Results of Geological Investigation for the bridges

## 1) Tenaru 1 and 2 bridge sites

Surrounding of both bridges, Cacao plantations and tropical woods which come close to road sides are surrounding of both bridges. Tenaru 1 bridge is located above Tenaru river and Tenaru 2 bridge is located above Tenaru Creek. Between the two bridges. There is a flat surface of about 800m.

To carry out geological investigation at the bridge location, two boring holes (BH-4, 5) were drilled at Teneru 1, on the other hand one hole (BH-6) is drilled at Tenaru 2.

In the geological investigation results, layers of silty clay can be detected at Tenaru 2 bridge location only, also, sand, sand with gravels and sand or silt layers can be seen in the drilling hole logs. These layers are distributed from the ground surface till a thick sandy silt layer.

	14010 1 1			
No.	Drilling	Elevation	Underground	Drilling Location
	depth (m)	(m)	water depth (m)	
BH- 4	39.0	1.71	1.4	Tenaru 1, Right Abutment
BH- 5	30.0	2.67	2.6	Tenaru 1, Left Abutment
BH- 6	30.0	3.78	4.3	Tenaru 2, Left Abutment

Table-1 Relation between Drilling Location and Bridge

Summary of drilling holes results are as follows;

	14010-2	Distribution	i of son layers t	y anning	
Layer/ Item	Thickness of Layer (m)	Average N value	Distribution	Skin Friction of Pile(t/m2)*	Remarks
Silty clay with gravel	3.5	5.7	Tenaru 2	0.71	Surface layer
Sand	2-2.5	5.4	Tenaru 1, 2	1.08	Medium to fine sand
Sand with silt and	2-3.5	10.8	Tenaru 1, 2	2.16	Sub angular gravel less than 1
gravel					or 2cm in diameter (25%),
					Silt (25%),
					Coarse sand (50%)
Sand	7-9	15.1	Tenaru 1	3.02	Medium and fine sand,
(partly with Silt)			East side, 2		Dark green
Silt with fine sand	-	11.7	Tenaru 2	1.46	Green gray, Fine sand
					(mximum40% )

Table-2 Distribution of soil layers by drilling

注)\*: Clay=N/8、Sand=N/5 (Specifications for Highway Bridges/ Explanation IV, Substructure )

Based on the above mentioned drilling result, the supporting layer can not be confirmed clearly, therefore applying friction pile for the bridge foundation is necessary. The following table shows ultimate supporting strength of driving pile of steel pipe with 80cm diameter using Meyerhof's formula, which is commonly used to check geo-data.

			(	mg pme er				,			
Item	Pile L.	Ν	Ар	40NAp	Ns	As	NsAs/5	Nc	Ac	NcAc/2	Ru
/ unit	(m)		(m2)	(tf)		(m2)	(tf)		(m2)	(tf)	(tf)
BH- 4	22	26	0.5	520.0	9.6	17.6	33.8	9.6	17.6	84.5	638.3
	29	13	0.5	260.0	9.6	17.6	33.8	11.0	35.2	193.6	487.4
5	24	13	0.5	260.0	7.8	12.6	19.7	12.6	45.2	284.8	564.5
	29	13	0.5	260.0	7.8	12.6	19.7	21.2	57.8	612.7	892.4
6	22	11	0.5	220.0	11.8	27.6	65.1	7.8	25.1	97.9	383.0

 Table-3
 Ultimate supporting strength by Meyerhof in the case of clay stratum (driving pile of steel pipe with 80cm diameter)

cf) Steel Pile - The design and Construction- Association of Steel pile, 1994

formula:

Ru=40	Na*Ap+(Ns*As)/5+(Nc*A	Ac)/2	
	(Calculation formul	la of sup	oporting strength with considering clayey layer)
Ru :	Ultimate supporting	Ns :	Average N value of sandy layers between
	Strength (tf)		the surface and pile toe depth
Ap:	Pile toe size (m2)	Nc :	Average N value of clayey layers between
			the surface and pile toe depth
N :	N value of the layer	As :	Pile skin Size of clayey layers between
	of pile toe depth		the surface and pile toe depth (m2)
		Ac :	Pile skin Size of clayey layers between
			the surface and pile toe depth (m2)
	cf) Steel Pile - The des	sign and	Construction- Association of Steel pile, 1994

