

APPENDIX I

TABLE 1.1. Moisture Content Test

	Set No 1	Set No 2
$W_{cc}(\text{grams})$	11.32	11.30
$W_{cws}(\text{grams})$	42.43	44.05
$W_{cs}(\text{grams})$	38.48	39.95
$W_w(\text{grams})$	27.16	28.65
W_s	3.95	4.10
W_c (percent)	14.50	14.31
Average (percent)	14.40	

$W_{cc}(\text{grams}) = \text{Weight of container}$ $W_{cws}(\text{grams}) = \text{Weight of container + Wet soil sample}$
 $W_{cs}(\text{grams}) = \text{Weight of container + Dry soil sample}$ $W_w(\text{grams}) = \text{Weight of water}$
 $W_s(\text{grams}) = \text{Weight of dry soil}$ $W_c(\text{percent}) = \text{Water content}$

TABLE 1.2. Specific Gravity Test

	Set No 1	Set No 2
$W_s(\text{grams})$	50	50
$W_b(\text{grams})$	70.23	71
$W_{bw}(\text{grams})$	321.4	321
$W_{bws}(\text{grams})$	353.23	352.5
$W_w(\text{grams})$	18.17	18.5
at 27 C ⁰	0.99	0.99
G_s	2.72	2.68
Average	2.69	

$W_s(\text{grams}) = \text{weight of dry soil}$ $W_b(\text{grams}) = \text{weight of flask}$
 $W_{bw}(\text{grams}) = \text{weight of flask + water}$ $W_w(\text{grams}) = \text{weight of water}$
 $W_{bws}(\text{grams}) = \text{weight of flask + water + dry soil}$ $G_s = \text{specific gravity}$ $\alpha = \text{constant}$

TABLE 1.3: Liquid Limit Test

	Set No 1	Set No 2	Set No 3
$W_{cc}(\text{grams})$	11.22	11.36	4.36
$W_{cws}(\text{grams})$	43.04	43.64	33.84
$W_{cs}(\text{grams})$	37.38	38.12	28.86
$W_w(\text{grams})$	5.66	5.52	4.98
W_s	26.16	26.67	24.50
W_c (percent)	21.64	20.63	20.33
N	19	29	27

$W_{cc}(\text{grams})$ = weight of container $W_{cws}(\text{grams})$ = weight of container + weight soil sample
 $W_{cs}(\text{grams})$ = weight of container + weight of dry soil $W_w(\text{grams})$ = weight of water
 $W_s(\text{grams})$ = weight of dry soil W_c (percent) = water content N = blow count number

TABLE 1.4. Plastic Limit Test

	Set No 1	Set No 2
$W_{cc}(\text{grams})$	4.41	4.41
$W_{cws}(\text{grams})$	9.75	9.3
$W_{cs}(\text{grams})$	9.23	8.83
$W_s(\text{grams})$	4.82	4.42
$W_w(\text{grams})$	0.52	0.47
W_c (percent)	10.79	10.63
PL	10.71	

$W_{cc}(\text{grams})$ = weight of container $W_{cws}(\text{grams})$ = weight of container + weight soil sample
 $W_{cs}(\text{grams})$ = weight of container + dry soil sample $W_w(\text{grams})$ = weight of water
 $W_s(\text{grams})$ = weight of dry soil W_c (percent) = water content PL = plastic limit

TABLE 1.5. Grain Size Analyses Test

		Dia. (mm)	Weight Retained	Percent Retained	Percent Passing
Sieve Analysis	3/8	9.500	0	0	100
	4	5.200	5.20	1.733	98.267
	10	8.450	8.45	2.817	97.183
	20	11.540	11.54	3.847	96.153
	40	14.600	14.60	4.867	95.133
	60	26.700	26.70	8.900	91.100
	100	58.410	58.41	19.470	80.530
	200	74.500	74.50	24.833	75.167
Hydrometer Analysis		0.057			24.278
		0.041			42.42
		0.029			40.93
		0.021			37.95
		0.015			34.98
		0.011			31.25
		0.008			27.53
		0.006			26.12
		0.004			25.00
		0.003			23.52
		0.003			22.03

