QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Reclamation area	**Pay Item No. (BOQ)**	2A-12
Quantity Item	Offshore dumping	**Unit**	m^3

Calculation Procedure Applied

This calculation is also needed to be done from the view of construction order.
So needed adjustment is following.

References, Calculation Base and Revisions

[illegible]

Rev	Prepared		No. of	Checked		Reviewed		Superseded
	by	Date	Pages	by	Date	by	Date	by Calc No.
0	JAM	3 May 02						
1								
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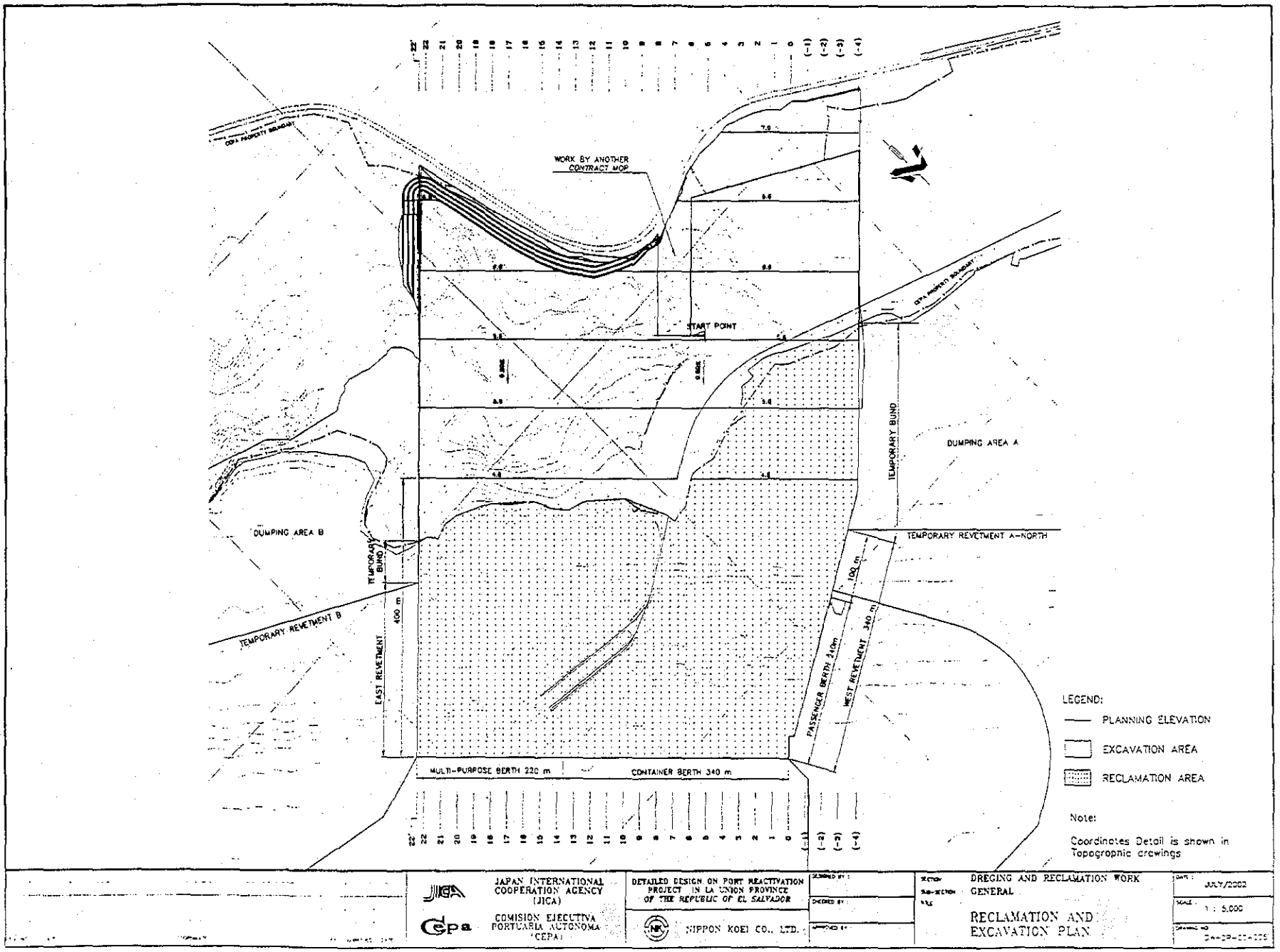
WORK BY ANOTHER CONTRACT MOP
START POINT
CEPA PROPERTY BOUNDARY
DUMPING AREA A
DUMPING AREA B
TEMPORARY BUND
TEMPORARY REVETMENT A-NORTH
TEMPORARY REVETMENT B
EAST REVETMENT
400 m
100 m
PASSENGER BERTH 340m
WEST REVETMENT 340 m
MULTI-PURPOSE BERTH 220 m
CONTAINER BERTH 340 m
LEGEND:
PLANNING ELEVATION
EXCAVATION AREA
RECLAMATION AREA
Note:
Coordinates Detail is shown in Topogropnic crewings
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)
DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR
NIPPON KOEI CO., LTD.
DESIGNED BY :
CHECKED BY :
APPROVED BY :
SECTION DREDGING AND RECLAMATION WORK
SUB-SECTION GENERAL
TITLE
RECLAMATION AND EXCAVATION PLAN
DATE : JULY/2002
SCALE : 1 : 5,000
DRAWING NO

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Reclamation area	Calc. Index No.	
Subject	Removal of Soft Soil	Page No.	Rev.

References/ Notes

Reclamation Area (above -14m) 885,000 m³

double calculation

Container Berth (above -14m harbor side)
67,900 m³

Multi-purpose Berth (above -14m harbor side)
75,300 m³

West Revetment (harbor side)
165,000 m³

East Revetment (harbor side)
96,400 m³

total 480,800

≒ 481,000 m³

	Prepared by		Checked by	
		/ /200		/ /200

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QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	
Work Section Title	Soft Soil Excavation Volumes	**Pay Item No. (BOQ)**	
Quantity Item		**Unit**	cubic meter

Calculation Procedure Applied

1. Calculation of area of sections (Excel)

2. Average Area of Sections (Excel)

3. Calculation of volume: Average of area of sections times distance between sections (Excel)

References, Calculation Base and Revisions

1. Area and Volume have been calculated starting from section -4 to section 22', in accordance with the General Plan of Reclamation No. DW-RD-00-05

2. The major Volume of Soft Soil removal in the Reclamation Area was calculated starting at 50.00 meters measured from the side of the Caissons that touches the sea towards in-land.

3. The next Volume of Soft Soil Removal was calculated behind the Caissons from 0.00 meters up to 50.00 meters towards in-land.

Rev	Prepared		No. of	Checked		Reviewed		Superseded
	by	Date	Pages	by	Date	by	Date	by Calc No.
0	jam	14 June 2002	56					
1								
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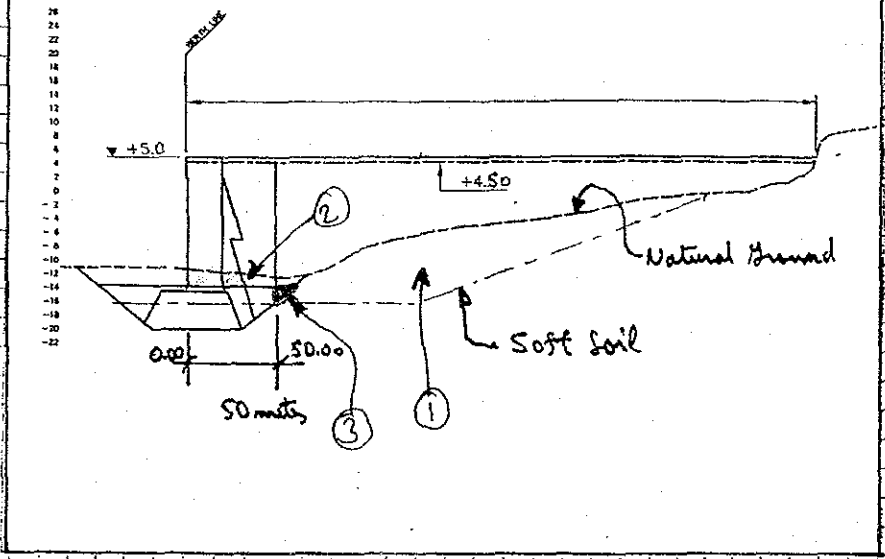
File in Calc. File

FN : Calculation_Cover_Sheet

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Detail of Soft Soil Excavation Volume	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



☐ 1. Volume of Soft Soil reclamation area from 50.00 water, towards in-land

☐ 2. Volume of Soft Soil behind caisson from 0.00 up to 50.00 towards in-land

■ 3. Volume of Soft Soil to be substituted

	Prepared by		Checked by	
	JAM	28 / IX /2002		/ /200

SOFT SOIL VOLUME CALCULATION; MAY 24, 2002

SECTION N°	AREA	AVERAGE AREA OF 2 SECTIONS		DISTANCE BETWEEN SECTIONS	VOLUME
-4	0.00				
		129.98		28.78	3,741
-3	259.95				
		585.07		25.00	14,627
-2	910.19				
		1,250.66		25.00	31,267
-1	1,591.14				
		2,050.82		25.00	51,271
0	2,510.50				
		2,449.06		25.00	61,227
1	2,387.63				
		2,369.81		25.00	59,245
2	2,352.00				
		2,405.88		25.00	60,147
3	2,459.75				
		2,430.38		25.00	60,759
4	2,401.00				
		2,039.69		25.00	50,992
5	1,678.38				
		1,440.50		25.00	36,013
6	1,202.63				
		1,144.94		25.00	28,623
7	1,087.25				
		1,140.94		25.00	28,523
8	1,194.63				
		1,259.88		25.00	31,497
9	1,325.13				
		1,419.56		25.00	35,489
10	1,514.00				
		1,358.56		25.00	33,964
11	1,203.13				
		1,254.31		25.00	31,358
12	1,305.50				
		934.50		25.00	23,363
13	563.50				
		627.50		25.00	15,688
14	691.50				
		720.44		25.00	18,011
15	749.38				
		603.94		25.00	15,098
16	458.50				
		379.63		25.00	9,491
17	300.75				
		248.94		25.00	6,223
18	197.13				
		184.69		25.00	4,617
19	172.25				
		187.56		25.00	4,689
20	202.88				
		693.69		25.00	17,342
21	1,184.50				
		1,272.13		25.00	31,803
22	1,359.75				
		1,824.94		10.00	18,249
22'	2,290.13				

