

CHAPTER 4 GROUND SILL



4.1 Ground Sill with Head at WF.124
 TYPE OF WORK :
 LOCATION : GROUNDSILL WITH HEAD AT WF.124

CALCULATION		RESULT
☐ STRUCTURAL EXCAVATION		
$V_1 = 90.70 \times (0.75 + 1.50 + 1.375) \times 2$	=	657.58
$V_2 = 59.10 \times (8.25 + 1.00) \times 2$	=	546.68
$V_3 = 18.50 \times 18.625 \times 2$	=	689.13
$V_4 = (59.1 + 21.50) \times \frac{1}{2} \times 10.00 \times 2$	=	806.00
$V_5 = 19.30 \times 10.00 \times 2$	=	386.00
$V_6 = 11.20 \times 10.00 \times 2$	=	224.00
$V_7 = (3.00 + 11.18 + 1.00) \times 3.00 \times 0.50 \times 2$	=	45.54
$V_8 = (3.00 + 7.826 + 1.00) \times 3.00 \times 0.50 \times 2$	=	35.48
TOTAL	=	3390.41
		3390.41 m ³
☐ BACKFILL WITH SELECTED SOIL		
$V_1 = (0.50 + 2.80) \times 39.40$	=	130.02
$V_2 = (9.70 + 0.40) \times 10.50 \times 2$	=	212.10
$V_3 = (0.80 + 0.40) \times 20.00 \times 2$	=	48.00
$V_4 = (9.70 + 2.0) \times \frac{1}{2} \times 10.00 \times 2 + 0.40 \times 10.00 \times 2$	=	125.00
$V_5 = (0.80 + 0.40) \times 10.00 \times 2$	=	24.00
$V_6 = (1.10 + 0.40) \times 10.00 \times 2$	=	30.00
TOTAL	=	569.120
		569.12 m ³

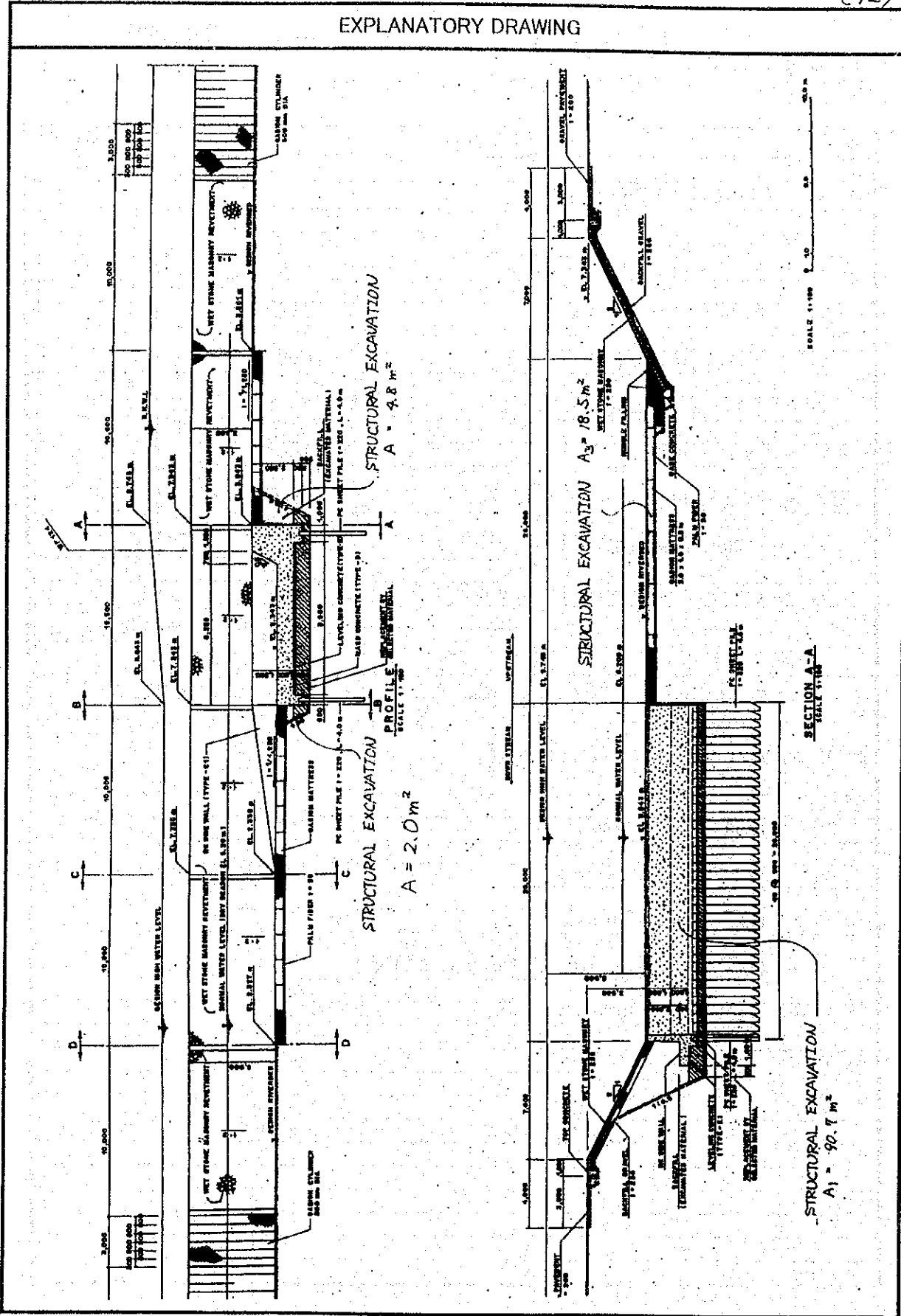
TYPE OF WORK :

GROUND SILL WITH HEAD AT WF. 124
STRUCTURAL EXCAVATION

LOCATION :

(1/2)

EXPLANATORY DRAWING



TYPE OF WORK

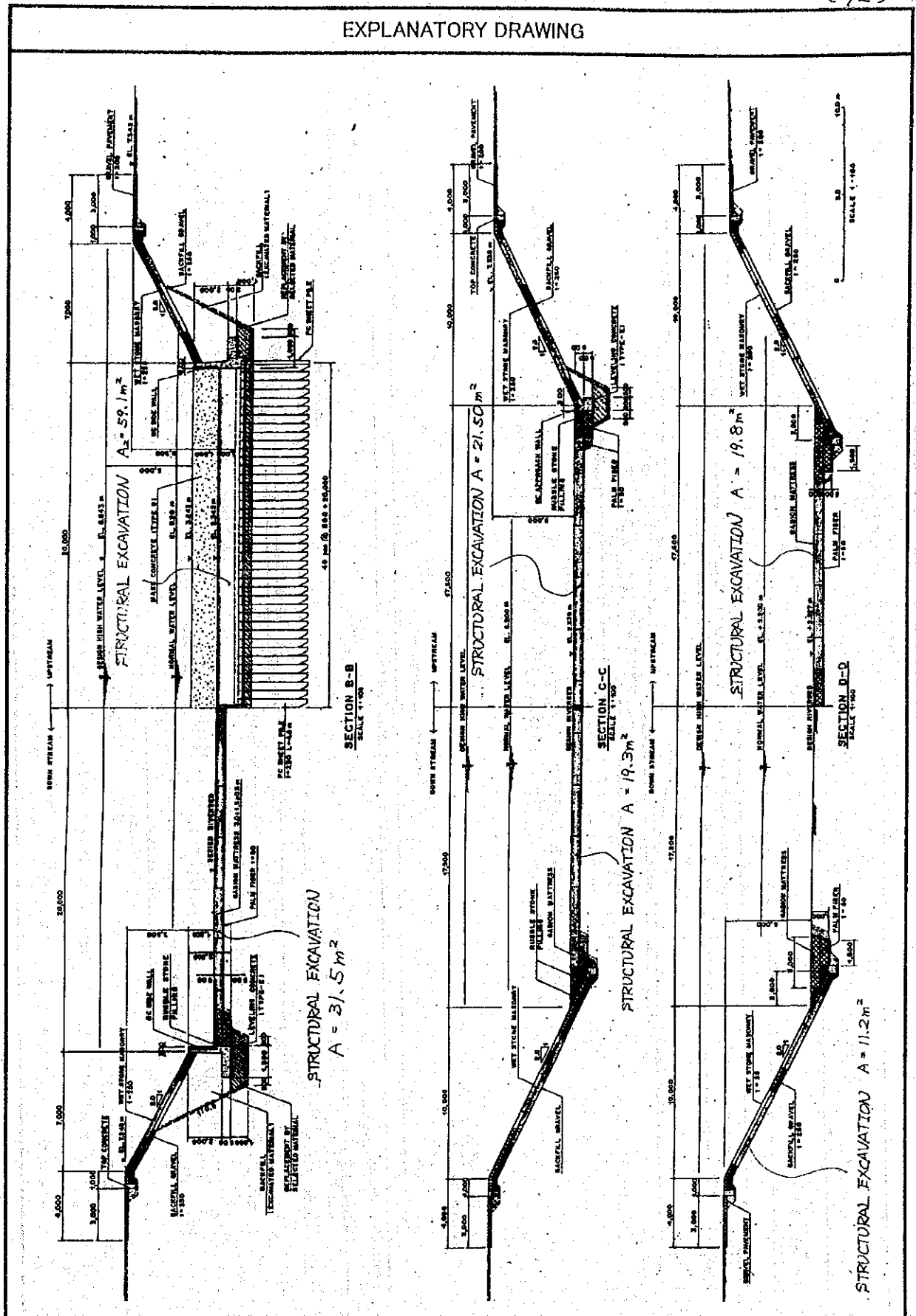
GROUND SILL WITH HEAD AT WF.124

STRUCTURAL EXCAVATION

LOCATION

(2/2)

