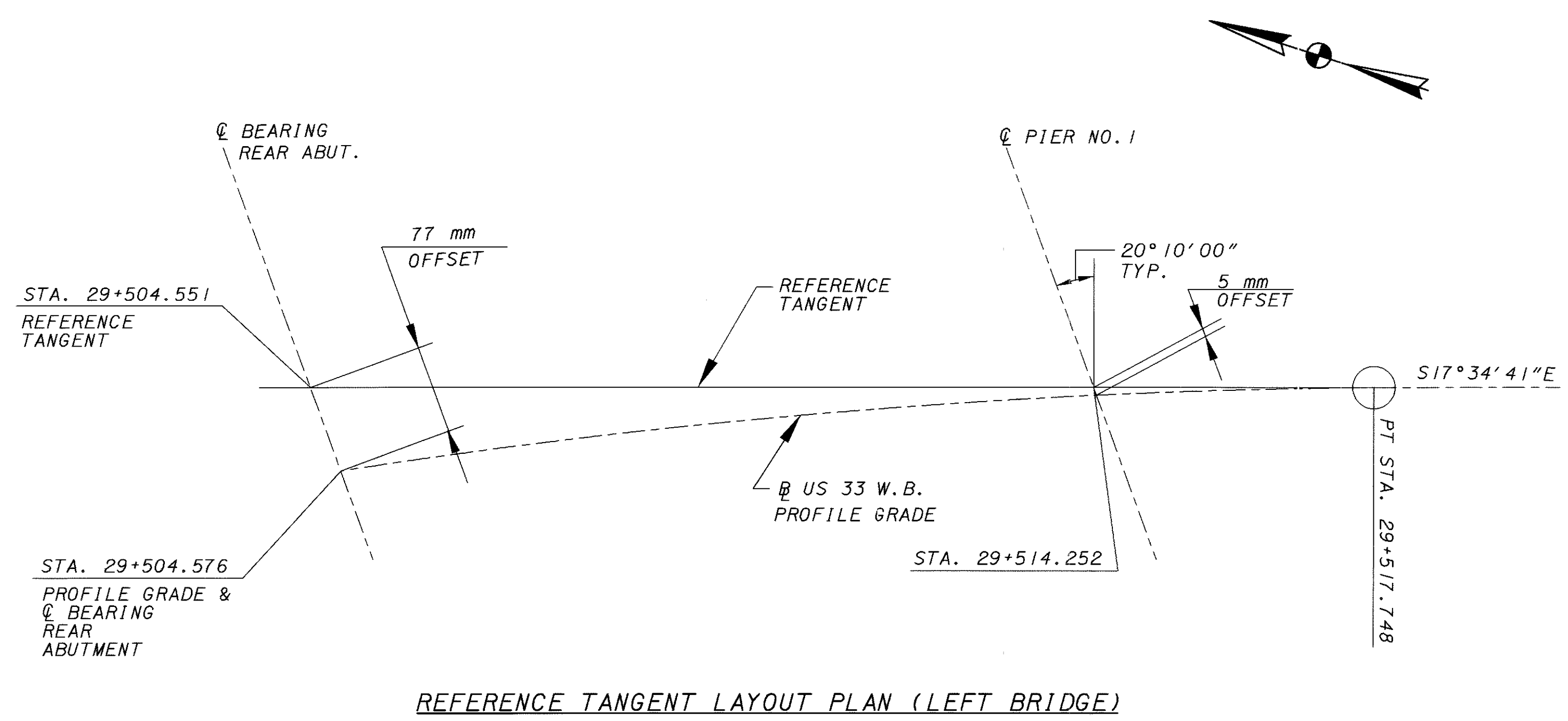
LONGITUDE: W 82° 06' 13"

<p><b>CURVE DATA US 33 MAINLINE WB</b></p> <p>P.I. STA 29+419.534  <math>\Delta</math> = 9° 24' 00" RT.              R = 1200.000m              T = 98.657m              L = 196.870m              E = 4.049m  <math>e_{max}</math> = 0.049</p>	<p><b>CURVE DATA US 33 MAINLINE EB</b></p> <p>P.I. STA 29+369.824  <math>\Delta</math> = 22° 16' 07" RT.              R = 520.000m              Ls = 120.000m              Os = 6° 36' 40"              LT = 80.056m              ST = 40.051m              L = 82.102m              Ts = 162.543m              Es = 11.151m  <math>e_{max}</math> = 0.080</p>	<p><b>CURVE DATA NO. 1 RICHLAND AVE./ALBANY RD.</b></p> <p>P.I. STA 0+272.536  <math>\Delta</math> = 7° 28' 30" LT.              R = 977.042m              T = 63.824m              L = 127.467m              E = 2.082m  <math>e_{max}</math> = 0.080</p>
<p><b>ABBREVIATIONS:</b>              WB = WESTBOUND              EB = EASTBOUND              @ = BASELINE</p>		
<p><b>NOTES</b></p> <ol style="list-style-type: none"> <li>EARTHWORK LIMITS SHOWN ARE APPROXIMATE; ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.</li> <li>STATIONS AND ELEVATIONS SHOWN ARE IN METERS; ALL OTHER DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.</li> <li>ALL EMBANKMENT SLOPES ARE 2:1 UNLESS NOTED OTHERWISE.</li> <li>EMBANKMENT SLOPES DESIGNATED WITH * VARY. MAXIMUM SLOPE IS 2:1.</li> <li>R/W LINES ARE OUTSIDE OF THE SITE PLAN LIMITS.</li> </ol>		
<p><b>CURVE DATA NO. 2 RICHLAND AVE./ALBANY RD.</b></p> <p>P.I. STA 0+374.311  <math>\Delta</math> = 62° 38' 52" LT.              R = 62.655m              T = 38.131m              L = 68.508m              E = 10.691m  <math>e_{max}</math> = 0.080</p>		

DESIGN AGENCY: GANNETT FLEMING ENGINEERS & ARCHITECTS, P.C.  
 480 WESTWILDE AVENUE, SUITE 400  
 WEST WYOMING, WYOMING 83091  
 DATE: 2/6/01  
 REVIEWED: JR  
 STRUCTURE FILE NUMBER: 0501026  
 0501034  
 DRAWN: DEK  
 CHECKED: ZR  
 DESIGNED: CLP/DEK  
 ATHENS COUNTY  
 29+515.973 TO 29+566.629 (R)  
 29+504.099 TO 29+556.729 (L)  
 SITE PLAN  
 BRIDGE NO. ATH-33-29505L/29517R  
 US 33 OVER ALBANY ROAD  
 ATH-33-30.981  
 1/25  
 884  
 956



**ABBREVIATIONS:**  
EXP. = EXPANSION BEARINGS  
INT. = INTEGRAL ABUTMENTS



ABBREVIATIONS:  
O.L. = OUTSIDE LANE  
I.L. = INSIDE LANE  
E/P = EDGE OF PAVEMENT

NOTES:  
1. FOR OUTSIDE & INSIDE LANE LOCATION & DEFINITION SEE SHEET 16 OF 25.

# GENERAL NOTES



**REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS:**

AS-1-81M REVISED 03-20-95  
 BR-1M REVISED 01-06-99  
 PSID-1-99 REVISED 10-20-00  
 ICD-1-82M DATED 03-20-95  
 DM-4.1M DATED 06-30-95  
 GR-3.1M DATED 10-21-97

**AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:**

841 DATED 10-12-99  
 842 DATED 01-06-99  
 844 DATED 01-06-99  
 846 DATED 09-09-97  
 865 DATED 02-22-00  
 894 DATED 10-12-99  
 899 DATED 10-21-98  
 911 DATED 07-10-97  
 954 DATED 09-09-97

**DESIGN SPECIFICATIONS:**

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996 INCLUDING THE INTERIM SPECIFICATIONS 1997 THRU 1999 AND THE O.D.O.T BRIDGE DESIGN MANUAL.

**DESIGN LOADING:**

MS 22.5 AND THE ALTERNATE MILITARY LOADING.  
 FUTURE WEARING SURFACE (FWS) OF 2.87 KPa.

**DESIGN STRESSES:**

HIGH PERFORMANCE CONCRETE HPC SS894 FOR BRIDGE DECK -  
 COMPRESSIVE STRENGTH 31 MPa (DECK)

CONCRETE CLASS S - COMPRESSIVE STRENGTH  
 31 MPa (SUPERSTRUCTURE)

CONCRETE CLASS C - COMPRESSIVE STRENGTH  
 27.5 MPa (SUBSTRUCTURE)

CONCRETE S MODIFIED - COMPRESSIVE STRENGTH  
 27.5 MPa (DRILLED SHAFT)

CONCRETE FOR PRESTRESSED BEAMS -  
 COMPRESSIVE STRENGTH (FINAL) 48 MPa  
 COMPRESSIVE STRENGTH (RELEASE) 34.5 MPa  
 UNIT STRESS- 28.8 MPa COMPRESSION  
 UNIT STRESS- 3.4 MPa TENSION

PRESTRESSING STRAND - ASTM A416M  
 13 mm DIAMETER AREA = 99 SQ. mm  
 f's = 1860 MPa  
 INITIAL STRESS = 0.75f's (LOW RELAXATION STRANDS)

REINFORCING STEEL - ASTM A615M, A616M OR A617M  
 GRADE 420 MINIMUM YIELD STRENGTH 420 MPa

SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82M OR A615M.

STRUCTURAL STEEL - ASTM A709 GRADE 50- YIELD STRENGTH 350 MPa

**DECK PROTECTION METHOD:**

EPOXY COATED REINFORCING STEEL  
 65 mm CONCRETE COVER  
 SEALING OF CONCRETE SURFACES  
 HIGH PERFORMANCE CONCRETE.

**MONOLITHIC WEARING SURFACE:**

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE  
 25 mm THICK

**PROTECTION OF TRAFFIC:**

FOR PROTECTION OF TRAFFIC DETAILS, SEE MAINTENANCE OF TRAFFIC PLANS.

**EMBANKMENT CONSTRUCTION:**

PILE DRIVING CONSTRAINTS: PRIOR TO DRIVING PILES, THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 60 METERS BEHIND EACH ABUTMENTS. THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

**ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:**

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE PLACED IN 150 mm LIFTS.

**PILES DRIVEN TO BED ROCK:**

PILES TO BEDROCK: PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL MILLIMETERS WITH A MINIMUM RESISTANCE OF 20 BLOWS PER 25 mm OR REFUSAL SHALL BE CONSIDERED AS OBTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS. THE CONTRACTOR IS RESPONSIBLE FOR SELECTING THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE ULTIMATE BEARING VALUE IS 860 KN PER PILE FOR THE ABUTMENT PILES FOR LEFT AND RIGHT BRIDGES.

**LEFT BRIDGE ( BRIDGE NO ATH-33-29505L ) :**

**REAR ABUTMENT PILES:**

11 PILES 13 METERS LONG, ESTIMATED LENGTH  
 11 PILES OF ORDER LENGTH 14.5 METERS LONG  
 6 SPLICES

**FORWARD ABUTMENT PILES:**

11 PILES 16 METERS LONG, ESTIMATED LENGTH  
 11 PILES OF ORDER LENGTH 17.5 METERS LONG  
 6 SPLICES

**RIGHT BRIDGE ( BRIDGE NO ATH-33-9517R ) :**

**REAR ABUTMENT PILES:**

11 PILES 13 METERS LONG, ESTIMATED LENGTH  
 11 PILES OF ORDER LENGTH 14.5 METERS LONG  
 6 SPLICES

**FORWARD ABUTMENT PILES:**

11 PILES 16 METERS LONG, ESTIMATED LENGTH  
 11 PILES OF ORDER LENGTH 17.5 METERS LONG  
 6 SPLICES

**DRILLED SHAFT DESIGN LOADS:**

THE DESIGN LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 4448 KN AT THE PIERS. THIS LOAD IS RESISTED BY SHAFT ADHESION WITHIN A PORTION OF THE BEDROCK SOCKET AND ALSO BY SHAFT END BEARING. THE ALLOWABLE BED ROCK SOCKET ADHESION IS 0.310 MPa, ASSUMED TO ACT ALONG THE BOTTOM 1.8 METERS OF THE BED ROCK SOCKET FOR THE PIERS. THE ALLOWABLE END BEARING PRESSURE IS 2.80 MPa.

**UTILITY LINES:**

ALL EXPENSE INVOLVED IN RELOCATION (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE UTILITY(IES). THE CONTRACTOR AND THE UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

**APPROACH SLABS:**

ITEM 611 REINFORCED CONCRETE APPROACH SLAB T=380 mm, AS PER PLAN: CONCRETE FOR THIS ITEM SHALL BE HIGH PERFORMANCE CONCRETE HPC SS 894. THE APPROACH SLABS SHALL COMPLY WITH STANDARD DRAWING EXCEPT AS NOTED HERE AND THE BAR SPACINGS INDICATED ON SHEET 22 OF 25 FOR MS 22.5 LOADING.

**ITEM 516 INTEGRAL ABUTMENT EXPANSION JOINT SEAL:**

INSTALL A 1 METER WIDE STRIP, 2.5 mm THICK, GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT AT LOCATIONS SHOWN IN THE PLANS. SECURE THE 1 METER WIDE NEOPRENE SHEETING TO THE CONCRETE WITH 32 X 3 mm (LENGTH X SHANK DIA.) GALVANIZED BUTTON HEAD SPIKE THROUGH A 25 mm OUTSIDE DIAMETER, 3 mm GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 225 mm. OTHER SIMILAR GALVANIZED DEVICES WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE MAY BE USED SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 150 mm (+/-) FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 150 mm (+/-) FORM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS, AT 150 mm CENTER-TO-CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS WHERE THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHOULD COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAPS IN THE LENGTH OF THE HORIZONTAL STRIPS DUE TO MATERIAL MANUFACTURING SHALL BE AT LEAST 300 mm IN LENGTH, IF NOT VULCANIZED OR ADHESIVE BONDED, OR 150 mm IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 2.5 mm THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, mm	D 751	2.5 +/- .25
BREAKING STRENGTH, GRAB WXF, N, MINIMUM	D 751	3130 X 3130
ADHESIVE 25 mm STRIP, 50 mm MINIMUM, N, MINIMUM	D 751	27
BURST STRENGTH (MULLEN) MPa, MINIMUM	D 751	9.65
HEAT AGING 70 HOURS T 100° C, 180 BEND WITHOUT CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMPERATURE BRITTLINESS 1 HOUR AT -40° C, BEND AROUND 6 mm MANDREL	D 2136	NO CRACKING OF COATING

PAYMENT FOR LABOR, MATERIALS AND INSTALLATION OF THESE ITEMS SHALL BE INCLUDED IN ITEM 516 INTEGRAL ABUTMENT EXPANSION JOINT SEAL.

**CONCRETE PARAPETS:**

AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, 32 mm DEEP CONTROL JOINTS SHALL BE SAWEED INTO THE PERIMETER OF THE CONCRETE PARAPET. THE SAW CUT SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. THE SAW CUTS SHALL BE PLACED AS SHOWN ON DETAIL PLANS. THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO INSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 6 mm. THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED WITH A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION, IT-S-00227E TO A MINIMUM DEPTH OF 25mm. THE BOTTOM 13 mm OF THE INSIDE & OUTSIDE FACES SHOULD BE LEFT UNSEALED TO ALLOW WATER WHICH MAY ENTER THE JOINT TO ESCAPE. CONCRETE FOR THIS ITEM SHALL BE CLASS S.