Accordingly supporting strength of an 80cm diameter steel pipe pile and the associated Safety factor can be calculated as follows;

Item	Pile Length	Ru	Safety factor	Coefficient	Ra		
/ Unit	(m)	(tf)	n	а	(tf)	(kN)	
BH- 4	22	638.3	4.0	1.0	159.6	1,420.4	
	29	487.4	4.0	1.0	121.9	1,089.9	
5	24	564.5	4.0	1.0	141.1	1,255.8	
	29	892.4	4.0	1.0	223.1	1,985.6	
6	22	383.0	4.0	1.0	95.8	852.6	

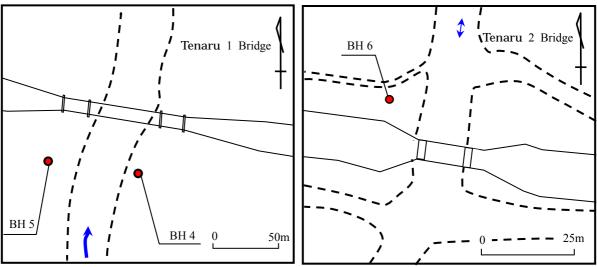
 Table-4
 Supporting strength with a safety factor

Formula :

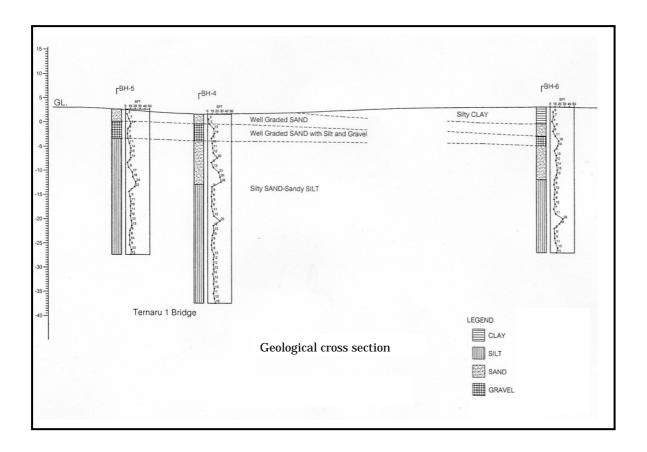
Ra=a* Ru/	n (Supporting strength formula with safety factor)
Ra : Ru :	Supporting strength of driving pile (tf) Ultimate supporting strength of driving pile (tf)
n :	Safety factor (Friction pile)
a :	Coefficient (without loading test result)

cf) Steel Pile - The design and Construction- Association of Steel pile, 1994

Based on the geological investigation results, the supporting layer can not be found, therefore, the friction piles for supporting the substructure foundation shall be adopted.



Location of Drilling sites



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STC	SIAM TONE CO., LTD.				в	ORI	NG	LOG	3							RING		BH-5 2 OF 2
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6 - 7 - 8 -		SW-SM, weil graded SAND with sitt and gravel, max 1-2 cm sized subround gravel, 25% gravel, sitt-sand for remains with 50% majority medium-coarse subangular sand (lab), loose- medium dense, dark greenish grey	55 63	6	45					14.5					•	2.61				
9 -		SW, well graded SAND, fine-medium grained, subangular, loose, dark greenish grey	SS SS	8	45 45													/-		
10 -			SS SS	10 11	45 45													13		
12 - - 13 -			SS SS	12 13	45 45									-				• 14		
14 -		ML, SILT, almost 100% silt, medium-high plastic, soft- medium stiff, dark greenish prey	SS SS	14	45 45			_						_			1	13		
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18 - 19 -			SS SS	18	45 45	-	_	-	_								•			
20 - - 21 -			SS SS	20	45													0		
- 22 - - 23 -	M	ll, sandy Sill, 7, 60% sill, 40% fine subangular sand (lab), ense, dark greenish grey	<b>65</b>	22	45		•	A1		237					• 2	4		' \		
- 24 - - 25 -	₹E	L, SiLT, almost 100% siit, medium-high plastic (lab), soft- edium stiff, dark greenish grey	SS	23	45 45													-	*	
-			SS	25	45	+				-							4			_