EXPLANATORY DRAWING

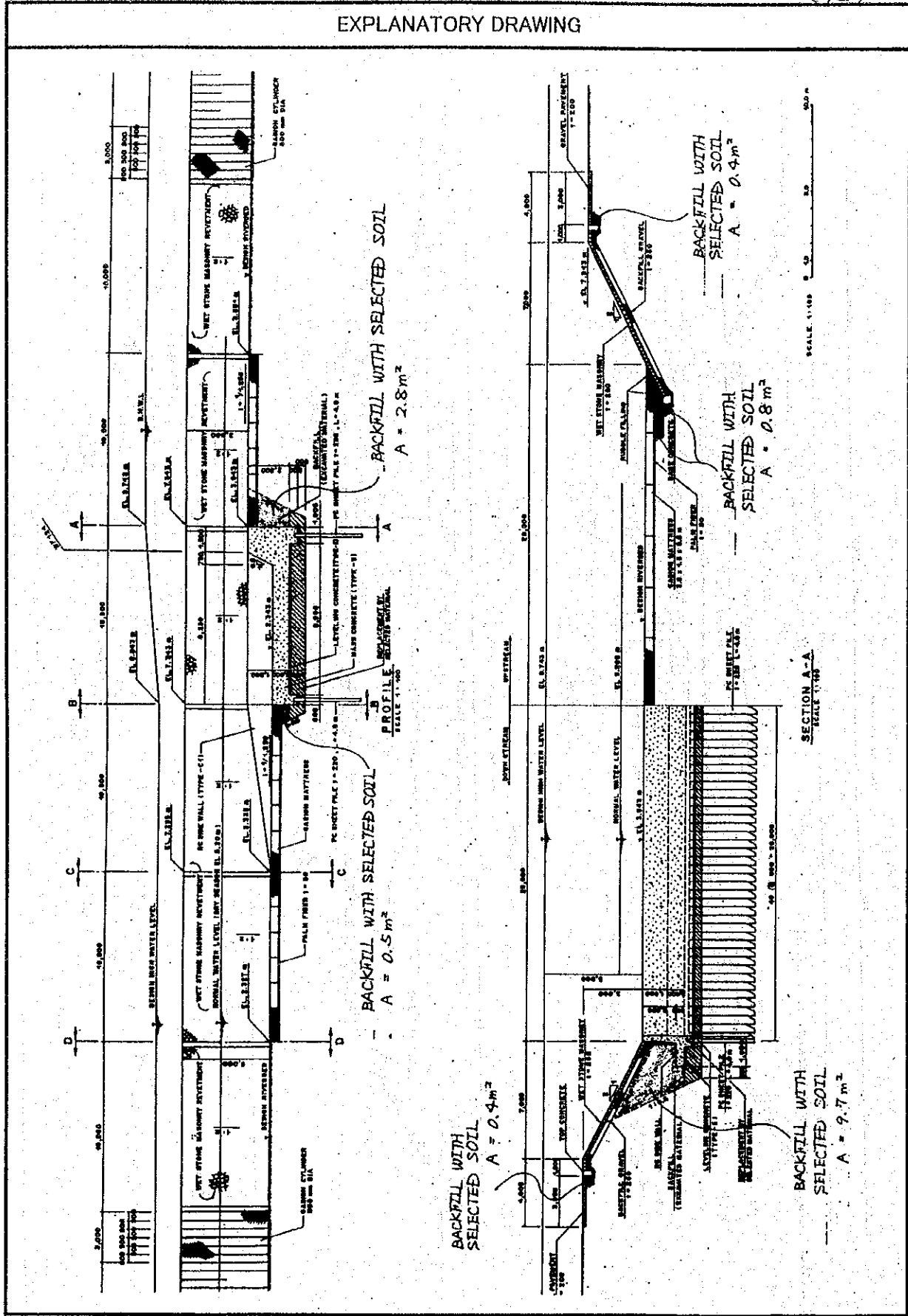


GROUND SILL WITH HEAD AT WF. 124
 BACKFILL WITH SELECTED SOIL

TYPE OF WORK
 LOCATION

(1/2)

EXPLANATORY DRAWING



TYPE OF WORK

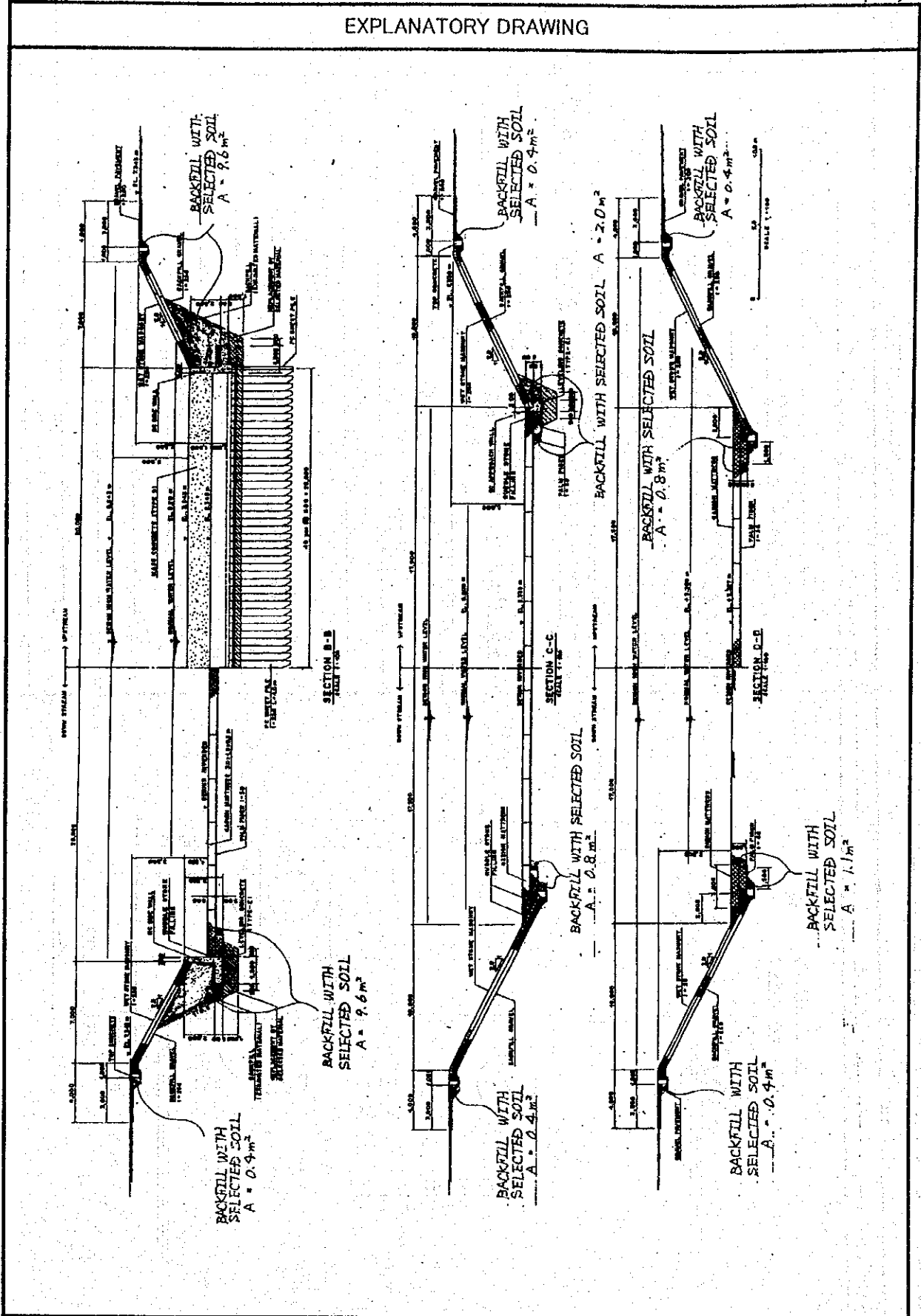
GROUND SILL WITH HEAD AT WF.124

LOCATION

BACKFILL WITH SELECTED SOIL

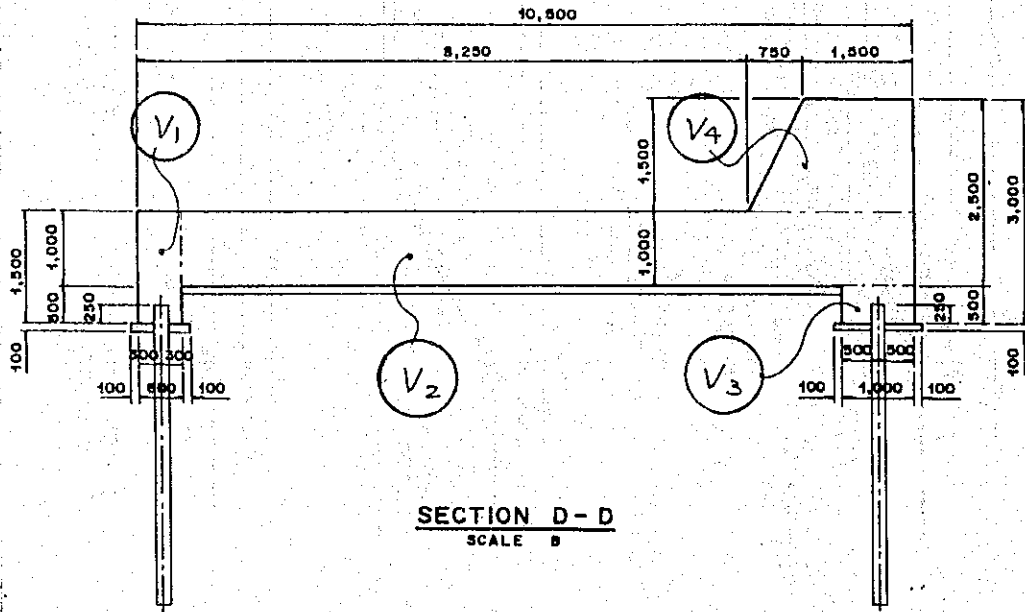
(2/2)

EXPLANATORY DRAWING



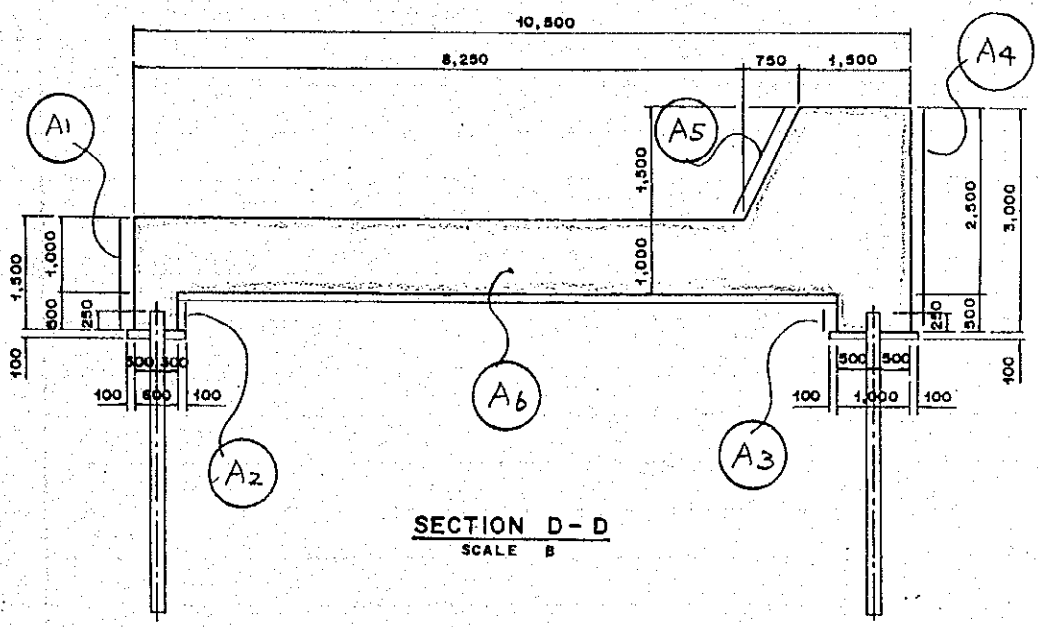
GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK :	CONCRETE	CALCULATION	RESULT
LOCATION :	MAIN BODY	(TYPE - D)	
		$V_1 = 1.50 \times 0.60 \times 39.40$	$= 35.460$
		$V_2 = 1.00 \times 9.90 \times 39.40$	$= 390.060$
		$V_3 = 1.00 \times 0.50 \times 39.40$	$= 19.700$
		$V_4 = (1.50 + 2.25) \times \frac{1}{2} \times 1.50 \times 39.40$	$= 110.813$
		(Reduction for PC Sheet Pile)	
		$V_5 = -(0.22 \times 0.25) \times 39.40 \times 2$	$= -4.334$
		TOTAL =	551.699 m ³