**ITEM 512, SEALING OF CONCRETE SURFACES, (EPOXY-URETHANE):**

THE COLOR OF THE URETHANE TOP COAT SHALL BE FEDERAL COLOR NO. 17778 (OFF-WHITE)

**CONVERSION OF STANDARD BRIDGE DRAWINGS:**

THE STANDARD BRIDGE DRAWINGS REFERENCED IN THE PLAN ARE METRIC AND ENGLISH. ANY CONVERSION OF THE DIMENSIONS REQUIRED TO CONSTRUCT THE ITEMS SHOWN ON THE STANDARD SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONVERSIONS SHALL BE MADE USING THE SI ( METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN THE SECTION 109.011 OF THE 1997 CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE APPENDIX OF ASTM E380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROPRIATELY PRECISE AND SHALL REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

**ITEM 865 PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, MISC: INTERMEDIATE CONCRETE DIAPHRAGMS, AS PER PLAN:**

STANDARD DRAWING PSID-1-99 STATES THAT STEEL OR CONCRETE MAY BE USED FOR THE INTERMEDIATE DIAPHRAGMS. DISTRICT 10 HAS CHANGED THIS REQUIRING THAT ONLY CONCRETE TO BE USED.

**AS PER PLAN CONCRETE ITEMS:**

A REINFORCING STEEL LIST HAS NOT BEEN PROVIDED WITH THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING THE REINFORCING STEEL LIST AND ALL REINFORCING STEEL DETAILS, IN ACCORDANCE WITH SECTIONS 301.4 THROUGH 301.4.8 (INCLUSIVE) OF THE ODOT BRIDGE DESIGN MANUAL, APRIL 2000 EDITION. THE COMPLETED REINFORCING STEEL LIST SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND ACCEPTANCE IN ACCORDANCE WITH CMS 501.05. FABRICATION OF THE REINFORCING STEEL SHALL NOT BEGIN UNTIL WRITTEN ACCEPTANCE OF THE SUBMITTED DRAWINGS HAS BEEN RECEIVED FROM THE DIRECTOR. ALL COSTS FOR PREPARING THE REINFORCING STEEL LIST SHALL BE INCLUDED FOR PAYMENT WITH THE APPROPRIATE CONCRETE ITEMS.

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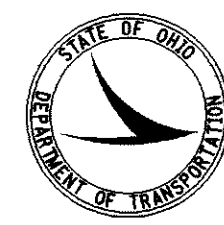
DESIGN AGENCY  
 GANNETT FLEMING  
 ENGINEERS & ARCHITECTS, P.C.  
 419 WESTWAY DRIVE, SUITE 400  
 WESTPORT, NY 10988

DATE  
 2/6/01  
 REVISED  
 JR

DRAWN  
 DEK  
 CHECKED  
 ZR  
 DESIGNED  
 CTY

STRUCTURE FILE NUMBER  
 0501026  
 0501034  
 GENERAL NOTES  
 BRIDGE NO. ATH-33-29505L/29517R  
 US 33 OVER ALBANY ROAD

ATH-33-30.981



metric units

COMPUTED BY : ZR  
CHECKED BY : EDW

DATE : 12/00  
DATE : 12/00

ESTIMATED STRUCTURE QUANTITIES

ITEM	ITEM EXTENSION	TOTAL LEFT BRIDGE	TOTAL RIGHT BRIDGE	UNIT	DESCRIPTION	LEFT BRIDGE				RIGHT BRIDGE				AS PER PLAN SHEET NO.
						ABUTS.	PIERS	SUPER.	GENERAL	ABUTS.	PIERS	SUPER.	GENERAL	
503	21301	LUMP	LUMP	LUMP	UNCLASSIFIED EXCAVATION, AS PER PLAN				LUMP				LUMP	4 OF 25
505	11100	LUMP	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP				LUMP	
507	00100	319	319	METER	STEEL PILES HP250X62, FURNISHED	319				319				
507	00150	352	352	METER	STEEL PILES HP 250X62, DRIVEN	352				352				
507	50500	12	12	EACH	STEEL PILE SPLICES	12				12				
SPECIAL	51267510	955	939	SQ. M.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) *	118	197	640		112	187	640		
516	13900	5	5	SQ. M.	51 mm PREFORMED EXPANSION JOINT FILLER	5				5				
516	14014	40	40	METER	INTEGRAL ABUTMENT EXPANSION JOINT SEAL	40				40				
516	44101	12	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN * (230 X 345 X 61 BEARING WITH 270 X 660 X 50 (AVE.) LOAD PLATE)			12				12		25 OF 25
516	44101	12	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN * (295 X 460 X 55.5 BEARING WITH 335 X 660 X 55.5 (AVE.) LOAD PLATE)			12				12		25 OF 25
518	21230	LUMP	LUMP	LUMP	POROUS BACKFILL WITH FILTER FABRIC				LUMP				LUMP	
518	40000	46.3	46.3	METER	150 mm PERFORATED CORRUGATED PLASTIC PIPE	46.3				46.3				
518	40010	8.3	8.3	METER	150 mm NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	8.3				8.3				
524	94804	32	26	METER	DRILLED SHAFTS, 1070 mm DIA. INTO BEDROCK			32				26		
524	94902	32	42	METER	DRILLED SHAFTS, 1220 mm DIA. ABOVE BEDROCK			32				42		
601	32200	227	230	CU. M.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER				227				230	
841	10000	709	709	SQ. M.	TREATING OF CONCRETE SURFACES WITH SRS			709				709		
842	31509	41	34	CU. M.	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN **			41				34		4 OF 25
842	41001	67	64	CU. M.	CLASS C CONCRETE, PIER ABOVE FOOTINGS, AS PER PLAN			67				64		4 OF 25
842	43501	113	109	CU. M.	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTINGS, AS PER PLAN	113				109				4 OF 25
865	14020	6	6	EACH	STRAIGHT STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 2, TYPE 4 (SPAN 1)			6				6		
865	14020	6	6	EACH	STRAIGHT STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 2, TYPE 4 (SPAN 3)			6				6		
865	15020	6	6	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE 4			6				6		
865	16000	20	20	EACH	PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, MISC: INTERMEDIATE CONCRETE DIAPHRAGMS, AS PER PLAN			20				20		4 OF 25
894	10001	258	253	CU. M.	HIGH PERFORMANCE CONCRETE, FOR BRIDGE DECK WITH WARRANTY, AS PER PLAN ***			258				253		4 OF 25

\* SEE PROPOSAL NOTE  
 \*\* INCLUDES THE PARAPET ON THE APPROACH SLAB.  
 \*\*\* INCLUDES CONCRETE FOR PIER AND ABUTMENT DIAPHRAGMS.

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DATE: FEB-6-2001 10:00

DESIGN AGENCY: GANNETT FLEMING ENGINEERS & ARCHITECTS, P.C.  
 419 WESTFAIRFAX HWY, #300 WESTFAIRFAX, VA 22090

DATE: 2/6/01  
 STRUCTURE FILE NUMBER: 050026  
 050034

REVIEWED: JR  
 DRAWN: DEK  
 DESIGNED: ZR  
 CHECKED: EDW

ESTIMATED QUANTITIES  
 BRIDGE NO. ATH-33-29505L/29517R  
 US 33 OVER ALBANY ROAD

ATH-33-30.981

5 / 25

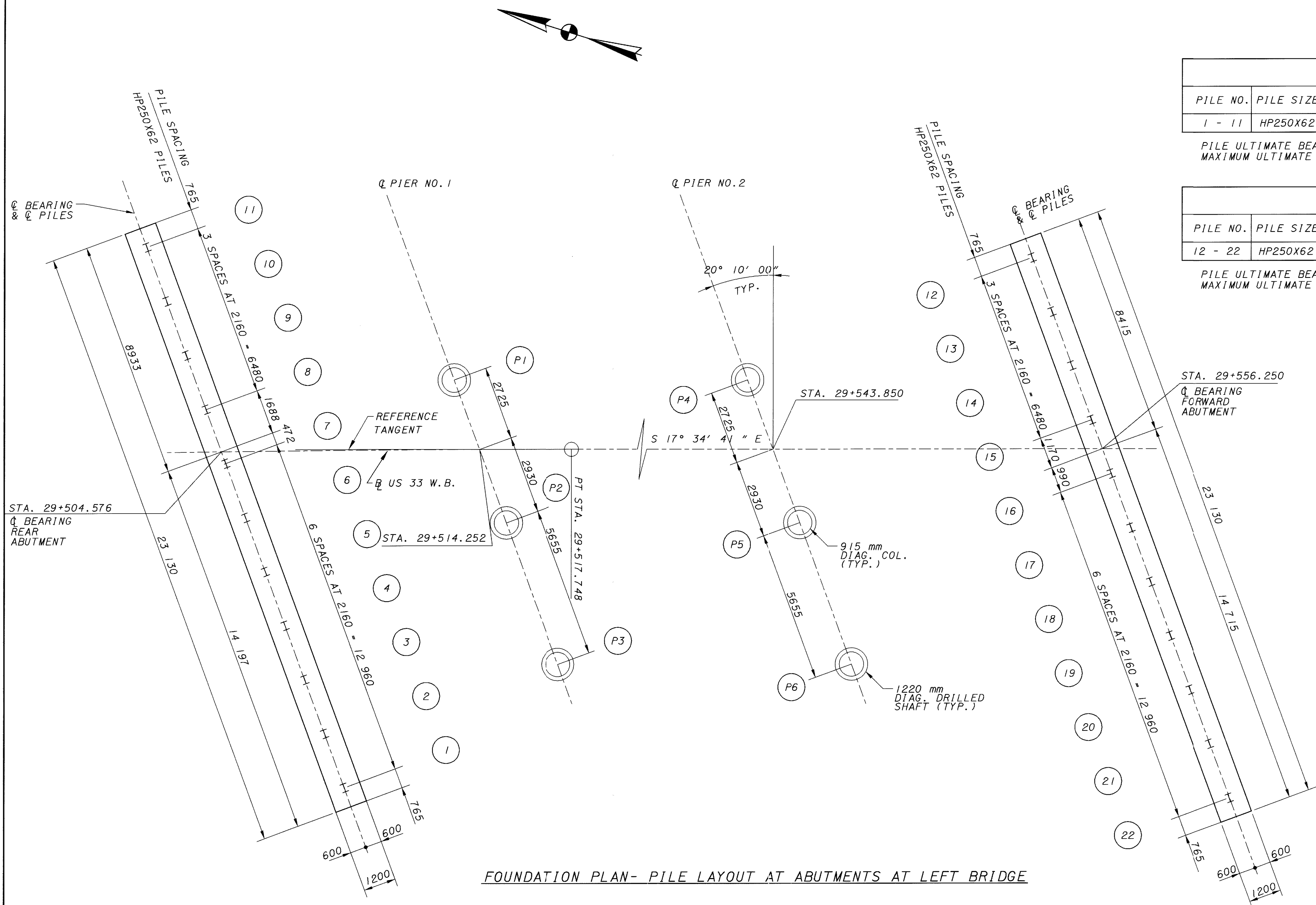
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REAR ABUTMENT				
PILE NO.	PILE SIZE	CUT OFF ELEVATION (m)	ESTIMATED LENGTH (m)	REMARK
1 - 11	HP250X62	199.6	13	VERTICAL

PILE ULTIMATE BEARING LOAD = 860 kN  
MAXIMUM ULTIMATE PILE LOAD = 1000 kN

FORWARD ABUTMENT				
PILE NO.	PILE SIZE	CUT OFF ELEVATION (m)	ESTIMATED LENGTH (m)	REMARK
12 - 22	HP250X62	199.1	16	VERTICAL

PILE ULTIMATE BEARING LOAD = 860 kN  
MAXIMUM ULTIMATE PILE LOAD = 1000 kN



FOUNDATION PLAN- PILE LAYOUT AT ABUTMENTS AT LEFT BRIDGE

PILE SYMBOL  
 I VERTICAL PILES  
 I HP250X62 PILES

NOTES

- FOR PIER FOUNDATION DETAILS SEE SHEET 14 OF 25.

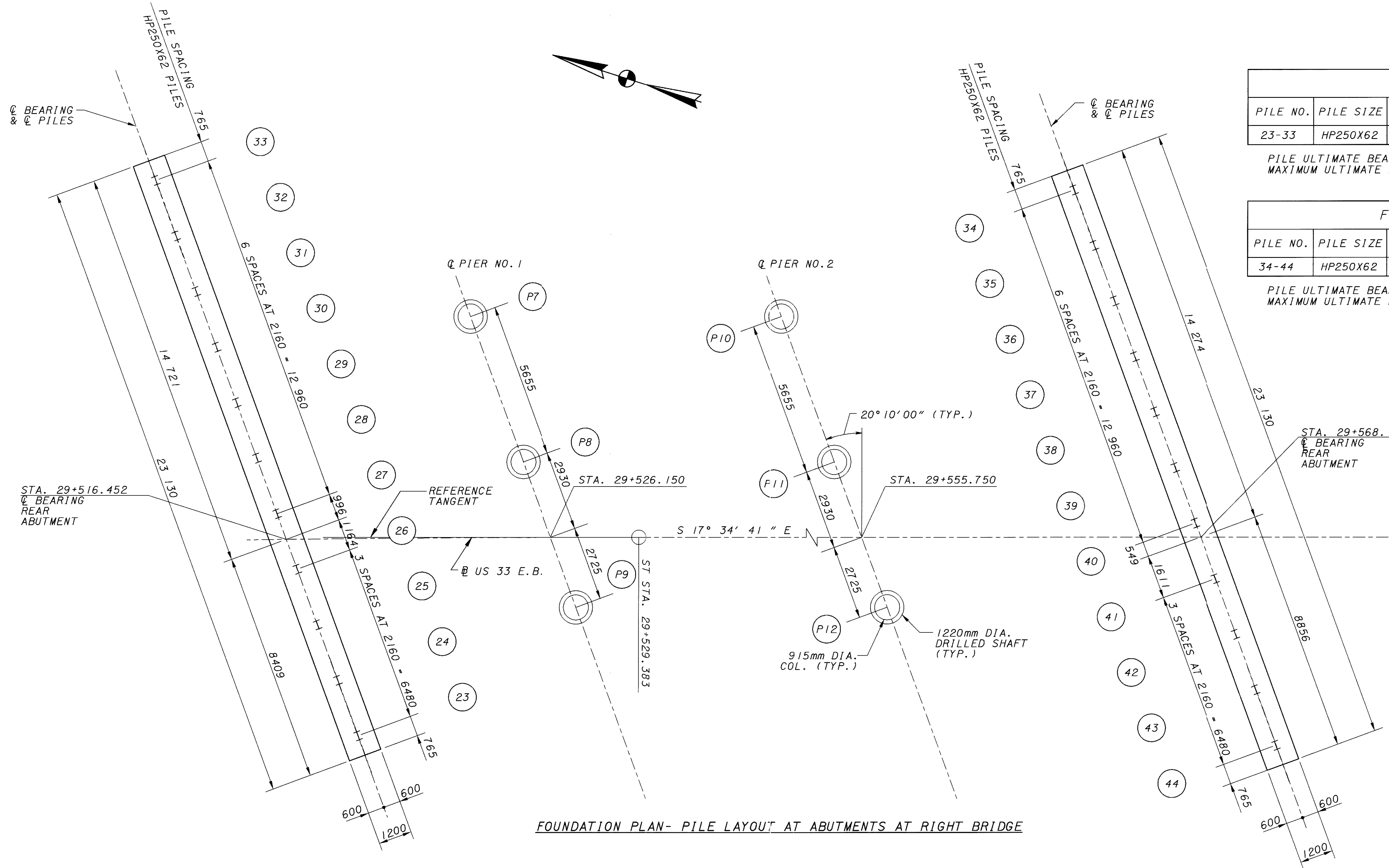
ALL DIMENSIONS ARE IN MILLIMETERS.  
ALL ELEVATIONS AND STATIONS ARE IN METERS.

