PACKAGE 2 ASIN RIVER DRAINAGE SYSTEM IMPROVEMENT

Package 2: A General

FLOO	D CONTROL, URBAN DRAINAGE AND WATER F IN SEMARANG	RESOL	JRCES DE	EVEL	OPM	ENT
Compo	nent: Urban Drainage System Improvement	T				
Package	······································	nt			1	
· workug			!		i	
	BILL OF QUANTITIES	· · · · · · · · · · · · · · · · · · ·		<u>.</u>		
Item No	Description	Unit	Quantity			
A	GENERAL					
A.1	Mobilization and Demobilization	L.S.				
A.2	Establishment					
	Contractor's Site Office and Facilities	L.S.	,		 -	
	Engineer's Site Office and Facilities	L.S.				ļ
	Drawings	L.S.			ļ	
	Surveying	L.S.				
A.5	Relocation/Demolition of Existing Facilities				i	
	Demolition of Existing Pumping Stations	No.	6		ii	<u> </u>
A.5.2	Felling and Grubbing of Existing Trees	L.S.		<u> </u>		<u> </u>
	Relocation of Existing Utilities	L.S.	İ			
В	SEMARANG RIVER IMPROVEMENT					
B.1	Preparatory Works					
	Coffering and Dewatering	L.S.			!	
	Clearing of Garbage	L.S.				
	Channel Excavation					
B.2	!					
B.2.1	Common Channel Excavation including Hauling and Spoiling	m³	21,187	5		
B.2.2	Excavation below Water Level including Hauling and Treatment of Contaminated Soil	3	00.475	,		
	and freatifient of Contaminated Soil	m ³	36,475		i	
B.3	Revetment Type A-1			· ·		
B.3.1	Structural Excavation	m ³	2,566			
B.3.2	Backfill with Cobble	m ³	403			
B.3.3	Backfill with Gravel	m ³	1,018			
B.3.4	Backfill with Sandy Soil	m ³	188			
	Concrete, Type C1 including Formwork	l m ³	228	. :		
	formwork	m ²	1,246	1115		1.
B.3.6	Concrete, Type E including Formwork	m ³	64			
	formwork	m ²	209		1.7	
B.3.7	Deformed Reinforcing Bars	kg	12,627	4		- 11
B.3.8	Wet Stone Masonry	m ³	1,543			
	Pointing The Advisor of the Pointing The Poi	m ²	4,428	. 1		
B.3.10	Weep Hole, Dia.50mm	No.	845			1. 3
	Log Pile, Dia.150 mm, L=3.0m	m	840			
B.3.12	Gabion Mattress t=500mm (Galvanized)	m ³	420			
B.4	Revetment Type C (concrete sheet pile)					
	Furnishing and Driving PC Sheet Pile(t=220 mm)	m	7,715			
B.4.2	Concrete, Type C1 including Formwork	m ³	39		. 1	
	formwork	m ²	290			·
	Deformed Reinforcing Bars	kg	4,636			

ltem No D	Description	Unit	Quantity	1,1,	21, F	1 ;
B.5 D	Dike Raising					
	Structural Excavation	m ³	236			
	Backfill with Selected Soil	m ³	117		1 1	
	Sand Bedding	m ³	27			
	Vet Stone Masonry	m ³	272			
	loint Filler, 10mm thick (Elastic Material)	m ²	14			
		m ²	595			. 2:1
	Pointing		995		·	
	nspection Road	3	4 400		-	
	Stripping of Top Soil	m ³	1,196	2 F3	-	
	mbankment	m ³	5,089			
	Aggregate Class A	m ³	947	: .		·
B.6.4 A	Aggregate Class B	m ³	1,430	19,3		
B.6.5 S	Sand Bedding	m ³	459	- 1		
B.6.6 C	Concrete Block Pavement	m ²	7,651			
B.6.7	Cement Mortar	m ³	18		:	:
B.6.8 C	Concrete Kerb	m ³	184	1151		5 B
B.6.9 S	Sodding	m ²	5,741	175		
	ASIN RIVER IMPROVEMENT	1	1.1	111.11	2	
1	Preparatory Works Coffering and Dewatering	L.S.		1.00	· · · · · · · · · · · · · · · · · · ·	
	Clearing of Garbage	L.S.		19.53		
	Demolition of Existing Revetment	L.S.		1,317		1.11
	Channel Excavation	11.7	er ky f	÷		1.18
	Common Channel Excavation including Hauling	114.15		1200	÷ .	,
	and Treatment of Contaminated Soil	m³	31,770	1.11	100	
	Revetment Type A-2 (lower channel)		ta ay va air		:	1 2
		m ³	·		<u> </u>	
	Structural Excavation	311	5,50/			
	Backfill with Cobble	m ³	626		<u> </u>	
	Backfill with Gravel	m ³	1,914	·		
	Concrete, Type C1 including Formwork	m ³	1,055		ļ	
	ormwork	m ²	5,310			
	Concrete, Type E including Formwork	m ³	294			
	ormwork	m²	863		<u> </u>	
	Deformed Reinforcing Bars	kg	50,447		⊢ –	
	Net Stone Masonry	m ³	1,584	- 10 N		
	Weep Hole, Dia.50mm	No.	2,158			
	.og Pile, Dia. 150mm, L=4.0m	m	8,631		-	
	Joint Filler, 10mm thick (Elastic Material)	m ²	62			
	Revetment Type B (higher channel)	3		<u> </u>		1 %
	Structural Excavation	m ³	28,036	3 9,7,4	<u> </u>	N 1 2 4
C.4.2 E	Backfill with Cobble	m ³	2,054		1.17	
C.4.3 E	Backfill with Gravel	m ³	4,300	- 111		
C.4.4 E	Backfill with Sandy Soil	m ³	15,293	, Obl.		37.3
C.4.5	Concrete, Type E including Formwork	m ³	642	1,,,		L
	ormwork	m ²	432	JA 31	. 75	h
		 	1		 	
·	Wet Stone Masonry	m ³	8,713			1 44 4

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Item No.	Description	Unit	Quantity	,		
C.4.8	Weep Hole, Dia.50mm	No.	4,316		<u> </u>	
C.4.9	Log Pile, Dia. 150mm, L=4.0m	m	69,047			
C.5	Revetment Type C (concrete sheet pile)				!	
C.5.1	Furnishing and Driving PC Sheet Pile (t=220 mm)	m	2,448			
	Concrete, Type C1 including Formwork	m ³	14			
C.5.3	Deformed Reinforcing Bars	kg	806			
C.6	Inspection Road	m ³	670			1
C.6.1	Salid Deduling	III 2	672	· · ·		
C.6.2	Concrete Block Pavement	m ²	11,203			
C.6.3	Cement Mortar	m ³	27		ļ	
C.6.4	Concrete Kerb	m ³	269		· · · · · ·	
C.6.5	Aggregate Class A	m ³	200			
C.6.6	Aggregate Class B	m ³	224			
C.7	Asin Box Culvert				·	٠
	Coffering and Dewatering	L.S.				
C.7.1	Coffering and Dewatering Structural Excavation with Shoring	m ³	5,215			
C.7.2		m ³	2,124			
C.7.3	Backfill with Sandy Soil	1111	2,129			
C.7.4	Concrete, Type C1 including Formwork,	m ³	4-1			
	Scaffolding and Falsework	111	1,005		-	
- 4	formwork	m ²	2,887	:		
· ·	scaffolding	m ²	1,959	·	-	1.5
<u> </u>	falsework	m ³	1,385	£1.5 5.5		
C.7.5	Concrete, Type E including Formwork	m ³	91		1 1	
	formwork	m ²	52		,	
	Deformed Reinforcing Bars	kg	95,255		*	
	Water Stop, 200 mm Wide	m m ³	212		· .	
C.7.8	Gravel Bedding	m'	/20	1		
	Cobble Stone	m ³ .				
C.7.10	Wet Stone Masonry	m ³	580			
C.7.11	Log Pile, Dia. 150mm, L=3.0m	M	441 75			
C.7.12	Weep Hole, Dia.50mm	No.	442			
C.7.13	Pointing				7	
	Asphalt Concrete Asphalt Treated Base	tonne tonne				
C.7.15		m ³	177		· · · ·	11.7
	Aggregate Class A	m ³	253			
C.7.17	Aggregate Class B	111	200		· .	
C.8	Asin No.1 Bridge			14 1/4		(1) k
	(Superstructure)		1, 10,4107			10.17
C.8.1	Precast Prestressed Concrete Beam including	T AT A	1.794		+ +	
1 182 m	Tensioning and Erection	L.S.	14.57	276.2		1 1
C.8.2	Precast Prestressed Concrete Diaphragm					
	including Tensioning and Erection	L.S.				
C.8.3	Precast Concrete Panel including Erection	L.S.	14,264			
C.8.4	Deformed Reinforcing Bars	kg 3	7			
C.8.5	Concrete, Type B including Formwork	$\frac{m^3}{m^2}$	67			
	formwork	m ²	104		- '- '	
C.8.6	Asphalt Concrete	tonne				
C.8.7	Expansion Joint	m	20		<u> </u>	
C.8.8	Hand Rail	kg	44	- ::::	L	<u></u>

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Item No.	Description	Unit	Quantity	1 1		
C.8.9	Drain Pipe, PVC Pipe Dia. 100 mm	m	11		- 1	
C.8.10	Utility Pipe, PVC Pipe Dia. 150mm	m	60	-		
C.8.11	Elastomeric Bearing Pad (350x280x73.)	No.	12			
C.8.12	Rubber Sheet (40x10x3)	No.	12		1: 1	
	(Sub Structure)					· · · .
C.8.13	Structural Excavation	m^3	1,219	::	11	
C.8.14	Backfill with Sandy Soil	m^3	422	100		
C.8.15	Embankment	m ³	405		.;	
	Furnishing and Driving PC Piles, Dia. 500 mm,			:		
1	Type A	m	1,260		2	
1	Furnishing and Driving PC Test Pile, Dia. 500mm,					
0.0.,	Type A	m	18			
C 8 18	Concrete, Type C1 including Formwork and					100
0.0.10	Scaffolding	m ³	310			
			i	-		
-	formwork	m ²	371			
	scaffolding	m ²	293			
C.8.19	Concrete, TypeE1 including Formwork	m ³	14	The sec		1 1
	formwork fire field	m ²	7			. * .
C.8.20	Deformed Reinforcing Bars	kg	19,782	1: 1		4
C.8.21	Wet Stone Masonry	m ³	184	1 1		- 3
C.8.22	Weep Hole, Dia 50mm	No.	70	1.3		
C.8.23	Pointing	m ²	223			7.4
C.9	Asin No.2 Bridge					
0.3	(Super Structure)	·				
C.9.1	Precast Prestressed Concrete Beam including					
0.9.1	Tensioning and Erection	L.S.				
C 9 2	Precast Prestressed Concrete Diaphragm	L.S.				
0.5.2	including Tensioning and Erection			1 - 46 1		
C.9.3	Precast Concrete Panel including Erection	L.S.				
	Deformed Reinforcing Bars	kg	. 5,050			
1	Concrete, Type B including Formwork	m ³	48	7		375
	formwork	m ²	90	4.5		, e 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
C.9.6	Asphalt Concrete	tonne	1			
1	Expansion Joint	m	18			
	Hand Rail	kg	44	7.121		
	Drain Pipe, PVC Pipe Dia. 100 mm	m	11			1.35
C.9.10	Elastomeric Bearing Pad (350x280x73.)	No.	10			5 5 1
C.9.11	Rubber Sheet (40x10x3)	No.	10			
	(Sub Structure)		garder I Ka			15 11
C.9.12	Structural Excavation	m ³	1,013	50%	<u> </u>	
C.9.13	Backfill with Sandy Soil	m ³	345			
	Embankment	m ³	343			
1	Furnishing and Driving PC Piles, Dia. 500 mm,	 			Ì	
	Type A	m	1,080			
C 0 10	Furnishing and Driving PC Test Pile, Dia. 500mm,	m	1,000	1.11		
0.8.10			20			
0045	Type A. Salada and Barriag Salada and Salada	m	36		100	N 1
C.9.17	Concrete, Type C1 including Formwork and	3	200			
,	Scaffolding	m ³	263	}		-
ļ	formwork	m ²	333	 	 	
	scaffolding	m ²			1	14, 7
C.9.18	Concrete, TypeE1 including Formwork	m ³	13			

Itom No	Description	Hait	Quantity	······································		
	The second contract of	ļ	<u> </u>		<u> </u>	
	formwork	m ²	6	*		<u> </u>
·	Deformed Reinforcing Bars	kg .	14,246	:	<u> </u>	
1	Wet Stone Masonry	m ³	211		<u> </u>	-
}	Weep Hole, Dia.50mm	No.	60		<u> </u>	<u> </u>
C.9.22	Pointing	m ²	232			!
C.10	Water Supply Pipe Reconstruction	ŀ	!		į .	!
C.10.1	Coffering and Dewatering	L.S.		1 .	!	į
C.10.2	Structural Excavation	m ³	561			
C.10.3	Backfill	m ³	524			
C.10.4	Concrete, Type C1 including Formwork	m ³	35		1	
	formwork	m²	136	,	i .	1 1 1
	Concrete, Type E including Formwork	m ³	2		Ī	
	formwork	m ²	2		 	!
C.10.6	Deformed Reinforcing Bars	kg	3,230		•	
	Pipe Connection Works	L.Š.		٠.,	<u> </u>	
	Telephone Cable Duct Reconstruction		* 1	4.5		
	Coffering and Dewatering	L.S.			<u>'</u> !	
	Structural Excavation	m ³	280		 	
C.11.3		m ³	270		<u> </u>	
ļ	· · · · · · · · · · · · · · · · · · ·	m ³	10		<u> </u>	
6.11.4	Concrete, Type C1 including Formwork	m ²	22			
	formwork	m ³		-	<u>:</u>	1
	Concrete, Type E including Formwork		1		ļ	<u> </u>
•	formwork	m ²	2	4 .	<u> </u> 	1 / // /
	Deformed Reinforcing Bars Cable Connection Works	kg L.S.	896			
		L.U.				
C.12	Secondary Channel Outlet Reconstruction	31.15	ter a f	. :	- 1	
L	Structural Excavation	m ³	382			
I	Backfill and the more and the control of the declarate services.	m³	100			
C.12.3	Concrete, Type C1 including Formwork and	m ³	37			17.7
	Falsework			1 + 4		11.5
	form work	m ²	14	1.2		
l	falsework	m³	34			
	Concrete, Type E including Formwork	m³	7		1.	
	form work	m²	10			
L .	Deformed Reinforcing Bars	ka	3,138			
	Wet Stone Masonry	m ³	197	1 : :	-	
ļ	Pointing	m ²	33	1.7%		
1	Gravel Filling	m ³	134	17.		
	Gravel Bedding	m ³	118			
	Cobble Stone	m ³	1	5.4		
1	Weep Hole, Dia.50mm	No.	132			
	Log Pile, Dia. 150 mm L=2.0 m	m	189		-	
D	ASIN PUMPING STATION		176 18 18 5.44	1 Sec.		7
l	Preparatory Works			No.		
	Coffering and Dewatering	L.S.	19.4	1 1 1	• 1	1
	Clearing of Garbage	L.S.		1 10.7		
	Demolition of Existing Revetment	L.S.				
D.2	Pumping Station		Jan Co		. T	1, 7

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Item No	Description (1987)	Unit	Quantity	· · · ·		
D.2.1	Structural Excavation	m ³	1,264	·		-
D.2.2	Backfill	m ³	·	:		
D.2.3	Embankment		104		!	
D.2.4	- 	m ³	913		-	-
0.2.4	Concrete, Type C1 including Formwork, Scaffolding and Falsework	m ³	1,120			
	formwork at the state of the st	m ²	1,891			— —
	scaffolding	m ²	1,342		1	1
* ,*	falsework	m ³	941	1 , 1 .	 	
D.2.5	Concrete, Type E including Formwork	m ³	66	17.	-	
	formwork	m ²	·	7.	┼	
D.2.6	Secondary Concrete, Type C2	m ³	17			<u> </u>
D.2.7	Deformed Reinforcing Bars	m'	131	27,	17-2	
D.2.8	Water Stop, 200 mm Wide	kg	-77 ,567	I^{vv}	73	ļ
D.2.9	Dowel Bar. Dia. 19mm, 1.0m Long (round bar and	m	44		<u> </u>	
	PVC pipe)	kg	293			
D.2.10	Furnishing and Driving PC Piles, Dia. 500 mm,				1 10	1
	Type A			: 1		
D 0 44		m	3,655			
D.2.11	Furnishing and Driving PC Test Pile, Dia. 500 mm,			s :10		111
D 2 42	Type A	m	20		200	
D.Z. 12	Furnishing and Driving Steel Sheet Pile, Type II	m	488			
0.2.13	Furnishing and Driving PC Sheet Piles (t=220 mm)	ញ	484			i
D.2.14	Gabion Mattress t=500mm (Galvanized)	m ³	49			*. *.
D.2.15	Safety Hand Rail (Type-I)	kg	1,123			1 .
	Safety Hand Rail (Type-II)	kg	595	4 - 5 - 5		
	Wet Stone Masonry	m ³	29	944 T		/ -
	Pointing	m ²	42			
D.2.19	Weep Hole, Dia.50mm	No.	12	i i si		27.47.
D.3	Pump Mechanical Works	- 25 T	14.4.4.4	13		Silver
_D.3.1	Furnishing and Installing Main Pump Units	set	3	1 7		
_D.3.2	Gear Boxes Sale Sale State State Control of Control	set	3	1.7.2	3.2	
D.3.3	Diesel Engine Units	set	3			
	Fuel Service Tank	set	1		Y	
	Fuel Transfer Pump	set	1	· · · ·		
D.3.6	Auxiliary Drainage Pump System	L.S.	91,5			
D.3.7	Overhead Crane	set	1	41.1	i	17.7
	Piping System	L.S.	4.	:	17	
D.3.9	Inspection and Test	L.S.	300 g 300 F	1111		
D.3.10	Spare Parts	L.S.	11111111111	19874	- 14	10 m
	Maintenance Tools	L.S.		70 J		1 to 9
	Pump Electrical Works					
D.4.1	Main Control Panel	L.S.			.,	
D.4.2	Local Switch	L.S.				
	Inspection and Test	L.S.		. 3 2		
	Spare Parts	L.S.	- 3	4.4117	-7-1	
	Maintenance Tools	L.S.				
D.4.6	Control Panel for Auxiliary Drainage Pump	L.S.	1.17.454	11		
	Generator System	L.S.				
D.5	Inspection Bridges					
D.5.1	Concrete, Type B including Formwork	m ³	54			
	formwork	m ²	109	2477.54		
	Deformed Reinforcing Bars	kg	2,968		771 771	
	3	\u00e4A	4,3001	et Kilon	57.1	2 L

ltem No.	Description (1995)	Unit	Quantity			
D.5.3	Safety Hand Rail (Type I)	kg	200			
D.6	Asin Pumping Station Bridge					
. :	Superstructure			* •		
D.6.1	Precast Prestressed Concrete Beam including				1	
	Tensioning and Erection	L.S.	1,000		1	
	Precast Prestressed Concrete Diaphragm	:		11.1		
	including Tensioning and Erection	L.S.				
	Precast Concrete Panel including Erection	L.S.	1.405		ļ	
	Deformed Reinforcing Bars	kg	4,485			<u> </u>
D.6.5	Concrete, Type B including Formwork	m ³	33			
·	formwork in a land a land and a fragilia	m ²	94	<u> </u>	<u>!</u>	<u> </u>
	Asphalt Concrete	tonne	<u> </u>	<u> </u>	<u> </u>	
	Expansion Joint	m	11		<u> </u>	· ·
	Hand Rail	kg	47		<u> </u>	
	Drain Pipe, PVC Pipe Dia. 100 mm Elastomeric Bearing Pad (350x280x73.)	M No.	6	1 (A)		
	Rubber Sheet (40x10x3)	No.	6		<u> </u>	
	(Sub Structure)					7 17
:	Structural Excavation	m ³	302			3 14
	Backfill with Sandy Soil	m ³	265			
	Furnishing and Driving PC Piles, Dia. 500 mm,	111	2001			
D.0.14	Type A		000			,
D 0 45		m	900		<u> </u>	
D.6.15	Furnishing and Driving PC Test Pile, Dia. 500mm,	m	36			
D 6 46	Type A	m	30			2.4
D.6.16	Concrete, Type C1 including Formwork and	m ³	400			
	Scaffolding		133			1 2.
	formwork	m ²	271	·		
	scaffolding	m ²	166	1 11		
D.6.17	Concrete, TypeE1 including Formwork	m ³	9		:	
	formwork	m ²	4			
D.6.18	Deformed Reinforcing Bars	kg	13,782	<u> </u>		* * * *
D.7	Fuel Tank			1959 -		1 1
D.7.1	Structural Excavation	m ³	621	d d		4.
D.7.2	Backfill	m ³	512	7. 3.	7.	
	Concrete, Type C1 including Formwork,					
	Scaffolding and Falsework	m ³	49			
	formwork	m ²	167			
	scaffolding	m ²	133			
		<u> </u>	62			
	falsework	m ³	3	11.5		7 1 1
D.7.4	Concrete, Type E including Formwork					
	formwork	m ²	6,810			
	Deformed Reinforcing Bars Fuel Tank and Accessories	kg L.S.	0,010			<u> </u>
D.7.0 D.7.7	Grounding	L.S.			71.4	
ט.ו.ו	Giodifulig					
E	ASIN PUMPING STATION GATE					2
E.1	Gate Pier and Foundation					43.3
E.1.1	Structural Excavation	m³	419	!		1 1
E.1.2	Backfill with Sandy Soil	m ³	204		**	1 1