GROUND SILL WITH HEAD AT WF 124

TYPE OF WORK:	FORM	CALCULATION	RESULT
LOCATION:	MAIN BODY	CH < 4.0m	
		$A_1 = 1.50 \times 39.40$	$= 59.100$
		$A_2 = 0.40 \times 39.40$	$= 15.760$
		$A_3 = 0.40 \times 39.40$	$= 15.760$
		$A_4 = 3.00 \times 39.40$	$= 118.200$
		$A_5 = 1.50 \times 1.118 \times 39.40$	$= 66.074$
		(REVISING)	
		$A_6 = \{ (0.60 \times 1.50) + (1.00 \times 9.90) + (0.50 \times 1.50) + (1.50 + 2.25) \times \frac{1}{2} \times 1.50 \} \times 2$	$= 28.725$
		(Deduction for PC Sheet Pile)	
		$A_7 = - (0.22 \times 0.25) \times 2 \times 2$	$= -0.220$
		TOTAL = 303.399	303.399 m ²



GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK

: CONCRETE

LOCATION

: SIDE WALL

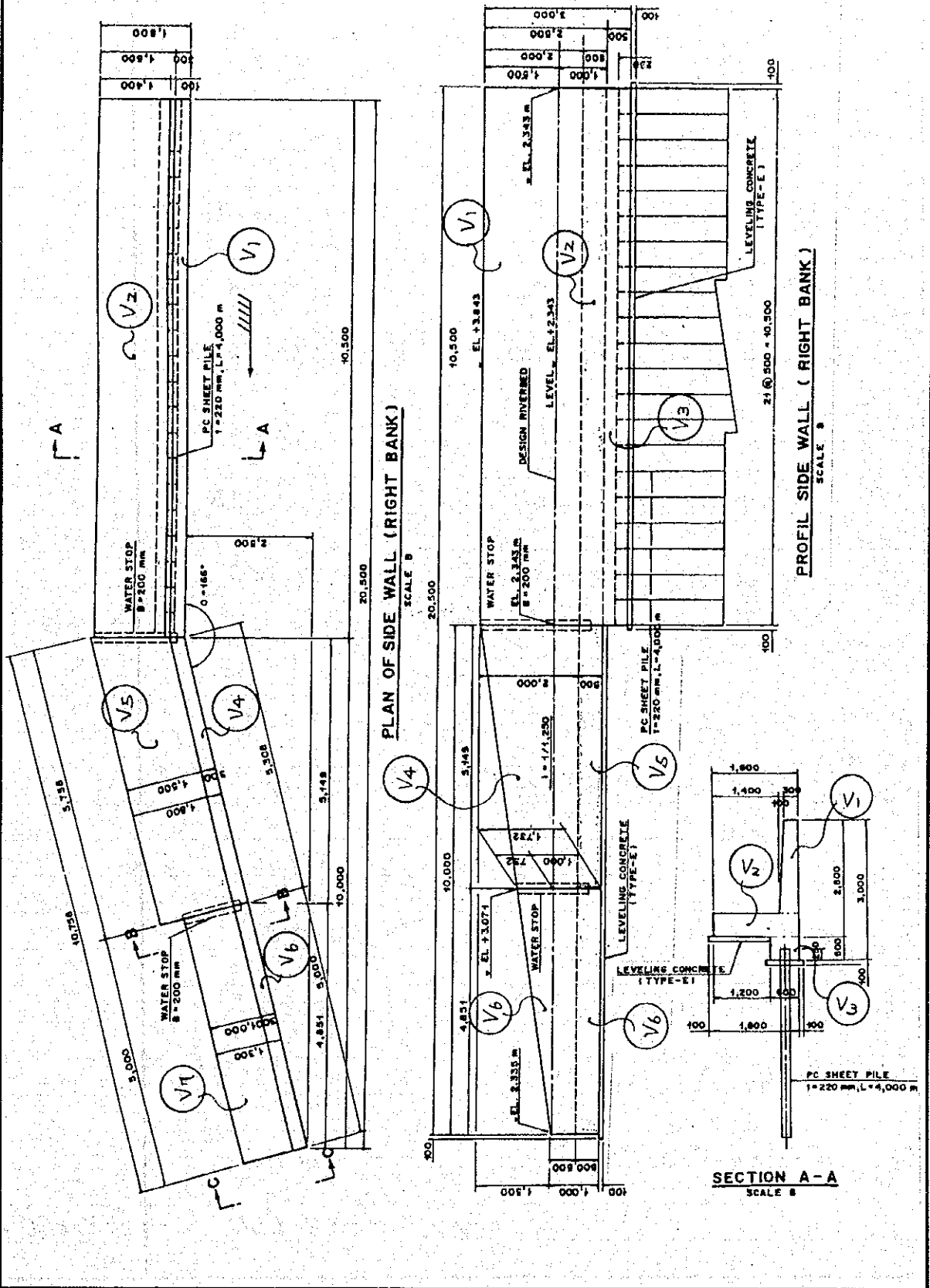
CALCULATION	RESULT
(TYPE - C1)	
$V_1 = (0.30 + 0.40) \times \frac{1}{2} \times 2.00 \times 10.50 \times 2 = 14.700$	
$V_2 = 0.50 \times 1.80 \times 10.50 \times 2 = 18.900$	
$V_3 = 0.60 \times 0.50 \times 10.50 \times 2 = 6.300$	
$V_4 = (2.00 + 1.232) \times \frac{1}{2} \times 5.308 \times 0.30 \times 2 = 5.147$	
$V_5 = (5.308 + 5.758) \times \frac{1}{2} \times 1.80 \times 0.50 \times 2 = 9.959$	
$V_6 = (1.232 + 0.50) \times \frac{1}{2} \times 5.00 \times 0.30 \times 2 = 2.598$	
$V_7 = 1.30 \times 5.00 \times 0.50 \times 2 = 6.500$	
(Deduction for PC Sheet Pile)	
$V_8 = -(0.22 \times 0.25 \times 10.50) \times 2 = -1.155$	
TOTAL = 62.949	62.949 m ³

GROUND SILL WITH HEAD AT WF-124

TYPE OF WORK : CONCRETE (TYPE-C1)

LOCATION : SIDE WALL

EXPLANATORY DRAWING



GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK : FORM

LOCATION : SIDE WALL

CALCULATION	RESULT
(H < 4.0 m)	
$A_1 = 3.00 \times 10.50 \times 2$	$= 63.000$
$A_2 = \sqrt{3.00^2 + 0.10^2} \times 10.50 \times 2$	$= 63.035$
$A_3 = 0.50 \times 10.50 \times 2$	$= 10.500$
$A_4 = 0.40 \times 10.50 \times 2$	$= 8.400$
$A_5 = \{(0.30 + 0.40) \times \frac{1}{2} \times 2.00 + (1.80 \times 0.50) + (0.50 \times 0.60)\} \times 2 \times 2$	$= 7.600$
$A_6 = (2.50 + 1.732) \times \frac{1}{2} \times 5.308 \times 2$	$= 22.463$
$A_7 = (2.00 + 1.232) \times \frac{1}{2} \times 5.308 \times 2$	$= 17.155$
$A_8 = 0.50 \times 5.758 \times 2$	$= 5.758$
$A_9 = \{(1.232 \times 0.30) + (0.50 \times 1.30)\} \times 2$	$= 2.039$
$A_{10} = (1.732 + 1.00) \times \frac{1}{2} \times 5.00 \times 2$	$= 13.660$
$A_{11} = (1.232 + 0.50) \times \frac{1}{2} \times 5.00 \times 2$	$= 8.660$
$A_{12} = 0.50 \times 5.00 \times 2$	$= 5.000$
$A_{13} = \{(0.30 \times 0.50) + (0.50 \times 1.30)\} \times 2$	$= 1.600$
(Deduction for PC Sheet Pile)	
$A_{14} = -(0.22 \times 0.25 \times 2 \times 2)$	$= -0.220$
TOTAL	228.650 m²