VOLUME OF SOFT SOIL RECLAMATION AREA (from 50.00 towards in-land):	**783,316 m^3**
PLUS VOLUME BEHIND CAISSONS(from 0.00 up to 50.00 in-land):	**101,014 m^3**
VOLUME BELOW NATURAL GROUND BEHIND CAISSONS:	**0 m^3**
MINUS VOLUME OF WEST REVETMENT THAT GOES INTO RECLAMATION AREA:	0 m^3
MINUS VOLUME OF EAST REVETMENT THAT GOES INTO RECLAMATION AREA:	0 m^3
GRAN TOTAL:	**884,330 m^3**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
-4

distance	a	b	c	c'	d	e
375	-1.62	-1.62	0.00			
				0.00	25.00	0.00
400	-0.84	-0.84	0.00			
				0.00	25.00	0.00
425	-0.38	-0.38	0.00			
				0.00	25.00	0.00
450	0.00	0.00	0.00			
				0.00	25.00	0.00
475	0.83	0.83	0.00			
				0.00	25.00	0.00
500	1.73	1.73	0.00			
				0.00	25.00	0.00
525	1.99	1.99	0.00			
				0.00	25.00	0.00
550	1.38	1.38	0.00			
				0.00	25.00	0.00
575	1.85	1.85	0.00			
				0.00	25.00	0.00
600	2.82	2.82	0.00			
				0.00	25.00	0.00
625	4.30	4.30	0.00			

AREA OF SECTION: **0.00 m²**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
-3

distance	a	b	c	c'	d	e
280	-11.00	-5.20	5.80			
				5.35	20.00	107.00
300	-9.42	-4.52	4.90			
				3.90	25.00	97.50
325	-6.67	-3.77	2.90			
				1.81	25.00	45.25
350	-3.92	-3.20	0.72			
				0.51	20.00	10.20
370	-1.92	-1.62	0.30			

AREA OF SECTION: **259.95** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
-2.00

distance	a	b	c	c'	d	e
186	-15.35	-10.00	5.35			
				6.54	14.00	91.56
200	-15.00	-7.27	7.73			
				7.47	25.00	186.63
225	-13.67	-6.47	7.20			
				7.29	25.00	182.13
250	-12.35	-4.98	7.37			
				6.84	25.00	170.88
275	-11.02	-4.72	6.30			
				5.85	25.00	146.25
300	-9.70	-4.30	5.40			
				4.01	25.00	100.13
325	-5.92	-3.31	2.61			
				1.31	25.00	32.63
350	-2.15	-2.15	0.00			

AREA OF SECTION: **910.19** m^2

Bottom elevation *soft soil = a*	Top elevation soft soil = b	Difference of *elevation: c= b-a*	Average of *elevations*	*Width: d*	*area: e= c*d*

Section N°
-1

distance	a	b	c	c'	d	e
93	-18.41	-10.00	8.41			
				7.90	32.00	252.64
125	-17.38	-10.00	7.38			
				6.96	25.00	173.88
150	-16.53	-10.00	6.53			
				6.62	25.00	165.38
175	-15.35	-8.65	6.70			
				7.35	25.00	183.63
200	-14.18	-6.19	7.99			
				7.98	25.00	199.38
225	-13.01	-5.05	7.96			
				7.55	25.00	188.75
250	-11.84	-4.70	7.14			
				6.71	25.00	167.63
275	-10.67	-4.40	6.27			
				5.85	25.00	146.13
300	-9.50	-4.08	5.42			
				3.47	25.00	86.63
325	-4.23	-2.72	1.51			
				1.09	25.00	27.13
350	-2.13	-1.47	0.66			

AREA OF SECTION: **1591.14** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
0

distance	a	b	c	c'	d	e
50	-18.66	-10.00	8.66			
				8.50	25.00	212.38
75	-18.33	-10.00	8.33			
				8.37	25.00	209.25
100	-18.41	-10.00	8.41			
				8.35	25.00	208.75
125	-18.29	-10.00	8.29			
				8.15	25.00	203.63
150	-18.00	-10.00	8.00			
				8.84	25.00	220.88
175	-17.00	-7.33	9.67			
				10.13	25.00	253.13
200	-16.00	-5.42	10.58			
				10.38	25.00	259.38
225	-15.00	-4.83	10.17			
				9.76	25.00	244.00
250	-14.00	-4.65	9.35			
				9.01	25.00	225.25
275	-13.00	-4.33	8.67			
				8.33	25.00	208.25
300	-12.00	-4.01	7.99			
				6.73	25.00	168.25
325	-7.61	-2.14	5.47			
				3.90	25.00	97.38
350	-3.23	-0.91	2.32			

AREA OF SECTION: **2510.50** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c'd

Section N°
1

distance	a	b	c	c'	d	e
50	-18.75	-10.00	8.75			
				8.71	25.00	217.63
75	-18.66	-10.00	8.66			
				8.62	25.00	215.50
100	-18.58	-10.00	8.58			
				8.54	25.00	213.38
125	-18.49	-10.00	8.49			
				9.51	25.00	237.75
150	-18.40	-7.87	10.53			
				11.25	25.00	281.13
175	-18.00	-6.04	11.96			
				11.76	25.00	293.88
200	-16.46	-4.91	11.55			
				10.50	25.00	262.38
225	-14.18	-4.74	9.44			
				8.43	25.00	210.75
250	-11.89	-4.47	7.42			
				6.51	25.00	162.75
275	-9.60	-4.00	5.60			
				4.66	25.00	116.38
300	-7.31	-3.60	3.71			
				3.52	25.00	88.00
325	-4.93	-1.60	3.33			
				2.59	25.00	64.75
350	-2.49	-0.64	1.85			
				0.94	25.00	23.38
375	-0.05	-0.03	0.02			

AREA OF SECTION: **2387.63 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
2

distance	a	b	c	c'	d	e
50	-18.80	-10.00	8.80			
				8.82	25.00	220.38
75	-18.83	-10.00	8.83			
				8.81	25.00	220.25
100	-18.79	-10.00	8.79			
				9.11	25.00	227.63
125	-18.74	-9.32	9.42			
				10.26	25.00	256.50
150	-18.70	-7.60	11.10			
				12.29	25.00	307.13
175	-18.66	-5.19	13.47			
				13.62	25.00	340.38
200	-18.61	-4.85	13.76			
				12.72	25.00	317.88
225	-16.17	-4.50	11.67			
				9.76	25.00	243.88
250	-12.14	-4.30	7.84			
				5.96	25.00	148.88
275	-8.08	-4.01	4.07			
				2.77	25.00	69.13
300	-4.03	-2.57	1.46			

AREA OF SECTION: **2352.00** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
3

distance	a	b	c	c'	d	e
50	-18.94	-10.00	8.94			
				8.88	25.00	221.88
75	-18.81	-10.00	8.81			
				8.80	25.00	220.00
100	-18.79	-10.00	8.79			
				9.27	25.00	231.75
125	-18.74	-8.99	9.75			
				10.91	25.00	272.75
150	-18.70	-6.63	12.07			
				12.84	25.00	320.88
175	-18.66	-5.06	13.60			
				13.81	25.00	345.25
200	-18.61	-4.59	14.02			
				12.87	25.00	321.63
225	-16.06	-4.35	11.71			
				9.75	25.00	243.75
250	-11.83	-4.04	7.79			
				6.87	25.00	171.63
275	-7.06	-1.12	5.94			
				4.41	25.00	110.25
300	-3.38	-0.50	2.88			

AREA OF SECTION: **2459.75 m²**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
4

distance	a	b	c	c'	d	e
50	-18.87	-10.40	8.47			
				8.45	25.00	211.25
75	-18.83	-10.40	8.43			
				8.61	25.00	215.13
100	-18.79	-10.01	8.78			
				9.80	25.00	244.88
125	-18.74	-7.93	10.81			
				11.88	25.00	296.88
150	-18.70	-5.76	12.94			
				13.33	25.00	333.25
175	-18.66	-4.94	13.72			
				13.65	25.00	341.25
200	-18.61	-5.03	13.58			
				12.49	25.00	312.13
225	-16.06	-4.67	11.39			
				9.41	25.00	235.25
250	-11.83	-4.40	7.43			
				5.50	25.00	137.38
275	-7.60	-4.04	3.56			
				2.95	25.00	73.63
300	-3.38	-1.05	2.33			

AREA OF SECTION: **2401.00 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c'd

Section N°
5

distance	a	b	c	c'	d	e
50	-16.07	-10.70	5.37			
				5.54	25.00	138.50
75	-16.21	-10.50	5.71			
				5.96	25.00	149.00
100	-16.35	-10.14	6.21			
				7.15	25.00	178.75
125	-16.49	-8.40	8.09			
				9.40	25.00	235.00
150	-16.63	-5.92	10.71			
				11.28	25.00	282.00
175	-16.77	-4.92	11.85			
				10.68	25.00	266.88
200	-14.08	-4.58	9.50			
				7.95	25.00	198.63
225	-10.68	-4.29	6.39			
				4.87	25.00	121.75
250	-7.29	-3.94	3.35			
				2.99	25.00	74.63
275	-3.89	-1.27	2.62			
				1.33	25.00	33.25
300	-0.50	-0.46	0.04			

AREA OF SECTION: **1678.38 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
6

distance	a	b	c	c'	d	e
50	-14.07	-10.70	3.37			
				3.42	25.00	85.50
75	-13.67	-10.20	3.47			
				4.67	25.00	116.75
100	-14.11	-8.24	5.87			
				7.37	25.00	184.13
125	-14.55	-5.69	8.86			
				9.10	25.00	227.50
150	-14.40	-5.06	9.34			
				8.26	25.00	206.50
175	-11.92	-4.74	7.18			
				6.10	25.00	152.38
200	-9.43	-4.42	5.01			
				3.96	25.00	99.00
225	-6.95	-4.04	2.91			
				2.98	25.00	74.50
250	-4.47	-1.42	3.05			
				2.26	25.00	56.38
275	-1.99	-0.53	1.46			

AREA OF SECTION: **1202.63** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
7

distance	a	b	c	c'	d	e
50	-13.91	-11.00	2.91			
				3.02	25.00	75.50
75	-13.74	-10.61	3.13			
				3.57	25.00	89.13
100	-14.15	-10.15	4.00			
				5.29	25.00	132.13
125	-14.57	-8.00	6.57			
				7.99	25.00	199.63
150	-14.40	-5.00	9.40			
				8.19	25.00	204.75
175	-11.92	-4.94	6.98			
				5.91	25.00	147.63
200	-9.43	-4.60	4.83			
				3.96	25.00	99.00
225	-6.95	-3.86	3.09			
				3.10	25.00	77.38
250	-4.47	-1.37	3.10			
				2.49	25.00	62.13
275	-1.99	-0.12	1.87			

AREA OF SECTION: **1087.25** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N° 8

distance	a	b	c	c'	d	e
50	-13.72	-10.65	3.07			
				3.43	25.00	85.63
75	-13.81	-10.03	3.78			
				4.32	25.00	108.00
100	-14.20	-9.34	4.86			
				6.99	25.00	174.75
125	-14.58	-5.46	9.12			
				9.28	25.00	231.88
150	-14.40	-4.97	9.43			
				8.19	25.00	204.75
175	-11.92	-4.97	6.95			
				5.74	25.00	143.38
200	-9.43	-4.91	4.52			
				4.05	25.00	101.25
225	-6.95	-3.37	3.58			
				3.30	25.00	82.50
250	-4.47	-1.45	3.02			
				2.50	25.00	62.50
275	-2.00	-0.02	1.98			