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E.1.3	Concrete, Type C1 including Formwork,					
	Scaffolding and Falsework	m ³	386			1 1
	formwork	m ²	745		<u> </u>	ļ
	scaffolding	m ²	732	7 :	<del> </del>	
	falsework	m ³	254		· · · · ·	
E.1.4	Concrete, Type E including Formwork	m ³	18		<del> </del>	
L., 1.4	formwork	m ²	<del></del>		<del> </del>	3.5
E 4 C		3	5		<del> </del>	
	Secondary Concrete, Type C2 Deformed Reinforcing Bars	m ³	9		<u></u>	
	Water Stop, 200 mm Wide	kg m	25/95 12		1	
E.1.8	Dowel Bar. Dia. 19mm, 1.0m Long (round bar and	111	12	!	<del> </del> -	
L.1.0	PVC pipe)	kg	112			
E.1.9	Furnishing and Driving PC Piles, Dia. 500 mm,	.vg	112	1 -		3.7 1
L., 1., 0	Type A	m	565			
E.1.10	Furnishing and Driving Steel Sheet Pile, Type II	m	440	44,5		
	Gabion Mattress t=500mm (Galvanized)	m ³	36	11.0		
	Safety Hand Rail (Type-I)	kg	280			1 1 1
	Ladder	L.S.	1944	1.792		
E.1.14	Window	L.S.	Table 14	1 14	5	1,40
E.1.15	Door	L.S.	4.81%, H31	s 2,.		
E.1.16	Roof Sealing	L.S.	4.	100	·	3000
E.2	Gate Mechanical Works					
	Gale Leaf	set	2			
	Guide Frame	set	2			
	Hoist	set	2			
E.2.4	Stop Log	set	2	11.		
E.2.5	Spare Parts	L.S.	11 11 11 11			11.1
F	BUILDINGS					
F,1	<b>Buildings</b>	14.1	4.44	V1.1		1, )
	Pump Control Building	L.S.				
	Management Office	L.S.	1 1			14.5.1 14.5.1
	Garage	L.S.		- K - 17.5%		
	Staff House	L.S.			<u> </u>	
	External Works	L.S.				
G	ASIN RETARDING POND			1 (1 (1) - (1)	:	N. 11 s.
G.1	Earth Works	14.50	Maria Re			-
	Common Excavation including Hauling and					
	Spoiling	m ³	24.020	17.7		
	Embankment	m ³	31,039	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		<del></del>
		m l	4,402			<del></del>
	Revetment Works			<u> </u>		
	Coffering and Dewatering	L.S.	1. (Example)			141
	Structural Excavation	m ³	2,802		3.5	
	Backfill with Cobble	m ³	590			
001	Backfill with Gravel	m ³	506			
G.2.4	D = 1.68 - 21 O = 1 O = 2	m ³	5			
	Backfill with Sandy Soil	111 1	U			
G.2.5		m ³				
G.2.5 G.2.6	Wet Stone Masonry Concrete, Type C1 including Formwork	m ³	1,363 147			

Item No	Description	Unit	Quantity		
G.2.8	Concrete, Type E including Formwork	m ³	34		
	formwork	m ²	112	į	
G.2.9	Deformed Reinforcing Bars	kg	15,076		
G.2.10	Pointing	m²	1,804		
G.2.11	Weep Hole, Dia.50mm	No.	292		İ
G.2.12	Log Pile, Dia. 150 mm L=2.0 m	m	2,160	i	i
G.2.13	Furnishing and Driving PC Sheet Pile (t=220 mm)	m	8,533		
G.3	Inspection Road				
G.3.1	Stripping of Top Soil	m³	712	1	
G.3.2	Embankment	m³	864		
G.3.3	Aggregate Class A	m³	534		ţ
G.3.4	Aggregate Class B	m³	811		_
	Sand Bedding	m³	214		
	Concrete Block Pavement	m²	3,558		
	Cement Mortar	m³	9!		
G.3.8	Concrete Kerb	m³	86		
Н	MISCELLANEOUS WORKS				
H.1	Tree Planting	į			
H.1	Tree Planting	L.S.			
H.2	Staff Gauge	L.S.		İ	
1	SUPPLYING MAINTENANCE EQUIPMENT				İ
1.1	Supplying Maintenance Equipment				
1.1.1	Supply of Backhoe, 0.35m ³	No.	1	<u> </u>	
1.1.2	Supply of Dump Truck, 8t	No.	1		
	Supply of Truck Crane, 2.2t	No.	1		1
1.1.4	Supply of Garbage Container, 6m³	No.	2		
				į	
<del></del>				į	-

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Package 2: B Semarang River Improvement

#### **EXCAVATION OF SEMARANG RIVER**

Cross Section	Distance (n)	EXCA AREA	VATION VOLUME	F AREA	ILL VOLUME	STRI LENGTH OF	PPING VOLUME	AREA	OUT VOLUME
:		( m² )	(m ¹ )	( m ² )	(m ¹ )	STRIPPING	(m²)	(m ² )	( m³ )
	l	<del></del>	(111)	\ III	( " )	(m)	\	(''' <i>)</i>	(111)
SMR- 00	0.000 32.190	44.389 39.065	1343,200			ļ		<u></u>	· · · · · · ·
SMR- 01 SMR- 02	27.090	37.283	1034.140	* 2°		<del> </del>			<del></del>
SMR- 03	33.510	54.129	1531.610					<b></b>	
SMR- 04	37.620	35.622	1688.219						, <del></del>
SMR- 05	22.420	17.874	599.699						
SMR- 06	25.960	83.353	1313.933						
SMR- 07	27.050	25.658	1474.373	1.667	63.120	9.675			·
SMR- 08	29.720	44.247	1038.784	1.832	96.571	8.055		0.0001	0.00
SMR- 09 SMR- 10	33.370 27.390	60.777 43.660	1752.323 1430.262	1.527	56.037 35.860	8.080 6.026		0.1430	0.000 1.958
SMR- 11	33.400	55.287	1652,408	1.154	37.498	7.925		0.1430	2.588
SMR- 12	31.490	53.727	1716.419	1.439	40.819	7.894			2.30
SMR- 13	29.450	52.175	1559.406	1.482	43.013	6.663		0.0966	1.42
SMR- 14	29.500	56.787	1607.191	0.065	22.827	2.485		0.2480	5.083
SMR- 15	28.610	61.312	1689.411					3.1694	48.886
SMR- 16	30.140	53.382	1728.446	0.131	1.974	1.981		1.3211	67.67.
SMR- 17 - 2	32.300	56.094	1768.037	1.971	33.949	7.921			21.330
SMR- 18	32.360	51.875	1746.930 1528.989	2.687	75.373 62.289	7.843 3.976		1.005	26.285
SMR- 19 SMR- 20	31.100 29.100	46.453 35.076	1186.240	1.318	43.230	6.302		1.6905 1.8248	26.287 51.148
SMR- 21	28.330	31.495	942.971	1.348	42.498	5.469	* * * * * * * * * * * * * * * * * * * *	1.0240	25.848
SMR- 21+23	19.960	53.220	845.450		72.170	31.07	·		23.01.
SMR- 23	31.840	11.710	1033.680						
SMR- 24	32.290	13.746	410.993						<del></del>
SMR- 25	32.740	19.576	545.492						and the first
SMR- 26	31.380	19.849	618.575	. ·	14 1				
SMR- 27	29.820	14.281	508.873			<del></del>			<u></u>
SMR- 28 SMR- 29	29,720 30,260	12.920 14.017	404.208 407.560						
SMR- 30	28.930	8.873	331.112						
SUB SMR-INI	TOTAL1	1207.912	\$35438.934° 319.925	22.365	655.057	90.294	0.000	8.494	252.032
SMR- N2	14.970	62.590	575.280						1
SMR- N3	20.410	68.580					-		
SMR- 7/4	30.440	68.488	2086.169						
SMR- N5	30.490		2134.003						
SMR- N6	39.040	65.247	2669.154						· · · · · · · · · · · · · · · · · · ·
SMR- N7 SMR- N8	31.370 32.780		2045.356 2084.905		· · · · · · · · · · · · · · · · · · ·				
SMR- N9	30.330		1880.628						
SMR- N10	29.430		1911.401						
SMR- NII	29.050		1972.147						2 V
SMR- N12	28.960	42.642	1599.812						1 1
SMR- N13	26.520	0.325	569.745						
7	<u> </u>		155 24 25 24 2		2 2 2 2 2				
SUB	TOTAL2	718.575	£ 21187:116	0.000	0.000	0.000	0.000	0.000	0.000
							<u> </u>	<del></del>	· · · · · · · · · · · · · · · · · · ·
SMR- 43	27.450		108.099						<del> </del>
SMR- 44 SMR- 45	26.510 27.440		289.696 638.698						· · · · · · · · · · · · · · · · · · ·
3,117. 43	27.440	72.210	050.070		· · · · · · · · · · · · · · · · · · ·				
•									
SUB	TOTAL3	L	\$\$£(1036.493	0.000	0.000	0.000	0.000	0.000	0.000
				0.000	0.000	0.000	0.000	0.000	0.000
SMR- 46	29.400	18.518	746.257			0.000	0.000	0.000	0.000
	29.400 29.580	18.518 17.932	746.257 539.089	0.000		0.000	223-27 0.000	0.000	0.000
SMR- 46 SMR- 47	29.400	18.518 17.932 17.388	746.257 539.089			0.000	0.000	0.000	0.000
SMR- 46 SMR- 47 SMR- 48	29.400 29.580 31.250	18.518 17.932 17.388 16.934	746.257 539.089 551.869			0.000	2000.0	0.000	0.000
SMR- 46 SMR- 47 SMR- 48 SMR- 49	29.400 29.580 31.250 30.720	18.518 17.932 17.388 16.934 3.508 18.975	746.257 539.089 551.869 527.177 312.553 354.666			0.000	2000.0	0.000	0.000
SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50 SMR- 51 SMR- 52	29.400 29.580 31.250 30.720 30.580 31.550 29.700	18.518 17.932 17.388 16.934 3.508 18.975	746.257 539.089 551.869 527.177 312.553 354.666 448.889			0.000	20000	0.000	0.000
SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50 SMR- 51 SMR- 52 SMR- 53	29.400 29.580 31.250 30.720 30.580 31.550 29.700 30.480	18.518 17.932 17.388 16.934 3.508 18.975 11.254	746.257 539.089 551.869 527.177 312.553 354.666 448.889 343.625			0.000	0.000	0.000	0.000
SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50 SMR- 51 SMR- 51	29.400 29.580 31.250 30.720 30.580 31.550 29.700	18.518 17.932 17.388 16.934 3.508 18.975 11.254 11.294	746.257 539.089 551.869 527.177 312.553 354.666 448.889			0.000	0.000		

EXCAUATION OF SEMA-RANG RIVER FOR ASIN BRAINAGESYSTER Category of WORK VOLUME Page calculation Structure

SUMMARY OF EXCAUATION.

1, Common Channel Fxeavation = 21,187.116 m

Z. Execution below Water Revel

= 35438.934 + 6036.493 = 36475.427 m

### **EXCAVATION OF SEMARANG RIVER**

Cross Section	Distance (m)	AREA	VATION VOLUME	AREA	ILL VOLUME	STRI LENGTH OF	PPING VOLUME	AREA	VOLUME
						STRIPPING		(m ² )	(m))
	<u> </u>	( m² )	( m³ )	( m² )	(m³)	(m)	(m²)	(m.)	(m)
SMR- 00	0.000	44.389		~					
SMR- 01	32.190		1343.200						
SMR- 02 SMR- 03	27.090 33.510	37.283 54.129	1034.140 1531.610						
SMR- 04	37.620		1688.219						
SMR- 05	22.420	17.874	599.699						
SMR- 06	25.960	83.353	1313.933						
SMR- 07	27.050	25.658	1474,373	4.667	63.120	9.675			
SMR- 08	29.720	44,247	1038.784	1.832	96.571	8.055		0.0001	0.00
SMR- 09	33.370	60.777	1752.323	1.527	56.037	8.080			0.002
SMR- 10	27.390	43.660	1430.262	1.092	35.860	6.026	····	0.1430	1.958 2.388
SMR- 11 SMR- 12	33.400 31.490	55.287 53.727	1652.408 1716.419	1.154 1.439	37.498 40.819	7.925 7.894		<b> </b>	2.380
SMR- 13	29.450	52.175	1559.406	1.482	43.013	6.663		0.0966	1.422
SMR- 14	29.500	56.787	1607.191	0.065	22.827	2.485		0.2480	5.083
SMR- 15	28.610	61.312	1689.411	3.0			***	3.1694	48.886
SMR- 16	30.140	53.382	1728.446	0.131	1.974	1.981	3. ·	1.3211	67.672
SMR- 17	32.300	56.094	1768.037	1.971	33.949	7.921			21.336
SMR- 18	32.360	51.875	1746.930	2.687	75.373	7.843			
SMR- 19	31.100	46.453	1528.989	1.318	62.289	3.976		1.6905	26.28
SMR- 20	29.100	35.076	1186.240 942.971	1.653 1.348	43,230 42,498	6.302 5.469		1.8248	51.148 25.848
SMR- 21 SMR- 21+23	28.330 19.960	31.495 53.220	845,450	1.346	42.478	3.469			23.040
SMR- 23	31.840	11.710	1033.680					<del> </del>	
SMR- 24	32.290	13.746	410.993	· · ·	1				, i
SMR- 25	32.740	19,576	545.492		1				
SMR- 26	31.380	19.849	618.575						
	29.820	14.281	508.873			11.7	4 4 4		
SMR- 27									
SMR- 27 SMR- 28	29.720	12.920	404.208						<del></del>
SMR- 27 SMR- 28 SMR- 29 SMR- 30	29.720 30.260 28.930	12.920 14.017 8.873	407.560 331.112	<b>22.365</b>	7 (S. 14) 	∌≑ <b>√90.29</b> 4:	0.000		<b>≥. 252.03</b> 2
SMR- 27 SMR- 28 SMR- 29 SMR- 30	29.720 30.260 28.930 TOTAL1	12.920 14.017 8.873 1207.912	407.560 331.112 35438.934	22.365	7 (S. 14) 				
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30	29.720 30.260 28.930 TOTAL1	12.920 14.017 8.873 1207.912	407.560 331.112 35438.934 319.925	22.365	7 (S. 14) 				
SMR- 27 SMR- 28 SMR- 29 SMR- 30	29.720 30.260 28.930 TOTAL1	12.920 14.017 8.873 1207.912	407.560 331.112 35438.934	22,365	655.057.				a. 252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- NI SMR- NI	29.720 30.260 28.930 TOTAL1: 27.650 14.970	12.920 14.017 8.873 1207.912 14.268 62.590	407.560 331.112 35438.934 319.925 575.280	22,365	655.057.	∌⊹90.294:			a. 252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- N1 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490	12.920 14.017 8.873 24.1207.912 14.268 62.590 68.580 68.488 71.493	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003	22.365	655.057.	∌⊹90.294:			a. 252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- NI SMR- NI SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040	12.920 14.017 8.873 22.1207.912 14.268 62.590 68.580 68.488 71.493 65.247	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154	22.365	655.057.	<i>≱</i> , ₃90.294			
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- N1 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370	12.920 14.017 8.873 8.873 14.268 62.590 68.580 68.488 71.493 65.247	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356	22.365	655.057.	∌⊹90.294:			a. 252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- N1 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N7	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780	12.920 14.017 8.873 8.873 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905		655.057.	<i>≱</i> , ₃90.294	0.000		
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N7 SMR- N8 SMR- N9	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780 30,330	12.920 14.017 8.873 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628	22.365	655.057.	<i>≱</i> , ₃90.294	0.000		
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- N1 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N7	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780	12.920 14.017 8.873 8.873 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.336 2084.905 1880.628		655.057.	<i>≱</i> , ₃90.294	0.000		
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- N0 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N8 SMR- N9 SMR- N10	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780 30,330 29,430	12.920 14.017 8.873 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812		655.057.	<b>90.294</b>	0.000		
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N6 SMR- N7 SMR- N8 SMR- N8 SMR- N9 SMR- N10 SMR- N11	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780 30,330 29,430 29,050	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.336 2084.905 1880.628 1911.401 1972.147		655.057.	\$ \&\{\partial \} \\ \partial \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \} \\ \partial \qual \partial \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual \qual	0.000		
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N12 SMR- N13	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780 30,330 29,430 29,050 28,960 26,520	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.336 2084.905 1880.628 1911.401 1972.147 1599.812 569.745		655.057	90.294	0.000	8.494	252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780 30,330 29,430 29,050 28,960 26,520	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812		655.057	90.294	0.000	8.494	252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N12 SMR- N13	29,720 30,260 28,930 TOTAL1 27,650 14,970 20,410 30,440 30,490 39,040 31,370 32,780 30,330 29,430 29,050 28,960 26,520	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.336 2084.905 1880.628 1911.401 1972.147 1599.812 569.745		655.057	90.294	0.000	8.494	252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13	29.720 30.260 28.930 70TAL1 27.650 14.970 20.410 30.440 30.490 39.040 31.370 32.780 30.330 29.430 29.050 28.960 26.520	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.934 20.325 718.575	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.471 1599.812 569.745		655.057	90.294	0.000	8.494	252.032
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N6 SMR- N7 SMR- N8 SMR- N10 SMR- N11 SMR- N11 SMR- N12 SMR- N13	29.720 30.260 28.930 TOTAL1. 27.650 14.970 20.410 30.440 39.040 39.040 31.370 32.780 30.330 29.430 29.050 28.960 26.520 TOTAL2	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187;116		655.057	90.294	0.000	8.494	€ 252.032 € 20,000
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N14 SMR- N15	29.720 30.260 28.930  TOTAL1  27.650 14.970 20.410 30.440 30.490 39.040 31.370 32.780 30.330 29.050 28.960 26.520  TOTAL2	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187:116		655.057.	90.294	0.000	\$3.494 \$30.000	₹₹ <b>0.00</b> 0
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13	29.720 30.260 28.930  TOTAL1  27.650 14.970 20.410 30.440 30.490 39.040 31.370 32.780 30.330 29.050 28.960 26.520  TOTAL2	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187:116		0.000	90.294	0.000	\$3.494 \$30.000	£ 0.000
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N14 SMR- N15	29.720 30.260 28.930  TOTAL1  27.650 14.970 20.410 30.440 30.490 39.040 31.370 32.780 30.330 29.050 28.960 26.520  TOTAL2	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187:116		655.057.	90.294	0.000	\$3.494 \$30.000	£ 0.000
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SUB SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR	29,720 30,260 28,930  TOTAL1  27,650 14,970 20,410 30,440 30,490 31,370 32,780 30,330 29,430 29,050 28,960 26,520  TOTAL2  27,450 26,510 27,440  TOTAL3	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187:116		0.000	90.294	0.000	\$3.494 \$30.000	
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SUB SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N10 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N14	29.720 30.260 28.930  TOTAL1  27.650 14.970 20.410 30.440 30.490 31.370 32.780 30.330 29.430 29.050 28.960 26.520  TOTAL2  27.450 26.510 27.440  TOTAL3	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575 7.551 14.304 32.248	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187:116 108.099 289.696 638.698 746.257		655.057	\$\inf\$90.294	0.000	\$3.494 \$30.000	
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SUB SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N10 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N13 SMR- N14 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR- N15 SMR	29,720 30,260 28,930  TOTAL1  27,650 14,970 20,410 30,440 30,490 31,370 32,780 30,330 29,430 29,050 28,960 26,520  TOTAL2  27,450 26,510 27,440  TOTAL3  29,400 29,580 31,250 30,720	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575 7.551 14.304 32.248 18.518 17.932 17.388 16.934	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187.116 108.099 289.696 638.698 746.257 539.089 551.869 527.177		655.057	\$\inf\$90.294	0.000	\$3.494 \$30.000	252.032 0,000
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SUB SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- 44 SMR- 45 SMR- 45 SMR- 45 SMR- 45 SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50	29,720 30,260 28,930 28,930  TOTAL1  27,650 14,970 20,410 30,440 30,490 31,370 32,780 30,330 29,430 29,050 28,960 26,520  TOTAL2  27,450 26,510 27,440  TOTAL3  29,400 29,580 31,250 30,720 30,580	12.920 14.017 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575 7.551 14.304 32.248 18.518 17.932 17.388 16.934 3.508	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187.116 108.099 289.696 638.698 746.257 539.089 551.869 527.177 312.553		0.000	90.294	0.000	\$30,000 \$10,000	252.032 30.000
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- 44 SMR- 45 SMR- 45 SMR- 45 SMR- 45 SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50 SMR- 50	29,720 30,260 28,930  TOTAL1  27,650 14,970 20,410 30,440 30,490 31,370 32,780 30,330 29,430 29,050 28,960 26,520  TOTAL2  27,450 26,510 27,440  TOTAL3  29,400 29,580 31,250 30,720 30,580 31,550	12.920 14.017 8.873 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575 7.551 14.304 32.248 18.518 17.932 17.388 16.934 3.508 18.975	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187,116 108.099 289.696 638.698 746.257 539.089 551.869 527.177 312.553 354.666		655.057	90.294	0.000	\$30,000 \$10,000	
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- 44 SMR- 45 SMR- 45 SMR- 45 SMR- 45 SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50 SMR- 51 SMR- 51	29,720 30,260 28,930 28,930  TOTAL1  27,650 14,970 20,410 30,440 30,490 31,370 32,780 30,330 29,430 29,050 28,960 26,520  TOTAL2  27,450 26,510 27,440  TOTAL3  29,400 29,580 31,250 30,720 30,580 31,550 29,700	12.920 14.017 8.873 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575 7.551 14.304 32.248 18.518 17.932 17.388 16.934 3.508 18.975 11.254	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187,116 108.099 289.696 638.698 746.257 539.089 551.869 527.177 312.553 354.666 448.889		0.000	90.294	0.000	\$30,000 \$10,000	252.032 30.000
SMR- 27 SMR- 28 SMR- 29 SMR- 30 SMR- 30 SMR- N1 SMR- N2 SMR- N3 SMR- N4 SMR- N5 SMR- N6 SMR- N7 SMR- N8 SMR- N9 SMR- N10 SMR- N11 SMR- N12 SMR- N13 SMR- N13 SMR- 44 SMR- 45 SMR- 45 SMR- 45 SMR- 45 SMR- 46 SMR- 47 SMR- 48 SMR- 49 SMR- 50 SMR- 50	29,720 30,260 28,930  TOTAL1  27,650 14,970 20,410 30,440 30,490 31,370 32,780 30,330 29,430 29,050 28,960 26,520  TOTAL2  27,450 26,510 27,440  TOTAL3  29,400 29,580 31,250 30,720 30,580 31,550	12.920 14.017 8.873 8.873 1207.912 14.268 62.590 68.580 68.488 71.493 65.247 65.155 62.050 61.961 67.934 67.842 42.642 0.325 718.575 7.551 14.304 32.248 18.518 17.932 17.388 16.934 3.508 18.975	407.560 331.112 35438.934 319.925 575.280 1338.590 2086.169 2134.003 2669.154 2045.356 2084.905 1880.628 1911.401 1972.147 1599.812 569.745 21187,116 108.099 289.696 638.698 746.257 539.089 551.869 527.177 312.553 354.666		0.000	90.294	0.000	\$30,000 \$10,000	252.032 30,000