GROUND SILL WITH HEAD AT WF. 124

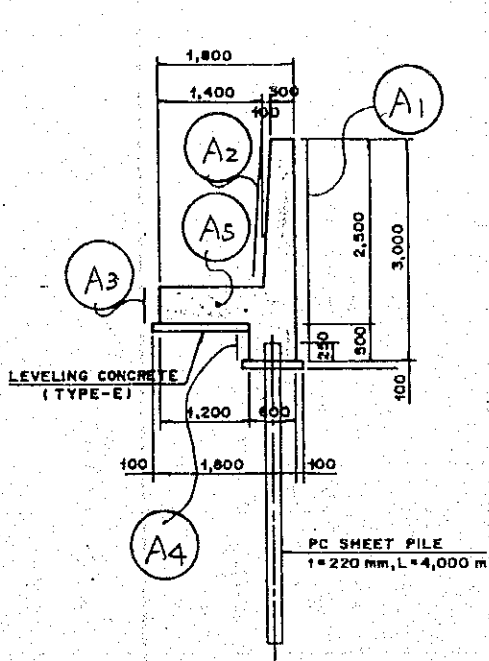
TYPE OF WORK

FORM

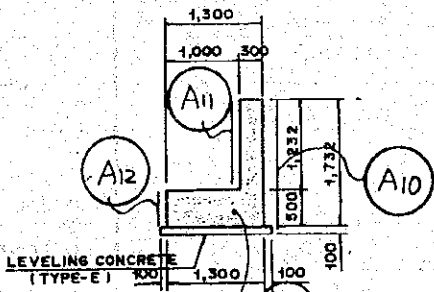
LOCATION

SIDE WALL

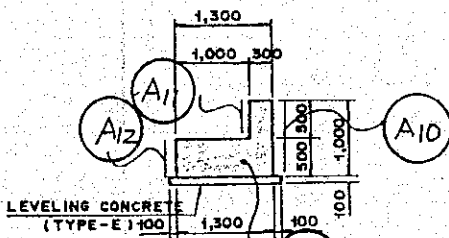
EXPLANATORY DRAWING



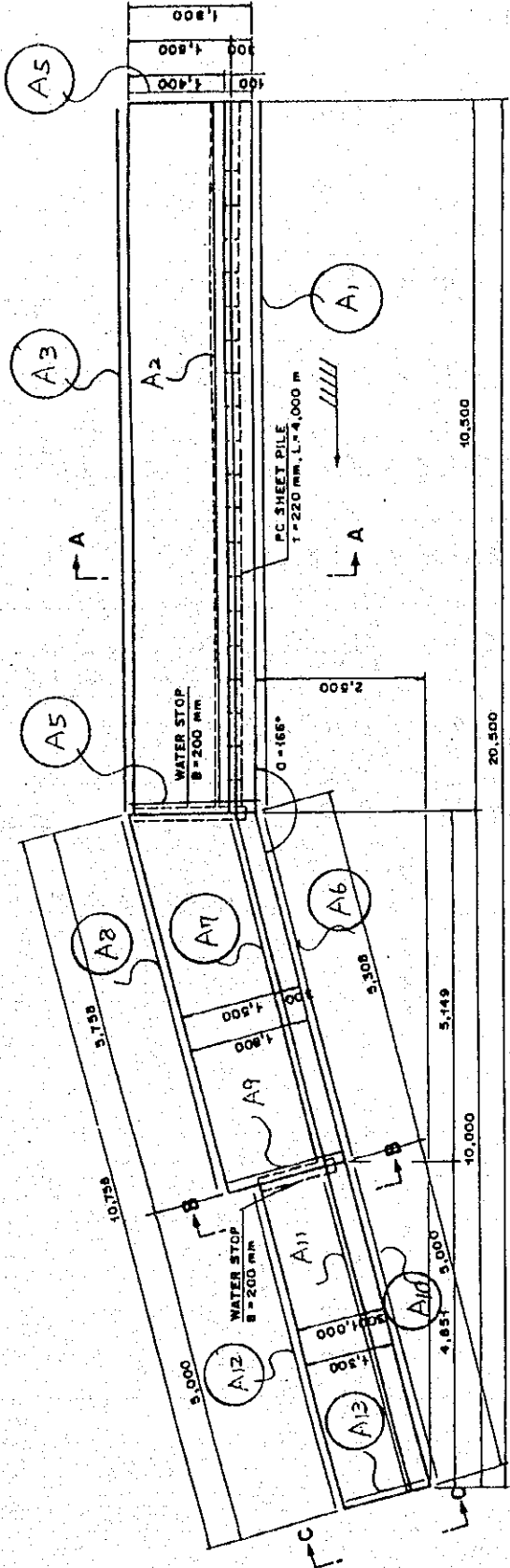
SECTION A - A
SCALE B



SECTION B - B
SCALE B



SECTION C - C
SCALE B



GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK

: LEVELING CONCRETE

LOCATION

: MAIN BODY AND SIDE WALL

CALCULATION	RESULT
(TYPE - E)	
$V_1 = 0.10 \times 0.80 \times 39.40 = 3.152$	
$V_2 = 0.10 \times 8.90 \times 39.40 = 35.066$	
$V_3 = 0.10 \times 1.20 \times 39.40 = 4.728$	
$V_4 = 0.10 \times 0.80 \times (10.50 + 5.308 + 0.10) \times 2 = 2.545$	
$V_5 = 0.10 \times 1.30 \times (10.50 + 5.308 + 0.10) \times 2 = 4.136$	
$V_6 = 0.10 \times 1.50 \times (5.00 + 0.10) \times 2 = 1.530$	
(Deduction for PC Sheet Pile)	
$V_7 = -(0.22 \times 0.10 \times 39.40) = -0.867$	
$V_8 = -(0.22 \times 0.10 \times 39.40) = -0.867$	
$V_9 = -(0.22 \times 0.10 \times (10.50 + 5.308)) \times 2 = -0.696$	
TOTAL = 48.727	48.727 m ³

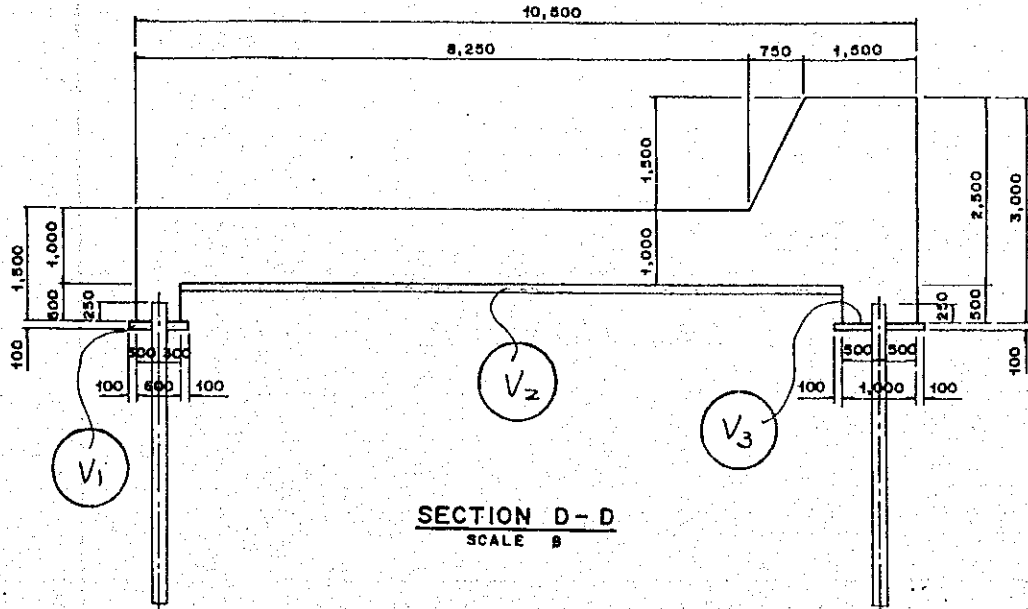
TYPE OF WORK

GROUND SILL WITH HEAD AT WF. 129
: LEVELING CONCRETE

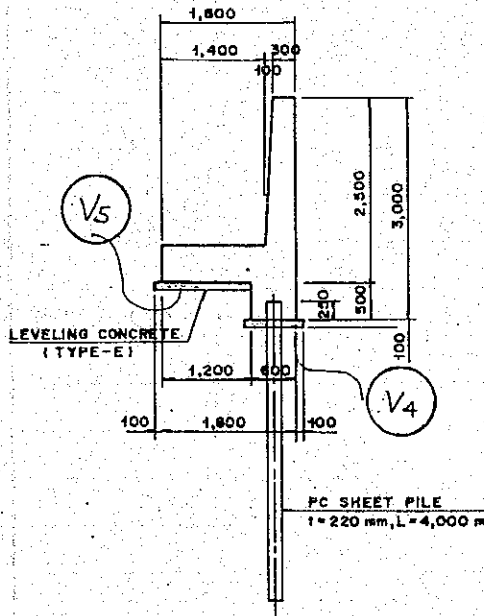
LOCATION

: MAIN BODY AND SIDE WALL

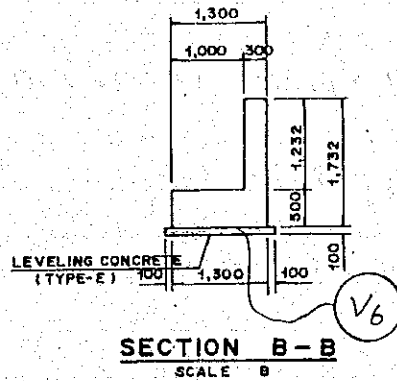
EXPLANATORY DRAWING



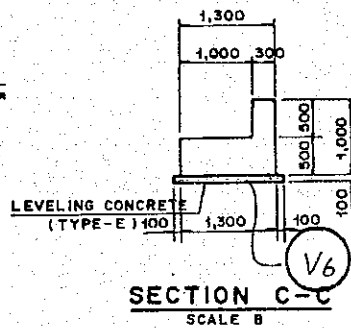
SECTION D-D
SCALE B



SECTION A-A
SCALE B



SECTION B-B
SCALE B



SECTION C-C
SCALE B

GROUND SILL WITH HEAD AT W/F. 124
 : FORM FOR LEVELING CONCRETE
 : MAIN BODY AND SIDE WALL

TYPE OF WORK
 LOCATION

CALCULATION	RESULT
$(H < 4.0m)$	
$A_1 = 0.10 \times 39.40 \times 2 = 7.880$	
$A_2 = 0.10 \times 39.40 \times 2 = 7.880$	
$A_3 = 0.10 \times 39.40 \times 2 = 7.880$	
$A_4 = \{0.10 \times 0.80 - (0.22 \times 0.10)\} \times 2 = 0.116$	
$A_5 = 0.10 \times 8.90 \times 2 = 1.780$	
$A_6 = \{0.10 \times 1.20 - (0.22 \times 0.10)\} \times 2 = 0.196$	
$A_7 = 0.10 \times (10.50 + 5.308 + 0.10) \times 2 \times 2 = 6.363$	
$A_8 = 0.10 \times (10.50 + 5.308 + 0.10) \times 2 \times 2 = 6.363$	
$A_9 = \{0.10 \times 0.80 - (0.22 \times 0.10)\} \times 2 \times 2 = 0.232$	
$A_{10} = 0.10 \times 1.30 \times 2 \times 2 = 0.520$	
$A_{11} = 0.10 \times (5.00 + 0.10) \times 2 \times 2 = 2.040$	
$A_{12} = 0.10 \times 1.50 \times 2 \times 2 = 0.600$	
$TOTAL = 41.850$	41.850 m^2

TYPE OF WORK :
 LOCATION : GROUNDSILL WITH HEAD AT WF.124

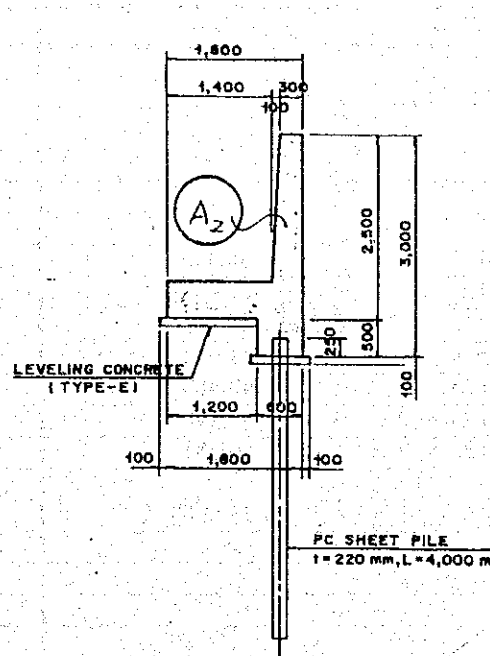
CALCULATION		RESULT
☑ WATER STOP (SIDE WALL)		
B = 200 mm		
$L_1 = (2.25 + 1.65) \times 2$	=	7.800
$L_2 = (1.482 + 1.15) \times 2$	=	5.264
TOTAL		13.064
		13.064 m
☑ JOINT FILTER (MAIN BODY)		
t = 10, ELASTIC MATERIAL		
$A_1 = \{(1.50 + 0.60) + (9.90 \times 1.00) + (1.00 \times 0.50) + (2.25 + 1.50) \times \frac{1}{2} \times 1.50\} \times 2$	=	28.225
$A_2 = \{(0.30 + 0.40) \times \frac{1}{2} \times 2.00 + (0.50 \times 1.80) + (0.60 \times 0.50)\} \times 2$	=	3.800
$A_3 = \{(0.30 \times 1.232) + (0.50 \times 1.30)\} \times 2$	=	2.039
TOTAL		34.064
		34.064 m ²
☑ GAGION MATTRESS (MAIN BODY)		
t = 500		
$V_1 = 27.00 \times 10.00 \times 0.50$	=	135.000
$V_2 = (34.40 + 39.40) \times \frac{1}{2} \times 10.00 \times 0.50$	=	184.500
$V_3 = 32.00 \times 10.00 \times 0.50$	=	160.000
TOTAL		479.500
		479.500 m ³
☑ PALM FIBER FILTER (MAIN BODY)		
$A_1 = (35.00 + 0.50 \times 2) \times 10.00$	=	360.000
$A_2 = (34.40 + 39.40) \times \frac{1}{2} \times 10.00$	=	369.000
$A_3 = (40.00 + 0.50 \times 2) \times 10.00$	=	410.000
TOTAL		1139.000
		1139.000 m ²

