# ANNEX E

# **ROAD CONSTRUCTION**

#### ANNEX E ROAD CONSTRUCTION

(1) Calculation of Work Quantities

1) Earth moving

The quantities of earth to be moved are calculated in Table A.E.I. In this table, the following abbreviations are used:

- Select 1 : Volume of selected soil for subgrade in a road section where only subgrade construction is required (low embankment height).
- Select 2 : Volume of selected soil for subgrade in a road section where embankment of the common soil under the subgrade is necessary (rather high embankment height).
- Com 1 : Required volume of common soil for embankment apart from the subgrade.
- Com 2 : Additional volume of embankment generated by site clearance. (see Table 7.1.5)
- Com 3 : Additional volume of embankment generated by displacement of natural ground possibly due to the consolidation of subsoil (at lowland on both sides of Río Tebicuary-mí). (see, Table 7.1.6)
- Side Borrow: Earth volume obtained from road side borrows.

Table A.E.1 Calculation of Quantity of Earthmoving

(1) 1st Section

NO. NO. Paguan to Kuo Tebrouarymi Relect1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2	Section 7.3	Pavement Ler	Length			Parisement	L			[ Lenoth		Volume
an to kio Tebicuarymi Select1 Select2 Total Total Total Total Total Total Total Total Total Total Total COm Total Total Total Com Total Com Com Total Com Com Com Com Com Com Com Com Com Com	<u>m og </u>				Section		Length	volume	Netton		volume	277772
1     Select1       2     Select1       7total     Com1       7total     Com2       7total     Total       7total     Total       7total     Com2       7total     Com2	7.3 14.8 9.8											
	9.8	4.38	14200.0	41.464								
	9.8	4.38	7160.0	74,607				-				
	9.8			116.071								116.071
		0.00	7160.0	70.168								
			-	31.187			-					
	14 11		-	101.355	5.6	4.38	1140.0	. 11.377	4.0	22500.0	90,000	-3
	11.1	4.38	4605.0	30,485								
	18.1	4.38	2645.0	36.289								
				66.775	21.0	4.38	3250.0	82,485				-15.711
	11.4	0.00	2645.0	30.153								
				47,264								
				77.417					7.4	10500.0	77.700	-283
	15.5	4.38	7800.0	86.736	••••							
	21.3	4.38	1200.0	20.304	-					-		
				107.040						-		107,040
	4.3	00.0	1200.0	5.160								
	 			0								
				5.160					4.0	9000.0	36.000	-30.840
	0.6	4.38]	4900.0	22,638								-
	21.0	4.38	5040.0	83,765								
				106,403								106.403
	14.2	00.00	5040.0	71,568								
				45,472								
				117.040					11.7	10000.0	117,000	40
	13.5	4.38	3200.0	29.184		• • • •						
Total COm1	17.4	4.38	2164.0	28.175								
Comi				57,359								57,359
CHOIL CHOIL	17.8	0.00	2164.0	38,519			-					
				18.240			-					
Com3	-			4,067								
Total				60.826	11.4	4.38	1150.0	18,147	6.4	6514.0	41.690	066
Scleet				453,648				82.485			-	371.163
Total	 			361.798				29.524			362,390	-30.116

E- 2

Segument	Tvne		Embankment	ment			đ	1. 1.			Gutter Cut		Ramced
°.		Section	Pavement	Length	volume	Section	Pavement	Length	volume	Section	Length	volume	Volume
Tebicuar	Rio Tebicuarymi to Villarica	urica											
	Select1	6.4	5.11	1140.0	1.471								
v v	Select2	19.8	5.11	2741.0	40,265						<del> </del>		
<b></b>	Total				41,736	÷ .							41.736
ا ــــــــــــــــــــــــــــــــــــ	Coml	17.6	00.00	2741.0	48,242						<u>,</u>		
ε	Com2				23.026								
<u></u>	Com3				5.636								
ŧ	Total	. :			76.904					18.2	4271.0	77.818	-914
	Select1	10.3	11'S	6550.0	33,995								
~	Select2	19.4	5.11	1390.0	19,863						-		
<u> </u>	Total				53,858								53,858
•	Coml	0.4	00.0	1390.0	556		· · ·						
<u> </u>	Com2				11.040								
	Total				11.596					4	8000.01	32.000	-20,404
	Select1	8.1	11.2	7060.0	21.109								
~	Select2	242	5.11	4000.0	76.360					 			
<u> </u>	Total				97,469			   		 			97.469
	Coml	3.6	0.00	4000.0	14,400								
	Com2				33,800						<b>+</b> -		
L	Total				48,200	1.6	5.11	940.0	6.307	4.0	12000.0	48,000	200
	Select		•		193,063				ō				193.063
Total	Со Со Со				136.700			-	6.307	<b>†</b>		157.818	-21.118

E- 3

(3) 3rd Section (La Colmena - Tebicuary)

	Select1	8.8	4.24	22595.01	103,033								103.035
P-4	Com2				23.232				   	4.0	25300.0	101.2001	-77 968
	Select1	28.8	4.24	2400.0	58,944					•			58.944
	Comi	7.8	0.00	2400.0	18,720				 				
(1	Com2				464			 					
	Total		:		19.184		-			8.0	2400.0	19.200	-16
	Select1	13.5	4.24	9560.0	88,526								88.526
<b>6</b>	Com2				6.160	2.0	4.24	840.0	3,982	4.0	10400.0	41.600	-39,422
· · · · · · · · · · · · · · · · · · ·	Select			-	250,503				ō				250.503
Total	Com				48.576				3.982			162.000	-117.406
Gand	Select				897.213			 	82.485				814.728
Total	Con				547,074				39,813			682.207	-168.639