STC	SIAM TONE CO., LTD.	BORING LOG							Τ			BO		B NO.	_	BH-6 OF 2				
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DEPTH ( m. ) GRAPHIC LOG	SOIL DESCRIPTION Clay Laboratory Test Sit Sand Gravel	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)		U We (To	'otal Jnit eight rvm³)			-	(%) Natural Water Content			G	xecific ravity			(	SPT w Co Blow/f	kunt R)
	ML, SILT, almost 100% silt, medium-high plastic (lab), soft-			$\vdash$	+	1.6 1	8 2	0	1	0 0	90 0	120	╞	2.4 1	2.6 2	8		10 2	0 30	0 40
26 -	ML, SilLT, almost 100% silt, medium-high plastic (lab), soft- medium stiff, dark greenish grey	SS	26	45				_				_					•	9		
27 -		SS	27	45	E					Ň							+	9		-
28 -			28	45	F			-				_	t	-				"	+	-
29 -		58	10	45	F			_		<b>•</b> • 2	2	-	F	+	• 26		_	•	+	+
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## 2) Ngalimbiu Bridge

Ngalimbiu bridge is located at the down-steam of Ngalimbiu river, which is one of the longest rivers in Guadalcanal Island. This river is meandering on the flat alluvium plain with vast Coconut plantations and dense tropical woods can be seen along river sides. The river width at the planned bridges location is about 150m, and the river-bed is covered with gravels and boulders. During investigation period, which was in the dry season, the depth of river water was less than 2m around the site.

Three drilling holes are dug at upstream side of the existing truss bridge and two of them are on the right side and one is on the left.

Bore-log results show that clayey and sandy layers can be seen alternating for the thickness ranging between 1 and 6m up to 11m in some places. N value of clayey layer shows small value of 2 at the depth of 4 to 10m at BH-1, and a value of 5 was observed at sandy layers. N value of 50 can be found at the depth of 15m and 30m for BH-2 and 3. Respectably, similar N value distribution can be found where N value of 2 at 5m depth for silty sand layer, and value of 50 can be observed at 39m for silty sand layer. At BH-1, large value of 50 at the depth of 35m can be found for gravel layer.

The drilling work has been terminated when N value reaches 50. Bore-logs of each hole are shown on the attached sheet and the supporting layers for piles are considered as follows;

				8
No.	Drilling	Elevation	Underground	Drilling Location
	depth (m)	(m)	water depth (m)	
BH- 1	37.0	9.96	0.9	River-bed near the right side pier
BH- 2	39.0	14.76	5.5	Close to the right bank abutment
BH- 3	30.0	12.30	3.1	the left bank abutment

Table-5 Relation between Drilling Location and Bridge

The depth of supporting layer and distribution of N value by the investigation results are as follows;

	-		· · · · · · · · · · · · · · · · · · ·	8	
No.	Soil, layer	Depth	Thickness of Layer	N value	Average N
		(m)	(m)		value
BH-1	Sand, Gravel	32 - 36	4	31 - 50	42.2
BH-2	Sandy silt	28 - 31	3	25 - 37	32.7
	Silty sand	37 –	2 –	42 - 50	44.7
BH-3	Sandy silt	27 –	4 –	45 - 50	48.8
	<b>N N N N N N N N N N</b>				

Table-6 Distribution of soil layers by drilling

注)\*: Clay=N/8、Sand=N/5 (Specifications for Highway Bridges/ Explanation IV, Substructure )

The following table shows the ultimate supporting strength of driving pile of steel pipe pile with 80cm diameter using Meyerhof's formula, which is commonly used to check geo-data.

	(urving price of steel pipe with open diameter)														
Item	Pile L.	Ν	Ap	40NAp	Ns	As	NsAs/5	Nc	Ac	NcAc/2	Ru				
/ unit	(m)		(m2)	(tf)		(m2)	(tf)		(m2)	(tf)	(tf)				
BH- 1	32	31	0.5	620.0	23.7	40.2	192.9	14.1	30.1	212.2	1,026.6				
2	29	36	0.5	720.0	16.8	40.2	135.1	10.5	25.1	131.8	986.9				
	37	42	0.5	840.0	16.8	40.2	135.1	16.3	22.6	184.2	1,159.3				
3	27	45	0.5	900.0	20.8	35.2	146.4	11.7	30.1	176.1	1,222.5				
		cf	) Steel	Pile –The	design a	ind Con	struction-	Associa	tion of	Steel pile	, 1994				