GROUND SILL WITH HEAD AT WF 124

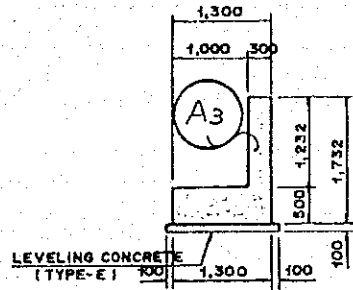
TYPE OF WORK : JOINT FILLER

LOCATION : MAIN BODY

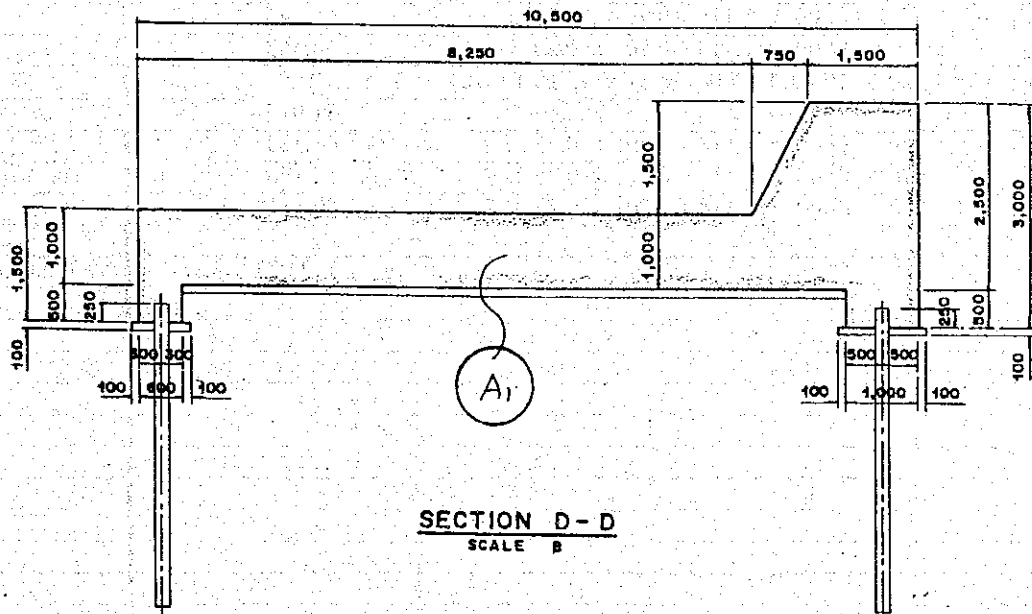
EXPLANATORY DRAWING



SECTION A - A
SCALE B



SECTION B - B
SCALE B



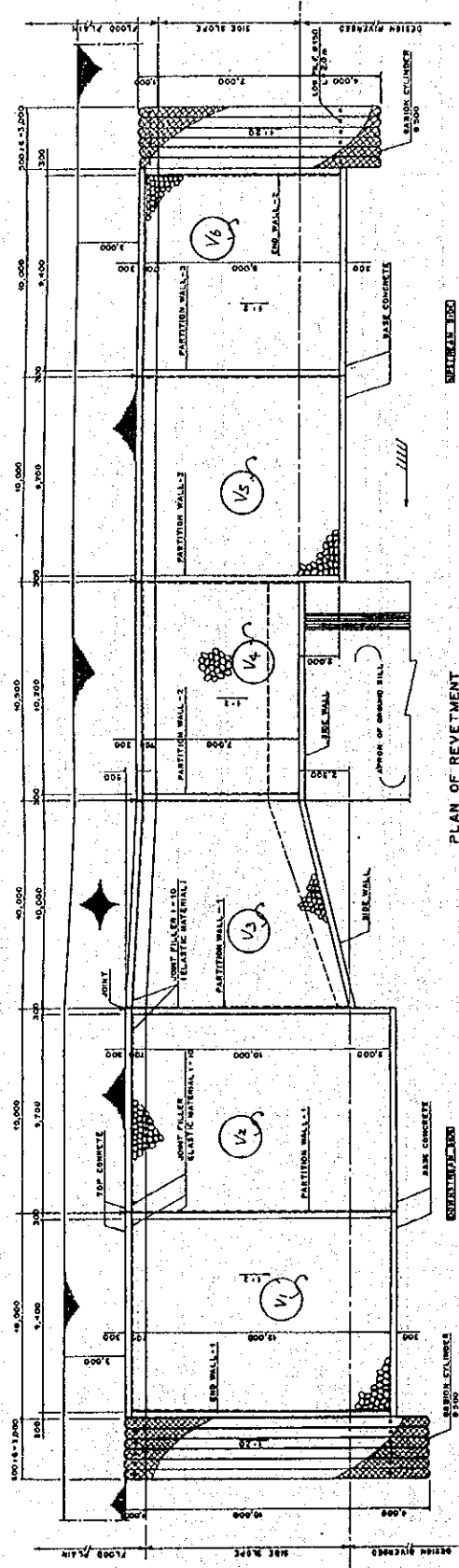
SECTION D - D
SCALE B

TYPE OF WORK :
 LOCATION : GROUND SILL WITH HEAD AT WF.124

CALCULATION		RESULT
☐ WET STONE MASONRY (REVETMENT)		
t = 250		
$V_1 = 9.40 \times (12.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	66.345
$V_2 = 9.70 \times (12.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	68.463
$V_3 = 10.00 \times \{(10.00 + 7.00) \times \frac{1}{2} \times 1.118 + 0.70\} \times 0.25 \times 2$	=	51.015
$V_4 = 10.20 \times (7.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	43.483
$V_5 = 9.70 \times (9.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	52.196
$V_6 = 9.40 \times (9.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	50.581
TOTAL	=	332.083
☐ GRAVEL BEDDING (REVETMENT)		
t = 250		
$V_1 = 9.40 \times (12.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	66.345
$V_2 = 9.70 \times (12.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	68.463
$V_3 = 10.00 \times \{(10.00 + 7.00) \times \frac{1}{2} \times 1.118 + 0.70\} \times 0.25 \times 2$	=	51.015
$V_4 = 10.20 \times (7.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	43.483
$V_5 = 9.70 \times (9.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	52.196
$V_6 = 9.40 \times (9.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	50.581
TOTAL	=	332.083

TYPE OF WORK : GROUND SILL WITH HEAD AT WF.124
 LOCATION : GRAVEL BEDDING
 : REVETMENT

EXPLANATORY DRAWING



PLAN OF REVETMENT
 SCALE 1

GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK

: PC SHEET PILE

LOCATION

: MAIN BODY AND SIDE WALL

CALCULATION	RESULT
• PC SHEET PILE (L = 4.00 m/pile)	
$n_1 = 10.50 \div 0.50 = 21 \text{ piles}$	
$L_1 = 21 \text{ piles} \times 4.00 \times 2 = 168.000$	
$n_2 = 20.00 \div 0.50 = 40 \text{ piles}$	
$L_2 = 40 \text{ piles} \times 4.00 \times 2 = 320.000$	
$n_3 = 20.00 \div 0.50 = 40 \text{ piles}$	
$L_3 = 40 \text{ piles} \times 4.00 \times 2 = 320.000$	
TOTAL = 808.000	808.000 m
• PILING	
N Value : N = 27 (Average)	
$L = (2) + 40 + 40 \text{ piles} \times 2 \times 4.00 = 808.000$	808.000 m

GROUND SILL WITH HEAD AT WF. 124

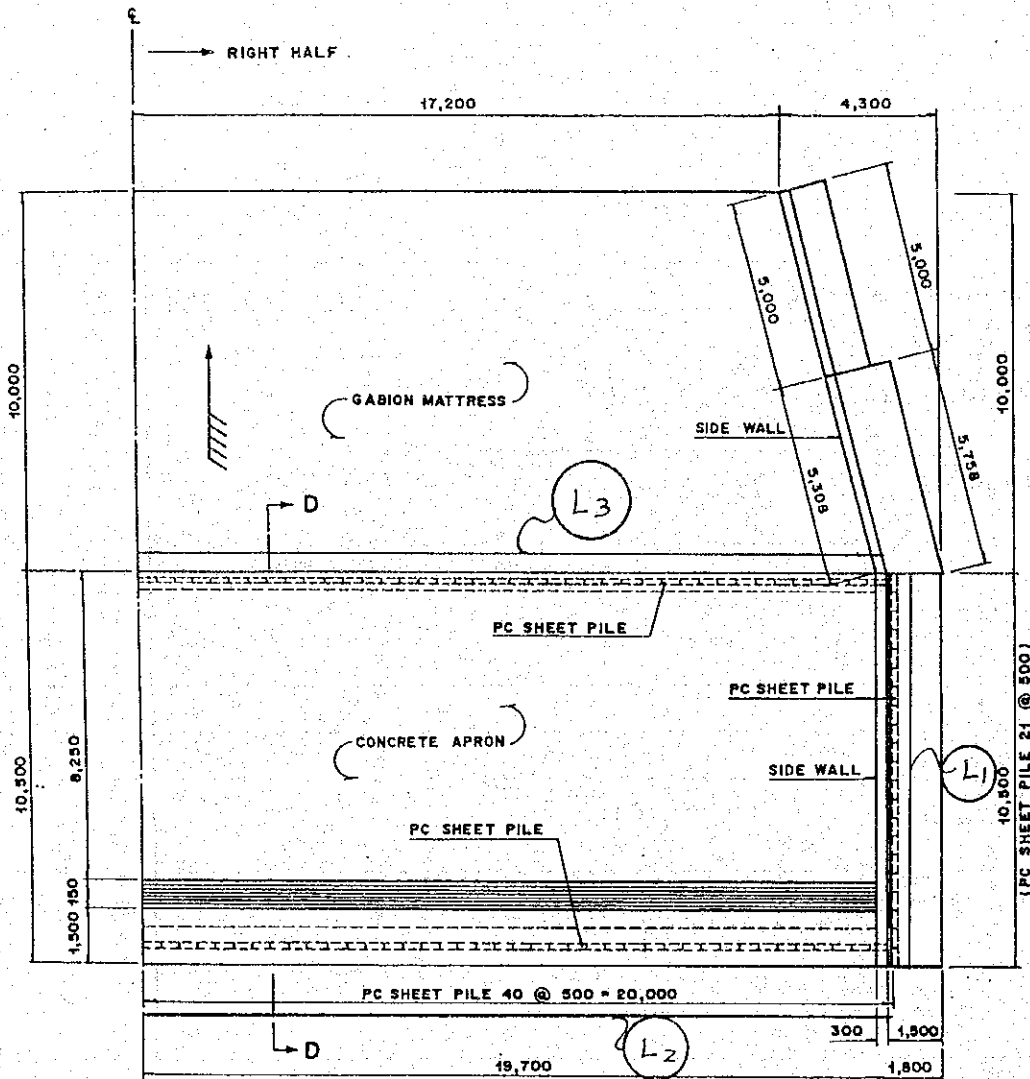
TYPE OF WORK :