## 2) Quantity of Site Clearance

	Segment 1								
		STATE	0N			UNIT		SITE CLEARIN	متسمعا فسنساب فلنته مستخلصا فالمتنا مستنها المتناز
							NORMAL	WOODS	DENSE WOODS
S.	0+	0 ~	S.	2+	100	m	500.0		
s. s.	2+		<u>s.</u>	4 +	60	m		340.0	
	4+	100 ~	S,	5+	100	. m	200.0		
S.	10 +	0 ~	<u>Ş.</u>	21 +	0	m	2,200.0		
S.	27 +	100 ~	· S.	30 +	0	m	500.0		
<u>s.</u>	46 +	0 ~	<u>S.</u>	47 +	100	m	300.0		
<u>s</u>	50 +	0~	<u>\$.</u>	51 +	0	m	200.0		
<u>s.</u>	51 +	0~	<u>s.</u>	51 +	100	m	100.0	·	
<u>s</u>	55 +	0 ~	<u>s</u> .	57 +	0	m	400,0		
<u>s.</u>	58 +		<u>S.</u>	60 +	0	m	400.0		
<u>s.</u>	63 +	0 ~	S.	61 +	0	m		200.0	
<u>s.</u>	64 +	0 ~	<u>\$.</u>	65 +	0	m	200.0		
S.	71 +	0~	<u>s.</u>	73 +	100	m		500.0	
<u>s.</u>	73 +	100 ~	S.	75 +	0		500.0		
<u>s.</u>	76 +	0 ~	<b>S</b> .	79 +	0		600.0		
<u>s.</u>	84 +	0 ~	<u>\$.</u>	86 +	0	m	400.0		
-		Sub Te	tal			m	6,500.0	1,040.0	0.0
	Segment 2								
		STATIC	ON		:	UNIT		SITE CLEARING	
						ļ	NORMAL	WOODS	DENSE WOODS
<u>S.</u>	112 +	100 ~	<u>S.</u>	115 +	100		600.0		
S	115 +	100 ~	<u>\$.</u>	118 +	0		<u> </u>	500.0	
<u>S.</u>	118 +	0 ~	<u>S.</u>	142 +	100		4,900.0		
<u>S.</u>	142 +	100 ~	<u>Ş.</u>	144 +	0			600.0	
<u>s.</u>	144 +	0~.	<u>S.</u>	150 +	0		1,200.0		
<u>s.</u>	153 +	100 ~	<u>S.</u>	158 +	0		900.0		
<u>S.</u>	158 +		<u>S.</u>	159 +	0			200.0	
<u>s.</u>	159 +		<u>S.</u>	164 +	0	<u></u>	1,000.0		
		Sub To	tal			m	8,600.0	1,300.0	0.0
	Segment 3			-					-
		STATIC	JN			UNIT	NORMAL	SITE CLEARING	DENSE WOODS
			~~~~~~				NURMAL	woods	DENSE WOODS
			<u></u>			┟╾──╴ै			4
*****		Sub To	[3]			m	0.0	0.0	0.0
	Segment 4	STATIC	NV.			UNIT		SHE CLEARING	
		STATIC				om	NORMAL	WOODS	DENSE WOODS
<b>S</b> .	210 +	0~	S.	216 +	100	m	1.300.0		013100 110003
<u>s.</u> S.	210 +		<u>s.</u> <u>s</u> .	218 +	0		1,000.0	300.0	
<u>s.</u> S.	218 +	0~		260 +	0		8,400.0		
, 	410 *			200 4			and the state of the second	200.0	
-	Segment 5	Sub Tot	លោ	ويور المراجع ا		<u>_m</u>	9,700.0	300.0	0.0
-	ocgineite J	STATIC	NV.		_	UNIT		SITE CLEARING	
		STAIL			i		NORMAL	WOODS	DENSE WOODS
		0 ~	S.	287 +	0	R)	1,400.0		20100 10005
	280 +			288 +	0		1,100.0	300.0	
	280 +		<b>C</b> ·			m, i			1 .
<b>S</b> .	287 +	0~	<u>S.</u>			m	200.0		1
S. S. S.	287 + 288 +	0 ~ 100 ~	<b>S</b> .	289 +	0	ni m	200.0		700.0
<b>S</b> .	287 +	0~	S. S.			m m M	200.0	300.0	700.0

 Table A.E.2
 Site Clearing (1) - Paraguarf to Tebicuary

	Segment 6						ACTUAL OF A DOL OF A DESCRIPTION	
	4.24.175767-84679.9014-959	STATION			UNIT	4	SITE CLEARIN	ζG
						NORMAL	WOODS	DENSE WOODS
S.	292 +	114 ~ S.	292 +	164	m			50.0
S.	292 +	164 ~ S.	314 +	0	m	4,236.0		
	: :	Sub Total			m	4,236.0	0.0	50.0
	Segment 7		<u>≁₋₽⊥₽</u> ₩₩₩₩₩₩		in erez romañ:	<u></u>	ga 327.1631.5520.957.97595.6295.	
		STATION			UNIT	S	ITE CLEARI	NG
		1	· .			NORMAL	MIDDLE	HEAVY
S	315 +	0 ~ S.	317 +	0	m	300.0		
<b>S</b> .	319 +	0~ S.	322 +	0	m	600.0		
S	325 +	150 ~ S.	328 +	0	m	450.0	1 A	
S	330 +	0 ~ S.	331 +	100	m	300.0		
S.	344 +	0~ S.	348 +	50	m	850.0		
S.	351 +	0~ S.	353 +	100	m	500.0		
		Sub Total			m	3,000.0	0.0	0.0
	Segment 8							
- 21, 14		STATION			UNIT		SITE CLEARIN	G
	1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -					NORMAL	WOODS	DENSE WOODS
S.	358.+	150 ~ NO.	360 +	150	m	400.0		
S.	364 +	50 ~ S.	370 +	150	m	1,300.0		
<b>S</b> .	370 +	150 ~ S.	373 +	100	m		550.0	
S.	373 +	100 ~ S.	391 +	100	m	3,600.0		
S.	395 +	0~S.	405 +	0	m	2,000.0		
		Sub Total			m	7,300.0	550.0	0.0
:		Total			m	14,536.0	550.0	50.0

Table A.F.2 Site Clearing (2) - Tebleuary to Villarrica

Segu	iment 1		1. Hold The Carl Street of Carl		TUNGER	umma milaine maileir faid aafdi 607ka J-1		
		STATION			UNIT		SITE CLEARIN	and the second secon
					<b>}</b>	NORMAL	WOODS	DENSE WOOD
<u>S.</u>	2 +	100 ~ S.	3+	50	***	150.0	100.0	
<u>s.</u>	3 +	<u>50 ~ S.</u>	3 +	150	1		100.0	<u> </u>
<u>S.</u>	3 +	<u>150 ~ S.</u>	11 +	0		1,450.0		
<u>S.</u>	25 +	<u>0 ~ S.</u>	27 +	100	łł-		500.0	
<u>S.</u>	30 +	<u>0 ~ S.</u>	37 +	0		400.0		
<u>S.</u>	50 +	100 ~ S.	· 55 +	0	Line work	900.0		
<u>S.</u>	65 +	0 ~ S.	66 +	100		300.0		
<u>S.</u>	72 +	<u>100 ~ S.</u>	76 +	100	m	800.0		
<u>S.</u>	79 +	<u>0 ~ S.</u>	80 +	0	m	200.0		
S.	83 +	<u>0 ~ S.</u>	84 +	50	m	250.0		
S.	117 +	0 ~ S.	118 +	0	m	200.0	· · · · · · · · · · · · · · · · · · ·	
<b>S</b> .	120 +	0 ~ S.	121 +	100	m		300.0	
S.	123 +	100 ~ S.	126 +	100	m	600.0		
	•	Sub Total			m	5,250.0	900.0	0.0
Segu	ment 2	ndarinden (das milis-destas Tedar) (t. 1						and a second of the second
		STATION			UNIT		SITE CLEARIN	√G
	·				[	NORMAL	WOODS	DENSE WOODS
S.	126 +	100 ~ S.	127 +	40.5	m	100.0		
	- <b></b>	Sub Total			m	100.0	0.0	0.0
Segu	ment 3	rin rant milje Gellen somer tit di Anton w			Angene gant skapat die Beel		and and a second se	
		STATION			UNIT		SITE CLEARIN	ίG
						NORMAL	WOODS	DENSE WOODS
S.	139 +	50 ~ S.	140 +	40	m		310.0	
S.	142 +	70 ~ S.	146 +	20	m	400.0		- <b>1</b>
S. 🦷	148 +	80 ~ S.	155 +	40	m		350.0	
S.	176 +	50 ~ S.	177 +	70	m	240.0		_L
S.	180 +	0 ~ S.	180 +	60	m.	120.0		
		Sub Total			m	760.0	660.0	0.0
	<del> </del>	Total			m	6,110.0	1,560.0	0.0
مفيحصم		Grand Total			m	47,046.0	5,050.0	750.0

Table A.E.2 Site Clearing (3) - La Colmena to Tebicuary

3) Drainage Structure

Minor drainage structures other than bridges are standardized in this study as follows:

- Box culvert : 3.0×3.0
- Pipe culvert : Diameter = 1.2 m

The number of structures is listed in Table A.B.3.

Section 1 : I	Paraguari to Rio Tebicu	arymi
	Paraguari - Sapucai	
	Structur	е Туре
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
3,193	l	
3,709	1	
3,888	1	
4,309		<u> </u>
4,527		
5,455		
5,688	1	
3,767	1	
6,779 7,745	1	
8,186		
9,653	1	
10,195	······································	
10,609	1	
10,875	1	
11,088	1	
11,470	1	
11,609	1	
11,754	1	
11,978	1	
12,212	1	
12,718	1	
12,984	1	
13,322	1	
13,456 13,988	1	
15,507	1	······
16,525		
16,762		
17,055	1	
17,609	1	
17,933	1	
18,137	1	
18,540	1	
19,180	1	
19,222	<u> </u>	
19,720	1	
20,063	<u> </u>	
20,432	1	
20,510		
20,735		
21,860	1	
Total	42	0

	and the second		
	Toble A F 1	List of Drainage Structures (1)	÷
	LADIC MILAS	mar of maniage ordering (i)	
ŝ			

r

Segment 2	Sapucai - Caballero	
	Structure	е Туре
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
27,734		1
28,016		<b>1</b>
28,139		1
29,228		1
29,600		1
Total	0	0
Segment 3	Caballero - Ybytimy	
	Structure	
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
34,020		1
34,200		1
35,260		1
38,120	<u> </u>	
40,530	1	
41,440		1
41,750		1
Total	2	5
Segment 4	Ybytimi - Punto Unide	)
	Structure	THE OWNER OF A DESCRIPTION OF A DESCRIPR
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
Total	0	0
Segment 5	Ponto Unido - Tebicua	and the second
	Structure	
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
54,334	1	
54,675		
Total	2	0
Grand Tota	46	5

Section2:R	tio Tebleuarymi to Vill	arrica
Segment 6	Tebicuary - Cnel. Mart	linez
	Structure	and the second
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
Total	0	0
Segment 7	Chel, Martinez - Cardo	)20
· · · · · ·	Structure	е Туре
Distance	Box Culvert (3.0x 3.0)	Pipe Culvert(D1.2)
64,542	1	
64,933	1	
65,810	1	
66,117	1	
70,620	1	
Total	5	0
Segment 8	Cardozo - Villarica	
	Structure	е Туре
Distance	Box Culvert(3.0x3.0)	Pipe Culven(D1.2)
75,223		1
75,875		1
76,574	·	1
76,732	1	
77,174		<u> </u>
77,352		- 1
77,735		]
78,112	1	· · ·
78,765		1
79,850	1	
80,049		1
80,849		1
81,249	1	
82,249		1
Total	4	10
Grand Total	9	10

## Table A.E.3 List of Drainage Structures (2)

Section 3 : I	Branch to La Colmena	n an
STREET, DATE OF STREET, DATE	La Colmena - No 253-	100
	Structur	
Distance	Box Culvert(3.0x3.0)	
2,105	1	
4,484	- j	
6,397	1	
6,449		1
6,597		]
7,428		1
11,462		1
12,972	, ana ana afa a bag aligada. Ta da a linda an da	]
13,330		1
15,968		1
17,422	a ny ny ny isana ina ina ina manana isa ina manana ana ana ana ana ana ana ana an	1
17,635	· · · · · · · · · · · · · · · · · · ·	1
18,089		1
18,535		1
18,707		l
19,742		1
20,031		1
20,300		1
22,352	1	1
Total	4	16
Segment 2	No 253+00 - No 277+	00
	Structure	е Турс
Distance	Box Culvert(3.0x3.0)	Pipe Culvert(D1.2)
Total	0	0
Segment 3	No 277+00 - Tebicuar	
Distant	Structure	
Distance 30,390	Box Culvert(3.0x3.0)	ripe Cuiven(D1.2)
30,390	1	
<u>32,682</u> 33,967	1	·
Total	4	0
Non-second second	4 8	16
Grand Total		10

E-9

## 4) Quantity of Pavement Materials

The quantities of pavement materials are shown in Table A.E.4, while more detailed data by segment are tabulated in Table A.E.5.

	Segment	Unit		Par	aguari lo R	io Thicuary	mi		Rio	Tebicuary	ni to Villar.	ліса
Description			1	2 -	3	4	5	Total	6	7	8	Total
AC	Roadway	m3	22,050	10,290	8,820	9,800	6,370	57,330	4,410	7,840	11,760	24,010
	Shoulder	m3	4,500	2,100	1,800	2,000	1,300	11,700	900	1,600	2,400	4,900
	Total	m3	26,550	12,390	10,620	11,800	7,670	69,030	5,310	9,440	14,160	28,910
Base	Roadway	m3	23,963	11,183	9,585	10,650	6,923	62,303	4,793	8,520	12,780	26,093
Sub-base	Roadway	m3	24,638	11,498	9,855	10,950	7,118	64,058	8,213	14,600	21,900	44,713
	Shoulder	m3	23,400	10,920	9,360	10,400	6,760	60,840	4,680	8,320	12,480	25,480
	Tota]	m3	48,038	22,418	19,215	21,350	13,878	124,898	12,893	22,920	34,380	70,193
Praim	Roadway	łt	239,625	111,825	95,850	106,500	69,225	623,025	47,925	85,200	127,800	260,925
Seal Coat	Shoulder	łt	175,500	81,900	70,200	78,000	50,700	456,300	35,100	62,400	93,600	191,100
	Total	ŧt	415,125	193,725	166,050	184,500	119,925	1,079,325	83,025	147,600	221,400	452,025

## Table A.E.4 Summary of Quantity of Pavement Material

	Segment	Unit	Unit Brarch to La Colmena						
Description			1	2	3	Total	Total		
AC	Roadway	m3	21,252	2,016	8,736	32,004	113,34		
	Shoulder	m3	5,060	480	2,080	7,620	24,22		
	Total	m3	26,312	2,496	10,816	39,624	137,56		
Base	Roadway	m3	26,945	2,556	11,076	40,577	128,97		
Sub-base	Roadway	гяЗ	27,704	2,628	11,388	41,720	150,49		
	Shoulder	m3	26,312	2,496	10,816	39,624	125,94		
	Total	m3	54,016	5,124	22,204	81,344	276,43		
Praim	Roadway	11	269,445	25,560	110,760	405,765	1,289,71		
Seal Coat	Shoulder	11	197,340	18,720	81,120	297,180	944,580		
	Total	lt	466,785	44,280	191,880	702,945	2,234,29		

raraguari	is Villando	1010 A.B.	v yuan	usey UI	ravegen	Hateria	L DY Sel La Colmer	a <u>neant</u>			1
Segment1						Segment					
Desci	iption	Distance	Width	Thickness			ription	Distance	Width	Thickness	Volume
	10 1	<u>km</u>	m	m	m3,lt:	·		km	m	m	m3,lt
VC i i	Roadway Shoulder	22.5	- 7.0	014	22,050.0	ÂC .	Roadway	25.3	7.0	0.12	
Base	Roadway	22.5 22.5	5.0	0.04	4,500.0		Shoulder	25.3	5.0	0.04	5,060.0
Sub-base	Roadway	225	7.1	0.15	23,962.5	Base	Roadway	25.3	71	0.15	26,911.5
200-0430	Shoulder	22.5	5.2	0.13		Sub-base	Readway	25.3	7.3	0.15	27,703.5
rim	Roadway	225	7.1	0.0015		frim	Shoulder	25.3	5.2	0.20	
Seal Coat	Shoulder	22 5	5.2	0.0015		Seal Coat	Roadway Shoulder	25.3	7.1	0.0015	269 445 0 197 340 0
Segment2					110,000	Segment2	1011001000		J.4	0.0015	197,3400
Desce	iption	Distance	Width	Thickness	Volume		riction	Distance	Width	Thickness	Volume
		ka	m	_ m _	m3,it			km	n.	m	m3.lt
٨C	Roadway	10.5	7.0	0.14		A/C	Roadway	2.4	7.0	0.12	2,016 (
	Shoulder	10.5	5.0	0.04	2,100.0		Shoulder	2.4	5.0	0.04	430.0
Base	Roadway	10.5	2.1	0.15	11,182.5	Base	Readway	2.4	7.1	0.15	2,556.0
Sub-hase	Roadway	10.5	7.3	0.15		Sub-base	Readway	2.4	7.3	0.15	2,628.0
<u>.</u>	Shoulder	10.5	5.2	0.20			Shoulder	2.4	5.2	0.20	
rim	Roadway	10.5	7.1	0.0015		Prim	Roadway	2.4	7.1	0 0015	25,560.0
Seal Coat	Shoulder	10.5	5.2	0.0013	81,900.0	Seal Coat	Shoulder	2.4	5.2	0.0015	18,720.0
egmen13						Segment3		<b></b>			
Desci	iption	Distance	Width	Thickness	Volume	Desc	ription	Distance	Width	Thickness	Volume
vĉ	10	km 0.0	m TA	m .	m3,12		72	km	m	<u>. n</u> .	m3,lt
VC.	Roadway Shoulder	9.0 9.0	7.0	0.14	8,820.0	A/C	Readway	10.4	7.0	0.12	8 736.0
Base	Roadway	9.0	5.0	0.04	1,800.0	D:	Shoulder	10.4	5.0	0.04	2,080.0
Sub-base	Roadway	9.0	7.3	0.15	9,585.0 9,855.0	Base Sub-base	Roadway	10.4		0.15	11,076.0
	Shoulder	9.0	5.2	0.13		SED-DEC	Roadway Shoulder	10.4	7.3	0.15	11,388.0
'rim	Roadway	9.0	7.1	0.0015	95,850.0	Prim	Roadway	10.4	5.2	0.20	10,816.0
Seal Coat	Shoulder	9.0	5.2	0 0015	70,200.0	Scal Coat	Shoulder	10.4	5.2	0.0015	81,120.0
Segment4	*									0.0015	61,120.0
Desce	iption	Distance	Width	Thickness	Volume						
		km	m .	m	m3,lt						
VC	Roadway	10.0	7.0	0.14	9,800.0						
	Shoulder	10.0	5.0	0.04	2,000.0						
lase	Roadway	10.0	7.1	0.15							·
ub-base	Roadway	10.0	7.3	0.15	10,950.0			1			
	Shoulder	10.0	5.2	0.20	10,400.0						
rim Seal Coat	Roadway Shoulder	10.0	7.1	0.0015							
egment5	Shoulde	10.01	5.2	0.0015	78,000.0						
Descr	inting	Distance	Width	Thickness	Volume						
		km	m.	m	m3,h				· · ·		
VC	Roadway	6.5	7.0	0.14	6,370.0						
	Shoulder	6.5	5.0	0.04	1,300.0	1.1		. ÷			
lase	Roadway	6.5	7.1	0.15	6,922.5						
ub-base	Ploadway	6.5	7.3	s 0.15	7,117.5						
	Shoulder	6.5	5.2	0.20	6,760.0		- 1			<b>`</b>	
rim	Roadway	6.5	7.1	0.0015	69,225.0			2	1.1	÷	
ical Coat	Shoulder	6.5	5.2	0.0015	50,700.0		1.11			· · · ·	1. S. S. S.
egmento							1				
Descr	ibriou :	Distance	Width	Thickness	Volume		1	1.1.1.1.1		1.00	$f = 1, \dots, n \in \mathbb{N}$
vc	Roadway	km Is	- m 70	<u>m</u>	<u>m3,lt</u>		1			1	
•••	Shoulder	4.5	5.0	0.14	4,410.0 900.0				14 A.	:	
lase	Roadway	4.5	: 7.1	0.15	4,792.5						÷
ub-base	Roadway	4.5	7.3	0.25	8,212.5						
	Shoulder	4.5	5.2	0.20	4,680.0						
rim	Roadway	4.5	7.1	0.0015	47,925.0						
eal Coat	Shoulder	4.5	5.2	0.0015	35,100.0					· ·	
egment7								· · ·			
Descr	iptica	Distance	Width	Thickness	Volume				1. J. B. S.		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
· · · · · · · · · · · · · · · · · · ·	احتسندا	km	m	់ គា	m3,lt			4 - 14			
vc	Readway	8.0	7.0	0.14	7,840.0			. : :	•		· .
	Shoulder	80	5.0	0.04	1,600.0				· .	· ·	
Base	Roadway	8.0	7.1	0.15	8,520.0			· ·		1.1	
ub base	Roadway	8.0	7.3	0.25	14,600.0						
้ำเ่า	Shoulder Rosduisi	8.0 8.0	<u>5.2</u> 7.1	0.20	- 8,320.0 85,200.0			•			
rim real Coal	Roadway Shoulder	8.0	7.1	0.0015	85,200.0 62,400.0						
	SHOULOCE	0.01	3.2	0.0015	02,400.0						
	intion	Distance	Width	Thickness	Volume						
Segment8	2000	kra	Mildin Mi	m	wonume m3,H						
		. B.716	102								
Segment8 Descr	Roaduar		70	0.17	117/00						
Segment8	Roadway Shoulder	120	7.0	0.14	11,760.0 2,400.0						
Gegment8 Descr	Shoulder	120	5.0	0.04	2,400.0						
egment8 Descr VC lase	Shoulder Roadway	120 120 120	- 5.0 7.1	0.04	2,400.0 12,780.0						
Segsnent8 Descr	Shoulder	120	5.0	0.04	2,400.0						

E- 11

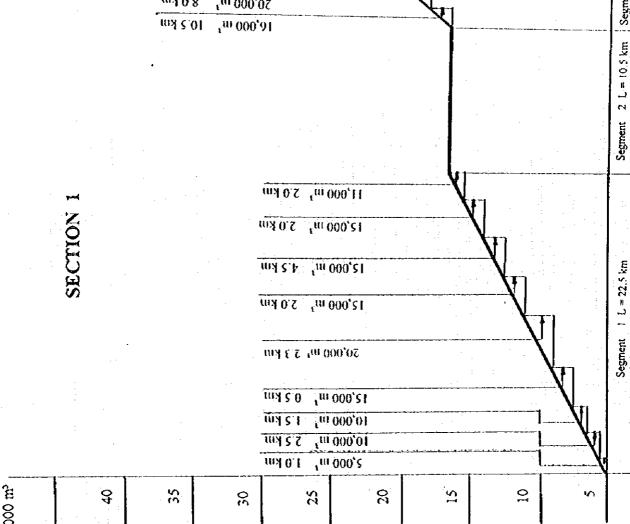
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#### 5) Average distance of transport of selected soil

The average distance of transport of selected soil from the candidate borrow pits, which are described in Chapter 6, to the site was calculated according to the following Figure A.E.1 (1) and (2).