 Table-7
 Ultimate supporting strength by Meyerhof in the case of clay stratum (driving pile of steel pipe with 80cm diameter)

formula :

Ru=40	Na*Ap+(Ns*As)/5+(Nc*.	Ac)/2	
	(Calculation formu	la of sup	oporting strength with considering clayey layer)
Ru :	Ultimate supporting	Ns :	Average N value of sandy layers between
	Strength (tf)		the surface and pile toe depth
Ap:	Pile toe size (m2)	Nc :	Average N value of clayey layers between
			the surface and pile toe depth
N :	N value of the layer	As :	Pile skin Size of clayey layers between
	of pile toe depth		the surface and pile toe depth (m2)
		Ac :	Pile skin Size of clayey layers between
			the surface and pile toe depth (m2)
	cf) Steel Pile -The des	sign and	Construction- Association of Steel pile, 1994

Accordingly supporting strength of an 80cm diameter steel pipe pile and the associated safety factor can be calculated as follows;

Ra
(kN)
2,284.6
2,195.6
2,579.2
2,719.8

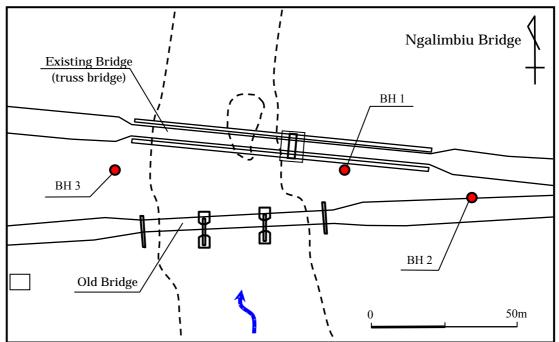
Table-8 Supporting strength with a safety factor

Formula :

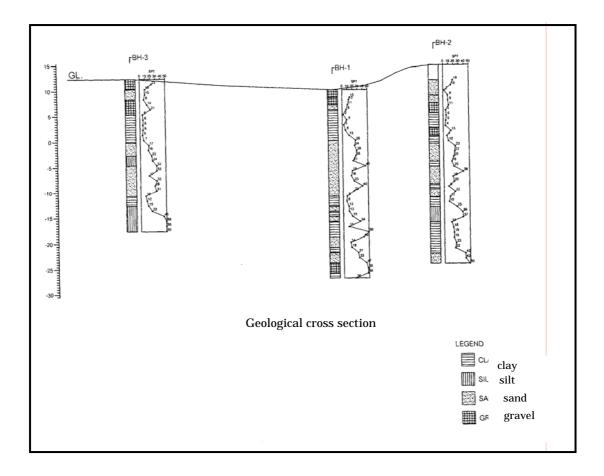
Ra=a* Ru/ 1	1 (Supporting strength formula with safety factor)
Ra : Ru :	Supporting strength of driving pile (tf) Ultimate supporting strength of driving pile (tf)
n :	Safety factor (Friction pile)
a :	Coefficient (without loading test result)
	Coefficient (without loading test result)

cf) Steel Pile - The design and Construction- Association of Steel pile, 1994

Based on the geological investigation results of a supporting layer for plies and distribution of clayey layers can be found at Ngalimbiu bridge site, the above mentioned the ultimate supporting strength for the substructure foundation shall be adopted.



