P1

Transaction or Request Lodgement Receipt

Transaction or Request Description:	ANZ to Other Bank Transfer
Transaction or Request Status:	Held for Authorisation
Date / Time:	21/12/2021 15:35
Transaction Number:	AEL34502

Transaction Details:

ANZ to Other Bank Transfer

From Account: 5691140
Transfer Amount in Local Currency: SBD 126,875.00
Transfer From Amount: SBD 126,875.00
Indicative :
My Reference: Fencing-KukumHCC

Payment Details

Account Name: VAVALU CONSTRUCTION
Account Number: 20043881123015
Bank Name: Bred Bank
Reference To Payee : Fencing-KukumHCC

Pay Date : 21/12/2021

Authorised
21/12/21

NATIONAL HOSTING AUTHORITY
EXECUTIVE DIRECTOR
SOL2023 PACIFIC GAMES

Comments:

********** Authorisation Details **********
21/12/2021 15:35 Debbie Ofaeri Sifoni
Authorisation Required for : ANZ to Other Bank Transfer (1A)
****

©Copyright Australia and New Zealand Banking Group Limited ABN 11 005 375 522, 1996-2021. ANZ's colour blue is a trade mark of ANZ.

NATIONAL HOSTING AUTHORITY
P O Box 2443
Honiara, Solomon Islands
E:Accounts@sol2023.com.sb

PAYMENT VOUCHER

DATE 21/12/2021

VAVALU CONSTRUCTION
Honiara
Solomon Islands

Cheque Number IB Trans

Total Amount Paid $126,875.00

Mobilization payment - Construction of Spectator Fence for HCC kukum Field.

In Payment For the following invoices:

Supplier Inv	Purchase No.	Invoice Date	Invoice Amount	Previous Payments	Current Payment
304	00000463	21/12/2021	$253,750.00	$0.00	$126,875.00

NATIONAL HOSTING AUTHORITY
FINANCIAL CONTROLLER
SOL2023 PACFIC GAMES

21/12/21

As per contract attached.

Payment Voucher Prepared By: Pauline Roma. Date: 21/12/21

Signature of Claimant: _____

PRINT NAME: _____

IMPROVING THE LIFE OF SOLOMON ISLANDERS
Inland Revenue Division Solomon Islands

Express Pogara
T/A"EJC Real Estate Limited"
PO Box C29
Honiara, Guadalcanal

SR 1
18 May 2C

TIN: 1069761

Dear Sir/Madam,

Notification of Registration

I am writing to confirm registration of the above named with Inland Revenue for the following ta

Income Tax
Stamp Duty
Withholding Tax

The following Tax Identifier Number (TIN), 1069761, should be written on all payment forms, returns, correspondence or other dealings with IRD. The same TIN is used for all tax types (e Income Tax, PAYE, Goods Tax etc).

If you have registered for Sales or Goods Tax an officer will be in contact in relation to the is special certificates that you may require for these taxes.

If you are unsure of your obligations or would like any additional information, please contac Taxpayer Education Team on phone21493.

Yours faithfully

INLAND REVENUE DIVISION
MOF
18 MAY 2020
SOLOMON ISLANDS

Judy Aolokeyu
Compliance Officer

OFFICIAL PURCHASE ORDER

'HA/SOL2023 Pacific Games
'O Box 2443
'lonoria, Solomon Islands

'hone: (677)7308800
'mail: Accounts@sol2023.com.sb

PO # NHA-PO- 0463

DATE: 17/12/2021

upplier:	Valeu Construction	Delivery to:	NHA
ddress:		Attention:	
lobile:		Mobile:	
		Delivery Date:	

Item	Description	Qty	Price (excl Tax)	Total
1	mobilization payment for Construction of spectator fence for Hte Kukum field Lot 6.			$290,600-00

'LEASE INCLUDE PO NUMBER ON ALL INVOICES

Subtotal	$290,600-00
TAX	
TOTAL	$290,600.00

NHA Account Name: ~~Officer~~ Officers local cost.

MOFT Account Name:

NHA Account Code: 6-2417

MOFT Account Code: 2717

Approved by: *Signature:* .....
[Financial Controller]

Date: 20/12/21

Signature: .....
[CEO/EXECUTIVE DIRECTOR]

Date: 20/12/21

opy 1 White *Supplier*
opy 2 Pink *Ordering Department*
opy 3 Yellow *Finance*

OFFICIAL PURCHASE ORDER

'HA/SOL2023 Pacific Games
O Box 2443
lonoria, Solomon Islands

hone: (677)7308800
mail: Accounts@sol2023.com.sb

PO # NHA-PO- 0463

DATE: 17/12/2021

upplier:	Vatai Construction	Delivery to:	NHA
ddress:		Attention:	
lobile:		Mobile:	
		Delivery Date:	

Item	Description	Qty	Price (excl Tax)	Total
1	Mobilization payment for construction of spectator fence for Hcc Kukum field Lot 6.			$290,600.00

PLEASE INCLUDE PO NUMBER ON ALL INVOICES

Subtotal	$290,600.00
TAX	
TOTAL	$290,600.00

NHA Account Name: ~~effor~~ efforts local cost.
MOFT Account Name:

Approved by: Signature: [Financial Controller]

Signature: [CEO/EXECUTIVE DIRECTOR]

NHA Account Code: 6.2117
MOFT Account Code: 2217

Date: 20/12/21

Date: 20/12/21

Copy 1 White — Supplier
Copy 2 Pink — Ordering Department
Copy 3 Yellow — Finance

OFFICIAL PURCHASE ORDER

NHA/SOL2023 Pacific Games
PO Box 2443
Honoria, Solomon Islands

Phone: (677)7308800
Email: Accounts@sol2023.com.sb

PACIFIC GAMES SOLOMON ISLANDS

PO # **NHA-PO-** 0463

DATE: 23/12/2021

Supplier:	Volatile Construction	**Delivery to:**	NHA
Address:		**Attention:**	
Mobile:		**Mobile:**	
		Delivery Date:	

Item	Description	Qty	Price (excl Tax)	Total
1	mobilization payment for construction of spectator fence for the Kukum field Lot 6.			$250,000.00

PLEASE INCLUDE PO NUMBER ON ALL INVOICES

Subtotal	$250,000.00
TAX	
TOTAL	$250,000.00

NHA Account Name: Others

MOFT Account Name:

Approved by: ***Signature:*** .....
[Financial Controller]

Signature: .....
[CEO/EXECUTIVE DIRECTOR]

NHA Account Code: 6-3217

MOFT Account Code: 23-17

Date: 20/12/21

Date: 20/12/21

Copy 1 White *Supplier*
Copy 2 Pink *Ordering Department*
Copy 3 Yellow *Finance*

PACIFIC GAMES
SOLOMON ISLANDS

Tender Award Notification

Date: 15th November 2021

Vavalu Construction

Dear Sir/Madam,

AWARD OF CONTRACT FOR: Construction of Fencing for Kukum Field, GTB 05/21, Lot 6.

The Internal Tender Board has deliberated today on the evaluation and recommendations submitted by the Technical Evaluation Committee for approval of the contract for Construction of the Fencing for Kukum field.

I am pleased to inform you that after carefully considering the details of the evaluation report and recommendation submissions that your Tender has been accepted for the sum of $290,000.00

You are hereby informed to contact Mr. Peter Himane to arrange for contract formalities. Please note that a binding contract will not be in place until this contract is executed by both the Purchasing Agency and the Contractor. Work should not be undertaken on this project until this contract is in place.

By copy of this letter, responsible authorities are hereby advised of this award.

Yours faithfully,

Internal Tender Board
APPROVED
Date: 15/11/21
Sign:
National Hosting Authority

Mr. Leeroy Bird
Secretary - Internal Tender Board

Cc:
Chairman, Internal Tender Board
FC – NHA
ED-PMU
HCC-City Clerk & Sports Director
Procurement Unit, NHA

GAMES FACILITIES COMMITTEE

PROJECT MANAGEMENT UNIT

PURCHASE REQUISITION

Project Name: Construction of Spectator Fence for HCC Kukum Field (Lot 6)
Project No.: GTB 05/21
Contract Name:

QUANTITY	UNIT	DESCRIPTION	PURCHASING OFFICER USE ONLY		
		(Full and clear details of payment)	SUPPLIER	ORDER NO.	COST
1	No.	Mobilization Payment (50%) for Construction of Spectator Fence for HCC Kukum Field (Lot 6). All required works claimed as mobilization payment shall include WBS 1 to 3 - Refer to contract work schedule.	Vavalu Construction	-	$145,000.00
		Retention			-$7,250.00
		Tax Reduction			-$10,875.00
				Totals	$126,875.00

Approval is requested to incur expenditure on the above

Estimated Cost (SBD): $126,875.00 Date: 15/12/21

Requisition Officer: SOLEANA G Sign:

Account No:

Title:

Funds available on this account:

Supervisors Certification (Accountable Officer):

Certifying Officer: ELDON TEPA Sign:

Post: EXECUTIVE DIRECTOR

Department/Committee: Project Management Unit

Authority is granted for expenditure not exceeding:

SBD$: $126,875.00

Signed:

Name:

Note: Authority for expenditure must be given by accounting officer or his/her deligated

NATIONAL HOSTING AUTHORITY EXECUTIVE DIRECTOR PMU SOL2023 PACIFIC GAMES

NATIONAL HOSTING AUTHORITY EXECUTIVE DIRECTOR SOL2023 PACIFIC GAMES

Threshold and Contact Payments Checklist

Payment requires one Quote ($10,000 and below)	
Payment requires three quotes (above $10,000)	
Is it a ITB Contract Payment?	
Is it a GTB Contract Payment	
Payment is a Bid waiver	

Are the correct supporting documents attached?

Sign:

Date:

Compliance Check by:

Signature

Date: 16/12/21

Name: PETER HMANE

Position: CA

NATIONAL HOSTING AUTHORITY
XVII 2023 PACIFIC GAMES

MEMORANDUM

To: EXECUTIVE DIRECTOR, NHA

Thru: EXECUTIVE DIRECT, PMU ……..…….. Date: …../…./…

From: PROJECT MANAGER
Project Management Units, NHA

Ref: Mobilization Payment for GTB 05/21 Construction of Spectator Fence for HCC Kukum Field (LOT 6)

Date: 15th December 2021

RE: MOBILIZATION PAYMENT FOR GTB 05/21 - CONSTRUCTION OF SPECTATOR FENCE FOR HCC KUKUM FIELD (LOT 6)

Dear ED,

Kindly find attached invoice from **Vavalu Construction** for Mobilization Payment. As per signed contract, the contractor is entitled to **Fifty (50%)** mobilization payment to begin works for the above subject.

The amount for claim is **$145,000**. A retention of 5% and with-holding tax of 7.5% shall be deducted. With this, the final amount requested for payment is **$126,875.00**

Approval is hereby sought for payment to be raised accordingly.

Sincerely

Jone Vave
Project Manager

Signature:…… Date: 17/12/….	Approved	Not Approved
Mr. Christian Nieng Executive Director National Hosting Authority		

NATIONAL HOSTING AUTHORITY EXECUTIVE DIRECTOR SOL 2023 PACIFIC GAMES

Cc. FC
Cc: ED PMU
Cc: Contract Administrator

C/-P.O. Box 2443
Honiara
Solomon Islands

Phone:
677 7308800

Facebook page:
Sol2023 XVII Pacific Games

P.O. BOX 2443 Sea King Restaurant Building, Honiara, Solomon Islands

PROGRESS PAYMENT CERTIFICATE NO: L6PC - 01

Payment Schedule Name:	Progress Payment Claim 1 - 50% Mobilization		
Project Name:	Construction of Spectator Fence for HCC Kukum Field (Lot 6)		
Contractor:	Vavalu Construction		
Project Manager	Jone Vave	**Certificate:**	L6PC - 01
Contract Administrator:	Peter Himane	**Date Invoice Received:**	13-Dec-21
		Date Issued for payment:	15-Dec-21
		Contract No:	GTB 05/21

A PROGRESS CLAIM SUMMARY

REF	PROGRESS CLAIMS	CONTRACT DETAILS	PAYMENT DETAILS	NOTES
1	Mobilization Costs (50%)	$ 145,000.00	$ 145,000.00	Payment In process
2	Progress Claim 2 (40%)			
3	Progress Claim 3 (10% & Retention)			
6				
7				
8				
9				
10	**Progress Claim to date**	**$ 145,000.00**		
11	**Original Contract Value**	**$ 290,000.00**		
12	**Total Adjusted Contract Value**	**$ 290,000.00**		
13	**Balance of Contract Payment**	**$ 145,000.00**		

B PAYMENT DETAILS

	Progress payment for this claim	$	145,000.00
	Retention-Purchaser retains 5% of this payment pursuant to clause	$	7,250.00
	With-holding Tax (7.5%)	$	10,875.00
	Amount payable for this claim after Retention	$	126,875.00

Payment is certified as conform to payments terms and conditions as stated in article 10:

Payment is hereby certified: ..... *Jone Vave (Project Manager)* — 16/12/21 *Date*

Compliance and approved by: ..... *Peter Himane (Contract Administrator)* — 16/12/21 *Date*

Claim is hereby approved for payment by: ..... *Eldon Tepa (Executive Director - PMU)* — 16/12/21 *Date*

NATIONAL HOSTING AUTHORITY EXECUTIVE DIRECTOR PMU SOL2023 PACIFIC GAMES

On presentation of this original to the Employer, the Contractor is entitled to payment within the period stated in the Agreement: Article 10.

VAVALU Construction

INVOICE

INVOICE NO: **304** INVOICE DATE: **13/12/2021**

BILL TO: NHA
ADDRESS: SOLOMON ISLANDS GOVERNMENT, NATIONAL HOSTING AUTHORITY.