AREA OF SECTION: **1194.63** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
9

distance	a	b	c	c'	d	e
50	-13.38	-10.15	3.23			
				3.74	25.00	93.50
75	-13.78	-9.53	4.25			
				5.69	25.00	142.13
100	-14.18	-7.06	7.12			
				8.11	25.00	202.63
125	-14.58	-5.49	9.09			
				9.23	25.00	230.63
150	-14.42	-5.06	9.36			
				8.16	25.00	204.00
175	-12.02	-5.06	6.96			
				6.10	25.00	152.38
200	-9.62	-4.39	5.23			
				4.89	25.00	122.25
225	-7.23	-2.68	4.55			
				4.14	25.00	103.38
250	-4.83	-1.11	3.72			
				2.97	25.00	74.25
275	-2.43	-0.21	2.22			

AREA OF SECTION: **1325.13** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
10

distance	a	b	c	c'	d	e
50	-15.47	-9.34	6.13			
				6.43	25.00	160.75
75	-15.34	-8.61	6.73			
				7.54	25.00	188.50
100	-15.21	-6.86	8.35			
				8.90	25.00	222.38
125	-15.07	-5.63	9.44			
				9.20	25.00	230.00
150	-14.09	-5.13	8.96			
				8.03	25.00	200.63
175	-11.82	-4.73	7.09			
				6.33	25.00	158.13
200	-9.56	-4.00	5.56			
				5.24	25.00	131.00
225	-7.29	-2.37	4.92			
				4.46	25.00	111.50
250	-5.03	-1.03	4.00			
				3.09	25.00	77.25
275	-2.76	-0.58	2.18			
				1.36	25.00	33.88
300	-0.50	0.03	0.53			

AREA OF SECTION: **1514.00 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation; c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
11

distance	a	b	c	c'	d	e
50	-13.57	-11.25	2.32			
				3.20	25.00	79.88
75	-14.00	-9.93	4.07			
				4.97	25.00	124.25
100	-14.38	-8.51	5.87			
				6.90	25.00	172.38
125	-14.76	-6.84	7.92			
				8.24	25.00	205.88
150	-14.09	-5.54	8.55			
				7.65	25.00	191.13
175	-11.82	-5.08	6.74			
				5.95	25.00	148.63
200	-9.56	-4.41	5.15			
				4.39	25.00	109.75
225	-7.29	-3.66	3.63			
				3.17	25.00	79.13
250	-5.03	-2.33	2.70			
				2.24	25.00	56.00
275	-2.76	-0.98	1.78			
				1.45	25.00	36.13
300	-0.50	0.61	1.11			

AREA OF SECTION: ***1203.13*** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
12

distance	a	b	c	c'	d	e
50	-15.64	-12.35	3.29			
				3.56	25.00	88.88
75	-15.46	-11.64	3.82			
				5.23	25.00	130.75
100	-15.28	-8.64	6.64			
				7.45	25.00	186.13
125	-15.10	-6.85	8.25			
				8.48	25.00	212.00
150	-14.14	-5.43	8.71			
				7.72	25.00	193.00
175	-11.58	-4.85	6.73			
				6.26	25.00	156.50
200	-9.88	-4.09	5.79			
				5.08	25.00	127.00
225	-7.75	-3.38	4.37			
				3.85	25.00	96.25
250	-5.61	-2.28	3.33			
				2.94	25.00	73.38
275	-3.48	-0.94	2.54			
				1.67	25.00	41.63
300	-1.35	-0.56	0.79			

AREA OF SECTION: **1305.50 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
13

distance	a	b	c	c'	d	e
50	-17.58	-11.01	6.57			
				6.01	25.00	150.13
75	-16.86	-11.42	5.44			
				4.72	25.00	117.88
100	-16.14	-12.15	3.99			
				2.86	25.00	71.50
125	-15.43	-13.70	1.73			
				1.40	25.00	35.00
150	-14.14	-13.07	1.07			
				1.83	25.00	45.75
175	-12.00	-9.41	2.59			
				2.73	25.00	68.25
200	-9.85	-6.98	2.87			
				2.55	25.00	63.75
225	-7.71	-5.48	2.23			
				1.55	25.00	38.63
250	-5.57	-4.71	0.86			
				0.18	25.00	4.38
275	-3.42	-3.93	-0.51			
				-1.27	25.00	-31.75
300	-1.28	-3.31	-2.03			

AREA OF SECTION: **563.50** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
14

distance	a	b	c	c'	d	e
50	-17.65	-11.00	6.65			
				6.04	25.00	151.00
75	-16.91	-11.48	5.43			
				4.64	25.00	115.88
100	-16.17	-12.33	3.84			
				2.71	25.00	67.63
125	-15.44	-13.87	1.57			
				1.74	25.00	43.50
150	-14.14	-12.23	1.91			
				3.21	25.00	80.13
175	-12.00	-7.50	4.50			
				4.05	25.00	101.25
200	-9.85	-6.25	3.60			
				3.20	25.00	80.00
225	-7.71	-4.91	2.80			
				2.09	25.00	52.13
250	-5.57	-4.20	1.37			

AREA OF SECTION: **691.50 m²**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
15

distance	a	b	c	c'	d	e
50	-17.15	-11.05	6.10			
				5.25	25.00	131.13
75	-15.65	-11.26	4.39			
				3.39	25.00	84.75
100	-14.75	-12.36	2.39			
				3.77	25.00	94.25
125	-18.84	-13.69	5.15			
				4.45	25.00	111.25
150	-12.84	-9.09	3.75			
				4.33	25.00	108.25
175	-10.56	-5.65	4.91			
				4.29	25.00	107.25
200	-8.60	-4.93	3.67			
				2.98	25.00	74.38
225	-6.65	-4.37	2.28			
				1.53	25.00	38.13
250	-4.69	-3.92	0.77			

AREA OF SECTION: **749.38 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
16

distance	a	b	c	c'	d	e
50	-15.57	-12.51	3.06			
				3.09	25.00	77.13
75	-14.44	-11.33	3.11			
				2.18	25.00	54.50
100	-13.31	-12.06	1.25			
				0.52	25.00	13.00
125	-12.17	-12.38	-0.21			
				1.73	25.00	43.13
150	-10.82	-7.16	3.66			
				3.94	25.00	98.50
175	-9.13	-4.91	4.22			
				3.55	25.00	88.75
200	-7.44	-4.56	2.88			
				2.32	25.00	58.00
225	-5.75	-3.99	1.76			
				1.02	25.00	25.50
250	-4.05	-3.77	0.28			

AREA OF SECTION: **458.50** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
17

distance	a	b	c	c'	d	e
50	-15.50	-10.93	4.57			
				3.30	25.00	82.50
75	-13.01	-10.98	2.03			
				1.08	25.00	27.00
100	-11.76	-11.63	0.13			
				0.06	25.00	1.62
125	-11.42	-11.42	0.00			
				1.10	25.00	27.50
150	-9.21	-7.01	2.20			
				2.63	25.00	65.75
175	-7.76	-4.70	3.06			
				2.48	25.00	62.00
200	-6.30	-4.40	1.90			
				1.38	25.00	34.38
225	-4.85	-4.00	0.85			

AREA OF SECTION: **300.75 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
18

distance	a	b	c	c'	d	e
50	-15.50	-10.71	4.79			
				2.97	25.00	74.13
75	-12.00	-10.86	1.14			
				0.60	25.00	15.00
100	-11.00	-10.94	0.06			
				0.21	25.00	5.13
125	-10.75	-10.40	0.35			
				0.81	25.00	20.25
150	-7.51	-6.24	1.27			
				1.51	25.00	37.63
175	-6.31	-4.57	1.74			
				1.29	25.00	32.25
200	-5.11	-4.27	0.84			
				0.51	25.00	12.75
225	-4.00	-3.82	0.18			

AREA OF SECTION: **197.13 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
19

distance	a	b	c	c'	d	e
50	-13.47	-10.52	2.95			
				2.01	25.00	50.13
75	-11.67	-10.61	1.06			
				0.53	25.00	13.25
100	-10.79	-10.79	0.00			
				0.00	25.00	0.00
125	-10.18	-10.18	0.00			
				0.80	25.00	19.88
150	-7.51	-5.92	1.59			
				1.67	25.00	41.63
175	-6.31	-4.57	1.74			
				1.36	25.00	33.88
200	-5.11	-4.14	0.97			
				0.54	25.00	13.50
225	-3.90	-3.79	0.11			

AREA OF SECTION: **172.25 m²**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
20

distance	a	b	c	c'	d	e
50	-13.30	-10.41	2.89			
				2.05	25.00	51.13
75	-11.61	-10.41	1.20			
				0.60	25.00	15.00
100	-10.46	-10.46	0.00			
				0.00	25.00	0.00
125	-9.58	-9.58	0.00			
				1.27	25.00	31.75
150	-7.51	-4.97	2.54			
				2.17	25.00	54.25
175	-6.31	-4.51	1.80			
				1.43	25.00	35.75
200	-5.11	-4.05	1.06			
				0.60	25.00	15.00
225	-3.90	-3.76	0.14			

AREA OF SECTION: **202.88** m^2

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
21

distance	a	b	c	c'	d	e
50	-14.47	-9.16	5.31			
				9.20	25.00	229.88
75	-18.09	-5.01	13.08			
				10.17	25.00	254.25
100	-11.71	-4.45	7.26			
				6.85	25.00	171.13
125	-10.32	-3.89	6.43			
				5.90	25.00	147.50
150	-8.88	-3.51	5.37			
				4.92	25.00	122.88
175	-7.85	-3.39	4.46			
				3.75	25.00	93.75
200	-5.82	-2.78	3.04			
				3.39	25.00	84.63
225	-4.29	-0.56	3.73			
				2.35	25.00	58.75
250	-2.75	-1.78	0.97			
				0.87	25.00	21.75
275	-1.22	-0.45	0.77			

AREA OF SECTION: **1184.50 m²**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c*d

Section N°
22

distance	a	b	c	c'	d	e
50	-15.54	-8.43	7.11			
				8.52	25.00	213.00
75	-14.40	-4.47	9.93			
				9.56	25.00	238.88
100	-13.27	-4.09	9.18			
				8.76	25.00	218.88
125	-12.13	-3.80	8.33			
				7.93	25.00	198.25
150	-11.00	-3.47	7.53			
				6.70	25.00	167.50
175	-9.10	-3.23	5.87			
				4.97	25.00	124.13
200	-7.20	-3.14	4.06			
				4.00	25.00	99.88
225	-5.31	-1.38	3.93			
				3.01	25.00	75.13
250	-3.41	-1.33	2.08			
				0.97	25.00	24.13
275	-1.51	-1.66	-0.15			

AREA OF SECTION: **1359.75 m^2**

Bottom elevation soft soil = a	Top elevation soft soil = b	Difference of elevation: c= b-a	Average of elevations	Width: d	area: e= c'd