Weight of sample = 300 grams Washed = 112 grams

Weight of sample retained = 187.9538 grams

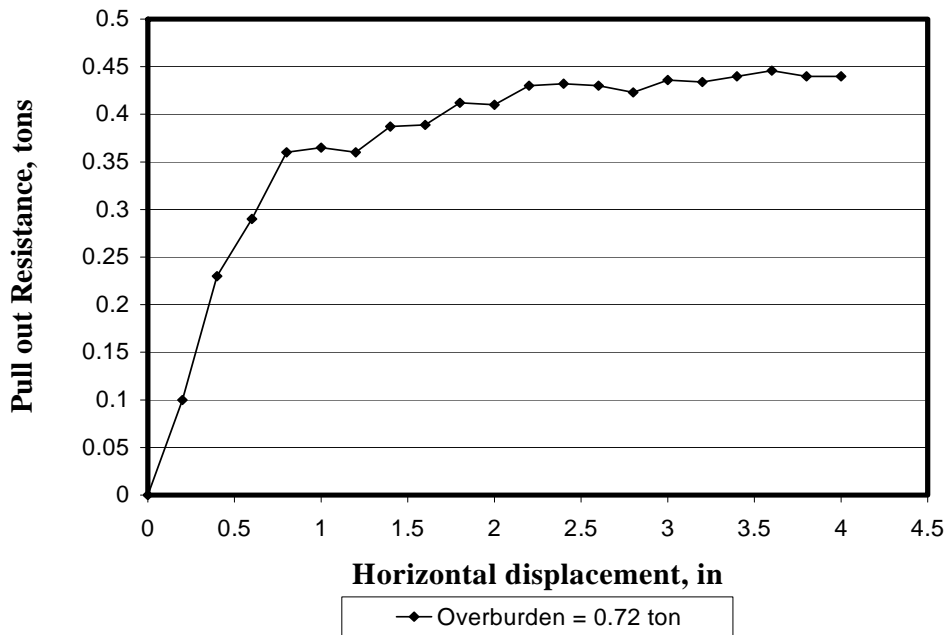
TABLE 1.6. Permeability Test

Time (sec)	H1(cm)	H2(cm)	K cm/sec
60	50.4	42.5	3.51E-06
60	40	33	3.62E-06
60	30	25	3.03E-06
Average			3.38E-06

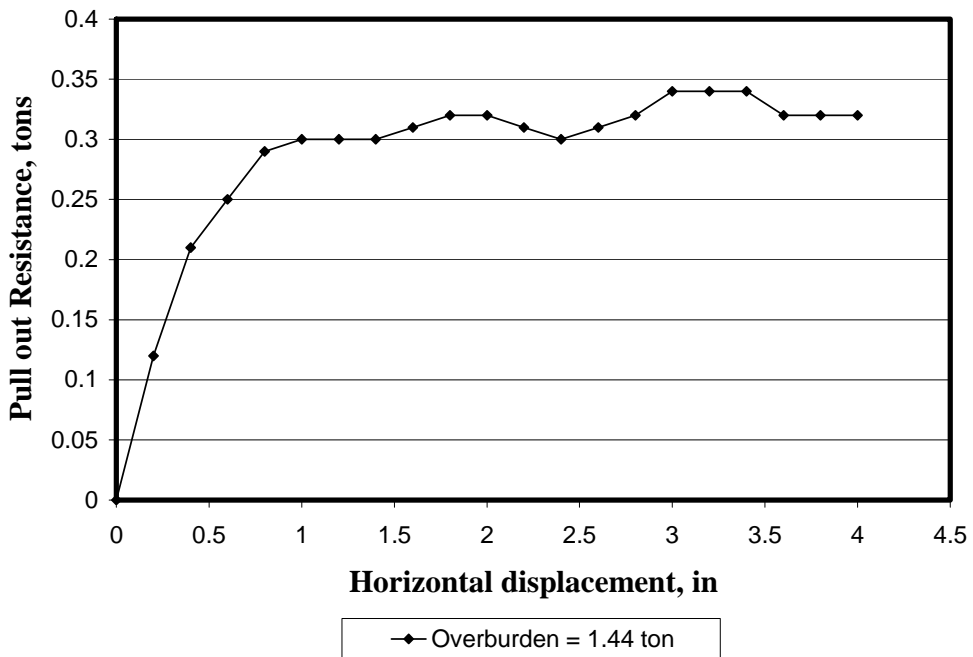
Time = water falling time H1 and H2 = heights of fall K = permeability of the material