ORDER **GTB 05/21 CONSTRUCTION OF SPECTATOR FENCE FOR KUKUM HCC FIELD.**

FROM -VAVALU CONSTRUCTION
PH 7712807 / 7475984

QTY	DESCRIPTION	PRICE	SUB-TOTAL	
1	**MOBILISATION 50% FOR WBS1-3**		$145,000	00
	TOTAL (TAX INCLUDED)		**$145,000**	**00**

BANK: **BRED BANK**
ACCOUNT NAME: **VAVALU CONSTRUCTION**
ACCOUNT NO: **20043881123015**

Michael MAEFAIDIDIA
Project manager
VAVALU CONSTRUCTION

VAVALU CONSTRUCTION P.O.BOX C29 BORDERLINE EAST HONIARA
EMAIL.sihopele@gmail.com

NATIONAL HOSTING AUTHORITY

SOL2023 Pacific Games

SINGLE PAYMENT CONTRACT COMPLIANCE CHECKLIST

Required Documents	Division	NHA Secretariat	Comments
Purchase Requisition & Payment Voucher	✓	✓	
Signed Contract	✓	✓	
Tender Evaluation Report	✓	✓	
Tender Award by GTB/ITB	✓	✓	
Copy of Advertisement (including dates of advertisement	✓	✓	
Bid Waiver (must include grounds for waiver)	∂		
ICT Checklist (if for ICT goods)			
Original Invoice	✓	✓	
Certification of work completed/goods received (includes final reports)	∂		
Compliance Checks required			
Tender advertisements made at least two weeks before tender closing date	✓	✓	
Contract form approved	✓	✓	
Check payment is inaccordance with payment provisions in contract	✓	✓	
PR/PV has been signed by authorized person	✓	✓	
Check amount on PR/PV matches the signed contract/invoice	✓	✓	
Name on PR/PV matches signed contract	✓	✓	
Account code used is correct			
Check bid waiver /restrictive tender is for a valid reason			
Check expenditure is acceptable and proper use of NHA/SIG monies	✓	✓	
Check calculations on invoice are correct	✓	✓	
Cheack price and rates are reasonable	✓	✓	

Note: IF any of the above cannot be certified, please include an explanation as to why. This will speed up the compliance process.

Divisional Compliance Performed By

Signed: _____

Name and Position: Peter Hisiwane (CA)

Date: 21/12/21

NHA Compliance Performed By

Signed: _____

Name and Position: Leevay Bird (PM)

Date: 21/12/21



CONTRACT FOR

CONSTRUCTION OF SPECTATOR FENCE FOR KUKUM HCC FIELD

GTB REFERENCE NUMBER: GTB 05/21

BETWEEN

SOLOMON ISLANDS GOVERNMENT

NATIONAL HOSTING AUTHORITY

AND

VAVALU CONSTRUCTION

LOT 6

December 2021

Table of Contents

CONTRACT AGREEMENT 1
SECTION I: GENERAL CONDITIONS OF CONTRACT 4
Article 2 Application 5
PERFORMANCE OF THE CONTRACT 5
Article 3 Delivery 5
Article 4 Guarantee 5
Article 5 Inspection 6
RELATIONS BETWEEN THE PARTIES 7
Article 6 Contacts 7
Article 7 Method of notification 7
Article 8 Confidentiality 7
FINANCIAL PROVISIONS 7
Article 9 Prices 7
Article 10 Invoicing and payment 8
Article 11 Advance 8
NON-PERFORMANCE AND DISSOLUTION 8
Article 12 Penalty 8
Article 13 Non-performance 9
Article 14 Liability 9
Article 15 Force majeure 9
Article 16 Dissolution 10
Article 17 Retention of right to demand compliance 10
MISCELLANEOUS 11
Article 18 Documentation 11
Article 19 Assignment of rights and obligations under the Contract 11
Article 20 Insurance 11
Article 21 Bribery and conflicts of interest 12
Article 22 Invalidity 12
Article 23 Follow-up order 12
Article 24 Long-term obligations 12
Article 25 Disputes and applicable law 12
Article 26 Final provisions 12
SECTION II: SPECIAL CONDITIONS OF CONTRACT 13
SECTION III: PAYMENT SCHEDULE 17
SECTION IV: ANNEXES TO CONTRACT 18
ANNEX A: CONTRACTORS TENDER FORM 19
ANNEX B: PERFORMANCE SECURING DECLARATION 20

ANNEX C: CONTRACTORS BID PRICED BILLS OF QUANTITIES.....21
ANNEX D: PROJECT WORKS REQUIREMENTS: 22
ANNEX E: PROJECT SITE LOCATION 55
ANNEX F: DRAWINGS.....56
ANNEX G: WORK SCHEDULE.....57
ANNEX H: AGREEMENT TO PRICE REDUCTION 58

CONTRACT AGREEMENT

1. The Government of the Solomon Islands, represented by the **National Hosting Authority**, legally represented in this matter by the **Secretariat - Christian Nieng** hereinafter referred to as the Employer,

   And

2. **VAVALU CONSTRUCTION,** which has its registered office at – **P.O. Box C29, Borderline, Honiara, Solomon Islands**, legally represented in this matter by Managing Director – **Express POGARA** hereinafter referred to as the Contractor,

   Have agreed as follows:

3. Both parties have agreed for the contractor to perform the works specified as **Construction of Spectator Fence for Kukum HCC Field** at **Kukum, Central Honiara.**
4. The price of the execution of Works is confirmed in the Tender and Price Schedule as part of your Tender submitted on **19th day of October 2021**.
5. The total Price shall be **Two Hundred and Ninety Thousand Dollars Only ($290,000.00).** The agreed price for the execution of the Works is fixed for the duration of the Contract.
6. The works shall be completed within **One (1) Month** from the Contract Commencement date. Construction of various lots may happen simultaneously.
7. The Contractor shall strictly comply with the terms and conditions as described in the General Conditions of Contract and Special Conditions of Contract for the Execution of Works and the Technical Specifications and Drawings. Any general and special terms and conditions drawn up by the Contractor do not apply.
8. The Contractor's invoice(s) to the Employer for the completion of all progressive works shall be addressed to the **Project Management Unit – National Hosting Authority** of the quoting the above-mentioned Contract number.
9. This Contract is subject to the provisions of the attached General Conditions of Contracts and Special Conditions of Contract for the Execution of Works.
10. This Contract is made up of the following documents, in order of precedence:

    I. This Contract Letter
    II. SECTION I: GENERAL CONDITIONS OF CONTRACT
    III. SECTION II: SPECIAL CONDITIONS OF CONTRACT
    IV. SECTION III: PAYMENT SCHEUDLE
    V. SECTION IV: ANNEXES TO THE CONTRACT
    VI. Annex A: Tender form
    VII. Annex B: Performance securing declaration
    VIII. Annex C: Contractors priced bills of quantities
    IX. Annex D: Project requirements: technical specification& guidelines
    X. Annex E: Project requirements: Site location
    XI. Annex F: Drawings

XII. Annex G: Work Schedule

The various documents making up this Contract shall be deemed to be mutually explanatory; in cases of a different interpretation, the documents shall prevail in the order in which they appear above.

1. FOR THE NATIONAL HOSTING AUTHORITY

Name: Mr. Christian NIENG

Title: NHA EXECUTIVE DIRECTOR

Signature:

Date: 12

2. FOR THE CONTRACTOR

Name: Mr. Express POGARA

Title:

Signature:

Date:

3. FOR THE NATIONAL HOSTING AUTHORITY

Name: Mr. Eldon TEPA

Title: PMU EXECUTIVE DIRECTOR

Signature:

Date: 14/12/21

SECTION I: GENERAL CONDITIONS OF CONTRACT

The terms in these General Conditions of Contract for the Execution of Works for the Government of the Solomon Islands are defined as follows.

1.1 **SPECIFICATIONS AND PERFORMANCE REQUIREMENTS**: a document attached to the Contract which, when initialled by both parties, forms part of the Contract.

1.2 **DOCUMENTATION**: The manuals or other user instructions accompanying the installations and equipment included as part of the works, in English or another language agreed between the Parties.

1.3 **EXECUTION OF WORKS:** these General Conditions of Contract for the Execution of Works, which apply to and form part of the Contract.

1.4 **INSPECTION:** The inspection of the Works for visible defects and non-conformity carried out at the Employer's request on the Contractor's site prior to Delivery.

1.5 **EMPLOYER:** The Government of the Solomon Island or any other Government agency using these General Conditions of Contract for the Execution of Works.

1.6 **CONTRACTOR:** The Employer's counterparty.

1.7 **DELIVERY:** the delivery of the Works referred to in article 3.1, including its assembly or installation in accordance with the requirements set out in the Contract.

1.8 **CONTRACT:** the written agreement between the Employer and the Contractor to which these Purchasing Conditions are declared to be applicable.

1.9 **PARTY:** The Employer or the Contractor, depending on the context.

1.10 **WORKS:** The description of the activities to be implemented by the Contractor, including equipment to be delivered and installed by the Contractor under the Contract.

1.11 **PRODUCT:** The equipment which the Contractor has included in his Works as part of his Contract

1.12 The **Project Manager** is the person **named in the Special Conditions of Contract (SCC)** (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works.

1.13 The **Contract Administrator** is the Person named in the Special Conditions of the Contract (SCC) or any other person present at the office administering the Contract.

Article 2 Application

1.1 Amendments or additions to the Contract or changes from certain Contract Conditions are binding only if they have been explicitly agreed in writing between the Parties.

1.2 In the event of inconsistency between this text of these Contract Conditions and translations of them, this text always prevails.

PERFORMANCE OF THE CONTRACT

Article 3 Delivery

3.1. Unless agreed otherwise in writing, Delivery of the Works, specified by the Employer in the Technical Specifications and quoted for by the Contractor will take place on the agreed delivery date(s) or within the agreed delivery period(s) at the delivery location specified by the Employer, and the Contractor will bear all costs and risks connected with the delivery of the Works, including, where applicable, the import duties and responsibility for complying with the associated formalities.

3.2. The agreed delivery date(s) or period(s) are considered to be fixed and final. If the Works are not delivered at the agreed location within the agreed period, the Contractor will be in default without notice of default being required.

3.3. Delivery of the Works earlier than the agreed delivery date(s) or period(s) will take place only after prior written consent has been obtained from the Employer and will not alter the agreed payment date.

3.4. The Employer has the right to defer Delivery, unless this would place a disproportionate burden on the Contractor. The Contractor is obliged to maintain the Works for the Employer at no additional cost until the deferred Delivery date, unless this would place a disproportionate burden on the Contractor, in which case the Parties will hold discussions to find a reasonable arrangement acceptable to both Parties. The provisions of articles 3.2, 3.4 and 14 apply to the Delivery deferred by the Employer, except that the Contractor will be in default, without prior notice of default, only after the deferred delivery date(s) or period(s) have been exceeded.

Article 4 Guarantee

4.1. The Contractor guarantees that the delivered Works complies with the Specifications and Performance Requirements the Contractor has been bidding against and which have been accepted by the Employer by issuing this Contract, is free of defects and is suitable for the purpose for which the Works are intended. The Works does not comply with the Contract if the Product does not have the characteristics the Employer might expect on the basis of the Contract.

4.2. If the Employer has not provided a more detailed description of the requirements to be delivered by the Contractor, the Works should in any event be of good quality and meet at least the Construction and Building standards as applicable on the Solomon Islands, customary requirements concerning soundness, fitness for purpose and workmanship, and all requirements and customary industry regulations concerning quality, safety, health and the environment.

4.3. The Employer may no longer refer to the fact that the Works does not comply with the Contract if it has not notified the Contractor accordingly in writing within 60 days of discovering this fact. If the Contractor receives such a notification from the Employer, the Contractor will rectify the defect or non-conformity within a period set by the Employer in accordance with the provisions of article 13.

4.4. The Contractor guarantees that the delivered Works is free of any special encumbrance or restriction that the Employer has not accepted explicitly and in writing. The Contractor indemnifies the Employer against all claims in this regard.

4.5. The Employer may demand that, as security for compliance with, inter alia, the Contractor's Defects Liability Period obligations under this Contract, a guarantee may be required in a form of a Bankers Guarantee through a bank accepted by the Employer.

4.6. The Employer may demand that, as security for the completion of the Contract, and the Contractor's performance obligations under this Contract, a Performance Guarantee in the form of a Bankers Guarantee through a bank accepted by the Employer.

4.7. The Contractor guarantees the delivery of spare parts for the equipment delivered under the performance of his contract for the duration of the technical or economical lifespan of the equipment quoted. Special requirements regarding the provision and availability of spare parts may be requested at time of tendering.

Article 5 Inspection

5.1. At the Employer's request, the Works may be regularly inspected by the Employer, or a third party designated by the Employer during the execution of the Contract. However, the Employer is not obliged to carry out such an Inspection.

5.2. If the Employer wishes to inspect the Works:

a. the Contractor will allow the Employer, or a third party appointed by the Employer full access to the location where the Contractor is executing the Contract.

b. The Contractor will, upon request and at no cost to the Employer, cooperate with the Inspection and facilitate the Employer or a third party appointed by the Employer at the location and reasonable assistance in terms of staff and materials.

c. The Inspection, if the Contractor so desires, will take place in its presence or in the presence of an expert designated by the Contractor. The associated costs will be borne by the Contractor.

5.3. If the Employer rejects the Works to be delivered, the Contractor is obliged, without prejudice to all other rights or claims of the Employer, to rectify without delay, at its own expense and risk, the defects and notify the Employer when the Works are ready for a new Inspection. The provisions of article 5 apply in full. Rejection by the Employer during the first or previous Inspection will not lead to the agreed delivery period being extended.

5.4. The approval of the Works by or on behalf of the Employer does not include any approval that the Works complies with the guarantees given in accordance with article 4.

RELATIONS BETWEEN THE PARTIES

Article 6 Contacts

6.1. Each Party will appoint a contact person to maintain contacts in relation to the performance of the Contract. The Parties will notify each other in writing of the person they have appointed as their contact.