Section N°
22'

distance	a	b	c	c'	d	e
50	-18.10	-8.43	9.67			
				11.65	25.00	291.25
75	-18.10	-4.47	13.63			
				13.33	25.00	333.25
100	-17.12	-4.09	13.03			
				12.69	25.00	317.25
125	-16.15	-3.80	12.35			
				12.03	25.00	300.63
150	-15.17	-3.47	11.70			
				11.33	25.00	283.25
175	-14.19	-3.23	10.96			
				9.87	25.00	246.63
200	-11.91	-3.14	8.77			
				8.35	25.00	208.75
225	-9.31	-1.38	7.93			
				6.66	25.00	166.38
250	-6.71	-1.33	5.38			
				3.92	25.00	97.88
275	-4.11	-1.66	2.45			
				1.80	25.00	44.88
300	-1.51	-0.37	1.14			

AREA OF SECTION: **2290.13** m^2

SOFT SOIL EXCAVATION: FROM 0.00 UP TO 50.00 METERS
(BEGINNING FROM FACE OF CAISSONS TOWARDS IN-LAND)
24-May-02

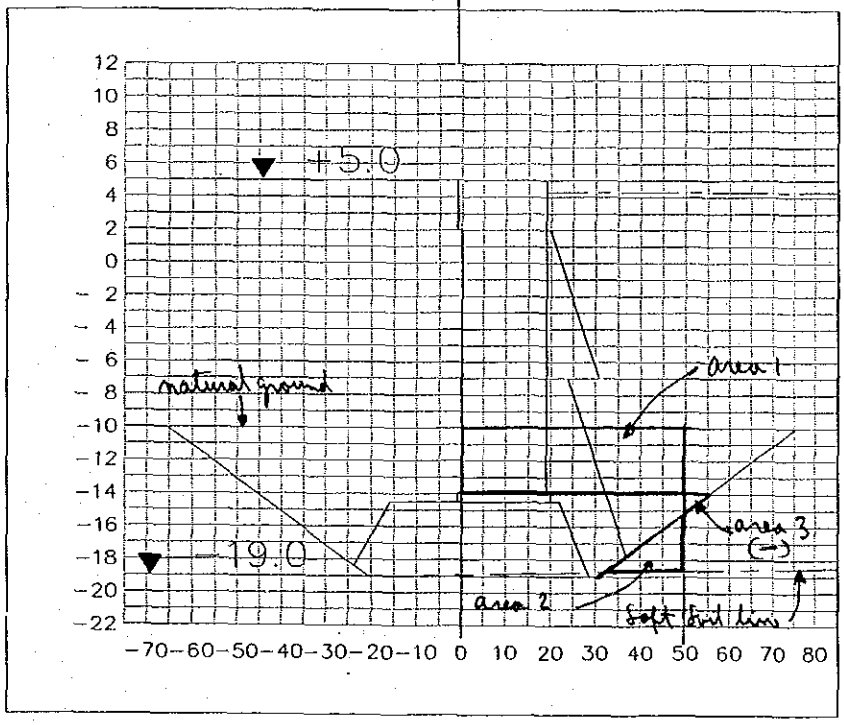
SECTION N°	AREA	AVERAGE AREA OF 2 SECTIONS		DISTANCE BETWEEN SECTIONS	VOLUME
-4					
-3					
-2					
-1					
0	237.50				
		237.50		25.00	5,938
1	237.50				
		237.50		25.00	5,938
2	237.50				
		237.50		25.00	5,938
3	237.50				
		227.50		25.00	5,688
4	217.50				
		206.25		25.00	5,156
5	195.00				
		181.25		25.00	4,531
6	167.50				
		160.00		25.00	4,000
7	152.50				
		160.00		25.00	4,000
8	167.50				
		176.88		25.00	4,422
9	186.25				
		221.88		25.00	5,547
10	257.50				
		197.50		25.00	4,938
11	137.50				
		105.00		25.00	2,625
12	72.50				
		111.00		25.00	2,775
13	149.50				
		149.75		25.00	3,744
14	150.00				
		146.25		25.00	3,656
15	142.50				
		103.50		25.00	2,588
16	64.50				
		107.75		25.00	2,694
17	151.00				
		157.75		25.00	3,944
18	164.50				
		169.25		25.00	4,231
19	174.00				
		176.75		25.00	4,419
20	179.50				
		209.50		25.00	5,238
21	239.50				
		253.23		25.00	6,331
22	266.95				
		267.73		10.00	2,677
22'	268.50				

VOLUME OF SOFT SOIL RECLAMATION AREA: 101,014 m^3
(FROM 0.00 UP TO 50.00 BEHIND CAISSONS)

SOFT SOIL EXCAVATION FROM 0.00 TO 50.00 METERS BEHIND CAISSONS

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	soft soil excavation from 0.00 up to 50.00	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



SECTION 0

Area 1 : $4.00 \times 50.00 = 200\ m^2$

Area 2 : $\frac{4.00 \times 20.00}{2} = 40\ m^2$

Area 3 : $\frac{1.00 \times 5.00}{2} = -2.5\ m^2$

total : $237.50\ m^2$

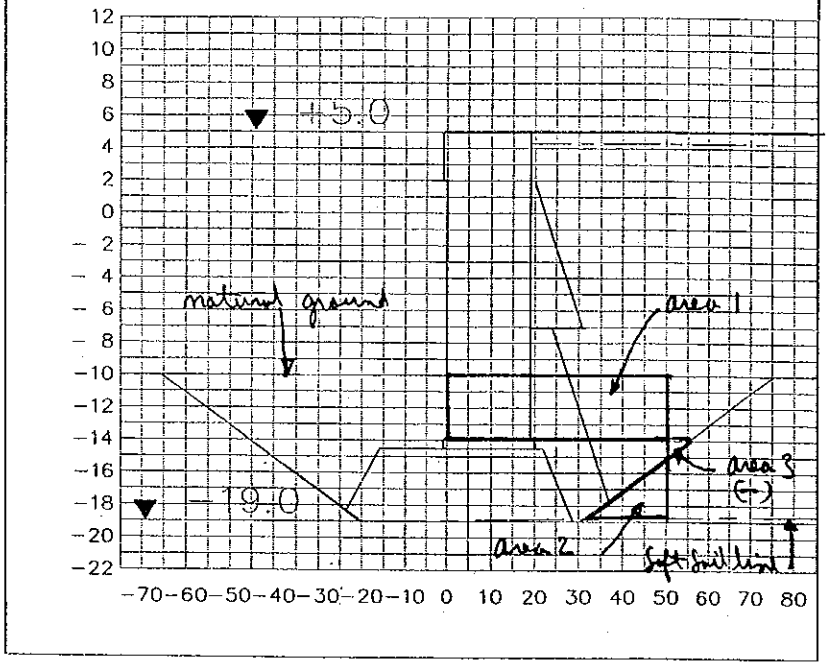
Prepared by		Checked by	
JAM	24 / IX /200 2		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Soft soil excavation : from 000 up to 50.00	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



SECTION 1

Area 1: $4.00 \times 50.00 = 200.00\ m^2$

Area 2: $\frac{4.00 \times 20.00}{2} = 40.00\ m^2$

Area 3: $\frac{1.00 \times 5.00}{2} = +2.50\ m^2$

total : $237.50\ m^2$

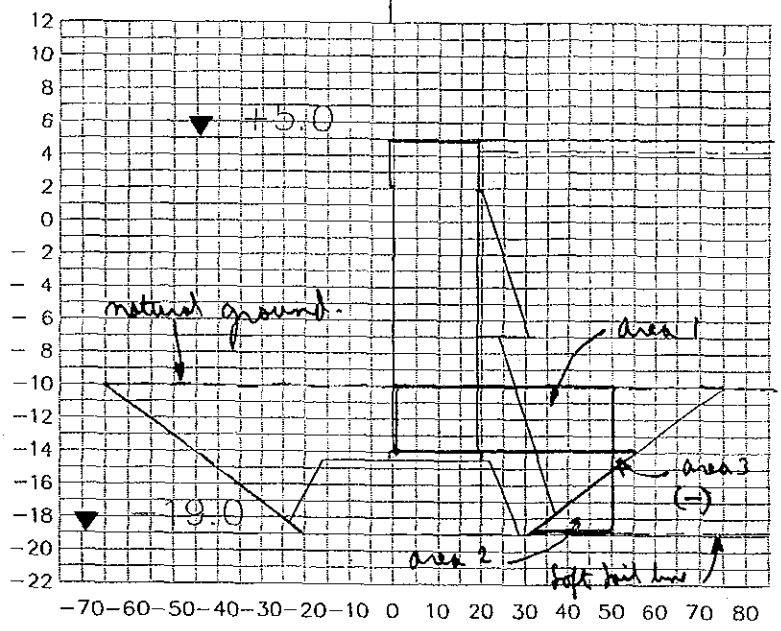
Prepared by		Checked by	
SAM	21 / I /2002		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Soft soil excavation: from 0.00 up to 50.00	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



SECTION 2

Area 1 : $4.00 \times 50.00 = 200.00\ m^2$

Area 2 : $\frac{4.00 \times 20.00}{2} = 40.00\ m^2$

Area 3 : $\frac{1.00 \times 5.00}{2} = -2.50\ m^2$

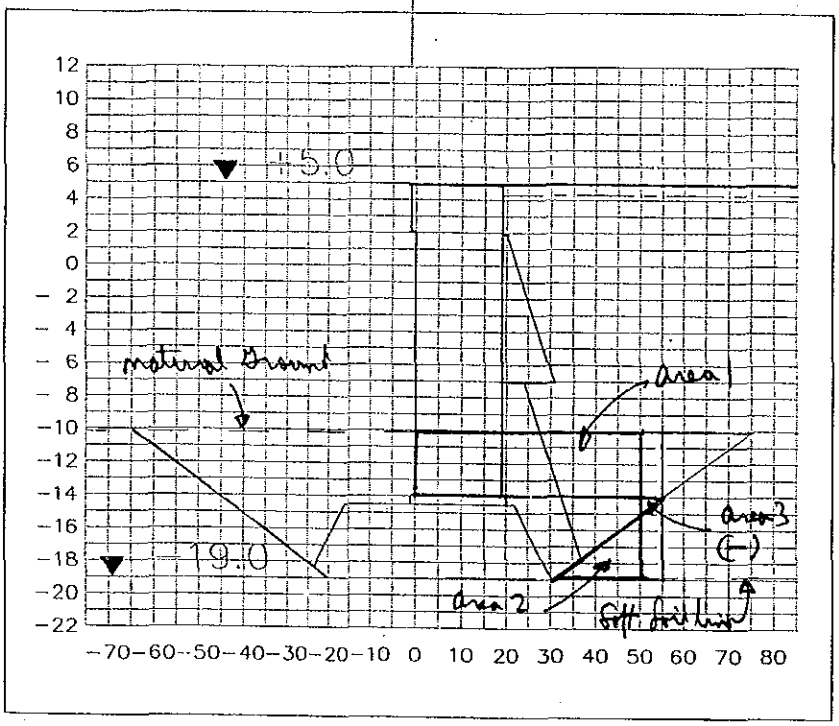
Total : $237.50\ m^2$

	Prepared by	Checked by
	JAM 24 IX /2002	/ /200

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Soft Soil excavation : from 0.00 up to 50.00	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