PC SHEET PILE

LOCATION :

MAIN BODY AND SIDE WALL

EXPLANATORY DRAWING



PLAN
SCALE A

TYPE OF WORK : GROUND SILL WITH HEAD AT WF. 124
 LOCATION : REPLACEMENT OF BASE SOIL

CALCULATION	RESULT
$A_1 = (44.00 + 45.00) \times \frac{1}{2} \times 1.00 = 44.500 \text{ m}^2$	
$V_1 = 44.50 \times (11.50 + 12.50) \times \frac{1}{2} = 534.000$	
$A_2 = (2.80 + 3.80) \times \frac{1}{2} \times 1.00 = 3.300 \text{ m}^2$	
$V_2 = 3.30 \times (5.758 + 5.308) \times \frac{1}{2} \times 2 = 36.518$	
$A_3 = (2.30 + 3.80) \times \frac{1}{2} \times 1.00 = 3.050 \text{ m}^2$	
$V_3 = 3.05 \times 5.00 \times 2 = 30.500$	
(Deduction for Ground sill)	
$V_4 = -(0.50 \times 1.00) \times 39.40 = -19.700$	
$V_5 = -(0.50 \times 0.60) \times 39.40 = -11.820$	
(Deduction for Side wall)	
$V_6 = -(0.60 \times 0.50) \times 10.50 \times 2 = -6.300$	
(Deduction for PC Sheet Pile)	
$V_7 = -(122 \text{ piles} \times 0.50 \times 0.22) \times 0.40 = -5.368$	
TOTAL ($V_1 + V_2 + V_3 + V_4 + V_5 + V_6 + V_7$) = 557.830	557.830 m ³

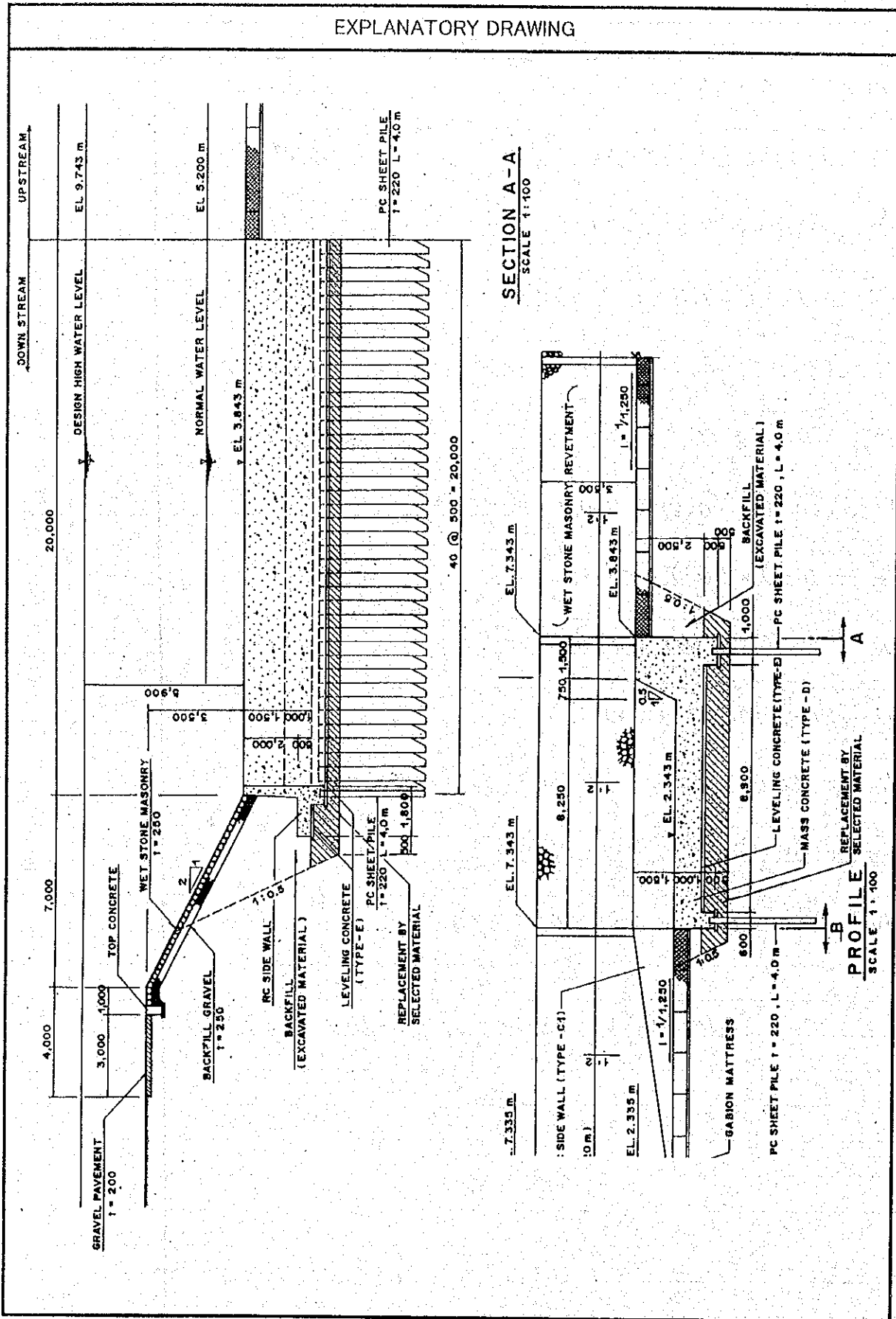
GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK :

REPLACEMENT OF BASE SOIL

LOCATION :

EXPLANATORY DRAWING



TYPE OF WORK :
 LOCATION : GROUND SILL WITH HEAD AT WF.124

CALCULATION		RESULT
☐ BASE CONCRETE (REVETMENT)		
L = 40.00 m / side		
• CONCRETE (TYPE - C1)		
V = 40.00 x 2.20 / 10.00 m	= 17.600	17.600 m ³
• GRAVEL BEDDING		
V = 40.00 x 2 x 0.70 / 10.00 m	= 5.600	5.600 m ³
• FORM (H < 4.0 m)		
A = 40.00 x 2 x 10.83 / 10.00 m	= 86.640	86.460 m ²
• REINFORCING BAR		
W = 40.00 x 2 x 0.100 / 10.00 m	= 0.800	0.800 tf
• JOINT FILTER		
A = 40.00 x 2 x 0.22 / 10.00 m	= 1.760	1.760 m ²
☐ TOP CONCRETE (REVETMENT)		
L = 60.50 m / side		
• CONCRETE (TYPE - C1)		
V = 60.50 x 1.80 / 10.00 m	= 21.780	21.780 m ³
• GRAVEL BEDDING		
V = 60.50 x 2 x 0.75 / 10.00 m	= 9.075	9.075 m ³
• FORM (H < 4.0 m)		
A = 60.50 x 2 x 12.18 / 10.00 m	= 147.378	147.378 m ²
• REINFORCING BAR		
W = 60.50 x 0.094 / 10.00 m	= 1.137	1.137 tf
• JOINT FILTER		
A = 60.50 x 2.605 / 10.00 m	= 31.521	31.521 m ²

TYPE OF WORK :

LOCATION : GROUNDSILL WITH HEAD AT WF.124

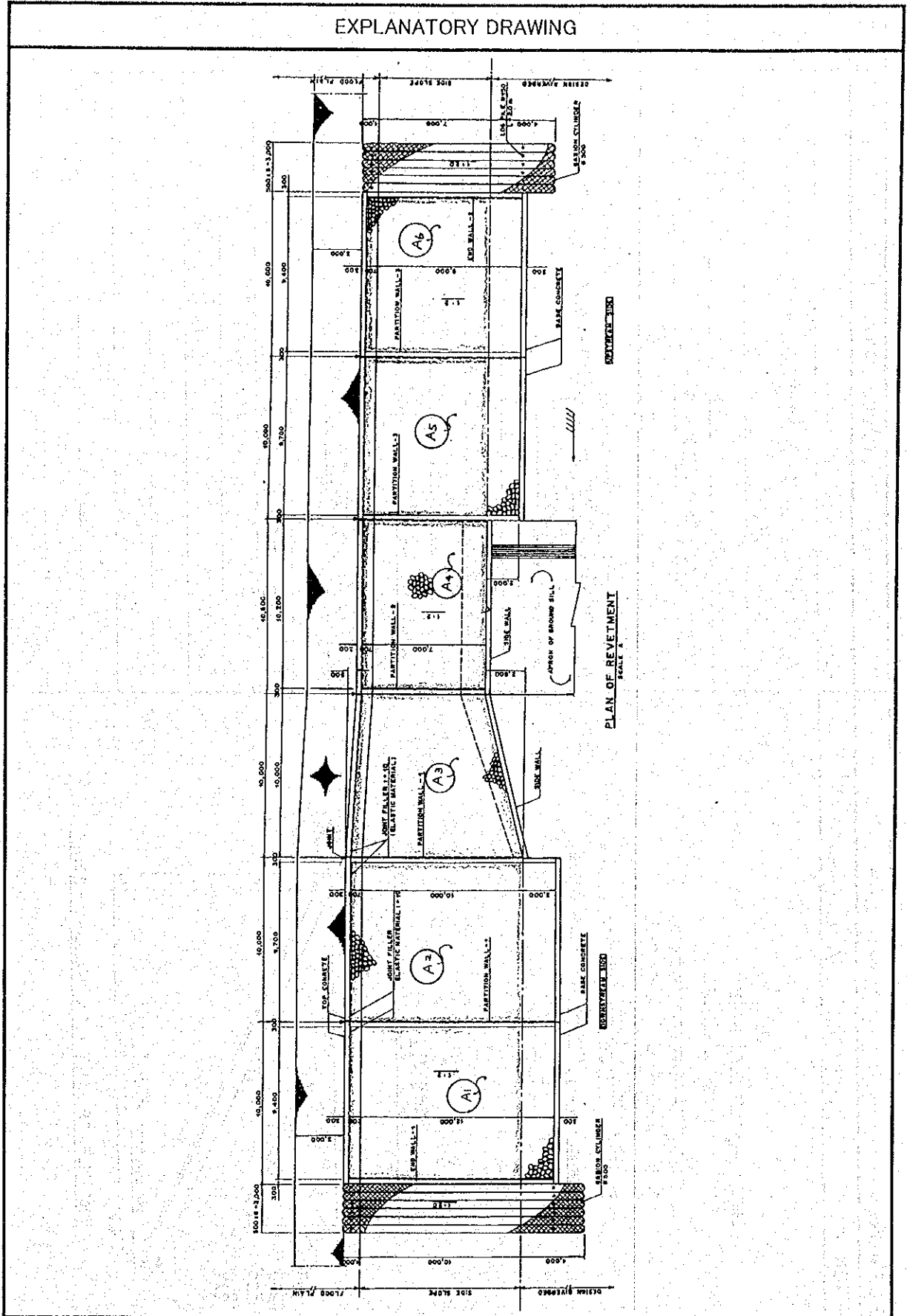
CALCULATION		RESULT
☐ CEMENT MORTAR POINTING (REVETMENT)		
$A_1 = 9.40 \times (10.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	223.344
$A_2 = 9.70 \times (10.00 \times 1.118 + 0.70) \times 0.25 \times 2$	=	230.472
$A_3 = 10.00 \times \{(10.00 + 7.00) \times \frac{1}{2} \times 1.118 + 0.70 \times 2$	=	204.060
$A_4 = 10.20 \times (7.00 \times 1.118 + 0.70) \times 2$	=	173.930
$A_5 = 9.70 \times (7.00 \times 1.118 + 0.70) \times 2$	=	165.404
$A_6 = 9.70 \times (7.00 \times 1.118 + 0.70) \times 2$	=	160.289
TOTAL	=	1157.499
		1157.499 m²
☐ RUBBLE STONE FILLING (REVETMENT)		
$A = \frac{1}{2} \times 1.00 \times 0.50 \times 2$	=	0.500 m ²
$V = 0.50 \times (20.00 + 20.00) \times 2$	=	40.000
		40.000 m³
☐ GABION MATTRESS (REVETMENT)		
$A = (3.00 \times 0.50) + (1.50 \times 0.50)$	=	2.250 m ²
$V = 2.25 \times 40.00 \times 2$	=	180.000
		180.000 m³
☐ GABION CYLINDER		
GABION CYLINDER Ø 500		
$L_1 = 4.00 + 10.00 \times 1.118 + 1.00$	=	16.180 m / unit
$L_2 = 4.00 + 7.00 \times 1.118 + 1.00$	=	12.826 m / unit
$V_1 = \pi / 4 \times 0.50^2 \times 16.180 \times 6 \text{ unit} \times 2$	=	38.123
$V_2 = \pi / 4 \times 0.50^2 \times 12.826 \times 6 \text{ unit} \times 2$	=	30.221
TOTAL	=	68.344
		68.344 m³
SOIL FILLING		
$V_1 = (16.180 \times 3.00 \times 0.50) \times 2 - 38.123$	=	10.417
$V_2 = (12.826 \times 3.00 \times 0.50) \times 2 - 30.221$	=	8.257
TOTAL	=	18.674
		18.674 m³

GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK : CEMENT MORTAR POINTING

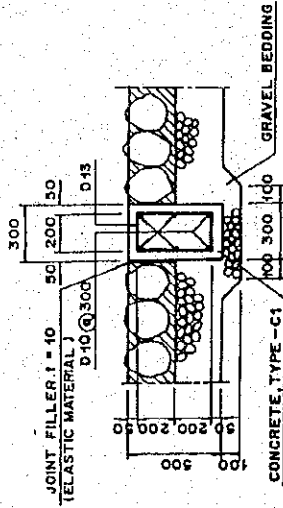
LOCATION : REVETMENT

EXPLANATORY DRAWING

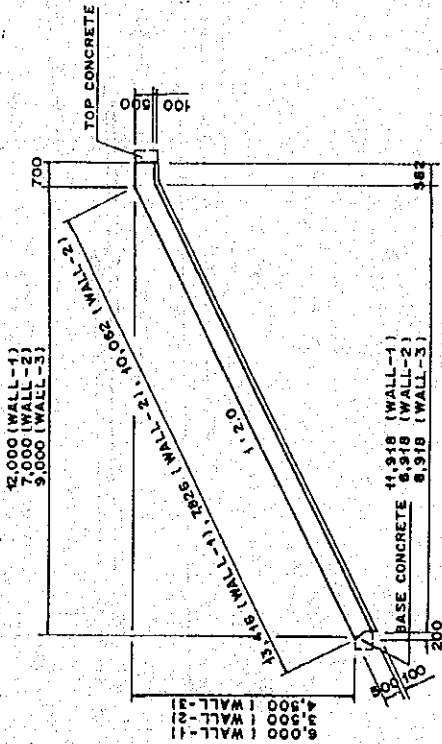


GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK :	CONCRETE (TYPE-C1)			RESULT
LOCATION :	PARTITION WALL (REVTMENT)			
- WALL-1				
$A_1 = (13.416 + 13.324) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \times 0.50$			$= 7.006 \text{ m}^2$	
$V_1 = (7.006 \times 0.30) \times 2 \times 2$			$= 8.407$	
- WALL-2				
$A_2 = (7.826 + 7.734) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \times 0.50$			$= 4.211 \text{ m}^2$	
$V_2 = (4.211 \times 0.30) \times 1 \times 2$			$= 2.527$	
- WALL-3				
$A_3 = (10.062 + 9.97) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \times 0.50$			$= 5.329 \text{ m}^2$	
$V_3 = (5.329 \times 0.30) \times 2 \times 2$			$= 6.395$	
$\text{TOTAL} = 17.329$				17.329 m^3



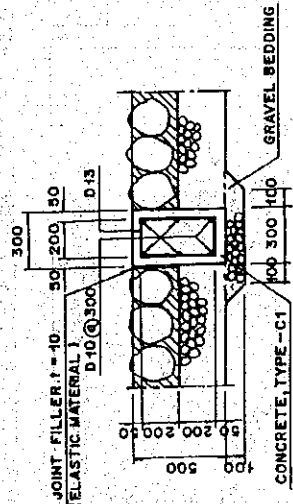
PARTITION WALL
SCALE C



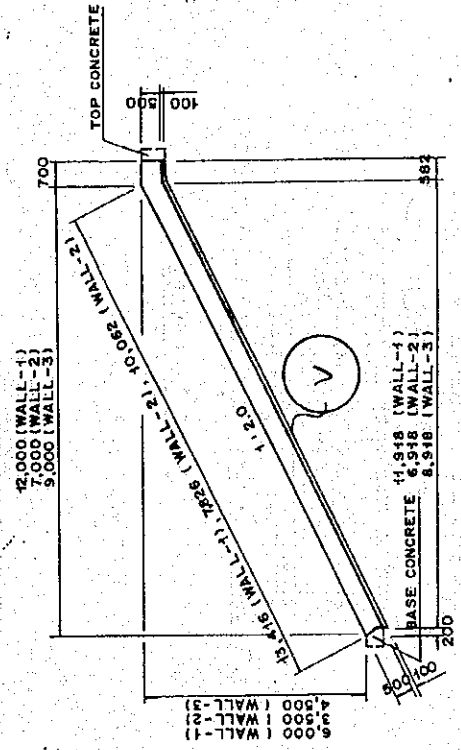
PROFILE OF PARTITION WALL -1,-2B-3
SCALE A

GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK:	CALCULATION	RESULT
GRAVEL BEDDING		
PARTITION WALL (CREVETMENT)	- WALL - 1	
	$A_1 = (0.50 + 0.70) \times \frac{1}{2} \times 0.10 = 0.060 \text{ m}^2$	
	$V_1 = \{0.060 \times (13.324 + 0.582)\} \times 2 \times 2 = 3.337$	
	- WALL - 2	
	$A_2 = 0.060 \text{ m}^2$	
	$V_2 = \{0.060 \times (7.734 + 0.582)\} \times 1 \times 2 = 0.998$	
	- WALL - 3	
	$A_3 = 0.060 \text{ m}^2$	
	$A_3 = \{0.060 \times (9.970 + 0.582)\} \times 2 \times 2 = 2.532$	
	$TOTAL = 6.867$	6.867 m^3

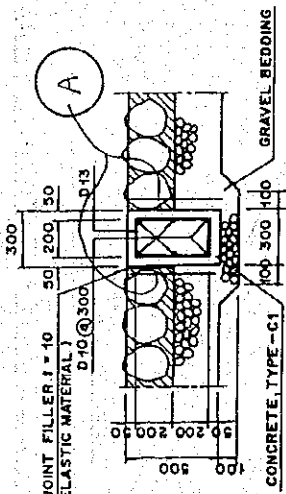


PARTITION WALL
SCALE C

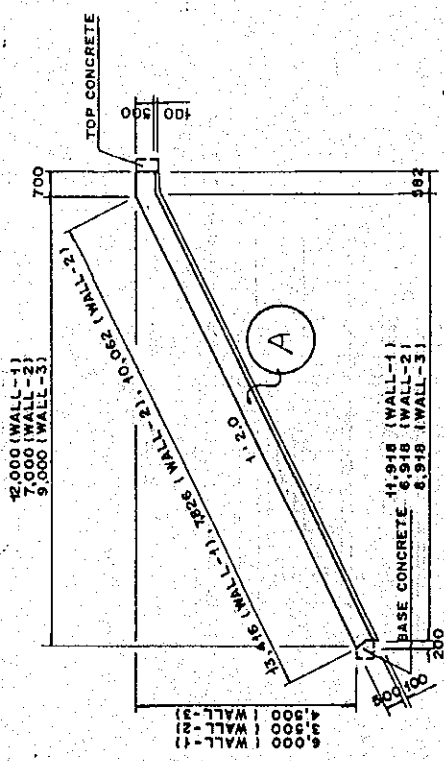


PROFILE OF PARTITION WALL -1, -2B-3
SCALE A

GROUND SILL WITH HEAD AT WF 124

TYPE OF WORK :	FORM (H < 4.0 m)	CALCULATION	RESULT
LOCATION :	PARTITION WALL (REVETMENT)		
		- WALL - 1	
		$A_1 = \left\{ (13.416 + 13.324) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \times 0.50 \right\} \times 2 \times 2 \times 2$ $= 56.044$	
		- WALL - 2	
		$A_2 = \left\{ (7.826 + 7.734) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \times 0.50 \right\} \times 2 \times 2 \times 2$ $= 16.842$	
		- WALL - 3	
		$A_3 = \left\{ (10.062 + 9.970) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \times 0.50 \right\} \times 2 \times 2 \times 2$ $= 42.628$	
		TOTAL = 115.514	115.514 m ²

PARTITION WALL
SCALE C



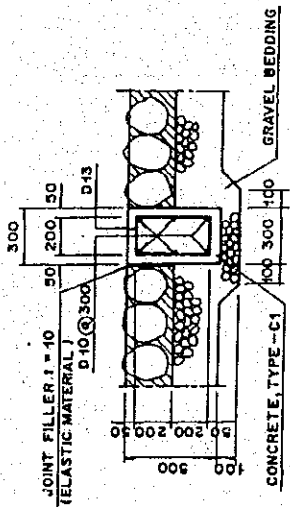
PROFILE OF PARTITION WALL - 1, - 2 & - 3
SCALE A

GROUND FILL WITH HEAD AT WF. 124
 TYPE OF WORK : REINFORCING BAR
 LOCATION : PARTITION WALL (REVETMENT)