APPENDIX II

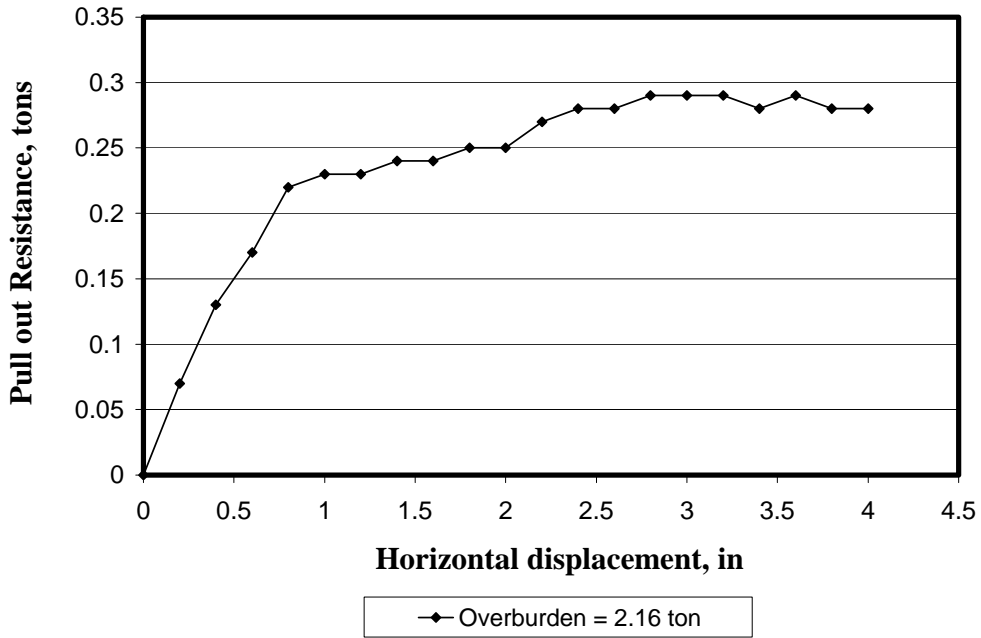
Pull out Test 1 (Dry Of optimum)