Cross Section	Distance (m)	AREA	VOLUME	AREA	TLL VOLUME	STRII LENGTH OF STRIPPING	VOLUME	AREA	VOLUME
*		(m ² )	(m³)	( m ⁻ )	( m³)	(m)	( m ⁻ )	( m²)	(m²)
SMR- 55	31.370	16.366	457.177			l l			
SMR- 56	30.760	3.616	307.325						
SMR- 57	35.140	9.160	224,464						
SMR- 58	37.220	20.634	554,450	<u> </u>	1,41		15.4	:	
SMR- 59	29.590	26.063	690.869						
SMR- 60 SMR- 61	27.660 26.170	19.764	633.775 453.034						
SMR- 62	24.840	15.149	372.696						
SMR- 63	28.930	20.161	510.758						
SMR- 61	27.030	12.321	438.997					·	ļ
SMR- 65	25.410	15.535	353.912		1000				
SMR- 66	26.150	19.063	452.371		No. 1 14				
SMR- 67	31.430	12.826	301.144						
SMR- 68	32.870	10.708	386.788						
SMR- 69	34.380	9.897	354.212	+1 1		-	and the second		
SMR- 69+14	12.890	17.486	176.486	1.1	( ) ( )		2.5		4 1
SMR- 70	16.180	7.989	206.092				in the second		ter outside
SMR- 71	31.130	14.785	354,471				1.00		1 11
SMR- 72	28.440	18.274	470.091	: : : : : : : : : : : : : : : : : : :	112 112 11		14.7	-	
SMR- 73 SMR- 74	31.430	16.191	541.609	1111111					
SMR- 75	31.850	10.239	420.893		11 11		20 No.		4 - 4 9 7 7
SMR- 76	32.100 32.820	12.282 18.080	361.464 498.247						
SMR- 77	30.760	18.525	562,985	733			e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya della companya della companya de la companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya della companya dell		1
SMR- 78	28.940	17.062	514.946		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				
SMR- 79	28.030	19.708	515.344	···					
SMR- 80	30.210	20.349	605.070						
SMR- 81	29.790	21.518	623.614		1	<del> </del>			
SMR- 82	27.590	20.392	578.155		100 0.1				
SMR- 83	28.870	21.132	599,400		100	1 2 2	1 112 A		
SMR- 84	29.510	20.886	619.972	1.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.45	1 1 1 1		1.1.1.1.1.1.
SMR- 85	29.720	9.357	449,409	•	1 23.41		1 1 2		1.1
SMR- 86	29.590	17.167	392.113		3.7				eta eta ali
SMR- 87	30.730	11.062	433.729				1.5		
SMR- 88	33.630	5.649	281.000	14.		200		1986	
SMR- 89	35.230	2.573	144.844	1. 4. 1.			1.7		
SMR- 90	31.720	1.013	56.877		1919 1991		1000		Physical Press
SMR- 90+11 SMR- 91	11.180	22.194	129.728						१८४ है इस्त
SMR- 92	14.820 22.640	16.756 15.055	288.623 360.100				4, 45	5	
SMR- 93	20.830	5.136	213.409		. 41				3 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4
SMR- 94	26.750	10.472	212.768	<u> </u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
SMR- 95	28.930	16.244	386.147			-	4 1 1 1 1		
SMR- 96 :	25.270	9.337	323.209		1 22 1 24 1				
SMR- 97	27.470	7.384	229.662	2.8	1, 1, 1, 1		A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STA		
SMR- 98	27.280	9.945	236.375			14 1 6			1 2 1 2 2 2
SMR- 99	30.560	11.261	324.026	1		7.2			
SMR- 100	28.880	8.621	287.092		7. 7.5 4	1 1 1 1 1	. 03		
SMR- 101	30.800	9.974	286.369	1 4 4 4	ten fleru	\$ 100 miles	3 - 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		List Tool 2021
SMR- 102	30.820	18.143	433.283			4. 1 4.41		3" 2	
SMR- 103	33.100	17.287	586.365	14.			er a Server		
SMR-104	33.130	14.785	531.272		4 74 A 3 A 4 A	1 2 2 2 2	parent de protection		
SMR- 105	39.510	7.157	433,463	<u> </u>	19 to 1	and the	esti filosoficio		
SMR- 106	33.710	8.789	268.768	- 41.1 . 1	4 4 4 4 4		- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	· · ·	
SMR- 106+13 SMR- 107	5.280 27.780	20.376	76.995				<u> </u>		1 1144
SMR- 107		6.139	368.291	<u> </u>	12 17			4.0 M	
SMR- 109	32.400 27.130	7.157 7.191	215.389 194.632						<b></b>
SMR- 110	28.510	9.540	238.495					* * *	<b></b>
SMR- 111	30.640	8.569	277.426		26.7				<del> </del>
SMR- 112	29.760	8.629	255.906	1 1 1 1 1 1					
SMR- 113	30.230	16.786	384.147	25 2 3 2	1000				
SMR- 114	26.020	9,049	336.114		3.25				
SMR- 115+15	13.340	22,432	209.980			100			
SMR- 116	16.510	17.954	333.393		<del>                                     </del>				
SMR- 116+8	9.640	19.217	179.165						
SMR- 117	20.680	9.541	297.359	1 1 1 1	(75 x 2 x 2)	1, 1, 1			
23.03 1.13	29.190	16.786	384.253		- 1	1.32.5		84 154 E	
SMR- 118 SMR- 119	->	.0.,00	301.2331	2.00	1 1		2.5		1 17 19

	Cross Section	Distance (m)	AREA	VATION VOLUME	AREA	ILL VOLUME	LENGTH OF	PPING VOLUME	AREA	CUT L VOLUME
		i ''''/	ANLA	VOLOME	ANLA	TOLOME	STRIPPING	VOLUMI.	ARLA	TOLOME
			(m)	( m³ )	(m²)	(m³)	(m)	( m² )	(m ⁻ )	( m³ )
	SMR- 120	26.970	22.432	424.524						
	SMR- 121	27.900	17.951	563.397						
	SMR- 121+3	4.190	19.217	· 77.873.						
	SMR- 122 SMR- 123	27.150 29.900	9.541 12.221	390.391 325.344					<del></del>	 
	SMR- 124	29.940	9.934	331.658			l <del></del> -			
	SMR- 125	30.050	10.417	305,777		···.				
	SMR- 126	29.950	13.962	365.075			~~ ····			
	SMR- 126+17	17.570	14.807	252.735						
	SMR- 127	15.520	3.815	144.509						
	SMR- 128	31.650	6.612	165.007				;		
2	SMR- 129	35.800	8.759	275.143				<del></del>		
	SMR- 130 SMR- 131	31.860 29.090	5.650 12.049	229.537 257.424						
	SMR- 132	27.430	12.884	341,948						
	SMR- 133	28.070	4.175	239.419						
	SMR- 134	29.290	8.022	178.622		15.	7.1	1.0	1	1, 11 1
	SMR- 135	26.360	7.196	200.566			. 14.	. 7		
	SMR- 136	29.830	12.269	290.316		8 1 2				3 4 1
	SMR- 137	30.300	13.614	392.118						
	SMR- 137+14	14.290	14.746	202.631		5.7 24				- 121 V
	SMR- 138 SMR- 139	19.300 31.960	11.910 10.656	257.237 360.606	45 6 g				<del> </del>	
·	SMR- 140	32.540	10.558	345.154					<del></del>	
	SMR- 141	33.270	10.047	312.769		1.74		1 128 1		
	SMR- 142	32,920	10.365	335.979						440 1144
	SMR- 142+23	24.480	12.828	283.878						
	SMR- 143	6.690	13.391	87.701	2 2 2 2	; 1 (F) 1 (A)		10.200		42.47.5
. : '	SMR- 144	28.320	6.010	274.719 171.273	0.039	1.076	0.444	12.290	<del></del>	
	SMR- 145 SMR- 146	27.030 30.960	10.006	258.033	0.015	0.111	2.061	61.898		
	SMR- 147	29.100	6.982	217,170	0.009	0.251	0.393	10.814		
	SMR- 1-18	25.990	8.601	202.492	41547		2.5			
	SMR- 149	28.170	9.247	251.381		1.1.7	4 4 5	1 2 2 3	1 1/4	1945 ST 6 T
	SMR- 150	22.690	6.844	182.551		2 3 2 9 -	11 4 41		,	
	SMR- 151	27.270	8.484	209.000	1 17	100 0 7 0 70		7		
	SMR- 152	27.550	9.312	245.141 265.856	11 4	****	T 11			
	SMR- 153 SMR- 154	29.000 26.600	9.023 11.752	276.307						1 11 11 11 1
,	SMR- 155	28.050	8.914	289.839		1 + 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
	SMR- 156	31.550	6.463	242.571			-		1 1	
	SMR- 156+17	17.820	8.785	135.863	: 1	4 15 45	7.	. 3		
	SMR- 157	11.910	8.282	101.633						100
	SMR- 158	30.760	8.491	257.963						-
•	SMR- 159	29.920	8.175	249.327		1 0/2	0.163	11766		
	SMR- 160 SMR- 161	30.390 33.360	9.553 7.477	269.373 284.053	0.059	1.865	0.463	14.755		
÷.	SMR- 162	30.190	7.191	221.421				4 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
* .	SMR- 163	29.250	9.373	242.262		15 (1.5)			1,1	1.120 00 2.0
	SMR- 164	29.700	7.381	248.841	10 10 2					1 1 1 1 1 1
4	SMR- 165	29.490	6.922	210.936						
	SMR- 166	28.000	7.497	201.873		1000000			ž .	10.214 (4.1
(	SMR- 167	30.580	8.913	250.920		<u> </u>				
	SMR- 168 SMR- 168+7	30.290 7.010	9.080 8.994	272.515 63.349		1819 A. L. 2 (88.84)				
	SMR- 169	23.540	8.176	202.087						
	SMR- 170	29.980	11.190	290.302						78 74 8 8 8 8
	SMR- 171	29.390	11.149	328.278			<u> </u>			7 × 47
ÿ	SMR- 172	27.720	9.706	289.046	n managa	terior vice of	1.5	i e la		
	SMR- 173	30.840	9.563	297.120		1.00	1111 1111			
	SMR- 174	33.000	8.599	299.676			: .			
	SMR- 175	31.710 30.660	8.125 9.520	265.155 270.498						and the same
	SMR- 176 SMR- 177	27.740	7.757	239.642						
	SMR- 178		6.465	194.849						
	SMR- 179	28.310		199.513				1 d d d d d	1 1 3 3 1	est star t
	SMR- 180	21.320	8.307	193.789		ta in jara ja				
	SMR- 181		6.502	213.322			- 118		<del></del> .	
- 1	SMR- 182	30.800	7.741	219.344						

No.

Cross Section	Distance	EXCA	VATION	F	ILL	STRI	PPING	T	CUT
	(m)	AREA	VOLUME	AREA	VOLUME	LENGTH OF	VOLUME	AREA	VOLUME
: .		(m²)	(m³)	( m )	(m³) ·	STRIPPING	(m²)	7 . 25	<del></del>
SMR- 183	31,360	9.588	271.721		(11)	( m )	(m)	(m²)	(m³)
SMR- 184	30.450	8.129	269.743					ļ	
SMR- 185	30.000	8.324	246.805					ļ	
SMR- 186	30.850	8.007	251.916					ļ	ļ
SMR- 187	33.000	7.350	253.394					<b></b>	
SMR- 188	31.030	6.113	208.883		1.45 1				ļ <u></u>
SMR- 189	29.880	6.407	187.055				**:	<del> </del>	
SMR- 190	29.660	5.104	170.706			:			<del> </del>
SMR- 191	26.320	7.638	167.676						
SMR- 192	29.440	6.463	207.554				-		1 1
SMR- 193 SMR- 194	28.440	7.206	194.371						
SMR- 194	31.120 29.740	6.937	220.072		÷			1	
SMR- 195+17	17.180	2.777	144.449						- A 2 - 5
SMR- 196	13.110	5.103	67.686				- 1		gender dag ver
SMR- 197	30.170	5.990	68.799						16.3 6.1.1
SMR- 198	29.240	5.288	161.883		200				
SMR- 199	30.110	5.915	168.653				· · · · · · · · · · · · · · · · · · ·		
SMR- 200	30.020	5.725	171.717				3.2 2.85		11/2/11/11
SMR- 201	30.180	5.457	168.739	0.026	0.789	0.425	12,814		
SMR- 202	30.080	4.310	146.890	0.050	1.530	0.423	14.066		
SMR- 203	30.720	5.667	153.244	0.023	0.686	0.425	12.785	** + 1	
SMR- 204	29.390	6.048	172.159		3.333	V.125	(2.70)		
SMR- 205	29.770	6.393	185.195				<del></del>		
SMR- 206	25.650	5.972	158.580						
SMR- 207	32.070	6.799	201.780			; .	and the factor		
SMR- 208	30.130	6.061	193.742		1 10 10	1 1 1 1 1 1			
SMR- 209	30.120	5.683	176.868		4 5 224				1.27 2.31 4
SMR- 210 - SMR- 211	30.150	5.762	172.540						1.0
SMR- 212	22.740 30.400	0.574	72.019						Entropy
SMR- 213	30.400	5.338 6.040	89.874				÷ .	printe	41
SMR- 214	29.790	6.654	170.960 189.080				. : ·		3 / Jan
SMR- 215	31.090	7.038	212.841		1 1			3 1 1	199 - 14 1
SMR- 215+22	22.730	6.446	153.242				ta di di di di di di di di di di di di di		<del></del>
SMR- 216	7.440	7.517	51.942		24.4				
SMR- 217	30.640	6.563	215.710	0.026	0.790	0.431	13.040		4.
SMR- 218	29.940	6.455	194.878	0.033	0.988	0.437	13.220		Service Assista
SMR- 219	30.550	6.016	190.185	0.006	0.192	0.404	12.352		1 1 2 2 2 2 2 2
SMR- 220	30.540	5.522	176.180	0.030	0.913	0.837	25.541		
SMR- 221	30.520	6.792	187.909	0.054	1.631	0.861	25.976		100 PM 14
SMR- 222	29.840	6.478	197.992	0.054	1.652	0.876	26.673	7,7	Tarrist E
SMR- 223	31.050	6.228	197.266						11:25 77
SMR- 224 SMR- 225	29.230 29.380	6.635	187.990	I			A. 35.	1 14	and a fixed
SMR- 225+10	10.180	6.215	188.763		10.0	The Brist	5 A W		n ant for a
SMR- 226	19.780	5.825	65.371	0.012	1.000	0.760	10 032		3. A. C.
SMR- 227	30.240	5.891	123.159 177.138	0.043	1.080	0.769	19.235		28.2 H S (17.8
SMR- 228	29.800	6.014	177.375	0.067	2.021 0.485	0.865	25.976	* š. ·	<u> </u>
SMR- 229	28.560	5.850	169.408	0.017	0.483	0.433	12.641	. ++ + +	tank tidak
SMR- 230	27.660	4.108	137.714	0.007	0.211	0.413	11.612		
SMR- 231	29.430	6.108	150.329	0.006	0.168	0.030	0.876		
SMR- 232	29.560	6.735	189.822		3.700	0.050	0.870		
SMR- 233	29.270	6.418	192.192	0.035	1.040	2.541	74.798		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
SMR- 234	29.610	6.214	187.013	0.016	0.483	2.463	73.210		
SMR- 235	29.840	5.703	177.800	0.076	2.072	0.818	22.164		4.1 2.2
SMR- 235+24	21.350	6.084	143.502		\$		19 - 10 70	1 14 14 14 14 14 14 14 14 14 14 14 14 14	74 1 . 11 1
SMR- 236	6.750	5.848	40.270	0.022	0.411	0.882	16.290	S 144	10 100
SMR- 237	30.210	5.685	174.207	0.006	0.193	0.402	12.159		f i spata
SMR- 238 SMR- 239	30.360 29.810	5.603	171.349		e the its		1 1 1		\$1.5 THE
SMR- 240	29.810	5.388	163.816				. 1 11		As explained
SMR- 211	29.920	5.417 4.269	159.432		4 14 2				N 1 12 12 12 1
SMR- 241+13	13.850	0.731	144.915 34.628				200		5 : 19974
	10.000	0.731	34.028	1	4		4 _ 1 }	75.5	1 4 7