CALCULATION	RESULT
• WALL - 1	
(Φ 13, $w = 1.04 \text{ kgf/m}$)	
$n = 6 \text{ Bars}$	
$L = (13.416 + 0.70) - 0.05 \times 2 = 14.016 \text{ m/Bar}$	
$W_1 = 6 \text{ Bars} \times 14.016 \times 1.04 \times 2 \times 2 = 349.839$	
(Φ 10, $w = 0.617 \text{ kgf/m}$)	
$n = (14.016 \div 0.30) + 1 = 47.72 \div 48 \text{ Bars}$	
$L = (0.20 \times 2 + 0.40 \times 2 + 15 \times 0.01) = 1.350 \text{ m/Bar}$	
$W_2 = 48 \text{ Bars} \times 1.35 \times 0.617 \times 2 \times 2 = 159.926$	
• WALL - 2	
(Φ 13, $w = 1.04 \text{ kgf/m}$)	
$n = 6 \text{ Bars}$	
$L = (7.826 + 0.70) - 0.05 \times 2 = 8.426 \text{ m/Bar}$	
$W_3 = 6 \text{ Bars} \times 8.426 \times 1.04 \times 2 \times 2 = 210.313$	
(Φ 10, $w = 0.617 \text{ kgf/m}$)	
$n = (8.426 \div 0.30) + 1 = 29.09 \div 30 \text{ Bars}$	
$L = 1.350 \text{ m/Bar}$	
$W_4 = 30 \text{ Bars} \times 1.35 \times 0.617 \times 2 \times 2 = 99.954$	
• WALL - 3	
(Φ 13, $w = 1.04 \text{ kgf/m}$)	
$n = 6 \text{ Bars}$	
$L = (10.062 + 0.70) - 0.05 \times 2 = 10.662 \text{ m/Bar}$	
$W_5 = 6 \text{ Bars} \times 10.662 \times 1.04 \times 2 \times 2 = 266.124$	
(Φ 10, $w = 0.617 \text{ kgf/m}$)	
$n = (10.662 \div 0.30) + 1 = 36.54 \div 37 \text{ Bars}$	
$L = 1.35 \text{ m/Bar}$	
$W_6 = 37 \text{ Bars} \times 1.35 \times 0.617 \times 2 \times 2 = 123.277$	
TOTAL ($W_1 + W_2 + W_3 + W_4 + W_5 + W_6$) = 1209.433 kgf	1.210 tf

GROUND SILL WITH HEAD AT W.F. 124

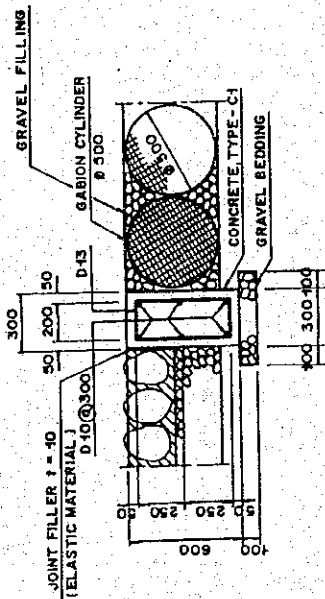
TYPE OF WORK:	JOINT FILLER	CALCULATION	RESULT
LOCATION:	PARTITION WALL (REVEMENT)	t = 10, ELASTIC MATERIAL	
- WALL - 1		$A_1 = \left\{ (13.416 + 13.324) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \right.$ $\left. \times 0.50 \right\} \times 2 \times 2$ $= 28.022$	
- WALL - 2		$A_2 = \left\{ (7.826 + 7.734) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \right.$ $\left. \times 0.50 \right\} \times 2 \times 2$ $= 16.842$	
- WALL - 3		$A_3 = \left\{ (10.062 + 9.977) \times \frac{1}{2} \times 0.50 + (0.70 + 0.582) \times \frac{1}{2} \right.$ $\left. \times 0.50 \right\} \times 1 \times 2$ $= 10.657$	
		TOTAL = 55.52	55.52 m ²



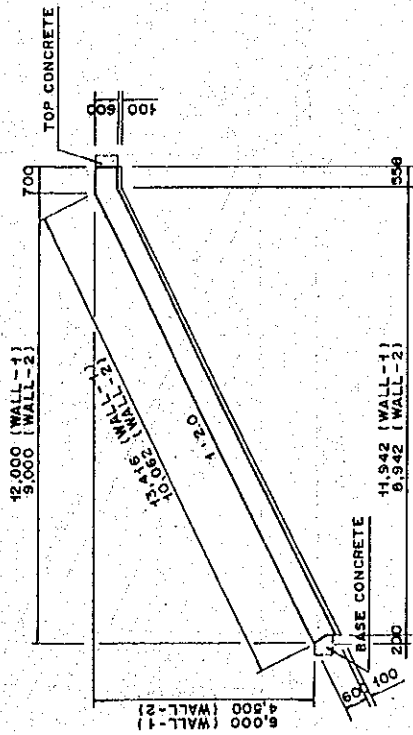
PARTITION WALL
SCALE: C

GROUND SILL WITH HEAD AT WF.124

TYPE OF WORK:	CONCRETE (TYPE-C1)		RESULT
LOCATION:	END WALL (REVEMENT)		
	- WALL - 1		
	$A_1 = (13.416 + 13.351) \times \frac{1}{2} \times 0.60 + (0.70 + 0.558) \times \frac{1}{2} \times 0.60$		
		$= 8.408 \text{ m}^2$	
	$V_1 = 8.408 \times 0.30 \times z$		
	- WALL - 2		
	$A_2 = (10.062 + 9.997) \times \frac{1}{2} \times 0.60 + (0.70 + 0.558) \times \frac{1}{2} \times 0.60$		
		$= 6.395$	
	$V_2 = 6.395 \times 0.30 \times z$		
		$= 3.837$	
		$\text{TOTAL} = 8.882$	8.882 m^3



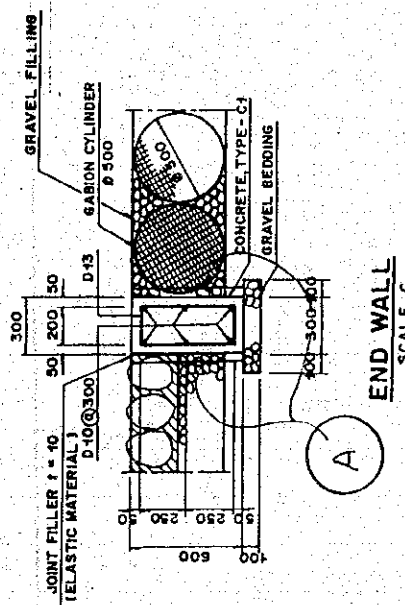
END WALL
SCALE C



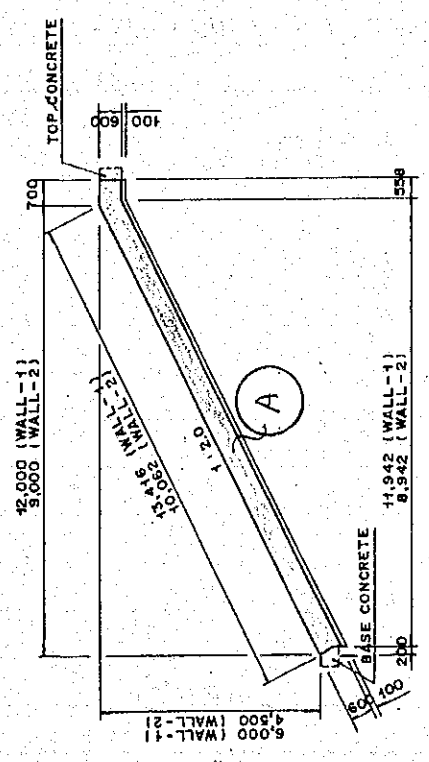
PROFILE OF END WALL - 18-2
SCALE A

GROUND SILL WITH HEAD AT WF 124

TYPE OF WORK:	FORM (H < 4.0m)	CALCULATION	RESULT
LOCATION:	END WALL (REVEMENT)	WALL - 1	
		$A_1 = \left\{ (13.416 + 13.351) \times \frac{1}{2} \times 0.60 + (0.70 + 0.558) \times \frac{1}{2} \times 0.60 \right\} \times 2 \times 2$ $= 33.630$	
		WALL - 2	
		$A_2 = \left\{ (10.062 + 9.997) \times \frac{1}{2} \times 0.60 + (0.70 + 0.558) \times \frac{1}{2} \times 0.60 \right\} \times 2 \times 2$ $= 25.580$	
		TOTAL = 59.210	59.210 m ²



END WALL
SCALE C



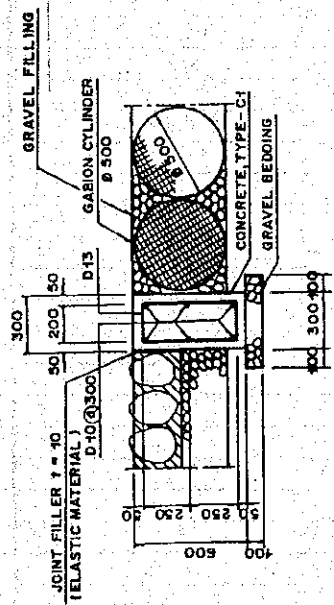
PROFILE OF END WALL - 18 - 2
SCALE A

GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK : REINFORCING BAR
 LOCATION : END WALL (REVETMENT)

CALCULATION	RESULT
- WALL - 1	
(D13, $w = 1.04 \text{ kgf/m}$)	
$n = 6 \text{ Bars}$	
$L = (13.416 + 0.70) - 0.05 \times 2 = 14.016 \text{ m/Bar}$	
$W_1 = 6 \text{ Bars} \times 14.016 \times 1.04 \times 2 = 174.920$	
(D10, $w = 0.617 \text{ kgf/m}$)	
$n = (14.016 \div 0.30) + 1 = 47.72 \div 48 \text{ Bars}$	
$L = (0.20 \times 2 + 0.50 \times 2 + 15 \times 0.01) = 1.550 \text{ m/Bar}$	
$W_2 = 48 \text{ Bars} \times 1.55 \times 0.617 \times 2 = 91.810$	
- WALL - 2	
(D13, $w = 1.04 \text{ kgf/m}$)	
$n = 6 \text{ Bars}$	
$L = (10.062 + 0.70) - 0.05 \times 2 = 10.662 \text{ m/Bar}$	
$W_3 = 6 \text{ Bars} \times 10.662 \times 1.04 \times 2 = 133.062$	
(D10, $w = 0.617 \text{ kgf/m}$)	
$n = (10.662 \div 0.30) + 1 = 36.54 \div 37 \text{ Bars}$	
$L = 1.550 \text{ m/Bar}$	
$W_4 = 37 \text{ Bars} \times 1.55 \times 0.617 \times 2 = 70.770$	
TOTAL ($W_1 + W_2 + W_3 + W_4$)	
$= 470.562 \text{ kgf}$	0.471 tf

GROUND SILL WITH HEAD AT WF. 124

TYPE OF WORK:	JOINT FILLER	CALCULATION	RESULT
LOCATION:	END WALL (REVEMENT)	t=10, ELASTIC MATERIAL	
	 <p>Diagram labels: JOINT FILLER (t=10, ELASTIC MATERIAL) D=10 (300), GABION CYLINDER B=500, GRAVEL FILLING, CONCRETE TYPE-C1, GRAVEL BEDDING. Dimensions: 300, 200, 50, 100, 250, 50, 500, 100, 300, 100.</p>	WALL-1	
		$A_1 = \left\{ (13.416 + 13.35) \right\} \times \frac{1}{2} \times 0.60 + (0.70 + 0.558) \times \frac{1}{2} \times 0.60 \times 2$ $= 16.815$	
		WALL-2	
		$A_2 = \left\{ (10.062 + 9.997) \right\} \times \frac{1}{2} \times 0.60 + (0.70 + 0.558) \times \frac{1}{2} \times 0.60 \times 2$ $= 12.790$	
		TOTAL = 29.605	29.605 m ²

END WALL
SCALE C.