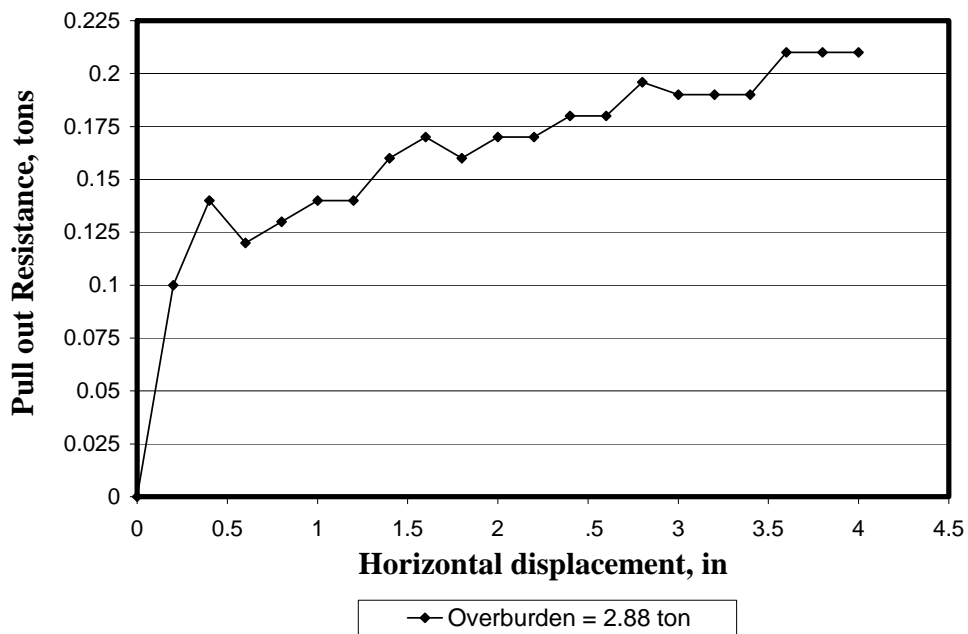
Pull out Test 2 (Dry Of optimum)



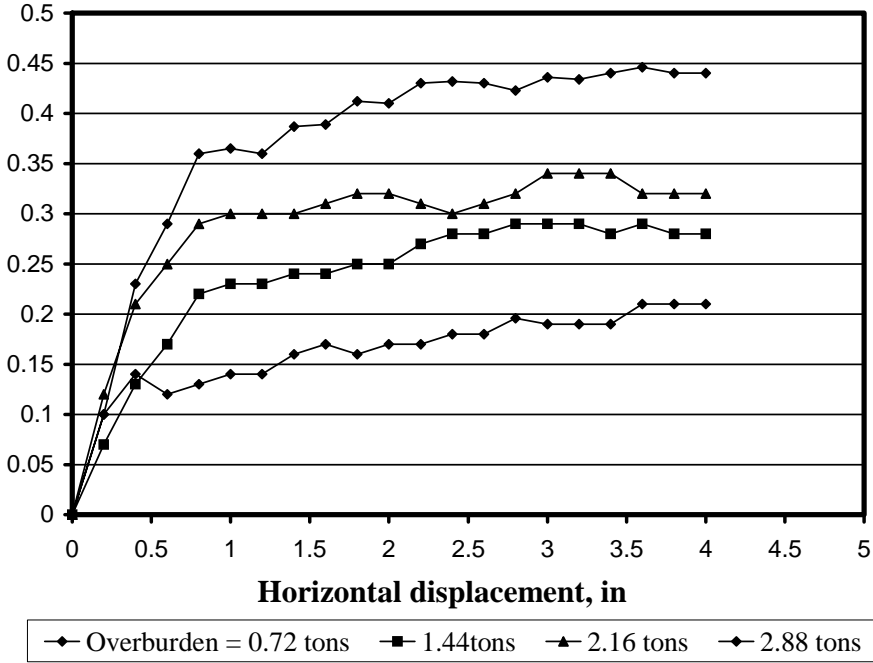
Pull out Test 3 (Dry Of optimum)