SUB TOTALA 2137.051 58440.602 0.742 21.569 18.543 536.844 0.000

TOTAL

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Pag	ge	1/13
	MENT TYPE WET MASC RANG RIVER)	ONRY (A)				
i. ST	RUCTURE EXCAVATION	٧	<b>=</b> .	2,566	m³	
2. BA	CK FILL WITH BOULDE	ER	= .	403	m³	
3. BA	CK FILL WITH GRAVEL		<u>.</u> ==	1,018	$m^3$	
4. BA	CK FILL WITH SANDY S	SOIL	=	- 188	$m^3$	
5. CO	NCRETE (C1)		=	228	m ²	
6. LE	VELING CONCRETE		=	64	$m^3$	
7. RE	INFORCING BAR		nst entgrigere ≕ 1	2,627	ton	
8. WE	ET STONE MASONRY	• • · · · · · · · · · · · · · · · · · ·	(*) % 1, ×.a 	1,543	Kg	
1.71	INTING	₩ g		4,428	m ³	
	EEP HOLE		=	845	nos	
	LM FIBRE		= 2.7	7	m ³	
	BION MATTRESS		, · · . · · · · · · · · · · · · · · · ·	420	m ³	•
	MBER PILE		÷	840	m ¹	
	RM WORK (for concrete C	: CD	· =	1,246	m ²	
1.00	RM WORK (for concrete E			209	m ²	
	MENT WET MASONRY RETARDING POND)	•				
I. ST	RUCTURE EXCAVATION	١ .	=	2,802	$m^3$	
2. BA	CK FILL WITH COBBLE		. =	590	$m^3$	
3. BA	CK FILL WITH GRAVEL		=	506	$m^3$	
4. BA	CK FILL WITH SANDY S	SOIL	. <b>=</b>	5	$m^3$	
5. WE	T STONE MASONRY		; =	1,363	$m^3$	
6. CO	NCRETE TYPE (C1)		=	147	$m^2$	
FO	RM WORK		=	891	m ²	
7. CO	NCRETE TYPE E		=	34	$m^3$	
FO	RM WORK		=	112	$m^2$	·
8. RE	INFORCING BAR		=	9,889	Kg	
	INTING			1,804	m²	
10. SO			=	_		
	EP HOLE Ø50		=	292	nos	
	G PILE Ø150, $L = 2,000$		. <b>=</b>	2,160	, m	
		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s				

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	2/13
	MENT TYPE (C) RETE SHEET PILE)				
I. SE	MARANG RIVER		ing di kacamatan di Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn Kabupatèn		
a.	Concrete Sheet Pile (L=	12,000)	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	,714.8	$m^{l}$
<b>b</b> .	Concrete Type C ₁ (pile o	сар)		38.574	m ³
c.	Form Work	#1.		289.305	m ²
đ.	Reinforcing Bar		= 4	,635.309	Kg
2. AS	IN RETARDING POND				
a.	Concrete Sheet Pile (L=	12,000)			m
<b>b.</b>	Concrete Sheet Pile (L=	10,000)		500	m
<b>c.</b>	Concrete C ₁ (pile cap)			43.164	m ³
d.	Form Work			323.73 Sg	g.m
e.	Reinforcing Bar		= 5	,186.874	Kg

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	3/13

#### I. REVETMENT TYPE WET MASONRY (A)

- 1. Section A-A, (L=23+7=30 m)
- 1.1 Structure Excavation

A = 
$$\frac{3.6 + 0.45}{2} \times 1.1 + \frac{0.3 + 0.45}{2}$$
 = 2.295  
0.5 x 0.5 = 0.250  
 $\frac{3.5 + 4.3}{2} \times 0.5$  = 1.950  
 $\frac{1.8 + 0.9}{2} \times 0.6$  =  $\frac{0.810}{2}$   
V = 30 x 5.305 = 159.15 m³

1.2 Backfill with Boulder

A = 
$$\frac{1 \times 0.5}{2}$$
 = 0.250  
 $\frac{0.2 + 0.7}{2} \times 0.6$  = 0.270  
 $\frac{0.1 + 0.6}{2} \times 0.5$  = 0.175  
 $\frac{0.2 + 1.0}{2} \times 0.8$  = 0.27  
A = 0.815 m²  
V = 0.815 × 30 = 24.450 m³

1.3 Backfill with Gravel Bedding

$$V = 0.2 \times (6.4 + 0.7) \times 30 = 31.42 \text{ m}^3$$

1.4 Backfill with Sandy Soil

$$V = \frac{0.2 + 0.5}{2} \times 0.2 \times 30 = 2.1 \text{ m}^3$$

1.5 Concrete (C1)

$$V = \left\{ (0.3 \times 0.7) + \left( 0.3 \times \frac{0.3 + 0.5}{2} + 0.2 \times 0.5 \right) \right\} \times 23 = 9.55 \quad \text{m}^3$$

$$\text{form work} = \left( 2 \times 0.7 + 0.5 + 0.2 + \sqrt{0.3^2 \times 0.2^2} \times 23 \right) = 56.59 \quad \text{m}^2$$

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	4/13
1.6 Le	veling Concrete	villa kusi.			
V	$= \{(0.1 \times 0.5) + (0.1 \times 0.5)\}$	• • •	= 2.76		
for	m work = $0.1 \times 4 \times 23$	: .	= 9.2	in²	
17 Re	inforcing Bar		÷ 1		
	23×(10.99+1	<b>2.75)</b>	= 546.02	kg .	
1.8 We	t Stone Masonry		1 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	$= 0.3 \times (6.4 + 0.7)$	7)×30	= 63.9	) m³	
1.9 Poi	nting				
· V	$= (0.70 + \sqrt{2.63})$	$(5^2 + 5.27^2 \times 30)$	= 197.76	m²	
1.10 Pla	stering		en de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co		
	$= (0.70 + 0.10) \times$	<30	= 24.0	) m²	
1.11 We	ep Hole PVC Ø150				
V	$= \left(\frac{30}{2} + 1\right) \times 2$		= 32.0	nos	
1.12 Ga	bion Mattress				
v	$= 30 \times 0.5 \times 1.5$		= 22.5	m³	
1.13 Lo	g pile		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
V	$= \left(\frac{23}{2} + 1\right) \times 3$		= 36.0	) m³	
2. S	ection C-C & D-D, (L= 1	06.434 m & 224.8	m = 331.234  m		
	ucture Excavation				
2.1 30		03×045			
. A	$= \frac{3.070.43}{2} \times 1$	$.1 + \frac{0.3 \times 0.45}{2} =$	2.295		
	0.5 × 0.5		- 0.250	ing grand di Timbolia	
	$0.5 \times \sqrt{2.499^2}$	+ 4.998 ²	1.950		
		<b>A</b> =	5.339 m³		
$V_{c}$	$= 5.339 \times 106.4$	34 =	= 568.25 m³		
$V_{D}$	$_{D} = 5.339 \times 224.8$		= 1200.21 m³		
		Δ =	= 1768.46 m³		

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Yolume	Page	5/13
2.2 B	ackfill with Boulder				
Α	$= \frac{1 \times 0.5}{2}$	·	= 0.250	:	
	$\frac{0.2+0.7}{2}\times0.6$		= 0.270	+ + 11 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	$\frac{0.1+0.6}{2}\times0.5$		= 0.175		
V.	$= 5.339 \times 106.43$	34	= 568.25 m ³		
V	$= 5.339 \times 224.8$		$= 1200.21 \text{ m}^3$		
		Α	= 230.208 m ³		
22 D	nckfill with Gravel Bedding				ŧ
			$= 201.543 \text{ m}^3$		
ν,	$c.c = 0.2 \times (8.768+0)$		– 201.345 iii	e de la	
V	$= 0.2 \times (8.768 + 0)$	0.7)× 224.8	$= 425.681 \text{ m}^3$	ing the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o	
		A	$= 627.224 \text{ m}^2$		
2.4 Ba	nckfill with Sandy Soil			es Militares	
Α	$= 0.4 \times \frac{0.7 \times 1.5}{2}$		= 0.44 m ³		
V _i	$c.c = 0.44 \times 106.434$		= 46.831 m ³		
V	$= 0.44 \times 224.8$		= 98.912·m ³		. [ 8
		Α	$= 145.743 \text{ m}^3$		
2.5 C	oncrete (C ₁ )				
V	$c.c = (0.21 + 0.22) \times$	331.234	= 142.431 m³ (CC+	<b>DD)</b>	ur I ⁿ tr
$\mathbf{v}_{i}$	$= 0.12 \times 224.8$		= 26.976 m ³		
		Α	= 72.743 m ³		
fo	rm work D-D = $(2 \times 0.3 + 2)$	× 0.15)× 224.8	$=$ 202.32 $m^2$		iger Sentantia
2.6 Le	eveling Concrete (E)				
	C & DD = $\{(0.5 \times 0.7) \times 0.7\}$	.1}×(106.434 + 2	24.8) = 39	9.745 m³	
2.7 Fc	orm Work for (C ₁ ) C-C				
	$0.5 + 0.15 + \sqrt{0.3^2 + 0.2^2} + $	2×0.7}×106.43	4 - 2 - 250	5.565	
Fo	orm Work for (C ₁ ) D-D				
Tarabasa a sa	$0.5 + 0.15 + \sqrt{0.3^2 + 0.2^2}$	$2 \times 0.7$ $\times 224.8$		1.880 8.458 m²	

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	6/13
2.8 Fo	rm Work for (E) C-C & D-	D			
0.1	0 × 4 × 331.234		= 132.494	$m^2$	
2.9 Po	inting				
<b>(</b> 0.	$70 + \sqrt{3.421^2 + 6.842^2} \times 33$	31.234	= 2765.67	m²	
2.10 Lo	g Pile				
{(	$\frac{106.434}{2} + 1 + \left(\frac{224.8}{2} + 1\right)$	} × 3	= 501	m	
2.11 Re	inforcing bar		ur sanda Cir. Ur		W. T.
D-		× 224.8	= 5337	kg	
C-(	C = (10.99 + 12.75)	×106.434	= 25.27	kg	
D-	$D = 14.42 \times 224.8$		= 3242	kg	
2.12 W	et Stone Masonry = 0.30 x (8.768 +	+ 0.7) × 331.234	= 040.837	m³	
2 12 W	cep Hole	0.77 × 331.234		w Valvalo	
2.13 (1)	$= \left(\frac{331.234}{2} + 1\right)$	×3	= 498		
2.14 Pla	estering = 0.8×331.234		= 265	m²	
2.15 Lo	g Pile $= \frac{331.234}{2} \times 3$		= 501	<b>m</b>	
2.16 Ga	bion Mattress				
	= 331.234 × 0.5	× 1.5	= 248.43	m³	
	ection E-E, (L= 290 m)			e distrib	
3.1 Str	ucture Excavation				
Α	$=\frac{0.75+1.1}{2}\times3.3$	354 (6.00)	3.102		
	0.2 x 0.350		0.070		
	1 x 1.70				
1	×1	<b>A</b> =	0.600 5.472 m³		
v	.ε = 290 × 5.472		1586.88 m³		

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	7/13
3.2 Bac	ckfill with Boulder			- <del></del>	
V	$= \frac{1+0.1}{2} \times 1 \times 29$	90 =	= 174 m³		
3.3 Bac	ckfill with Gravel Bedding	g	i financia e	4 A C	
V _{E-1}	$= \left\{ (3.354 + 0.7) \right\}$	$) \times 0.2 + \left(\frac{0.1 + 0.2}{2} \times \right)$	$\langle 1 \rangle \times 290 = 278.6$	32 m³	
3.8 We	et Stone Masonry				
	$= \left\{ \left( \frac{0.45 + 0.9}{0.45 + 0.9} \right) \right\}$	$\times 3$ + $(1 \times 1.5)$ $\times 29$	$0 = 1022.25 \mathrm{m}^3$		en en en en en en en en en en en en en e
20 po:					
3.9 Poir	inting $= (0.45 + 0.10) \times$	× 290 =	= 159.5 m²		
3.10 We	ep hole				
	$=\left(\frac{290}{2}+1\right)\times 2$		292 nos		
3.11 Log	g Pile				
	$= \frac{331.234}{2} \times 3$		501 m	an Agilith	
3.12 Col	bble stone $= 0.15 \times 1.7 \times 29$	<b>90</b>	73.95 m ³		
4. Se	ection F-F, (L= 2 x 140 =	280 m)	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		an Robert Çanan Y
	ucture Excavation			and the second such	
Α	$= \frac{3.6 + 0.45}{2} \times 1.1$	$1 + \frac{0.3 \times 0.45}{2} =$		.* ·	
	0.5 × 0.5	1 (1 년) 6 (1 년 ) 본축(1 년	0.250	tight transfer	i ek
	$2.236 + 1 \times 0.5$		1.118	e e e e e e e e e e e e e e e e e e e	<b>.</b>
	$\frac{0.8+0.5}{2}\times0.3$		0.195	·	
	$\frac{1+0.2}{2}\times0.8$		0.480		
	3. 1 (1) (1) ( <b>2</b> (1) (4) (4 (4) (4) (4) (4) (4) (4) (4) (4)	<b>A</b> =	4.338 m³		
$V_{\text{f-f}}$	$= 280 \times 4.338$		1214.64 m³		
42 Bac	kfill with Boulder				
Α	$= \frac{2.5 + 0.7}{2} \times 0.5$		0,875		
	$= \frac{0.2 + 0.7}{2} \times 0.5$				
	=x v.s		0.225		

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page 8/13
	$\frac{0.2+0.1}{2}\times0.8$		= 0.120 = 1.220 m³	
$V_{\rm F}$	$= 280 \times 1.22$	· ·	= 341.60 m ³	
4.3 Bac	ckfill with Gravel Bedding	3 - 12 - 13 - 13 - 13 - 13 - 13 - 13 - 1		
V _F .	$= (3.354 + 0.7) \times$	0.2 × 280 =	= 227 m³	e Santaga kataloga je
4.4 Bac	ckfill with Sandy Soil		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	
Α	$= \frac{0.5 \times 0.2}{2} \times 0.3$	× 280 =	= 4.20 m³	
	ncrete $(C_1)$ = $(0.21 + 0.22) \times$	< <b>280</b> =	= 120.4 m³	
and the second	m work for (C ₁ )			to a section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the s
	$= \left\{2 \times 0.7 + \left(0.2\right)\right\}$	$+\sqrt{0.3^2+0.22}+0.$	.5)\x280 = 548	3.955 m ²
4.6 Lev	veling Concrete (E)			
	$= (0.7 + 0.5) \times 0$	.1 × 280 =	= 33.60 m ³	
	nforcing bar = (10.99 + 12.75	)×280	= 6647.2 kg	
4.8 We	t Stone Masonry			e un control district.
4.9 Poi	$= (3.354 + 0.7) \times$	< 0.3 × 280 =	= 340.50 m ³	
4.9 FOI	$= (2 \times 2.236 + 2)$	× 0.7) × 280 =	= 1644.16 m ³	
4.10 Pla	stering = $(0.7 + 0.1) \times 2$	80 =	= 224 m²	
4.11 Log	$= \frac{280}{2} \times 3$		= 420 m	
5. Se	ection G-G, (L= 68 m)			
5.1 Stri	icture Excavation			
	= 3.6 + 0.45	$0.3 \times 0.45$	2.295	独身物 斯克克斯 经分价的 包含在1000年代的
Α	2 ×1.	2	2.273	

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	9/13
		A =	2.795 m²		
$V_{G}$	$_{G} = 68 \times 2.795$	==	190.06 m³		
5.2 Doo	kfill with Boulder				
J.2 Day		•		Not Novice	+ 1 - p
Α	$= \frac{1+0.5}{2}$		0.250	•••	
- - -	$\frac{0.2 + 0.7}{2} \times 0.6$		0.270		
			0.210	in digital distribution of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the	
	$\frac{0.1+0.6}{2}\times0.5$	· <u>=</u>	0.175		
	2	6	0.695 m³	i Wijner W.	dir um e la
$V_{G}$	$= 68 \times 0.695$	-	47.26 m³	****	
60.5				•	
,,	n Work for (C ₁ ) (G-G)	•		in dina. Guadan ba	152 [*] - 4-44
(0.:	$5 + 0.15 + \sqrt{0.3^2 + 0.2^2} + 2$	$(\times 0.7) \times 68 =$	163.918 m ²		
	n Work for (E) (G-G)				
0.10	0 x 4 x 68	=	27.2 m ²		:
5.5 Poir		• • • • • • • • • • • • • • • • • • •			
	$= (0.7 + \sqrt{3.423^2} + \sqrt{3.423^2})$	$+6.846^2$ )×68 =	568.08 m²		vita National States
5.6 Bac	kfill with Gravel Bedding			1914	
V _{G-C}	$= 0.2 \times (8.772 + 0)$	.7)× 68 =	128.82·m³		
5.7 Bac	kfill with Sandy Soil		7. <b>9</b> (4.9)		$\lambda^{-1}$
	$=\frac{0.2+0.5}{2}\times0.3\times$	-269 -	14 203		
^	2 20.5 2	. 2 × 00 -	14.28 m³		
5.8 Con	crete (C _I )				
$V_{GG}$	$= (0.21 + 0.22) \times 6$	8 =	29.24 m³		
5.9 Leve	eling Concrete (E)			-	
	$(0.5 \pm 0.7) \times 0.1$	× 68 =	8.16 m³		
5 10 Rein	forcing bar				
G-G	可能的问题 医乳釉线纤维 人	× 68 =	1614.32 kg		
3.11 Wel	Stone Masonry $(8.772 + 0.7) \times ($	13 ~ 68 -	102 223		
		).3 × 68 =	193.23 m³		
5.12 Plas	tering (0.7 + 0.1) x 68		54.4 m²		

				73. 30.16.03	
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		i '	* * * * * * * * * * * * * * * * * * * *		I

5.13 Weep hole Ø150

$$\left(\frac{68}{2} + 1\right) \times 3 = 105 \text{ nos}$$

5.14 Log Pile Ø150

$$\left(\frac{68}{2} + 1\right) \times 3 = 105 \text{ nos}$$

51 m³

- 5.15 Gabion Mattress 68 x 0.5 x 1.5
- 6. Existing Bridge Protection (Section K-K & J-J)

$$L_{Total} = 63 + 67 = 130 \text{ m}$$
 $L_{without abutment} = 130 - 2 \times 22 = 130 \text{ m}$ 

6.1 Structure Excavation

A = 
$$\frac{3.6 + 0.45}{2} \times 1.1 + \frac{0.3 \times 0.45}{2}$$
 = 2.295  
0.5 x 0.5 = 0.250  
0.3 x 0.3 = 0.900  
A = 3.445 m²  
 $V_{K-K \& J-J}$  = 130 x 3.445 = 447.85 m³

6.2 Backfill with Boulder

A = 
$$\frac{1+0.5}{2}$$
 = 0.250  
 $\frac{0.2+0.7}{2} \times 0.6$  = 0.270  
 $\frac{0.1+0.6}{2} \times 0.5$  = 0.175  
A = 0.695 m³  
 $\frac{0.2+0.1}{2} \times 0.8$  = 0.12 m²  
 $V_{K-K}$  = 130 x 0.695 = 90.35 m³  
 $V_{J-J}$  = 86 x 0.12 = 10.32 m³  
= 100.67 m³