SECTION 3

Area 1 : $4.00 \times 50.00 = 200.00\ m^2$

Area 2 : $\frac{4.00 \times 20.00}{2} = 40.00\ m^2$

Area 3 : $\frac{1.00 \times 5.00}{2} = -2.50\ m^2$

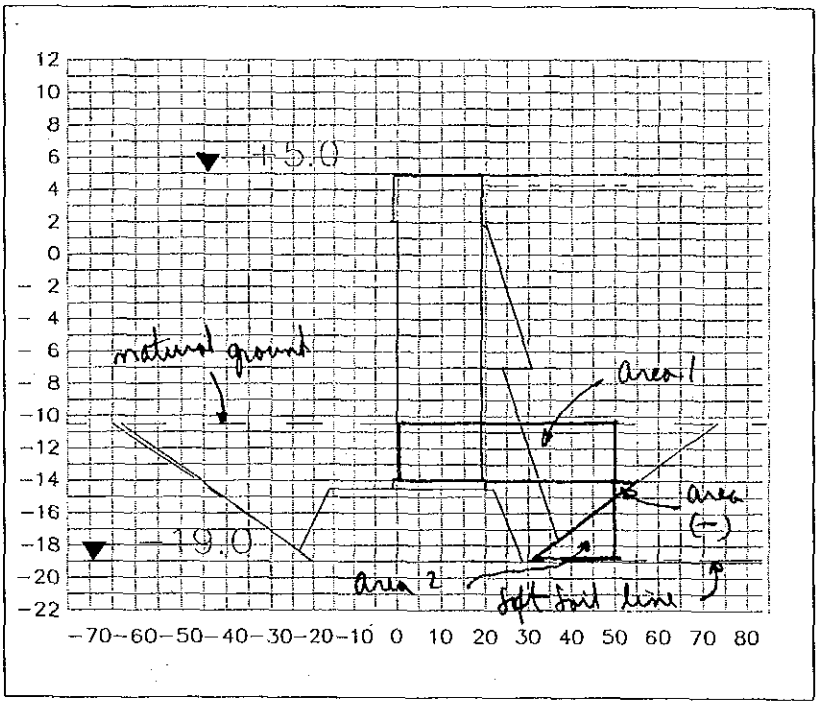
total : $237.50\ m^2$

Prepared by		Checked by	
SAM	24 / II /200 2		/ /200

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Soft soil excavation ; from 0.00 up to 50.00	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



SECTION 4

Area 1 : $3.60 \times 50.00 = 180.00\ m^2$

Area 2 : $\frac{4.00 \times 20.00}{2} = 40.00\ m^2$

Area 3 : $\frac{1.00 \times 5.00}{2} = -2.50\ m^2$

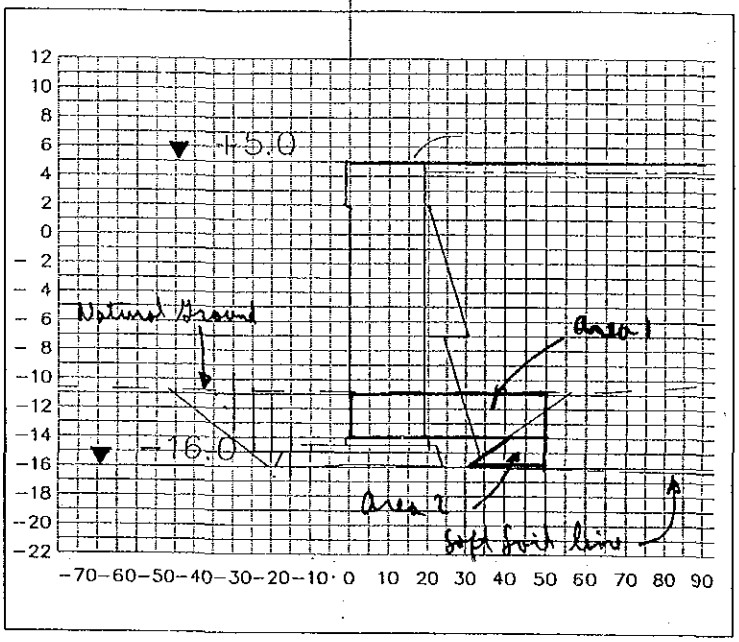
total : $217.50\ m^2$

Prepared by		Checked by	
JAM	24 / II /2009		1 /200

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Soft Soil excavation ; from 0.00 up to 50.00	Calc. Index No.	
Subject		Page No.	Rev.

References/ Notes



SECTION 5

Area 1 : $3.30 \times 50.00 = 165.00\ m^2$

Area 2 : $2.00 \times \left(\frac{10+20}{2}\right) = 30.00\ m^2$

Total : $195.00\ m^2$

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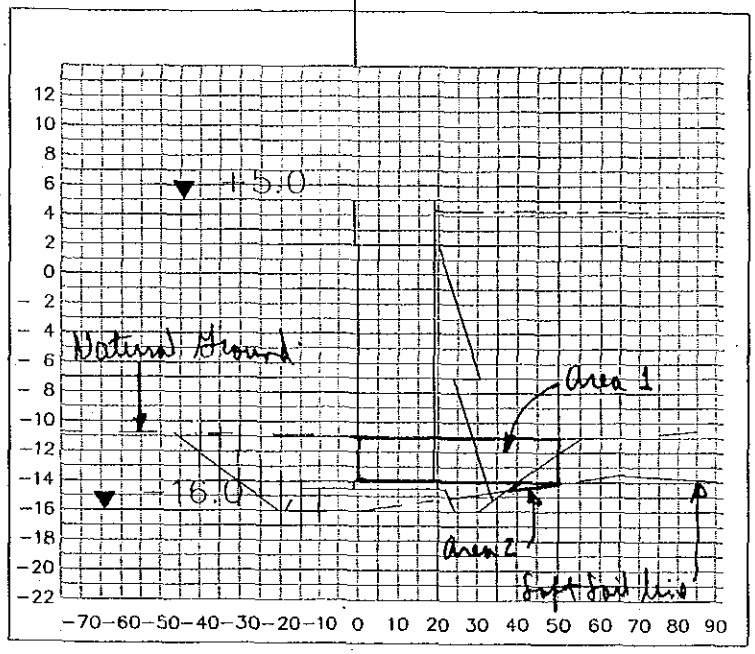

SECTION 6

Area 1 : 3.30 x 50.00 = 165.00 m²

Area 2 : $\frac{0.50 \times 10}{2}$ = 2.50 m²

Total : 167.50 m²

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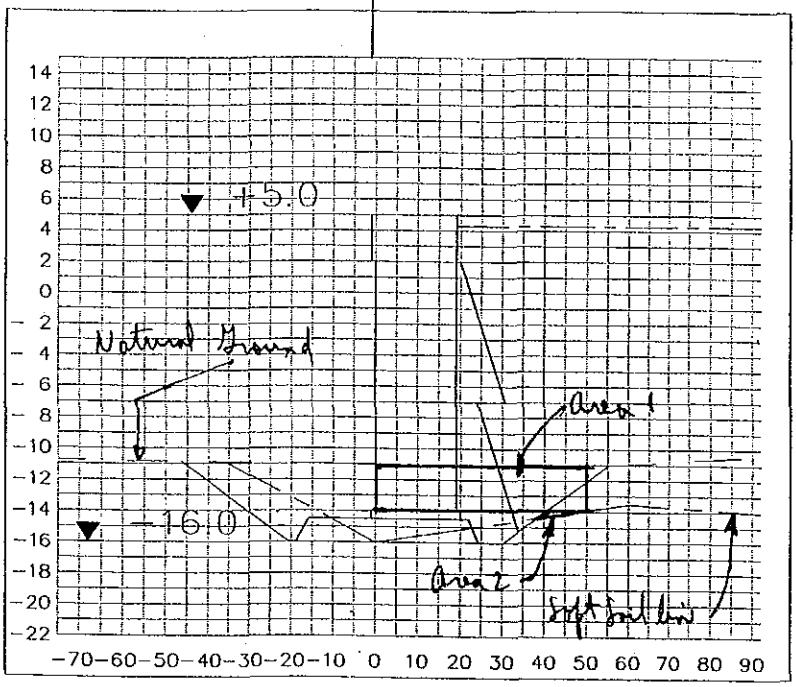

SECTION 7

Area 1 : $3.00 \times 50.00 = 150.00\ m^2$

Area 2 : $\frac{0.50 \times 10.00}{2} = 2.50\ m^2$

Total : $152.50\ m^2$

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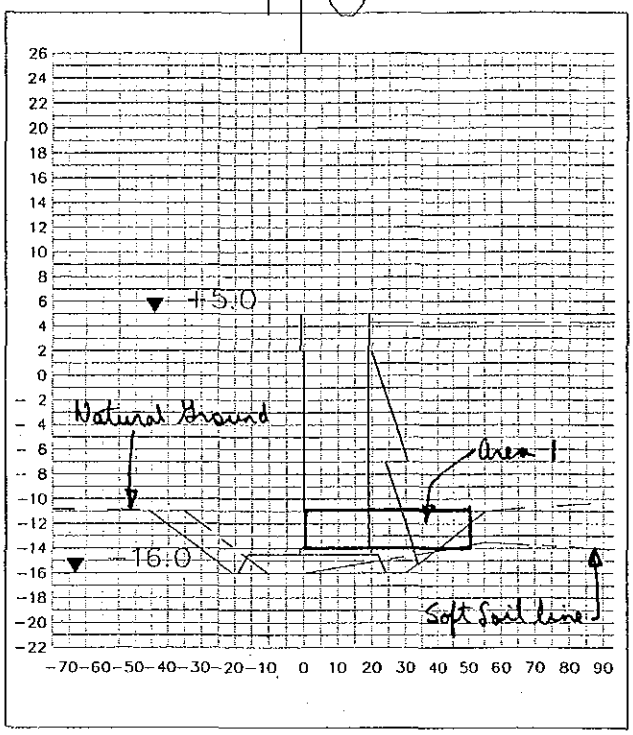

SECTION 8

Area 1: 3.35 x 50.00 = 167.50 m²

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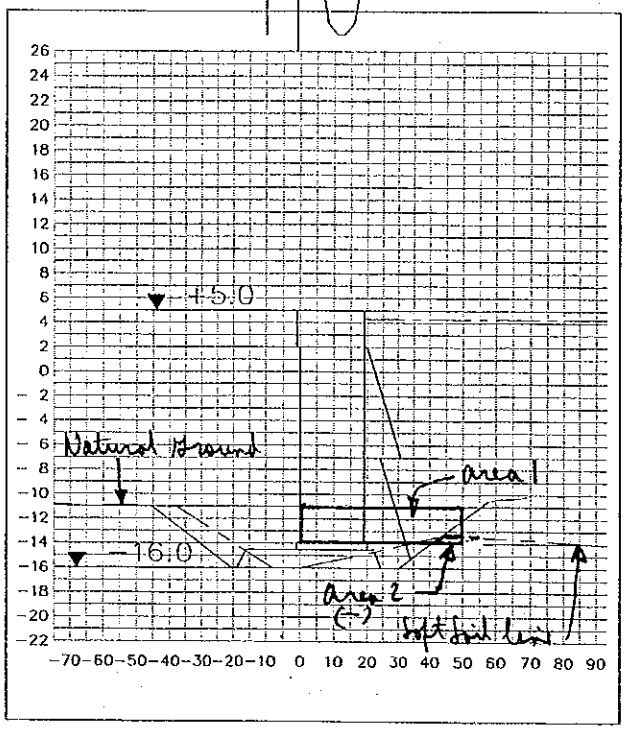