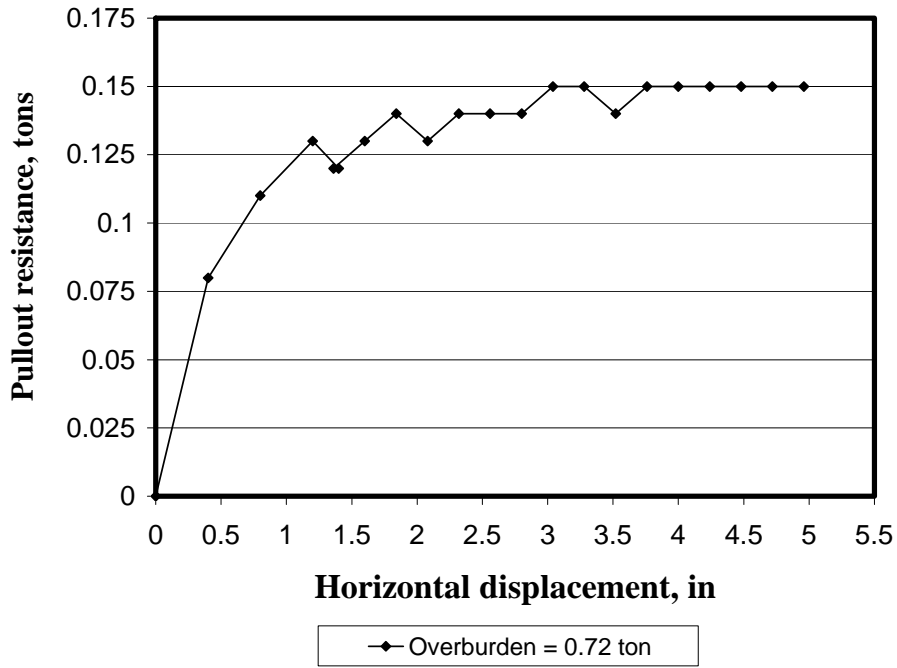
Pull out Test 4 (Dry Of optimum)



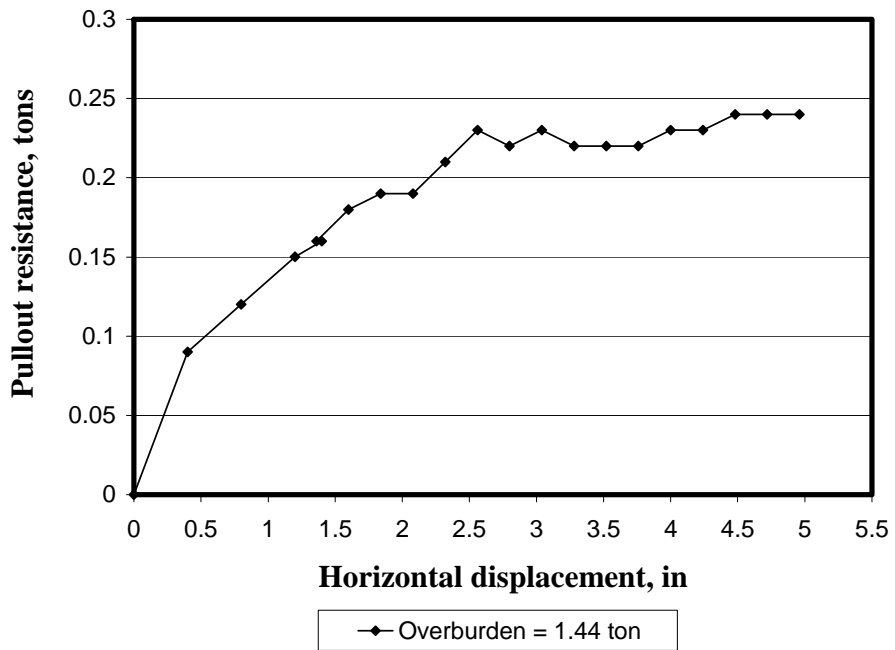
Pull out Test (Dry Of optimum)