6.3 Backfill with Gravel Bedding $(8.739 + 0.7) \times 0.2 \times 130 = 245.41 \text{ m}^{3}$ $0.2 \times 3.5 \times 22 = 15.40 \text{ m}^{3}$ $= 230.01 \text{ m}^{3}$ 6.4 Backfill with Sandy Soil $V = \frac{0.7 + 1.3}{2} \times 0.3 \times 68 = 25.80 \text{ m}^{3}$ 6.5 Concrete (C ₁ ) $0.22 \times 130 = 28.60 \text{ m}^{3}$ $0.21 \times 86 = 18.06 \text{ m}^{3}$ Form Work for (C ₁ ) $(0.5 + 0.15 + \sqrt{0.3^{2} + 0.22}) \times 130 = 131.372 \text{ m}^{2}$ $2 \times 0.7 \times 68 = 95.20 \text{ m}^{2}$ 6.6 Leveling Concrete (E) $0.7 \times 0.1 \times 130 = 9.10 \text{ m}^{3}$ $0.5 \times 0.1 \times 86 = 4.30 \text{ m}^{2}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60^{\circ} \text{ m}^{2}$ 6.7 Reinforcing bar $12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ 6.8 Pointing $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= 0.7 \times 0.1 \times 130 = 1082.54 \text{ m}^{2}$ $= $	Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	11/13
$0.2 \times 3.5 \times 22 \qquad = 15.40 \text{ m}^{3}$ $= 230.01 \text{ m}^{3}$ 6.4 Backfill with Sandy Soil $V = \frac{0.7 + 1.3}{2} \times 0.3 \times 68 \qquad = 25.80 \text{ m}^{3}$ 6.5 Concrete (C ₁ ) $0.22 \times 130 \qquad = 28.60 \text{ m}^{3}$ $0.21 \times 86 \qquad = 18.06 \text{ m}^{3}$ $= 46.66 \text{ m}^{3}$ Form Work for (C ₁ ) $(0.5 + 0.15 + \sqrt{0.3^{2} + 0.22}) \times 130 \qquad = 131.372 \text{ m}^{2}$ $2 \times 0.7 \times 68 \qquad = 95.20 \text{ m}^{2}$ $2 \times 0.7 \times 68 \qquad = 95.20 \text{ m}^{2}$ 6.6 Leveling Concrete (E) $0.7 \times 0.1 \times 130 \qquad = 9.10 \text{ m}^{3}$ $0.5 \times 0.1 \times 86 \qquad = 4.30 \text{ m}^{3}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 \qquad = 39.60 \text{ m}^{2}$ 6.7 Reinforcing bar $12.75 \times 130 \qquad = 1657.50 \text{ kg}$ $10.99 \times 86 \qquad = 945.14 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 \qquad = 1082.54 \text{ m}^{3}$ 6.8 Pointing $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 \qquad = 1082.54 \text{ m}^{3}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 \qquad = 368.121 \text{ m}^{3}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 \qquad = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 \qquad = 23.100 \text{ m}^{2}$	6.3 Ba	ckfill with Gravel Bedding	7	·	.:	. 6 %
$6.4 \text{ Backfill with Sandy Soil}$ $V = \frac{0.7 + 1.3}{2} \times 0.3 \times 68 = 25.80 \text{ m}^3$ $6.5 \text{ Concrete (C_1)}$ $0.22 \times 130 = 28.60 \text{ m}^3$ $0.21 \times 86 = 18.06 \text{ m}^3$ $= 46.66 \text{ m}^3$ Form Work for (C_1) $(0.5 + 0.15 + \sqrt{0.3^2 + 0.22}) \times 130 = 131.372 \text{ m}^2$ $2 \times 0.7 \times 68 = 95.20 \text{ m}^2$ $= 226.572 \text{ m}^3$ $6.6 \text{ Leveling Concrete (E)}$ $0.7 \times 0.1 \times 130 = 9.10 \text{ m}^3$ $0.5 \times 0.1 \times 86 = 4.30 \text{ m}^3$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60 \text{ m}^2$ $12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^3$ $= 2602.40 \text{ m}^3$ $6.8 \text{ Pointing}$ $(0.7 + \sqrt{3.411^2 + 6.822^2}) \times 130 = 1082.54 \text{ m}^2$ $= 2602.40 \text{ m}^3$ $6.8 \text{ Pointing}$ $(0.7 + 3.528) \times 2 \times 22 = 186.03 \text{ m}^2$ $= 896.51 \text{ m}^2$ $6.9 \text{ Wet Stone Masoury}$ $0.3 \times (3.739 + 0.7) \times 130 = 368.121 \text{ m}^3$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^2$		$(8.739 + 0.7) \times$	0.2 × 130 =	245.41 m³	3 10 1	
6.4 Backfill with Sandy Soil $V = \frac{0.7 + 1.3}{2} \times 0.3 \times 68 = 25.80 \text{ m}^{3}$ 6.5 Concrete (C ₁ ) $0.22 \times 130 = 28.60 \text{ m}^{3}$ $0.21 \times 86 = 18.06 \text{ m}^{2}$ $= 46.66 \text{ m}^{3}$ Form Work for (C ₁ ) $(0.5 + 0.15 + \sqrt{0.3^{2} + 0.22}) \times 130 = 131.372 \text{ m}^{2}$ $2 \times 0.7 \times 68 = 95.20 \text{ m}^{2}$ $= 226.572 \text{ m}^{2}$ 6.6 Leveling Concrete (E) $0.7 \times 0.1 \times 130 = 9.10 \text{ m}^{3}$ $0.5 \times 0.1 \times 86 = 4.30 \text{ m}^{3}$ $= 13.40 \text{ m}^{3}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60 \text{ m}^{2}$ 6.7 Reinforcing bar $12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^{2}$ $= 2602.40 \text{ m}^{3}$ 6.8 Pointing $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 = 1082.54 \text{ m}^{2}$ $= (0.7 \times 3.528) \times 2 \times 22 = 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ 6.9 Wet Stone Masoury $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^{2}$	• .	$0.2 \times 3.5 \times 22$	=	15.40 m³		
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6.5 Concrete (C ₁ ) $0.22 \times 130 = 28.60 \text{ m}^{3}$ $0.21 \times 86 = 18.06 \text{ m}^{3}$ $0.21 \times 86 = 18.06 \text{ m}^{3}$ $= 46.66 \text{ m}^{3}$ Form Work for (C ₁ ) $\left(0.5 + 0.15 + \sqrt{0.3^{2} + 0.22}\right) \times 130 = 131.372 \text{ m}^{2}$ $2 \times 0.7 \times 68 = 95.20 \text{ m}^{2}$ $= 226.572 \text{ m}^{2}$ 6.6 Leveling Concrete (E) $0.7 \times 0.1 \times 130 = 9.10 \text{ m}^{3}$ $0.5 \times 0.1 \times 86 = 4.30 \text{ m}^{3}$ $= 13.40 \text{ m}^{3}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60 \text{ m}^{2}$ 6.7 Reinforcing bar $12.75 \times 130 = 1657.50 \text{ kg}$ $= 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ 6.8 Pointing $\left(0.7 + \sqrt{3.411^{2} + 6.822^{2}}\right) \times 130 = 1082.54 \text{ m}^{2}$ $\left(0.7 + 3.528\right) \times 2 \times 22 = 186.03 \text{ m}^{2}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^{2}$	V		× 68 =	25.80 m³		
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Form Work for (C ₁ )			· ·	28.60 m³		
Form Work for (C ₁ )		$0.21 \times 86$		18.06 m³		
$\begin{array}{llllllllllllllllllllllllllllllllllll$			· · · · · · · · · · · · · · · · · · ·	46.66 m³		
$2 \times 0.7 \times 68$ $= 95.20 \text{ m}^{2}$ $= 226.572 \text{ m}^{2}$ 6.6 Leveling Concrete (E) $0.7 \times 0.1 \times 130$ $0.5 \times 0.1 \times 86$ $= 4.30 \text{ m}^{3}$ $= 13.40 \text{ m}^{3}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68$ $= 39.60^{\circ} \text{ m}^{2}$ 6.7 Reinforcing bar $12.75 \times 130$ $= 1657.50 \text{ kg}$ $10.99 \times 86$ $= 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ 6.8 Pointing $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130$ $= 1082.54 \text{ m}^{2}$ $(0.7 + 3.528) \times 2 \times 22$ $= 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130$ $= 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22$ $= 23.100 \text{ m}^{2}$	Fo	rm Work for (C ₁ )				
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6.6 Leveling Concrete (E) $0.7 \times 0.1 \times 130 = 9.10 \text{ m}^{3}$ $0.5 \times 0.1 \times 86 = 4.30 \text{ m}^{3}$ $= 13.40 \text{ m}^{3}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60 \text{ m}^{2}$ 6.7 Reinforcing bar $12.75 \times 130 = 1657.50 \text{ kg}$ $= 10.99 \times 86 = 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ 6.8 Pointing $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 = 1082.54 \text{ m}^{2}$ $(0.7 + 3.528) \times 2 \times 22 = 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $= 368.121 \text{ m}^{3}$ $= 33.100 \text{ m}^{2}$	2 ×	0.7 × 68		95.20 m ²		Day.
$0.7 \times 0.1 \times 130 = 9.10 \text{ m}^{3}$ $0.5 \times 0.1 \times 86 = 4.30 \text{ m}^{3}$ $= 13.40 \text{ m}^{3}$ Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60 \text{ m}^{2}$ $6.7 \text{ Reinforcing bar}$ $12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 = 1082.54 \text{ m}^{2}$ $(0.7 + 3.528) \times 2 \times 22 = 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^{2}$			=	226.572 m ²		
$\begin{array}{rcl} 0.5 \times 0.1 \times 86 & = & 4.30 \text{ m}^3 \\ & = & 13.40 \text{ m}^3 \\ \text{Form Work for (E_1)} \\ 0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 & = & 39.60 \text{ m}^2 \\ \hline 6.7 \text{ Reinforcing bar} \\ & 12.75 \times 130 & = & 1657.50 \text{ kg} \\ & 10.99 \times 86 & = & 945.14 \text{ m}^3 \\ & = & 2602.40 \text{ m}^3 \\ \hline 6.8 \text{ Pointing} \\ & \left(0.7 + \sqrt{3.411^2 + 6.822^2}\right) \times 130 & = & 1082.54 \text{ m}^2 \\ & \left(0.7 + 3.528\right) \times 2 \times 22 & = & 186.03 \text{ m}^2 \\ & = & 896.51 \text{ m}^2 \\ \hline 6.9 \text{ Wet Stone Masonry} \\ & 0.3 \times (8.739 + 0.7) \times 130 & = & 368.121 \text{ m}^3 \\ & 0.3 \times 3.5 \times 22 & = & 23.100 \text{ m}^2 \\ \hline \end{array}$	6.6 Le	veling Concrete (E)			Vivi de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya d	
Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68$ $= 39.60 \text{ m}^{2}$ $6.7 \text{ Reinforcing bar}$ $12.75 \times 130$ $= 1657.50 \text{ kg}$ $10.99 \times 86$ $= 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $\left(0.7 + \sqrt{3.411^{2} + 6.822^{2}}\right) \times 130$ $= 1082.54 \text{ m}^{2}$ $\left(0.7 + 3.528\right) \times 2 \times 22$ $= 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130$ $= 368.121 \text{ m}^{3}$ $= 23.100 \text{ m}^{2}$	*	0.7 x 0.1 x 130	1 4. =	9.10 m³		
Form Work for (E ₁ ) $0.1 \times 2 \times 130 + 0.1 \times 2 \times 68$ $= 39.60 \cdot \text{m}^{2}$ $6.7 \text{ Reinforcing bar}$ $12.75 \times 130$ $= 1657.50 \text{ kg}$ $10.99 \times 86$ $= 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $\left(0.7 + \sqrt{3.411^{2} + 6.822^{2}}\right) \times 130$ $= 1082.54 \text{ m}^{2}$ $= 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130$ $= 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22$ $= 23.100 \text{ m}^{2}$		0.5 x 0.1 x 86	an in Hawkin E	4.30 m³		
$0.1 \times 2 \times 130 + 0.1 \times 2 \times 68 = 39.60^{\circ} \text{ m}^{2}$ $6.7 \text{ Reinforcing bar}$ $12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $\left(0.7 + \sqrt{3.411^{2} + 6.822^{2}}\right) \times 130 = 1082.54 \text{ m}^{2}$ $= 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $= 23.100 \text{ m}^{2}$	r	- M - 1 C - (P )		13.40 m³		
6.7 Reinforcing bar $12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ 6.8 Pointing $\left(0.7 + \sqrt{3.411^{2} + 6.822^{2}}\right) \times 130 = 1082.54 \text{ m}^{2}$ $= (0.7 + 3.528) \times 2 \times 22 = 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $= 23.100 \text{ m}^{2}$				20.60° m²		
$12.75 \times 130 = 1657.50 \text{ kg}$ $10.99 \times 86 = 945.14 \text{ m}^3$ $= 2602.40 \text{ m}^3$ $6.8 \text{ Pointing}$ $\left(0.7 + \sqrt{3.411^2 + 6.822^2}\right) \times 130 = 1082.54 \text{ m}^2$ $\left(0.7 + 3.528\right) \times 2 \times 22 = 186.03 \text{ m}^2$ $= 896.51 \text{ m}^2$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^3$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^2$				39.00 111		
$10.99 \times 86 = 945.14 \text{ m}^{3}$ $= 2602.40 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $(0.7 + \sqrt{3.411^{2} + 6.822^{2}}) \times 130 = 1082.54 \text{ m}^{2}$ $(0.7 + 3.528) \times 2 \times 22 = 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^{2}$	6.7 Re					
$= 2602.40 \text{ m}^{3}$ $6.8 \text{ Pointing}$ $\left(0.7 + \sqrt{3.411^{2} + 6.822^{2}}\right) \times 130 = 1082.54 \text{ m}^{2}$ $\left(0.7 + 3.528\right) \times 2 \times 22 = 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^{2}$			one en en en en en en en en en en en en e			
6.8 Pointing		10.99 x 86				
$ (0.7 + \sqrt{3.411^2 + 6.822^2}) \times 130 $ = 1082.54 m ² $ (0.7 + 3.528) \times 2 \times 22 $ = 186.03 m ² = 896.51 m ² 6.9  Wet Stone Masonry  0.3 x (8.739 + 0.7) x 130 = 368.121 m ³ $ 0.3 \times 3.5 \times 22 $ = 23.100 m ²				2602.40 m³		
$(0.7 + 3.528) \times 2 \times 22$ $= 186.03 \text{ m}^{2}$ $= 896.51 \text{ m}^{2}$ $6.9 \text{ Wet Stone Masonry}$ $0.3 \times (8.739 + 0.7) \times 130$ $= 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22$ $= 23.100 \text{ m}^{2}$						
$= 896.51 \text{ m}^{2}$ 6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^{3}$ $0.3 \times 3.5 \times 22 = \underline{23.100 \text{ m}^{2}}$	•		O to See See See See See See See See See Se			
6.9 Wet Stone Masonry $0.3 \times (8.739 + 0.7) \times 130 = 368.121 \text{ m}^3$ $0.3 \times 3.5 \times 22 = 23.100 \text{ m}^2$	(0.	7 + 3.528) x 2 x 22				
$0.3 \times (8.739 + 0.7) \times 130$ = 368.121 m ³ $0.3 \times 3.5 \times 22$ = 23.100 m ²			La diane ent la	896.51 m ²		
$0.3 \times 3.5 \times 22 \qquad = 23.100 \text{ m}^2$						
医多类性 医多角性 医二氏性 医二氯甲基乙基 医乳腺 医动物 医乳腺管理 医糖尿管 电电路线线 计预算点 医二氏管 化				经支付帐 医囊体管 化二烷	W A	
$= 345.02 \text{ m}^2$	0.3	x 3.5 x 22		圆头鞋 经租份的证券的		

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	12/13
6.10 Pla	stering 7 + 0.1) x 68		54.4 m²	Standard Control	
		*, 2° +	J4.4 III		•
	ep hole Ø50				
( -	$\left(\frac{30}{2} + 1\right) \times 3.0$	≓	198 nos		
(2	·		The second second	e Chaq Ere	1 + +*
$\left(\frac{2}{3}\right)$	$\left(\frac{2}{2}+1\right)\times 1$	=	12 nos		
		=	210 nos		
6.12 Log	2 Pile				
	$\left(\frac{30}{2} + 1\right) \times 3.0.0$		100	÷1 .	
(-)	2 +1) × 5.0.0		198 m'		
6.13 Gal	bion Mattress				
	0 x 0.5 x 1.5		97.5 m³	kara ⊈i kajis∺	
II. REVET	MENT TYPE C (CONC	RETE SHEET PI	LE)		
1. S	emarang River				
a.	Concrete sheet pile (L	=12,000, W=500, t	=220)	adydd y f	
	Length of structure		and the second second		
	(2 x 25 + 74.5)+(12.5	+ 60.2)+(10 + 35 +	30.25 + 20 + 29)	= 321.45 m	
	$V = \frac{321.45}{0.5} \times 12 = 77$	14.8 m'			
b.	Concrete Type C1 (pi	le cap)		ik di xiy	
	$V = 0.12 \times 321.45 = 3$	8.574 m³			
	Form work				
	$V = (2 \times 0.15 + 2 \times 0.3)$	3) $\times$ 321.45 = 289.3	05 m²		
d.	Reinforcing bar				
	$V = 14.42 \times 321.45 =$	4635.309 kg			
2. A	sin Retarding Pond				
a.	Concrete sheet pile (L	=12,000, W=500, t	=220)		
	Length of structure				
	= 18 + 37 +	12.5 + 106 + 43.2 +	-87 + 21 + 10 = 33	34.7 m	
	$V = \frac{334.7}{0.5} \times 12$	? = 8032.8 m			
ь.	Concrete sheet pile (L	=10,000, W=500, t	=220)	i waka ya k	
	Length of structure =				
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$V = \frac{25}{0.5} \times 10 =$				

Name of Structure	REVETMENT FOR SEMARANG RIVER AND ASIN RETARDING	Category Calculation	Work Volume	Page	13/1
	Total Volume of Concrete	e Sheet Pile = 8032	.8 + 500 = 8532.8 n	1	
c	Concrete C ₁ (pile cap	o)			
÷ :	$V = 0.12 \times (3)$	34.7 + 25) =	43.164 m³	. ·	
	I. Form work				
181	$V = (2 \times 0.15)$	$+2 \times 0.3) \times (334.7)$	+ 25) = 323.73 m ²		
e	. Reinforcing bar				
1 1 1 1	$V = 14.42 \times 0$	334.7 + 25) = 5186	.874 kg		.:
				earline in the	
II. <u>FORM</u>	I WORK				
1. l	Revetment Type Wet Ma	sonry			
5	Section A-A, $L = 23 +$	7 = 30 m			
	Section C-C, $L = 106.4$	134 m			
	Section D-D, $L = 224.8$	30 m			
	Section F-F, $L = 2 \times 1$	40 = 280 m			
	Section G-G, $L = 68 \text{ m}$				
	Section K-K, $L = 63 \text{ m}$	Base co	oncrete, L=63+67 =	=130m	
	Section J-J, $L = 67 \text{ m}$	Top con	crete, L=130-2x22=	86 m	
	Total length for base concr				
	Total length for top concre	te = $709.234 + 86 =$	= 795.234 m		
1	Form work:		•		
ε	a. base concrete = $(0.5 + 0.5)$	$2 + \sqrt{0.20^2 + 0.30^2} \Big)$	×839.234 = 890	0.054 m²	
· · · · · · · ·	o. top concrete = $(2 \times 0.7)$	x 795.234	= 1113	.328 m ²	
			= 2003	3.382 m ²	
2. 1	Revetment Type Concrete	e Sheet Pile, for pi	le cap:		
	Section A-A, L =	30 m			
	Section B-B, L =	254 m			
	Section F-F, L =	140 m			:
	Section H-H, L = 211	l 75 m			. 1

 $=381.45 \text{ m}^2$ 

L = 635.75 m

Form work

 $= 2 \times 0.30 \times 635.75$ 

Name Structi		DIKE RAISING OF SEMARANG RIVER (ASIN PACK)	Category of calculation	WORKS VOLUME	Page	1/2
	•	± 1	!		— <del>• • • • • • • • • • • • • • • • • • •</del>	·
		SUMMA	RY OF WORK V	OLUME	(.e.j)	
1.	STRU	JCTURE EXCAVATION		230	6.03 m	3
2.	COM	PACTED SAND		= 2	7.10 m	3
3.	WET	COBBLE MASONRY		**************************************	1.45 m	3
4.	BAC	K FILL			6.88 m	3
5.	PLAS	STERING		= 594	4.44 m	2
6.	JOIN	T FILLER			3.41 m	2

**(** 

STA.	DIST.	<u></u>	EL2	E	OC	XI 2.20	AREA			VOLUME		
(SMR)	( w )	(E)	(ε)	( w )	(E)	(m)	Θ	Θ	3	9	⊕	S
21+23	32.62	+0.98	0 03	101	1.41	0.91	1.217	20.69	2,68	28 50	14 51	87.04
23	20.20	+0.98	- 0.02	8	1.40	0.90	1.2	30.50		5 6		22.20
24			.023	1.21	1.61	1.01	1.458	23.52	25.0	CA.C.	00.1	20,02
25			± 0.23	0.76	1,16	0.78	1.387	27.50	; ~	74.04	, c	77.70
26	20.00	+ 0.99	+ 0.30	0.69	1.09	0.75	0.872	25.52	- 6	07.00	7,5	
27	2 2	1.90	+ 0.39	0.61	1.01	0.71	0.794	8.72	76.7	C6.43	7.5.5	20.40
28	200		+ 0.31	0.70	1.10	0.75	0.878	0.05 CP :	20 0	3 3	70.91	78.87
g	50.63	•	200	0.67	1 07	0.74	0.852	22.52	0.9	27.01	13.75	63.51
;	28.81		?!				7000	20.46	2.77	22.89	13,11	55.95
ജ		+ 1.01	+0.46	0.55	0.95	0.68	0.737					
TOTAL	256.89					-	9.395	236.03	27.10	271.45	116.88	594.44
AVERAGE	E: 9.395 =	5 = 7.0	= 7.044 m²		-						-	

Package 2: C Asin River Improvement

Name of Structure	EXCAVATION OF ASIN RIVER	Category Calculation	WORK VOLUME	Page	1/1