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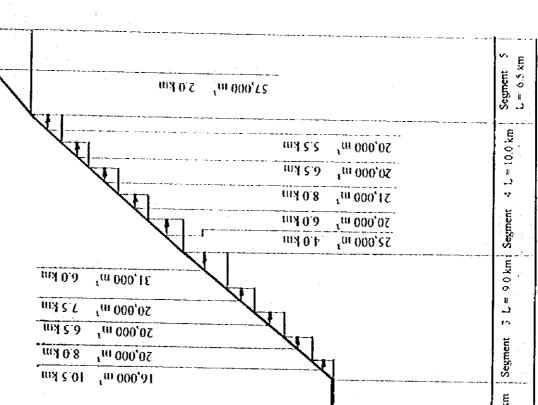


Figure A.E.1 (1)

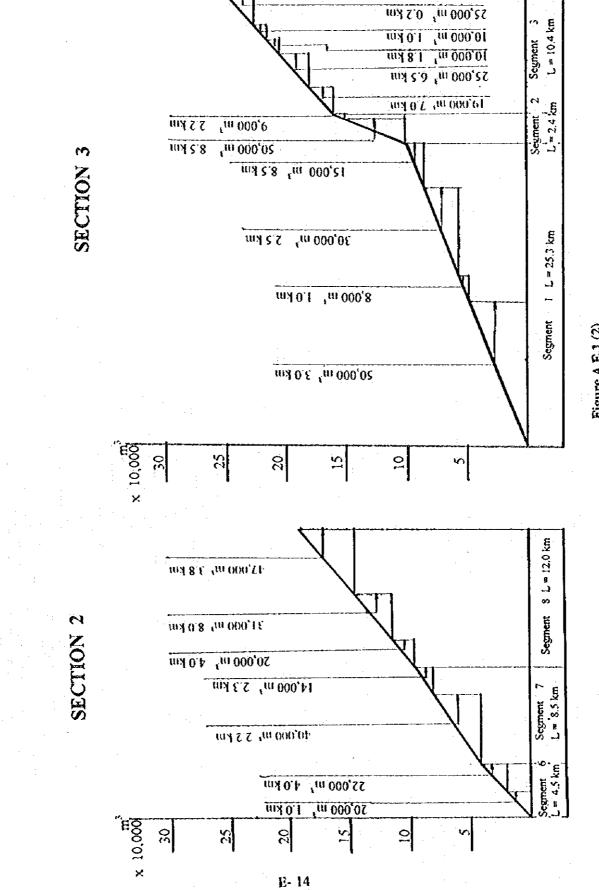


Figure A.E.1 (2)

#### (2) Cost Estimation

#### 1) Modification of costs relative to pavement structure

Pavement structures were compared in 6-4-3, (3), 4). However, Table 6.4.10, which shows the cost comparison results of rigid pavement and flexible pavement, is based on unit prices tentatively set only for comparison purposes. More exact unit prices, however, have been set in Chapter 8. Table A.E.6 is the modification of Table 6.4.10 in that it uses exact unit prices. There is no change in the comparison results.

Table A.E.6 Cost Comparison of Rigid and Flexible Pavement

1.0005

Paraguari - Rio Teb. (58.5km) bick(cm) Vol. (m3) 1

U.P.(S/m3) Thick(cm)

Rigid Pavement

(otal(121.11cm) 1.000 S

1.0005

 Rio Teb. - Villarrica (24.5km)
 La Colmens - Teb. (38.1km)

 U.P.(S/m3)
 Thick(cm)
 Vol. (m3)
 1.0005
 U.P.(S/m3)
 1'hick(cm)
 (vol. (m3)
 1

Cement Concrete	0.512	8	114,000	24,652	215.0	ส	020,34	10,324	215.0	ព	61.341	13,188	48,165
Subbase	39.6	16	65,520	2.593	38.1	16	27.440	1.044	49.9	. 16	42,672	2,128	5,765
Total (S)=R				27.245				11,369				15.316	\$3,930
Flexible Pavement													
Asphait Concrete	1.911	4	57,330	6.825	117.5	14	24,010	2,822	129.4	12	32,004	4.140	13,787
Base	40.8	Ŋ	61.425	2005	39.3	2	25.725	1.012	51.1	15	40,005	2,046	5,566
Subbase	39.6	51 Z	61,425	2,431	38.1	ุ่ม	42.875	1.632	49.9	15	40,005	1,995	6,057
Prime Coat	570.0	0.15	614	350	570.0	0.15	257	147	570.0	0.15	400	528	725
Sub-total (S/m)-A		· · ·		12.114				5.612				8,409	26.135
Overlay (A/C)=B	119.1	30 30	32,760	3,900	2711	11	18,865	2,217	129.4	8	21,336	2.760	\$,877
discounted B=C	8 % X 9years			1.951				1.109				1.380	4,440
Total (S)=F=A+C				14.065				6.721				9.789	30,576
R - F (S)				13.179				4.648		: : :		< <77	755 22

2) Unit price of work item

Detailed data of unit price estimations are shown from the next page.

	TRANSPORTATION OF SOIL	DMT (Km.) : 7
	UNIT :G/m3/Km	
I	EQUIPMENT	
1	-	25 700 0 4
	Dump Truck 11 tn. (6m3)	35,700 G./hs.
	TOTAL COST OF EQUIPMENT	35,700 G./hs.
II	LABOR	
	Of Equipment	4,530 G./hs.
	Foreman and Guardman	453 G./hs.
	Total Cost of Labor	4,983 G./hs.
	Total Cost of Ejecution	40,683 G./hs.
III	RENDIMIENTO	
	Average Transportation Distance	7 km
	Capacity of Equipment	7 m3
	Average Speed of Equipment	20 km/hs.
	Trip Duration (cycle)	
	2 x DMT x 60/av.speed	42 min /v
	Loading Time	4 min /v
	Unloading Time	2 min./v
	Wainting nad Handling Time	3 min /v
	Total Trip Duration	51 min /v
:		
i.	Trips per hour	
	60 (min/h.) /trip duration	1.176
	Efficiency per hour	
	(Capacity/trip) x trip per hour x AvTD	58 km.m3/hs
IV	UNIT PRICE	
	(Total cost of Execution)/(Yield per hour)	701 G./m3/km
v	ADOPTED PRICE	701 G./m3/kn

0.35

TRANSPORTATION OF PAVIMENT	DMT (Km.) :11
UNIT :G/m3/Km	
I EQUIPMENT	
Dump Truck 17 tn. (8m3)	47,373 G./hs.
TOTAL COST OF EQUIPMENT	47,373 G./hs.
II LABOR	
Of Equipment	4,530 G./hs.
Foreman and Guardman	453 G./hs.
Total Cost of Labor	4,983 G./hs.
Total Cost of Ejecution	52,356 G./hs.
III RENDIMIENTO	
Average Transportation Distance	11 km
Capacity of Equipment	8 m3
Average Speed of Equipment	30 knv/hs
Trip Duration (cycle)	
2 x DMT x 60/av.speed	44 min /v
Loading Time	5 min/v
Unloading Time	3 min /v
Wainting nad Handling Time	3 min/v
Total Trip Duration	55 min /v
Trips per hour	
60 (min/h.) /trip duration	1.091
Efficiency per hour	
(Capacity/trip) x trip per hour x AvTD	96 km.m3
IV UNIT PRICE	
(Total cost of Execution)/(Yield per hour)	545 G./m3/
V ADOPTED PRICE	545 G./m3/
	· · ·
·····································	0.27

	TRANSPORTATION OF STONE	DMT (Km.) : 40
	UNIT :G/m3/Km	
I	EQUIPMENT	
•	Dump Truck 17 (a. (8m3)	47,373 G./hs.
	TOTAL COST OF EQUIPMENT	47,373 G./hs.
11	LABOR	
11	Of Equipment	4,530 G./hs
	Foreman and Guardman	4,550 G.As.
	Total Cost of Labor	4,983 G./hs.
		4,983 G./hs.
	Total Cost of Ejecution	52,550 G./iis.
111	EFFICIENCY	
	Average Transportation Distance	40 km
	Capacity of Equipment	8 m3
	Average Speed of Equipment	30 km/hs.
	Trip Duration (cycle)	
	2 x DMT x 60/av.speed	160 min /v
	Loading Time	5 min /v
	Unloading Time	3 min./v
· ·	Wainting nad Handling Time	3 min /v
	Total Trip Duration	171 min /v
	Trips per hour	
	60 (min/h.) /trip duration	0.351
	Efficiency per hour	
•	(Capacity/trip) x trip per hour x AvTD	112 km.m3/hs.
. · · · IV	UNIT PRICE	
	(Total cost of Execution)/(Yield per hour)	467 G./m3/km.
v	ADOPTED PRICE	467 G./m3/km.
· · ·		
	· · · · · · · · · · · · · · · · · · ·	
		0.23

E- 20

			2000-00-00-00-00-00-00-00-00-00-00-00-00		UNIT Km
Deforestation, Clearing (normal) - Sectio				PARCIAL COST	Km TOTÁL COST
COMPONENTS	UNT.	QANT.	UNIT COST GS.	PARCIAL COST P/UNT GS.	P/UNT GS.
	n an an an Anna	and a second			L L L L L L L L L L L L L L L L L L L
A- EQUIPMENTS Buildozer 215HP	T <sup>int</sup>	1	150,865	150,865	alaine a shekara a shekara shekara shekara shekara shekara s
bundow 210m		-	,	0	
				0	
				0	
				0	
				0. 0	
SUB-TOTAL EQUIPOS	I(A)			 150,865	
B- LABOR	an a	an a	anna an	Carra Londonan de principal de la presente presentante de la defensione de la defensione de la defensione de la	
Of Equipment	h	1	21,518	21,518	na shina ka 1944 a maraona ana a sa an 1960 a
Assistants	h	1	3,209	· 3,209	
ningin dinari kumanang mangariking manananan san maringan nakarakar kan darananan	FOREMA	N AND GU	RDMAN 10%	2,472.7	
SUB-TOTAL LABOR				27,200	
C- UNITARY PRODUCCION		0.09	TOTAL(A+B)	178,065	
D- UNITARY COST OF EJECUTION	(A+I	3)/(C)=(D)			1,978,497
E- MATERIALS	· · · ·		· :		
a fa				0	
	. *	- -		0	
				0	
				0	
UNITARY COST MATERIAL	<u> </u>	L(E)			(
F- TRANSPORTS		tining to the second		a a contra transmissione de la contra de la c	iya metaniki ing pina di kana dan ka
	1	Ι	<u></u>	0	an a
				0	* . **
UNITARY COST TRANSPOR	<b>1</b>	(F)		V	(
G- TOTAL DIRECT COST			₩¥₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩		1,978,497
H- INDIRECT COST (Direct Cost x 0.			•		791,399
					2,769,895
I- TOTAL UNITARY COST					

Deforestation and Clearing (forest) - So	ection 1, Secti	on 2 y Sectio	n 3		UNIT. Km
COMPONENTS	UNT.	QANT.	UNIT COST GS.	PARCIAL COST P/UNT GS.	TOTAL COST P/UNF GS.
A- EQUIPMENTS					
Buildozer 215HP	an Annaichte an sgint chran A' an Saide an stàit	1	150,865	150,865	n⊖-t-Joselika une suurinkaan kanigar
Dragshovel 2,7m3		0.5	98,896	49,448	
Dump Truck 6m3		3	35,700	107,100	й 1
				0	
				0	
				0	1
SUB-TOTAL EQUIPMENTS		(A)		0 307,413	<b></b>
B- LABOR	<u></u>			an fa bhairt ann an Anna an Anna ann an Anna an Anna an Anna	
Of Equipment	h	1	21,518	21,518	
Assistants	h	1	3,209	3,209	
na minana manana manana manana manana manana manana manana ana	EODEMA		DMAN 10%	0	
SUB-TOTAL LABOR		N AND OUT	COMPANY 1076	2,472.7 27,200	aliterati malan yana mpanya da ka mana a
C- UNITARY PRODUCCION		0.045	TOTAL(A+B)	334,613	••••••••••••••••••••••••••••••••••••••
D- UNITARY COST OF EJECUTION		abliciant searching.	1011112(1110)		
	V (A+1	5)/(C)-(D)			7,435,838
E- MATERIALS				ol	
	· · · ·			0	
				0	
	: :			0	
				U O	
UNITARY COST MATERIA	LS	(E)			G
F- TRANSPORTS					
·				0	
				0	
UNITARY COST TRANSPO	RT	I] (F)			0
G- TOTAL DIRECT COST					7,435,838
H- INDIRECT COST (Direct Cost x (					2,974,335
- TOTAL UNITARY COST			· .		
ADOPTED					10,410,173
OBSERVATIONES:	· · · · · · · · · · · · · · · · · · ·	····			10,410,173

Deforestation and Clearing (heavy force	Ď - Santiar I	1 and Post-	• 2		UNIDAD
COMPONENTS	UNT.	A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OWNER OF THE OWNER OWNE	UNIT COST	BADOLAL COOT	Km
COMPONENTS	UNI.	QANT.		PARCIAL COST	TOTAL COS
	1		GS.	P/UNT GS.	P/UNT GS.
A- EQUIPMENTS	<b></b>	T			- Malani Malani Malani marang ang pa
Bulldozer 215HP		1	150,865	150,865	
Farm Tractor 2,7m3 Dump Trauk 6m3		0.5	98,896	49,448	
			35,700	107,100 0	
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SUB-TOTAL EQUIPMENTS		., (A)		307,413	
B- LABOR					Carry & 1997
Of Equipment	h	1	21,518	21,518	
Assistants	h	1	. 3,209	3,209	
an da kan da kan kan kan kan kan kan kan da kan kan kan kan ka	EODEMA			0	i an
		IN AND GU	RDMAN 10%	2,472.7	Den ser ander son ander son andere
SUB-TOTAL LABOR	(B)	T TOTAL CONTRACTOR	1	27,200	
C- UNITARY PRODUCCION	andar ang	0.018	TOTAL(A+B)	334,613	
D- UNITARY COST OF EJECUTION	(A+I	B)/(C)=(D)			18,589,59
E- MATERIALS					
				0	
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				0	
				0	
				0	
UNITARY COST MATERIAL	S	(E)			
F- TRANSPORTS			-	ENDIE MAR WILLING WILLING AND	- -
				0	
UNITARY COST TRANSPOR	T	(ŀ)		······································	- SATE And a local de la composition de rocas
3- TOTAL DIRECT COST					18,589,59
I- INDIRECT COST (Direct Cost x 0.	40)				7,435,83
- TOTAL UNITARY COST	••••••				26,025,43
ADOPTED		7 4 L			26,025,43
DBSERVATIONES:		<u></u>			
ang ng mang ng Ng mang ng mang	1	E - 23			12,88

mbankment(Com Soil)-Section1,Sectio	n2 y Sectio	n3			UNIT. m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	P.UNT GS.	P/UNT GS.
			a an ann an an an ann an an ann an ann an a	annen inden aus auf an an air an air an air an air air air air an air	analise fan fan fan de fan
- EQUIPMENTS ulldozer 215HP	l'	2	150,865	301,730	realizationan katarak araasaa
lotor grader 180HP		1	92,655	92,655	1.
heepsfoot roller		1 1	56,132	56,132	
arm tractor		1	30,630		( <sup>-</sup>
isk harrow		1	3,105	3,105	
ank Truck		1	42,905		
faintanance truck		0.2	66,913	13,383	
		0.2	00,715	- 0	
			NATION AT LES STATEMENT AND	Ò	
SUB-TOTAL EQUIPMENTS		. <b>(</b> A)		540,540	ana katalah dalam kata na dina katala
- LABOR				·	
quipment	h	1	64,598	64,598	
ssistants	h	2	2,309	4,618	
			- <b>,</b>	0	
1994 - Barl Barl Barl - Hannes Anna Anna Anna Anna Anna Anna Anna Ann	FOREMA	N AND GUI	RDMAN 10%	6,921.6	a a the second the definition of the Rest of the Second test of the Se
SUB-TOTAL LABOR				76,138	, 1994 - Carlos Carlos de Carlo Nota
¢	Ī		a i a dhuinnin a dhuinnin a sanna dhuinn a		
- UNITARY PRODUCCION		110	TOTAL(A+B)	616,677	
- UNITARY COST OF EJECUTION	(A+E	I)/(C)=(D)			5,606
- MATERIALS					
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UNITARY COST MATERIAL	3	(E)		0 0 0	0
UNITARY COST MATERIALS	3	(E)		0 0 0	0
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		(E)		0 0 0 0	0
	3	(E)		0 0 0 0 0 0 0 0 0	0
				0 0 0 0 0 0 0	0
- TRANSPORTS	F	(F)		0 0 0 0 0 0 0	0 0 5,606
- TRANSPORTS UNITARY COST TRANSPOR	F	(F)		0 0 0 0 0 0	0 0 5,606 2,242
- TRANSPORTS UNITARY COST TRANSPOR - TOTAL DIRECT COST	T	(F)		0 0 0 0 0 0	
- TRANSPORTS UNITARY COST TRANSPOR - TOTAL DIRECT COST - INDIRECT COST (Direct Cost x 0.4	F	(F)		0 0 0 0 0 0 0	2,242

.

	1.1				UNIT.
Embankment ( Selected Soil) - Section1,	Section2 y	Section3			m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COS
	:		GS.	P.UNT GS.	PUNT OS.
A- EQUIPMENTS					
Motor grader 1801IP		2	92,655	185,310	<u></u>
Sheepsfoot roller			56,132	56,132	
Farm tractor			30,630		
Disk harrow		1	3,105		
Fank truck			42,905	42,905	
Maintanance truck		0.2	66,913	13,383	
Dragshovel 2.7 m3		1.5	98,896	148,344	
			,,,,,,	0	
				. 0	
SUB-TOTAL EQUIPMENTS		<b>(A)</b>		479,809	
3- LABOR					
Equipment	h	Ì	69,982	69,982	
Assistants	h.	4	2,309	9,236	
			2,507	0	
	FOREMA	N AND GUE	ADMAN 10%	7,921.8	
SUB-TOTAL LABOR				87,140	
- UNITARY PRODUCCION	NE CHINA MININA I LA CO	74	TOTAL(A+B)	566,948	
>- UNITARY COST OF EJECUTION .	(A+I	9)⁄(C)=(D)			7,6
- MATERIALS					
				0	
				0	
				0	l - Alexandre Alexandre
				0	
:	4			0	
				0	
UNITARY COST MATERIALS		(E)			· 
- TRANSPORTS		Fabric de Casar of Science of Science of Science	an a		
				0	1
				0	
	illen die die Geschellen verspe			0	
UNITARY COST TRANSPORT		(F)	: 		
- TOTAL DIRECT COST	**********	••••••••			7,60
f- INDIRECT COST (Direct Cost x 0.40	))			:	3,06
TOTAL UNITARY COST		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			10,72
ADOPTED				i	10,72
DESERVATIONES:					
751.0 18184123					

Concrete tubular sewers, Diameter 1,20	- Section 1,	Section 2 y	Section3	nante (Januar) - Tanton Jako and Tanta (Karaka) Maria (Januar) - Tanta (Karaka)	ÜNIT. ml
COMPONENTS	UNT.	QANT.	UNIT COST GS.	PARCIAL COST P.UNT GS.	TOTAL COST PAUNT GS.
A- EQUIPMENTS			· ·		
Truck crane	5 CA 23 A MARINE AND	0.5	53,565	26,783	and a second
				0	·
				0	
				. 0	
		· ·		0	
				0	
		:		. U	
SUB-TOTAL EQUIPMENTS		. (A)	Actual and a sector of the sec	26,783	
B- LABOR					▖▖▋▝▝▋▞▋▝▋▓▆▙▖▓▊▓▆▖▓▖▓▖▓▖▋▖▋▖
Equipment	h	1	4,530	4,530	ali ka
Assistants	h	6	3,209	19,254	i.
an a	un viller gib of less same i		an a an	0	and a state of the
e de la competition d		N AND GU	RDMAN 10%	2,378.4	
SUB-TOTAL LABOR	(B)			26,162	
C- UNITARY PRODUCCION		1.1	TOTAL (A+B)	52,945	
D- UNITARY COST OF EJECUTION	<b>(A</b> +B	)∕(C)=(D)			48,13
E- MATERIALS					
Supply of tube of 1,20	ml	1.00	264,925	264,925	
Supply of Concrete 110Kg/cm2	m3/ml	0.61	156,300	95,343	
Supply of Concrete 90Kg/cm2	m3/m1	0.80	154,000	123,200	
Mortar for Joint Structural excavation	m3/m1 m3/m1	0.03 0.8	153,000 10,000	4,590 8,000	
Timber for forms	pulg2/ml	48	380	18,240	
UNITARY COST MATERIALS	S	(E)			514,29
F- TRANSPORTS					
a <u>an an an an an An</u> tha Ann an An Alla an An Alla an	ľ			0	۵٬۹۹۸ ۵۰٬۹۹۳ ۹۰ ۲۵۵۳ ماله وارو به ۲۵
				0	
UNITARY COST TRANSPOR	L	(F)	in the first subject to the day of the	0	
		an a			*******
G- TOTAL DIRECT COST		*************			562,43
H- INDIRECT COST (Direct Cost x 0.4	10)		••		224,97
I- TOTAL UNITARY COST				·	787,40
				· .	787,40
ADOPTED					
		••••••		· .	

					UNII.					
Concrete tubular sewers (or culverts). 3,	0 x 3,0 - S	ection 1,Sec	tion2 y Section3		ml					
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COST					
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			GS.	PAUNT GS.	P/UNF GS.					
- EQUIPMENTS										
land tool (5% M.O.)			9 Main 19 - 49 F. T. Ch. 10 T. 17 AND - 10 10 T. 1	8,970	an an an an Anna an Anna Anna An					
				0						
				0						
				0						
				0						
		1		0						
			: .	U O						
	5 - S			0						
SUB-TOTAL EQUIPMENTS										
			<del></del>		ang mang mengang sebahan bang mengang sebahan bang sebahan pang mengang sebahan bang sebahan bang sebahan bang					
B- LABOR Equipment	h	2	3,473	6,946	FLEASURE JE-CALFERENCE					
Assistants	h	6	3,209	19,254						
				0						
	FOREMA	N AND GUE	rdman 10%	2,620.0						
SUB-TOTAL LABOR	(B)			28,820						
C- UNITARY PRODUCCION		0.9	TOTAL(A+B)	37,790	*					
D- UNITARY COST OF EJECUTION .	(A+E	B)∕(C)=(D)			41,989					
E- MATERIALS										
Supply of Concret. 210Kg/cm2	m3/ml	6.10	270,150	1,647,915						
Supply of Concret de 90Kg/cm2	m3/ml	1.03	154,000	158,620	н Полого (1996)					
Steel bars	kg/m	731.69	1,007	736,812						
Structural excavation	m3/ml	1.03	10,000	10,300						
Timber for forms	plg2/m	348.74	380	132,521						