Drilling Location at the Ngalimbiu Bridge



STC	SIAM TONE CO., LTD.				E	BOR		GL	og								BORIN			BH-1 OF	2
PROJECT: LOCATION: CLIENT:	Basic Design of Bridge Reconstructuion in Solomon isl. Ngalimbiu Bridge Pier 1 Construction Project Consultants Inc.	Grou		s: wation: Depth		8954	4376.	007		E:		744.99	. m	Starti	Water Level: Starting Date: Finishing Date:			22	-0.910	05	m
. 8	SOIL DESCRIPTION		Τ	(cm)	Т		Total		T	Plastic Limit	Natural Water	Juen	Lenk	-	Spec		T		/12/20 SP	т	
DEPTH ( m. GRAPHIC L	Sit Sand	SAMPLING	SAMPLE NO.	RECOVERY		w	/eigh: on/m³	)		F	(%				Grav			10	Blow C (Blow 20	efft)	
- 1 -	Riverbed built drilling platform, 1.5 m above original riverbed very coarse SAND with various sizes of river GRAVEL up to 10° ¢, brownish grey, loose												_			-					
2 -	SW, well graded SAND with gravel, 50% medium-coarse sand, 45% gravel, 5% clay (lab), loose, pale brownish grey, riverbed material, 2 max sized river gravel (observe from ground) SW, well graded SAND, medium grained, subangular, 100%	55 85 55	1	35 23 25		•	173						_	_	•	2.63		ľ	13		-
4	sand, koose, greenish grey CH, silty CLAY with sand, 85% clay-silt, 15% fine-medium sand (lab), high plasic, soft, dark greenish grey	55	4	45										-	+		1				-
6 -		SS SS	5	30 35													2	•			-
7 -		193	7	44		•1	72			<b>r</b> 2,1  ♦-8	T				•	2.59	4,				-
9 -		SS SS	8	30 30															3		
10 - - 11 -	SM, silty SAND, 70% fine-medium sand, 30% silt (lab), subangular, loose, greenish grey	SS SS	10	30 30		_						-							• 24	,	-
12 -		SS	12	25	_															58	
14 -		SS SS	13 14	35 40								_							21		
15 - - 16 -	-	SS ØS	15	45			•	2.02	25.2		_				•	2,09			19	Þ	
17 - 5 - 18 -		SS	17	45			_	-										+	18		
9 -	- with about 5% fine gravel - with medium grained 95%, fine grained-silt 5%	SS SS	18	45 45			_			_									23	> 40	
1	- with medium grained 95%, fine grained-ailt 20%	SS	20	45	_							-						/	22		
22 -	aand (lab), low-medium plasic, stiff, dark brown-greenish grey	83	22	45					<b>;</b> ••	45.5 •	-			-	•	271		8		+	
	SW, well graded SAND, fine-medium grained, subangular, 100% sand, loose, greenish grey	SS	23	45	-		-		_			-						12			
5	CL, sity CLAY, low-medium plasic, 70% ciay with 30% sit, stiff, greenish grey SW, well graded SAND, fine-medium grained, subangular, 1004 on studies of the state	SS SS	24 25	45 45	_		-		-		-							1	19		
1	100% sand, loose, greenish grey	-											$\uparrow$							$\pm$	