6.2. The contacts may represent and bind their Parties, unless the Contract provides otherwise.

Article 7 Method of notification

7.1. All notifications given by the Parties on the basis of the Contract must be in writing.

7.2. Oral communications, undertakings or agreements have no legal force unless confirmed in writing.

7.3. 'In writing' is understood to include 'electronically', provided:

a. the notification can be consulted by the addressee.

b. the authenticity of the notification is sufficiently guaranteed; and

c. the identity of the sender can be determined with sufficient certainty.

Article 8 Confidentiality

8.1. The Contractor will not disclose in any way any information that is provided by the Employer or that is made known to it or comes to its knowledge, which it knows or may reasonably suspect to be confidential, except in so far as it is compelled to disclose such information under a court ruling.

8.2. The Contractor will pass-on the duty of confidentiality referred to in this article on all staff or sub-contractors it engages in the performance of the Contract and will ensure that this duty is observed.

8.3. The Contractor will not issue press releases or make other public statements about the Contract except with the prior consent of the Employer.

8.4. If the Contractor breaches its duty of confidentiality, the Employer may impose a penalty, as laid down in the Special Conditions of Contract. Payment of the penalty, which is payable forthwith, does not discharge the Contractor from its liability for indemnifying any loss caused by the breach.

FINANCIAL PROVISIONS

Article 9 Prices

9.1. Unless agreed otherwise in writing, the price(s) agreed for the Works include the costs of transport, taxes, and import duties, other levies, insurance, packaging costs, incidental services, disposal costs and any assembly or installation costs.

9.2. The prices for the Works are fixed, unless the Contract specifies the circumstances that may lead to a price adjustment and the manner in which such an adjustment should be made.

Article 10 Invoicing and payment

10.1. The Contractor will invoice the Employer for the delivered Works at the agreed milestones and at the agreed prices in accordance with the Price Schedule. The Contractor will send the invoice to the address specified by the Employer, stating the date and number of the Contract and other details requested by the Employer.

10.2. The Contractor will send the invoice in hard copy so that it can be received and processed in accordance with the specifications issued by the Employer.

10.3. The right to payment arises upon Delivery of agreed milestones or after Delivery of the Works, unless the Contract provides otherwise. The Employer will pay the price for the delivered Works within 30 days of receiving the invoice if it satisfies the provisions of the Contract. The Employer has the right to offset invoice amounts owed against amounts that the Contractor owes the Employer.

10.4. The Employer will withdraw retention payments of 5% from the Contractors milestone payments. The retention payment will be released to the Contractor at the end of the retention period of **One (1) month** from the Acceptance of the Works provided that there are no serious defects.

10.5. Payment of an invoice by the Employer does not recognize that the Product is in conformity with the guarantees given in accordance with article 4.

10.6. In case payment is subject to SIG tax law, all taxes applicable will be deducted from the invoice before payment.

Article 11 Advance

11.1. If it has been agreed that, for the purpose of performing the Contract, the Employer should make an Advance Payment prior to the start of the Works, the Contractor will issue the Employer with a Bank Guarantee for Advance Payment to the value of the advance payment prior to the payment being made to the Contractor.

11.2. The maximum amount to be advanced will be **Fifty Percent (50%)** of the contract works amount and the advance payment will be recovered over the next two milestone payments.

NON-PERFORMANCE AND DISSOLUTION

Article 12 Penalty

12.1. If the Works have not been delivered within the time limit agreed, the Contractor will owe the Employer an immediately payable penalty of 0.1% of the price of the Contract for every day the failure persists, subject to a maximum of 10% of that price. If Delivery has become permanently impossible for reasons other than force majeure, the Contractor will immediately be liable for the full penalty of 10% of the price of the Product in question.

12.2. The penalty is payable to the Employer without prejudice to all its other rights or claims, including:

a. its right to demand that the Contractor fulfil its agreed obligation to deliver the Works (in so far as this has not become permanently impossible);

b. its right to compensation.

12.3. The penalty will be set off against the amounts owed by the Employer, irrespective of whether the rights to such amounts have been assigned to a third party.

Article 13 Non-performance

13.1. If the delivered Works or the equipment incorporated into the Works does not comply with the guarantees referred to in article 4, the Employer may demand that the Contractor repair or correct the Works. The associated costs will be borne by the Contractor.

13.2. If, after receiving a written demand from the Employer, the Contractor fails to comply, within the period stipulated therein, with a requirement as referred to in paragraph (13.1), the Employer has the right, without prior recourse to the Courts, to choose between:

a. replacement of the Contractor or replacement/repair of the Equipment incorporated into the Works by a third party at the Contractor's expense.

b. replacement of the Contractor or return of the Equipment incorporated into the Works at the Contractor's expense and risk and dissolution of the Contract in accordance with the provisions of article 16 and, in consequence, crediting of however much of the purchase price has already been paid for the Works in question.

13.3. The provisions of paragraphs (13.1) and (13.2) do not affect other rights and claims that the Employer may derive from non-performance.

Article 14 Liability

14.1. A Party who fails to meet its obligations is liable to the other Party for any loss incurred by the other Party.

14.2. The Contractor indemnifies the Employer against any third-party claims for damages resulting from a failure as referred to in paragraph 1.

Article 15 Force majeure

15.1. In the event of temporary force majeure, the Contractor will immediately notify the Employer in writing after the circumstances bringing about force majeure have occurred, stating the cause of the force majeure. The Employer then has the right to choose between:

a. Allowing the Contractor to defer compliance with its obligations under the Contract for a reasonable period of up to four weeks. If the Contractor is still unable to fulfil its obligations under the Contract when this time limit expires, the Employer has the right to dissolve the Contract with immediate effect, without being obliged to pay compensation or any costs to the Contractor.

Or

b. Dissolution of the Contract with immediate effect, without being obliged to pay compensation or any costs to the Contractor.

15.2. In the event of long-term force majeure on the part of the Contractor, the Contractor will immediately notify the Employer and the Employer has the right to dissolve the Contract with immediate effect out of court, without being obliged to pay compensation or any costs to the Contractor.

15.3. The term 'force majeure' is in any event understood not to include: staff shortages, strikes, staff illness, shortages of raw materials, transport problems, breach of obligations by Contractors, failures in the Contractor's production process and liquidity or solvency problems on the part of the Contractor, or failures on the part of third parties engaged by the Contractor.

Article 16 Dissolution

16.1. Without prejudice to the other provisions of the Contract, either Party may dissolve the Contract in full or in part out of court by registered mail, without being obliged to pay any compensation to the other Party, if the other Party is in default or compliance is temporarily or permanently impossible.

16.2. In the event of force majeure, the Employer has the right to dissolve the Contract in accordance with the provisions of article 15.

16.3. The Employer may dissolve the Contract with immediate effect out of court by registered mail, without being required to send any demand or notice of default, and without being obliged to pay the Contractor any compensation, if the Contractor applies for or is granted a provisional or definitive suspension of payments, files for bankruptcy, is declared bankrupt, if its business is wound up, if it ceases trading, if a substantial proportion of its assets are seized, if it is deemed on any other grounds to be no longer capable of fulfilling its obligations under the Contract, if bribery or conflicts of interest as referred to in article 21 occur, or if the Contractor undergoes a merger or division.

16.4. If the Contract is dissolved, the Contractor will repay the undue amounts already paid to it by the Employer. If the Contract is partially dissolved, the Contractor is obliged to repay only the payments relating to the dissolved part.

Article 17 Retention of right to demand compliance

17.1. If one of the Parties fails to demand compliance with any provision within a time limit set by the Contract, this will not affect its right to demand compliance at a later date, unless the Party in question has expressly accepted the non-compliance in writing.

MISCELLANEOUS

Article 18 Documentation

18.1. The Contractor will provide the Employer with clear, adequate "*as build*" drawings of the Works as finally implemented and full documentation, drawn up in English or another agreed language, on the characteristics and functionalities of the Equipment included into the Works.

18.2. The Employer has the right to publish and reproduce the Documentation solely for the users envisaged by the Contract.

18.3. The Contractor indemnifies the Employer against claims that third parties might enforce on the ground of a copyright accruing to them in relation to the Documentation.

Article 19 Assignment of rights and obligations under the Contract

19.1. Neither Party is entitled to transfer rights and obligations arising from the Contract to third parties without the written consent of the other Party. The other Party will not withhold its consent without reasonable grounds. It may attach conditions to its consent.

19.2. Paragraph (19.1) does not apply to the establishment of limited rights, such as the right of pledge.

Article 20 Insurance

20.1. The Contractor has taken out and will retain adequate insurance cover for business related liability, including 3rd party liability, Workmen's Compensation, as identified in the Special Conditions of Contract.

20.2. At the Employer's request, the Contractor will immediately present either the original or a certified copy of the policies and proof of the payment of premium for the insurance referred to in paragraph 1, or a statement from the insurer to the effect that the insurance exists. The Contractor will not terminate or alter the insurance contract without the Employer's prior written consent. The Contractor has no right to change the insured sum to the Employer's disadvantage without the Employer's prior written consent. The insurance premiums owed by the Contractor are deemed to be included in the agreed prices.

20.3. The Contractor assigns to the Employer in advance all rights to the payment of insurance proceeds as referred to in paragraph 1, in so far as such proceeds relate to damage for which the Contractor is liable to the Employer under the Contract. The Contractor is obliged to notify its insurance company in writing of this assignment and to send a copy of this written notice to the Employer, without prejudice to the Employer's right to notify the insurer itself. Any insurance proceeds paid directly by the insurer to the Employer will be deducted from the amount of compensation the Contractor is required to pay to the Employer in respect of the insured event.

Article 21 Bribery and conflicts of interest

21.1. The Parties will not offer to each other or to third parties, or ask for, accept or obtain a promise of, from each other or third parties, whether for themselves or for any other Party, any gift, reward, compensation or benefit of any form whatsoever if this could be construed as constituting an illicit practice. Such a practice may constitute grounds for dissolving the Contract either in full or in part.

21.2. If it transpires that one of the Employer's subordinates was in the Contractor's employment, regardless of whether or not such employment was paid, during the formation of the Contract, and that the Employer was not informed of this prior to the signing of the Contract, the Employer may dissolve the Contract with immediate effect out of court, without being required to give any notice of default or to pay any compensation.

Article 22 Invalidity

22.1. If one or more provisions of these General Contract Conditions or the Contract are found to be invalid or are nullified by a court, the remaining provisions will retain their legal force. The Parties will consult on the former provisions in order to make alternative arrangements. The alternative arrangements must not undermine the purport of these General Conditions for the Execution of Works or the Contract.

Article 23 Follow-up order

23.1. The Contract does not entitle the Contractor to any follow-up orders.

Article 24 Long-term obligations

24.1. Provisions which by their nature are intended to persist after the Contract has been performed will remain in force after the expiry of the Contract. They include the provisions on guarantee (article 4), confidentiality (article 8), non-performance (article 13), liability (article 14), termination (article 16.4), documentation (article 18), assignment of insurance proceeds (article 20.3), and disputes and applicable law (article 25).

Article 25 Disputes and applicable law

25.1. Any dispute between the Parties in relation to the Contract will only be submitted to the competent Court of the Solomon Islands, unless the Parties agree an alternative means of dispute resolution.

25.2. The Contract is governed by the law of the Solomon Islands.

Article 26 Final provisions

26.1. Any changes from this Contract are binding only if they have been expressly agreed by the Parties in writing.

26.2. Any written or oral agreements previously made by the Parties about the order(s) placed under this Contract for the Delivery of the Product will be nullified by the signature of the Contract.

SECTION II: SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract for the Execution of Works for the Solomon Islands Government. Whenever there is a conflict, the provisions herein shall prevail over those in General Conditions for the Execution of Works (GCC). The corresponding Article numbers in the General Conditions of Contract are indicated below.