SECTION 9

Area 1: $3.85 \times 50 = 192.50\ m^2$

Area 2: $0.50 \times 12.50 = +6.25\ m^2$

total: $186.25\ m^2$

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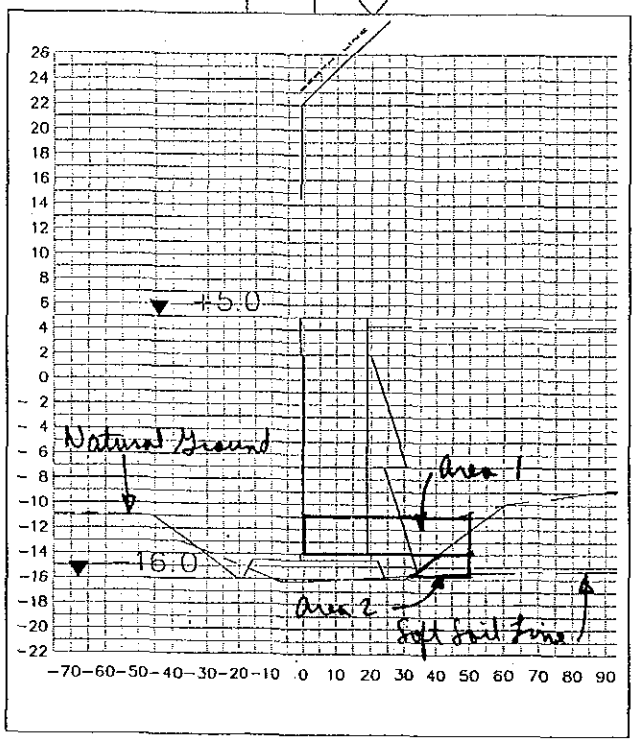

SECTION 10

Area 1: $4.66 \times 50 = 233.00\ m^2$

Area 2: $1.75 \times \left(\frac{0+18}{2}\right) = 24.50\ m^2$

Total : $257.50\ m^2$

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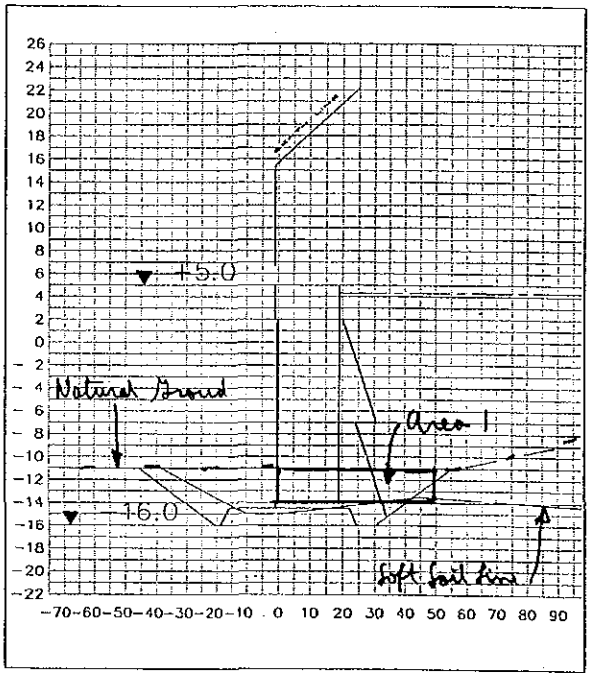

SECTION 11

Area 1: 2.75 x 50 = 137.50 m²

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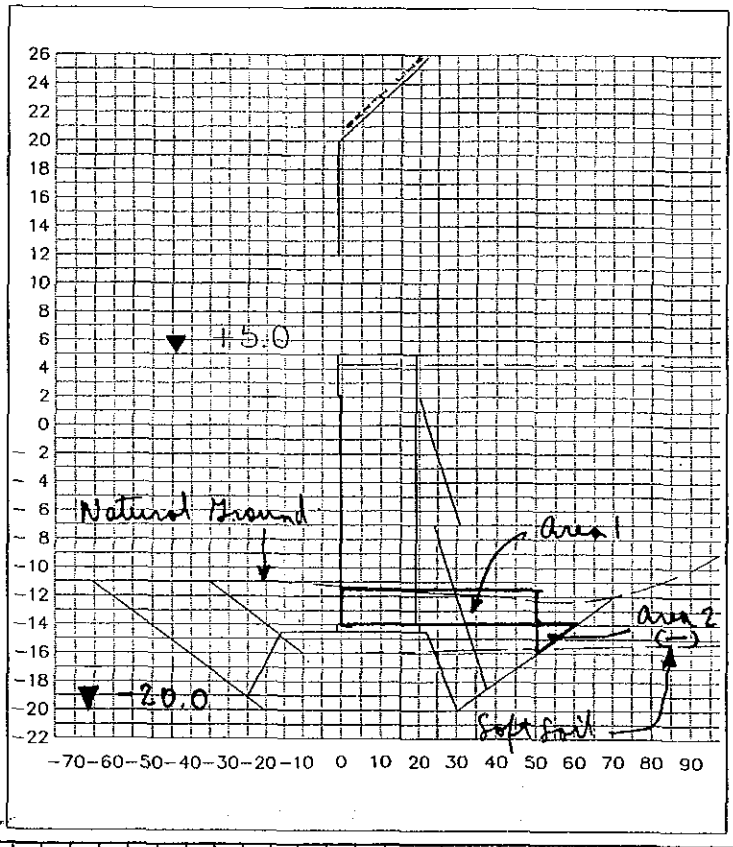

SECTION 12

Area 1 : $\frac{1.65 \times 50.00}{}$ = 82.50 m^2

Area 2 : $\frac{2.00 \times 10.00}{2}$ = -10.00 m^2

Total : 72.50 m^2

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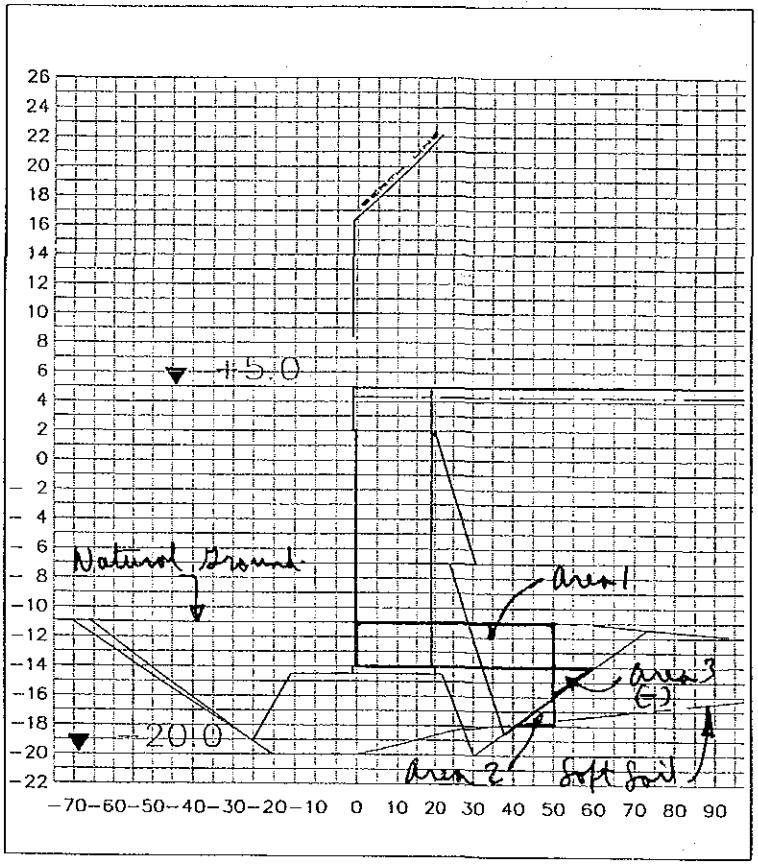

SECTION 13

Area 1: $2.99 \times 50.00 = 149.50\ m^2$

Area 2: $\frac{2.00 \times 10.00}{2} = 10.00\ m^2$

Area 3: $\frac{2.00 \times 10.00}{2} = -10.00\ m^2$

total : $149.50\ m^2$

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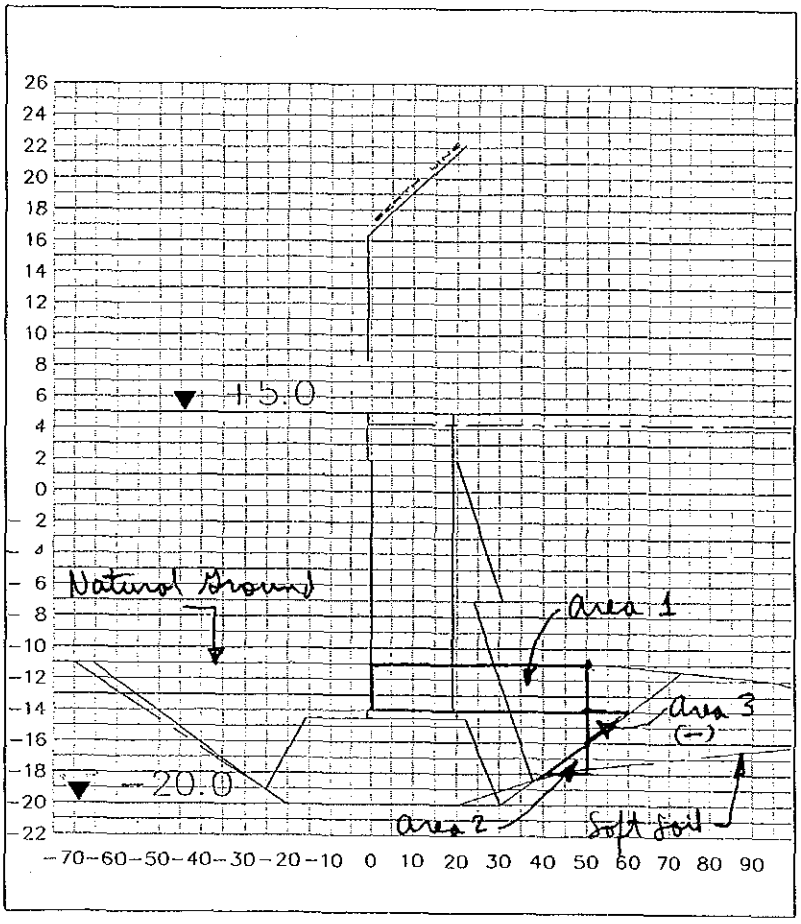