IDIFADIA CONTACTORIA		(P)	(Million and Antoine States and Antoine States and	0	A (0) 1(0					
UNITARY COST MATERIALS		(E)		l	2,686,168					
F- TRANSPORTS		·								
				0	:					
				0						
UNITARY COST TRANSPORT	Г	(F)			C					
G- TOTAL DIRECT COST			<del></del>	<del></del>	2,728,157					
G- TOTAL DIRECT COST										
H. INDEPCT COST (Dieset Cost v 0.4				100 C	1,091,263					
H- INDIRECT COST (Direct Cost x 0.4			I- TOTAL UNITARY COST							
x				:	3,819,420 3,819,420					

n 20 anns agus a' ann 20 anns anns anns anns anns anns anns ann		reation for the second s	- 4004-0. 894-794-994-994-994-994-994-994-994-994-9	PRODUCT BOOM DALLAND AND AND AND AND AND AND AND AND AND	UNIT.
Primer - Section1, Section2 y Section3					Litros
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COST
	0.11.	Q	GS.	PUNT GS.	PUNT GS.
nde eta dat kancanarendean arriatarak arriteta arreta hatik katikan artikan batu antar artikan batu batu batu b			05.	PIONE 05.	MUNI 03.
A- EQUIPMENTS			an a		
Sprinkler truck		1	74,495	74,495	
Tractor sweeper		1	17,243	17,243	
Tank truck		0.5	42,905	21,453	
Farm tractor		1	30,630	30,630	
Asphalt storage tank		0.2	9,620	1,924	
				0	
				0	
SUB-TOTAL EQUIPMENTS		L (Λ)	L	145,745	
n din 1999 (1997), (1997), (1997), (1997), (1997), (1997), (1997), (1997), (1997), (1997), (1997), (1997), (19 N				145,145	
B- LÁBOR			-		angen an angena an angena angena angena an
Equipment		1	17,535	17,535	
Complementary		0	0	0	
a fan fan fan ser se an an fan ter ser ser ser an ar an ar				0	
	FOREMA	N AND GU	RDMAN 10%	1,754	ورامز الأباسية ومي توت والباد (بالشكار كان
SUB-TOTAL LABOR	(B)			19,289	
C- UNITARY PRODUCCION		1500	TOTAL (A+B)	165,033	:
D- UNITARY COST OF EJECUTION :	(A+F	3γ(C)=(D)	and a second		11
		<u></u>		inter-fordere valen of the dubble in galaxies of a	
E- MATERIALS	<b></b>				
Supply of asphalt in the project site		1	718	718	
				0	
				0	
				· 0	
		:		0	
UNITARY COST MATERIALS	L	L		······	
		u <i>ŋ</i>			
F- TRANSPORTS	-		<b>.</b>	*****	
				0	
				0	
	L		<u>l</u>	0	
UNITARY COST TRANSPORT	·	<u>(F)</u>			••••••••••••••••••••••••••••••••••••
G- TOTAL DIRECT COST		•••••••			82
H- INDIRECT COST (Direct Cost x 0.4	0)				33
					1,15
I- TOTAL UNITARY COST	•••••••••••••••••				
- TOTAL UNITARY COST					1,15
I- TOTAL UNITARY COST ADOPTED OBSERVATIONES:					1,15

Sheet asphalt - Section 1			L ( C = LV429 d'as Doin ghore > Luch_)62		UNIT. m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COS
			GS,	PUNT GS.	PUNT GS.
			03,	P/UNI 65.	FUNT US.
A- EQUIPMENTS					
Tamping finisher		1	102,316	102,316	
Tandem roller		1	51,332	51,332	
Neumatic compacton		1	43,488		
Maintennance truk (wrecking car)		0.2	66,913	13,383	
				0	
				0	
				0	
		L		0	Bit Marmadorijanska Brita angelska
SUB-TOTAL EQUIPMENTS		<b>(</b> A)		210,519	
B- LABOR					
Equipment	and the second	1	44,583	44,583	a an
Complementary		0	0	0	
				0	
	FOREMA	N AND GU	RDMAN 10%	4,458	
SUB-TOTAL LABOR	<b>(B)</b>		· .	49,041	al an
	4)************************************			a first in the second state in the	
C- UNITARY PRODUCCION		35	TOTAL(A+B)	259,560	
D- UNITARY COST OF EJECUTION	(A+E	3 <b>γ(C)=(D)</b>			7,4
E- MATERIALS					
Plant mix for sheet asphalt	T	1	160,029	160,029	
in the ter sheet usphart		1	100,029	160,029	
•					
				ů	
				0	i.
		· · ·		0	
	3	(E)			160,02
UNITARY COST MATERIALS					
UNITARY COST MATERIALS	<b>I</b>			n.	
				0	
				0 0 0	
- TRANSPORTS	Г	(F)		0 0 0	ملات من
- TRANSPORTS UNITARY COST TRANSPOR	a - 279 - 200 de - o feitine, age anyo	i and a statement		0 0 0	167,44
7- TRANSPORTS UNIFARY COST TRANSPOR 3- TOTAL DIRECT COST	<b>₩*37₩*37bde-s11d2m=qeange</b>			0 0 0	
F- TRANSPORTS	0)			0 0	· .

Sheet asphalt - Section2	· 11	·			UNIT. m3
COMPONENTS	UNT.	QANT	UNIT COST GS.	PARCIAL COST P/UNT GS.	TOTAL CO P/UNT GS
A- EQUIPMENTS		L <sub>a</sub> son-ora-annia-			
Tamping finisher	T	1	102,316	102,316	-\$100 cF, dork \$ <u>2, avanter ma vena</u> ra
Tandem roller	Ì	1	51,332		
Neumatic compacton		1 -	43,488	43,488	
Maintenance truck(wrecking car)		0.2	66,913	13,383	
				0	
			·	0	
	:			0	
SUB-TOTAL EQUIPMENTS	· · · · · · · · · · · · · · · · · · ·	. (A)	a and the second se	210,519	
B- LABOR					
Equipment		1	44,583	44,583	
Complementary		0	0	0	
na na sana na manana ana manda ka ka sa				0	``````````````````````````````````````
		N AND GUI	RDMAN 10%	4,458	
SUB-TOTAL LABOR	(B)			49,041	
C- UNIFARY PRODUCCION		35	TOTAL (A+B)	259,560	
D UNITARY COST OF EJECUTION	<i>(</i> λ+P	W(C)=(D)		가는 데이터 THE THE THE OF STREET, THE THE THE STREET, THE STREET, THE STREET, THE STREET, THE STREET, THE STREET, T	7,4
E- MATERIALS			ana Professiona ang kanala na k	TALANTYET MER DAMIN AND A MARKANIA PROGRAMMENT	13
Plant mix for sheet asphalt	<b>T</b>	1	160,963	160,963	
		. •	100,705	100,903	
				0	. · · · ·
	· · .	1.		0.	
				0	
INITARY COST MATERIAL	<u> </u>	(F)		0	160.0
UNITARY COST MATERIAL	S	(E)		0 0	160,9
	<u>s</u>	(E)		0 0 0	160,9
	<u>s</u>	(E)		0 0 0 0 0 0	160,9
UNIFARY COST MATERIAL F- 1RANSPORTS	<u>S</u>	(B)		0 0 0 0 0 0 0	160,9
				0 0 0 0 0 0	160,
F- 1RANSPORTS	T	(F)		0 0 0 0 0 0	
F- 1RANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST	T	(F)		0 0 0 0 0 0	168,
F- TRANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST	<u>Т</u> 40)	(F)		0 0 0 0 0	168, 67,
F- TRANSPORTS UNIFARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0. I- TOTAL UNIFARY COST	<u>Т</u> 40)	(F)		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	168, 67, 235,
F- TRANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.	<u>Т</u> 40)	(F)		0 0 0 0 0 0	168,: 67,:

<u>᠕ᡔ</u> ᢂᠽᡸᡊ <i>ᡄᢄ᠆ᡂᠧᡆᠧᠧ᠊ᠼᠮᠼᢩᡀ᠅</i> ᠬ᠘ᡱᡘᡄᡘᡘᡕᡘᡡᢁᠴᠧᠧᡡᠧᡡᡣᡧᡔᠩᢤᡇᠼᡭᡇᡘᠼᢞᡄᠴᡘ <sub>ᠥ</sub>		an ar an	<b></b>	nggingtang baha kata panakang dinakatang	n pagalan (1994) and particul
					UNIT.
Sheet asphalt - Section3		l'anne anno anni -		Γ	m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL C
al an ar an			GS.	PAUNT GS.	ΡΛΟΝΤΟ
A- EQUIPMENTS		*	a series a series de la companya de	<u></u>	
Tamping finisher		)	102,316		
Tandem roller		1	51,332		
Neumatic compacton			43,488		
Maintenance truk(wrecking car)		0.2	66,913	13,383 0	
				0	
·				0	and and the second s
SUB-TOTAL EQUIPMENTS		(À)		210,519	
B- LABOR				· ·	
Equipment	arayon geran penye selar tarihi kalakalar		44,583	44,583	
Complementary		0	0	0	
and support of the support				0	ana ang ang ang ang ang ang ang ang ang
	FOREMA	N AND GUI	RDMAN 10%	4,458	*******
SUB-TOTAL LABOR	(B)			49,041	
C- UNITARY PRODUCCION		35	TOTAL (A+B)	259,560	
D- UNITARY COST OF EJECUTIO	N (A+E	B)/(C)=(D)			7
E- MATERIALS					
Plant mix for sheet asphelt		1	177,775	177,775	
· · · · ·				0	
				0	
				0	
				0	
UNITARY COST MATERIA	LS	L (E)			177
n an		<u> </u>			
F- TRANSPORTS	· · · · · · · · · · · · · · · · · · ·	I		0	
		· .		0	
			L	0	-
UNITARY COST TRANSPO	ORT	(F)			
G- TOTAL DIRECT COST					18:
H- INDIRECT COST (Direct Cost x	0.40)		•	1	· 7
I- TOTAL UNITARY COST					- 25
1					

				· · ·	
	•			· · · ·	
	· .				
Production of asphalt mix for sheet asph	alt - Section	n 1	መመመር - ምር ስለመስ ርጉ ብም ውስጥ የውስጥ የውስጥ የውስጥ የውስጥ የውስጥ የውስጥ የውስጥ	n an	UNIT. m3
COMPONENTS	UNI.	QANT.	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	PAUNT GS.	P/UNT GS.
A- EQUIPMENTS					
Asphält plant		I 1	267,046	267,046	
Dragshovel		1	98,896	98,896	
Surgace heater equipment		L	31,787	31,787	
Generating set		1	15,521	15,521	ана 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 - 1911 -
-				0	
				0	
			$(1,1,2,\dots,2)$	0	
	<u> </u>		1	0	
SUB-TOTAL EQUIPMENTS		<b>(</b> A)	na mana ang ang ang ang ang ang ang ang ang	413,250	a a su a
B- LABOR					
Equipment	h	1	36,241	36,241	
Complementary	h	0	0	° <b>0</b>	
		L		0	
	FOREMA	N AND GUI	RDMAN 10%	3,624	
SUB-TOTAL LABOR	<b>(B)</b>		an and the second store a local march	39,865	······
C- UNITARY PRODUCCION		35	TOTAL (A+B)	453,115	
D- UNITARY COST OF EJECUTION		3)/(C)=(D)		÷ •	12,94
		and an	ayah karalan karantak dinan karaka dinan 1993 dina tang		an a
E- MATERIALS	etm2	L 2.12	16,173	24 449	· · · · · · · · · · · · · · · · · · ·
Supply of crushed stone Supply of sand	t/m3 	2.13 0.2	32,325	34,448 6,465	
Asphalt cement	: 1	0.13	688,550	89,512	
Filler mineral		0.10	63,835	6,384	:
				0	
				0	
UNITARY COST MATERIALS	S <sup>°</sup>	(E)			136,80
F- TRANSPORTS		·			
Dumptruck 8m3	1	22.0	467	10,274	
•				0	
		L		0	
UNITARY COST TRANSPOR	<u>T</u>	(F)			10,27
G- TOTAL DIRECT COST					160,02
H- INDIRECT COST (Direct Cost x 0.4	iv) <i>1.</i>	• • • • • • • • • • • • • • • • • • • •	-		
I- TOTAL UNITARY COST	••••••••••••••	••••			
ADOPTED					160,02
a start start, waar wijita a wida wiwita da bi a dika a fan di tak wijita wijita da a start da a start da bi a					

Production of asphalt mix for sheet asp	balt - Sectio	n <b>2</b>			UNIT. m3
COMPONENTS	UNT.	QANI.	UNIT COST	PARCIAL COST	TOTAL COST
	UN1.	QALITA	GS.	P/UNT GS	P/UNI GS.
ŎŎŎŎĸŎĬĸţĊĸŢŎŢĸŎŎĸĊĸŎġĊĸţĸĊţĸĊŢĸĬŢĸĬŢĸĬŢĸĬŢĸĬŢĸĬŢŎĸŎŢŎŎŎŎŎŎŎŎŎŎŎŎŎŎŎ	agaala ahaanaa ahaanaa ay ay	an a		montros.	ave accessed whether a 20% are
A- EQUIPMENT					-
Asphalt plant		1	267,046	267,046	
Dragshovel		1	98,896	98,896	
Surgace heater equipment			31,787	31,787	
Generating set			15,521	15,521 0	
				0	
				Ő	
				0	
SUB-TOTAL EQUIPMENTS		(A)		413,250	
3- LABOR					
Equipment	h	- 1	36,241	36,241	
Cómptementary	h	0	0	0	
				0	
	FOREMA	N AND GU	RDMAN 10%	3,624	
SUB-TOTAL LABOR	(B)			39,865	hað diningung som Allager graðfarðförsgökkördföraf. Aft og
C- UNITARY PRODUCCION		35	TOTAL(A+B)	453,115	
D- UNITARY COST OF EJECUTION	Ι (A+I	3)/(C)=(D)		NACE NOTE TO A SUBJECT OF THE SUB-CALLES DIM NUMBER OF	12,94
internet franklik bet der sich der sich der Statistische sind eine der der der sich der sicher sich der sich de	I (A+I	3)∕(C)=(D)			12,94
E- MATERIALS	1 (Λ+1		16.173	34,448	12,94
D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand		3)/(C)=(D) 2.13 0.2	16,173 32,325	34,448 6,465	12,94
E- MATERIALS Supply of crushed stone Supply of sand	t/m3	2.13		34,448 6,465 89,512	12,9-
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement	t/m3	2.13 0.2	32,325	6,465	12,94
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement	t/m3	2.13 0.2 0.13	32,325 688,550	6,465 89,512 6,384 0	12,94
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral	t/m3 m3 t t	2.13 0.2 0.13 0.10	32,325 688,550	6,465 89,512	
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNIFARY COST MATERIAL	t/m3 m3 t t	2.13 0.2 0.13 0.10	32,325 688,550	6,465 89,512 6,384 0	12,94 136,80
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNITARY COST MATERIAL F- TRANSPORTS	t/m3 m3 t t	2.13 0.2 0.13 0.10 (E)	32,325 688,550 63,835	6,465 89,512 6,384 0 0	
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNIFARY COST MATERIAL	t/m3 m3 t t	2.13 0.2 0.13 0.10	32,325 688,550	6,465 89,512 6,384 0 0 11,208	
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNITARY COST MATERIAL F- TRANSPORTS	t/m3 m3 t t	2.13 0.2 0.13 0.10 (E)	32,325 688,550 63,835	6,465 89,512 6,384 0 0	
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNITARY COST MATERIAL F- TRANSPORTS	t/m3 m3 t t 	2.13 0.2 0.13 0.10 (E) 24.0	32,325 688,550 63,835	6,465 89,512 6,384 0 0 11,208 0	136,80
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNIFARY COST MATERIAL F- TRANSPORTS Dumptruck 8m3 UNIFARY COST TRANSPOR	t/m3 m3 t t S	2.13 0.2 0.13 0.10 (E) 24.0 (F)	32,325 688,550 63,835	6,465 89,512 6,384 0 0 11,208 0	136,80
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNIFARY COST MATERIAL F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOFAL DIRECT COST	t/m3 m3 t t S	2.13 0.2 0.13 0.10 (E) 24.0 (F)	32,325 688,550 63,835 467	6,465 89,512 6,384 0 0 11,208 0	
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNIFARY COST MATERIAL F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST II- INDIRECT COST (Direct Cost x 0.	t/m3 m3 t t s 	2.13 0.2 0.13 0.10 (E) 24.0 (F)	32,325 688,550 63,835 467	6,465 89,512 6,384 0 0 11,208 0	136,80
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNIFARY COST MATERIAL F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0) H- TOTAL UNITARY COST	t/m3 m3 t t S	2.13 0.2 0.13 0.10 (E) 24.0 (F)	32,325 688,550 63,835 467	6,465 89,512 6,384 0 0 11,208 0	136,80 11,20 160,96
E- MATERIALS Supply of crushed stone Supply of sand Asphalt cement Filler mineral UNITARY COST MATERIAL F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST II- INDIRECT COST (Direct Cost x 0.	t/m3 m3 t t S	2.13 0.2 0.13 0.10 (E) 24.0 (F)	32,325 688,550 63,835 467	6,465 89,512 6,384 0 0 11,208 0	136,80

				·	UNIT.
roduction of asphalt mix for sheet aspl	alt - Sectio	n 3			m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COST
	L		GS.	P/UNT GS.	P/UNT GS.
EQUIPMENTS					;
sphalt plant			267,046	267,046	9 M 200 ADV - DAVIS AND ADV - DAVIS AD 
ragshovel		1	98,896		
urgace heater equipment		1	31,787	31,787	
enerating set		1	15,521	15,521	•
				. 0	
				- 0	
				0	
OUD TOTAL POLICIA CARD	L			0	
SUB-TOTAL EQUIPMENTS	**************	(A)	HE THE REPORT OF THE REPORT OF THE REPORT OF THE	413,250	
- LABOR					
quipment	h	1 1	36,241	36,241	
omplementary	h	0	0	0	
				0	
		N AND GU	RDMAN 10%	3,624	and the low of the design of the second s
SUB-TOTAL LABOR	(B) T	r		39,865	
- UNITARY PRODUCCION		35	TOTAL(A+B)	453,115	
- UNITARY COST OF EJECUTION	(A+I	3V(C)=(D)			12,946
ing stary in principal and a star and the star in the star in the star of the star in the star in the star of the star in the		7(07(8)		an a	10,710
- MATERIALS		<u> </u>			
upply of crushed stone upply of sand	t/m3 m3	2.13	16,173 32,325		
sphalt cement	t	0.13	688,550	I	
iller mineral	i i	0.10	63,835	1	:,
				0,001	
		>		0	
UNITARY COST MATERIAL	S	(E)			136,808
- TRANSPORTS					
Aumptruck 8m3	1	60.0	467	28,020	· · · · · · · · · · · · · · · · · · ·
•				0	
				0	
UNITARY COST TRANSPOR	Τ	(F)			28,020
• TOTAL DIRECT COST					177,774
I- INDIRECT COST (Direct Cost x 0.					
TOTAL UNITARY COST		•••••		:	
ADOPTED					177,774
BSERVATIONES					

an a	n ya muduki musumi minya nya na katika ta ya kati	ana papatén salah Sada di Tang Parisi Jak	hitalik ku initi initerin initerin ku initerin terminin di Kalanga manyang	י. סאר, אלי שרישי לאר איל	UNIT.
Base made of crused stone - Section 1					m3
COMPONENTS	UNT.	QANT	UNIT COST	PARCIAL COST	TOTAL COST
COMPONENTO	0,11.	Quart.	GS.	P/UNT GS.	P/UNT GS.
A- EQUIPMENTS					
Blade spresder	Ι	1	98,285	98,285	
Motor grader		1	92,655		
(Rubber tire)roller		1	51,332		
Disk harrow		1	3,105		
Tank truck		İ	42,905		
Maintenance truck(wrecking car)		0.2	66,913		
				0	
				0	*******
SUB-TOTAL EQUIPMENTS		(A)		301,665	
B- LABOR					
Equipment	h	· 1	61,382	61,382	
Complementary	h	0	0	0	
	FOREMA	N AND GUF	UDMAN 10%	6,138	
SUB-TOTAL LABOR	(B)			67,520	
C- UNITARY PRODUCCION		<b>7</b> 6	TOTAL (A+B)	369,185	and the second state of th
D- UNITARY COST OF EJECUTION	(Á+B	9)/(C)=(D)			4,85
E- MATERIALS					
Plant mix		1	49,546	49,546	. '