GCC Article	No.	Particulars
1. Definitions	**1.5**	i **THE EMPLOYER IS:** National Hosting Authority Sea King Building Honiara-Solomon Islands ii **THE CONTRACTOR:** Vavalu Construction P.O. Box C29 Honiara, Solomon Islands iii **THE LOCATION SITE IS:** HCC Kukum Field Central Honiara Solomon Islands
	1.12	i **THE PROJECT MANAGER IS:** Jone VAVE Project Manager Project Management Unit ii **THE ASSISTANT PROJECT MANAGER IS:** Jotham MAKINI Assistant Project Manager Project Management Unit
	1.13	i **THE CONTRACT ADMINISTRATOR IS;** Peter HIMANE Contract Administrator Project Management Unit
3. Delivery of the Works	**3.1**	The works shall be completed within **THIRTY (30) days** for each lot from the Contract Commencement date. **Note:** *For the purpose of this Contract, a six-day working week is assumed. Therefore, the works shall be completed within weeks of commencement of the Contract. The Contract commences on the day that it has been signed and countersigned by all parties to the Contract.*

GCC Article	No.	Particulars
4. Guarantee	**4.5**	The Defects Liability Period shall be **One (1) Month**, for quality of workmanship, from the date of acceptance of the Works. The Contractor shall, in addition, comply with the performance as specified in the Contract. If for reasons attributable to the Contractor these guarantees are not attained in whole or in part, the Contractor shall, at its discretion, either make such changes, modification, and/or additions to the Works or any part thereof as may be necessary in order to attain the contractual guarantees specified in the contract at its own cost and expense
	4.6	This Contract must be supported by a duly signed Performance Securing Declaration, acceptable to the Employer, in lieu of a Performance Security.
5. Inspection	**5.1**	Inspection and tests by the Employer or 3rd party in name of the Employer regarding the Execution of the Works and the quality levels applied to may be implemented as follows: The time limit for inspection and quality assurance may be undertaken at all times during the Execution of the Works. There is no need for the Employer or their representative to announce their inspection beforehand.
6. Contacts	**6.1**	**THE EMPLOYER'S AUTHORIZED REPRESENTATIVE FOR THIS CONTRACT IS;** Eldon TEPA Executive Director Project management Unit **Email**: ETepa@sol2023.com.sb **THE CONTRACTOR'S AUTHORIZED REPRESENTATIVE IS:** Mr. Express POGARA Managing Director P.O. Box C29 Borderline Honiara, Solomon Islands **Mob**: (677) 7712807 or **Email**: timonthy.sikwauta@gmail.com
9. Price s	**9.1**	The Contract price is fixed for the duration of the Contract.
	9.2	Variations of the Contract price may be granted by the Employer provided the request for variation is made prior to the work being

GCC Article	No.	Particulars
		undertaken, the variation is assessed by the Employer to be necessary, and the price quoted is reasonable.
10. Payment	**10.1**	Payment for Works carried out under this contract shall be made in SBD. The Contractor is to submit a claim for works completed. The Project Manager is to inspect the works and if satisfied that the work is complete and to reasonable standard will authorise payment of the Contractor's claim. If there is a difference between the assessed works completed and the claim amount the Contractor is to adjust the claim to match the value of the completed works. Progressive payments are stated in the Payment Schedule as in SECTION III of the Contract.
	10.6	In case payment is subject to SIG tax law, the latest information on the relevant withholding taxes and other payables are to be found at the website of the Inland Revenue Department: http://www.ird.gov.sb
11. Advance Payment	**11.1**	The first scheduled payment shall be the Mobilization Payment which shall be paid prior the project has mobilized, materials have been delivered to site and work is ready to commence.
12. Penalty (Liquidated Damages)	**12.1**	Applicable rate for the Liquidated damages is: 0.1% per day. Applicable maximum shall not exceed ten (10) precent of the delayed Works Contract Price.
14. Contractors Liability	**14.1**	Notwithstanding Article 14.1 of the GCC, the Contractors liability is twice the Contract value as stated in the Contract between Employer and Contractor.
20. Insurances	**20.1**	Contractor shall provide with their tender the following proof of insurance: i Workmen's Compensation — As required by SI Law ii Third Party Liability — SBD 2,000,000 iii Equipment for use in Project — Replacement Value The Contractor shall, prior to commencing the Works, effect and thereafter maintain insurances in the joint names of the Parties: a) for loss and damage to the Works, Materials, Plant and the Contractor's Equipment, b) for liability of both Parties for loss, damage, death or injury to third parties or their property arising out of the Contractor's performance of the Contract, including the Contractor's liability for damage to the Employer's property other than the Works, and c) for liability of both Parties and of any Employer's representative for death or injury to the Contractor's personnel except to the

GCC Article	No.	Particulars
		extent that liability arises from the negligence of the Employer, any Employer's representative or their employees.

SECTION III: PAYMENT SCHEDULE

This payment schedule is part of contract and is crucial part of which contractor shall be remunerated. This schedule is made reference to the Contractors performance and claims. Upon inconsistencies of work schedule and claims, this schedule supersedes contractors work schedule where it shall be revised to compromise with this schedule.

		CONTRACT VALUE		SBD$290,000.00	
PAYMENT NUMBER	**MILESTONE DESCRIPTION**	**AMOUNT CLAIMED**	**RETENTION withheld 5%**	**With-holding tax (7.5%)**	**PAYABLE AMOUNT**
Payment No.1	Mobilization (50%) Shall be made prior to commencement of works and design. All required works claimed as mobilization payment shall include WBS 1 to 3 – refer to Work Schedule	$145,000.00	$7,250.00	$10,875.00	$126,875.00
Payment No. 2	40% payment shall be made upon completion of all works in WBS 4 & 5	$116,000.00	$5,800.00	$8,700.00	$101,500.00
Payment No 5	10% and Defects Liability Period payment shall be paid after completion of WBS 6 to 8 and upon satisfaction of all defects rectified by the Contractor after One (1) month of practical completion.	$42,050.00		$3,153.75	$38,896.25
	Total		$13,050.00	$22,728.75	$267,271.25

SECTION IV: ANNEXES TO CONTRACT

ANNEX A: CONTRACTORS TENDER FORM

ANNEX B: PERFORMANCE SECURING DECLARATION

ANNEX C: CONTRACTORS BID PRICED BILLS OF QUANTITIES

ANNEX D: PROJECT WORKS REQUIREMENTS:

CONSTRUCTION OF ABLUTION BLOCK FIELD UPGRADE FOR THE COMMUNITY FIELDS

1. Introduction

Solomon Islands is preparing to host the 2023 Pacific Games in Honiara and the National Hosting Authority (NHA) is the authority designated to manage the procurement, design and construction of facilities and infrastructure in support of the Games.

NHA is now seeking suitably qualified firms or individuals to tender for the Construction of Ablution Block Field Upgrades for the Community Fields namely SINU Kukum. Works will be separated into individual contracts which will comprise of: **LOT 8: Construction of Ablution block and Fence for White River Field.**

2. Project Brief

Please refer Section VI. Drawings for the maps of each Community fields.

3. Proposed Works

The NHA is proposing a cost-effective chain link spectator fence. The space requirements and general layout for the fence has already been determined and is shown on the drawings. Please refer to the drawings in Section VI.

Contractor shall perform the following works required pursuant to the delivery of works stated in the contract.

a) Excavate and prepare footings on to fence footings, clear all sites prior to this works.

b) All cuttings and metal works preparation shall conform to the works stated as in specifications.

c) Pre-cut works and other fabrication shall be prepared outside of field prior to installation.

d) The contractor shall ensure all the works required take into consideration of designs and materials itemized as in Bills of quantities.

e) The contractor shall mobilize and demobilize at the end of the

f) Fencing A spectator fence shall be erected around all the community fields and will include works as specified below:

g) 1.3m high chain link spectator fence.

h) 50mm galvanized steel posts with 2000mm spacing.

i) 50mm steel pipe (Horizontal, top & bottom) cut to profile, fully welded and anti-rust paint finish.

j) 50mm steel pipe (vertical) cut to profile, fully welded and anti-rust paint finish.

k) 450mm deep x 300 x 300 mm wide concrete footings elsewhere and 800mm deep x300x300 mm wide concrete footing on gate.

l) One set of double opening gates (3000mm)

m) Gate with security welded mesh and 3000mm length with 50mm steel pipe (diagonal brace) cut to profile, fully welded and anti-rust paint finish The NHA is proposing a cost-effective chain link spectator fence.

n) The space requirements and general layout for the fence has already been determined and is shown on the drawings. Please refer to the drawings in Section VI.

4. Preliminary & General

The Contractor will be responsible for the following:

- Provision of all material and labour on site.
- High quality of workmanship and finishes by appropriately qualified personnel.
- Maintenance of site access and site storage.
- Provision of all temporary site service including, but not limited to; water, electricity, site sanitation etc.
- Protection of all works.
- Provision of site office and site storage to suit the Contractor's personnel needs.
- Connection of all permanent services to the works.
- Site cleanliness and tidiness for maintenance of safety and environment.

5. Health and Safety

The Contractor is to ensure safety of all personnel and the public whilst on site. It is mandatory for the Contractor to submit a Work Safe Method Statement before commencing any works on site. The Work Safe Method Statement is to be reviewed and approved by the Employer. To a minimum the following criteria must be met;

6. General safety requirements

The contractor must put controls in place to eliminate, isolate or minimize all hazards. General hazards include;

- General public
- Heavy plant (trucks reversing, excavators)
- Deep excavations
- Falling objects
- Hot works
- Working at height

7. Personal Protective Equipment (PPE)

Contractors' personnel or any visitor on site must comply, at a minimum, with the following;

Safety boots/ Footwear	Steel cap boots to be worn at all times
High Visibility (HV) Clothing	HV jacket or vest to be worn at all times.
Head Protection	Hard hat to be worn when working under falling hazards (cranes, scaffolding, double storey structure)
Hearing Protection	Hearing protection is to be used when operating or in the vicinity of noisy equipment.

8. Specific Safety Requirements

The contractor must, to a minimum, comply with the following:

Equipment	The Contractor is to nominate the equipment to be used on site. A detailed equipment list is to be submitted as part of the Contractors tender submission. All equipment is to be in safe and working order and must all have current licenses where appropriate. Vehicles are to be operated by qualified or adequately trained personnel.
Ladders	Must be available on site and in good condition and fit for industrial use.
Scaffold	Must be in good condition and adequately assembled by trained personnel
Power Tools	Tools on site must be serviced, in good condition and adequate for the task/job carried out.
Electricity	Any works that involve the use of electricity, including temporary power during works, is to be carried out be a suitably trained and certified electrician.
Fencing	Contractor is to separate construction area from general public areas using fencing or barrier tape. The site should be a distinct isolated work area. All hazards such as open excavation also need to be clearly marked or fenced.
Signage	Contractor to erect appropriate warning signage at work site. A project signboard is to be installed at the site entry at the commencement of works. Project sign board needs to be approved by Employer's representative prior to erection.
Storage	Materials are to be stored in an appropriate and safe manner; and in accordance with any relevant material safety data sheet (MSDS).
Waste	All waste is to be collected and moved to a location identified and approved by Employer's representative as a waste disposal area.
Ablution	The Contractor should provide adequate ablutions for all personnel or visitors on site. Ablutions must be cleaned on a regular basis to maintain adequate hygiene standards.
Access	Site must have a designated entry and exit point. The entry and exit point should be clearly signed and located to provide minimal disruption to the public.
Authorized Personnel	Only authorized personnel allowed on site – appropriate signage must be in place to communicate this.
Evacuation Plan	An emergency evacuation and management plan must be in place and made known to all on site.
Fire fighting	Fire extinguishers must always be available on site and positioned in areas for ease of access in emergency.
First Aid	A first aid kit must always be available on site. The Contractor is to ensure that at least two of the Contractor's personnel on

	site at any time are adequately trained and certified in First Aid.
Emergency Response	Emergency response (Police, Ambulance, Fire Brigade) numbers must be available and displayed on site in event of an emergency.
Drug & Alcohol	No smoking, alcohol consumption or chewing of betel nut is permitted by the Contractor or staff. No illicit drug of any type is to be present or in use on site.
Child Protection	Children are not allowed on site at any time and no worker is ever to accompany a child on site without the expressed approval of the Employer's representative

9. Quality

The Contractor is to ensure a Quality Management System (QMS) is maintained throughout the duration of the Works. To a minimum the QMS must ensure the following is maintained.

1. Quality management plan.
2. Quality management records (testing records, compliance certificates).
3. Internal quality audits.
4. Nonconformance and corrective actions list.

The Contractor must present the QMS and Quality management plan to the Employer's representative for approval before the Works can commence.

10. Environment

Environmental measures for the project are to include:

1. All waste is to be removed from site and disposed of as per Local Authority requirements.
2. No waste is to be burnt on site.
3. Protective measures must in place to ensure that no runoff from the site goes into nearby waterways.
4. Any spill of chemicals, diesels or hazardous materials are cleaned up immediately. All hazardous materials are stored in a safe place and in a way that spillage will not harm the environment.

11. Project Administration

Authorized Representative	The Contractor must nominate an authorized representative for all external communications. The authorized representative must be suitably qualified and fluent in the language of English. All communications between parties should be in English.

Pre – Start Meeting	A prestart meeting will be held at the site prior to the commencement of the Works. The objective of the prestart meeting is to confirm the project outcomes, responsibilities and relationships for the project. Attendees at the meeting are to include representatives of the Contractor, Employer and relevant authorities.
Project Meetings	Project Meetings should be held on a fortnightly basis during the contracted period of Works. Attendees should include representatives of the Contractor and Employer. Project meetings may also be held as required at the request of the Employer or the Contractor.
Project Reporting	The Contractor is to submit weekly and monthly project reports and summaries. These reports should detail to a minimum: • Project progress and timeline update • Key issues and blockages • Pending approvals • Safety summary • Quality summary • Equipment summary • Staff records • Photographic records • Project Finance update
Payment Claims	Payment Claims are to be presented to the Employer's Representative /Project Manager whenever work associated with a milestone payment has been completed. Proof of completion of the milestone in the form of a monthly site report showing the completed work and a statement from the Contractor must accompany the Payment Claim. Payment Claims will be reviewed by the Employer's representative/Project Manager for approval. Once approval has been provided the Contractor can submit an invoice for payment.
Work Hours	Work hours are generally to be 8.00am to 5.00pm Monday to Friday. Extended work hours can be requested by the Contractor and approval provided by the Employer's representative.

12. Earthworks

Earthworks is to include, but not limited to, all clearing and grubbing, excavation, trenching, shoring, backfilling, removal of spoil material and placement of fill material. All excavation is to be conducted in a safe manner using nominated equipment. All equipment used in excavation is to be nominated in the Contractor's Safe Work Method Statement.

CONSTRUCTION REQUIREMENTS: TECHNICAL SPECIFICATION& GUIDELINES

1. INTRODUCTION

This document covers school infrastructure minimum standards and building materials specifications. The school infrastructure minimum standards outline safety, quality, accessibility for all children and students and sustainability and building material specifications for the following different types of school infrastructure produced.

1.1 Urban Areas

Urban locations include areas within the main provincial town district where the supply of water, town power and waste disposal services is easily accessible. Various factors should be considered prior to construction taking place on an urban site, these include the following:

1.2 Access to site

Depending on the location of the site and its topography, the site would need to be accessible by foot and some form of transport. Vehicular access to urban sites is more achievable as transport is also easily available.

1.3 Existing services

Ensure existing services such as water, power and sewerage is accessible to reach the site. Inform local authorities or service providers to do an investigation of the existing site location and report on site services prior to any construction taking place.

1.4 Building contractor

Engage a suitable contractor or local builders with sound building construction experience and background in constructing school infrastructure as well as experience in handling local and imported materials. Contractors with experience of handling both concrete and timber materials would be an advantage.