## **SUMMARY OF ASIN RIVER EXCAVATION**

1. COMMON EXCAVATION

**(**)

=31,769.371 m³

# CUT and FHL OF ASIN RIVER

Cross Section LINE	CUT AREA	FILL AREA	Distance	VOLUME CUT	VOLUME FILL
				(m²)	(m²)
0					
1			20.790		
2	32.092	3.606	19.205	308.170	34.620
3	32.792	3.332	20.329	659.514	70.52
5	31.235	1.709	18.778	601.155	47.332
6	32.901 29.924	1.646	21.341	684.373	35.80
7	30.080	2.135 3.069	19.926 20.291	625.943 608.779	37.680
8	33.426	3.553	19.325	613.641	52.805
9	29.852	4.299	8.399	265.743	63.98: 32.97
10	24.047	7.881	12.219	329.279	74.41
- 11	30.495	7.624	17.444	475.709	135.23
12	29.601	8.706	17.863	536.743	145.85
13	27.035	8.128	7.793	220.693	65.59
14	27.785	6.730	17.831	488.738	132.463
- 15	22.099	7.321	23.573	587.951	165.609
16	25.318	7.418	20.534	486.825	151.332
17	24.760	8.772	19.716	493.662	159.602
18	24.095	7.668	20.305	496.007	166.91
19	34.786		19.968	587.877	76.563
20	20.054		21.501	589.559	
21 22	30.709		19.688	499.707	
23	31.969 29.942		19.918	624.209	
24	33.433		21.311	659.706	
25	35.776		20.862	721.919	
26	32.410		20.802	715.837	
27	33.171		19.628	643.612	
28	31.883		20.565	668.894	
29	32.060		19.278	616.336	<del></del>
30	35.256	4-	20.103	676.631	
31	22.379		21.457	618.325	
32	39.365		20.464	631.767	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
33	34.977		21.568	801.708	
34	34.741		20.807	725.317	
35	33.569		20.636	704.811	
36	33.512		21.631	725.497	<u> </u>
38	35.028 35.151		19.996	685.245	
39	33.731		18.870 20.770	662.143	
40	23.413		20.770	715.344 596.296	·
40+14	45.159		22.108	757.983	
41	40.157		19.324	824.309	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
42	12.984	6.942	20.335	540.314	70.586
43	17.227	3.686	19.690	297.427	104.632
44	21.758	3.567	19.635	382.738	71.206
45	10.195	5.011	19.916	318.177	85.423
46	22.015	1.439	21.409	344.779	69.048
47	14.965	1.529	19.171	354.470	28.455
48	14.942	2.087	19.382	289.830	35.05(
49	16.632	2.869	20.265	319.932	50.217
49+13	18.870	4.216	22.475	398.955	79.61
50	17.092	2.269	23,475	422.100	76.118
51	18.414	2.400	24.475	434.506	57.13
52 53	14.266	2.412	25.475	416.258	61.289
54	19.276 14.616	1.501	26.475	444.012	51.799
55	19.775	3.452	27.475	465.596	68.039
56	21.035	3.118 3.261	28.475 29.475	489.647 601.448	93.540
JU	21.033	3.2011	27.475	61H 44XL	94.016

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volum	e Pagi	1/25
	<u>SUMM</u>	ARY OF WORK	VOLUME		
. prvica	MENTE TUDE A A A OU	PA OHIARIDIA			÷
A. REVET	MENT TYPE A-2 (LOW	ER CHANNEL)		•/	5501
1. ST	RUCTURE EXCAVATIO	M	=	,	$m^3$
2. BA	CK FILLING WITH BOU	JLDER	==	626	m ³
3. BA	CK FILLING WITH GRA	AVEL	==	1,914	m³ (053
	NCRETE, TYPE CI		=		m ³
5. FO	RM WORK FOR TYPE C	21	. =	5,310	m ²
6. LE	VELING CONCRETE, T	YPE E		-	m ³
	RM WORK FOR TYPE E		=	863	m ²
and the second	NFORCING BAR, U 30		. =		Kg Soyy
9. WE	T STONE MASONRY		. =	1,584	m³
10. WE	EP HOLE, PVC Ø 50	. *	± .	2,158	nos
	G PILE, $L = 4,000$	naka jang	<b>±</b> =	8,631	m ^l
12. RU	BBER JOINT FILLER		<b>=</b> .	62	m ²
(C)(6)					
. REVETI	MENT TYPE B (HIGHER	CHANNEL)			
I. STR	UCTURE EXCAVATIO	N		28,036	m³
	CK FILLING WITH BOU		: :		m³
	CK FILLING WITH GRA	Fig. 1			m ³
	CK FILLING WITH SAN		_ :		m ³
100	'ELING CONCRETE, TY		<b>=</b>	-1	m³
	M WORK FOR CONCR	1.0	. =		m ²
	T STONE MASONRY				m ³
1.0	NTING				m²
	EP HOLE, PVC Ø 50	as Asia Bay			os
	S PILE, $\varnothing$ 150, L = 4.0 m		= 4		n ¹
13. 200	100, 100, 100, 100, 100, 100, 100, 100,		_ <b>(</b>	ιν, <del>υτ</del> ι	<b></b>
REVETA	MENT TYPE C (CONCRE	a nd taah2 at3			
			<b>,</b>		
1. FUR	NISHING AND DRIVIN	G PC SHEET PIL	E =	2,448 ı	13 ¹
	ODDOD OVER OF				
2. CON	CRETE, TYPE C1	in The Applications		14	m³

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	2/25
C31_ 1. B	REVETMENT TYPE	A-2 (LOWER CHAN	NEL)	<b>.</b>	<u> </u>
C.3.1 Sti	ucture Excavation	事的复数形式 1995年 1997年			
Fo	r Left and Right		en en en en en en en en en en en en en e		
	300 700 ** *	2,000 300	-		
-2.70	8				
-2.10	The same	(5) Wet	Stone Masonry		
				1,000	
op Concrete			El3.70	<u> </u>	
		0		Table State Page State	
		<b>ø</b> `	(3) Base Concrete		v A
			Dasc Concrete		
<b>*</b>	200 300	(1) $\frac{0.3}{}$	$\frac{+0.5}{2} \times 0.3 + 0.2 \times 0$	0.5 244 (127)	= 0.22
50 1			× 0.1		= 0.07
250	D13 D10-300	(3) $\frac{0.2}{}$	$\frac{+0.8}{2} \times 0.6 - 0.1 \times 0$		= 0.290
50		(4) 0.75	× 0.2 × ½ +0.1 × 0	18 14 15 14 15 1 <b>.1</b>	= 0.08
100① [		(5) $\sqrt{2^2}$	$+1^2 \times 0.25 + 0.7 \times 0$	0.25	= 0.734
50 	400 50 500 100	(6) $\sqrt{2^2}$	$+1^2 \times 0.25 + 0.6 \times 0$	0.25	= 0.709
100	300 100	(7) <u>(0.3</u>	$\frac{+0.2)+0.2}{2} \times 0.3$	0.1×0.1	= 0.095
		(8) 0.3	< 0.7		= 0.210
		(9) 0.5 >	<b>&lt; 0.1</b>	Nabajist d	<b>= 0.050</b>
		(10) 0.1 >	<b>0.7</b>		= 0.070
					= 2.533
FOR	CONSTRUCTIO	N JOINT			
(2)	0.82×0-10.	~0.082 ··	(1) (1) (1) (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2		सी रिक्स है है। जीवार के प्राप्त
King	th of Consta	uction join	1-295	1	

()

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	3/25
Le:	<u>ft</u>				:

Length = 1165.32 - 39.31

= 1126.01 m

(TL 58 + 5.92 - TL 2)

Right

(

Length = 1165.32 - 133.48

= 1031.84 m

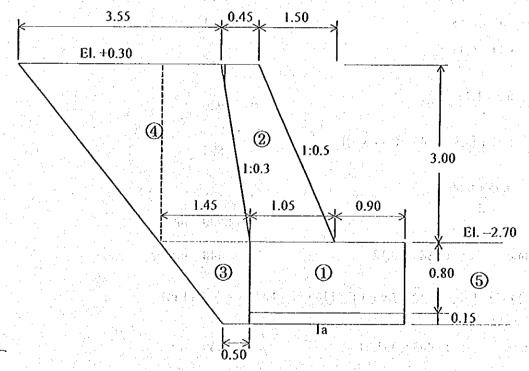
(TL 58 + 5.92 - TL 6+15)

Total of length = 2158.00 m

Vol. C.3.1 = 2.533 × 2158 + 0.002 × 2158 × 2.96 = 5501.13 m

Form work (C₁) = 
$$(2 \times 0.7 + 0.2 + 0.5 + \sqrt{0.3^2 + 0.2^2}) \times 2158 = 5309.88 \text{ m}^2$$
  
Form work (E) =  $4 \times 0.10 \times 2158$  =  $863.2.00 \text{ m}^2$ 

C.Y. REVETMENT TYPE B CHICHT CHANNELJ.
C.4.1 Structure Excavation



Left TL.18+5 - TL.33+10 (length = 669.13 - 363.50 = 305.63 m)

H = 3.00; B = 1.05

(1)  $2 \times 0.8$ 

= 1.60

(2)  $2 \times 0.15$ 

= 0.30

(3)  $\frac{1.10+0.45}{2}$  × 3.250

= 2.518

(4)  $\frac{0.5+1.45}{2} \times 0.95$ 

= 0.926

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works V	olume	Page	4/25
(5) 1.45	+ (3.25 + (1.45 – 0.3 × 3.25)	<u>))</u> ×3.250 =	8.409			
(6) $\frac{0.95}{}$	+ 0.80 ×1	==	0.825	`.	egine.	
					u iz t	
Volume	$= 14.628 \times 305.63$	=	4470 ı	11 ³		
				1:11	e Problem	
	3+10 - TL.40+5 (length	= 803.99 - 669.1	3 = 134.86	<u>m)</u>		
	B = 1.05		og same i		en en en en en en en en en en en en en e	
Volume	= 13.403 × 134.86		1807 ı	11 ³		) 1
				- 44		
Left TL.4	0+5 - TL.41+15 (length	= 834.11 - 803.9	9 = 30.12 n	<u>ī</u> )		
H = 3.300	B = 1.110					
(1) (1.1	$1 \times 0.9) \times 0.8$	=	1.608			
(2) 2.0	1 × 0.15		0.301			
(3) 1.1	$\frac{1+0.45}{2}\times3.3$		2.518			
(4) <u>0.5</u>	$\frac{+1.45}{2} \times 0.95$		0.926			
(5) $\frac{1.4}{}$	5 + (3.3 + (1.45 – 0.3 × 3.3)	)	0.000			
(3)	2	-×3.3 =	8.596			
(6) $\frac{0.9}{}$	$\frac{0.000}{0.000} \times 1$	=	0.825	•		
	2		14.880 r	,, <b>ś</b>		
e jaron de de de de de de de de de de de de de						
Volume	$= 14.88 \times 30.12$		448 i	n³		
Left TL.4	11+15 - TL.ASU (length:	= 1165.32 - 834	= 331 21	m)		
	B = 1.05	22002 0041	001.21	-# <u>-#</u>		
Volume			4.439 r	n³		
	13.103 A 331.21		ास <b>न्</b> उ∕ 1			
TOTAL:	4345 + 4470 + 1807 -	F 448 ± 4430 =	15500	3		
IOIAL.	1007	140 1443A =	19909 1	ш"		$\{-1,1,\dots,$

1. = 324.19 ± 305.63 ± 30.12 ± 331.21 = 991.15 m

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	5/25
	14. A. A. A. A. A. A. A. A. A. A. A. A. A.				
,	H 1:0.5				
<u> </u>	0.90	1:0.3	1:1.0	* 12 .	
	<u> </u>				
⑤ 0.	80	3/			
0.15	<u> </u>			diversión. Na vien	
<u>Right T</u>	16+15 - TL.7+10 (lengt)	0.50 h = 148,29 - 133.4	8 = 14.74 m)		
H = 2.90	55; B = 1.043				
	043 + 0.9) × 0.8 43 + 0.15		1.554 0.291		
(3) $\frac{0.4}{}$	$\frac{15+1.043}{2}$ × 2.965		2.213		
(4) <del>0.5</del>	$\frac{5+1.45}{2}\times0.95$	: 	0.926		1.78
(5) 1.4	$65 + (2.965 + (1.45 - 0.3 \times 2))$	.965 <u>))</u> ×2.965 =	8.409		
(7) <u>0</u>	$\frac{0.95 + 0.80}{2} \times 1$		<u>0.875</u>	ing the state A Salan Language	
		=	13.236 m³		
Volume	$= 13.236 \times 14.74$		195 m ³		
Right T	<u> L.7+10 – TL.8+10 (lengtl</u>	h = 168.47 - 148.2	9 = 20.18 m)		
90 4 4 5 5 5	0; B = 1.13				
(1) (1.	13 + 0.9) × 0.8	· -	1.624		
	3 × 0.15	=	0.304		
$(3)  \frac{0.4}{2}$	$\frac{45+1.043}{2} \times 3.40$		2.686		

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volum	c Page	6/25
(4) $\frac{0.5}{1.00}$	$\frac{5+1.45}{2}\times0.95$	=	0.926	· · · · · · · · · · · · · · · · · · ·	
(5) 1.4	$5 + (2.965 + (1.45 - 0.3 \times 2)$	.965)) × 3.40 =	8.976		
(8) $\frac{0}{0}$	$\frac{.95 + 0.80}{2} \times 1$		0.076	· ·	
(*)	2		0.875 15.628 m³		
Volume	$= 15.628 \times 20.18$		315.37 m ³		
Diaht T	I 9110 TI 1715 A A	2025			
	<u>L.8+10 - TL.17+5 (length</u> B = 1.21	<u>1 = 343.35 - 168.4</u>	/ = 174.88 m)		
(1) (0	$.9 \times 1.21) \times 0.8$		1.688		
(2) 2.	11 × 0.15	=	0.316		
(3) $\frac{0}{1}$	$\frac{45+1.21}{2} \times 3.8$		3.154		
*	$\frac{5+1.45}{2} \times 0.95$		<b>0.926</b>		
	$\frac{2}{45 + (3.80 + 1.45 - 0.3 \times 3.8)}$	<u>)</u> ×3.8 =	10.564		
(6) $\frac{0}{1}$	$\frac{95+0.80}{2}\times 1$		0.875		
			17.378 m ³		
Volume	$= 17.378 \times 174.88$		3039 m ³		
	17+5 - TL.18+5 (length	= 363.50 - 343.35	= 20.15 m)		
	B = 1.17 $9 \times 1.17) \times 0.8$				
	$7 \times 0.15$		1.656 0.310		
(3) $\frac{0.4}{1.00}$	$\frac{45+1.17}{2}$ × 3.6		2.916		
(4) <u>0.5</u>	$\frac{5+1.45}{2} \times 0.95$		0.926		
(5) <u>1.4</u>	$\frac{15 + (3.60 + 1.45 - 0.3 \times 3.6)}{2}$	) ×3.6 =	9.756		
(6) $\frac{0.9}{}$	$\frac{95 + 0.80}{2} \times 1$		0.875		
			16.439 m ³		e de la companya La companya La companya di Amerika
Volume	= 16.439 × 20.15		331 m³		

Name of REVETMENT OF Category Calculation Works Volume Page 7/25

Right TL.18+5 - TL.33+10 (length = 669.13 - 363.50 = 305.63 m)

H = 3.25; B = 1.10

Volume =  $14.628 \times 305.63$ 

 $= 4470 \text{ m}^3$ 

Right TL.33+10 - TL.45+10 (length = 908.79 - 669.13 = 239.66 m)

H = 3.30; B = 1.11

Volume =  $14.88 \times 239.66$ 

= 3566 m³

Right TL.45+10 - TL.58+5.92 (length = 1165.32 - 908.79 = 256.53 m)

H = 3.00; B = 1.05

Volume =  $13.403 \times 256.53$ 

 $= 3438 \text{ m}^3$ 

TOTAL:

 $3438 + 3566 + 4470 + 331 + 3039 + 315 + 195 = 15354 \text{ m}^3$ 

TOTAL VOLUME C.4.1:

(15354+15508=30863 m³ (both side).)

L = 14.74 + 20.18 + 174.88 + 20.15 + 305.63 + 239.66 + 256.53

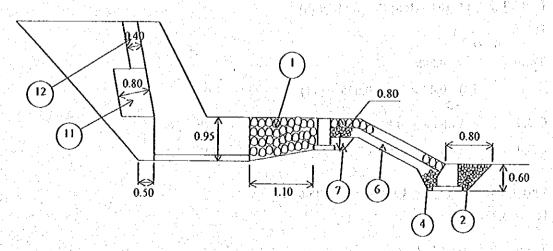
= 1031.77 m

= 991.15 m

= 2022.92 m

Form work (E) =  $2 \times 0.1 \times 2022.92 = 404.584 \text{ m}^2$ 

# C.3.2 & C.4.2 Backfilling with Boulder



(1) 
$$\frac{0.95 + 0.80}{2} \times 1.10 - 0.1 \times 0.1$$
 = 0.952

(2) 
$$\frac{0.8 + 0.2}{2} \times 0.60 - 0.1 \times 0.1$$
 = 0.290

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	8/2:
(1) $\frac{0.9}{1}$	$\frac{0.05 + 0.80}{2} \times 1.10 - 0.1 \times 0.1$		0.952		
(2) $\frac{0.8}{}$	$\frac{1+0.2}{2} \times 0.60 - 0.1 \times 0.1$	· =	0.290		d 73
Right T	L.6+15 – TL.58+5.92 (lei	ngth = 1165.32 - 1	33.48 = 1031.84	n)	justi e
	C.3.2= 0.290 × 1031.84		299.2 m³		11
Volume	$C.4.2 = 0.952 \times 1031.84$	=	en grande and a second		
<u>Left TL.</u>	2 - TL.58+5.92 (length =	= 1165.32 - 39.31 =	= 1126.01 m)		
Volume	$C.3.2 = 0.290 \times 1126.01$		326.5 m ³		4.5
Volume (	$C.4.2 = 0.952 \times 1031.84$	=	1071.9 m ³		. in V
Total C.	3.2 = 299.2 + 326.5		625.7 m ³		
Total C.	4.2 = 982.3 + 1071.9		2054.2 m ³		
.3.3 & C.4.2	Backfilling with Gravel				
	× 0.2 × ½ + 0.1 × 0.1	=	0.085		
	$+1^2 \times 0.25 + 0.6 \times 0.25$	=	0.709 C	3.3 = 0.889	
(7) <u>(0.3</u>	$\frac{+0.2)+0.2}{2} \times 0.30-0.1 \times$	0.1	0.095		
(11) 0.85	× 1.50	=	$1.275 \rightarrow C$	4.3 + (12)	
Left TL.2	2 - TL.18+5 (length = 32	4.19 m)			
= II ق	n GO				
Total	= 0.889				
	$(12)  0.43 \times 1.5 = 0.645$	+(11) =	1.92		
C.3.3	$Volume = 0.889 \times 32$		288 m³		
C.3.4	Volume = 1.92 × 324	.19 =	622 m³		
<u>Lest TL.1</u>	8+5 - TL.33+10 (length	= 305.63 m)			
H = 3.2					
Total	= 2.164				
	$(12) \ 0.43 \times 1.75 = 0.75$	2 + (11) =	2.027		
C.3.3	$Volume = 0.889 \times 30$	5.63 =	271.7 m ³		
C.3.4	$Volume = 2.0271 \times 36$	05.63 =	619 m ³		
-				and the second second second second	er er fill og g