REAR ABUTMENT				
PILE NO.	PILE SIZE	CUT OFF ELEVATION (m)	ESTIMATED LENGTH (m)	REMARK
23-33	HP250X62	200.3	13	VERTICAL

PILE ULTIMATE BEARING LOAD = 860 kN  
 MAXIMUM ULTIMATE PILE LOAD = 1000 kN

FORWARD ABUTMENT				
PILE NO.	PILE SIZE	CUT OFF ELEVATION (m)	ESTIMATED LENGTH	REMARK
34-44	HP250X62	199.2	16	VERTICAL

PILE ULTIMATE BEARING LOAD = 860 kN  
 MAXIMUM ULTIMATE PILE LOAD = 1000 kN



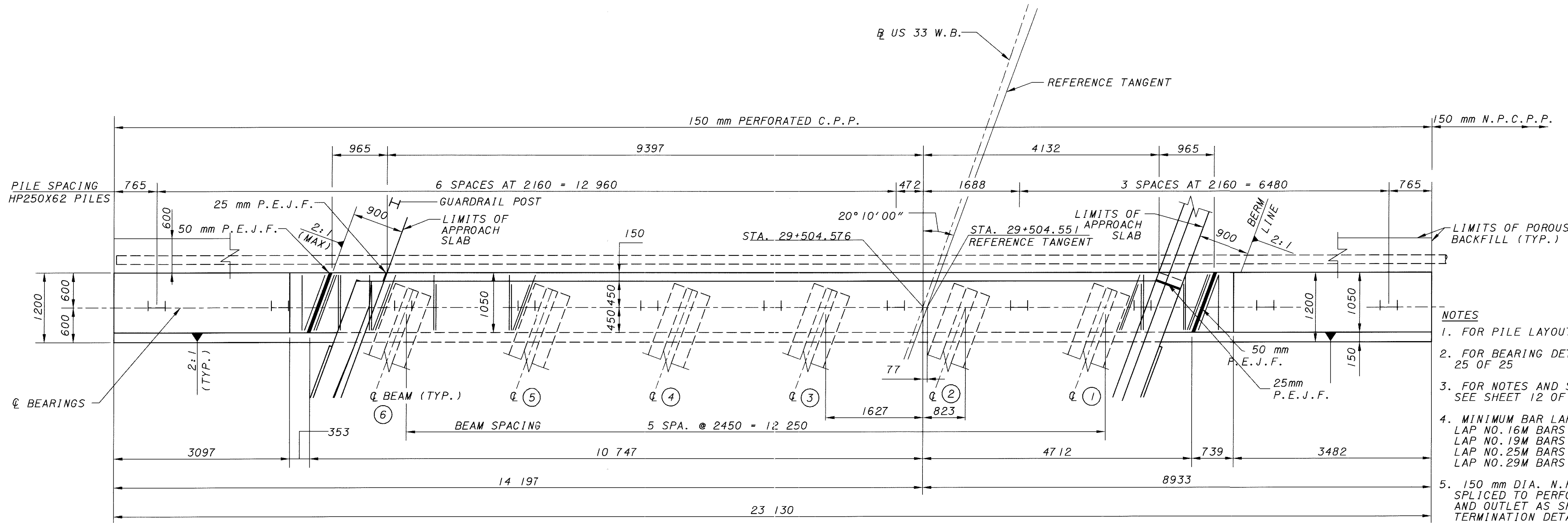
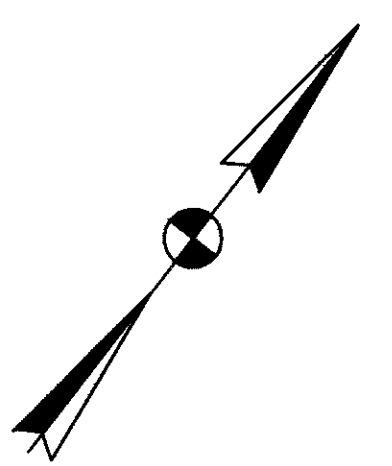
FOUNDATION PLAN- PILE LAYOUT AT ABUTMENTS AT RIGHT BRIDGE

PILE SYMBOL  
 I VERTICAL PILES  
 HP250X62 PILES

NOTES  
 1. FOR PIER FOUNDATION DETAILS SEE SHEET 15 OF 25.

ALL DIMENSIONS ARE IN MILLIMETERS.  
 ALL ELEVATIONS AND STATIONS ARE IN METERS.



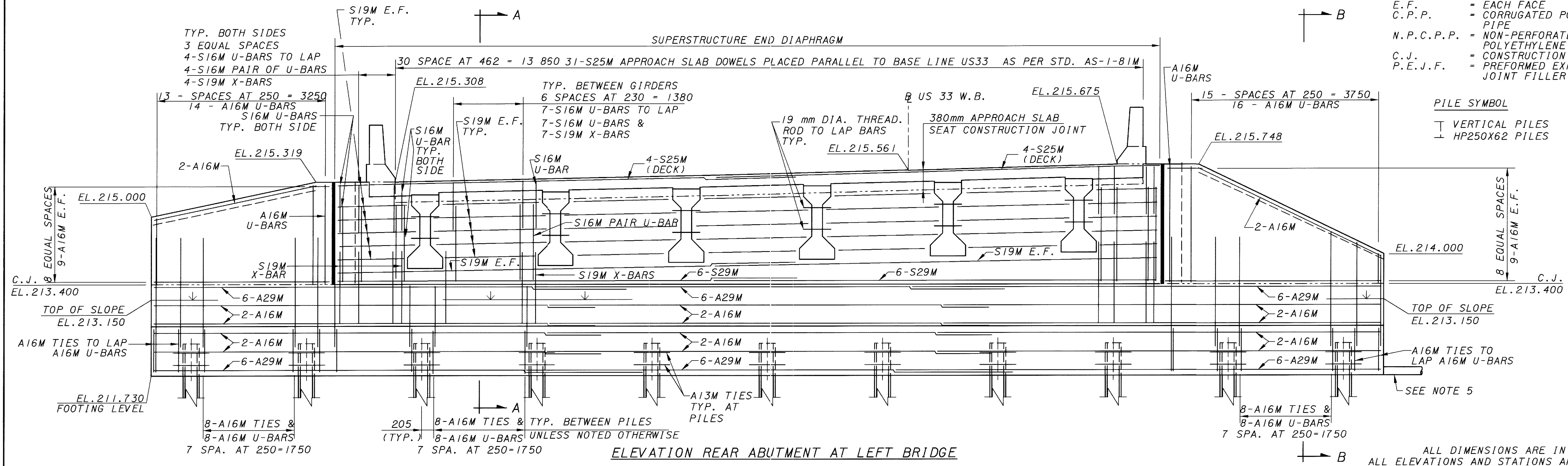


- NOTES**
- FOR PILE LAYOUT, SEE SHT. 6 OF 25
  - FOR BEARING DETAILS, SEE SHEET 25 OF 25
  - FOR NOTES AND SECTIONS A-A AND B-B SEE SHEET 12 OF 25
  - MINIMUM BAR LAPS  
LAP NO. 16M BARS 1040 mm.  
LAP NO. 19M BARS 1240 mm.  
LAP NO. 25M BARS 2080 mm.  
LAP NO. 29M BARS 2640 mm.
  - 150 mm DIA. N.P.C.P.P. AT END SPLICED TO PERFORATED PIPE AND OUTLET AS SHOWN IN PIPE TERMINATION DETAIL ON SHEET 13 OF 25.
  - SEE SHEET 12 OF 25 FOR LOCATIONS OF ELEVATION POINTS.
  - ⊙ INDICATES BEAM ROW NUMBERS.

- ABBREVIATIONS**
- N.F. = NEAR FACE
  - F.F. = FAR FACE
  - E.F. = EACH FACE
  - C.P.P. = CORRUGATED POLYETHYLENE PIPE
  - N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
  - C.J. = CONSTRUCTION JOINT
  - P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

- PILE SYMBOL**
- ⊥ VERTICAL PILES
  - ⊥ HP250X62 PILES

**PLAN - REAR ABUTMENT AT LEFT BRIDGE**



**ELEVATION REAR ABUTMENT AT LEFT BRIDGE**

ALL DIMENSIONS ARE IN MILLIMETERS.  
ALL ELEVATIONS AND STATIONS ARE IN METERS.

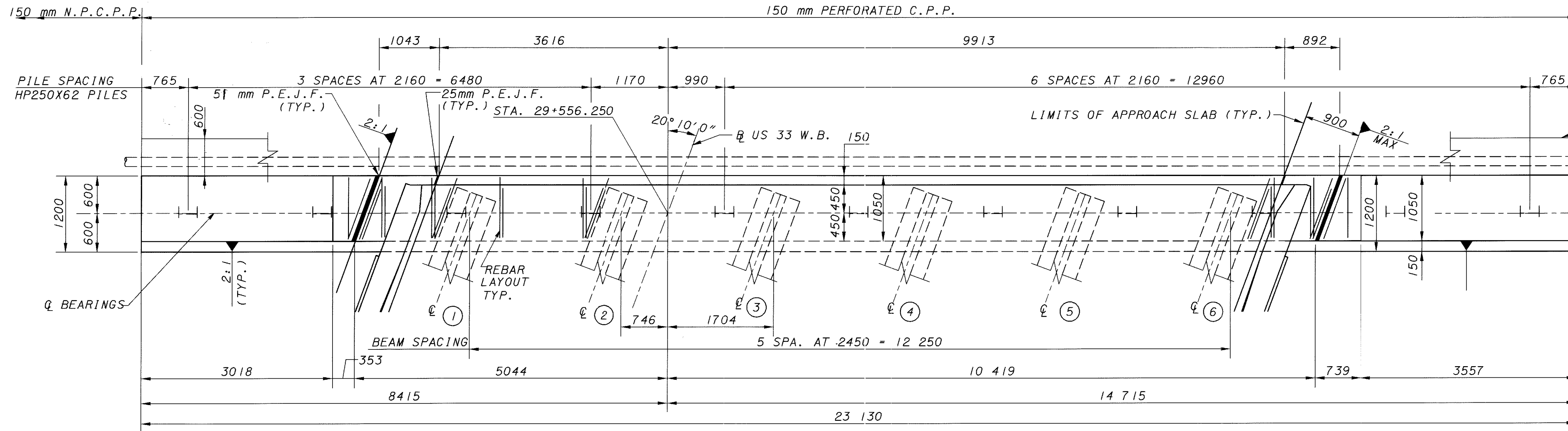
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DATE: FEB-6-2001 10:50

REAR ABUTMENT - LEFT BRIDGE  
BRIDGE NO. ATH-33-29505L/29517R  
US 33 OVER ALBANY ROAD

ATH-33-30.981

8 / 25

891  
956

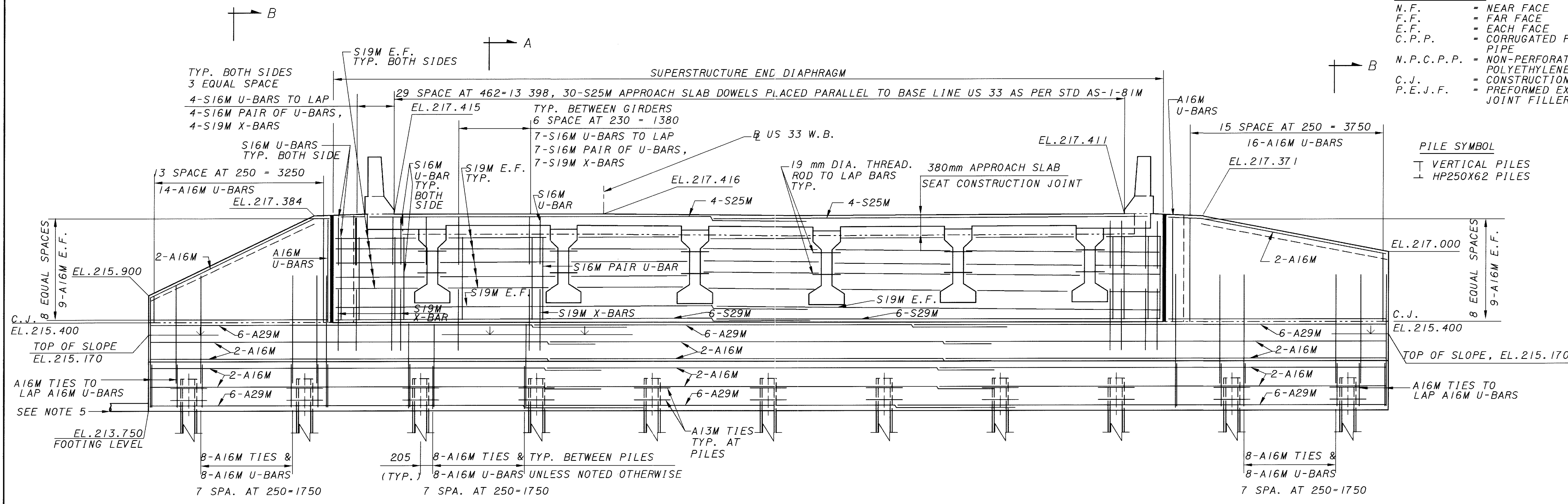


PLAN - FORWARD ABUTMENT AT LEFT BRIDGE

- NOTES**
- FOR PILE LAYOUT, SEE SHT. 6 OF 25
  - FOR BEARING DETAILS, SEE SHEET 25 OF 25
  - FOR NOTES AND SECTIONS A-A AND B-B SEE SHEET 12 OF 25
  - MINIMUM BAR LAPS  
LAP NO. 16M BARS 1040 mm.  
LAP NO. 19M BARS 1240 mm.  
LAP NO. 25M BARS 2080 mm.  
LAP NO. 29M BARS 2640 mm.
  - 150 mm DIA. N.P.C.P.P. AT END SPLICED TO PERFORATED PIPE AND OUTLET AS SHOWN IN PIPE TERMINATION DETAIL ON SHEET 13 OF 25.
  - SEE SHEET 12 OF 25 FOR LOCATIONS OF ELEVATION POINTS.
  - (\*) INDICATES BEAM ROW NUMBERS.

- ABBREVIATIONS**
- N.F. = NEAR FACE
  - F.F. = FAR FACE
  - E.F. = EACH FACE
  - C.P.P. = CORRUGATED POLYETHYLENE PIPE
  - N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
  - C.J. = CONSTRUCTION JOINT
  - P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

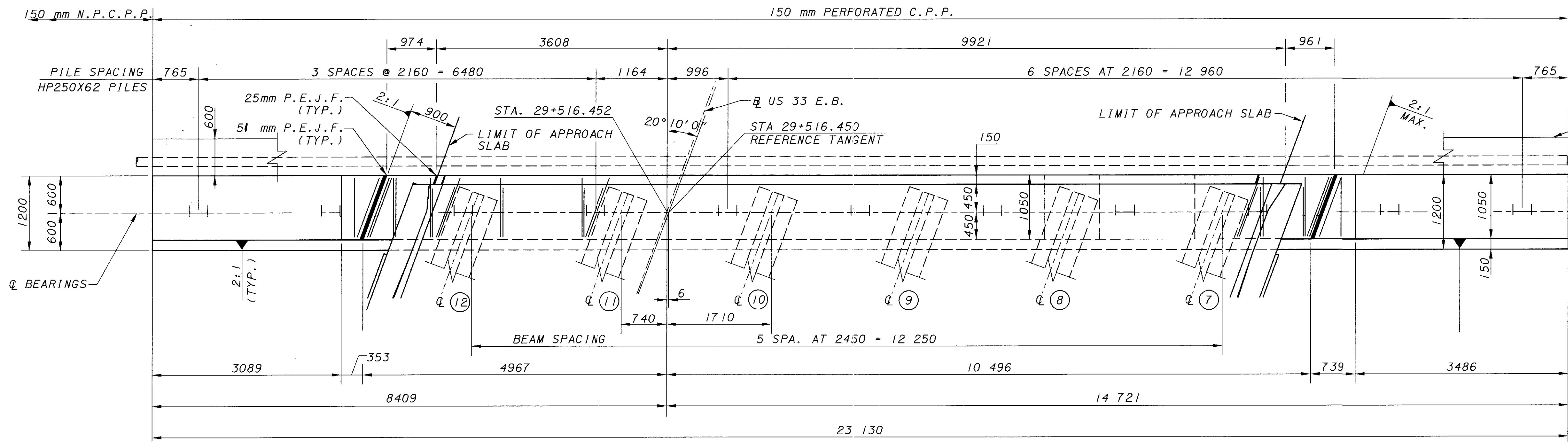
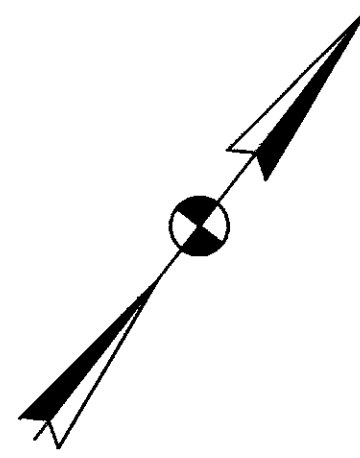
- PILE SYMBOL**
- ⊥ VERTICAL PILES
  - ⊥ HP250X62 PILES



ELEVATION- FORWARD ABUTMENT AT LEFT BRIDGE

FILE: q:\8287\BRIDGE\Richland\STAGE 3\ATH33\30.981.dgn  
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ALL DIMENSIONS ARE IN MILLIMETERS.  
ALL ELEVATIONS AND STATIONS ARE IN METERS.