1.5 Rural Areas

Rural locations include areas outside of the main provincial town district. It can also include villages and remote island locations. These locations depend merely on the environment and natural resources to provide with basic services into the site area. Factors to consider prior to construction taking place on a rural site include the following:

1.6 Access to site

In the case for rural sites, depending on the terrain and topography of the particular area, the most common access would be vehicular and/or by foot although in some remote island locations, speed boat or canoe would also be ideal to reach certain sites.

1.7 Availability of materials

Access to local materials as well as local building knowledge that is readily available on site is one advantage with working on rural locations. This reduces the time and money spent for a local builder or contractor to transport materials (either imported or local) across to the site especially if on a remote site.

1.8 Local labour

Encouraging local labour on site reduces cost of engaging contractors from town areas. Local labour also utilizes and improves skills of people within the community who already have some form of skills in different trades be it carpentry, plumbing, joinery etc. In that way, the project becomes more community based and managed with the involvement of the school.

1.9 Access to reliable water supply

It is exceptional that with rural locations, a reliable source of water supply should be accessible and at close proximity to the site before any construction takes place. This is an important factor to consider as it will make construction procedures easier as well provide adequate plumbing services to serve the newly constructed building.

2 PRELIMINARIES & GENERAL REQUIREMENTS

The local builder or Contractor engaged in the project shall be responsible for the following items before construction work is carried out:

2.1 Storage of material and equipment

Adequate storage shall be arranged on site to prevent damage, loss or escape of dangerous substances.

2.2 Site Temporary Services (Power, Water & Plant)

The contractor or local builder is to allow for and pay for temporary power. On completion, disconnect temporary power and other services and clear away all trade residues.

If power is not available the Contractor/local builder shall arrange and pay for portable generators for the requirements of the Contract.

Permanent town water if in supply will be made available to the Contractor/local builder. However, the Contractor/local builder is to ensure that the water is potable. Otherwise if town water is not available, the Contractor/local builder is to provide for water supply at his cost, during the currency of the contract. The school involved with the project may allow use of existing service, if available and could insist on payment of water used for the works.

In rural locations where water source is taken from a natural source, such as a river, or stream nearby the Contractor/local builder may find means of diverting the water to the site so that is easily accessible during the duration of the project.

Provide for all plant necessary for the works including all transport and lifting gear.

2.3 Site Amenities

To ensure basic hygiene and cleanliness of the site, the Contractor/local builder shall provide all necessary amenities for workmen engaged on the site. The amenities are to be kept clean after each working day. The Contractor/local builder is responsible for the temporary construction of the amenities and its demolition after the project works is completed.

2.4 Site Security

The Contractor/local builder shall not allow and shall not approve the entry of any persons onto the site who is not concerned with the execution of the project works unless prior written instruction has been obtained from the school involved.

2.5 Site Safety

All matters and conditions which concern the safety, health and welfare of persons working on the site shall be the responsibility and under the expense of the Contractor/local builder and be to the satisfaction of the school involved.

It is the responsibility of the Contractor/local builder to ensure that his employees on site wear suitable safety gear at all times when engaged upon work on site. Safety gear may include but not limited to hard hats, high visibility vests and closed toe steel capped safety boots.

All electrical powered equipment that will be used by the Contractor/local builder during the execution of the works must undergo inspection, testing and approval by an authorised electrician prior to the tool(s) being used on site.

2.6 Safety of Public

The safety of public and employees shall be paramount. The Contractor/local builder at all times must adhere to all necessary precautions and arrange and perform work in such a manner that is protects the safety and continuity of the works.

2.7 Supervision

The site supervisor is the contractor and he/she is to report to the school authorities of any incidences that may occur during the course of the construction works and is to act as the responsible person on behalf of the Contractor/local builder on site on any matters concerning their behalf.

2.8 Site Cleanliness

Keep the construction site clean and tidy as the work proceeds and regularly remove site rubbish and surplus material to an area where approved by the school for the disposal of rubbish. The school authorities should inform upon approval of proper disposal of rubbish from the site area where by it is safe from public and school children.

2.9 Site Meeting

Before construction takes place a site meeting should be held with the various parties involved in the construction of the particular school infrastructure. This is for the purpose of resolving policies, further orienting the Contractor/local builder to the Contract documents (if such document is given). Meetings shall be chaired by the site supervisor and held fortnightly or when acceptable and approved by the Contractor/local builder.

2.10 Materials – Storage and Care

All materials used during the project works shall be new and conform to appropriate standards so to keep them from deteriorating or affected by the weather. Faulty material will be removed on site with the direction from the site supervisor.

3 EXCAVATION

3.1 Clearing and Grubbing

Clearing and grubbing operations shall be carried out in the following areas as relevant:

- Areas where general earthworks are to be constructed, plus a margin of 3m or to property boundaries; whichever is the lesser. □ Areas specified for visibility.
- Other areas as indicated on the drawings.

Disposal of Cleared and Grubbed Materials:

Materials that comply with the requirements specified may be used in the Works, otherwise the material shall be removed from the Site or if approved, be disposed within the Site.

3.2 Excavation Dewatering

Allow to drain all foundation excavations to special low level sumps, located away from the permanent works. Excavation shall remain dry for duration of the work, and prior to placing of hard fill or site concrete. Prevent all water flow over freshly laid work.

3.3 Backfilling

Bring all filling on to the site unless it can be provided from soil recovered from the site. Filling shall be sound material, free of perishable material or any material that will not form stable fill. The fill shall be the best of the clean inorganic excavated material, fully stabilised as approved by the site supervisor.

3.4 Consolidation

Backfill around all foundations with approved backfill material and compact by approved mechanical means. Place in layers of 150mm loose depth to levels shown on the foundation drawings. Consolidate each layer to at least 100% standard of the maximum dry density available at standard effort before proceeding to next layer. Materials are to be spread so as not to disturb subgrade and shall be placed in uniform layers with each layer interlocking the layer below. Placing procedures shall ensure minimum segregation.

3.5 Backfilling for Specific Structures

Provide 150mm minimum thickness of approved crushed coral fill, blinded with a 50mm layer of sand or similar approved fine material so as to produce a surface which will not damage the damp proof membrane overlay. Hard fill shall be placed in layers not exceeding 100mm loose depth and shall be smooth wheeled roller (5 tonne), or vibrating roller with equivalent compactive effort to 100% standard of the maximum dry density.

It will be noted that concrete floors will be supported off this filling.

3.6 Top Soil

Where possible stockpile topsoil for re-spreading for future landscape works as necessary.

Definitions

Rock: Any natural or artificial material encountered in the excavation which cannot be removed until broken up by explosives or mechanical means such as, jackhammer or percussion drills.

Other than Rock: All other material encountered in excavation.

3.7 Rubbish

Rubbish or debris is not to be buried on site. Remove all rubbish from the site.

3.8 Service Trenches

Service trenches must be at an adequate depth in order to keep the cable intact to avoid damage.

3.9 Excavation

If practicable, make trenches straight between manholes, inspection points and junctions, with vertical sides and uniform grades.

3.10 Trench widths

Keep trench widths to the minimum consistent with the laying and bedding of the relevant service and construction of manholes and pits.

3.10.1 Backfilling

General: Backfill service trenches as soon as possible after laying the service. Place backfill in layers. Compact each layer to a density sufficient to minimise settlement.

3.10.2 Backfill material

Excavated spoil or well graded inorganic material with maximum particle size of 75 mm.

Next to services: Do not place any particles greater in size than 25 mm within 150 mm of services.

Under paved areas: Coarse sand, controlled low strength material or fine crushed rock.

3.10.3 Shoring

The Contractor/local builder shall shore up as necessary, and batter the faces of excavations. The stability of soil faces during excavation work will be entirely the responsibility of the Contractor who shall make good any damage which may occur as the result of soil failure.

Where excavations at different levels are adjacent, the sides of the lower excavations shall be supported in such a manner that the bearing capacity of the retained soil is not impaired

4 CONCRETE WORK

4.1 Standards and Details

4.1.1 Detail Drawings

Refer to Appendix for Standard Details of this Section.

4.2 Materials

General: Unless otherwise stated all concrete shall be composed of Portland cement, fine aggregate, coarse aggregate, approved additives and water, proportioned and mixed as detailed in this Specification. All such materials shall conform to the requirements of this Specification.

4.2.1 Basic required equipment needed prior to concrete mixing:

A concrete mixer (if not accessible, a bucket, wheelbarrow & shovel)

- Cement bags, aggregate, sand & water
- A vibrating rod (essential for large surface areas, a steel rod is applicable for smaller surface areas)
- A slump cone (accessible from qualified persons who can be engaged to do the slump test)
- Power trowelling machine (essential in both urban & rural sites)

4.2.2 Storage and Care:

Cement must be stored properly, to prevent it from setting (hardening) or become in contact with moisture from the air before it is used.

4.2.3 Storing on Site

Bags at site should be stored on a dry, wooden platform, raised about 35cms from ground level. Keep the stocks to a minimum – preferably just the quantity of bags required for day's consumption. Cover the stored bags with a plastic sheet. The sheeting should be properly overlapped to keep out rain. Such temporary storage at site should be avoided during monsoon periods.

4.2.4 Water

Water shall be clean and free from matter injurious to concrete reinforcing bars, pressurising bars and strands and any other embedded items.

Clean fresh water free from organic matter is acceptable. In some rural locations especially remote islands where water can be scarce, alternatives can be in the form of rainwater and/or well (bore) water. If water used is dirty or muddy, let the sentiments settle in a huge pan or tank.

4.2.5 Aggregate

Coral aggregates shall be washed with potable water to remove any salts. The maximum nominal size of aggregate shall be 20mm.

Fine aggregate shall be sand, clean and free from detrimental matter and salts.

Coarse aggregate shall be clean and free from dust, salts and not stored in direct contact with the ground on or in such a manner that allows intrusion of foreign matter.

4.2.6 Mortar

For masonry and plastering:

The amount of sand to be 100% of the volume and a 1:4 mix requires 100% sand and 25% cement or also a 1:3 mix requires 100% sand and 33% cement.

Mortar	**By weight or volume**	**Amount for 1m^3 of**	
	Cement: Sand	Cement (m^3)	Sand (m^3)
Ordinary	1:4	0.25	1
Reinforced Brick Roof Slabs	1:3	0.33	1
Spatter dash (1st coat plaster)	1:4	0.25	1
Rough Plaster (2nd)	1:3	0.33	1
Final Plaster	1:2	0.50	1
Grout	1:1-1:11/2	1-2/3	1

Cement mortar: This sets quickly and develops great strength. It is used in proportions of one cement to three parts sands (1:3), which makes quite a strong and workable mix; down to a 1:2 mix, a lean mix which will be rather harsh and difficult to use.

4.2.7 Performance requirements for concrete

General: Unless shown otherwise on the structural drawings, all concrete shall have the following minimum 28 days compressive strength slump and cement content, irrespective of coarse aggregate used in the mix.

Item	Strength	Slump(mm)	Min Cement Content (Kg/m3)
Blinding or site screed	10Mpa	120	n.a.
Backfill below footings and beams	15MPa	120	n.a
Structural Concrete (footings, beams & slabs)	25MPa	80	360
External Paving	25MPa	80	360
Grout to block work	17.5MPa	230	320

4.2.8 Concrete Testing

A Slump Test shall be done by the contractor on site and samples send to MID Lab for testing and certification. Test are to be recorded in Inspection Test Inspection Plan Log for verification, approval and compliance and is recorded accordingly.

4.2.9 Curing Concrete

Exposed concrete surfaces shall be kept constantly in a damp or wet condition by an approved method such as being covered with a plastic membrane held in place by sand, or other satisfactory method.

Joints shall be adequately lapped to prevent escape of moisture.

The curing shall be maintained for seven (7) days after the pouring of the concrete.

Concrete is usually expected to reach its maximum strength for which it was designed after 28 days. Concrete that is moist cured for a month is about twice as strong as concrete that cures in the open air.

4.3 Reinforcement

Material:

All reinforcing steel shall be free from loose scale, loose rust, grease, oil or other material deleterious to the adhesion of concrete to the steel. Steel shall be stored off the ground to the satisfaction of the site supervisor.

Steel reinforcement bars are vital building materials that ensure the strength and stability of the concrete in which you place them. They come in two different types: mild steel bars, used tensile strength reinforcement; and deformed bars, used to increase the strength of the bond between steel and concrete to minimize slippage and movement

Types of Steel bars:

There are two types of reinforcement steel bars, circular bars and ribbed steel bars.

Circular steel bars are round, smooth bars available in diameters ranging from 5mm to 28mm. The four sizes most often used in rural buildings have diameter of 6mm, 10mm, 12mm and 18mm.

Ribbed steel bars are available in diameters ranging from 6mm to 40mm, if the bar is cross ribbed. For obliquely ribbed bars, the diameters range from 6mm to 28mm.

The standard length of reinforcement bars is 6m.

The standard length of reinforcement bars is 6m. When lapping steel bars, the minimum lap length is 40x the diameter of the bar. For example, D12 bars must have a lap length of 40 x 12 = 480mm.

Advantages/Disadvantages: Although the strength of circular bars is sufficient for all rural building purposes, it is advisable to purchase ribbed bars if they are available in the market. Ribbed bars are preferred because their rough surface texture provides a better grip to the concrete. This along with their greater strength allows the rural builder to space the ribbed bars wider apart, thus saving materials and reducing the total weight of the member.

4.3.1 General precautions for steel bars in reinforcement

- Steel bars are clear, free from loose mil scales, dust and loose rust coats of paints, oils or other coatings which may destroy or reduce bond strength.
- Steel bars should be stored in such a way as to avoid distortion and to prevent deterioration and corrosion.
- Steel bars should not be clean by oily substance to remove rust.
- The bar is bent correctly and accurately to the size and shape as shown in drawings.
- If possible, the bar of full length is used.
- Overlapping bars do not touch each other and these should be kept apart with concrete.
- The overlap if given should be staggered.
- The cranks in the bar at the end should be kept in position by using spots.
- The steel bars should not be disturbed while lying cements concrete.
- Required cover under steel bars should be given before laying the cement concrete.
- No overlap is given in the bar having a diameter more than 36mm, if required, the bar should be welded.