SECTION 14

Area 1: $3.00 \times 50.00 = 150.00\ m^2$

Area 2: $\frac{2.00 \times 10.00}{2} = 10.00\ m^2$

Area 3: $\frac{2.00 \times 10.00}{2} = -10.00\ m^2$

total: $150.00\ m^2$

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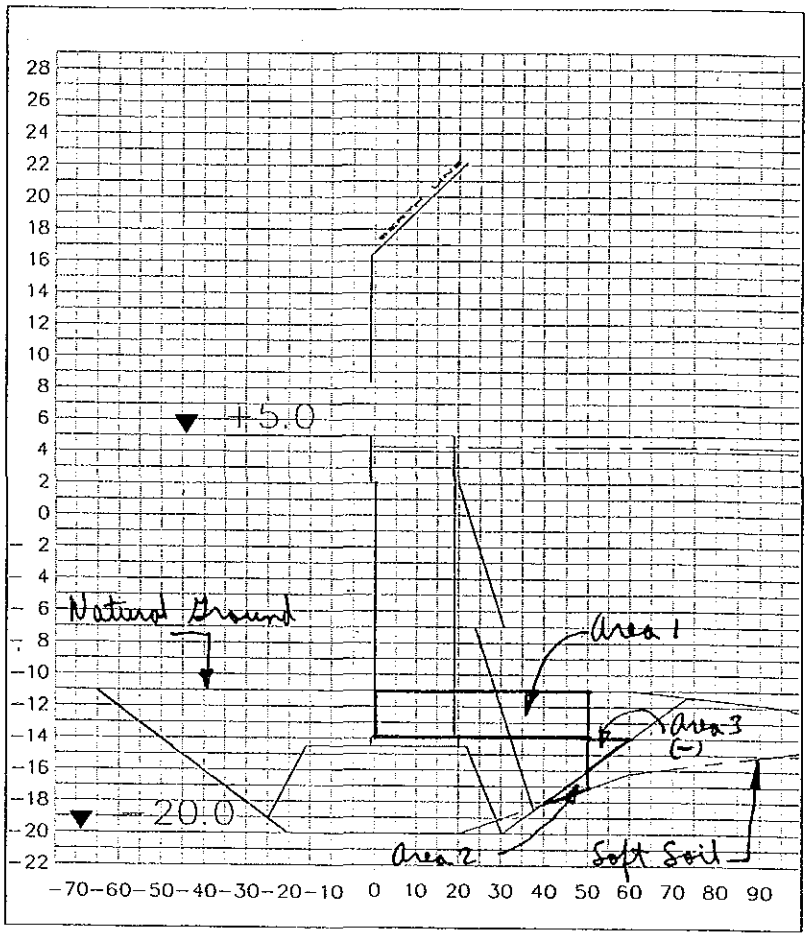

SECTION 15

Area 1: $2.95 \times 50.00 = 147.50\ m^2$

Area 2: $\frac{1.00 \times 10.00}{2} = 5.00\ m^2$

Area 3: $\frac{2.00 \times 10.00}{2} = -10.00\ m^2$

total : $142.50\ m^2$

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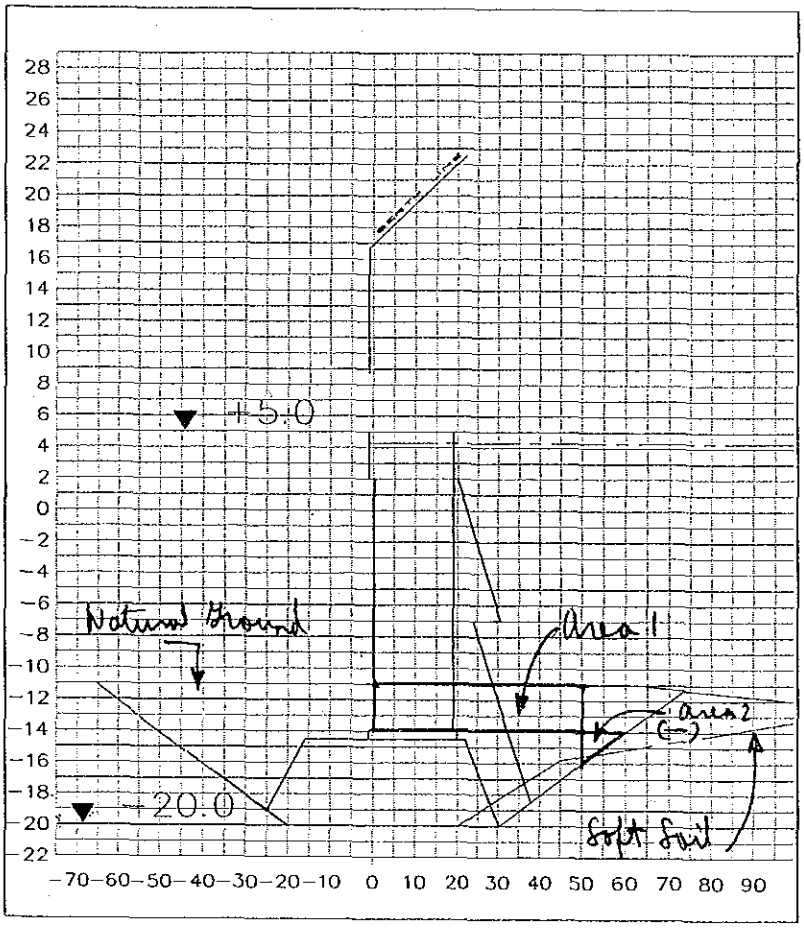

SECTION 16

Area 1: $1.49 \times 50.00 = 74.50\ m^2$

Area 2: $\frac{2.00 \times 10.00}{2} = -10.00\ m^2$

total : $64.50\ m^2$

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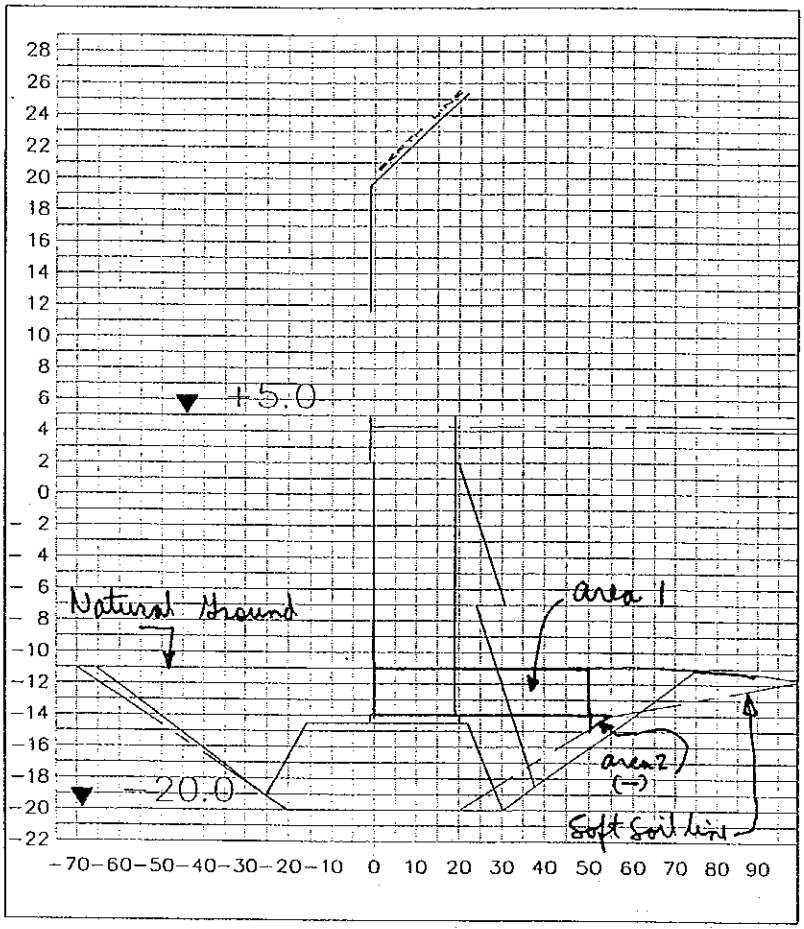

SECTION 17

Area 1: $3.00 \times 50.00 = 153.50\ m^2$

Area 2: $\frac{1.00 \times 5.00}{2} = -2.50\ m^2$

Total : $151.00\ m^2$

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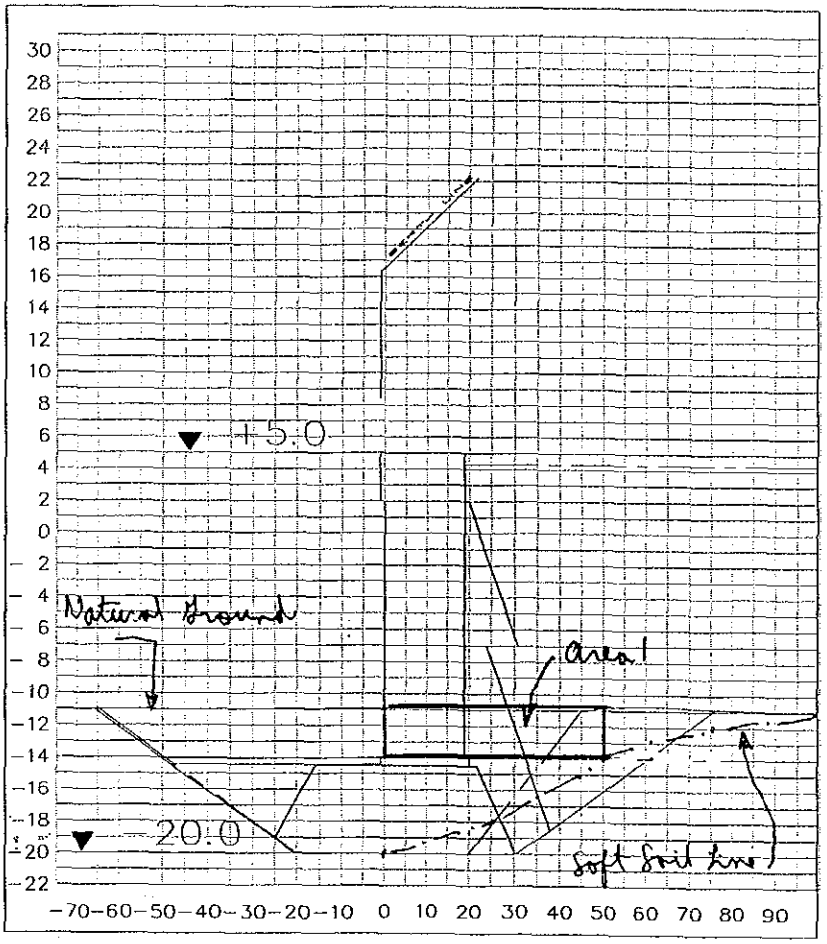