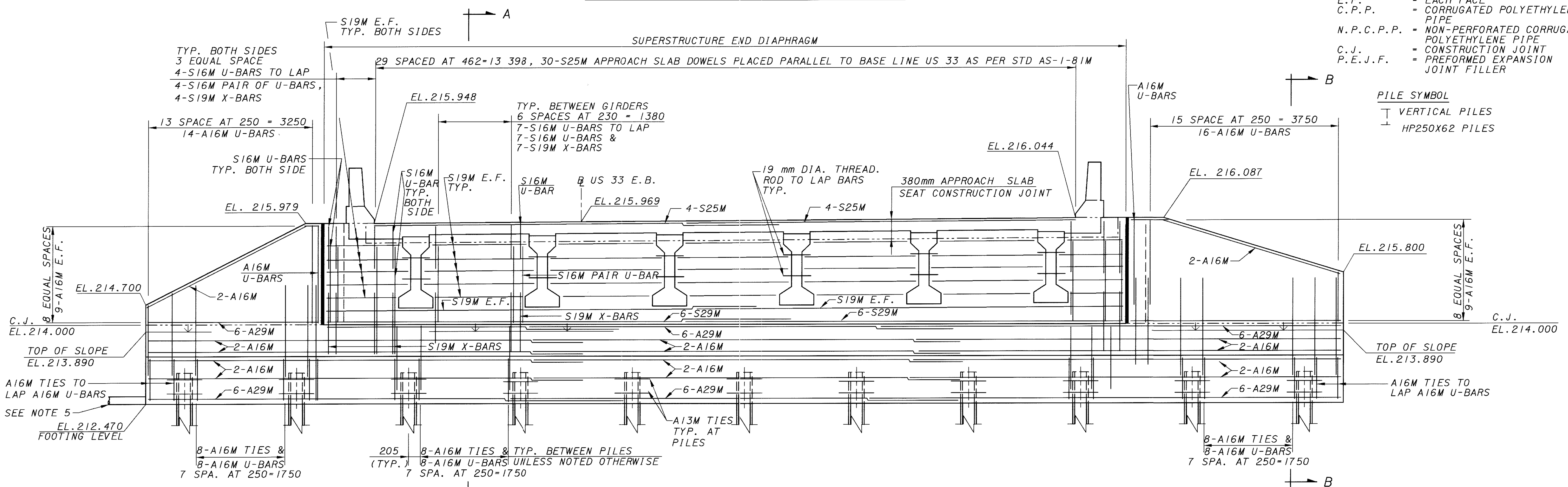


- NOTES**
- FOR PILE LAYOUT, SEE SHT. 6 OF 25
  - FOR BEARING DETAILS, SEE SHEET 25 OF 25
  - FOR NOTES AND SECTIONS A-A AND B-B SEE SHEET 12 OF 25
  - MINIMUM BAR LAPS  
LAP NO. 16M BARS 1040 mm.  
LAP NO. 19M BARS 1240 mm.  
LAP NO. 25M BARS 2080 mm.  
LAP NO. 29M BARS 2640 mm.
  - 150 mm DIA. N.P.C.P.P. AT END SPLICED TO PERFORATED PIPE AND OUTLET AS SHOWN IN PIPE TERMINATION DETAIL ON SHEET 13 OF 25.
  - SEE SHEET 12 OF 25 FOR LOCATIONS OF ELEVATION POINTS.
  - (\*) INDICATES BEAM ROW NUMBERS.

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  - N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
  - C.J. = CONSTRUCTION JOINT
  - P.E.J.F. = PERFORMED EXPANSION JOINT FILLER

- PILE SYMBOL**
- ⊥ VERTICAL PILES
  - ⊥ HP250X62 PILES

PLAN - REAR ABUTMENT AT RIGHT BRIDGE



ELEVATION - REAR ABUTMENT AT RIGHT BRIDGE

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

DESIGN AGENCY  
GANNETT FLEMING  
ENGINEERS & ARCHITECTS, P.C.  
489 WESTFAIRVIEW, WILLOUGHBY, OHIO 44094

DATE  
2/6/01

REVIEWED  
JR

STRUCTURE FILE NUMBER  
0501026

DESIGNED  
ZR

CHECKED  
GAS

REAR ABUTMENT - RIGHT BRIDGE  
BRIDGE NO. ATH-33-29505L/29517R  
US 33 OVER ALBANY ROAD

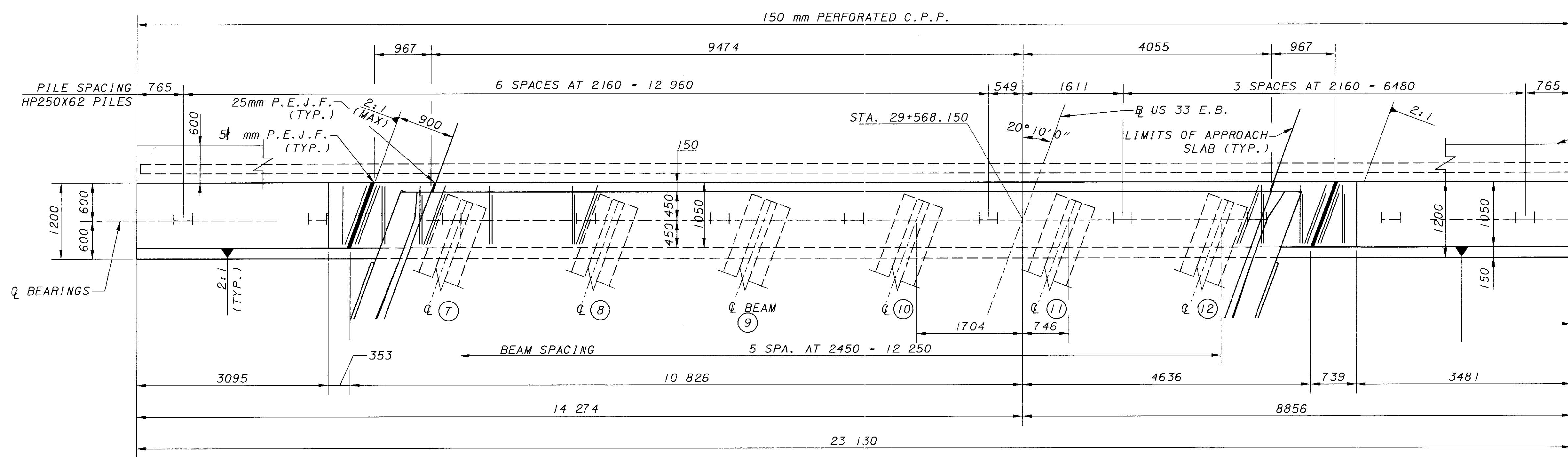
ATH-33-30.981

10 / 25

893  
956

ALL DIMENSIONS ARE IN MILLIMETERS.  
ALL ELEVATIONS AND STATIONS ARE IN METERS.

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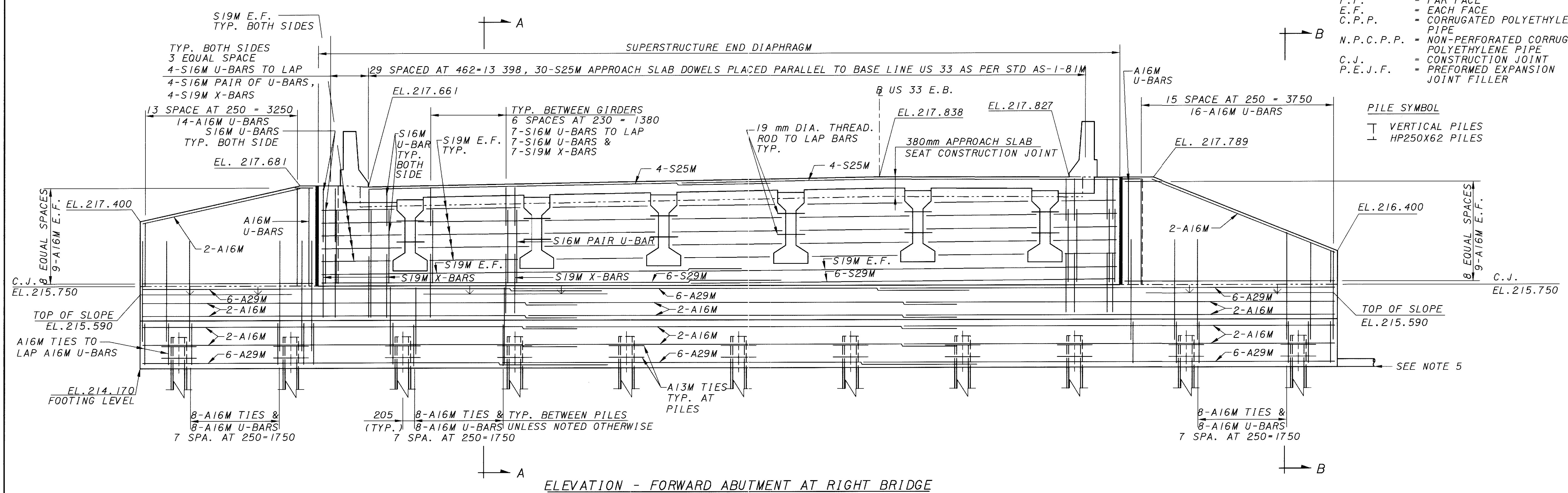


PLAN - FORWARD ABUTMENT AT RIGHT BRIDGE

- NOTES**
- FOR PILE LAYOUT, SEE SHT. 6 OF 25
  - FOR BEARING DETAILS, SEE SHEET 25 OF 25
  - FOR NOTES AND SECTIONS A-A AND B-B SEE SHEET 12 OF 25
  - MINIMUM BAR LAPS  
LAP NO. 16M BARS 1040 mm.  
LAP NO. 19M BARS 1240 mm.  
LAP NO. 25M BARS 2080 mm.  
LAP NO. 29M BARS 2640 mm.
  - 150 mm DIA. N.P.C.P.P. AT END SPLICED TO PERFORATED PIPE AND OUTLET AS SHOWN IN PIPE TERMINATION DETAIL ON SHEET 13 OF 25.
  - SEE SHEET 12 OF 25 FOR LOCATIONS OF ELEVATION POINTS.
  - (\*) INDICATES BEAM ROW NUMBERS.

- ABBREVIATIONS**
- N.F. = NEAR FACE
  - F.F. = FAR FACE
  - E.F. = EACH FACE
  - C.P.P. = CORRUGATED POLYETHYLENE PIPE
  - N.P.C.P.P. = NON-PERFORATED CORRUGATED POLYETHYLENE PIPE
  - C.J. = CONSTRUCTION JOINT
  - P.E.J.F. = PREFORMED EXPANSION JOINT FILLER

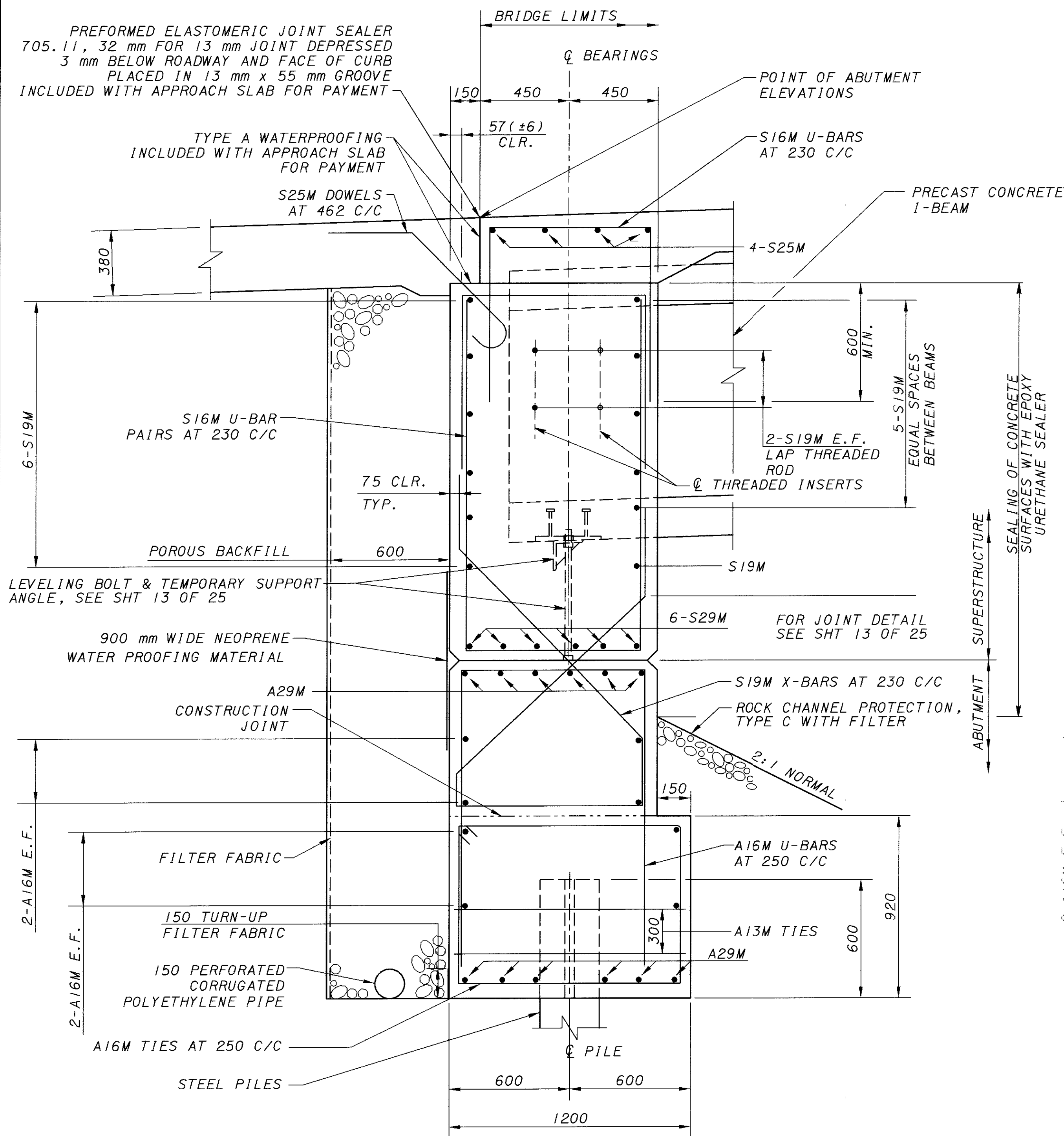
- PILE SYMBOL**
- ┆ VERTICAL PILES
  - ┆ HP250X62 PILES