STC	SIAM TONE CO., LTD.				в	OR	ING	LC	G				Τ				RING	NO.	B 2 (	H-1 OF
PROJECT: LOCATION: CLIENT:	Basic Design of Bridge Reconstructuion in Solomon Isl. Ngalimbiu Bridge Pier 1 Construction Project Consultants Inc.	Grou	dinates nd Elev Drilling	ation:	i:8	3954	376.0		9	958			m S	tartin	Level: g Date			-0.9 22/12/ 26/12/	2005	
DEPTH ( m. ) GRAPHIC LOG	SOIL DESCRIPTION Clay Clay Sit Sit Gravel Gravel	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)		ע עע (To	otal Jnit eight n/m³)				6 % Natural Water			4	pecific 3ravity 2.6			Blow (Bl	SPT / Cour low/ft) 30	
	SW, well graded SAND, fine-medium grained, subangular, 100% sand, loose, greenish grey	-			F	Ē	-	-	F	Ĩ			1	-	-				Ŧ	Ŧ
26	CL, CLAY, medium-high plastic, 100% clay, greenish grey	SS	26	45	Þ		ļ		F	F			1	+	1	1				. 34
27 -		SS	27	45	E		-		L				1	-				K	$\pm$	+
28		SS	28	45	E				E				+	+	+	$\vdash$		+	$\uparrow$	$\uparrow$
29	SW, well graded SAND, fine-medium grained, subangular, 100% sand, loose, greenish grey	SS	29	45										+	+			-	+	1.
30	· · · · · · · · · · · · · · · · · · ·	SS	30	45	E													•	1	$\pm$
31 -	CL, CLAY, medium-high plastic, 100% clay, greenish grey	SS	31	45	$\vdash$				$\vdash$				+	-		-		4.		
32	SM, silty SAND, 85% fine-coarse subangular sand, 15% clay-	SS	32	45		-		_	-				+	+						1
33 - C	silt (lab), slight plastic, greenish grey	50	88	45		• 1	71	_	_	•			Ŧ	+	¢ 2	60				33
4	GP, poorly graded GRAVEL-SAND midure, coarse sand-fine	SS	34	45				_			_	-	1	-	-	-			+	X
5 <b>-</b>	gravel, max gravel size 2 cm¢, subangular, 70% sand, 30% gravel, dense, dark greenish grey	SS	35	20		_		_			_	-	1	-				-	Ŧ	Ŧ
6	CL, siīty CLAY, almost 100% clay-silt (lab), medium plastic,	35	*	5		_			13.8				+	+	• 1			+	+	ŧ
7	dark greenish grey End of Hole @ 37.00 M	010200200	37	40								+	t	1	F	_			/	1
			3/	40	_							+	ļ	+	-				+	+
										-		_	1	t	1				+	1
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STC	SIAM TONE CO., LTD.				в	ORI	NGL	.00	;					BORIN		BH-2 1 OF
PROJECT: LOCATION: CLIENT:	Basic Design of Bridge Reconstructuion in Solomon Isl. Ngalimbiu Bridge - East Abutment (A2) . Construction Project Consultants Inc.	Grou	dinater Ind Ele Drilling			8954	867.118		E: 14.76 39.00	3	m	Water Startin Finishi			-5.4 27/12/ 30/12/	2005
DEPTH (m. ) GRAPHIC LOG	Soil DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)		U We	otal nit ight Vm <sup>3</sup> ) 8 2.0		8 T Plastic Limit	(%) Natural Water		c	pecific Gravity 2.6 2.8		Blow (Bł	SPT Count ownt) 30 40
- 1	PVC sleeve preserved during the construction of bridge ramp embankment	` 														
3	SM, silly SAND with gravel, 50% fine-medium subangular sand, 35% clay-silt, 15% subround gravel (lab), max 3 cm sized gravel (observe), low-medium pissib, some wood	\$\$	1	30			_								1"	
5 -	remnant, greenish grey	5.0 SS	2	15 30				•					• 20	~	<b>*</b> "	
6 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	SW, weil graded SAND, fine-medium grained, subangular, 100% sand, loose, greenish grey GW-SM, weil graded GRAVEL with silt, 60% subround	SS SS	4	25 15											9	
8 -	gravel, 35% fine-coarue subangular sand, 5% sill (lab), 3.5 cm max sized gravel (observe), loose, greenish grey CL, silly-sandy CLAY, medium plastic, 70-90% clay with	<b>\$</b> 8 55	<b>ئ</b>	10 15									• 2 **	7		
10 -	mostly silt-fine sand for remnant, greenish grey	SS SS	8	20 30										• 5		
12 - 13 -	SP, gravely SAND, poorly graded, coarse grained, with 30% fine gravel, subangular, very loose, dark grey	SS SS	10	45 45										•	>"	
14 -	CL, sity-sandy CLAY, low plastic, 70% clay with 30% sit-fine sand, greenish grey	\$\$ \$\$	12	45 45											10	
16 - - 17 -	SW, well graded SAND, medium grained, subangular, 100% sand, very loose, dark greenish grey	SS SS	14	45 45											• 2	
	CL, silly CLAY, low plastic, 60 clay with 40% sill, greenish	SS	16	45											20	
20	grey SM, sihy SAND, 80% fine-medium subangular sand, 20% siit (lab), loose, dark greenish grey	SS 60	18	45				•	23				• 2.68		20	
22 - 23 -		SS	10	30											-	
24	CH, CLAY, high plastic, 100% clay with very minor silt, some wood remnant, greenish grey SP-SM, poorty graded SAND with silt, 90% fine-medium	SS SS	21	45 45						_					20	
25 -	SH-SM, poony graded SANU with sit, sU% nne-mealum subangular sand, 10% silt (lab), loose, dark greenish grey	SB	23	30	-			• 1	7.3				2.63		• 22	