· · · · · · · · · · · · · · · · · · ·				0	
		•		0	
				0	· .
				0	
			r		
UNITARY COST MATERIALS	}	(E)		0	49,54
UNITARY COST MATERIALS	}	(E)		0	49,54
UNITARY COST MATERIALS F. TRANSPORTS	 }	(E)			49,54
in de Lander (han de Lander an Balada d'An Ste heid alle d'Alfre de l'Alfred Balador State (ha Carlos de Lander An State (ha Carlos de Lander)	(	(E)		0	49,54
in de Lander (han de Lander an Balada d'An Ste heid alle d'Alfre de l'Alfred Balador State (ha Carlos de Lander An State (ha Carlos de Lander)		(E)		0	49,54
in de Lander (han de Lander an Balada d'An Ste heid alle d'Alfre de l'Alfred Balador State (ha Carlos de Lander An State (ha Carlos de Lander)				0	49,54
F- TRANSPORTS UNITARY COST TRANSPOR	Г	(F)		0	
F- TRANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST	r	(F)		0	54,40
F. TRANSPORTS	F	(F)		0	54,40 21,76
F- TRANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.4	F	(F)		0	49,54 49,54 54,40 21,76 76,16 76,16

	· .			·	
n al an ann an	لار او در او در این می میرود. بول. ان او در او در این می می می ورد او ای		₩₩₽₽₩₩₩₩₽₽₽₽₽₩₩₩₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽	<u>₩723487</u> 48748743894225442562676782884425	UN
Base made of crused stone - Section 2			:		m
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL
			GS.	P/UNT GS.	P/UN
A. EQUIPMENTS	An and the second state in the Sold State			· · · · · · · · · · · · · · · · · · ·	
Blade spreader	ingented are lines; i and defet	1	98,285	98,285	aladin dessailinen inisiaa
Motor grader			92,655	92,655	
Tandem roller			51,332	51,332	
Disk harrow			3,105	3,105	
Tank truck		i	42,905		- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10
Maintenance truck	-	0.2	66,913	13,383	
				0	· .
ĸĸĸĿŗĹŦŧĔĸijĹ <b>ĬĬĬĔ</b> ſĬĨĨĊţĹĹŢſŔŀŢĬſŎŖĹŢ <u>ĸŎŎ</u> ĬſĔŢŎĿ <u>ŢŎĿ</u> ĬĬŎŢ <u>ŎĿŢŎĿŢŎĿŢŎĿŢŎĿŢŎĿ</u> ŢŎĿŢŎĿŎĿŎĿŎĿŎĿ				0	· · ·
SUB-TOTAL EQUIPMENTS		<u>(</u> ()	Chail And and a chairman of payment in high a compare of the	301,665	
B- LABOR					
Equipment	h	1	61,382	61,382	
Complementary	h	· 0	0	0	
	FOREMA	N AND GU	LRDMAN 10%	6,138	
SUB-TOTAL LABOR				67,520	
C- UNITARY PRODUCCION		76	TOTAL(A+B)	369,185	-fin/ in in -i-dynindd-fif
D- UNITARY COST OF EJECUTION .	ζ <u>Λ</u> +Ι	3V(C)=(D)	. <u>1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997</u> - 1997	THE REPORT OF THE PROPERTY OF THE PARTY OF	
E- MATERIALS			ng ng pangang tang kana kana kana kana kana kana kana k	an that it is a state of the st	
Plant mix	Γ	<u>1 1</u>	50,480	50,480	
	•		50,480	50,480	
				· · ·	
			* ÷	ů. N	
				Ő	
				0	-
UNITARY COST MATERIALS		(E)		0	
UNITARY COST MATERIALS F- TRANSPORTS		(E)		0	
NA CARATAINANTE II WE CONSTRUCTION IN ANY CONTRACT AND ANY CONTRACT AND ANY CONTRACT AND ANY CONTRACT AND ANY C		(E)		0	
MAR CAREACTURA AND A AND A ANALYSIS AND A AN		(E)		000000000000000000000000000000000000000	
MAR CAREFULING AND A USE STATES AND A DESCRIPTION AND A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION OF A DESC				0	
F- TRANSPORTS	розника по в технология по в технолог	(F)		0	
F- TRANSPORTS UNITARY COST TRANSPORT G- TOTAL DIRECT COST	Г	(F)		0	
F- TRANSPORTS UNITARY COST TRANSPORT G- TOTAL DIRECT COST	<u>Г</u> ю)	(F)		0	
F- TRANSPORTS UNITARY COST TRANSPORT G- TOTAL DIRECT COST	Г 10)	(F)		0	

					UNIT.
Base made of crused stone - Section 3			<b></b>		ni3
COMPONENTS	UNT.	QANT	UNIT COST	PARCIAL COST	TOTAL COST
n Karangkar sangari sagari di sarangkar ng sangari ang sangari dalam kangari kangari kangari kangari kangari ka	L		<u>GS</u>	P.UNT GS.	PUNT GS.
A- EQUIPOS			a a successive and the second second	and a grant for the strength strength of the st	Managana ang kang kang kang kang kang kan
Blade spreader		1	98,285	98,285	
Motor grader		1	92,655	92,655	
(Rubber tire)roller			51,332	51,332	
Disk harrow			3,105		
Tank truck		0.2	42,905		
Maintenance truck(wrecking car)	1	0.2	66,913	13,383	
				. 0	
SUB-TOTAL EQUIPMENTS		(A)		301,665	
B- LABOR					
Equipment	h	1	61,382	61,382	
Complementary	h	0	0	0	
	<u> </u>	<b>_</b>		0	ra pater and and the College
	FOREMA	N AND GU	RDMAN 10%	6,138	
SUB-TOTAL LABOR	(B)	T	ng mang pang pang pang pang pang pang pang p	67,520	and state in the second state of the
C- UNITARY PRODUCCION		76	TOTAL (A+B)	369,185	
				THE REAL PROPERTY AND A CONTRACT	
D- UNITARY COST OF BJECUTION	(A+I	3 <b>)/(C)=(</b> D)	n Tariha (a Franziska) and a second		4,8
an a	(A+I	3 <b>)/(C)=(D)</b>	••••••••••••••••••••••••••••••••••••••		4,8
E- MATERIALS	(A+I	3 <b>)/(C)=(D)</b>	67,292		4,8
E- MATERIALS	(A+I	and and a second se			4,8
E- MATERIALS	(A+I	and and a second se		67,292 0 0	4,8
E- MATERIALS	(A+1	and and a second se		67,292 0 0 0	4,8
E- MATERIALS	(A+I	and and a second se		67,292 0 0 0 0	4,8
E- MATERIALS Plant mix		1		67,292 0 0 0	
D- UNITARY COST OF EJECUTION E- MATERIALS Plant mix UNITARY COST MATERIALS		1		67,292 0 0 0 0	
E- MATERIALS Plant mix UNITARY COST MATERIALS		1		67,292 0 0 0 0	
E- MATERIALS Plant mix UNITARY COST MATERIALS		1		67,292 0 0 0 0 0 0	
E- MATERIALS Plant mix UNITARY COST MATERIALS		1		67,292 0 0 0 0 0 0	
E- MATERIALS Plant mix UNITARY COST MATERIALS	     	1 (E)		67,292 0 0 0 0 0 0 0 0 0	
E- MATERIALS Plant mix UNITARY COST MATERIALS F- TRANSPORTS	S	(F)		67,292 0 0 0 0 0 0 0 0 0	67,2
E- MATERIALS Plant mix UNITARY COST MATERIALS F- TRANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST	I           S           F	(F)	67,292	67,292 0 0 0 0 0 0 0 0 0	67,2 72,1
E- MATERIALS Plant mix UNITARY COST MATERIALS F- TRANSPORTS UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.4	Г 10)	(F)	67,292	67,292 0 0 0 0 0 0 0 0 0	67,2 72,1 28,8
E- MATERIALS Plant mix UNITARY COST MATERIALS F- TRANSPORTS UNITARY COST TRANSPOR	Image: second	(E) (F)	67,292	67,292 0 0 0 0 0 0 0 0 0	4,8 67,2 72,1 28,8 101,0 101,0

	•				UNIT.
Plant mix of base made of crused stone -	Section 1	· .	· · ·	÷	m3
COMPONENTS	UNT.	QANT	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	PAUNT GS.	PUNT GS.
an a		L			110111 00.
A- EQUIPMENTS		F****			ر مور از از مربع المار العرب ومد از العرب ومد از العرب العرب و
Plant for aggregates		1	142,153	142,153	
Dragshovel 2.7 m3		0.2	98,896 25,700	19,779	
Dump Truck		0.7	35,700	24,990	
				0	
				0	
				õ	
		:	· · · ·	Ō	
SUB-TOTAL EQUIPMENTS		(A)		186,922	
3- LABOR			andra de Marier de La Construction	,	
2 Indional Squipment	h	1	15,176	15,176	an a
Complementary	h	1	3,209	3,209	
		-	-,	0	
	FOREMA	N AND GU	RDMAN 10%	1,839	
SUB-TOTAL LABOR	<b>(B)</b>			20,224	
C- UNITARY PRODUCCION		76	TOTAL(A+B)	207,146	- <b></b>
D- UNITARY COST OF EJECUTION .	(//10	l,		201,110	2,72
ar a la fair a star ann an tar an tar ann an tar ann an tar ann an tar an tar an tar an tar an tar ann ann a mh		<u>MC)-(I))</u>	nang Kapagapang Ny Jara-Karakang	and the second state of th	2,12
R. MATERIAI S					
and the second			16 121	20.210	
Supply of crushed stone	t m3	1.9	16,173	30,728	
Supply of crushed stone	t m3	1.9 0.18	16,173 32,325	30,728 5,819 0	
E- MATERIALS Supply of crushed stone Supply of sand	·				n en sen an min men a des en en constante en m
Supply of crushed stone	·				
Supply of crushed stone	·				
Supply of crushed stone	m3	0.18		5,819 0 0 0	36,54
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT	m3	0.18		5,819 0 0 0	36,54
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS	m3	0.18		5,819 0 0 0 0	36,54
Supply of crushed stone Supply of sand	m3	0.18 (F)	32,325	5,819 0 0 0	36,54
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS	m3	0.18 (F)	32,325	5,819 0 0 0 0	36,54
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS	m3	0.18 (F)	32,325	5,819 0 0 0 0 10,274 0	
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS Dumptruck 8m3	m3	0.18 (F) 22.0	32,325	5,819 0 0 0 0 10,274 0	<u>36,5</u> <u>10,2</u> 49,5
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS Dumptruck 8m3 OBSERVATIONES:	m3 C	0.18 (F) 22.0	32,325 467	5,819 0 0 0 0 10,274 0	10,2
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS Dumptruck 8m3 OBSERVATIONES: G- COSTO DIRECTO TOTAL	m3 C	0.18 (F) 22.0	32,325 467 	5,819 0 0 0 0 10,274 0	10,2
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS Dumptruck 8m3 OBSERVATIONES: G- COSTO DIRECTO TOTAL	m3	0.18 (F) 22.0	32,325 467 	5,819 0 0 0 0 10,274 0	10,21 49,54
Supply of crushed stone Supply of sand UNITARY COST TRANSPORT F- TRANSPORTS Dumptruck 8m3 OBSERVATIONES: G- COSTO DIRECTO TOTAL	m3	0.18 (F) 22.0	32,325 467 	5,819 0 0 0 0 10,274 0	10,2

					UNIT.
Plant mix of base made of crused stone -	- Section 2		and a the board with the second second second		m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	PUNT GS.	P.UNT GS.
	- <b>7</b>	alite de la constante de la const	Bara wan ini ini ini ini ini ini ini ini ini i	ladati verse professione de anti depresentatione de la factoria de la factoria de la factoria de la factoria de	Sandranian ann an Sandran an Sandra
A- EQUIPMENTS Planta de Arido	T	1	142,153	142,153	THE REAL PROPERTY OF THE REAL PROPERTY OF
Pala Cargadora 2.7 m3		0.2	98,896	19,779	
Camion Volquete		0.7	35,700	24,990	
				0	
				0	
				0	•
				0	
<del>n o man an a</del>	AND A DESCRIPTION OF A DESCRIPTION OF		<u>گەرى سىم مىچىم بىلەر - يىرىم بەر بەر مىمى مىزىمى مىمى مىمى بەر بەر بەر بەر بەر بەر بەر بەر بەر بەر</u>	0	antagan da manaka karang ka
SUB-TOTAL EQUIPMENTS		<u>. (</u> A)	tinter, part high all to be the second s	186,922	
B- LABOR					
Equipment	h	1 -	15,176	15,176	
Complementary	h	1	3,209	3,209	
a transmissioned and a second of the later definition of the second in the second second second second second s				0	anti-Terraria Terrara di stati (11)
	FOREMA	N AND GUI	UMAN 10%	1,839	
SUB-TOTAL LABOR	(B)			20,224	
C- UNITARY PRODUCCION		76	TOTAL(Å+B)	207,146	
nyn (frei frei frei frei frei frei frei frei	Longenan				
D- UNITARY COST OF EJECUTION	(A+1	sy(C)=(D)			2,72
E- MATERIALS					
	t	1.9	16,173	30,728	
	t m3	1.9 0.18	16,173 32,325	30,728 5,819	
	1			1. M. 1.	
	1			5,819 0 0	
Supply of crushed stone Supply of sand	1			5,819	
Supply of sand	m3	0.18		5,819 0 0	26.54
Supply of sand UNITARY COST MATERIALS	m3	0.18		5,819 0 0	36,54
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS	m3	0.18 (E)	32,325	5,819 0 0 0 0	36,54
Supply of sand UNITARY COST MATERIALS	m3	0.18		5,819 0 0 0 0 0 11,208	36,54
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS	m3	0.18 (E)	32,325	5,819 0 0 0 0 0 11,208 0	36,54
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3	m3	0.18 (E) 24.0	32,325	5,819 0 0 0 0 0 11,208	
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPORT	m3	0.18 (E) 24.0 (F)	32,325	5,819 0 0 0 0 0 11,208 0	
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPORT	m3	0.18 (E) 24.0 (F)	32,325	5,819 0 0 0 0 0 11,208 0	<u>36,54</u> <u>11,20</u> 50,48
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST	m3	0.18 (E) 24.0 (F)	32,325	5,819 0 0 0 0 0 11,208 0	11,20
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.4	m3 5	0.18 (E) 24.0 (F)	32,325	5,819 0 0 0 0 0 11,208 0	11,20
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.4 I- TOTAL UNITARY COST	m3 5	0.18 (E) 24.0 (F)	32,325	5,819 0 0 0 0 0 11,208 0	<u>11,20</u> 50,48
Supply of sand UNITARY COST MATERIALS F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANSPOR G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.4	m3 5	0.18 (E) 24.0 (F)	32,325	5,819 0 0 0 0 0 11,208 0	11,20

					UNIT.
Plant mix of base made of crused st	tone - Section 3		a se su de la companya de la company	مىرىنى بىرىنى بىرىن	m3
COMPONENTS	UNT.	QANT,	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	P/UNT GS.	PUNT GS.
an a	a a managa an ang ang ang ang ang ang ang ang	L		ng Pantan ang Salagal Bina (ning Tala ay ning pantan ka sa tang pang	a la forma de la contracta de secondo secondo secondo se contracta de secondo se contracta de secondo se contra
A- EQUIPMENTS	I	1	r		
Plant for aggregates			142,153	142,153	
Dragshovel 2.7 m3		0.2	98,896	19,779	
Dump Truck		0.7	35,700	24,990	
				U	
				U O	
:				0	
		e e e		0	· .
SUB-TOTAL EQUIPMENTS		ι (Λ)		186,922	
an a				100,722	
B- LABOR					al 4 January 19, 19 33 5 19 30 19 10 19
Equipment	h i	1	15,176	15,176	
Complementary	h	1	3,209	3,209	
n. Ingani dagini ya 19 milangi 19 milangi 19 milangi 19 milangi 20 milangi dalami dalami 20 milangi 20 milangi 2		L		0	National States and the states and a first state of the
	FOREMA	N AND GU	RDMAN 10%	1,839	
SUB-TOTAL LABOR	(B)		li Bana alati sunistan versanenai	20,224	
C- UNITARY PRODUCCION		76	TOTAL (A+B)	207 146	
C- UNITARY PRODUCCION		76	TOTAL (A+B)	207,146	
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUT	ION (A+F		TOTAL (A+B)	207,146	2,72
	ION (A+E		TOTAL (A+B)	207,146	2,72
D- UNITARY COST OF EJECUT	ION (A+E		الله من المراجع br>المراجع المراجع br>		2,72
D- UNITARY COST OF EJECUT E- MATERIALS		β <b>γ(C)</b> ≠(i))	TOTAL(A+B) 16,173 32,325	207,146 30,728 5,819	2,72
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone	t	BY(C)=(Đ) 1.9	16,173	30,728	2,72
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone	t	BY(C)=(Đ) 1.9	16,173	30,728	2,72
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone	t	BY(C)=(Đ) 1.9	16,173	30,728	2,72
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone	t	BY(C)=(Đ) 1.9	16,173	30,728	2,72
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone	t m3	8)/(C)=(I)) 1.9 0.18	16,173	30,728 5,819 0 0 0	
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand	t m3	8)/(C)=(I)) 1.9 0.18	16,173	30,728 5,819 0 0 0	2,72 
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER	t m3	8)/(C)=(I)) 1.9 0.18	16,173	30,728 5,819 0 0 0 0 0	
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS	t m3	BY(C)=(I)) 1.9 0.18 (E)	16,173 32,325	30,728 5,819 0 0 0	
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS	t m3	BY(C)=(I)) 1.9 0.18 (E)	16,173 32,325	30,728 5,819 0 0 0 0 0	
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS	t m3	8)/(C)=(I)) 1.9 0.18 (E) 60.0	16,173 32,325	30,728 5,819 0 0 0 0 0 28,020 0	36,54
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS Dumptruck 8m3	t m3 IALS	8)/(C)=(I)) 1.9 0.18 (E) 60.0 (F)	16,173 32,325	30,728 5,819 0 0 0 0 0 28,020 0	
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANS	t m3	B)/(C)=(I)) 1.9 0.18 (E) 60.0 (F)	16,173 32,325 467	30,728 5,819 0 0 0 0 0 28,020 0	36,54
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS Dumptrick 8m3 UNITARY COST TRANS G- TOTAL DIRECT COST	t m3	B)/(C)=(I)) 1.9 0.18 (E) (E) 60.0 (F)	16,173 32,325 467	30,728 5,819 0 0 0 0 0 28,020 0	36,54
D- UNITARY COST OF EJECUT E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER F- TRANSPORTS Dumptruck 8m3 UNITARY COST TRANS G- TOTAL DIRECT COST	t m3	B)/(C)=(I)) 1.9 0.18 (E) 60.0 (F)	16,173 32,325 467	30,728 5,819 0 0 0 0 0 28,020 0	36,54

Subbase made of crushed stone - Secti	ion 1		an a	Karillan Kalunda Kalund K	UNI m3
COMPONENTS	UNT.	QANT.	UNIT COST GS.	PARCIAL COST PUNT GS.	TOTAL P.UNT