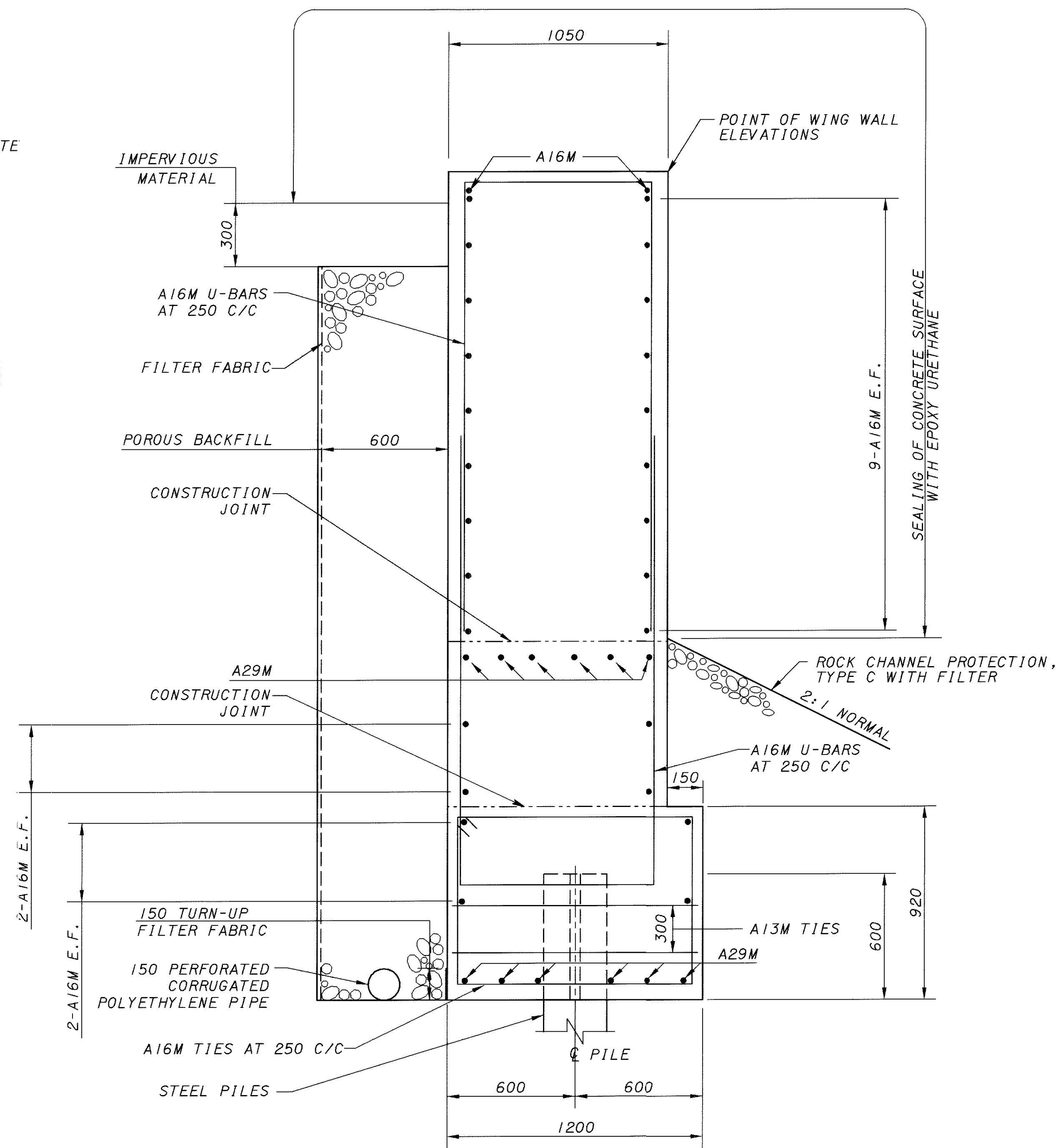
ELEVATION - FORWARD ABUTMENT AT RIGHT BRIDGE

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ALL DIMENSIONS ARE IN MILLIMETERS.  
ALL ELEVATIONS AND STATIONS ARE IN METERS.



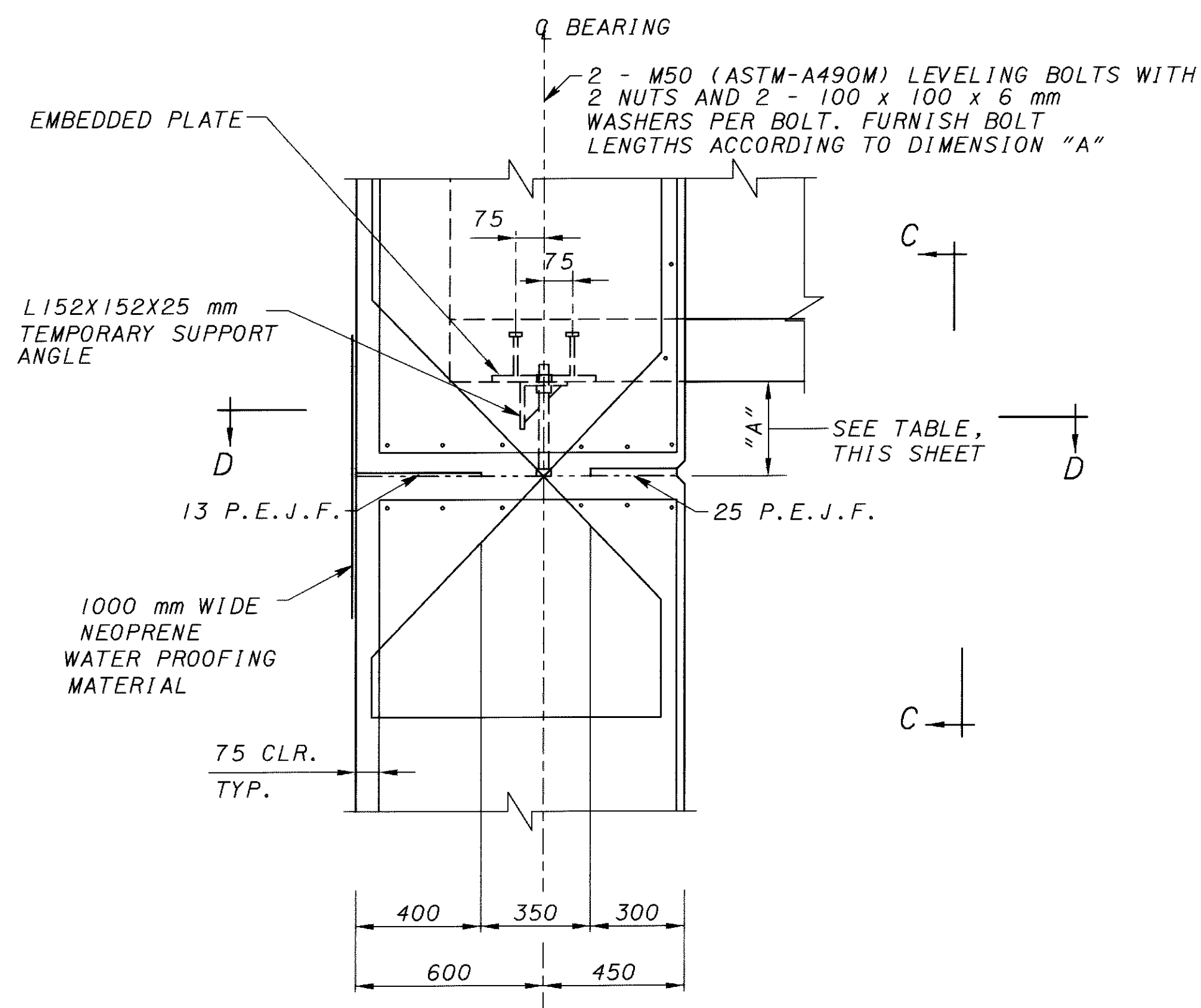
SECTION A-A



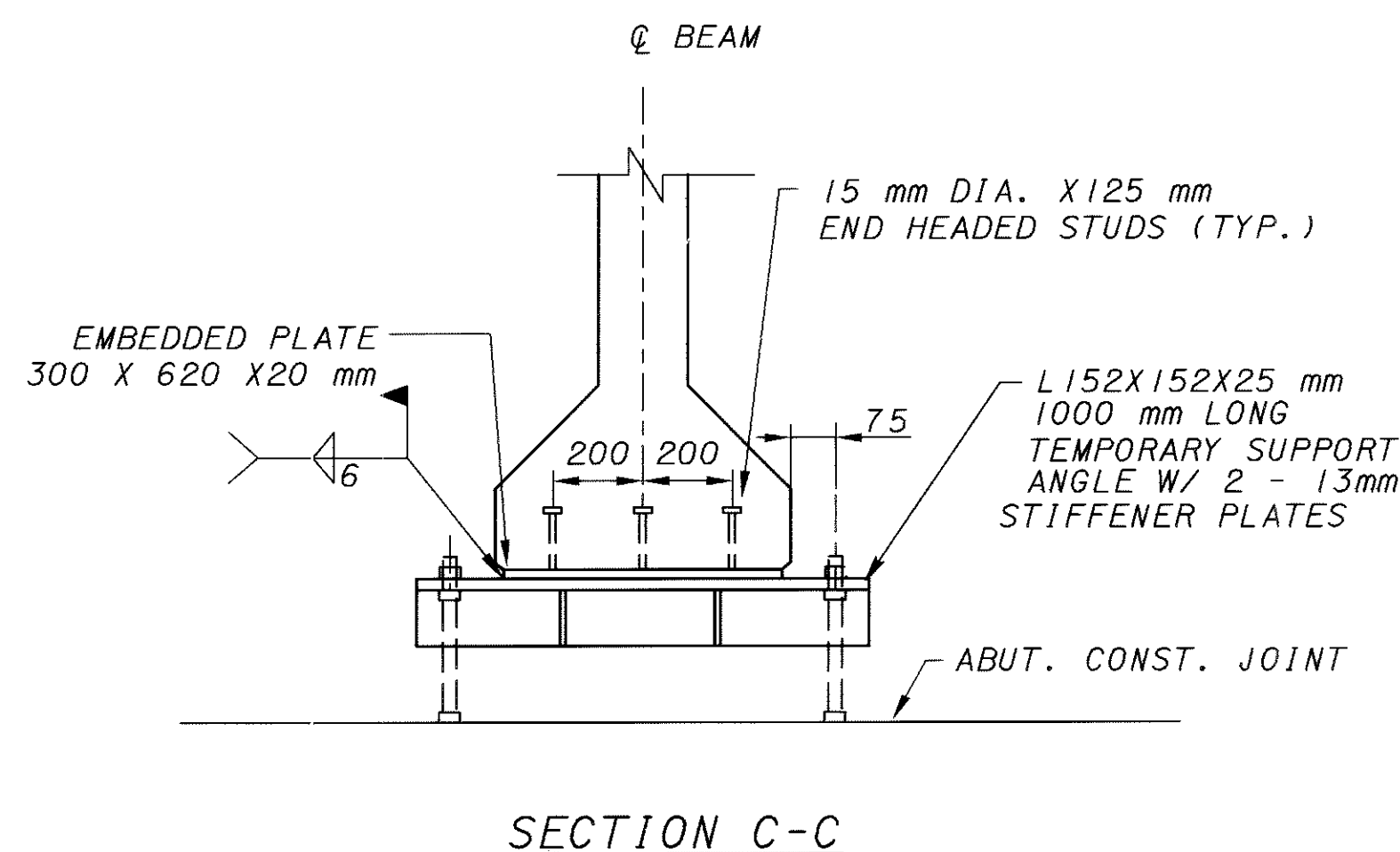
SECTION B-B

NOTE:  
1. SEE SHT 13 OF 25 FOR PLAN NOTES.

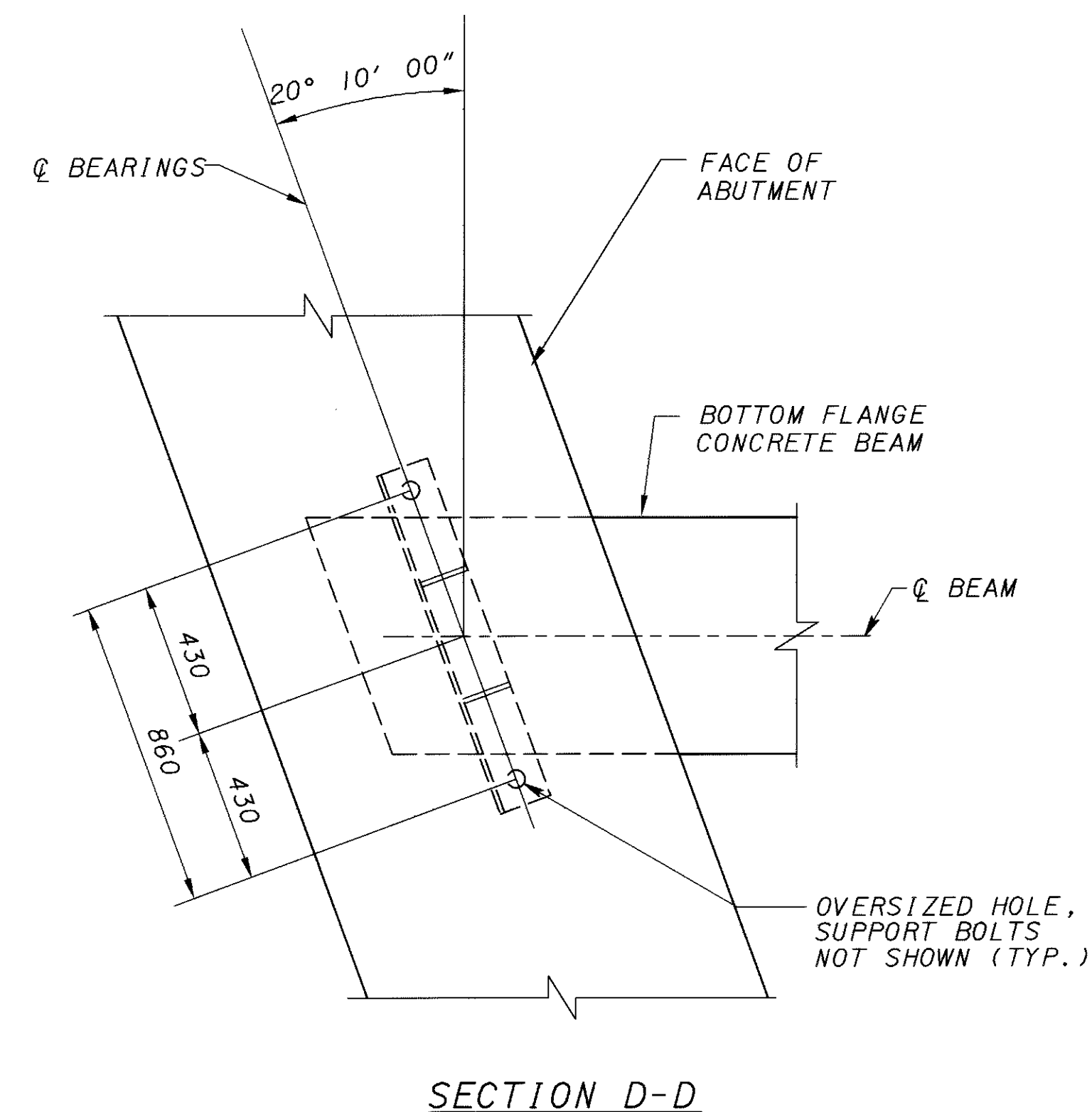
ALL DIMENSIONS ARE IN MILLIMETERS.  
ALL ELEVATIONS AND STATIONS ARE IN METERS.