4.3.2 Storage and Care

The following method shows how to properly store reinforcement bars:

- Place the steel bars on top of wooden pallets or some other sort of raised surface if it is kept in an area with soft ground. Storing them in this manner will protect the bars from groundwater, which can cause corrosion over time.
- Cover the bars with a thick protective tarp.
- Secure the tarp by placing heavy cinder blocks on the tarp's corners and edges. Exposure to the elements can corrode the bars over time and jeopardize their efficiency.

NB: If the concrete foundation of the building is already built, keep the beams stored there for extra protection.

Fixing: Reinforcing steel shall be placed as shown on the drawings and wired at all points where the bars cross so that there shall be no movement of the steel during placing of the concrete

4.3.3 Binding wire

This is soft steel wire about 1mm in diameter, used for binding reinforcement bars at the points where they cross each other. It is bought in rolls and may also be calling lashing wire, annealed wire or tying wire.

4.3.4 Welding

Welding of reinforcement steel shall only performed in locations approved by the site supervisor.

Laps to reinforcing bars shall be 40 diameters unless otherwise noted.

Mesh laps shall be as indicated in the following table:

Standard Fabric Numbers	End Crosswire Spacing (mm)	Lap Overlap on Site (mm)	Side Longitudinal Wire Spacing (mm)	Lap Overlap on Site (mm)
F1218 to F718	200	425	100	125
F81 to F41	100	225	100	125
F102 to F42	200	425	200	225
F11TM to F8TM	300	500	not required	not required

Bottom reinforcing shall be supported on plastic chairs. If not available, 50 diameter uPVC pipe or similar shall be cut at same lengths and placed at equal spacing. Lumps of coral, broken concrete or block will NOT be accepted.

All reinforcement shall be adequately supported such that movement of the shell is limited to a minimum. Chairs shall be spaced at a maximum spacing of 1200mm both ways.

4.4 Formwork

General:

Side forms may be striped 24 hours after the concrete has been poured, provided that the surfaces exposed are immediately sprayed with an approved curing oil.

Bottom forms shall remain in place for 14 days after pouring or otherwise as directed by the Superintendent.

Specifically:

Forms for concrete work shall be constructed and erected so as to resist the force exerted on them with the deflection at any point no greater than three (3) mm.

Forms shall be sufficiently tight to prevent the leakage of mortar.

The responsibility for the sufficiency of the whole of the formwork shall rest entirely with the Contractor/local builder.

Forms for exposed surfaces shall be made of dressed timber or metal. Angle fillets shall be used in the angles of side forms.

The junction of soffit and side forms shall be square, and the top edge of the slabs shall be edged with an approved edging tool.

All formed corners shall be chambered nominally 15mm x 15mm unless noted otherwise on the structural or architectural drawings and 12mm deep drip groves shall be provided to the underside of all external concrete edges.

Forms shall be true and conform to the dimensions and levels shown on the drawings.

The interior surface of forms shall be oiled or greased with an approved non-staining mineral oil prior to the placing of reinforcement, and any surplus moisture shall be removed from the forms prior to concreting.

Should any formwork be displaced during concreting or within the periods specified for the retention of formwork, the concrete shall be removed between such limits as the site supervisor may determine, construction joint shall be formed and the section of work shall be reconstructed after the formwork has been strengthened and adjusted.

Minimum stripping times shall be:

- Floor slab, footing, and beam sides – 3 days
- Suspended slab and/or beam soffits – 14 days

4.5 Supply of Concrete

Ready Mix

Approval of Source:

All concrete supplied for any Contract shall preferably be ready mixed concrete. Ready mixed concrete is quite ideal for urban sites where transportation and access to a recommended supplier is readily available.

Batching and Mixing:

Records of batching shall be kept at the mixing site showing weights of the various components of the mix, results of testing carried out to determine the in situ water content of the aggregate prior to mixing, and quantity of cement added.

4.5.1 On-Site Mix Concrete

Note: Coral sand and aggregate shall not be used in the concrete mix.

Method: On Site Mix Concrete

a) Ensure that the mix proportions are suitable for the specific job. See Table 1 below for a guide to the correct mix.

b) Use fresh cement, clean aggregate and water. Cement which has formed into hard lumps and aggregate which contains excessive dust and other foreign matter, or is soft or flaky shall not be used.

c) When calculating quantities of materials required add approximately 10 percent to each amount to allow for losses in storage and for irregularities in sub-foundations and floors on ground, etc.

d) The strength and durability of concrete depend largely on the amount of water used with a given amount of cement. Refer to Table 2 below for a guide to a suitable water content for each bag of cement and the expected compressive strength of concrete. The amount of water added to the concrete should be reduced if the aggregate contains moisture.

e) If the concrete consistency in the first batch is too dry, then reduce the amounts of aggregate in the subsequent batches. Do not add water in excess of the amount recommended. No sloppy batches to be poured.

f) When placing concrete, certain precautions have to be taken to ensure that:-

i) Form work and reinforcement are not damaged or dislodged.

ii) The concrete does not segregate, i.e. the cement paste does not separate from the coarse aggregate.

iii) Placing of the concrete should start from the corners of the formwork and from the lowest level if the surface is sloping.

g) Thorough compaction of the concrete is essential to provide concrete which gives:-

i) Water tightness ii) Maximum strength

iii) Maximum durability and Good appearance

h) Cure the concrete by keeping it damp for seven days. Lack of curing can result in unsightly surface cracking and weaker, less durable concrete.

4.5.2 Method: Mixing Concrete by Hand (without a concrete mixer)

Safety issues:

- Avoid breathing in cement dust – cover your nose and mouth with clothing.
- We concrete releases an alkali which can damage the skin, if it comes into contact with the skin, immediately wash it off with plenty of water.
- If concrete splashes get into the eyes, flush out with water and seek medical attention immediately.

Equipment needed include: A bucket, shovel, wheelbarrow, a clean workable timber platform. It would be best to actually use a bucket for measuring rather than measuring by 'shovel loads', you will get more gravel on a shovel than cement. It is far easier to mix two small piles than one large one.

For smaller jobs or when a concrete mixer is not available, mixing cement by hand would require the following the steps:

- Clean off the working surface, use a brush and hose it down.
- Carefully measure out onto the mixing surface about half the gravel needed into a rough cone shape.
- With a shovel, make a crater in the centre of the heap then measure and add all the cement required.
- Measure out the rest of the gravel and add to the heap forming a cone shape.
- Mix all the ingredients together using a shovel, work around the heap turning the mixture over three or four times to achieve an evenly coloured (grey) mixture.
- With a shovel, form another crater in the top of the heap and add some water.
- Shovel the gravel from the sides of the heap into the central crater and turn part of the heap to distribute the water throughout the mixture.
- Repeat forming the heap, making the crater, adding water, turning the heap until the whole mixture is wetted. As the dry material becomes absorbed with water, flatten out the heap and start 'chopping' across the top with the shovel, move around the heap to evenly mix in the water.
- A good mix should be smooth and plastic, not wet and runny or dry and crumbly. As a guide, keep an eye on the ridges as the top of the heap is ok; if they fill with a watery mix or the ridges disappear, the mix is too wet; if between the ridges stays dry, the mix is too dry. □ When finished wash and brush down surfaces and equipment to remove remains.

Note: One of the common mistakes made when mixing concrete by hand is adding too much water. Add it in small quantities and the heap will suddenly be the right consistence.

If you keep part of the dry mix to one side, you could add this into the heap if it does become too runny.

4.5.3 Concrete Mixtures

Note: Site mixed concrete shall still meet the minimum cement contents given above. (The ratios shown below in Table 1 & 2 is Cement: Sand: Aggregate. For e.g. 1:2:4 mix means the amount of cement is 100% of the volume, Sand is 50% and Aggregates is 25%).

TABLE 1 (Concrete Mix by Weight)		
A	1:1½:3 - (32Mpa)	High structural strength concrete for thin reinforced walls, slender reinforced columns, fence posts, heavy-duty floors, driveways, paths and kerb and gutters in parking areas.
B	1:2:4 - (25Mpa)	Commonly adopted mixture for footings, reinforced concrete footing, beams and internal floor slabs.

TABLE 2 (Concrete Mix by Volume)				
Mixture Nominal Proportion	Cement (40 Kg bags)	Sand m^3	Gravel m^3	Water Litres per bag Cement
A 1:1½:3	8	½	1	20
B 1:2:4	6	½	1	20

Note: If to keep costs down by using more sand, reinforced concrete should never contain less than 270kg of cement (about 0.19m^3) per 1m^3.

Aggregate Size:

20mm maximum size aggregate is suitable for most jobs. A mix of 10 & 20mm size aggregate will be a perfect combination to achieve a denser mix.

4.6 Placing and Compaction Approvals:

Concrete placement shall not commence until inspections have been carried out, outstanding work completed or corrected and approval to proceed given by the site supervisor appointed by the Employer.

All built-in pipes, fittings, guards, block-outs, bolts, reinforcement and other fittings shall be in position before placing is commenced.

Methods of Placement:

Concrete shall be transported from the place of mixing to its final location as quickly as practicable by means which will prevent the aggregation or loss of component materials.

Concrete shall be placed in its final position before perceptible setting takes place. Placing shall be carried out at such a rate and in such a manner that placed concrete which is partially set is not subsequently disturbed. Concrete that is partially set before placing in its final position, or concrete that is contaminated by foreign materials shall not be placed.

Compaction:

All concrete shall be compacted using suitably sized immersion vibrators. For larger projects as in the case of strip footings or floor slabs where there is a bigger surface area it is more ideal to use an immersed vibrator as vibrating fresh concrete helps get rid of unwanted trapped air pockets and to also helps fill all voids.

Any concrete which is re-handled after initial vibration shall be re-vibrated immediately prior to final screeding, to ensure uniform, dense homogeneous concrete throughout its entire mass, including the surface layer.

For small surface areas such in the case of footpaths, paving or footings with a maximum depth of 1m, a 16mm diameter rod 3m in length can be used to continuously poke around the edges and middle of the poured concrete making sure the area is completely covered.

4.7 Finishing

General:

The surface of the placed concrete shall be screeded with a steel shod screed or if not available a flat surfaced timber and brought to a smooth and level surface. Depending on how large the surface area of the concrete slab, steel or timber screeds can be extended with additional pieces to ensure unreachable areas of the concrete pour is made smooth and levelled. After the concrete has hardened it shall be smoothed over with a power trowelling machine to remove all corrugations or irregularities. It is essential that a power trowelling machine is accessible in both urban and rural sites as it ensures a smooth and clean finish to a concrete slab.

- All slabs surfaces shall be steel float finished using a power trowelling machine. A broom finish would be ideal over slab surface to ensure non-slippage of the finished surface.

4.8 Concrete Joints

All joints shall be in the locations shown on the drawings or where approved by the site supervisor. At all joints, before any new concrete is placed, the surfaces of the set concrete shall be scabbled to remove any laitance, loose or porous material and have a clean, rough, hard concrete surface which shall be dampened with a wet mortar at the time of placing new concrete.

No concrete shall be poured against hardened concrete which is less than four (4) days old.

4.9 Moisture Barrier

A moisture barrier shall be placed over the prepared sand bed prior to placement of concrete slabs and slab beams. It shall be high impact virgin grade polythene 0.2mm thick and shall be laid in minimum widths of 1800mm. Joints shall be lapped a minimum of 150mm and continuously taped in accordance with the manufacturer's recommendations. Seal around all penetrations with tape.

Cuts and tears to the moisture barrier shall be similar repaired and the number of penetrations minimised.

At slab steps a second layer of 0.2mm polythene shall be placed over the primary barrier. This layer shall have no joints and shall be protected on its vertical face by a suitable barrier such as plastic coated cardboard or 4.5mm F.C. sheet. The layer shall be carried at minimum of 600mm horizontally past the top and bottom of the vertical face.

4.10 Traffic

Traffic or loads of any kind will not be allowed on any concrete for fourteen (14) days from the day of pouring except that concrete which is fully supported on compacted gravel may carry traffic approved by the Superintendent within seven (7) days of pouring.

4.11 Exposed Steel Protection

The ends of reinforcing bars that are left projecting from poured concrete shall have an approved plastic protection affixed to each end. It shall be the Contractor's responsibility to supply, affix, maintain and remove the protectors.

5 REINFORCING STEEL

5.1 Detail Drawings

Refer to Appendix for Standard Details for this Section.

5.2 Materials

Supply members straight smooth and uniform, free of loose rust, scale, pitching, cracks or other flaws.

All steel metal work shall be galvanised especially in sites where in close proximity to the coastal front to avoid the effect of rusting on the material(s).

5.3 Storage and Care (On Site):

See section 4.6 under concrete works reinforcement.

Note: All steel and metal work should be galvanised coated so that during long periods of storage the material is not damaged from rust before it is used on site.

- Structural steel, posts and other large heavy members should be stacked above ground level on a timber rack and blocked either sides to prevent spreading or tilting.
- For smaller structural steel members it would be ideal to store them safely in containers or bins elevated from the ground so to keep them dry from the rain and excessive heat from the sun.

5.4 Fabrication

General:

Keep on-site operations to a minimum. All steel shall be new and each member shall be free from any butt-welded or other form of splice for the full length between joints shown in or indicated by the drawings unless such splice shall have been shown in the approved shop drawings and/or approved in writing.

Clamps, magnets, holding devices or other setting-up fixtures shall be used in assembling structural members in order to avoid tack welding whenever practicable.