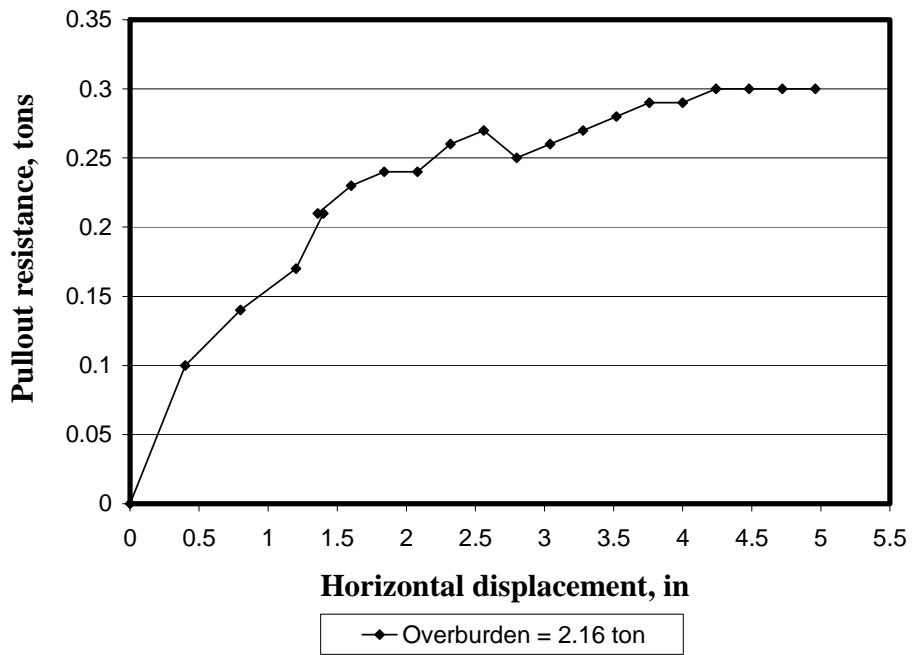
Pull out Test 1 (Wet Of optimum)



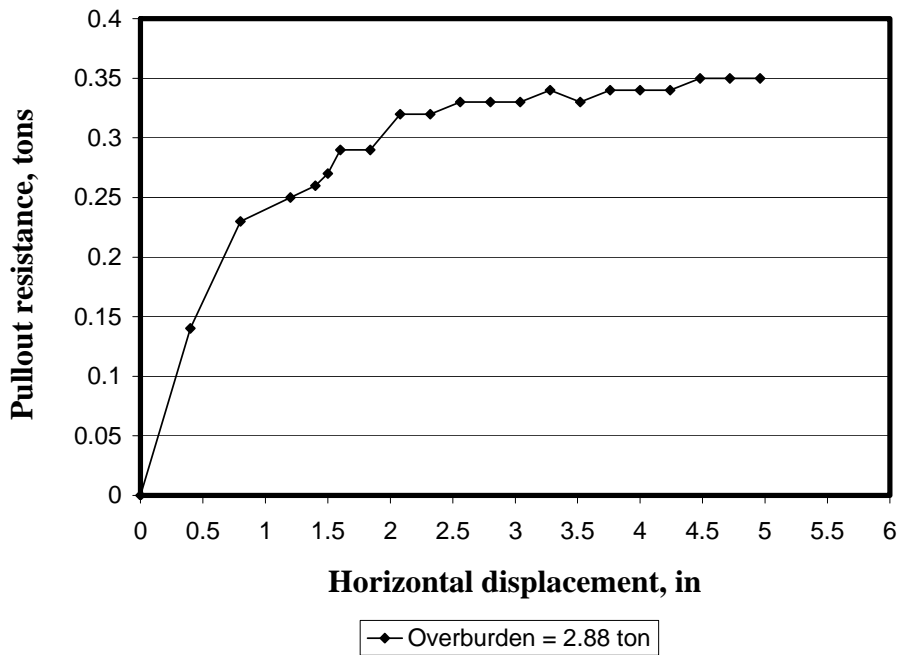
Pull out Test 2 (Wet Of optimum)