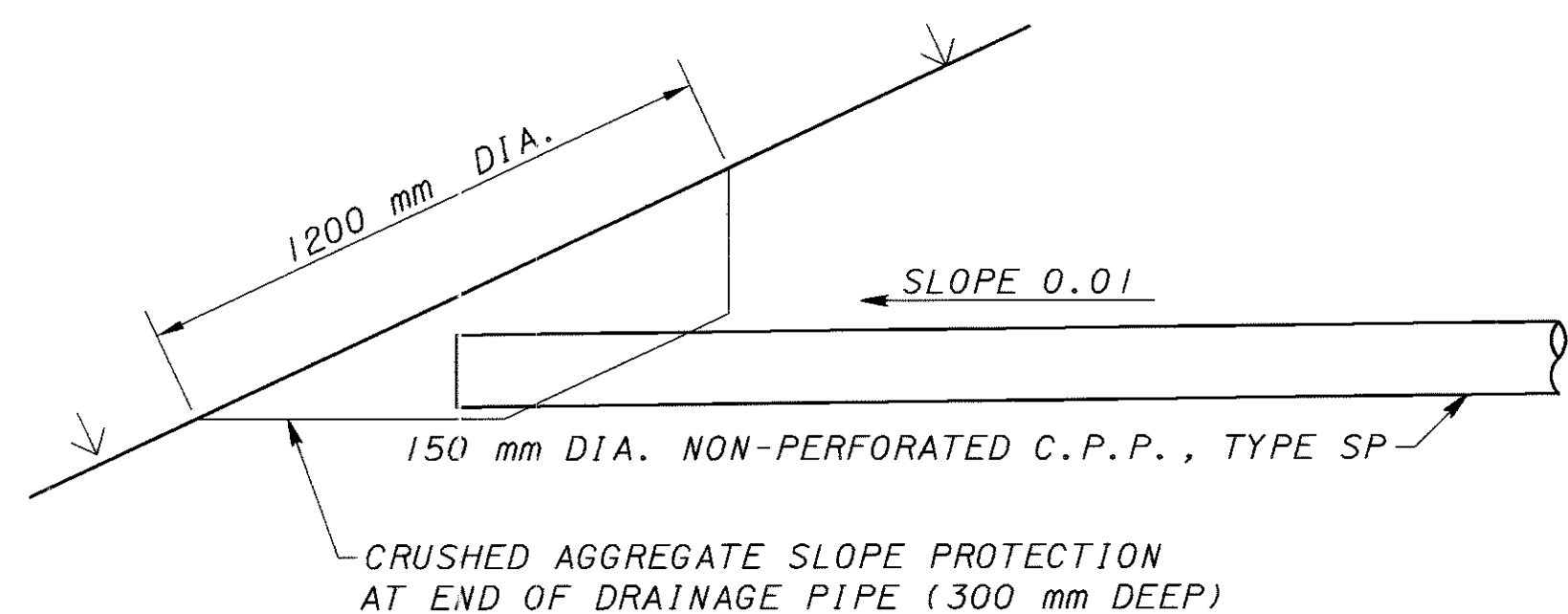
TYPICAL BEAM BEARING  
DETAIL AT ABUTMENTS



SECTION C-C



SECTION D-D



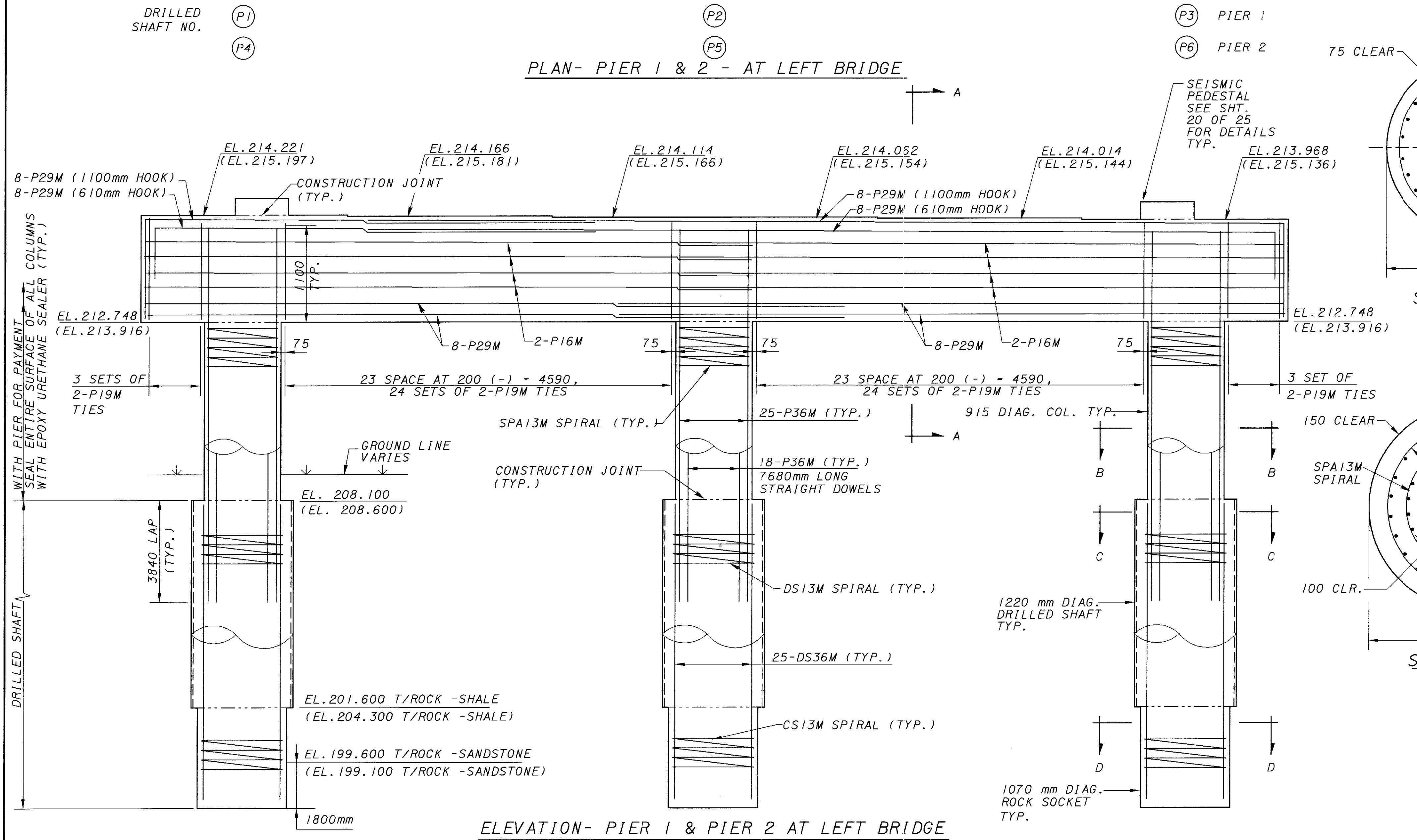
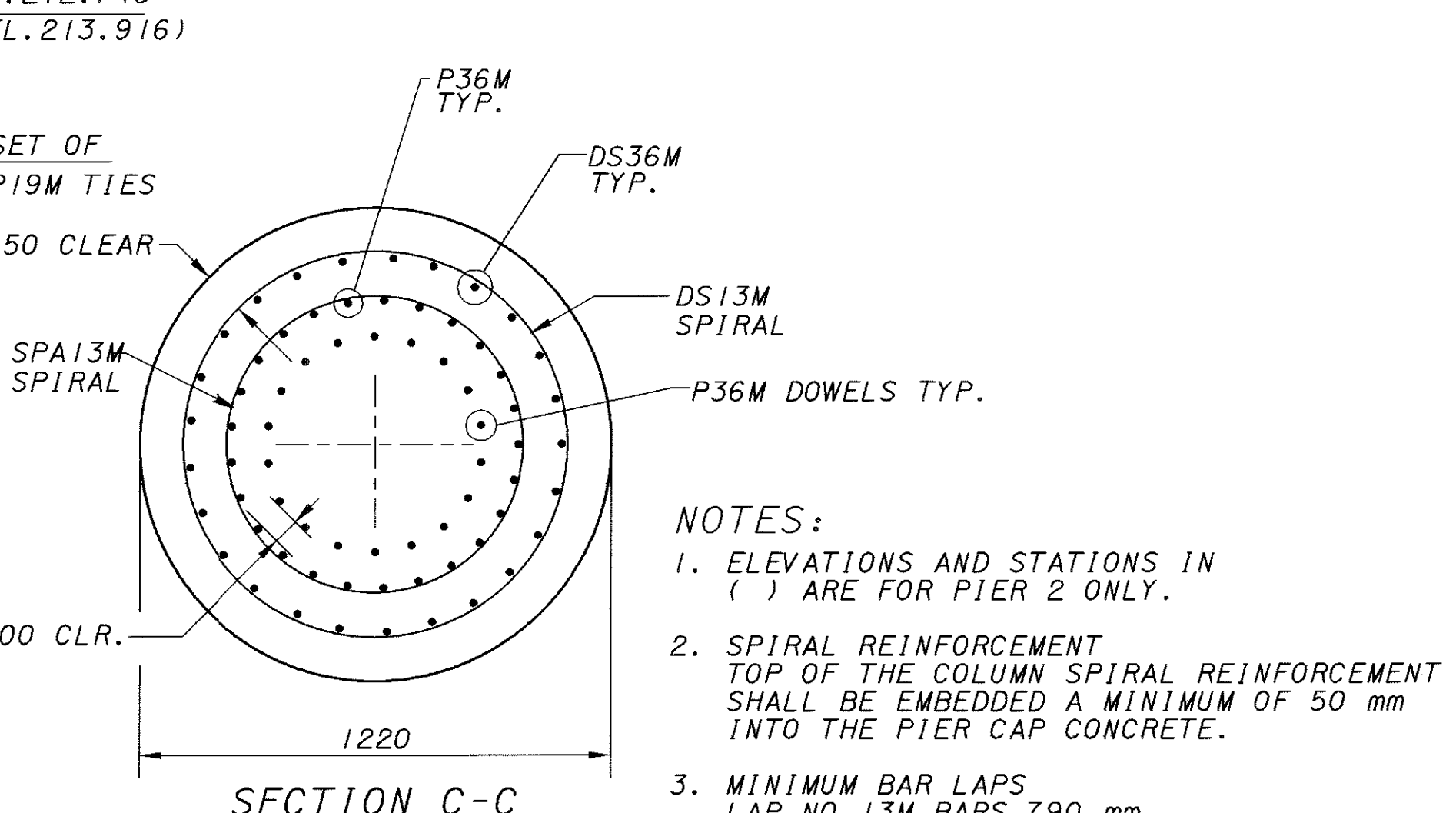
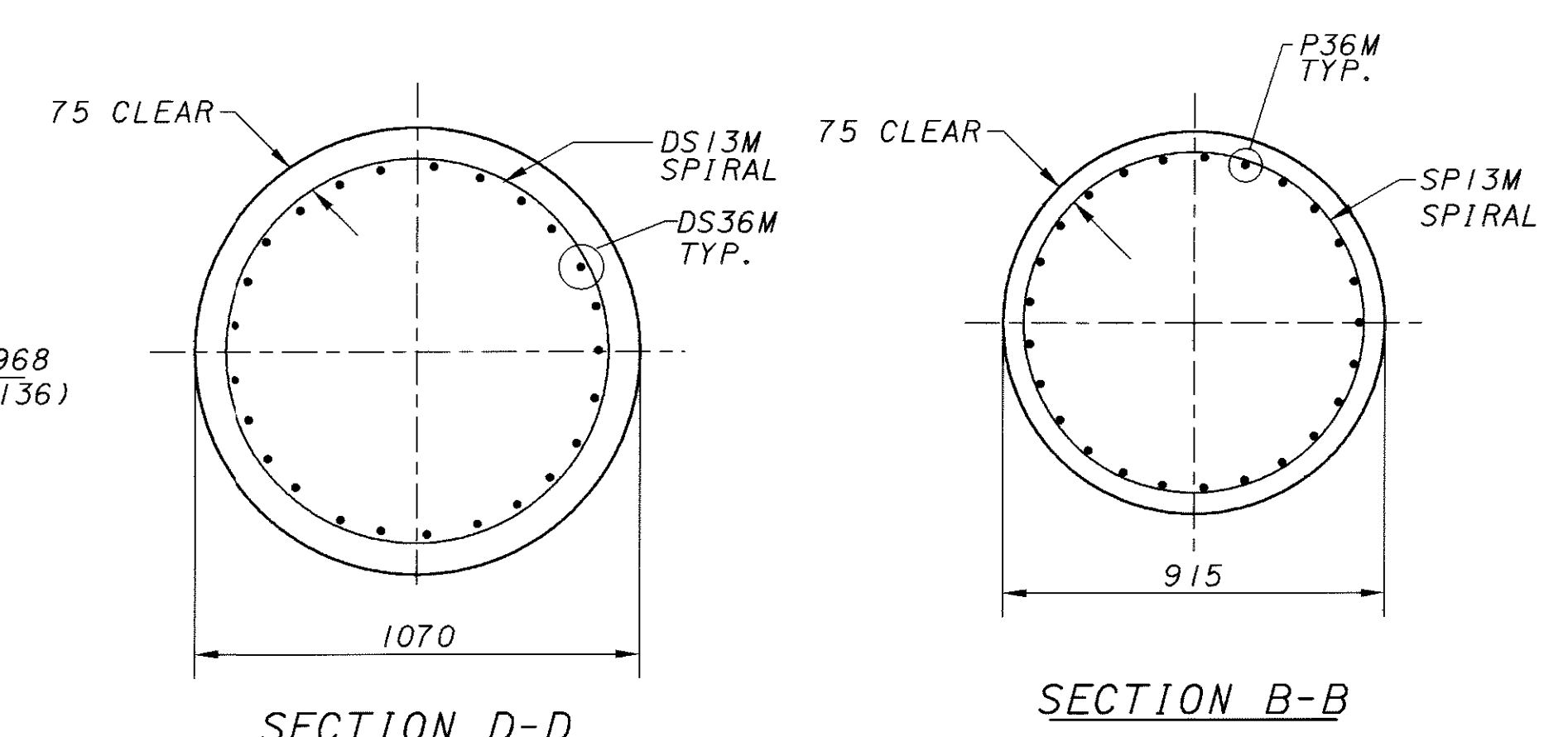
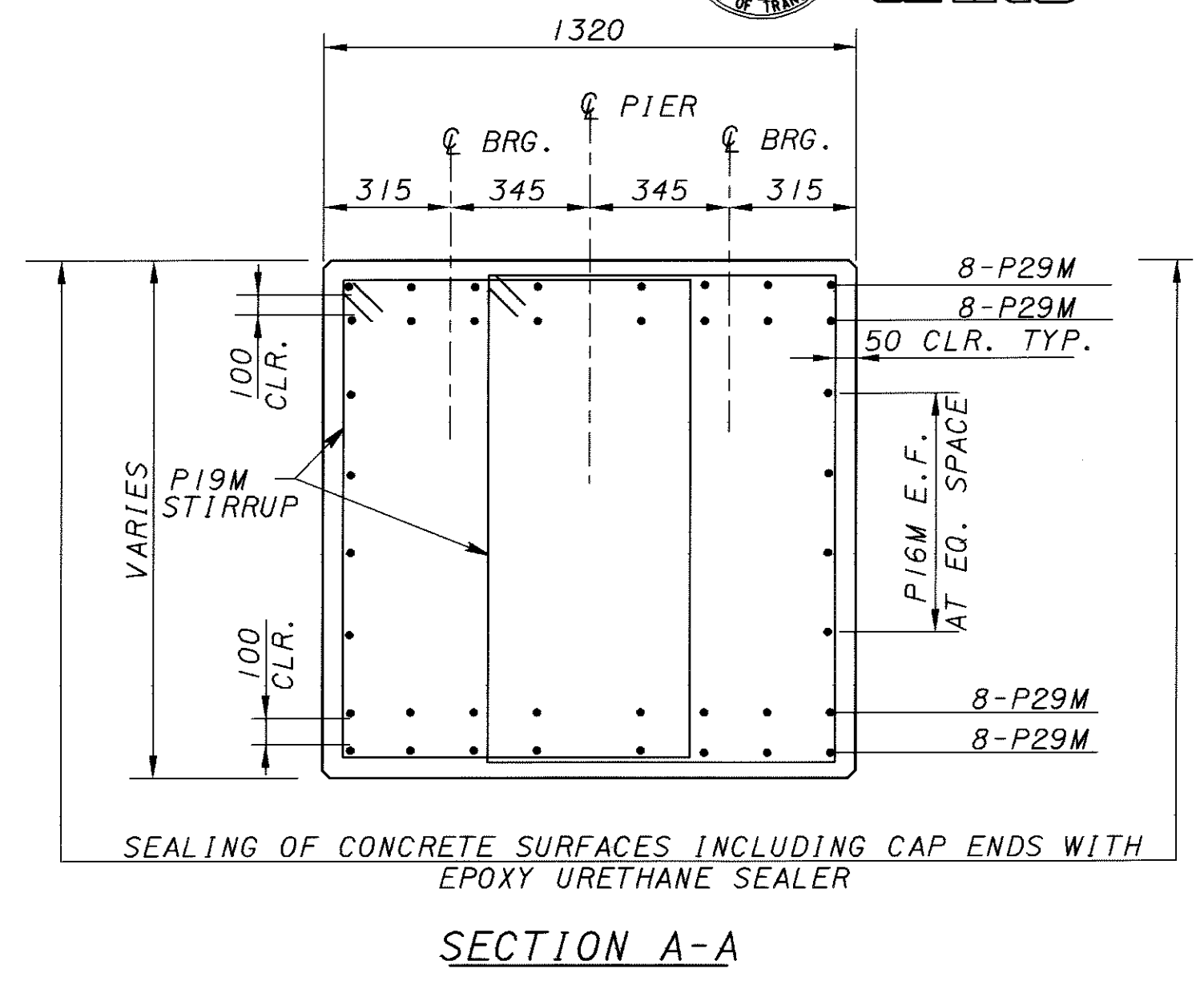
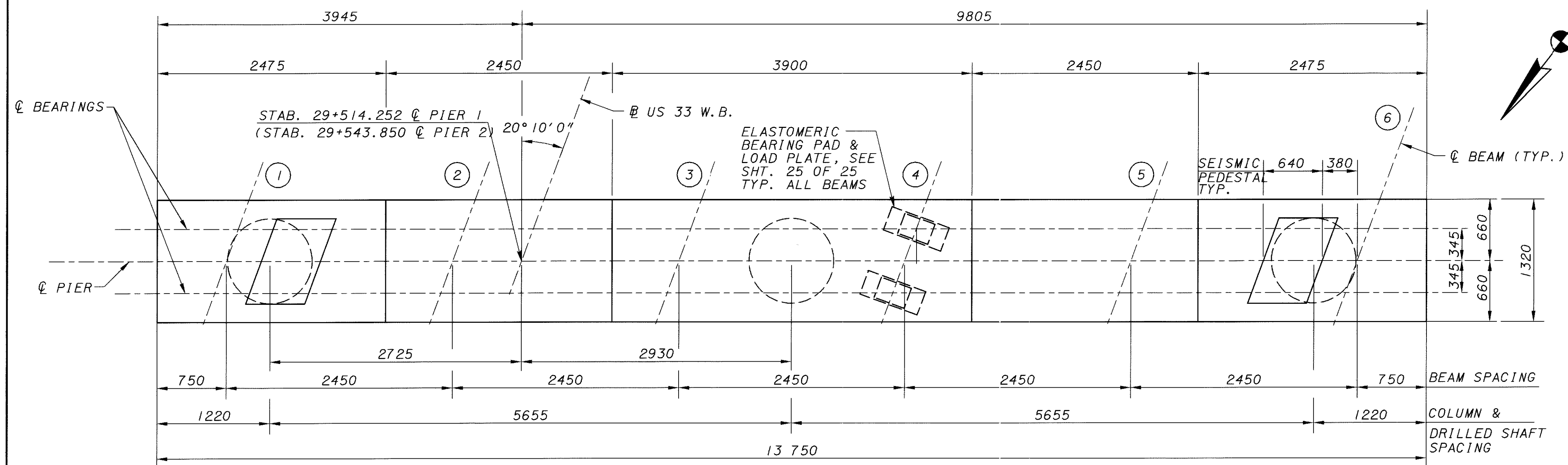
TERMINATION OF 150 mm N.P.C.P.P. DETAIL