Connections: Make meeting faces of members tight, and edges of members free of gouges and burns. Drill holes and shop fix cleats, lugs, ties and other fixings necessary before applying protective coatings.

Plates: Finish exposed beam and column ends with full width plates, UOS (unless otherwise shown).

Camber: Fabricate beams with any natural camber facing upwards.

Tubular and Other Hollow Members: Where tubular members are to be galvanised, the ends of such members will be sealed by the specific connection detail. To avoid explosive expansion during galvanising, vent holes may be drilled. The vent holes will be 16 diameter and threaded, and latter plugged with 16 diameter galvanised bolt with silicon sealant under the head.

5.6 Fastenings

Standards: These include commercial mild steel bolts and nuts fitted with appropriate washers to conform high strength bolts, nuts and washers. All fasteners to be galvanised coated to ensure prevention from rusting.

Length: Use bolts of sufficient length to prevent any threaded portion of the bolt being within the thickness of the parts bolted together. Project thread of bolt at least one thread through nut but not more than 12mm of the threaded part of the bolt is exposed beyond the nut after the nut has been tightened.

5.7 Welding

General: Perform work by and under the supervision of persons qualified. Grind all welds smooth. All welds to be Category SP, which includes Spot welding and Pattern welding. Other common types of welding done on site would be: Seam welding, Butt welding, Flash welding, Plasma welding and Arc welding.

Surface Cleaning Prior to Welding: Surfaces to be welded shall be free from loose scale, slag, rust, grease, paint and other foreign materials. Surfaces need not be cleaned of Zinc Silicate primer if present prior to welding.

Site Welding: Use of site welds shall be permitted ONLY on steelwork which is fully built in (enclosed from view) in the finished building. Written approval of site welding shall be obtained. Steelwork approved for site welding shall be power wire brushed and given 2 coats of cold-galvanising paint within 2 hours of welding, e.g. DULUX ZINC GALV HS.

5.8 Finishes

Painting: After fabrication, all steel shall be cleaned and protective coated in accordance with the procedures specified.

Coatings Application: All coatings shall be applied to a uniform thickness free from runs and sags and shall be allowed to dry in accordance with Specification.

Thinners: Both prime coat and top coat may be thinned, if necessary, with approximately 10% of the appropriate thinner as recommended by the paint manufacturer.

Protective Coating: Apply protective coatings to clean and dry surfaces as soon as possible after the surface preparation and before any surface deterioration.

Unless otherwise specified, apply one coat of Red Oxide Zinc Phosphate primer such as Dulux Steel Fab ZP to ASK211 Type 2 or 3 to a dry film thickness of not less than 50 microns.

After erection, damaged areas of the primer coating to be touched up with like material to a dry film thickness of not less than 75 microns.

Provide subsequent coatings as specified in the PAINTING section.

5.9 Galvanising

All external steelwork shall be hot dip galvanised.

Surface preparation prior to galvanising shall be in accordance with the finishes section immediately above.

5.10 Handling and Storage

Handling: Handle steelwork without overstress or deformation. Beam and trusses shall be lifted such that bending occurs about the axis for which the member was designed. Lifting and handling all steel, whether painted or not shall be done with synthetic webbing flat slings or bagged chains approved by the site supervisor. All lifting devices shall comply with the Workplace Health and Safety Regulations and the appropriate Australian Standards.

Under no circumstances shall unprotected chains be used for lifting steel.

Storage: Store clear of ground on timber packers and so that water does not lie on it.

Protection: Protect workshop applied finished during handling and erection.

5.11 Erection

General: Steelwork shall be erected in such a manner that no damage will be caused to adjacent structures or property and risk of injury to workmen or public reduced to the possible minimum. Provide temporary bracing as required. The structure shall not be distorted to match any unfair holes. In making connections, drifting of unfair holes will not be permitted. Subject to approval of the site supervisor holes not matching properly may be reamed or drilled out and a larger bolt inserted. No flame-cutting will be permitted during erection.

No member or part of a member which has been bent or distorted shall be erected in that condition. All bolts shall be left tight.

The Contractor/local builder shall allow for and provide any fixings such as holes in steelwork brackets, cleats and bolts that may be required for all other trades even though such are not specifically mentioned herein or shown on the drawings.

Safety: Do not use hemp rope for bracing or other purposes.

5.12 Grouting

Grouting: Grout to be 2:1 (sand: cement) mixed to a dry consistency and tamped under base plates to form a solid base with no air pockets. Neatly bevel edges. Alternatively, an approved non-shrink grout may be used.

6 CARPENTRY

6.1 General Standards and Details

The work under this section consists of all labour, materials and equipment necessary to perform carpentry accordance with the drawings, specification and schedules herein.

All works shall be carried out in accordance with the requirements of NZ Timber Preservation Authority Specification H3 for building timber.

6.2 Detail Drawings

Refer to Appendix for Standard Details of this Section.

6.3 Requirements

6.3.1 Wall Framing

All framing shall be plumb and true and to all dimensions shown. Plates shall be in long lengths, halved at intersections. Plates on concrete shall have a bituminous fabric damp proof course between timber and concrete, and shall be secured to the concrete with M12 galvanised bolts at 1200mm centres. All studs shall be spaced at a maximum of 450mm centres.

Strap over top plates to all studs. All studs to be strapped to bottom plates using 30mm x 0.8mm galvanised steel stud ties (Pryda).

Wall framing shall be 150mm x 50mm or 100mm x 50 Plates, studs and Nogs or as shown on the drawings. Wall bracing must not exceed 5m for timber framed construction. The height of any single storey building is to be no more than 6m to eaves.

6.3.2 Floor Framing

Minimum size for bearers should be 150x75 and joists to be 120x35mm. Typical bearer spacing should be allowed at 1800 min. for a maximum building width of 9m (single or upper storey). Joist spacing are normally 450mm centres min.

Floor boards to be tongue and groove construction or otherwise 100x25mm nominal size. Allow for clear finish (varnish) to floor boards or as specified on drawings.

6.3.3 Roof Framing

Fabricate, install and secure all trusses as detailed. Fix all other roof framing and purlins as shown. All purlins shall be in long lengths, typically 75x50mm minimal size. Rafter size is typically 170x45 (min) and should be limited to 900mm, 1200mm and 1500mm spacing. Provide all strapping and noggings as required for ceiling linings. As in the case for use of trusses, ceiling linings may not be preferable. Allow eaves overhang to be 900mm minimum. Roof pitch to be 25° maximum.

Roof construction must be of simple beam and rafter type with lightweight roof cladding. Colourbond roofing would be more preferable roof sheeting to be used although if the more common corrugated iron roofing is used, ensure it is galvanised sheet steel to avoid corrosion and rust over time.

Provide barge and fascia boards, typically 220x30mm (min) or to sizes shown on drawings.

6.3.4 Trims and Mouldings

Provide trims and mouldings as shown on drawings. Trims and mouldings for door and window frames shall be 65mm x 19mm internal, and 19mm x 19mm external. Cornice moulding shall be 40mm x 10mm or ¼ round quadrant fixed on ceiling plane and wall corners.

6.3.5 Joinery

In the case of Primary and Secondary schools especially boarding schools where there is a rising problem of vandalism, joinery would need to be designed specifically to avoid future wear and tear or damage of different types of furniture. A basic approach would be to construct the frame of the furniture in steel hollow sections and have the outer or top surfaces to be of timber or plywood construction.

6.4 Materials

Timber - All timber to be sourced locally and must be hardwood species such as Vasa (Vitex) and Akwa and preferably be treated (if possible) with preservative process in accordance with the specification standards mentioned above. Vasa, Akwa and Kwila are more common hardwood species used in the Solomon Islands and are more suited for main structural frames of buildings. Vasa is prone to have a resistance from white ants and is structurally strong, therefore recommended to be used for floor framing (bearers/joists) and roof framing (rafters/trusses). Akwa can also be used for main floor and roof framing although more suited for internal wall framing. Although not commonly used but may be accessible in some rural sites, Kwila can also be an alternative for usage in floor and roof framing.

Timber shall be free from shakes, loose knots and gum streaks. Substandard, warped or split timber as well as timber with bruises and tool marks, shall be removed from the site as directed by the site supervisor.

For rural sites, local hardwood timbers can be easily accessed whereas in urban parts of town, timber would need to be assessed according to its strength, durability and water content before it is used for construction.

6.5 Storage and Care (On-site)

If timber is to be stored before delivery to site, they should be kept in conditions that will maintain the correct moisture content. All timber should be kept stored under reasonable shelter or in a storage shed that is clean, dry and well ventilated.

- Stack timber on adequate bearers with their length equal to the width of the pack.

  Arrange the bearers so that the timber will flat, otherwise it may warp.

- Cover the stack with waterproof sheeting to keep off the rain, but ensure the free circulation of air to allow drying. If timbers get wet restack them with thin sticks placed directly in line with the bearers to allow them to dry out. The covering is also important to provide protection against direct sunlight.

6.5.1 For structural components

- For structural components such as trussed rafters, timber frame components, joists etc, store above ground on levelled trestles, stillage or other suitable bearers.
- For both timber frame panels and trussed rafters try to schedule deliveries to try to minimise storage on site.

6.5.2 For joinery, flooring and factory finished products

- Handle external joinery products in a similar way to structural components.
- If possible keep internal joinery and flooring in a heated dry store to maintain the correct moisture content. If that is not possible, use a weather proof storage, providing it is well ventilated
- Priming offers little protection against the uptake of moisture. Should the horns or any other sections of primed timber be cut-off, re-prime the exposed bare timber.
- Similarly, in the case of timber that has been preservative treated, all cut ends, borings, notching's etc. should be liberally swabbed with preservative.

6.5.3 For sheet materials:

- Avoid external storage wherever possible to protect from wetting and high humidity. Do not store 'interior' quality boards outside.
- Store sheets flat and dry, off the ground away from moisture contact. Keep any protective wrappings on. Support the sheets on battens at maximum 600mm centres.
- With sheets 6mm thick or less support them on a thicker sheet (18mm) under the whole area.
- Bearers should all be the same thickness and horizontally aligned to avoid distortion. Ideally sheets should be 'sticked' (and aligned with the bearers) every 10-15 boards to allow air flow.
- Acclimatise sheets manufactured with a low moisture content for approx. 48hours in their final in-service environment. This allows the moisture content of the sheet to rise as close as possible to their final in-service level.

Seasoning – All timber shall be thoroughly seasoned. All framing and exterior timber shall be tantalised.

The most common form of seasoning timber is Natural (Air). **Air seasoning** is the method used when the timber is stacked in open air. It requires the following:

- Stacked stable and safely with horizontal spacing of at least 25mm.
- Vertical spacing achieved by using timber battens (piling sticks) of the same of neutral species. The piling sticks should be vertically aligned and spaced close enough to prevent bowing say 600mm to 1200mm max centres.
- End of boards sealed by using a suitable sealer or cover to prevent too rapid drying out via the end grain.
- The stack raised well clear off the ground, vegetation, etc. to provide good air circulation and free rising damp, frost, etc.
- Overhead cover from effects of direct sunlight and driving weather.

The time required for seasoning will depend on the species and climate of the surroundings. Some softwoods in tropical climates require only 6 weeks, while some of the hardwoods need at least 25 weeks.

Stack all framing timber and weatherboards on skids and cover with tarpaulins. All finishing lines shall be in a shed or inside the building.

All screws shall be of approved manufacture of proper gauge and length and shall match metal of fitting.

Walls - Walls shall be built to the heights shown on the Drawings. The plates shall be fixed with cast in M12 bolts.

6.5.4 Roof Trusses

All roof trusses shall be built on a flat and true surface in a method acceptable to the site supervisor. The size of timber used for architectural trusses is typically:

- 150mm deep for chords;
- 100mm deep for webs;
    - 75mm (min) thick for single member trusses.

6.5 Fastenings

All nails, bolts, nuts, washers etc. shall be galvanised after manufacture.

Screws shall be approved non-corrosive suitable for the fittings to be secured.

6.6 Diagonal Bracing

Diagonal bracing shall be continuous galvanised steel strap, and shall be provided in walls and roof planes where shown. For buildings within 1 kilometre of the coast; exterior exposed strap shall be from marine grade stainless steel.

6.7 Hardware

Supply and fit all hardware as scheduled and shown on drawings. All screens or fastenings are to be of like materials.

6.8 Windows

For both urban and rural sites it is best to avoid using Louvre blade glass for window fittings especially for usage in Early Childhood and Primary and Secondary schools (classrooms and boarding schools especially) as to prevent the ease of its breakage and its safety towards children/students.

Windows shall be generally covered with galvanised weldmesh fixed with 50mm x 25mm timber retaining strip unless indicated otherwise.

Windows to the general science / food & textile building should all to be covered with galvanised weldmesh.

6.9 Doors

External doors shall be 40mm thick solid core doors

Internal doors shall be 35mm thick hollow core doors faced with 6mm plywood on both sides, and edge stripped all around.

Minimum standard door widths are 720mm, used commonly for sanitary compartments, 820mm for internal doors and 920mm for external doors. Minimum door height should be kept at 2100mm.

6.9.1 Door Frames

Doorframes shall be either 190mm x 40mm, 140mm x 40mm or 90mm x 40 as required. Fixing as per window frames. All doorframes to have 40mm x 12mm doorstops glued and nailed to frame.

6.9.2 Door Hinges

All doors to be hung on 3 off 100mm stainless steel butt hinges. External doors to have fixed brass pins. Internal Doors to have loose pins.

6.9.3 Locks

External doors to have 1 set single dead lock and 1 set privacy lock or similar site supervisor approved lock.

7 ROOFING

7.1 General

Roof the buildings with a watertight system as shown and specified, including all necessary accessories, roof plumbing, flashing, roof drainage, and the like. Ensure installation is in accordance with cyclone conditions.

The system shall include adequate means of dealing with vapour pressure, condensation, and corrosion.