ฎ	2	SIAM TONE CO., LTD.				в	OR	ING	; L(	DG							DRING	NO.	8 2	0F 2
PROJEC LOCATI CLIENT	ION:	Basic Design of Bridge Reconstructuion in Solomon isl. Ngalimbiu Bridge - East Abutment (A2) . Construction Project Consultants Inc.	Grou	dinates nd Elev Drilling	ation:		8954	1367.1	118	14			m	Start	er Leve ing Da hing D	te:		-5.4 27/12/ 30/12/	2005	m
DEPTH (m. )	GRAPHIC LOG	SOIL DESCRIPTION Clay Clay Sat Sat Gravel Gravel	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)		W (Te	Fotal Unit (eight on/m <sup>3</sup> ) 1.8 2			Plastic Limit	6 %) Natural Water	120		Specif Gravit 2.6	İγ.	1	Biov (B	SPT v Cour low/ft) 30	
26		SP-SM, poorly graded SAND with silt, 90% fine-medium subangular sand, 10% silt (lab), loose, dark greenish grey CL, silty CLAY, low-medium plastic, 60-70% clay with silt for	SS	24	45										-	+		• 13		+
27		remnant, dark greenish-brownish grey - with wood remnant	SS	25	45							_						10		+
28 -		ML, sandy SILT, 57% silt with 43% fine subangular sand (lab), dense, with wood remnant, dark greenish grey	SS	26	45							_				-			25	
29 - - 30 -			SB SS	27	45 45			••			30.5				•	2.05		-		30
31 -		CH, CLAY, high plastic, 100% clay, greenish grey	ss	29	45														1	
32		CL, silty CLAY, low-medium plastic, 50-70% clay with silt for remnant, with wood remnant, dark greenish-brownish grey	SS	30	30							_			_	-		+		
33 - 			SS SS	31 32	35 30													• 11	+	
35 -		- more clay with medium-high plastic	SS	33	40							-			-	-		Ì	23	
36 - 37 -			SS	34	45													k	2	
38 -	. 1	SM, sity SAND, 85% fine subangular sand with 15% sit (ab), some small interbeded clay-sit, very dense, dark greenish grey	SS SS	35 36	40 lost		_		_			_		+	+			+	-	42
39		End of hole @ 39.00 m (full length of drill rod)	85	37	40			2.1	•	•	22.9	-			•	2.89				
-					_															
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510	SIAM TONE CO., LTD.					BO	RIN	1G	LO	G			_				SHEI	ЕΤ		1	OF
ROJECT			pordina	ites:	N:	89	5437	6.42	6	E:	e	32566	3.965	Wat	ter Le	wel:	_		-3.12	0	_
OCATION				Elevatio			-			12.3	300		m	Star	Starting Date:		-	0	2/01/2	005	_
LIENT:	Construction Project Consultants Inc.	-	ax Drill	ing Dep	th:		-	_		30.	00		m	Fink	shing	Date	-	0	5/01/2	005	_
2 8	SOIL DESCRIPTION	Τ	Τ	Τ	(cm)		Tot	al		1	Į	l Water ent	Limk	$\square$			Τ		SF	PΤ	
	IIIII Sat	Ŷ	8	SAMPLE NO.	ERY (		Uni Weig			Disette I elle		Natural Wate Content	Liquid Limi			cific			Blow		
GRAPHIC	Sand	SAMP	METHOD	line	RECOVERY (		(Ton/r				⊢	(%)			Gra	ivity			(Blo	w/tt)	
_	GP, poorly graded GRAVEL with sand-clay mbdure, max 1.	-	+	+	4	1.6	1.8	2.0	4	30	60	90	120	2	4 2.	5 2.8	$\perp$	10	20	30	40
	2 cm sized subround gravel, medium grained subangular sand, 60% gravel with 40% clay-sand, medium dense, pale		+	+	+		+	+	-+	+	+	+	+		-	-	+	+	+	+	+
	brownish-greenish grey,	s	s	1 3	10			$\pm$									+	+	₽ 2	3	+
2 -	SW, well graded SAND, fine to medium grained,	+			_	-	_	-	_	_							1	1			I
	subangular, loose, almost 100% sand with a bit clay, pale brownish- greenish grey	s	s _ :	2 3	0	+	+	+	+		+	-+-	+		-		+	10	-	+-	+
		s	s a	3	0	+	+	+	+	+		+	+	-	+	+	+	10	+	+	+
	GW, well graded GRAVEL with fine-coarse subangular same																	1			t
	max 1.5-2 cm sized subround gravel, 50% gravel with majority coarse sand at 30% (lab), medium dense, brownish	-	*	3	•	+	+	+	+	+	+	+	+	-+	-+	+	+	1	-	-	+
	greenish grey,	s	5 5	2	5	+	+	+	+	+	+	+	++	+	+	-	+	A	4-	-	+
																-	$^{+}$	$\uparrow$	t		+
		85	1.	20	4	+-	+	+	┍	+	+	-	$\square$	_	-	2.68	L		21		T
	CH, silty CLAY, almost 100% clay (lab), high plastic, soft,	ss	7	35	-	+	+	+	+	+	+	+	+	+	+	+-	1	4	-		+
	greenish gray									T							Ħ	+		-	$^{+}$
		SS	8	45	-	$\vdash$	+	-	+	+		_					+	4			T
		ss	9	45	+	+-	+	+	+	+-	+	+	+	+	+	-	╁	-	+		+
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		65	10	45	• 1	1		-	-	H	+			2.2			ŀ	•			
		ss	11	45	┢	+	+	-	╀	+	┝	+-	$\left  \right $	-	+	+	<b> </b>	5			┝
					T				t		t				1		$\mathbb{H}$	$\vdash$			t
	SW, well graded SAND, medium-coarse grained subangular	SS	12	45	+	<u>.</u>	+	-		+		-		-		-	R	F			
1	sand, almost 100% sand with very minor subround gravel and clay, loose, dark greenish grey	SS	13	45	+	$\vdash$	-	-	⊢	+	+	+		+	+		+-	A	17	-	$\vdash$
- 1																		Ħ			
- 1		SS	14	45	-			-	╞	+	-							•	8	_	
	ML, SILT, uniform grained, almost 100% silt, slight plastic, medium dense, dark greenish grey	SS	15	45	$\vdash$	-	$\vdash$	-	-	+	┝	-		+	+	+			22	-	-
	incoloni denes, deix greenisti grey																			-	
		SS	16	45			-		-	-				1	-				<b>4</b> 24		
1	SW, well graded SAND, fine-medium with some coarse grained subangular sand, almost 100% sand, medium	SS	17	45	$\square$	_		-	-		-	-	+	+-	+	+	$\vdash$		ł	32	_
	dense, dark greenish grey																				
$  \cdot  $	with bout 10% clay	SS	18	45				_		-					-				1	32	_
	with bout 10% clay	SS	19	45		-							+	+	+	$\left  \right $		~	$\left  \right $	-	_
																			$\langle  $		_
		SS	20	45															1	32	
		SS	21	45	$\vdash$		-	+				$\left  \right $		-	-	$\left  \right $	-		4 20	-	
													-		$\vdash$	+	+	-	T	+	_
1.00		SS	22	45															1	11	
	CL-ML, sitly CLAY, 80% clay, 20% sitt, medium plastic, dark	SS	23	45	$\vdash$	+	$\rightarrow$	+	_		_			-				10			
	greenish grey					+	+	+			_		-	$\vdash$	-		Ŧ	+		-	-
	l	SS	24	45		_											•	12			
	ML, sandy SILT, 60% silt, 40% fine subangular sand (lab),					_	•		31	4											
		63	25	45											• 2			<b>à</b> 1\$			