Left TL.33+10 - TL.40+5 (length = 134.86 m)  II = 3 m  C.3.3  Volume = 0.889 × 134.86 = 119.8 m²  C.3.4  Volume = 1.92 × 134.86 = 258.9 m²  Left TL.40+5 - TL.41+15 (length = 30.12 m)  H = 3.300 m  Total = 2.164  (12) 0.43 × 1.8 = 0.774 + (11) = 2.05  C.3.3  Volume = 0.889 × 30.12 = 26.7 m²  C.3.4  Volume = 2.05 × 30.12 = 61.7 m²  Left TL.41+15 - TL.ASU (length = 331.21 m)  H = 3 m	Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volum	e Page	9/25
C.3.3 Volume = $0.889 \times 134.86$ = $119.8$ m³  C.3.4 Volume = $1.92 \times 134.86$ = $258.9$ m³  Left TL.40+5 - TL.41+15 (length = $30.12$ m)  H = $3.300$ m  Total = $2.164$ (12) $0.43 \times 1.8 = 0.774 + (11)$ = $2.05$ C.3.3 Volume = $0.889 \times 30.12$ = $26.7$ m³  C.3.4 Volume = $2.05 \times 30.12$ = $61.7$ m³  Left TL.41+15 - TL.ASU (length = $331.21$ m)  H = $3$ m $2.3$ y volume = $2.94 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 \times 1.2 $	<u>Lest TI</u>	33+10 - TL40+5 (length =	= 134.86 m)	total a		
C.3.4 Volume = $1.92 \times 134.86$ = $258.9 \text{ m}^3$ Left TL.40+5 - TL.41+15 (length = $30.12 \text{ m}$ )  H = $3.300 \text{ m}$ Total = $2.164$ (12) $0.43 \times 1.8 = 0.774 + (11)$ = $2.05$ C.3.3 Volume = $0.889 \times 30.12$ = $26.7 \text{ m}^3$ C.3.4 Volume = $2.05 \times 30.12$ = $61.7 \text{ m}^3$ Left TL.41+15 - TL.ASU (length = $331.21 \text{ m}$ )  H = $3 \text{ m}$	II = 3	<b>m</b>	1.0	to the second		
Left TL.40+5 – TL.41+15 (length = 30.12 m)  H = 3.300 m  Total = 2.164  (12) $0.43 \times 1.8 = 0.774 + (11)$ = 2.05  C.3.3 Volume = $0.889 \times 30.12$ = 26.7 m³  C.3.4 Volume = $2.05 \times 30.12$ = 61.7 m²  Left TL.41+15 – TL.ASU (length = 331.21 m)  H = 3 m	C.3.3	$Volume = 0.889 \times 136$	4.86 =	119.8 m³	.11	
Left TL.40+5 – TL.41+15 (length = 30.12 m)  H = 3.300 m  Total = 2.164  (12) $0.43 \times 1.8 = 0.774 + (11)$ = 2.05  C.3.3 Volume = $0.889 \times 30.12$ = 26.7 m²  C.3.4 Volume = $2.05 \times 30.12$ = 61.7 m²  Left TL.41+15 – TL.ASU (length = 331.21 m)  H = 3 m	C.3.4	$Volume = 1.92 \times 134.$				
Total = 2.164 (12) $0.43 \times 1.8 = 0.774 + (11)$ = 2.05 C.3.3 Volume = $0.889 \times 30.12$ = 26.7 m³ C.3.4 Volume = $2.05 \times 30.12$ = 61.7 m³ Left TL.41+15 - TL.ASU (length = 331.21 m) H = 3 m	T of TI	4015 TY 41±15 (langth -		ang distribution		
Total = 2.164 (12) $0.43 \times 1.8 = 0.774 + (11)$ = 2.05 C.3.3 Volume = $0.889 \times 30.12$ = 26.7 m³ C.3.4 Volume = $2.05 \times 30.12$ = 61.7 m³ Left TL.41+15 - TL.ASU (length = 331.21 m) H = 3 m			- 30.12 iii)		\$14 ( ) ( ) ( )	
$(12) 0.43 \times 1.8 = 0.774 + (11) = 2.05$ C.3.3   Volume = $0.889 \times 30.12 = 26.7 \text{ m}^3$ C.3.4   Volume = $2.05 \times 30.12 = 61.7 \text{ m}^3$ Left TL.41+15 - TL.ASU (length = $331.21 \text{ m}$ ) H = 3 m		$(p_{i,j}, p_{i,j}, $		·		
C.3.3 Volume = $0.889 \times 30.12$ = $26.7 \text{ m}^3$ C.3.4 Volume = $2.05 \times 30.12$ = $61.7 \text{ m}^3$ Left TL.41+15 - TL.ASU (length = $331.21 \text{ m}$ ) H = 3 m	Total					Fig. 2
C.3.4 Volume = $2.05 \times 30.12$ = $61.7$ m ³ Left TL.41+15 – TL.ASU (length = $331.21$ m)  H = 3 m		$(12)\ 0.43 \times 1.8 = 0.774$			The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th	
Left TL.41+15 – TL.ASU (length = 331.21 m)  H = 3 m	C.3.3	$Volume = 0.889 \times 30.$		**		. * 1
H = 3 m Q. 3, 3, votence: $0.889 \times 331.21 = 297.9$ Q. 3. 4 votence: $1.92 \times 331.21 = 635.9$ C.3.3 Total Volume = $294.4 + 26.7 + 119.8 + 271.7 + 288 = 1001$ m³ C.3.4 total Volume = $635.9 + 61.7 + 258.9 + 619 + 622 = 2197$ m³ Right TL.6+15 - TL.7+10 (length = $14.74$ m) H = $2.965$ m  Total = $2.164$ (12) $0.43 \times 1.65 = 0.629 + (11) = 1.904$ C.3.3 Volume = $0.889 \times 14.74 = 13$ m³ C.3.4 Volume = $1.964 \times 14.74 = 3887$ m³ $0 \times 28.66$ Right TL.7+10 - TL.8+10 (length = $20.18$ m) H = $3.40$ m  Total = $2.164$ (12) $0.43 \times 1.90 = 0.817 + (11) = 2.092$ C.3.3 Volume = $0.889 \times 20.18 = 17.9$ m³ C.3.4 Volume = $1.964 \times 20.18 = 42.2$ m³ 2.092 Right TL.8+10 - TL.17+5 (length = $174.88$ m)	C.3.4	$Volume = 2.05 \times 30.1$	2 =	61.7 m ³	en en en en en en en en en en en en en e	
Total = 2.164 (12) $0.43 \times 1.65 = 0.629 + (11)$ = 1.904 C.3.3 Volume = $0.889 \times 14.74$ = 13 m³ C.3.4 Volume = $1.964 \times 14.74$ = $38\% \text{ m}^3$ $\mathcal{C}\mathcal{B}$ . $\mathcal{C}\mathcal{C}$ Right TL.7+10 – TL.8+10 (length = 20.18 m) H = 3.40 m Total = 2.164 (12) $0.43 \times 1.90 = 0.817 + (11)$ = 2.092 C.3.3 Volume = $0.889 \times 20.18$ = 17.9 m³ C.3.4 Volume = $1.964 \times 20.18$ = 42.2 m³ 2.892 Right TL.8+10 – TL.17+5 (length = 174.88 m)	777		.7 1 230.9 1 012	+622 = 2	2197 m²	
Total = 2.164 $(12) \ 0.43 \times 1.65 = 0.629 + (11) = 1.904$ C.3.3 Volume = $0.889 \times 14.74 = 13 \text{ m}^3$ C.3.4 Volume = $1.964 \times 14.74 = 387 \text{ m}^3$ 28.66 Right TL.7+10 - TL.8+10 (length = 20.18 m) H = 3.40 m Total = 2.164 $(12) \ 0.43 \times 1.90 = 0.817 + (11) = 2.092$ C.3.3 Volume = $0.889 \times 20.18 = 17.9 \text{ m}^3$ C.3.4 Volume = $1.964 \times 20.18 = 42.2 \text{ m}^3$ 2.092 Right TL.8+10 - TL.17+5 (length = 174.88 m)		the first of the				
$(12) \ 0.43 \times 1.65 = 0.629 + (11) = 1.904$ C.3.3   Volume = $0.889 \times 14.74 = 13 \text{ m}^3$ C.3.4   Volume = $1.964 \times 14.74 = 38 \text{ m}^3$	Right T	L.6+15 – TL.7+10 (length :				
C.3.3 Volume = $0.889 \times 14.74$ = 13 m³  C.3.4 Volume = $1.964 \times 14.74$ = $38 \pm 1$ m³ $28.66$ Right TL.7+10 - TL.8+10 (length = 20.18 m)  H = 3.40 m  Total = $2.164$ (12) $0.43 \times 1.90 = 0.817 + (11)$ = $2.092$ C.3.3 Volume = $0.889 \times 20.18$ = $17.9$ m³  C.3.4 Volume = $1.964 \times 20.18$ = $42.2$ m³ $2.092$ Right TL.8+10 - TL.17+5 (length = 174.88 m)	Right T H = 2	'L.6+15 ~ TL.7+10 (length : .965 m	= <u>14.74 m)</u>			
C.3.4 Volume = $1.964 \times 14.74$ = $38 \pm 1$ m ³ $28.66$ Right TL.7+10 – TL.8+10 (length = 20.18 m)  H = 3.40 m  Total = $2.164$ (12) $0.43 \times 1.90 = 0.817 + (11)$ = $2.092$ C.3.3 Volume = $0.889 \times 20.18$ = $17.9$ m ³ C.3.4 Volume = $1.964 \times 20.18$ = $42.2$ m ³ $2.092$ Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T H = 2	L.6+15 – TL.7+10 (length = .965 m = 2.164	= 14.74 m)			Du (S)
Right TL.7+10 – TL.8+10 (length = 20.18 m)  H = 3.40 m  Total = 2.164  (12) $0.43 \times 1.90 = 0.817 + (11)$ = 2.092  C.3.3 Volume = $0.889 \times 20.18$ = 17.9 m³  C.3.4 Volume = $1.964 \times 20.18$ = 42.2 m³ $2.092$ Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T H = 2 Total	CL.6+15 – TL.7+10 (length : .965 m  = 2.164 (12) 0.43 × 1.65 = 0.629	= 14.74 m) 9+(11) =	1.904		In (S)
H = 3.40 m Total = 2.164 (12) $0.43 \times 1.90 = 0.817 + (11)$ = 2.092 C.3.3 Volume = $0.889 \times 20.18$ = 17.9 m ³ C.3.4 Volume = $1.964 \times 20.18$ = 42.2 m ³ 2.892 Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T H = 2 Total C.3.3	**E.6+15 - TL.7+10 (length = 2.965 m)  = 2.164  (12) 0.43 × 1.65 = 0.629  Volume = 0.889 × 14.	= 14.74 m) 9 + (11) = 74 =	1.904 13 m³		In (S)
Total = 2.164 $(12) 0.43 \times 1.90 = 0.817 + (11) = 2.092$ C.3.3 Volume = $0.889 \times 20.18 = 17.9 \text{ m}^3$ C.3.4 Volume = $1.964 \times 20.18 = 42.2 \text{ m}^3$ 2.892 Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T H = 2 Total C.3.3	**E.6+15 - TL.7+10 (length = 2.965 m)  = 2.164  (12) 0.43 × 1.65 = 0.629  Volume = 0.889 × 14.	= 14.74 m) 9 + (11) = 74 =	1.904 13 m³ 38₹1 m³		In (S)
(12) $0.43 \times 1.90 = 0.817 + (11)$ = 2.092 C.3.3 Volume = $0.889 \times 20.18$ = 17.9 m ³ C.3.4 Volume = $1.964 \times 20.18$ = 42.2 m ³ 2.592 Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T H = 2 Total  C.3.3 C.3.4  Right T	**L.6+15 - TL.7+10 (length = 2.164	= 14.74 m) 9 + (11) = .74 = .74 =	1.904 13 m³ 38₹1 m³		In (S)
C.3.3 Volume = $0.889 \times 20.18$ = $17.9 \text{ m}^3$ C.3.4 Volume = $1.964 \times 20.18$ = $42.2 \text{ m}^3$ 2.692 Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T H = 2 Total  C.3.3 C.3.4  Right T	**L.6+15 ~ TL.7+10 (length = .965 m)  = 2.164 (12) 0.43 × 1.65 = 0.629  Volume = 0.889 × 14.  Volume = 1.964 × 14.  O  L.7+10 ~ TL.8+10 (length =)	= 14.74 m) 9 + (11) = .74 = .74 =	1.904 13 m³ 38₹1 m³		Du (S)
C.3.4 Volume = $1.964 \times 20.18$ = 42.2 m ³ 2.092  Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T  H = 2  Total  C.3.3  C.3.4  Right T  H = 3	**CL.6+15 - TL.7+10 (length = 2.164	= 14.74 m)  9 + (11) =  74 =  = 20.18 m)	1.904 13 m³ 38₹1 m³		Du (S)
2.092 Right TL.8+10 – TL.17+5 (length = 174.88 m)	Right T  H = 2  Total  C.3.3  C.3.4  Right T  H = 3	**CL.6+15 - TL.7+10 (length = 2.164	= 14.74 m)  9 + (11) =  74 =  = 20.18 m)	1.904 13 m³ 38=1 m³ 28.66		In (S)
하고 회사하다 바다 되었다. 아무리는 아이는 사람들은 사람들은 사람들이 되었다.	Right T         H = 2         Total         C.3.3         C.3.4         Right T         H = 3         Total	CL.6+15 ~ TL.7+10 (length = 2.164)  = 2.164  (12) 0.43 × 1.65 = 0.629  Volume = 0.889 × 14.  Volume = 1.964 × 14.  O  L.7+10 ~ TL.8+10 (length = 3.40 m)  = 2.164  (12) 0.43 × 1.90 = 0.81	= 14.74 m)  9 + (11) = .74 = .74 = = 20.18 m)	1.904  13 m³  38 m³  28.66		In (S)
$\mathbf{H} = 3.8 \mathrm{m}$	Right T  H = 2  Total  C.3.3  C.3.4  Right T  H = 3  Total	2.164 (12) 0.43 × 1.65 = 0.629 Volume = 0.889 × 14. Volume = 1.964 × 14. Volume = 1.964 × 14. 0 1.7+10 - TL.8+10 (length = 3.40 m) = 2.164 (12) 0.43 × 1.90 = 0.819 Volume = 0.889 × 20. Volume = 1.964 × 20.	= 14.74 m)  9 + (11) = .74 = .74 = = 20.18 m)  7 + (11) = .18 =	1.904  13 m³  38 m³  28.66  2.092  17.9 m³		Du (S)
그리 선생님 시선 백 김 시설 사람들이 되는 경험에 되는 것이 많아 가는 것이 되었다. 그리고 있다.	Right T H = 2 Total  C.3.3 C.3.4  Right T H = 3 Total  C.3.3 C.3.4	2.164 (12) $0.43 \times 1.65 = 0.629$ Volume = $0.889 \times 14$ . Volume = $1.964 \times 14$ . Volume = $1.964 \times 14$ . 0 2.7+10 - TL.8+10 (length = $1.40$ m = 2.164 (12) $0.43 \times 1.90 = 0.819$ Volume = $0.889 \times 20$ . Volume = $1.964 \times 20$ . 2.092	= 14.74 m)  9 + (11) = .74 = -20.18 m)  7 + (11) = .18 = .18 =	1.904  13 m³  38 m³  28.66  2.092  17.9 m³		In (S)

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Work	s Volume	Page	10/:
	$(13) \ 0.43 \times 2.3 = 0.98$	39 + (11)	2.264		tag di a di	N. J.
C.3.3	$Volume = 0.889 \times 1$	74.88	155.5	m ³	40 f L	
C.3.4	Volume = $2.264 \times 1$	74.88 =	395.9	$m^3$		•
TO Party Argon	Y 40.5 my 40.40 n		\$	Technological Communication	.7	1 1:
$\frac{\text{Right TI}}{\text{II}} = 3.$	<u>L.18+5 – TL.33+10 (leng</u> t .25 m	th = 300.63  m	i Ang Mi			
C.3.3	Volume = 0.889 × 30	00.63 =	267.3	m³	artanatir i	11
C.3.4	Volume = 2.027 × 30	00.63 =	609.49	in ³	V	3 0
4.5	L.33+10 – TL.45+10 (leng	gth = 239.66  m	in signing.			
H = 3.3	30 m					
C.3.3	$Volume = 0.889 \times 23$	39.66 =	213.06	m ³		
C.3.4	$Volume = 2.049 \times 23$		491.1			
					i e	
Right TI	<u> J.45+10 - TL.58+5.92 (ler</u>	ngth = 256.53 m)				
H = 3.0	) m					
C.3.3	Volume = 0.889 × 25	56.53 =	228.05	m³		
C.3.4	Volume = 1.92 x 256		492.5	Not a little		dy E
			•>	***	we with a	
Total C.3	.3 = 228.05 + 213.06 +	267.3 + 18 + 155	.5 + 17.9	) + 13 =	913 m	3
Total B.3.			6215	m³		
Total C.4.	.3 = 492.5 + 491.1 + 60	09.4 + 43.8 + 395.	9 + 42.2	+ 28.1 =	2103 m	3
		erin de entre de la companie de la companie de la companie de la companie de la companie de la companie de la c La companie de la companie de la companie de la companie de la companie de la companie de la companie de la co		De Barris		
Total C.3	3.3 = 913 + 1001	=	1914	m ³		
Total C 4	1.3 = 2103 + 2197	-	4300	m³		

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	11/25
2.4.4 Bac	ekfilling with Grazel Sc	andy Soil	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
					4 × 2
	/ 19 0				*.
		in den sead in the			.* .
	3	English States			
					٠
	2 - TL.18+5 (length = 3)	63.50 - 39.31 = 324	<u>(.19 m)</u>	in the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	
(3)	0.926				NEW YORK
(4) -(11)	7.500 1.275	ear factor of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th			No. 1
-(11) -(12)	0.645			$i(\sqrt{2})^{\frac{1}{2}} = i(-1)$	
<u>-(.12.)</u>	6.506 → Volume	$= 6.506 \times 324$	.19 = 210	09.1 m³	
Left TL.	18+5 – TL.33+10 (lengt)	ı = 305 63 m)			
(3)	0.926	<u>- 303.03 m</u>			
(4)	8.409				
-(11)	1.275				
-(12)	0.752			un talle i la la la la la la la la la la la la la	
	7.308 → Volume	$= 7.308 \times 305.$	.63 = 2233	3.54 m³	
Left TL.	33+10 - TL.40+5 (length	= 134.86 m)	en Distance and contribution		• 4 . 151 .
(3)	0.926			7 5 4	
(4)	7.500			in for the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	
-(11)	1.275			1. 1. V. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	
<u>-(12)</u>	0.645				
	6.506 → Volume	$= 6.506 \times 134.$	86 = 87	7.4 m³	
Left TL.4	0+5-41+15 (length = 3	<u>0.12 m</u> )			
(3)	0.926				
(4)	8.596				
-(11)	1.275				
<u>-( 12 )</u>	<u>0.774</u>	<b></b> .			
	7.474 → Volume	$= 7.474 \times 30.12$	2 = 22	5.1 m³	
		er en er karen er er. Letter kin kombone			
	1+15 - TL.ASU (length	= 331.21 m)			
(3)	0.926				
(4)	7.500				

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Left TL.	.41+15 - T	L.ASU (lengt	h = 331.21 m)			
(3)	0.926				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
(4)	7.500	.*				
-( II )	1.275	4				
<u>-(12)</u>	0.645					
,	6.506	→ Volume	$= 6.506 \times 331$	1.21 = 21	54.8 m ³	
TOTAL	<b>=</b>	2154.8 + 225	.1 + 2233.54 + 210	9.1 = 75	99.9 m³	
Right TI	L.6+15 – Դ	L.7+10 (lengt)	h = 1d.7d m			park ;
(3)	0.926		, . mj		editor	
(4)	7.377	-				1.7
-(11)	1.275					
<u>-(12)</u>	0.629 6.399	→ Volume	= 6.399 × 14.7	74	94.3 m³	
Right TL	7+10 - T	L.8+10 (lengt)	n = 20.18 m)	ja ja kongressi di Propinsi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di kongressi di		
(3)	0.926					
(4)	8.976					
-(11)	1.275	·.				
<u>-( 12 )</u>	0.817 7.810	→ Volume	= 7.81 × 20.18	- 15 - 15	57.6 m³	
Right TL	.8+10 – T	L.17+5 (length	= 174.8 m)			
(3)	0.926					
(4)	10.564	•				
-(11)	1.275					
-(12)	<u>0.989</u> 9.226	→ Volume	= 9.226 × 174.			
Distant				o = 161	2.7 m ³	
	and the second	L.18+5 (length	= 20.15 m)			
(3) (4)	0.926 9.756					
(4) -(11)	1.275					
<u>-(12)</u>	0.903					
<u> </u>	8.504	→ Volume	$= 8.504 \times 20.1$	5 = 17	1.3 m ³	
Right TL.	.18+5 – TI	L.33+10 (lengt	h = 300 63 m)			
(3)	0.926	vo tiengt				
(4)	8.409					

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Right T	L.33+10 – TL.45+10 (ler	ngth = 239.66 m)		l	·
(3)	0.926				
(4)	8.596				
	1.275				

Right TL.45+10 – TL.58+5.92 (length = 256.53 m)

→ Volume

(3) 0.926

<u>0.774</u> 7.474

-(12)

- (4) 7.500
- ·(II) 1.275
- <u>-( 12 ) 0.645</u>

6.506 → Volume

 $= 6.506 \times 256.53$ 

 $= 7.473 \times 239.66$ 

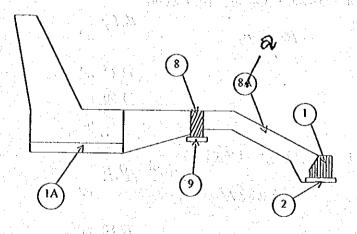
= 1668.9 m³

1790.9 m³

Total =  $1668.9 + 1790.9 + 2197 + 171.3 + 1612.7 + 157.6 + 94.3 = 7692.7 \text{ m}^3$ 

TOTAL C.4.4 =  $7599.9 + 7692.7 = 15,293 \text{ m}^3$ 

# C.3.5 Concrete (C₁)



82) Canestruction Vind, Cength = 245 n. V=2 x0.3 x0.5 x2.95 = 0.885 n.