7.2 Inspection

Give notice that the following are ready for inspection, prior to complete installation:

a) Substructure

b) Sisalation – Roof Insulation

c) Guttering when required

d) Accessories

7.3 Materials and Workmanship Generally

Carry out all necessary operations for the satisfactory performances of the roof, including cutting at junctions, trimming around penetrations and flashing.

Protect the roofing system from damage throughout the works. Avoid construction leads on the roof. Clean off debris and loose material from completed sections at the end of each day's work and on completion of roof. Keep the rainwater systems when required free of foreign matter and leave them unobstructed on completion.

Roofing sheets shall be provided in one continuous length from ridge to eaves.

The installation shall be in strict accordance with the manufacturer's instructions.

7.4 Roof Sheet Protection

During the handling, transporting and storing of roof sheet, protect the corners, edges and ribs from damage. Store sheets under cover clear of the ground and away from risk of damage by building operations. Avoid contact with cement, lime and abrasive dust. Prevent water from being drawn between stacked sheets by capillary action. Surface discolouration or other damage resulting from neglect of protective measures shall be cause for rejection.

7.5 Expansion and Contraction

Provide for thermal movement in the roof installation, including movement in joints and fastenings, particularly in sheet metals and thin sections.

7.6 Sisalation

Roof sisalation shall be double sided laid over bird mesh and secured to purlins with staple nails.

Sisalation shall be provided to all roof area except at overhang and cable ends.

7.7 Roof Covering

Roof Sheeting: 24 gauge corrugated Zincalum galvanised iron sheeting.

Sheeting to be lapped 1&1/2 ribs, generally away from prevailing weather.

Flashing and Capping shall conform to building standards and be made from steel sheet of minimum base thickness 0.5mm for 6300 steel or 0.60mm for 6250 and have a galvanised finish.

Turn up tray position under ridging. Neatly join flashings at junctions and ensure that all are watertight. Colour to match roof cladding

Roofing and Ridge Capping and Fasteners to be adequate for maximum roof cover. Fasteners shall be fixed through the sheeting crest over each purlin support. Fasteners to be adequate for the maximum roof cover. Colour to match roof cladding.

Fastening Schedule. All roof fastenings shall be strictly in accordance with the manufacturer's written instructions, the Solomon Islands National Building Code, and the Solomon Islands Home Building Manual.

Fasten roofing sheets to each purlin at every second corrugation.

Flashing Fasteners. Generally fasten through the roof sheeting to the supports using the same fastens and spacing as the roofing.

Barge Moulds. Fix to timber barge boards with 75 x3.75mm roofing nails with neoprene sealing washers. Space maximum 600mm centres.

Moulds to be same as roof colour.

7.8 Metal Separation

Prevent direct contact between incompatible metals, and between green hardwood or chemically treated timber and aluminium or coated steel, by either:

a) Applying a suitable anti-corrosion low moisture transmission coating to contact surfaces.

b) Separating contact surfaces with a suitable plastic/bituminous felt separation layer.

c) Do not use lead in direct contact with roofing.

8 PLUMBING

8.1 Water Tank Supply

Where indicated on the drawings, supply and install on a reinforced 100mm concrete circular or square slab on 390 x 190 x 140 twin cavity concrete block work walls reinforced with D12 @ 400mm centres both way tank stand.

Supply Aluminium Water Tank of 800 gallons (4000 litre) capacity, complete with provisions for overflow, secured to the concrete base prior to filling with water.

8.2 Gutters and Downpipes

Supply and fix all gutters and 100mm diameter downpipes to the sizes and in the positions as shown on the drawings.

Support eaves gutter on galvanised U shape galvanised steel brackets, spaced at maximum 800mm.

Suitably rivet and silicone seal all joints, and provide as directed non-ferrous restraining screws at bracket locations.

Fall all gutter at a minimum of 1: 200 to the downpipes. Ponding in the gutter shall not be accepted.

Note: P.V.C. gutters not permitted.

Downpipes shall be 100mm UPVC Pressure Pipe Class B conforming to Australian or NZ Standards. Supply downpipes complete with all fittings. Screw fix pipes with PVC or galvanized steel brackets into wall.

9 PAINTING

9.1 General

The work required under this section consists of all labour, material and equipment necessary to furnish and apply paint and other coverage to all surfaces (unless otherwise noted) in accordance with the drawings, specification and schedule herein.

9.2 General Requirements Combinations

Do not combine paints from different manufacturers in a paint system. For clear timber finish systems, use only the combinations of putty, stain and sealer recommended by the manufacturer of the top coats.

Delivery: Deliver paints to the site in the manufacturer's labelled containers

Tinting: Use only products which are colour tinted by the manufacturer or supplier.

Putty: Oil-based or polymeric based. Putty for timber finishes: Lacquer or water based. Do not use oil based or glazing putty.

Spraying: All paint shall be applied by brush or roller. The use of spray equipment is not permitted without prior written approval from the site supervisor.

Adulteration of Paint: Where paint supplied by the manufacturers is found to be adulterated in any way whatsoever, the Contractor/local builder must replace such defective paint with a new batch whether such defective paint is the subject of a warranty claim against the manufacturers or not.

Drying Times: The contractor shall allow the following minimum drying times for paints:

Undercoats: 24 hours prior to enamelled finishing coat being applied.

Enamel: 24 hours prior to the application of the second coat.

Number of Coats: Unless specified as one coat or two coat systems, each paint system consists of not less than three coats. Provide additional coats if necessary to:

Prepare porous or reactive substrates with prime or seal coats consistent with the manufacturer's recommendations;

Achieve the total film thickness or texture; or achieve a satisfactory non-transparency.

Anti-Fungal: NOTE: All acrylic paints to have anti-fungal compound included.

Inspections: Give adequate time of notice to the Employer so that inspection of work may be made at the following stages:

(a) Completion of preparation of surfaces

(b) After application of undercoat

(c) After application of each subsequent coat

9.3 Storage and Care (On-site)

- Before storing paint mark each paint container with a permanent marker stating – name of paint, code, colour and which room/surface it was used for. This is for easy referencing when you want to use the paints again at a later date.
- Store the cans on a dry surface, off the ground, or on concrete floors – to keep the cans from rusting.
- It is ideal to keep the cans in a cool area but don't allow it to freeze otherwise it will separate and become unusable.
- Keep the cans stored away from direct sunlight, or other heat sources that will speed up the paint's deterioration. Sheds or garages should be avoided in storing paint cans. Recommended ideal places include a utility closet or a laundry room.
- Keep paint left overs in smaller jars/containers as paint stores better and longer in full containers where there is less contact with air.
- To create a tighter air seal and prevent metal-to-metal corrosion, use a plastic bag and cut out a circle larger than the opening of the tin can, and use it as a gasket under the lid.
- When opening paint cans for reusing, check that the paint "skin" that forms at the top of the can opening is removed with other debris before the paint is mixed thoroughly. Mix paint with a clean piece of off-cut timber and ensure each paint uses a separate timber piece for mixing the paint.
- When closing the lid of the paint use a rubber mullet to properly seal the lid tight not a hammer as it may distort the lid and disrupt the air seal. Another alternative would be to place a block of timber on top of the lid and hammer the block to set the lid firmly.
- Also wipe clean all paint residues from the groove/rim before closing the lid, so to make the lid easier to open when in next use and also allow air in by making the lid fit tighter.

9.4 Protection

Remove door furniture, switch plates, light fittings and other fixtures before starting to paint, and refit in position undamaged on completion of the installation.

9.5 Substrate Preparation

All finishes shall be sanded using appropriate grade sandpaper's ensuring that all raised imperfections are removed. Sanding of all surfaces shall also occur during subsequent coats. Each coat is to be allowed to dry and be rubbed down with glass or garnet paper of suitable grit before the next coat is applied. Use filler tinted to match the substrate if the finish is transparent.

9.6 Priming Before Fixing

Apply one coat of wood primer (including end grain) to the back of external fascia boards, timber door and window frames, bottoms of external doors, associated trims and glazing beads before fixing in position.

9.7 Paint Application

Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Ensure each coat of paint or clear finish is uniform in colour, gloss, thickness and texture, and free of runs, sags, blisters, or other discontinuity.

All paint is to be applied by brush or roller. Where paint is applied by brush it is to be laid off so that no brush marks show.

9.8 Previously Painted Wall and Ceiling Surfaces

Previously painted surfaces will be prepared by washing down using a detergent solution such as Sugar Soap or "tricleanium" to remove all dirt and grease prior to minor stripping, stopping and repainting.

9.9 Woodwork

Previously painted and/or stained woodwork is to be thoroughly cleaned down with lime water or a detergent solution prior to stopping, re-staining and varnishing and/or repainting. Restaining and varnishing is to be done as separate operations.

a. Dry Stripping

Any loose or flaking material that cannot be removed by washing off, must be dry stripped.

9.11 Stopping

Wall and ceiling cracks are to be properly cut out and stopped up with neat gypsum plaster, or an appropriate cellulose filler. Loose stopping over nails to plaster sheets is to be removed and the nail punched before re-stopping. All loose plaster sheets are to be re-nailed with galvanised clouts, punched and stopped.

All nail holes and cracks in painted woodwork are to be stopped with wood putty or ready mixed wood fillers. All nail holes and cracks in stained woodwork are to be stopped with wood putty stained to match the existing colour of the woodwork or ready mixed coloured wood fillers. Wood putty or fillers used are to be of a quality proprietary brand.

All surfaces must be rubbed down between coats. Any surfaces that have a high gloss paint retention must be rubbed down with wet and dry carborundum paper before the application of any paint.

9.12 Painted Woodwork

Apply one coat of undercoat paint and one coat of gloss finishing paint to all previously painted surfaces. Where the scope of works calls for repainting or re-staining of window frames this means the complete frame and sashes, irrespective of the size configuration or the number of sashes.

9.13 Unpainted Woodwork

Unpainted woodwork or woodwork previously sanded back to bare wood, shall be primed or spot primed as required.

9.14 Water Stains

Water stains on ceilings and wall surfaces must be sealed with one coat of stain sealer before the application of matt or low sheen acrylic paint, or flat enamel.

9.15 Hard Board Surfaces

Hard Board surfaces shall be sealed with one coat of an approved acrylic or solvent borne sealer as directed by the site supervisor.

9.16 Concrete Surfaces

Concrete surfaces shall be sealed with two coat of an approved acrylic (water based) sealer as directed then 2 coats of finishing coat.

Where required, concrete slabs shall be finished with two coats of an approved concrete sealer.

9.17 Previously Painted Surfaces

Where previously painted surfaces require sealing, the surface shall be thoroughly cleaned and then sealed with two coats of an approved acrylic (water based) sealer as directed.

9.18 Treatment of Mould

The method of treatment and subsequent repainting will be as follows:

i) Wash down mould with clean water containing detergent (half a cup of detergent mixed with 8 litres of water), changing the water frequently. Wash out the cleaning rag frequently.

ii) Apply bleach solution (one part Hydrochloride bleach to three parts of clean water) to be left on the surface for thirty minutes.

iii) Wash off with clean water.

In heavily affected cases treat mould with an approved anti-mould solution and allow to dry for 24 hours (minimum).

Washing down rags must be regularly washed out to prevent contamination and spread of spores.

The washing and bleach treatment will in no way dispense with the necessity to wash walls and ceilings that is regarded as normal preparation.

9.19 Gloss Level and Colour Scheme

The colour scheme to be determined by schools Provide paints as follows:

i) Externally		
Element	Paint System	Colour
Timber doors, including lower and top edges, sills, spandrels mullions, door frames, timber doors etc., exposed, structural elements, barge boards, lattice, free standing posts, fascia expose roof overhang framing and supports members, gable linings, gable vents, finial and	Apply 1 coat pink primer, 1 coat undercoat and two coats exterior gloss enamel. Prime concealed laps as stated in Section CARPENTER	(to be agreed with MEHRD Project Manager)
i) Externally		
support, metal roof brackets where exposed		
ii) Internally		
Rear of sills, mullions, frames, external doors, internal doors, including top and bottom edges, skirting	1 coats acrylic primer and 2 coats interior acrylic full gloss	(to be agreed with MEHRD Project Manager)
Plywood Joinery	3 coats Polyurethane semigloss	(to be agreed with MEHRD

		Project Manager)
Steelwork	2 coats of metal gloss enamel over the primer	(to be agreed with MEHRD Project Manager)

NOTE: The discharge of toxic fluids and other wastes, etc, into the sewerage or drainage system, is strictly prohibited.

9.20 Paint Type

All paint products shall be Dulux or an equivalent quality product approved by the site supervisor.

ANNEX E: PROJECT SITE LOCATION

ANNEX F: DRAWINGS

ANNEX G: WORK SCHEDULE

VAVALU CONSTRUCTION

WORK SCHEDULE

Contract Value **$290,000.00**

LOT 6 - Construction of Spectator Fence for HCC Kukum Field

ID	WBS	TASK NAME	%	AMOUNT CLAIMED	RETENTION Withheld 5%	Witth-holding tax 7.5%	Payable Amount
		PAYMENT 1 - Mobilization (50%)	50%	$ 145,000.00	$ 7,250.00	$ 10,875.00	$ 126,875.00
1	1	Excavation					
2	2	Concrete					
3	3	Steel Works					
4	4	Miscellenous					
5	5	Finishes					
		PAYMENT 2 - 40%	40%	$ 116,000.00	$ 5,800.00	$ 8,700.00	$ 101,500.00
6	6	Clean Up					
7	7	Demobilization					
8	8	Hand Over					
9	9	Defects Liabilities Period					
		PAYMENT 3					
10	10	10% and RETENTION (One Month Defect Period)	10%	$ 42,050.00		$ 3,153.75	$ 38,896.25
		GRAND TOTAL			$ 13,050.00	$ 22,728.75	$ 267,271.25

ANNEX H: AGREEMENT TO PRICE REDUCTION