NOTES:

- POROUS BACKFILL  
POROUS BACKFILL WITH FILTER FABRIC SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE, TO 300 mm BELOW THE EMBANKMENT SURFACE, AND Laterally TO THE ENDS OF THE WING WALLS. FILTER FABRIC SHALL CONFORM WITH 712.09, TYPE A. FILTER FABRIC IS INCLUDED WITH POROUS BACKFILL FOR PAYMENT.
- ABUTMENT DIAPHRAGM CONCRETE, PRESTRESSED I-BEAM SUPERSTRUCTURE CONCRETE ENCASEING PRESTRESSED I-BEAM STRUCTURAL MEMBERS, SHALL NOT BE PLACED BEFORE THE CONCRETE DECK IS PLACED. THE ABUTMENT DIAPHRAGM CONCRETE'S PLACEMENT SHALL BE PART OF THE DECK POUR.
- THE ABUTMENT DIAPHRAGM CONCRETE SHALL BE HIGH PERFORMANCE CONCRETE.

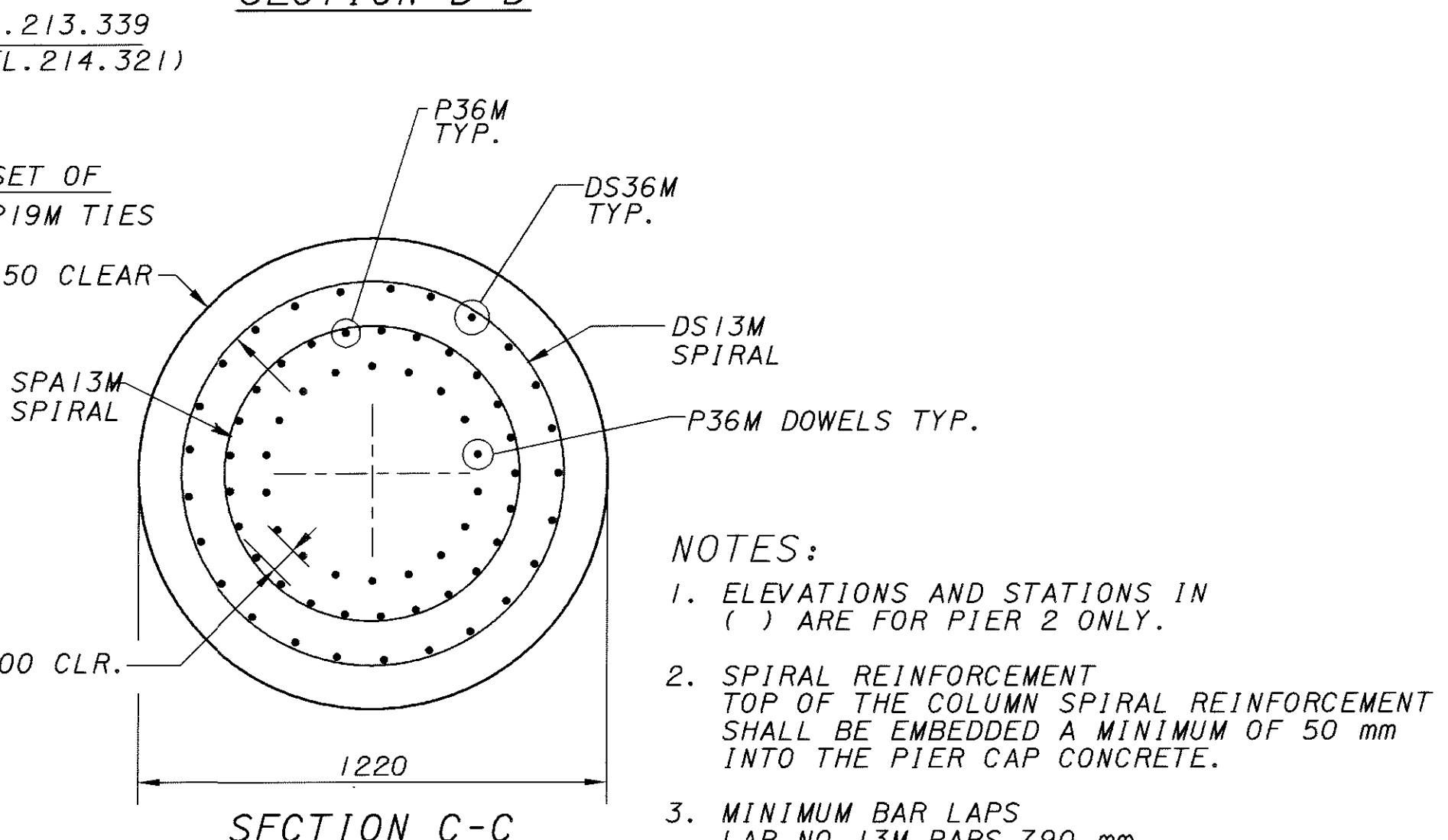
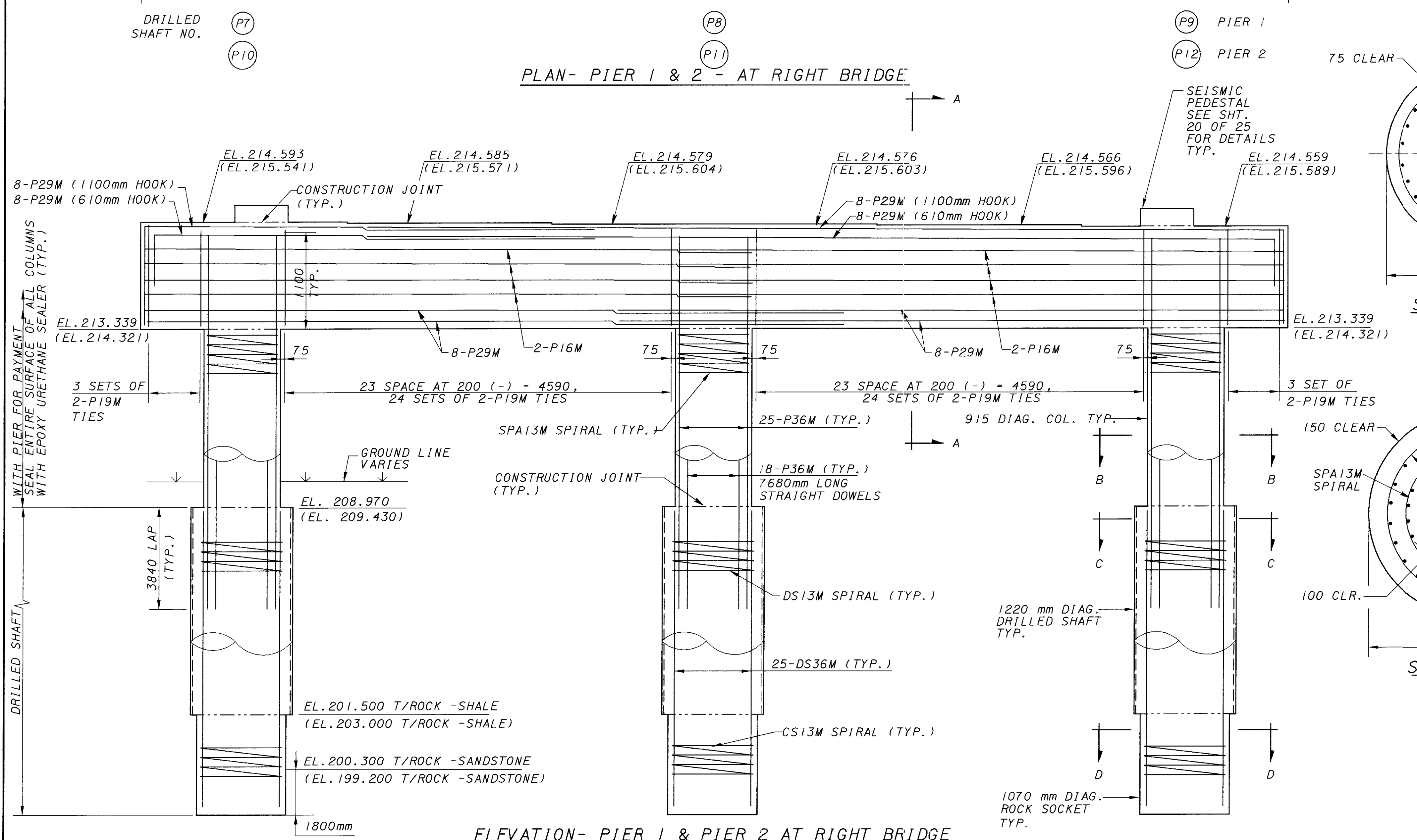
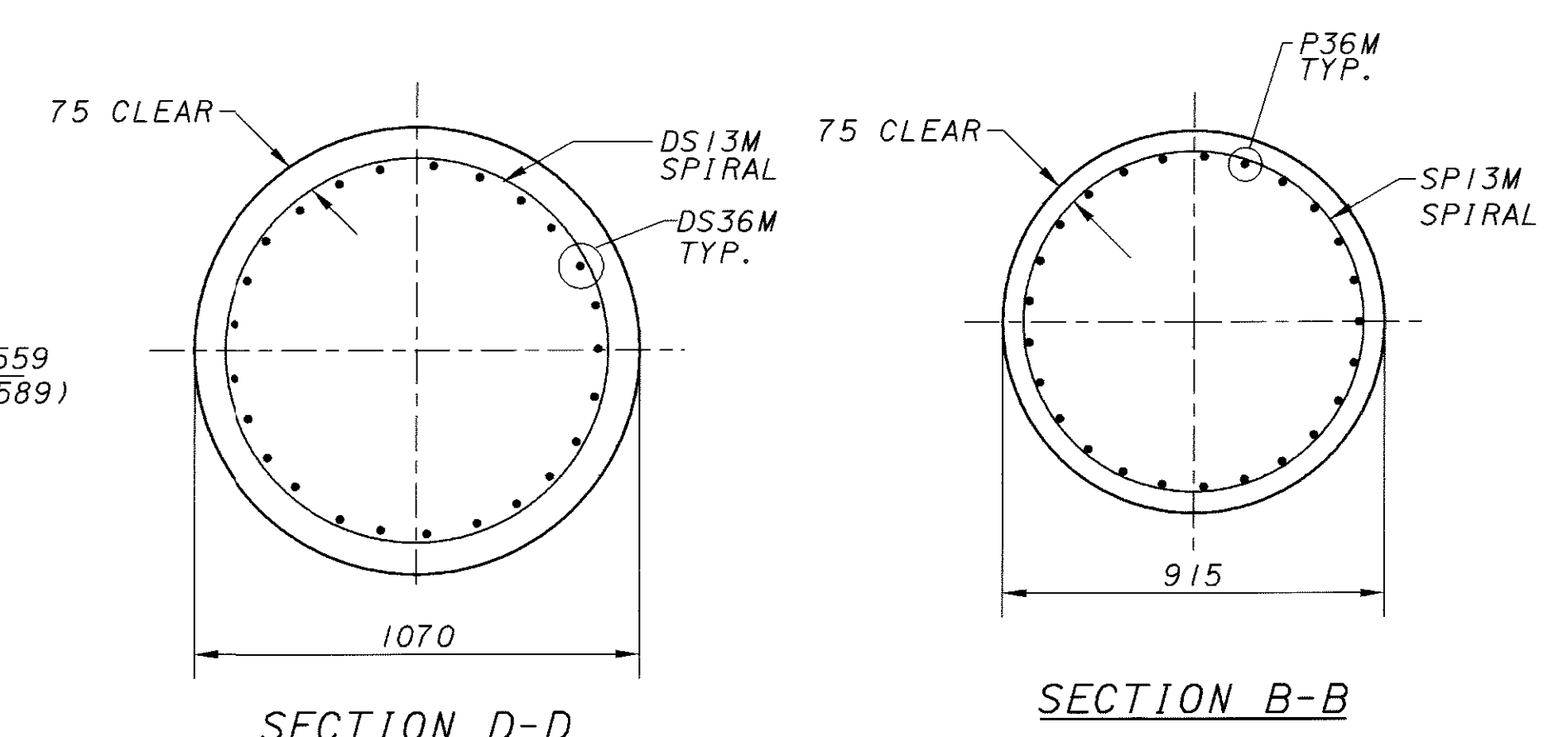
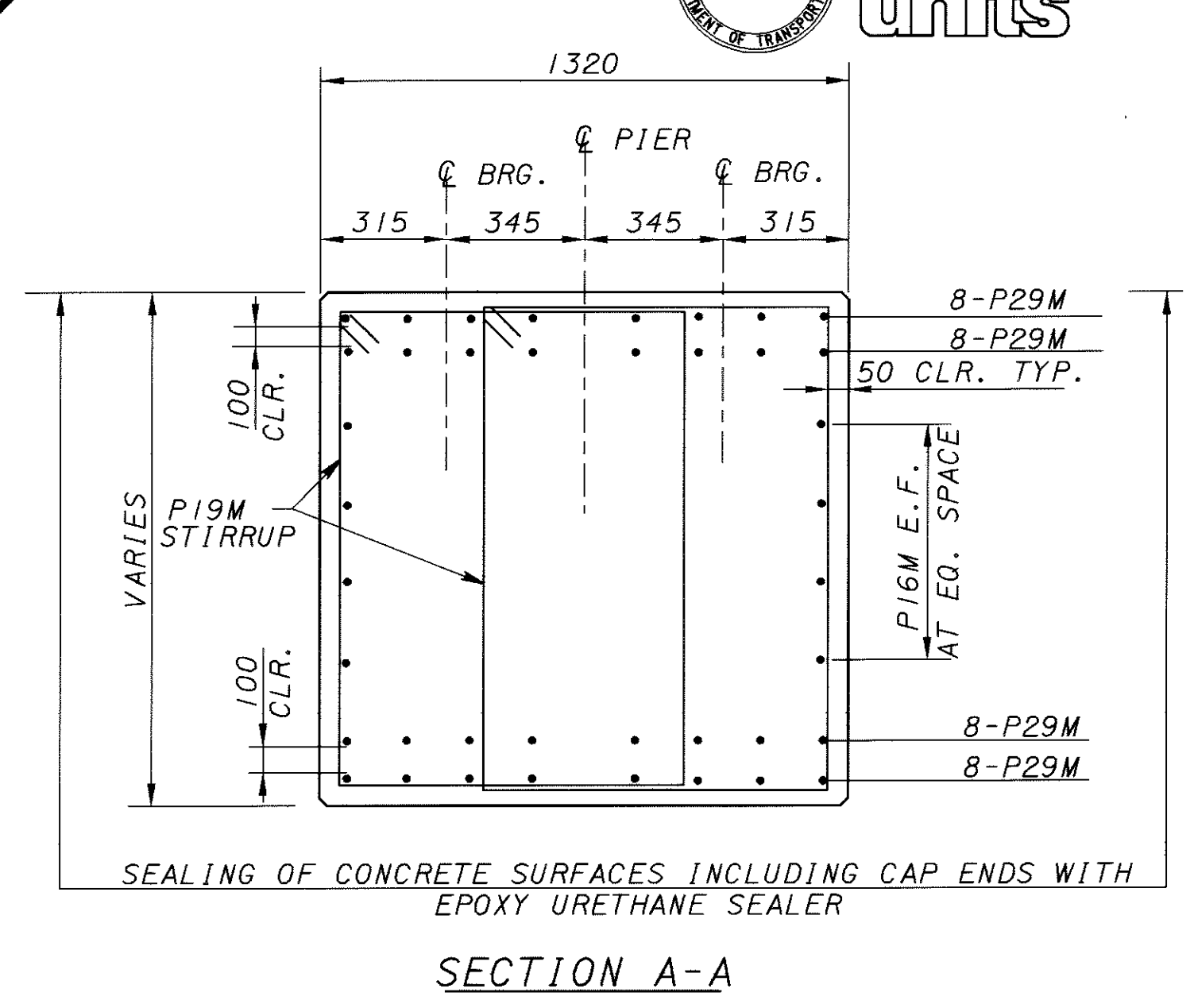
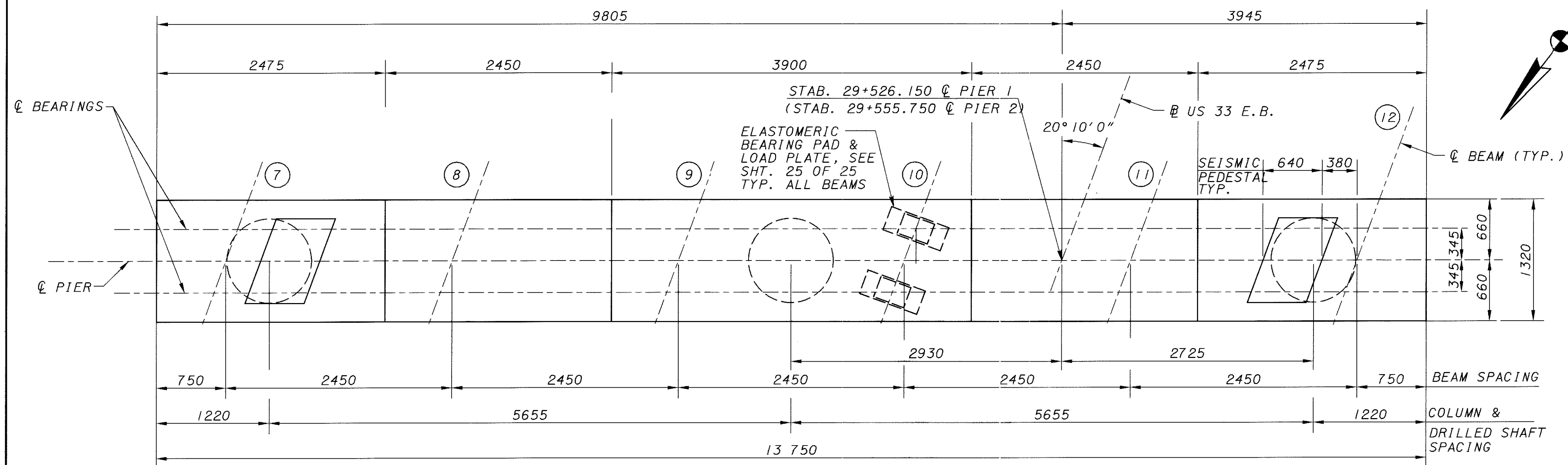
LEFT BRIDGE	DIMENSION "A"						
		BEAM ROW NO. ①	BEAM ROW NO. ②	BEAM ROW NO. ③	BEAM ROW NO. ④	BEAM ROW NO. ⑤	BEAM ROW NO. ⑥
	REAR ABUTMENT	635	565	497	431	368	307
FORWARD ABUTMENT	361	361	363	366	361	356	