# Right TL.6+15 - TL.ASU (length = 1165.32 - 133.48 = 1031.84 m)

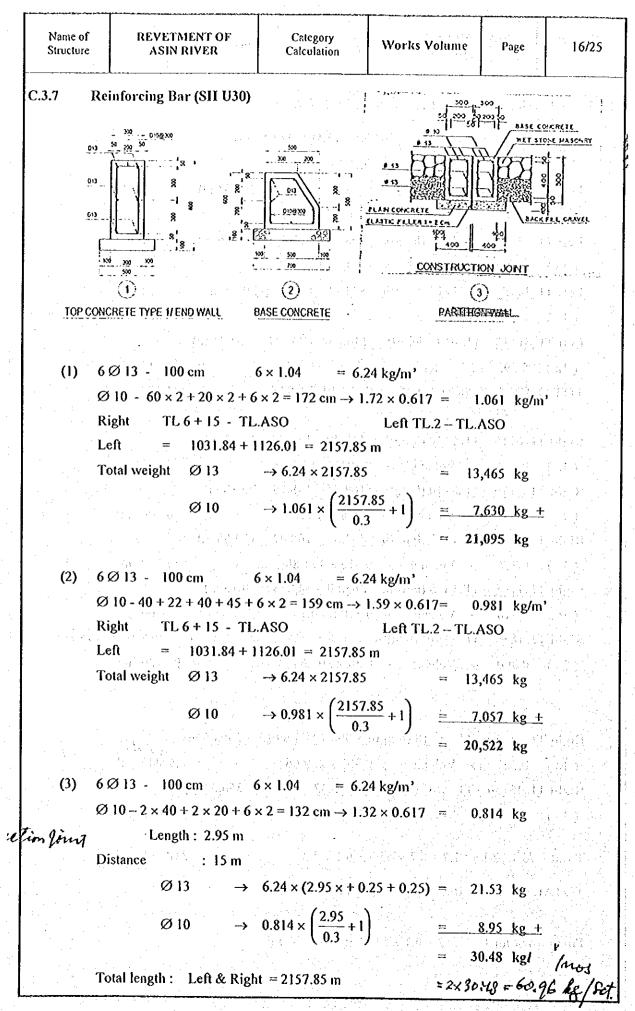
(8a) 
$$0.885 \times (\frac{103184}{15}) = 60.9$$
 m³

- $(1) \quad 0.22 \times 1031.84 \qquad = \quad 227.0 \quad \text{m}^3$
- $(8) \quad 0.21 \times 1031.84 \qquad = \quad 216.6 \text{ m}^{3}$

= 102.2 m3

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	14/25
, ,			45 4 1877, 48		
				•	
				¥.	
	1000		e judi kep ^{ro} e e je		•
leftIT	L.2 - TL.AS <b>Ø</b> (length =	1165.32 - 39.31 =	1126.01 m)		Visite in the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control
(8a)	,	0.885 x 1/26	.01 = 6	(6.43 _m ,	
		us		2121	
(1)	0.22 × 1126.01			17.72 m³	( <u>)</u>
(8)	0.21 × 1126.01			36.46 m³	
Total			andrag Fig	Jall m3	
TOTAI	.C.3.5 =	150.6 = 1055	11 23	61	
C.3.6 Lev	veling Concrete (E)	2a) Construe	tim joint	n length	= 2.95 m
Right T	L.6+15 – TL.ASU (lengt	h = 1165.32 - 133.			
(2a)	$0.1 \times 0 \stackrel{?}{\Rightarrow} \times 2.95 \times \left\{$	- · 1031.80	Z = /	в. <b>б</b> ү т³	14
(2)	0.07 × 1031.84			/2.20 m³	
(9)	$0.05 \times 1031.84$		=	51.50 m ³	
Total			= 1	m³	
<u>Left TL</u>	.2 - TL.ASU (length = 1)	<u> 165.32 – 39.31 = 1</u>	126 01 m)	10.34	
(2a)	0.(	- 0.1×0.82	X5'82× 12=	8.16 m³	
(2)	0.07 × 1126.01		= 7	78.80 m³	
(9)	0.05 × 1126.01			56.30 m ³	
Total				) m³	
		26 = 293.60 m	3 15	3.26	
ТОТАІ	. C.3.6 =				
					7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
					手 真木 4 美4 位

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	15/25
C.4.6 Le	veling Concrete (E)	Ervetment Typ	re B	7 1 1 1 1.	
Left TI	1.2 - TL.18 + 5 (length = 3	63.50 - 39.31 = 32	4.19 m)		
( la )	0.292 → Volume	$= 0.292 \times 324.19$	= 94	.660 m³	
Left TI	18+5 - TL.33+10 (lengt	h = 669.13 - 363.56	0 = 305.63  m		
( la )	0.30 → Volume	$= 0.30 \times 305.63$	= 91	.700 m³	
Left TI	33+10 - TL.40+5 (lengt	h = 803.99 - 669.1;	3 = 134.86 m)		
( la )	0.292 → Volume	$= 0.292 \times 134.86$	= 39	.400 m³	•
Left TI	40+5 - TL.41+15 (lengt	h = 834.11 - 803.99	9 = 30.12 m)		
(la)	0.301 → Volume	$= 0.301 \times 30.12$	= 9	.066 m³	
<u>Left TI</u>	41+15 - TL.ASU (lengt	h = 1165.32 - 834.1	11 = 331.21 m)		
(la)	0.292 → Volume	$= 0.292 \times 331.21$	= 96	.710 m³	
TOTAI	= 96.71 + 9.066	+ 39.4 + 91.7 + 94.	66 = 331	.500 m³	
	heft		ng Palitania Alabahan Palitania	1 No. 1481	
Right T	L.6+15 - TL.7+10 (lengt	h = 148.29 - 133.4	8 = 14.81 m)		
(la)	0.291 → Volume	$= 0.291 \times 14.74$	= 4	.300 m³	
Right T	L.7+10 – TL.8+10 (lengt	h = 168.47 – 148.29	9 = 20.18 m)		
(la)	0.304 → Volume	$= 0.304 \times 20.18$	= 6	.100 m³	
<u>Right T</u>	L.8+10 - TL.17+5 (lengt	h = 343.35 – 168.4°	7 = 174.88 m)		
(la)	0.316 → Volume	$= 0.316 \times 174.88$	= 55.	.300 m³	
Right T	L.17+5 - TL.18+5 (lengt	h = 363.50 - 343.39	5 = 20.15 m)		
(la)	0.310 → Volume	$= 0.310 \times 20.15$	and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o	.200 m³	
, Right T	L.18+5 - TL.33+10 (leng	<u>(th = </u>		-669.13 -	363.5-
( la )	0.300 → Volume	$= 0.30 \times 305.63$	= 91.	.700 m³	
Right T	L.33+10 - TL.45+10 (len	agth = 908.79 - 669	.13 = 239.66 m)	72.10	
( la )	0.301 → Volume :	$= 0.301 \times 239.66$	= 92	000 m³	
Right T	<u>L.45+10 – TL.ASU (leng</u>	th = 1165.32 - 908	.79 = 256.53  m		
( la )	0.292 → Volume	$= 0.292 \times 256.53$	= 75.	.000 m³	
T-4-1	76 1 70 1 1 01 7 1 60 1	(52161142		7001	
Total =	75 + 72.1 + 91.7 + 6.2 + 5	00.5 + 0.1 + 4.5	= 310.	.700 m³	
TOTAL	C.4.6 = 310.7 + 331.5	= 642.0 m ³			
Form w	ork for $E = 2 \times 0.1 \times$	2157.85 = 431.57 n	n²		
	(大吉松) 建精油 美国人的 化二二甲烷酸				



Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	17/25
T	otal weight $\rightarrow$	2157.85 -+1)×:	883	io lg	•
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1		A Part of the A	/	-	Entropy 4
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	A Share Share	er Al Salikaver (k.a.) Grandari			
ТОТАІ	C.3.7 = (1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	n de la companya de la companya de la companya de la companya de la companya de la companya de la companya de An en esta de la companya de la companya de la companya de la companya de la companya de la companya de la comp	eg edderwyd o glogiai G		r Nojek
	21095 + 20	522 + 8830	-50447 le	ş.	
.3.8 W	et Stone Mayor	unel 1		Property	. v ¹ }
$\int_{\mathbb{R}^{n}}$					
	(2)	ing a second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of			(r)
		(3)			
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			<u> </u>		
	2 – TL.18+5 (length =	<u>363.50 – 39.31 = 32</u>	4.19 m)		
H = 3.0	0 m; B = 1.05			1240	
		Volume = $3.81 \times 3$	24.19 =	2. <b>}</b> m³	
(2)					
(5)	0.734 C.3.8	Volume = $0.734 \times$	324.19 = 23	37.90 m³	$oldsymbol{ u}$
				an thaile. Ngjaran at	
			Maria Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Santa Sa		* **

REVETMENT OF Name of Category Works Volume Page 18/25 ASIN RIVER Calculation Structure Left TL.18.5 – TL.33+10 (length = 669.13 - 363.50 = ...[m] 305.63 H = 3.25 m; B = 1.10(1)1.60 C.4.8  $Volume = 4.118 \times 305.63$ 1258 m³ (2) 2.518 -(5) = 0.734C.3.8  $Volume = 0.734 \times 305.63$ 224.3 m³ Left TL.33+10 - TL.40+5 (length = 803.99 - 669.13 = 134.86 m) H = 3.00 m; B = 1.05(1)1.56 C.4.8  $Volume = 3.81 \times 134.86$ 513.81 m³ (2) 2.25 (5) 0.734 C.3.8  $Volume = 0.734 \times 134.86$ 98.98 m³ 🗸 <u>Left TL.40+5 - TL.41+15</u> (length = 834.11 - 803.99 = 30.12 m) H = 3.30 m; B = 1.10(1) 1.608 --C.4.8  $Volume = 4.182 \times 30.12$ 125.9 m³ (2) 2.574 (5): 0.734 C.3.8 $Volume = 0.734 \times 30.12$ 22.1 m³ Left TL.41+15 - TL.ASO (length = 1165.32 - 834.11 = 331.21 m) H = 3.00 m; B = 1.05(1) 1.56 -C.4.8  $Volume = 3.81 \times 331.21$ 1262 m³ 2.25 (2) 环状 连绕双手乘流电 经制度公司额 弃害 (3) 0.734C.3.8 $Volume = 0.734 \times 331.21$ = 243 m³ TOTAL C.3.8 = 243 + 22.1 + 98.98 + 224.3 + 237.9 = 826TOTAL C.4.8 = 1262 + 125.9 + 513.81 + 1258 + 1235 = 4394Right TL.6+15 - TL.7+10 (length = 148.29 - 133.48 = 14.74 m) H = 2.965 m; B = 1.043(1) 1.554 -C.4.8 Volume =  $3.767 \times 14.74$ (2) 2.213

• •						Y
	Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	19/25
	(5)	0.734 C.3.8	Volume = 0.734 ×	14.74 =	10.8 m ³	
		talk principal	ing this party of the body.		A Maria Carlo	9 P
	1	L.7+10 - TL.8+10 (le	ngth = 168.47 – 148.2	29 = 20.18  m		
	H = 3.4	0 m; B = 1.13			2.11	: ,
	(1)	1.624	Service Services	Barrell Commence		
		├-C.4.8	Volume = $4.31 \times 2$	0.18 =	86.9 m ³	
* 5 	(2)	2.686	Alleria Branchista			
	(5)	0.734 C.3.8	Volume = $0.734 \times$	20.18 =	14.8 m ³	
		e a facilità de la company		8 4 4 4 4 <b>8</b> 4 4		
	Right T	L.8+10 - TL.17+5 (le	ngth = 343.35 - 168.4	17 = 174.86 m)		i kataya da ka
5 A	H = 3	§m; B=1 1/12/				
3.8	(1)	, (00)	4.042-11	24.88	146.7	
		1.688 _C.4.8	Y. BYZ L I Volume = .		$m^3$	za filozofia
	(2)	3.14				
	(5)	0.734 C.3.8	<b>Volume = 0.734 ×</b>	174.88 =	128 m ³	
	Right T	TL.17.5 – TL.18+5 (len	·	5 = 20.15 m)		
	H = 3.6	0 m; B = 1.17				
		1.656 —				
		C.4.8	Volume = 4.572 ×	20.15 =	92.12 m³	
	(2)	2.916				
	(5)	0.734 C.3.8	Volume = 0.734 ×	20.15 =	14.8 m ³	
	Right T	TL.18+5 – TL.33+10 (l	ength = 669.13 - 363	.50 = 305.63 m)		
1 + 5, 1 + 5,		5 m; B = 1.10				
	(1)	1.600				
		C.4.8	Volume = 4.118 ×	305.63 =	1258 m³	
	(2)	2.518	en de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	Tall Tall Tall (1994) and a single Tall (1994) and a single (1994) and a single (1994) And (1994) and		
		0.734 C.3.8	Volume = 0.734 ×	305.63 =	224.3 m ³	
<b>(</b> )	(5)	0.734	Volume 0.754 X	303.03	221.3	
	2011.0	ar and are arise.	//	0 12 - 220 66\		
		CL.33+10 - TL.45+10	(length = 908.19 - 66	9.13 239.00 mj		
		0 m; B = 1.11				
	(1)	1.608				
V		<b>├-C.4.8</b>	Volume = 4.182 ×	239.66	1002.2 m ³	
	(2)	.2.574		n de tradición de Alberta († 1865) 1900 - Fritz Berger, de tradición de tradición 1800 - Paris De tradición de tradición de tradición de tradición de tradición de tradición de tradición de tr		
	(5)	0.734 C.3.8	Volume = 0.734 ×	239.66 =	175.9 m ³	

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# Right TL.45+10 - TL.ASO (length = 1165.32 - 908.79 = 256.53 m)

H = 3.00 m; B = 1.05

Volume =  $3.81 \times 256.53$ 

- (2) 2.25
- (3) 0.734
- C.3.8

Volume =  $0.734 \times 256.53$ 

188.3 m³

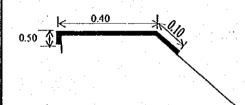
= 
$$188.3 + 175.9 + 224.3 + 14.8 + 128 + 14.8 + 10.8 = 757 \text{ m}^3$$

$$= 977.3 + 1002.2 + 1258 + 92.12 + 846.7 + 86.9 + 55.5 = 4319 \text{ m}^3$$

TOTAL C.3.8  $= 826.1 + 757 = 1584 \text{ m}^3$ .

TOTAL C.4.8 =  $4319 + 4394 = 8713 \text{ m}^3$ 

#### C.4.9 Plastering.



Right: TL.6+15 - TL.ASO

Length: 1165.32 - 133.48 = 1031.84

Volume:  $(0.40 + 0.1 + 0.05) \times 10.31.84 = 567 \text{ m}^2$ 

#### Left TL.2 – TL.ASO (length = 1165.32 - 39.31 = 1126.01 m)

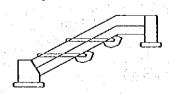
Volume

$$= (0.4 + 0.1 + 0.05) = 1126.01 \text{ m}$$

Total C.4.9.

$$619 + 567 = 1186 \,\mathrm{m}^2$$

#### C.3.10 & C.4.10 Weep Hole (PVC) C.3.10 Low Water Channel



Right: TL.6+15 - TL.ASO

Length: 1165.32 - 133.48 = 1031.84

Volume:  $\frac{1031.84}{2} \times ' \times 2 = 1032 \text{ nos}$ 

### Left TL.2 – TL.ASO (length = 1165.32 - 39.31 = 1126.01 m)

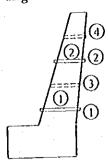
Volume

Total C.3.

m 1032 +1126 = 2158

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C.4.10 High Water Channel



(1) 1.15; (2) 0.85; (3) 1.00; (4) 0.70

Right: TL.6+15 - TL.ASO

Length: 1165.32 - 133.48 = 1031.84

Volume:  $\frac{1031.84}{2} \times 0.32 = 1032$  nos

Left TL.2 - TL.ASO (length = 1165.32 - 39.31 = 1126.01 m)

(1) 
$$\frac{1126.01}{2} \times 150 = -2252 \text{ mos}$$
.

Total C.4.10.

.2064 + 2252 - 4316 mos

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C.4.5 & C.4.7 Sheet Pile

Type C - Revetment

Right: TL.2 - TL.6+15

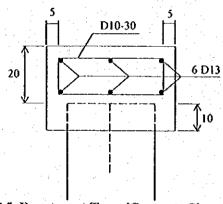
Length: 133.48 - 39.31 = 94.17 m

Pile Cap

Concrete (C₁)

$$0.50 \times 0.3 \times 94.17 = 14.12 \,\mathrm{m}^3$$

#### Reinforcing Bar (SII U30)



$$6 \times 1.04 \times 94.17 = 587.6 \text{ kg}$$
  
 $(0.4 \times 2 + 0.1 \times 2 + 6 \times 2) = 1.12 \text{ m}$ 

$$1.12 \times 0.617 \times \frac{94.17}{0.30} = 217 \text{ kg}$$

Total weight =  $217 + 587.6 = 806 \text{ kg} \ \ell$ 

C.5 Revetment Type (Concrete Sheet Pile)

Pile Type C

C.3.13 Log Pile*

* High water channel (\$150; L=4.0m; ete =0.50 m). Left: (TL.2-TL.ASO)

Length: 1165.32 - 39.31 = 1126.01 m

$$\frac{1126.01}{0.50} \times 4 \times 4.0$$

Right: (TL.6+15 - TL.ASO)

Length:  $1165.32 - 133.48 = 1031.8 \,\mathrm{m}$ 

$$\frac{1031.8}{0.50} \times 4 \times 4.0$$

Tatal of High water channel

Name of Structure	REVETMENT OF ASIN RIVER	Category Calculation	Works Volume	Page	23/25
	vater channel (91); (11.2-71.ASO)	1052=4.0m;	te = 1.0 m).		
l	th = 1165.32-39.31	= 1/26,01 00		Jau	M.
Volu	me of hog Pill = !	1126.01 x1x4.1	= 4504 m	4504	
Righ	A; (Th 6+15-76	401			
,	th = 1165.32 - 133	=	3 m.		
Volu	me of hos sile =	1031.8 . 1 . 14	10 = 4/27 m	, ul	<i>l k</i>
		7.0 4,4	T 01 - 8621	un.	o(e)
	n de de la companya de la companya de la companya de la companya de la companya de la companya de la companya d La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co	ruly how w	ten el, = 8631		\$\$\frac{1}{2} \cdot \frac{1}{2}
e revenue agree					
	<del></del>		<del></del>		<b>5.1</b>
C.3.14 Rubbo	er Joint Filler				
Area (8)	)+(5)+(1)+(2)+(9)				
(1) $\frac{0.3}{}$	$\frac{+0.5}{2} \times 0.3 + 0.2 \times 0.5$		= (	).220	
	<u> </u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
(5) $\frac{1}{\sqrt{2^2}}$	$\frac{2}{+1^2} \times 0.25 + 0.7 \times 0.25$		<b>=</b> (	).734	
(8) 0.7	<0.3			0.210	
(2) 0.7 · (9) 0.5 ›				).070 ).050 <u>+</u>	
			the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	.284	
	TL.2 - TL.ASO) : 1165.32 - 39.31 = 1126.0	)1 m			and a significant
Volume	1126.01	.284		32.1 m	
	1	.20 .		32	
	: 1165.32 – 133.48 = 1031	.8 m			
Volume	$=\frac{1031.8}{1.5} \times 1.2$	284		29.5 m	
	45		# # # # # # # # # # # # # # # # # # #	61.6 m	
C.3.16 Form	Work			4	
8	$\mathbf{\Lambda}_{0}$	(1) 0.1 >		0.20 m	
0		(2)			
	<b>[</b> 3	(3)		0.20 m	
<b>0</b> [		(4) √0.2	$2^2 + 0.3^2 =$	0.36 m	
		(5) 0.1 >	=	0.20 m	
<b>6</b>	<b>©</b>	(6) 0.7 >	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	1.40 m	
			=	2.86 m	
<b>③</b> [					

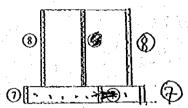
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Left: length = 1165.32 - 39.31 = 1126.01 m

**Right**: length = 1165.32 - 133.48 = 1031.8 m

Area:  $2.86 \times 215.8 = 6172 \text{ m}^2$ 

# CONSTRUCTION JOINT



gomit

Length of ;

 $(7) 0.1 \times 2$ 

= 0.20 m

2.95

(8)  $0.5 \times 2.95 \times 2$ 

= 2.95 m

= 3.15 m

Left Side

Length: 1165.32 - 39.31 = 1126.01 m

Number of P Jaint =

 $\frac{1126.01}{15} + 1 = 76 \text{ m}$ 

Right Side

Length: 1165.32 - 133.48 = 1031.84 m

Number of I joint

 $\frac{1031.8}{15} + 1 = 70 \text{ m}$ 

Total = 76 + 70 = 146

Area =  $3.15 \times 146 = 459.9 \text{ m}^2$ 

Volume C.3.16:  $460 + 6172 = 6632 \text{ m}^2$