A- EQUIPMENTS				n ferretan an a	. <b>1962 (1977) (1</b> 74) (1978)
Blade spreader		1	98,285	98,285	(The West Day I are not an international states)
Motor grader		1	92,655		
(Rubber tire) roller		1	51,332		
Disk harrow		1	3,105		
Tank truck		1	42,905		
Maintenance truck(wrecking car)		0.2	66,913	13,383 0	
SUB-TOTAL EQUIPMENTS		(1)		0 301,665	
ann an		<u> (n)</u>		301,000	
B- LABOR Equipment	h	1	61,382	61,382	-t-to voucour a
Complementary	h	0	01,382	01,382	
	FOREMA	N AND GUI	L RDMAN 10%	0 6,138	يى. چەرچىچىلەر ئەتكە خەتلەن
SUB-TOTAL LABOR				67,520	
C- UNITARY PRODUCCION		95	TOTAL (A+B)	369,185	1. Calify Top & Souther Solon Top & Souther Solon Top
D- UNITARY COST OF EJECUTION	V (A+F	sV(C)≠(D)		n Salandaya ( Minardi Mayayan, Ayaya ( Minarda Yangar) ya	adalah di serai serai se
E- MATERIALS		<u> </u>		alati Maha kaman Kabada da Badanan miyang menengan yang menengan da	
16. 1993 16818181					
Plant mix		1	48.657	48.657	
<u>ىر با يې بې دې دې دې دې دې دې دې دې دې د</u> ده ده ده د ده د		l :-	48,657	48,657 0	
<u>ى با يې بې د يې بې د يې يې يې يې يې يې يې يې بې يې م</u> مد بې مېرونه کې د مېراندا مېزاغا، د نيا اخيان کې استان کا استان کا ا		1	48,657	48,657 0 0	
<u>ى با يې بې د يې بې د يې يې يې يې يې يې يې يې بې يې م</u> مد بې مېرونه کې د مېراندا مېزاغا، د نيا اخيان کې استان کا استان کا ا		1	48,657	48,657 0 0 0	
<u>ىر با يې بې دې ده دې ده دې ده دې ده دا د ساردا سا دا د اختا دا د استا دا د استا دا د اختا د کا اخت</u>		1	48,657	48,657 0 0 0 0	
Plant mix		1	48,657	48,657 0 0 0 0 0 0 0	
Plant mix UNITARY COST MATERIAI	LS	1 (8)	48,657	48,657 0 0 0 0 0	2
Plant mix	LS	1 (E)	48,657	0 0 0 0	2
Plant mix UNITARY COST MATERIAI	LS	1 (8)	48,657	48,657 0 0 0 0 0	
Plant mix UNITARY COST MATERIAI	LS	1 (£)	48,657	0 0 0 0	2
Plant mix UNITARY COST MATERIAI			48,657	0 0 0 0	
Plant mix UNITARY COST MATERIAI F- TRANSPORTS	RT	(F)	48,657	0 0 0 0	
Plant mix UNITARY COST MATERIAI F- TRANSPORTS UNITARY COST TRANSPOR	RT	(F)		0 0 0 0	
Plant mix UNITARY COST MATERIAI F- TRANSPORTS UNITARY COST TRANSPO G- TOTAL DIRECT COST	RT	(F)		0 0 0 0	

		: .		· · · ·	UNIDAD
Subbase made of crushed stone - Section	12	T			m3
COMPONENTS	UNT.	QANT.	UNIT COST	PARCIAL COST	TOTAL COS
			GS.*	P/UNT GS.	P/UNT GS.
A- EQUIPMENTS					
Blade spreader		[·]	98,285	98,285	Madimi, Annis II, Aristika air air an anns an
Motor grader	1	. 1	92,655	92,655	
(Rubber tire) roller		1	51,332	51,332	a.
Disk harrow		1	3,105	3,105	
Fank truck			42,905	42,905	
Maintenance truck(wrecking car)		0.2	66,913	13,383	
	÷			U 	-
SUB-TOTAL EQUIPMENTS		(A)		301,665	<b> </b>
3- LABOR				a an	
Equipment	h	1	61,382	61,382	
Complementary	h	0	0	0	
	<u> </u>			: 0	ander for the second second second second
	FOREMA	N AND GU	RDMAN 10%	6,138	
SUB-TOTAL LABOR	<b>(B)</b>			67,520	
C- UNITARY PRODUCCION		95	TOTAL (A+B)	369,185	
D- UNITARY COST OF EJECUTION .	(A+E	β <b>/(C)=(D)</b>			3,8
E- MATERIALS			a dhallan a san an a		
Plant mix		1	49,591	49,591	
				0	
				Ō	
				0	•
		[		0	
				0	
		Concerns programmers	the state of the second se		
UNITARY COST MATERIALS		(E)			49,5
		( <u>E)</u>			49,5
UNITARY COST MATERIALS		( <u>E)</u>		0	49,59
		(E)		0	49,5
- TRANSPORTS				0 0 0	49,5
				0	49,5
- TRANSPORTS	Г	(F)		0	<u>49,5</u> 53,4
- TRANSPORTS UNITARY COST TRANSPORT	r	(F)		0	
- TRANSFORTS UNIFARY COST TRANSPORT 3- TOTAL DIRECT COST 1- INDIRECT COST (Direct Cost x 0.4	С	(F)		0	53,41
2- TRANSPORTS UNITARY COST TRANSPORT 3- TOTAL DIRECT COST 1- INDIRIECT COST (Direct Cost x 0.4 4- TOTAL UNITARY COST	С	(F)		0	53,41 21,39 74,8(
- TRANSFORTS UNIFARY COST TRANSPORT 3- TOTAL DIRECT COST 1- INDIRECT COST (Direct Cost x 0.4	С	(F)		0	53,4 21,3

n 3				UNIF. m3
UNT.	QANT.	UNIT COST GS.	PARCIAL COST P.UNT GS.	TOTAL COST P.UNT GS.
		and a set of the set of	and a turn to be of from your beach the cost	, pangan juan pananan di katan di Katalan Pangan pangan pangan di katan di Katalan Pangan pangan pangan pangan
T.	1	98,285	98,285	ਸ਼ਫ਼ੑਗ਼ਁਫ਼ੵ੶ੑਗ਼੶ੑੑਲ਼੶ੑਲ਼੶ਫ਼ਖ਼ਖ਼੶ਗ਼੶ਖ਼ਖ਼੶ਫ਼ਸ਼੶ਖ਼ਁਸ਼ਖ਼ਖ਼ਖ਼੶ਖ਼ਲ਼ਖ਼ਫ਼ੑੑਖ਼
	1			
	1			
	1	3,105	3,105	
	1		42,905	
	0.2	66,913	13,383	
		· ·	. 0	
	. (A)	le <u>manage of a special sp</u>	301,665	
h	1	61,382	61,382	an a
h	0	0	0	
FOREMA	N AND GUE	DMAN 10%	6.138	ne alle son alle son alle son alle son alle son and a
			67,520	
	95	TOTAL(A+B)	369,185	ى ئۇرىلى ئۇنىڭ يېڭ ئىلىنى ھو
(A+I	3)/(C)=(D)			3,880
	1	66,403	66,403	
	1		0	
	<ul> <li>1.</li> </ul>	· ·	. 0	
			0	
<u></u>			0	
5	(E)			66,403
T			0	
			0	
T			0	
				li Na managana kata kata kata kata kata kata kata k
******				70,289
10)		an a		28,116
****				98,405
				1
	h h h FOREMA (13) (A+1	UNT. QANT. 1 1 1 1 1 1 0.2 (A) FOREMAN AND GUF (A) FOREMAN AND GUF (A+B)/(C)=(D) 1 S(F)	UNT. QANT. UNIT COST GS. 1 98,285 1 92,655 1 51,332 1 3,105 1 42,905 0.2 66,913 	UNF. QANF. UNIF COST GS. PARCIAL COST FUNT GS. 1 98,285 92,655 9

				-	
					UNIT.
Mix plant of subbase made of crus	hed plant - Sec	tion 1	and the second		m3
COMPONENTS	UNT.	QÁNT.	UNIT COST	PARCIAL COST	TOTAL COST
Siled Latitude Assessment all states in the second second second second second second second second second sec		مەرىكىچە ئىرغىغىغىغىن بوتىغ	GS.	P.UNT GS.	P.UNT GS.
A- EQUIPMENTS					
Plant for aggrégates		1	109,481	109,481	K∵ <del>an - Tankan - Tankan - Tanka</del> - Tankan - Tanka
Dragshovel 2.7 m3		0.2	<b>98,89</b> 6	19,779	
Dump Truck		0.7	35,700	24,990	
				<sup>-</sup> 0	
				0	
			j	0	
			:	0	
SUB-TOTAL EQUIPMENTS	3	(A)	ningen ander die Sanderstein under Angeweissen aus die Sanderstein under Angeweissen auf die Sanderstein und di	154,250	
B- LABOR			اری برد و برد و می می می ایند کنی می ایندان ایندان ایند کنی کرد. ا	a , na na manana minana manana manana minana min	
Equipment	h	1	15,176	15,176	
Complementary	h	1	3,209	3,209	
				0	
	FOREM	AN AND GU	RDMAN 10%	1,839	
SUB-TOTAL LABOR	(B)			20,224	
	1				
C- UNITARY PRODUCCION		95	TOTAL (A+B)	174,474	
and a second	10N (A4		TOTAL (A+B)	174,474	1 937
)- UNITARY COST OF EJECUT	10N (A+		ТОТЛІ (А+В)	174,474	1,837
D- UNITARY COST OF EJECUT 2- MATERIALS	194274-2014-2014-2014-2014-2014-2014-2014-201	*B)/(C)=(D)			1,837
D- UNITARY COST OF EJECUT 	Vm3	1.9	16,173	30,728	1,837
D- UNITARY COST OF EJECUT 	194274-2014-2014-2014-2014-2014-2014-2014-201	*B)/(C)=(D)			1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUT C- MATERIALS Supply of crushed stone Supply of sand	Vm3	1.9	16,173	30,728	1,837
D- UNITARY COST OF EJECUT 	Vm3	1.9	16,173	30,728	1,837
D- UNITARY COST OF EJECUT 	Vm3	1.9	16,173	30,728	1,837
D- UNITARY COST OF EJECUT 	t/m3 m3	1.9 0.18	16,173	30,728	1,837
D. UNITARY COST OF EJECUT 32 MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER	t/m3 m3	1.9 0.18	16,173	30,728	
<ul> <li>D. UNITARY COST OF EJECUT</li> <li>MATERIALS</li> <li>Supply of crushed stone</li> <li>Supply of sand</li> </ul>	t/m3 m3	1.9 0.18	16,173	30,728	
<ul> <li>D. UNITARY COST OF EJECUT</li> <li>MATERIALS</li> <li>Supply of crushed stone</li> <li>Supply of sand</li> <li>UNITARY COST MATER</li> <li>TRANSPORTS</li> </ul>	t/m3 m3	*B)/(C)=(D) 1.9 0.18 (E)	16,173 32,325	30,728 5,819 0 0 0 0	
D. UNITARY COST OF EJECUT 2- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER 5- TRANSPORTS Dumptruck 8m3	Um3 m3	1.9 0.18 (B) 1 22.0	16,173 32,325	30,728 5,819 0 0 0 0	36,546
<ul> <li>D. UNITARY COST OF EJECUT</li> <li>MATERIALS</li> <li>Supply of crushed stone</li> <li>Supply of sand</li> <li>UNITARY COST MATER</li> <li>TRANSPORTS</li> </ul>	Um3 m3	1.9 0.18 (B) 1 22.0	16,173 32,325	30,728 5,819 0 0 0 0	
<ul> <li>D. UNITARY COST OF EJECUT</li> <li>MATERIALS</li> <li>Supply of crushed stone</li> <li>Supply of sand</li> <li>UNITARY COST MATER</li> <li>F- TRANSPORTS</li> <li>Dumptruck 8m3</li> <li>UNITARY COST TRANS</li> </ul>	Um3 m3 RUALS	B)/(C)=(D) 1.9 0.18 (B) (B)(F)	16,173 32,325	30,728 5,819 0 0 0 0	36,546
<ul> <li>DNITARY COST OF EJECUT</li> <li>MATERIALS</li> <li>Supply of crushed stone</li> <li>Supply of sand</li> <li>UNITARY COST MATER</li> <li>TRANSPORTS</li> <li>Dumptruck 8m3</li> <li>UNITARY COST TRANS</li> <li>JOUNITARY COST TRANS</li> </ul>	Um3 m3	B)/(C)=(D) 1.9 0.18 (E) 1 22.0 . (F)	16,173 32,325 467	30,728 5,819 0 0 0 0	36,546
<ul> <li>DNITARY COST OF EJECUT</li> <li>MATERIALS</li> <li>Supply of crushed stone</li> <li>Supply of sand</li> <li>UNITARY COST MATER</li> <li>TRANSPORTS</li> <li>Dumptruck 8m3</li> <li>UNITARY COST TRANS</li> <li>G. TOTAL DIRECT COST (Direct Cost</li> <li>INDIRECT COST (Direct Cost</li> </ul>	Vm3 m3 RUALS FORT x 0.40)	<sup>3</sup> B)/(C)=(D) 1.9 0.18 (E) 1 22.0 (F)	16,173 32,325 467	30,728 5,819 0 0 0 0	<u>36,546</u> <u>10,274</u> 48,657
D. UNITARY COST OF EJECUT 2- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATER 5- TRANSPORTS Dumptruck 8m3	Um3           m3           WALS           PORT           x 0.40)	<sup>3</sup> B)/(C)=(D) 1.9 0.18 (E) 1 22.0 (F)	16,173 32,325 467	30,728 5,819 0 0 0 0	36,546

					UNIT.
Mix plant of subbase made of crushed pl	ant - Sectio	n 2			m3
COMPONENTS	UNT	QANT.	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	P.UNT GS.	P/UNT GS
A- EQUIPMENTS				a da Dacima Tanda Va Bardini a Kabini Manin Mitala	
Plant for aggregates		1	109,481	109,481	
Dragshovel 2.7 m3		0.2	<b>98,8</b> 96	19,779	
Dump Truck		0.7	35,700	24,990	
•				. 0	
				0	· ·
				0	
				0	
SUB-TOTAL EQUIPMENTS		(A)		154,250	
N <del>a manaka katan kanaka kanaka kana kanaka na</del> ng <del>ka kanaka kanaka nanja kanaka kanaka kanaka</del> na manaka.	transford after a transford through the		in an	AND THE PRODUCT DOCTORS OF A REAL PROPERTY OF	a na mada a ƙasar a ƙasar 19
B- LABOR	1.	- 1	15,176	16.176	
Equipment Complementary	h h	1	3,209	15,176 3,209	
Comprehenary	<b>11</b>	1	3,209	3,209	
<u>ar an sparin, bir borner spectrum an sind an statistic ser an </u>	FOREMA	N AND GUI	UMAN 10%	1,839	
SUB-TOTAL LABOR	(B)			20,224	*****
C- UNITARY PRODUCCION		95	TOTAL (A+B)	174,474	
anna ar ann an an ann ann ann ann ann an			10110(11/15)		
D- UNITARY COST OF EJECUTION .	(A+E	()(C)=(D)			1,83
E- MATERIALS					
Supply of crushed stone	Um3	1.9	16,173	30,728	
Supply of sand	m3	0.18	32,325	5,819	
				0	
· · · · · · · · · · · · · · · · · · ·				0	
· · · ·				0	
		(F)			36,54
UNITARY COST MATERIALS		,10 J			
UNITARY COST MATERIALS		1.)	<u>-</u>		
F- TRANSPORTS			462	11 208	an dan sela daga serang serang selang se
	· (	24.0	467	11,208 0	에 가하고, 이상 전 가 있다. (1997년 1997년 1 1997년 - 1월 - 1
F- TRANSPORTS			467	11,208 0 0	9-34-54, 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999
F- TRANSPORTS	1	24.0	467	. <b>O</b>	
F- TRANSPORTS Dump Truck 8m3 UNITARY COST TRANSPORT	<b>I</b>	24.0 (F)	467	. <b>O</b>	11,20
F- TRANSPORTS Dump Truck 8m3 UNITARY COST TRANSPORT G- TOTAL DIRECT COST	l	24.0 (F)		. <b>O</b>	
F- TRANSPORTS Dump Truck 8m3 UNITARY COST TRANSPORT	l	24.0 (F)		. <b>O</b>	11,20
F- TRANSPORTS Dump Truck 8m3 UNITARY COST TRANSPORT G- TOTAL DIRECT COST	0)	24.0 (F)		. <b>O</b>	11,2(
F- TRANSPORTS Dump Truck 8m3 UNITARY COST TRANSPORT G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost x 0.4	0)	24.0 (F)		. <b>O</b>	11,2(

				· ·	
			· ·		
nan an				n a an ing sing an ing an ing sing an	UNIT.
Aix plant of subbase made of crushe	ed plant - S	ection 3	<i>i</i>		m3
COMPONENTS	UN	r. Qant.	UNIT COST	PARCIAL COST	TOTAL COST
			GS.	PAINT GS.	P/UNT GS.
- EQUIPMENTS	********	an - Charlen an ann an Anna an		an tha an	ing Cultur South Statistic Linearce and Statistics
Plant for aggregates	<u> </u>	1	109,481	109,481	
Dragshovel		0.2	98,896		
Dump Truck		0.7	35,700	24,990	
				0	
				0	
				0	· · ·
SUB-TOTAL EQUIPMENTS		(A)		154,250	
3- LABOR					
iquipment	h	}	15,176	15,176	<b>₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩</b> ₩₩₩₩₩₩₩₩
Complementary	h	1	3,209		
an a	FOPE	MAN AND GUI	DMAN 10%	0 1,839	
SUB-TOTAL LABOR				20,224	
		95	TOTAL (A+B)		
C- UNITARY PRODUCCION		95	TOTAL (A+B)		
C- UNITARY PRODUCCION		ารระสมัยสารางสารางการระจาก	TOTAL(A+B)		1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS	<u>0N</u> (	A+B)⁄(C)=(D)	ی می این این این این این این این این این ای	174,474	1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTI E- MATERIALS Supply of crushed stone	0N ( <i>U</i> m	A+B)(C)=(D) 3 1.9	16,173	174,474	1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTI E- MATERIALS Supply of crushed stone	<u>0N</u> (	A+B)(C)=(D) 3 1.9	ی می این این این این این این این این این ای	174,474	1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS	0N ( <i>U</i> m	A+B)(C)=(D) 3 1.9	16,173	174,474	1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTI E- MATERIALS Supply of crushed stone	0N ( <i>U</i> m	A+B)(C)=(D) 3 1.9	16,173	174,474	1,837
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION C- MATERIALS Supply of crushed stone Supply of sand	ON ( (/m m3	A+B)(C)=(D) 3 1.9 3 0.18	16,173	174,474	
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI	ON ( (/m m3	A+B)(C)=(D) 3 1.9 3 0.18	16,173	174,474 30,728 5,819 0 0 0	<u>1,837</u> <u>36,546</u>
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI C- TRANSPORTS	ON ( (/m m3	A+B)/(C)=(D) 3 1.9 0.18	16,173 32,325	174,474 30,728 5,819 0 0 0 0	
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI C- TRANSPORTS	ON ( (/m m3	A+B)(C)=(D) 3 1.9 3 0.18	16,173	174,474 30,728 5,819 0 0 0 0	
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI	ON ( (/m m3	A+B)/(C)=(D) 3 1.9 0.18	16,173 32,325	174,474 30,728 5,819 0 0 0 0	
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION 3- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI 2- TRANSPORTS	ON ( //m m3	A+B)(C)=(D) 3 1.9 0.18 (E) 1 60.0	16,173 32,325	174,474 30,728 5,819 0 0 0 0 0 28,020 0	
UNITARY PRODUCCION     UNITARY COST OF EJECUTION     MATERIALS     upply of crushed stone     upply of sand     UNITARY COST MATERI     TRANSPORTS     Jump truck 8m3     UNITARY COST TRANSF	ON ( Um m3	A+B)(C)=(D) 3 1.9 0.18 (E) 1 60.0 (F)	16,173 32,325	174,474 30,728 5,819 0 0 0 0 0 28,020 0	36,546
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERIA CONTACTORY COST TRANSING UNITARY COST TRANSING G- TOTAL DIRECT COST	ON ( Um m3	A+B)(C)=(D) 3 1.9 0.18 (E) 1 60.0 (F)	16,173 32,325	174,474 30,728 5,819 0 0 0 0 0 28,020 0	<u>36,546</u> 28,020
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTION E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI CONTRACTORY UNITARY COST TRANSI	ON ( Um m <sup>3</sup> MLS PORT x 0.40)	A+B)/(C)=(D) 3 1.9 0.18 0.18 (E) 1 60.0 (F)	16,173 32,325	174,474 30,728 5,819 0 0 0 0 0 28,020 0	<u>36,546</u> 28,020
C- UNITARY PRODUCCION D- UNITARY COST OF EJECUTH E- MATERIALS Supply of crushed stone Supply of sand UNITARY COST MATERI F- TRANSPORTS Dump truck 8m3 UNITARY COST TRANSI G- TOTAL DIRECT COST H- INDIRECT COST (Direct Cost	ON ( //m m3 IALS PORT	A+B)/(C)=(D) 3 1.9 0.18 0.18 (E) 1 60.0 (F)	16,173 32,325	174,474 30,728 5,819 0 0 0 0 0 28,020 0	<u>36,546</u> 28,020