SECTION 18

Area I: 3.29 × 50.00 = 164.50 m²

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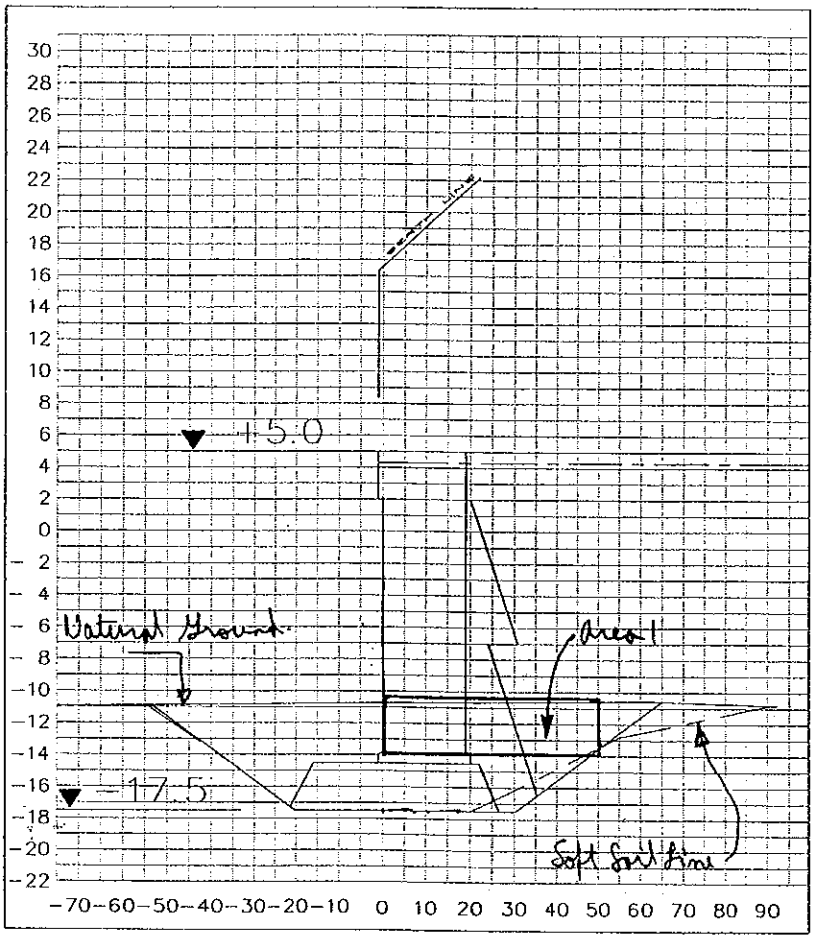

SECTION 19

Area I: 3.48 x 50.00 = 174.00 m²

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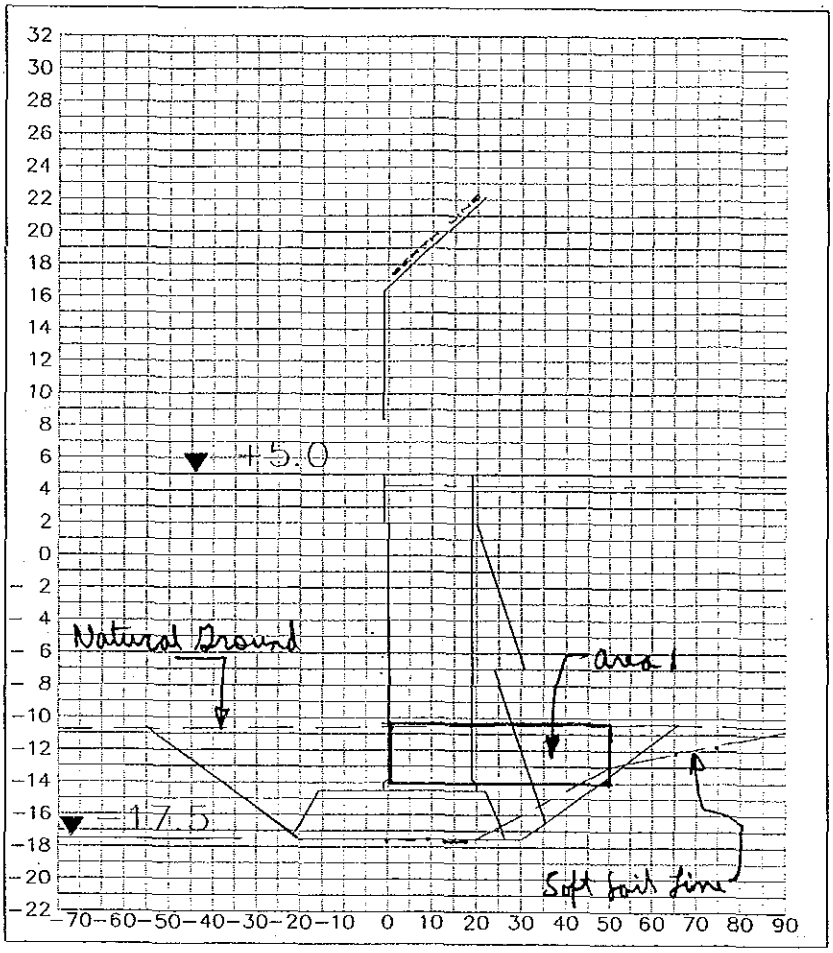

SECTION 20

Area I: $3.59 \times 50.00 = 179.50\ m^2$

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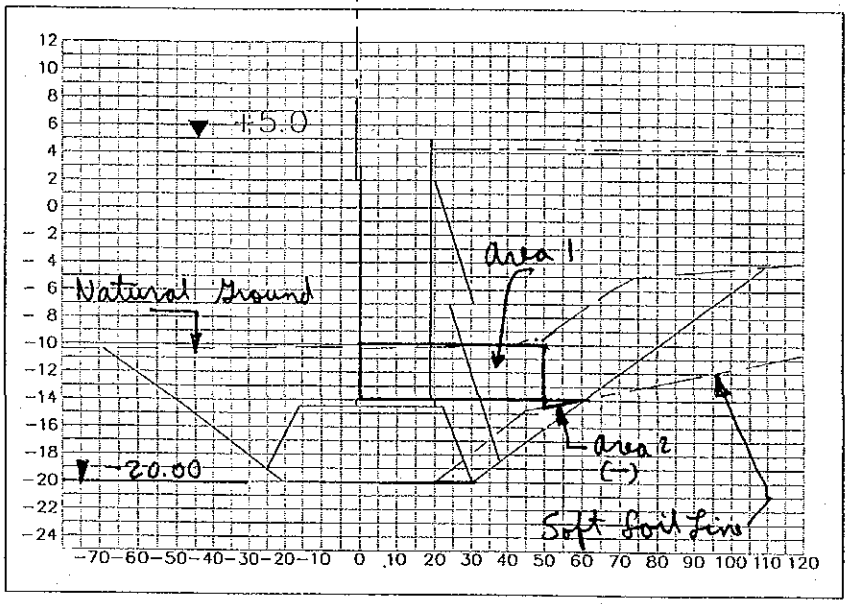

SECTION 21

Area 1 : $4.84 \times 50.00 = 242.00\ m^2$

Area 2 : $\frac{0.5 \times 10.00}{2} = -2.50\ m^2$

Total : $239.50\ m^2$

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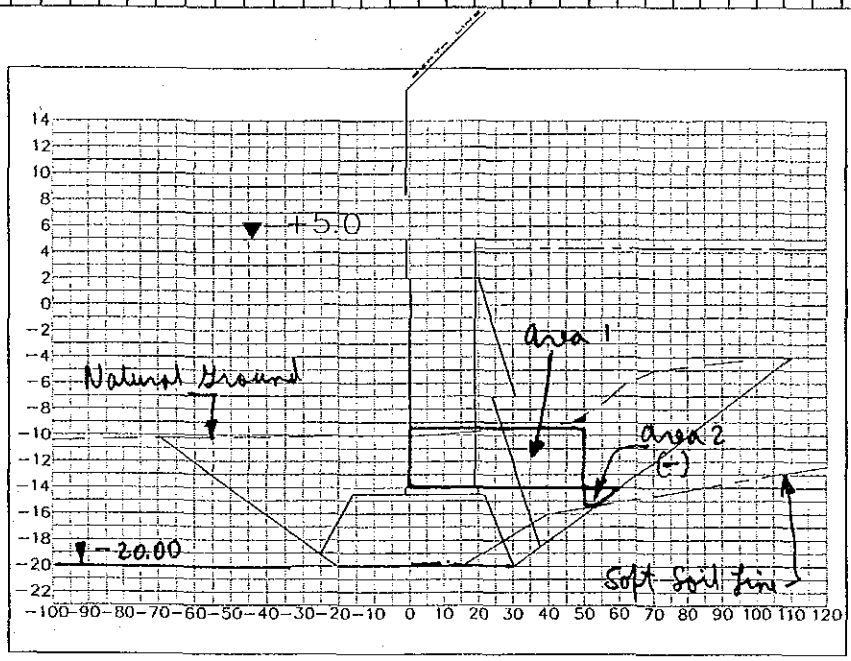

SECTION 22

Area 1: $5.57 \times 50.00 = 278.50\ m^2$

Area 2: $1.58 \times \left(\frac{10+5}{2}\right) = -11.55\ m^2$

Total: $266.95\ m^2$

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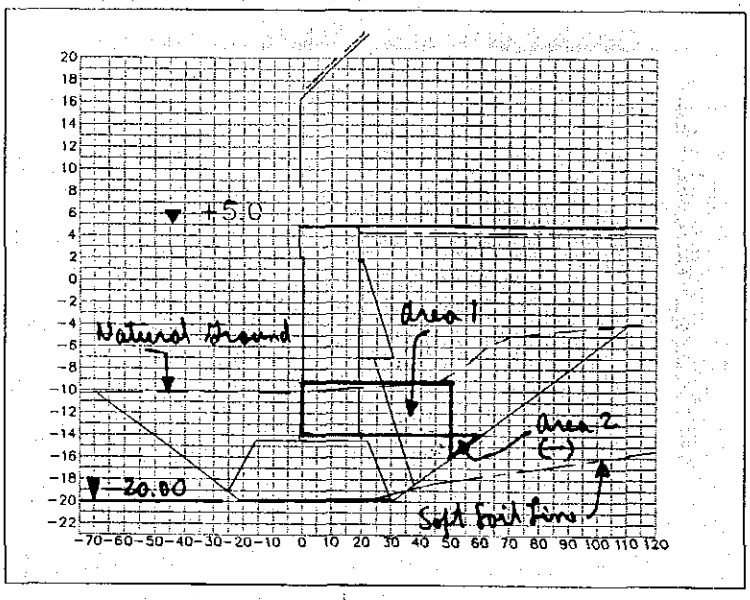

SECTION 22'

Area 1 : $5.57 \times 50.00 = 278.50\ m^2$

Area 2 : $\frac{2.00 \times 10.00}{2} = -10.00\ m^2$

Total : $268.50\ m^2$

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