RIGHT BRIDGE	DIMENSION "A"						
		BEAM ROW NO. ⑦	BEAM ROW NO. ⑧	BEAM ROW NO. ⑨	BEAM ROW NO. ⑩	BEAM ROW NO. ⑪	BEAM ROW NO. ⑫
	REAR ABUTMENT	415	394	375	358	343	331
FORWARD ABUTMENT	341	388	437	438	431	424	



- NOTES:
- ELEVATIONS AND STATIONS IN ( ) ARE FOR PIER 2 ONLY.
  - SPIRAL REINFORCEMENT TOP OF THE COLUMN SPIRAL REINFORCEMENT SHALL BE EMBEDDED A MINIMUM OF 50 mm INTO THE PIER CAP CONCRETE.
  - MINIMUM BAR LAPS  
LAP NO. 13M BARS 790 mm.  
LAP NO. 16M BARS 1090 mm.  
LAP NO. 19M BARS 1170 mm.  
LAP NO. 29M BARS 2790 mm.  
LAP NO. 36M BARS 3840 mm.
  - FOR ELASTOMERIC BEARING DETAILS SEE SHEET 25 OF 25.
  - ALL DIMENSIONS ARE IN MILLIMETERS, AND ALL ELEVATIONS AND STATIONS IN METERS.
  - THE SPIRAL REINFORCING PITCH SHALL BE 115 mm.

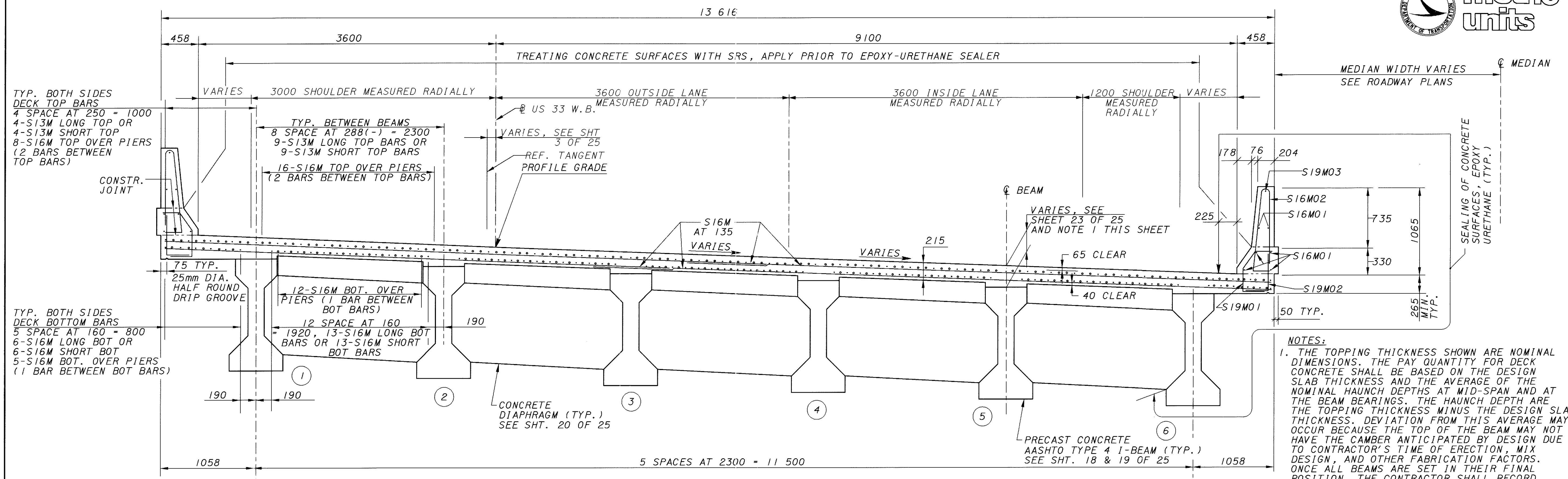
FILE: c:\b287\BRIDGE\Rich\and\STAGE 3\AT033P11.dwg  
DATE: FEB-6-2001 10:45



- NOTES:**
- ELEVATIONS AND STATIONS IN ( ) ARE FOR PIER 2 ONLY.
  - SPIRAL REINFORCEMENT TOP OF THE COLUMN SPIRAL REINFORCEMENT SHALL BE EMBEDDED A MINIMUM OF 50 mm INTO THE PIER CAP CONCRETE.
  - MINIMUM BAR LAPS  
LAP NO. 13M BARS 790 mm.  
LAP NO. 16M BARS 1090 mm.  
LAP NO. 19M BARS 1170 mm.  
LAP NO. 29M BARS 2790 mm.  
LAP NO. 36M BARS 3840 mm.
  - FOR ELASTOMERIC BEARING DETAILS SEE SHEET 25 OF 25.
  - ALL DIMENSIONS ARE IN MILLIMETERS, AND ALL ELEVATIONS AND STATIONS IN METERS.
  - THE SPIRAL REINFORCING PITCH SHALL BE 115 mm.

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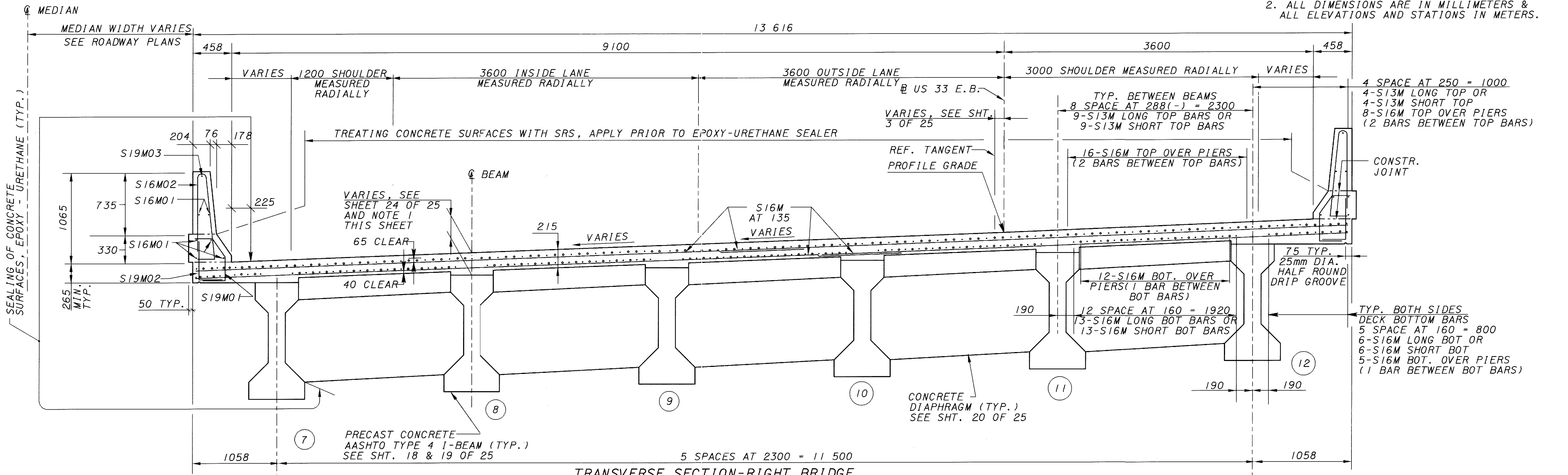




**TRANSVERSE SECTION-LEFT BRIDGE**

# INDICATES BEAM ROW NUMBER

- NOTES:**
1. THE TOPPING THICKNESS SHOWN ARE NOMINAL DIMENSIONS. THE PAY QUANTITY FOR DECK CONCRETE SHALL BE BASED ON THE DESIGN SLAB THICKNESS AND THE AVERAGE OF THE NOMINAL HAUNCH DEPTHS AT MID-SPAN AND AT THE BEAM BEARINGS. THE HAUNCH DEPTH ARE THE TOPPING THICKNESS MINUS THE DESIGN SLAB THICKNESS. DEVIATION FROM THIS AVERAGE MAY OCCUR BECAUSE THE TOP OF THE BEAM MAY NOT HAVE THE CAMBER ANTICIPATED BY DESIGN DUE TO CONTRACTOR'S TIME OF ERECTION, MIX DESIGN, AND OTHER FABRICATION FACTORS. ONCE ALL BEAMS ARE SET IN THEIR FINAL POSITION, THE CONTRACTOR SHALL RECORD THE TOP OF BEAM ELEVATIONS AT EACH BEARING AND AT MID-SPAN. THE ACTUAL CAMBER FOR EACH MEMBER SHALL BE THE MEASURED ELEVATION AT MID-SPAN MINUS THE AVERAGE ELEVATION AT EACH BEARING. THE ACTUAL HAUNCH DEPTH AT MID-SPAN SHALL BE THE NOMINAL DIMENSION PLUS OR MINUS THE DIFFERENCE BETWEEN THE ACTUAL AND ANTICIPATED CAMBER.
  2. ALL DIMENSIONS ARE IN MILLIMETERS & ALL ELEVATIONS AND STATIONS IN METERS.



**TRANSVERSE SECTION-RIGHT BRIDGE**

# INDICATES BEAM ROW NUMBER

FILE: c:\8287\BRIDGE\RIGHT\STAGE 3\AT033SDI.dgn  
DATE: FEB-16-2001 10:09