Production of crushed stone - Section 1	. Section 2	Section 3			UNIT. tn
COMPONENTS	UNT.	QANT.	UNIT COST GS.	PARCIAL COST P/UNT GS.	TOTAL COST P.UNT GS.
		a na senara se senara se a senara		o-autoinea carta latining ann an latining ann an latining an latining an ann an	and the second state of a second s
A- EQUIPMENTS	Τ.	l .	101 50	92,491	MFARD & COVE OF STREET
Wagon Drill Compresor	hs. hs.		92,491 26,184		
Air hammer or jackhammer	hs.	4	1,400		
Dragshovel 2,7m3	hs.	2	98,896		
Buildozer 215 HP	hs.		150,865		
Dump Truck	hs.	5	35,700		
Crushing Plant	ħs.	1	417,734	417,734	
Generating set	hs.	1 1	15,521	15,521	
SUB-TOTAL EQUIPMENTS		(A)		1,110,871	
B- LABOR					
Complementary	T h	2	3,209	6,418	an a
Equipment	h	1	99,850	99,850	
••		·		0	
a da fan de f Na fan de fan	FOREMA	N AND GUI	RDMAN 10%	10,627	
SUB-TOTAL LABOR	(B)			116,895	
C- UNITARY PRODUCCION		150	TOTAL(A+B)	1,227,766	
ala ya na		$\lambda(0) = (D)$	Lang gapan manaka sa salara marri a	and the proventies of the second s	8,18
D- UNITARY COST OF EJECUTION	(ATI	DIC F(D)		, , , , , , , , , , , , , , , , , , ,	0,10
E- MATERIALS Explosives	I ta	0.6	11,575	6,945	a, an an tha an Shartania, "Albaha an 190
Explosives Highly explosive	kg. ml.	0.8	3,475	1,043	
inginy explosive	<b>1</b> 11.	0.5	5,475	0	
				0	· .
				0	1
			· · · ·	• • • • • • • • • • • • • • • • • • •	
UNITARY COST MATERIAL	Ś	(E)	-		7,98
F- TRANSPORTS	•		1	:	
	<u> </u>			0	
				0	
UNITARY COST TRANSPOR	 2T	(F)		NAMES AND A DESCRIPTION OF A DESCRIPTION	
**************************************	ing gan an an an Pan India Na			ar uga yan dan dan sa	
G- TOTAL DIRECT COST		*****			16,17
H- INDIRECT COST (Direct Cost x 0	.40)		•		
- TOTAL UNITARY COST		·····•			

# ANNEX F

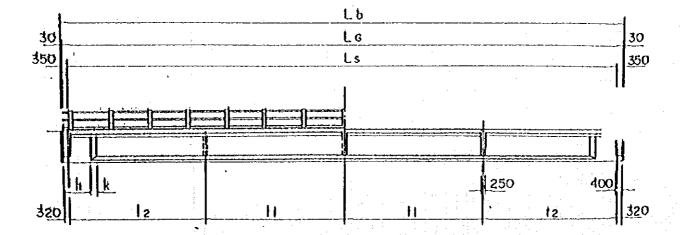
# **BRIDGE CONSTRUCTION**

#### ANNEX F BRIDGE CONSTRUCTION

#### 1. Quantity Calculation

#### 1-1 Superstructure

(1) PC composite Girder



PC Comp	osit Girde	r					- 		1 I I I		e territ
Name of			Width			Spacing of	of Girder	Slab		Girder	
Bridges	1.b(m)	B	61	b2	<b>S</b> 0	S1	S2	đ	h	bf	'n
Bailey	25.00	12.5	11.3	0.35	2.65	0.95	0.95	0.215	1.55	0.65	6
Teoicuary	26	12.5	11.3	0.35	2.65	0.95	0.95	0.215	1.55	0.65	6

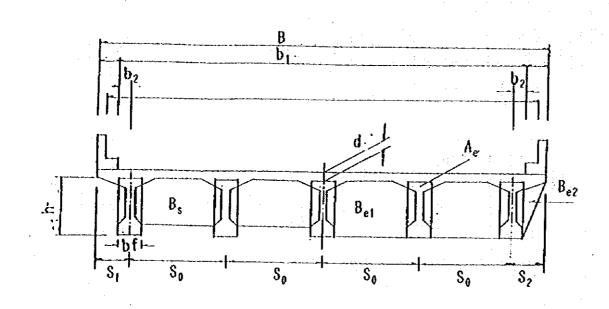
PC Composit Girder Cross Section Area (Unit:m2)

	Bailey	Tebicuary
End of Girder(Ae)	1.008	1.008
Center of Girder(As)	0.381	0.381
End Cross beam(Bel)	3.003	3.003
End Cross beam(Be2)	0.920	0.920
Inner Cross Beam(Bs)	2.939	2.939

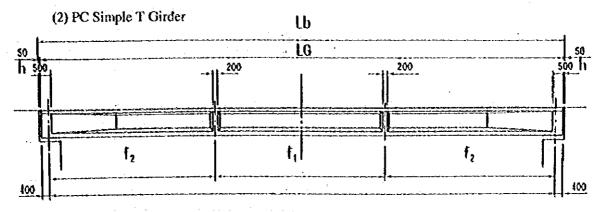
PC Composit Girder Concrete Volume

(Unit:m3)

PC composit Girder Concrete VolumeBaileyTebicuaryGirder(V0)11.6912.07V0*n58.4560.35							
Bailey	Tebicuary						
11.69	12.07						
58.45	60.35						
8.48	8.48						
67.03	69.71						
145.64	150.62						
	Bailey 11.69 58.45 8.48 67.03						



F- 2



	Width		Spacin	g of Gi	rder	Slab				
Lb(m)	B	b1	S0	S1	<b>S2</b>	d	∏ ĥ	bu	bd	n
20.00	12.5	11.3	2.12	0.9	0.9	0.18	0.49	1.5	0.5	6
25.00	12.5	11.3	2.12	0.9	0.9	0.18	0.79	1.5	0.5	6
30.00	12.5	11.3	2.12	0.9	0.9	0.18	1.09	1.5	0.5	6

PC T Girder C	(Unit:m2)		
	Lb=20m	Lb=25m	Lb=30m
End of Girder(Ae)	0.850	1.000	1.150
Center of Girder(As)	0.542	0.602	0.662
End Cross beam(Bel)	1.453	1.939	2.425
End Cross beam(Be2)	0.583	0.778	0.973
Inner Cross Beam(Bs)	1.423	2.059	2.695

1) Concrete Volume(PC)

a) Girder

 $V0=As \times (LG-2h)+2 \times Ae \times h$ 

b) Cross Beam

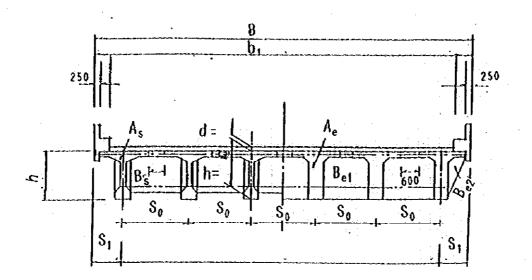
 $Vc=N \times Bs \times 0.2 + N \times Be1 \times 0.4 + 2 \times Be2 \times 0.4$ 

c) Slab

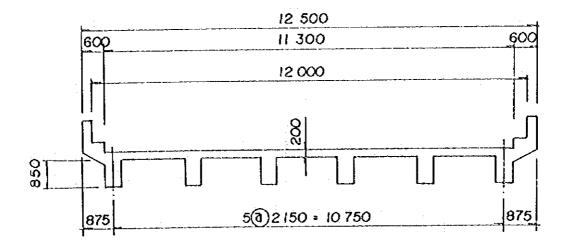
Vs=B×d×LG

PC T Girder	Concrete Volume	(Unit:m3	)
-------------	-----------------	----------	---

· · · · · · · · · · · · · · · · · · ·	Lb=20m	Lb=25m	Lb=30m
Girder(V0)	11.93	16.38	21.42
V0*n	71.61	98.26	128.50
Cross beam(Vc)	4.79	6,56	8.32
Slab(Vs)	44.78	56.03	67.28
Total	133.11	177.21	225.52



(3) RC Bridge



RC Cross Sectional Area (Unit:m2)

L(m)	L=5	L=10	L=15
Al	0.225	0.270	0.383
A2	2.260	2.260	2.260
A3	0.098	0.098	0.098

Concrete VolumeRC (Unit:m3)

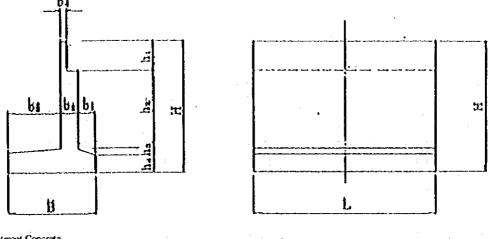
L(m)	L=5	L=10	L=15
VI	1.13	2.70	5.74
Vi*n	6.75	16.2	34.43
V2	11.30	22.60	33.90
V3	0.49	0.98	1.46

RC h (Unit: m)

L(m)	L=5	L=10	L=15
h	0.500	0.600	0.850

#### 1-2 Substructure

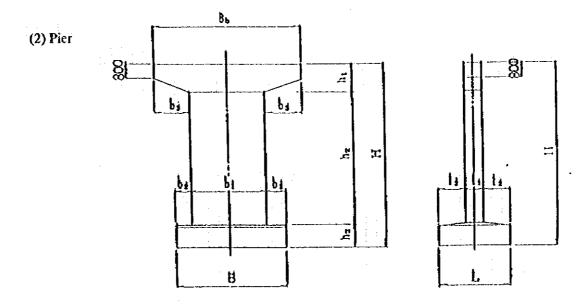
#### (1) Abutment



	Abutment Co	ncrete						5.1	-						·	and the second secon
Ĩ	Bridge No	GL(m)	F.L(m)	Н	hl	h2	h3	h4	В	<u>b1</u>	h2	b3	64	L		V*2(m3)
ľ	1	121,791	123.350	7.30	0.80	5.30	0.20	1.00	4.00	1.00	1.00	2.00	0.40	12.50	126.50	253.00
ìł	2	138,450	140.830	9.60	1.58	6.82	0.20	1.00	5.00	1.30	1.20	2.50	0.40	12.50	180.45	360.90
ł	3	139.437	140.830	7.80	1.28	5.32	0.20	1.00	4.50	1.20	1.00	2.30	0.40	12.50	136.03	272.05
ł	4	141.510	142.397	7.00	1.05	4.75	0.20	1.00	3.50	0.70	1.00	1.80	0.30	12.50	112.69	225.38
	5	142.658	144.830	5.20	1.88	2.12	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	76.05	152.10
Ì	6	128.177	129.430	5.00	0.80	3.00	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	83.00	166.00
2	7	127.032	128.407	5.00	0.80	3.00	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	83.00	166.00
1	8	119.266	119.626	5.00	0.70	3.10	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	83.88	167.75
	9	119.152	120.600	5.00	1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	80.81	161.63
	10	120.040	120.600	5.00	1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	80.81	161.63
	1	120.671	121.462	5.00	0.80	3.00	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	83.00	166.00
1	12	116.480	119.013	7.00	0.80	5.00	0.20	1.00	3.50	0.70	1.00	1.80	0.30	12.50	114.88	229.75
	13	117.950	119.219	5.00	0.70	3.10	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	83.88	167.75
	14	120.635		5.00	0.70	3.10	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	83.88	167.75
	15	101.612	107.500	5.00	1.88	1.92	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	73.55	147.10
	16	104.700	107.500		1.88	1.92	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	73.55	147.10
-	17	104.740			1.88	1.92	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	73.55	147.10
	18	151.077	151.600	·	1.88	1.92	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	73.55	161.63
	19	147.721	148.509		1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	80.81 80.81	161.63
	20	117.740			1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	80.81	161.63
1	21	115.924		5.00	1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	80.81	161.63
	22	106.547			1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50		12.50	83.00	
	23	106.738			0.80	3.00	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	80.81	
	24	106.621			1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30	12.50	100.81	101.05
	25 A1	109.066			1.77	3.04	0.20	1.00	4,00	1.00	1.00	2.00	0.30	12.50	100.8	
	25 A2	109.066			1.77	3.04	0.20	1.00	4.00	1.00	1.00	_		12.50	80.8	
	26	108.789			1.05	2.75	0.20	1.00	3.00	0.50	1.00	1.50	0.30		183.01	183.01
- 1	TebicusyAl	104.369		_	1.77	5.04	0.20	1.00	4.50	0.70	1.50	230	0.40	13.70	166.99	
	Tebicury A2	104.300	107.500	8.00	1.22	5.04	0.20	1.00	4.50	0.70	1.50	2.30	0.40	L12.30	T 100.20	1 100.98

Concrete Volume

### $V=(B\times h4+1/2\times b3\times h3+1/2\times b1\times h3+b2\times (h2+h3)+b4\times h1(m3)$



Pier Concrete	B	bt	b2	b3	L	11	12	H	h <b>l</b>	h2	h3	Вδ	V(m3)	V*a(m3)
Bailey Bridge	7.00	5.00	1.00	3.00	5.00	1.20	1.90	8.50	1.50	5,80	1.20	11.00	156.68	156.68
Tebicury Mi P1	11.70	9.70	1.00	2.00	5.00	1.20	1.90	7.51	1.50	4.81	1.20	13.70	196.06	196.06
Tebicury Mi P2-P5	7.00	5.00	1.00	3.00	5.00	1.20	1.90	4.65	1.50	1.95	1.20	11.00	98.93	395.70

Concrete Volume

#### $V=1/2(0.8+h1)\times b3\times h1+b1\times (h1\times h2)\times b3+B\times L\times h3$

#### 2. Cost Estimation

L=10m RC Bridge No.1 Bridge (I (L = 10.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	775.04	7.10	5506.59	1\$US=Gs 2020
Concrete Piles(D=0.8m)	ញ		116.71	0.00	
Concrete Piles(D=1.0m)	m		182.21	0.00	
Slab	m3	23.58	321.78	7586.01	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	253.00	321.78	81410.89	
Cutb	m3	6.6	321.78	2123.76	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	16.20	321.78	5212.87	
Handrail	m	20.00	133.86	2677.23	
Embankment Protection	m2	131.67	32.13	4230.13	
Sub Total	-			119250.45	
Temporary Bridge	Set			0.00	
Total				119250	

- L=25m PC T Gider Bridge No.2 Bridge (L = 25.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	1169.64	7.10	8310.23	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m		182.21	0.00	
Pier	m3		375.33	0.00	
Cross Beam	m3	6.56	375.33	2461.58	
Slab	[ m3	56.03	375.33	21027.68	
Approach Cushion	[ m3	28.80	375.33	10809.41	
Abutment	m3	360.90	375.33	135455.42	
Curb	m3	16.5	375.33	6192.89	
Ncoprene	unit	12	102.97	1235.64	
PC girder	m3	98.26	482,42	47399.82	
Girder Erection	m	150.00	64.72	9707.52	
Handrail	m	50.00	133.86	6693.07	
Embankment Protection	m2	113.98	32.13	3661.84	А.
Sub Total	-			252955.11	
Temporary Bridge	Set		······································	0.00	
Total				252955	

· · · · ·

L=20m PC T Gider Bridge No.3 Bridge (L = 20.00 m)

CALLER CONTRACTOR OF THE OWNER	the state of the s	No. of Concession, Name of Street, or other				Checker 1
Description	Unit	Quantity	Unit Cost	Cost	Remarks	
Excavation	m3	951.44	7.10	6759.93	1\$US=Gs 2020	
Concrete Piles(D=0.8m)	m		116.71	0.00		
Concrete Piles(D=1.0m)	m		182.21	0.00		
Pier	m3		375.33	0.00		
Cross Beam	m3	4.79	375.33	1799.50		
Slab	m3	44.78	375.33	16805.25		ł
Approach Cushion	m3	28.80	375.33	10809.41		
Abutment	m3	272.05	375.33	102107.64		
Curb	m3	13.2	375.33	4954.31	·	
Neoprene	unit	12	102.97	1235.64	· · · · · ·	
PC girder	m3	71.61	482.42	34543.92		
Girder Erection	m	120.00	64.72	7766.02		
Handrail	m	40.00	133.86	5354.46		
Embankment Protection	m2	118.50	32.13	3807.11		1
Sub Total	•			195943.20		
Temporary Bridge	Set			19594.32	10% of sub total	
Total				215538		1

L=15m RC Bridge

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	742.73	7.10	5277.06	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	i m'		182.21	0.00	
Slab	m3	35.36	321.78	11379.02	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	_m3	225.38	321.78	72521.66	
Curb	m3	9.9	321.78	3185.64	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	34.43	321.78	11077.35	
Handrail	m	30.00	133.86	4015.84	
Embankment Protection	m2	124.75	32.13	4007.94	
Sub Total	•			121967.48	
Temporary Bridge	Set			12196.75	10% of sub total
Total				134164	

#### L=30m PC T Gider Bridge No.5 Bridge (L = 30.00 m)

No.5 Bridge $(L = $	30.00	ni)	n o verse and - movies and a state of the state		an a
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	327.02	7.10	2323.49	1\$US=G 2020
Concrete Piles(D=0.8m)	m.		116.71	0.00	
Concrete Piles(D=1.0m)	m		182.21	0.00	
Pier	m3		375.33	0.00	
Cross Beam	m3	8.32	375.33	3123.66	
Slab	m3_	67.28	375.33	25250.11	
Approach Cushion	m3	28.80	375.33	10809.41	
Abutment	m3	152.10	375.33	57087.20	
Curb	m3	19.8	375.33	7431.47	
Neoprene	unit	12	102.97	1235.64	
PC girder	m3	128.50	482.42	61992.41	
Girder Erection	m	180.00	64.72	11649.03	
Handrail	m	60.00	133.86	8031.68	
Embankment Protection	m2	173.03	32.13	5558.98	
Sub Total				194493.08	
Temporary Bridge	Set			0.00	
Total				194493	

L=10m RC Bridge

L=10m RC Bridge					
No.6 Bridge (L =	10.00	m)			
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	404.68	7.10	2875.20	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m		182.21	0,00	
Slab	m3	23.58	321.78	7586.01	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	์ กา3	166.00	321.78	53415.84	
Curb	m3	6,6	321.78	2123.76	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	16.20	321.78	5212.87	
Handrail	m	20.00	133.86	2677.23	
Embankment Protection	m2	52.136	32.13	1674.96	
Sub Total	-			86068.85	
Temporary Bridge	Set			0.00	
Total				86069	

#### L=10m RC Bridge

	No.7	Bridge	(L=	10.00 m)
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10.1  DHORe $(1 -$	10.00		and the second second second second		
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	391.50	7.10	2781.59	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m		182.21	0.00	
Slab	m3	23.58	321.78	7586.01	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3 <sup>-</sup>	166.00	321.78	53415.84	
Curb	im3	6.6	321.78	2123.76	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	16.20	321.78	5212.87	
Handrail	m	20.00	133.86	2677.23	
Embankment Protection	m2	57.19	32.13	1837.33	
Sub Total	-			86137.60	
Temporary Bridge	Set			0.00	
Total				86138	

# L=5m RC Bridge No.8 Bridge

(L = 5.00 m)

Description			Unit Cost	Cost	Remarks	
Excavation	m3	250.56	7.10	1780.22	1\$US=Gs	2020
Concrete Piles(D=0.8m)	m		116.71	0.00		ĺ
Concrete Piles(D=1.0m)	m		182.21	0.00		
Slab	m3	11.79	321.78	3793.01		
Approach Cushion	m3	28.80	321.78	9267.33		
Abutment	m3	167.75	321.78	53978.96		
Сигь	m3	3.3	321.78	1061.88		
Neoprene	unit	12	102.97	1235.64		
Girdet	m3	6.75	321.78	2172.03		
Handrail	m	10.00	133.86	1338.61		
Embankment Protection	m2	82.99	32.13	2666.26		
Sub Total	-			77293.94		
Temporary Bridge	Set			0.00	· .	
Total				77294		

#### L=15m RC Bridge 71

No.9 Bridge (L =	15.00	m)				
Description	Unit	Quantity	Unit Cost	Cost	Remarks	
Excavation	m3	383.62	7.10	2725.57	1\$US=Gs	2020
Concrete Piles(D=0.8m)	m		116.71	0.00		
Concrete Piles(D=1.0m)	m	179	182.21	32630.86		
Slab	m3	35.36	321.78	11379.02	·	
Approach Cushion	m3	28.80	321.78	9267.33		
Abutment	m3	161.63	321.78	52008.04		
Curb	m3 :	9.9	321.78	3185.64		
Ncoprene	unit	12	102.97	1235.64		· ·
Girder	m3	34.43	321.78	11077.35		
Handrail	m	30.00	133.86	4015.84		
Embankment Protection	m2	60.17	32.13	1933.04		1
Sub Total				129458.34		
Temporary Bridge	Set			0.00		
Total				129458		

L=15m RC Bridge No.10 Bridge (L = 15.00 m)

No.10 Bridge (L =	15.00	m)				
Description	Unit	Quantity	Unit Cost	Cost	Remarks	
Excavation	m3	479.52	7.10	3406.97	1\$US=Gs 202	Õ
Concrete Piles(D=0.8m)	m		116.71	0.00		
Concrete Piles(D=1.0m)	m	179	182.21	32630.86	and the second	ļ
Slab	m3	35.36	321.78	11379.02		
Approach Cushion	m3	28.80	321.78	9267.33		
Abutment	m3	161.63	321.78	52008.04		
Curb	m3	9.9	321.78	3185.64		
Neoprene	unit	12	102.97	1235.64		
Girder	m3	34.43	321.78	11077.35		
Handrail	m	30.00	133.86	4015.84		
Embankment Protection	m2	23.28	32.13	747.75		
Sub Total	-			128954.45		
Temporary Bridge	Set			0.00		
Total		L		128954		]

L=10m RC Bridge No.11 Bridge (L = 10.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	454.57	7.10	3229.71	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m	145	116.71	16883.54	
Concrete Piles(D=1.0m)	m		182.21	0.00	
Slab	m3	23.58	321,78	7586.01	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	166.00	321.78	53415.84	
Curb	m3	6.6	321.78	2123.76	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	16.20	321.78	5212.87	
Handrail	m	20.00	133.86	2677.23	