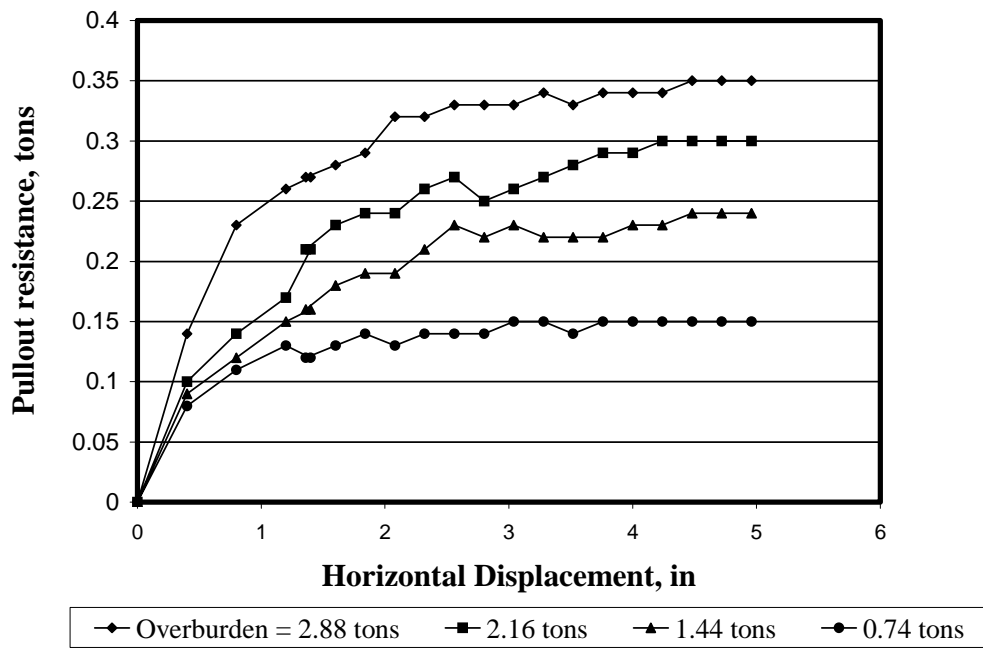
Pull out Test 3 (Wet Of optimum)



Pull out Test 4 (Wet Of optimum)



Pullout Tests (Wet Of optimum)



LAYARI EXPRESSWAY

Pay Item No.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Rs)	Amount (Rs)
108ci	Formation of Embankment with Specified material for Reinforced Earth works completed as per particular specifications.	CM	1,900,000.00	232.83	442,377,000.00
401Ai	Concrete Class A1 (In Wall Foundation)	CM	3,500.00	4,803.35	16,811,725.00
PS-17	Supply Synthetic Soil Reinforcement Strip, Strip to Panel Connectors (Loops & Toggles), Plastic Dowels, EPDM Bearing Pads, Sealing Foam/Geotextile for Joint Sealing, The internal design of Reinforced Earth® structures & Technical Assistance for proper execution.				
a	Wall Height 0-5 meters	SM	36,000.00	2,896.21	104,263,560.00
b	Wall Height 5-7 meters	SM	56,000.00	3,319.29	185,880,240.00
c	Wall Height 7-11 meters	SM	141,500.00	3,598.92	509,247,180.00
d	Wall Height 11-14 meters	SM	57,500.00	4,065.75	233,780,625.00
e	Wall Height 14-18 meters	SM	10.00	4,500.00	45,000.00
f	Construction of Reinforced Earth® concrete wall using panels using 5000psi concrete & Grade 60 Steel Reinforcement including installation of the above-mentioned materials in the wall.	SM	291,000.00	1,869.82	544,117,620.00
SP	Customs and Duties on imported items mentioned-above (Provisional Sum) will be paid at actuals.	Provisional Sum			225,000,000.00
401Aii	Coping for wall tops as per Project drawings and specifications	LM	500.00	3,387.15	1,693,575.00
404b	Counterbalance Slab as per project drawings and specifications for railings and barriers.	LM	37,000.00	1,643.85	60,822,450.00
TOTAL FOR REINFORCED EARTH WALLS					2,324,038,975.00

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