SIAM TONE CO., LTD.         BORING           PROJECT:         Basic Design of Bridge Reconstructuion in Solomon Isl.         Coordinates: N: 8954376.4           LOCATION:         Ngalimbiu Bridge - West Abutment (A1)         Ground Elevation:	LOG		RING NO. BH-3
		SHE	ET 2 OF 2
LOCATION: Ngalimbiu Bridge - West Abutment (A1) Ground Elevation:		Water Level:	<u>-3.120</u> m
CLIENT: Construction Project Consultants Inc. Max Drilling Depth:		Starting Date: Finishing Date:	02/01/2005
Ciary Laboratory Test	Plastic Limit Natural Water Content Liquid Limit	Specific	SPT Blow Count
Image: Carry Carry Carry Carry Test     Image: Carry Test <td< td=""><td></td><td>Gravity</td><td>(Biow/ft)</td></td<>		Gravity	(Biow/ft)
Image: Cravel         1.6         1.8         2           Image: Cravel         1.6	2.0 30 60 90 120	2.4 2.6 2.8	10 20 30 40
26 - SS 26 45			
27 - 55 27 45			
28 -			
29 -			¥
30 SE 28 45 +1	●1 ◆ 30.2	◆ 2.68	f
End of hole @ 30.00 m SS 30 45			
		-	
	_		