Embankment Protection	m2	32.851	32.13	1055.40	
Sub Total	-			102687.34	
Temporary Bridge	Set			0.00	
Total				102687	

#### L=10m RC Bridge

No.12 Bridge (L = 10.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	542.74	7.10	3856.14	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m	0	116.71	0.00	
Concrete Piles(D=1.0m)	m		182.21	0.00	
Slab	m3	23.58	321.78	7586.01	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	229.75	321.78	73929.46	
Curb	m3	6.6	321.78	2123.76	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	16.20	321.78	5212.87	
Handrail	m	20.00	133.86	2677.23	
Embankment Protection	m2	105.26	32.13	3381.54	
Sub Total	-			109269.98	
Temporary Bridge	Set			10927.00	10% of sub total
Total				120197	

### L=5m RC Bridge

Description	Unit	Quantity	Unit Cost	Cost	Remarks	
Excavation	m3	250.56	7.10	1780.22	1\$US=Gs 20	)2(
Concrete Piles(D=0.8m)	m	0	116.71	0.00		
Concrete Piles(D=1.0m)	m	0	182.21	0.00		
Slab	m3	11.79	321.78	3793.81		
Approach Cushion	m3	28.80	321.78	9267.33		1.
Abutment	m3	167.75	321.78	53978.96		-
Curb	m3	3,3	321.78	1061.88		
Neoprene	น่กเเ	12	102.97	1235.64		•
Girder	m3	6.75	321.78	2172.03		
Handrail	m	10.00	133.86	1338,61		
Embankment Protection	m2	52.72	32.13	1693.76		
Sub Total	-			76322.24		
Temporary Bridge	Set			7632.22	10% of sub tot	al
Total	Ϋ́			83954		

# L=5m RC Bridge No.14 Bridge

-(L= 5.00 m)

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Unit	Quantity	Unit Cost	Cost	Remarks
m3	250.56	7.10	1780.22	1\$US=Gs 2020
m	0	116.71	0.00	
m	0	182.21	0.00	
m3	11.79	321.78	3793.81	
m3	28.80	321.78	9267.33	
m3	167.75	321.78	53978.96	
m3	3.3	321.78	1061.88	
unit	12	102.97	1235.64	
m3	6.75	321.78	2172.03	
m	10.00	133.86	1338.61	
m2	62.86	32.13	2019.35	
-			76647.84	
Set			7664.78	10% of sub total
		ľ	84313	
	m3 m m3 m3 m3 m3 m3 unit m3 m2 ·	m3       250.56         m       0         m       0         m3       11.79         m3       28.80         m3       167.75         m3       3.33         unit       12         m3       6.75         m       10.000         m2       62.86	m         0         116.71           m         0         182.21           m3         11.79         321.78           m3         28.80         321.78           m3         167.75         321.78           m3         167.75         321.78           m3         3.3         321.78           m3         6.75         321.78           m3         6.75         321.78           m3         6.75         321.78           m3         6.75         321.78           m         102.97         m3           m         10.00         133.86           m2         62.86         32.13           -         -         -	m3         250.56         7.10         1780.22           m         0         116.71         0.00           m         0         182.21         0.00           m3         11.79         321.78         3793.81           m3         28.80         321.78         9267.33           m3         167.75         321.78         53978.96           m3         3.3         321.78         1061.88           unit         12         102.97         1235.64           m3         6.75         321.78         2172.03           m         10.00         133.86         1338.61           m2         62.86         32.13         2019.35           -         76647.84            Set         7664.78

#### L=30m PC T Gider Bridge

No.15 Bridge	(L≓	30.00 m)
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10.15 D10gc (D-	00,00	And the second second second	ST ROLLOND STREET		
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	[ m3	228,10	7.10	1620.61	1\$US=G 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	282	182.21	51349.22	
Pier	m3		375.33	0.00	
Cross Beam	: m3	8.32	375.33	3123.66	
Slab		67.28	375.33	25250.11	
Approach Cushion	3	28.80	375.33	10809.41	
Abutment	m3	147.10	375.33	55210.56	
Curb	' m3	19,8	375.33	7431.47	
Neoprene	unit	12	102.97	1235.64	
PC girder		128.50	482.42	61992.41	
Girder Erection	• . <b>m</b> :	180.00	64.72	.11649.03	
Handrail	m	60.00	133.86	8031.68	
Embankment Protection	m2	39.90	32.13	1281.86	
Sub Total	-			238985.66	
Temporary Bridge	Set			0.00	
Total				238986	

#### L=30m PC T Gider Bridge

No.16	Bridge	(L =	30.00 m)
	/ DINGEO		

110.10 Diluge (L =					
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	228.10	7.10	1620.61	1\$US=G 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	282	182.21	51349.22	
Pier	m3		375.33	0.00	
Cross Beam	m3	8.32	375.33	3123.66	
Slab	m3	67.28	375.33	25250.11	·
Approach Cushion	m3 -	28.80	375.33	10809.41	
Abütment	m3	147.10	375.33	55210.56	
Curb	m3	19.8	375.33	7431.47	
Neoprene	unit	12	102.97	1235.64	
PC girder	m3	128.50	482.42	61992.41	
Girder Erection	m	180.00	64.72	11649.03	
Handrail	m	60.00	133.86	8031.68	
Embankment Protection	m2	36.18	32.13	1162.22	
Sub Total	-			238866.02	
Temporary Bridge	Set			0.00	
Total				238866	

## L=30m PC T Gider Bridge

No.17 Bridge $(L =$	30.00	in)			
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	228.10	7.10	1620.61	1\$US=G 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	· .
Concrete Piles(D=1.0m)	m	282	182.21	51349.22	
Pier	m3		375.33	0.00	
Cross Beam	m3	8.32	375.33	3123.66	
Slab	3	67.28	375.33	25250.11	
Approach Cushion	m3	28.80	375.33	10809.41	
Abutment	m3	147.10	375.33	55210.56	
Curb	m3	19.8	375.33	7431.47	
Neoprene	unit	12	102.97	1235.64	
PC girder	m3	128.50	482.42	61992.41	
Girder Erection	<u> </u>	180.00	64.72	11649.03	
Handrail	m	60.00	133.86	8031.68	
Embankment Protection	_m2	34.58	32.13	1110.94	
Sub Total	-			238814.74	
Temporary Bridge	Set			0.00	
Total	[]			238815	

### L=30m PC T Gider Bridge

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	483.52	7.10	3435.36	1\$US=G 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	0	182.21	0.00	1
Pier	m3		375.33	0.00	
Cross Beam	m3	8.32	375.33	3123,66	
Slab	m3	67.28	375.33	25250.11	
Approach Cushion	m3	28.80	375.33	10809.41	
Abutment	m3	147.10	375.33	55210.56	
Curb	m3	19.8	375.33	7431.47	
Neoprene	unit	12	102.97	1235.64	
PC girder	m3	128.50	482.42	61992.41	
Girder Erection	m	180.00	64.72	11649.03	
Handrail	m	60.00	133.86	8031.68	
<b>Embankment Protection</b>	m2	41.50	32.13	1333.13	
Sub Total				189502.46	
Temporary Bridge	Set			0.00	
Total				189502	

### L=15m RC Bridge

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No.19 Bridge	(L =	15.00 m)
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NU.19 DRuge (L =	1.7.00	***			and the second state and the second state of the second state of the second state of the second state of the se
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	454.90	7.10	3232.01	1\$US=Gs 2020
Concrete Piles(D=0.8m)	i m		116.71	0.00	
Concrete Piles(D=1.0m)	i m	0	182.21	0.00	
Slab	m3	35.36	321.78	11379.02	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	161.63	321.78	52008.04	
Curb	im3	9.9	321.78	3185.64	
Neoprene	unit	. 12	102.97	1235.64	
Girder	m3	34.43	321.78	11077.35	
Handrail	m	30.00	133.86	4015.84	
Embankment Protection	m2	32.74	32.13	1051.98	
Sub Total	-			96452.86	
Temporary Bridge	Set			0.00	
Total				96453	

L=15m RC Bridge No.20 Bridge (L = 15.00 m)

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NU.20 DHuge (D -		111/			general second secon
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	485.35	7.10	3448.40	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	· · · · ·
Concrete Piles(D=1.0m)	m	0	182.21	0.00	
Slab	m3	35.36	321.78	11379.02	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	161.63	321.78	52008.04	
Curb	m3	9.9	321.78	3185.64	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	34.43	321.78	11077.35	
Handrail	m	30.00	133.86	4015.84	
Embankment Protection	m2	21.04	32.13	675.97	
Sub Total				96293.24	
Temporary Bridge	Set			9629.32	10% of sub total
Total				105923	

### L=20m PC T Gider Bridge

No.21 Bridge (L = $20.00 \text{ m}$ )								
Description	Unit	Quantity	Unit Cost	Cost	Remarks			
Excavation	m3	242.62	7.10	1723.82	1\$US=Gs 2020			
Concrete Piles(D=0.8m)	m		116.71	0.00				
Concrete Piles(D=1.0n)	m		182.21	0.00				
Pier	m3		375.33	0.00				
Cross Beam	m3	4.79	375.33	1799.50				
Słab	m3	44.78	375.33	16805.25				
Approach Cushion	m3	28.80	375.33	10809.41				
Abutment	m3	161.63	375.33	60662.18				
Curb	m3	13.2	375.33	4954.31				
Neoprene	unit	12	102.97	1235.64				
PC girder	m3	71.61	482.42	34543.92				
Girder Erection	m	120.00	64.72	7766.02				
Handrail	m	40.00	133.86	5354.46				
Embankment Protection	m2	82.99	32.13	2666.26				
Sub Total	•			148320.78				
Temporary Bridge	Set			14832.08	10% of sub total			
Total				163153				

L=15m RC Bridge No.22 Bridge (L = 15.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	178.52	7.10	1268,40	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	0	182.21	0.00	
Slab	m3	35.36	321.78	11379.02	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	161.63	321.78	52008.04	
Curb	m3	9.9	321.78	3185.64	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	34.43	321.78	11077.35	
Handrail	m	30.00	133.86	4015.84	
Embankment Protection	m2	68.68	32.13	2206.50	
Sub Total	-			95643.78	
Temporary Bridge	Set			9564.38	10% of sub total
Total		l		105208	

#### L=10m RC Bridge

No.23 Bridge (L =	10.00	m)	<b></b>		<b></b>
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	382.10	7.10	2714.83	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m	0	116.71	0.00	· · · · ·
Concrete Piles(D=1.0m)	m		182.21	0.00	
Slab	m3	23.58	321.78	7586.01	
Approach Cushion	m3_	28.80	321.78	9267.33	
Abutment	m3	166.00	321.78	53415.84	
Curb	m3	6.6	321.78	2123.76	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	16.20	321.78	5212.87	
Handrail	m	20.00	133.86	2677,23	
Embankment Protection	m2	60.75	32.13	1951.84	
Sub Total	-			86185.36	
Temporary Bridge	Set			8618.54	10% of sub total
Total				94804	

### L=15m RC Bridge

No.24	Bridge	(L = -	15.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	369.47	7.10	2625.05	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	14
Concrete Piles(D=1.0m)	m	0	182.21	0.00	
Slab	m3	35.36	321.78	11379.02	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	_m3	161.63	321.78	52008.04	
Curb	_m3	9.9	321.78	3185.64	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	34.43	321.78	11077.35	
Handrail	m	30.00	133.86	4015.84	
Embankment Protection	m2	65.62	32.13	2108.23	
Sub Total	-			96902.15	
Temporary Bridge	Set			9690.22	10% of sub total
Total				106592	arrayan an is instal a land a land ar a fight of the static state of the state of the state of the state of the

L=25m\*2 PC Composit Gider Bridge No.25 Bailey Bridge(L = 25.00 m\*2)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	862.62	7.10	6128.87	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	467	182.21	85090.07	
Pier	m3	156.68	375.33	58804.32	
Cross Beam	m3	16.96	375.33	6365.47	ж. Т
Slab	m3	134.05	375.33	50313.49	
Approach Cushion	m3	28.80	375.33	10809.41	
Abutment	m3	201.61	375.33	75670.56	
Curb	m3	33.00	375.33	12385.78	
Neoprene	unit	: 15	102.97	1544.55	
PC girder	m3	116.90	482.42	56392.14	
Girder Erection	m	250.00	64.72	16179.21	
Handrail	m	100.00	133.86	13386.14	
Embankment Protection	m2	188.33	32.13	6050.36	
Sub Total	-			399120.38	
Temporary Bridge	Set			39912.038	10% of sub total
Total				439032	

L=15m RC Bridge

No.26 Bridge (L =	15.00	m)			
Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	485.89	7.10	3452.24	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	0	182.21	0.00	
Slab	m3	35.36	321.78	11379.02	
Approach Cushion	m3	28.80	321.78	9267.33	
Abutment	m3	161.63	321.78	52008.04	
Curb	m3	9.9	321.78	3185.64	
Neoprene	unit	12	102.97	1235.64	
Girder	m3	34.43	321.78	11077.35	
Handrail	m	30.00	133.86	4015.84	
Embankment Protection	m2	20.91	32.13	671.69	· · ·
Sub Total				96292.81	
Temporary Bridge	Set			9629.28	10% of sub total
Total	[			105922	

## L=26m\*5 PC Composit Gider Bridge Tehicuary Bridge (I = 26.00 m\*5)

Tedicuary	Bridge (	(L = 👋	26.00	m*3)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	954.30	7.10	6780.25	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	888	182.21	161798.68	
Pier	m3	395.70	375.33	148516.79	
Cross Beam	m3	42.40	375.33	15913.67	
Slab	m3	348.57	375.33	130827.17	
Approach Cushion	m3	14.40	375.33	5404.70	
Abutment	m3	166.98	375.33	62672.53	
Curb	m3	85.8	375.33	32203.03	
Neoprene	unit	30	102.97	3089.11	
PC girder	m3	301.76	482.42	145572.36	
Girder Erection	m	650.00	64.72	42065.94	
Handrail	m	260.00	133.86	34803.96	
Embankment Protection	m2	47.75	32.13	1533.96	
Sub Total	-			791182.15	
Temporary Construction	Set			39559.107	5% of sub total
Total				830741	

L=85m Metal Truss Bridge

Tebicuary Bridge (L = 85.00 m)

Description	Unit	Quantity	Unit Cost	Cost	Remarks
Excavation	m3	504.45	7.10	3584.09	1\$US=Gs 2020
Concrete Piles(D=0.8m)	m		116.71	0.00	
Concrete Piles(D=1.0m)	m	360	182.21	65594.06	1 E - E - E - E - E - E - E - E - E - E
Pier	m3	196.06	375.33	73588.06	
Slab	m3	318.75	375.33	119635.40	
Approach Cushion	m3	14.40	375.33	5404.70	
Abutment	m3	183.01	375.33	68689.09	
Curb	m3	56.1	375.33	21055.83	
Shoe	unit	4	1540.00	6160.00	
Metal Fabri /Transport.	t	480.00	3500.00	1680000.00	
Erection	m	1020.00	156.87	160011.07	
Handrail	m	170.00	133.86	22756.44	
Embankment Protection	m2	65.17	32.13	2093.70	
Sub Total	-			2228572.44	
Temporary Construction	Set			111428.62	5% of sub total
Total				2340001.06	

Total Cost : Truss(85m)+PC Composit girder (5@26) = \$US

3,170,742

#### 3. Comparison of Culvert Box and Bridge (L=5m)

3-1 Culvert Box

(1) Detour of the River

1) Excavation

 $A1 = 75,00 \text{ m}^2$  $A2 = 42,43 \text{ m}^2$ 

 $V = (2A1 + A2) \times h$ 

= 625,39 m<sup>3</sup>

2) Temporary bridge

Temporary bridge for L = 5 m shall be constructed.

3) Backfilling

 $V = 625,39 \text{ m}^3$ 

#### (2) Box Culvert

1) Concrete volume

$$A = 6,24 \text{ m}^2$$

 $V = A \times L m^2$ 

= 194,69 m<sup>3</sup>

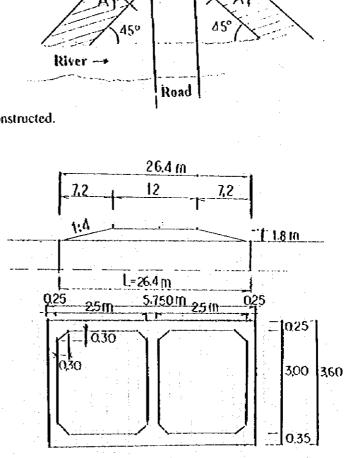
2) Excavation volume

A1 = 17,085 m<sup>2</sup>

 $A2 = 1,750 \text{ m}^2$  $A3 = 1,785 \text{ m}^2$ 

$$\Sigma \Lambda = 20,620 \text{ m}^2$$

 $V = \Sigma A \times L = 544,368 \text{ m}^3$ 



6 10

AZ

#### **Box Culvert Construction Cost**

	Item	Volume	Unit Price (US\$)	Cost (US\$)
Detour	Excavation	625.39 m <sup>3</sup>	7.10	4,443.34
1	Backfilling	625.39 m <sup>3</sup>	6.39	3,999.00
	Temporary Bridge	L=5 m		7,729.39
Box Culvert	Concrete	194.688 m <sup>3</sup>	321.78	62,647.13
	Backfilling	384.73 m <sup>3</sup>	6.39	2,460.12
	Excavation	544.368 m <sup>3</sup>	7.10	3,867.71
Total		1	T	85,146.69

The construction cost of a 5-meter bridge shall be between:

US\$ 77,294 and

US\$ 83,954 (see Nos. 8, 13,14)

Therefore, a comparison with the construction cost of a 5-meter bridge shows that such a bridge is economical, and shall therefore be recommended.